ENGLISH

Translation of the original language

EN

Green Climber LV500 Pro

OPERATIONS AND MAINTENANCE MANUAL

F23 F300 LV300 LV400 LV500 Pro LV600 LV800 LV1400 MP100 PT18

A COMPANY WITH QUALITY MANAGEMENT SYSTEM CERTIFIED BY DNV GL ISO 9001:2015

FOREWORD

MDB S.r.l. would like to thank you for having chosen this machine. This manual contains the description of the functions and instructions needed to carry out main routine and scheduled operations and maintenance of the LV500 Pro.

The indications for use must be strictly observed in order to obtain the best performance, ensure the long working life of the various parts and work in complete safety.

Users of the LV500 Pro must read this manual before using the machine. This manual must be considered as an integral part of the machine and must be stored and protected so as to preserve its integrity, as well as handed over together with the machine, to a possible subsequent owner.

In pursuing its policy of providing ever safer, more efficient and technologically advanced means, MDB S.r.l. reserves the right to use qualitatively better equipment and safety means at any time.

Sincerely,

Legal Representative

Mario Di Biase

IMPORTANT SAFETY INFORMATION

Most accidents involving the operation, maintenance and repair of the product are caused by non-compliance with basic safety rules or precautions. Accidents can often be avoided by identifying potentially dangerous situations before an accident takes place. Operators must be aware of potential dangers and must also have the necessary training, skills and tools to perform operations correctly. Improper use, lubrication, maintenance or repair of this product can be dangerous, and could result in injury or death. Do not use or carry out lubrication, maintenance or repairs on this product before having read and understood the information regarding operations, lubrication, maintenance and repairs provided in this manual. Safety precautions and warnings are provided in this manual and indicated on the machine. Failure to observe these warnings could lead to accidents and cause personal injury or death to operators or other persons. Warnings and indications that require special attention to safety are represented by the following symbols:

 **DANGER** This symbol indicates an imminent risk that, if not prohibited, would cause serious injury or death to the persons involved.	 **CAUTION:** This symbol indicates a potentially dangerous situation which, if not avoided, can cause damage to the machine itself and could, indirectly, result in serious injury or death to the persons involved.	 **PLEASE NOTE:** This symbol indicates conditions that are particularly important to be able to work with the machine in a simpler and safer way.

The meaning of the "CAUTION" symbol, as shown in the previous table, is as follows: Caution! Pay Attention! This regards your safety. The message below the warning describes and illustrates the specific danger and can be written or represented by images or ideograms. Operations that may damage the product, injure the operator or others, are indicated by these "CAUTION" labels on the product and in this manual. MDB cannot foresee every possible circumstance that could involve a potential danger. The warnings in this manual and on the product are, therefore, not to be considered as absolute. This product must not be used in any way other than that considered in this manual and without first making sure that all the safety rules and precautions to be applied to the operations of the product in the place, country or state of use, including standards and rules to be applied to the specific worksite, have been taken into consideration. Tools, procedures, working methods or operating techniques that are not specifically recommended by MDB, must be safe coditions in order to avoid injury and damage to operators, people or property. The product must not be damaged or become dangerous during intended operations, lubrication, maintenance or repair procedures. The information, specifications and illustrations in this manual are based on information available at the time of publication. Specifications, torques, pressures, measurements, adjustments, illustrations and other items may change at any time. These changes may affect the performance of the product. Up-to-date and complete information must be obtained before starting operations. MDB dealers will always have the most up-to-date information regarding your product.

Caution!

MDB recommends using original spare parts or parts with equivalent specifications, including, but not limited to, physical size, type, strength and material, if and when needed for this product.

Failure to pay attention to this warning may lead to premature breakdowns, product damage, personal injury or death.

This manual does not substitute any laws or regulations that apply to the buyer's sector. Users must therefore be informed about, and operate in compliance with, the rules applicable to the respective countries and industrial sectors in which they work.

We are confident that the careful reading of this operations and maintenance manual will allow you to work in synch with the MDB Green Climber LV500 Pro.

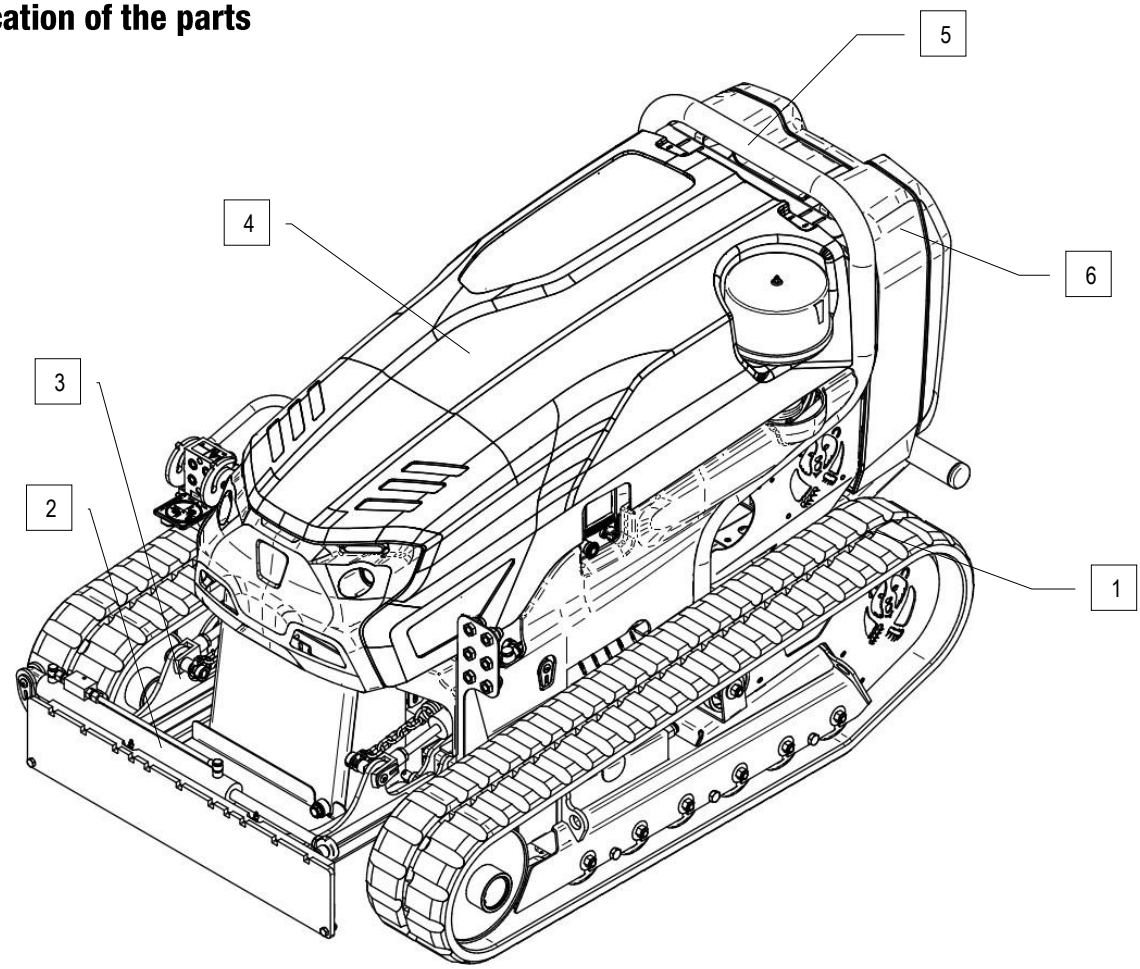
The manual includes essential information regarding the care, maintenance, operational safety, and conservation of the machine over time.

Pleasant reading.

TABLE OF CONTENTS

1 - DESCRIPTION OF THE MACHINE

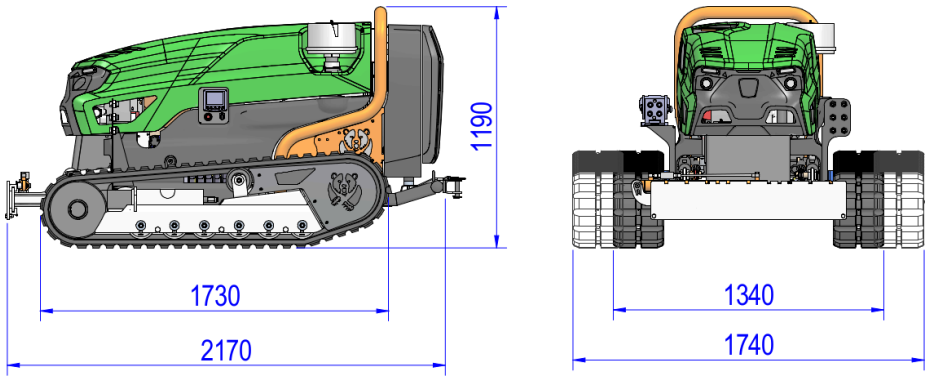
Brief indication of the parts



1 - Tracks 2 - Swing 3 - Frame 4 - Engine hood 5 - Roll Bar 6 - Cover with flap

Technical data

The following images show the dimensions referring to the fully equipped machine in mm. Height refers to the work quota.



Slight changes in measurement are possible during construction

DIMENSIONS AND WEIGHT

Machine height	**1190 mm**
Minimum width of the machine	**1340 mm**
Maximum width of the machine	**1740 mm**
Machine length	**2170 mm**
Maximum working slope at maximum width (1740 mm)	**60°**
Weight of the machine when empty	**1280 kg**

ENGINE

Engine code	**4TNV88-DYEM2**
Dimensions L x W x H	**726 mm x 570 mm x 863 mm**
Operating temperatures	**-20 +40 °C**
Cooling by means of	**liquid with radiator**
Number and position of cylinders	**4 in-line**
Bore (mm)	**88 mm**
Run (mm)	**90 mm**
Total displacement (cc)	**2190 cm^3**
Maximum rated power (KW)	**35.5**
Matching capacity (rpm)	**3000**
Intake	**Natural intake**
Fuel	**Diesel**
Combustion system	**Direct injection**

ADDITIONAL TECHNICAL DATA

Max. speed	**8 km/h**
Diesel tank capacity	**34 l**
Engine oil sump capacity (Max/Min)	**7,4 l ÷ 4,0 l**
Hydraulic oil tank capacity	**32 l**
Type and model of radiator	**IRA Radiatori Engineering srl - Mod RC10503612**
Type and version of remote-control Rx/Tx	**IMET M880 - THOR 2 X4N / 12085 - 00**

General information

This manual contains the information and what considered necessary for the knowledge, good use and normal maintenance of the "Green Climber LV500 Pro" machine, hereinafter also referred to as the machine, manufactured by MDB S.r.l. with headquarters at C.da S. Onofrio n. 6/A, Lanciano (Chieti) Italy, hereinafter also called "Manufacturer".
The following is a complete description of the various parts and a detailed presentation of their operation, along with what is normally useful to know for operations in safety and for the optimum conservation of the machine itself.
The document is an integral part of the machine and is issued by the Manufacturer, who therefore owns the copyright.
This manual is intended for operators the LV500 Pro machine and contains technical specifications and drawings which may not be reproduced (even in part), publicised by any means or used for competitive purposes, nor made available to third parties pursuant to the aforementioned rights.
MDB S.r.l. therefore prohibits total or partial reproduction of this manual and the disclosure of its contents in any form.

Manufacturer's ID and assistance

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TECHNICAL ASSISTANCE
Technical assistance is always provided by the manufacturer. For further information, please call: +39 0872.50221

Machine ID

The LV500 Pro machine is identified by EC marking drawn up according to specifications in the European Directive 2006/42/CE (so-called Machinery Directive), of Legislative Decree n. 17/2010 implementing the Machinery Directive in Italy and Legislative Decree 81/08 and subsequent amendments of the Consolidated Law on Safety in the Workplace implementing the relevant European directives.
Essential data regarding marking can be found on the ID plate positioned in the lower part of the same machine (see the figure below: IDENTIFICATION PLATE

Purpose of the manual; conservation and use

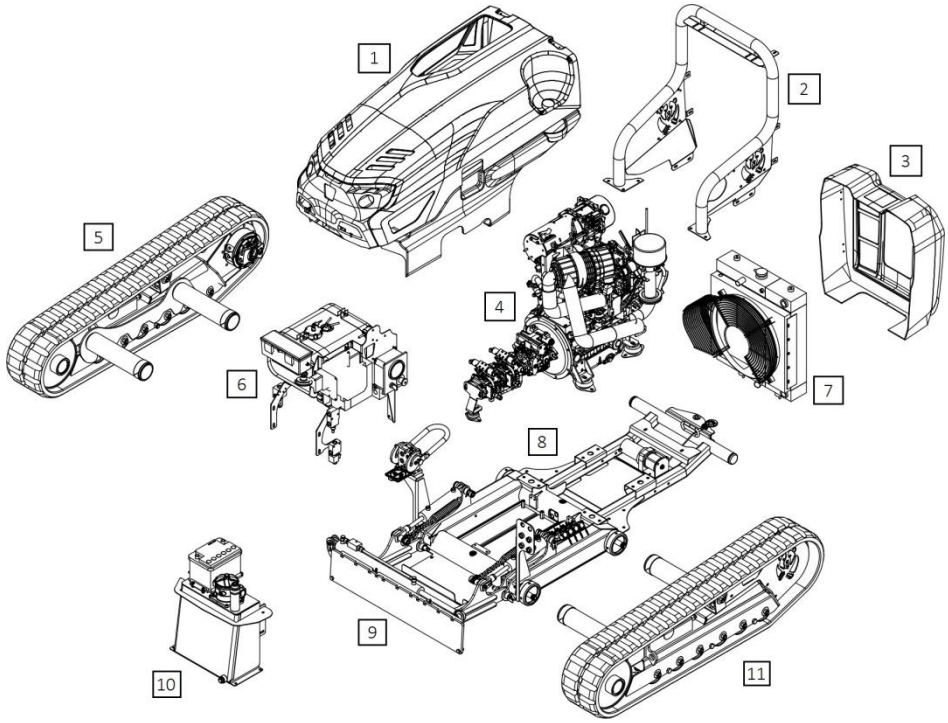
Purpose
The purpose of this "Operations and Maintenance Manual" is to provide all personnel assigned to use the Green Climber LV500 Pro machine with all the necessary information for diligent use and maintenance in optimal conditions.
Particular attention has, of course, been paid to the fact that this is carried out under the expansive possible safety conditions for operators.
The equipment is supplied to be used according to the indications of this manual.
During its use, operators must always be alert with regards to safety, as well as to use indicated PPE, in order to improve the overall safety of the machine.

Conservation
- The following instructions must be followed closely in order to keep the manual in perfect conditions:
- Use the manual so that it is not damaged in any way;
- Do not remove, add, change or write on any part of this document: updates will be made exclusively by MDB S.r.l .;
- Keep the manual in an area protected against damp, so that its lifetime is not compromised;
- Hand over the manual to any other user or future owner of the machine.

Operations
Get to know the equipment before starting to use it by reading this manual carefully. It is of great importance that, before using the equipment, operators be properly and comprehensively instructed regarding the contents of all chapters relating to the safe use and operation of the machinery and its control system.
The machine manufacturer may not be held responsible for damage and injury caused to persons, animals, property and the environment resulting from the use of the equipment by operators who do not meet the required qualifications.

Information regarding the machine

The following graphic illustration shows the main parts of the body of the MDB "Green Climber LV500 Pro" with numbering referring to the exploded view of the machine itself:



1. **Hood kit**
2. **Roll-bar kit**
3. **Cover kit**
4. **Engine kit**
5. **Right undercarriage kit and track**
6. **Castle kit**
7. **Radiator kit**
8. **Structure kit**
9. **Oscillation kit**
10. **Oil tank kit**
11. **Left undercarriage kit and track**

List of parts

In more detail, the Green Climber LV500 Pro is made up of the following parts:

1. High resistance steel frame. Welded structure;
2. Tracks;
3. Hydraulic oil tank;
4. Diesel tank;
5. Hood;
6. Roll-bar;
7. Rear cover;
8. Air filter;
9. Exhaust assembly;
10. Engine;
11. Battery;
12. Remote control receiver;
13. Remote control transmitter;
14. Plate for quick coupling of equipment;
15. Control unit;
16. Headlights;
17. Flashing headlights;
18. Spare battery and battery charger for the remote control;
19. Turbine filter
20. Cleanfix reversible fan;
21. Towbar.

Demolition and disposal of the machine

For normal procedure of disposal of the machinery (after dismantling) and delivery of each component to specialized companies for the transport, disposal and/or recovery of waste.

The LV500 Pro machine is made up of a welded steel frame, to which the components have been attached. It is moved by rubber tracks. The machine track width is variable and can be set by means of the remote-control system. The diesel engine drives the machine's hydraulic circuit by means of hydraulic pumps. The self-propelled LV500 Pro machine has been designed to be used outdoors, especially for agriculture and forestry. There is a quick coupling at the front, to be used to connect equipment designed and manufactured only by MDB. The type of equipment that can be applied to the LV500 Pro, (only if authorized by the manufacturer), are the following:

- **Shredder:**
- **Cutter**
- **Atomiser;**
- **Grass cutter;**
- **Snow turbo;**
- **Snow removal blade;**
- **Grass shredder;**
- **Forestry shredder;**
- **Trunk cutter**

Keys for machine operations

The keys that are delivered together with the machine must be used to start up the machine (for the start-up procedure see the relevant section of Chapter 5) to be inserted in the appropriate housing on the control panel (See image below).

In the case of lost keys, contact the manufacturer to request copies.

Signals and alarms

It is important to be informed about the visual and acoustic signals relating to the machine, which indicate the operating status, warnings and requests for attention, before using it.

