



TIPPING TRAILER

ANV-400



Instructions for use

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The manufacturer **reserves** the right to implement technical changes and innovations not affecting the operability and safety of the device. These changes may not show in these Operating Instructions. Typographical errors reserved.

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 scale agricultural and municipal technology system supplied by **KNIGHTS a.s.**

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

1.1 Note well

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

Safety instructions stated in this manual do not cover all possible conditions and situations which may occur in practice. Safety factors such as a reasonable approach, care and caution are not included in this manual but it is assumed that each person using the device or doing any maintenance work on it is sufficiently endowed with these.

Only mentally and physically fit persons may use this device. Should this device be used commercially, the owner of the device is bound to provide the operators with work safety training and instruct them in operation of the device and keep records of such training. **The owner must also implement the so-called categorization of work according to respective national legislation.**

If any piece of information contained in the manual is unclear to you, please contact **your dealer** or directly the **device supplier**.

Operating instructions provided with this device form an integral part of it. They must be available at all times, stored at an accessible place where they cannot get destroyed. In the case the device is sold 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 device, if the above-mentioned conditions have not been met.

The manufacturer bears no responsibility for the damage caused by unauthorized use, inappropriate operation and for any damage caused by any modification of the device 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 manual by the following warning symbol:



	If you see this symbol in the manual, carefully read the statement following after it!
	This international safety symbol indicates important instructions concerning safety. If you see this symbol, be aware that there is a risk of injury to you or other persons and carefully read the statement following after it.

Table 1 : Symbols

2 Operational safety

2.1 Safety regulations

- ① The combination of the motor unit with trailer may only be operated under the following conditions:
 - under reduced visibility: ban on all roads
 - under normal visibility:
 - operation is prohibited on primary and secondary roads with the exception of perpendicular crossing
 - operation is allowed on tertiary roads
- ① Before the use of the ANV-400 trailer, it is necessary to perform the technical inspection of the vehicle, especially:
 - securing the connecting pin to the tractor
 - check of the correct function of the brakes
 - tightening of the screws of the split drawbar, wheels
 - tyre pressure
 - separate inspection of the drive unit
- ① The towing hitch connection pin must always be secured by the cotter.
- ① When stationary, the trailer connected with the tractor must always be secured by the handbrake.
- ① Never exceed the maximum trailer load and the total weight of the vehicle combination. The trailer must not be overloaded in excess of its maximum permitted payload (see the technical data table).
- ① When moving from a slope, always have the 1st or 2nd gear engaged and the wheel latches in the locking position.
- ① Monitor the braking efficiency carefully. If low efficiency is observed, it is necessary to adjust the brakes immediately.
- ① Be particularly careful especially in steep terrain out of firm roads.
- ① It is forbidden to hop on or off the trailer while moving.
- ① It is forbidden to transport people on the trailer.
- ① To fasten the bulk materials loaded on the trailer, use sufficiently strong and tested ropes designed for that purpose.
- ① Watch out for possible quick tilting of the body (the front part of the body rises upwards) if the centre of gravity of the load is shifted behind the axes of the hinges.
- ① The maximum climbing ability of the trailer with connected tractor is 13 degrees. The climbing ability means that the fully loaded trailer with the tractor can be operated on slopes with an inclination of 13 degrees.
- ① Do not start the motor of the tractor indoors! The exhaust gases contain poisonous carbon monoxide. Inhalation may lead to loss of consciousness or even to death.
- ① During operation, the exhaust system of the motor is heated to a very high temperature, which it maintains for a long time after switching off. Therefore avoid contact with surrounding objects - there is a risk of fire. When touching any hot part, there is a risk of severe burns!
- ① Petrol is an extremely flammable and, under certain circumstances, highly explosive substance! Refuelling shall be performed in a well ventilated area with the motor off; open fire must be avoided! Do not smoke! When refilling petrol, make sure that no leak occurs and it is not spilled over the motor parts! Otherwise dry the affected parts or wait until the petrol evaporates!
- ① All repairs, adjustment and lubrication of the device must be performed when the device is at a standstill.
- ① Check regularly the condition of the tread pattern and sides of the tyres.
- ① In case of any crack or bulge, the trailer must be taken out of operation and the tyre replaced with a faultless one.
- ① When working with the device, use sturdy shoes, tight clothing and working gloves.

