# AGROFER SRL

## USE AND MAINTENANCE MANUAL REV_02 of 02-05-2016

BARING / RIDGING MACHINE WITH DRIVING DISKS

Before starting to work read the instructions for use carefully

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DECLARATION CE OF CONFORMITY

# AGROFER s.r.l.

Via dell'Artigianato - Loc. Ponte Cantone | 25010 Pozzolengo Brescia Italia.

Declares on its own responsibility that the RIDGING MACHINE WITH DRIVING DISKS:

| | |
|---|---|
| Brand: | AGROFER |
| Model: | BARING / RIDGING MACHINE WITH DISKS |
| Registration Number: | _____ |
| Year of construction: | _____ |

is in compliance with the regulation of the following European legislation and the national standards for implementation:
Machinery Directive 2006/42/CE (Machine safety)

Harmonised standards applied:

UNI - EN-ISO 12100-1:2010-03
Machinery safety – General designing principles – Evaluation of the risk and reduction of the risk

## DECLINES

every responsibility for any accident occurred to people or things due to the alteration of the machine by third parties, from lack of maintenance or of repairing and from applications which are not approved by the manufacturer, according to the instructions contained in the “operator’s manual”.

The technical brochure about the construction is available at the technical office of the company in the specified address.

Pozzolengo,
gg/mm/aa

The legal representative
Zenegaglia Simone

# 1 GENERAL INFORMATION

The text of this manual is originally written in Italian.
The content of this manual is written in compliance with what was considered at point 1.7.4 in the attachment I of the machinery directive 2006/42/CE.



## 1.1 WHEN THE MANUFACTURER IS CONSIDERED RELIEVED OF ANY RESPONSIBILITY

AGROFER s.r.l. is relieved of any responsibility when:
1) the machine is used improperly;
2) the staff that use the machine is not adequately prepared;
3) the machine is not used according to the specific national standards;
4) the installation on the tractor is not performed correctly;
5) the driving force lacks a power source;
6) serious flaws in the maintenance occur;
7) unauthorized interventions and modifications take place;
8) unoriginal spare parts or parts not fitted for this model are used;
9) the instructions are totally or partially not followed.

## 1.2 IMPORTANCE OF THIS MANUAL

- This manual is an integral part of the RIDGING MACHINE.
- This manual is the fundamental tool for the use and maintenance of the RIDGING MACHINE.
- This manual must be kept until the final demolition of the RIDGING MACHINE.
- In case of loss or damage, a new copy of the manual can be asked to the manufacturer.
- This manual must be kept near the machine, in a safe place which is known and accessible only by the responsible staff.
- It must be handled with care in order not to damage it. It is strictly forbidden to remove, rewrite or modify pages and their contents.
- This manual must be updated when the documents for updating are delivered.
- When the RIDGING MACHINE is resold, this manual must be delivered to the buyer and the new user.
- This manual describes the technical condition at the moment when the machine is sold and therefore it cannot be considered inadequate only because it have been subsequently updated as a result of new experiences.
- The hydraulic system is depicted in the section “Attachments”.

The manufacturer reserves the right to update the production and the specific manuals without being obliged to update the previous production and manuals, except for exceptional cases.

## 1.3 RECIPIENTS OF THIS MANUAL

- Staff employed in the transport.
- Staff employed in the assembly of the machine.
- Staff employed in connecting the machine with energy sources (i.e. tractor).
- Staff employed in the functional testing and staff training.
- Authorized staff.
- Staff employed in the maintenance.
- Staff employed in the final demolition.

## 1.4 INSTRUCTIONS CONTAINED IN THIS MANUAL

- General safety warnings.
- Description and technical details.
- Expected and unexpected use.
- Movement and transport of the parts, assembly and disassembly.
- Installation and coupling to energy sources.
- Testing and staff training.

- Use.
- Maintenance and repairs.
- Ordering spare parts.
- Final demolition.

## 1.5 IDENTIFICATION DETAILS ABOUT THE MANUFACTURER AND THE MACHINE

A metal plaque, attached and stamped on the machine, gives the information requested by the "CE MARKING" :

- Name of the manufacturer and his address
- CE Marking
- Model
- Year of construction


**Picture 1. Plaque CE.**

*WARNING!*

*Removing or substituting the plaque "CE Marking" is FOBIDDEN.*

If the plaque is damaged or the seal of the manufacturer is removed, AGROFER s.r.l. must be informed.

## 1.6 INFORMATION ABOUT THE MANUFACTURER

Manufacturer: AGROFER S.r.l.
Address: Via dell'Artigianato - Loc. Ponte Cantone | 25010 Pozzolengo - BS - ITALY
Phone number: +39 (0)30 9918243
E-mail: *info@agrofer.it*

## 1.7 GENERAL DESCRIPTION OF THE MACHINE

The plant BARING / RIDGING MACHINE with driving disks is a machine for working the ground with strength and in depth. It breaks up and smashes the grass and the underground channels created by rodents in the cultivations in rows. This machine makes the ground softer and therefore receptive to the treatments commonly required in agriculture. The system for working the ground is implemented through the rotation and the dragging of the disks joined to a rotary shaft with lap joints which is moved through cardan movement with belt transmission.

**Picture 2. Baring / ridging machine working**

The BARING / RIDGING MACHINE is composed of:
- a strong steel chassis and wheels with jacks;
- the baring / ridging tool complete with a control system depending on the feeler pin, and placed in front of the disk area, which identifies the presence of obstacles during the ridging;
- a main control system started by the operator with control selectors placed close to the driving seat of the tractor.

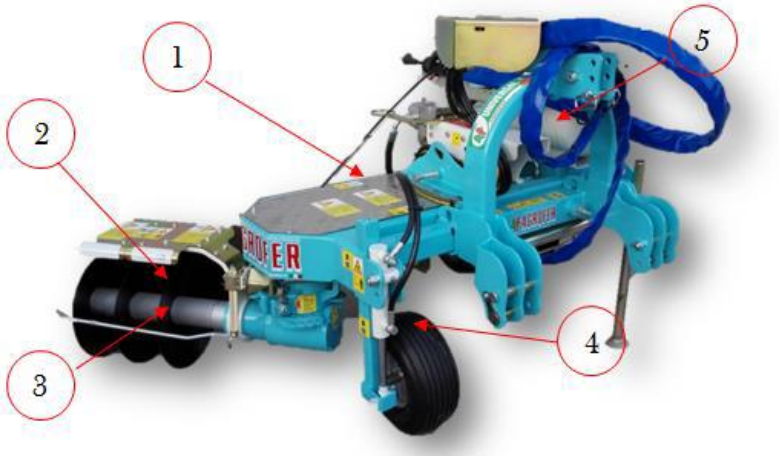
While ridging, the feeler pin is not present and therefore not active; the operator must manage and control the approach to the plant trunk, being sure not to bump into it in order not to damage it and above all to avoid recoils of the machine dangerous for the operator during the working phase.

*WARNING!*

*During the baring phase dangerous events can occur: hitting the plant trunk with the tool and consequent recoils dangerous for the operator.*

## 1.8 BARING / RIDGING MACHINE

1) CHASSIS
2) BARING / RIDGING MACHINE WITH ROTATING DISKS
3) FEELER PIN
4) STABILIZER WHEELS
5) HYDRAULIC SYSTEM




**Picture 3: BARING / RIDGING MACHINE**

The BARING / RIDGING MACHINE can be equipped with the following ACCESSORIES:

## ACCESSORIES ON REQUEST FOR:
### UNIVERSAL PLANT BARING AND RIDGING MACHINE
### REAR, FRONT AND REVERSIBLE MODELS
**These accessories can be fitted to all models of plant baring machines.**

cod. SC 001

**HARROW TOOL**
With no. 4 vertical blades Ø 400, with a sabre-type cutting system.

cod. SC 004

**MILLING CUTTER TOOL**
complete with casing

cm. 45 model - cod. SC 004

cm. 60 model - cod. SC 004S

cod. SC 003

**BLADE TOOL**
Complete with blade tools to be fitted to the UNIVERSAL plant baring machine

blade 550

blade 700

cod. SC 007

**BRUSH TOOL**
complete with casing and spring system for cleaning the plant

cod. SC 006

**SELF-LEVELLING GROUND SHEET**
with inclination (especially recommended to contain the ridged earth so as not to dirty the grass)
Not available for front and reversible models. **Not available for front and reversible models**

cod. SC 009

**Second piston for rear wheel with quick coupling operation**
**Tractor oil**

cod. SC 008

**Disk assembly with no. 4 disks, Ø 380**

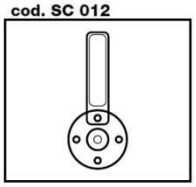
cod. SC 011

**Third hydraulic point with quick coupling operation.**

cod. SC 010

**Hydraulic shift (at the 3 machine points) with quick coupling operation**

cod. SC 012



**ROLLING STABILIZER**
for the stability of the machine with disk mounted on a bearing (especially recommended for grassland).

cod. SC 002

**LAWN MOWER**
with slanting blades
Ø 450
With tractor oil operation

cod. SC 005

**Tipping machine 400mm**
with tractor oil operation

If AGROFER s.r.l. does not provide it, please refer to the specific sections in the attachment of this manual for assembling the machine with other tools.

## 1.9 EQUIPMENT

**STANDARD:**

- Rear or front coupling;
- Cardan joint « BINACCHI » model type B3;
- Three-point-hitch 2° Category;
- No. 03 disks D=380mm.

The machine is supplied with two hydraulic movements controlled by a MANUAL CONTROL WITH JOYSTICK and flexible hoses or by ELECTRONIC CONTROL WITH 12 V PUSH-BUTTON PAD, that permit to control the hydraulic movements from the driving seat.

**ON REQUEST WHILE ORDERING THE MACHINE:**

- Second piston rear wheel "with quick coupling operation" tractor oil;
- Milling cutter tool.

## 1.10 SOUND LEVEL

The noisiness level was taken no-load according to the law UNI EN 1553/2001 and the result was:
– Sound pressure: LpAm dB ..... 85, with the tractor running.

*WARNING!*

*If the tractor is equipped with a cab, the sound level will depend on the level of isolation of the cab itself. If the tractor is not equipped with a cab or it works with open windows, evaluate the level of the machine at work and the noise of the tractor: if it is over 85 dB, hear protectors are compulsory as required by the laws of every country.*

## 1.11 TECHNICAL DETAILS

BARING / RIDGING MACHINE "UNIVERSAL" REAR type:

| MOD. | Kg. | 160 Lateral movement in cm. + lifting device translation | Max. external dimension, cm. | HP | Working depth cm. | Min. space between plants | Min. space between rows |
|---|---|---|---|---|---|---|---|
| COMPACT | 450 | 105 | 100 | 50 | 3-20 | 50 | 150 |
| JUNIOR | 470 | 115 | 110 | 50 | 3-20 | 50 | 170 |
| PICCOLO | 510 | 125 | 120 | 60 | 3-20 | 50 | 200 |
| MEDIO | 550 | 155 | 140 | 60 | 3-20 | 50 | 240 |
| GRANDE | 600 | 190 | 180 | 60 | 3-20 | 50 | 320 |
| MAGNUM | 660 | 210 | 205 | 60 | 3-20 | 50 | 450 |

BARING / RIDGING MACHINE "UNIVERSAL" FRONT type:

| MOD. | Kg. | FRONT LIFTING DEVICE<br>TRACTOR WITH FRONT LIFTING DEVICE OR REVERSIBLE DRIVE.<br>TRACTOR WITH FRONT TRACK OF ..... SEE FIG. A | PLANTED BARING MACHINE RECOMMENDED FOR THE TRACTOR<br>Max. external dimension, cm. | HP | Working depth cm. | Min. space between plants | Min. space between rows |
|---|---|---|---|---|---|---|---|
| PICCOLO | 530 | 120-140 | 120 | 45 | 3-20 | 50 | 180 |
| MEDIO | 570 | 140-160 | 140 | 45 | 3-20 | 50 | 240 |
| GRANDE | 600 | 180-200 | 180 | 45 | 3-20 | 50 | 320 |
| MAGNUM | 660 | 200 ecc. | 205 | 45 | 3-20 | 50 | 450 |

Fig.A

## 1.12 INFORMATION ABOUT THE TECHNICAL ASSISTANCE AND THE MAINTENANCE OF THE MACHINE

In case of damage, first check if included in the CHAPTER MAINTENANCE AND REPAIRING; otherwise contact the firm AGROFER s.r.l.