Visual

Visual signals are mainly indicated by the radio control LEDs (description in the following Chap. 5 on the control system) and are those relating to the operations phase. There are also visual signals on the control panel, which are mainly related to the start-up phase. There are also two flashing lights on the hood of the machine that indicate that the machine is running.

Sound

The machine has three types of buzzers/horns.
The horn on the machine, which indicates a request of intervention when not used by the operator.
The buzzer on the machine, which activates when the machine moves.
The buzzer on the remote control for alerts.

On the remote control

As mentioned in the previous point, the remote control is equipped with both visual signals (LED on the same) and acoustic signals in case of errors (buzzer). The different types of signals are specifically described in chapter 5.

Conditions of use

The LV500 Pro machine can work easily on any type of terrain, even with steep slopes, thanks to its extremely low centre of gravity. The machine has been tested by simulating a transverse slope of more than 60° with the maximum width configuration (fully extended undercarriage)

The remote control allows the operator to work calmly, even on the most uncomfortable and impractical terrain, by respecting some simple indications regarding the position of the operator with respect to the machine.

Caution!

The recommended inclination for working in safety, especially on soils with conformation other than sandy, should not be exceeded.

Danger!

Never stand or manoeuvre the machine from below it when working on steep sloping terrain as it could overturn. Always stand and manoeuvre the machine from above it.

The LV500 Pro machine has been built in compliance with applicable workplace safety regulations, as well as European directives and standards. The equipment that can be attached to it must only be that indicated in Attachment B of this manual.

Use of other relevant equipment

Clients wanting to attach equipment other than that indicated in the aforementioned attachment must first request authorisation from MDB's technical office, which will respond, authorising the application or not. As a description (but not authorisation), the types of equipment applicable are those listed on the previous page (Page. 6) and more specifically those also indicated in the EC declaration of conformity of the machine itself.

MDB may, however, assess the use of other equipment and issue the relevant authorisation and requirements. Those who apply equipment not provided for by MDB to the LV500 PRO, without first having requested authorization and having received an official reply, exempts MDB from any constructive and functional responsibility regarding the machine, as well as concerning safety and warranty.

For reasons of safety concerning people, goods and animals, the work area where the machine must operate must always be cleared and marked out before the start of work, and the operator must forbid entry to non-authorized persons.

Stickers legend

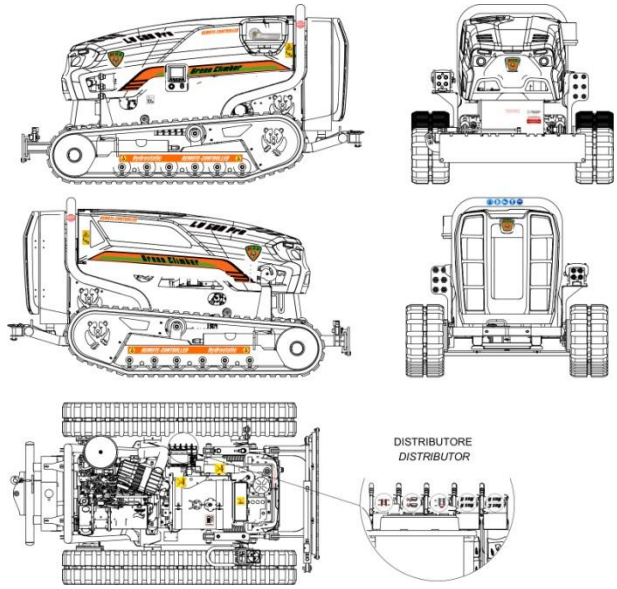
There are a number of specific safety messages on this machine. This section contains the location and description of dangers. Be aware of and informed regarding all safety messages.

Make sure that all safety pictograms are readable. Clean or replace them if the words and illustrations are not visible.

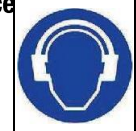
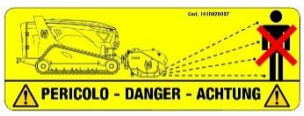
Use a cloth with soap and water to clean the safety messages. Do not use solvents, petrol or other aggressive chemical products to clean the safety messages. Solvents, petrol or other aggressive chemical products could dissolve the adhesive that secures the safety stickers.

Replace any damaged or missing safety stickers. If a safety sticker is applied to a component to be replaced, it must also be applied to the replacing part.

A diagram of the stickers on the machine is shown below.



Indication and danger stickers:
The following illustration shows the details of the symbols concerning safety (according to law) and in particular those of danger (yellow) and those regarding indications (blue), the latter relating above all to PPE (personal protective equipment) to be worn during use of the machine.

	A protective helmet must be used		Protective footwear must be used
	A protective face mask must be used		Ear protection equipment must be used
	Protective work gloves must be used of operation		Work clothes must be used
	Reference must be made to the operations and maintenance manual		Danger high temperature
			Danger of crushing Watch your hands
			Danger of expelled objects
			Danger of crushing and collision. Do not remain near the machine. Do not operate the machine from below it on steep slopes, always staying above it.
			Danger of contact with moving working parts Do not approach the shredder when the machine is moving. Avoid wearing loose clothing with transmission inserted and the motor running.

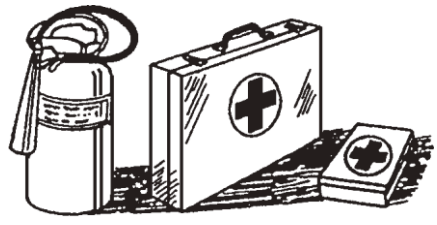
2 - SAFETY

Rules and regulations for the safe use of the machine

Most accidents that occur during operation, maintenance and repair of the product are caused by failure to observe basic safety rules or precautions. An accident can often be avoided by recognizing potentially dangerous situations in advance. The operator must be aware of potential dangers and should have the necessary training, skills and tools to perform these functions properly.
Improper use, lubrication, maintenance or repair of this product can be dangerous and cause injury or death.
Use or perform lubrication, maintenance or repair work on this product only after reading and understanding the information regarding operation, lubrication, maintenance and repair.
Safety precautions and warnings are provided in this manual and on the product. Failure to respect these warnings could result in personal injury or death to yourself or others.
The information, specifications and illustrations in this publication are based on information available at the time of publication. Specifications, torques, pressure, measurement, adjustment, illustrations and other items, may change at any given time. These changes may have an effect on the service offered to the product. Request complete and up-to-date information before starting any work.

A number of safety standards must be met for the correct and safe use of the machine: the machine must be used only during the day and outdoors, with sufficient visibility to give the operator a minimum 100 m radius of view of the working area. The work area where the machine will operate must always be cleared and marked out before the start of work; the operator must not allow unauthorised persons to enter the area to ensure the safety of persons, property and animals.

Prepare for emergencies. A fire extinguisher and first aid kit must be available nearby. Make sure you have the emergency number on your phone, and be aware of your position to be communicated if needed.



Caution!

The control and use of the machine take place exclusively by remote control and is allowed only to operators who are aware of the operation of the latter in relation to the machine itself. It is forbidden to turn on the transmitter in places that do not allow full visibility of the machine operated by remote control. Activating the transmitter indoors or away from the receiver, does not allow to have real awareness of the manoeuvres that are being carried out, resulting in a situation of danger. If work

is suspended, even for short periods, the control unit must be switched off and the battery must be removed from the transmitter. Other persons may not remain and/or work near the machine or within the marked out area during use of the machine unless they are authorised to do so. The operator who uses the machine does so by means of the remote control and therefore not in the vicinity of the danger areas of the machine itself, and must therefore remain at a minimum distance of 3 meters, always behind and never in front of the machine. The maximum range of action of the remote control is set at a distance of 100 m, which must be the minimum range of view of the working area. The lighting system with which the machine is equipped, consisting of two lighting devices at the front, is also used to establish the visibility of the work area according to the above parameters and is not suitable for illuminating the work area at night, when visibility in those ranges is compromised and the machine must not be used.

Risks during use of the machine

The risk analysis concerning the use of the Green Climber LV500 Pro focuses on all the typical risks for machines of this type operating in the same sector. Those indicated below, which are present during the use of the machine itself, concern the operator and any other person present during the use of the same.

Caution!

Using the machine carelessly may cause loss of control. Use extreme caution when using any device during machine operations. Using the machine carelessly can cause personal injury or death.
Make sure all protection devices and covers are installed.

Keep the machine free from foreign objects and materials. Remove debris, oil, tools and other objects from overhead walkways, walkways, and steps.

Protect all loose objects such as food containers, tools and other objects that are not part of the equipment.

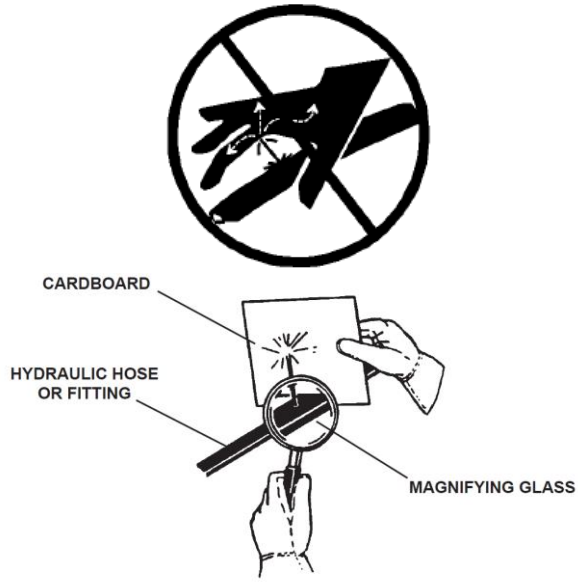
RISK OF PRESSURISED FLUIDS

Caution!

High pressure oil may remain in the hydraulic system, even after turning off the engine. Releasing trapped pressure can cause sudden movements of the machine and/or equipment. Pay attention when disconnecting hydraulic pipes or fittings. High-pressure oil can generate whiplash from the pipes and cause rapid expulsion of objects when released suddenly.
Wait for the pressure to release before removing the hydraulic components.
Do not bend or hit high pressure pipes.
Do not install bent or damaged pipes.
Replace parts with the following defects:

- Damaged or leaking end fittings.
- Outer coatings that are cracked or cut.
- Bulging outer coatings.
- Flexible parts of pipes that are bent.
- Outer coatings with exposed armouring.
- Joints that have moved.

Make sure that all clamps, guards, and heat shields are installed correctly. This will help prevent vibration, rubbing against other parts, excessive heat and damage to the pipes when the machine is running.



Always use a card or cardboard when checking for leaks. Leaking pressurised fluid can penetrate body tissue causing serious injury and death. A medical check-up is required immediately if the liquid penetrates the skin. Rely on the assistance of a doctor who is familiar with this type of injury.

VIBRATION RISKS

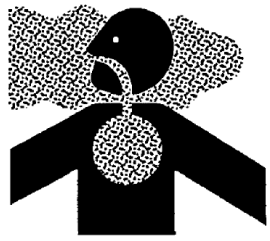
Caution!

The Green Climber LV500 Pro has a remote-control system, unlike other machines of the same type, which generate vibrations during use. Since it is operated from a distance by means of a remote control, these vibrations cannot harm the operator.

RISK OF INHALATION OF EXHAUST FUMES

Caution!

Exhaust fumes may be dangerous for health. Please note that the machine must be used exclusively outdoors, while adequate ventilation is required if the machine is used in an area that is even only partially closed.



NOISE RISK

Caution!

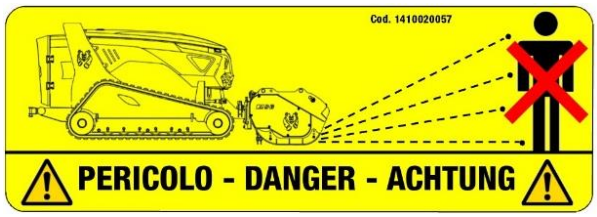
Considering that the machine is intended to operate exclusively outdoors, noise measurements were carried out as required by directive 2000/14/EC concerning the

environmental noise emission of machines and equipment intended to operate outdoors, by means of dynamic - static measurement with moving machinery, in accordance with procedure 2 Attachment VI of the directive itself for machines of this type. The measured sound pressure level was 85 dB(A) (also given the tolerance for uncertainty). Therefore, the use of hearing protection is required by law (at least earplugs).

DANGER OF EXPELLED OBJECTS

Caution!

The equipment installed at the front of the machine can cause the expulsion of objects, creating a danger for the face and body of the operator. Always wear the PPE indicated in this manual and on the labels on the machine. Always use as intended and follow safety indications, remaining behind the machine and NEVER in front of it. Never fail to comply with this obligation for any reason. In relation to this risk, therefore, a protective hard hat, face mask and work clothing according to the law, must also be used.



RISK OF OVERTURNING

Danger!

Never stand or manoeuvre the machine from a position in the area below it on steep terrain, as the machine could overturn in this area. Always stand or manoeuvre the machine from the area above it. In the same way, make sure that no other person authorised to stay on site occupies the aforementioned area.

RISKS CONNECTED TO THE USE OF THE REMOTE CONTROL

Caution!

The radio signal between the transmitter and the receiver has been set for a maximum operating radius of 100 metres. If this distance is exceeded, the signal will be lost and this machine blocked, switching off the engine. Follow the instructions in Chapters 4 and 5 of this manual to restore normal operation. Any loss of communication between transmitter and receiver due to electromagnetic disturbances or interferences leads the radio control to stop automatically (clause 9.2.7.3 EN 60204-32) which implies a new machine start-up procedure. Some options foreseen by the radio control manufacturer are aimed at avoiding signal interference and related unexpected events (Chap. 5).

RISKS CONNECTED TO THE AREA OF WORK

Danger!

Make sure that there are no persons and/or animals in the work area before before starting work and manoeuvring the machine. Mark out the work area so that people and/or animals cannot enter. Failure to comply with this safety procedure could cause risk of serious injury and/or death to persons or animals. The operator must ensure that authorised personnel remain on site be adequately informed of the risks related to the machine referred to in this chapter and that they comply with them. The operator must, in any case, ensure that personnel present on site are not exposed to the risks referred to in the previous paragraphs, that they are never present in the dangerous areas described above, and who must wear the prescribed PPE.

Inquire about the presence of high voltage power lines and underground power cables. Serious injury or death may occur as a result of electrocution if the machine comes into contact with these dangers.

Risks during machine maintenance

RISK OF CRUSHING AND CUTTING

Caution!

The machine must be supported correctly before carrying out any work or maintenance on the same. Do not rely on the hydraulic cylinders to support the machine. The machine will fall if a command is hit or a hydraulic hose breaks.
Never try to carry out adjustments on the machine while it is moving or while the engine is running, unless otherwise indicated.
Do not approach rotating or moving parts.
Protection devices that have been removed for maintenance operations must be repositioned before starting operations.
Keep objects away from the fan blades when in movement as the blades may eject or cut them.
A pin could be ejected at high speed if hit hard. A loose retaining pin could injure personnel. Make sure that there are no persons in the work area when hitting a retaining pin. Always wear protective goggles when hitting retaining pins, to avoid eye injuries.

RISK OF BURNS

Caution!

Do not touch any part of the engine when it is running. Leave the engine to cool down before carrying out any maintenance on the same. Discharge all pressure in the air system, oil system, lubrication system, fuel system or cooling system before carrying out operations. The engine coolant fluid is hot when the engine is at working temperature. Cooling fluid is also under pressure. The radiator and all lines to the heaters or engine contain hot coolant fluid. Contact with hot coolant fluid can cause serious burns. Allow the components of the cooling system to cool down before carrying out maintenance or emptying the cooling system. Check the level of the coolant fluid only with the engine switched off and cooled down. Make sure that the filler cap is also cold before removing it. The filler cap must be cold enough to be touched with bare hands. Remove the filler cap slowly to release the pressure. Hot oil and other components that come into contact with it can also cause personal damage and serious injury. Avoid hot oil coming into contact with the skin. Also avoid hot components coming into contact with the skin. Remove the filler cap of the hydraulic tank only after the engine has been switched off. The filler cap must be cold enough to be touched with bare hands. Follow the standard procedure indicated in this manual to remove the filler cap of the hydraulic tank.

Please note that the liquid in a battery is an electrolyte. Electrolytes are acids that can cause personal injury and damage. Do not allow electrolytes to come into contact with the skin or eyes. Do not smoke when checking the battery and levels. Batteries release flammable fumes that can explode. Also wear protective goggles when working with batteries. Wash your hands after having touched batteries. Gloves should be used,

RISKS OF FIRE AND EXPLOSION

Caution!

All fuels, most lubricants and some coolant fluids are flammable. MDB recommends the following operations to minimise the risk of fire or explosion. Always carry out a visual inspection.around the machine, which can help to identify any fire hazard. Do not use the machine in the event of a fire hazard. Contact your MDB dealer for assistance. Operators must always pay attention to their position with respect to the machine, making sure they always have an escape route in the event of a fire in the machine. Do not use the machine if there is a fluid leak. Repair the leak and clean any excess liquid before starting up the machine. Fluids that come into contact with hot surfaces can cause fires. Fires can cause personal damage and injuries. Remove all flammable material that can become attached or entangled in the machine, such as leaves, twigs, paper, debris, and so on. This debris can build up in the engine compartment or around other hot areas and hot parts of the machine. Always have fire-fighting equipment nearby and accessible in the event of potentially dangerous situations. Clean excess flammable materials such as fuel, oil and debris from the machine. Do not use the machine near open flames or hot parts. Keep protection devices activated; do not deactivate them under any circumstances. Avoid hot exhaust components from coming into contact with splashes of oil or fuel. Never make changes to the machine, in particular, do not weld or flame cut on tanks or lines that contain flammable fluids or material. Avoid build-up of dust caused by repairs on non-metallic parts, hoods or mudguards which can be flammable and/or explosive. Repair these parts in a well-ventilated area away from open flames or sparks, only after receiving authorisation. Use suitable indicated PPE. Check all lines and pipes for wear or deterioration. Replace damaged lines and pipes. Pipes must be adequately supported and fastened by clamps or the like. Do not use the machine where there is a fire hazard. Repair corroded, loose or damaged pipes. Leaks can cause fires. Tighten all connections to the recommended torque. Damage to the protective cover or insulation may create fuel for fires. Store any fuel and lubricant in a properly marked manner in special containers and away from unauthorised personnel. Do not smoke in areas where flammable materials are stored. Pay attention when refuelling the machine. Do not smoke while refuelling the machine. Do not refuel the machine near open flames or sparks. Always switch off the engine before refuelling. Fill the fuel tank outdoors. Clean the area of any leaks. Never store flammable liquids near the operator and machine.

