Rev. 00-21

ENGLISH

Translation of the original language version

EN

GREEN CLIMBER LV400 Pro

OPERATIONS AND MAINTENANCE MANUAL

WEBSITE

https://www.mdbsrl.com

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 LV400 Pro.

The instructions for use must be observed strictly to obtain the best performance, to ensure the parts last for a long time and to work safely.

Users of the LV400 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 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 LV400 Pro.

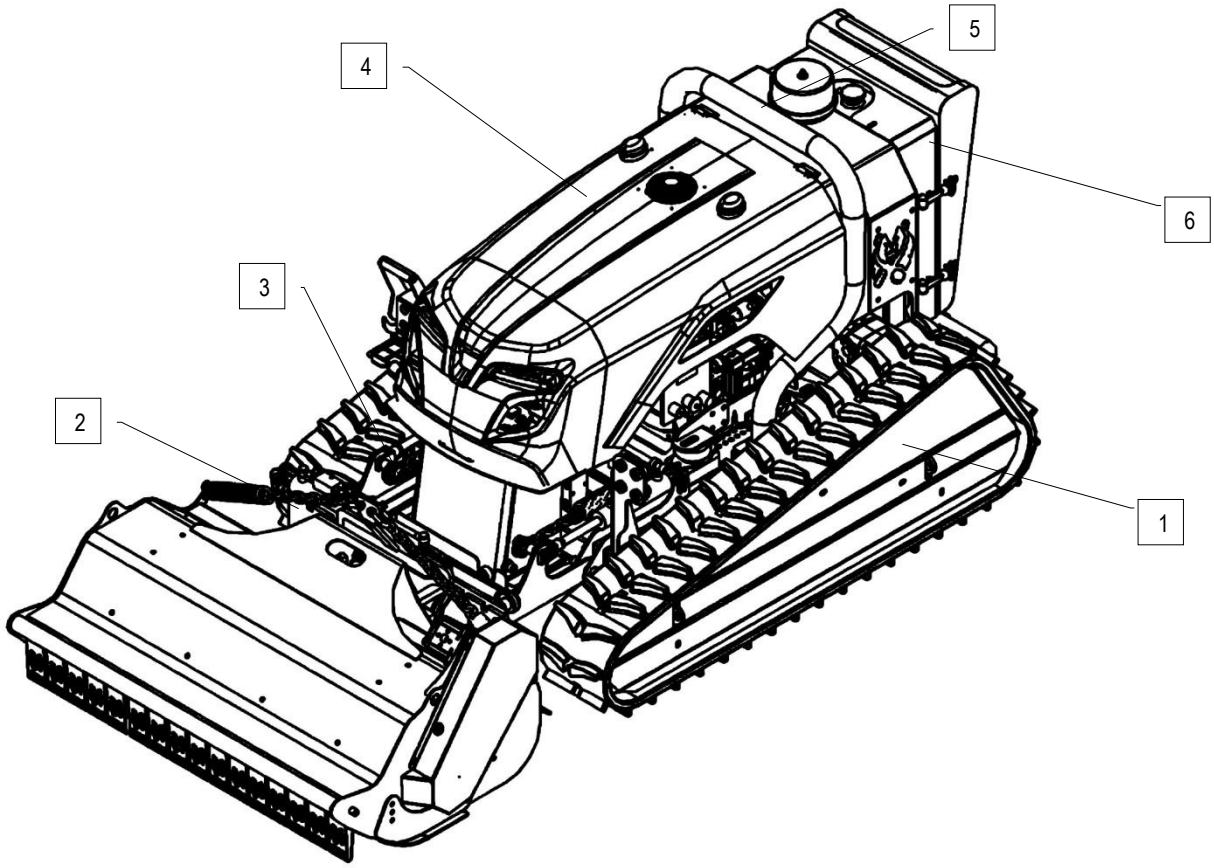
The manual includes essential information regarding the care, maintenance, operational safety, and conservation of the machine over time.

Pleasant reading.

TABLE OF CONTENTS

1 - DESCRIPTION OF THE MACHINE

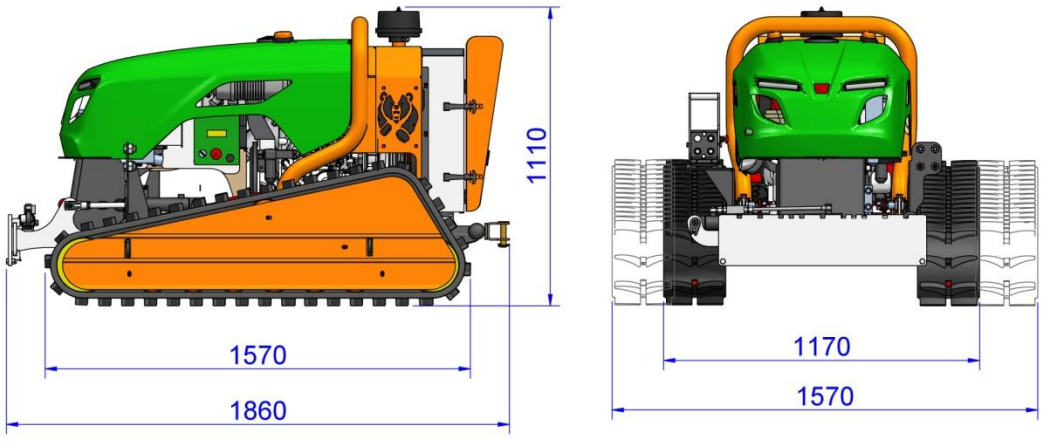
Brief indication of the parts



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

Machine height	1110 mm
Min. machine width	1170 mm
Max. machine width	1570 mm
Machine length	1860 mm
Maximum working slope at maximum width (1570 mm)	56°

WEIGHTS

Weight of the machine when empty	Kg 875
Mass of engine only (without fuel)	Kg 148
Hydraulic pumps	Kg 35

ENGINE

Engine Code	3TNV88-BDSA2
Dimensions L x W x H (mm)	583 x 514 x 622
Operating temperatures	-20 +50
Cooling	Liquid with radiator
Number and position of cylinders	3 in-line
Bore (mm)	88
Run (mm)	90
Total cubic capacity (lt)	1642
Maximum rated power (KW)	26.9
Matching capacity (rpm)	3000
Intake	Natural intake
Fuel	Diesel
Combustion system	Direct injection

ADDITIONAL TECHNICAL DATA

Diesel tank capacity	20 litres
Radiator capacity	3.3 litres of water - 1.9 litres of oil
Engine oil capacity (Max/Min)	6.7/3.9 litres
Capacity of hydraulic oil tank	17 litres
Type and version of radiator	IRA Radiatori Engineering srl - Mod RC10452812C
Type and version of remote control Rx/Tx	FSE 727 radiobus / HBC Spectrum 2

General information

This manual contains the information and what considered necessary for the knowledge, good use and normal maintenance of the "Green Climber LV400 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 LV400 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.