2.2 Safety labels

The user is obliged to keep the labels on the device in a legible condition and to replace them if they are damaged.

Position:	Number:	Description:
Fig. 7 Safety labels – body, bottom right side	1 - 5	Caution - Before using the device, read through the operating instructions.
	2 - 6	Danger of running over people – Passenger transport prohibited; people may only be transported on places designated for that purpose.
	3 - 7	Danger of crushing - Keep safe distance
	4 - 8	Caution - Maximum permitted safe climbing ability
	9	Maximum permitted speed

Table 2 : Safety labels

3 Basic information

3.1 Use of the device

The **ANV-400** trailer is designed for the transport of various materials, objects and tools in combination with the GLOBAL Multipurpose Mini Tractor. The towing hitch is Z-01.

3.1.1 Technical data

Description	Unit	Value
Length x width x height of the trailer	mm	2853 x 1337 x 987
Internal dimensions of the body / height of the loading platform above ground	mm	1330 x 1020 x 296 / 398
Wheel track	mm	1179
Weight	kg	125
Rims / Tyres	-	5.00-12 / 5.00-12
Tyre inflation	kPa	300
Small tractor	type	GLOBAL
Drive unit	type	PJGCV160, PJGCV190, PJXP200
Total length of the combination	mm	3600
Wheelbase of the combination	mm	2290
Max. technical / permissible weight of the combination (small tractor+trailer+driver+load)	kg	770
Max. technical / permissible weight per axle	kg	245/245 ; 570/570
Max. load capacity (load only - w/o the driver 75 kg)	kg	400
Maximum permitted speed of the combination	km.h ⁻¹	13

Table 3 : Technical details

3.2 Description of the device and its parts

Fig. 1

The **ANV-400** trailer consists of the chassis **1** and body **2** with folding and removable end **3** secured by two locking levers **4**. The connection to the chassis is provided by means of swivel hinges **5** screwed to the cross beam of the axle **6** and by means of the locking pin **7** in the front part. The body suspension enables the platform to be tilted by approx. 30 degrees backwards. The body is equipped with reflectors on the front end, sideboards and rear end. The chassis is tubular, self-supporting, split. The basis of the chassis is a longitudinal tube, which is split into two halves connected with screw connection – drawbar **8** and axle **6**. The drawbar **8** bears the seat **9** and closing mechanism **7** for tilting the body. The drawbar is equipped with the swinging extension **10** in its front part, by means of which the trailer can be connected to the small tractor. This swinging part enables the trailer to be tilted transversely relative to the tractor. The axle **6** is made of a thick-walled tube. Axle pins are on both sides of the axle. The attachment of the body **5** is also mounted on the axle. The brake support plates **11** with jaws and the brake drums **12** in anti-friction bearings are welded on the pins. The wheels **13** with steel plate non-split rim are attached to the brake drums with four screws. The tyres with the road pattern are equipped with the inner tubes. In the front part of the drawbar **8** there are welded the footrests **14** and the brake control. The brakes are mechanical and they are controlled from the driver's seat by the foot pedal **15** or by the handbrake lever **16** located under the seat.

4 Operating instructions

! If the operating instructions contain "left side" or "right side", it is always from the view of the sitting driver.

4.1 Device assembly

! Request unpacking of the device and training from your dealer as a part of the pre-sale service!

! Owing to the weight of the device, its assembly must be performed by two persons

4.1.1 Device assembly procedure

The **ANV-400** trailer is delivered unassembled in a cardboard box. During assembly, proceed as follows.