Do not use the machine if the battery cables or connected parts are worn or damaged. Followed the correct procedure for emergency start up using the cables. Incorrect terminal connections can cause explosions which can lead to injury. Do not charge a frozen battery. This could cause explosions. Battery fumes can cause explosions. Keep open flames or sparks away from the top of the battery. Do not smoke in the battery charging area.

Never check the battery charge by placing a metal object on the terminals. Use a voltmeter to check the battery charge. Check visible electrical cables every day. Check zip ties, tapes, and other fasteners to make sure they are not damaged. Replace any damaged parts. Check for defects listed below, which can occur over time due to use and environmental factors:

- Wear
- Abrasion
- Cracking
- Discolouration
- Cuts on the cable insulation sheath
- Incrustations
- Corroded, damaged and loose terminals

Replace damaged battery cables and related parts. Remove any incrustations, which could cause isolation problems or damage to components. Make sure all components are reinstalled properly.

An exposed wire on the battery cable can cause a short to ground. A short circuit produces heat, which can be a fire hazard.

Caution

Fire on a machine can cause personal injury or death. Exposed battery cables that come in contact with a ground connection can cause fire. Replace cables and related parts that show signs of wear or damage.

Avoid connecting electrical cables to pipes and tubes that contain flammable or combustible fluids.

FIRE SAFETY

Caution!

Identify the escape routes for emergency situations and locate the fire extinguishers if present in the work area or position them near the area where the machine is used, foreseeing their possible use in case of an emergency, before starting work with the machine. Make sure that a fire extinguisher is always on hand where the machine is being used. Make sure you know how the fire extinguisher works. Check the extinguisher and its maintenance programme. Follow the indications and instruction on the ID plate. Additional fire extinguishers should be provided as per work conditions. Personal safety and that of others has priority if involved in a machine fire. The following actions must be carried out only if they do not represent a danger or risk to oneself and all those around them. The risk of personal injury must be assessed at all times, moving to a safe area at an appropriate distance in the event of a potentially dangerous situation. Move the machine away from combustible material if present, or from facilities such as refuelling stations and from oils, structures, waste, mulch and timber. Lower the tools and switch off the engine as soon as possible. Leaving the engine running will continue to fuel the fire. The fire will continue to be fuelled by damaged pipes connected to the engine or pumps. Turn the battery disconnect switch to the OFF position if possible. Disconnecting the battery will eliminate a possible trigger source that may occur in the event of electric short circuit. Disconnecting the battery will eliminate a possible trigger source that may occur if the electrical wiring is damaged by the fire, resulting in a short circuit. Inform the firefighting emergency personnel, communicating your location. Fire-fighting systems must be inspected regularly by qualified personnel. Personnel must be trained to use fire-fighting systems. In the event of fire, use the fire extinguisher according to the following procedure: 1. Pull the pin; 2 Aim the extinguisher or nozzle at the base of the fire; 3 Press the handle and release the extinguishing agent; 4. Use the fire extinguisher from side to side, aiming it towards the base of the fire until the fire is out. Those unable to do this must switch off the machine before moving away. Switching off the machine will stop the pumping of fuel, thus no longer fuelling the fire. The following risks must be considered if the fire is out of control: fuel tank, hydraulic system, radiator and other components of the machine represent a risk of explosion. Hot fragments and debris can be expelled at great distances in an explosion. Tanks, accumulators, pipes and fittings can rupture during a fire, expelling fuels, hot liquids, and fragments over a large area. Remember that almost all fluids in the machine are flammable, including coolant and oils. Tracks, other plastic or rubber materials, fabrics, resins, and fiberglass are flammable.

RISK OF THUNDERSTORMS AND LIGHTNING

Caution!

Switch off the machine using the remote control and stay away from it if you are surprised by a thunderstorm. Move away from the worksite and go to a safe area. The operator must stop working and must never carry out procedures from the control panel in these cases or when lightning strikes near the machine, neither for switching off nor for any other operation. Move away from the machine and from the worksite, waiting for the storm to end if the machine cannot be switched off using the remote control.

PPE for machine operations

The Personal Protective Equipment (PPE) to always be worn when using the machine, is that required according to the risks identified and described in the previous paragraph and more precisely the following:

- **Protective hard hat (Risk of expulsion of objects)**
- **Protective face mask (Risk of expulsion of objects);**
- **Protective earphones (Noise risk);**
- **Protective work gloves (Risk of crushing and expulsion of objects);**
- **Protective footwear (Risk of crushing and slipping);**
- **Work clothes (Risk of expulsion and entanglement).**

The signs indicating the use of PPE are those already illustrated in the tables on page 8.

Reference standards for machine safety

TECHNICAL HARMONISED STANDARDS

- **EN ISO 12100:2010 – Safety of Machinery — General Principles for Design — Risk Assessment and Risk Reduction;**
- **EN ISO 4254-1:2015 – Agricultural machinery — Safety — Part 1: General Requirements;**
- **EN ISO 60204-1: 2006 + AC: 2010 - Safety of machinery - Electrical equipment of machines - Part 1: General Requirements;**
- **EN ISO 16231-1:2013 - Self-propelled agricultural machinery — Assessment of stability — Part 1: Principles;**
- **EN ISO 16231-2:2015 - Self-propelled agricultural machinery — Assessment of stability — Part 2: Determination of static stability and test procedures;**
- **EN 349:1993+A1:2008 - Safety of Machinery — Minimum gaps to avoid crushing of parts of the human body;**
- **EN ISO 13857:2008 - Safety of Machinery — Safety distances to prevent hazard zones being reached by upper and lower limbs;**
- **EN ISO 4254-7:2017 - Agricultural Machinery — Safety — Part 7: Combined harvesters, forage harvesters and cotton harvesters;**
- **EN ISO 4254-12: 2012 + A1: 2017 - Agricultural machinery - Safety - Part 12: Rotary disc and drum mowers and flail mowers;**
- **EN ISO 3744:2010 – Acoustics – Determination of sound power levels of noise sources using sound pressure;**
- **EN ISO 5395 - 1.2013 + A1: 2018 - Garden machinery - Safety requirements for lawn mowers with internal combustion engines.**
- **ISO 6395:2008 - Acoustics - Measurement of exterior noise emitted by earth-moving machinery - Dynamic test conditions.**

EUROPEAN STANDARDS

- **MACHINERY DIRECTIVE 2006/42/EC;**
- **ELECTROMAGNETIC COMPATIBILITY DIRECTIVE 2014/30/EU;**
- **LOW VOLTAGE DIRECTIVE 2014/35/EU;**
- **DIRECTIVES FOR THE IMPROVEMENT OF THE SAFETY AND HEALTH OF WORKERS DURING WORK, 89/391/CEE, 89/654/CEE, 89/655/CEE, 89/656/CEE, 90/269/CEE, 90/270/CEE, 90/394/CEE, 90/679/CEE, 93/88/CEE, 95/63/CE, 97/42/CE, 98/24/CE, 99/38/CE, 99/92/CE, 2001/45/CE, 2003/10/CE, 2003/18/CE, 2004/40/CE, 92/58/CEE, 2002/44/CE, 2006/25/CE.**
- **ENVIRONMENTAL ACOUSTIC EMISSION DIRECTIVE OF MACHINES AND EQUIPMENT INTENDED TO OPERATE OUTDOORS 2000/14/CE and 2005/88/CE;**

ITALIAN LEGAL RULES AND REGULATIONS

- **LEGISLATIVE DECREE no. 81/2008;**
- **LEGISLATIVE DECREE no. 17/2010;**
- **LEGISLATIVE DECREE no. 262/2002;**
- **LEGISLATIVE DECREE no. 80/2016;**
- **LEGISLATIVE DECREE no. 86/2016**

N.B. All the aforementioned reference legislation for machine safety is currently in force and is to be considered according to the subsequent amendments.

3 – TRANSPORT AND EMERGENCIES

Transporting the machine

The LV500 Pro is delivered to the buyer adequately protected from impacts during transport. The special attachment points on the machine must be used to position it on the ground. These lifting points can be found inside the tracks, at the sides, and are marked by the relevant symbol (see the image at the side).

Transport to the worksite

The same lifting points must be used each time the agricultural machine is loaded onto the vehicles used to move it to the different worksites. It should be noted that the

LV500 Pro is a work machine and can only operate outdoors and in well-defined areas. It cannot be used on public roads intended for the normal circulation of vehicles, unless transported by dedicated means of transport used for normal road circulation.

Emergency situations

Possible emergencies are listed below, also concerning the faults that could occur to the machine during operations on site.

Transport during an emergency

Use the hook or the appropriate winch located at the rear of the machine in the event of breakdown or grounding of the machine itself.

Stopping the machine during an emergency

Two emergency buttons are positioned on the machine, one on the control panel on the left side, the other on the remote control, if the operator needs to stop the machine for any reason during operations in an emergency situation. These are easily identifiable red mushroom-shaped buttons (See Figures). Once pressed, the button remains down, stopping the machine and all movements immediately. To start the machine again once safe working conditions have been restored:

- Turn the red emergency button clockwise;

- The button will now be released, follow the instructions in Chapter 4 of this manual to start the motor and resume work. Follow the instructions given in chap. 4 to stop the engine in normal (non-emergency) conditions.

Remote control failure

As indicated previously, the remote control is the only control system of the machine. In the event of failure of the same try to repair the machine on site. Alert the emergency services in charge to allow the intervention of a lifting device, suitable for transporting the machine if this is not possible. Replace the exhausted remote-control battery with the spare one placed in the appropriate container indicated under the hood (see following images).

Fig. 3.1

Fig. 3.2

Electrical failures:

This type of failure is detected when the machine as a whole or only one or more components fail. Excluding damage of the latter, the problem can be caused by the lack of power supply of the same, therefore discharged or damaged battery. In this case, it should be replaced or recharged. If, on the other hand, the general power supply is present and one or more of the machine components do not function, check that the relative fuse that protects the components has not blown and therefore should be replaced (see specific section "Relay and Fuse Positioning" in Chapter 6). In this case, however, the reason must be investigated and if the fault recurs, specialised assistance must be contacted.

4 – COMMISSIONING AND USE

Warnings

Read the following indications carefully and carry out the operations following the instructions indicated accurately before proceeding with commissioning, in order to minimise the risk of damage and injury to people or objects, as well as to the machine itself.
Verify the simple conditions necessary for the correct use of the machine, in particular, the levels of engine oil, fuel and coolant (and top up if necessary) before starting the machine. Inspect the worksite to make sure that there are no dangers.

Refuelling

The main ways to safely carry out the different types of refuelling necessary for the correct and safe use of the machine are listed below. Routine maintenance must be carried out by the person in charge of the machine, along with the checks regarding the levels according to the timing indicated and the intensity of the work carried out by the machine.

Refuelling

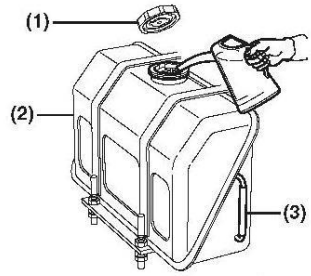
RISKS OF FIRE AND EXPLOSION

Caution!

Refuelling must be carried out with the engine switched off. Do not smoke or use open flames during operations to avoid explosions or fires. Fuel fumes are highly toxic.
Carry out these operations only outdoors or in well-aired environments, taking care not to get too close to the cap with your face so as to avoid inhaling dangerous fumes. Do not release used oil in the environment as it is highly pollutant.
Fill up the fuel tank only with recommended diesel fuel. Filling up the tank with petrol could cause a fire and/or damage the engine. Use a funnel while filling up the tank to avoid fuel spills. Filtering is also recommended to avoid dust and dirt from entering the tank. Do not fill the fuel tank completely to allow the fuel to expand.
When refuelling for the first time or if the tank remains empty, fill the fuel circuit (see engine manufacturer's operations manual).
Use only and exclusively fuel indicated by the engine manufacturer as provided for in the following table which indicates the compatible fuels permitted for use by the MDB and the engine manufacturer:

Specifics of diesel fuel	Position
ASTM D975 N. 1D S15, S500 N. 2D S15, S500	USA
EN590:96	European Union
ISO 8217 DMX	International
BS 2869-A1 o A2	United Kingdom
JIS K2204 Grado n.2	Japan
KSM-2610	Korea
GB252	China

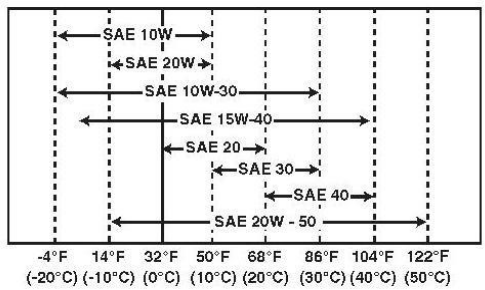
A typical tank is illustrated below (the tank mounted on your equipment may differ in part) and the steps to be taken for correct refuelling.



1 - Clean the area around the fuel cap (1);
2 - Remove the fuel cap from the tank (2);
3 - Observe the fuel level, fill but not excessively, so as to leave space for the fuel to expand;
4- Replace the tank cap and tighten well. Avoid excessive tightening of the cap, damaging the same.

Refuelling engine oil

Use only engine oil that meets the following specifications, guidelines and classifications:
- API service categories: CD, CF, CF-4, CI-4 (use an API CF oil or one of higher quality for electronically controlled engines);
- ACEA E-3, E-4 and E-5 service categories;
- JASO DH-1 service categories.
Select the viscosity of the engine oil relative to the ambient temperature rage in which the machine must operate as in the following SAE table:



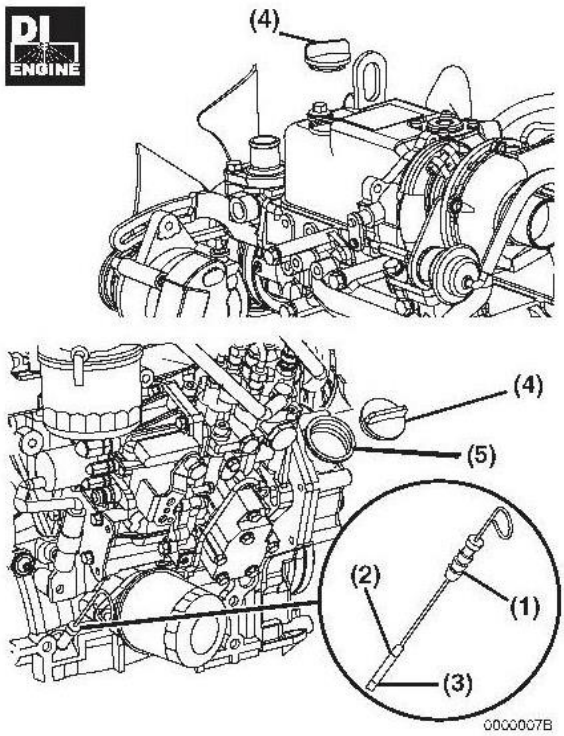
Caution!

Use only the specified engine oil. Other engine oils may affect warranty coverage, cause internal engine components to seize up and/or shorten the working life of the engine.
Pay attention to prevent contamination of engine oil with dirt and debris. Clean the oil cap and dipstick, and the surrounding area carefully before removing the cap. Do not mix different types of engine oil.
This could have a negative effect on the lubrication characteristics of the engine oil. Do not fill excessively.

Excessive filling can lead to white exhaust fumes, engine runaway or internal failures.

Unscrew the oil filler cap (4) at the top (as shown in the figure below) and refill with the indicated type of oil according to the specifications at the beginning of this paragraph. Make sure that the machine is on a flat surface before checking the oil level.
Remove the dipstick to check the oil level and check that the level is near but not higher than the MAX.

Top up if the level is not near MAX and reinsert the oil dipstick correctly. Screw the cap back on.



Important

Do not use the engine if the oil level is below minimum. Check the engine oil level by means of the dipstick (as already described in the previous point) if the "engine oil" light comes on. Do not use the machine if the oil level is below minimum level, indicated by the sign on the dipstick (3). Fill up engine oil as described in the previous point, check the level again, making sure that it is between minimum (3) and maximum (2) on the dipstick.

Make sure that the engine oil, storage containers for engine oil, and equipment used to fill up the oil are free from sediment and water. Replace the engine oil after the first 50 hours of operation, then after each 250 hours of operation. The engine manufacture does not recommend the use of additives for engine oil.

Refuelling coolant

RISK OF BURNING

Caution!

