



BRUSH CUTTER MULCHER
OPERATION AND MAINTENANCE GUIDE
(ORIGINAL INSTRUCTIONS)



Type: ARS 60/ARS 80/ARS 100

Serial number:

Construction year:

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EC Declaration of Conformity (*Annex IIA Machinery Directive 2006/42/EC*)

The firm hereby:



DELEKS Ltd.

23 Via Industriale
25028 Verolanuova (BS)
Italy

declares that the hydraulic mower of its own manufacture:

Machine: **hydraulic mower**

Type:....ARS

Serial No.:.....

Year of construction:.....

To which this statement refers complies with the following guidelines:

- Machinery Directive 2006/42/EC

And to the following harmonized standards:

- UNI EN ISO 12100:2010 *"Safety of machinery -General principles of design - Risk assessment and risk reduction"*
- UNI EN ISO 4413:2012 *"Hydraulics - General rules and safety requirements for systems. and their components."*



It is also stated that the machine is marked

The person authorized to establish the technical file is:

The holder

Verolanuova/...../.....

WARNINGS

FOREWORD

This Use and Maintenance Manual for the hydraulic mower, describes the directions that enable operators to use the machine to the best of its operational capabilities and provides information and instructions necessary for working in compliance with the new European safety standards.

The careful design is aimed at eliminating or significantly reducing the risks present to the operator. The sturdy construction of the hydraulic mower allows it to operate under the proper conditions of safety.

Operators are obliged to carefully follow all directions in this publication, especially those pertaining to safety regulations.

Upon delivery of the Machine, the Operation and Maintenance Manual is supplied in single copy. It is advisable in case it is not possible to keep it without preventing it from deteriorating, to make a copy of the same. If necessary, you can contact the Manufacturer **DELEKS S.r.l** to request an additional copy .

DELEKS S.r.l accepts no responsibility for possible inaccuracies in this manual if they are due to printing or transcription errors.

DELEKS S.r.l holds the right if it deems it necessary or useful to modify its machines without placing changes in the essential characteristics.

PURPOSE AND CONTENTS OF THE OPERATION AND MAINTENANCE MANUAL

The hydraulic mower is named in the "CE" Declaration at the beginning of this publication; it is also described in all its parts in this Operation and Maintenance Manual.

For quick and easy reference in the manual, the hydraulic mower in question will be referred to as "Machine" in abbreviated form.

The Handbook enables operators to:

- working safely.
- Learning about problems that may arise in the use of the Machine and during permitted processing.

Inside, the Manual contains information and instructions related to use and proper maintenance, along with accident prevention and safety rules.



WARNING!

Keep this Manual in an easily accessible place known to all operators and users (e.g., maintenance personnel).

The Manual is an integral part of the Machine for safety purposes for this reason it must be kept intact in all its parts.

GENERAL SAFETY RULES AND LIMITED USE

This section lists the general rules to be observed during normal use of the Machine.

The operator and maintenance technicians are obliged to observe all of the above recommendations so as to use the Machine safely.



WARNING!

- *Before using the Machine, the operator must have carefully and attentively read all the instructions described in the Manual;*
- *Clear the work area before operating the Machine;*
- *Always check that all applicable safety regulations are followed;*
- *Do not approach moving parts with Machine in motion/movement;*
- *To prevent accidental start-up of the Machine, always remove the ignition keys from the control panel of the mini-excavator;*
- *Be careful in case the Machine is used on sloping, slippery or uneven ground, etc. for the mini-excavator;*
- *If the Machine is used on public roads, take the necessary measures covered in the Highway Code;*
- *Only trained and qualified personnel who are aware of all the safety precautions to be taken are instructed in using the Machine and maintaining it;*
- *It is forbidden to use the Machine and any other maintenance work if you are not provided with Personal Protective Equipment;*
- *The Machine is designed for a specific use, do not use it for other purposes or incorrectly.*



WARNING!

The manufacturer DELEKS S.r.l disclaims any liability relating to damage to persons or property caused by failure to comply with the warnings previously argued.



WARNING

To work safely, the operator should always follow the directions listed below:

- **Remain seated in the driver's seat of the mini-excavator;**
- **Make sure that there are no people, animals or things within the working range of the Machine;**
- **Before carrying out any kind of adjustment or maintenance work, place the Machine in "maintenance status".**

ALWAYS use suitable Personal Protective Equipment (e.g., protective gloves, overalls) before working on the Machine.

OPERATING ZONE.

Work areas should NEVER be engaged by persons or things not ordinarily expected during normal use of the Machine. The operator is responsible for continuously ensuring that there is no presence of people, animals or things within the working radius of the Machine. The work area must be provided with adequate lighting; if this is not possible, the operator must make use of the lighting system installed on the mini-excavator or suitable external artificial lighting systems.















WARNING!

Do not put hands or introduce, screwdriver, wrench or other tools on moving parts.

SAFETY PICTOGRAMS ON THE MACHINE

Safety pictograms are applied on the Machine near the most dangerous areas. If the pictogram is deteriorated to such an extent that it becomes illegible, it is mandatory to replace it with one of equal size, representation and color.

