



PRONAR Sp. z o.o.

17-210 NAREW, UL. MICKIEWICZA 101A, PODLASKIE PROVINCE

phone:	+48 085 681 63 29	+48 085 681 64 29
	+48 085 681 63 81	+48 085 681 63 82
fax:	+48 085 681 63 83	+48 085 682 71 10

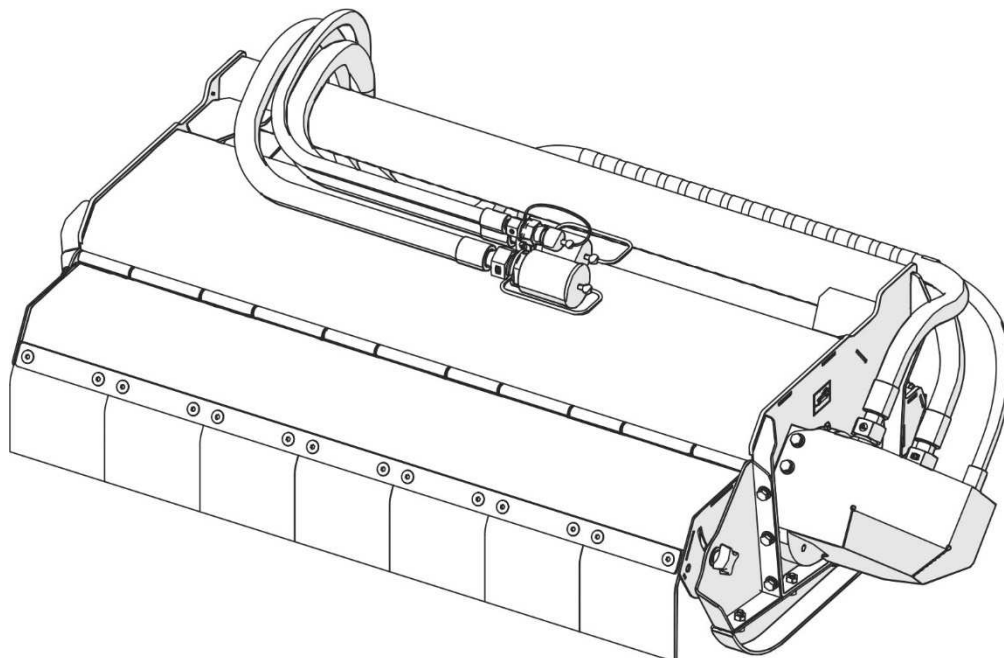
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OPERATOR MANUAL

MOWING HEAD

PRONAR GK80L / GK100L / GK120L / GK140L

TRANSLATION OF THE ORIGINAL COPY OF THE MANUAL



EDITION 3A-11-2016

PUBLICATION NO 445N-00000000-UM



MOWING HEAD

PRONAR GK80L / GK100L / GK120L / GK140L

MACHINE IDENTIFICATION

SYMBOL /TYPE:

SERIAL NUMBER:

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INTRODUCTION

Information contained herein is current at date of publication. As a result of improvements, some numerical values and illustrations contained in this publication may not correspond to the factual specification of the machine supplied to the user. The manufacturer reserves the right to introduce design changes in machines produced that facilitate operation and improve the quality of their work, without making minor amendments to this Operator's Manual.

This Operator's Manual is an integral part of the machine's documentation. Before using the machine, the user must carefully read this Operator's Manual and observe all recommendations. This guarantees safe operation and ensures failure-free work of the machine. The machine is designed to meet obligatory standards, documents and legal regulations currently in force.

The manual describes the basic safety rules and operation of PRONAR GK80L / GK100L / GK120L / GK140L mowing heads. If the information stated in the Operator's Manual needs clarification then the user should refer for assistance to the sale point where the machine was purchased or to the Manufacturer.

MANUFACTURER'S ADDRESS:

*PRONAR Sp. z o.o.
ul. Mickiewicza 101A
17-210 Narew*

CONTACT TELEPHONES

+48 085 681 63 29

+48 085 681 64 29

+48 085 681 63 81

+48 085 681 63 82

SYMBOLS APPEARING IN THIS OPERATOR'S MANUAL

Information, descriptions of danger and precautions and also recommendations and prohibitions associated with user safety instructions are marked:



and also preceded by the word "**DANGER**". Failure to observe the instructions may endanger the machine operator's or other person's health or life.

Particularly important information and instructions, the observance of which is essential, are distinguished in the text by the sign:



and also preceded by the word "**ATTENTION**". Failure to observe the instructions may lead to damage to the machine as a result of improper operation, adjustment or use.

In order to focus the user's attention on the need to perform maintenance, the relevant section of the Operator's Manual is marked with the pictogram:



Additional tips and advice for machine operation are marked with the sign:



and also preceded by the word "**TIP**".

DIRECTIONS USED IN THIS OPERATOR'S MANUAL

Left side – side to the left hand of the operator facing in the direction of machine's forward travel.

Right side – side to the right hand of the operator facing in the direction of machine's forward travel.



PRONAR Sp. z o.o.

ul. Mickiewicza 101 A
17-210 Narew, Polska

tel./fax (+48 85) 681 63 29, 681 63 81, 681 63 82,
681 63 84, 681 64 29

fax (+48 85) 681 63 83

http://www.pronar.pl

e-mail: pronar@pronar.pl

EC DECLARATION OF CONFORMITY OF THE MACHINERY

PRONAR Sp. z o.o. declares with full responsibility, that the machine:

Description and identification of the machinery				
Generic denomination and function:	Cutting head			
Type:	GK80L	GK100L	GK120L	GK140L
Model:	–	–	–	–
Serial number:				
Commercial name:	Cutting head PRONAR GK80L Cutting head PRONAR GK100L Cutting head PRONAR GK120L Cutting head PRONAR GK140L			

to which this declaration relates, fulfills all the relevant provisions of the Directive **2006/42/EC** of The European Parliament and of The Council of 17 May 2006 on machinery, and amending Directive 95/16/EC (Official Journal of the EU, L 157/24 of 09.06.2006).

The person authorized to compile the technical file is the Head of Research and Development Department at PRONAR Sp. z o.o., 17-210 Narew, ul. Mickiewicza 101A, Poland.

This declaration relates exclusively to the machinery in the state in which it was placed on the market, and excludes components which are added and/or operations carried out subsequently by the final user.

Z-CA DYREKTORA
d/s technicznych
członek zarządu

Roman Smelianiuk

Narew, the 2016-12-20

Place and date

Full name of the empowered person
position, signature

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SECTION

1

BASIC INFORMATION

1.1 IDENTIFICATION

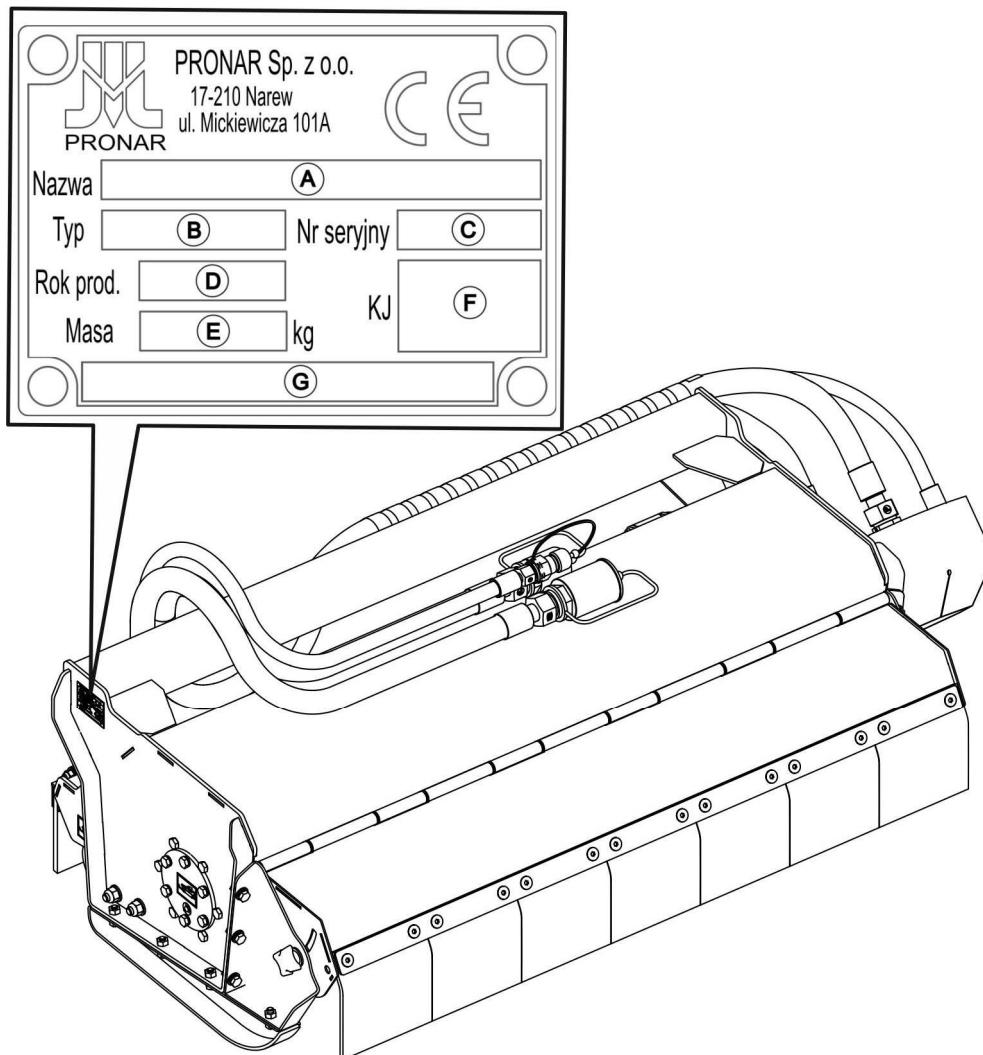


FIGURE 1.1 Location of the data plate.

PRONAR GK80L / GK100L / GK120L / GK140L mowing head is marked with the data plate located on the head casing (FIGURE 1.1). When buying the machine check that the serial numbers on the machine agree with the number written in the *WARRANTY BOOK*, in the sales documents and in the *OPERATOR'S MANUAL*.

The meanings of the individual fields found on the data plate (FIGURE 1.1) are presented in the table below:

A - machine name, B - machine type/symbol
C – serial number, D – year of manufacture,
E - tare weight [kg], F – Quality control stamp,
G – machine name, name extension

1.2 PURPOSE



IMPORTANT

PRONAR GK80L / GK100L / GK120L / GK140L mowing head is compatible with multifunction arms equipped with hydraulic supply system and TYPE 60 working head connection.

Mowing head on multifunction arm is used for mowing grass, cutting all kinds of bushes, hedge trimming and breaking up cut tree branches. Design of multifunction arm enables operation in hard to reach areas such as roadside ditches behind protective barriers, slopes, drainage ditches, roadsides. The mowing head is mounted on the self aligning floating multifunction arm for perfect ground surface tracking. The mowing head leaves the cutting area with evenly ground material, which also forms a fertilising layer.

Transporting people, animals or other materials on the mowing head is prohibited and regarded as contrary to the intended purpose. During the use of the machine comply with all road traffic regulations and transport regulations in force in the given country, and any breach of these regulations is regarded by the Manufacturer as use contrary to its intended purpose.



IMPORTANT

The mowing head must not be used for purposes other than those for which it is intended, in particular:

- for transporting people and animals,
- for transport of whatever materials or objects.

Using it as intended involves all actions connected with the safe and proper operation and maintenance of the machine. Due to the above, the user is obliged to:

- carefully read the *OPERATOR'S MANUAL* and comply with its recommendations,

- understand the machine's operating principle and how to operate it safely and correctly,
- adhere to the established maintenance and adjustment plans,
- comply with general safety regulations while working,
- prevent accidents,
- comply with the road traffic regulations and transport regulations in force in a given country, in which the machine is used,
- carefully read the Operator's Manual of the agricultural tractor and the Operator's Manual of the multifunction arm and comply with their recommendations.

The mowing head may only be used by persons, who:

- are familiar with the contents of this publication and with the contents of the Operator's Manual of the agricultural tractor and the Operator's Manual of the multifunction arm,
- have been trained in mowing head operation and safe operation,
- have the required authorisation to drive and are familiar with the road traffic regulations and transport regulations.

1.3 ACCESSORIES

TABLE 1.1 Mowing head accessories

ACCESSORIES	STANDARD	OPTION
Operator's Manual	•	
Warranty book	•	
The central support beam 60x60 (GK100L / GK120L / GK140L)		•

1.4 TERMS & CONDITIONS OF WARRANTY

PRONAR Sp. z o.o. Narew guarantees the reliable operation of the machine when it is used according to its intended purpose as described in the *OPERATOR'S MANUAL*. Defects discovered during the warranty period will be removed by the Warranty Service. The repair period is specified in the Warranty Book.

The guarantee does not apply to those parts and sub-assemblies of the machine, which are subject to wear in normal usage conditions, regardless of the warranty period. Consumables include the following parts/sub-assemblies:

- cutting blades,
- rubber and metal guards,
- bearings.

The warranty service only applies to factory defects and mechanical damage that is not due to the user's fault.

The user loses the warranty in case of damage resulting from:

- mechanical damage which is the user's fault, caused by road accidents,
- by inappropriate use, adjustment or maintenance, use of the mowing head for purposes other than those for which it is intended,
- use of damaged machine,
- repairs carried out by unauthorised persons, improperly carried out repairs,
- Unauthorised user modifications of the machine structure.

**TIP**

Demand that the seller carefully and accurately fills out the WARRANTY BOOK and warranty repair coupons. A missing date of purchase or sale point stamp, may make the user ineligible for any warranty repair or refund.

The user is obliged to report immediately on noticing any wear in the paint coating or traces of corrosion, and to have the faults rectified whether they are covered by the guarantee or not. For detailed Terms & Conditions of Warranty, please refer to the WARRANTY BOOK attached to each machine.

Modification of the mowing head without the written consent of the Manufacturer is prohibited. In particular, do NOT weld, drill holes in, cut or heat the main structural elements of the machine, which have a direct impact on the machine operation safety.

1.5 TRANSPORT

The mowing head is ready for sale completely assembled and does not require packing. Packing is only required for the machine's technical documentation and any extra fittings.

**IMPORTANT**

Before transporting independently, the tractor driver must carefully read this operator's manual and observe its recommendations. When being transported on a motor vehicle the mowing head must be mounted on the vehicle's platform in accordance with the transport safety requirements. The driver of the vehicle should take particular care while driving. This is due to the vehicle's centre of gravity shifting upwards when loaded with the machine.

Delivery is either by transport on a vehicle or independently. Transport of the mowing head connected to the multifunction arm is allowed provided that the tractor driver is familiar with the Operator's Manual of the mowing head and the Operator's Manual of the multifunction arm, in particular, with information concerning safety and principles of hitching and transport of the mowing head on public roads. Do NOT drive the tractor with the multifunction arm and the mowing head connected when visibility is limited.

When loading and unloading the mowing head, comply with the general principles of workplace health and safety for reloading work. Persons operating reloading equipment must have the qualifications required to operate these machines.

The machine should be attached firmly to the platform of the vehicle using straps or chains fitted with a tightening mechanism. The fastening equipment used must have a valid safety

certificate. Exercise particular caution when lifting the machine. To keep lifted machine in the correct direction it is recommended to apply additional guy cables. During the loading work particular care should be taken not to damage paint coating.



IMPORTANT

Nobody may be in the manoeuvring zone during transferring mowing head to other form of transport.