Never remove the radiator cap if the engine is hot. Steam and hot engine coolant will splash and could cause severe burns. Leave the engine to cool down before removing the radiator cap. Tighten the cap firmly after checking. A loose cap can cause the leakage of steam when the engine is running. Always check the engine cooling fluid level by means of the reserve tank. Failure to follow these indications could cause death or serious injuries. Leave the engine to cool down before draining off the engine coolant which could splash and cause burns. Failure to follow these indications could cause death or serious injuries.
Use only the specified coolant fluid. Other coolant fluids could affect warranty coverage, cause an internal build-up of rust and flakes and/or shorten the working life of the engine.
Prevent contamination of engine coolant fluid with dirt and debris. Clean the radiator cap and the surrounding area carefully before removing the cap. Do not mix different types of engine coolant fluid. This could have a negative effect on the characteristics of the engine coolant fluid.

Use only a Long-Life Coolant (LLC) or Extended Life Coolant (ELC) that meets or exceeds the following guidelines and specifications:
- ASTM D6210, D4985 (US);
- JIS K-2234 (Japan);
- SAE J814C, J1941, J1034 o J2036 (International).
A conventional coolant based on ethylene glycol or propylene glycol (green) can be used as an alternative if an LLC type coolant is not available. Always use a mix of coolant and water. Never use water alone. Mix the coolant with water following the mixing instructions provided on the container of the coolant. Water is important for the performance of the coolant. The engine manufacturer suggests the use of softened, distilled or demineralised water for mixing with coolants. Never mix extended or long life coolants with conventional (green) coolants. Never different types and/or colours of extended coolants.

Replace the coolant fluid after each 1000 hours of engine operations, or each year.

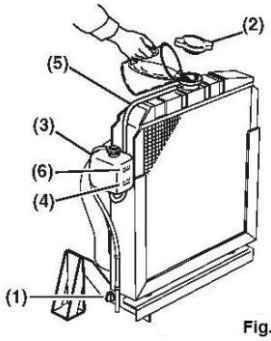


Fig. 1

Fill the radiator as indicated below. This procedure is used to fill the radiator for the first time or to refill it after emptying it. Figure 1 shows a typical radiator, the one mounted on the GC LV500 Pro machine may differ slightly and in any case is not visible in its entirety.

Make sure that the drain cap is fitted and tightened or that the drain tap (1) is closed. Make sure that the drain cap of the coolant (7) in the cylinder block is closed and that the coolant pipes (8) are installed in the oil cooler.

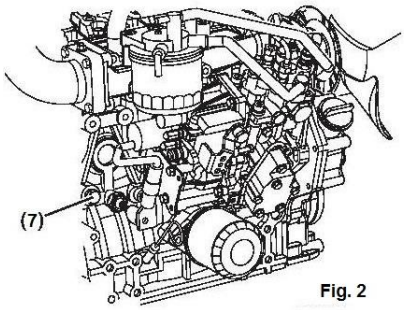


Fig. 2

The radiator cap can now be unscrewed (2), then pouring the coolant fluid into the radiator until it reaches the edge of the engine coolant fill port. Make sure that there no air bubbles have formed when filling the radiator. Replace the radiator cap (2) and line up the tabs on the back of the cap with the notches on the engine coolant filling opening. Press down and rotate 1/4 clockwise.

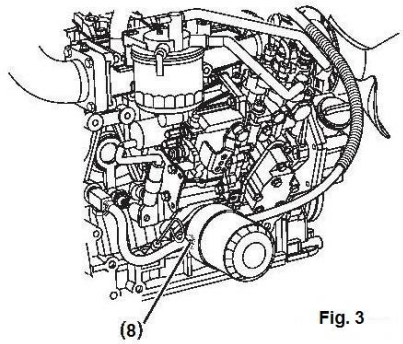


Fig. 3

Allow the engine to run until it reaches normal operating temperature.
Check the engine coolant level.
The fluid must cover the pipes inside the radiator by about 5mm.
Do not fill up the radiator completely but leave enough space for coolant fluid expansion.

<u>Checking the level and topping up</u>
Checking and topping up the coolant fluid level must be carried out with the machine not on a slope and with the engine switched off and cold.
Locate the cap of the coolant (see the photos at the side) and, for simple refilling, unscrew it, pour in the coolant to reach the maximum level and firmly screw the cap back on at the end of each working day.

<u>Caution!</u>

Do not continue to use the machine if a leak in the cooling circuit is detected or the liquid level is too low, as this could cause irreparable damage to the machine. Locate the cause and repair the fault immediately before using the machine.

<u>Caution!</u>

The coolant fluid should consist of 50% ANTIFREEZE and 50% softened water. Never use water alone.

<u>Caution!</u>

The fluid should cover the pipes inside the radiator by about 5 mm. Do not fill up the radiator completely but leave enough space for coolant fluid expansion.

MDB recommends using ENI ARNICA V46 oil.

Commissioning

First of all, rotate the metal lever of the battery switch (located on the right side of the machine), bringing it to a vertical position as shown in the following figure.

Fig. 4.7

Please remember that in some conditions the fuel system must be primed, especially in the following conditions:

1. **Before starting up the engine;**
2. **After running out of fuel and fuel has been added to the tank;**
3. **After fuel maintenance operations such as filter replacement, emptying of the water filter/separator, or replacement of a fuel system component.**

To prime the fuel system:

1. **Turn the ignition key to "ON" position and leave it in this position for 10 to 15 seconds. This will allow the electric pump to prime the fuel system;**
2. **Never use the starter motor to prime the fuel system. This can cause the starter motor to overheat and damage the coils, pinion and/or crown gear.**

It is important to remember that the MDB Green Climber LV500 Pro has a single control system by means of an IMET M880 - THOR 2 X4N radio remote control: see chapter n. 5 relating to the control system).
To start the machine, you must first turn on the vehicle's thermal engine as follows:

1. **Make sure that the emergency control panel button (Fig. 4.8) is unlocked by turning it clockwise.**
2. **At this point, turn the ignition key (fig. 4.8) clockwise until it reaches the "ON" position to switch on the panel and the display, and wait a few seconds, until the "MDB" logo disappears from the display itself. At this point, turn on the machine according to the two methods described in the following two points.**

Fig. 4.8

3. **Switching on can be carried out in "manual" mode, by turning the key again from the "ON" position to the "START" position and releasing it as soon as the engine starts.**
4. **To start the engine in "RADIO" mode press the "A" button on the left side of the remote control (fig. 4.9) to activate the same. At this point, to start the machine, press key "A" a second time, keeping it pressed and releasing it as soon as the engine starts.**

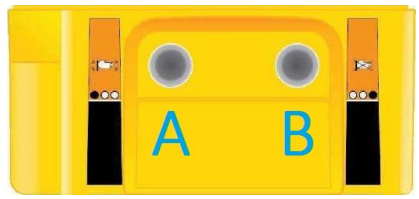


Fig. 4.9

Important

Do not operate the starter motor for more than 15 consecutive seconds: if the engine does not start, wait one minute before repeating the starting operation to avoid damaging the starter motor. If the engine does not start after two attempts, please consult the engine manufacturer's manual and/or contact your specialist staff to identify the cause.
Once the machine has started up, and after making sure that the transmitter and radio receiver have established contact at the pre-set frequency, the machine can be operated using the upper controls of the remote control as described in Chapter 5 below.

Stopping

The machine's engine can be stopped in two ways:

- Manually;
- With the remote control.

To turn off the engine manually, turn the key switch on the control panel to the switch-off position "OFF" (fig. 4.8). To turn off the engine in "RADIO" mode, press button B at the left of the remote control (fig. 4.8). Please see the relevant section in Chapter 3 with regards to stopping in emergency situations.
Always deactivate the tool before stopping the engine.

Equipment to use

The LV500 Pro is made up of a welded steel frame, to which the components have been attached. It is moved by rubber tracks.
The machine track width is variable and configurable by means of the radio remote control system.
The diesel engine drives the machine's hydraulic circuit by means of hydraulic pumps.
The Green Climber LV500 Pro self-propelled machine has been designed to be used outdoors in agriculture and forestry.
The machine is equipped with a quick coupling plate at the front for attaching equipment exclusively designed and built by MDB.
The equipment authorized by MDB to be applied to the Green Climber LV500 Pro are those listed in Chapter 1.

5 - CONTROL SYSTEM

Description of the control system

The control system is made up mainly of two parts: the transmitter (remote control), with which the user transmits the commands to the MDB Green Climber LV500 Pro, and the receiver (on the machine itself). The machine is equipped with an IMET model M880 - THOR 2 X4N radio control system. Please read the instructions for use of the system carefully, along with the manufacturer's operations and maintenance manual, before carrying out any operations. The same is valid also for installation, start-up and maintenance of the remote-control device. The instructions for use are an integral part of the remote control and must be kept available for operators at all times. "Machine" is used in the operating instructions for the possibilities of use of the radio remote control.

Control panel

The control panel installed on the left side of the machine is made up of the key start command, the emergency stop button and an integrated display panel (fig. 4.1). The engine control unit is also a supervision and protection tool for mechanical diesel engines. It has a 3.8-inch monochrome Murphy Powerview 380 display with a clear background that facilitates reading of the parameters on the display even in bright sunlight. The parameters monitored by the tool for alarm signalling are:

- **Engine speed;**
- **Engine temperature;**
- **Engine or machine operation hours;**
- **Battery voltage;**
- **Cooling fluid temperature;**
- **Engine oil pressure;**
- **Engine fuel level;**
- **Exhaust pressure;**
- **Intake pressure;**
- **DEF (Diesel Exhaust Fluid) level for Tier 4 engines;**
- **Active error codes;**
- **Stored error codes.**

Fig. 5.1

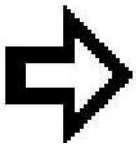
The following image highlights the relationship between the buttons and icons in the lower part of the display, which is the basis for its operation:

Fig. 5.1.2

Starting from the display screen, pressing one of these function keys will display the following menu on the screen:

Fig. 5.3

The soft keys under each symbol will activate the following functions respectively when pressed:

Key	Function
Soft Key 1 	• Scrolls through sets of parameter screens; • Displays the Brightness / Contrast menu in Settings; • Move the highlight up to certain menu selections; • Move the cursor to the left on the OEM password screen.
Soft Key 2 	Displays the input point of the DPF regeneration request; • Displays the Language menu and the units in Settings; • Moves the highlight downwards in certain menu selections; • Moves the cursor to the right in the OEM password screen;
Soft Key 3 	• Displays the entry point of the settings; • Used as the Enter / Exit button from the previous menu.
Soft Key 4 Corresponds to a blank space on the menu screen (see Fig. 5.1.2)	• Shows service reminders when in “Request DPF regeneration”; • Shows utilities in Settings • Increases Brightness / Contrast / Hours values (Svc Reminder) • Displays the software version in Utilities; • Displays codes stored in diagnostic messages.
Soft Key 5 	Displays the Diagnostic Messages screen • Used as the Enter key for various menu selections; • Decreases Brightness / Contrast / Hours values (Svc Reminder) • Displays the OEM Password screen in Utilities; • Prompts for errors when there are diagnostic messages.

If no button is pressed within 5 seconds after displaying the relevant menu, it will disappear from the display.

When the PV380 is switched on, the warning and shut-down lights light up and the logo is displayed.
Once the engine is running (above 500 rpm), critical engine information will be displayed (Fig.5.4) and will alternate with the set of parameter chosen when function key 1 is pressed.

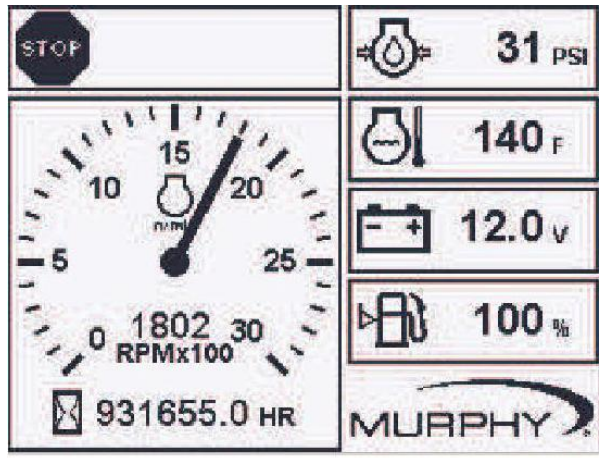
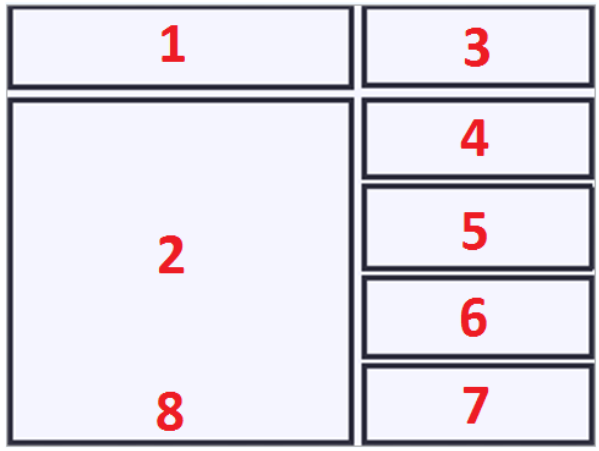


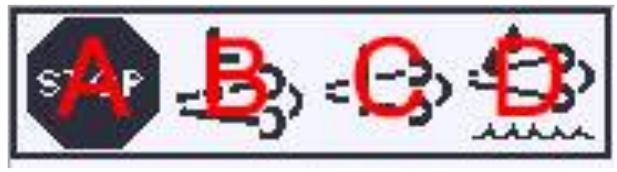
Fig. 5.4

Parameter measurement setting

The layout of the control areas present is as shown in the figure and description below:



Each command area has its own icons:
1 - Icon Area 1: Up to four symbols can be displayed simultaneously in the icon area to represent alarms, level 4 status and service indicators. The most important symbol should be shown on the left. The following symbols are a list of priorities from the most important to the least important according to their respective positions A, B, C and D.



Area	Function/s
A	1. Stop (from mechanical set point); 2. Warning.
B	1. Restriction of regeneration;
C	1. Malfunction of emissions; 2. DPF filter; 3. Cooling fluid temperature.
D	1. Service indicator.

2 – Tachometer area: The tachometer is the most important reading and is therefore displayed in the form of a larger gauge that fits the screen. It shows the engine speed with a 3,000 rpm dial (gauge).

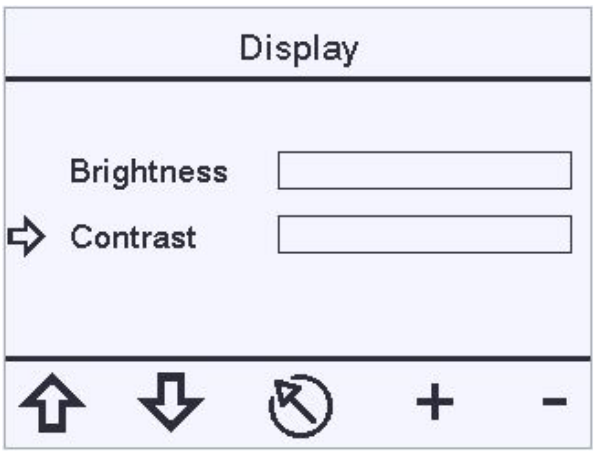
3-7 - Selectable Parameters Area: the following parameters are the default values of the electronic engine until other parameters are selected from the menu:

3. **Engine oil pressure (numeric)**
4. **Engine temperature (numeric)**
5. **Battery voltage (numeric)**
6. **Fuel level (numeric)**
7. **DEF level (only Tier 4) or logo.**

Adjustments in the selections menu

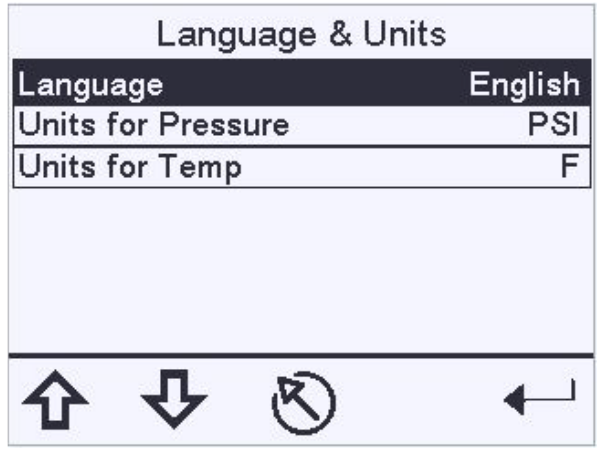
Adjustments to be made from the selections menu are relatively simple and intuitive and are carried out as described below.

[Menu]: Luminosity
Follow these steps to adjust the brightness:
1. Press any function key to view the menu;
2. Press Soft Key 3 (Settings) followed by Soft Key 1 (Brightness / Contrast) as shown in the figure below.
3. Press function buttons 4 (+) and 5 (-) to adjust the brightness;
4. Press soft key 3 (return arrow) to exit the menu.



Menu: Contrast
Follow these steps to adjust the contrast:
1. Press any function button to view the menu;
2. Press Soft Key 3 (Settings) followed by Soft Key 1 (Brightness / Contrast).
3. Press soft key 2 to adjust the contrast.
4. Press function keys 4 (+) and 5 (-) to adjust the contrast;
5. Press soft key 3 (return arrow) to exit the menu.

The following image shows the selection menu of the sub-menus to select the language and the units of measurement of the parameters.



[Menu]: Units (measurement)
Follow these steps to adjust the units of measurement:
1. Press any function key to view the menu;
2. Press Soft Key 3 (Settings) followed by programmable key 2 (language / unit).
3. Press function keys 1 (up arrow) or 2 (down arrow) to highlight Pressure Units.
4. Press soft key 5 to choose PSI, kPa or Bar.
5. Press soft key 2 to highlight Units per Temp.
6. Press soft key 5 to choose between Fahrenheit (F) or Celsius (C).
7. Press soft key 3 (return arrow) to exit the menu.