Signage	Residual risk	What to do to eliminate the risk	Signal position on the machine
Signs of DANGER			
	<i>Danger. Do not stand near moving parts.</i>	<i>Warning. Remain at a safe distance.</i>	<i>On board.</i>
	<i>Danger. Maintain a minimum safe distance of at least 50 meters from the Machine when it is in operation.</i>	<i>Warning. Remain at a safe distance.</i>	<i>On board.</i>
	<i>Danger from moving elements.</i>	<i>Caution. Make sure the Machine is completely stopped before approaching.</i>	<i>On board.</i>
	<i>Danger from outside temperatures.</i>	<i>Warning. Remain at a safe distance.</i>	<i>On board.</i>
	<i>Danger from the thrown objects.</i>	<i>Warning. Remain at a safe distance.</i>	<i>On board.</i>
Signs of OBLIGATION			
	<i>Obligation to read the manual.</i>	<i>Read the Operation and Maintenance Manual before operating the Machine.</i>	<i>On board.</i>
	<i>Mandatory protective clothing.</i>	<i>It is mandatory to wear work clothes.</i>	<i>On board.</i>
	<i>Mandatory safety shoes.</i>	<i>The use of protective and non-slip shoes is mandatory.</i>	<i>On board.</i>
	<i>Mandatory gloves.</i>	<i>The use of protective gloves is mandatory.</i>	<i>On board.</i>
	<i>Mandatory hearing protectors.</i>	<i>It is mandatory to protect hearing.</i>	<i>On board.</i>
	<i>Mask requirement.</i>	<i>It is mandatory to wear a face mask.</i>	<i>On board.</i>

Signage	Residual risk	What to do to eliminate the risk	Signal position on the machine
	<i>Obligation to wear glasses.</i>	<i>Eye protection is mandatory.</i>	<i>On board.</i>

ADDITIONAL GENERAL WARNINGS

Attention should be given at this point in the Manual to a list of additional general safety warnings for the most common conditions of use:

- Always follow the directions in the safety pictograms on the machine;
- Before operating the Machine make sure that there are no people carrying out maintenance or cleaning work near the most dangerous areas;
- Do not lubricate, repair or adjust moving parts;
- All types of maintenance work should be carried out by competent and authorized technicians only after making the "***maintenance status***" sign on the Machine.



WARNING!

Never abandon the Machine by leaving it unattended when it is in operation!

1. OPERATOR

1.1 TRAINING.

It is the employer's responsibility to provide each worker operating on the Machine with adequate training inherent to health and safety in the workplace and all necessary information that will enable these workers to perform their duties to the best of their ability.

This information must occur especially when hiring or changing duties and skills, or when for functional purposes modifying the Machine by altering its operation or safety.

In addition, it is always the employer's responsibility to update the worker's training in step with any evolution of risks due to the emergence of new sources of danger due, for example, to changes on the configuration of the Machine or individual mechanical groups/equipment of the same.

1.2 PERSONAL PROTECTIVE EQUIPMENT

The operator and maintainer who carry out the various activities allowed on the Machine must use Personal Protective Equipment (PPE), such as goggles, shoes, gloves or hearing protectors that will enable them to nullify all possible hazards arising from the performance of the various activities.








WARNING!

During processing and maintenance, personnel should wear appropriate work suits to prevent accidents from occurring. In order to avoid mechanical hazards such as dragging, entrapment and others, it is recommended that:

- Do not wear accessories such as bracelets, watches, rings, chains.
- Wear suitable work clothes that do not have fluttering parts.

1.2.1 Machine Operator: Conductor

PPE to be used:

				
Protective gloves	Safety footwear	Body protection	Otoprotectors	Eye protection

1.2.2 Machine Operator: Maintainer

PPE to be used:

					
Protective gloves	Safety footwear	Body protection	Otoprotectors	Eye protection	Respiratory protection: face mask (category II)

1.3 OPERATIONAL METHOD TO BE FOLLOWED IN CASE OF INJURY

BEHAVIOR OF WORKERS: In case of injury or illness, the person concerned or his or her caregiver shall:

- Keeping calm;
- Turn off the mini-excavator through the ignition key;
- Contact immediately, the first aid team members. In the case of unavailability of the attendants, such as outside normal working hours, if necessary independently request the intervention of the Health Emergency Service;
- Wait for help to arrive without abandoning the injured person;
- Provide rescuers with all necessary information.

1.4 OPERATIONAL METHOD TO BE FOLLOWED IN CASE OF FAILURE OR ANOMALY

In the event of mechanical failure or abnormality (e.g., jamming of material or mechanical organs, etc....) of the Machine, workers must follow the behavioral norms in this section.

NEVER operate while the Machine is enabled, but section off power sources and ALWAYS wait for moving parts to come to a complete stop before performing any work.

The operator who detects an anomaly/fault during operation must:

- Stop the Machine immediately by turning off the mini-excavator through the ignition key;
- Do not intervene on the Machine, but contact your supervisor immediately, reporting the cause that caused the failure/malfunction;
- Wait for the arrival of the person in charge, avoiding taking personal action;
- Strictly follow the directions given to him (complying with the requirements in this manual);
- If necessary, the person in charge activates the Maintenance Service in order to restore the normal operation of the Machine.

1.5 PROFESSIONAL FIGURES TO BE TRAINED SAFETY

Safety training covers all personnel actively and passively working on the Machine.

Maintenance workers, laborers, crane and forklift operators, and many temporary outside workers who sometimes find themselves performing tasks in the hazardous areas of the Machine are all individuals who need adequate training to understand the basic safety measures to be taken at the plant, although of course the degree of safety training depends on how much each of these individuals works in contact with the Machine.