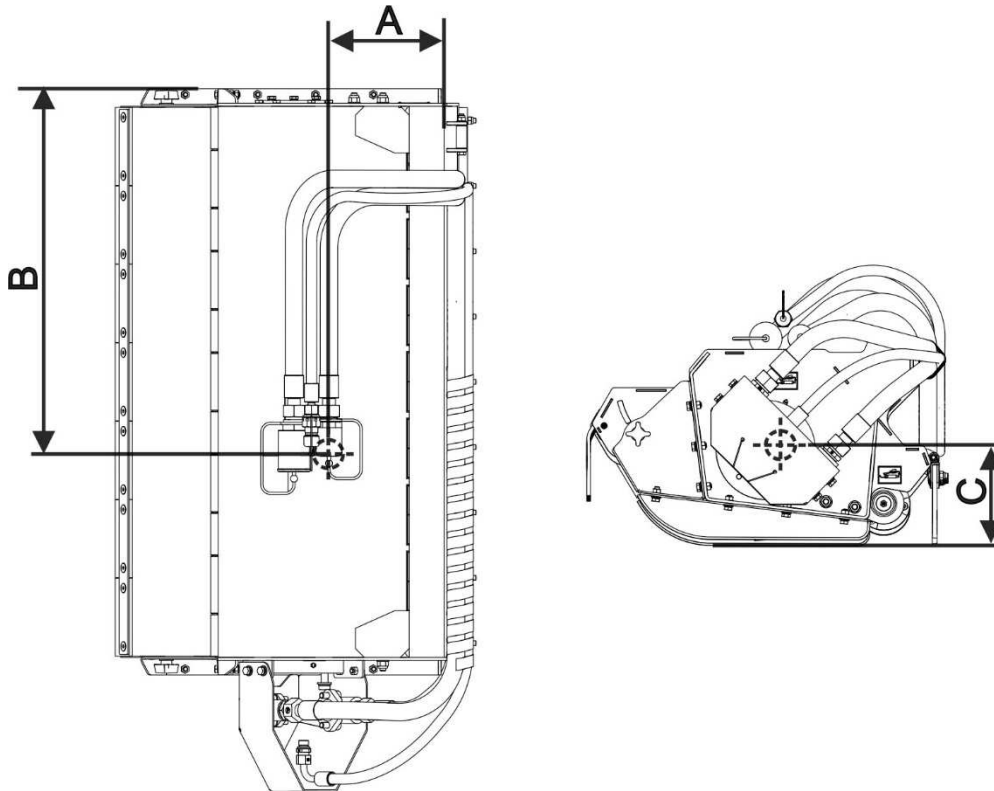


FIGURE 1.2 Location of centre of gravity of the mowing head.

TABLE 1.2 Centre of gravity.

Dimension (FIGURE 1.2)	J.M	Mowing head model			
		GK80L	GK100L	GK120L	GK140L
A	mm	200	225	215	215
B	mm	540	645	750	855
C	mm	180	235	230	230

1.6 ENVIRONMENTAL HAZARDS

A hydraulic oil leak constitutes a direct threat to the natural environment owing to its limited biodegradability. While carrying out maintenance and repair work which involves the risk of an oil leak, this work should take place on an oil resistant floor or surface. In the event of oil leaking into the environment, first of all contain the source of the leak, and then collect the

leaked oil using available means. Remaining oil should be collected using sorbents, or by mixing the oil with sand, sawdust or other absorbent materials. The oil contaminations, once gathered up, should be kept in a sealed, marked, hydrocarbon resistant container, and then passed on to the appropriate oil waste recycling centre. The container should be kept away from heat sources, flammable materials and food.

Oil, which has been used up or is unsuitable for further use owing to a loss of its properties should be stored in its original packaging in the conditions described above.

1.7 WITHDRAWAL FROM USE

In the event of decision by the user to withdraw the machine from use, comply with the regulations in force in the given country concerning withdrawal from use and recycling of machines withdrawn from use.

Before proceeding to dismantle machine, oil shall be completely removed from hydraulic system.

When spare parts are changed, worn out or damaged parts should be taken to a collection point for recyclable raw materials. Waste oil and also rubber and plastic elements should be taken to establishments undertaking the utilisation of such waste.



IMPORTANT

During dismantling personal protection equipment shall be used i.e. protective clothing, boots, gloves and protective goggles etc.

Avoid contact of skin with oil. Do not allow used oil to spill.

SECTION

2

SAFETY ADVICE

2.1 BASIC SAFETY RULES

2.1.1 USE OF MACHINE

- Before using the machine, the user must carefully read this Operator's Manual and the *WARRANTY BOOK*. When operating the machine, the operator must comply with all recommendations contained in the Operator's Manual.
- The mowing head may only be used and operated by persons qualified to drive agricultural tractors and agricultural machines and trained in the use of the machine. The mowing head can be operated by a single person only.
- If the information in this Operator's Manual is difficult to understand, contact the dealer, who runs an manufacturer authorised service, or contact the manufacturer directly.
- Careless and improper use and operation of the machine, and non-compliance with the recommendations given in this operator's manual is dangerous to your health.
- Be aware of the existence of a residual risk, and for this reason the fundamental basis for using this mowing head should be the application of safety rules and sensible behaviour.
- The machine must never be used by persons who are not authorised to drive agricultural tractors, including children and people under the influence of alcohol, drugs or other abusive substances.
- Non-compliance with the safety rules of this Operator's Manual can be dangerous to the health and life of the operator and others.
- The machine must not be used for purposes other than those for which it is intended. Anyone who uses the mowing head other than the way intended takes full responsibility for himself for any consequences of this use. Use of the machine for purposes other than those for which it is intended by the Manufacturer may invalidate the guarantee.
- The mowing head may only be used when all the safety guards and other protective elements are technically sound and correctly positioned. In the event of loss or destruction of the safety guards, they must be replaced with new ones.

- In order to limit occupational risks associated with exposure to noise during mowing head operation use individual protection (ear protectors). In order to reduce the level of noise during work the tractor cab window and door should be closed.

2.1.2 HITCHING AND UNHITCHING FROM CARRYING VEHICLE

- Do NOT connect the mowing head to a multifunction arm of other type than the recommended by the manufacturer.
- After hitching the machine, check the safeguards. Carefully read the tractor (carrying vehicle) Operator's Manual.
- Use only original bolts and protections to hitch the mowing head to the multifunction arm.
- The multifunction arm to which the mowing head will be hitched must be technically reliable and must fulfil the requirements of the mowing head Manufacturer.
- Be especially careful when hitching the machine.
- When hitching, there must be nobody between the mowing head and the multifunction arm and the tractor.
- Unhitching of the mowing head from the multifunction arm may be performed only when the mowing head is placed in a stable manner on even and level surface. Exercise caution when unhitching the machine.
- Hitching and unhitching may only take place when the mowing head and the tractor are switched off.
- The mowing head disconnected from the multifunction arm must be placed in a stable manner on level surface.

2.1.3 HYDRAULIC SYSTEM

- The hydraulic system is under high pressure when operating.
- Regularly check the technical condition of the connections and the hydraulic lines. There must be no oil leaks.
- In the event of the hydraulic system malfunction, discontinue using the machine until the malfunction is corrected.

- When connecting the multifunction arm hydraulic lines to hydraulic motor of the mowing head, make sure that the hydraulic system of the multifunction arm is not under pressure. If necessary reduce residual pressure in the system.
- In the event of injuries being caused by pressurised hydraulic oil, contact a doctor immediately. Hydraulic oil may find its way under the skin and cause infections. In the event of contact of oil with eye, rinse with large quantity of water and in the event of the occurrence of irritation consult a doctor. In the event of contact of oil with skin wash the area of contact with water and soap. Do NOT apply organic solvents (petrol, kerosene).
- Use the hydraulic oil recommended by the Manufacturer. Never mix two types of oil.
- After changing the hydraulic oil, the used oil should be properly disposed of. Used oil or oil which has lost its properties should be stored in original containers or replacement containers resistant to action of hydrocarbons. Replacement containers must be clearly marked and appropriately stored.
- Do not store hydraulic oil in packaging designed for storing food or foodstuffs.
- Rubber hydraulic lines must be replaced every 4 years regardless of their technical condition.
- Repair and replacement of hydraulic system elements should be entrusted to the appropriately qualified persons.

2.1.4 TRANSPORTING THE MACHINE

- When driving on public roads, comply with the road traffic regulations in force in the country in which the machine is used.
- Do not exceed the permitted speed arising from road conditions and design limitations. Adjust travel speed to the prevailing road conditions and other limitations arising from road traffic regulations limits.
- Before beginning travel, the mowing head must be folded to transport position.
- Do NOT leave machine raised and unsecured while the tractor is parked. When parked, the machine should be lowered.
- Do not transport the mowing head set in the working position.

- The mowing head may not be used or transported in conditions of limited visibility.
- Do NOT ride on the machine or transport any materials on it.
- Before using the machine always check its technical condition, especially in terms of safety. In particular, check the technical condition of the hitch system, the cutting system and elements connecting hydraulic system.
- Reckless driving and excessive speed may cause accidents.

2.1.5 MAINTENANCE

- During the warranty period, any repairs may only be carried out by Service authorised by the manufacturer. It is recommended that necessary repairs to machine should be undertaken by specialised workshops.
- In the event of any fault or damage whatsoever, do not use the mowing head until the fault has been corrected.
- During work use the proper, close-fitting protective clothing, gloves and appropriate tools. When working on hydraulic systems it is recommended to use oil resistant gloves and protective goggles.
- Any modification to the mowing head frees the manufacturer from any responsibility for damage or detriment to health, which may arise as a result.
- Before undertaking any work on the mowing head disconnect tractor engine and wait until all rotating parts come to a stop.
- Regularly check the technical condition of the safety devices and correct tightening of bolt connections.
- Regularly perform service inspections of machine as recommended by the Manufacturer.
- Do NOT perform service or repair work under raised and unsupported machine.
- Before beginning repair works on hydraulic systems, reduce oil pressure.
- Servicing and repair work should be carried out in line with the general principles of workplace health and safety. In the event of injury, the wound must be immediately cleaned and disinfected. In the event of more serious injuries, seek a doctor's advice.

- Repair, maintenance and cleaning work should be carried out with the tractor engine turned off and the ignition key removed. Immobilise tractor with parking brake. Ensure that unauthorised persons do not have access to the tractor cab.
- Should it be necessary to change individual parts, use only original parts. Non-adherence to these requirements may put the user and other people's health and life at risk, and also damage the machine and invalidate the warranty.
- Regularly check technical condition and mounting of all guards and protective elements.
- In the event of maintenance and repair work requiring the mowing head to be raised, use properly certified hydraulic or mechanical lift jacks for this purpose. After lifting the machine, stable and durable supports must also be used. Do NOT carry out work under the machine, which has only been raised with the multifunction arm.
- The machine must not be supported using fragile elements (bricks or concrete blocks).
- After completing work associated with lubrication, remove excess oil or grease.
- Damaged, missing or worn blades must be replaced in pairs (simultaneously with a blade located on the opposite side of the shaft axis) in order to maintain the balance of the flail shaft.
- In order to reduce the danger of fire the machine must be kept in a clean condition.

2.1.6 MOWING HEAD OPERATION

- Before lowering or lifting the mowing head mounted on the multifunction arm, make sure there are no bystanders near the machine.
- Before starting mowing head drive, the cutting assembly must be lowered to working position.
- Before starting the mowing head, make sure that there are no bystanders (especially children) or animals in the danger zone. The machine operator is obliged to ensure proper visibility of the machine and the working area.
- Mowing should begin after reaching the nominal speed of the multifunction arm's PTO. Do NOT overload the mowing head.

- When mowing, do NOT exceed the nominal speed of the multifunction arm's PTO.
- When mowing on the edges of streets, public roads, on stony ground there is a risk that thrown out stones and foreign bodies may pose a risk to bystanders and other vehicle passing by.
- Do NOT leave the tractor cab, when the machine drive is engaged.
- Do NOT stand within the mowing head's working zone.
- Do NOT approach cutting unit guards until the rotating cutting parts come to a complete standstill.
- Do NOT operate the mowing head while reversing. While reversing raise the multifunction arm.
- When driving across the road, pavement or other obstacles and when making turns, raise the mowing head by means of the multifunction arm and disengage the mowing head drive.
- Keep a safe distance from electric power lines during travel with raised cutting assembly.

2.2 RESIDUAL RISK

Pronar Sp. z o. o. in Narew has made every effort to eliminate the risk of accidents. There is, however, a certain residual risk, which could lead to an accident, and this is connected mainly with the actions described below:

- using the machine for purposes other than those for which it is intended,
- being between the tractor and the machine while the engine is running and when the machine is being attached,
- being on the machine while the engine is running,
- operating the mowing head with removed or faulty safety guards,
- not maintaining safe distance from the danger zone or being within the zones while the machine is operating,
- operation of the machine by persons under the influence of alcohol,
- cleaning, maintenance and technical checks when the multifunction arm is connected and working.

The minimal risk may be kept to a minimum by following the recommendations below:

- operate the machine in prudent and unhurried manner,
- reasonably apply all the remarks and recommendations stated in the Operator's Manual,
- carry out repair and maintenance work in line with operating safety rules,
- carry out repair and maintenance work by persons trained to do so,
- use close fitting protective clothing,
- ensure unauthorised persons have no access to the machine, especially children,
- maintain a safe distance from forbidden or dangerous places
- do not climb on the machine when it is operating

2.3 INFORMATION AND WARNING DECALS

The mowing head is labelled with the information and warning decals listed in table (2.1). The symbols are positioned as presented in Figure 2.1. Throughout the time it is in use, the user of the machine is obliged to take care that notices and warning and information symbols located on the machine are clear and legible. In the event of their destruction, they must be replaced with new ones. Safety decals can be purchased from the Manufacturer of the machine or your PRONAR dealer. New assemblies, changed during repair, must be labelled once again with the appropriate safety signs. During mowing head cleaning do not use solvents which may damage the coating of information label stickers and do not subject them to strong water jets.

