



INSTRUCTIONS FOR USING THE HEDGE MOWER

Model FB/P 400 - 400S - 480

All drawings in this manual are provide to illustrate the explanations and operations to be performed. For this reason, even if your equipment looks different from the illustration, the information contained here is to be considered correct.

The company follows a policy of continuous improvement and, for this reason, we reserve the right to change any illustrated or specified detail in this manual, without advance notice or the obligation to make any changes to machines that have already been delivered.



GUARANTEE

Check, upon receipt of the machine, that it has not been damaged during shipment and that all accessories are present.

GUARANTEE TERMS

- The manufacturer guarantees its products for a period of 12 months from the date of delivery on the condition that the herein attached form is fully compiled in all its parts and sent to the manufacturer within 15 days of date of delivery.
- The manufacturer, in accordance with the aforementioned terms, agrees to supply under guarantee coverage all components to be replaced according to its own decision or to the opinion of its own authorized representatives regarding parts that have material or manufacturing defects. Shipping and labour costs in this regard shall in any case be charged to the customer.
- Guarantee coverage does not include payment for damages caused by improper use of the machine by the machine operator and for parts normally subject to wear and tear and breakage such as hammers, blades, belts, etc.
- The manufacturer is not responsible for accidents to the operator or to third parties caused by improper use of the machine.
- This guarantee is not valid whenever:
 - b) assistance and repairs were done by unauthorized individuals or companies;
 - c) the machine has been previously repaired or modified using non-original spare parts;
 - d) whenever there has been a mistake when manoeuvring the machine;
 - e) there has been insufficient maintenance and/or lubrication;
 - f) when permissible power limits have been exceeded;
 - g) whenever the instructions in this manual are not duly complied with;
 - h) whenever unauthorized modifications have been brought to the machine.
- Machine breakdowns during or after the guarantee period shall not give rise to any right to interrupt payments for the goods that have already been delivered. No breakage or malfunction can be used as a pretext for delaying payments.
- The manufacturer reserves the right, at all times, to bring all due changes with the object of improving its own product and is not obligated to add these changes to previously manufactured machines that have already been delivered or are undergoing manufacture.
- These general guarantee terms replace and cancel all previous explicit or implicit guarantee conditions.

CONTENTS

1	OPERATOR'S GUIDE
2	INTRODUCTION
3	ESSENTIAL HEALTH AND SAFETY INFORMATION
4	GENERAL INSTRUCTIONS
6	SAFETY RULES
8	RULES OF THE ROAD
8	SAFETY RULES TO FOLLOW WHILE USING THE HEDGE MOWING MACHINE
9	HYDRAULIC SYSTEM SAFETY RULES
10	DANGER SIGNS FB/P 400-400S-480
11	LIFTING AND UNLOADING
12	MACHINE DESCRIPTION FB/P 400-400S-480
13	NOISE
14	TECHNICAL DATA
15	MACHINE VERSIONS
15	CUTTING TOOLS
16	OPTIONAL EQUIPMENT
18	TERMINAL EQUIPMENT
20	ATTACHING THE HEDGE MOWING MACHINE TO A TRACTOR
24	STABILITY OF THE TRACTOR
25	ADJUSTING THE WORKING POSITION
25	ADJUSTING THE REACH
26	ROAD TRANSPORT POSITION
27	USING THE HEDGE MOWING MACHINE IN OPERATION
28	MOWING HEDGES, REEDS AND SHRUBS
29	SAFETY OF THE ARM
30	REAR ROLLER ADJUSTMENT
30	DIRECTION OF ROTATION OF THE ROTOR
31	MOVEMENT OF THE ARM
32	ELECTRIC SINGLE-LEVER
33	INSTRUCTIONS FOR MACHINES WITH ELECTRIC (JOYSTICK) CONTROL
34	INSTRUCTIONS FOR CONNECTING THE TRACTOR'S SOCKET TO THE HEDGE MOWER'S POWER SUPPLY
35	MOVEMENT OF THE ELECTRIC SINGLE-LEVER
36	IMPORTANT WARNINGS
38	PUTTING THE HEDGE MOWING MACHINE AWAY
38	SAFETY OF THE CONTROL LEVERS AND JOYSTICK
39	MACHINE MAINTENANCE FB/P 400-400S-480
41	TOOL MAINTENANCE
44	REPLACEMENT OF SPARE PARTS
46	DEMOLITION, SORTING MATERIALS AND DISPOSAL
47	TROUBLESHOOTING

OPERATOR'S GUIDE

You have purchased a BERTI machine. How long it lasts will depend on how well you care for it. You must follow a few simple rules.

First, READ THE INSTRUCTION MANUAL CAREFULLY.

The following are the most important points:

1. Respect the maximum speed of the power take-off of 540 rpm.
2. Adapt the direction of rotation of the rotor to the job to be done.
3. The roller must be used to limit the cutting height. It must not be used to “carry” the machine.
4. Lubricate the roller and rotor twice a day.
5. Lubricate the machine once a day.
6. Replace the filter after 50 working hours and check the oil level.
7. Periodically check the screws and bolts of the cutting unit.
8. Check the tension of the belts.
9. If there are oil leaks, tighten the fittings well.
10. Never use an unbalanced rotor.
11. Never block the rotor while working.

If this happens frequently, it means:

- you are moving too fast
- you are not working correctly
- the power take-off is not working correctly
- there is a hydraulic problem

The use of other than original replacement parts can void the warranty.

INTRODUCTION

The BERTI line of hedge mowers has been designed to meet the needs of farmers and operators to clean ditches, banks, hedges, etc.

The result is the hedge mower, a machine with features that are found on no other machine.

It is intended to be attached to a farm vehicle using a three-point system; the connection is, in turn, locked in position by a pair of tie-rods (to prevent any movement between the tractor and the hedge mower).

It must NEVER be used for any other than its intended purpose (see below – in this manual).

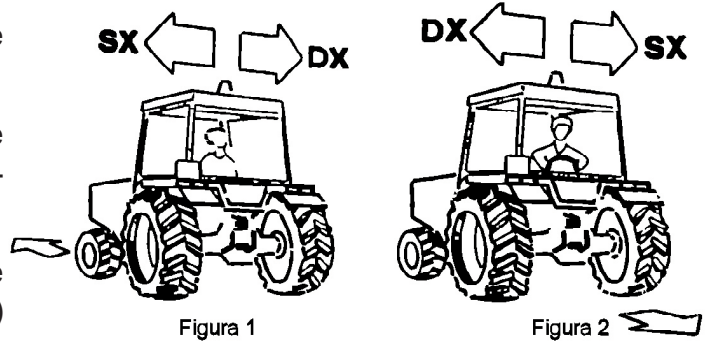
In particular:

NEVER USE THE ARMS AS A CRANE

HEDGE MOWER RIGHT AND LEFT

In relation to the working direction, the machine is called:

- “Decespugliatrice dx” when the arms are working on the right side of the tractor. (Figure 1)
- “Decespugliatrice sx” when the arms are working on the left side of the tractor. (Figure 1) (Figure 2 for reversible tractors)



VERY IMPORTANT

Every machine has an alluminum plate punched with its model and serial no., which are the information needed for service and ordering replacement parts.

(See figure to the side)

	 MACCHINE AGRICOLE S.p.A. Via Musi 1/A-3 - 37014 ALBERGO (VR) - ITALY www.bertima.it - www.bertiagricole.it - info@bertima.it										
MADE IN ITALY											
<table border="1"><tr><td>Modello - Model - Modèle - Modell - Modelo</td><td></td></tr><tr><td>Matricola - Serial Number - Numéro de série - Seriennummer - Matricula</td><td></td></tr><tr><td>Anno Produzione - Manufacturing Year - Année de Production - Jahr der Produktion</td><td></td></tr><tr><td>Massa - Weight - Poids - Gewicht - Peso - Kg</td><td></td></tr><tr><td>Versione Modello - Model Year - Année du Modèle - Modelljahr - Año del Modelo</td><td></td></tr></table>		Modello - Model - Modèle - Modell - Modelo		Matricola - Serial Number - Numéro de série - Seriennummer - Matricula		Anno Produzione - Manufacturing Year - Année de Production - Jahr der Produktion		Massa - Weight - Poids - Gewicht - Peso - Kg		Versione Modello - Model Year - Année du Modèle - Modelljahr - Año del Modelo	
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ESSENTIAL HEALTH AND SAFETY INFORMATION

ATTENTION: DANGER

NEVER attempt to assemble, attach or operate the machine before you have completely understood its functions, controls and the necessary safety precautions, as described in the instruction manual.

Always follow the tractor's commands and safety rules **VERY CAREFULLY**.

NEVER LEAVE THE DRIVER'S POSITION ON THE TRACTOR WHILE THE ENGINE, OR THE MACHINE IS RUNNING.

NEVER USE THE ARMS OF THE HEDGE MOWER AS A CRANE.

After connecting the hedge mower to the tractor, it may be necessary to stabilize everything by attaching ballast to the rear wheels of the tractor and/or equipping the tractor with counterweights. the tractor's wheel-track can also be widened; this is another method for increasing stability.

VERY IMPORTANT

Know the meaning of all the **DANGER** and **Instruction** stickers on the machine; take all precautions and follow all instructions.

Contact your reseller if you need advice or assistance or if you do not understand part of the manual or of the machine.

NEVER ASSUME if you are not sure, ASK FOR AN EXPLANATION.

The machine **MUST NOT** be adjusted or modified without authorization.

The manufacturer will not be liable in the case of a machine that has been modified without prior authorization.

NEVER attempt to repair, adjust or, in any way, work on the machine when it is not supported on its support brackets.

ALWAYS MAKE SURE THAT THE MACHINE IS LIFTED AND LOWERED IN THE SAFETY POSITION.

GENERAL INSTRUCTIONS

Before performing any repairs or maintenance on the tractor or hedge mower, ALWAYS make sure that the wheels of the tractor, or other vehicle, are stably resting on the ground.

ALWAYS TURN OFF THE TRACTOR'S ENGINE BEFORE ADJUSTING, REPAIRING OR INSPECTING THE HEDGE MOWER.

Always be aware of everything around you and maneuver the machine accordingly. Pay attention in enclosed or narrow areas and observe height restrictions due to the presence of homes, cliffs, etc.

Drive and operate the machine keeping in mind weather conditions, such as: sun, rain, ice, snow, wind, etc.

1. Before attaching the machine to the tractor, make sure that nothing is moving and that is on a solid, level surface. (This, obviously, depends on the choice of location made previously) Make sure that the wheels are resting correctly on the ground and that the supports, or props, are positioned to keep the arms from lowering.
2. Make sure that NO ONE is nearby by before, or while, manoeuvring the tractor or vehicle to attach the machine. Make sure that other persons remain at a certain distance; ALWAYS pay attention when backing up or aligning to attach the machine.
3. ALWAYS make sure that the brakes are able to hold the tractor in the chosen position. This will prevent the vehicle from moving and causing injury and damage.
4. Make sure that the suspension bar and third point are correctly mounted on the machine. Good quality pins must be used on the three attachment points. Lock the pins with elastic cotter pins.
5. If it is necessary to adjust or repair the machine while it is attached to the tractor, you MUST place horses or suitable supports under the machine to avoid the accidental lowering of the suspension arms, or mechanical failure.

THE MACHINES MUST ALWAYS BE SUPPORTED AND LOWERED.

6. NEVER work on, adjust, maintain or repair any machine while it is moving. Always stop the machine and TURN OFF THE TRACTOR ENGINE before beginning adjustments, maintenance or repairs.

TURN OFF THE TRACTOR MOTOR BEFORE LEAVING THE DRIVER'S POSITION ON THE TRACTOR

-
7. In transit, always use the transport supports or belt, where required. Longer machines are transported lengthwise; make sure that the front of the tractor has sufficient ballast to maintain stability. One way is to add weights to the front of the frame.
 8. The machine must **ALWAYS** be used with prudence and rationally and never for anything other than its intended purpose. Avoid overloading it since this causes damage to the machine and the tractor.
 9. Make sure that the supports, and your feet, are safely positioned when the machine is disconnected from the three points. The machine must be stored in a place where it will not be a dangerous obstruction for others. Make sure that the support surface is solid and level.
 10. Perform regular, periodic maintenance during the machine's entire term of service so that safety rules are **ALWAYS** observed.

11. ALWAYS FOLLOW RULES INTENDED TO PROTECT HEALTH AND AVOID ACCIDENTS.

SAFETY RULES

1. **BEFORE** doing anything to, or maneuvering, the hedge mower, you must read and follow the instructions in the use and maintenance booklet, **WHILE YOU ARE WORKING IS TOO LATE.**

Improper use, or incorrect maneuvers, can cause injury and property damage.

2. Both operators and maintenance personnel must be familiar with the machine, especially the dangers deriving from poor use or incorrect repairs.
3. **BEFORE** starting, check that the tractor and hedge mower are: operating correctly and conform to highway safety and accident-prevention laws.
4. Even when the hedge mower is being used correctly, it can still throw out stones or other objects. For this reason, **NO ONE MAY ENTER THE RADIUS OF DANGER.**

Be very careful when working near streets or buildings.

5. Use a tractor with a cabin.
6. **NEVER** wear loose or flapping clothing.
7. **NEVER** carry passengers on the tractor.
8. **NEVER** work, walk or pause under the raised arm.
9. **NEVER** use the arm to lift persons or objects.
10. **NEVER** transport persons on the hedge mower.
11. **NEVER** engage the power take-off when the engine is off.
12. **NEVER** approach the machine until the tool shaft is completely stopped.
13. **BEFORE** beginning work each day, check the integrity of the tools and protections; if any are damaged or missing, **REPLACE THEM IMMEDIATELY.**
14. During inspections or repairs, **ALWAYS MAKE SURE** that no one can start the hedge mower by accident.
15. **DO NOT** enter the working area of the drive shaft. Approaching rotating parts is dangerous.
16. Keep the safety guards on the drive shaft **IN GOOD CONDITION.**
17. **BEFORE** each start-up, check the area for the presence of children and/or animals.

18. ABSOLUTELY DO NOT STOP WITHIN THE RANGE OF ACTION OF THE HEDGE MOWER.

19. ONLY mount and dismount the drive shaft with the engine turned off and the ignition key removed.

20. **BEFORE** engaging the power take-off, check that the number of rpm and the direction of rotation correspond to those of the hedge mower.

21. **BEFORE** leaving the tractor and hedge mower, perform the following operations:

- 1) Block all functions using the hedge mower's controls
- 2) Disengage the power take-off
- 3) Pull up the parking brake and, in the case of sloping ground, place wedge blocks under the tractor's wheels
- 4) Remove the ignition key

22. IMMEDIATELY replace any lost or deteriorated safety warning or pictogram.

NEVER UNDERVALUE OR IGNORE THE SAFETY RULES

RULES OF THE ROAD

1. Disengage the power take-off
2. When travelling, go slowly, especially on rough roads. The hedge mower's weight destabilizes the tractor and can make it difficult to drive; this can even damage the hedge mower.
3. Obey the traffic laws when driving on public roads.
4. **NEVER** transport the hedge mower with the drive shaft in motion, even for short distances.
5. Protect the hedge mower's control levers against accidental shocks.
6. **LOCK** the arm and head with the belt provided.

SAFETY RULES TO FOLLOW WHILE USING THE HEDGE MOWING MACHINE

ATTENTION!! VERY IMPORTANT

1. While working, be careful NOT to come in contact with hard objects, such as manholes, wells, borders, railroad tracks, etc. This could break the tools, which would be projected outward at very high speed.
2. If iron wire, cord, chain or anything else should get twisted around the rotor, **IMMEDIATELY STOP**, to avoid damage or dangerous situations; **STOP** the ROTATION of the rotor, **TURN OFF** the tractor and **REMOVE** the ignition key. Put on work gloves and free the rotor using a pliers or shears. NEVER attempt to free the rotor by changing its direction of rotation.
3. **DO NOT** use the hedge mower if the head is vibrating; this can cause breakage and serious damage. Determine the cause of the problem and remove it.
4. **DO NOT** work with the arm extended on sloping ground and, in any case, check the stability of the tractor from time to time.
5. **NEVER** turn off an electrically (Joystick) controlled hedge mower with functions on (floating, electric ignition, support). For additional information, consult the section "Instructions for electrical-control (Joystick) machines".

HYDRAULIC SYSTEM SAFETY RULES

STOP IMMEDIATELY in the case of oil leaks

VERY IMPORTANT

Do **NOT** search for leaks with your bare hands; always use a rag. The oil is under high pressure and could penetrate the skin, causing a serious infection. In this case, consult a doctor immediately.