2. GENERAL INFORMATION

Before operating the Machine, the operator must have carefully read this Manual and deeply understood all the technical specifications for use.

The instructions in this publication are essential for:

- The quality of the work done;
- The efficiency and safety of the Machine;
- The safety of personnel involved in the maintenance, installation, and operation of the Machine.

WARNING. It is not allowed to operate the Machine if there is any doubt about the correct interpretation of the instructions.

For any clarifications, please contact the manufacturer **DELEKS S.r.l.**

2.1 MANUFACTURER'S DATA

The following are the details of the Manufacturer **DELEKS S.r.l.**:

DELEKS Ltd.

23 Via Industriale

25028 - VEROLANUOVA - (BS)

Italy

Tel: [030 6585725](tel:0306585725)

Email: info@deleks.com

Website: www.deleks.it

2.2 TERMINOLOGY USED IN THE OPERATION AND MAINTENANCE MANUAL

- **OPERATOR:** a person authorized to operate, adjust, and clean the parts of the Machine, within the limits of the tasks they are assigned.
- **QUALIFIED/COMPETENTED TECHNICIAN:** a competent and specialized person, employed by the Manufacturer **DELEKS S.r.l.** or by the Authorized Service Center, instructed to perform extraordinary maintenance work or repairs, which require special knowledge of the Machine, its operation, safeties and their mode of intervention.

This publication also specifies the tasks, skills and limits of intervention of the operators.



WARNING!

Operators authorized to use the Machine must not carry out work reserved for maintenance personnel or specialized technicians. The Manufacturer DELEKS S.r.l shall not be liable for any damage caused by failure to comply with this prohibition.

The activities below require the presence of trained technicians:

- Installation;
- Commissioning;
- Adjustment;
- Repair;
- Revision;
- Displacement;
- Dismantling the Machine.

Competent maintenance workers must have a good technical background, obtained by a professional qualification diploma and/or adequate experience in the work they are responsible for.

In addition, they must have technical and specialized knowledge (mechanical, electrical) necessary for the tasks in the manual.

2.3 SUPPORT SERVICE

For any inquiries related to the use, maintenance, and installation of the Machine, the Manufacturer considers itself always available to the Buyer's requests.

On the latter's part, questions should be asked in clear terms, with references to this manual and always indicating the data on the **Machine Identification Plate**.

Any request for Service **Department** intervention at the customer's premises or clarification of technical aspects concerning this document should be addressed to:

DELEKS Ltd.

23 Via Industriale

25028 Verolanuova (BS)

Italy

Phone and WhatsApp: [351 8800564](tel:3518800564)

E-mail: ricambi@deleks.com

**WARNING!**

- The customer is required to purchase original and authorized parts and/or spare parts in written form only from the Manufacturer **DELEKS S.r.l.**
- All interventions and disassembly operations of spare parts are exclusively entrusted to competent technicians and operated according to the instructions of the Manufacturer **DELEKS S.r.l.**
- Use of non-original spare parts and/or faulty or incorrect assembly will release the manufacturer from any liability and void the warranty.

2.4 WARRANTY SERVICE

DELEKS S.r.l. guarantees its products for a period of 24 months from the date the goods are invoiced.

The full terms of the warranty are stated in the sales contract of the Machine. The validity of the warranty is bound by the conditions mentioned below:

- All maintenance work must be performed within the prescribed time and manner as outlined in the Manual.
- The Machine operates within the clearly expressed and certified limits as per the contract.

The warranty is void in the event of:

- Failure to comply with the behaviours to be adopted and safety regulations made explicit in the Manual;
- Incorrect operation or improper use of the Machine with respect to its intended use;
- Lack of maintenance work to be carried out in the parts of the Machine subject to wear and tear;
- Inadequate lubrication;
- Any repairs or modifications performed without the permission of the Manufacturer **DELEKS S.r.l.**;
- Use of the Machine without the protections provided by the Manufacturer.

3. MACHINE DESCRIPTION AND TECHNICAL FEATURES

3.1 INTENDED USE OF THE MACHINE

DELEKS S.r.l's ARS is a hydraulic mulching machine for brambles, bushes, banks, embankments, branches and ditches. The organic compound that is obtained from the shredding and remains in the soil makes it possible to improve the quality of the soil itself.

3.2 MACHINE DESCRIPTION

The Machine is mainly composed of:

- Chassis;
- Hydraulic motor, for rotating the mulcher rotor;
- Mulcher rotor equipped with knives, deputed to chop the material;
- Levelling roller, deputed to level the ground.



General view



Mulcher rotor knives

The Machine is equipped with No.2 sheet metal guards functional to ensure the protection of the hydraulic pump and the bearings of the mulcher roller in case of accidental impacts.



Side protections

On the long sides of the Machine, in order to limit the projection of chopped material, the following are installed respectively:

- A sheet metal protection.
- A rubber protection.



Sheet metal and rubber protections



WARNING!

It is mandatory to always reposition any removed guards before operating the Machine.

3.3 "CE" IDENTIFICATION PLATE

The CE nameplate (see figure below) is installed on the machine and shows the following data:

- Manufacturer's identification data;
- CE mark;
- Year of construction;
- Model;
- Weight;
- Serial No.

The Machine has been designed and manufactured considering very carefully the Essential Safety Requirements indicated in the **Machinery Directive 2006/42/EC** and subsequent supplements. The Machine named ARS has a "CE" Declaration of Conformity of which a copy is attached in a special section in this Manual.