[Menu]: Language
At the time of this publication, English is the only language programmed into the PV380. Should this change, follow these steps to adjust the language:
1. Press any function key to view the menu;
2. Press Soft Key 3 (Settings) followed by programmable key 2 (language / unit);
3. Press function keys 1 (up arrow) or 2 (down arrow) to highlight Languages.
4. Press soft key 5 to scroll the available languages;
5. Press soft key 3 (return arrow) to exit the menu.

[Menu]: ECU and display source addresses

Follow these steps to listen to or change the ECU (Engine Control Unit) data source address:
1. Press any function key to view the menu; Press Soft Key 3 (Settings);
3. Press soft key 4 (Utilities);
4. Press soft key 5 (OEM);
5. Enter the OEM password by pressing soft key 4 until the appropriate number is displayed in the first slot;
6. Press soft key 2 to move the cursor to the next slot;

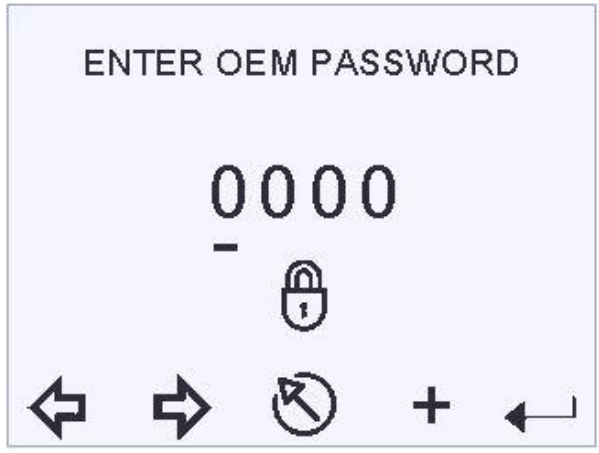
7. Continue to repeat steps 5 and 6 until the password appears;
8. Press soft key 5 to enter the password;
9. Press soft key 2 (down arrow) to highlight CAN and press soft key 5 to access;
10. Highlight ECU Source Address using function keys 1 or 2 and press soft key 5 to enter;
11. In the Listen to ECU Addresses screen, press function keys 4 (+) and 5 (-) to display 0 to 253 or All;
12. Press soft key 3 (return arrow) to save the selection;
13. A message could appear indicating: Change ECU address in (selection). This change requires a power cycle to take effect. Press soft key 3 for Yes and soft key 4 for No;
14. Highlight View Source Address and press soft key 5 to enter;
15. Use function keys 4 (+) and 5 (-) to adjust the source address from 0 to 253. Press function key 3 and the following message will appear: Change SRC display address in (selection). This change requires a power cycle to take effect. Press soft key 3 for Yes and soft key 4 for No;
16. Press soft key 3 to exit the menu.

[Menu]: Diagnostics
Follow these steps to display the Diagnostics menu:
1. Press any function key to view the menu;
2. Press function key 5 (diagnostics mode).
3. The diagnostic message screen will appear. Press function keys 1 and 2 to scroll through additional messages, if any. Each saved code shows SPN (Suspect Parameter Number), FMI (Failure Mode Identifier) and OC (Occurrence Count). The OC indicates if the same fault has occurred more than once. A textual explanation of the warning or shutdown is also displayed if available;
4. Press soft key 4 (Stored Codes) to view stored codes. Stored codes are required from the ECU. "Request data" and Receive data will be displayed while requesting data. Timeout / Error will be displayed if the data is not received from the ECU. Pressing Stored Codes will prompt the data again from the ECU. If data is received, the # of # Diagnostic Message screen will be displayed. press function keys 1 and 2 to scroll through the additional messages, if any. Each saved code shows SPN (Suspect Parameter Number), FMI (Failure Mode Identifier) and OC (Occurrence Count). The OC indicates if the same fault has occurred more than once. A textual explanation of the warning or shut-down is also displayed if available; Press soft key 3 (Get faults) to receive further stored errors.
5. Press function key 5 (return arrow) to return to the Failures screen.

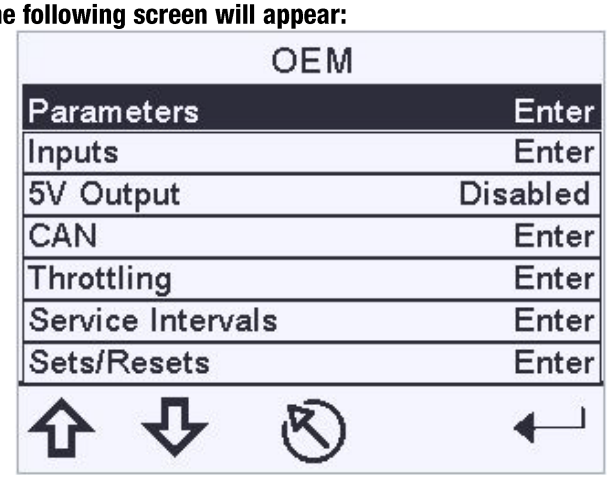
[Menu]: Software Version
Follow these steps to view the software version information (useful for Enovation Controls staff to identify the configuration used by the customer):
1. Press any function key to view the menu;
2. Press soft key 3 (Settings);
3. Press soft key 4 (Utilities);
4. Press soft key 4 again (software version).
5. Press soft key 3 to exit the menu.

[Menu]: OEM

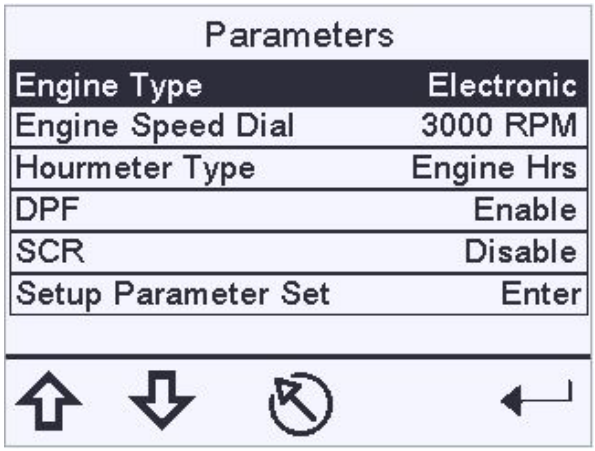
This Menu is only for qualified personnel or the technical assistance of MDB s.r.l., manufacturer of the machine.
A password is required to enter this screen. Enter the four-digit password correctly as shown below to access further settings and controls.



1. Press any function key to view the menu;
2. Press Soft Key 3 (Settings);
3. Press Soft Key 4 (Utilities);
4. Press Soft Key 5 (OEM)
5. Press Soft Key 5 to enter the correct first number of the password, then press Soft Key 2 to move the cursor to the next digit.
6. Repeat step 5 until all numbers of the password have been entered.
7. Press Soft Key 5 to access the menu.
The following screen will appear:



[Menu]: Parameters
As noted previously, the parameters can be replaced with the default values listed. The following screens will appear on entering the menu:

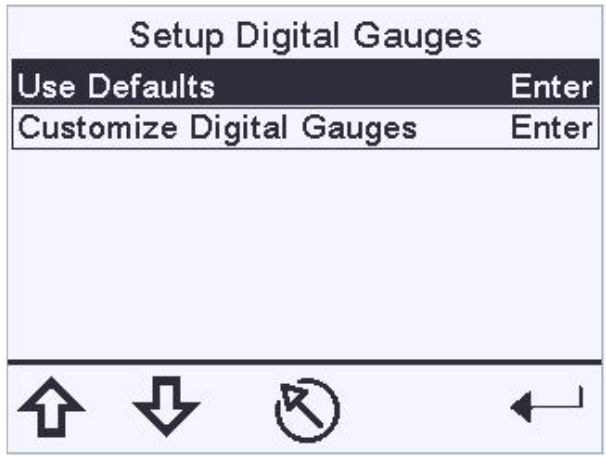


Selecting the menu	Description
Type of engine	Selected as per electric or mechanical drive
Engine speed selector	Engine speed can be selected between 3,000 or 4,000 rpm.
Type of hour counter	Select between Engine hours (default) and Machine hours. Machine hours are counted and stored locally in memory in 1/10 hour increments. The hours are stored when the engine is running. The hour counter counts up to 99,999 hours. Machine hours can be pre-set to a non-zero value in order to replace counters on used equipment.
DPF	There is an option is available to enable / disable the DPF icons due to the variation in how engine manufacturers implement engine after-treatment systems The default setting is Enabled.
SCR	Due to the variation in how engine manufacturers implement engine after-treatment systems, there is an option to enable / disable the DEF icon. The default setting is Enabled.

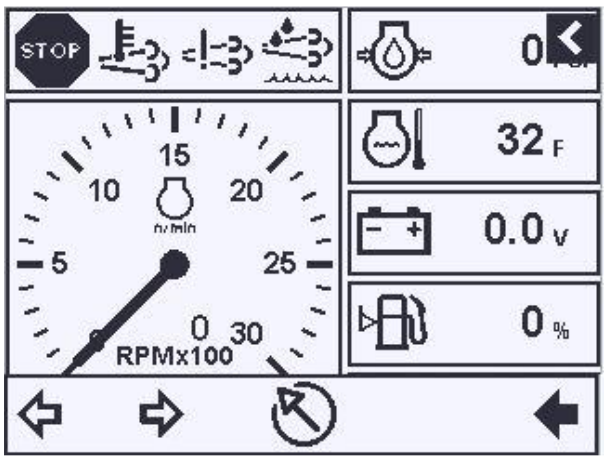
Setting the parameters	As above, the parameters can be replaced by the default values. The list of supported parameters can be found in the display manufacturer's operation manual.

[Menu]: Setting the parameters

The following screen will appear when entering this menu selection:



Selecting the menu	Description
Use default	Restoring Default Gauge Setup appears when this option is selected.
Customizing digital indicators	The screen shown in the figure at the bottom of this table will appear when entering this menu. Press soft key 2 to scroll through the available parameters for this cell. When the appropriate parameter is displayed, press soft key 5 and the cursor will move to the next cell. Repeat this process until all cells have the appropriate parameters. Finish by pressing the dedicated key 3 to return to the previous menu.



[Menu]: Inputs

The structure of the Inputs menu allows the OEM to set four resistive and three analogue inputs, and to calibrate the speed. Each input can be enabled or disabled.

1. Press any function key to view the menu;
2. Press Soft Key 3 (Settings).
3. Press Soft Key 4 (Utilities).
4. The OEM password screen will appear when pressing soft key 5 (OEM).
5. Press Soft Key 5 to enter the correct first number of the password, then press Soft Key 2 to move the cursor to the next digit.
6. Repeat step 5 until all numbers of the password have been entered.
7. Press Soft Key 5 to access the menu.
8. Press Soft Key 2 to highlight Inputs and the following screen will appear:

Shut-down set points for Temperature and Pressure can be added in the case of mechanical motors.

Whenever a supported parameter exceeds the minimum and / or maximum set-point values, the low-side output together with the red LED must be activated. The output can drive an alarm or shut-down relay.

Various parameters relating to some controls and to the temperature, pressure, fuel level, analogue inputs, sensors and speed data can be calibrated in the respective advanced menus. Furthermore, this menu also allows to set the maintenance service intervals even if it is advisable to leave the setting of these parameters to qualified personnel, preferably to MDB technical assistance. Use the parent company's assistance or refer to the operating manual if action is needed for these parameters.

Service frequency

The following engine maintenance intervals can be set:

- Engine oil
- Fuel filter
- Engine air filter
- Hydraulic oil
- Service engine
- Service machine

Whenever a timer expires, a pop-up warning message / symbol is displayed for 15 seconds every 10 minutes along with the amber LED lighting up to let you know that a maintenance interval has expired. The alarm will continue until the timer is reset. If maintenance intervals are not set, this feature is not enabled.

Follow these steps to view the Service Intervals menu:

1. Press any function key to view the menu;
2. Press Soft Key 3 (Settings).
3. Press Soft Key 4 (Utilities).
4. Press Soft Key 5 (OEM).
5. Enter the OEM password, pressing soft key 4 until the appropriate number appears in the first slot.
6. Press soft key 2 to move the cursor to the second position.
7. Repeat step 5 until the password has been entered.
8. Press soft key 5 to enter. The OEM menu will appear.
9. Press soft key 2 until Service Intervals is highlighted, then press soft key 5 to enter.
10. Engine oil reminders will be displayed first. Press function key 5 (+) to scroll through the reminders for the fuel filter, engine air filter, hydraulic oil, service engine, and service machine.
11. Press soft key 2 to move the cursor down to Reset to reset the reminders. Press soft key 5 (OK).

Please Note!

If the type is set to Engine Hours, the unit must be connected to an ECU and must receive data to reset the service reminder. If engine hour data is not received, the service reminder will not be reset.

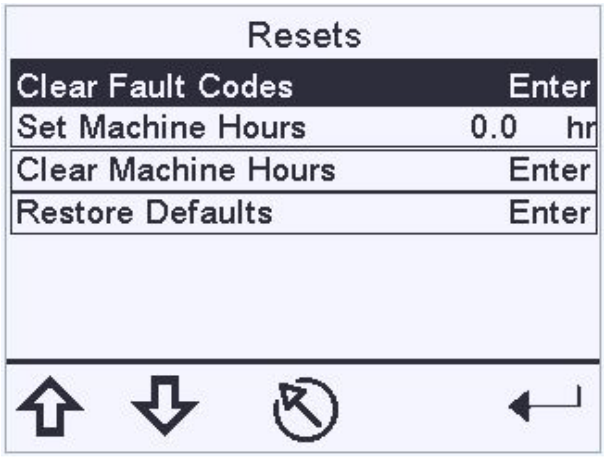
Please Note!

the remaining time interval may be negative when the service reminder has expired

[Menu]: Sets/Resets

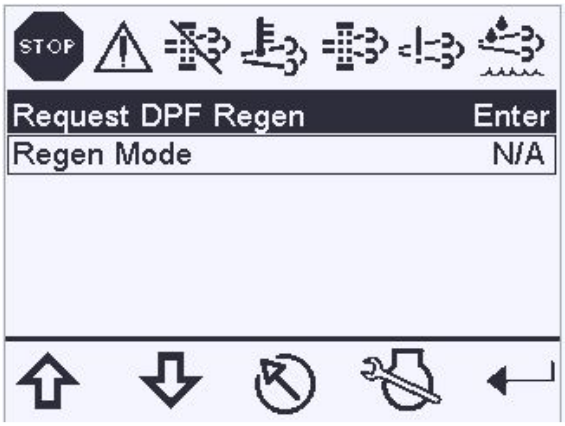
This menu is useful when you need to delete error codes, for example. To clear existing error codes, press soft key 5 highlighting them. A Request sent to clear errors message will appear.

Press function keys 4 and 5 to set machine operation hours. Each press of the button increases/decreases by 0.1 hours.

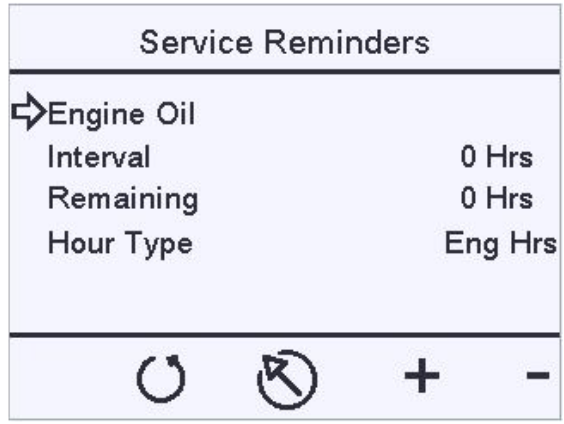


Continuing to press, on the other hand, will increase / decrease by 20 hours every 250 ms.
To delete existing machine hours, press the soft key 5 highlighting them. A "Machine hours cleared" message will be displayed.
To restore factory defaults on the display, press soft key 5 when it is highlighted on the menu.
The message "Restore all factory settings" will be displayed.
Confirm this command when the item is highlighted if you intend to proceed with this operation (all data recorded up to that moment will be lost).

Engine controls
Engine controls can be accessed by pressing function key 2 when the menu shown in the following image is displayed.



The factory default setting provides that the display is in automatic DPF regeneration as needed. This operation may need to be postponed for operational reasons, perhaps outside the period of active work of the machine. In these cases, follow these steps to request Regen DPF:
1. Press any function key to view the menu;
2. Press functional key 2 (DPF Regeneration).
3. Request DPF Regeneration will be highlighted. Press dedicated key 5 to enter;
4. The request for regeneration of the diesel particulate filter will appear on the screen;
5. Press soft key 3 to confirm "Yes" and soft key 5 to confirm "No". Remember that regeneration can only be postponed for a limited number of times. Therefore, once this limit is exceeded, the motor does not respond to these commands and will automatically return to automatic DPF regeneration. Regeneration should be carried out after postponing the first automatic requests, perhaps outside the working period of the machine, so as not to be forced to interrupt work phases. The Engine Controls section includes a sub-menu called "Service Reminder", which allows the operator to scroll through the list of services and individually reset the timers. Engine / machine hours must also be visible on this screen but cannot be reset.



Press soft key 5 to select one of the following options: Engine oil, Service machine, Service engine, Hydraulic oil, Engine air filter, and Fuel filter. Press Soft Key 2 to reset the hours for the selected parameter.