Warranty

The warranty covers manufacturing defects. The manufacturer may not be held responsible for any damage that occurs during transport. The machine is transported without packaging, covered with a plastic film that protects the parts subject to oxidation in the event of contact with water or moisture.
The “Manufacturer” undertakes to fasten and stabilise the machine, assuming responsibility if transport takes place by its own means.
All care will be taken to ensure that the machine does not suffer damage in the case of transport by Courier but, as already indicated above, the “Manufacturer” may not be held responsible if damage occurs.
Adequate insurance coverage should therefore be requested if transport takes place by Courier. The Client is responsible for checking the goods on arrival, informing the Courier and the "Manufacturer" of any damage.
The machine may be packed in a wooden crate - with relative extra cost - if the Client deems necessary.
The accessories and documents that accompany the machine are located on board, duly protected to prevent any damage. Items not covered by the warranty are:
- Parts of the machine not manufactured directly by MDB (tracks, transmission belts, bearings, gear boxes, etc.), which are covered by warranty from their respective manufacturers.
- Items that have deteriorated due to wear.

Exceptions that void the warranty:
- Modifications carried out on the machine without the written approval of MDB.
- Repairs carried out by unauthorised workshops.
- Use of non-original spare parts.
- Negligence during maintenance.
- Use of the machine not compliant with what defined in this manual.
- Removal of protection devices applied to the machine. These must never be removed, must also be inspected periodically and, if damaged, reinstated to their original conditions;
- Failure to comply with the safety measures regarding the machine subject of the operations manual.

The warranty period is specified in the offer and does not exceed 12 months from the date of shipment.

Warranty requests:
Warranty requests must be submitted in writing to MDB by the dealer, within 4 weeks from the occurrence of the fault, specifying: name and address of the user, type, model, serial number, date of sale, date of the fault, hours worked, circumstances and presumed causes. Items with faults must be sent to MDB to be examined in order to grant the warranty, authorising the replacement of said item(s).

Manufacturer’s ID and assistance

Name: MDB S.r.l.
Headquarters: C.da Sant’Onofrio, 6/A – LANCIANO (CH) - ITALIA
Tel.: +39 0872.50221
Fax: +39 0872.50231
E-mail: info@enoveneta.it
VAT number: 01960690699
TECHNICAL ASSISTANCE
Technical assistance is always provided by the manufacturer. For further information please call: +39 0872.50221

Machine ID

The LV400 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: EC ID 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 LV400 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

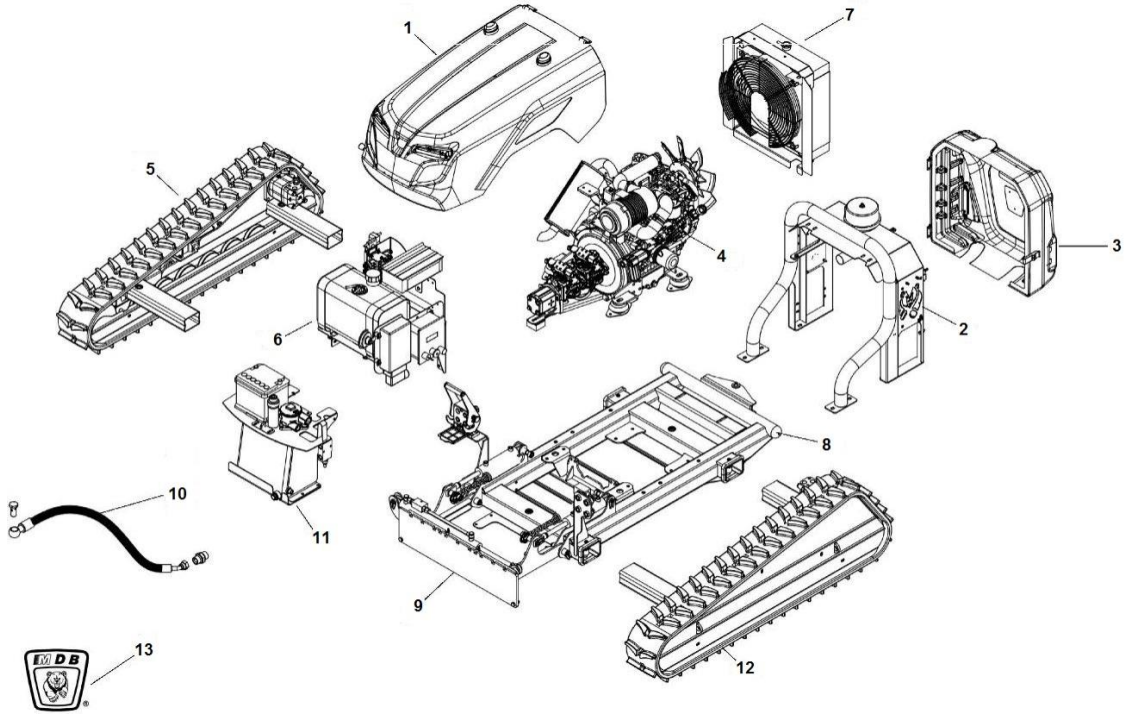
- The following instructions must be followed closely in order to keep the manual in perfect conditions:
- Use the manual so that it is not damaged in any way;
- Do not remove, add, change or write in any part of the manual; updates may be carried out only by MDB S.r.l.
- Keep the manual in an area protected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

Get to know the equipment before starting to use it by reading this manual carefully. Operators must be properly and fully trained on the contents of Chapters 4 and 5 regarding machine operations and functions before using it for the first time.
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 LV400 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. **Hydraulic system**
11. **Oil tank kit**
12. **Left undercarriage kit and track**
13. **Stickers**



List of parts

In more detail, the Green Climber LV400 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. **Vortex filter**
20. **Cleanfix reversible fan;**
21. **Towbar.**

Demolition and disposal of the machine

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

The LV400 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 LV400 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 following type of equipment may be connected to the LV Pro (only if authorised by the manufacturer:

- **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 slot on the control panel (See photo below).

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

Signals and alarms

Visual

Operators must be informed regarding visual and acoustic signals relating to the machine indicating malfunctions or failures before using the machine. Visual signals are indicated mainly by the LEDs on the remote control displays (description in the following Chapter 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.

Sound

The machine is equipped with two types of acoustic signals: the horn on the machine and the buzzer on the remote control. Both acoustic signals go off when errors occur.

On the remote control

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

Conditions of use

The LV400 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 56° with the maximum width configuration (fully extended undercarriage)

The remote control allows the operator to work with complete calmness, 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 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.

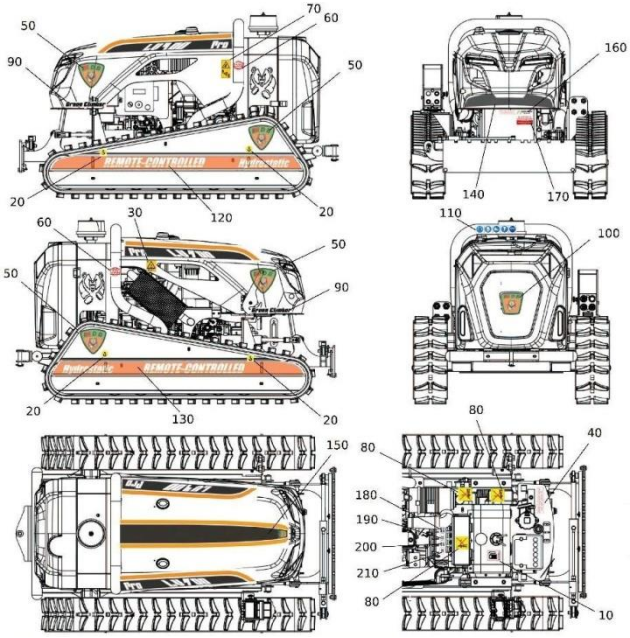
The LV400 Pro machine has been built in compliance with applicable workplace safety regulations, as well as European directives and standards. The equipment that can be attached to it must only be that indicated in Attachment B of this manual.