CE nameplate - example

3.4 TECHNICAL FEATURES

The tables below show the technical characteristics of the No. 3 Machine models:

- ARS 60;
- ARS 80;
- ARS 100.

FLAIL MOWER ARS 60		
DESCRIPTION	MU.	VALUE
Cutting width	mm	600
Total width	mm	820
Min/Max cutting height	mm	20 ÷ 80
Case height	mm	330
Maximum mulchable diameter	mm	20
Number of knives	--	24

FLAIL MOWER ARS 80		
DESCRIPTION	MU.	VALUE
Cutting width	mm	800
Total width	mm	1.020
Min/Max cutting height	mm	20 ÷ 80
Case height	mm	330
Maximum mulchable diameter	mm	20
Number of knives	--	32

FLAIL MOWER ARS 100		
DESCRIPTION	MU.	VALUE
Cutting width	mm	1.000
Total width	mm	1.220
Min/Max cutting height	mm	20 ÷ 80
Case height	mm	330
Maximum mulchable diameter	mm	20
Number Knives	--	40

4. PREPARATION OF THE MACHINE FOR COMMISSIONING

4.1 LIFTING AND CARRYING

4.1.1 General Precautions

Lifting, handling, transporting, and unpacking of the Machine should be entrusted only to operators who are experienced in such operations.

Operators must also be:

- instructed in the nature of the loads to be lifted, the operations to be performed, and the procedures in the Operation and Maintenance Manual;
- authorized;
- able to perform operations in accordance with the procedures outlined in the manual itself.



WARNING.

During operations, the assigned operators must wear Personal Protective Equipment, hard hats, gloves, safety shoes, overalls or other means that may be required by current regulations, depending on the nature of the operations to be performed.



WARNING.

Operators must comply with the requirements and prohibitions set forth in current regulations for lifting and transport operations; among others, the following general rules of conduct are recalled:

- Move away from loads before lifting and lowering;
- Do not stand under suspended loads;
- Prohibit access to people from outside the work;
- During operations, maintain safe distances from the lifted load.



WARNING!

All means used for handling must be suitable for lifting the Machine, taking into account:

- Of shapes and sizes;
- Of mass (weight) and its distribution;
- Of the planned lifting points.

Below is the weight of each model of the Machine:

MODEL	MU.	WEIGHT
FLAIL MOWER ARS 60	kg	66
FLAIL MOWER ARS 80	kg	80
FLAIL MOWER ARS 100	kg	93



WARNING.

Neglecting the precautions, outlined in the above points, can cause serious accidents and/or incidents resulting in damage to the Machine and injury to operators.

4. 1.2 Removal from the transport vehicle

During loading and unloading from the transport vehicle and whenever it is necessary to lift the Machine, a suitable lifting equipment (forklift, crane) must be used.

Provide removal from the transport vehicle, taking care to wear all Personal Protective Equipment. Then unload the Machine by forklift or by crane using the points provided for handling.

4.1.3 Transport and positioning

Upon receipt of the Machine check its condition and that there is no damage. Place the Machine in a dry place.



WARNING.

- The ropes used for lifting must be suitable taking into account the mass of the Machine to be lifted.
- Arrange the ropes so as to avoid pressure on the protruding parts.
- The lifting means must be proportionate to the weight of the Machine to be lifted. In this regard, the lifting capacity must be at least 20 percent greater than that required for lifting the package.
- Assign appropriately trained personnel (slingers, crane operators) to such operations. If necessary, flank a person in charge of signaling if the bulkiness of the Machine being moved or the packages does not allow sufficient visibility to the handler.



WARNING.

Carefully check the condition of the lifting equipment and its capacity.



WARNING.

During transport operations, the operator must also:

- Verify that the Machine is balanced.
- Lift the Machine just enough to move it.



WARNING.

During transportation, protect the Machine from tipping over.



WARNING.

Under no circumstances should the Machine be suspended, transported, stored or displaced at an angle.

4.1.4 Packaging

The Machine is identified and marked, and the identification code is shown on the transport document or delivery note.

To move and lift the packed unit, use a forklift or overhead crane respecting the diagrams shown in the figure.

Be sure to sling the load in such a way that it does not cause imbalances that could affect its lifting or cause it to fall.



Lifting packaging with crane

4.1.5 Storage

In case of storage, the Machine should be stored in place without dust or corrosive agents. The temperature of the storage place should be between +10° C and + 40° C, the relative humidity, maximum 75% at 20° C.

All the time the components remain in storage, the components must be:

- insulated from the ground by interposing a pallet between the unit and the floor;
- protected against moisture, dust and sun by wrapping the unit with a double plastic sheet;
- protected from the rain.

4.2 APPLICATION TO MINI-EXCAVATOR

Before applying the Machine to the mini-excavator, it should be verified that the operating machine has the following requirements:

- a) Double pump (recommended):
 - One for the cart;
 - One for services (at least 25/30 l/min pump).
- b) Double-acting foot pedal for knife rotation from both directions;
- c) The pump needs a third pipe to drain the oil draining to the tank.

4.2.1 Mechanical connection

The mechanical connection of the Machine to the mini-excavator involves the use of an attachment by means of a plate, with fastening performed by No. 4 bolts. On the upper side of the Machine there are No.4 holes to perform the connection.



Holes for attachment to mini-excavator

If required, the Machine can be equipped with an AR-HR mini-excavator attachment. The attachment can be customized according to the Customer's needs. The attachment is connected by means of No. 4 bolts to the upper side of the Machine.