*WARNING!*

*If the instructions written in the CHAPTER MAINENANCE AND REPAIR are not respected, AGROFER s.r.l. is relieved of any responsibility in case of accident to people and/or things or malfunctions of the machine.*

# 2 GENERAL SAFETY WARNINGS

In designing the TECHNICAL BROCHURE and in realising this manual, AGROFER s.r.l. has evaluated every interaction between the operator and the machine. Therefore the number and the title of the operators responsible for every intervention given in this manual is optimal. If too many operators or operators without adequate titles are employed, every manufacturer's effort in guaranteeing security and high performance is considered useless.
The user must train the staff in the risks derived from injuries, in the devices predisposed for the operator's safety and in the safety rules provided by the laws in force.

As provided by the Directive 2006/42/CE and the following modifications, AGROFER s.r.l. lets the following definitions be known:

- DANGEROUS AREA: "DANGEROUS AREA" is every area in and/or near the machine where the presence of an exposed person is a risk for the safety and the health of this person.
- EXPOSED PERSON: every person who is entirely or partially in a dangerous area.
- OPERATOR: the person in charge for performing, regulating, executing the ordinary maintenance or cleaning.

## 2.1 OPERATOR AND MAINTENANCE MAN

- USERS of the BARING / RIDGING MACHINE: staff who is adequately trained and who can execute only simple tasks, that is, using the machine for the purposes which it was realized for.
- MAINTENANCE MAN: a qualified technical man who can use the BARING / RIDGING MACHINE and can perform regulations, maintenance or repairing interventions on mechanical units.
- MANUFACTURER TECHNICIAN: qualified technician made available by AGROFER s.r.l. to do complex repairs in particular situations, according to what previously agreed with the client.

## 2.2 PREVENTIVE AND SAFETY MEASURES

If these warnings or the ones written in the chapter INSTRUCTIONS ORDINARY MAINTENANCE are not respected and in case of possible alteration of the safety devices, AGROFER s.r.l. is relieved of any responsibility in case of accidents, damages or malfunctions of the machine.

Before starting the BARING / RIDGING MACHINE the operator must know very well the position and operation of every device and control.

The operator must also be able to perform every operation described in this manual, he must be sure to have entirely understood the safety rules and be able to apply them correctly while using and maintaining the BARING / RIDGING MACHINE. The BARING / RIDGING MACHINE can be used only in compliance with what is prescribed in this manual.

*WARNING!*

*Every operator, maintenance man and staff employed in the cleaning must read this manual carefully before using the machine.*

*WARNING!*

*The staff employed in the installation, control, maintenance of the BARING / RIDGING MACHINE and its equipment should be technically trained in relation to the tasks they have to perform.*

*WARNING!*

*Every modification made to this machinery can make the safety requisites null and void.*

- The content of this manual must be compulsorily followed, the CEE general safety rules, the national rules and the ones valid for the specific sector must be respected.
- The use, regulation and maintenance must be executed only by authorized and trained staff (AGROFER s.r.l. offers training courses for the responsible staff).
- If any interventions and regulation take place, the tractor must be blocked or turned off, the cardan shaft unfastened and the machine on the ground.

- Every device, in particular safety devices, have to be checked by a specialized technician before starting the machine for the first time.
- Before using the machine, the operators have to feel comfortable in using the control and manoeuvre units. This manual must be kept always at hand.
- Driving the tractor is strictly forbidden for unprepared staff, for staff without an adequate driving licence, or with bad psychophysical conditions.
- Driving on the road is subordinated to the road code laws in force in the relative country.
- During transport, the lateral arms of the lifting device must be fixed with relative chains and tensioners and the command lever of the hydraulic lift of the tractor must be blocked.
- During road transport the weight of the machine has effect on the braking system and the directional control of the tractor. The weight of the BARING /RIDGING MACHINE can have effect on the directional control of the tractor in taking bends.
- Only tractors with adequate power must be used with the machine (See paragraph "Technical Details")
- Do not abandon the tractor running or turned off with the key on the control panel.
- Do not stop in area with parts of the machine running.
- While working, the operator must not permit people or animals to approach to the operating range of the machine because stones or earth can be thrown from the machine itself.
- The possible presence of underground electrical cables, of pipelines or other dangers in the working area must be controlled.
- The BARING / RIDGING MACHINE must not for any reasons be modified. In case of malfunctions caused by this reason, the AGROFER s.r.l. is relieved of any responsibility.
- The BARING / RIDGING MACHINE must be employed only for the use it was designed for.
- Do not run the BARING / RIDGING MACHINE with dismantled fixed/mobile protections.
- Do not eliminate the safety devices and protections installed on the BARING / RIDGING MACHINE.
- The client must inform AGROFER s.r.l. in case of lacks or malfunctions in the safety systems or in every situation of supposed danger.
- Before using the machine, make sure that every safety devices is in good condition and correctly situated at its right place; if damages or malfunctions to protections occur, they must be immediately replaced before using the machine.
- Every danger warning and caution on the BARING / RIDGING MACHINE have to be followed by the staff.
- When connecting the machine to the means for transmission of the motion and before turning it on the employed staff must check that nobody is in the danger area.
- A general check of the machine condition before starting is necessary. If malfunctions or unidentified conditions occur, do not use the machine and ask the maintenance service. Do not take the initiative on the machine outside the own operative area of expertise and not respecting the instructions contained in this manual.
- The final user must perform a no-load test before using the machine, for a visual, acoustic and vibrational check.
- The operators must have the individual safety devices that are described in this manual and the ones that are prescribed in the specifications about the safety in the work environment where the machine is to be used.
- The operator must not do operations or interventions which are not of own competence.
- The operator must report every problem or dangerous situation that can happen.
- The staff must always be trained by an experienced staff.
- Check always every element that builds the system of the BARING /RIDGING MACHINE and every safety device before using it to see if they are intact.
- When the BARING / RIDGING MACHINE is not used, every action (e.g. removing the keys of the tractor, removing the tractor and so on) to prevent accidental starts or starts carried out by unauthorized staff must be undertaken.
- After using it, the machine must be cleaned by the user, who must control the wear conditions of the transmission units, the rotatory disks, the casings and the protection elements.
- Before maintaining or repairing it, the BARING /RIDGIN MACHINE must be completely released from the means for motion transmission and placed in an adequate area.
- The maintenance and repairing operations must be performed by the staff qualified for these functions.
- During maintenance or repairing operations the staff not in charge must remain at a safety distance from the machine.
- At the end of maintenance and repairing operations, before using the BARING /RIDGING MACHINE, the maintenance man must be sure that every safety device is reactivated.
- The signage on the machine gives important indications that must be respected.
- Make sure that every safety pictogram is readable. Clean them and if needed, replace them with new labels.

## 2.3 SAFETY AND PREVENTIVE MEASURES "WORKING AREA CARDAN SHAFT"

- In order to start the machine use the appropriate cardan shaft supplied or suggested by AGROFER s.r.l. equipped with appropriate safety devices and protections fastened with specific chains.
- Do not come between the tractor area and the operating machine when the machine is started.
- Do not come between the tractor area and the operating area when the tractor is turned on.
- Do not come between the tractor and the operating machine when the cardan shaft is in motion.
- Do not come between the tractor and the operating machine when the handbrake is not put on.
- Control frequently if the cardan shaft is perfectly intact and if its protections are fastened.
- Before coupling or uncoupling the operating machine to the three points hitch, put the command lever of the lift in blocking position.
- The disassembly/assembly of the cardan must be performed with the tractor engine turned off and the key removed from the control panel.
- Be careful to the correct assembly and to the safety of the cardan shaft and be sure that the rotation of the protection of the cardan shaft is blocked by the specific chain.
- The cleaning and the greasing of the cardan shaft must be performed only with the engine shut off, the power take-off released, the handbrake put on and the starting key of the tractor removed from the control panel of the tractor.

## 2.4 EXPECTED AND UNEXPECTED USE

The plant BARING / RIDGING MACHINE with driving disks is a machine for working the ground with strength and in depth. It breaks up and smashes the grass and the underground channels created by rodents in the cultivations in rows. The aim of this machine is to make the ground softer and therefore receptive to the treatments commonly required in agriculture. The system for working the ground is implemented through the rotation and the dragging of the disks joined to a rotary shaft with lap joints which is moved through cardan movement with belt transmission.
The BARING /RIDGING MACHINE is built to be used in vineyards, orchards, greenhouses, poplar plantations, nursery of generic plants.

*WARNING!*

*AGROFER S.r.l. is relieved of any responsibility in case of accident to people and/or things or malfunctions of the equipment if the equipment is used in sectors different from which it was designed for.*

The BARING /RIDGING tool can be substituted by other TOOLS built and approved by AGROFER s.r.l. See the specific chapter "ACCESSORIES".

*WARNING!*

*AGROFER s.r.l. is relieved of any responsibility in case of accident to people and/or things or malfunctions of the machine if TOOLS not built or approved by the company are used.*

## 2.5 WARNING PICTOGRAMS ABOUT POTENTIAL DANGERS

The machine had been constructed following the safety laws for the operators' protection. Further risks could occur. Some of them are marked on the machine with safety sticky signals that show various dangerous situations in their essential form. The pictograms must always be cleaned and replaced immediately when they are detached or damaged. The manufacturer can supply safety replacement stickers. Put the new supplied stickers in the same position of the damaged ones.

| | |
|---|---|
|  | Read carefully and respect what is prescribed on the use and maintenance book supplied by the manufacturer and perform the ordinary maintenance. |

| | |
|---|---|
|  | Before implementing any interventions on the machine, stop the tractor engine and remove the key. |
|  | Entanglement in the cardan shaft in rotation.<br>In order to avoid the risk of entanglement and dragging by the units for motion transmission – cardan shaft – keep away from it when it is in rotation; approach only when the tractor engine is turned off or the machine is stopped; use the transmission provided with protections and wear the suitable clothing.<br>Respect the rotation sense and the rotation speed. |
|  | If any intervention on the machine is necessary, the parts in movement must be still, the tractor engine must be shut off and the key removed.<br>Pay attention to the inertias of the units in movement. |
|  | Rotating disk: danger of cutting inferior limbs, do not go near the machine blanking units in movement with transmission inserted and engine running. Keep the safety distance. Avoid wearing clothes with fluttered parts (*elastic bands around wrist and ankles*). |
|  | Do not go near the machine units in movement in order to do the operation of regulation with inserted transmission and engine running. Do not wear clothes with fluttered parts (*elastic bands around wrist and ankles*). |
|  | Do not mount or be transported by the machine.<br>Danger of fall. |
|  | Danger of throw of material.<br>Keep at distance from points of possible throw of objects and maintain the protections of the machine intact. |
|  | Do not stand between the machine and the tractor. |
|  | Be sure that there are not people or animals in the working and manoeuvre area. Forbid every stop in the operating range of the machine during its operation.<br>Do not stand between the machine and the tractor. |

| | |
|---|---|
|  | Only one person can use the machine. |
|  | Be careful during the coupling operation.<br>Risk of crushing between the attaches and the supports of the hydraulic lifting device. |
|  | Coupled parts of the machine.<br>Danger of crushing. Do not approach with hands. |
|  | Hot parts. Danger of burns.<br>Remain at a safety distance. |
|  | Before disconnecting the hydraulic pipes, check that the circuit is not under pressure.<br>To avoid a wrong connection of the hydraulic pipes, the oil sockets of the tractor and the quick coupling of the machine must have a code of recognition. |
|  | Liquid under pressure. Danger of injuries.<br>Remain at a safety distance. |
|  | Danger: falling of parts of the machine lifted. Do not stay under them. |
|  | Check the rotation speed and the rotation sense of the power take off of the tractor before inserting the power transmission. |
|  | Signal that shows where are the points of lifting of the machine. |
|  | Greasing points. |
|  | Cap control oil level |
|  | Cap oil upload |

| | |
|---|---|
|  | Cap oil insertion |
|     | Wear the individual safety devices required. |

# 3 INSTRUCTIONS ABOUT TRANSPORT, OPERATION, STORAGE

## 3.1 REQUIRED LIFTING EQUIPMENT

- Forklift (min. loading capacity. See section technical details of the machine): n.1
  - In case the machine is supplied with pallet and wrapped in cellophane
- Crane (min. loading capacity. See section technical details of the machine)
  - In case the machine is not packed
- Mean of transport adequate in loading capacity (See section technical details of the machine)
- Do not mount on the BARING / RIDGING MACHINE, on the packaging, do not stand and/or pass under them.
- Access to the transport and operating area is prohibited to unauthorized staff .
- The staff must maintain a safety distance to avoid being hit in case of falling of the machine or some parts of it.
- Before starting the operations, identify and control the whole area of operation, including the parking area and the area of installation of the machine, in order to detect the presence of dangerous points.
- In case of transport, the machine or the packaging must be firmly blocked on the platform of the mean of transport.

