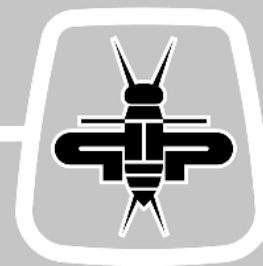


Grillo

AGRIGARDEN MACHINES



FD 500

Hydrostatic Lawnmower

OPERATOR'S MANUAL

EN



02574.2024.05

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Translation of the original manual.
All information, illustrations and technical specifications in this manual are based on the latest information available at the time of publication.
Subject to change without prior notice.

1. INTRODUCTION

Dear Customer,

we thank you for the trust and preference you have placed in our Grillo FD 500 and we are confident that the use of your new machine will fully meet your requirements.

For optimal use and maintenance over time, please carefully read and follow the instructions in this booklet; this will enable you to obtain the best results and safeguard your purchase.

Please keep this manual, which should always accompany the machine as an integral part of it.

Reading the operator's manual is very important.

2. DESCRIPTION AND INTENDED USE

The Grillo FD 500 is a ride-on mower designed for grass cutting and collection and foliage collection.

Any other use is considered as improper use.

This machine must only be used by personnel who are familiar with its specific features, safety regulations and all that concerns accident prevention.

Any improper use of the machine will invalidate the warranty and relieve the manufacturer of all responsibility; any risk resulting from improper use will be borne by the user.

Maintenance and repair of the machine must be carried out by qualified personnel following the procedures specified by the manufacturer. Any alteration or tampering will invalidate the warranty and relieve the manufacturer of all responsibility for damage or accidents.

MARKINGS IN THE MANUAL

This manual contains warnings highlighted in bold and marked with these symbols:



This symbol and the text that follows it contain information that highlights possible, even very serious, risks to the safety of the operator and anyone working on the machine if they do not consider the written information and procedures.



This heading informs the operator of actions or conditions that could damage the machine.

Read these messages carefully to avoid injury or damage to the machine.

The retailer is responsible for inspecting the machine before delivery and for completing the inspection form "PRE-DELIVERY INSPECTION".

On this occasion the retailer will provide the customer with all the information necessary to use the machine.

The customer will receive the machine in optimum condition.

3. SAFETY DECALS

RIGHT HAND SIDE AND LEFT HAND SIDE refer to the sides of the machine for the operator sitting in the driver's seat.

RIGHT HAND SIDE



Danger of moving parts



Danger of sharp blades and danger of objects thrown by the rotation of the blades

Dangers and warnings

Danger consult the manual



Danger of bursting

Danger of burns



Fire hazard

Danger transmission parts



Danger of gas inhalation



Danger of overturning

LEFT HAND SIDE



Danger of moving parts



Danger transmission parts



Danger cardan joint



Danger of sharp blades and danger of objects thrown by the rotation of the blades

4. GENERAL SAFETY RULES

ACCIDENT PREVENTION RULES

On the machine and in this manual there are warnings and indications accompanied by this symbol:



it indicates the presence of a potential hazard for which particular caution should be taken for your own safety and for the safety of others who may be within the operating range of the machine.



All accident prevention rules in this manual are important and must be observed. Always keep the manual handy and read it carefully to learn how to use the machine safely. Do not allow anyone to use the machine without having received comprehensive instructions.

EXPLANATION OF WARNING DECALS

Danger of injury caused by sharp blades and objects thrown by the rotation of the blades



Do not put your hands or feet under or into the lawnmower when the engine is running. Do not work with the lawnmower on gravel or foreign bodies that can be aspirated and spun by the blades, making them very dangerous.

Keep people at least 15 m away when the machine is running.

Risk of injury caused by moving parts



The grass catcher can be raised and tilted, keep a safe distance from the machine in operation.

Risk of injury caused by rotation of the cardan joint



Do not touch the cardan joint while it is rotating, this can cause serious injury. Do not carry out maintenance while the engine is running.

Danger of injury caused by transmission parts



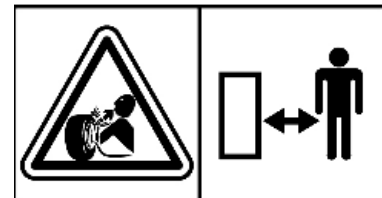
When the engine is running, never touch pulleys or belts, do not carry out maintenance and keep hands away from the designated area.

Danger of machine overturning



Do not use the lawnmower on slippery ground or on slopes with a gradient greater than 18° (32%).

Danger of bursting



Rim separation or tyre bursting can cause serious injury or even death. Be sure to maintain tyre pressure at the levels recommended in this manual, excessive pressure can cause the tyre to burst.

If a tyre is damaged or cut, do not use it, it could burst. To replace or repair it, contact a specialised centre.

Danger of burns



Take particular care not to come into contact with hot engine parts.

Danger of gas inhalation



Exhaust fumes can cause serious damage to health or death. If it is necessary to start the engine in an enclosed space, use an extension piece to the exhaust pipe to blow out the smoke. Work in a well ventilated area.

Danger of fire



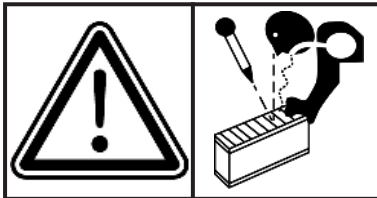
Handle fuel with care as it is highly flammable; do not refuel while smoking, near open flames or sparks, when the engine is running.

Danger of explosion



Keep the battery away from flames or sparks. The gases that may escape are highly explosive.

Danger from acid



The acid contained in the battery is highly toxic if inhaled. It can also cause skin burns, puncture clothing and cause blindness if in contact with the eyes.

PERSONAL PROTECTION EQUIPMENT



Before using the machine the appropriate personal protection equipment must be worn: body protection, protective gloves, safety footwear, hearing protection, goggles.

SAFETY BLOCKS WITH GRASS CATCHER LIFTED



⚠ CAUTION: if the motor is serviced with the grass catcher lifted, insert the two red-painted safety blocks on the two hydraulic cylinders that support it. Do not access the engine compartment without first inserting the blocks. Do not leave the machine parked with the grass catcher lifted without having inserted the two red safety blocks.

ROLL-BAR



⚠ CAUTION: the roll-bar safety device must always be kept raised and tightened during work. Use the seat belt as well.

5. GENERAL WARNINGS TO KEEP IN MIND



WARNING: Read carefully before operating the machine.

Caution is the main requirement in accident prevention! Carefully read the following warnings when using the machine, even before starting work. Improper use can be dangerous. Observe the following precautions:

- Read this manual completely before starting and running the machine;
- Before handing the machine over to other people, make them aware of the safety rules and how to use the machine;
- Pay particular attention to the safety decals on the machine;
- Before starting work, always wear appropriate work wear, long trousers, gloves, safety shoes and goggles;
- The use of hearing protection equipment is recommended when using the machine continuously. Use earplugs or earmuffs that comply with current regulations.

SAFETY IN THE WORKING ENVIRONMENT

- Before switching on the machine, check that there are no animals or people nearby, especially children; the minimum distance is 15 m;
- Before reversing, check that there are no people or obstacles behind the machine;
- Check the ground before mowing, that there are no stones, sticks or foreign bodies, which could be thrown away dangerously;
- Be very careful when working with the lawnmower on land with sandy areas or gravel driveways. Sand and gravel can be aspirated and spun by the blades, making them very dangerous;
- Be careful when working near a road;
- Do not operate near ditches or embankments which may collapse under the weight of the machine, especially if the ground surface is uneven or wet.

DRIVING AND BEHAVIOURAL SAFETY

- Keep ignition keys out of the reach of children;
- Do not allow passengers in the machine;
- Children under 16 years of age must not use the machine;
- Do not use the machine when fatigued or under the influence of alcohol, drugs or medications that impair the physical or cognitive abilities of the operator;
- Be careful while driving and avoid abrupt turns, especially at maximum speed;
- Drive at low speed on uneven ground;
- Slow down on slopes and descents, and always steer slowly;
- Only work in sunlight or with good artificial light;
- Lift and empty the grass catcher only when the machine is stationary and on level ground;
- Do not leave the machine on a slope;
- Before getting off the lawnmower, switch off the PTO, lower the cutting deck if lifted, switch off the engine, apply the parking brake and remove the ignition key.

FURTHER SAFETY MEASURES

- If you hit a foreign object, disengage the blade, stop the engine, remove the ignition key and inspect the cutting device for damage. If damaged, repair it before putting the lawnmower back into operation;
- If the machine begins to vibrate abnormally after a knock, immediately carry out a general check to identify the reason for the anomaly. If necessary, request the assistance of an authorised Grillo workshop;
- The rotation of the mower blade is very dangerous, never put our hands or feet under the cutting deck;
- Always engage the red safety blocks on the grass catcher lifting cylinders before servicing the machine with the grass catcher lifted;
- Before checking, adjusting, repairing or simply cleaning the lawnmower, disengage the cutting deck transmission and switch off the engine;
- Do not place any weight on the seat, as this could deactivate the ignition safety device;
- Do not lift the grass catcher when the machine is running;
- Do not tamper with or disable the safety devices;
- Do not change the engine settings, especially the maximum revs;
- Do not have anyone check the machine while you are driving with the engine running;
- Do not move the machine without the cutting deck, the machine could become unbalanced and driving could be dangerous.

FUEL AND FIRE HAZARD

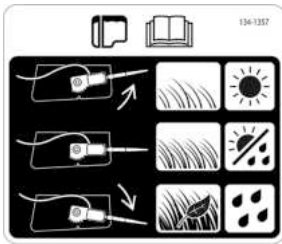
- Only refuel outdoors, always switch off the engine, stay away from sparks or flames, do not smoke! Securely replace tank and fuel container caps;
- Avoid fuel spills. After filling the tank clean up any spillage on the machine before starting the engine;
- Store fuel in containers specifically designed for this purpose;
- If it is necessary to empty the tank, do so outdoors or in a ventilated area;
- Caution! To reduce the risk of fire, always keep the engine compartment, muffler, exhaust manifold, battery, fuel tank area and fuel line clean and free from grass, leaves and dust;
- Do not store the machine in buildings where the fuel vapours could reach flames and sparks;
- Allow the engine to cool down before storing the machine in an enclosed area.

SAFE REPLACEMENTS

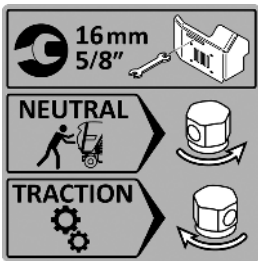
- Deformed or damaged blades must always be replaced, never repaired;
- Replace the muffler if it is worn or damaged;
- The transmission belts are manufactured especially for this lawnmower, do not replace them with other compatible ones, use genuine belts;
- Always use genuine Grillo spare parts and accessories.

6.A IDENTIFICATION OF USE DECALS - RH SIDE

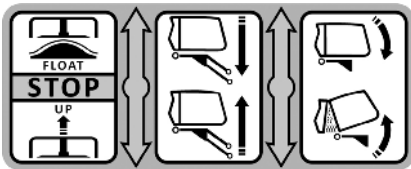
RIGHT HAND SIDE refers to the side of the machine for the operator sitting in the driver's seat



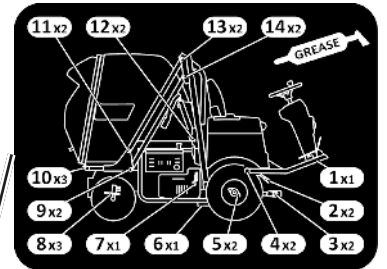
Adjustment of the full grass catcher microswitch