Attachment for mini excavator

4.2.2 Hydraulic connection

Hydraulic connection is made by connecting the supply and return ports of the mini-excavator's hydraulic system to the Machine's hydraulic pump.



Hydraulic pump

The hydraulic characteristics of the Machine, which apply to all models, are given in the table below:

HYDRAULIC CHARACTERISTICS		
DESCRIPTION	MU.	VALUE
Transmission: Rotor turns	rpm	1.500
Min/Max discharge pressure	bar	120 ÷ 150
Optimal oil flow	l/min	25 ÷ 30

4.3 MANEUVERS TO BE PERFORMED TO START THE MACHINE

Once the previously described connections (mechanical, hydraulic) have been made, proceed by starting the mini-excavator engine by inserting the ignition key into the control panel and turning it to the start position. Make sure that all hydraulic movements are operating properly.



WARNING!

If any abnormalities are found or the Machine does not respond to the controls, turn off the mini-excavator engine, turn off the ignition key and check all connections again.

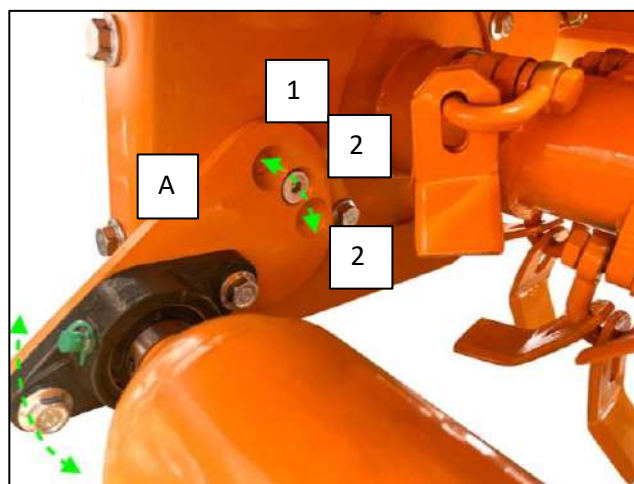
4.4 ADJUSTMENTS



WARNING!

ALWAYS turn off the Machine during checking, verification and adjustment by removing the keys from the control panel of the mini-excavator.

Adjustment of the levelling roller is done by adjusting the support (A) for attaching the roller to the Machine's frame, via the holes provided (see image below).



Levelling roller adjustment

5. MAINTENANCE INTERVENTIONS

5.1 CURRENT SAFETY REGULATIONS TO BE OBSERVED

Take all the precautions explicated in the paragraph so as to work on the Machine in complete safety.



WARNING!

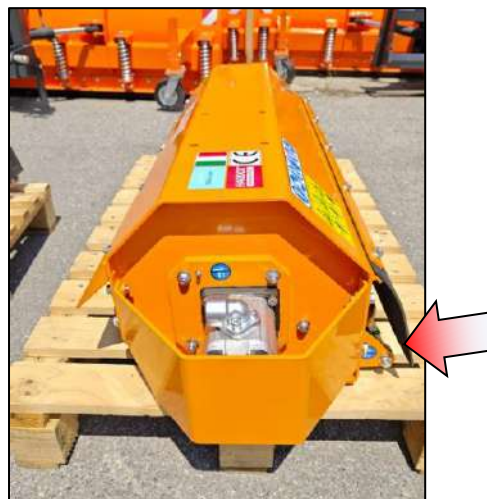
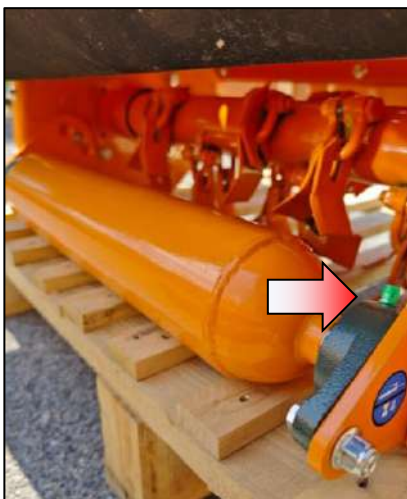
- *Individual maintenance operations must be implemented by competent technical personnel;*
- *Personal Protective Equipment (gloves, overalls, accident shoes, etc.) must always be worn during maintenance work;*
- *The Machine must be placed in "maintenance status" before any maintenance work is carried out. The operator must apply the parking brake located on the mini-excavator, stop the engine, and remove the ignition key from the driver's station dashboard;*
- *Always make sure before working on the Machine that all locking devices (screws, nuts, bolts, etc.) are present and locked properly;*
- *All locking systems on the Machine (e.g., screws, nuts, bolts) that may have been removed during maintenance must be repositioned and secured regularly before operating the Machine again.*

5.2 LUBRICATION INTERVENTIONS

The following directions cover the proper lubrication of the Machine. Inject, through a grease pump, grease into the manual grease fittings until a slight amount of lubricant comes out. The grease should be inserted slowly so as to allow even distribution and to avoid damage to the seals. Lubricate once a year, or in any case before seasonal storage.



Bearing lubrication points - Mulcher roller



Bearing lubrication points - Leveling roller

5.3 REPLACEMENT OF WEARING PARTS



WARNING!

Always use DELEKS S.r.l original spare parts, the Manufacturer declines any kind of responsibility for any accidents to things or people, breakages, inconvenience of any kind to the Machine, due to 'use of non-original spare parts.