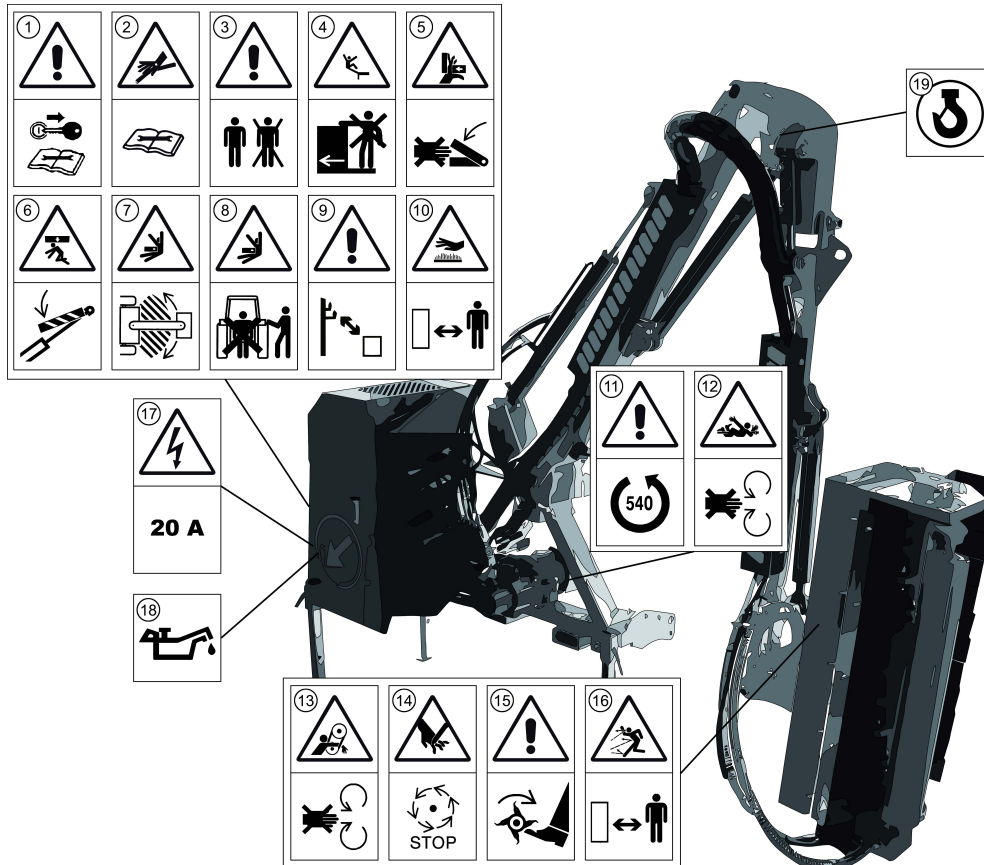
Periodically check all the flexible hoses and, if worn replace them with others of the same type and size.

BEFORE working on the hydraulic equipment, rest the head on the ground, turn off the tractor and discharge the residual pressure in the system and in the arm safety accumulator by pushing all the control levers in both directions.

In models with oil-pneumatic arm suspension, also close the tap on the accumulator by turning the lever.

Used oil and grease must be disposed of conforming to pollution prevention laws.

DANGER SIGNS FB/P 400 - 400S - 480



1	ATTENTION	Adjustments and maintenance must be performed with the machine stopped and the key removed.
2	ATTENTION	You must read the Use and Maintenance Manual before performing any adjustments or maintenance.
3	ATTENTION DANGER	This machine must only be used by one operator.
4	ATTENTION DANGER	Do not climb on the machine or ride on it.
5	ATTENTION DANGER	Shearing of the hands.
6	ATTENTION DANGER	Falling suspended parts. Apply the mechanical locking systems.
7	ATTENTION DANGER	Radius of action for moving the hedge mower.
8	ATTENTION DANGER	Crushing. Do not pause between the tractor and the operating machine.
9	ATTENTION DANGER	Electrocution. When using the arm, pay the maximum attention to aerial electrical lines.
10	ATTENTION DANGER	Burns. Stay at a safe distance.
11	ATTENTION DANGER	Contact with the drive shaft turning at 540 rpm.
12	ATTENTION DANGER	Getting tangled and dragged. Do not bring your hands near to the moving drive shaft.
13	ATTENTION DANGER	Contact with moving parts. Do not bring your hands near the transmission belts.
14	ATTENTION DANGER	Contact with moving parts. Wait for moving parts to stop.
15	ATTENTION DANGER	Contact with moving parts.
16	ATTENTION DANGER	Projected objects. Stay at a safe distance.
17	ATTENTION DANGER	Electricity.
18	ATTENTION	Oil tank.
19	ATTENTION	Lifting hook.

LIFTING AND UNLOADING

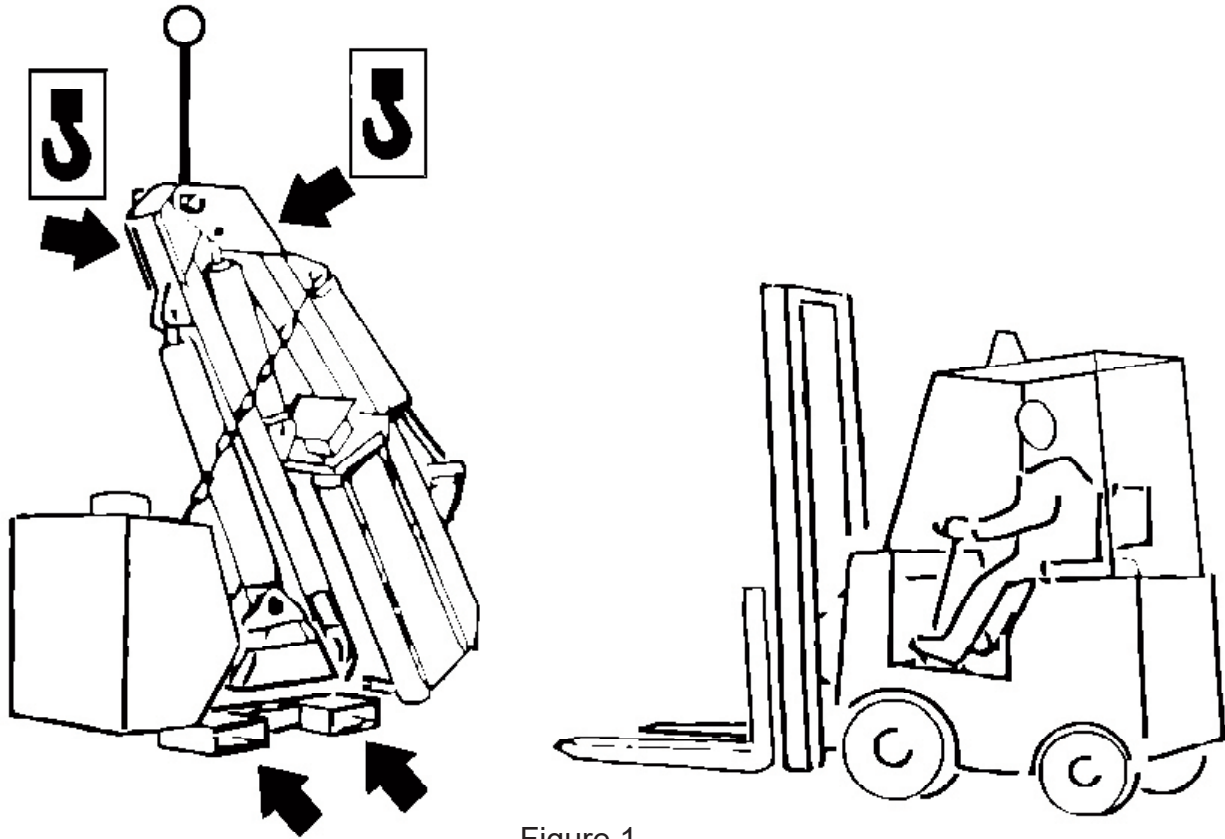


Figure 1

To move the hedge mower, use a lifting system that is appropriate for the weight of the machine (see Table 1) and suitable belts and hooks attached as shown in Figure 1.

Some models can be lifted with a forklift truck AFTER CLOSING AND LOCKING the arms and head to the frame using the the belts provide.

MACHINE DESCRIPTION FB/P 400 - 400S - 480

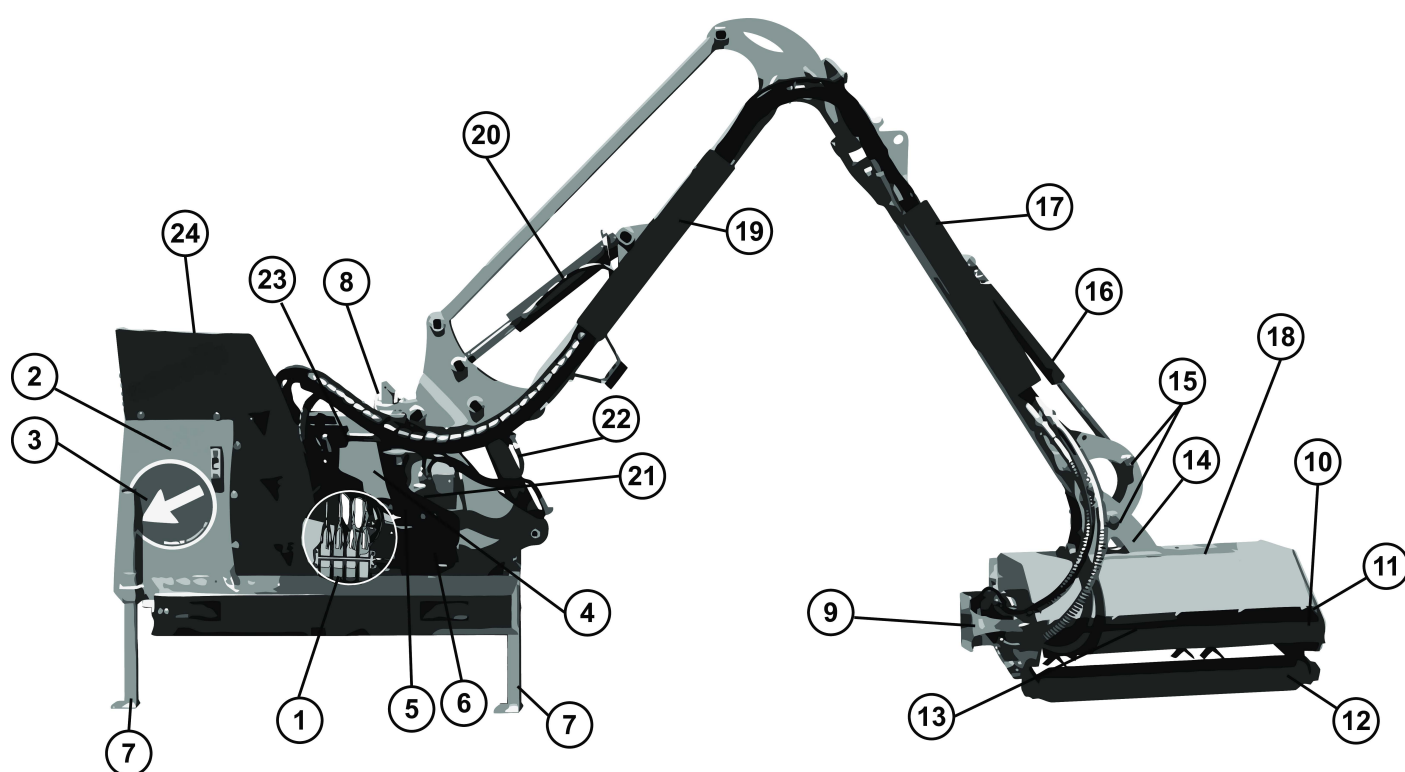


Figure 1

- | | |
|--|----------------------------|
| ① Wire or electric controls (Joystick) | ⑧ Connector to the tractor |
| ② Oil filter | ⑨ Hydraulic motor |
| ③ Tank | ⑩ Rear protection |
| ④ Cutting head distributor | ⑪ Rotor |
| ⑤ Hydraulic pumps | ⑫ Support roller |
| ⑥ Multiplier | ⑬ Front protection |
| ⑦ Support feet | ⑭ Head connection plate |

-
- | | | | |
|---|----------------|---|-------------------------------|
| ⑮ | Parallels | ⑳ | Second arm cylinder |
| ⑯ | Rotor cylinder | ㉑ | Cylinder movement distributor |
| ⑰ | Second arm | ㉒ | First arm cylinder |
| ⑱ | Cutting head | ㉓ | Vibration-damper cylinder |
| ㉑ | First arm | ㉔ | Head second arm |
| | | ㉕ | Heat exchanger |

This machine is available in accordance with the following law:

- DIRECTIVE 2006/42/EC and its subsequent amendments
- DIRECTIVE 2004/108/EC and its subsequent amendments
- UNI EN 13524:2009
- UNI EN ISO 4254-1:2010
- UNI EN ISO 15811:2010

Technical Notes

- ISO 11684: 1995
- ISO 3767-2: 1998
- DPR 547 of 27/04/1955 and subsequent amendments

NOISE

The noisiness of this machine, measured from the operator position, is between 74.3 and 75.2 db with the cabin closed and between 78 and 82.5 db with the rear window open.

The sound power level LWA is 103.2.

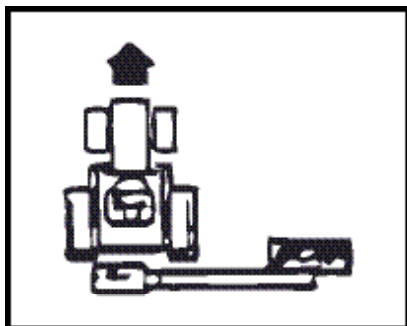
When the level of noise perceptible from the operator position is between 85 and 90 db, the use of hearing protection is recommended.

TECHNICAL DATA

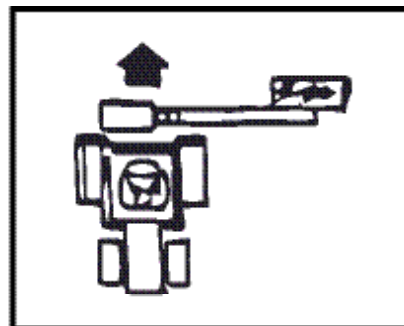
MACHINE	Model	400	400S	480
Tractor HP	HP	45/60	55/60	60/70
Tractor minimum mass	kg	2200	2500	2800
Minimum tractor width	cm	140/160	160	160/180
PTO rotation speed	rpm	540		
Required voltage	V	12		
Engine HP	HP	24	40	40
Weight (including oil)	kg	650	660	690
Tractor attachment category	cat.	2	2	2
HYDRAULIC SYSTEM				
Oil capacity	l	120	120	120
Filters	micron	Machine with wire controls: 60 Machine with electrical controls: 25		
Hydraulic oil type		AGIP OSO 46		
CUTTING HEAD				
Width of cut	Cm.	100	100	100
Head rotation	Degrees	190°		
Rotation speed	rpm	2800	2800	2800
Head weight	kg	100	105	105
Jointed blade 40x5	No.	40	40	40
Knife 40x8	No.	40	40	40

MACHINE VERSIONS

Our hedge mower line includes the standard RIGHT SIDE version (Figure A) and the version for reversible tractor (Figure B).

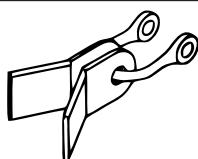


A



B

CUTTING TOOLS



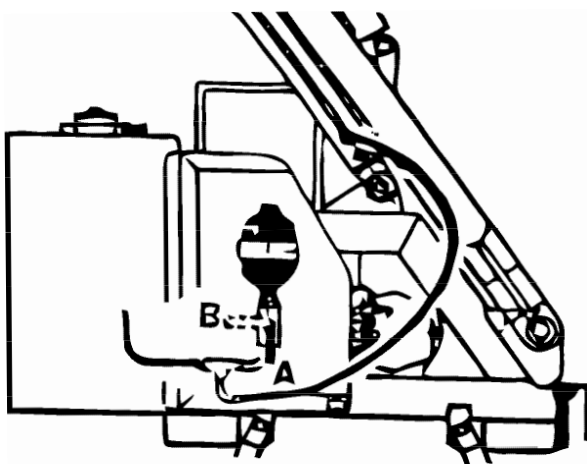
Jointed blades for grass and shrubs

OPTIONAL EQUIPMENT

① **Oil-pneumatic suspension for the first arm (For machines with wire and electrical controls)**

Machines with oil-pneumatic suspension for the first arm are particularly suited for working on irregular terrain.

The suspension allows the machine to easily follow the conformation of the ground. The oil-pneumatic suspension is activated by turning the lever shown to position A and the suspension is deactivated by turning the lever to position B.



Use the pump in the following way:

Rest the cutting head on the ground using the first arm control cylinder (hydraulic cylinder discharge) and slowly lift it by putting the hydraulic cylinder under pressure.

② **Electro-hydraulic suspension for the first arm (for machines with electrical controls)**

Machines with electro-hydraulic suspension for the first arm are particularly suited for working on irregular terrain.