Staff employed in the operation:
- No. 2 operators adequately trained

Individual protection means required:
- Safety gloves
- Safety helmet
- Safety shoes
- Glasses
- Ear protectors

## 3.2 LIFT AND OPERATION TO UPLOAD, TRANSPORT AND UNLOAD

The operations for unloading and uploading the machine can be very dangerous if not performed with the highest attention. When the machine is hoisted and moved, the unauthorized staff must leave; the area must be clear and delimited; the available equipment must be intact and suitable. The area of action must be clear and there must be a sufficiently wide “escape way”, that is to say, a free and safe area where to move fast in case the machine falls. These operations must be performed only by trained staff qualified for this kind of operations.

### 3.2.1 UNLOADING OPERATIONS WHEN DELIVERYING THE MACHINE

In case the machine is delivered on a pallet and rolled up in cellophane it should be operated using a forklift with an adequate payload, as following:

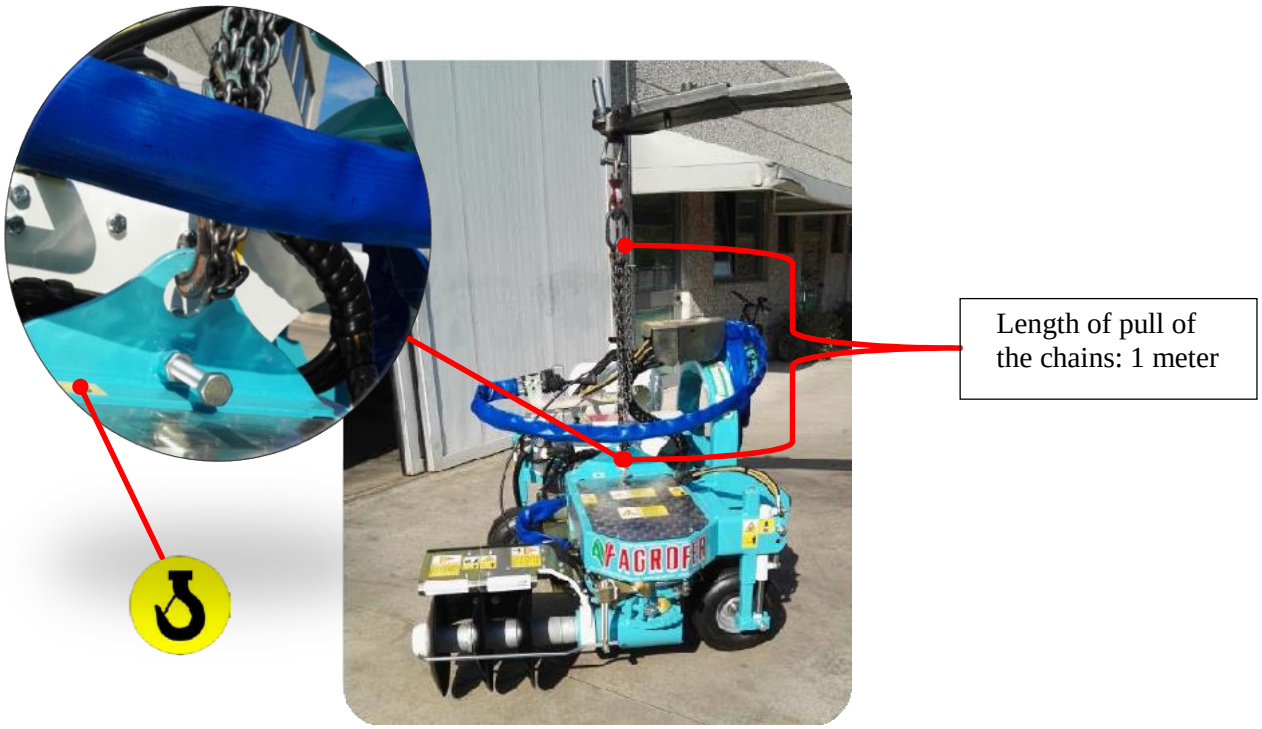
- Park the mean of transport safely and in an adequate area.
- Release the machine from the fixing systems to the mean of transport.
- Position the forklift perpendicularly to the grabbing side of the pallet, go near the machine with the blades of the forklift lowered in the suitable entry areas of the pallet.
- Check the stability of the load with a slow and slight lifting of the blades.
- After having checked the stability of the grip and the load, start the lifting. Hoist the machine vertically avoiding the inclinations that are dangerous because they cause changes in load balance. There can be the possibility of slipping or stresses on the lifting machine.
- Lift the machine the bare minimum for unloading and movement (not over 20 cm from the ground) and set it in the parking area.

**Picture 4. Position of the blades of the forklift to move the machine delivered with packaging.**

If the machine is delivered without packaging the operation can be performed with a crane with adequate loading capacity. Procedure:

- Park the mean of transport in a safe and adequate area.
- Release the machine from the fixing systems to the mean of transport
- Fasten the hook of the crane with adequate chains (length of pull: 1 meter) to the coupling machine hook specific to unload/upload on a vehicle.
- Check the stability of the load with a slight and slow hoist.
- After having checked the stability of the grip and the load, start the lifting. It must be performed vertically avoiding the pendulum effects of the load.
- Lift the machine the bare minimum for unloading and operation (not over 20 cm from the ground) and set it in the parking area

Only the employed staff can give signals to the driver. It is forbidden to stand under the load.




**Picture 5. Coupling hook for crane hook**

## 3.3 INSTRUCTIONS FOR STORING

During the parking be careful not to damage the BARING /RIDGING MACHINE.
The parking area of the machine should be a suitable supporting base for the machine, should have a good lightening (according to the laws in force) and should permit the operators to have access to every side for the control and maintenance operations.

## 3.4 ENVIRONMENTAL CONDITIONS ALLOWED PARKING AREA

Environmental conditions allowed in the parking area of the machine.

- Ambient temperature between -10°C and +50°C (14 °F and +122 °F).
- A good homogeneity of the supporting base.
- Dry place protected from the atmospheric agents.
- If a long period of storing is provided, the machine must be cleaned in every part, greased and protected with a waterproof cloth so as to prevent the passing of the dust, the humidity and so on.

*WARNING!*

*AGROFER s.r.l. is relieved of any responsibility for malfunctions of the machine if the parking conditions are different from those described above.*

## 3.5 NECESSARY SPACE FOR THE MAINTENANCE IN THE PARKING AREA

In the parking area there should be at least 1 meter of space around the perimeter of the BARING / RIDGING MACHINE in order to permit the maintenance in safety conditions.

## 3.6 PARKING AREA OF THE MACHINE

The machine must be parked in an area with a bearing floor, without depressions in order to preserve the machine from potential tampering and bumps.

## 3.7 INSTRUCTIONS TO SET "OUT OF SERVICE", THE DISMANTLE AND ELIMINATE THE MACHINE

At the end of its activity, the machine must be dismantled and eliminated. In this case the operation must be performed according to the local disposal laws, beyond what is provided by the EU laws on the environmental protections.

- Directive CEE 75/442 about generic waste disposal.
- Directive CEE 78/319 about toxic and noxious waste disposal.
- Directive CEE 75/439 about used oils disposal.

For the demolition of the machine call a firm specifically authorized to the waste disposal.

# 4 INSTRUCTIONS FOR USE

## 4.1 PRECAUTIONS FOR GENERAL USE

- The skilled staff must check preliminarily the integrity of the machine.
- The machine must be used only by authorized staff , which must be adequately trained and equipped with the suitable driving licence for the tractor.
- Be sure that there are not people or animals in the manoeuvre and working area of the machine.
- Keep the machine cleaned and eliminate the extraneous elements (debris, possible accessories and so on.) which can cause damages to its system or to the operator.
- Before intervening on parts of the machine in movement, stop the tractor engine, remove the key from the control panel and put on the brakes.
- Do not transport people, animals or things on the machine.
- If the machine must be disconnected from the tractor on the flat, it must be firmly placed on the ground.
- Before using the machine be sure that every safety device is in good condition and correctly positioned.
- Before using the machine, check the tightening of every screw, nut, the condition of the hydraulic circuit and the wear of the bearings and if necessary, replace immediately the wear parts according to what is provided in this manual in the chapter “Maintenance”.
- For explanations on the operation and maintenance call the manufacturer or the authorized dealers.
- Use only original spare parts.
- Do not wear clothes that can get entangled on parts in movement (fluttered working clothes, scarfs, coats...).
- Use adequate PPE (for example footwear with reinforced cap and leather gowns, that can reduce the effects of possible little crushing).

## 4.2 ENVIRONMENTAL CONDITIONS SUITABLE FOR USING THE MACHINE

Environmental conditions suitable for the good operation of the machine.

- Ambient temperature between -10°C and +50°C (+14 °F and +122 °F).
- A good homogeneity of the ground.
- Absence of big obstacles (rocks and so on…) that can damage the machine.
- Good ground levelling.
- Absence of strong declivity or strong disconnections, that can cause the overturning of the machine.
- Absence of climatic conditions that can cause the mobile elements to be covered too much with mud.

*WARNING!*

*At every independent start-up of the temperature, perform a no-load “pre-heat” with the PTO valve inserted for at least 15 minutes.*

## 4.3 COUPLING TO THE TRACTOR

Only a single operator can couple the machine to the tractor. Before this operation the operator must read and know every precaution of general use, be sure of the stability of the BEARING / RIDGING MACHINE, that is obtained through 4 support points on the ground (the two wheels, the discs and the parking foot supplied) and the type of coupling required, that is to say if the machine is REAR or FRONT TYPE.

The coupling of the machine to the tractor is performed through the three-points-hitch.

After having taken the proper safety precautions, the operator must:

- place the tractor slowly near the three-points-hitch of the machine with the tensioner and the rear bars of the tractor;
- put on the handbrake, turn off the tractor and remove the starting key;

- go on with the coupling with the suitable linchpins and relative safety plugs and check the regulation of the third point of the lifting machine in order to avoid swings during working and transporting;
- restart the tractor and hoist the machine to bring the PTO of the machine and the tractor in line, at the same height;
- turn off the tractor and regulate the tensioner, taking the machine as much as possible in a position horizontal to the ground;
- insert the cardan shaft as it is described in the paragraph "Connection to the motion transmission";
- block the inferior bars of the tractor to avoid the lateral swing of the machine, which compromises the transverse stability of the entire equipment;
- connect the pipes of the hydraulic system to the relative hydraulic plugs on the tractor in order to allow the activation of the movements of the machine (if the model provides it).

(Rear)

(Front)

**Picture 6. Example of the coupling type**

## 4.4 CONNECTION OF THE MOTION TRANSMISSION

The motion transmission from the tractor to the operating machine is performed by the cardan shaft, which is connected to the PTO of the machine itself.

*WARNING!*

*Examples of dangers identified in the use of cardan shafts are "entanglement" and "dragging".*

*To reduce this risk:*

*The employed staff must wear close-fitting working clothes, without fluttered parts like laces, ties, scarfs or everything that can be handhold*

*Long and flowing hair must be tied because they are easy grab for the rotary organs*

*Strangers must not stand around the working machine with the motion transmission in action.*

*Never abandon the group machine-tractor in the company centre, near houses or on public roads with the engine on, with the key inserted in the control panel or with the cardan transmission on.*

Use only the type of cardan supplied with the machine. Before using it read carefully the manual of use and maintenance supplied with the present manual.