5.3.1 Replacing knives and/or rings

Knives, or their rings, are replaced if the following reasons persist:

- They are damaged;
- Other reasons such that the normal use for which they were designed is not guaranteed.



WARNING!

Broken or damaged knives, or rings, should NEVER be repaired, but rather replaced.

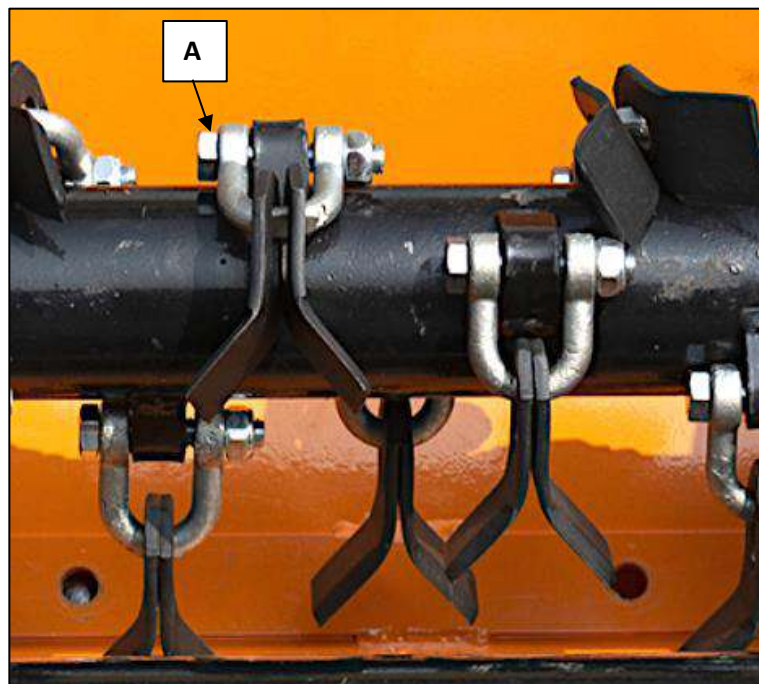


WARNING!

Always wear suitable protective gloves when replacing knives/rings.

Follow the instructions below for replacing knives and/or rings:

1. Stop the mini-excavator and remove the key from the control panel;
2. Identify the damaged or worn knife to be replaced;
3. Using a suitable tool, loosen and remove bolt **A**;
4. Remove the ring with the knives;
5. Replace any broken and/or worn parts and proceed to reposition the ring with knives by attaching it to the Machine using the bolt previously removed.



Knives

KNIVES FEATURES		
DESCRIPTION	MU.	VALUE
Weight	g	125
Hole diameter	mm	12

5.4 MACHINE CLEANING AND WASHING

After prolonged use, it is advisable to wash the Machine from residues, with a generous stream of water to remove the remains of shredded material on the Machine. Do not use solvents or gasoline.

To prolong the life of metal parts prone to rust, avoid leaving the Machine in the weather or otherwise drying out parts subject to rotation.

It is necessary to clean the Machine after each work shift.



WARNING.

***Replace safety pictograms in case they become detached or damaged during cleaning operations.
Contact the manufacturer DELEKS S.r.l for any spare parts.***

6. RESIDUAL RISKS

6.1 GENERAL INFORMATION

This manual lists and describes the residual risks that could not be eliminated in the design and that remain on the Machine.

Instructions or prescriptions are given for each hazard that the user must follow to avoid hazards.

For safety reasons, no persons are allowed in the area surrounding the Machine during machining operations, except for the operator occupying the driver's seat of the mini-excavator.

After considering the possible risks related to the maintenance of the Machine, all those solutions necessary to eliminate the risks and limit the dangers to exposed persons were adopted.

However, the following possible residual risks remain on the Machine that can be eliminated or reduced with the indicated precautions.

The employer, in compliance with Directive 89/391/EEC, as amended and updated, concerning the implementation of measures to promote the improvement of the safety and health of workers at work, shall provide for the elimination or reduction of the residual risks indicated as provided in this manual.

The employer must see to it that personnel are instructed in the risks of accidents, safety devices and general rules on accident prevention required by EU directives and the legislation of the country where the Machine is used.

It is the responsibility of the user about this requirement and to make sure that the instructions given have been properly implemented.

It is the responsibility of the employer to instruct maintenance workers by activating a training course, possibly in cooperation with the manufacturer of the Machine, so that they are adequately instructed in the general hazards and residual risks indicated in this manual.

Therefore, it is necessary that maintenance performed by the user and cleaning, be entrusted to trained and competent personnel.

It is the responsibility of the employer to ensure that the instructions given have been properly implemented.

For safety reasons, no other people are allowed in the area surrounding the Machine during machining operations.

Notwithstanding this requirement, the presence of maintenance personnel expressly authorized by the user customer is permitted.

When necessary, it is also the user's responsibility to use Personal Protective Equipment that complies with Directive 2009/104/EC, as amended and updated.

6.2 MECHANICAL HAZARDS

This section describes the mechanical hazards that can occur in the use or maintenance of the Machine; the risks they can generate and the protections that have been adopted.

During normal use there remains a risk of impact, cutting, dragging and entanglement to the operator. For functional reasons, it was not possible to fully segregate the hazardous parts of the Machine. The operator during the operation of the Machine occupies the micro-excavator control post. It is not permitted to approach the Machine during its operation.