The suspension allows the machine to easily follow the conformation of the ground. The electro-hydraulic suspension is activated with the selector on the joystick console depending on the distance shown.
(Selector E, figure on following page)

<u>Position 0</u>	- Suspension deactivated
<u>Position 1</u>	- Activation from 0 to average distance
<u>Position 2</u>	- Activation of the suspension from the average distance to maximum extension

③

(Selector F, figure to the side)

Position 0

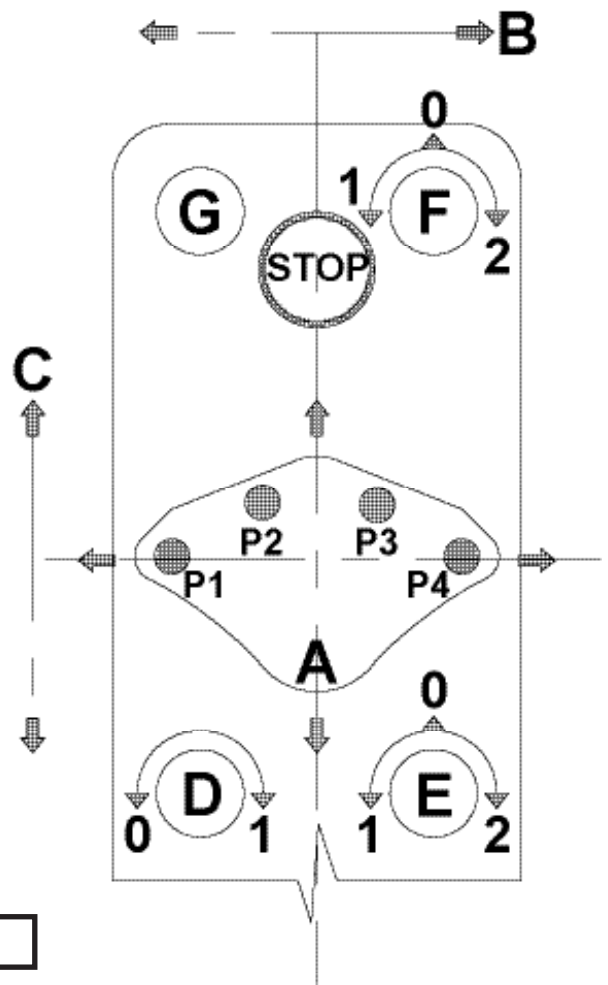
Stopping rotor rotation.

Position 1

Rotor rotation opposite the direction of movement.

Position 2

Rotor rotation in the same direction of movement.



ATTENTION: DANGER

Each time the operator/user stops and restarts the cutting rotor using the joystick control, the controller automatically **WAITS SEVERAL SECONDS** before starting to protect the hydraulic system and avoid hammer blows.

During this time, the rotor indicator on the joystick flashes to warn the operator of the temporary wait condition.

REMEMBER this wait condition!

DO NOT APPROACH THE ROTOR during this step because it could start at any moment.

DO NOT PAUSE NEAR THE ROTOR AND/OR CUTTING HEAD if the rotor switch is **NOT** in the centre (OFF) position.

NEVER WORK near the rotor and/or cutting head if the tractor's power take-off is engaged.

TERMINAL EQUIPMENT

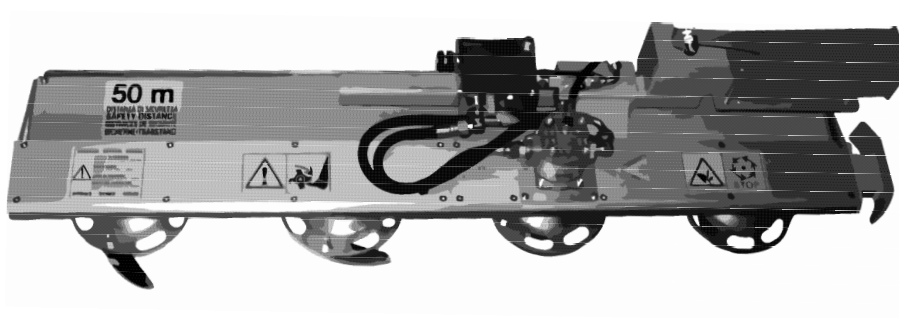
① Hedge clipper

Suitable for cutting hedges with maximum diameter of 3 cm.



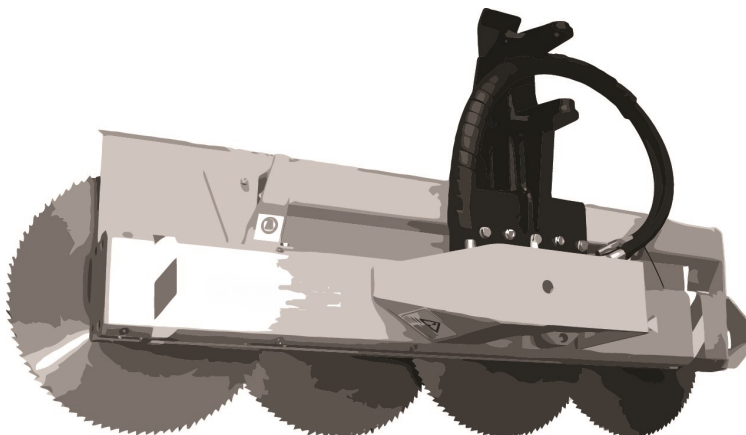
② Disk blade

Suitable for cutting hedges and shrubs with maximum diameter of 5 cm.



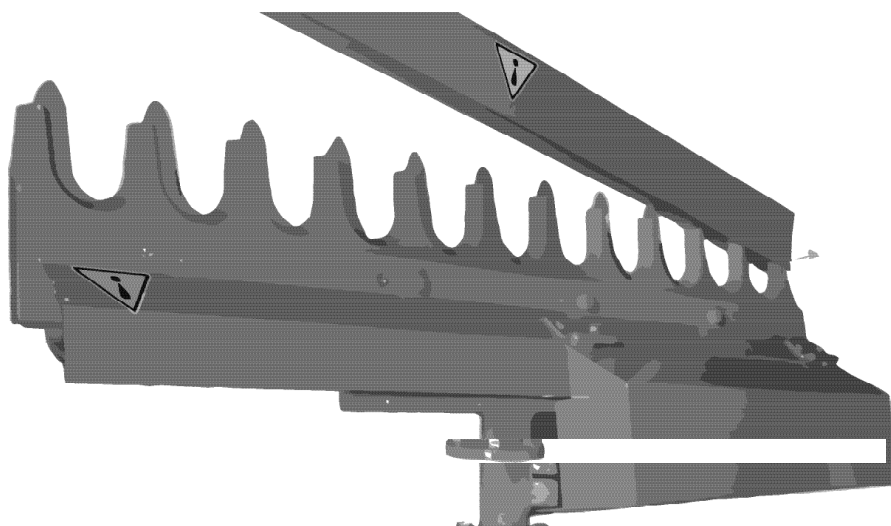
③ Disk blade

Suitable for cutting hedges and shrubs with maximum diameter of 10 cm.



④ Branch cutter

Suitable for cutting hedges and shrubs with maximum diameter of 10 cm.



ATTACHING THE HEDGE MOWING MACHINE TO A TRACTOR

WITH THE TOOL SUPPORTED ON THE SURFACE

1) Use the gudgeon pins provided to fix the lower lifting arms. Adjust the arm's tie-rods to avoid oscillation: the tractor's PTO must be aligned with the axis of the machine. See Photo

2) Apply the tie-rod of the 3rd point and fix it with the gudgeon pin provided: adjust and lock the tie-rod.

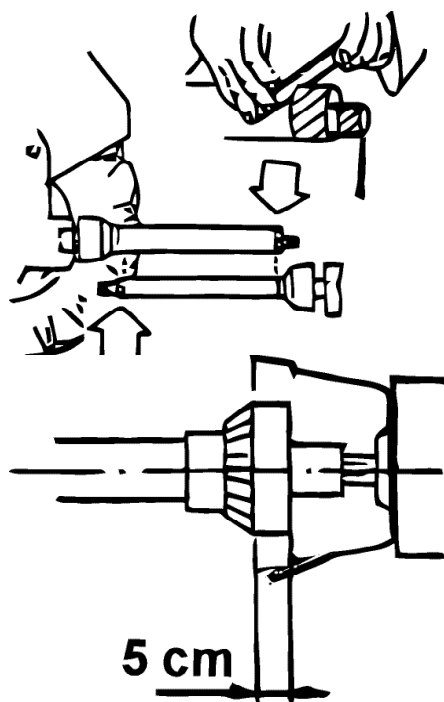
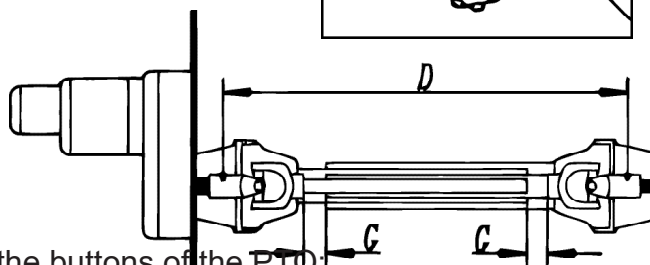
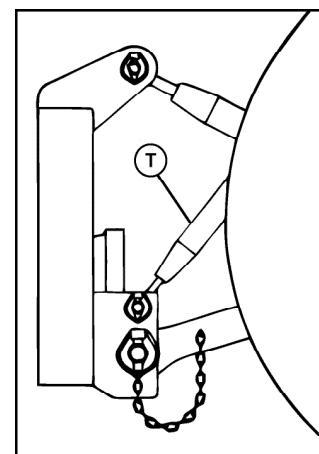
3) Mounting the drive shaft:

Before this operation, CAREFULLY READ the instructions in the booklet provided with the drive shaft.

Measure the distance D between the throats of the buttons of the PTO. If necessary, adjust the length of the drive shaft, taking care that the telescoping tubes overlap so as to allow the two ends a play G of at least 50 mm.

If necessary, SHORTEN the drive shaft, as shown in the figure to the side.

The drive shaft protects must be fixed to the hedge mower and tractor using the anti-rotation chains. The minimum overlap between the drive shaft protections and the power take-off (PTO) must not be less than 5 cm.



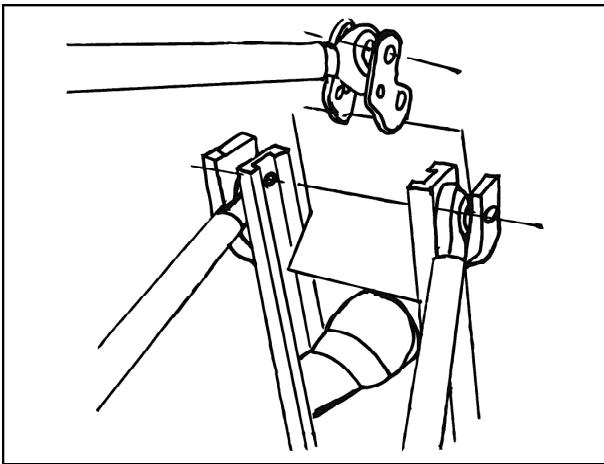
NEVER USE THE DRIVE SHAFT WITHOUT PROTECTIONS
After mounting the drive shaft, fix the anti-rotation chains
of the protections on both the tractor and tool sides.

4) Mounting the stabilization tensioners

The tool is equipped with two STABILIZATION BLADES: for their mounting and dismounting procedures, YOU MUST READ the following instructions:

- Lift the main body of the tool to the working position and tension and lock the two TENSIONERS of the LOWER LIFTING ARMS.
- Attach the two stabilization blades between the upper hole of the connectors and a point on the tractor near, and below, the third-point connector: in this way, the tool cannot oscillate freely.
- To dismount, perform the same steps in reverse.

**A CORRECT AND SAFE USE OF THE MACHINE RE-
QUIRES MOUNTING TWO STABILIZATION BLADES**



For models:

**CHECK THAT THE SNAP SAFETY PINS
THAT PREVENT THE GUDGEON PINS
FROM ACCIDENTALLY SLIPPING OUT
ARE FIRMLY INSERTED**

ATTENTION DANGER: NEVER get between the tractor and the tool when the tractor is approaching the hedge mower.

The above drawings show possible attachment solutions; they can be modified based on the tractor used.

5) Mount the stabilization tensioners with support for attaching the tie-rods.

In order to facilitate mounting the stabilization tensioners, it is possible to use the third-point support on some tractor models.

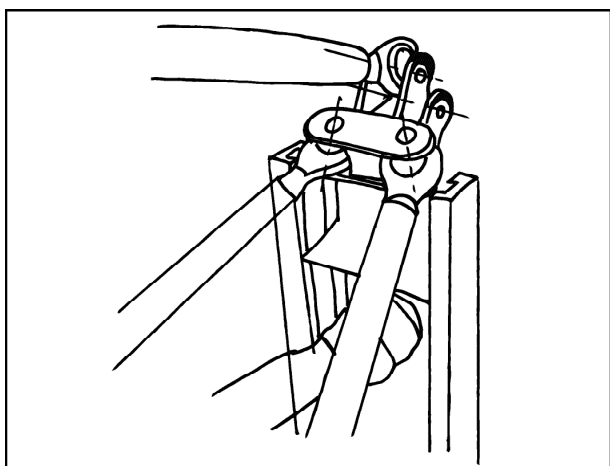
1. Light model for hedge mower types FB/G 250 - 300 - 380 - FB/ARC 380.
2. Heavy model for hedge mowers from model FB/P 400 to FB/PG 610.

The support is positioned in the seat of the tractor's third point; then the tractor's third point is positioned with the hedge mower and, finally, the stabilization tensioners.

IMPORTANT: Based on the model of tractor, the support may need to be modified during mounting.

2. SEMI-AUTOMATIC CONNECTION TO THE HEDGE MOWER

Lift the stabilizer bar to the height of the connectors on the frame of the hedge mower after previously removing the two safety pins. Back the tractor slowly towards the machine until the bar completely enters the seats inside the connectors. Push down the two safety pins and lock them with the elastic pins. Position the drive shaft and third point. After performing these operations, bring the machine to the ideal working height and attach the two tensioners.



CHECK THAT THE SNAP SAFETY PINS THAT PREVENT THE GUDGEON PINS FROM ACCIDENTALLY SLIPPING OUT ARE FIRMLY INSERTED

ATTENTION DANGER: NEVER get between the tractor and the tool when the tractor is approaching the hedge mower.

HEAT EXCHANGER

For models that mount a heat exchanger, remember to connect the heat exchanger's plug to the tractor's 12V socket.

We recommend running the heat exchanger continuously whenever the hedge mower is being used.

**Blow out the head heat exchanger with a JET
OF AIR approximately every 30 hours.**

BEFORE START-UP

- **CHECK** that the rpms and the direction of rotation of the tractor's power take-off are same required by the hedge mower.
- **MAKE SURE** that the flexible control cables are not twisted, crushed or too tense in a way that affects the sensitivity and response of the control.
- **CHECK** the oil level in the tank and multiplier.
- **CHECK** that all the protections are in good working order.
- **MAKE SURE** that the clipper control lever is in the neutral position.

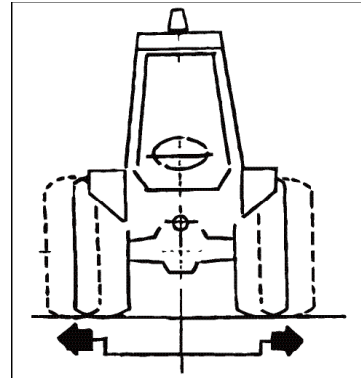
AFTER YOU HAVE DONE THE ABOVE, PROCEED AS FOLLOWS

1. Start the tractor.
2. Engage the power take-off and let the oil circulate for several minutes before using any control lever.
3. Test the arm lever to make sure it is working correctly.
4. Place the head in a safe position, increase the rpms of the tractor and slowly move the rotor control lever in the desired direction of rotation. After several seconds, the rotor's speed of rotation will have stabilized and it is then ready for work.

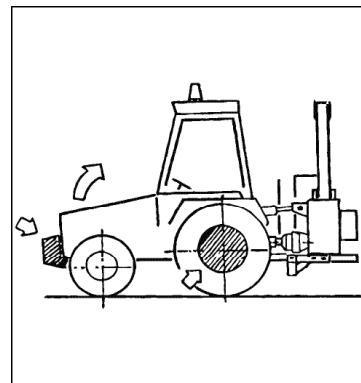
STABILITY OF THE TRACTOR

Depending on the model of hedge mower and the job to be done, it is very important to ensure the stability of the tractor to avoid the risk of tipping over.

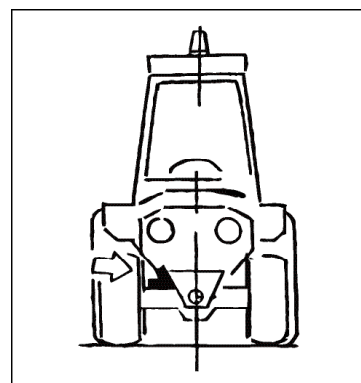
- Adjust the wheels of the tractor to the position of maximum wheel track.



- Place ballast on the front of the tractor and, where possible, in the rear wheel on the side opposite the one where the hedge mower is working.



- Only in an extreme case and only during work, block the tractor's front axle with a spacer between the frame of the tractor and the axle.



CONTACT US FOR ANY ADDITIONAL EXPLANATIONS

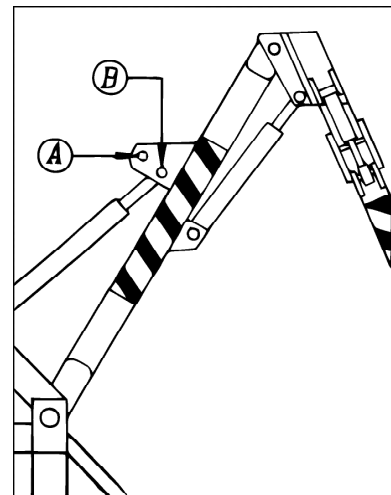
ADJUSTING THE WORKING POSITION

The working position (a distance of 4-5 cm from the ground) is set by adjusting the rear roller: if you need a greater height after completely lowering the roller, you can adjust the tie-rod of the third point by loosening it (this adjustment must be made carefully because it causes the tool to incline backwards. The optimum working position always has the arms in a vertical position).