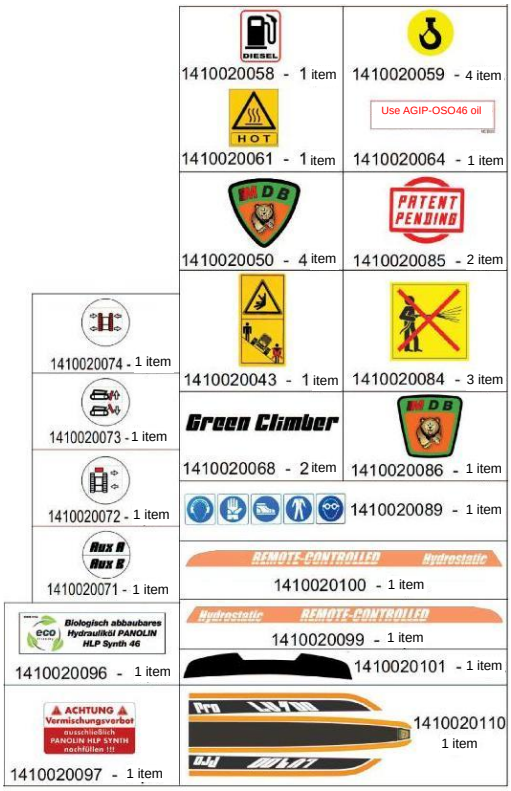
Use of other relevant equipment

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.
The attachment of equipment not provided by MDB to the LV400PRO machine, without first requesting authorisation and receiving an official response, exempts MDB from any constructive and functional liability of the machine, as well as 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

This machine has several specific safety messages. This section provides the position and description of dangers. Become familiar with all safety messages.
Make sure that all safety messages are readable. Clean or replace them if the words or illustrations are not visible.
Use a cloth with soap and water to clean the safety messages. Do not use thinner, petrol or other harsh chemicals to clean safety messages. Thinner, petrol or other harsh chemicals could dissolve the glue that secures the safety stickers.
Replace 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
The following figures and table show the stickers on the machine and relative positions.





Indication and danger stickers:

The following images show the details of the symbols relating to safety (as per law) and in particular those of danger (yellow) and those of instructions (blue), the latter mainly relating to PPE (personal protective equipment) to be worn when using 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		Work clothes must be used
	Reference must be made to the operations and maintenance manual	High temperature	Danger high temperature
			Danger of crushing Watch your hands
		Danger - DANGER - ACHTUNG	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.

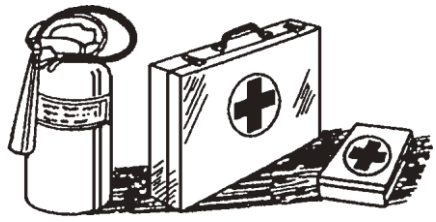
2 - SAFETY

Rules and regulations for the safe use of the machine

Most accidents that occur during maintenance and repairs of the product are caused by failure to observe basic safety rules or precautions. Accidents can often be avoided by prompt identification of potentially dangerous situations. The operator must pay attention to potential dangers and should also have the training, skills and tools necessary to perform these functions correctly.
Improper use, lubrication, maintenance or repair of this product can be dangerous and cause injury or death.
Use or perform lubrication, maintenance or repairs on this product only after reading and understanding the information regarding said operation, lubrication, maintenance and repairs.
Safety precautions and warnings are provided in this manual and on the product. Failure to follow these warnings could result in personal injury or death to the operators or others.
The information, specifications and illustrations in this publication are based on information available at the time of publication. Specifications, torques, pressures, measurements, adjustments, illustrations and other items can change at any time. These changes may affect the service offered to the product. Request the complete and most 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 must not be positioned and/or working near the machine or inside the marked out area when it is in use, unless authorised. 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 of the machine is made up of two lighting devices at the front, which also establish the visibility of the work area according to the above mentioned parameters; they are not suitable for illuminating the work area at night, when visibility in those parameters is compromised, and, therefore, the machine must not be used.**

Risks during use of the machine

The risk analysis concerning the use of the Green Climber LV400 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 while operating the machine. Using the machine carelessly may cause personal injuries or death.
Make sure all protection devices and covers are installed.

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

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

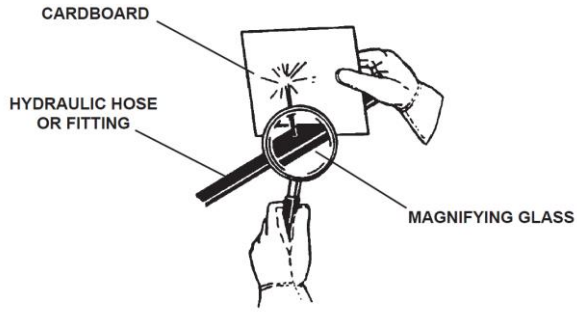
RISK OF PRESSURISED FLUIDS

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

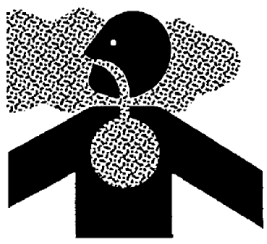
Caution!

The Green Climber LV400 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. Adequate ventilation must be provided if the machine is used in a closed environment.



NOISE RISK

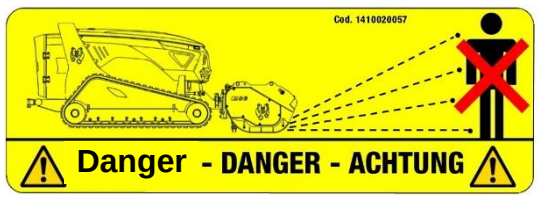
Caution!

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 could be lost, which would block the machine and turn of 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 on site are adequately informed of the risks related to the machinery 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. The coolant fluid is also pressurised. 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,

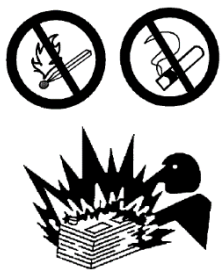
RISKS OF FIRE AND EXPLOSION

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. Damaged protective covers or isolation can cause 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 present in the area of the machine, and is available for the operator. 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 create a danger or risk to the operator and to those in the area. 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 fire fighting 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 and plastic or rubber materials, as well as fabrics, resins and fibreglass 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 4254-7:2010 - Agricultural Machinery — Safety — Part 7: Combined harvesters, forage harvesters and cotton harvesters;**
- **EN ISO 4254-12:2012 – Agricultural machinery — Safety — Part 12: Rotary disc and drum mowers and flail mowers;**
- **EN ISO 3744:1995 – Acoustics – Determination of sound power levels of noise sources using sound pressure;**
- **EN ISO 5395 – 1.2013 - Gardening machinery - Safety requirements for lawnmowers with internal combustion engine.**
- **ISO 6395:1988 - 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 WORKER SAFETY AND HEALTH DURING WORK 80/1107/EEC, 82/605/EEC, 83/477/EEC, 86/188/EEC, 88/642/EEC, 89/391/EEC, 89/391/EEC, 89/654/EEC, 89/655/EEC, 89/656/EEC, 90/269/EEC, 90/270/EEC, 90/394/EEC, 90/679/EEC, 93/88/EEC, 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/EEC, 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 STANDARDS

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

3 – TRANSPORT AND EMERGENCIES

Transporting the machine

The LV400 Pro is delivered to the customer suitably protected against impacts caused by transport. The lifting points provided 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. Please note that the LV400 Pro is a work machine and can only move within 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 is now released. To start the engine and continue working, follow the instructions in Chapter 4 of this manual. 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. Try to repair the machine on site in the event of remote control failure. Alert the emergency services in charge to allow the intervention of a lifting device, suitable for transporting the machine if this is not possible. If the remote control battery is flat, replace it with the spare one in the special container under the hood.