*WARNING!*

*AGROFER s.r.l. is relieved of any responsibility in case of accidents to people, animals and/or things or malfunctions of the machine, if a cardan different from which supplied with the machine is used.*

*WARNING!*

*The coupling of the cardan shaft, machine/tractor must be performed only on the flat, with the tractor turned off, keys removed and handbrake put on.*

After reading carefully the manual of use and maintenance of the cardan, and, in any case, before inserting the cardan shaft check:

- The PTO (correct cleaning and slight greasing)
- The correct setting of protections
- The sense of rotation of the PTO
- The appropriate rotation speed
- Angle of curvature and correct working length.

To couple the cardan machine side

- Insert the cardan shaft on the grooved shaft of the machine, keeping the safety plug pushed, release the plug and move back with the cardan until the plug itself engages with a «release» in the proper seat. If the release of the plug is not heard, repeat the procedure.


**Picture 7. Coupling of the cardan to the machine**

*WARNING!*

*Do not climb over the cardan shaft either stable or in rotation.*
*Do not use the cardan shaft without the adequate protections and small chains, not in compliance with law requirements and without CE-marking.*
*After having coupled the cardan shaft, check that the protections overlap for at least 5 cm.*
*After having coupled the cardan shaft, fasten the relative small chains of the protections, to the tractor and the machine*
*The cardan shaft at work must not exceed an inclination of 10 degrees*

## 4.5 ADJUSTMENT OF THE CARDAN SHAFT

When the machine is coupled to the tractor for the first time, be sure that:

- the cardan shaft is not completely closed in condition of minimum extension;
- the cardan shaft must overlap for at least 1/3 of its length in condition of maximum extension.

The cardan shaft supplied with the machine has a standard length. An adjustment to the shaft itself should be necessary.

*WARNING!*

*In case of adaptation before intervening on the cardan shaft contact the manufacturer.*

*WARNING!*

*If the machine is coupled to another tractor, check what it is reported in the previous point and check that the protections cover completely the parts of the cardan shaft in rotation.*

## 4.6 PASSING THROUGH PUBLIC STREETS

In case of transit on public street with the machine coupled to the tractor, follow the traffic code scrupulously, paying specific attention to the advancing speed.

After having hoisted the coupled equipment and having put the disk-holder shaft and relative feeler pin in position of transport, before entering a public street these precautions are compulsory:
- provide the tractor with orange or yellow flashing light;
- check that the light bar at the back of the machine is intact and operative;
- if the machine comes from muddy ground, clean the pneumatics of the tractor accurately;
- check that the machine remains in position of transport and the PTO of the tractor is disconnected;
- check that the machine is lifted from the ground to an adequate height.

**Picture 8. Position of the disks-casing for transport**

## 4.7 WORKING

Before operating check:
- That the machine is in perfect condition;
- The integrity of every protection;
- That the oil is at right level;
- That the components which can deteriorate are perfectly efficient, in particular check the wear of the rotary disks daily;
- The correct tightening of the coupling screws.

Working is possible only if the safety laws provided in this manual are followed and after having consulted the instructions of use of the tractor.

*WARNING!*

*Before working in open field, delimit the operating area in order to forbid the access to strangers.*

Procedure:

1. Put the disk-holder shaft in an open position
2. Position yourself at the driver's seat and start the tractor
3. Lower the machine slowly and define the working depth activating the hydraulic controls of the wheel jacks through the starting commands (JOYSTICK or ELECTRONIC)
4. Insert the power take off
5. When the machine and the cardan shaft are in the correct position for working, increase the speed of the cardan shaft of the tractor gradually up to obtain the desired speed.

*WARNING!*

*After a small stretch, check if the working and the working depth are adequate and satisfactory.*

*WARNING!*

*When the machine is at work, people and animals must stay at least at 30 meters from it because it can throw material.*

*WARNING!*

*Always insert and disconnect the power take off when the tools are few centimetres up from the ground.*

*WARNING!*

*The machine must be kept hoisted from the ground during U-turns or direction changes.*

*WARNING!*

*If the machine is working, the tractor speed must not be over 3-5 Km/h in order to avoid damages or breaks.*

*WARNING!*

*Avoid to press senselessly the speed pedal with the PTO inserted.*

## 4.7.1 PROCEDURE REQUIRED TO CHANGE THE INCLINATION OF THE DISK ASSEMBLY FROM THE BARING TO THE RIDGING PHASE

REQUIRED TOOLS

- The tools necessary to change the configuration of the machine are:
  - Spanner cod. 1372 supplied with the machine
  - Spanner cod. 061L supplied with the machine
  - Fixed spanner CH19 no. 02 pieces
  - Fixed spanner CH22 no. 02 pieces
  - Fixed spanner CH36 no. 01 piece

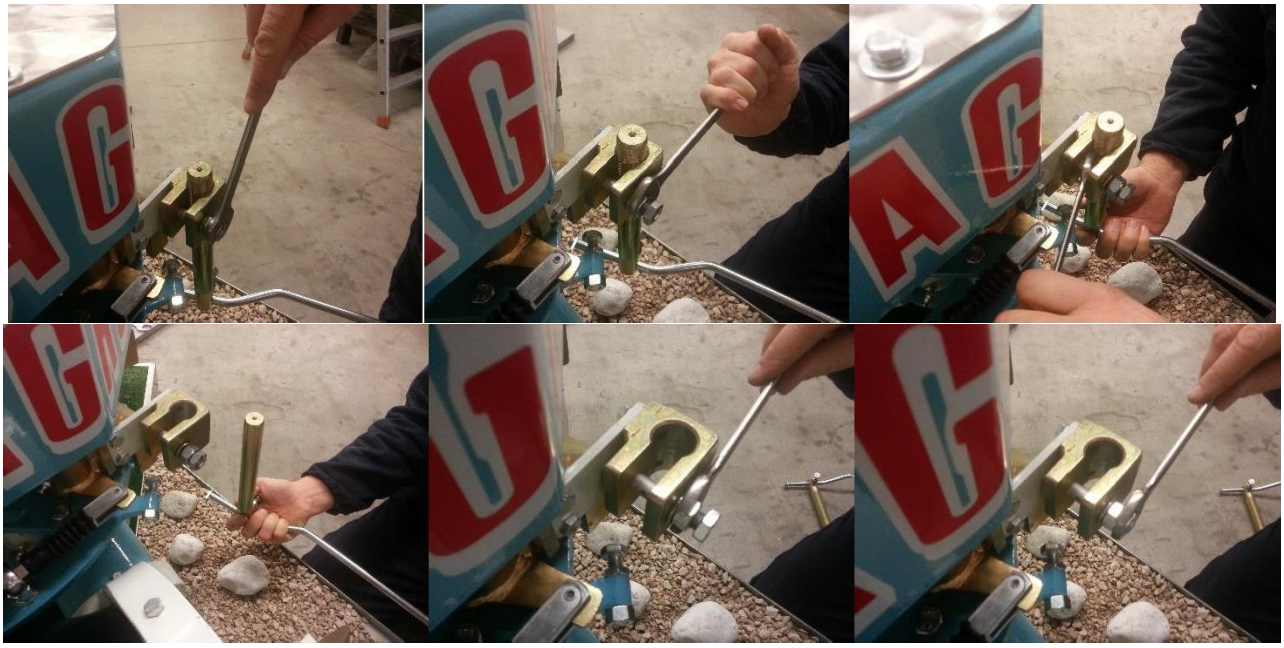
Check the position of the disk assembly. It must always be placed on the matching bearing in order to be modified (Picture 9a and 9b).

**Picture 9b – Correct position**

**Picture 9b – Wrong position**

DISMANTLING FEELER PIN

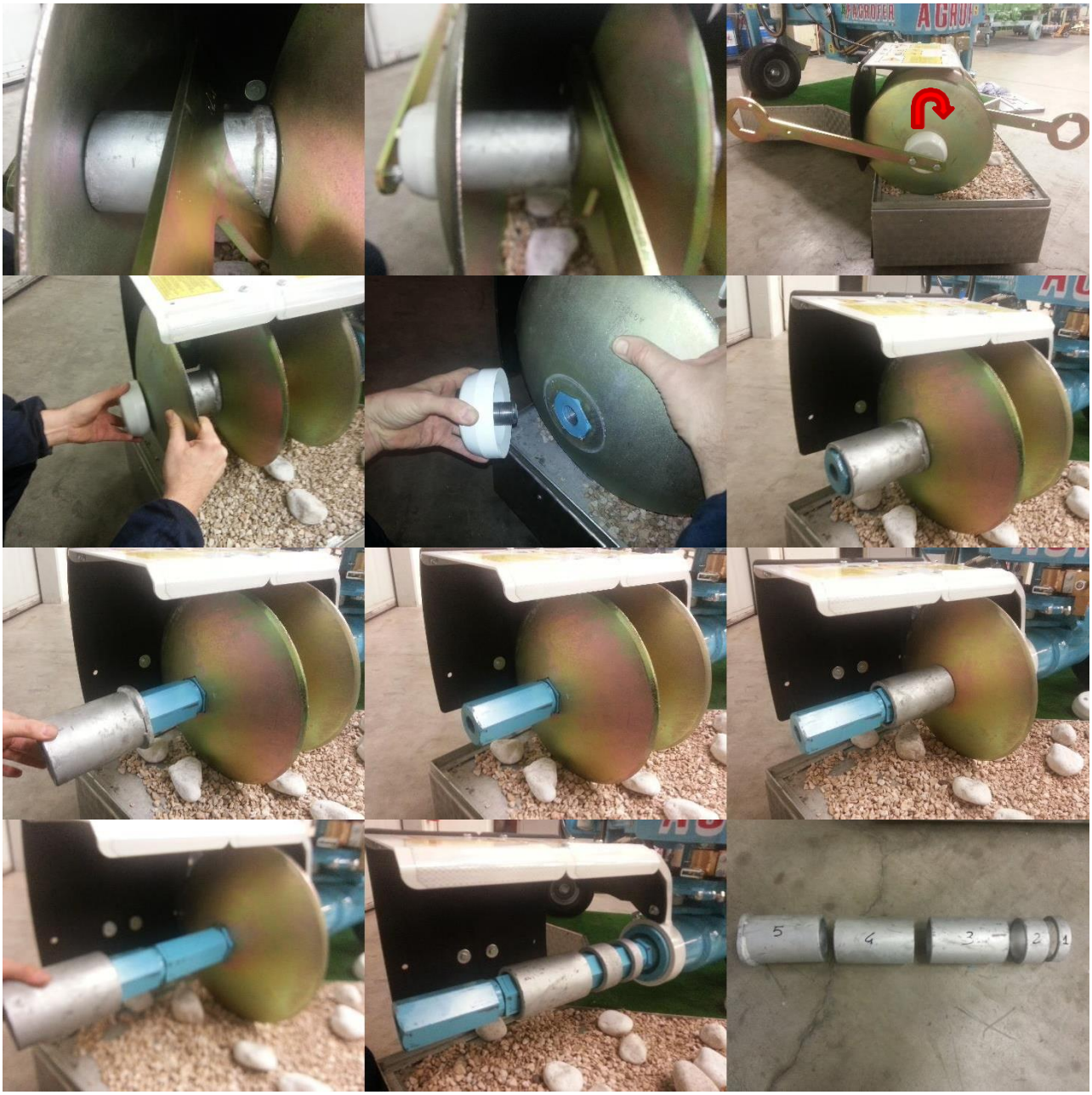
– Unscrew the lock nut that stops the feeler pin with spanner CH19
– Unscrew the nut that stops the feeler pin with spanner CH19
– Exert leverage to make the removal of the feeler pin easier
– Extract the feeler pin
– Block the nut and the lock nut with CH19



**Picture 10 – Dismantling phases feeler pin**

DISMANTLING THE DISK ASSEMBLY

- Position the spanner cod. 1372 on the sleeve 5
- Position the spanner cod. 061L on the disks-holder cap
- Unscrew clockwise (WARNING: ANTICLOCKWISE SCREW)
- Extract blades and sleeves