Hydrostatic pump bypass



Control levers



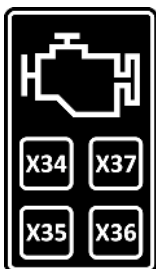
Machine grease points



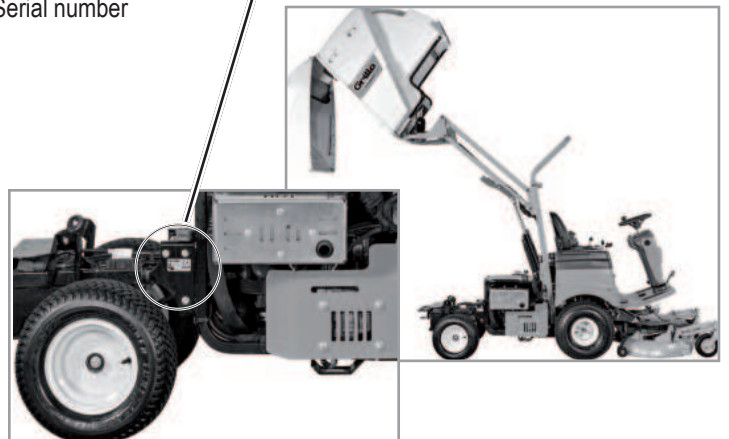
Forward and reverse gear



Serial number

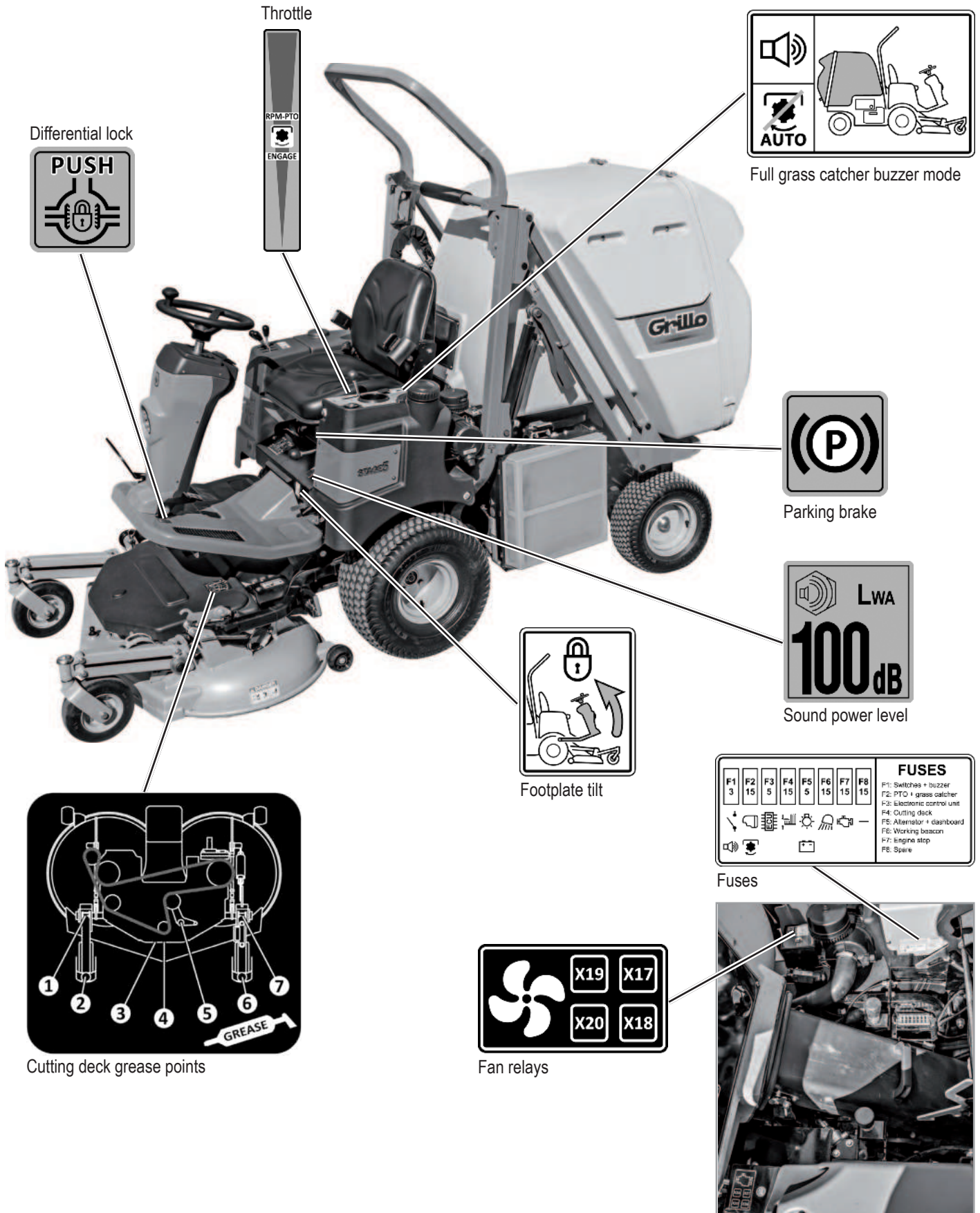


Engine relays

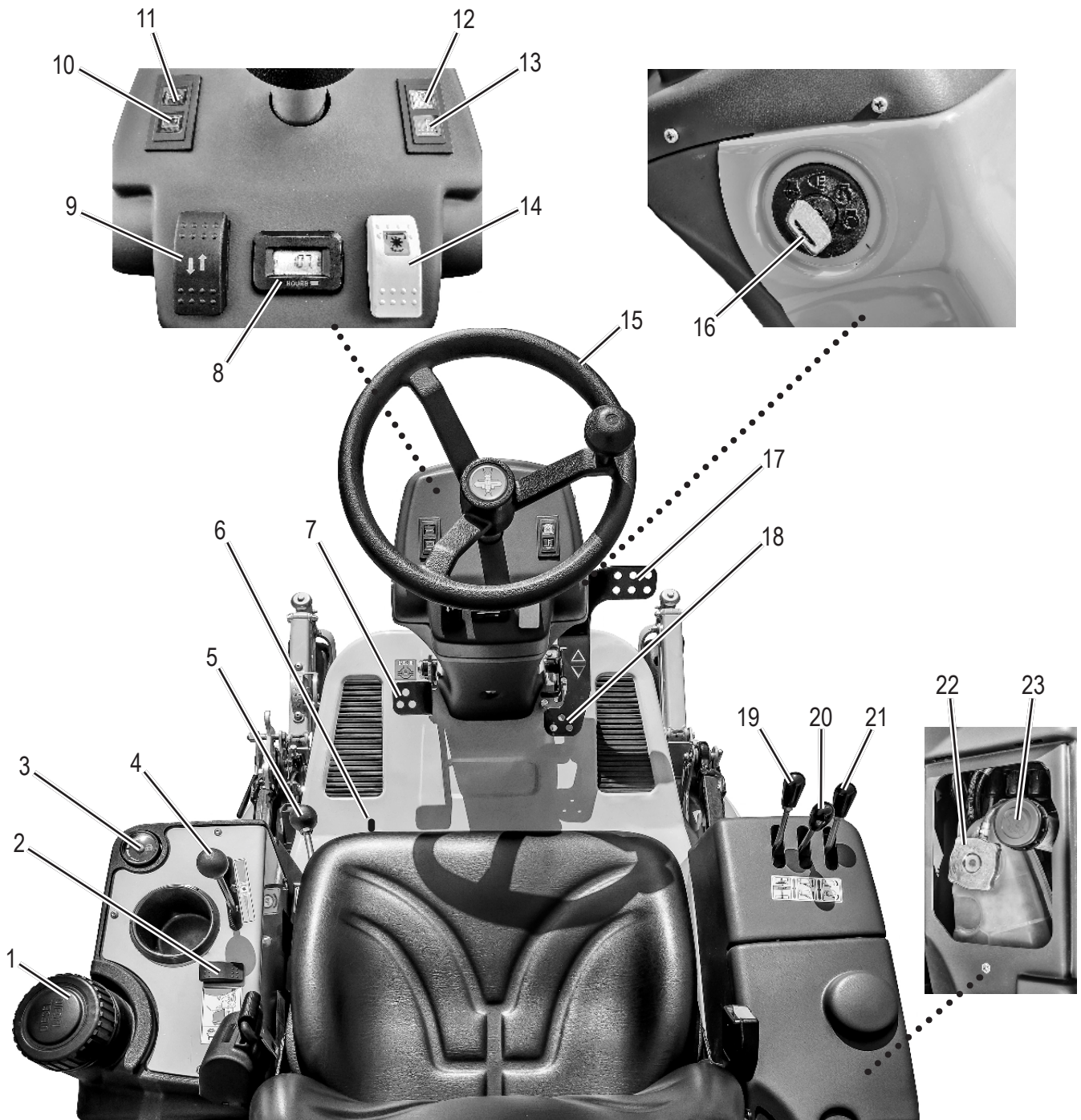


6.B IDENTIFICATION OF USE DECALS - LH SIDE

LEFT HAND SIDE refers to the side of the machine for the operator sitting in the driver's seat.



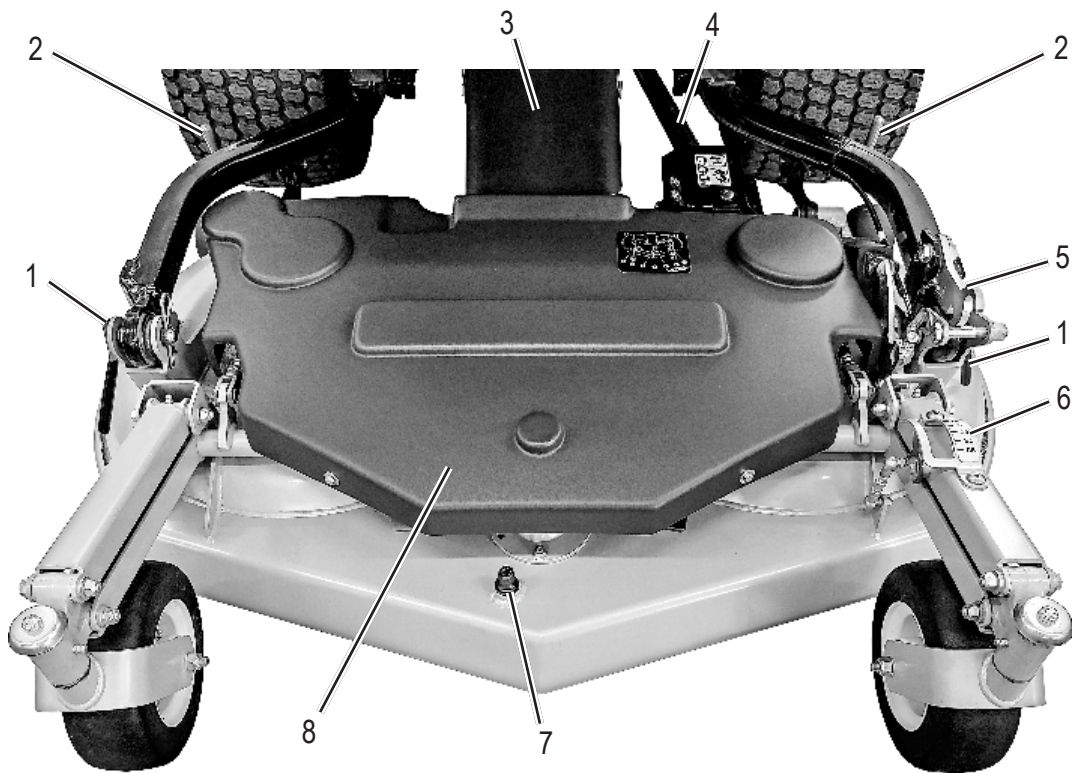
7. IDENTIFICATION OF MACHINE CONTROLS AND FUNCTIONS



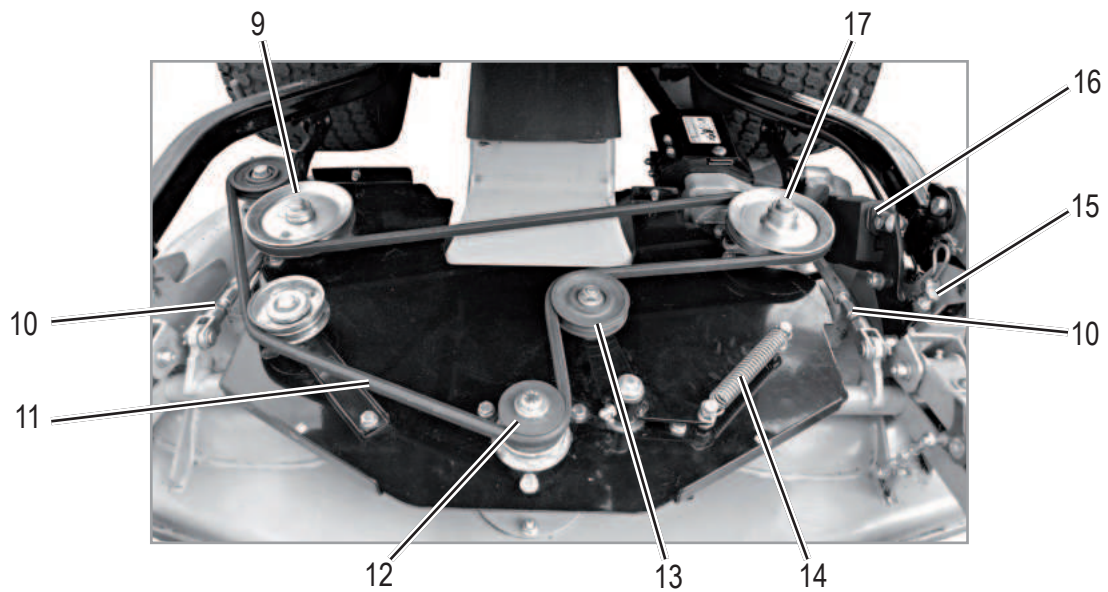
1. FUEL TANK CAP
2. FULL GRASS CATCHER BUZZER BUTTON
3. FUEL LEVEL INDICATOR
4. THROTTLE
5. PARKING BRAKE LEVER
6. SEAT ADJUSTMENT LEVER
7. DIFFERENTIAL LOCK PEDAL
8. HOUR METER
9. CUTTING HEIGHT ADJUSTMENT BUTTON
10. BATTERY WARNING LIGHT
11. ENGINE OIL WARNING LIGHT
12. ENGINE PREHEATING WARNING LIGHT

13. ENGINE TEMPERATURE WARNING LIGHT
14. PTO BUTTON
15. STEERING WHEEL
16. IGNITION KEY
17. FORWARD PEDAL
18. REVERSE PEDAL
19. CUTTING DECK LIFTING LEVER
20. GRASS CATCHER LIFTING LEVER
21. GRASS CATCHER TIPPING LEVER
22. COOLANT FLUID RESERVOIR CAP
23. HYDRAULIC OIL TANK CAP

8. IDENTIFICATION OF CUTTING DECK COMPONENTS



TRANSMISSION VIEW



1. PIN WITH COTTER PIN - FRONT DECK CONNECTION
2. PIN WITH ELASTIC PIN - REAR DECK CONNECTION
3. LOADING CHUTE
4. CARDAN SHAFT
5. LATCH FOR FULL LIFTING
6. CUTTING HEIGHT INDICATOR
7. CONNECTION NOZZLE FOR WASHING HOSE
8. TRANSMISSION PROTECTION COVER
9. RIGHT BLADE PULLEY

10. REAR DECK HEIGHT ADJUSTMENT ROD
11. DRIVE BELT
12. FRONT BLADE PULLEY
13. DRIVE BELT TENSIONER
14. TENSIONER SPRING
15. FRONT DECK HEIGHT ADJUSTMENT BOLT
16. CUTTING HEIGHT ELECTRIC ACTUATOR
17. LEFT BLADE PULLEY

9. IDENTIFICATION OF GRASS CATCHER COMPONENTS

REAR VIEW WITH OPEN GRASS CATCHER



1. GRASS CATCHER DOOR
2. FIXED GRID
3. LIFTING ROD
4. REMOVABLE GRID
5. GRASS DEFLECTOR
6. FULL GRASS CATCHER MICROSWITCH
7. LOADING CHUTE
8. LATCH
9. ELECTRIC MOTOR
10. SHOCK ABSORBER



10. TECHNICAL SPECIFICATIONS

MODEL: FD 500, hydrostatic lawnmower with front cutting deck and direct grass loading.

ENGINE: KUBOTA D722-E4B-EU-Y2, Diesel EPA/CARB Tier 4, EU Stage V, ECE R120, 722 cc, 13.2 kW (18 HP) at 3200 rpm, 3 cylinders, liquid cooled, with electric fan and automatic radiator cleaning device.

FUEL TANK CAPACITY: 22 litres

HYDRAULIC OIL CIRCUIT CAPACITY: 6.7 litres

STARTER: electric 12 V.

DRIVE: hydrostatic 2-wheel drive with cascade reduction gear, parking brake and differential.

DIFFERENTIAL LOCK: mechanical with pedal control.

DRIVING SYSTEM: steering wheel with hydraulic drive, with pedal operated forward and reverse gears.

PTO: electromagnetic, with integrated blade brake.

SPEED: 0-13 km/h continuously variable.

WHEELS: front 20x10.50-8 GARDEN; rear 16x6.50-8 GARDEN.

SEAT: sprung with adjustable slides and seat belt included.

STEERING WHEEL: mounted on steering column, with knob.

TURNING RADIUS: 32 cm

AUTOMATIC FEATURES: blade disengagement when the grass catcher is full, radiator cleaning, electric grass distribution inside the grass catcher, grass catcher door opening.

BRAKE: disc parking brake on gearbox.

GRASS CATCHER: 700 litres capacity, with motorised deflector that ensures complete and uniform filling of the grass catcher. Hydraulic lifting and unloading system with automatic door opening.

DISCHARGE HEIGHT: 190 cm

REAR OVERHANG: 15 cm

CUTTING DECK: 3 blades with central collection.

CUTTING HEIGHT: from 2.5 to 9 cm continuously variable with electric adjustment from the driver's seat.

CUTTING WIDTH: 113 cm

HOURLY MOWING CAPACITY: 7500 m²/h

ATTACHMENTS:

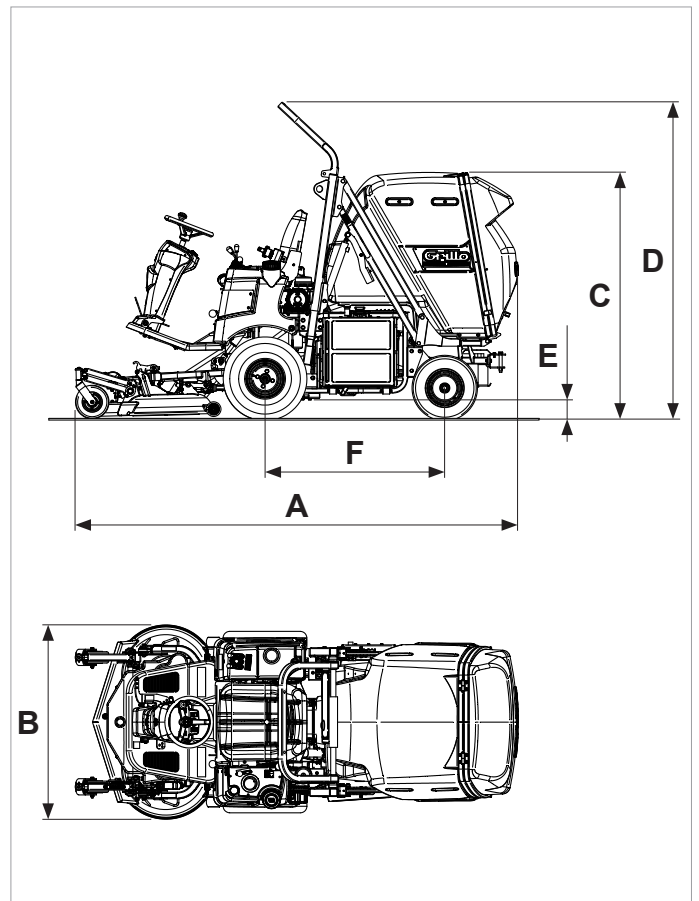
- Mulching kit;
- Leaves collection kit;
- Roadlights kit.

SIZE (with cutting deck):

- Length (A): 271 cm
- Width (B): 119 cm
- Height: 151 cm (C: roll-bar lowered) - 193 cm (D: roll-bar raised)
- Ground clearance (E): 12 cm
- Wheelbase (F): 110 cm

WEIGHT:

- without cutting deck: 530 kg
- with cutting deck: 610 kg



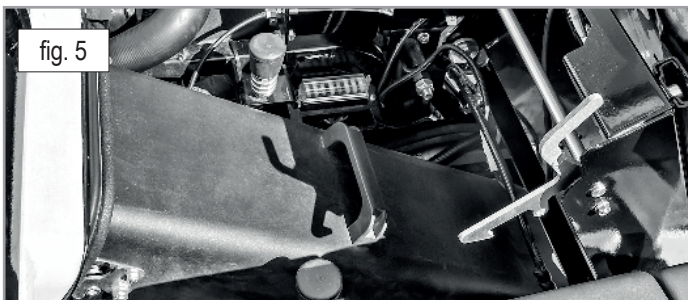
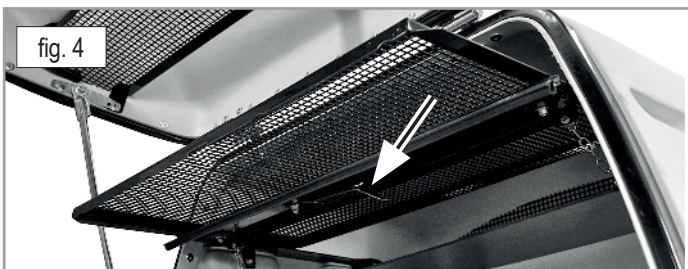
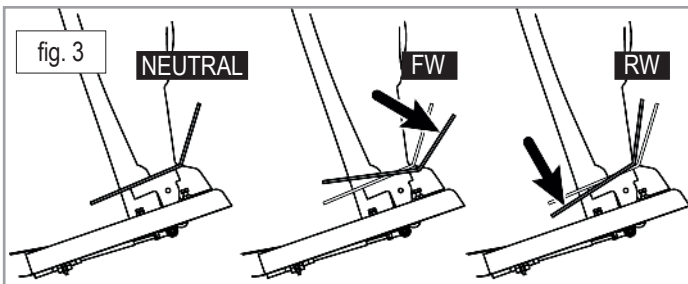
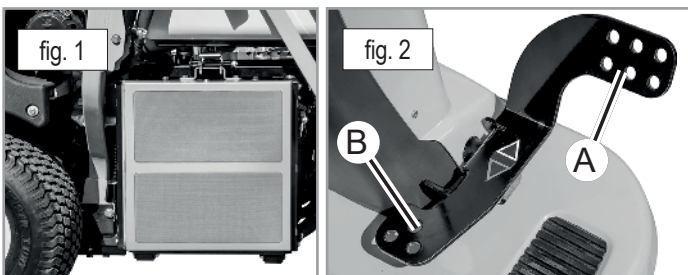
11. OPERATING INSTRUCTIONS

11.1 CHECKS TO BE CARRIED OUT BEFORE STARTING THE ENGINE

Check that:


- The radiator fluid is level;
- The radiator intake grille is clean (fig. 1);
- The engine oil is level;
- The hydraulic oil is level;
- The forward/reverse pedal (fig. 2) is in NEUTRAL position (fig. 3);
- The air filter is clean;
- The grid inside the grass catcher is clean (fig. 4); to remove it, pull the grid and push on the restraint lever;
- The cutting deck and the loading chute are clean and correctly fitted (fig. 5);
- There is sufficient fuel in the tank.