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, the battery 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 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

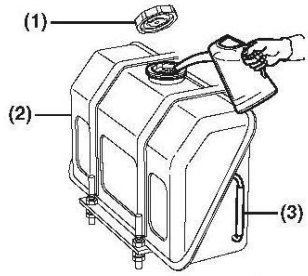
Caution!

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 completely fill the fuel tank 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 the 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 or A2	United Kingdom
JIS K2204 Grade 2	Japan
KSM-2610	Korea
GB252	China

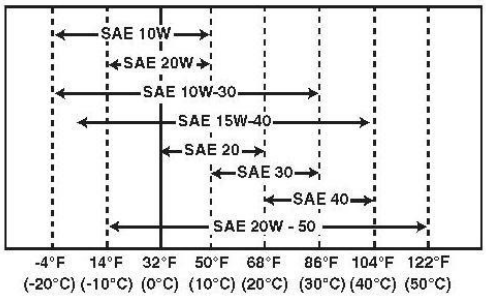
A typical tank is illustrated below (the tank mounted on your equipment may differ in part) and the steps to be taken for correct refuelling.



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

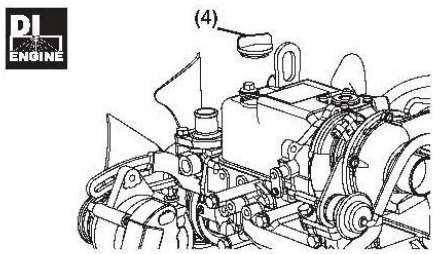
Use only engine oil that meets the following specifications, guidelines and classifications:
- API service categories: CD, CF, CF-4, CI-4 (use an API CF oil or one of higher quality for electronically controlled engines);
- ACEA E-3, E-4 and E-5 service categories;
- JASO DH-1 service categories.
Select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

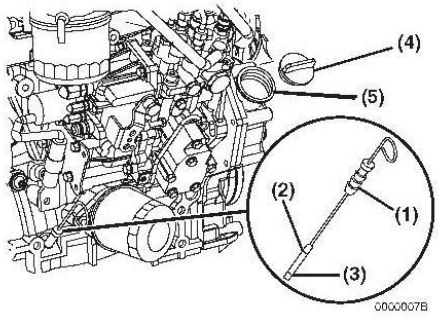


Caution!

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.

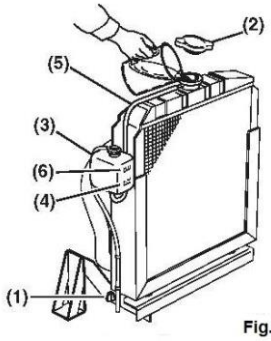


Fig. 1

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 LV400 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.

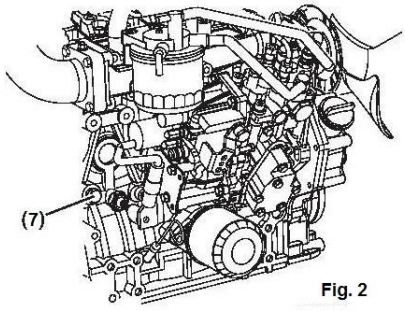


Fig. 2

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.

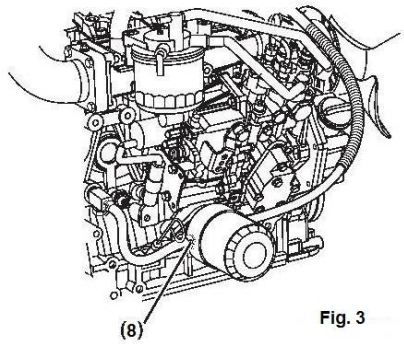


Fig. 3

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 system is detected or the fluid 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.

Caution!

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

Caution!

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 and foremost, rotate the metal lever of the battery switch (located on the right side of the machine), bringing it to the position 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.**

Please remember that the MDB Green Climber LV400 Pro has a single control system by means of a HBC Mod Spectrum 2 - FSE 727 radiobus radio remote control: see chapter n. 5 relating to the control system). The thermal engine of the machine must be started to start up the machine.

1. **- Make sure that the emergency stop button (fig 4.8) is released by turning it clockwise;**
2. **Turn the ignition key (fig. 4.8) to "ON" and wait a few seconds until the "MDB" logo disappears from the display.**

Fig. 4.8

3. **Press the "E" button on the transmitter (Fig. 4.9) to activate it. Continue to press down on the "E" button while the blue LED "D2" on the panel is on until the "D1" starts to flash, first quickly and then slowly, indicating that the connection between the transmitter and receiver is activate.**
   Release the "E" button.

Fig. 4.9

4. **Hold down "A" (fig. 4.9) to start the engine in "RADIO" mode, and release it after the engine has started up.**

The engine can also be started up directly from the control panel (fig. 4.8) by turning the key to “START” and releasing it after the engine has started up.

5. Consent must be given by pressing the "E" key to manoeuvre the machine.

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 LV400 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 configurable by means of the radio remote control system.
The diesel engine drives the machine’s hydraulic circuit by means of hydraulic pumps.
The self-propelled Green Climber LV400 Pro machine has been designed for use in the agricultural and forestry sector.
There is a quick coupling at the front, only to be used for connecting equipment designed and built by MDB.
The equipment authorised by MDB for use with the LV400 Pro is 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 LV400 Pro, and the receiver (on the machine itself). The machine is equipped with an HBC remote control device, with FSE 727 radiobus and radio remote control transmitter mod. Spectrum 2. 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. 4.8). The engine control unit is a supervision and protection tool for Mechanical Diesel Engines. It is equipped with an LCD 128x64 pixel Graphic display with amber backlighting, to view engine revs (RPM), fuel level, engine temperature and engine meter. It has 6 indicator lights for a quick view of the status of the main engine parameters. The parameters monitored by the tool for alarm signalling are:
- Engine oil pressure
- Charging alternator voltage (D +)
- Engine water temperature
- Air fuel filter
- Active alarms
- Activation of spark plugs

The functional description of the control unit display is better illustrated in the following image and table:

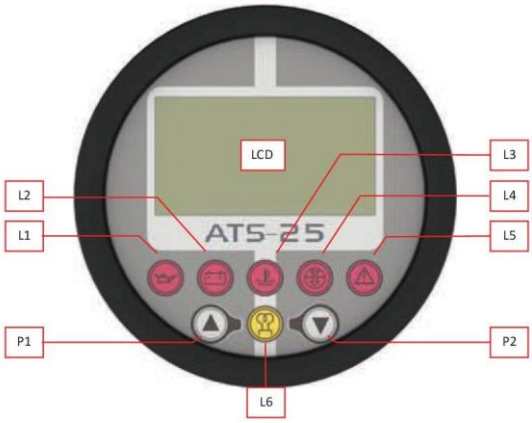


Fig. 5.0

POS.	TYPE	DESCRIPTION
LCD	LDC 128X46	Graphic display with amber back-lighting to view data on the device
P1	BUTTON 1	Increase button, ESC button if held down
P2	BUTTON 2	Decrease button, ENTER button if held down
L1	OIL LED	Low oil pressure (digital input)
L2	BATTERY LED	Low alternator voltage
L3	TEMPERATURE LED	High water temperature (digital input)
L4	AIR FILTER LED	Air filter clogged (digital input)
L5	ALARM LED	Active Alarm
L6	LED Spark Plugs	Active Spark Plugs