**Picture 11 – Dismantling phases disk assembly**

DISMANTLING DISKS-COVER CASING

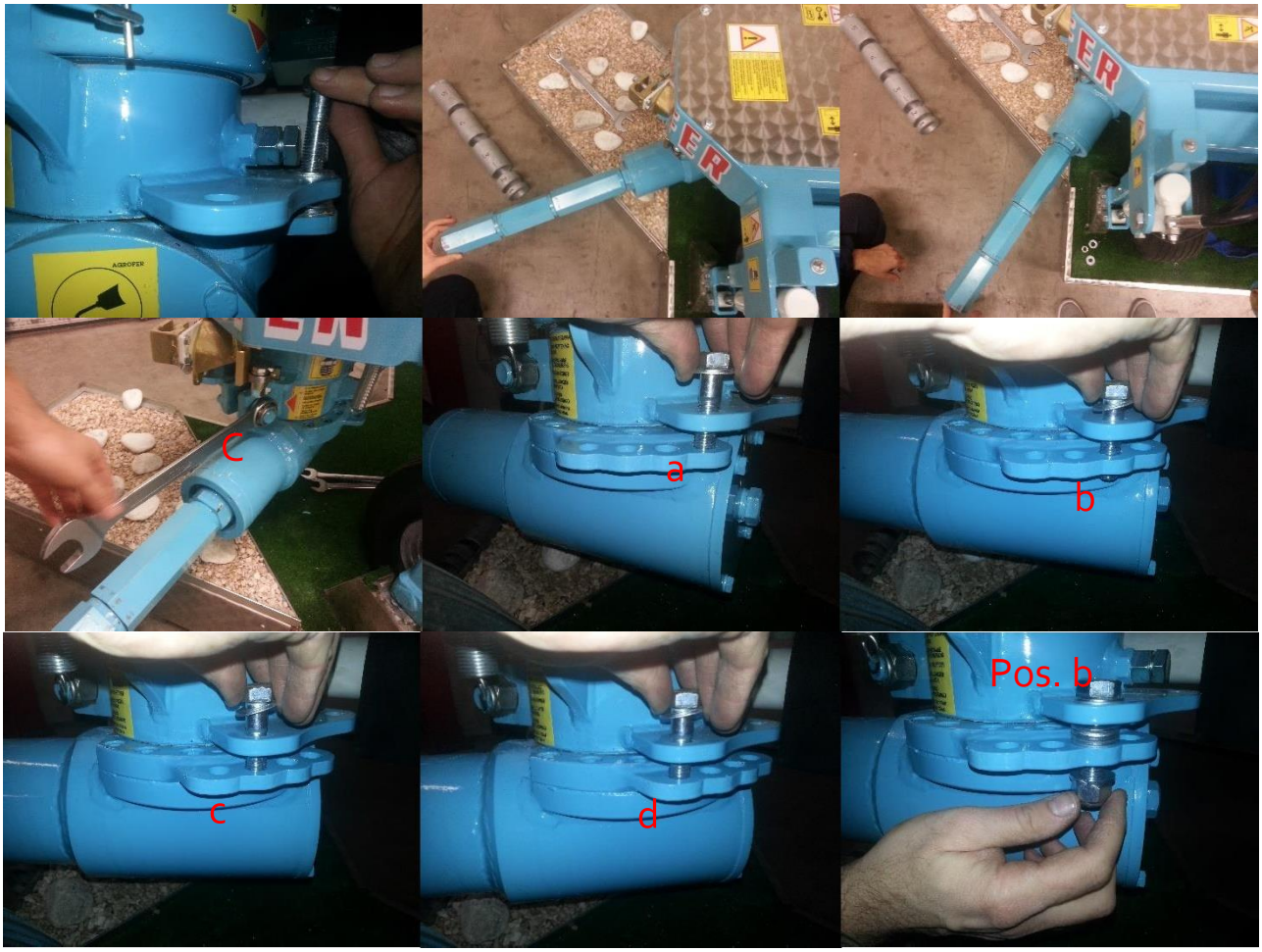
- Unscrew the lock nut and the screw A with the spanner CH19
- Unscrew the lock nut and the screw B with the spanner CH19
- Remove the casing


**Picture 12 – Dismantling disks casing**

CHANGING INCLINATION (from the ridging to the baring phase)

- Unscrew the nut C with the spanner CH36
- Unscrew and remove the screw D with no. 02 spanner CH22
- Rotate the disks arm to change inclination (4 positions are possible: a-b-c-d. b-c are suitable for the baring process)
- Re-mount the screw D with no. 02 spanner CH22
- Screw the nut C with spanner CH36


**Picture 13 – Ridging phase**




**Picture 14– Baring phase**

REMOVE THE 3° MODULE DISK HOLDER

- Unscrew clockwise the 3° module disk holder with the spanners supplied (WARNING: ANTICLOCKWISE THREADS )
- Remove the 3° module disk holder (it is not necessary for the baring phase)

**Picture 15 – Removing the 3° module disk holder**

EQUIPMENT FOR BARING

– Move the casing towards the centre of the machine for about100 mm, fastening it in position

– Mount the spacer I
– Mount the spacer II
– Mount the disk
– Mount the spacer III
– Mount the disk
– Mount the spacer V (do not mount the spacer IV)
– Mount the disc
– Fasten the whole packet with a disk holder cap using the same tools supplied (cod. 1372 and cod. 061L)


**Picture 16 – Equipment for baring**

*WARNING!*

*The machine becomes an integrant part of the tractor when it is coupled to it, and therefore it can alter its stability and cause difficulties in driving through streets and in working.*

To solve this inconvenience put a ballast on the front part of the tractor.

To check the stability of the group tractor-machine the following expressions must be fulfilled:

$$M \times s \leq 0{,}2 \times T \times i + Z \times (d + i)$$

Therefore the ballast must fulfil as follows:

$$Z \geq \frac{\mathrm{M} \times \mathrm{s} - 0{,}2 \times \mathrm{T} \times \mathrm{i}}{\mathrm{d} + \mathrm{i}}$$

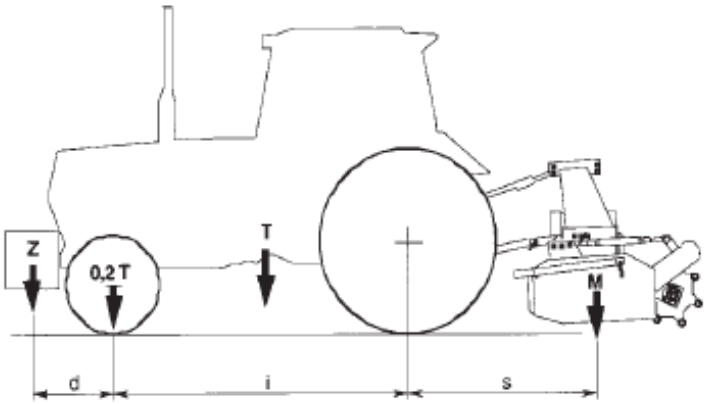
Where:

- i = wheelbase of the tractor;
- d = horizontal distance from the front ballast hub and the front axle of the tractor;
- s = horizontal distance from the machine hub to the rear axle of the tractor;
- T = mass of the tractor in running order (Kg);
- Z = mass of the ballast (Kg);
- M = mass of the operating machine (Kg).

NOTE:

For agricultural machines registered and homologated before 6th May 1997 the following relation must be respected:

$$M < 0{,}3 \times T$$




**Picture 17 – Amounts and masses to check the stability of the group tractor-machine**

The front axle must weigh at least the 20% of the overall mass tractor-tool in running order.
With stable tractor, the machine must be put on the ground to avoid possible involuntary descents and improve at the same time the stability.

## 4.9 STOPPING, RELEASING AND PARKING THE WORKING MACHINE

After having finished working and before moving on other operating area follow these instructions:

1. Hoist the machine gradually.
2. Reduce the speed of the PTO gradually.
3. Check the alignment of the cardan shaft in order to avoid angle variations between the PTO of the tractor and the one of the operating machine.
4. Disconnect the PTO.
5. Hoist the machine until the ridging tool is completely out of the ground surface and at a height of at least 40 cm.

In case the machine must be moved on road, follow the instructions in the paragraph "4.6 Passing through public streets".

In case of release and parking:

*WARNING!*

*The ground where the machine is parked must be flat and inside a protected area, so as to prevent unauthorized strangers from approaching.*

Procedure:

1. Put on the handbrake of the tractor;
2. Lower the machine slowly and put it on the ground;
3. Disconnect the PTO of the tractor;
4. Stop the tractor, remove the key from the control panel and keep it;
5. Extract the cardan shaft in reverse to the coupling;
6. Disconnect the tie-rod of the third point;
7. Extract the two remaining coupling points of the machine;
8. Restart the tractor and leave with caution.

If the machine must be stored for a long time, clean every part of it, grease it and protect it with a waterproof cloth in order to prevent dust, humidity and so on.
Follow what is written in paragraphs «3.3, 3.4, 3.5, 3.6».

# 5 INSTRUCTIONS FOR ORDINARY MAINTENANCE

## 5.1 GENERAL INFORMATION

The ordinary maintenance provides periodical and default operations in order to maintain the functionalities of the machine in case of weary intrinsic in its use.

*WARNING!*

*Call the manufacturer company if extraordinary maintenance not considered in this manual is necessary.*

*WARNING!*

*Before maintenance, be sure that the machine is on the flat, blocked and disconnected from the tractor. The maintenance activities should be performed in a machine shop adequately equipped.*

*WARNING!*

*The maintenance operators must have adequate competences and must be equipped with suitable individual safety devices.*

*WARNING!*

*All the protection casings removed for maintenance or cleaning must be remounted at the end of any interventions as in origin.*

## 5.2 ADVICES

Before maintenance, read what it is reported in the paragraph «2 – General safety advices».

*WARNING!*

*The oil must be cooled before its substitution or restoration. Use the same type of oil recommended.*

*WARNING!*

*Use adequate individual safety devices (glasses, mask…) if compressed air is used for cleaning*

*WARNING!*

*Do not ingest lubricants/fluids.*

*Read carefully the safety instructions and the general advices of every lubricant/fluid used.*

*Keep the lubricant/fluids out of the reach of children.*

*WARNING!*

*Clean the machine in an airy environment in order to prevent the accumulation of toxic gases.*

*WARNING!*

*Use oils and lubricants with respect of the anti-pollution regulations of the country where the machine is used.*

## 5.3 FIRST USE AND ADJUSTMENT OF THE MACHINE

*WARNING!*

*After every independent starting of the temperature, carry out a no-load "preheat" with the PTO valve inserted for at least 15 min.*

At first use, the machine is subordinate to a general settlement of every mechanical organ. Every new machine after the first 8 hours of USE must be checked with particular attention. Follow these instructions:

1. Check the correct tighten of nuts and bolts;
2. Check the gearing boxes and the correct level of the oil of the tank;
3. Check for the absence of oil leakage from the components of the hydraulic circuit;
4. Check the correct lubrication of the components that rotate.