[Menu]: LED Indicators
The PV380 is equipped with amber (warning) and red (power off) LED lights on the front keypad (as shown in the figure below). These light up as per the J1939 error definition for alarms and stop conditions.

[Menu]: Indicator lights
Each instrument and menu screen (if space permits), show the following lights:

Icon	PGN	SPN	Description
	DM 1		Diagnostic stop light: indicates an active DM1 stop failure.
	DM 1		Warning Diagnostic lamp: Indicates an active DM1 fault.
		3697	High discharge temperature warning light (HEST): indicates regeneration in progress.

	64892	3703	DPF Particulate Filter Indicator: Indicates that a regeneration is required.
	64892	3698	DPF Inhibition Indicator: Indicates a regeneration inhibited state.
	65110	1761	DEF (Diesel Exhaust Fluid) Indicator: this indicator lights up when the fluid level drops below 12%.

For furthermore specific information regarding other specifications concerning the display, please contact the technical assistance of the parent manufacturer of the machine (MDB srl).

IMET 880 radio control

The console of the IMET 880 remote control is practical, clear and ergonomic. It allows to control all functions of the machine, allowing to perform even the most difficult manoeuvres in the most favourable position in complete safety and freedom. The casings made of impact-resistant plastic material withstand the most severe conditions of use while maintaining the maximum reliability and functionality.

The machine is equipped with a removable and rechargeable hermetic battery, the portable transmitter M880 (IMET) guarantees continuous operation for long shifts even in severe environmental and climatic conditions.

The automatic frequency change avoids the use of channels already occupied by other devices.

The operator can always set the transmission on a fixed channel. The radio transmission is continuous and encoded: each receiver is able to recognize only the commands coming from its transmitter thus avoiding unwanted activations by other devices in the area. Each remote control is designed and built in accordance with European industry directives and standards and meets the highest levels of safety.

The remote control may not be used in climatic and electrical characteristics not specified in the operations and maintenance manual of the same. The use of the remote-control device is also forbidden in environments that require anti-explosion characteristics.

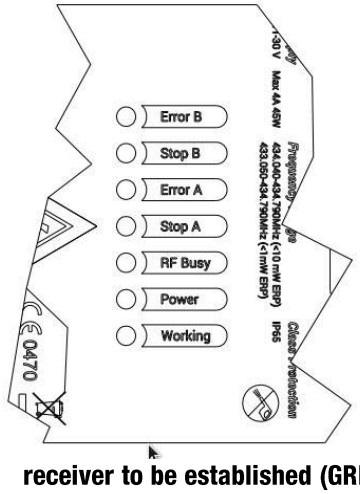
Powering up and starting the remote control

a) Transmitter unit off.

b) Insert a charged battery into the transmitter.

c) Check that the emergency STOP button is not inserted and that there are no other active commands.

d) Power up the machine (See Chapter 4 "Start-up and use" to activate Green Climber LV800) and the receiving unit.



e) Wait 2 seconds for the receiver to carry out safety control tests. If the test result is positive, the red "STOP A", "STOP B" LEDs and the green POWER LED (on the receiver itself) will remain on.

f) Turn on the transmitter by means of the START button, waiting for the link between the transmitter and the receiver to be established (GREEN and BLUE LED flashing on the TX and RF LED Busy RX WHITE LED on).

P.S.: If the access code option (PIN CODE) is enabled, the green LED is activated continuously; after the continuous lighting of the LED proceed as follows:

1. Operate the joystick or the C.F.x1 selector for the same number of times as the first digit of the access code;

2. Confirm entry of the digit by pressing the START button;

3. Repeat the sequence for the remaining digits of the code.

g) Activate the driving command for one second: correct operation on the transmitter will be indicated by the fixed light of the TX (GREEN) and RX (BLUE) LEDs, the STOP A and B LEDs on the receiver will change from red to green, the Working LED (BLUE) will come on. The desired commands can now be carried out.

STOP functions

Press the red emergency button; this will open the STOP circuit on the receiver and inhibits all commands. Reset the button (ISO 13850) and press the START button to resume operations. The EMERGENCY STOP button is located both on the remote control and on the command panel on the machine.

Switching off

The machine can be switched off in three different ways using the remote control:

h) Press the STOP button, after 10 seconds the remote control switches off.

i) Turn the key switch (if present) anticlockwise.

l) Remove the battery.

The transmitter will switch off and the safety circuits opened, all commands will be prevented. The transmitter will, in any case, switch off when the battery is completely discharged.

Auto switch-off

The auto-off time may be set up to a maximum of 60 min. in steps of 1 min. on request. The M880 DIN rail transmitting unit turns off automatically after 20 hours for automatic failure checks on safety systems required by ISO 13849-1.

The auto-off function on M880 units on DIN rail can be excluded at the express request and responsibility of the customer, in which case the STOP circuit is classified as category 3 PLd.

Signalling of the LED lights of the transmitting unit

The transmitter is equipped with 5 LEDs informing the operator regarding:

- Operating conditions

- Operating anomalies

- Type of faults and diagnostic functions

- Low battery

LED indications of the receiving unit

The receiver is equipped with 7 LEDs informing

the operator regarding:

- Operating conditions

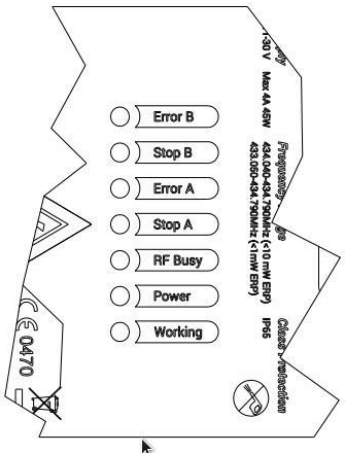
- Operating anomalies

- Type of faults and diagnostic functions

- Power supply status.

- Connection status.

Transmitter	
Status of the TX Led (GREEN)	***Indication***
Off	*The transmitter is off or faulty (see relative chapter)*
On	*The transmitter is working correctly*
Flashing	*The transmitter is turned on but is not operational*
LED status YELLOW ON BLACK BACKGROUND	***Multi-function indicator***
Low battery	*Two flashes every 20s.*
Joystick Calibration:	
- test phase	*Continuous access*
- minimum calibration	*Single flash followed by a long pause*
- maximum calibration	*Double flash followed by a short pause*
- inverse calibration	*Continuous flashing*
Morse Code	*Indication of transmitter error*
LED status RX (BLUE)	***Indication***
Off	*The receiver is off or faulty*
Flashing	*Connection with the receiver established*
On	*The receiver is operational*
LED status YELLOW ON YELLOW BACKGROUND	***Indication***
On	*Equipment in operation*
LED status (ORANGE)	***Indication***
Flashing	*Low fuel level*
On	*Blocked air filter Scheduled maintenance required.*
LED status RED	***Indication***
Flashing	*High engine temperature (95°C)*
On	*High engine temperature (105°C)* *Low oil pressure Other engine alarms*



Transmitter	
LED	Indication
"Error B" *(Red led/green led)*	- Normally off during operations. - Red/green for the duration of the data error on channel B.
"Stop B" *(Red led/green led)*	*- Green during operation.* *- Red indicates that system B channel is in STOP status.*
"Error A" *(Red led/green led)*	- Normally off during operations. - Red/Green for the duration of data error on channel A.
"Stop A" *(Red led/green led)*	*- Green during operation.* *- Red indicates that system A channel is in STOP status.*
RF Busy *(White LED):*	- When on, it indicates the successful radio connection of the transmitter with the receiver. *- The intensity is proportional to the intensity of the received signal.* *The LED flashes at a fixed frequency with cable connection.*
Power Supply *(Green Led)*	*- On indicates that the power is on.* *- On indicates that the receiver has established the connection with the remote device together with* *the presence of voltage required for correct operations.*
Working *(Blue LED)*	*- On indicates that the receiver has established the connection with the remote device together with* *the presence of voltage required for correct operations.*

LED indications during Joystick calibration:

Error A and Error B indicators have the same sequence as that of the yellow LEDs on the transmitter during joystick calibration.

Joystick Calibration: Led ErrorA and ErrorB (COLOUR)

- test phase Continuously lit (GREEN)

- minimum calibration: Single flash followed by long pause (RED)

- maximum calibration: Double flash followed by long pause (RED)

- inverse calibration: Continuous flashing (RED)

MORSE CODE: Indication of transmitter error (RED)

Power supply of the unit

Remote controls with portable transmitter are supplied with two Ni-MH rechargeable batteries and dedicated battery charger.

Battery charge status

The battery charge status is indicated by the YELLOW LED.

The YELLOW LED turned off means the battery is charged.

If the YELLOW LED flashes regularly, it indicates that the battery is in reserve phase and the transmitter unit must be turned off to replace the battery with a charged one. A low battery will last for about 10-15 min.

Please note: The YELLOW LED flashes with specific sequences during special configuration procedures and in the event of system errors. Battery reserve can also be signalled by an intermittent acoustic signal, connecting a beeper to the appropriate relay output of the receiver which, in this phase, closes for 1s every 8s.

Battery replacing and charging

If the transmitter unit battery runs out or turns off, replace it with the spare one in the respective housing.
Remove the discharged battery from the transmitter and insert it into the battery charger on the machine (automatic charging will now take place).
The battery should be used until it is completely discharged so as to ensure better efficiency and battery life.
Refer to the "Emergencies" section of chapter 3 in the "Radio remote control faults" section on page 16 and the following image to identify the reserve battery housing (Fig. 5.7).

Fig. 5.7

Caution!

The use of incorrect types of batteries can cause a risk of explosion: use only original batteries from the manufacturer of the remote control. **Dispose of used batteries according to the instructions in the remote-control operations manual.**

Use of the remote control and machine

Once the engine has been switched on and the transmitter and the receiver are connected at the pre-set frequency, the machine can start to be moved using the upper controls on the remote-control device.
The basic controls used to move the machine and use the equipment, (as well as other auxiliary controls, are all located in the upper part of the transmitter, including secondary controls relating to the fan and track movement) are those for driving the machine indicated in the previous figure and described below.
The remote control must be used holding it with the control side and stop button towards the operator's body (also using the relative adjustable shoulder straps).

Fig. 5.8

Joystick 1:
this is the main command to decide the direction of movement of the machine, the use of which is intuitive and described by the icons close to it, but which are also described for completeness. There are 8 transmissible commands, which are obtained by moving the Joystick according to the arrows shown next to the following figure.

Moving the Joystick forward, the machine will move forward in the direction of the front of the machine, where the equipment chosen to work is positioned.

Moving the Joystick backwards, the machine will move backwards in the direction of the rear of the machine.

Moving the Joystick to the top left, the machine will make a left turn in forward gear.

Moving the Joystick to the top right, the machine will make a right turn in forward gear.

Moving the Joystick to the bottom left, the machine will make a left turn in backward gear.
⇘Moving the Joystick to the bottom right, the machine will make a right turn in backward gear.

Counter-rotation movements
Always move the joystick lever to the neutral (central) position before carrying out counter-rotation commands.

Moving the Joystick to the left only, the machine will make a counter-rotation to the left.

Moving the Joystick to the right only, the machine will make a counter-rotation to the right.

Joystick 2:
this is the command that decides the movement of the equipment installed at the front of the machine. Also in this case, the use of this command is intuitive and described by the icons close to it, but is also described for completeness. There are 4 transmissible commands, which are reached by moving the Joystick according to the arrows shown next to the figure at the side.

Moving the Joystick forward, the equipment installed at the front of the machine will lift up.

Moving the Joystick backward, the equipment installed at the front of the machine will lower.

By moving the Joystick exclusively to the left, the machine will move the operating axis of the equipment mounted in the front towards the left of the machine itself.

Moving the Joystick right only, the machine will move the operating axis of the equipment installed at the front of the machine towards the right of the machine itself.

Auxiliary controls of the equipment

Speed control
The speed of movement of the machine is adjusted by means of the knob indicated in Fig. 5.8 and positioned exactly in the centre of the remote control as shown in detail in figure 5.9 below. This command allows to adjust the speed of movement of the machine with the maximum precision according to the needs of the operator.
Also, in this case the use of the command is intuitive. Turning the knob clockwise, the speed of movement of the machine will increase until reaching the maximum limit.
Turning the knob anti-clockwise, on the other hand, will decrease the speed of movement of the machine until reaching the minimum speed limits with constant engine rpm.

Figure 5.9

Steering:
If the work surface does not affect the progress of the machine, the machine's movement axis (parallel to the tracks) will correspond to its forward movement line and there will be no need to change the position of the knob.
The knob indicated in Figure 5.8 (shown in detail in Figure 5.9) allows the machine to always move in alignment with the forward direction, allowing the operator to compensate the traction of the two tracks with respect to each other when necessary and depending on the working conditions. The use of the command is therefore useful when the machine travels on steep and inconsistent terrain, which influences its progress, varying in turn, the latter, by means of the characteristics of inclination and grip of the work surface. In these cases, the command allows the alignment between the direction moved along by the machine and the axis of the machine itself, by turning the knob clockwise or counterclockwise. Once the machine has finished moving along that particular work surface, simply return the knob to its initial position.

Auxiliary tool controls:
Control of the equipment installed on the front plate is obtained, as shown in the previous paragraph, by means of the commands present in Section A for rotation, and the selector in Section D to make it fixed or floating. The auxiliary commands related to the installed tool consist of the two levers at the centre of the remote control (as in the figure) and their function varies from tool to tool and should be consulted in the appropriate attachment. With regards to the shredder, the auxiliary left command adjusts the opening or closing of the flap while the second one remains free.

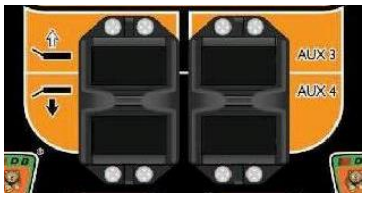


Figure 5.10

Description of the controls at the bottom of the remote control: with the help of the following figure we can define the position of the different sections where the different commands are located at the bottom of the remote control as listed below:

Section A - Commands regarding the direction of rotation and movement of the equipment and its speed;
Section B - Commands regarding the change in direction of the commands and that of the track step;
Section C - Mushroom shape safety stop button;
Section D - Commands regarding equipment and lights;
Section E - Commands regarding engine rpm and selection of auxiliary commands.

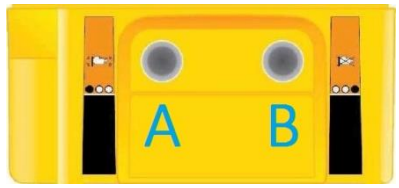
Figure 5.11

Section A - in this section the first command from the left manages the switching on and off of the equipment installed on the plate, while the second command is used to reverse the direction of rotation of the same.
Section B: there are two commands in this section, namely the selector on the left which is used to symmetrically reverse the effect of the commands given with the radio control to the tracks (from Joystick 1) useful when the operator changes his position with respect to the machine (control from behind / in front of the machine), while on the right side there is the selector to control the widening or narrowing of the tracks and, more precisely, in the close position (lower position) or in the widened position (upper position).
Section C: there is only the emergency stop button (already described in the appropriate paragraph of this chapter 5) in this section, at the centre of the series of controls.
Section D: selector to insert floating or fixed movement of the tool plate and lighting control.
Section E: this section has two controls: a knob to adjust engine rpm, (turning it counter-clockwise to lower the rpm to minimum and clockwise to raise it to the maximum) and a selector for any auxiliary electric controls (AUX 1 or AUX 2).

Commands on the sides of the remote control

the commands present in the side areas of the radio control as per the relative images are listed below.

Left side of the remote control:



A - Switching on the machine.
B - Switching off the machine.

Left side of the remote control

D - Control and inversion of fan flow (for cleaning).
E - Horn check.
F - Cable connection for the machine's remote control (necessary only in case of strong interference on the radio signal).

N.B. For more complete knowledge of safety information (including installation and operation) regarding intended use. For more specific options and functions, please refer to the relevant manufacturer's operations and maintenance manual.

6 - MAINTENANCE AND ASSISTANCE

General instructions

Reliability, safety and long working life of any machine depend on its maintenance. Maintenance and technical assistance is not a recommendation, but mandatory for the owner of the machine. The manager must make sure that all maintenance is carried out according to the instructions in this manual, and in compliance with the applicable laws in force. MDB does not assume any liability for damage to the machine or for accidents due to inadequate maintenance, inadequate technical assistance or failure to comply with the laws in force. Only original spare parts authorized by MDB must be used if components are replaced in the event of repairs. MDB may not be held responsible for damage to the machine or accidents due to the use of non-original parts.

Caution

Before starting any type of maintenance or repair of the Green Climber LV500 Pro, apply a sign with the wording "DO NOT USE" or similar on the control panel.

Please note!

The maintenance and technical assistance instructions and intervals prescribed by MDB must be respected.

Responsibilities and tasks

TYPE OF OPERATION	REQUEST	CARRIED OUT BY
Maintenance	Owner	Owner / Operator / MDB technical assistance centre
Technical Assistance	Owner	MDB technical assistance centre

Disposal of waste

Improper waste disposal can endanger the environment. Never collect maintenance fluids in glass containers. Drain all liquids into a suitable container. Potentially harmful liquids must be disposed of in accordance with the environmental regulations of the country in which the operations are carried out. Always use airtight containers when draining fluids. Do not pour waste liquids onto the ground, down a drain or in any source of water.

Working time counter
The operating hours counter shown in the relevant section of the display must be monitored so as to better manage and monitor the times for all the fundamental care and maintenance operations of the Green Climber LV500 Pro. The maintenance and/or technical assistance operations referred to in the tables on the following pages must be carried out when the hours indicated in the tables represented in the following paragraphs have been reached. In the foreseen cases, the machine must be taken to the nearest service centre to be subjected to the necessary operations by qualified personnel.