ADJUSTING THE REACH

To obtain the hedge mowers maximum reach, position the arm jack in hole B and, to bring it closer, position the jack in hole A, as shown in the photo to the side.

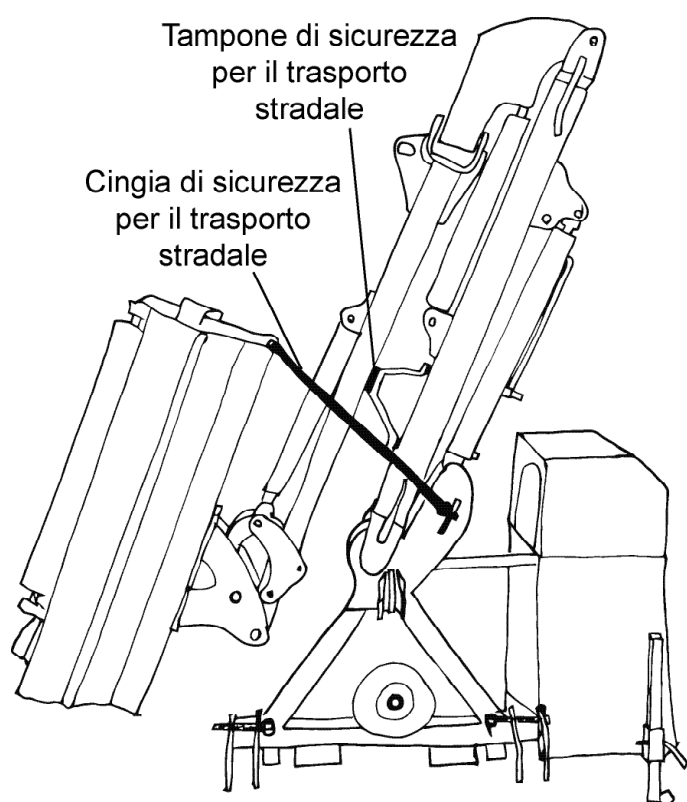
IMPORTANT: This operation is only done after resting the hedge mower on the ground.



ROAD TRANSPORT POSITION

The machine comes with safety BELTS (C) that prevent movement during on the road transfers. Some models also have a rubber pad to support the arms during on the road transport.

NEVER TRAVEL WITHOUT FIRST APPLYING THE SAFETY BELTS. THESE DEVICES PROTECT THE MACHINE AND HELP AVOID ACCIDENTS.

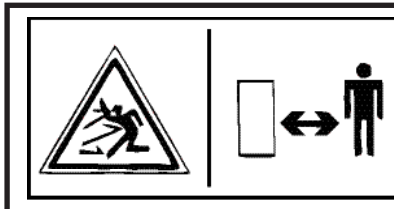


THE MANUFACTURER WILL VOID THE WARRANTY IN THE CASE OF DAMAGE TO THE HEDGE MOWER CAUSED BY A FAILURE TO OBSERVE THE ABOVE SAFETY RULES.

**IF THERE IS THIRD-PARTY INJURY OR PROPERTY DAMAGE CAUSED BY A FAILURE TO OBSERVE THE ABOVE RULES, THE DRIVER OF THE VEHICLE WILL BE TOTALLY LIABLE.
DO NOT ALLOW THE TRACTOR TO BE DRIVEN BY UNQUALIFIED PERSONNEL, NOT EVEN DURING TRANSFERS.**

USING THE HEDGE MOWING MACHINE IN OPERATION

1. REMOVE THE SAFETY BELT USED DURING TRANSPORT
2. POSITION THE HEDGE MOWER IN THE WORKING POSITION. DURING THIS MANEUVER, ALWAYS MAKE SURE THAT THERE IS NO ONE IN THE ROTATION RADIUS OF THE TOOL.
3. Orient the hedge mower and bring it AS CLOSE AS POSSIBLE to the ground.
4. Use the lever to start the rotor slowly and bring it up to working speed. At this point, you can begin to work by bring the hedge mower in contact with the material to be cut by manoeuvring the arm.



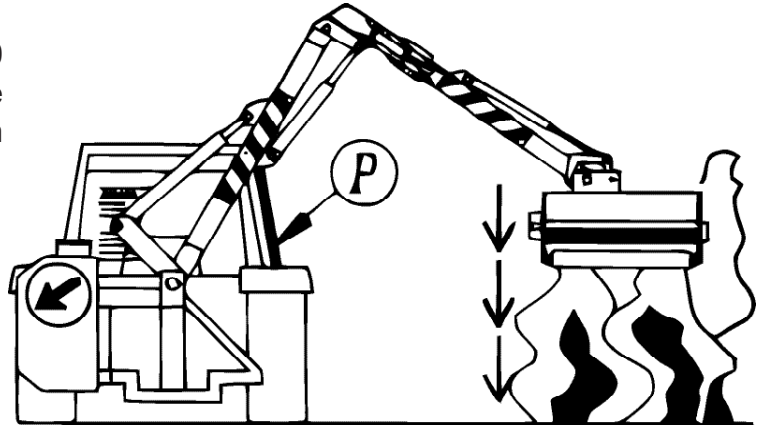
ATTENTION: DANGER

Despite the protections mounted on the tool, it can throw out materials in certain situations. Maintain, and enforce respect, for the conditions described below.

- Working with the hedge mower in a horizontal position, level with the the surface, is the safest position. When the machine is running, maintain a SAFETY DISTANCE of at least 50 METERS.
- CONTINUOUSLY CHECK THAT NO ONE IS PAUSING WITHIN THIS AREA OF POSSIBLE RESIDUAL DANGER.
- Position the danger sign when working on a road that is open for traffic and always pay attention to passing vehicles, in any case. IF NECESSARY, STOP WORKING!
- In areas where there are sure to be stones on the surface, raise the rotor to its maximum height from the ground by lowering the rear support roller.

MOWING HEDGES, REEDS AND SHRUBS

If the material to be cut is taller than 70-80 cm , make several passes, starting from the top and lowering the tool 20-30 cm each time.



IMPORTANT:

This method of using the hedge mower (or when it is used far from the tractor wheel or inclined with respect to the horizontal) is a potential source of danger for the driver of the vehicle carrying the tool.

YOU MUST INSTALL ADEQUATE PROTECTION (P) FOR THE CABIN OR, IN ANY CASE, THE DRIVER'S POSITION ON THE TRACTOR.

THE MANUFACTURER WILL NOT BE LIABLE FOR ACCIDENTS CAUSED BY A FAILURE TO FOLLOW THIS RULE.

The protection must be constructed with a strong frame closed with a metal mesh no greater than 2 cm.

SAFETY OF THE ARM

The hedge mower has an automatic safety system that intervenes with the cutting head hits an obstacle.

This system allows retracting the arm to avoid damaging the structure.

In this way, the operator will have the time needed to pass over the obstacle and bring the hedge mower to the working position.

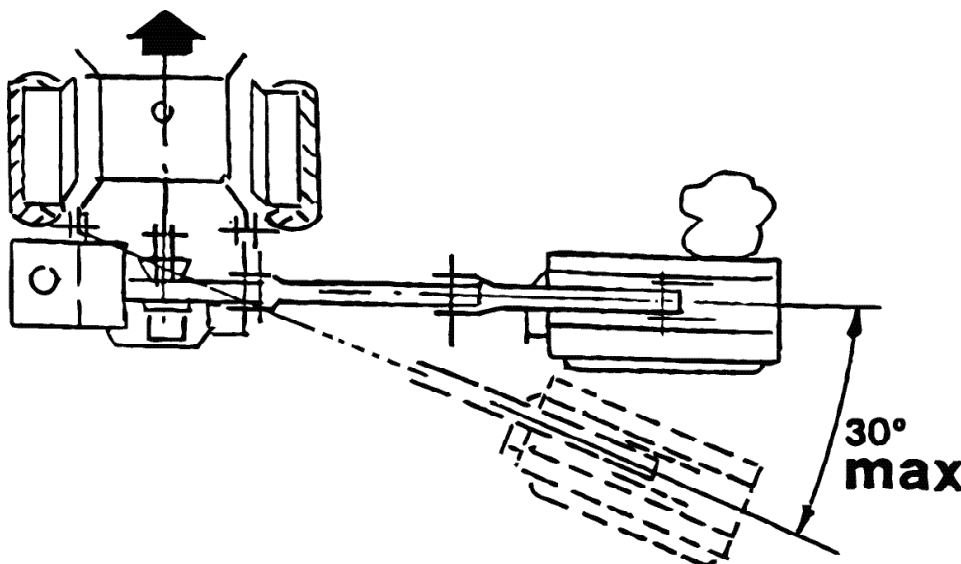
1. For models: FB/G 250 - FB/P 430-500-600 - FB/T 660-730 - FB/PG 510 and 610, the return to the working position is automatic.
2. For models: FB/G 300 - 380 - FB/P 400-480, the return to the working position must be performed as follows:
 - Reset the safety cylinder with the control lever of the first cylinder.
 - Close the first cylinder.
 - Continue acting on the lever of the first cylinder until the hedge mower reaches a position perpendicular to the tractor.

IMPORTANT:

When the arms of the hedge mower are folded, **NEVER EXCEED 30°** for the following models - FB/G 250-300-380 - FB/P 400-480 to avoid damage to the structure.

IMPORTANT:

For all other models, when the arms of the hedge mower are folded, **NEVER exceed 90°** to avoid damaging the structure.

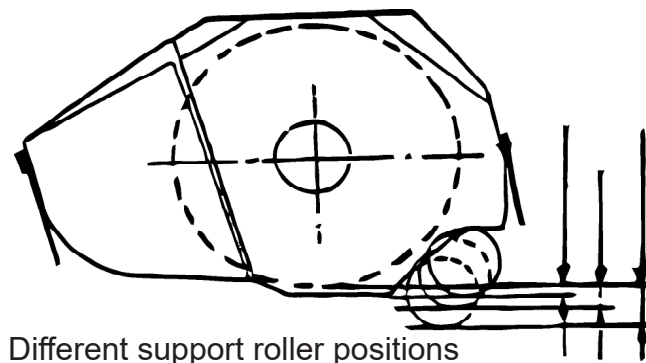


REAR ROLLER ADJUSTMENT

The cutting height is adjusted by raising the support roller of the head depending on the material to be cut.

FOR SAFETY REASONS, NEVER OPERATE WITHOUT THE SUPPORT ROLLER.

The working speed depends on the type of material to be cut and the cutting height.

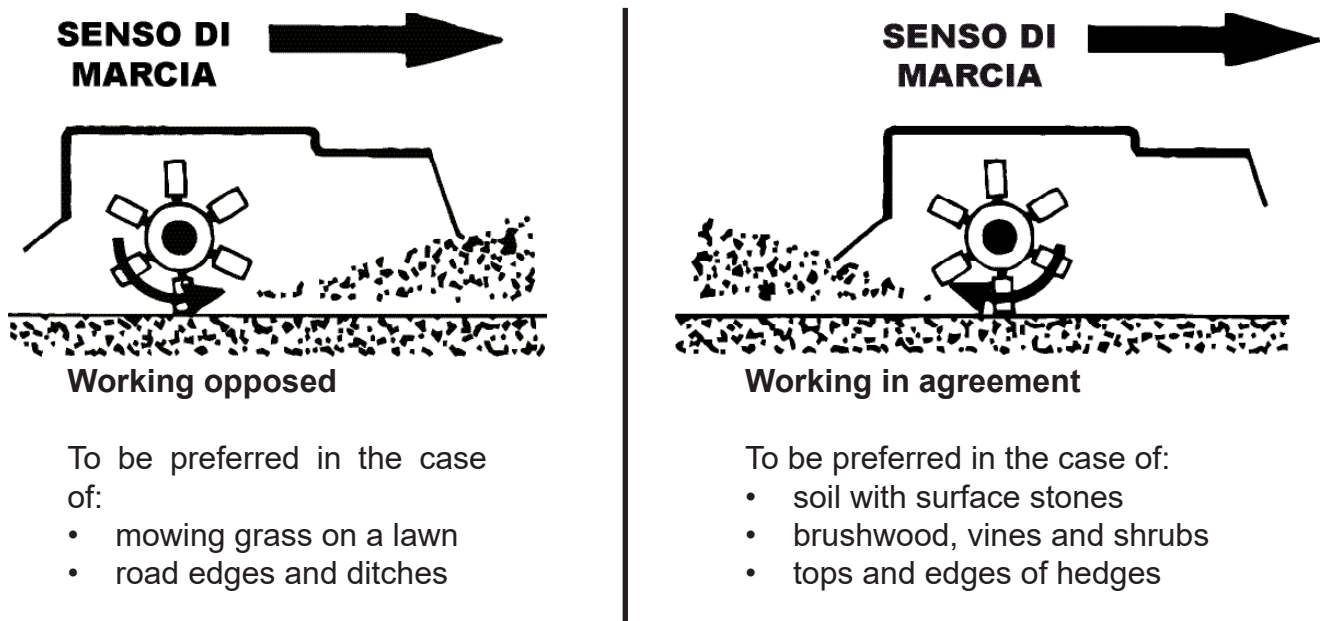


Different support roller positions

DIRECTION OF ROTATION OF THE ROTOR

The hedge mower's rotor can rotate in two directions. You can choose to work "in agreement" or "opposed," as shown in the drawing below.

Follow the recommendations shown for the correct choice



To be preferred in the case of:

- mowing grass on a lawn
- road edges and ditches

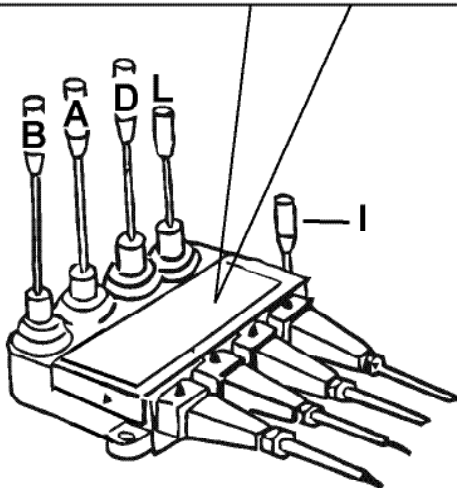
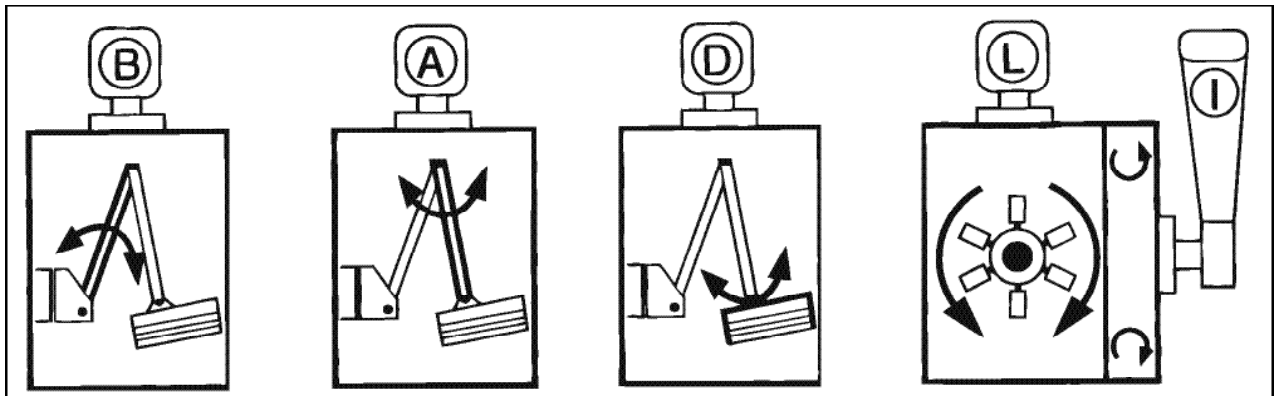
To be preferred in the case of:

- soil with surface stones
- brushwood, vines and shrubs
- tops and edges of hedges

IMPORTANT: DO NOT invert the direction of rotation with the rotor in motion
(you can accelerate the braking of the rotor by leaving it in contact with the material to be cut).

MOVEMENT OF THE ARM

Attach the CONTROL LEVERS to the tractor in a position where they can be manoeuvred comfortably.



IMPORTANT WARNINGS

Start the rotor and bring it slowly to working speed.
Avoid exceeding 540 rpm with the power take-off.

Reverse the direction of rotation of the rotor (levers I and L) **ONLY** when the rotor is stopped: performing this operation with the rotor in motion can damage the hydraulic motor.