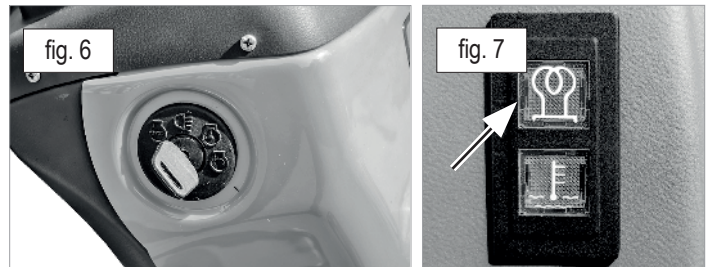
For detailed fluid levels see 15. ORDINARY MAINTENANCE AND LUBRICATION



11.2 STARTING THE ENGINE

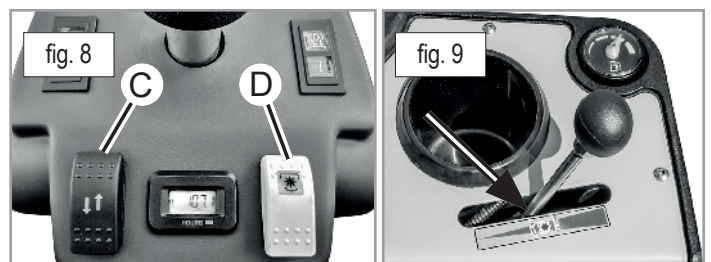
1. Insert the key into the steering column (fig. 6);
2. Turn the key by one position to power up the electrical circuit: the control unit performs a safety and function check, the engine is preheated (glow plug) and the worklight is switched on;
3. Turning the key a further position maintains power to the machine but switches off the worklight;
4. Turning the key to the last position starts the engine;
5. Release the key after starting.

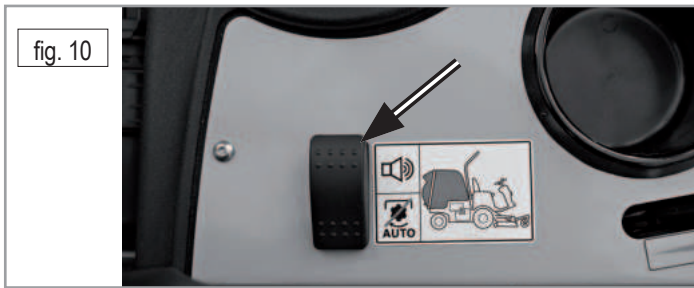
 **IMPORTANT:** always preheat the engine before attempting to start it and wait for the glow warning light to go out (fig. 7).



11.3 STARTING THE MACHINE

1. Adjust the seat and carry out the necessary checks as described above;
2. Start the engine;
3. Release the parking brake by removing the lever from the housing (fig. 12) and moving it to the lowest position;
4. Adjust the cutting height using the button (fig. 8/C);
5. Move the throttle to halfway (fig. 9);
6. Engage the PTO (fig. 8/D);
7. Always check the operation of the PTO safety devices before starting work, i.e. that
 - The PTO disengages automatically by getting up from the seat;
 - The blades stop in less than 5 seconds;
8. Press the travel pedal gently (fig. 2/A, fig. 3/FW) and start work. Use the lower part of the pedal (fig. 2/B, fig. 3/RW) for reverse;
9. To stop, simply release the forward pedal which will return to the neutral position (fig. 3/NEUTRAL);
10. When the grass catcher is full, a sensor automatically disengages the blade rotation, preventing clogging of the loading chute; alternatively, there is a button on the left-hand side of the driver's seat for a full grass catcher buzzer alarm (fig. 10). By holding it down and re-engaging the PTO it is possible to keep the blades on when the grass catcher is full and continue cutting, should small areas be missing to complete the job;
11. To discharge the grass: lift the grass catcher upwards by operating the central lever on the hydraulic distributor (fig. 11/F) and empty the grass catcher using the most external lever (fig. 11/G).

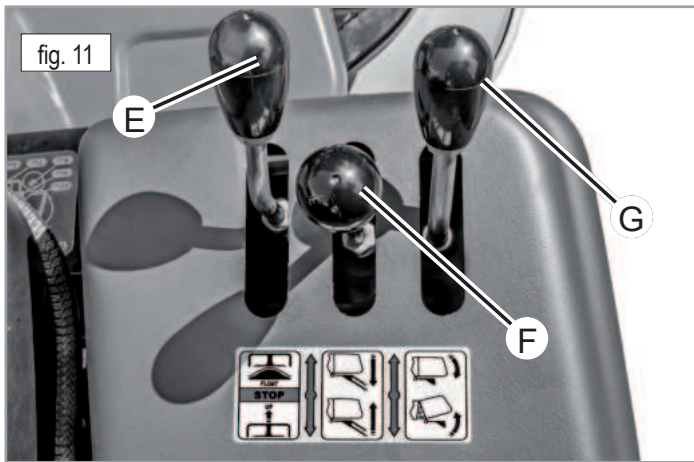




IMPORTANT: do not engage the blades with the engine at full speed, but bring the engine to half speed and then engage the PTO (fig. 8/D).

IMPORTANT: during mowing, the cutting deck lifting lever must be kept in the FLOAT position (fig. 11/E).

IMPORTANT: always engage the blades a few metres before entering the area to be mowed. This cleans the cutting deck and the loading chute and does not strain the clutch.



11.4 WORK CONCLUSION

Once finished mowing, disengage the blades and empty the grass catcher. Then:

1. Remove the foot from the forward pedal to stop;
2. Set the throttle to minimum;
3. If the cutting deck was raised, lower it to the ground;
4. Switch the engine off by turning the key to the STOP position and apply the parking brake (fig. 12), pulling the lever upwards and positioning it in the housing;
5. Finish by cleaning the machine.



11.5 ORDINARY MACHINE CLEANING

CAUTION: always wear appropriate clothing and goggles before starting any cleaning work.

CAUTION: to reduce the risk of fire, it is very important to keep the engine compartment, muffler, exhaust manifolds, battery, fuel tank area and fuel line clean and free from grass, leaves and dust.

IMPORTANT: do not use a high-pressure washer in the engine compartment and wherever there are electrical components.

CAUTION: if you clean the machine with the grass catcher lifted, insert the two red safety blocks on the hydraulic cylinders (fig. 13).



At the end of each job, proper cleaning ensures a long service life for the machine and prevents most common inconveniences.

The best way to clean the machine is with compressed air or a blower/vacuum cleaner.

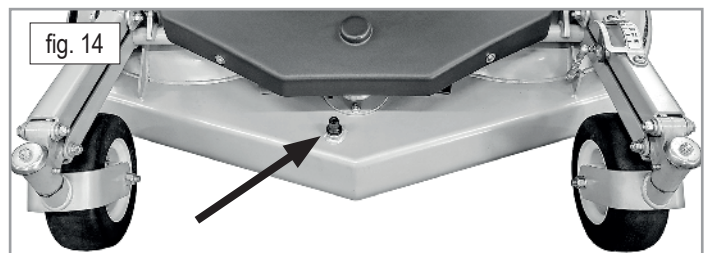
If necessary, use water for the body parts, the cutting deck, the loading chute and the grass catcher; avoid wetting directly the electrical sensor inside the grass catcher (fig. 18).

WASHING THE CUTTING DECK

Only and exclusively for washing the cutting deck, and in any case observing all other general safety instructions, this operation must be carried out with the engine running.

The machine must be placed on a solid floor, then lower the cutting height to the minimum, plug the connection nozzle (fig. 14) into the water hose and allow the water to run for a few minutes with:

- The operator sitting in the driver's seat;
- The engine running;
- The forward pedal in NEUTRAL;
- The blades engaged.



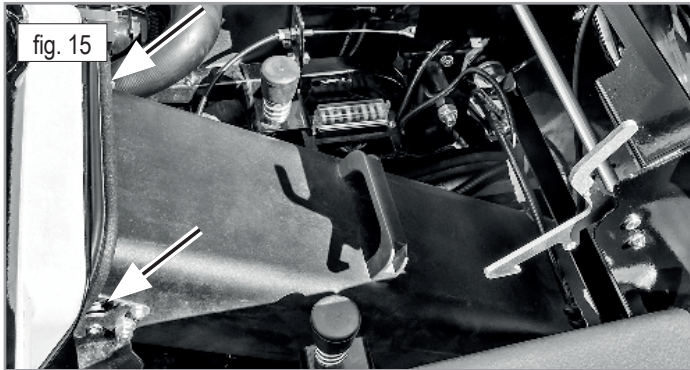
When finished, clean the grass catcher grid as well.

After using water, run the transmissions for a few minutes, including the cutting deck transmission, to ensure that all components have dried.

11.6 USEFUL RULES FOR CORRECT USE

The machine can work even under severe conditions without clogging problems. A few measures must be taken and all devices must be correctly registered.

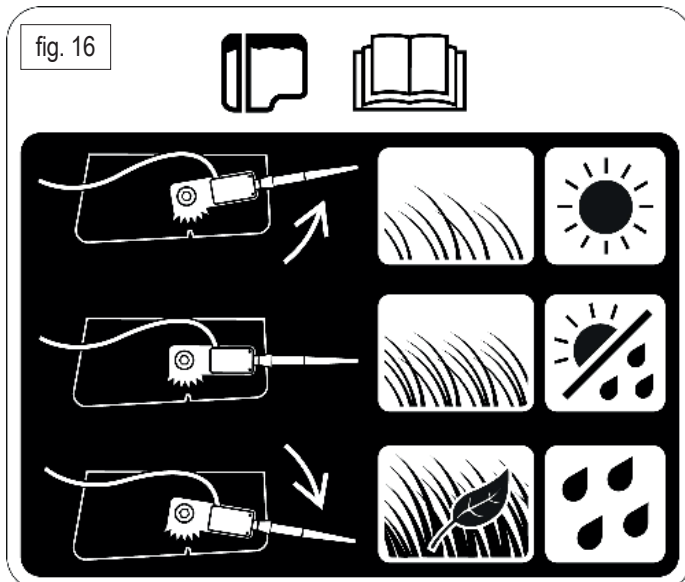
- Before starting work, check that the cutting deck and the loading chute are perfectly clean and free of grass and dirt;
- Check that the loading chute is correctly positioned and secured with the two clamps (fig. 15);



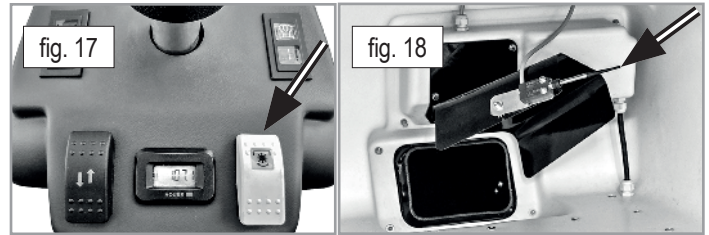
- Check the ground before mowing: ensure there are no stones, twigs, roots or foreign bodies;
- When mowing, keep the engine at full revs and adjust the forward speed according to the height of the grass. Be careful and slow down when coming across tall or dense grass;
- Check that the blades are not worn, the cutting edge is sharp and the vanes are not damaged. Sharpen the mower blades frequently; the cut will be better and the engine will run at lower consumption (ref. 16.4 SHARPENING THE BLADES).

IMPORTANT: the blades must be fitted correctly. Do not invert the position of the blades.

- Keep the grille in front of the radiator clean (fig. 1);
- Keep the grid inside the grass catcher clean: to remove it, manually open the cover of the grass catcher and release the lock lever (fig. 4);
- If the grass is wet or very high, do not mow with the cutting deck in the lowest position, but set it to an intermediate position;
- Check the tension of the belts that drive the PTO;
- Under normal cutting conditions, the full grass catcher microswitch must be adjusted to the horizontal position. For optimal filling of the grass catcher and to avoid clogging the loading chute, it is advisable to adjust it tilted downwards in the case of wet or very tall grass, and tilted upwards in the case of short or dry grass. (fig. 16);



- Check the operation of the deflector inside the grass catcher: by pressing the PTO button (fig. 17) the deflector in the grass catcher is automatically activated (fig. 18);
- Check that the blades disengage automatically when the grass catcher is full or that the acoustic alarm is activated (ref. 11.3 STARTING THE MACHINE, point 10);



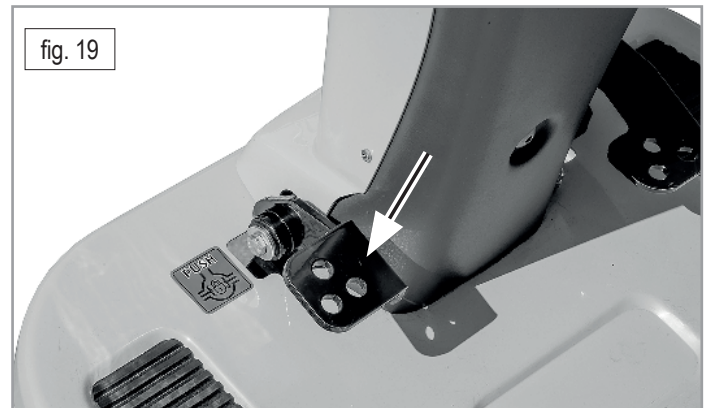
CAUTION: only use the hydraulic lift of the cutting deck for short travel distances, to overcome obstacles, to step on kerbs or curbs.

11.7 SLOPING TERRAIN AND DIFFERENTIAL

Steep terrain should be negotiated in uphill/downhill direction as far as possible, taking great care when changing direction and ensuring that the wheels uphill do not encounter any obstacles (stones, branches, roots, etc.) that could cause the machine to lose control. If the drive wheels tend to slip, use the hydraulic control to lift the cutting deck slightly in order to put more weight on the drive wheels and thus have more traction. Consider the various situations and be careful on damp ground and wet grass as the machine may slip. When driving downhill, start at low speed and avoid driving over dry or cut grass as the wheels may lose grip.

It is possible to engage the differential lock by pressing the pedal to the left of the steering column (fig. 19) in the condition of wheel slip, or to load the lawnmower on vehicles with ramps. Only engage the differential lock if necessary

CAUTION: avoid slopes that are too steep; comply with the safety limits set out in the manual max 18° (32%).



12.1 ELECTRONIC SAFETY

On the FD 500, an electronic control unit receives signals from the microswitches located on the seat, forward pedal, parking brake and grass catcher. Based on these signals, the control unit generates logic blocks for the safety of the machine and the operator.

Specifically, always remember that:

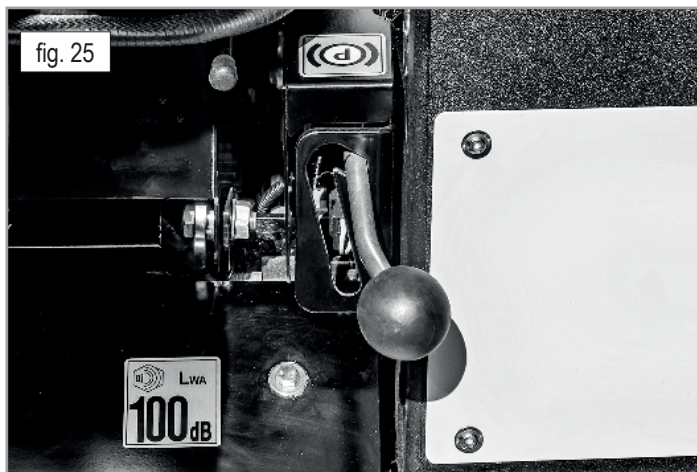
- The engine
 - Switches off if the operator gets up from the seat with the parking brake off;
 - Will not start if the driver is not seated in the driver's seat, unless the parking brake has been applied first;
 - Will not start if the drive pedal is not in NEUTRAL position.
- The PTO
 - Does not activate if the parking brake is applied;
 - Does not activate if the grass catcher is open or full unless the buzzer switch has been pressed;
 - Does not activate if the engine is overheated.