Please note!

Observing the indicated maintenance and technical assistance frequency increases the machine's service life and reduces the possible onset of unpredictable faults during operations. Failure to respect the technical assistance schedules, or if assistance is not carried out by an authorized MDB technical assistance centre in the foreseen cases, will void warranty rights.

Opening the hood
The hood must be opened by means of the elastic pin shown in figure 6.1 for most maintenance and repair operations.

Fig. 6.1

Fig. 6.2

Fig. 6.1 Pin for complete opening of the hood
Fig. 6.2 Machine with the hood open
General cleaning of the machine
Below is the list of the types of maintenance operations to be carried out on the machine:

1. Cleaning;
2. Visual inspection;
3. Lubrication and fluid level checks;
4. Control and regulation of mechanical components;
5. Replacements.

Service maintenance symbols:

Functional test	
Replacement	
Visual inspection	
Restoring the Level of Liquids	
Cleaning	

The tables below relate to the maintenance operations to be performed based on pre-established time schedules or in relation to the working hours of the machine.

At the beginning of every working day

Inspection	Action
Cooling fluid	
Control panel display and remote-control LEDs	
Engine oil	
Hydraulic oil	
Fuel level	
Motor	

All safety devices	
Fuel filter/water separator	
Air filter	

Every 50 hours of operation or at least once every 6 months

Inspection	Action
Radiator fins	

Cleaning the machine
Only clean the device when it is not connected to the power supply, every day or at least after each use. Only use only environmentally friendly, pH-neutral detergents that do not irritate the skin. This will enable to respect the environment, prevent oxidation of the device and avoid causing irritation and/or injury to maintenance technicians.
Only clean in places that are suitable for washing (with oil separators). Do not use rags that could scratch or scrape.

Important!

Proper cleaning increases the device's reliability and durability.

Caution!

Wet or damp electrical components can cause the device to malfunction or create short circuits in the electronic systems.

Instructions for high pressure cleaning

Caution!

Failure to follow these instructions could result in damage to the machine.

- The temperature of the water and/or detergent must not be above 60°C;
- The nozzle must always be kept at a sufficient distance from the machine.
- The water jet must never be aimed at:

  - Electrical or electronic components (to avoid water entry).
  - Plastic components (to avoid deforming or breakage);
  - Bearings or support points (the dirt and lubricant must, in any case, be removed).
  - Labels (they could be removed or become illegible).

Engine maintenance

Preliminary information useful for engine inspection and maintenance.
This section of the manual indicates the operations that can be performed directly by a skilled operator. Routine checks and maintenance operations must be carried out at the

frequency and methods indicated in this manual and are the responsibility of the user.
Failure to comply with standards and maintenance times will jeopardize the proper functioning of the engine and its duration and, consequently, cause the manufacturer's warranty to lapse. The following warnings must be read carefully before working on the engine in order to prevent damage to people and objects.

Warnings:
- All maintenance and control operations must be carried out with the engine switched off and at room temperature, while refuelling and checking the levels must always be performed in a horizontal position.
- Make sure that the oil dipstick is inserted correctly and that the oil drain and filler caps are properly tightened before each start, to avoid oil leaks,

Checking and cleaning the engine
Engine oil
Checking: every 10 hours of operation
Unscrew the upper oil filler cap for oil filling. Unscrew the side cap if this last action is not possible. Remove the oil level check dipstick and check that the level is close to Max. Top up if the level is not close to Max. Reinsert the dipstick correctly.
Screw back on the upper or side cap. Please refer to the procedures set out in the paragraph "Engine oil refuelling" and images on p. 12 of Chapter 4 for further details on how to carry out this operation.
Replacement: every 500 hours of operation

Please note!

MDB recommends using 10 W 40 oil.

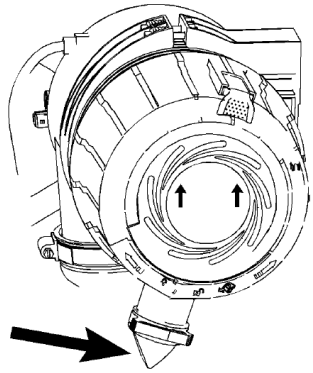
Caution!

If the oil level is too low or the oil pressure warning light comes on, the cause must be identified and solved. Continuing to use the machine if the problem is not solved could cause irreparable machine damage.

Cooling fluid
Checking: every 10 hours of operation
Replacement: every 1000 hours of operation
Start the engine without the cap on the radiator and make sure that the liquid covers the pipes inside the radiator by about 5 mm, topping up if necessary.
Do not fill up the radiator completely but leave enough space for coolant fluid expansion.
Screw the radiator cap back on once the operation is concluded.
Make sure that the cap on the radiator or expansion tank, if any, is properly fitted before starting up the machine, to prevent high-temperature liquid or steam from escaping.
Please refer to the procedures set out in the paragraph “Refilling coolant fluid” in chapter 4.

Checking and cleaning the air filter
Checking: every 10 hours of operations or once a day
Replacement: every 250 hours of operation or every 6 months regardless of the number of cleaning operations carried out.

MDB machines are designed to work in particularly severe conditions with regards to air filters (very dirty and dusty environments). The engine air filter should be checked and cleaned every 250 hours of operation or at least every 6 months in less severe operating situations, while the dust valve should be inspected every 10 hours of service or at the end of the working day.
Squeeze the rims shown in the following figure to remove any accumulated debris to check the valve.



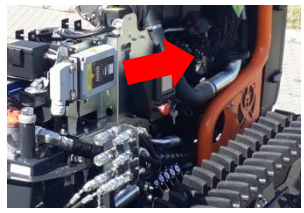
The warning lights and buzzers of the control panel display signal clogging of the engine air filter.

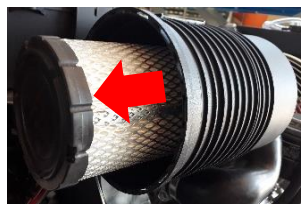
Important!

Never remove the air filter when the engine is running, to avoid damage to the engine itself.

Clean the main filter as follows:

1. Remove the cover by unhooking it from the two metal clips as shown in the following figure
2. Lift out the unit
3. Clean the filter
4. Reinsert the filter
5. Reposition the cover






Cleaning must be carried out using compressed air with 42-71 psi (0,29-0,49 MPa, 3,0-5,0 kgf/cm2) pressure.
Aim the air flow carefully up and down the creases from inside the filter element. Do not bang or hit the filtering unit to remove dust. Do not use air filters with damages creases or gaskets, as the dirt could enter and damage the engine. Always start from the inside when the primary filter elements are cleaned to force the dirt particles outwards. Aim the pipe so that the air flows into the unit along the length of the filter to avoid damage to the creases of the

paper. Do not aim the air flow directly on the primary filter unit. Cleaning and inspecting the filtering unit correctly will enable it to be used for up to three times longer. Clean the inside of the housing of the air filter with a damp cloth; do not use compressed air.

The secondary filter must be replaced every three cleaning operations of the primary filter. Never try to re-use it by cleaning it.
Remove the secondary filter as follows:

1. Remove the cover of the filter box.
2. Remove the primary filter.
3. Cover the air inlet hole.
4. Clean the inside of the housing with a damp cloth. (Do not use compressed air to clean the housing).
5. Uncover the air inlet hole.
6. Insert the secondary filter.
7. Install the primary filter.
8. Reposition the cover.
9.


The air filter is connected directly to the pre-filter positioned in the rear left part of the machine (following figure), which, however, is self-cleaning.

Checking and maintenance of the radiator - exchange surface
- Every 50 hours of operation
The engine manufacturer foresees 250 hours of normal use. A reduced interval of 50 hours is indicated in consideration of the machine's working environments, which are particularly dusty.

Caution!

1) Wear protective goggles when using compressed air.
2) The radiator exchange surface must be cleaned on both sides.

Check the exchange surfaces of the radiator and clean the surfaces with a brush soaked in a suitable detergent if they are clogged.

Oil or water side cleaning

After having removed the exchanger, clean by circulating nitro thinner oil inside the radiator, taking care to circulate the solvent from the bottom up. Clean the inside of water radiators with abundant water. This operation can take from 10 to 30 minutes according to the requirements encountered during the inspection of the exchanger. After carrying out this operation, expel the detergent remaining inside the radiator by means of compressed air.

Air side cleaning

Carry out this operation using compressed air or water. Make sure that the air jet is aimed parallel to the fins to avoid damaging them. Using a detergent product will enable to achieve better results during this type of intervention. If the clogging of the exchanger is caused by an accumulation of oil or grease, cleaning can be carried out using a jet of steam or hot water. The electric motor must be protected during cleaning operations.

Caution!

Be careful not to damage the fins with compressed air.

Caution!

Clean the fins thoroughly using detergent and rinse with tap water if they are very dirty.

Caution!

NEVER use high pressure water or compressed air with pressure above 193 psi (28 kPa; 19686 mm Water) or a wire brush to clean the radiator fins.

Caution!

The Green Climber LV500 Pro is equipped with a reversible fan (Cleanfix), which facilitates maintenance and cleaning of the radiator, also during use of the machine on site. The radiator can be easily and quickly freed from dirt that can accumulate especially when working in environments with dust and debris in which MDB machines must normally operate by inverting the air flow with respect to the normal direction of use.

Do not stay in the area behind the machine (recommended area for normal use of the machine) when using this system, and make sure that other workers are not in the area, to avoid being hit by any debris ejected by the radiator.

Caution!

Do not clean the engine by reversing the flow of the fan when the engine itself is above the critical temperature range (red range) to avoid overheating.

Maintenance of other mechanical engine components: For maintenance and replacement of other engine components, (such as: alternator belt, fuel pipes and sleeves, starter motor, alternator, filter cartridges), please refer to the two tables below (Table 1. Checking and cleaning, Table 2 Replacement) and possibly directly to the manual of operations and maintenance of the engine manufacturer (Kohler).

Daily visual checks:
The checks and associated maintenance or replacement measures referred to in this paragraph must be carried out daily and, in any case, before each use.

Please note!

Missing, damaged or worn components must be replaced immediately.

The following is a list of visual inspections to be carried out before using the machine:

Clamping elements:
- Safety locks (pins, clips, etc.)
- Tightening of screws and nuts.

Steel components:
- Absence of cracks on the components, in particular in the welds and curved edges.
- Absence of deformations.
- Absence of corrosion.

Hydraulic system:
- Absence of leaks in the hydraulic system (cables, pipes, cylinders, etc.).
- Absence of cracking and deformation of hydraulic system components.
- Hydraulic oil level.

Electrical system
- Cable integrity, deformation, cracks and porosity.
- Integrity of pipes and protective sheaths.
- Switch, display and control unit functions

Labels
- Presence and legibility of safety stickers
Emergency devices
- Check operation of the emergency stop buttons.

Danger!

If the machine does not stop after pressing the emergency stop button, there is a high risk of fatal accident.

Working with a defective emergency stop switch is gross negligence. Do not use the machine if the emergency button(s) does not work, contacting the MDB support centre immediately.

Checking of control operations.
Press any control lever on the radio remote control or on the control panel. The machine must move without problems.
- Press the emergency stop button with the machine in motion. First the one on board the machine, then perform the same check on the one on the radio remote control. The machine must stop, and the engine switch off when the emergency button is pressed.
- Press any control lever again. The machine must not move.
- Release the emergency stop button. Operate the levers on the radio remote control and on the control panel: the machine must not move.
Carry out the steps indicated in chapter 5 of this manual: operating the control levers on the remote control or on the ground, the machine must move.

Caution!

Do not force the movement of the cable or accelerator lever. This could damage the regulator lever, cable or accelerator lever, also leading to irregular engine speed control operations.

Greasing of mechanical parts
Grease every 8 hours and in any case after each wash.

Important!

MDB recommends using biodegradable lubricants. Do not mix different lubricants together. Even biodegradable greases must not be released into the environment. Lubricants must be free from solid residues. Do not use graphite-based lubricants.

Caution!

Failure to observe maintenance intervals, improper or lack of lubrication can cause damage to the device, high repair costs and downtime.

Danger!

The machine must not be operated in any way during the lubrication process as it could cause a danger to life. Do not keep the keys inserted in the control panel and keep the battery release lever in the safety position during this process.

Lubrication:
- Clean and remove the used grease and impurities accumulated with use and over time carefully before lubrication. The dirt present in the old grease would otherwise be pressed on the surface of the devices increasing wear.

Caution!

The presence of dirt in the lubricants can quickly lead to wear, followed by machine downtime and high repair costs.

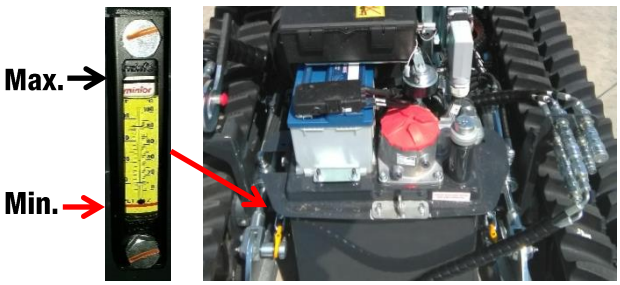
- Press the grease onto the support point.
- Remove any excess grease after lubricating.
- Excess grease cannot be reused.
- Dispose of excess grease as per national laws in force

Caution!

If lubricant gets into your eyes, rinse immediately with clean water and contact a doctor or go to the hospital! If you get lubricant on your skin, clean the affected area with abundant clean water.

Checking and refuelling the hydraulic oil level

The hydraulic oil level must be refuelled and checked with the machine not on a slope and with the engine stopped. Lift the hood of the machine using the flexible pin as shown in Figures 6.1 and 6.2 at the end of each working day. After having located the hydraulic oil tank and cap (see following figure) for simple topping up, remove the cap, pour in the oil until its level reaches about 3 cm from maximum, corresponding to the black line of the indicator positioned on the right wall of the tank. Screw the cap back on. Empty the tank with the engine warm, but off during complete replacement of the hydraulic oil, in order to obtain rapid and complete draining of the oil.



Caution!

Use the same type of oil already in the system to top up

Caution!

Always wear protective gloves to protect the skin when performing these operations. To choose the right kind of gloves, refer to the safety data sheet for the fluid being used.

Caution!

Do not disperse used oil in the environment as it is highly pollutant. Before restarting, make sure that the drain plug and the refuelling cap have been tightened properly to avoid spilling lubricant.

Replacing the hydraulic oil

The hydraulic oil must be changed after the first 500 hours of operation, and then every 2000 hours of operation or at least once a year.

Please note!

We recommend that the oil be replaced by an authorized service centre.

Important!

Annual oil maintenance greatly extends oil change frequency. This means reducing user costs and those for the disposal of used oils, as well as reducing pollution. Maintenance of the hydraulic system must be carried out at least once a year by MDB's authorised service centre and, in any case, taking into account the hours of use of the machine.

Maintenance of the hydraulic system includes the following:

- **Oil filtering.**
- **Elimination of water.**
- **Checking oil purity.**
- **Replacing the filter.**
- **Replacing the oil.**

Important!

MDB recommends the use of ENIOSO 46 or PANOLIN HLP SYNTH 46 oil.

Track maintenance and tension

Daily maintenance:

The tracks must be retired as indicated below on a daily basis, or in any case in the event that excessive transverse play of the track is noted.

Locate the grease fitting of the track tensioning cylinder shown in the previous image and as better illustrated in the following image.

Connect the grease pump to track cylinder tensioner lubrication unit.

Apply the copper adapter to the end of the pump pipe, insert it on the valve head, and pull it to lock it. Then operate the pump lever until the pressure reaches 150 bar.

- **Check track tension.**
- **Check tracks wear and condition.**

Caution!

Replace the tracks when there is 10 mm of tread left, or even earlier if there are cuts or cracks.

Check that there are no foreign bodies between the rolls and the tracks, between the idle wheels and the tracks, or between the drive wheels and the tracks.

Monthly maintenance:

- Check the roller mountings visually.
- Check for any play in the bearings.

Caution!

The grease pump must be equipped with a pressure gauge with scale up to 250 bar (see picture below).

This check must be carried out on a daily basis, in particular when the tracks are new. In this phase, in fact, the rubber covering the catenary wears quickly (pay particular attention during the first 10 hours of operation).

Technical assistance

Important!

Technical assistance can only be carried out by MDB authorised assistance centres. All forms of warranty will be voided if this is not respected. See the machine's operating time on the control unit display to programme technical assistance. When the counter shows a use of 0 to 10 hours, the machine owner must start to plan the machine's maintenance. Keep a logbook of the maintenance carried out. Each maintenance and repair operation must be recorded in the logbook and must be signed and stamped by the authorized MDB service centre.

Technical assistance symbols

Functional test	
Replacement	
Visual inspection	
Check the tightening of screws	
Cleaning	

First technical assistance after 10 hours of operation or in any case after 6 months.

Maintenance	Action
Engine oil level	
Coolant liquid level and radiator control	
Dry air filter cartridge	
Rubber pipes	
Check the tightening of screws and nuts	
Check the track tension	

Every 50 hours of operation or at least once a year.

Maintenance	Action
Fuel filter/water separator: empty	
Battery check	
Check and adjust the V-belt of the cooling system fan	
Check and clean the radiator fins	

Every 125 hours of operation or at least once a year.