Any hazards are indicated by pictograms on the machine.

During maintenance, if the safe action procedure given in this manual is adopted, the risks are partially reduced.

Any special circumstances will be indicated in the following points.

During repair, cleaning or other extraordinary work requiring the handling of organs, the risks highlighted in the following points should be kept in mind.



WARNING!

Please note that extraordinary interventions are reserved for technicians employed by the Manufacturer (or ordinary maintenance workers only if authorized in writing by the Manufacturer).

6.2.1 Machine stability

The Machine, when properly connected to the mini-excavator as indicated in this manual, has an inherently stable geometric configuration suitable for safe operation under the respective specific conditions for use.

The factors considered are:

- Geometry of the camera body in its different versions;
- weight distribution;
- dynamic forces due to the movements of parts of the Machine or elements supported and moved by it;
- vibration;
- oscillations of the center of gravity;
- External forces (accidental impacts, soil texture).

The Machine must be mechanically installed to the mechanical arm of the mini-excavator.

6.2.2 Breakage hazards during operation

The safety of the Machine is proportionally related to the adherence to the time and manner prescribed for periodic inspection, maintenance, greasing, cleaning, and replacement of worn parts.



WARNING!

- **Comply with the schedule for maintenance;**
- **Employ original spare parts;**
- **Follow the procedures outlined in the Operation and Maintenance Manual and/or by the manufacturer of the specific parts;**
- **Entrust interventions to competent personnel.**

Otherwise, the Manufacturer disclaims all liability.

There are mechanical parts exposed to corrosion and/or fatigue such that, over time, if not properly maintained and inspected, they will present possible dangerous cracks.

Therefore, it is necessary to frequently inspect the Machine as outlined in this manual.

6.2.3 Hazards and risks from projecting objects

All moving parts of the Machine do not pose a risk to the operator in the event of projection of parts or fragments of them due to sudden breakage since, during the operation of the Machine, the operator is in the driver's seat of the mini-excavator.

Moving elements are partially segregated from the Machine case itself (e.g., knives).

Lack of maintenance work or failure to follow the maintenance schedule specified by the Manufacturer can be a cause of premature wear and tear.



WARNING!

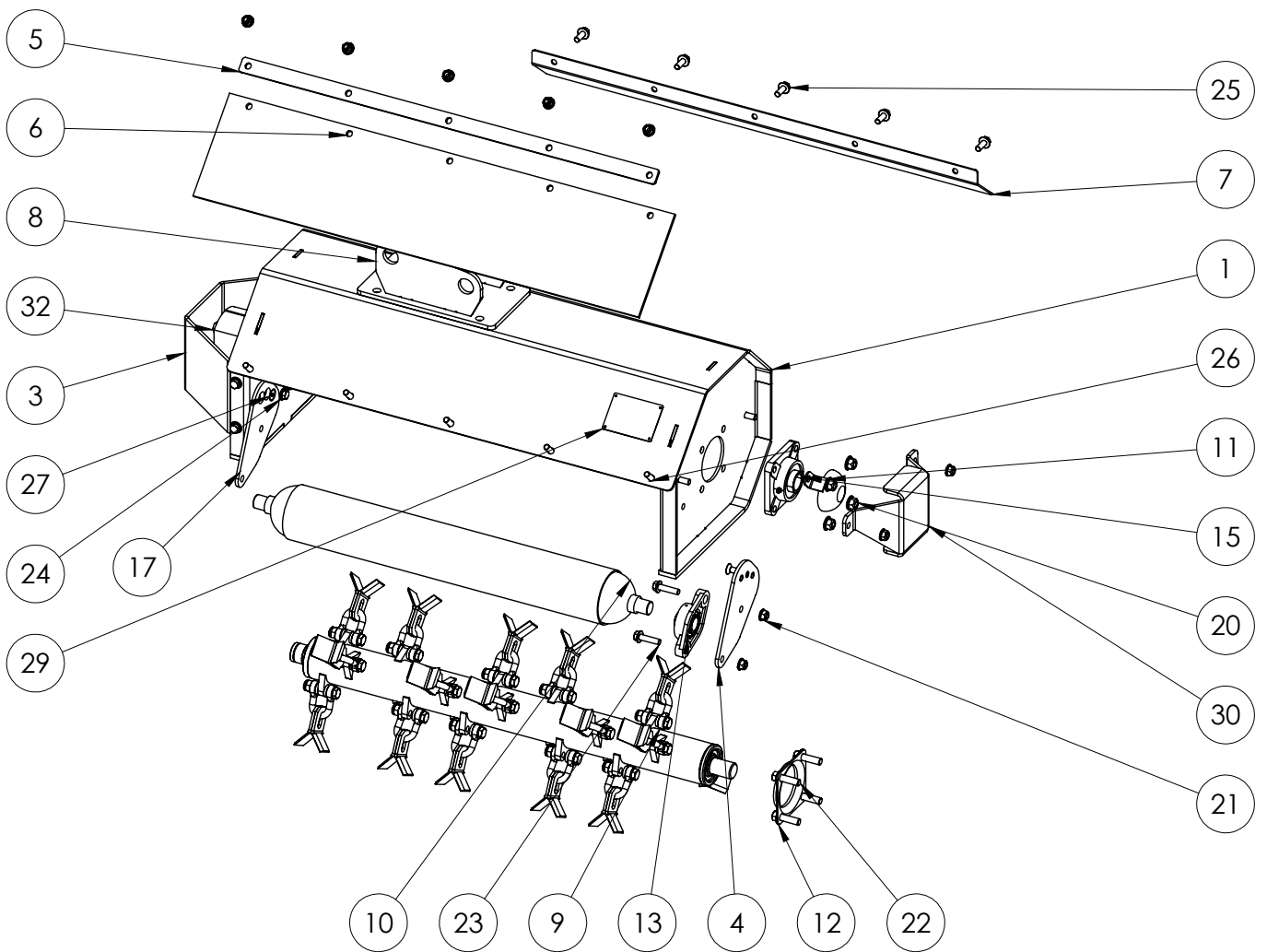
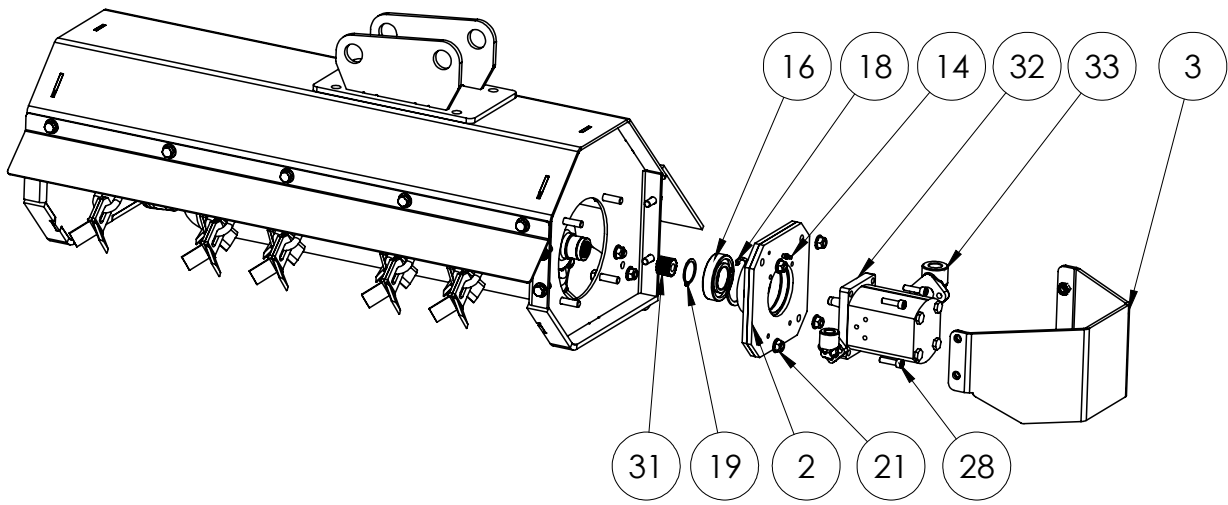
- **For all operators: when the Machine is in operation, it is forbidden to approach it (50 m). Danger of serious injury.**
- **for maintainers: before carrying out maintenance, adjustment or cleaning work, prepare the Machine in a maintenance state.**