Fig. 2

1. **> 1** Use the four M10x25 screws **1**, four 10.2 spring washers **2** and four M10 nuts **3** to screw the central tube **4** to the axle **5**. Tighten the screw connections properly with a torque of 45 Nm.

- >2** Turn the body **6** upside down and lay it on clean flat surface. Unlock and tilt the body locking lever **7**. Turn the assembled chassis so that the brake key control levers point upwards and lay the chassis onto the body. Use the M10x25 screws **8** to screw the hinges **9** to the body **6**. Tighten the screws properly with a torque of 45 Nm.
- >2** Use the M8x25 screw **11**, the 8.4 washer **12** and the nut **13** to screw the body securing chain **10** to the foot on the bottom of the body **6**.
- >3** Run the end of the brake rope **14** through the hole in the lever of the left brake key **15** and secure the eye with the larger clamp **16**. Run the other end of the rope through the hole in the lever of the right brake key **17**. Again, secure the eye with the larger clamp **16**. During assembly, tighten the rope so that both brakes are braked (after several presses of the brake pedal, the eyes align and thus the brakes are released). After the mounting of the rope, the brake pedal must be inclined from the vertical plane by no more than 25° forwards.
- >3** Run the end of the shorter rope **18** through the hole in the lever of the handbrake **19** and secure the eye with the clamp **20**. Run the other end of the rope through the holes in the brake rod yoke **21** and again secure the eye with the clamp **20**. The rope shall be mounted on the lever with the brakes released.

0 Tighten the nuts of the cable clamps properly!

0 After approximately twentieth braking, it is necessary to check and adjust the function of both brakes!

- >4** Unscrew the ring **22** from the central tube **4**, put on the swinging part of the drawbar **23** and screw the ring **22** back. Tighten the screw connection properly with a torque of 24 Nm.
- >5** Use the M10x25 screws **24** (4 pcs.) to screw the wheels **25** to the brake drums **26**. Tighten the screws properly with a torque of 45 Nm.
- >6** Turn the assembled trailer onto the wheels. Screw the spring of the seat **27** to the central tube **4** by means of the M12x30 screws **28** (2 pcs.), 12.2 spring washers **29** (2 pcs.) and M12 nuts **30** (2 pcs.). Tighten the screw connections properly with a torque of 84Nm.
- >6** Screw the seat **31** by means of the M10x25 screws **32** (4 pcs.) to the spring of the seat **27** to the position suitable for your physique. Tighten the screws properly with a torque of 45 Nm.

4.2 Working with the device

4.2.1 Connection to the small tractor

0 The towing hitch connection pin must always be secured by the cotter.

Fig. 3 The trailer shall be connected to the small tractor by means of the Z-01 towing hitch. The diameter of the connection pin is 16 mm and it must not be replaced with a no-original model.

- Move the wheel latches of the tractor to the manual travel position (see the manual of the small tractor or the gearbox)
- Reverse to the trailer **2** to a suitable distance between the towing hitch **4** of the small tractor **1** and the swinging part of the drawbar.
- Stabilize the small tractor **1** by means of the ON-01 supporting leg **3**. Lift the trailer by the swinging part of the drawbar and insert the eye of the swinging part of the drawbar between the feet of the towing hitch so as to centre the hole in the upper foot against the hole in the eye of the swinging part of the drawbar.
- Insert the pin **5** to the upper foot of the towing hitch and the first third of the length of the drawbar swinging part. By moving the small tractor **1** lightly in all directions together with pressing on the pin **5** from above, make the pin go through the bottom foot of the towing hitch.
- Secure the pin with the cotter.
- Remove the ON-01 supporting leg **3**.

4.2.2 Before driving

0 The driver is obliged to perform a routine check of the trailer before driving.

The check shall focus especially on the securing of the body tilting, securing of the rear end, tightening of the screw connections and brakes. For reliable operation and long service life of the tyres, make sure to inflate them correctly to the prescribed pressure.