Maintenance	Action
Tracks: wear, link condition, pinions, lower rollers	
Tighten the track screws	

Every 250 hours of operation or once a year

Maintenance	Action
Check and adjust the V-belt of the cooling system fan	
Empty the fuel tank	

Every 500 hours of operation or once a year

Maintenance	Action
Engine oil	
Engine oil filter cartridge	
Fuel filter cartridge	
Air filter element	
Remote control	
All safety devices	
Pump capacity - RPM	
Electrical lines/hydraulic pipes, tightening of screw clamps	
Rubber sleeves (air/coolant intake)	
Fuel pipes	
Hydraulic oil	
Hydraulic oil filter cartridge	

Every 1000 hours of operation

Maintenance	Action
Rubber sleeves (air/coolant intake)	
Flexible rubber pipes.	
Intake and exhaust valve clearance (1)	

Every 1500 hours of operation

Maintenance	Action
Inspection of the crankcase vent system	

Every 2000 hours of operation or in any case every 2 years

Maintenance	Action
Cooling fluid	
Fuel pipes, cooling fluid pipes, lubricating oil pipes and vents	

Every 3000 hours of operation or in any case every 2 years

Maintenance	Action
ECU and related sensors and actuators(1)	
Turbocharger(1) (air wash if necessary)	
EGR Valve (1)	
DPF DOC (1)	
Intake / exhaust butterfly valve (1)	
Injector:	

Track tread height ≤ 10 mm

Maintenance	Action
Tracks	

(1) Contact an authorized YANMAR engine dealer or distributor.

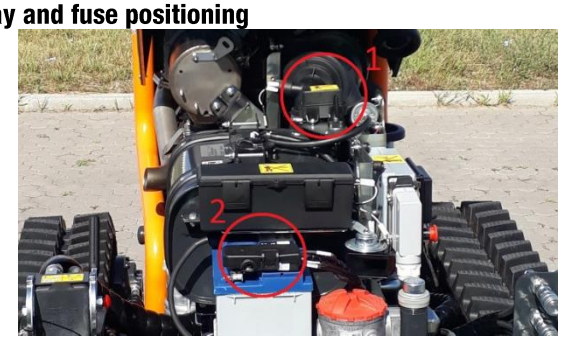
Relay and fuse battery

Battery

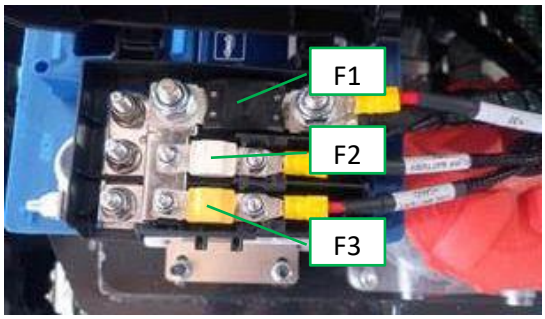
Proceed as follows to carry out maintenance on the battery, on the battery cables, or to inspect or replace the battery itself.

1. Turn the engine start switch and the battery disconnect lever to OFF;
2. Locate the battery at the front of the machine, which is easy to see when the hood is open;
3. Disconnect the negative cable from the battery taking care not to let it come into contact with the positive pole of the battery itself;
4. Disconnect the negative battery cable from the frame to inspect the cable;
5. Disconnect the positive battery cable from the battery.
6. Carry out the repairs needed. Replace the cables or battery, if necessary;
7. Connect the positive battery cable to the battery.
8. Connect the negative battery cable to the frame of the machine.
9. Connect the negative battery cable to the relative pole of the battery itself;

Relay and fuse positioning

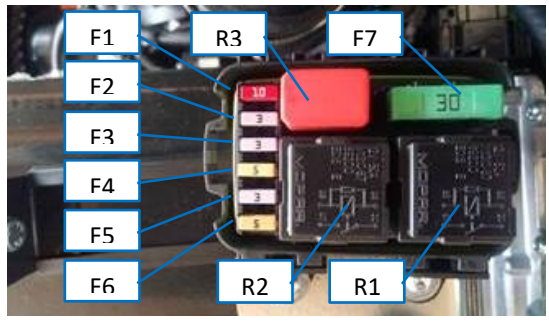


Position of "1" Main and "2" Starter Fuse Boxes



Box "1": main fuses

Ref.	Description	Amp
F1	Fuse for machine power supply and starter motor (special fuse CAL2)	
F2	Starter motor relay fuse	80
F3	Spark plug relay fuse	60



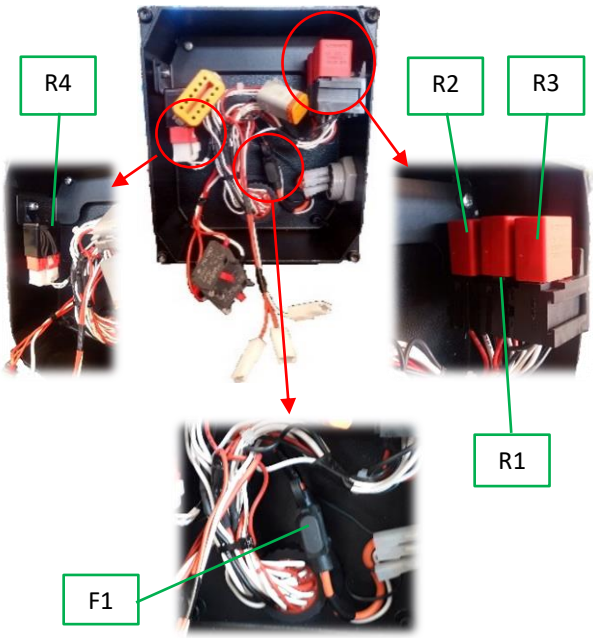
Box "2": starter motor fuse (Starter)

Ref.	Description	Amp
F1	EGR relay power supply	10
F2	Radio battery charger power supply	3
F3	Work lights	3
F4	Horn	5
F5	Clean fix	3
F6	Position lights	5
F7	Engine control unit power supply	30
R1	Starter motor relay	
R2	Spark plug relay	
R3	Relay 15/54	

Control panel

Control panel

To access the fuse housing control panel, located inside the control unit itself, simply unscrew and extract the four screws at the corners of the same, so as to be able to extract the front panel of the same.



Internal control panel

The following table lists the fuses and relays inside the control panel.

Ref.	Description	Amp
F1	Buzzer fuse	3
R1	Light relay	
R2	Clean fix relay	
R3	Buzzer relay	
R4	EGR relay	

Quick troubleshooting

START		
PROBLEM	**CAUSE**	**SOLUTION**
1. Machine does not start	Emergency button pressed	Disengage emergency button
	Battery contact key not inserted/connected	Insert/connect battery contact key
	Out of fuel	Fill the tank
	Fuse blown	Replace damaged fuse
2. The engine starts but the machine does not move	Brakes locked / hydraulic oil cold	Move backward and forward repeatedly until unlocked
	Pump or motor problem	Contact the dealer
	Speed potentiometer on the radio remote control set at zero	Turn the potentiometer until reaching the desired speed
3. The engine starts but the machine does not go straight.	Steering potentiometer not positioned centrally	Turn the potentiometer to the centre
	Pump solenoid valve dirty or ruined	Contact the dealer
	Hydraulic pump or motor damaged	Contact the dealer
	RC fuse blown	Contact the dealer
4. Engine starts, machine does not move - warning light on transmitter off	Radio remote control connection not made	Connect transmitter and receiver
5. The engine turns off	Faulty electro-stop	Contact the dealer
	Out of fuel	Fill the tank
	Emergency button pressed	Disengage emergency button
	Lack of radio signal	Connect transmitter and receiver

REMOTE CONTROL		
PROBLEM	**CAUSE**	**SOLUTION**
6. Radio remote control not working	Flat battery	Recharge the battery
	Radio remote control connection not made	Connect transmitter and receiver
	Emergency button pressed	Disengage emergency button
	Transmitter with serial number different from that of the receiver	Use a transmitter with the same serial number as the receiver
7. Remote control not working: RF busy LED flashing or off	Lack of radio signal	Check aerial connection
	Interference from other radio signals	Use only one machine at a time
	Interference from other radio signals	Use emergency electrical cable
8. Remote control not working: Battery LED off	Fuse blown	Replace the receiver fuse
	Flat battery	Recharge the battery
9. Remote control not working: battery LED flashes intermittently	Shredder command on	Turn off the shredder
	Aux 2 activated	Turn Aux 2 off
10. Remote control battery on the machine does not charge	Battery charger cables disconnected	Connect the battery charger cables

TRACKS		
PROBLEM	**CAUSE**	**SOLUTION**
11. Track has come off	**Tracks excessively worn**	**Replace the tracks**
	Mechanical track structure failure	
	Poor track tension	**Tighten the tracks**
12. Tracks loose	**Rubber worn**	**Tighten the tracks**
	Poor track tension	
	Track tension system failure	**Contact the dealer**

BEEPER / HORN		
PROBLEM	**CAUSE**	**SOLUTION**
13. Intermittent signal while driving	**Fuel running out**	**Fill the tank**
	Alternator problem	**Contact the dealer**
	Routine maintenance expired	**Carry out maintenance as indicated by the operations and maintenance manual**
14. Intermittent signal and machine turns off	**Low oil level**	**Do not use the machine until the cause of the problem has been identified so as to avoid greater damage. Contact the dealer**
	High engine temperature	

Attachment A - Example of EC declaration of conformity

DECLARATION N° ____/____

CE CONFORMITY DECLARATION

(According to the attached II point 2006/42/CE)

The undersigned Mario Di Biase legal representative of the firm MDB S.R.L., with premises in Loc. S. Onofrio 6/A

Lanciano (CH) Italy, manufacturer of the following attachment: MULTIFUNCTIONAL REMOTE-CONTROLLED DOZER

DESIGNATION	SELF-PROPELLED TRACTOR
SERIES	GREEN CLIMBER
MODEL	LV500 PRO
REGISTRATION N°	____
POTENZA MOTORE YANMAR 4TNV88C-DYEM2	35.5 kW
IMET REMOTE CONTROL	M880- THOR2 X4N -12085-00
YEAR OF CONSTRUCTION	____

equipped with the following attachment:

TYPE / MODEL:	_____	REGISTRATION N°:	____

DECLARES under his responsibility

THAT IT IS IN CONFORMITY WITH THE DIRECTIVES:

2006/42/CE (Machine), 2006/95/CE (Low Tension), 2004/108/CE (EMC),

2000/14/CE art. 12 All. I n. 16 e 2005/88/CE (Environmental Acoustic Emission)

AND WITH THE HARMONISED NORMATIVES:

EN ISO 12100:2010, EN 60204-1:2006 + AC:2010, EN 349:1993+A1:2008, EN ISO 13857:2008; EN ISO 4254-1:2013, EN ISO 16231-1:2013, EN ISO 4254-7:2010, EN ISO 4254-12:2012, EN ISO 5395-1:2013, EN ISO 3744:1995, ISO 6395:1988, (if applicable)

The person authorised to compile the technical file is Mr Mario Di Biase, residing in Lanciano (CH), C.da S. Onofrio, 6/A.

The equipment which can be attached to Green Climber LV500 Pro, and which are authorised by MDB S.r.l. and covered by the following CE declaration of conformity, are:

FLAIL UTD/130 - TILLER CS/135 - SPRAYER BV300 - STUMP GRINDER FTR400 - SNOW BLOWER DS/14 - LAWNMOWER SRM/215

Equipment not specifically stated are excluded from this declaration.

DECLINES

any responsibility for accidents to persons or property resulting from tampering with the machine by third parties, or by lack of maintenance or repair.

Lanciano, __/__/____

Legal Representative MDB S.r.l.

Sig. Mario Di Biase

M D B s.r.l.
C.da S. Onofrio, 6/A
66034 LANCIANO (CH)
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66022 Fossacesia (CH) Italy

Tel. +39 0872 50221 - Fax +39 0872 50231

COMPANY WITH QUALITY SYSTEM CERTIFIED BY DNV GL = ISO 9001 =

Attachment B - Use of shredder tools

FOREWORD

As described in this manual, the Green Climber LV500 Pro has been designed mainly as a multi-purpose bulldozer to allow the use of different equipment installed on the front axle of the machine by means of the special plate with quick coupling (displacement).
The SHREDDER (referred to in this Annex B) is part of this equipment. The user must note that only equipment approved and authorised by the manufacturer can be applied to the Green Climber LV500 Pro. MDB declines any responsibility if equipment other than that listed in this manual, or in any case not authorised by MDB, is applied to the LV500 Pro.

INSTALLING TOOLS ON THE MACHINE

Proceed as follows if the Green Climber is delivered without tools or they need to be installed.

Foreword:

Caution!

All operations described in this chapter must be carried out only with the machine switched off. To carry out the operations described, the shredding equipment must be correctly connected to the appropriate supports (supplied at the same time as the equipment referred to in this attachment) fixed correctly on the ground and, if possible, in a protected and dry place, making sure to leave the necessary space for the machine to connect.

Attaching the tool to the machine:

1. **Position the Green Climber LV500 Pro in front of the attachment plate of the tool (Fig. A).**
2. **Manoeuvre the machine by bringing its swing plate into contact with the attachment plate of the tool.**
3. **Then lift the swing plate so as to insert its upper edge into the two hooks of the tool plate (Fig. D).**
4. **Secure the attachment plate of the tool to the lower edge of the swing plate by means of the 2 specific locks and the related 4 screws (Fig. E).**
5. **Lower the tool by means of the machine controls.**
6. **Lower the stop lever positioned on the left hook of the upper attachment plate of the tool and then tighten, also by hand, the other hexagonal screw (Fig. E). At this point, make sure that the pin of the lever fits into one of the grooves on the upper edge of the tilt plate by sliding the plate sideways.**
7. **Tighten the screw positioned on the right hook of the attachment plate of the tool (figure D).**

Figure A

Fig. B

Fig. C

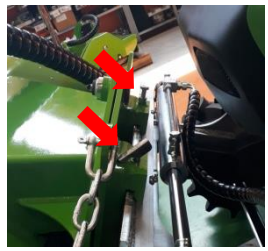


Figure D

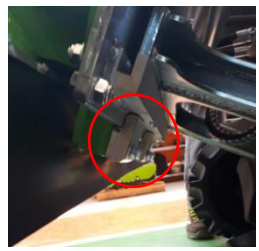


Figure E

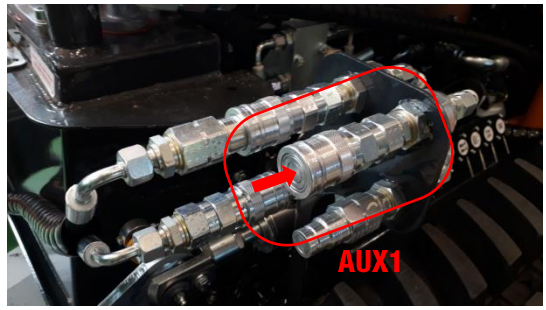


Figure F

The shredder must now be connected to the hydraulic system in order to power up and operate the equipment itself. The two connections must be carried out by means of the quick connection systems on the front right and front left sides of the machine.
Connection 1: in the front left area of the vehicle, there is another connection (M / F type) with 2 couplings superimposed quick couplings, indicated AUX1 in

figure F in addition to the couplings used for the lateral movement of the tool (controlled by the joystick 2 in fig. N on the following page). The pair of pipes that power auxiliary services, such as, for example, the opening of the front door of the forage harvester, governed by the special lever of the transmitter (figure N), must be connected in these couplings. The couplings connect simply by inserting them firmly. Pull back the collar on the female connector (figure G) to disconnect them.

<u>Connection 2:</u> Join the plate to the ends of the pipes that power the main engine of the tool (for example the rotor of the shredder) to complete the connection of the equipment to the hydraulic system correctly. To do this, open the door of the fixed plate located on the front right side of the machine (figure G). Move the lever forward (figure H) keeping the red button pressed. Position the movable plate on the fixed one (figure G) and push the lever back as far as it will go, i.e. until you hear the click of the red button (figures I and L/M).

Wait until the oil cools and then, holding down the red button, push the lever forward, disconnect the plate.

Figure G

Figure H

Figure I

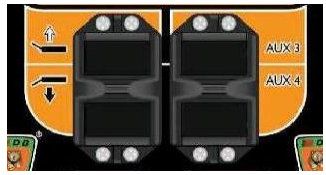
Figure L

Figure M

<u>Shredder commands:</u>

Once the two different connections described in the previous pages have been correctly made, the shredder will respond correctly to the commands given by the operator via the remote control as described in the section "Use of the remote control and operating the machine" of the chapter. The summary of the main commands concerning the use of this tool is shown below for quick reference.

Joystick 2: sideways movement translation and position of the shredder (up or down)



Lever 1: In the case of the shredder, the left auxiliary control regulates the opening or closing of the door.

Section A: the first command manages the switching on and off, the second command reverses the rotation direction of the same.

Section D: selector to insert floating or fixed movement of the tool plate and lighting control.

LOGBOOK

Routine maintenance

NAME OF THE MACHINE	**Green Climber LV500 Pro**
SERIAL NUMBER	
YEAR OF MANUFACTURE	

Date	Maintenance after 10 hours of operation	Person in charge	Stamp and signature

Date	Maintenance after 50 hours of operation	Person in charge	Stamp and signature

Date	Maintenance after 125 hours of operation	Person in charge	Stamp and signature

Date	Maintenance after 250 hours of operation	Person in charge	Stamp and signature

Date	Maintenance after 500 hours of operation	Person in charge	Stamp and signature

Date	Maintenance after 1000 hours of operation	Person in charge	Stamp and signature

Date	Maintenance after 2000 hours of operation	Person in charge	Stamp and signature

Date	Maintenance after 2500 hours of operation	Person in charge	Stamp and signature

Special unscheduled maintenance

Date	Reason for the maintenance	Person in charge	Stamp and signature

Green Climber

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https://www.mdbsrl.com