The following table provides more specific functions and indications of the above mentioned LEDs during machine operations:

	Engine oil level	Fixed warning light on signals that the engine oil level is in short supply: the engine is switched off to protect it from failure.
	Spark Plugs	The warning light turns on when the key selector is on 1. Wait for it to switch off and then start the engine within 5 seconds by turning the key switch to START.
	Battery power level	Warning light on signals that battery power is low, recharge or replace the battery if necessary.
	Engine temperature	Warning light on signals that the engine temperature is higher than the set limit: the engine is switched off to protect it from failure. Check the level of the cooling fluid and clean the radiator area.
	Clogged filter	Warning light on signals that the air filter is clogged, clean the air filter or replace it before switching on the engine
	Alarm	Warning light on signals low power supply to the alternator battery charger.

Homepage display

The ATS-25 allows to view engine parameters. Once powered up, it shows the initial logo for a few seconds, after which it switches to the main screen as shown in the figure.

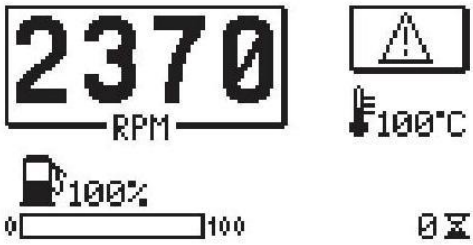


Fig. 5.1

Parameters shown are:
- Engine RPM: the engine revolutions detected by the alternator's W signal are shown in the upper left corner
- Hour counter: engine running operating hours are shown in the bottom right corner of the hourglass symbol.
- Fuel Level: the fuel level is shown both in percentage and graphically in the lower left corner by means of a horizontal bar

Engine water temperature: the engine water temperature is shown in the upper right corner in °C.
Report box: the upper right-hand box shows a number of graphic symbols relating to:
- Active alarms
- Cleaner function active
- Lights on
- Start input active
- Stop input active

The control unit detects the conditions of the engine when running, so as to detect the alarms that occur when the engine is running and to update the engine hour counter.
The detected parameters with the motor running are:
- Engine revs above set threshold
- Alternator voltage above set threshold
- Engine oil pressure switch open

The presence of only one of these parameters above the set limits indicates that the engine is running.
The control unit monitors several parameters to detect engine faults and, if necessary, switches it off to avoid causing damage to the engine.
The controlled parameters are:
- High engine water temperature
- Low engine oil pressure
- Low voltage alternator battery power
- High engine revs
- High battery voltage
- Low battery voltage
- Air filter clogged

Use the setting menu that covers a number of pages to set the tool correctly. If an alarm is triggered, an indication relating to the alarm will appear. Press P1 or P2 to return to the homepage.
All alarms can be reset by pressing P1 or P2 for 5 seconds.

Programming menu

All the progressive sections of the programming menus are analysed below.

Basic Menu
To enter the menu, press and hold down the P1 and P2 buttons for 5 seconds at the same time; 3 digits will appear on the instrument with "000" indicated.
Enter the basic menu by pressing P1, where a number options of the instrument can be changed, but not machine configuration, the following image shows the display.

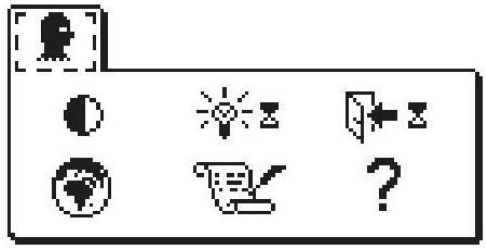


Fig. 5.2

To confirm the menu page, hold down P2 for 5 seconds, selecting the first icon, then press P2 to go forward in the menu by selecting the various parameter icons one by one; pressing P1 will take you back through the menu by selecting the icons in the reverse order.
Once the desired parameter has been selected, hold down P2 for 5 seconds to enter the edit page. This menu allows to set the following options:

Display contrast: entering this parameter enables to choose a number that identifies the contrast of the liquid crystals, useful to increase the contrast of the display if it is very clear in case of low temperatures to which the instrument is subjected.
<u>Display illumination time:</u> this parameter enables to select the seconds required to switch on the display backlighting starting from when the buttons are no longer pressed. If 0 is selected the backlighting does not switch off.
Time requested to leave the main menu: this parameter enables to select the minutes required to leave the menu and display the homepage starting from when the buttons are no longer pressed. This function is disabled if 0 is selected.
Language: this parameter enables to select the language for the non-symbolic menu items of the advanced menu. Italian, English and French can be selected.
<u>Alarm history:</u> this parameter displays a list of the last 10 alarms detected , along with the relative indication of working hours. Scroll

through the list using P1 and P2, press down on P2 for 5 seconds to reset them, but only if access has been carried out via the advanced menu.
? Information and assistance: this page provides dealer information with regards to technical assistance on the instrument, as well as the version of the software programmed.

Each page allows to change the relative parameter by using P1 and P2, confirming said change by pressing down P2 for 5 seconds; press P1 down for 5 seconds to go back without saving changes. Press both P1 and P2 for 5 seconds from anywhere in the menu to return to the homepage.

Advanced Menu

To enter the menu, press and hold down P1 and P2 for 5 seconds at the same time; 3 digits - "000" - will appear on the instrument. Press P2 to increase the highlighted digit, then press P1 to change the position of the selected highlighted digit, inputting the access code (to be requested specifically from the manufacturer MDB) allows to enter the advanced menu where all the parameters of the instrument can be changed, the display is shown as in the figure.

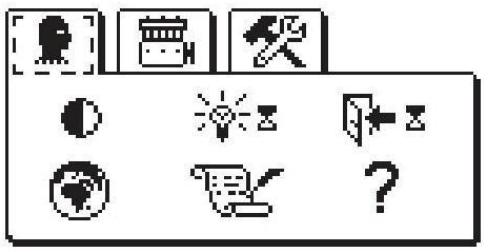


Fig. 5.3

In addition to the main tab of the basic menu, i.e. that of the general set-up (first left), the engine menu (centre) and the calibration menu (left) will also be visible. Use P1 and P2 to scroll through the tabs, and hold P2 down for 5 seconds to confirm the menu page, selecting the first icon, then press P2 to go forward in the menu by selecting the various parameter icons one by one; pressing P1 will take you back through the menu by selecting the icons in the reverse order. Press P1 down for 5 seconds to go back to tab selection. As for the basic menu, once the desired parameter has been selected, hold P2 down for 5 seconds to enter the edit page. The general set-up of the basic menu appears as described in the previous table, with the only exception being that of the "alarm history" parameter. Selecting this parameter allows to delete the entire history by holding down the P2 button for 5 seconds.