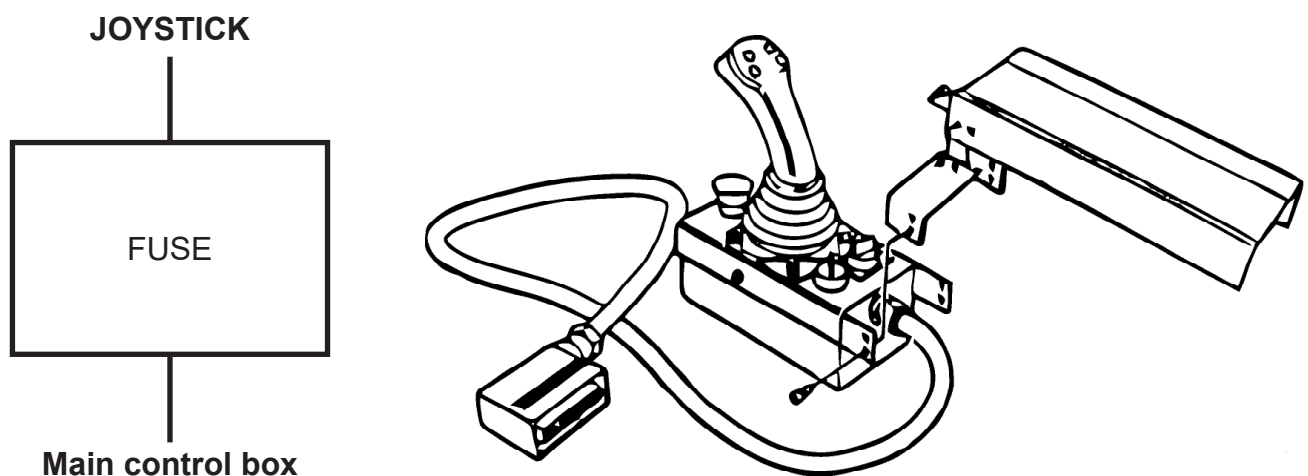
LEVER LEGEND		Lever forward	Lever back
Ⓘ	Rotor rotation inversion	rotor rotation opposite the direction of movement	rotor rotation in the same direction of movement
Ⓛ	Hedge mower running		
Ⓑ	Arm inclination	downward	upward
Ⓐ	Forearm inclination	downward	upward
Ⓓ	hedge mower inclination	downward	upward
Engage the head float function by pushing control lever D completely forward until it hooks. To restore normal use, pull the lever back to its original position.			

For maintenance, see the "Wire Controls" maintenance chapter.

ELECTRIC SINGLE-LEVER

The machine equipped with electric / electronic device complies with Directive 2004/108/EC. relating to electromagnetic compatibility

Attach the ELECTRIC SINGLE-LEVER (Joystick) to the tractor in a position where it can be manoeuvred comfortably.



FUSE = SAFETY RELAY FOR THE ENTIRE CIRCUIT
(It is located in a white box on the frame of the hedge mower.)

ATTENTION!

Contact your reseller if you need advice or assistance or if you do not understand part of the manual or of the machine

NEVER ASSUME if you are not sure, **ASK FOR AN EXPLANATION**

The machine **MUST NOT** be adjusted or modified without authorization.

The manufacturer will not be liable in the case of a machine that has been modified without prior authorization.

INSTRUCTIONS FOR MACHINES WITH ELECTRIC (JOYSTICK) CONTROL

<u>IMPORTANT! VERY IMPORTANT</u>

Before connecting the electric (joystick) control and the heat exchanger of the hedge mower to the tractor, it is necessary to follow several simple rules.

1. **CAREFULLY READ THE INSTRUCTIONS** for the electric control in this manual.
2. **FAILURE TO FOLLOW** the safety instructions can cause considerable damage to the electrical system and void the warranty.
3. The safety rules and instructions **MUST ALWAYS BE FOLLOWED**.
4. **NEVER UNDERVALUE OR IGNORE THE SAFETY RULES**.

<u>IMPORTANT! VERY IMPORTANT</u>

All the hedge mowers with electric distributor and heat exchanger are equipped with electrical cables and they are coloured following the electrical diagram:

HEDGE MOWER CONTROL BOX PLUG		
31	NEGATIVE POLE (-)	BLACK CABLE
		YELLOW/GREEN CABLE
15 / 30	POSITIVE POLE (+)	BROWN CABLE
		GRAY CABLE

THICKNESS of the heat exchanger and the control box 2x4 mm ²

TRACTOR SOCKET		
15 / 30	POSITIVE POLE (+)	RED CABLE
31	NEGATIVE POLE (-)	BLACK CABLE

THICKNESS of the heat exchanger and the control box 2x4 mm ²

IMPORTANT!

NEVER REVERSE THE POLARITY

and

**NEVER ALTER OR MODIFY THE THICK-
NESS OF THE ELECTRICAL CABLES**

(this could cause serious damage to the electrical components)

**INSTRUCTIONS FOR CONNECTING THE TRACTOR'S SOCKET TO THE
HEDGE MOWER'S POWER SUPPLY**

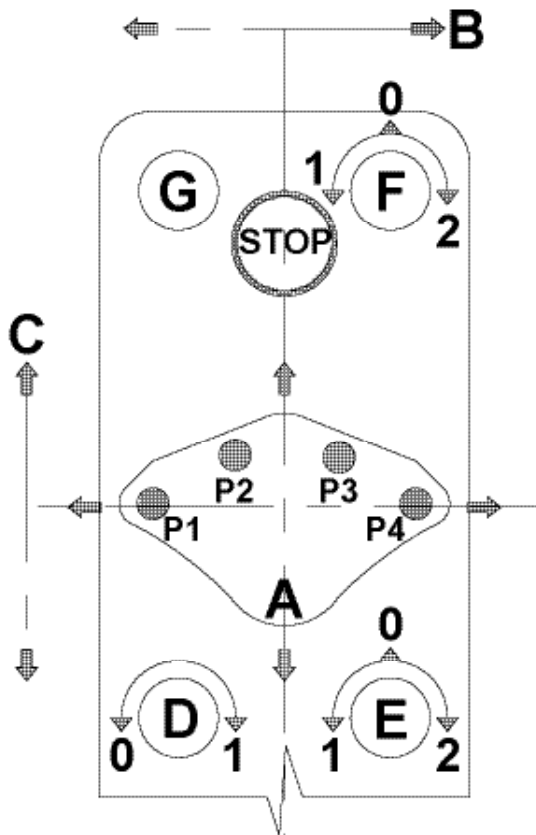
After connecting the hedge mower to the tractor
(see page 21), PROCEED AS FOLLOWS:

1. connect the RED WIRE of the electric socket on the tractor to the POSITIVE POLE (+) of the tractor battery
2. connect the BLACK WIRE of the electric socket on the tractor to the NEGATIVE POLE (-) of the tractor battery
3. **IMPORTANT!** the POSITIVE/RED power supply cable must be interrupted with a 30A fuse
4. insert the hedge mower power supply plug in the electrical socket on the tractor.

This supplies a constant current of 12 VOLTS to the hedge mower's controller.

5. Release the Red (safety stop) button on the base of the joystick:
THE GREEN LIGHT INDICATES THE PRESENCE OF CURRENT.
If the GREEN LED FLASHES, the current is LESS than 12 VOLTS.
6. Before starting work, carefully read the paragraph about moving the arm.

MOVEMENT OF THE ELECTRIC SINGLE-LEVER

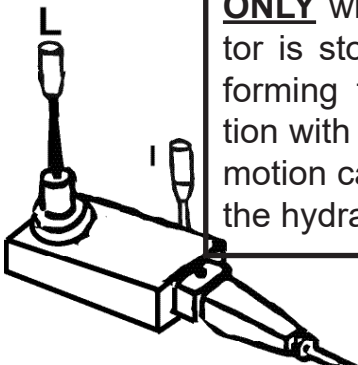


IMPORTANT WARNINGS

Start the rotor and bring it slowly to working speed.

Avoid exceeding 540 rpm with the power take-off.

MECHANIC START-UP OF ROTOR



Reverse the direction of rotation of the rotor (levers I and L) **ONLY** when the rotor is stopped: performing this operation with the rotor in motion can damage the hydraulic motor.

SINGLE-LEVER LEGEND

A	Single-lever to the right	Open arms
	Single-lever to the left	Close arms
C	Single-lever forward	Raise arms
	Single-lever back	Lower arms
D	Position 0	Stop rotor float system
	Position 1	Engage rotor float system
E	Position 0	Stop electric suspension
	Position 1	Activate electric suspension from 0 to X meters
	Position 2	Activate electric suspension from X to maximum extension
F	Position 0	Stopping rotor rotation
	Position 1	Rotor rotation opposite the direction of movement
	Position 2	Rotor rotation in the same direction of movement
G	Green light continuous	OK, current 12V
	Green light flashing	IMPORTANT: Check that the plug is correctly inserted
P1	Rotate the rotor upwards	
P2	Rotate the rotor downwards	
P3	Open telescopic arm	
P4	Close telescopic arm	

IMPORTANT WARNINGS:

Start the rotor and bring it slowly to working speed. Avoid exceeding 540 rpm with the power take-off.

ATTENTION!

ONLY REVERSE THE DIRECTION OF ROTATION WHEN THE ROTOR IS STOPPED.
PERFORMING THIS OPERATION WITH THE ROTOR IN MOTION CAN DAMAGE THE HYDRAULIC MOTOR.

In the winter, let the rotor run for at least 4-5 minutes before starting work

For models FB/G 250 - 300 - 380

In the summer, we recommend equipping the machine with the (optional) HEAT EXCHANGER.

If this accessory is not installed, do not allow the oil temperature to exceed 60-70°C (stop the machine if this happens).

ATTENTION: DANGER

Each time the operator/user stops and restarts the cutting rotor using the joystick control, the controller automatically **WAITS SEVERAL SECONDS** before starting to protect the hydraulic system and avoid hammer blows.

During this time, the rotor indicator on the joystick flashes to warn the operator of the temporary wait condition.

REMEMBER this wait condition!

DO NOT APPROACH THE ROTOR during this step because it could start at any moment.

DO NOT PAUSE NEAR THE ROTOR AND/OR CUTTING HEAD if the rotor switch is **NOT** in the centre (OFF) position.

NEVER WORK near the rotor and/or cutting head if the tractor's power take-off is engaged.

IMPORTANT WARNINGS:

If the hedge mower is put away with a function inserted on the joystick control (float, electric start, support), the next time the hedge mower is used, the function left inserted will begin to flash. The hedge mower's joystick cannot function in this situation. Follow these instructions to restore joystick operation:

1. Release the function that remained active.
2. Press the emergency mushroom button
3. WAIT several seconds before resetting the EMERGENCY MUSHROOM BUTTON and then you will be able to use the hedge mower's controls.

PUTTING THE HEDGE MOWING MACHINE AWAY

The hedge mower must be put away on a stable, level surface.

VERY IMPORTANT

For a good position when put away, **ALWAYS** rest the machine on its support feet. Make sure that the machine's support feet are correctly locked in position.

Do **NOT** let children play on or around the machine when it is put away.

Do **NOT** wear loose or torn clothing that could get caught in the mechanism or in the controls.

Always provide safety screens to protect the operator from flying materials.

Make sure that you **ALWAYS** have good visibility through the cabin glass.

Make sure that the controls, joystick, wire levers, etc., are correctly positioned so that the operator can use them without difficulty and without, at the same time, impeding the other driving functions.

The controls **MUST NOT** obstruct the operator's entrance and exit from the cabin.

Oil, used grease and all other hazardous products must always be disposed of in appropriate disposal containers that are legally certified to contain the product in question.

ALWAYS DISPOSE OF USED PRODUCTS AT AN AUTHORIZED TOXIC WASTE DUMP.

When transporting the hedge mower from one place to another and, in particular, between work sessions, the arms can move by themselves on non-level surfaces; for this reason, it is **VERY IMPORTANT** to position the arms and cutting head in the correct road transport position **BEFORE** beginning to move. (See the relative paragraph.)

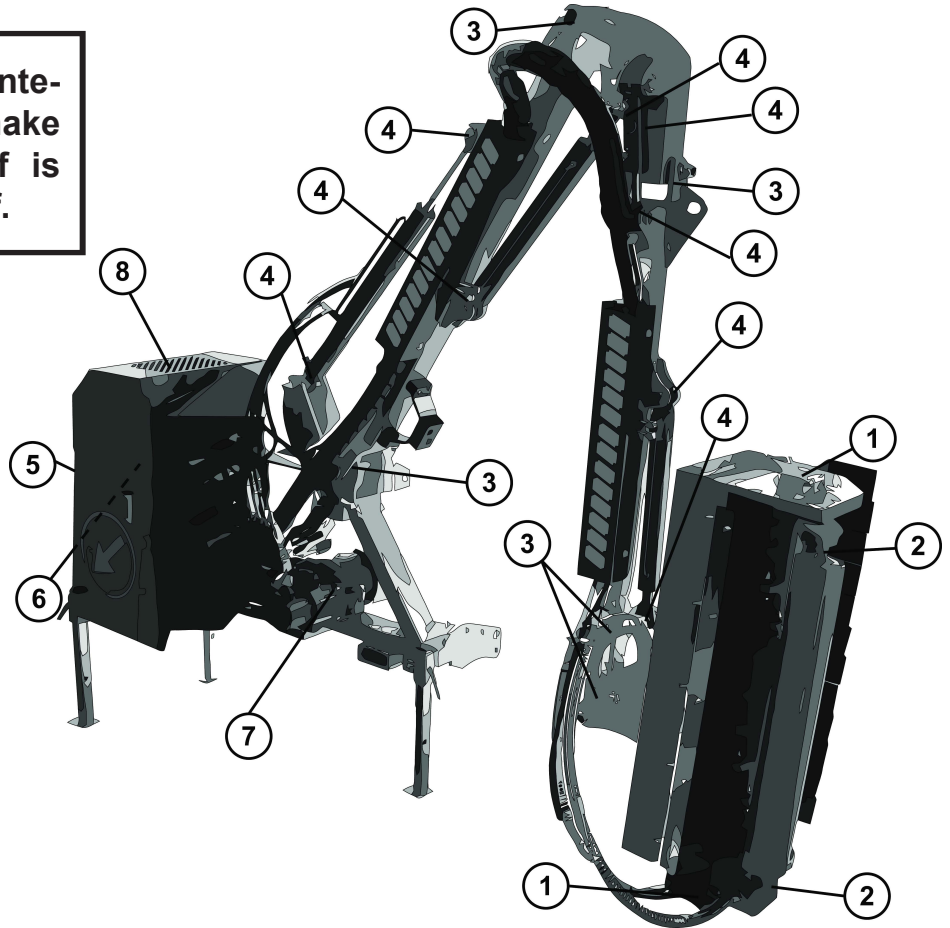
SAFETY OF THE CONTROL LEVERS AND JOYSTICK

The control levers that activate the hydraulic cylinders of the arms of all the machines automatically return to the CENTRE-STOP position when the lever is released.

The purpose of this system is to reduce the risk of unwanted movements or shifting of the arms.

MACHINE MAINTENANCE FB/P 400 - 400S - 480

Before performing any maintenance, cleaning or repairs, make sure that the power take-off is disengaged and the motor is off.



①	ROTOR SUPPORTS	Grease every 4 working hours and IMMEDIATELY after any work where the supports are below the level of the water.
②	ROLLER SUPPORTS	Grease every 8-10 working hours and IMMEDIATELY after any work where the supports are below the level of the water.
③	ARM JOINTS	Grease every 18-20 working hours.
④	HYDRAULIC PISTON JOINTS	Grease every 18-20 working hours.
⑤	OIL FILTER	Clean the filter cartridge after the first 30 working hours and replace after the first 50 hours and then after every 250 hours. (1)
⑥	HYDRAULIC OIL	Replace the hydraulic oil (AGIP OSO 46) after the first 1000 working hours.
⑦	MULTIPLIER	Replace the oil (0.8 kg AGIP ROTRA 80W90) after the first 150 working hours and, then, every 600 working hours.
⑧	HEAT EXCHANGER	Clean the intake and output of the heat exchanger with a jet of air every 30 working hours.

(1) IMPORTANT:

machines with cable controls = 60 microns
machines with electric controls = 25 microns

CHECK the tightness of the following after the first 50 working hours and periodically retighten:

- **all bolts**
- **the screws on the hydraulic motor head and pumps**
- **the fittings on the hoses**

If there are **VIBRATIONS** immediately stop the power take-off and check the condition of the blades.

make sure that they oscillate freely and, if necessary, replace any that are missing, broken or worn with other of equal weight.

BEFORE THIS OPERATION, THE HEDGE MOWER MUST BE LOCKED IN THE TRANSPORT POSITION.

Periodically check the cleanliness of the rotor, removing any material that is caught or twisted around it.

After the first 50 working hours, check the function and efficiency of the drive shaft.

For additional explanations and information, see the chapter "Replacement of spare parts" in paragraph "D"

TOOL MAINTENANCE

LUBRICATION POINTS

Every connection pin on the arms and pistons has a lubrication point indicated by an adhesive label with a drawing of a grease gun. These points must be lubricated every day. The roller and rotor must be lubricated twice a day.

POWER TAKE-OFF SHAFT

The power take-off shaft must be checked every week, especially the mechanical part and the plastic protection. Any damage to the protection must be repaired and the anti-rotation chains **MUST** be used.

The universal joints must be moderately greased.

Every fifteen days, the entire length of the internal shaft must be lubricated to ensure the connection of the assembly.

HYDRAULIC OIL

The manufacturer tested and checked the hydraulic circuit before the machine was delivered. The tank contains AGIP OSO 46 oil.