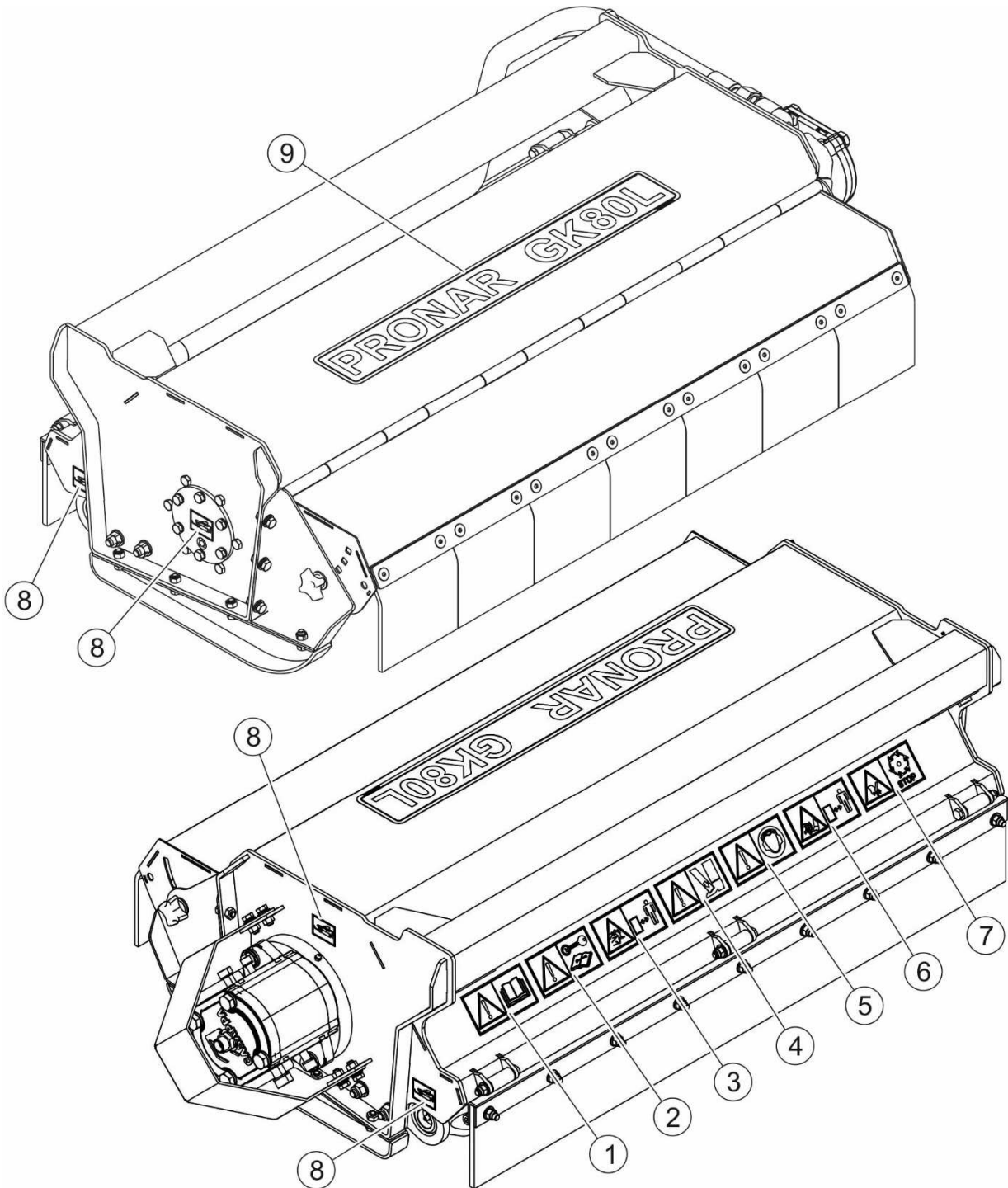
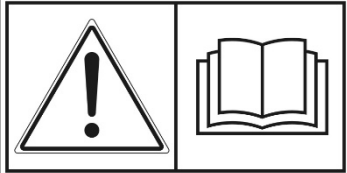
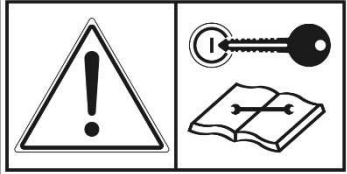
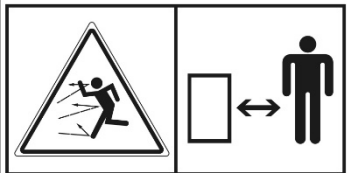


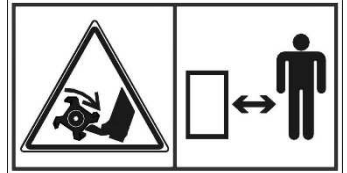








FIGURE 2.1 Locations of information and warning decals.

Meaning of symbols (TABLE 2.1)

TABLE 2.1 Information and warning decals

ITEM	DECAL	MEANING
1		Before starting work, carefully read the Operator's Manual.
2		Before beginning servicing or repairs, turn off engine and remove key from ignition
3		Thrown out objects endanger the whole body. Keep a safe distance from the operating machine.
4		Danger of crushing toes or feet.
5		High noise level warning.
6		Risk of injury to foot or leg. Keep a safe distance.
7		Do not touch any rotating elements until they come to a complete standstill.
8		Lubrication points

ITEM	DECAL	MEANING
9	 <p>or</p>	Machine type
	 <p>or</p>	
	 <p>or</p>	
		

Numbers in the item column correspond to decals (FIGURE 2.1)

SECTION

3

**DESIGN
AND OPERATION**

3.1 TECHNICAL SPECIFICATION

TABLE 3.1 BASIC TECHNICAL SPECIFICATION

	J.M	GK80L	GK100L	GK120L	GK140L
Dimensions					
Total length in transport setting	mm	600	690	690	690
Width in transport setting:	mm	1160	1490	1620	1820
Height in transport setting:	mm	340	415	430	430
Technical specification					
Cutting width	mm	800	1000	1200	1400
Tare weight	kg	115	155	180	220
Power transmission	-	Hydraulic			
Hydraulic motor power	kW	28			
Mounting method	-	Rear square beam 60x60			
		-	Middle beam 60x60 (option)		
Flail shaft diameter	mm	76		89	
Tracing shaft diameter	mm	89		101.6	
Number of blades	pc.	22	24	26	30
Nominal rotation speed of cutting shaft	RPM	3000			
Rotation direction	-	Left or right			
Maximum breaking up diameter	mm	30 (for Y-type blades)			

3.2 GENERAL DESIGN

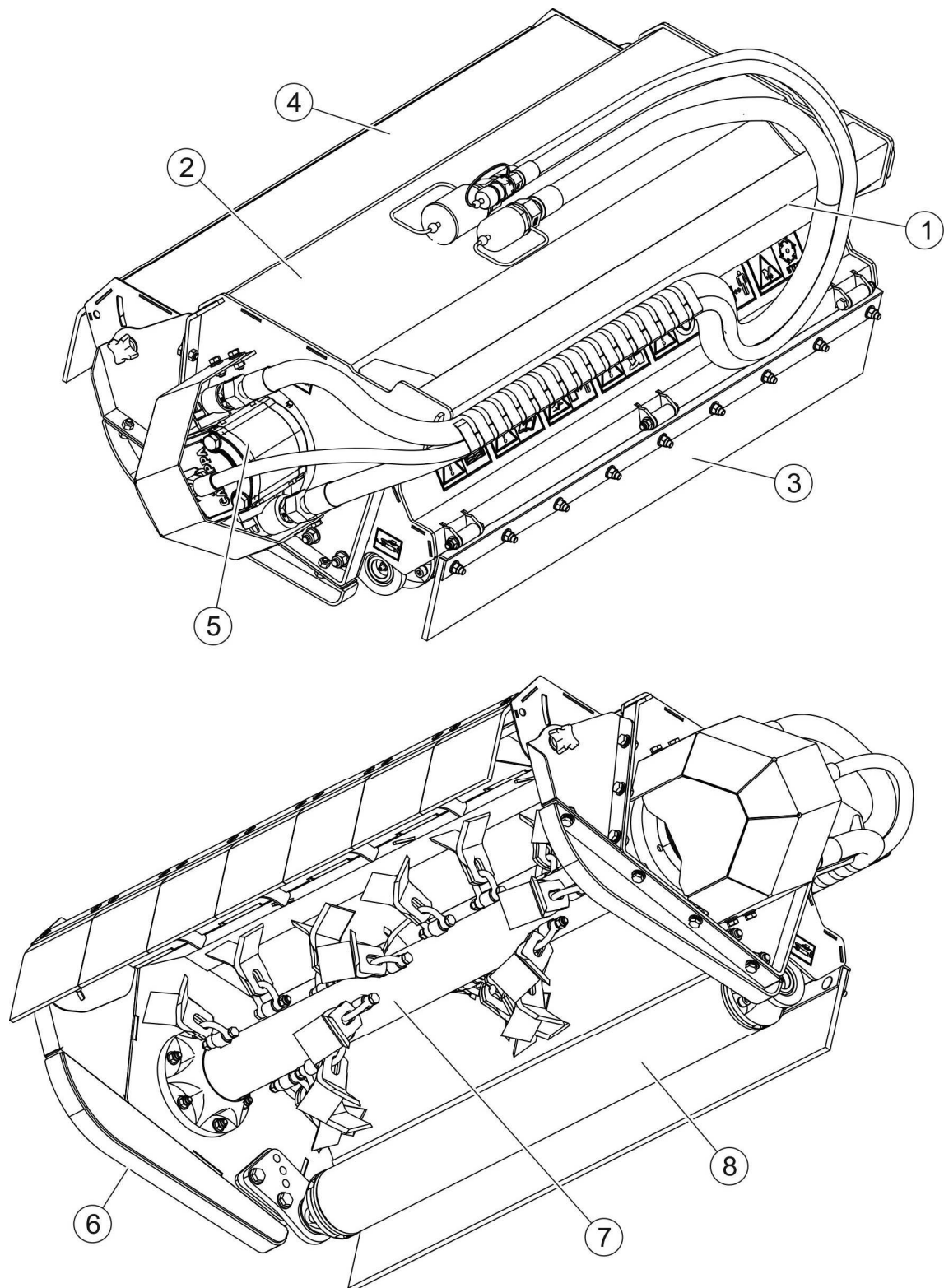


FIGURE 3.1 General design

(1)- support beam; (2)- housing; (3)- rubber apron; (4)- front guard; (5)- drive transmission system; (6)- slide; (7)- cutting shaft; (8)- tracking shaft.

The mowing head consists of support beam (1) (FIGURE 3.1) that enables connection of the mowing head with the multifunction arm, the drive transmission system (5) and the cutting unit composed of flail shaft (7) and tracking shaft (8). The complete cutting unit is shielded with housing (2) as well as front guard (4) and rubber apron (3).

3.3 DRIVE TRANSMISSION.

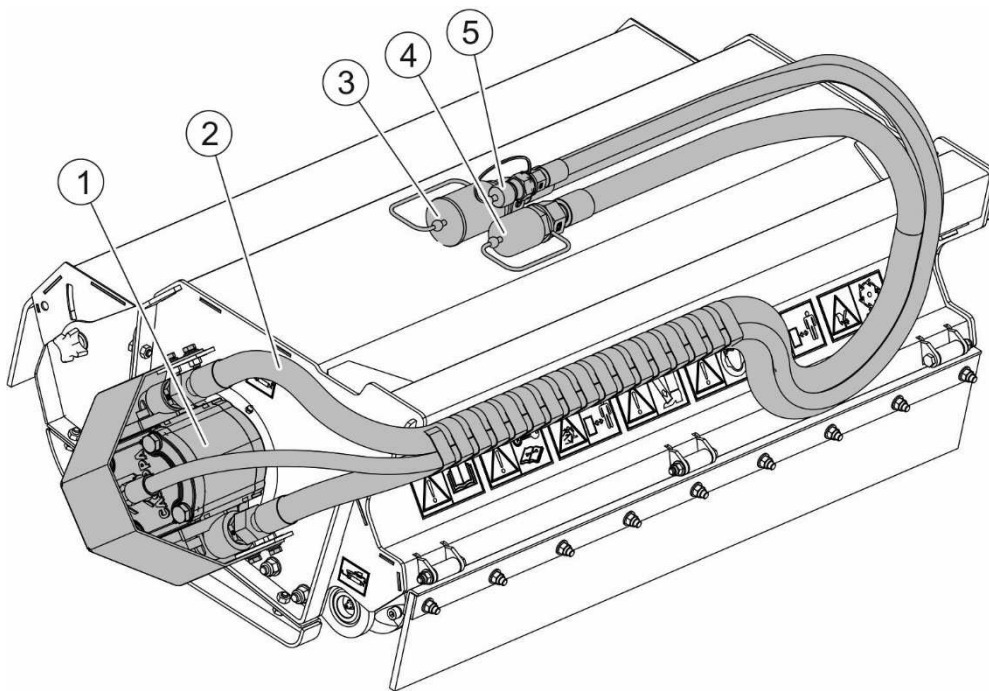


FIGURE 3.2 Drive transmission.

(1)- hydraulic motor; (2)- hydraulic lines; (3)- head supply quick coupler; (4)- head return quick coupler; (5)- free drain coupler.

The cutting unit of mowing head is driven by hydraulic motor (1) (FIGURE 3.2) that is supplied through quick couplers (3) and (4) by hydraulic lines (2) from the multifunction arm. Hydraulic line with free drain quick coupler (5) should be connected to the free drain quick coupler of the multifunction arm. The torque from hydraulic motor (1) is transmitted directly to the cutting shaft of the mowing head.

3.4 CUTTING UNIT

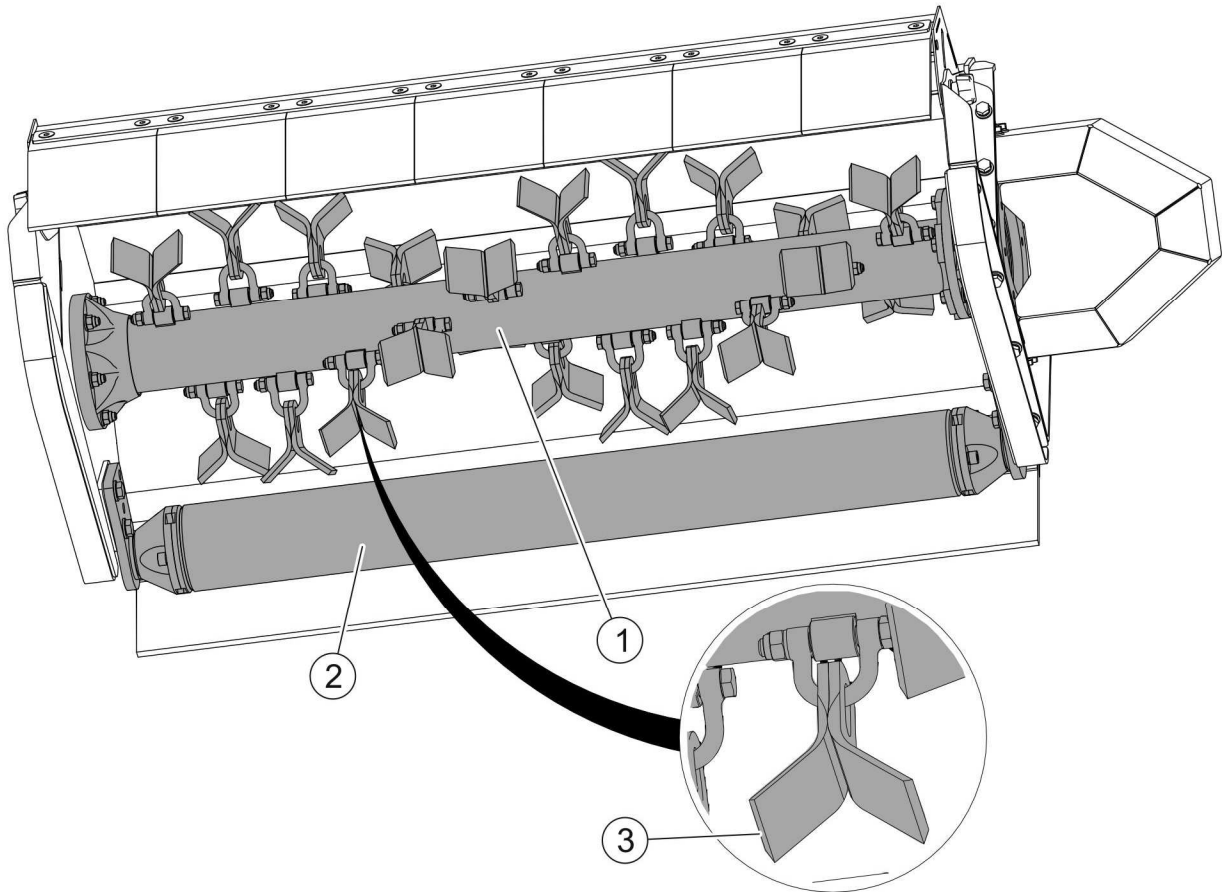


FIGURE 3.3 Cutting unit

(1)- cutting shaft; (2)- tracking shaft; (3)- cutting blade.

The cutting unit of the mowing head consists of cutting shaft (1) (FIGURE 3.3) on which cutting blades (3) are mounted. The cutting blades are designed to swing and avoid obstacles which can not be cut. Cutting height is adjusted by changing the tracking shaft (2) setting.

SECTION

4

CORRECT USE

4.1 PREPARE FOR WORK

The manufacturer guarantees that the machine is fully operational and has been checked according to quality control procedures and is ready for use. This does not release the user from an obligation to check the machine's condition after delivery and before first use. The machine is delivered to the user completely assembled.



NOTE

Before using the mowing head always check its technical condition. In particular check the technical condition of the cutting unit, drive system, and integrity of protective guards.