4.2.3 Driving

The driving with the trailer is completely normal, the special driving characteristics of the combination are given by the tractor. Therefore take special attention especially when reversing and turning.

0 Never exceed the maximum trailer load and the total weight of the vehicle combination.

0 Be particularly careful especially in steep terrain out of firm roads.

0 When moving from a slope, always have the 1st or 2nd gear engaged and the wheel latches in the locking position (the wheels are "fixed").

4.2.4 Tilting the body and the rear end

The body **3** can be tilted after removing the cotter **1** of the body tilting lever **2** and tilting the lever sideways - see *Fig. 3*.

⚠ Watch out for possible quick tilting of the body (the front part of the body rises upwards) if the centre of gravity of the load is shifted behind the axes of the hinges.

The rear end **1** of the trailer is tiltable and removable. The securing against tilting when driving is provided by means of two securing levers **2**. The end can be removed by sliding the hinges to the right and back in the direction of the arrows in *Fig. 5*.

5 Maintenance, care, storing

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

⚠ The maintenance, adjustment, cleaning and repairs of the device must be performed when the device is at a standstill.

In order to secure 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 device 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, check the tightness of the screw connections.

5.1 Lubrication of the device

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

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

5.1.1 Lubrication points

Lubrication point - description	Interval within season	After season	Lubricant	Figure	Note
Brake pedal shaft	at least 3 times	yes	Spray oil or Vaseline	<i>Fig. 6</i>	Sprinkle into the gap between the lever and the lever pin housing
Brake key pins	at least 3x	yes	Spray oil or Vaseline	<i>Fig. 6</i>	Sprinkle into the gap between the pedal housing and pin

Table 4 : Lubrication intervals

5.1.2 Brake adjustment

⚠ Monitor the braking efficiency carefully. If low efficiency is observed, it is necessary to adjust the brakes immediately.

To remedy low efficiency, tighten the brake rope according to item 4. a 5. in the Chapter 4.1.1.

5.1.3 Tyres

⚠ Check regularly the condition of the tread pattern and sides of the tyres.

⚠ In case of any crack or bulge, the trailer must be taken out of operation and the tyre replaced with a faultless one.

The worst for the tyres is to overload them. The tyres are the most sensitive point of the entire trailer and therefore the payload must not be exceeded.

The recommended pressure is **300 kPa**, the maximum permitted pressure when utilizing the maximum load capacity of the trailer is **330 kPa**.

5.2 Storing

Prior to long-term storing (e.g. at the end of a season) remove all dirt from the device. Prevent unauthorized persons from access to the device. Protect the device against climatic conditions but do not use impermeable protection to prevent excessive corrosion it may cause.

We strongly recommend the following steps:

- Remove all impurities and/or plant residues from the device.
- Repair any paint damage.
- Implement post-season device lubrication **Table 4**.
- Inflate the tyres to the prescribed pressure.

5.2.1 Washing and cleaning the device

ⓘ When washing and cleaning the device 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.

ⓘ If you are washing the trailer with the small tractor connected, provide sufficient protection of the motor from water. During starting the electric system of the motor could malfunction.

ⓘ You may use a pressure washer for washing the trailer alone.

5.3 Disposal of packaging and the device at the end of its service life

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

When disposing of the device at the end of its service life we recommend you proceed as follows:

- Demount from the device all parts that may still be used.
- Dismantle the tyres from the rims and dispose of them in a waste collection centre – the tyres represent hazardous waste.
- Demount plastic parts and non-ferrous metal parts.
- The remaining device and demounted parts are to be disposed of according to national laws and decrees concerning waste disposal.

5.4 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.