6.2.4 Hazards and risks from moving elements

Risks of bumping, cutting, snagging, and dragging can be considered negligible since the operator is not expected to be present in the vicinity of the Machine.

For functional reasons, it was not possible to completely segregate dangerous parts. The Machine box ensures the segregation, partially, of moving parts (e.g., knives).

It is also necessary that the operators assigned to use the Machine be trained and educated about the residual risks.



6 RISCHI E PERICOLI

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	AR60-80-100.001	CHASSIS	1
2	AR100.002	BEARING SEAT	1
3	AR100.003	PUMP PROTECTION	1
4	AR100.004	ROLLER BEARING PLATE	1
5	AR60-80-100.006	RUBBER PROTECTION PLATE	1
6	AR60-80-100.007	RUBBER PROTECTION	1
7	AR60-80-100.008	FRONT PROTECTION	1
8	AR100.009	LINKAGE	1
9	AR60-80-100.100	ROTOR SHAFT ASSEMBLY	1
10	AR60-80-100.200	ROLLER	2
11	G100.006	Shaft head sets of welding parts	1
12	G100.013	Rotor flange	1
13	UCFL-205-25	Bearing- UCFL-205-25	2
14	GR0004		1
15	UCF-206-30	Bearing- UCF-206-30	1
16	6207 - Full	Bearing--6207	1
17	AR100.005	LEFT ROLLER PLATE	2
18	IC-72x2.5	Internal Circlip- DIN472-72x2.5	1
19	EC-35x1.5	External Circlip- DIN471-35x1.5	1
20	FN-M12	Flanged Nut - M12	4
21	FN-M10	Flanged Nut - M10	22
22	FB-M12x40	Flanged Bolt- M12x40	4
23	FB-M10x40	Flanged Bolt- M10x40	4
24	FB-M10x35	Flanged Bolt- M10x35	4
25	FB-M10x25	Flanged Bolt- M10x25	11
26	FB-M10x30	Flanged Bolt- M10x30	5
27	SB-M10x25-25	Socket Bolt- M10x25-25	2
28	HSB-M8x30-30	Hex Socket Bolt-M8x30-30	4
29	NAMEPLATE		1
30	AR60.011	BEARING PROTECTION	1
31	GR2_25_22	PUMP CONNECTING GEAR	1
32	20MRA11X676F-TZ-4- AOK200	Hydraulic Pump	1
33	3-hole flange_1-2		1
34	3-hole flange_3-8		1



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