Engine set-up

The engine set-up menu appears as in the following figure:

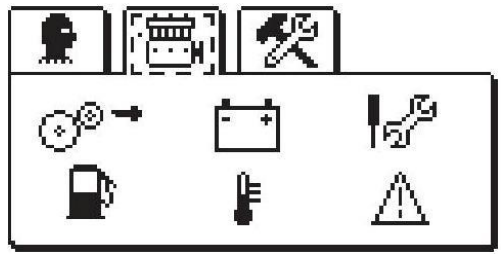


Fig. 5.4

This menu allows to set the following options:

Start-up thresholds: this menu shows the list of the following parameters: 1-OIL THRESHOLD: to activate the identification reading of engine running via the Oil pressure switch 2-D+ THRESHOLD: Value in Volt above which the battery charger voltage indicates that the engine is running 3-RPM THRESHOLD: Value in RPM above which the engine revs indicate that the engine is running 4-START-UP: to activate the type of start-up, if set to MAN, the engine is activated by keeping the START button active, if it is released before the engine has started the procedure is switched off. If set to AUTO, pressing the start input for a moment the system automatically carries out a start procedure to start-up the engine by running a timed cycle of starts and pauses until the engine is detected. 5-N START-UPS: Number of start-up attempts in the automatic cycle. 6-T SPARK PLUGS: Activation time for each spark plug at each start-up. 7-T START-UP: Starter motor activation time in automatic cycles. 8-T PAUSE: Pause time between two start-up attempts in automatic cycles 9-T ENGINE DETECTION: ENGINE: Delay time during detection of engine running 10-MAXIMUM RPM: Value expressed in RPM for maximum speed alarm. 11-ENGINE HOURS: Indication and setting of engine working hours, this value is shown on the homepage of the display. 12-OE ATS-25: Indication of the working hours of the control unit. This data cannot be changed.
Battery alarm: this menu shows the list of different battery parameters: 1-L-Vdc-BAT: Volt value below which battery voltage indicates an alarm 2-H-Vdc-BAT: Volt value above which battery voltage indicates an alarm
Maintenance service value: This menu allows to set a decreasing hour counter for the next service. The relative alarm must be activated to set off the alarm signal at the end of the calculated hours.

Fuel level sensor: this menu allows to set a threshold value for the fuel level and the sensor value curve at different fuel percentages by setting the values in Ohm.
Engine temperature threshold value: this menu allows to set a threshold value alarm for the engine temperature and the sensor value curve at different temperature values by setting the values in Ohm.
⚠ **Alarm setting menu: this menu displays the list of alarms that can be activated from the control unit. A summary table of the various alarms is shown below.**

A summary table of the various alarms is shown below:

NUMBER	ID	ALARM DESCRIPTION
1	Low engine oil pressure alarm	Digital pressure switch activated for mechanical motors with digital sensor, indicates low oil pressure, check that the oil is at the correct level.
2	High engine cooling water temperature alarm	Engine temperature higher than the set threshold. Check the level of the cooling fluid and clean the radiator area.
3	- Low battery voltage alarm	Battery voltage level below the set threshold, the battery voltage is low and the battery must be recharged or replaced.
4	High battery voltage alarm	Battery voltage level higher than the set threshold, check the battery and electrical system.
5	Battery charger alternator low voltage alarm	Battery charger alternator voltage level below the set threshold, possible problem with the alternator, alternator belt or battery.
6	High rpm alarm	Engine rpm value above the set threshold, the engine has been accelerated more than the maximum allowed, the accelerator limit switch must be adjusted.
7	Air filter alarm	The air filter is clogged, clean the air filter or replace it before switching on the engine.
8	Maintenance hours alarm	Value of maintenance counter at zero level signalling expiry of routine engine maintenance frequency, maintenance is required.
9	Fuel level alarm	Value of fuel level below the set threshold, fill up or check sensor connections.
10	Fuel reserve sensor	Activation of fuel reserve input, fill up the machine or check sensor connections.
11	Start-up failure alarm	Start-up failure alarm activation for automatic start-up system.

Scroll through the list of alarms using P1 and P2, once the desired alarm is highlighted, access its settings by holding down P2 for 5 seconds.
Each alarm can be set by means of the following parameters:
- ACTIVATION: alarm activation parameter, OFF to disable the alarm, ON to activate the alarm when the control unit is switched on and RUN to activate the alarm only when the engine is running.
- MEMORY: Alarm parameter permanence on the display. OFF to ensure that when the alarm condition is restored the visualisation disappears from the display, and ON to ensure that the visualisation remains even if the condition has been restored.
- STOP: Engine stop parameter if alarm has activated, ON to stop the engine, OFF only for signalling without engine stop, (Automatic shut-down is not possible for mechanical motors).
- DELAY: Parameter in seconds to enter an alarm activation delay as per the sensor event report.
- SIGNALLING: Parameter for activating the acoustic signal on the horn in the case of activation.
Refer to the control unit user manual for default parameters.

Set-up calibration
The set-up calibration menu will be shown as follows:

Fig. 5.5

Engine rev calibration: This menu leads to the engine revs calibration parameter and engine start-up, indicating the RPM value on the display, press P2 for 5 seconds to confirm calibration.
CLEANER Cleaner procedure setting: This menu allows to set the Cleaner procedure parameters. This procedure consists of a radiator cleaning cycle divided into 2 active phases (phase 1: compressor and solenoid valve activation, phase 2: solenoid valve activation only), as well as a pause phase. The pause phase is reduced to 1 second if the engine temperature reaches a certain value. This menu allows to change the timings of the two active phases, the time of standard cycles, as well as the temperature of the rapid activation of the cleaner.

Engine revs calibration
Proceed as follows to carry out the calibration of the engine revs:
- Switch on the control unit;
- Switch on the engine;
- Accelerate the engine until it reaches a stable value (e.g. 1000, 1050, 1100, 1150, 1200);
- Enter the advanced menu using the following sequence of keys:
• Press P1 and P2 simultaneously (the display shows “000”)
• Press P2 once (the display shows “100”)
• Press P1,
• Press P2 three times (the display shows “130”)
• Press P1,
• Press P2 five times (the display shows “135”)
• Press P1
- Press P2 once from the advanced menu, selecting the second tab;
- Press and hold down P2 to enter the tab icons;
- Press and hold down P2 to enter the calibration page

Fig. 5.6

- Select the rev value of the engine using P1 or P2
- Press and hold down P2 to confirm calibration by returning to the menu
- Press P1 and P2 simultaneously to go back to the homepage

Remote control system

As already stated, the MDB Green Climber LV400PRO has a single control system, that is by means of remote control. The system used by the manufacturer is described below (IMET model 880 or HBC mod. FSE 727 radiobus/Spectrum 2), with operations is described in detail in the following paragraphs.

HBC remote control mod FSE 727 / Spectrum 2

The HBC Spectrum 2 remote control console is practical, clear and user-friendly. 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 machine is equipped with removable and rechargeable airtight battery. With regards to frequency management, the system can have a fixed frequency (if a frequency is registered on the identification plate in the battery compartment of the transmitter, e.g. 433,500 Mhz) with manual setting (if the ID tag in the battery compartment of the transmitter is marked "man"), the transmitter is equipped with manual frequency change function (the radio channel can be changed during radio operation with this function). On the other hand, if the identification plate in the battery compartment of the transmitter has the AFS mark, the transmitter is equipped with the radiomatic® AFS (Automatic Frequency Selection) function and, in this case, the system automatically finds a free radio channel and stores it if the radio channel is occupied.
The remote control may only be used with the climatic and electrical characteristics 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
There are two possibilities for this phase:

A) Without switch-on sequence
1. Insert a charged battery into the battery housing.
2. Unlock the STOP switch (on the left side of the remote control) by turning it.
3. Press the start button briefly ("E" button in Fig. 5.12) and then release it. The two LED lights on the transmitter (D1 and D2 shown in Fig. 5.8) light up for a moment (respectively red and blue). The transmitter is ready for use when the green status LED (D1) of the transmitter first flashes quickly (connection established) and then slowly (during normal use).