12.2 PARKING BRAKE

The FD 500 is equipped with a hydraulic drive system, therefore in order to brake it is sufficient to release the travel pedal. To engage the parking brake, pull the lever with knob (fig. 25) and position it in the housing. To release the parking brake, simply remove the lever from the housing and move it to a lower position. If the parking brake is applied and the travel pedal is depressed, the buzzer will sound to warn the operator to release the brake.

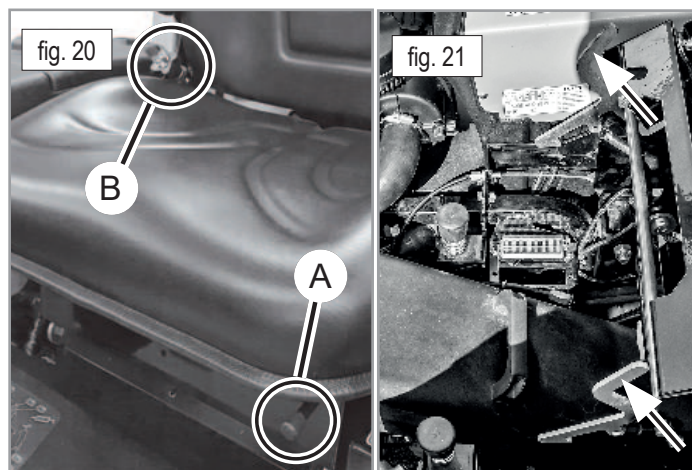
In this condition the blades cannot be engaged.

With the parking brake applied, it is possible to leave the driver's seat with the engine running.



13.1 SEAT ADJUSTMENT

Before starting work, it is recommended to position the seat in the most comfortable position and with the most control over the machine. To adjust the seat forwards or backwards, move sideways the lever on the left-hand side of the seat (fig. 20/A), then move the seat. To adjust the inclination of the backrest, turn the knob on the right-hand side at the base of the seat (fig. 20/B). To tip the seat, pull the levers on the back of the backrest (fig. 21).

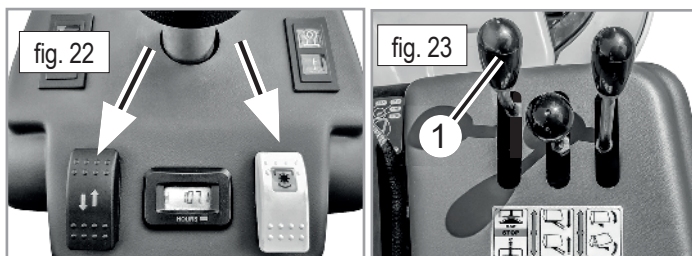


13.2 CUTTING HEIGHT ADJUSTMENT

To adjust the cutting height use the button (fig. 22), pressing it upwards to raise it and downwards to lower it.



IMPORTANT: during cutting, the cutting deck lifting lever must be kept in the floating "FLOAT" position, moving it all the way forward (fig. 23/1).



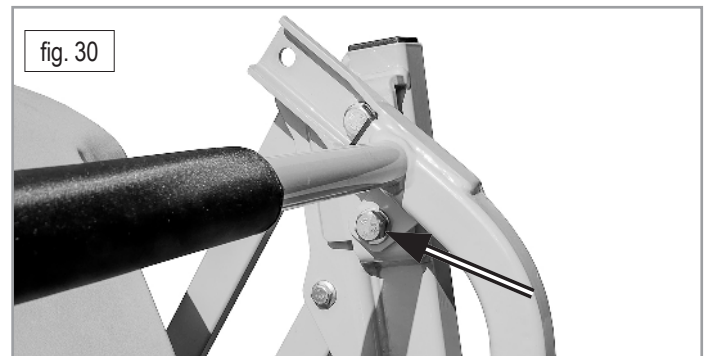
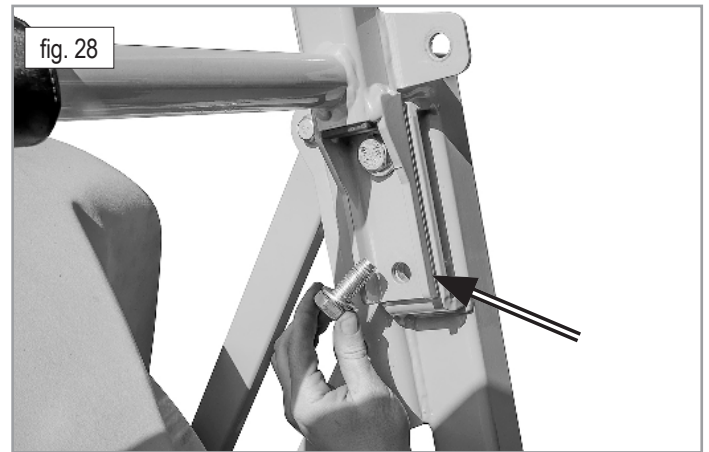
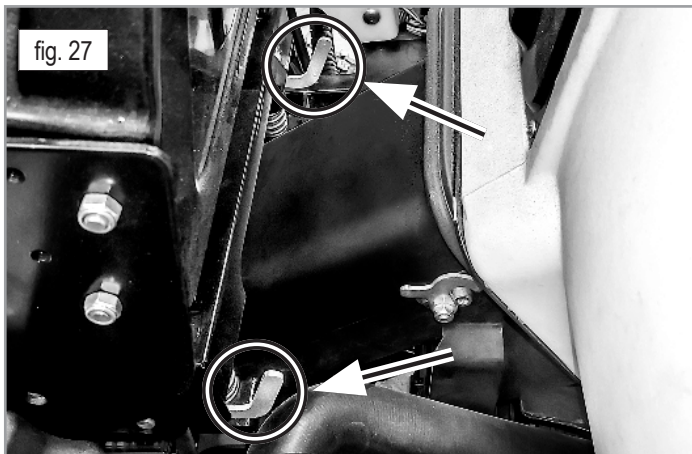
In the event of uneven ground, dips or bumps, it is advisable to operate the cutting deck in the highest cutting setting in order to avoid impact on the blades. To this purpose, there are two anti-scalp wheels at the rear of the cutting deck (fig. 24), their height above the ground can be adjusted in three positions by means of the fixing holes to the cutting deck.

For correct use, set the height of the wheels at the closest position but not in contact with the ground.



13.3 ROLL-BAR

⚠ CAUTION: in order to avoid serious injuries due to the machine overturning, keep the roll-bar raised (fig. 26) and use the safety belt. In addition, make sure that the seat is securely fastened via the securing latches behind the backrest (fig. 27).



- Roll-over protection is not ensured if the roll-bar is in the lowered position;
- Do not operate the machine on uneven terrain or on slopes with the roll-bar in the lowered position;
- Only lower the roll-bar when absolutely necessary;
- Do not wear the safety belt when the roll-bar is lowered;
- Drive slowly and carefully;
- Raise the roll-bar as soon as conditions permit;
- Be careful when working under canopy. Ensure that there are no low branches or other obstacles that could become entangled with the roll-bar.

To lower the roll-bar, proceed as follows:

1. Park the machine on a flat surface;
2. Disengage the PTO, lower the cutting deck and engage the parking brake;
3. Switch off the engine and tip the seat, using the levers at the rear (fig. 27);
4. Unfasten the lower screws on the roll-bar (fig. 28);
5. Lower the roll-bar behind the seat (fig. 29) and tighten the screws in the new position (fig. 30).

⚠ CAUTION: only lower the roll-bar when absolutely necessary, for short periods and raise it immediately as soon as conditions permit.

To raise the roll-bar, proceed as follows:

1. Park the machine on a flat surface;
2. Disengage the PTO, lower the cutting deck and engage the parking brake;
3. Switch off the engine and tip the seat, using the levers at the rear (fig. 27);
4. Unfasten the lower screws on the roll-bar (fig. 30);
5. Raise the roll-bar (fig. 26) and tighten the screws in the new position (fig. 28).

14. EXTRAORDINARY ADJUSTMENTS

⚠ CAUTION: the adjustment procedures described below require technical skills and expertise.

It is advisable to contact an authorised Grillo centre to undertake these procedures.

14.1 ADJUSTING THE PARKING BRAKE

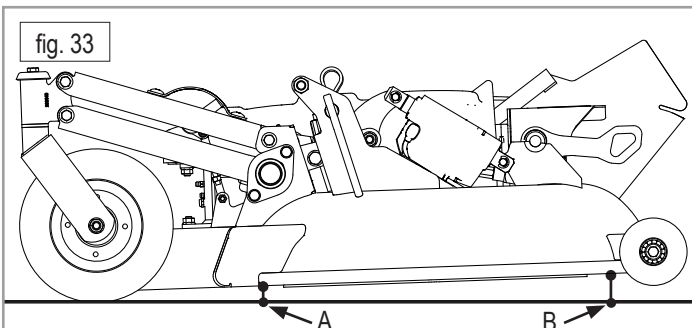
If the parking brake is ineffective, it is possible to adjust it using the adjuster located under the seat (fig. 31): by loosening the lock nut and loosening or tightening the adjuster it is possible to vary the tension of the cable connected to the lever. The effectiveness of the brake is given by the locking of the disc placed at the exit of the reduction gearbox between the two pads (fig. 32). When the brake is not engaged it is important that there is some play ($0.4 \div 0.6$ mm) between the pad and the disc and that the cable is not under tension.



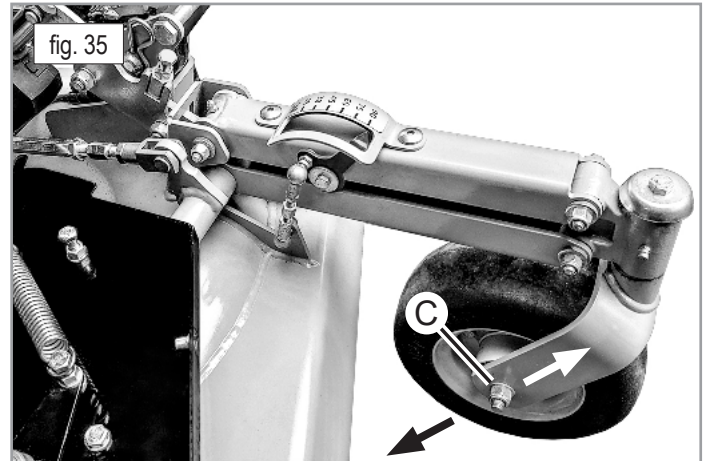
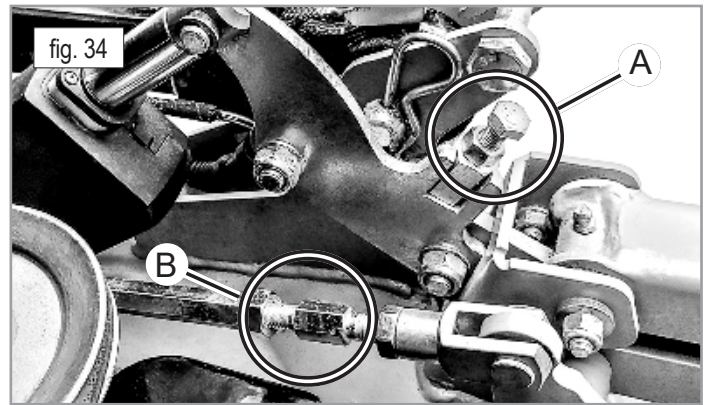
14.2 ADJUSTING THE CUTTING DECK

Good planarity of the cutting deck is essential for an evenly mowed lawn. Place the lawnmower on a smooth, level surface, make sure the distributor lever is floating and lower the cutting height to the minimum. Then:

1. Check the correct tyre pressure (1.5 bar);
2. Check the distance of the edge of the cutting deck from the ground at the points indicated (fig. 33). In A the measurement must be 15/20 mm, in B it must be greater than A by about 5/10 mm;



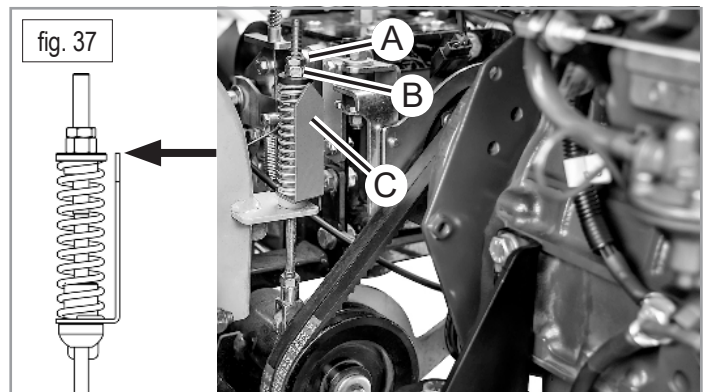
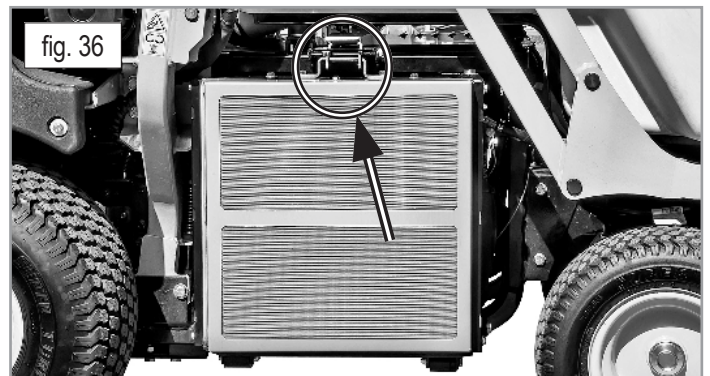
3. If necessary intervene:
 - On the adjustment bolt (fig. 34/A) to adjust the height of the front part;
 - On the two tie rods (fig. 34/B), one on the right and one on the left, to adjust the height of the rear part;
 - On the front wheel slots (fig. 35/C) to adjust the difference in height between the left and right-hand sides.



14.3 ADJUSTING THE PTO DRIVE BELTS

To adjust the PTO belt tension:

1. Release the radiator by acting on the lever in order to access the clutch (fig. 36);
2. Loosen the lock nut (fig. 37/A);
3. Tighten/loosen the nut (fig. 37/B) in order to align the tip of the red tension indicator (fig. 37/C) with the end of the spring.

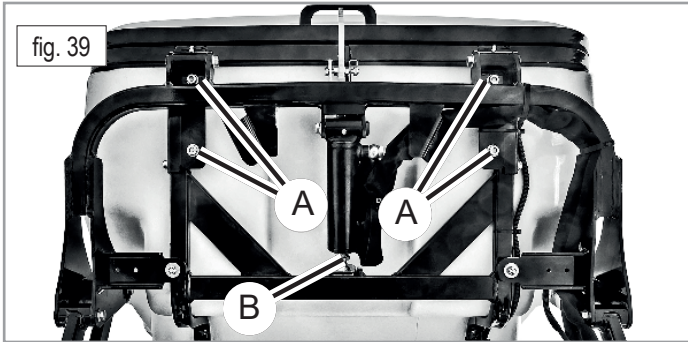
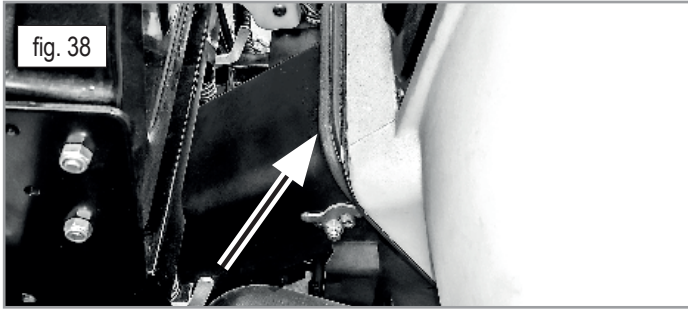


14.4 ADJUSTING THE GRASS CATCHER ALIGNMENT

For good operation, it is very important to ensure a perfect coupling between the grass catcher and the loading chute in the closed position (fig. 38).


To do this, proceed as follows:

1. Bring the grass catcher into the fully closed position and check the coupling with the chute;
2. If the gasket does not seal properly or is too flattened, loosen the bolts securing the grass catcher to the rear part (fig. 39/A);
3. Loosen the safety nut at the top of the central hydraulic cylinder rod. Tighten or loosen the cylinder rod (fig. 39/B) to obtain the desired movement of the grass catcher, so that the seal is slightly flattened and the grass catcher is aligned with the chute;



4. If necessary, the position can also be adjusted by acting on the lifting cylinders (fig. 40): lengthening the rods of the cylinders moves the grass catcher further and upwards from the chute, shortening the rods of the cylinders moves the grass catcher closer and downwards towards the chute.