Before hitching to the multifunction arm, the machine operator must check the technical condition of the mowing head and prepare it for test start-up. In order to do this:

- the user must carefully read this Operator's Manual and observe all recommendations, understand the design and the principle of machine operation
- check the condition of protective paint coat,
- inspect machine's individual components for mechanical damage resulting from incorrect transport (dents, piercing, bent or broken components),
- Check all the lubrication points, lubricate the machine according to recommendations provided in section 5 "MAINTENANCE",



NOTE

Before beginning work lubricate cutting shaft bearings and tracking shaft bearings until grease appears between the shaft and bearing housing.

- check technical condition of the hydraulic system;
- check if cutting blades, cutting shaft, linkage and safety guards are correctly installed.

If all the above checks have been performed and there is no doubt as to the machine's good technical condition, hitch the machine to the multifunction arm. Start the tractor engine, check all systems and perform a test run before beginning work. In order to inspect:

- hitch the mowing head to the multifunction arm (see „*HITCHING TO EXTENSION BOOM*“)
- set in working position,

- start PTO drive and engage mowing head's drive by means of control panel.

Engage mowing head's drive for 3 minutes and check the following:

- that there is no knocking or noise in the drive system arising from scraping or grinding of metal elements,
- whether there is excessive vibration in the cutting unit,



NOTE

Before using the mowing head always check its technical condition. In particular check the technical condition of the cutting unit, linkage, drive system, and integrity of protective guards.

The mowing head operation at no load should be smooth. Shaking of drive transmission, cutting unit and whole machine is not acceptable, nor is changed noise and vibrations coming from loose nut and bolt connections. After complete stopping of mowing head, check fastening of cutting blades. Confirm that oil does not leak from the hydraulic motor.



DANGER

Before using the mowing head, the user must carefully read this operator's manual.

Careless and improper use and operation of the mowing head, and non-compliance with the recommendations given in this operator's manual is dangerous to your health.

The mowing head must never be used by persons, who are not authorised to drive agricultural tractors, including children and people under the influence of alcohol or other drugs.

Non-compliance with the safety rules of this Operator's Manual can be dangerous to the health and life of the operator and others.

Before starting the mowing head, make sure that there are no bystanders in the danger zone.

If any faults are detected they must be identified and rectified. If a fault cannot be rectified or the repair could void the warranty, please contact retailer for additional clarifications.

4.2 CHECK TECHNICAL CONDITION

When preparing the mowing head for normal use, check individual elements according to guidelines presented in *Table 4.1*.

TABLE 4.1 TECHNICAL INSPECTION SCHEDULE

DESCRIPTION	MAINTENANCE ACTIVITIES	FREQUENCY
Condition of safety guards	Check technical condition of safety guards, if complete and correctly mounted.	Daily before beginning work
Technical condition of cutting blades and mounting	Visually inspect and if necessary replace according to section „ <i>CHECK AND REPLACE CUTTING BLADES</i> ”	
Technical condition of drive system and correctness of attachment of hydraulic lines	For details please refer to section " <i>DRIVE SYSTEM MAINTENANCE</i> "	
Tightening of all main nut and bolt connections	Tightening torque values should be according to chapter " <i>TIGHTENING TORQUE FOR NUT AND BOLT CONNECTIONS</i> "	every 6 months
Lubrication	Lubricate elements according to table <i>LUBRICATION</i> .	According to <i>Table 5.2</i>



NOTE

Do NOT use out of order mowing head.

4.3 HITCHING TO EXTENSION BOOM

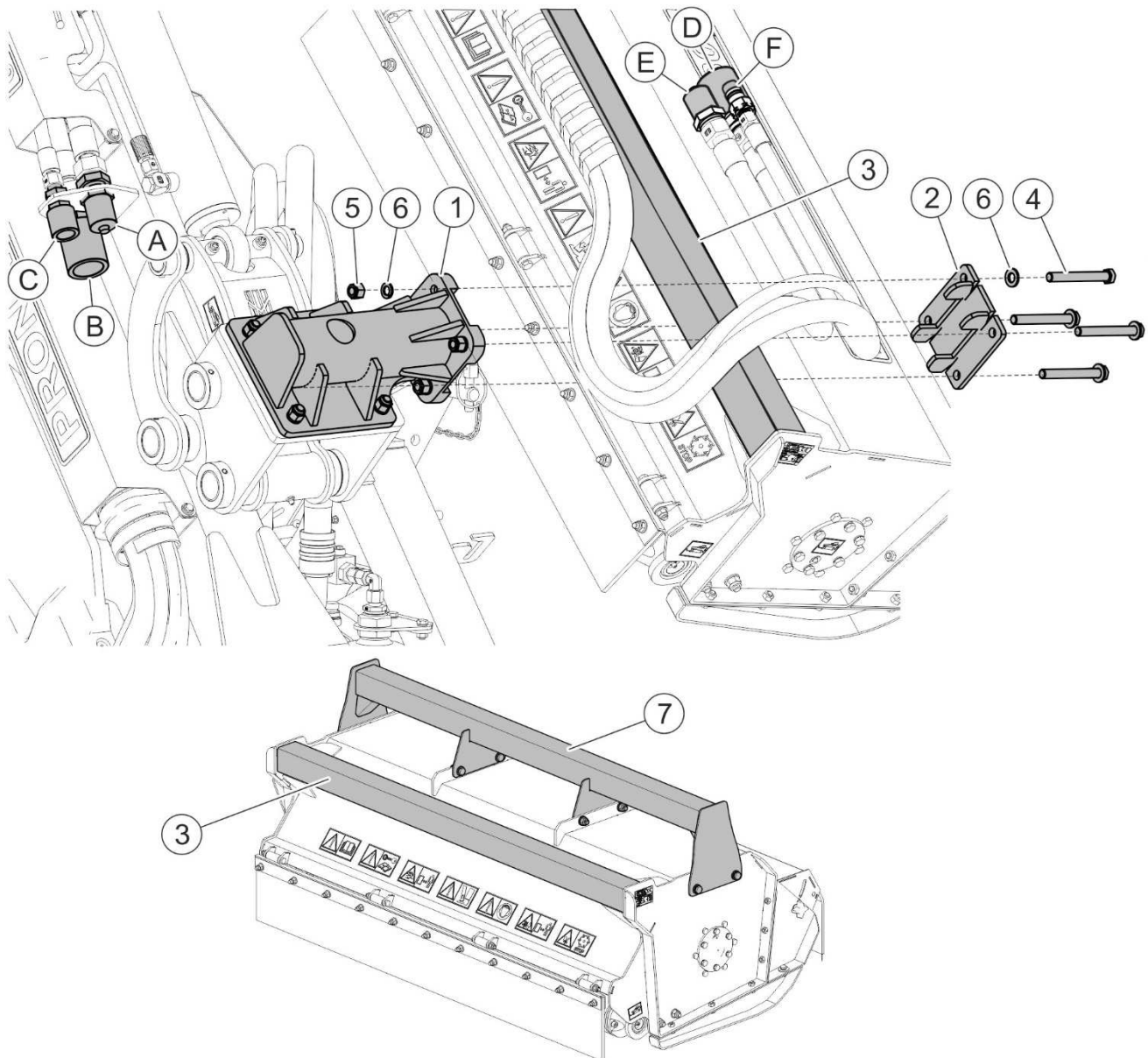


FIGURE 4.1 Attach the mowing head to the multifunction arm.

(1)-handle of working head connection of multifunction arm; (2)- lock of working head connection of multifunction arm; (3)- mowing head 60x60 support beam ; (4)- mowing head fixing bolts; (5)- nuts; (6)- washers; (7)- central support beam 60x60 of the GK100L / GK120L / GK140L mowing head (option); (A)- mowing head hydraulic power quick coupler; (B)- cutting hear return hydraulic quick coupler; (C)- free drain hydraulic quick coupler; (D)- mowing head hydraulic power quick coupler; (E)- mowing head return hydraulic quick coupler; (F)- hydraulic motor free drain hydraulic coupler.

PRONAR GK80L / GK100L / GK120L / GK140L mowing heads can be attached to multifunction arm with TYPE 60 (1) head connector (FIGURE 4.1), two hydraulic quick couplers (A) and (B) that provide power to the hydraulic motor and one free drain hydraulic quick coupler (C).

**NOTE**

Before attaching the mowing head, the user must carefully read the operator's manuals of the mowing head, tractor and multifunction arm and observe all instructions contained in the manuals.

**DANGER**

When hitching, there must be nobody between the machine and the tractor.
Exercise caution when hitching the machine.

**DANGER**

Before hitching the mowing head, turn off the tractor engine and remove the key from the ignition. Ensure that unauthorised persons do not have access to the tractor.
Check technical condition of the mowing head's guards and general technical condition of the mowing head.

In order to hitch the mowing head to the multifunction arm head (FIGURE 4.1), proceed as follows:

- Reverse the tractor and bring handle of working head connection of multifunction arm (1) close to rear support beam 60x60 (3) or middle support beam (option GK100L / GK120L / GK140L) 60x60 (7) of mowing head.
- Using control panel, set handle of working head connection of multifunction arm (1) at the same height with mowing head support beam (3).
- Turn off the tractor's engine and prevent the tractor from moving.
- Connect the multifunction arm head with mowing head support beam (3) or (7) using bracket (1) and lock (2). Screw the entire assembly together with four fixing bolts (4).
- Connect quick couplers (D),(E) of the mowing head hydraulic lines with quick couplers (A),(B) of the multifunction arm.

- Connect free drain quick coupler (*F*) of mowing head hydraulic motor with free drain quick coupler (*C*) of multifunction arm.

**DANGER**

Prior to connecting individual hydraulic system conduits, the user must carefully read the operator's manual of the multifunction arm and observe all recommendations of the Manufacturer.

**NOTE**

Connect mowing head hydraulic motor free drain hydraulic line (*F*) (FIGURE 4.1) to multifunction arm free drain quick coupler (*C*). If not connected, there is a risk of damage to mowing head hydraulic motor.

**DANGER**

When connecting the hydraulic quick couplers to the mowing head, make sure that the hydraulic system of the multifunction arm is not under pressure.

- Turn on the tractor's engine and the multifunction arm's drive. Raise mowing head by means of control panel of multifunction arm.

4.4 TRANSPORTING THE MACHINE

IMPORTANT



Before driving on public roads in order to transport the multifunction arm with the mowing head to the work site and back, the multifunction arm must be folded to its transport position.

When driving on public roads, comply with the road traffic regulations in force in the country in which the machine is used.

Before driving onto a public road, check if all the lights and warning plates on the multifunction arm are properly mounted and visible.

The multifunction arm may not be used or transported in conditions of limited visibility.

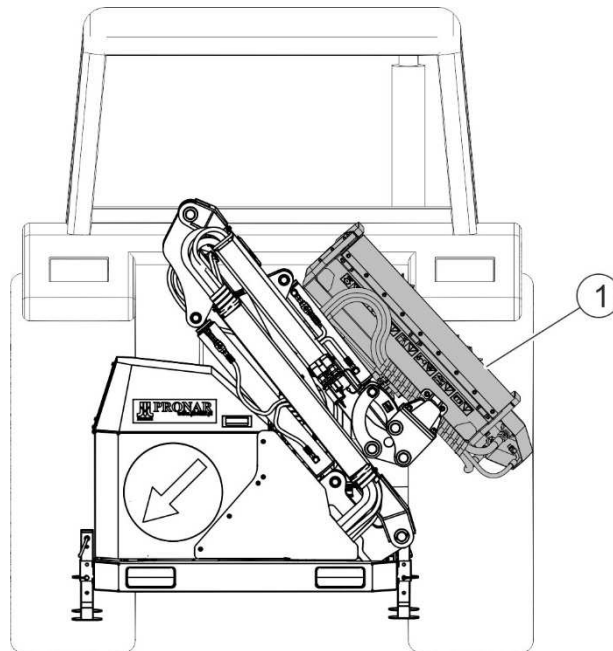


FIGURE 4.2 Example transport position of the mowing head on the multifunction arm

(1)- mowing head in transport position.

For the time of transport to the work site and back, set the arms of the multifunction arm in transport position (FIGURE 4.2) to ensure that the arms and mowing head do not extend beyond the tractor's contour and secure them according to the Operator's Manual of the multifunction arm.



DANGER

The drive of the working head shall not be turned on when the multifunction arm is in its transport position.

4.5 SETTING AND MOWING

4.5.1 SETTING THE MOWING HEAD IN WORKING POSITION

To set the mowing head in working position:

- controlling appropriate hydraulic circuits in the tractor, set the arms of the multifunction arm so as to place the mowing head in the mowing area (FIGURE 4.3)

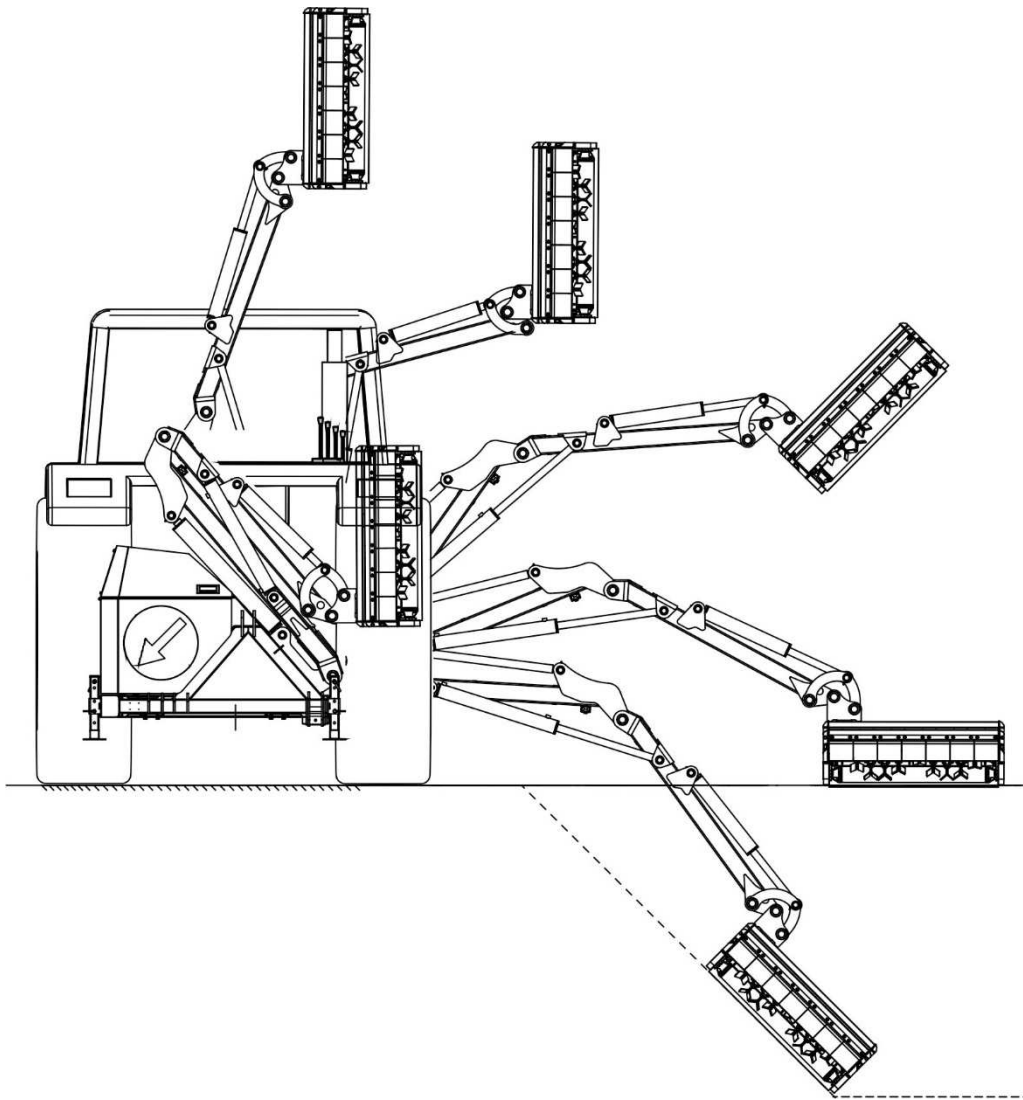


FIGURE 4.3 Examples of working positions of the mowing head on the multifunction arm.