NOTE: The tank has two filters: one located above the tank and the other inside to ensure that the oil is filtered entering and exiting.

For additional explanations and information, see the chapter "Replacement of spare parts" in paragraph "D"

We recommend **NEVER MIXING** different types of hydraulic oil but, if a different type of oil must be used than the one in the tank of the tractor, the selected oil must be compatible. (Check with the supplier of the oil)

If the return filter is excessively dirty, clean it. However, this is to be considered temporary solution since, in most cases, it will be a good idea to replace the filter.

VERY IMPORTANT!

**THE OIL FILTER MUST BE REPLACED AFTER THE FIRST 50 WORKING HOURS
AND, THEN, AFTER EVERY 250 WORKING HOURS**

The level of the oil in the tank must be checked every day using the indicator located near the return filter.

Contaminated oil must be replaced: you can tell by its dark colour and/or a burned odour.

Keep the area around the filling plug clean (especially when raising the plug), replace the filters regularly and use clean tanks to reduce oil contamination.

Periodically clean the oil-cooling radiator with a jet of air.

MULTIPLIER

The hydraulic pump multiplier is pre-filled with 0.8 litres of AGIP ROTRA 80W90 oil.

This type of oil must be used for topping-off. Check the level regularly using the glass indicator on the multiplier and replace the oil every season.

HOSES

Check the hoses regularly to make sure that the metal gaskets are not damaged. If there is damage, any hoses that have been hit must be replaced because their ability to support the pressure will have been reduced and there will be an increased risk of an explosion.

Be **VERY CAREFUL** when replacing a hose because each new hose must be mounted in the same position and direction as the one being replaced.

Check the ends of the hoses and the hydraulic fittings every day for leaks.

CUTTING HEAD

Check that the blades are in **GOOD CONDITION** every day.

Also check the screws and nuts every day; they must always be well tightened.

A missing or broken blade must be replaced **IMMEDIATELY** because the loss of balance will damage the bearings and the structure.

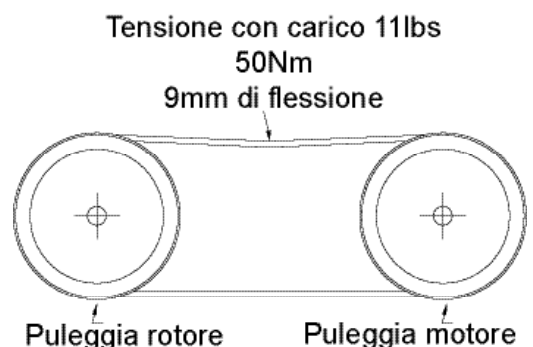
Remember that the blades **MUST BE REPLACED IN PAIRS** to maintain balance.

INDIRECT TRANSMISSION ROTOR

Check the tension of the cutting head's trapezoidal belts every day; a load of 5 kg must cause a deflection of 9 mm in relation to the centre of the pulleys.

Access to the belts is only possible by lifting the protection panel from the pulling side.

The belt tension is adjusted by loosening the screws that hold the motor, acting on the screw inside and then retightening the motor attachment screws.



HEAT EXCHANGER

For the heat exchanger to work correctly, it must be cleaned with a jet of air every 30 working hours in both the suction and discharge parts.

If the controls become hard, check for twisting or loose internal elements.

TELESCOPIC ARM

For versions equipped with telescopic arm.

1. Grease the slide-out area of the telescopic arm about every 30 working hours.
2. Periodically check for play between the slide-out tubes of the telescopic arm.
If there is a problem, tighten the screws that press the anti-wear plates against the telescopic arm.

WIRE CONTROLS

For models with wire controls, remember to lubricate the sheaths of the cables and relative ferules both at their connection to the control lever and in the distributors.

To perform this operation, you must dismount the cable and perform an in-depth cleaning of the wire and sheath.

Before remounting everything, lubricate both the cable and inside the sheath with grease.

<u>Poor maintenance and weather can cause both wire and joystick controls to malfunction.</u>

BEFORE WINTER

Clean the hedge mower and check to see if it is damaged or needs repairs. Obtain replacement parts and perform any repairs so it will be ready for the next season.

The entire machine must be lubricated, **ESPECIALLY** the cylinder shafts.

Never expose the machine to bad weather; keep it in a covered place, if possible.

REPLACEMENT OF SPARE PARTS

BEFORE performing any service or maintenance, you must:

1. Rest the head on the ground
2. Disengage the power take-off
3. Turn off the tractor and remove the ignition key
4. Wear work gloves

A - Replacing Tools

If tools are excessively worn, they must be completely replaced. If a single tool breaks, you should also replace the diametrically opposed tool so that the balance remains unaltered.

B – Replacing Flexible Hoses

BEFORE working on the hydraulic system, discharge the residual pressure by moving all the control levers back and forth with the engine off.

- **UNSCREW** the filling plug on the oil tank in order to avoid a siphon effect that could empty the tank.
- **CAREFULLY REMOVE:** dust, shavings or any other dirt that could cause irreparable damage to the hydraulic components.
- **REPLACE** damaged hoses with original replacement parts or others of equal type and size, taking care not to twist them during attachment and taking their complete movement into consideration.

C – Replacing Pins and Bushings

Do this with the aid of a lifter or winch to avoid detached parts falling or causing dangerous imbalances. When replacing pins and bushings, **MAKE SURE** to clean and grease their seats.

D – Replacing oil and filters

REPLACE the oil filters on the tank after the first 50 working hours and, then, every 250 working hours.

MACHINES WITH WIRE AND ELECTRICAL CONTROLS

FB/G 250 - 300 - 380

Oil filter in position A (see Figure 1)

25 micron

FOR ALL OTHER MODELS WITH WIRE CONTROLS

Oil filter in position A - C (see Figure 1)

60 micron

FOR ALL OTHER MODELS WITH ELECTRICAL CONTROLS

Oil filter in position A - C - D (see Figure 1)

25 micron

- All the hydraulic oil must be replaced after 1,000 working hours and, in any case, every year. On that occasion, carefully clean the oil tank.
- Dispose of oil and filters are required by pollution laws.
- When replacing the hydraulic oil for electrical machines, **REPLACE FILTERS C and D at the same time.**

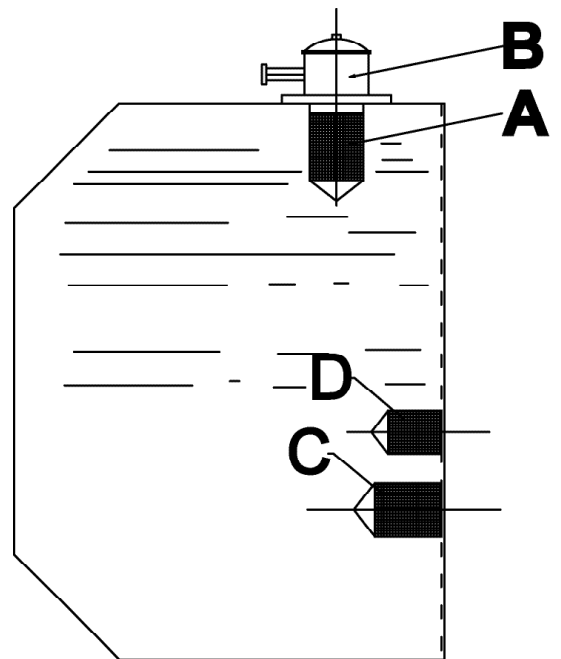


Figure 1

DEMOLITION, SORTING MATERIALS AND DISPOSAL

When the machine is taken out of service, all its dangerous parts must be rendered harmless. The materials comprising the machine that should be sorted for differentiated disposal are:

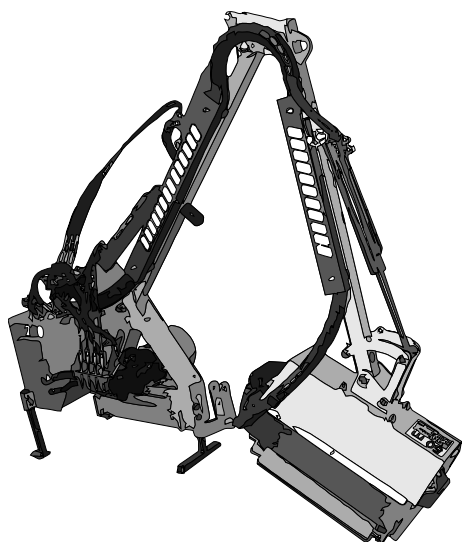
- **Steel**
- **Mineral oil**
- **Rubber**
- **Plastic**
- **Electrical system conductors**

All the above-mentioned operations and final disposal must **ALWAYS** be performed in observance of current law.

TROUBLESHOOTING

PROBLEM	CAUSE	POSSIBLE SOLUTIONS
IRREGULAR CUTTING	Worn or broken blades	Replacement
	The machine is not horizontal to the ground	Adjust the machine using the hydraulic cylinders
	Difficulty discharging chipped materials from the head due to excessive working speed	Reduce working speed, lower the support roller
MACHINE NOISY, BALANCE VIBRATIONS	Lost bolts	Tighten the bolts
	Frame broken or the beginning of damage	Have repaired by a specialized workshop
NOISY MULTIPLIER	Oil leak	Top-off the oil to the level indicated
	Worn gears	Replace
	Worn bearings	Replace
VIBRATIONS	Broken or worn blades	Replace
	Rotor unbalanced	Have balanced by a specialized workshop
	Worn rotor bearings	Replace
PREMATURE BLADE WEAR	Blades touching the ground	Adjust the cutting height
EXCESSIVE OSCILLATION OF THE ARMS AND HEAD	Worn pins	Replace
INVOLUNTARY LOWERING OF THE CUTTING HEAD	Worn cylinder gaskets	Replace gaskets
INVOLUNTARY LOWERING OF THE ARM (OR ARMS)	Worn gaskets on the hedge mower's hydraulic parts	Replace gaskets
BROKEN BEARINGS IN THE ROLLER	Violent impact with the ground while lowering the arms	Lower the head gently
	Dirty or scant grease on the bearings	Clean and grease
REDUCED CUTTING SPEED	Loss of pressure in the hydraulic system	Have the pumps and hydraulic motor checked by an authorized service centre
CUTTING OIL OVERHEATING	Hydraulic system needs to be checked	Check the oil level and hydraulic system
	Radiator dirty	Clean radiator
	High advancement	Reduce working speed

GENERAL USE AND MAINTENANCE MANUAL FOR HEDGE MOWERS



INFORMATION ABOUT THE MANUAL

This manual is considered an integral part of the machine and must accompany it, if resold, through to its demolition.

If this manual is lost or damaged, request a copy from the manufacturer (insert name of manufacturer, address and telephone number) or reseller (insert name reseller, address and telephone number).

There are pictograms on the machine that the operator must keep perfectly visible and replace them when they are no longer legible.



This symbol means that you should pay the maximum attention to the subject discussed.

A CE declaration of Conformity is enclosed in this manual (if the machine is CE marked).

It is possible that some devices described in the manual are not on your machine, depending on the arrangement chosen and the market for which it is intended.

UPDATING THE MANUAL

The information, descriptions and illustrations in the manual reflect the state of the art at the time the machine was sold.

The manufacturer reserves the right to make any modifications to the machine, at any time, for technical or marketing reasons. These modifications do not obligate the manufacturer to modify vehicles sold up to that point and do not make this publication obsolete.

Any supplements that the manufacturer will decide to provide must be kept together with the manual and considered part of it.

Contents

	INFORMATION ABOUT THE MANUAL
	UPDATING THE MANUAL
1	MACHINE IDENTIFICATION AND CE MARKING
1	ANTICIPATED USES
2	MACHINE DESCRIPTION
3	VERSIONS
3	TECHNICAL DATA
4	NOISE
4	WAREHOUSING – STORAGE
5	FIRST USE OR PUTTING BACK IN SERVICE AFTER LONG INACTIVITY
5	SCRAPPING
6	SAFETY AND ACCIDENT-PREVENTION RULES
9	SAFETY SIGNS
9	LOCATION OF PICTORGRAMS ON THE MACHINE
10	DESCRIPTION OF THE PICTOGRAMS
12	HANDLING AND TRANSPORT
13	TRANSIT ON PUBLIC ROADS
14	OPERATION OF THE MACHINE
14	COMMANDS AND CONTROL INSTRUMENTS
14	VISIBILITY
15	USING THE MACHINE
15	CONNECTING THE MACHINE TO THE TRACTOR
17	CONNECTING THE CUTTING HEAD
18	MACHINE START-UP
19	OPERATION
20	MACHINE STOPPAGE
20	DISCONNECTING THE MACHINE
21	ADJUSTING THE SPEED OF ADVANCEMENT
21	ADJUSTING THE CUTTING HEIGHT
21	ADJUSTING THE TENSION OF THE BELTS
22	MAINTENANCE
24	MAINTENANCE THAT CAN BE PERFORMED BY THE OPERATOR
24	GREASING
24	HOT POINTS ON THE MACHINE
25	HYDRAULIC SYSTEM
25	REPLACING A HYDRAULIC HOSE
25	CHECKING THE LEVEL OF HYDRAULIC SYSTEM OIL
26	TOPPING-OFF THE HYDRAULIC SYSTEM OIL
26	CHANGING THE HYDRAULIC SYSTEM OIL
27	CHECKING AND REPLACING HYDRAULIC SYSTEM FILTERS
27	CLEANING HYDRAULIC SYSTEM HEAT EXCHANGER
27	ELECTRICAL SYSTEM
28	CHECKING TOOL WEAR
28	REPLACING TOOLS
28	REPLACING THE TRANSMISSION BELTS
29	CLEANING THE MACHINE
29	TROUBLESHOOTING
29	REPLACEMENT PARTS
30	Scheduled Maintenance Table

MACHINE IDENTIFICATION AND CE MARKING



The identification plate is applied to the frame of the hedge mower in a very visible place.

ANTICIPATED USES

The hedge mower arm was designed to be used exclusively in the sectors of agriculture and highway maintenance for cutting grass, reeds, bushes and shrubs, depending on the type of tool used.

The machine is carried by a tractor using its three-point connection and acts on the terrain by virtue of its weight and the rotation of the rotor, driven by the power take-off of the tractor through a drive shaft.

The machine is not to be used in any other sector than agriculture and highway maintenance



Any other use of the machine, other than that indicated above, is to be considered unauthorised and hazardous.

MACHINE DESCRIPTION

The machine is a working component consisting of a horizontal-axis rotor on which cutting tools are mounted that turn very fast.

The hedge mower consists of:

- a frame;
- two arms that are hydraulically connected to each other and the structure;
- a hydraulic oil tank;
- an oil filter;
- a three-point system for connecting to the tractor;
- a support device for parking the machine;
- a heat exchanger (depending on the model);
- a drive-shaft coupling;
- a multiplier unit;
- a control console;
- a cutting head, in its turn consisting of:
 - a rotor;
 - a series of cutting tools;
- a rear roller.



VERSIONS

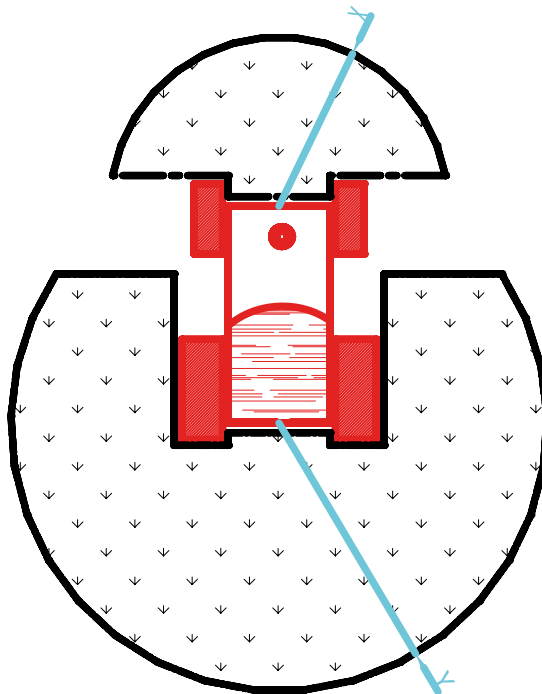
The machine is available in the following versions:

- right-side mounting;
- left-side mounting;
- rear mounting;
- front mounting;

TECHNICAL DATA

REFER TO THE SECTION “TECHNICAL DATA” IN THE BOOKLET FOR THE SPECIFIC MODEL IN QUESTION

During work, the machine covers a radius of action equal to the maximum extension of the arm:



NOISE

Level of sound pressure at the driver's seat of a tractor without cabin

Lwa = XXX dB (A)

Level of sound power at the driver's seat of a tractor without cabin

Lpa = XX dB (A)

Level of sound pressure at the driver's seat of a tractor with cabin

Lwa = XXX dB (A)

Level of sound power at the driver's seat of a tractor with cabin

Lpa = XX dB (A)

The noise is strictly related to the type of work being performed and the type of tractor used.

WAREHOUSING – STORAGE

If the machine will be idle for a long time, it must be warehoused in a place sheltered from the weather and protected to avoid damage. Before storing it, we recommend that you carefully clean the entire machine and adequately lubricate all the mechanical components to prevent rust.

Make sure that the temperature of the warehouse is between 0 °C and 50 °C.