	Field	Description
	Type	Device type designation ANV-400
	Nº	Unique serial identification number: 1003200056.0514.00001 (product.period.sequence)
	CNº	Business (order) number: 4410

Table 5: Nameplate - example

6 Address of the Supplier

KNIGHTS a.s.	Phone:	(+420) 257 212 875
Ke Kapličce 387	Fax:	(+420) 241 400 549
252 41 Dolní Břežany	E-mail:	knights@knights.cz
Czech Republic	Web:	www.global-tractor.com

7 Attached illustrations

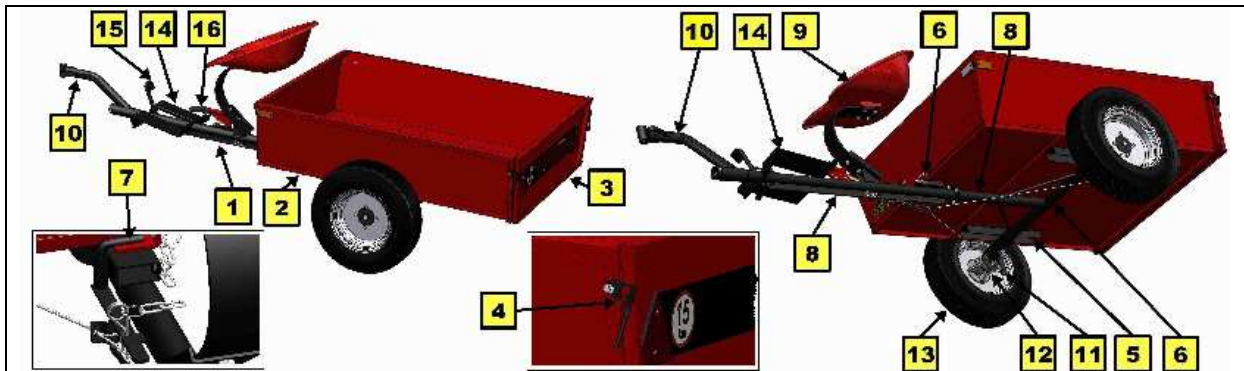


Fig. 1 : Description of basic parts of the device

- | | |
|--|---|
| <ul style="list-style-type: none"> 1) Chassis 2) Body 3) Removable and folding end 4) Locking levers 5) Swivel hinges 6) Axle cross beam 7) Locking pin 8) Drawbar | <ul style="list-style-type: none"> 9) Seat 10) Swinging part of the drawbar 11) Brake support plate 12) Brake drum 13) Wheel 14) Footrest 15) Brake pedal 16) Handbrake lever |
|--|---|