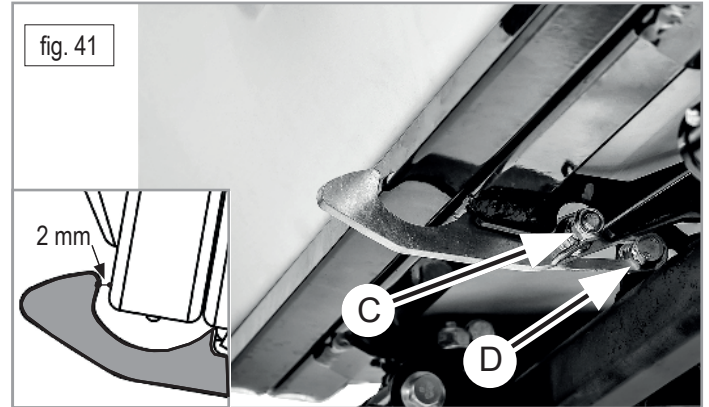


 **IMPORTANT:** for correct operation of the hydraulic grass catcher lift, the cylinders must be adjusted evenly to the left and right hand sides.

14.5 ADJUSTING THE GRASS CATCHER LATCH

The closing latch of the grass catcher is adjusted with the relevant bolt (fig. 41/C).

It is necessary to leave a gap of approximately 2 mm between the latch and the frame in order to facilitate latching. By acting on the other bolt (fig. 41/D) it is possible to adjust the automatic opening angle of the door.

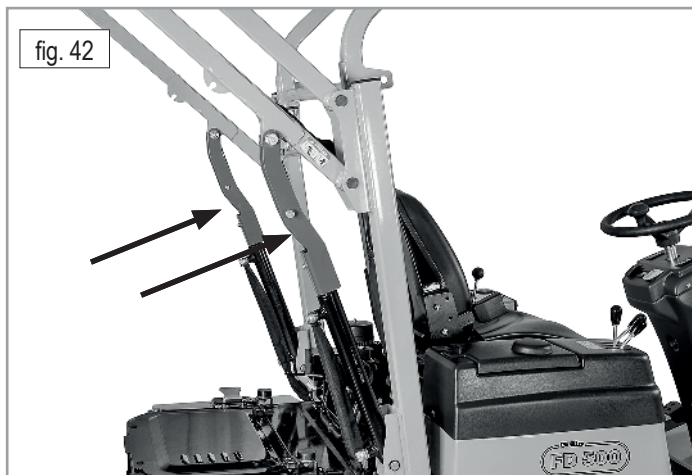


15. ORDINARY MAINTENANCE AND LUBRICATION

⚠ CAUTION: if the machine or part of it has to be lifted, always use suitable tools such as supports and safety locks.

- Always wear appropriate clothing and work gloves before starting any cleaning, maintenance or repair work;
- Do not leave the machine in service without safety devices or lifted, in places accessible to inexperienced persons, especially children;
- Never dispose of waste oil, fuel or any other pollutant in the environment!
- Regular maintenance and correct lubrication help to keep the machine in perfect working order.

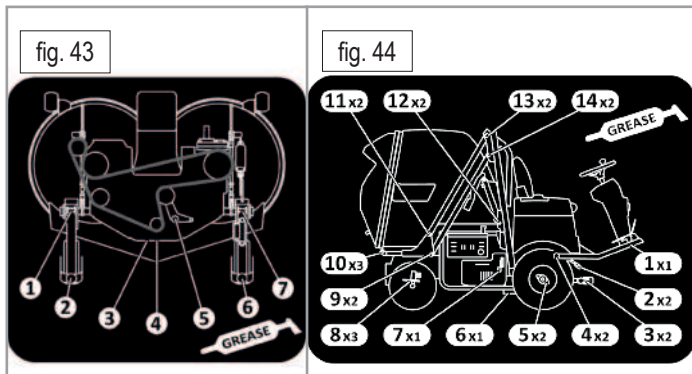
⚠ CAUTION: if you inspect the machine with the grass catcher lifted, apply the two red safety blocks on the hydraulic cylinders (fig. 42).



15.1 LUBRICATION

GREASE LUBRICATION POINTS

Consult the location of the lubrication points according to the diagrams on the machine.



For the cutting deck, the diagram (fig. 43) shows the components to be lubricated (1 to 7) on which there is a single grease nipple.

The components are:

1. Right arm of the cutting deck;
2. Right swivel wheel;
3. Right-hand blade hub;
4. Front blade hub;
5. Belt tensioner of the cutting deck transmission;
6. Left swivel wheel;
7. Left arm of the cutting deck.

For the machine body, the diagram (fig. 44) shows the components to be lubricated (1 to 14), followed by the number of grease nipples present.

The components are:

1. Forward/reverse pedal, grease nipple under the footplate;
2. Cutting deck lifting cylinders, left/right side;
3. Cardan joint: both crosses;
4. Footplate: right/left hinges;
5. Right/left front wheel hub bearings;
6. PTO transmission;
7. Belt tensioner of the hydraulic pump transmission;
8. Rear axle: centre pivot and right/left spindles;
9. Lower lifting arms: bottom pins, right/left side;
10. Grass catcher: right/left hinges and central tipping cylinder;
11. Upper lifting arms: lower pins, right/left side;
12. Grass catcher lifting cylinders, right/left side;
13. Upper lifting arms: top pins, right/left side;
14. Lower lift arms: top pins, right/left side.

⚠ IMPORTANT: lubricate with grease every 40 hours all points shown in the diagrams.

15.2 ENGINE MAINTENANCE

⚠ IMPORTANT: check the engine periodically, keep the air filter clean and the engine oil level.

MANUAL ACCESS TO THE ENGINE COMPARTMENT

To access the engine if the machine breaks down, engage the parking brake, switch off the engine, hold down the grass catcher tipping lever and simultaneously push the grass catcher towards the rear of the machine. The grass catcher will pivot allowing access to the engine compartment.

AIR FILTER

Check and clean the air filter (fig. 45/A) and the pre-filter (fig. 45/B) every 8 hours. For maintenance intervals and procedures follow the rules contained in this manual (ref. 18. MAINTENANCE SCHEDULE); for further details consult the engine manual. If working in very dusty environments, it is advisable to clean the air filter every 4 hours or as needed. There is also a safety cartridge inside the filter (fig. 46/2) to prevent debris from entering the air intake duct when cleaning the filter. If the filtration element (fig. 46/4) is damaged, replace it. Only replace the safety cartridge if it is damaged or deteriorated.

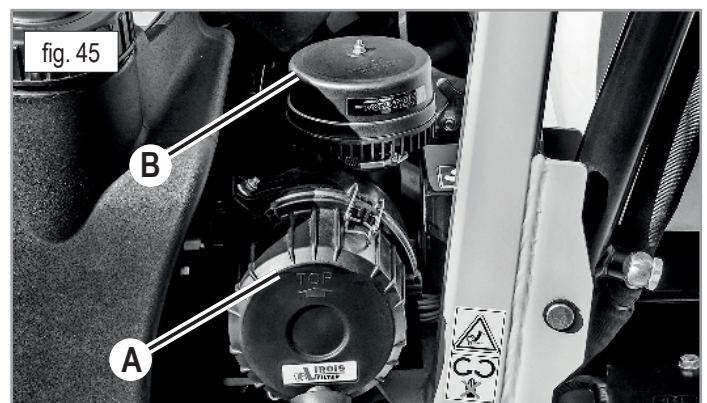
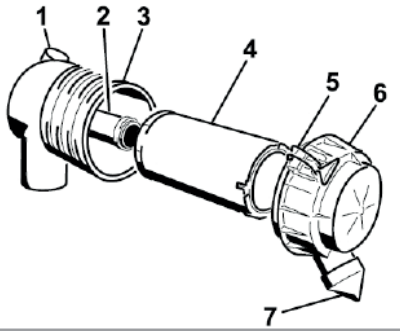


fig. 46

- 1 connection to the prefilter
- 2 safety cartridge
- 3 filter body
- 4 filtration element
- 5 closing clamp
- 6 lid
- 7 dust ejection valve



It is recommended to periodically check the good condition of the air intake duct from the air filter to the engine, and always in the event of a workshop service. Make sure that it is well fixed, that there are no cracks or fissures, that it is not in contact with sharp edges or sharp parts of the machine.

IMPORTANT: damage to the air intake duct entails a high risk of engine damage.

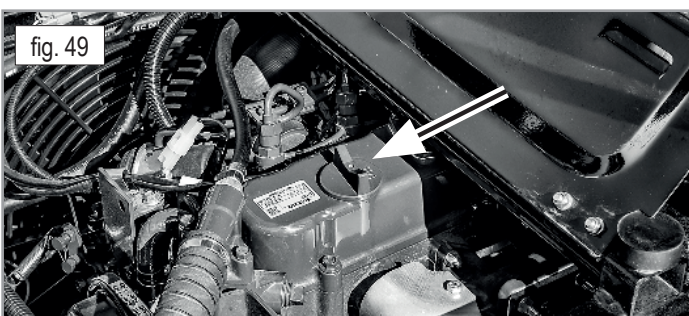
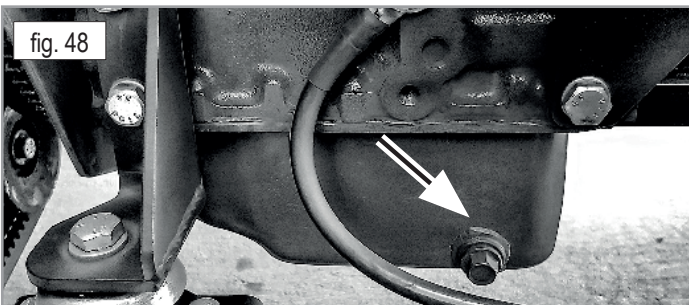
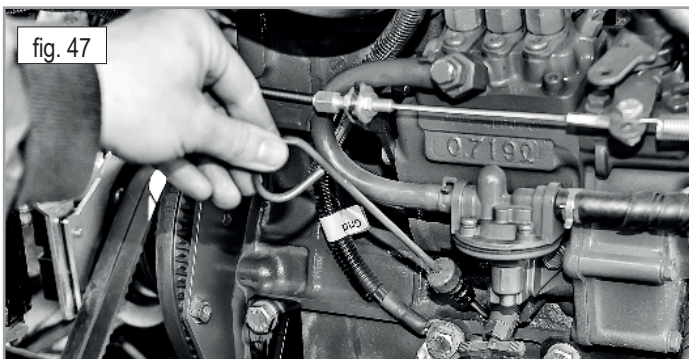
ENGINE OIL

For lubrication intervals and procedures follow the rules contained in this manual (ref. 18. MAINTENANCE SCHEDULE); for further details consult the engine manual.

IMPORTANT: it is essential to change the oil and oil filter after the first 50 hours of operation.

Then change the oil every 75 hours. For the engine, use SAE 15W40 oil in a quantity of 3.2 litres (including the quantity in the filter).

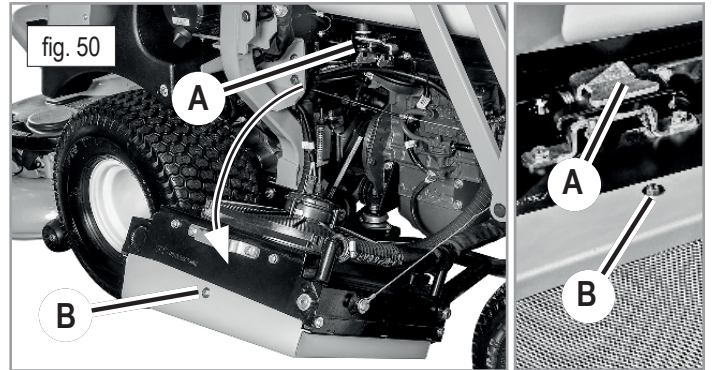
To check the oil level, use the oil dipstick (fig. 47) when the engine is cold. To remove all the oil from the engine unscrew the plug located under the engine sump (fig. 48). To add oil or top it up, use the plug located in the upper part of the engine (fig. 49).



ENGINE COOLING SYSTEM

In order not to impair the passage of air, check that the protective grille of the radiator is always clean.

The radiator fan is driven by an electric motor; if the radiator grille becomes clogged and the temperature of the coolant rises above 95°C, the fan automatically reverses rotation for a few seconds to clean the grille. To inspect and clean the fan, press the lever located above the radiator (fig. 50/A). To remove the grille and access the radiator, undo the bolt at the top (fig. 50/B).



15.3 BATTERY MAINTENANCE

The battery does not require any special maintenance.

It is sufficient to check that the voltage is not lower than 12.5 Volts and recharge it if necessary. To access the battery (fig. 51), lift the grass catcher and unscrew the cover located above the battery.

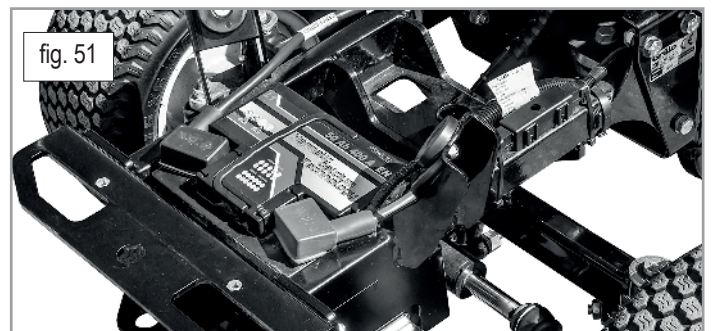
To recharge the battery it is necessary to disconnect the cables and remove the battery from the machine (ref. 16.7 BATTERY REPLACEMENT).

CAUTION: charging has to be carried out in a dry and ventilated area, free of sparks and heat sources.

CAUTION: do not reverse the polarity of the battery, and be careful not to cause a short circuit.

CAUTION: the gases released by the battery are explosive, keep it away from flames or sparks.

IMPORTANT: do not attempt to start the machine if the battery is not correctly secured and connected: the alternator and the control unit could be damaged.



It is recommended to periodically check the good condition of the positive (red) electrical cables connecting the battery with the fuses, starter motor and alternator, and always in the event of a workshop service. Check that they are secure, not marked by wear, and not in contact with sharp edges or sharp parts of the machine.

CAUTION: damage to electrical cables can cause short circuits and fire hazards.

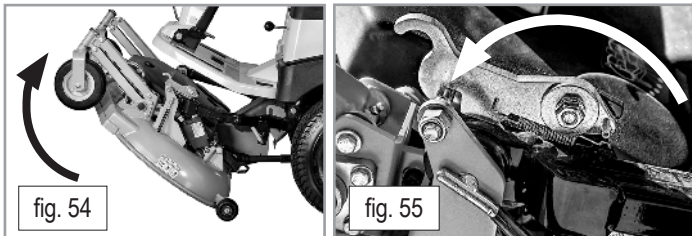
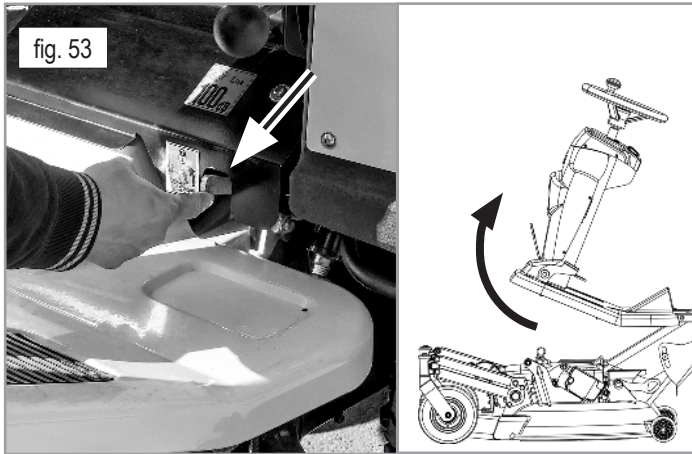
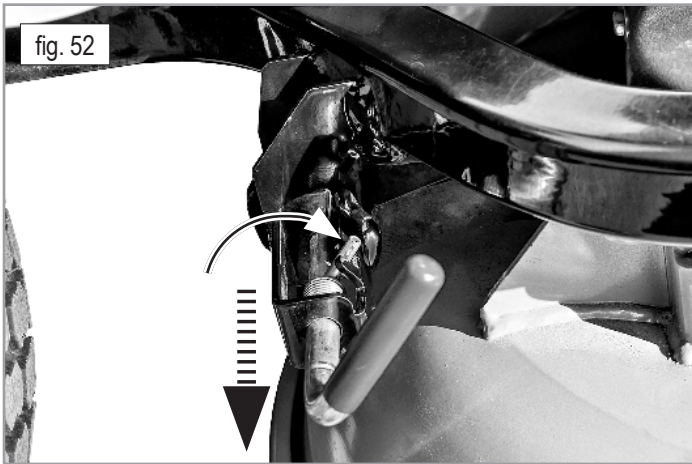
15.4 CUTTING DECK MAINTENANCE

FULL LIFTING OF THE CUTTING DECK

Before carrying out the following operation lift the cutting deck by operating the distributor lever (fig. 59/1) and then switch off the engine and engage the parking brake.