Before putting the machine in storage for a long time, it is a good idea to proceed as follows:

- remove any cutting residues from the rotor and tools;
- carefully clean the machine;
- perform a general visual inspection of the machine to identify any structural damage or deep scratches in the paint and check that the original pictograms are in position, in good condition and legible;
- grease all the mechanical components and tightening pins;
- if possible, store the machine in a covered space on a flat, even surface;
- rest the head on the ground with the tractor's rear hydraulic lifter, taking care to place the support feet in the correct position after closing the arm;
- remove the control console from the tractor's cabin.



The used oil must be properly recovered and disposed of because, under current law, it is classified as hazardous waste and, as such, must be brought to a collection centre.

For the collection of used oil, you must contact the “**Used Oils Consortium**”.

FIRST USE OR PUTTING BACK IN SERVICE AFTER LONG INACTIVITY

Before using the machine for the first time, or after a long period of idleness, it is necessary to do the following:

- check the machine for damage;
- check the mechanical components, which must be in good condition and not rusted;
- check the level of the liquid in the service hydraulic system;
- check the state of wear of the tools;
- check that the light bar and electrical system are working properly;
- carefully grease all moving parts;
- check that there are no oil leaks from fittings or hoses;
- check that all the protections are correctly positioned.

SCRAPPING

When the machine is scrapped, it must be disposed of in a landfill, in conformity with current law.

Before scrapping, it is necessary to separate its plastic, rubber, electrical and electronic parts.

Recover any used oil and dispose of it at a collection centre.



The used oil must be properly recovered and disposed of because, under current law, it is classified as hazardous waste and, as such, must be brought to a collection centre.

For the collection of used oil, you must contact the “**Used Oils Consortium**”.

Parts that only contain plastic, aluminium and steel can be recycled, if delivered to a collection centre.

SAFETY AND ACCIDENT-PREVENTION RULES



The correct use of the machine, scrupulous observance of the rules listed here and the rigorous application of all precautions for preventing any dangerous situations will reduce the risk of incidents and accidents, make the machine work better and last longer and reduce breakdowns to a minimum.

BERTI S.p.A. declines any and all objective and subjective liability if the rules of behaviour in this manual are not applied and respected.

- The machine is not to be used in any other sector than agriculture and highway maintenance.
- The machine must be used by a single operator driving the tractor.
- Any use other than that specified is considered improper.
- The machine must be used exclusively by authorised, instructed and suitably trained persons. In addition to having read and understood the instructions contained in this manual, the assigned operator must have sufficient training in the correct use of the machine and must have a drivers license. The operator is reminded to contact the manufacturer if he has questions about the use of the machine and the interpretation of this manual.
- The manual must always be available so that it can be consulted if necessary. If it is lost or damaged, you must request a replacement copy form BERTI S.p.A.
- The operator must make sure that there are no persons or animals in the machine's radius of action while it is running. Never use the machine near persons who are paused or transiting through the machine's radius of action.
- Do not use the machine if you are tired, sick or under the effects of alcohol, prescription medicines or drugs.
- This machine is only intended for use during the day. If, as an exception, it must be used at night or in conditions of reduced visibility, you must use the lighting system provided with the tractor or, if necessary, an auxiliary lighting system.
- Any arbitrary modifications made to this machine will relieve BERTI S.p.A. of all liability for damage or personal injury to operators, third parties or property.
- Carefully check the machine before each use.
- BERTI S.p.A. cannot anticipate every reasonably-foreseeable improper use capable of creating a potential risk.

- The signage applied to the machine provides a series of important instructions: follow them for your own safety.
- Make sure that the safety pictograms are legible. Clean them and, if necessary, replace them with new labels.
- Before using the machine, make sure that all the safety devices are correctly seated and in good condition; if the protections are broken or damaged, replace them immediately.
- Before climbing down from the tractor and before all maintenance, engage the parking brake, turn off the engine, remove the ignition key from the dashboard and keep it.
- Personnel must use the safety and Individual Protection Devices during use and maintenance of the vehicle.
- The machine operator should not wear clothing that could get caught.
- During operation, the machine can create dust if working on dry materials (hay, straw, etc.). We recommend periodically checking the filters in the cabin ventilation system or wearing suitable protection for the respiratory tract, such as a dust mask.
- During use, the operator must have sufficient visibility of work areas considered hazardous and, for this reason, it is a good idea to keep the tractor's mirrors clean and in good condition.
- The machine must not be left unattended when the tractor is running.
- Keep the machine clean from extraneous materials (debris, tools and sundry objects), that could interfere with good operation or injure the operator.
- Avoid working on muddy, sandy or soft ground.
- Check the state of wear of the hydraulic hoses. Replace them in the case of deterioration (or at least every 5 years).
- Do not use the controls or flexible hoses as handholds; these components are movable and do not provide stable support.
- Modifications made to the machine can cause safety problems. In that case, the user will be solely responsible for any accidents.
- It is absolutely forbidden to remove or tamper with safety devices.
- Make sure that the safety pictograms are in good condition. If the pictograms have deteriorated, they must be replaced with new originals requested from the manufacturer and placed in the position shown in the use and maintenance manual.

- Pay attention to the risk of unintentional contact between the hedge mower arm and aerial high-voltage lines.
- Never use the machine to transport persons, animals or things.
- Never use the machine to lift persons, animals or things.

FIRE-FIGHTING MEASURES

- Keep an extinguisher of adequate capacity onboard the vehicle and have it recharged periodically. A hand-held extinguisher should only be used by personnel capable of using it.
- The personnel assigned to the vehicle should know the principal techniques for fighting fires.
- All fuels and most lubricants and hydraulic fluids are inflammable.
- Do not smoke while refueling or topping off fluids, do not refuel near open flame and do not siphon fuel.
- Turn off the engine before refueling and do not refuel in closed spaces.
- Before starting the engine, check for leaks or fuel, lubricant or fluid residues that could cause small fires.
- Short circuits can cause fires. Periodically check the condition of the battery terminals, cables and electrical devices.
- Do not store inflammable substances in unsuitable places, do not perforate or burn pressurised containers or aerosol cans and do not accumulate materials soaked with inflammable substances.
- Be careful where you put rags or replaced materials that contain inflammable residues.
- To reduce the risk of fire to a minimum, periodically clean the machine with the proper tools (pressure-washer or compressed air).

- Use an appropriate extinguisher: carbon dioxide, foam or chemical powder.
- Avoid using jets of water. Only use jets of water to cool surfaces exposed to fire.
- Never use gasoline, solvents or other inflammable or toxic fluids to clean mechanical parts: instead, use type-approved commercial solvents that are non-flammable and atoxic.
- Do not weld near tanks, pipes, cans, electrical wires or inflammable material in general.
- In the case of welding, protect the inflammable parts with suitable screens.

SAFETY SIGNS

Make sure that the safety pictograms are in good condition. If the pictograms have deteriorated, they must be replaced with new originals requested from the manufacturer and placed in the position shown in the use and maintenance manual.

Make sure that the safety pictograms are legible. Clean them with a cloth, soap and water.

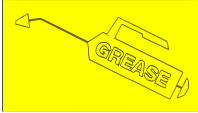
LOCATION OF PICTORGRAMS ON THE MACHINE

**REFER TO THE SECTION “DANGER SIGNS” IN THE BOOK-
LET FOR THE SPECIFIC MODEL IN QUESTION**

DESCRIPTION OF THE PICTOGRAMS

	ATTENTION: - Adjustments and maintenance must only be performed after reading the use and maintenance manual, with the machine stopped and the key removed.
	ATTENTION – DANGER of fluids under pressure. Read the manual before working on the machine and, if injured, consult a doctor.
	ATTENTION – DANGER this machine must be used by a single operator.
	ATTENTION - Do not climb on the machine or ride on it.
	ATTENTION – DANGER of shearing the hands.
	ATTENTION – DANGER of projected objects. Stay at a safe distance.
	ATTENTION – DANGER of crushing. Do not pause between the tractor and the operating machine.

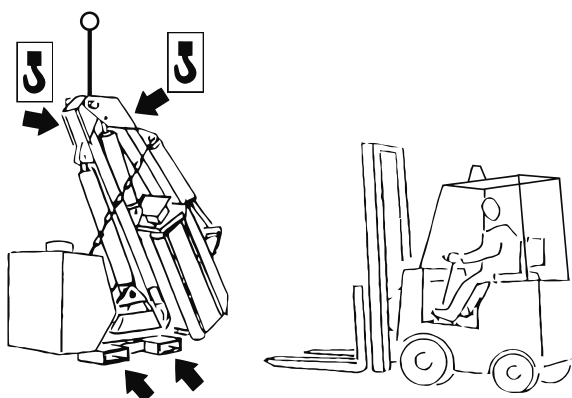
	ATTENTION – DANGER of contact with moving parts. Do not bring your hands near the transmission belts.
	ATTENTION – DANGER of getting tangled and dragged. Do not bring your hands near to the moving drive shaft.
	ATTENTION – DANGER of burns. Stay at a safe distance.
	ATTENTION – DANGER of contact with the drive shaft turning at 540 rpm.
	ATTENTION – DANGER of contact with moving parts. Wait for moving parts to stop.
	ATTENTION – DANGER of electrocution. When using the arm, pay the maximum attention to aerial electrical lines.
	ATTENTION – DANGER of suspended parts falling. Apply the mechanical locking systems.
	ATTENTION – DANGER Radius of action for moving the hedge mower.

	Use the required Individual Protection Devices.
	GREASING POINTS
	OIL TANK
	LIFTING POINT

HANDLING AND TRANSPORT

Pay the maximum attention to safety during loading and unloading, which must be performed by qualified personnel (slingers, forklift truck drivers, etc.).

In the case of lifting the machine, you must use the lifting points shown in the pictograms.



To transport the machine, you must use a suitably-prepared motor vehicle of adequate power and dimensions.

Once loaded, the hedge mower arm must be secured using anchoring cables.

TRANSIT ON PUBLIC ROADS



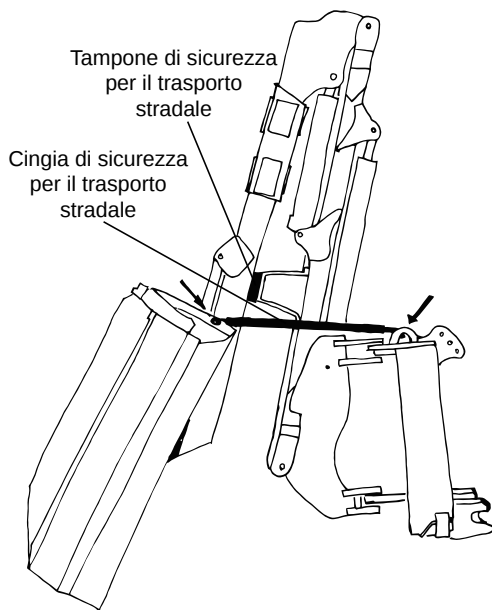
If you must drive on a public road, scrupulously obey the Highway Code, paying particular attention to the choice of advancement speed.

Before entering the road, you must install any optional light bars.

You must have a flashing yellow or orange light.

Before entering a public road from an area that is not paved or clean, you must carefully clean any mud residues from the tractor's tyres.

When driving on a public road, the hedge mower arm must be in the transport position and the tractor's power take-off must be turned off.



The weight of the machine changes the stability of the tractor-hedge mower arm unit, influencing your ability to steer and brake, so proceed at a moderate speed (Point Bc) (Point Cd) (Point Cm).

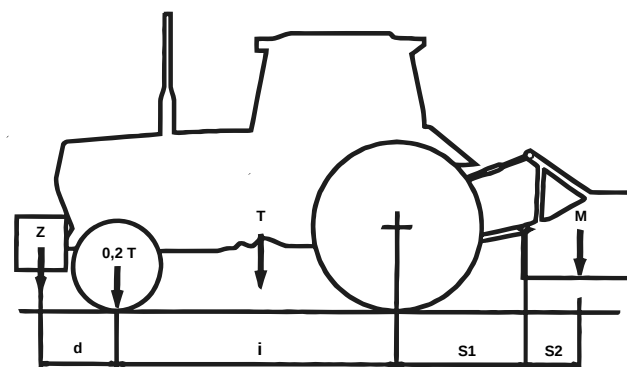
In particular, keep in mind that the front axle must always be weighed down by a load equal to at least 20% of the total weight of the tractor-hedge mower arm unit.

Check the lifting capacity and stability of the tractor using the following formula and, if necessary, apply ballast to the front.

$$M \cdot (s1 + s2) \leq 0,2 T \cdot i + Z (d + i)$$

$$M \leq 0.3 T$$

i	tractor wheelbase (m)
d	distance of the front axle from the ballast (m)
s1	distance between the centre of the rear axle and the centre of the lower connection points (m)
S2	distance between the lower connection points and the centre of gravity of the hedge mower arm (m)
T	mass of the tractor + 75 (kg) (operator)
Z	mass of the ballasts (kg)
M	mass of the machine (kg)



OPERATION OF THE MACHINE



During work, make sure that all the machine's components are working properly. Remember that most of the problems and breakdowns that can occur during use of the machine are caused by the loosening of fasteners.

Since there is a general settling in of all the mechanical components and hydraulic connections during the initial phases of the machine's life, it is essential to check the machine with the maximum care.

Before using the machine, make sure that there are no people or animals in its range of action.

It is absolutely forbidden to remove and/or modify the protections on the machine.

Do not use the operating machine when you are sick, tired or under the influence of prescription medicines, drugs or alcohol.

Before using the machine you must learn the arrangement of the controls and their functions.

Before beginning to work, check the level of hydraulic oil.

It's a good idea to inspect the area to be cut in advance to make sure that there are no dangerous obstacles such as stones, manhole covers and sundry objects, especially along the roadway.

COMMANDS AND CONTROL INSTRUMENTS

REFER TO THE SECTION "MOVING THE ARM" IN THE BOOKLET FOR THE SPECIFIC MODEL IN QUESTION

All the commands are indicated by signs, which indicate their function and use images to describe the action and position of the controls in the cabin.

VISIBILITY

The work area can be controlled using the tractor's rear-view mirrors in the operator's sight.

Areas of shadow can be created when backing up that are not visible in the rear-view mirrors.

USING THE MACHINE



Before using the machine, familiarise yourself with its controls and capabilities.

Keep the parts of your body inside the cabin at all times to reduce the possibility of exposure to hazardous conditions outside.

Before climbing down from the tractor, and before any maintenance or adjustments, engage the parking brake, turn off the tractor's engine, remove the ignition key from the dashboard and wait for all moving parts to stop.

The safety of the operator and nearby persons depends on his judgment and prudence in using the machine. So, he must be familiar with the position and function of all the controls.

The machine must always be in perfect working order and must be only be repaired with original replacement parts.

CONNECTING THE MACHINE TO THE TRACTOR

The machine must be connected to the tractor with the power take-off turning at 540 revs/min, of adequate weight and power, conforming to current requirements in the country of use.



The operator must wear Individual Protection Devices during use, adjustment, maintenance, repair or movement.

REFER TO THE SECTION “CONNECTING THE HEDGE MOWER TO THE TRACTOR” IN THE BOOKLET FOR THE SPECIFIC MODEL IN QUESTION

To couple the tractor to the machine, the operator must back the tractor up until the bars of the rear lifters are close to the connectors of the machine.

Engage the tractor's parking brake, turn off the engine, remove the ignition key and climb down.

Insert the journals and relative pins/safety cotter pins.

Connect the third point (tensioner) of the tractor, lift the hedge mower until the power take-offs of the machine and tractor are at the same height and adjust the tensioner, bringing the hedge mower arm in the horizontal position.

Lock the tractor's lifter bars to avoid the machine oscillating sideways and compromising the transverse stability of the unit.

Insert the machine's grooved drive shaft, while pressing down the safety pin. Release the safety pin and back up with the drive shaft until the pin fits into the seat with an audible "clack". If you do not hear the pin engage, repeat the procedure.

Do not use the drive shaft without adequate protection, as required by law (Point Cd).

Insert the machine's grooved drive shaft, while pressing down the safety pin. Release the safety pin and back up with the drive shaft until the pin fits into the seat with an audible "clack". If you do not hear the pin engage, repeat the procedure.



Absolutely do not straddle the area between the tractor and the operating machine, with or without the drive shaft in motion.

If the machine is being connected to the tractor for the first time, make sure that:

under conditions of maximum steering, the drive shaft is not completely closed to avoid damaging the multiplier. In the case where the drive shaft is too long, it will be necessary to shorten it by cutting off as much as necessary.

As regards the electrical connections,

REFER TO THE SECTION "INSTRUCTIONS FOR CONNECTING THE TRACTOR'S SOCKET TO THE HEDGE MOWER'S POWER SUPPLY" IN THE BOOKLET FOR THE SPECIFIC MODEL IN QUESTION

Complete the connection, lift the machine and retract the stabilizer feet.

CONNECTING THE CUTTING HEAD

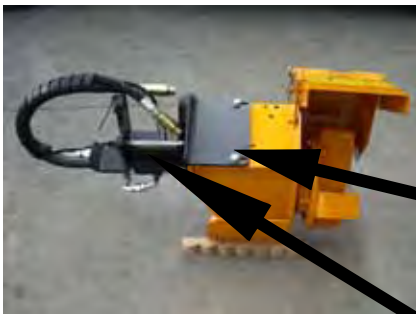
Connecting the cutting head



To connect the cutting head to the hedge mower arm, as shown in the photo, you must connect the plate provided that is fixed at the end of the second arm to the connection points provided on the head (see photo).