## 5.4 PLAN FOR PROGRAMMED MAINTENANCE

*WARNING!*

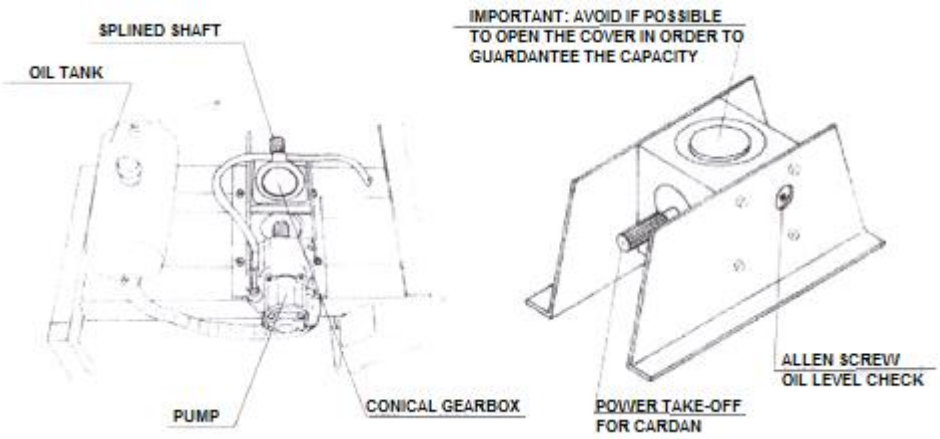
*During the maintenance do not pollute absolutely the environment. Dismantle the waste (oils and so on…) with respect of the laws in force.*

| | | | |
|---|---|---|---|
|  | GREASING | EVERY 4 HOURS OF USE | Grease *feeler pin piston*, with the manual greasing pump and using grease Tamoil type exclusively: TAMLITH GREASE 2 . |
|  | GREASING | EVERY 6 MONTHS | Grease the *Slewing baring under Sheave* with the manual greasing pump and using grease Tamoil type exclusively: TAMLITH GREASE 2. |
|  | GREASING | EVERY 8 HOURS OF USE | Grease the remaining points of the machine signaled with specific label, with the manual greasing pump and using grease Tamoil type only: TAMLITH GREASE2. |
|  | CHECK | EVERY 8 HOURS OF USE | Check the wear of the ridging disks and substitute them in case of deformations or cracking. For substituting the disks check the correct stability of the machine and follow what prescribed in the paragraph 4.7.1 "Disassembling disk assembly" |
|  | CHECK | EVERY 8 HOURS OF USE | Check the general wear of the machine, the state of the pipes and the hydraulic circuit and the tightening of the nuts and bolts. |

| | | | |
|---|---|---|---|
|   | CHECK | EVERY 24 HOURS OF USE | Check the oil level of the gearing box. If necessary perform the top up with Tamoil oil, Type TAMGEAR MP LUBRICANT – SAE 85W/140 (Do not mix different types of oil) |
|   | CHECK | EVERY 24 HOURS OF USE | Check the oil level of the pump on the machine through the dipstick linked to the closing cap. If necessary perform the top up with Tamoil oil, Type TAMGEAR MP LUBRICANT – SAE 85W/140 (Do not mix different types of oil) |
|   | CHECK | EVERY 24 HOURS OF USE | Check the oil level of the conical gearbox through the specific hex screw. If necessary perform the top up with Tamoil oil, Type TAMGEAR MP LUBRICANT – SAE 85W/140 (Do not mix different types of oil) |
|  | CHECK | EVERY<br>• 8 hours for the first two days of use<br>• Then every 48 hours of work | Check the tension of the trapezoidal mechanical transmission belts. |
|  | SUBSTITUTION | AFTER<br>• The first 30 hours of work<br>• Then every 500 hours of USE (or once a year) | Substitution oil filter cartridge. |
|  | CHECK | ONCE A WEEK | Check that the pressure of the pneumatics is 4 Bar. |


**Picture 18 – Greasing points "Feeler pin cylinder"**

**Picture 19 – Greasing points "Slewing baring under sheave"**





**Picture 20 – Oil level, tank and oil filter check**

**Picture 21 – Register for regulating the tension of the trapezoidal belt**

## 5.5 INTERVENTIONS ON HYDRAULIC PIPING SYSTEM

*WARNING!*

*If a flexible pipe of the hydraulic circuit needs to be substituted, the machine must be disconnected during the maintenance. Pay particular attention.*

Procedure to substitute a broken pipe or to change it for programmed maintenance:

1. Close the valves of the hydraulic circuit;
2. Be sure to have discharged the possible residual pressure in the system;
3. Identify the pipe which has to be substituted and loosen the relative connection points with specific spanner paying attention to possible oil leakage;
4. Substitute the pipe using original spare parts.

# 6 ALIENATION

In case the machine is sold, the buyer has the right to be informed about eventual interventions on the machine and be instructed about the use and maintenance; moreover the buyer must be delivered the documentation and the declaration of compliance.

# 7 ORDERING SPARE PARTS

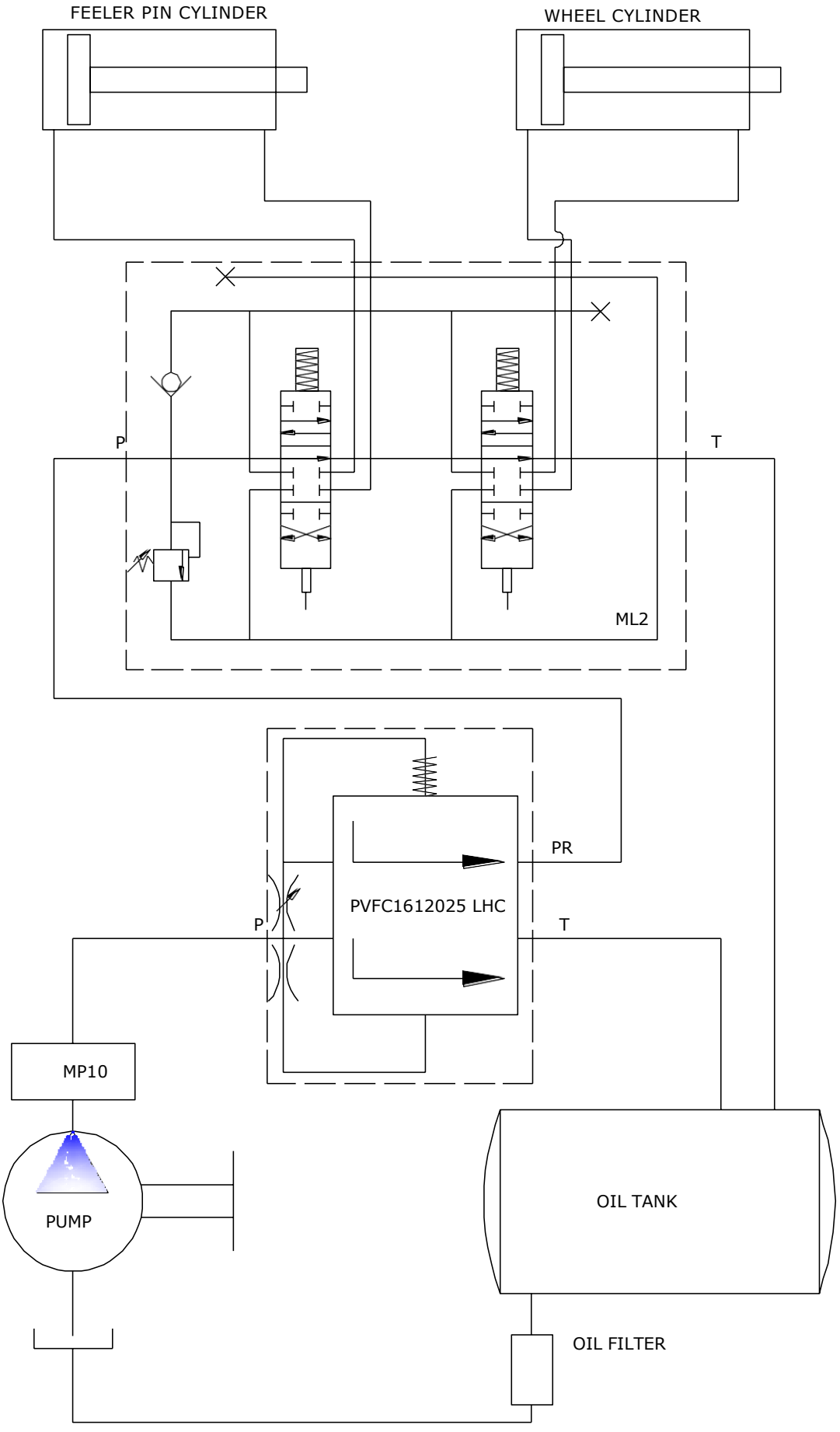
To order spare parts please contact:

AGROFER S.r.l.
Via dell'Artigianato - Loc. Ponte
Cantone 25010 Pozzolengo - BS -
ITALY
Tel. e Fax +39(0)30 9918243
Email: info@agrofer.it
Web: www.agrofer.it

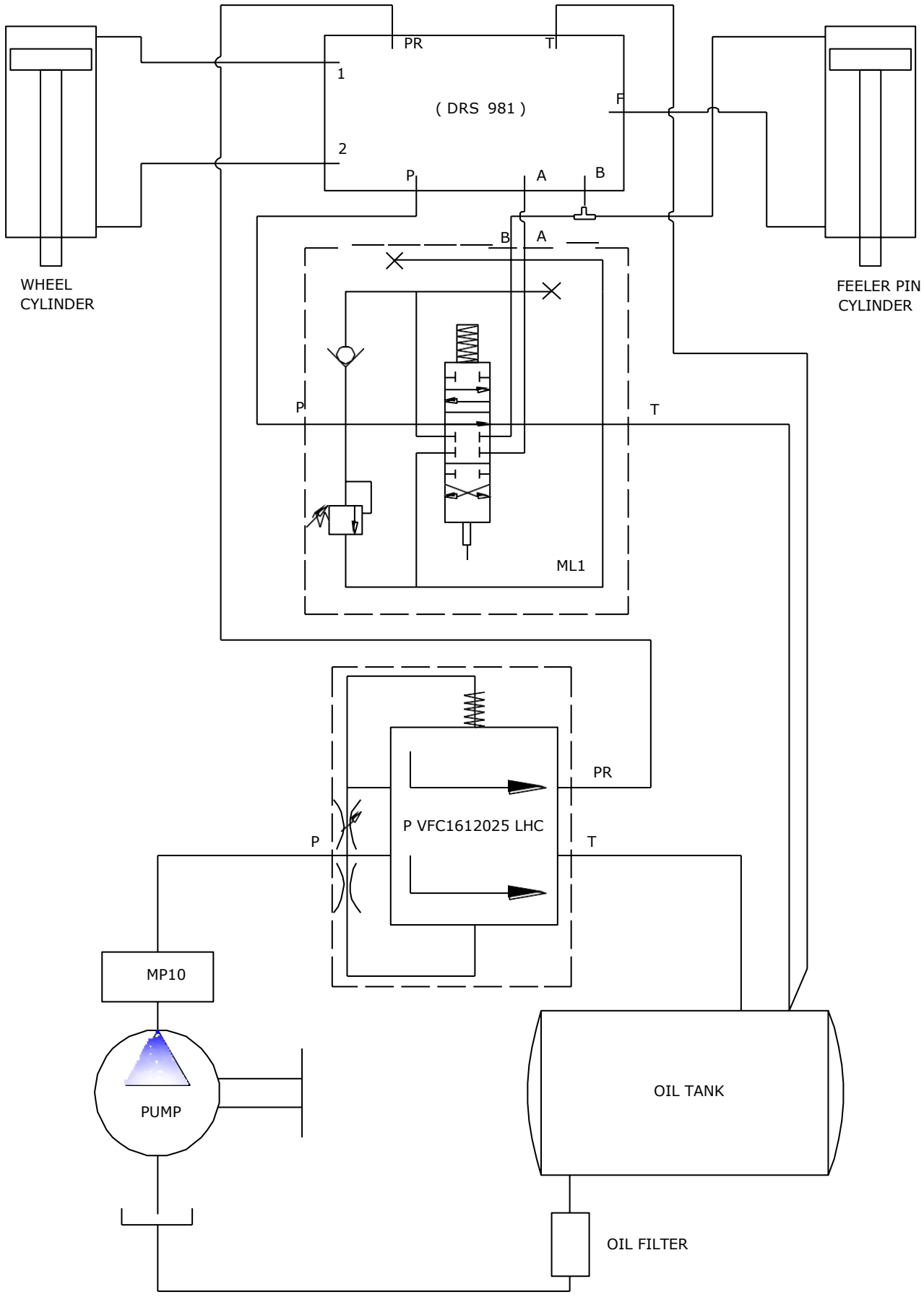
Specifying what following:
- Machine model (indicated on the identification plate)
- Machine type (indicated on the identification plate)
- Serial number (indicated on the identification plate)
- Year of construction (indicated on the identification plate)