B) With switch-on sequence
Steps 1 and 2 must be carried out in 5 seconds.
1. Insert the battery into its housing with the writing inside.
2. Unlock the STOP button by turning it.
3. Press the the start button briefly and then release it. The transmitter will switch off if the button is pressed for more than half a second.
4. Press the start button and keep it pressed down until the status LED flashes green. Release the button. The transmitter is now ready for operation.
5. The start button must be pressed once more before any commands can be carried out, depending on the application.

The transmitter will switch off when:
- the button is pressed for more than half a second in step 3 of the switch-on sequence.
- the switch-on sequence (steps 3 an 4) lasts more than 5 seconds.
- another button is pressed during the switch-on sequence.
Steps 3 to 4 or 3 to 5 must be repeated if this happens.
Switch-on with HBC Smart Card
1. Insert a charged battery into the battery housing.

2. Unlock the STOP button by turning it.

3. Press the start button. The status LED flashes green twice and red once every second.

4. Bring the HBC Smart Card to the point of the transmitter indicated with the symbol (see figure). The transmitter vibrates and a beep is heard. The transmitter is ready when the status LED flashes green. The transmitter can be switched on only with a valid Smart Card.
The transmitter vibrates three times when a card not suitable for the transmitter is used.
A beep is also heard. The transmitter switches off automatically after 2 seconds. Contact your supervisor if this happens.
The transmitter switches off if the process lasts more than 10 seconds. Press the start button and repeat the procedure if this happens.

STOP functions

Press the red mushroom-shaped button; this will open the STOP circuit on the receiver and prevent all commands. Reset the button and press the START button to resume operations. An EMERGENCY STOP button is located both on the remote control and on the command panel on the machine.

Switching off

The transmitter can be switched off using the STOP button. If the status LED in the transmitter flashes red, the buzzer sounds and the transmitter vibrates (optional), signalling that the battery needs to be replaced. The transmitter switches off in a few minutes if the battery is not replaced.

Auto switch-off (APO function)

The transmitter is equipped with an automatic disconnection (APO function) and automatically switches off about 15 minutes after entering the last command. This automatic switch-off is for safety reasons and also prolongs battery life. The transmitter must be switched on as described in the previous paragraphs after an automatic switch-off.

Caution!

The automatic switch-off of the transmitter does not, in any case, exempt the operator from the obligation to deactivate the transmitter through the STOP switch at the end of the activities.

Indications of the LEDs on the receiving unit

Control indicator light panel

A series of five control lights with LEDs that indicate the operating status of the radio system are located in the upper part of the receiver body, as shown below:

Fig. 5.7

On – Led YELLOW RF – Led RED
Si1 – Led GREEN Si2 – Led GREEN
Feedback – Led YELLOW

The ON and RF LEDs light up when the transmitter is switched on by means of pressing the “E” button on the receiver itself. The connection between the transmitter and the receiver is then established by pressing and holding the "E" key, the RF led turns off and the Si1 led turns on (indicating that the radio system is ready for use), while the Feedback led continues to flash. The LED Si2 lights up only during use and, therefore, of transmission of a command that involves a physical movement of the machine or equipment and, therefore, of the joysticks (J1 and J2) or by S11 or S12 (See Fig. 5.11).

The LEDs on the receiver indicate the following:

Control indicator light panel	Simplex system (The data is transmitted both ways. Non-safety-relevant data is transmitted in the feedback).	
Meaning	Colour	Receiver
On	Yellow	This lights up as soon as the receiver is powered up
RF	Red	This lights up as soon as the radio connection is interrupted
Si1	Green	This lights up as soon as the emergency stop relays are closed
Si2	Green	This lights up as soon as a movement command is issued
Feedback	Yellow	Off (not available for FSE 508/509/512)

Control indicator light panel	Duplex system (Data is transmitted only from the transmitter to the receiver).	
Meaning	Colour	Receiver
On	Yellow	This lights up to indicate that the receiver is being powered up
RF	Red	This lights up when the radio connection is interrupted
Si1	Green	This lights up as soon as the emergency stop relays are closed
Si2	Green	This lights up as soon as a movement command is issued
Feedback	Yellow	This lights up as soon as a feedback message is issued (not available for FSE 508/509/512).

Indications of the receiving unit LEDs

The transmitter has two control leds, which are the battery status LED and that of tool use (respectively D1

and D2 in Figure 5.8). Both LEDs light up for a moment (red and blue respectively) during the start-up phase of the radio control system (described in the relative paragraph). The transmitter is ready for use when the transmitter status LED (D1) becomes green, flashing first quickly (connection established) and then slowly (during normal use).

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 battery LED which takes on the following colours:

GREEN when the battery is charged;
ORANGE when charging;
RED when the battery is completely discharged or faulty.
Please note: The red LED lights up for a few seconds before the charging procedure begins (orange LED on) If a completely discharged battery is inserted into the charger.

paragraph "Radio remote control faults" on page 11 and, in particular, to the related images 3.1 (shown below: position of the housing on the machine) and 3.2 (detail of the housing) to identify the reserve battery housing.