- the cutting unit of the mowing head should be supported freely on the ground, on the tracking shaft. Slides should not touch the ground and the complete cutting unit should be set in parallel to the ground.

4.5.2 ADJUST CUTTING HEIGHT

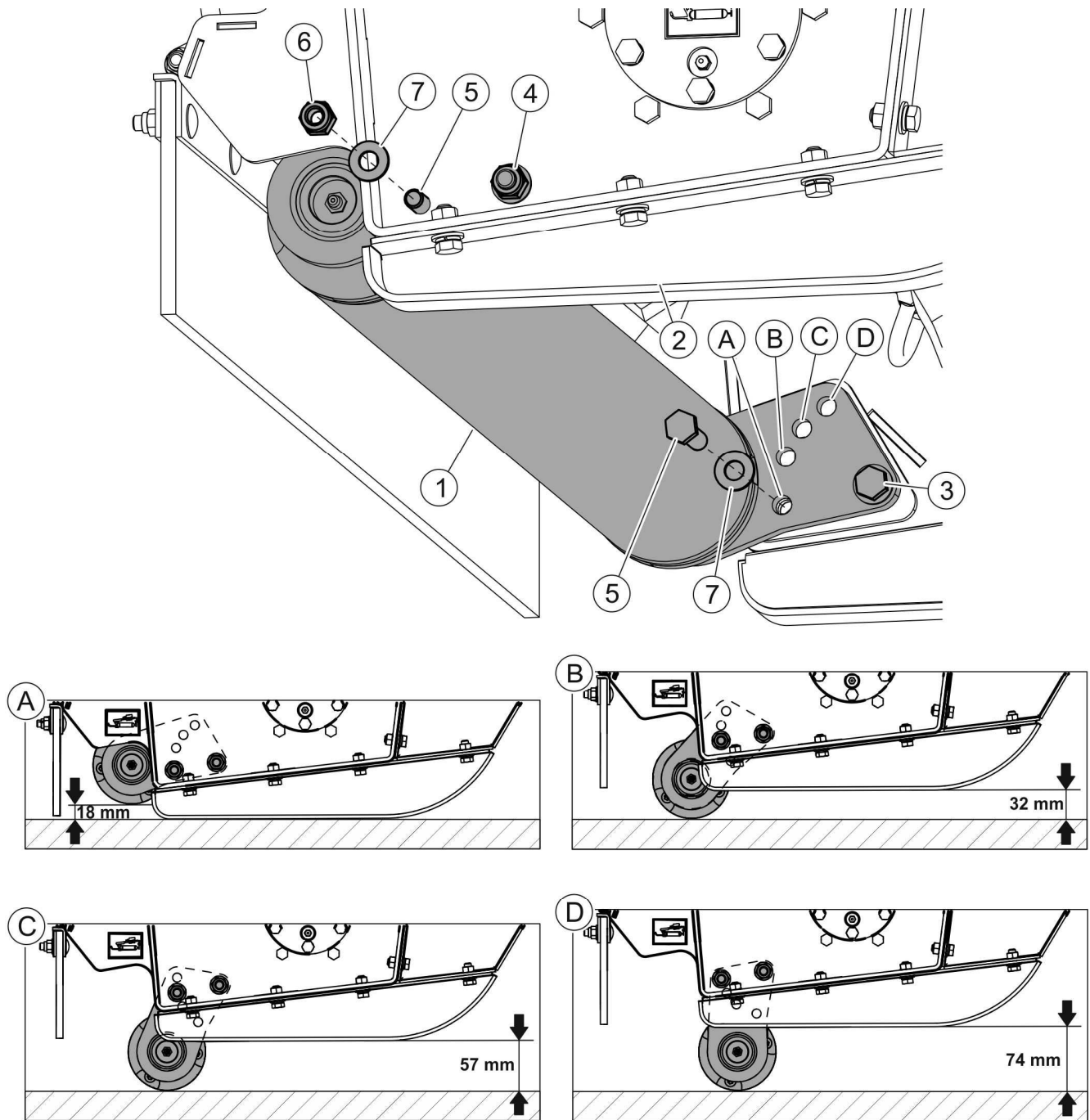


FIGURE 4.4 Adjust cutting height of the mowing head.

(1)- tracking shaft; (2)- slide; (3)- tracking shaft fixing bolt; (4)- nut; (5)- tracking shaft setting bolt; (6)- nut; (7)- nut; (A)- position of the tracking shaft setting bolt - 18 mm above surface of slides; (B)- position of the bolt setting cutting height of 32 mm; (C)- position of the bolt setting cutting height of 57 mm; (D)- position of the bolt setting cutting height of 74 mm.

When operating the mowing head on the ground, adjust the multifunction arm in such a way as to ensure that the mowing head slides (2) are set in parallel to the ground. Cutting height

can be modified by changing the tracking shaft (1) position with regard to the mowing head housing. In order to do this (FIGURE 4.4):

- loosen nuts (4) of bolts (3) on both sides of the tracking shaft (1) on which the tracking shaft will be turned;
- undo nuts (6) and remove fixing bolts (5) on both sides of the tracking shaft
- turn the tracking shaft with bracket so as to ensure that the opening in the bracket aligns with the opening in the side of the mowing head housing, depending on the cutting height to be achieved: B (32 mm), C (57 mm) or D (74 mm).
- insert fixing bolts (5) into appropriate openings and screw on the nuts (6),
- tighten nuts (4) of bolts (3) on which the tracking shaft was turned.

If the mowing head will be used for hedge trimming and will not be based on the tracking shaft, set the tracking shaft in position A (18 mm above the surface of slides).

4.5.3 ADJUSTMENT OF FRONT GUARD TILT

When changing the cutting height, the front guard tilt should be also changed (1) (FIGURE 4.5).

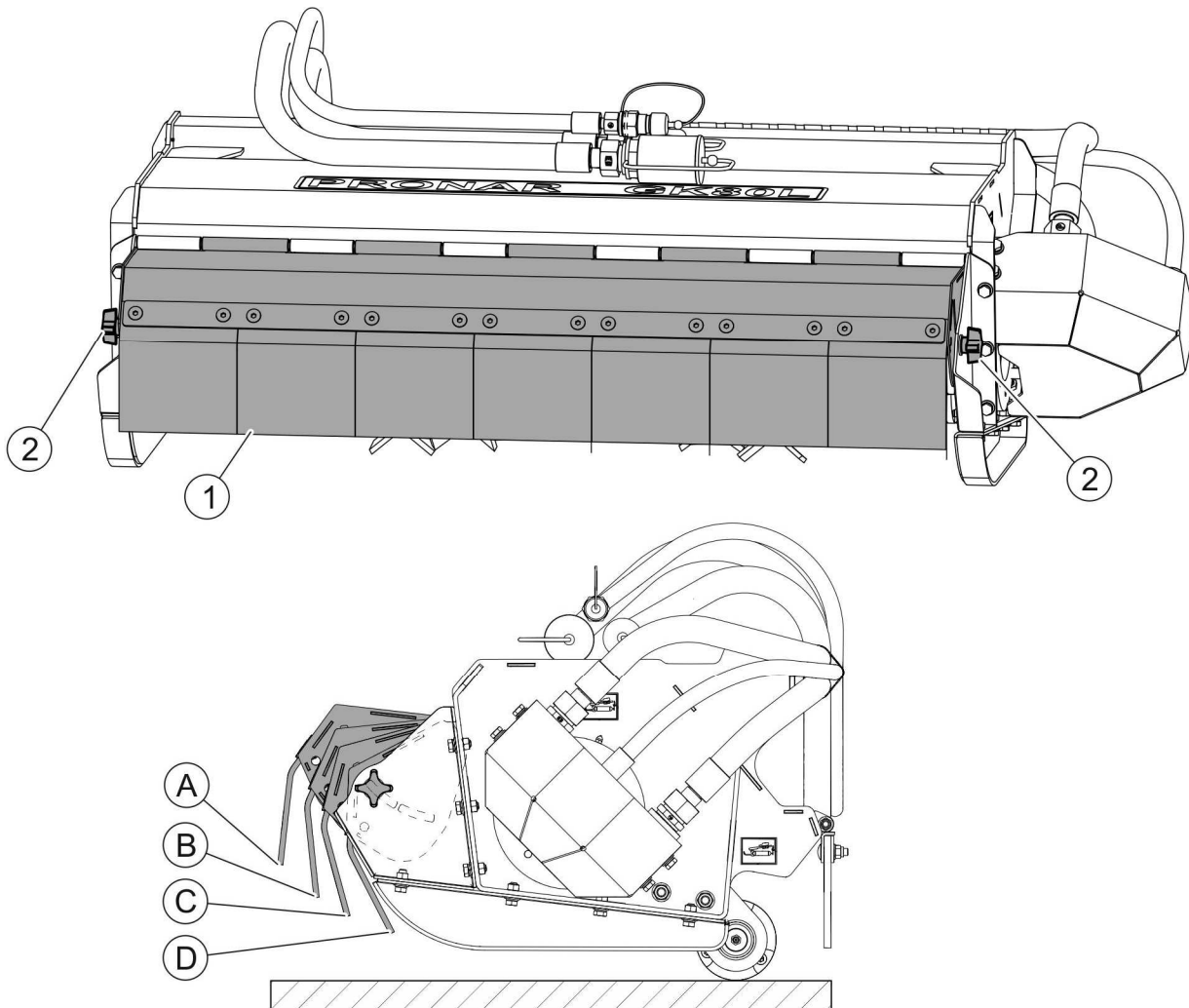


FIGURE 4.5 Adjust cutting height of the mowing head.

(1)- front guard; (2)- star knobs; (A),(B),(C),(D)- front guard tilt positions.

Always set the front guard in such a manner so that the cut material could enter under the guard and be prevented from ejecting outside the guard. In order to adjust the front guard tilt, loosen star knobs (2) on both sides of the front guard and then, change the guard tilt (1) so as to achieve the optimum distance between rubber elements of the guard and the ground (FIGURE 4.5). When a required guard tilt is set, secure the guard by tightening star knobs (2).

4.5.4 MOWING

DANGER



The mowing head may only be started when all guards are in place and the cutting unit is set in working position.

Before engaging mowing head drive make sure that there are no bystanders, especially children, near the mowing head.

Other persons should be at a safe distance from the mowing head during work because of the danger that objects may be thrown (stones, branches from beneath rotating disks).

NOTE



Before beginning work:

- lubricate cutting shaft bearings and tracking shaft bearings until grease appears between the shaft and bearing housing.
- check correctness of mounting and condition of cutting blades
- check condition of all bolt and nut connections and the mowing head's drive system

After setting the mowing head in working position and adjusting cutting height, the mowing head starting procedure may begin. To do this, start the hydraulic motor that drives the cutting shaft of the mowing head, by means of the control system of the multifunction arm.

Engage appropriate gear of the carrying vehicle (tractor) and start working.

HIGH NOISE LEVEL WARNING



Depending on the working conditions, the tractor with the machine may generate noise exceeding the level of 85dB at the driver position. In such conditions the driver should apply individual protection (protective ear guards).

In order to reduce the level of noise during work the tractor cab window and door should be closed.

Direction of cutting shaft rotation can be changed depending on type of mown material.

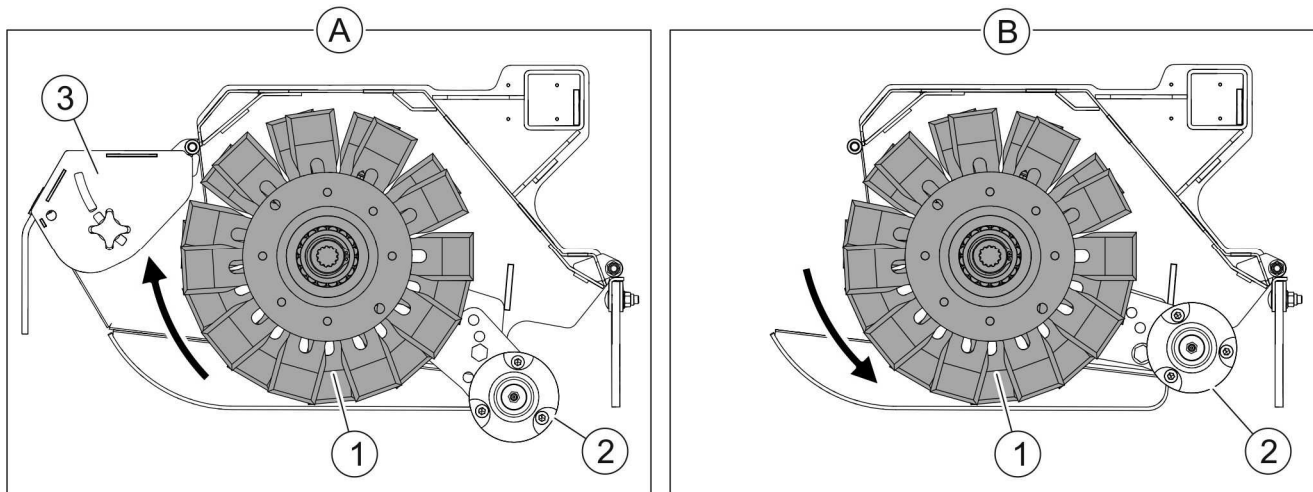


FIGURE 4.6 Direction of cutting shaft rotation in mowing head.

(1)- cutting shaft; (2)- tracking shaft; (3)- front guard (A)- direction of cutting shaft rotation - "up"; (B)- direction of cutting shaft rotation - "down".

Normally, when mowing grass, the mowing head should rotate in such a manner that the cutting shaft rotates "up" (A) (FIGURE 4.6), as seen from the side of the mowing head front. In this case, the front guard (3) should be lowered as much as possible. At the same time, the guard should be set in such a manner so that the cut material could enter under the guard.

When the mowing head is used for chopping shrubs or hedge maintenance, remove the front cover (Figure 5.2) and change the cutting shaft rotation direction to "down" (B). Then, the tracking shaft (2) should be maximally raised (position A (FIGURE 4.4)), so that cut material could enter the rear part of the mowing head. If the cutting shaft of the mowing head rotates in "down" direction, the drive system is more loaded and quality of cutting is worse. That is why, working speed of the mowing head should be reduced.

DANGER



Never operate the mowing head with dismantled tracking shaft (2) (FIGURE 4.6). This may damage the cutting shaft (1) and be dangerous for mowing head operator and other people.

Never operate the mowing head with dismantled cover (3) (Figure 4.6) with the cutting shaft rotation direction "up". This may be dangerous for mowing head operator and bystanders.

During operation, the multifunction arm operator shall ensure the proper visibility of the machine and work site so that the operator may see obstacles and possible dangers in the route of the mowing head. The rotating elements of the mowing head shall never be directed towards the carrying vehicle (agricultural tractor (FIGURE 4.7)).