# 8 ATTACHMENTS:

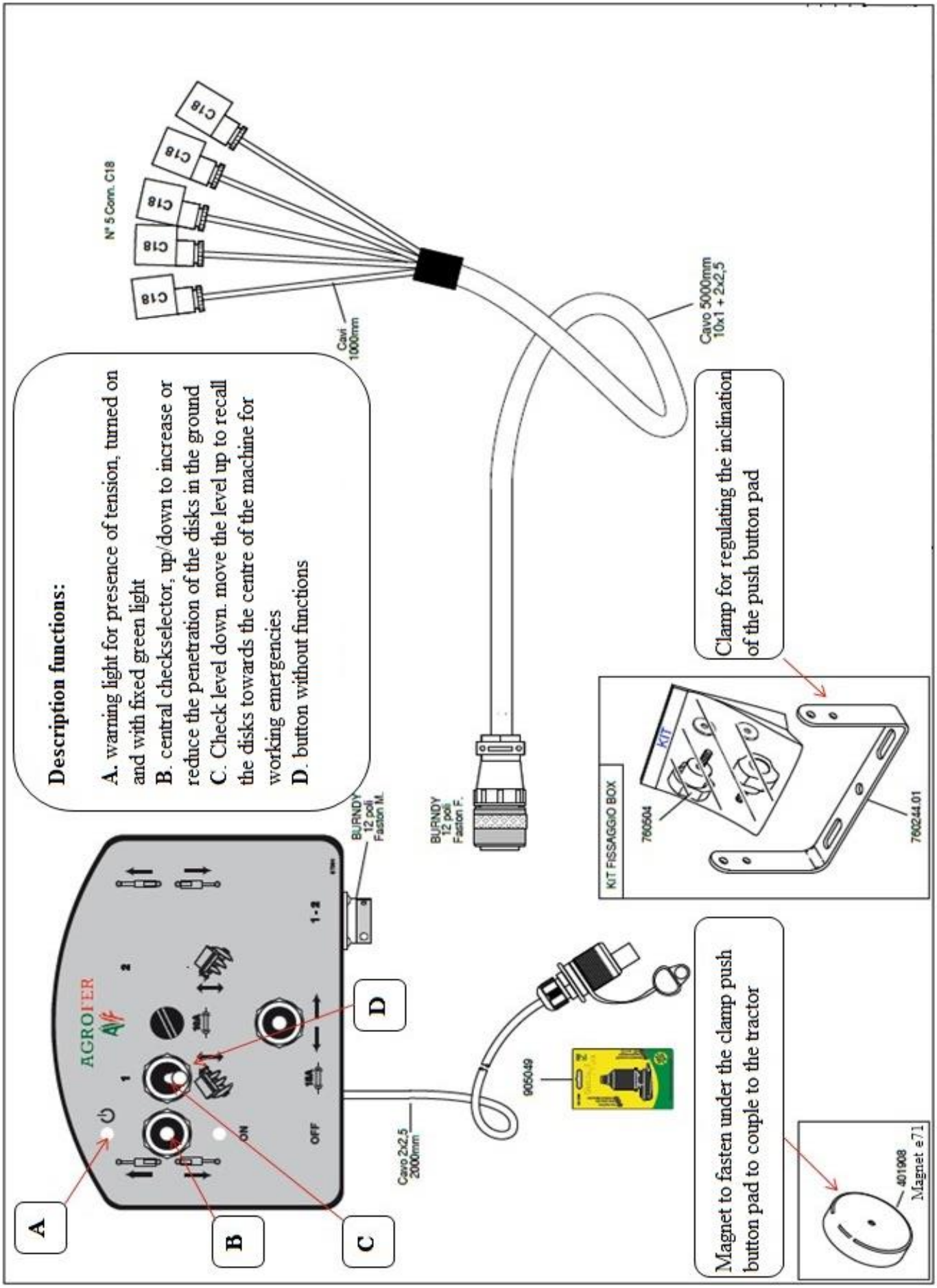
## 8.1 HYDRAULIC SCHEME OF THE MODEL WITH "JOYSTICK FLEXIBLE HOSES" Movement



## 8.2 HYDRAULIC SCHEME OF THE MODEL WITH "ELECTRONIC" Movement



## 8.3 "ELECTRONIC" PUSH-BUTTON PAD CONTROL



## 8.4 ACCESSORIES

Various ACCESSORIES supplied by AGROFER s.r.l. can be mounted on the machine.
Some accessories must be installed by the manufacturer before the purchase, others can be mounted by the final user when needed.
Before installing the ACCESSORIES, read what is described in paragraph «2 – General safety warnings».

*WARNING!*

*Before installing any ACCESSORY be sure that the machine is positioned on the flat, blocked and disconnected from the tractor. The activity should be performed in a machine shop adequately equipped.*

*WARNING!*

*The operators employed in the installation of the ACCESSORIES must be adequately skilled and they must wear the devices suited for individual protection.*

*WARNING!*

*All the protection casings removed for maintenance or cleaning must be remounted at the end of any interventions.*

*WARNING!*

*If compressed air is used for cleaning, use the devices adequate for individual protection (glasses, mask…)*

*WARNING!*

*Perform the cleaning operations in an environment adequately airy in order to prevent the accumulation of toxic gases.*

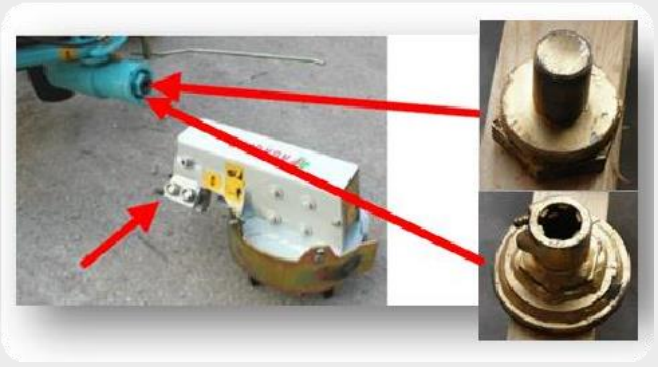
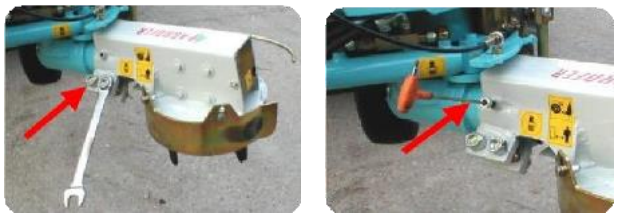
## 8.4.1 HARROW TOOL

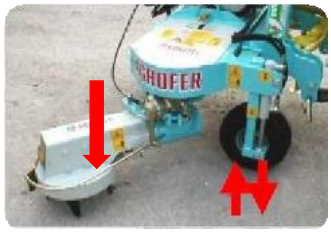
cod. SC 001

**HARROW TOOL**
With no. 4 vertical blades
Ø 400, with a sabre-type
cutting system.

*The **harrow tool*** is used to work the ground near the plant trunk. It penetrates in the soil about 10/15 cm with a saber-type blades disposed on a working circumference of about 40 cm. The working effect produces an orbital-vertical remixing and turnaround of the ground.

EQUIPPING THE MACHINE:

| | | |
|---|---|---|
|  | **Starting configuration:** | **WARNING!** Before installing every ACCESSORY be sure that the machine is on the flat, blocked and disconnected from the tractor. The operation should be executed in a machine shop adequately equipped. |
|  | PHASE 1: **Disassembling disk assembly** | • Unscrew the tightening ring nut with the included spanner.<br>• Extract the disks and remove the cover casing. |
|  | PHASE 2: **Remove the hexagonal extensions** | • Loosen the hexagonal extensions of the disk-holder shaft with the included spanners, as shown in the picture, and remove them. |
|  | PHASE 3: **Installation of the linking pivot and inserting the harrow tool** | • Insert the relative pivots<br>• Be sure that the bolts of the fixing brackets on the harrow tool are completely loose (specified by the arrow).<br>• Insert the rotating harrow tool making sure to tighten the fixing screw in the fixing bracket of the harrow tool. |
|  | PHASE 4: **Tightening of nuts and Allen screw** | • Tighten the fixing bolts of the bracket and the Allen screw on the nuts. |
| | | |

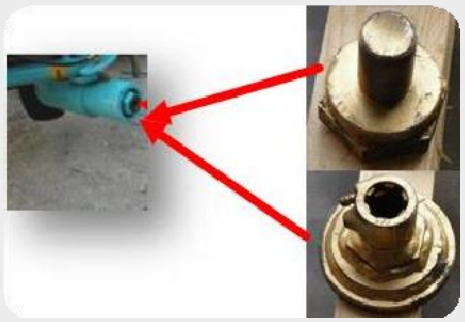
| | | |
|---|---|---|
|  | PHASE 5:<br>**Regulation** | • Install the feeler pin for the harrow tool and regulate it according to the blocking position.<br>• Regulate the working depth lowering or raising the wheel, through the command system (Joystick/Electronic). |
| SETTLEMENT | | |
| Before starting the operations check the correct tightening of nuts and screws. After the first working hour the tool is subjected to settlement, check again the correct tightening of nuts and screws. | | |

## 8.4.2 LAWN MOWER


**LAWN MOWER**
with slanting blades
Ø 450
With tractor oil operation

*The **lawn mower*** is a rotary disk with blades which mows the surface grass near the plant trunk. The blades do not penetrate in the ground.

EQUIPPING THE MACHINE:

| | | |
|---|---|---|
|  | **Starting configuration:** | **WARNING!** Before installing every ACCESSORY be sure that the machine is on the flat, blocked and disconnected from the tractor. The operation should be executed in a machine shop adequately equipped. |
|  | PHASE 1: **Disassembling disk assembly** | • Unscrew the tightening ring nut with the included spanner.<br>• Extract the disks and remove the cover casing. |
|  | PHASE 2: **Remove the hexagonal extensions** | • Loosen the hexagonal extensions of the disk-holder shaft with the included spanners as shown in the picture and remove them. |
|  | PHASE 3: **Installation of the linking pivot and inserting the lawn mower** | • Insert the relative linking pivots<br>• Be sure that the bolts of the fixing brackets of the tool are completely loose.<br>• Insert the tool being sure to tighten the fixing screw of the tool fixing bracket. |
|  | PHASE 4: **Tightening of nuts and Allen screw** | • Tighten the fixing bolt of the bracket and the Allen screw on the nuts. |

| | | |
|---|---|---|
|  | PHASE 5<br>**Regulation** | • Install the feeler pin and regulate it according to the blocking position.<br>• Regulate the working depth lowering or raising the wheel, through the command system (Joystick/Electronic). |
| SETTLEMENT | | |
| Before starting the operations check the correct tightening of nuts and screws. After the first working hour the tool is subjected to settlement, check again the correct tightening of nuts and screws. | | |

## 8.4.3 BLADE TOOL

cod. SC 003

**BLADE TOOL**
Complete with blade tools to be fitted to the UNIVERSAL plant baring machine

blade 550

blade 700

***The blade tool*** is used to make a cut parallel to the ground near the plant trunk, penetrating the ground about 10/15 cm without remixing it.

EQUIPPING THE MACHINE:

| | | |
|---|---|---|
|  | **Starting configuration:** | **WARNING!**<br>Before installing every ACCESSORY be sure that the machine is on the flat, blocked and disconnected from the tractor. The operation should be executed in a machine shop adequately equipped. |
|  | PHASE 1: **Disassembling disk assembly** | • Unscrew the tightening ring nut with the included spanner.<br>• Extract the disks and remove the cover casing. |
|  | PHASE 2: **Remove the hexagonal extensions** | • Loosen the hexagonal extensions of the disk-holder shaft with the included spanners, as shown in the picture, and remove them. |
|  | PHASE 3: **Inserting the blade tool** | • Reassembly the tightening ring nut on the head of the disk-holder shaft<br>• Bring the blade near the hexagonal shaft of the machine. Be sure that the bolt of the fixing bracket is completely loose (arrow) and insert the blade in the machine shaft.<br>• Arrange the blade parallel to the ground |
|  | PHASE 4: **Tightening of bolts and Allen screw** | • Tighten the fixing bolt of the bracket and the Allen screw which is under the bolt. |

| | | |
|---|---|---|
|  | PHASE 5<br>**Regulation** | • Regulate the feeler pin according to the blocking position.<br>• Regulate the working depth lowering or raising the wheel, through the command system (Joystick/Electronic). |
| SETTLEMENT | | |
| Before starting the operations check the correct tightening of nuts and screws. After the first working hour the tool is subjected to settlement, check again the correct tightening of nuts and screws. | | |

## 8.4.4 MILLING CUTTER TOOL

cod. SC 004

**MILLING CUTTER TOOL**
complete with casing

cm. 45 model - cod. SC 004

cm. 60 model - cod. SC 004S

The ***milling cutter tool*** is used to work the ground near the pant trunk. It penetrates in the ground about 10/15 cm with saber-type blades instead of the classic disks. The working effect produces an orbital-vertical remixing and turnaround of the ground.