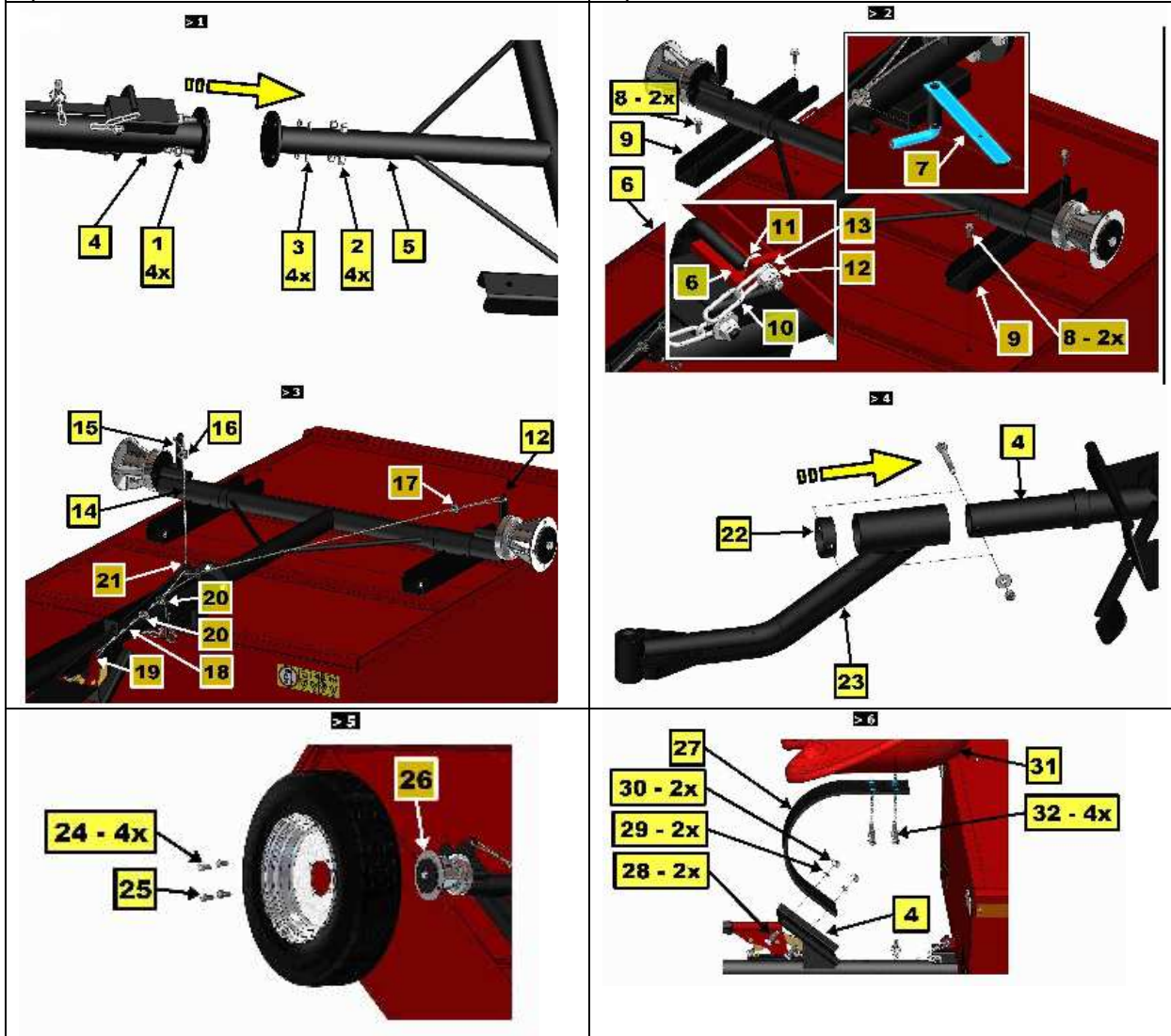


Fig. 2 : Device assembly

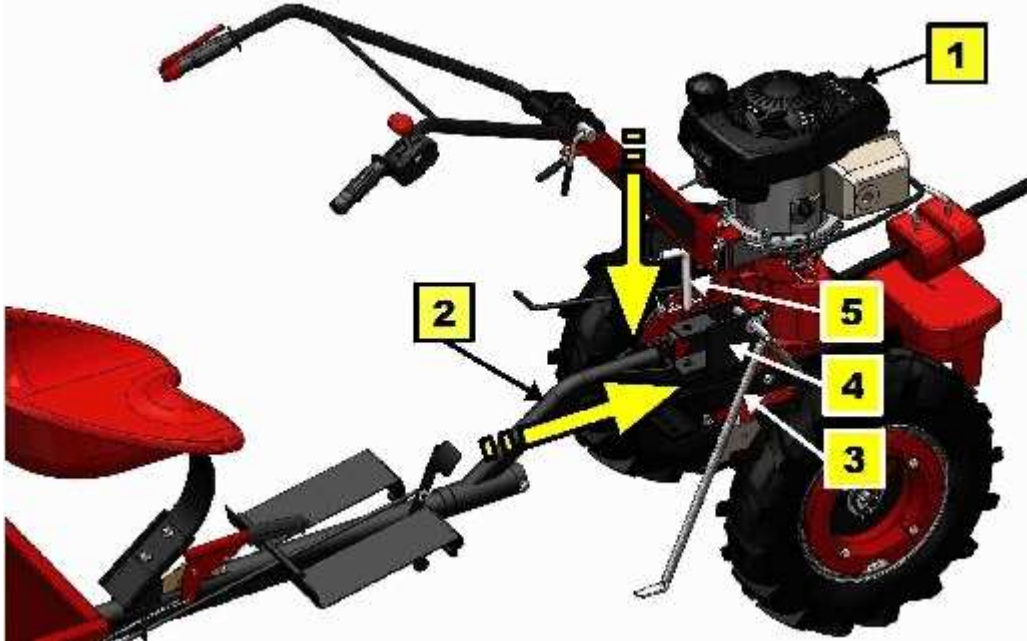


Fig. 3 : Tilting of the body

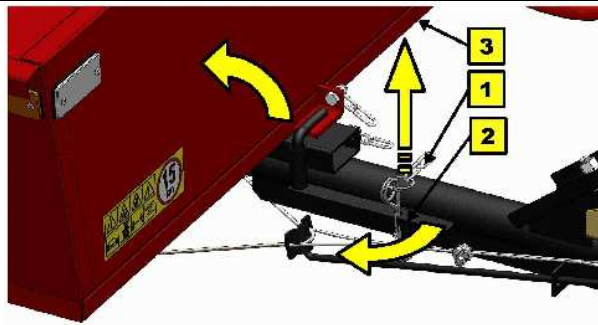