⚠ CAUTION: carry out the operation only when the engine is switched off and the brake is applied.

1. Release the side arm pins by pulling them towards the outside of the machine and turning them to lock the pin in place (fig. 52);
2. Lift the footplate manually and lock it with the appropriate lever (fig. 53);
3. Manually raise the cutting deck (fig. 54) until it is locked in position with the safety latch (fig. 55); locking takes place automatically. There is no need to disconnect the cardan shaft or remove the loading chute.

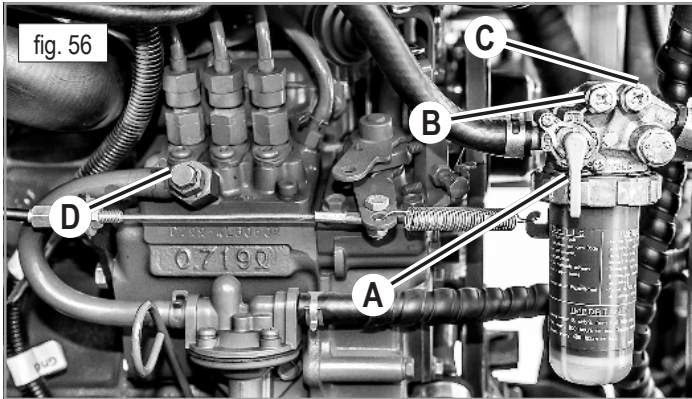


⚠ CAUTION: the operations contained in this chapter require technical skills and special equipment. It is advisable to contact an authorised Grillo centre.

16.1 FUEL SYSTEM MAINTENANCE

FUEL FILTER AND FUEL CIRCUIT

The fuel filter cartridge is located on the left-hand side of the machine, near the engine (fig. 56). For maintenance intervals and methods follow the rules contained in this manual (ref. 18. MAINTENANCE SCHEDULE); for further details consult the engine manual.



Running out of fuel in the tank can cause the engine to stop and have difficulty restarting. In this case it is necessary to carry out the procedure of bleeding the air from the fuel circuit.

BLEEDING AIR FROM THE FUEL CIRCUIT

Proceed as follows:

1. Fill the tank to at least half full;
2. Keep the filter tap in the open position (fig. 56/A);
3. Loosen the first bleed screw (fig. 56/B), allow any air to escape and wait for the fuel to escape. When fuel starts to escape from the screw, tighten it;
4. Loosen the second bleed screw (fig. 56/C) and check that the fuel enters the filter, filling it completely, letting the air escape through the screw. When fuel starts to escape from the screw, tighten it;
5. Loosen the bleed screw (fig. 56/D) on the engine. Allow any air to escape. When fuel starts to escape from the screw, tighten it;
6. Try to start the machine; more than one attempt may be necessary. Always wait for the preheat warning light to go out before starting the engine.

CHANGING THE COOLANT

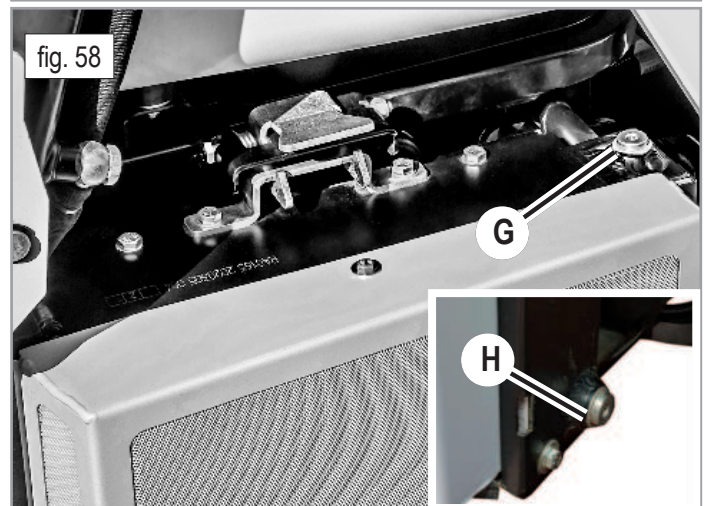
With the engine switched off and cold, unscrew the reservoir cap (fig. 57/E) and the screws above (fig. 58/G) and below (fig. 58/H) the radiator to remove the old fluid completely. Retighten the lower screw (fig. 58/H) and pour the new fluid into the reservoir until the radiator is completely filled. At this point the fluid will begin to leak from the screw at the top of the radiator (fig. 58/G), which must then be tightened. Continue to fill and bleed the air from the radiator as follows.

BLEEDING AIR FROM THE COOLING SYSTEM

In order to facilitate correct engine cooling, it is important that there is no air in the cooling system. Therefore, make sure that the clamps on the cooling water hoses are tight and that no air enters the circuit. Carry out the bleeding procedure as indicated below.

⚠ CAUTION: danger of hot liquid escaping under pressure, always wear suitable work gloves for this operation. Do not undertake the following operation when the engine is hot.

1. With the engine switched off, add coolant into the reservoir from the reservoir cap (fig. 57/E) until the reservoir is completely filled;
2. Leaving the reservoir cap open, loosen the bleed screw (fig. 58/G) again. The level in the tank will drop, as air will escape from the bleed screw. When fluid starts to come out of the screw, tighten it;
3. If no fluid comes out of the screw and the reservoir is empty, tighten the bleed screw, refill the reservoir and repeat step 2. Top up the fluid in the reservoir to the correct level, which corresponds to the raised edge of the reservoir (fig. 57/F);
4. Start the engine and move the throttle to half way. Wait approximately 15 minutes to reach operating temperature;
5. Check the level in the coolant reservoir again and top it up if necessary;
6. After one hour of operation of the machine, check the level again.



16.3 HYDRAULIC SYSTEM MAINTENANCE

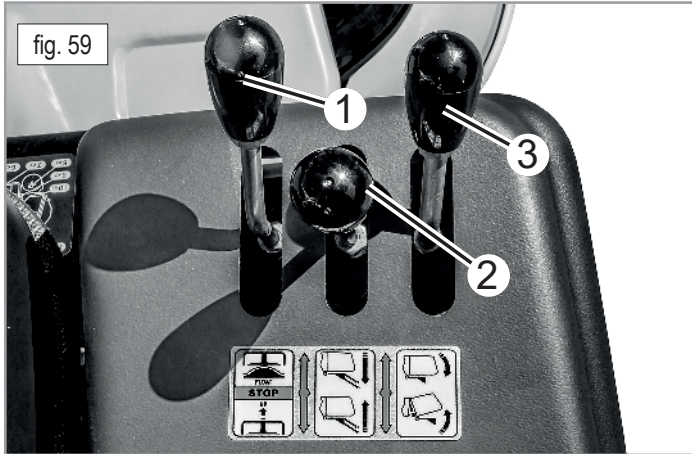
HYDRAULIC SERVICES DISTRIBUTOR

The hydraulic lever distributor (fig. 59) operates at a maximum operating pressure of approximately 140 bar.

Lever 1 makes the cutting deck floating or can lift it.

Lever 2 lifts / lowers the grass catcher.

Lever 3 tips the grass catcher for unloading.



Check the level in the hydraulic oil tank periodically, when the oil is cold. To check the level or to top up the oil, unscrew the oil level cap (fig. 60). Check the level by using the dipstick of the oil tank cap: the level must be between the two notches at the end of the dipstick. Check the level by screwing the cap on and off completely each time. To remove the oil, loosen the hydraulic hose on the gear pump (fig. 61).

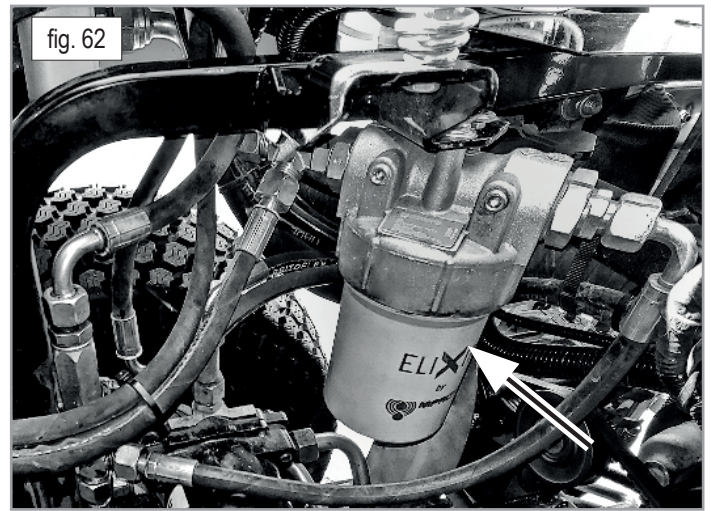
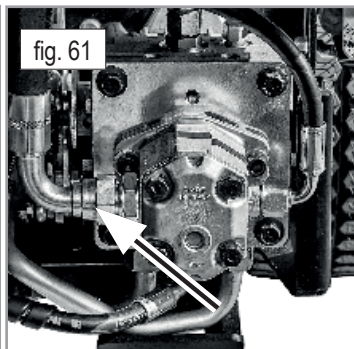
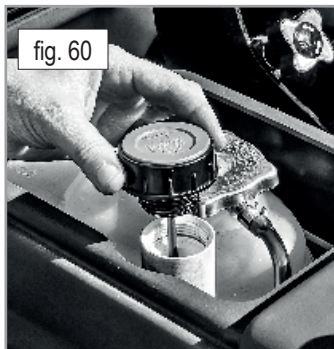
Change the hydraulic oil and oil filter (fig. 62) for the first time after 100 hours, then every 400 hours. It is not necessary to bleed the hydraulic system. Pay attention to the degree of filtration of the filter (10 µm).

The oil must be changed before 100 hours if:

- The oil is dark in colour;
- The oil is off-white in colour (oil is contaminated with water);
- There are black residues (partial deterioration of the oil).

Use hydraulic oil 5W50 in a quantity of 6.7 litres including filling the circuit and the filter.

IMPORTANT: pay particular attention to any contamination that could enter the circuit and cause serious damage to the machine.



HYDRAULIC PRESSURES

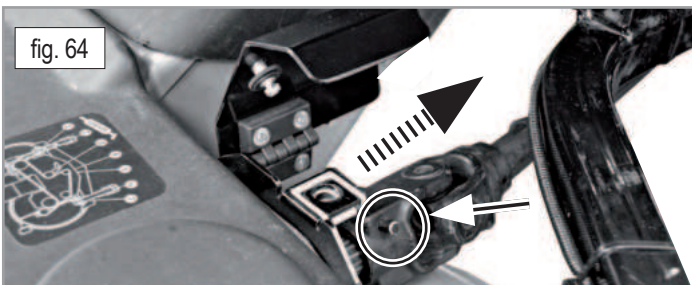
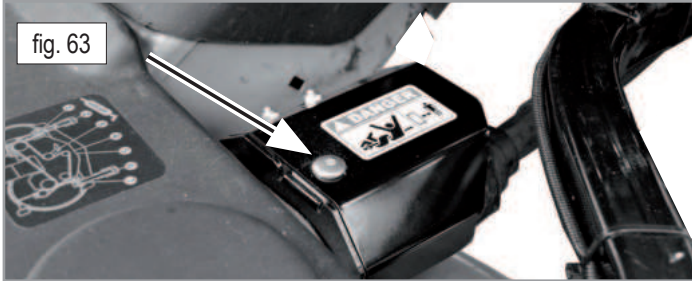
Closed loop transmission: variable displacement pump and hydraulic motor	200 bar
Hydroguide	140 bar
Lever distributor	140 bar
Charge pressure of the hydraulic pump	5 bar

16.4 CUTTING DECK MAINTENANCE AND COMPLETE DISASSEMBLY

⚠ CAUTION: carry out the operation with the engine switched off and the brake applied.

Proceed as follows to remove the cutting deck:

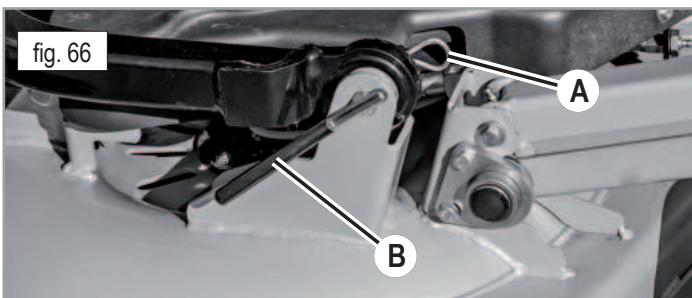
1. Lower the cutting deck by bringing the distributor lever to the FLOAT position (fig. 59/1);
2. Unscrew the cardan shaft guard screw (fig. 63) and release the cardan shaft by pressing the locking button (fig. 64);



3. Release the rear arm pins by pulling them outwards and rotating them to lock the elastic pin in the slot (fig. 65);



4. Remove the cotter pins (fig. 66/A) from the pins of the cutting deck lift arms and slide the pins out (fig. 66/B);



5. Disconnect the electrical cable of the actuator that controls the cutting height of the cutting deck (fig. 67);

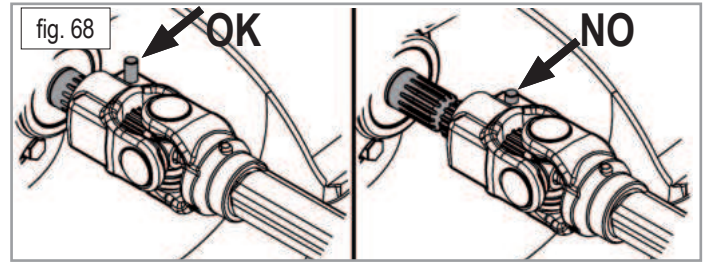


6. Pull the cutting deck forward to release it from the machine.

To reinstall the plate, follow the procedure in reverse order.

⚠ CAUTION: when refitting the plate, check that the cardan shaft (fig. 68) and the loading chute are correctly connected.

⚠ CAUTION: before starting the machine, it is nevertheless good practice to ensure that the cardan shaft is securely connected and the stop button is protruding (fig. 68).

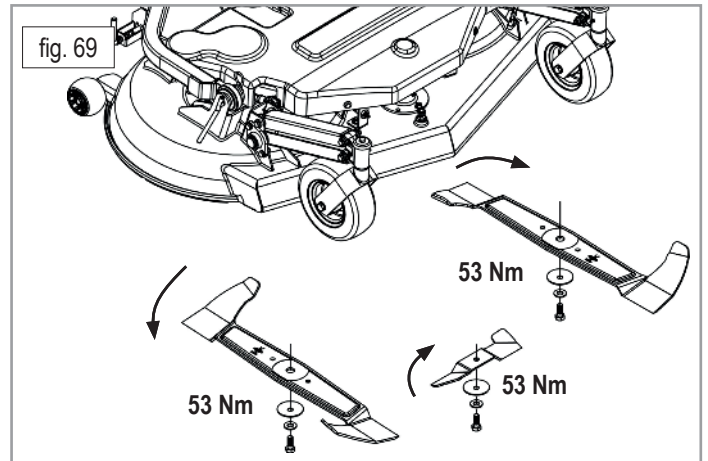


SHARPENING THE BLADES

An unsharpened blade tears up the grass, giving the lawn an unsightly appearance. It is necessary that sharpening is always carried out on the cutting edges of all blades evenly. Also, if the blades do not cut properly, they tend to become unbalanced, causing the lawnmower to vibrate.

⚠ CAUTION: never attempt to repair damaged blades. Damaged blades must be replaced.

Pay attention to the direction of rotation and correct assembly of the blades (fig. 69).



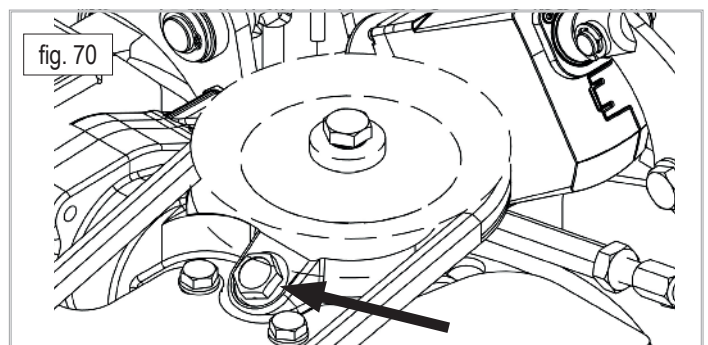
⚠ IMPORTANT: the central bolt of the right-hand blade (looking from the driver's seat) has a left-hand thread. The tightening torque of the blade central fixing bolt is 53 Nm.

CUTTING DECK GEARBOX

Use LSX 75W90 synthetic oil in a quantity of 0.25 litres.


Change the oil every 300 hours.

The oil level plug is located on the side of the gearbox (fig. 70). To change the gearbox oil, remove the plastic cover of the cutting deck, remove the pulley, unscrew the inspection plug and aspirate the oil.