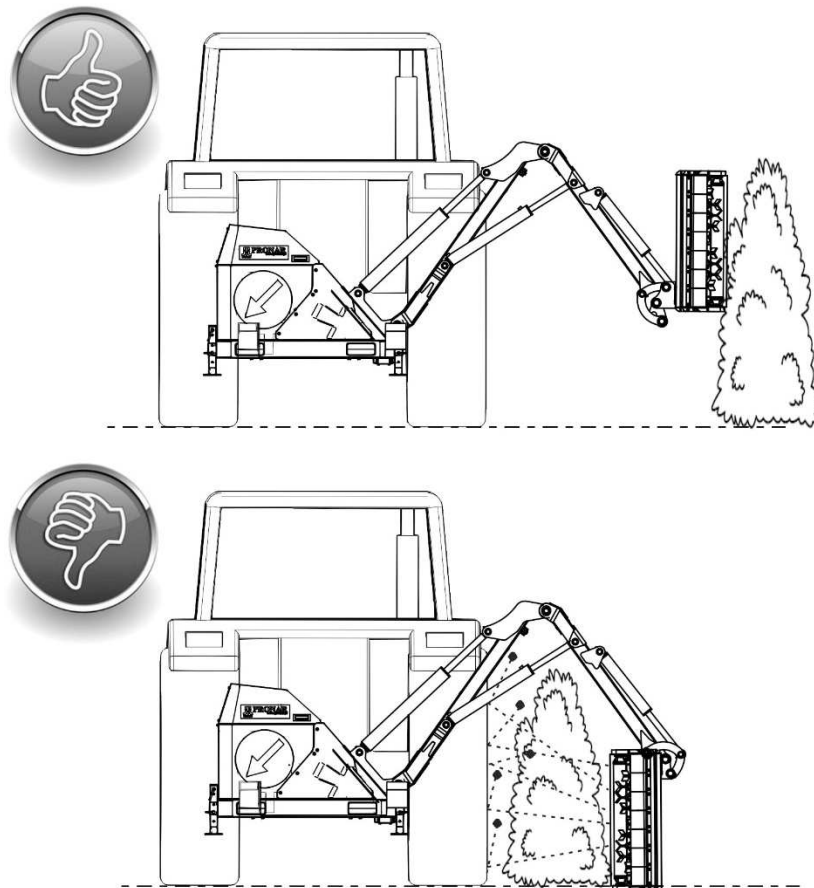


FIGURE 4.7 Proper position of the mowing head during hedge trimming.



DANGER

NEVER work if the rotating elements of the mowing head are directed towards the carrying vehicle (agricultural tractor). Otherwise the carrying vehicle (agricultural tractor) may be damaged or the operator may be injured.



DANGER

During operation with the arm of the multifunction arm raised, keep the arms and mowing head at a safe distance from overhead power lines (FIGURE 4.8).

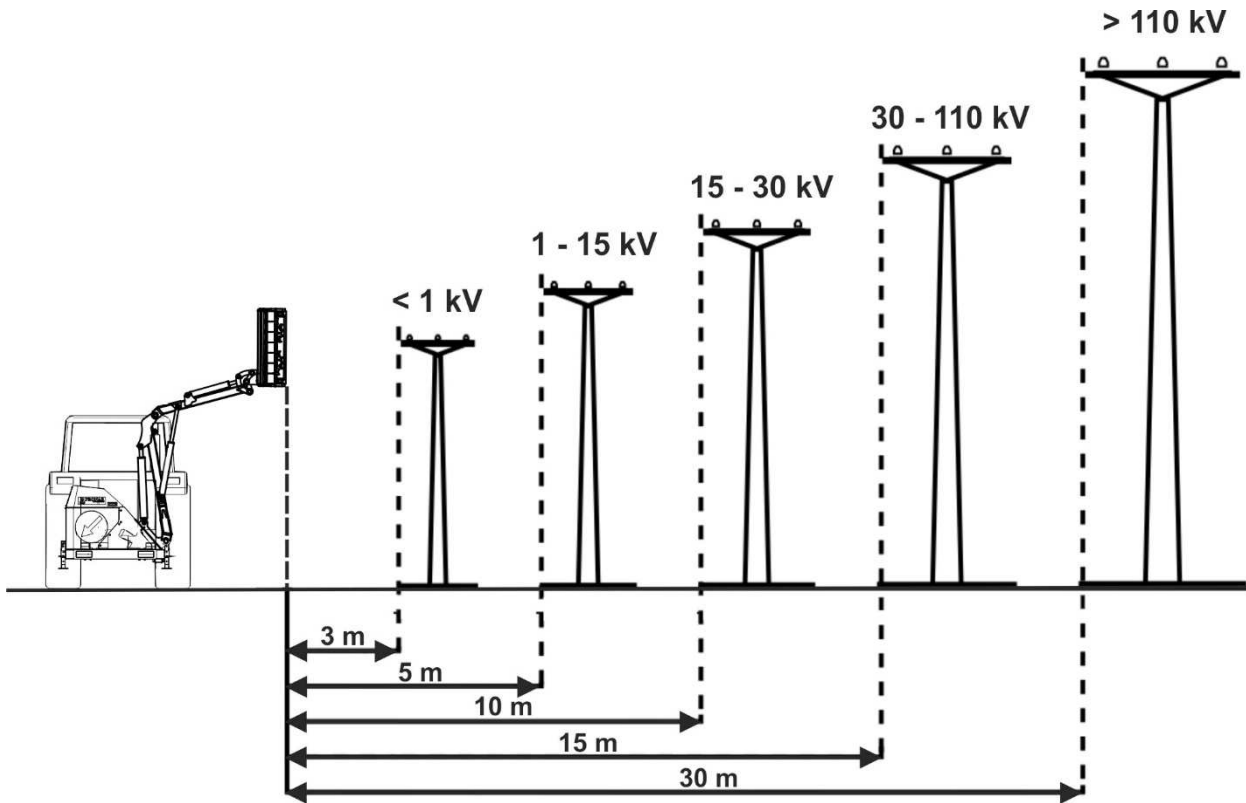


FIGURE 4.8 Safe distances of the machine from power lines.

In line with regulations in force, it is not acceptable to place work stations, machines or devices directly below overhead power lines or at a distance, calculated horizontally from extreme lines, lower than (FIGURE 4.8):

- 3 m - for lines with rated voltage up to 1 kV,
- 5 m - for lines with rated voltage above 1 kV and up to 15 kV,
- 10 m - for lines with rated voltage above 15 kV and up to 30 kV,
- 15 m - for lines with rated voltage above 30 kV and up to 110 kV,
- 30 m - for lines with rated voltage above 110 kV.

If it is impossible to keep the minimum distances in order to work safely in the vicinity of power lines, then apply to the nearest Power Utility and have the lines deenergised for the duration of operation.

NOTE

Operation and transport of the carrying vehicle (agricultural tractor) with hitched multifunction arm and mowing head is allowed only on slopes with the maximum inclination of 7°. However, due to changing location of centre of gravity depending on type of carrying vehicle (tractor) and length of multifunction arm, the allowable slope inclination angle may be smaller. That is why the user must exercise particular caution and determine by himself the maximum slope inclination angle for operating the carrying vehicle (tractor) with the mowing head.

If the full reach of the multifunction arm is to be used, make sure that stability of the carrying vehicle (agricultural tractor) will be maintained.

While working on slopes, do not raise the mowing head more than 0,5 m above the ground.

In the event of a tilt of the carrying vehicle (agricultural tractor) with the multifunction arm, immediately lower the mowing head to the ground and stop the carrying vehicle (agricultural tractor).

When mowing and chopping pay attention to uneven surface and obstacles in the mown crop. Mowing speed depends on the quantity and quality of mown crop but also on the type of terrain. Mowing speed must be reduced if:

- mown ground is uneven,
- mown and chopped crop is very high and dense,
- there is a great risk of running into foreign bodies e.g. stones, thick branches, steel or concrete objects.

Excessive cutting speed may cause overload of the mowing head's drive system and low quality of cut material.

When driving across the road, pavement or other obstacles and when making turns, raise the mowing head by means of the multifunction arm and disengage the mowing head drive.

Be especially careful when mowing along ditches, furrows and slopes.

When the multifunction arm with mowing head is raised, always start operating the mowing head at the highest point and move the head gradually downward. When the operation of the mowing head involves the falling of diverse plant material (branches) from a height, secure the work site so that no one is present in the zone of operation of the head and of the falling plant material.

Follow the proper sequence for hedge trimming (FIGURE 4.9). First, cut the side and bottom of the hedge on one side and then, cut the side and bottom of the hedge on the opposite side. Finally, cut the top part of the hedge to a required height.

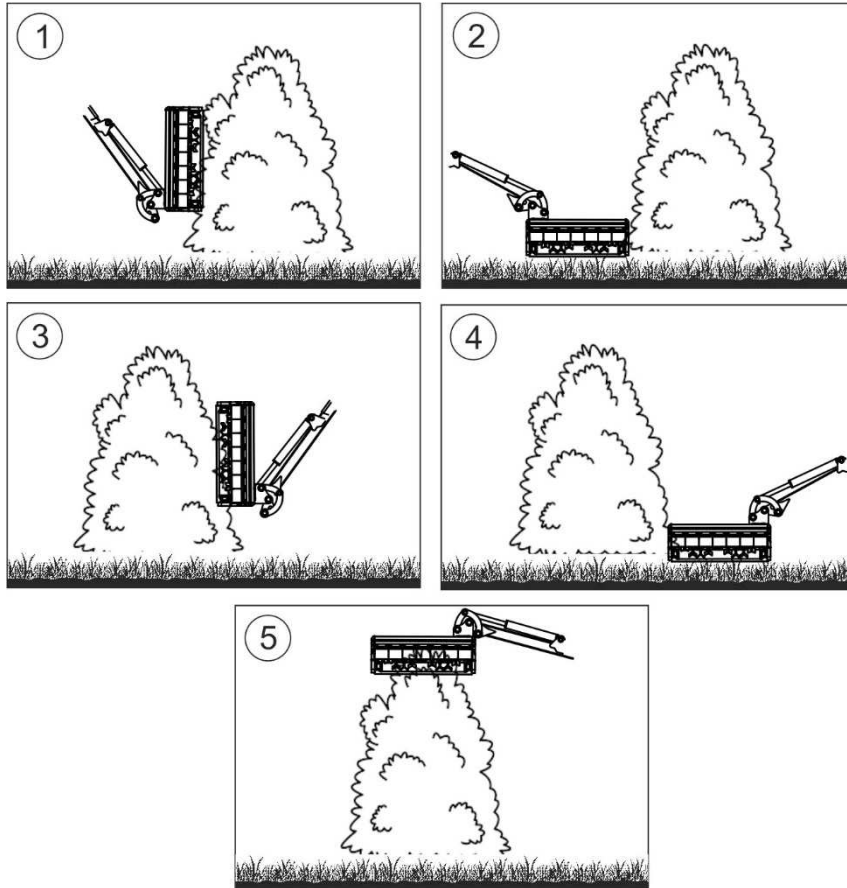


FIGURE 4.9 The sequence of hedge trimming.



DANGER

Bystanders should be at a safe distance from the mowing head during operation of the head on raised arm because of the risk of various materials (stones, branches etc.) falling and being thrown by the head.

4.5.5 REMOVE BLOCKAGES



DANGER

If the mowing head drive transmission system or cutting unit is blocked, turn off tractor engine and remove key from ignition. Secure tractor using parking brake and ensure that unauthorised persons, especially children, have no access to the tractor.

In the event of work requiring the mowing head to be raised, after lifting the machine, stable and durable supports must also be used. Do NOT carry out work under the machine, which has only been raised with the multifunction arm.

The machine must not be supported using fragile elements (bricks or concrete blocks).

If the mowing head's drive system is blocked during mowing, disengage the drive and check the cause of blockage. If blockage occurs as a result of accumulation of mown crop or wrapping of mown crop around the mowing head's cutting unit or as a result of contact with foreign objects (stones, branches, heaps of soil), remove accumulated crop (using a sharp tool) and check condition of cutting elements and their mounting.

In order to reduce the risk of blockage of cutting elements to minimum, mowing speed must be reduced.

4.6 UNHITCHING FROM EXTENSION BOOM



DANGER

Reduce pressure prior to disconnecting the hydraulic system..

In order to unhitch the mowing head from the multifunction arm (FIGURE 4.1), proceed as follows:

- lower the mowing head by means of the multifunction arm to rest position, on level surface,
- turn off tractor engine and remove key from ignition,
- reduce residual pressure in the hydraulic system by movement of appropriate lever controlling hydraulic circuit,
- disconnect quick couplers (A),(B),(C) of the multifunction arm's hydraulic system from quick couplers (D),(E),(F) of the mowing head's hydraulic lines and secure them with stoppers,
- disconnect handle of multifunction arm connection (1) from support beam (3) of the mowing head by unscrewing four bolts (4) that fix the head to the support beam,

The mowing head unhitched from the multifunction arm should be supported on the tracking shaft.

SECTION

5

MAINTENANCE

5.1 INSPECTION AND DISASSEMBLY OF SAFETY GUARDS

The mowing head may only be used when all the safety guards and other protective elements are technically sound and correctly positioned. Safety guards should protect against stones and other foreign objects thrown from the mower. In the event of loss or destruction of the safety guards, they must be replaced with new ones.



DANGER

Before inspecting or dismantling the guards, turn off the tractor engine and remove the key from the ignition. Mowing head must rest on the ground. Ensure unauthorised persons, especially children, have no access to the machine.

Method of disassembly of safety guards is shown in FIGURE 5.1.

When disassembling rubber elements (1) of the front guard, unscrew bolts (3) that fix clamping strip (2) and replace damaged rubber element (1).

When disassembling rubber apron (4), undo nuts (7) that fix clamping strip (5) and remove clamping strip together with apron (4) from bolts (6). Newly replaced apron (4) should be attached to the cutting unit housing by means of clamping strip (5).

Hydraulic motor guard (9) should be disassembled by unscrewing four bolts (10) that fix the guard to the mowing head housing.

Pay special attention to correct mounting of safety guards. Bolts should be tightened using appropriate tightening torque according to TABLE 5.3. TIGHTENING TORQUE FOR NUT AND BOLT CONNECTIONS.



IMPORTANT

The mowing head must not be started if safety guards are damaged, incorrectly mounted or unsecured.

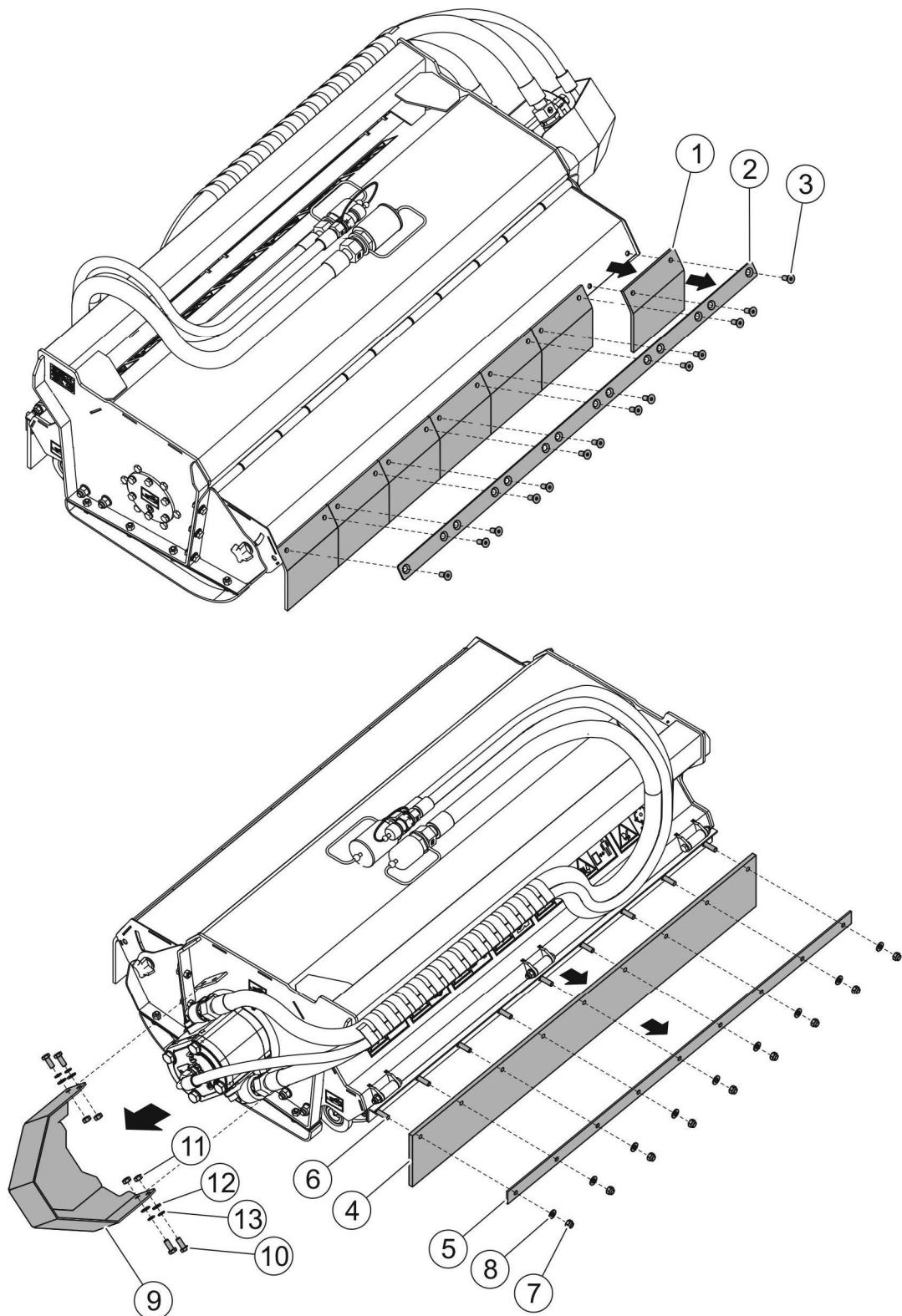


FIGURE 5.1 Disassemble safety guards.