Identify the presence of the hydraulic motor of the head and insert the joint on the motor in the slot on the rotor shaft and tighten the screws supplied.

Connecting to other terminal equipment.



To connect the terminal equipment to the hedge mower, check for the presence of quick connectors between the hydraulic hoses fixed to the second arm and the motor of the head.

To connect the terminal equipment to the hedge mower arm, as shown in the photo, you must connect the plate provided that is fixed at the end of the second arm to the connection points provided on the head.

Insert the quick connectors in the seat on the hydraulic hoses fixed to the second arm on the rotor shaft and tight the screws supplied.

MACHINE START-UP



Before using the machine, familiarise yourself with its controls and capabilities.



The operator must wear Individual Protection Devices during use, adjustment, maintenance, repair or movement.



Before starting to work, make sure that there are no persons or animals in a radius of 50 m.



In addition, before starting work, make sure that ALL the machine's protections, especially those of the cutting head, are in good condition and working properly.

REFER TO THE SECTION “MOVING THE ARM” IN THE BOOKLET FOR THE SPECIFIC MODEL IN QUESTION

Keep the machine at the number of rpms that provide the necessary power for the use you are making of it.

Move a short distance with the hedge mower arm on and check the quality of the work; if it is not satisfactory, repeat and review the settings of the machine.

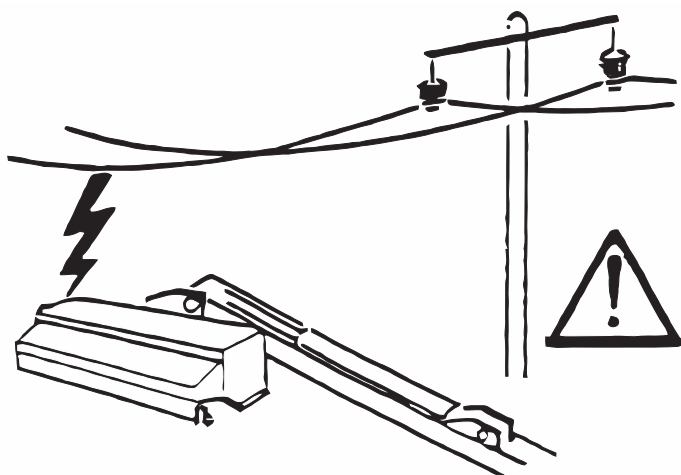
OPERATION



Before starting work, make sure that there are no persons or animals in the machine's radius of action.

The machine must only be used by a single operator sitting in the driver's cabin of the tractor.

Pay attention to the risk of unintentional contact between the hedge mower arm and aerial high-voltage lines.



When extending and closing the arm, lift the head slightly off of the ground to avoid damaging it.

Likewise, always lift the head from the ground when changing direction, turning and backing up, after disconnecting the power take-off.

Do not reverse the direction of rotation of the cutting head until the rotor is completely stopped or you will break the hydraulic motor.



Never use work configurations that prevent the operator onboard the tractor from seeing the cutting head.



REFER TO THE SECTION “DIRECTION OF ROTATION OF THE ROTOR” AND “CLEANING HEDGES” IN THE BOOKLET FOR THE SPECIFIC MODEL IN QUESTION

MACHINE STOPPAGE

In the case of emergency

Machine with flexible cables:

1. Disconnect the power take-off
2. Return all the control levers to the neutral position

Machine with electrical control (Joystick):

1. Disconnect the power take-off
2. Press the red emergency mushroom button
3. Return all the control levers and selectors to the neutral position

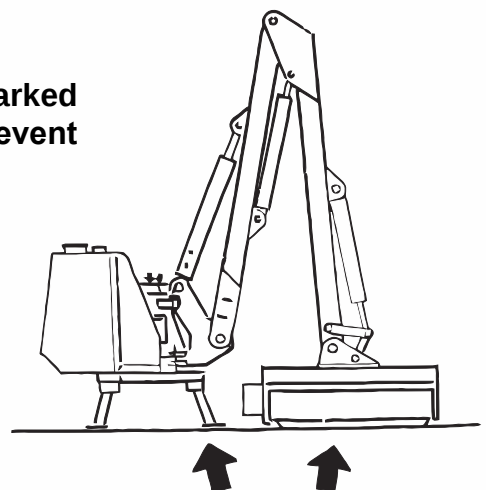
DISCONNECTING THE MACHINE

When parking the machine, you must:

1. engage the tractor's parking brake;
2. lower/position the machine's support feet;
3. support the hedge mower arm on the support device and the cutting head on the ground;
4. disconnect the tractor's power take-off;
5. stop the tractor's engine;
6. remove the ignition key from the control panel and keep it;
7. climb down from the driver's seat;
8. uncouple the drive shaft by opening the anti-slide-off levers;
9. rest the drive shaft on an adequate support;
10. slide out the pin and journal and detach the tie-rod (third point);
11. fix the third point to the support on the tractor;
12. slide out the anti-slide-off and connection journals and, then, the arms of the tractor's rear hydraulic lifters from the connection points of the hedge mower;
13. get back on the tractor;
14. start it and carefully move away.



The ground on which the machine is parked must be flat and in a protected area to prevent unauthorised persons from coming near.



ADJUSTING THE SPEED OF ADVANCEMENT

Adjust the working speed based on the size (diameter) of the material to be cut, in addition to the degree of crushing that you want to achieve.

As a general rule, maintain the tractor at an advancement speed from 0 to 12 km/h.

ADJUSTING THE CUTTING HEIGHT

To adjust the cutting height of the tools, you must change the position of the head's rear roller.



You must position the tractor on a flat surface, with the tractor engine stopped, the parking brake engaged, the power take-off turned off and the ignition key removed and kept.

As a general rule, the tools must be adjusted at a height that avoids contact with the ground.

To adjust the position of the roller,

REFER TO THE SECTION “REAR ROLLER ADJUSTMENT” IN THE BOOKLET FOR THE SPECIFIC MODEL IN QUESTION

ADJUSTING THE TENSION OF THE BELTS



You must position the machine on a flat surface, with the head resting on the ground, the tractor engine stopped, the parking brake engaged, the power take-off turned off and the ignition key removed and kept.

REFER TO THE SECTION “EQUIPMENT MAINTENANCE” IN THE BOOKLET FOR THE SPECIFIC MODEL IN QUESTION

MAINTENANCE



In the case of a breakdown, the operator must stop the machine, turn off the tractor, remove the ignition key, climb down from the driver's seat and determine the severity of the problem and perform any maintenance on the machine.

Remember that all maintenance must be performed by qualified and trained persons, with the machine stopped.

Maintenance and repairs should not be performed outside, but in an equipped workshop.



The operator must wear Individual Protection Devices during use, adjustment, maintenance, repair or movement.

The used oil must be properly recovered and disposed of because, under current law, it is classified as hazardous waste and, as such, must be brought to a collection centre. So, contact the closest **Used Oil Consortium**.

Do the following before performing any maintenance:

1. during maintenance, the machine must be positioned on flat, solid ground;
2. turn off the tractor's engine, engage the hand brake and remove the ignition key from the dashboard;
3. always wear Individual Protection Devices (safety shoes, overalls, work gloves and dust mask);
4. use all the forms of accident prevention required for the type of operation being performed;
5. when replacing the lubricating oil, wait for its temperature to fall below 60° C;
6. if using compressed air to clean the machine, you must wear goggles;

7. when maintenance involves accessing parts of the machine that cannot be reached while standing on the ground and, in any case, at points higher than 1.5 m from the ground, use a ladder or platform conforming to current standards;
8. do not make a repair if you don't know how. Always follow the instructions and, if there are non, contact the supplier or an expert;
9. attention: replace the hydraulic hoses whenever they are damaged and, in any case, within, and no later than, 8 years;
10. do not leave the tractor engine running in an enclosed space without a ventilation system capable of disposing of the harmful exhaust gases that concentrate in the air;
11. avoid prolonged and repeated contact of the skin with fuels, lubricants or fluids because they could cause irritation or other conditions;
12. do not ingest fuels, lubricants or fluids. In the case of accidental contact with the eyes, flush the area of contact well with water;
13. be very careful because the drained oil, fluids, filters and adjacent parts can be very hot;
14. do not weld in closed or inadequately ventilated spaces;
15. do not weld on, or near, painted surfaces to avoid the creation of toxic vapours. remove the paint with suitable products and then wash the surfaces and let them dry;
16. pay particular attention before removing the plugs or covers of tanks, radiators or cylinders: turn them carefully to release any residual pressure;
17. relieve the pressure in circuits before performing maintenance;
18. do not use your hands to identify leaks of fluids under pressure;
19. leaking fluids under pressure can penetrate the skin and eyes with serious consequences.

REFER TO THE SECTION "MACHINE MAINTENANCE" IN THE BOOKLET FOR THE SPECIFIC MODEL IN QUESTION

MAINTENANCE THAT CAN BE PERFORMED BY THE OPERATOR

The maintenance described below requires no special skills. The operator must know, and precisely follow, the instructions and must have placed the machine out of service

The operator is responsible for performing the periodic checks and maintenance using the established methods.

Failure to follow the rules and maintenance times will harm the good operation of the machine and its longevity, voiding the warranty.

Perform maintenance more often when operating under severe conditions (frequent stops and starts, long winters, etc.).

GREASING

REFER TO THE SECTION "MACHINE MAINTENANCE" IN THE BOOKLET FOR THE SPECIFIC MODEL IN QUESTION

HOT POINTS ON THE MACHINE

Make sure that the tractor's motor is off before performing any maintenance.

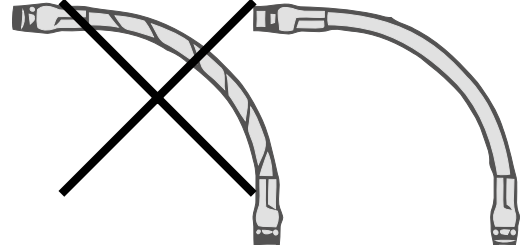
Pay attention to the following areas because they could reach very high temperatures:

1. Oil tank
2. Hydraulic hoses
3. Bearings

We recommend wearing protection (gloves, goggles)

HYDRAULIC SYSTEM

Visually check the machine to make sure that there are not loose fittings or hoses with scrapes, cuts or other signs of wear. Tighten loose fittings and replace worn or damaged hoses.



REPLACING A HYDRAULIC HOSE

Before replacing a hydraulic hose, adopt all the safety measures required for maintenance, stop the machine and close the hydraulic system valves.

Before removing a hydraulic tube, make sure you have released any residual pressure in the system.

Precisely identify the damaged hose and use a wrench to loosen the two connection points, paying attention to possible hydraulic fluid leaks.

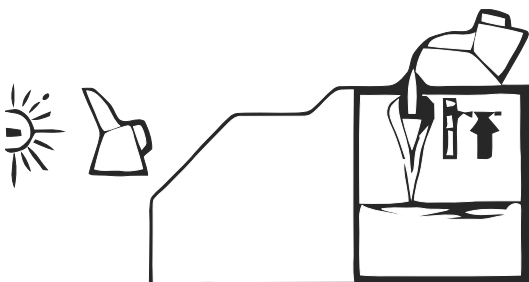
Replace the damaged hose exclusively with original replacement parts.

Replace the hydraulic hoses within a maximum of 8 years from the delivery date of the machine (Point Bn).

Make sure that the connection points (threads, gasket seals, etc.) are in perfect condition before installing the new hose.

If a hydraulic hose is oozing oil, use a wrench to turn its fittings clockwise. Do not over-tighten to avoid ruining the thread of the fitting.

CHECKING THE LEVEL OF HYDRAULIC SYSTEM OIL



This check must be made visually.

TOPPING-OFF THE HYDRAULIC SYSTEM OIL

If the level of hydraulic oil is low, top it off.

For the total capacity of the oil tank

REFER TO THE SECTION “TECHNICAL DATA” IN THE BOOKLET FOR THE SPECIFIC MODEL IN QUESTION

The hydraulic oil is AGIP OSO 46.

The use of unsuitable hydraulic oil, other types of oil or the presence of impurities will compromise and irreparably damage parts of the machine's hydraulic system.

CHANGING THE HYDRAULIC SYSTEM OIL

Scrupulously follow the oil change intervals in the scheduled maintenance table.

REFER TO THE SECTION “MACHINE MAINTENANCE” IN THE BOOKLET FOR THE SPECIFIC MODEL IN QUESTION



The used oil must be properly recovered and disposed of because, under current law, it is classified as hazardous waste and, as such, must be brought to a collection centre.

For the collection of used oil, you must contact the “**Used Oil Consortium**”.

CHECKING AND REPLACING HYDRAULIC SYSTEM FILTERS

Periodically check the oil filter.

We recommend replacing the filter after the first 50 working hours and, then, every 250 working hours or, in any case, every 12 months.

REFER TO THE “REPLACEMENT OF SPARE PARTS” SECTION AT LETTER D OF THE BOOKLET FOR THE SPECIFIC MODEL IN QUESTION

The use of inadequate filters, or incorrectly mounting them, compromises the operation of the hydrostatic transmissions and, thus, the use of the machine.

After maintenance and replacement, dispose of use filters in conformity with current environmental protection laws.

CLEANING HYDRAULIC SYSTEM HEAT EXCHANGER

The machine has one or more air/oil exchangers that cool the oil of the hydraulic system.

It is absolutely fundamental for the good operation of the hydraulic system and, therefore, the machine, that the exchanger be cleaned at least every 30 working hours.

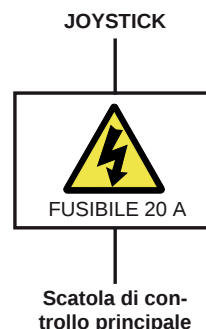
Use only compressed air at a pressure of 2 bar and a distance of about 10 cm and clean the front and rear of the radiator.

We discourage the use of water under pressure because it can deform the exchanger fins and, thus, obstruct the passage of air and cause the oil in the hydraulic system to overheat.

ELECTRICAL SYSTEM

Use only original replacement parts or accessories approved by the manufacturer.

Before replacing a fuse, turn off the machine or turn off the corresponding switch. Do not replace a fuse until you have removed the cause of the failure.



CHECKING TOOL WEAR

Check the cutting tools for wear visually. Replace the knives when you note increased power absorption or imperfect cutting of the material.

Using the machine with dull knives compromises the quality of the work.

REPLACING TOOLS



When replacing a tool, we recommend that you replace the entire series. Mounting other than original tools can cause the machine to vibrate abnormally.



When replacing tools with the head raised off of the ground, do not rely on the tractor's hydraulic lifter to hold: insert mechanical struts or support horses between the machine and the ground to avoid the undesired and dangerous descent of the head.

REPLACING THE TRANSMISSION BELTS

The transmission belts are to be replaced with the cutting head resting on the ground, the tractor turned off, the power take-off disconnected, the parking brake engaged and the ignition key removed from the panel.

To remove the worn transmission belt:

1. Remove the transmission cover
2. Loosen the screws that hold the motor return
3. Loosen the screws of the belt tensioner
4. Use a flat screwdriver as a lever to slide the belt off of the pulley

Replace the belt and adjust it as described in the chapter “ADJUSTING THE TENSION OF THE BELTS”.

We recommend using original belts supplied by the manufacturer.

CLEANING THE MACHINE

Clean the machine regularly using water at low pressure, paying particular attention to the electrical parts and residues of inflammable materials.

Make sure that the hot parts of the machine are free of straw, hay or residues of inflammable materials.

Make sure that the machine's cables are in good condition. Replace a cable when you notice deterioration of its covering.

After each cleaning, grease all the machine's joints and sliding points.

TROUBLESHOOTING

**REFER TO THE "TROUBLESHOOTING" SECTION AT LETTER D OF
THE BOOKLET FOR THE SPECIFIC MODEL IN QUESTION**

REPLACEMENT PARTS

Repairs and replacements must be made with original replacement parts, which must be requested from the Dealer. Remember that requests for replacement parts must include the following information:

1. vehicle type;
2. serial number;
3. part code from the Replacement Parts Catalogue.

If the part is a component of a main unit (multiplier unit, etc.) it will also be necessary to specify the model and serial number of the unit.

SCHEDULED MAINTENANCE TABLE

Description	Running-in checks	Regular Maintenance
	Hours (h)	Hours (h)
GENERAL CHECKS		
Greasing the rotor	-	6
Greasing the roller	-	6
General greasing	-	100
Checking the tightness of bolts	10	25
Checking tool wear	-	50
Replacing tools	-	400
Replacing transmission belts	-	300
HYDRAULIC SYSTEM		
Checking the tightness of hydraulic hoses	10	50
Checking the oil level of the tank	3	20
Replacing the hydraulic oil filter	See the explanatory sticker on the hedge mower	
REDUCER, COUPLER		
Checking the oil level	10	20
Checking the fastening bolts	10	20
Replacing the hydraulic oil	See the explanatory sticker on the hedge mower	
BEARINGS		
Rotor	10	300
Rear roller	10	300



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