If any oil leaks are noticed, we recommend contacting the authorised Grillo service centre.

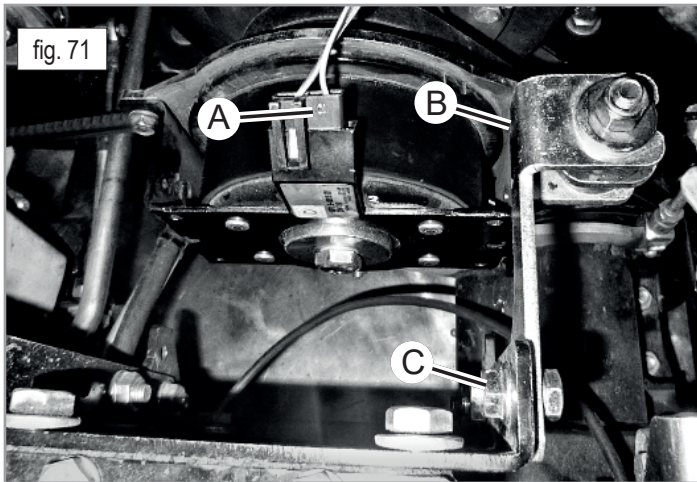
16.5 DRIVING BELT MAINTENANCE

 **IMPORTANT:** only use genuine belts.

REPLACING THE PTO BELTS

For their replacement proceed as follows:

1. Tip the seat and remove the loading chute;
2. Release the radiator using the lever located at the top to gain access to the clutch;
3. Disconnect the electrical cable of the electromagnetic clutch (fig. 71/A);
4. Remove the bracket (fig. 71/B) fixed to the gearbox with two bolts (fig. 71/C);
5. Loosen the spring that adjusts the belt tensioner by unscrewing the nuts (ref. 14.3 ADJUSTING THE PTO DRIVE BELTS);
6. The belts can now be replaced.



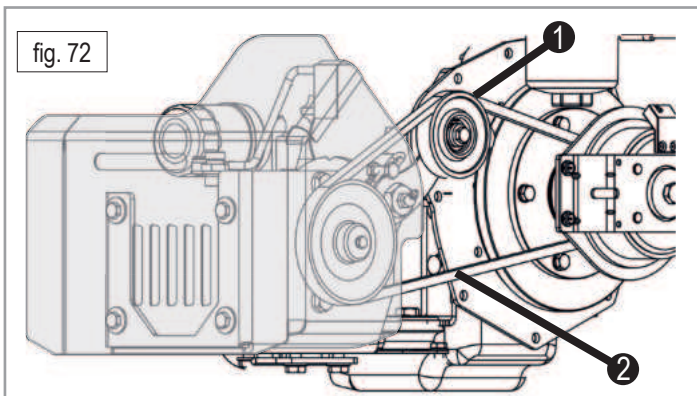
Once replacement is complete, proceed as follows:

1. Reposition the arm in its original position and connect the electric cable to the clutch;
2. Tension the belts, bringing the spring of the belt tensioner to the correct compression, so that the tip of the red tension indicator is aligned with the end of the spring (ref. 14.3 ADJUSTING THE PTO DRIVE BELTS);
3. Reattach the radiator and reconnect the loading chute.

REPLACING THE HYDRAULIC PUMP DRIVE BELT

To replace the pump drive belt, proceed as follows:


1. Remove the two PTO belts as described above;
2. Lower the belt tensioner by hand (fig 72/1);
3. Remove the belt (fig 72/2);
4. Refit the PTO belts.

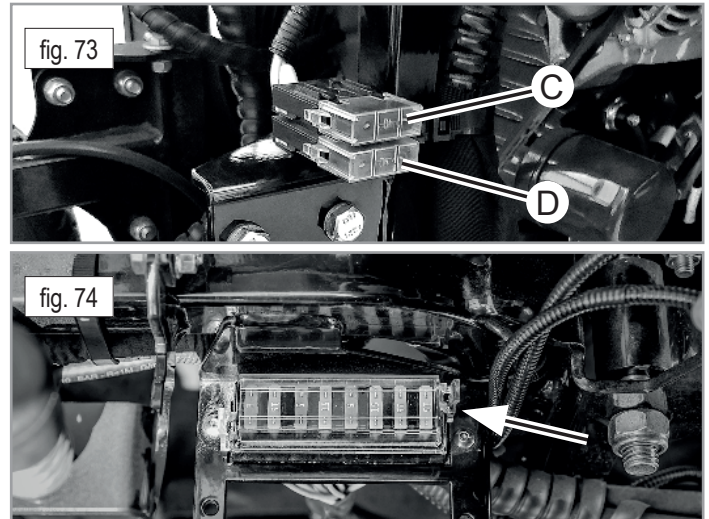


16.6 ELECTRICAL SYSTEM MAINTENANCE

FUSES

The electrical system is protected by fuses that, if interrupted, will cause the complete ineffectiveness of the whole electrical system. There are two main 40 A fuses: one protects the entire electrical system (fig. 73/C) and the other protects the radiator fan (fig. 73/D). Under the seat, to the left of the operator, there are other fuses to protect the components of the electrical system (fig. 74). If electrical problems persist after the fuses have been replaced, contact the authorised service centre. Never attempt to undertake major repairs without having the necessary means and expertise.

 **IMPORTANT:** do not replace fuses with fuses of a different rating than those indicated in the manual and on the relevant decal.



GRASS CATCHER POSITION MICROSWITCH

A safety microswitch detects whether the grass catcher is in the working position (fig. 75). Otherwise the cutting deck does not operate. The microswitch is located next to the loading chute, to the left of the operator.

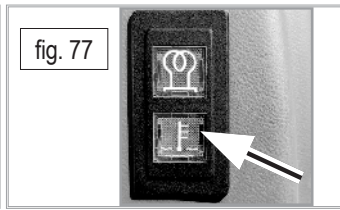
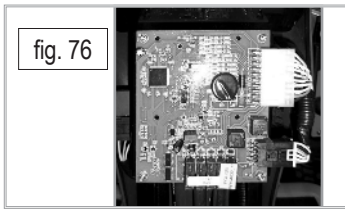


ENGINE TEMPERATURE SENSOR

A sensor that detects the temperature of the coolant is located on the engine head:

- When the temperature of the coolant exceeds 95°C, the sensor sends a signal to the control unit located under the dashboard (fig. 76) that triggers the automatic cleaning cycle of the radiator, reversing the direction of rotation of the fan for a few seconds, cleaning the grille;
- If the coolant temperature exceeds 105°C, an acoustic alarm is triggered and the warning light on the instrument panel is lit (fig. 77). The blades are automatically disengaged;
- If the coolant temperature exceeds 110°C, the engine is shut down.

If the sensor is faulty or absent, it will not be possible to start the engine and the control unit will signal the sensor failure by activating a continuous acoustic alarm.

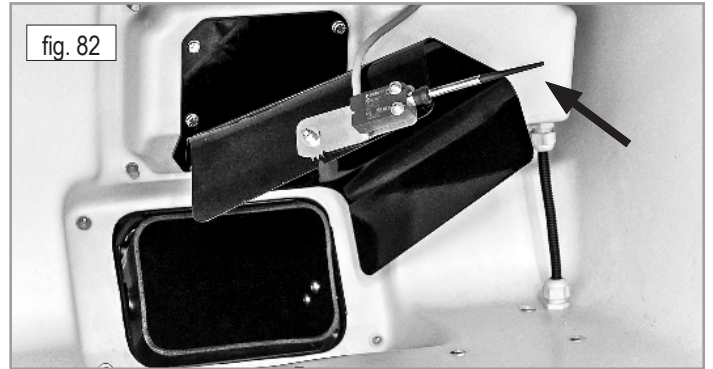
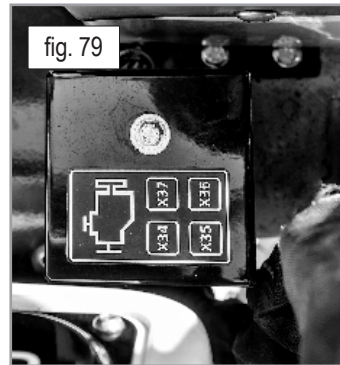


FULL GRASS CATCHER MICROSWITCH

The full grass catcher microswitch is fitted on the mobile deflector inside the grass catcher and sends a signal to automatically disengage the blades when the grass catcher is full (fig. 82). Alternatively, by pressing the switch on the left-hand side of the operator, the blades can be kept on. In this way it is possible to continue cutting if small areas are missing to complete the job; an acoustic alarm warns the operator that the grass catcher is full. It is important to adjust the position of the microswitch according to the type of grass to be cut, to ensure that the grass catcher is completely filled. Under normal cutting conditions, the full grass catcher microswitch should be adjusted to the middle position. It is advisable to set it at a downward angle for wet or very tall grass, and upward for short or dry grass (fig. 83).

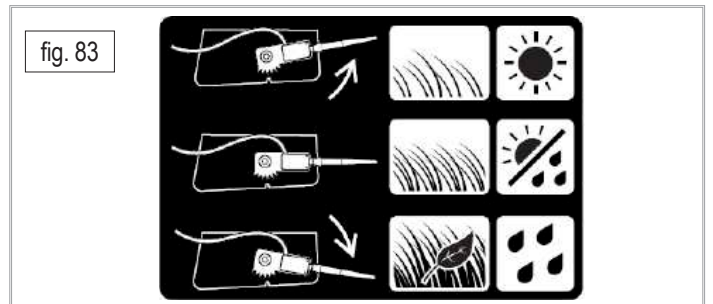
RELAYS

- There are four radiator fan control relays (fig. 78) located on the side of the radiator to the left of the operator;
- The engine power supply relays (ignition key, glow plugs, starter motor, solenoid) are four (fig. 79) and are positioned on the opposite side to the right of the operator.



NEUTRAL POSITION MICROSWITCH

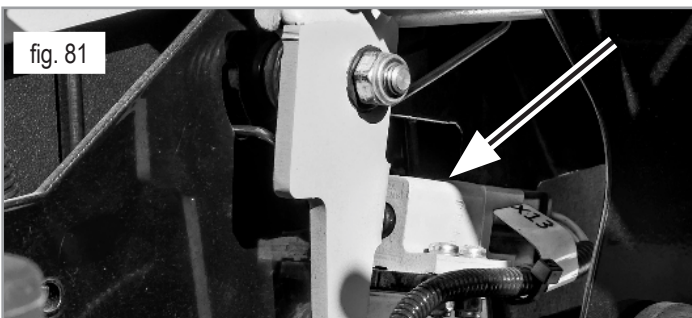
The travel pedal is connected to a microswitch located behind the hydraulic pump (fig. 80) which signals the machine's neutral position.



It is possible to access the compartment for the electric motor of the deflector by undoing the four screws of the grass catcher cover located behind the seat (fig. 84).

PARKING BRAKE MICROSWITCH

The parking brake lever activates a microswitch (fig. 81) that signals that the brake is applied and allows the engine to keep running even if the operator leaves the driver's seat.



HOURLY METER

The hour meter is located on the dashboard and indicates the hours the machine has worked.

- Pressing the button below the screen once will display how many hours remain until the next engine oil change (OIL flashing, followed by the number of hours remaining).
- Pressing the button again will display how many hours remain until the next lubrication at the greasing points (LUBE flashing, followed by the number of hours remaining).
- Pressing the button again will return to the working hours screen.

When there are 10 hours left for oil / 5 hours left for grease, the OIL /

LUBE signs will start to flash. They will continue counting the missing hours, until they show the OIL NOW / LUBE NOW writing: at this point it is advisable to carry out maintenance in a short time.

Once maintenance has been carried out, to reset the hour count go to the screen to be reset (e.g. OIL) and hold down the button until a series of zeros (000000) appears.

The count is automatically reset.

OPERATOR PRESENCE MICROSWITCH

The operator presence microswitch is located under the seat and detects the presence of the operator when seated in the driver's seat.

16.7 BATTERY REPLACEMENT

To access the battery and replace it if the machine breaks down, the ignition key must be in the off position and the parking brake must be applied. Then unscrew the cover located above the battery and the bumper with the tow hitch (fig. 85), then disconnect the cables (**first the negative BLACK one and then the positive RED one**) and after loosening the fixing bolts, remove the flat battery.



Insert the new battery and connect the cables (**first the positive RED cable and then the negative BLACK cable**), tighten the fixing bolts and refit the bumper and top cover.

If the replacement battery has been supplied as a "dry" replacement with separate acid, choose a suitable dry, well-ventilated location free from sparks and heat sources for installation and then proceed as follows:

1. Insert the acid and wait 2 hours;
2. Charge the battery with a battery charger set to 12 Volts on slow charge for 2 hours.

Check the fluid level periodically and keep the terminals lubricated with petroleum jelly.

⚠ CAUTION: failure to do so may lead to battery deterioration and acid leakage during work.

⚠ CAUTION: the gases released by the battery are explosive, keep it away from flames or sparks.

⚠ CAUTION:

- Do not reverse the polarity of the battery;
- Do not operate the lawnmower without the battery;
- Take care not to cause a short circuit.

16.8 WHEEL MAINTENANCE

Use only TubeLess 4-ply (4PR) tyres in sizes 20x10.50-8 for the front and 16x6.50-8 for the rear.

Routinely check the tyre inflation pressure, which should be 1.5 bar (21 psi) for all four wheels.

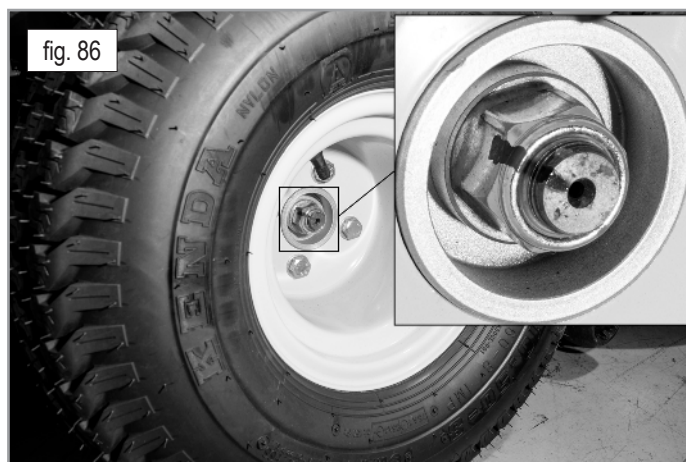
Always ensure that the valve protection cap is in place. The purpose of the cap is to prevent foreign bodies from entering the valve, damaging it and causing pressure loss; always tighten the cap by hand.

In the event of impacts against curbs or other obstacles, it is important to visually check the condition of the tyres: a bulge in the sidewall, for example, may indicate an internal structural damage that would make the tyre unusable.

It is recommended to periodically check the correct tightening of the drive wheel hubs on the shafts, and always in the event of a workshop service:

In particular, check that:

- The tightening marks are aligned (fig. 86);
- The tightening torque is 300 Nm. Only tighten with a torque wrench to ensure the correct torque value.




⚠ CAUTION: tightening the hubs to a torque value other than the prescribed one can cause serious damage to the wheel axle, can endanger the operator and can lead to expensive repairs.