(1)- rubber element of the front guard; (2)- clamping strip; (3)- bolt; (4)- rubber apron; (5)- clamping strip; (6)- bolt; (7)- nut; (8)- washer; (9)- hydraulic motor guard; (10)- bolt; (11)- nut; (12)- washer; (13)- washer

If you change the direction of rotation of the cutter shaft "down" (the mowing head is used for chopping shrubs or hedge maintenance) (FIGURE 4.6), you must remove the front guard (FIGURE 5.2).

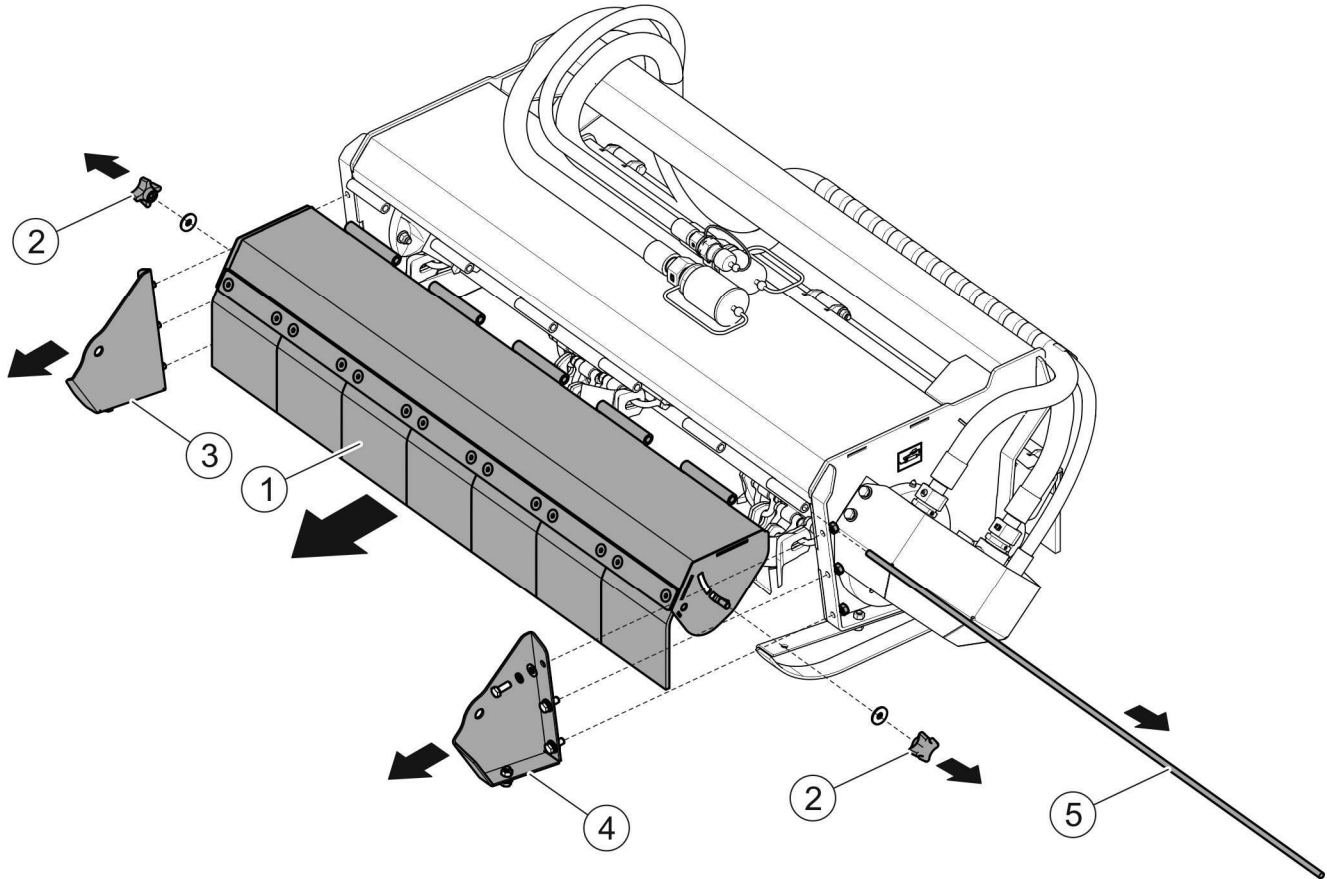


FIGURE 5.2 Remove the front guard.

(1)- guard; (2)- star knob; (3)- right guard bracket; (4)- left guard bracket; (5)- pin.

To remove the front guard:

- Undo star knobs (2) and remove guard brackets (3) and (4);
- remove the guard (1) by sliding the cotter pin (5) out of guard sleeves (1) and the body of the mowing head.

If you change the cutting shaft rotation direction to "up", replace the front guard.



DANGER

Never operate the mowing head with dismantled front guard (Figure 5.2) with the cutting shaft rotation direction "up". This may be dangerous for mowing head operator and bystanders.

5.2 CHECKING AND REPLACING CUTTING BLADES



DANGER

Before inspecting or replacing the cutting blades, turn off the tractor engine and remove the key from the ignition. The mowing head must be mounted on the hitch of the multifunction arm's head in transport position and supported on stable and strong supports.

Inspections of blades must be carried out regularly. Visual inspection involves checking the blade condition and its mounting. Blades should be worn down uniformly and have the same weight and be of the same type. Blade wear (1) (FIGURE 5.3) where in contact with shackle (2) must not exceed 30%. Excessively worn, distorted or damaged blade must be replaced with a new one provided by the mower manufacturer (TABLE 5.1). Before proceeding to replace the blades, clean the residue of mown material from the cutting shaft.

When replacing blades (1) note the condition of shackle (2) and bolts (3) fixing blade to cutting shaft. Replace the shackle when at the contact with the blade wear exceeds 30% of the cross section. Excessively worn or damaged shackle or bolt must be replaced with a new one with the same strength class (class 10.9). Tighten self-locking nut (4) of bolt using appropriate tightening torque to prevent it from unscrewing during the mowing head operation.



NOTE

Excessively worn blade or shackle or missing blade or its fragment causes excessive cutting shaft vibration and may cause damage to the mowing and presents a risk for the operator and the bystanders.



DANGER

Use only the blades and mounting provided by the mowing head manufacturer.



NOTE

Check the technical condition of blades and then mounting on each occasion after driving over obstacle e.g. stone, piece of wood, metal etc.

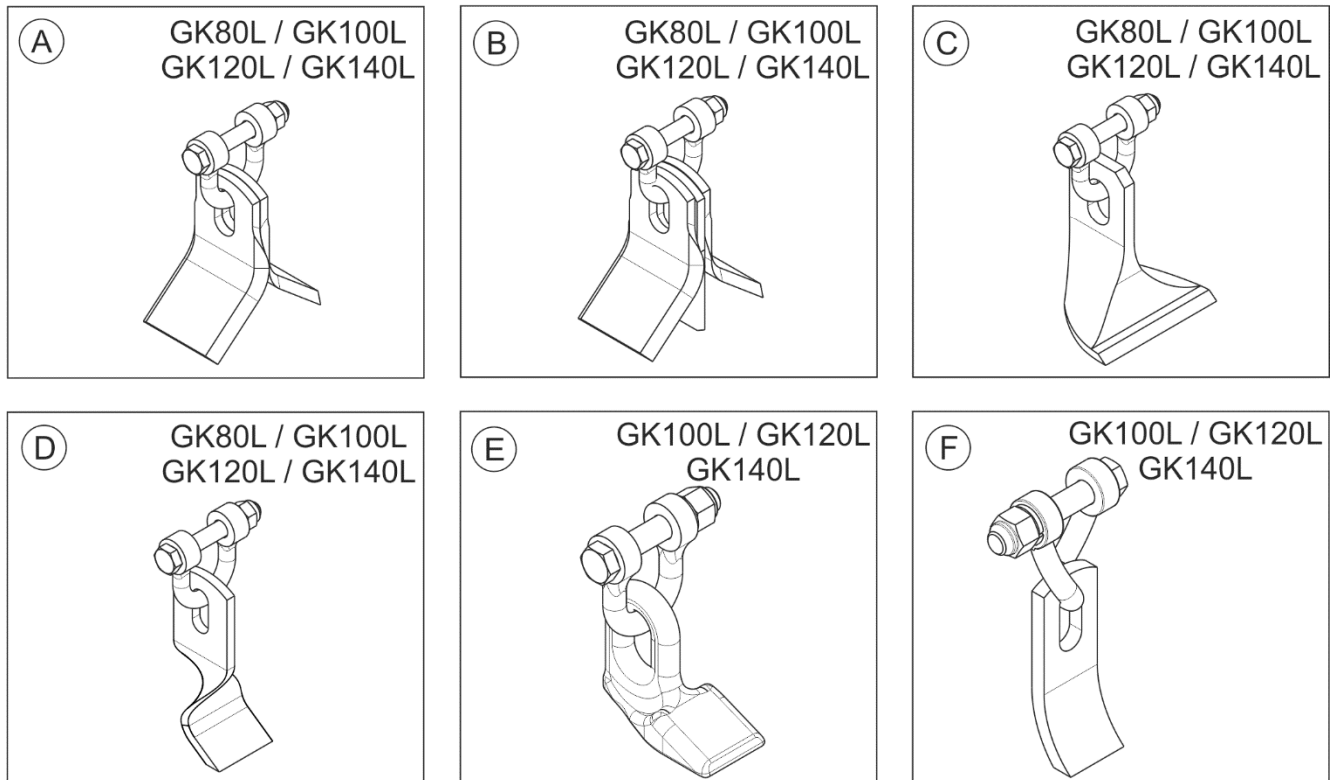
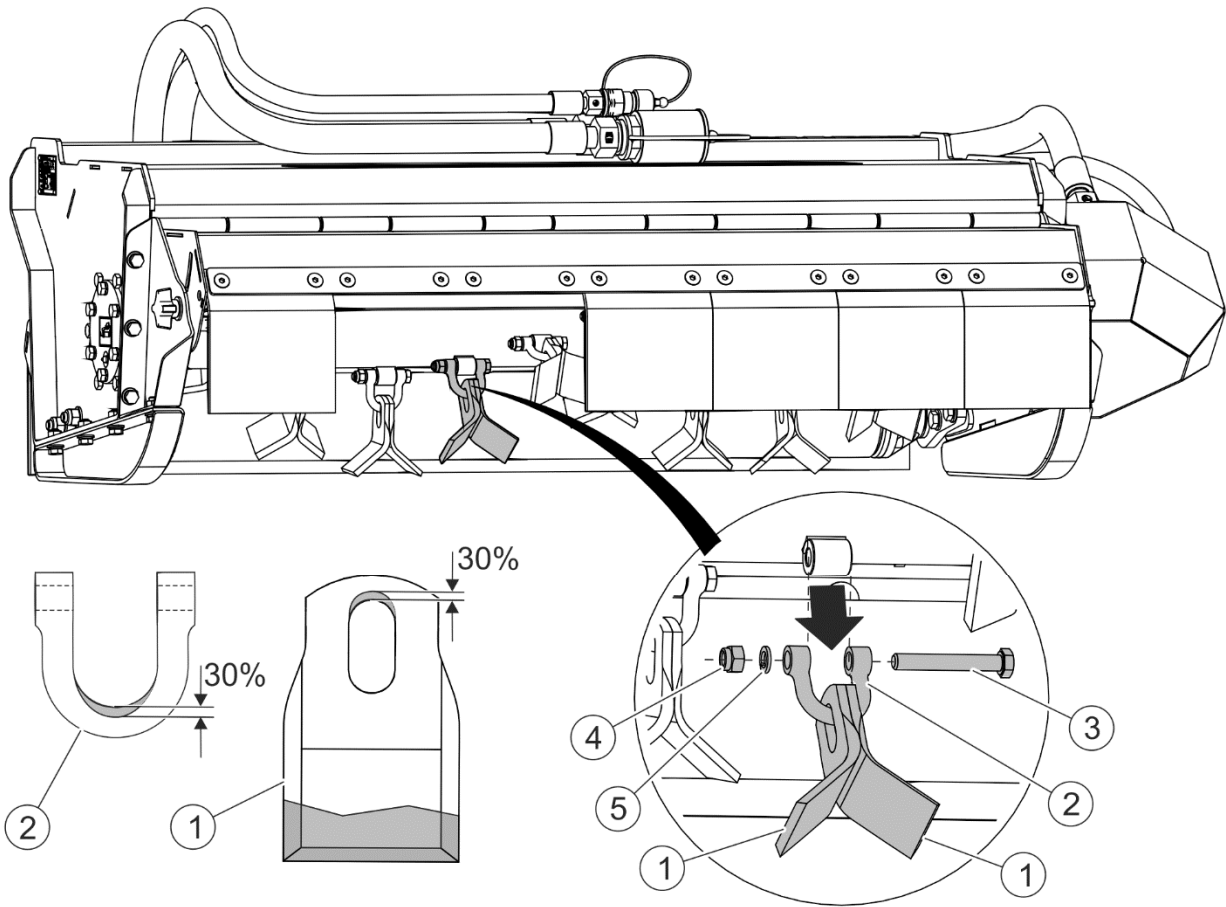


FIGURE 5.3 Check and replace cutting blades.

(1)- cutting blades; (2)- shackle; (3)- fixing bolt; (4)- self-locking nut; (5)- spring washer.