EQUIPPING THE MACHINE:

| | | |
|---|---|---|
|  | **Starting configuration:** | **WARNING!**<br>Before installing every ACCESSORY be sure that the machine is on the flat, blocked and disconnected from the tractor. The operation should be executed in a machine shop adequately equipped. |
|  | PHASE 1:<br>**Dismounting disk assembly** | • Unscrew the tightening ring nut with the spanner supplied.<br>• Extract the disks and remove the cover casing. |
|  | PHASE 2:<br>**Remove the hexagonal extensions** | • Loosen the hexagonal extensions of the shaft disk-holder with the supplied spanners, as indicated in the picture, and remove them. |
|  | PHASE 3:<br>**Installation of the linking pivot and inserting the blade tool** | • Insert the relative pivots<br>• Be sure that the nuts of the fixing brackets on the milling cutter tool are completely released (indicated with the arrow).<br>• Insert the milling cutter tool bracketing the fixing screw in the fixing clump of the harrow tool. |
|  | PHASE 4:<br>**Tightening of nuts and Allen screw** | • Tighten the fixing nuts of the bracket and the Allen screw on the nuts. |

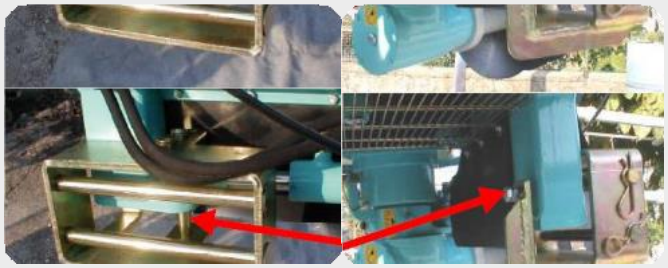
| | | |
|---|---|---|
|   | PHASE 5<br>**Regulation** | • Install the feeler pin of the milling cutter tool and regulate it according to the blocking position.<br>• Regulate the working depth lowering or raising the wheel, through the command system (Joystick/Electronic). |
| SETTLEMENT | | |
| Before starting the operations check the correct tightening of nuts and screws. After the first working hour the tool is subjected to settlement, check again the correct tightening of nuts and screws. | | |

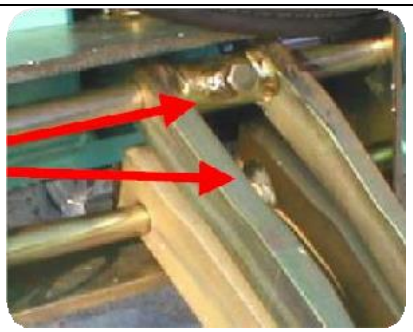
## 8.4.5 SELF LEVELLING GROUND SHEET


**SELF-LEVELLING GROUND SHEET**
with inclination (especially recommended to contain the ridged earth so as not to dirty the grass)
Not available for front and reversible models. **Not available for front and reversible models**

The ***self-levelling ground sheet*** contains the material thrown from the working area and it levels the ground moved/ mixed from the operation performed.

EQUIPPING THE MACHINE:

| | | |
|---|---|---|
|  | **Starting configuration:** | **WARNING!** Before installing every ACCESSORY be sure that the machine is on the flat, blocked and disconnected from the tractor. The operation should be executed in a machine shop adequately equipped. |
|  | PHASE 1: **Extraction of the pivot** | • Position the machine at the end of strokes<br>• Extract the pivot Ø 25 of the piston of the group disk-holder. |
|  | PHASE 2: **Installation support rocker arm** | • Install the support of the rocker arm, fixing it with the specific pivot Ø 25 and securing its position with the specific cotter pins.<br>• Block the support tightening the screw shown in the picture.<br>• Secure the fixed position of the screw tightening the lock nut. |
|  | PHASE 3: **Inserting the rocking arm** | • Insert the rocking arm as shown in the picture.<br>• Insert the fixing pivots and secure its fixed position with the cotter pins as shown in the picture.<br>• The rocker arm of the ground sheet can be regulated horizontally to vary the containment of the ground. |

| | | |
|---|---|---|
|  | PHASE 4: **Tightening of nuts** | • Tighten the fixing bolt |
|  | PHASE 5: **Tightening of bolts** | • Fix the self-levelling ground sheet to the rocking arm<br>• The arrows show the working directions |
|      | PHASE 6: **Regulation** | • To regulate the inclination of the self-levelling ground sheet loosen the bolt Ø 12.<br>• To regulate the ploughshare horizontally, act on the fixing screws |
| SETTLEMENT | | |
| Before starting the operations check the correct tightening of nuts and screws. After the first working hour the tool is subject to settlement, check again the correct tightening of nuts and screws. | | |

## 8.4.6 BRUSH TOOL

cod. SC 007

**BRUSH TOOL**
complete with casing and spring system for cleaning the plant

The ***brush tool*** is used to finish the ground near the plant trunk.

EQUIPPING THE MACHINE:

| | | |
|---|---|---|
|  | **Starting configuration:** | **WARNING!** Before installing every ACCESSORY be sure that the machine is on the flat, blocked and disconnected from the tractor. The operation should be executed in a machine shop adequately equipped. |
|  | PHASE 1: **Disassembling disk assembly** | • Unscrew the tightening ring nut with the spanner supplied.<br>• Extract the disks and remove the cover casing. |
|  | PHASE 2: **Assembling the casing with brush** | • Insert the casing with brush<br>• Remount the disks<br>• Tighten the fixing ring nut with the included spanner |
| SETTLEMENT | | |
| Before starting the operations check the correct tightening of nuts and screws. After the first working hour the tool is subject to settlement, check again the correct tightening of nuts and screws. | | |

## 8.4.7 DISK ASSEMBLY


**Disk assembly with no. 4 disks, Ø 380**

The ***disk assembly no.4 disks*** is used to increase the effect of baring/ridging.

EQUIPPING THE MACHINE:

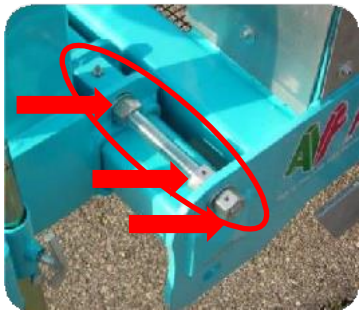
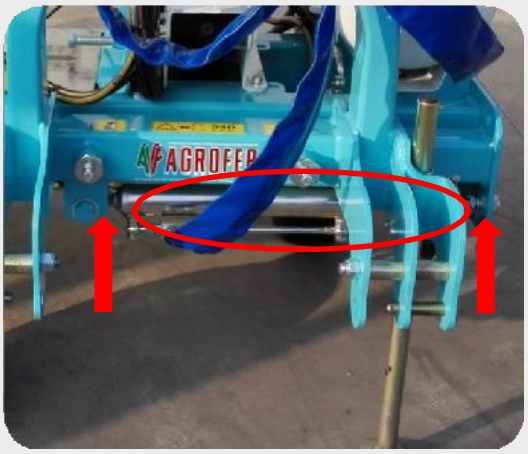
| | | |
|---|---|---|
|  | **Starting configuration:** | **WARNING!** Before installing every ACCESSORY be sure that the machine is on the flat, blocked and disconnected from the tractor. The operation should be executed in a machine shop adequately equipped. |
|  | PHASE 1: **Disassembling the disk assembly** | • Unscrew the tightening ring nut with the spanner supplied as shown in the picture.<br>• Extract the disks and remove the cover casing. |
|  | PHASE 2: **Assembling the casing with the brush** | • Insert the casing with four disks.<br>• Mount the 4 disks with the supplied spacer<br>• Tighten the fixing ring nut with the supplied spanner. |
| SETTLEMENT | | |
| Before starting the operations check the correct tightening of nuts and screws. After the first working hour the tool is subject to settlement, check again the correct tightening of nuts and screws. | | |

## 8.4.8 HYDRAULIC SHIFT OF THE MACHINE


**Hydraulic shift (at the 3 machine points) with quick coupling operation**

The ***hydraulic shift (at the 3 machine points)*** takes oil from the tractor control unit and it is commanded with the tractor lever. It moves right and left the hydraulic grasp at 3 machine points.

EQUIPPING THE MACHINE:

| | | |
|---|---|---|
|  | **Starting configuration:** | **WARNING!**<br>Before installing every ACCESSORY be sure that the machine is on the flat, blocked and disconnected from the tractor. The operation should be executed in a machine shop adequately equipped. |
|  | PHASE 1:<br>**Dismount the endless screw** | • Remove cotter pins and nuts.<br>• Remove then the screw without end. |
|  | PHASE 2:<br>**Mounting the cylinder and connecting hydraulic pipes** | • Mount the cylinder as it is shown in the picture with fixing nuts supplied.<br>• Connect then the hydraulic pipes to the tractor. |
| SETTLEMENT | | |
| Before starting the operations check the correct tightening of nuts and screws. After the first working hour the tool is subject to settlement, check again the correct tightening of nuts and screws. | | |

## 8.4.9 THIRD HYDRAULIC POINTS

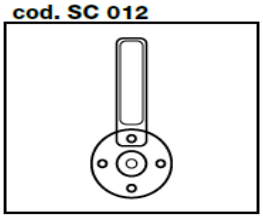

**Third hydraulic point with quick coupling operation.**

The ***third hydraulic point*** takes the oil from the tractor control unit and it is operated with the levers of the tractor. It moves the position of the third point for specific needs.

EQUIPPING THE MACHINE:

| | | |
|---|---|---|
|  | **Starting configuration:** | **WARNING!** Before installing every ACCESSORY be sure that the machine is on the flat, blocked and disconnected from the tractor. The operation should be executed in a machine shop adequately equipped. |
|  | FASE 1: **Disassembling stay rod** | • Remove the fixing pins<br>• Remove the stay rod at third point. |
|  | FASE 2: **Assembling cylinder and connection of hydraulic pipes** | • Mount the cylinder as shown in the picture.<br>• Connect then the hydraulic pipes to the tractor |
| SETTLEMENT | | |
| Before starting the operations check the correct tightening of nuts and screws. After the first working hour the tool is subject to settlement, check again the correct tightening of nuts and screws. | | |

cod. SC 012



**ROLLING STABILIZER**
for the stability of the machine with disk mounted on a bearing (especially recommended for grassland).

The ***rolling stabilized*** is used to increase the stability of working, particularly on the grass.

EQUIPPING THE MACHINE:

**WARNING!**
Before installing every ACCESSORY be sure that the machine is on the flat, blocked and disconnected from the tractor. The operation should be executed in a machine shop adequately equipped

PHASE 1:
**Disassembling the fixed stabilizer**

- Remove the fixed stabilizer with spanner CH30.


Optional:
Wheel on baring

FASE 2:
**Assembling the rolling stabilizer**

- Mount the rolling stabilizer as shown in the picture, fixing it with a screw using the spanner CH30.
- The stabilizer can be supplied on demand with a wheel mounted on baring.

SETTLEMENT

Before starting the operations check the correct tightening of nuts and screws. After the first working hour the tool is subject to settlement, check again the correct tightening of nuts and screws.

## 8.4.11 TIPPING MACHINE (To request when placing the order)

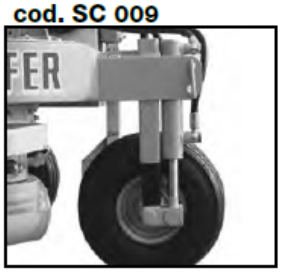
**TIPPING MACHINE** Ø 450 hydraulic
Equipped with adjustable rubber brushes with casing.
This kit is to be used with a system explained in figures.

The ***tipping machine*** is used for the tipping and to clean the infested plants.

*It has to be requested while ordering the machine and the assembly is provided by* AGROFER s.r.l.

## 8.4.12 SECOND PISTON FOR REAR WHEEL (To request when placing the order)

**cod. SC 009**



**Second piston for rear wheel with quick coupling operation**
**Tractor oil**

The ***second piston*** is driven with the tractor lever and it stabilizes the machine during the operation.

*It has to be requested while ordering the machine and the assembly is provided by* AGROFER s.r.l.