17. TROUBLESHOOTING GUIDE

FD 500 - TROUBLESHOOTING GUIDE		
PROBLEM	CAUSE	SOLUTION
The dashboard remains off, with the key in any position besides the STOP position.	The battery does not supply any current	<ul style="list-style-type: none"> - Check the connection cables - Check the electrolyte level in the battery - Recharge the battery - Check the integrity of the fuses - Check the ground connections on the engine
The dashboard is switched on, the key is in a position other than STOP, but the starter motor does not rotate	The battery does not supply sufficient current	<ul style="list-style-type: none"> - Recharge the battery - The battery has no ground connection - Check the integrity of the fuses
	No start consent	<ul style="list-style-type: none"> - The forward/reverse pedal is not in neutral - Sit in the driver's seat to activate the microswitch, or apply the parking brake - High engine temperature - Check for a defective microswitch - Faulty ignition key block
Difficult starting or irregular engine operation	Combustion issues	<ul style="list-style-type: none"> - Clean or replace the air filter - Check that there is no air intake in the fuel circuit - Bleed the air from the fuel circuit
	Deposits or contamination in the fuel	<ul style="list-style-type: none"> - Check and, if necessary, replace the fuel filter - Consult the engine manual
	Injection issues	<ul style="list-style-type: none"> - Consult the engine manual
The starter motor rotates but the engine does not start	No fuel flow	<ul style="list-style-type: none"> - Check the fuel level in the tank - Check (and replace if necessary) the fuel filter - Bleed the air from the fuel system
	Poor glow plug preheating when the engine is cold	<ul style="list-style-type: none"> - Wait until the preheating light has gone out - Check that the glow plugs are working properly
	Stop solenoid	<ul style="list-style-type: none"> - Manually check the sliding of the stop lever
	Timer relay	<ul style="list-style-type: none"> - Replace the timer - Check the electrical connection
Drop in motor efficiency during cutting	High forward speed in relation to cutting height	<ul style="list-style-type: none"> - Reduce the forward speed - Place the cutting deck in a higher cutting position
	Cutting deck transmission	<ul style="list-style-type: none"> - Check the integrity of the bearings and belt tensioners of the cutting deck - Lubricate the cutting deck using the grease nipples indicated - Check the cleanliness of the loading chute and the cutting deck
The motor switches off when the blades are activated	<ul style="list-style-type: none"> - Blades - Belt tensioners - Cutting deck gearbox 	<ul style="list-style-type: none"> - Check the integrity of the bearings and belt tensioners of the cutting deck - Check the cutting deck gearbox - Check the blades and transmission for obstructions
Irregular cutting and insufficient collection	Incorrect inclination of the cutting deck	<ul style="list-style-type: none"> - Check tyre pressure - Restore the correct inclination of the cutting deck
	Blade inefficiency	<ul style="list-style-type: none"> - Check the correct fitting of the blades - Sharpen or replace the blades - Adjust the tension of the PTO belts
	High forward speed in relation to cutting height or lawn conditions	<ul style="list-style-type: none"> - Reduce the forward speed - Place the cutting deck in a higher cutting position
	Clogging of the loading chute	<ul style="list-style-type: none"> - Remove the cutting deck and empty the chute from grass - Check the engine revs - Clean the grass catcher grid - Adjust the full grass catcher microswitch

FD 500 - TROUBLESHOOTING GUIDE

PROBLEM	CAUSE	SOLUTION
Vibrations during operation	Unbalanced blades	- Balance or replace blades if damaged - Check the integrity of the bearings and belt tensioners
	Accidental knocks on kerbs, walls, etc.	- Check blade, frame and engine fixing bolts and tighten any loose bolts
Engine oil warning light switches on	Insufficient engine oil pressure	- Check and restore engine oil level - Change the engine oil filter
The blades do not engage	- Parking brake applied - Faulty switch - Defective clutch - Defective full grass catcher microswitch - Defective grass catcher position microswitch - Grass catcher full or open - High engine temperature	- Check the PTO button - Check the function and integrity of the clutch - Check the fuses - Check the operation and adjustment of the microswitches - Check the microswitch connectors - Check engine temperature warning light

 **CAUTION!** If problems persist after carrying out the actions described in this manual, contact the authorised service centre. Never attempt to carry out major repairs without having the necessary means and technical expertise.

IF YOU HIT A STONE OR ANOTHER FOREIGN BODY:

1. Disengage the blades;
2. Lift the cutting deck;
3. Switch off the engine and apply the parking brake;
4. Check the bolts securing the blades and the integrity of the cutting deck;
5. Check that the foreign body has not entered the loading chute or is jammed.

18. MAINTENANCE SCHEDULE

FD 500 - MAINTENANCE SCHEDULE									
MAINTENANCE ITEM		EVERY 8 HOURS	FIRST 20 HOURS	EVERY 40 HOURS	EVERY 50 HOURS	EVERY 75 HOURS	EVERY 100 HOURS	EVERY 150 HOURS	BEYOND
Engine oil	Check the level	●							
	Replace				● (FIRST CHANGE)	●			
Engine oil filter	Replace				● (FIRST CHANGE)			●	
Air filter	Check	●							
	Replace						*		
Hydraulic system oil and filter	Check		●		●				
	Replace						● (FIRST CHANGE)		● (EVERY 400 HOURS)
Front axle oil	Replace								● (FIRST CHANGE AT 500 HOURS THEN EVERY 1000 HOURS)
Check the cleanliness of the radiator intake grille		●							
Check the sharpness and fixing of the blades			●			●			
Grease lubrication				●					
Check the good condition of the air intake duct				●					
Check the good condition of the positive electrical cables				●					
Check the tightness of the drive wheel hubs and tyre pressure (1.5 bar - 21 psi)				●					
Diesel filter	Check						●		
	Replace								● (EVERY 400 HOURS)
Cutting deck gearbox oil	Replace								● (EVERY 300 HOURS)

● recommended task

* task to be carried out if necessary

19. LUBRICATION CHART

FD 500 - LUBRICATION CHART			
Engine oil	15W40	3.2 L	Replace after the first 50 hours of work and every 75 hours thereafter
Coolant	50% water 50% antifreeze	6.4 L	Empty and wash the reservoir then add fluid every 1000 hours or once a year
Front axle oil	ISO VG220	1.5 L	Replace after the first 500 working hours and every 1000 hours thereafter.
Cutting deck gearbox oil	75W90	0.25 L	Replace every 300 hours
Hydraulic oil	5W50	6.7 L	Replace after the first 100 working hours and every 400 hours thereafter

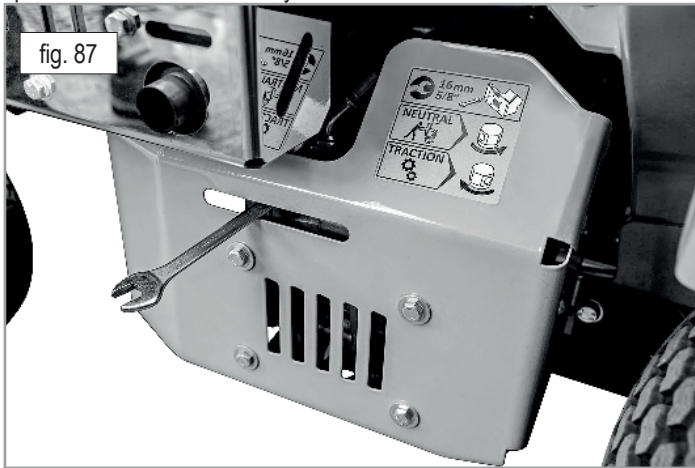
20. STORAGE AND PROLONGED INACTIVITY

Store the machine in a dry place, protected from the elements.
Clean the machine from soil and grass residues and if possible cover it with a tarpaulin when the engine is cold. If the machine is not to be used for an extended period of time (more than 1 month), proceed as follows:

- Disconnect the positive (red) battery cable and follow the instructions in the engine instruction booklet;
- Also lubricate all the joints according to the indicated points.

21. TOWING THE MACHINE WITH THE ENGINE OFF

To move the machine with the engine switched off, it is necessary to loosen the screw on the hydrostatic pump (fig. 87); use a 16 mm - 5/8" spanner. Loosen the screw by a maximum of two turns.



CAUTION: in this way the effectiveness of the braking device is invalidated.

IMPORTANT: tow the machine at very low speed and for short distances, 100 m maximum, to avoid damaging the hydraulic pump and the motor. To restore correct operation of the machine, remember to tighten the screw again, with a maximum torque of 14 Nm.

22. TECHNICAL ASSISTANCE SERVICE

22.1 ASSISTANCE

This manual provides instructions for the use of the machine and for its routine maintenance.

For extraordinary maintenance, for all operations requiring technical skills and expertise, please contact your authorised Grillo dealer.

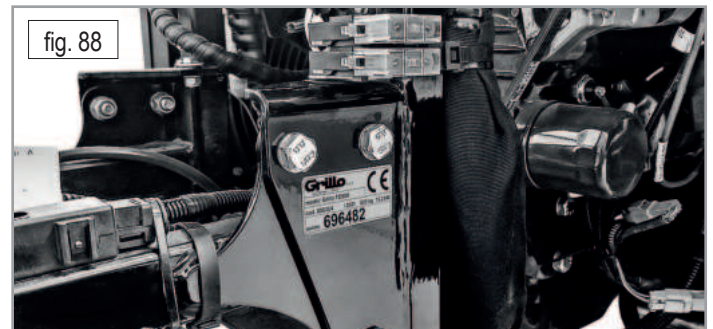
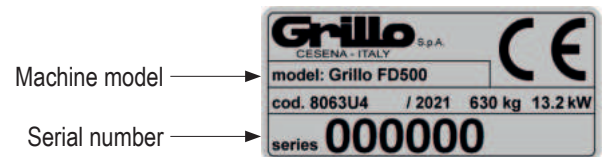
22.2 IDENTIFICATION DATA

If it is necessary to contact an authorised service centre, for maintenance information, always provide:

machine model

serial number

The machine's serial number plate is located at the rear of the frame, above the right wheel (fig. 88).



We advise the customer to note down this additional information in the spaces below. It may be useful for the service department.

PURCHASE DATE

GRILLO DEALER

22.3 SPARE PARTS

It is recommended to use only genuine spare parts, which are the only ones that provide safety and interchangeability.

22.4 WARRANTY

The warranty is provided in the manner and within the limits specified by current law. The retailer must hand over the machine's warranty certificate to the end customer, printing a copy of the registration from the Grillo website. Transport, servicing and wear parts remain at customer's expense. Any tampering or improper use not specifically authorised by Grillo will invalidate the warranty.

The engine follows the conditions specified by its manufacturer.

22.5 HOW TO ORDER SPARE PARTS

Contact our authorised centres.

Please indicate the serial number of the machine and the code of the component to be replaced.

It is possible to identify the part number by consulting the Grillo website: the spare parts tables for the machine will be available by entering the serial number.

23. TRANSPORT WARNINGS

TOWING HITCH

This machine can be used for towing only occasionally and with certain limitations.

The towing hitch is a service to be used occasionally and consciously, therefore the following limitations must be observed:

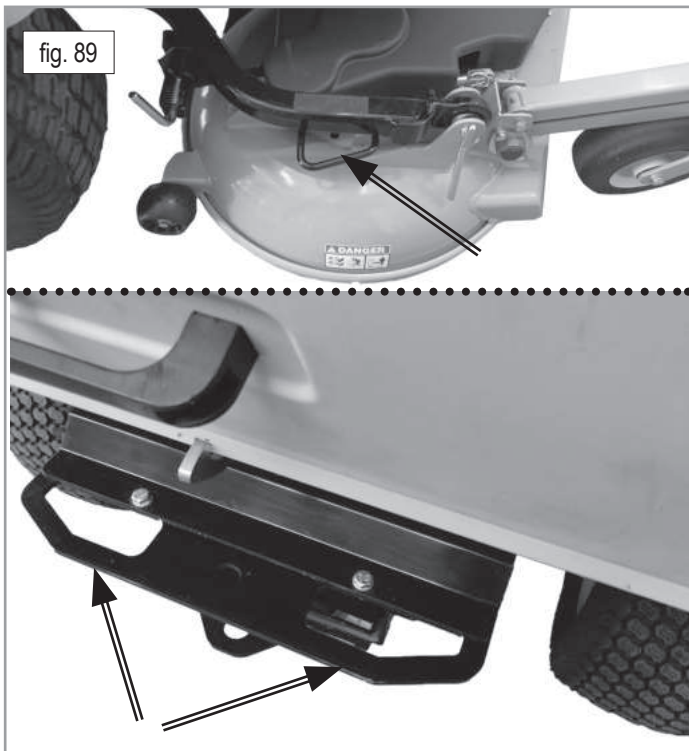
- Weight of the towed mass (on wheels) less than 50% of the machine weight;
- Non-continuous towing (max. 300 m without stopping) on a plain or light slope (max. 10%).



IMPORTANT: use beyond the limits may impair or cause serious damage to the hydrostatic transmission.

LIFTING AND TRANSPORT

If the machine is to be transported on a truck or trailer, lower the cutting deck, apply the parking brake and secure it to the means of transport using ropes, cables or chains at the points indicated by the arrow (fig. 89). When lifting, the ropes can be hitched at the point indicated by the arrow (fig. 90). Check that the crane, hoists and ropes have sufficient lifting capacity. The total weight of the machine is 610 kg.



24. DISPOSAL

Waste products such as waste oil or fuel, used lubricants, filters, batteries or other such consumable parts can cause harm to people, animals and the environment. They must therefore be disposed of properly. Contact a recycling centre or your retailer for information on proper disposal.



Grillo S.p.A. Via Cervese 1701- 47521 Cesena (FC)- Italy
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**DECLARATION OF CONFORMITY / DICHIARAZIONE DI CONFORMITÀ
/ DÉCLARATION DE CONFORMITÉ / KONFORMITÄTSEKTLÄRUNG / DECLARACIÓN DE CONFORMIDAD**

The undersigned / lo sottoscritto / Je soussigné / Der Unterzeichner / Yo suscrito

Ing. Andrea Pinza

as legal representative of: / in qualità di legale rappresentante della ditta: / en qualité de représentant légal de la société: / als rechtlicher Vertreter der Firma: / en calidad de representante legal de la empresa:

GRILLO SPA – Via Cervese, 1701 – 47521 CESENA (FC) – ITALY

declare that the following machinery: / dichiaro che la macchina di seguito indicata: / déclare que la machine suivante: / Hiermit erkläre ich, dass folgende Maschine: / declara que la siguiente máquina:

Model Modello Modèle Modell Modelo	Function Funzione Dénomination Bezeichnung Función	From serial number Dal numero di serie Du numéro de série Ab Seriennummer Desde número de serie
FD 500	Lawnmower / Rasaerba / Tondeuse / Rasenmäher / Cortacésped	753805

fulfils all the relevant provisions of the following directives: / è conforme a tutte le disposizioni pertinenti delle seguenti direttive: / satisfait à l'ensemble des dispositions pertinentes des directives suivantes: / allen einschlägigen Bestimmungen folgender Richtlinien entspricht: / cumple todas las disposiciones pertinentes de las siguientes directivas:

CE		UK CA	
2006/42/CE 2000/14/CE 2014/30/UE	UNI EN ISO 5395	S.I. 2008 No. 1597 S.I. 2001 No. 1701 S.I. 2016 No. 1091	EN ISO 5395

Sound power level / Potenza sonora / Niveaux sonores / Schalleistung / Potencia acústica

Model Modello Modèle Modell Modelo	Cutting width Larghezza di taglio Largeur de coupe Schnittbreite Ancho de corte	Measured sound power level Potenza sonora misurata Puissance sonore mesurée Gemessene Schalleistung Potencia acústica mesurada	Guaranteed sound power level Potenza sonora garantita Puissance sonore garantie Garantierte Schalleistung Potencia acústica garantizada	Uncertainty Incertezza Incertitude Unsicherheit Incertidumbre
FD 500	113 cm	99 dBA	100 dBA	1 dBA

Values determined according to / Valori determinati in accordo a / Niveaux sonores selon / Werte bestimmt gemäß / Valores determinados conforme a
2000/14/CE - VI.1

Norified body: / Organismo notificato: / Organisme notifié: / Notifizierte Stelle: / Organismo notificado:

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Measure sound pressure at the operator's ear / Pressione sonora misurata all'orecchio dell'operatore /
Niveaux sonores au niveau des oreilles de l'utilisateur / Gemessener Schalldruck am Ohr des Nutzers / Presión acústica medida a la oreja del usuario

Model Modello Modèle Modell Modelo	Sound pressure Pressione sonora Niveau sonore Schalldruck Presión acústica	Uncertainty Incertezza Incertitude Unsicherheit Incertidumbre
FD 500	91 dBA	1 dBA

Vibrations / Vibrazioni / Vibrations / Schwingungen / Vibraciones

Model Modello Modèle Modell Modelo	Whole body Corpo intero Au corps entier Gesamter Körper Cuerpo entero	Uncertainty Incertezza Incertitude Unsicherheit Incertidumbre	Hand/arm Mano/braccio Main/bras Hand/Arm Mano/brazo	Uncertainty Incertezza Incertitude Unsicherheit Incertidumbre
FD 500	0.72 m/s ²	0.5 m/s ²	1.42 m/s ²	0.5 m/s ²

Juridical person authorised to compile the technical file: / Persona giuridica autorizzata a costituire il fascicolo tecnico: / Personne morale autorisée à constituer le dossier technique: / Juristische Person, die bevollmächtigt ist, die technischen Unterlagen zu erstellen: / Persona juridica facultada para elaborar el expediente técnico:

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Person empowered to draw up the declaration on behalf of the manufacturer: / Persona autorizzata a redigere la dichiarazione a nome del fabbricante: / Personne ayant reçu pouvoir pour rédiger cette déclaration au nom du fabricant: / Ermächtigte Person zur Ausfertigung der Erklärung im Namen des Herstellers: / Persona apoderada para redactar esta declaración en nombre del fabricante:

Ing. Andrea Pinza

GRILLO SPA – Via Cervese, 1701 – 47521 CESENA (FC) – ITALY

Managing Director / Amministratore Delegato / Directeur Général / Stellvertretender Geschäftsführer / Director Adjunto

Grillo S.p.A.

Ing. Andrea Pinza -

Andrea Pinza

Cesena, 28/05/2024

The spare parts catalogues are available on line at http://www.grilloagrigarden.co.uk/spare_parts_lists
Le tavole ricambi sono disponibili online all'indirizzo http://www.grillospa.it/tavole_ricambi
Les vues éclatées son disponibles en ligne sur http://www.grillofrance.fr/vues_eclatees
Die Ersatzteillisten sind online verfügbar unter <http://www.grillodeutschland.de/ersatzteillisten>
Los despieces son disponibles on line en <http://es.grillospa.it/despieces>

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