TABLE 5.1 BLADE TYPES COMPATIBLE WITH PRONAR GK80L / PRONAR GK100L MOWING HEADS

IDENTIFICATION (FIGURE 5.3).	HEAD TYPE	BLADE KIT (CATALOGUE NO.)	QUANTITY
A	PRONAR GK80L	Kit „080A” (445N-08000000)	22
	PRONAR GK100L	Kit „100A” (445N-08000000-01)	24
	PRONAR GK120L	Kit „100A” (445N-08000000-01)	26
	PRONAR GK140L	Kit „100A” (445N-08000000-01)	30
B	PRONAR GK80L	Kit „080B” (445N-08000000-02)	22
	PRONAR GK100L	Kit „100B” (445N-08000000-03)	24
	PRONAR GK120L	Kit „100B” (445N-08000000-03)	26
	PRONAR GK140L	Kit „100B” (445N-08000000-03)	30
C	PRONAR GK80L	Kit „080C” (445N-08000000-05)	22
	PRONAR GK100L	Kit „100C” (445N-08000000-06)	24
	PRONAR GK120L	Kit „100C” (445N-08000000-06)	26
	PRONAR GK140L	Kit „100C” (445N-08000000-06)	30
D	PRONAR GK80L	Kit „080D” (445N-08000000-09)	22
	PRONAR GK100L	Kit „100E” (445N-08000000-10)	24
	PRONAR GK120L	Kit „100E” (445N-08000000-10)	26
	PRONAR GK140L	Kit „100E” (445N-08000000-10)	30
E	PRONAR GK100L	Kit „100D” (445N-08000000-08)	24
	PRONAR GK120L	Kit „100D” (445N-08000000-08)	26
	PRONAR GK140L	Kit „100D” (445N-08000000-08)	30
F	PRONAR GK100L	Kit „100F” (445N-08000000-11)	24
	PRONAR GK120L	Kit „100F” (445N-08000000-11)	26
	PRONAR GK140L	Kit „100F” (445N-08000000-11)	30

5.3 MOUNT CENTRAL SUPPORT BEAM FOR GK100L / GK120L / GK140L MOWING HEAD (OPTION)

For GK100L / GK120L / GK140L mowing head there is an option to mount central support beam 60x60 to mowing head body (FIGURE 5.4).

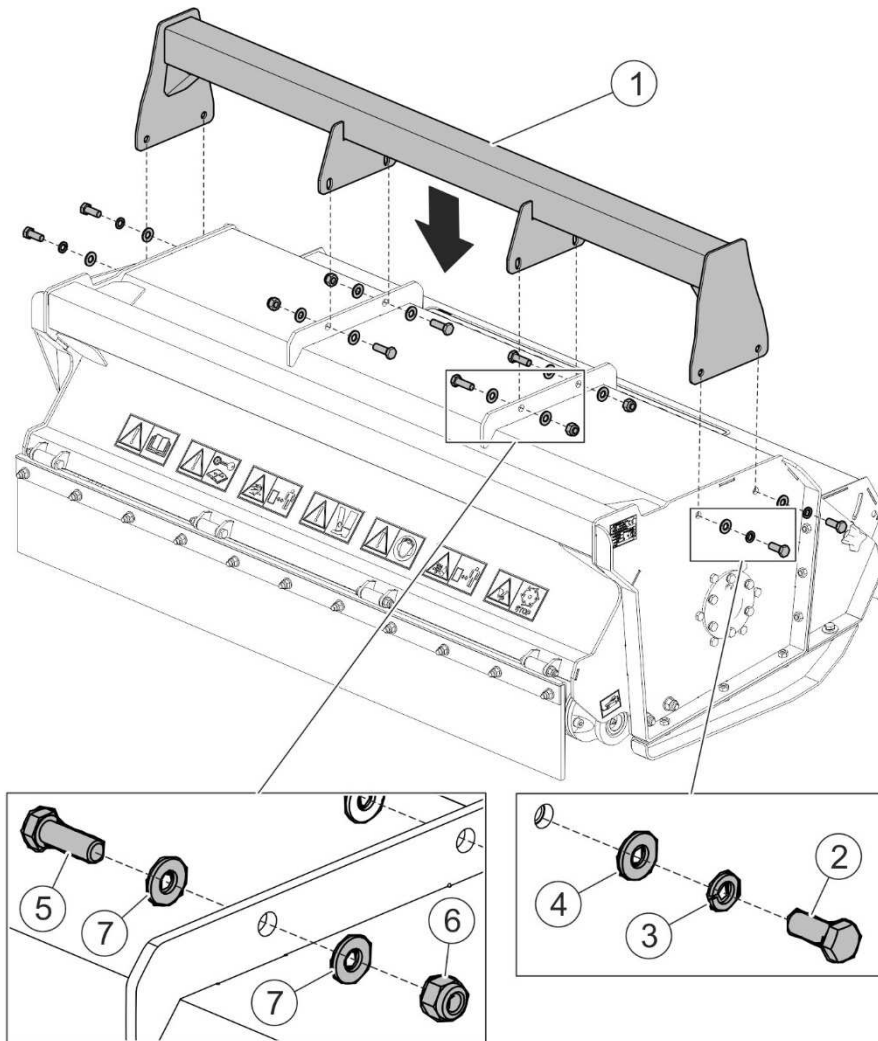


FIGURE 5.4 Mount central support beam (option)

(1)- central support beam 60x60; (2)- bolt; (3)- spring washer; (4) – washer; (5)- bolt; (6)- self-locking nut; (7)- washer;

5.4 DRIVE SYSTEM MAINTENANCE

Maintenance of the mowing head's drive system involves periodic inspection of the condition of connections of hydraulic lines (2) (FIGURE 5.5) with hydraulic motor (1) and inspection of the technical condition of hydraulic motor. Attachment of hydraulic motor (1) to the mowing head housing by means of bolts (4) should be also checked.



DANGER

Do NOT perform service or repair work under raised and unsupported machine.



Connections of hydraulic lines supplying hydraulic motor should be checked daily.

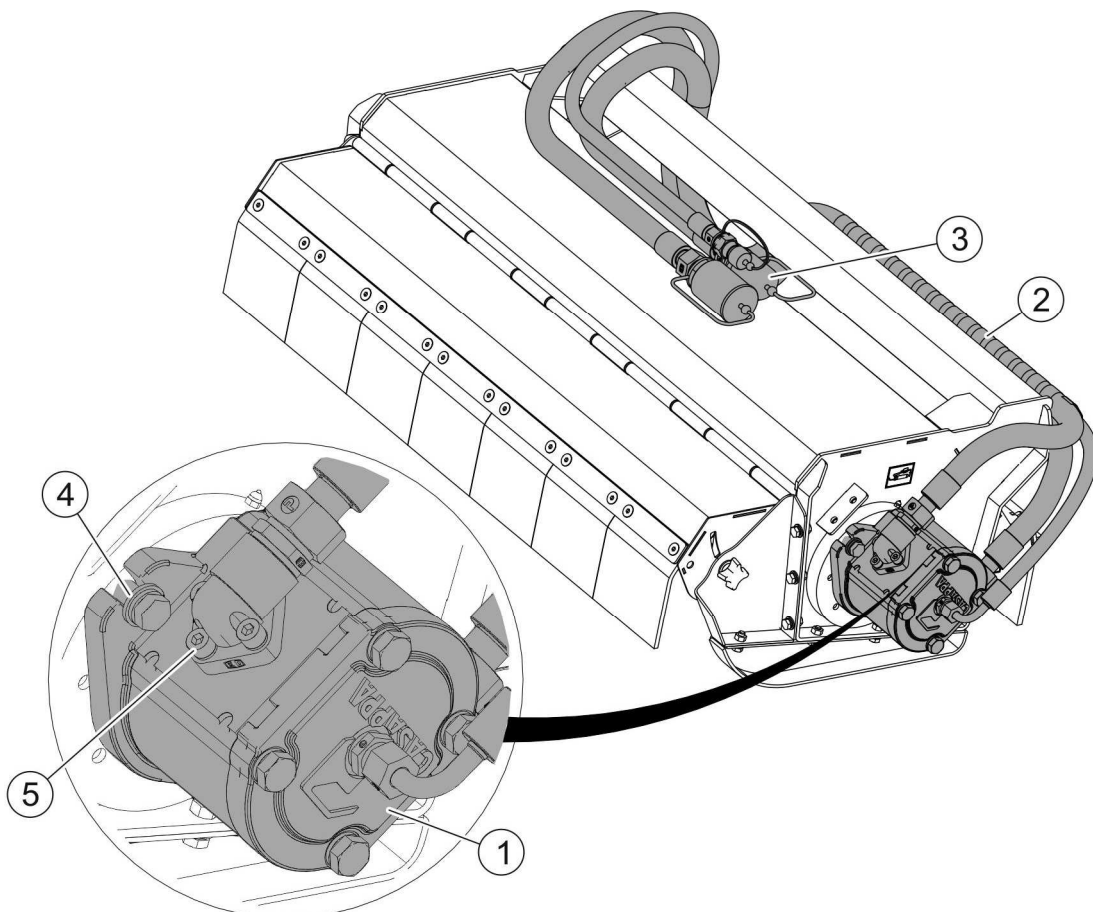


FIGURE 5.5 Inspection of the mowing head's drive system.

(1)- hydraulic motor; (2)- hydraulic lines; (3)- quick couplers of hydraulic lines; (4)- bolt; (5)- bolt.

5.5 STORAGE

After completion of work the mowing head should be carefully cleaned and washed with a water jet. While washing do not direct a strong water or steam jet at information and warning decals, bearings or hydraulic lines. Nozzle of pressure or steam washer should be kept at a distance of not less than 30 cm from cleaned surface.

After cleaning, inspect the whole machine, inspect technical condition of individual elements. Used or damaged elements should be repaired or replaced.

In the event of damage to the paint coat, clean rust and dust from damaged area, degrease and then paint with undercoat and after it is dry paint with surface coat paint retaining colour uniformity and even thickness of protective coating. Until the time of touch-up painting, the damaged place may be covered with a thin layer of grease or anticorrosion preparation. Mowing head should be kept in closed or roofed building.

If the mowing head shall not be used for a long period of time, protect it against adverse weather conditions. Lubricate the mowing head according to the instructions provided. In the event of prolonged work stoppage, it is essential to lubricate all elements regardless of the date of the last lubrication.

5.6 LUBRICATION

Machine lubrication should be performed with the aid of a manually or foot operated grease gun, filled with generally available grease. Before commencing lubrication insofar as is possible remove old grease and other contamination. Remove and wipe off excess oil or grease



When using the machine the user is obliged to observe lubrication instructions according to attached schedule. Excess lubrication substance causes depositing additional contaminants in places requiring lubrication, therefore it is essential to keep individual machine elements clean.

Lubrication points are shown in figure 5.6 and detailed in Table 5.2.

TABLE 5.2 LUBRICATION POINTS

ITEM	NAME	NUMBER OF LUBRICATION POINTS	TYPE OF GREASE	LUBRICATION FREQUENCY
1	Flail shaft bearing	2	grease	daily
2	Tracking shaft bearing	2	grease	daily

Marking description in Item column TABLE 5.2 conforms with numbering shown (FIGURE 5.6)

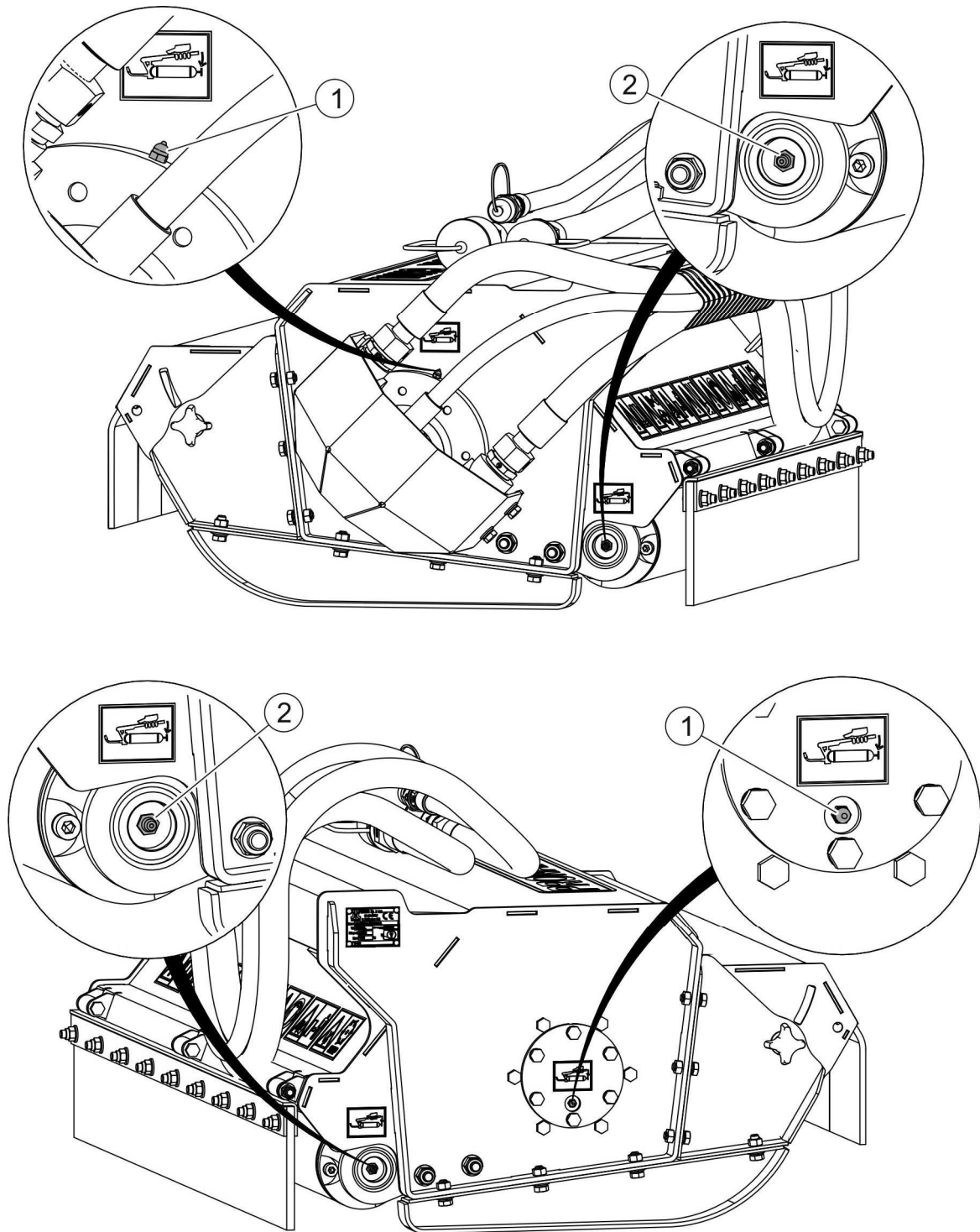


FIGURE 5.6 Lubrication points

Lubrication points are described in table 5.2

5.7 TIGHTENING TORQUE FOR NUT AND BOLT CONNECTIONS

Unless other tightening parameters are given, during maintenance repair work apply appropriate torque to tightening nut and bolt connections. Recommended torque values apply to non-greased steel bolts.



NOTE

Should it be necessary to change individual parts, use only original parts or those indicated by the Manufacturer. Non-adherence to these requirements may put the user and other people's health and life at risk, and also cause damage to the machine.

TABLE 5.3 TIGHTENING TORQUE FOR NUT AND BOLT CONNECTIONS

THREAD DIAMETER [mm]	8.8	10.9
	TIGHTENING TORQUE [Nm]	
M6	10	15
M8	25	36
M10	49	72
M12	85	125
M14	135	200
M16	210	310
M20	425	610
M24	730	1,050
M27	1,150	1,650
M30	1,450	2,100
M32	1,450	2,100

5.8 TROUBLESHOOTING

TABLE 5.4 TROUBLESHOOTING

TYPE OF FAULT	POSSIBLE CAUSE	REMEDY
It is impossible to start the mowing head drive	Incorrectly connected or damaged quick couplers of the multifunction arm or mowing head	Check quick couplers and manner of their connection
	The hydraulic system of multifunction arm or mowing head is out of order	Check condition of the hydraulic system of multifunction arm and mowing head
Excessive vibration during work	Damaged or missing blade	Check blades, if necessary replace
	Damaged bearings of the cutting shaft	Repair at an authorised service point
Mowing head drive stops during mowing	The multifunction arm's hydraulic system or the mowing head's hydraulic motor is out of order	Disconnect power from mower; remove collected grass or foreign body from cutting unit. Repair at an authorised service point

NOTES

A series of horizontal dotted lines for writing notes.