Fig. 4 : Tilting of the body

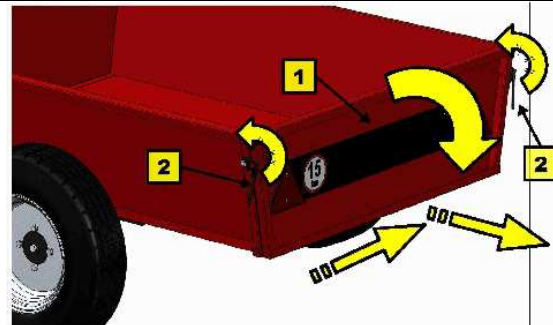


Fig. 5 : Folding and removable end

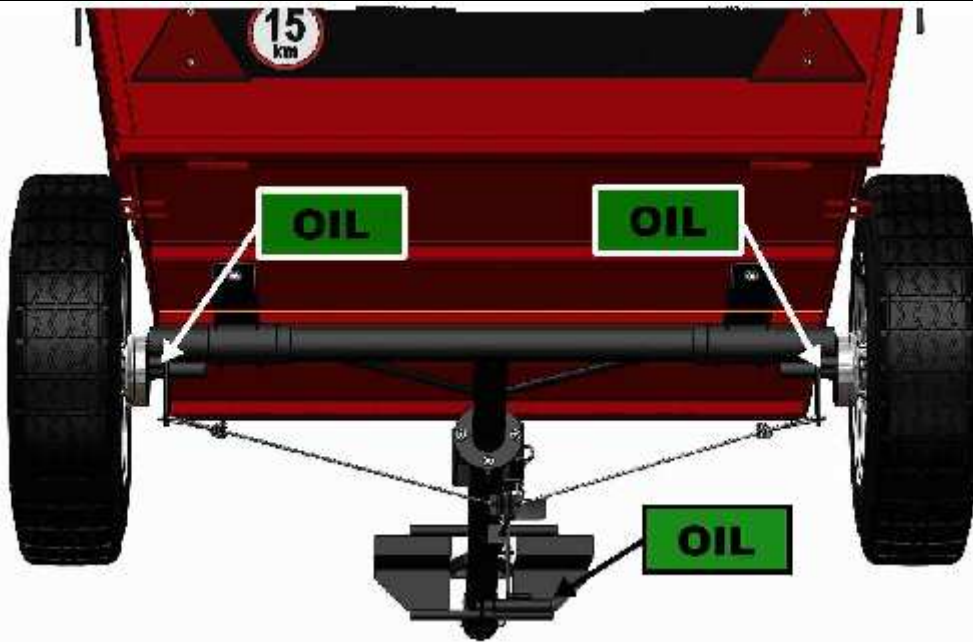


Fig. 6 : Lubrication points