Fig. 3.1

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.**

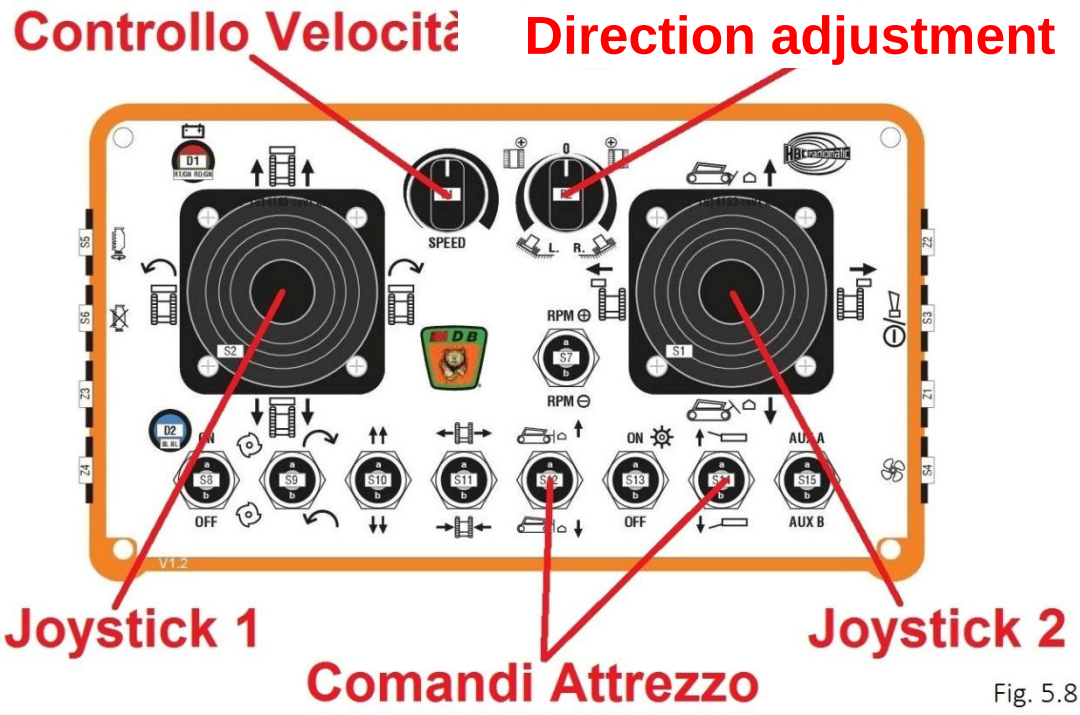


Fig. 5.8

Battery replacing and charging

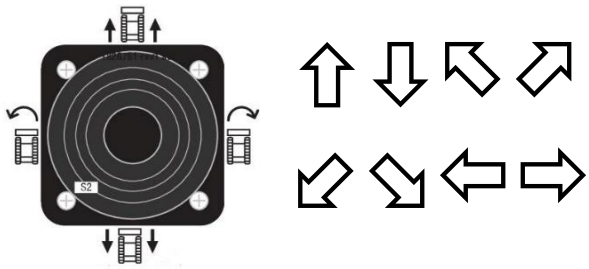
If the t… s off, replace … sing.
Remove the discharged battery from the transmitter and insert it into the battery charger on the machine (automatic charging will now take place). The battery should be used until it is completely discharged so as to ensure better efficiency and battery life. Please refer to the "Emergencies" section of chapter 3 in the

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).

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.

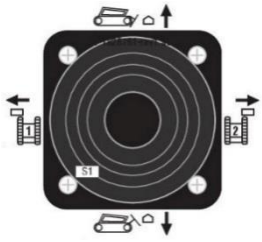
Moving the Joystick to the bottom right, the machine will make a right turn in backward gear.

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 command decides the movement of the equipment installed at the front of the machine. The use of this command is, also in this case, intuitive and is 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.

⇦ Moving the Joystick left only, the machine will move the operating axis of the equipment installed at the front of the machine 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 (R1-Speed)

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.

The use of this command is, also in this case, 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.

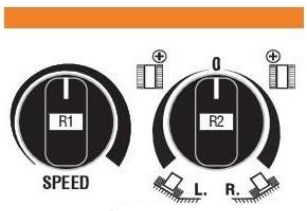


Figure 5.9

R2-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 is moving along steep and inconsistent terrain, affecting the movement, which is varied by the characteristics of inclination and adhesion to the working 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 counter-clockwise. Once the machine has finished moving along that particular work surface, simply return the knob to its initial position.

Description of the controls in the central part of the remote control: the following figure defines the position of the only control present in the central part of the remote control as shown below:

Command S7 - Engine speed adjustment command.

Figure 5.10

Description of the controls in the lower part of the remote control: the following figure defines the position of the different commands in the lower part of the remote control as shown below:

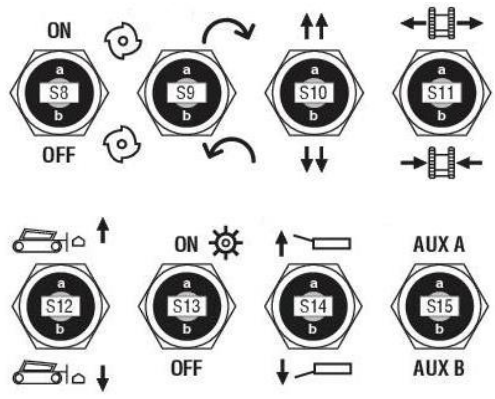


Figure 5.11

Command S8 - Equipment switch-on command;

Command S9 - Equipment rotation direction inversion command;

Command S10 - Command that symmetrically reverses the effect of the commands given with the remote control to the tracks (from Joystick 1) useful when the operator changes his position with respect to the

machine (control with the operator from behind/in front of the machine);
Command S11 - Command that widens or narrows the tracks and, more precisely, in a close position (bottom position) or in an wide position (top position);
Command S12 - Command to insert floating or fixed movement of the tool holder plate;
Command S13 - Command to switch lights on and off;
Command S14 - Auxiliary control relating to the installed equipment and its function varies from tool to tool (please refer to the relevant attachment). The auxiliary left command adjusts the opening or closing of the flap of the shredder;
Command S15 - Auxiliary command (optional);

Commands on the sides of the remote control

The following is a list of the commands in the side areas of the remote control as indicated in the relative images.
Left side of the remote control:
A - Engine switch-on (following activation of the radio system)
B - Engine shut-down
C - Cable connection for the remote control of the vehicle Right side of the remote control:
D - Fan flow inversion command (for cleaning)
E - Switching on the radio system (see relevant paragraph) and using the horn
F - Electronic key holder (optional)
G - Emergency stop button.

Fig. 5.11

Fig. 5.12

N.B. Please refer to the relevant user and maintenance manual. of the manufacturer

for more complete knowledge of safety information (also relating to installation and operation), regarding operations in accordance with the intended use and for more specific use options and functions,

6 - MAINTENANCE AND ASSISTANCE

General instructions

The reliability, safety and service life of a 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 MDB spare parts or parts authorised by MDB may be used if components need to be replaced during repair or technical assistance. MDB does not assume any liability for damage to the machine or for accidents due to using non-original parts.

Caution

A sign with the wording "DO NOT USE" or similar must be applied to the control panel before starting maintenance or repair of the Green Climber.

Important!

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 according to local rules and regulations.
Always use airtight containers when draining fluids. Do not pour waste fluids on the ground, down a drain, or in any water source.

Working time counter

The operating time counter located in the bottom right of the display shown in figure 5.2 next to an hourglass symbol must be monitored to better manage and monitor the times for all the essential care and maintenance operations of the Green Climber LV400 Pro.
Maintenance and/or technical assistance operations referred to in the table above must be carried out when the hours shown in the tables in the following paragraphs have been reached, and, if necessary, the machine must be taken to the nearest service centre to undergo the foreseen operations by qualified personnel.

Important!

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 observe technical assistance frequency or if it is not carried out by an MDB authorised technical assistance centre, 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

List of 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.
6. Service maintenance symbols:

Functional test	
Replacement	
Visual inspection	
Restoring the Level of Liquids	
Cleaning	

The tables below show the maintenance operations to be carried out on the basis of pre-established time intervals or the working hours of the machine.

At the end of every working day

Inspection	Action
Cooling fluid	
Control panel display and remote control LEDs	
Engine oil	
Hydraulic oil	
Regulator and engine speed lever	
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 instruction could damage the machine.

- **The water/detergent temperature must not exceed 60°.**
- **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 useful information regarding the control and maintenance of the engine

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 the use of 10 W 40 oil.

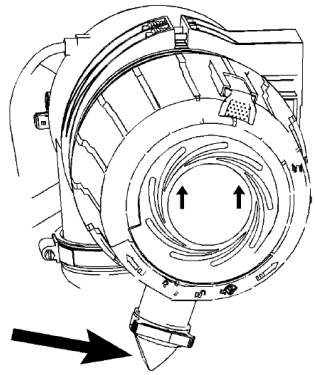
Caution!

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.



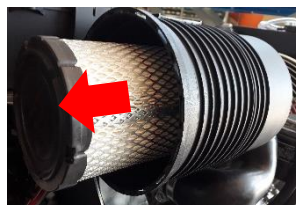
The warning lights and buzzers of the control panel display signal clogging of the engine air filter.

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.

The air filter is connected directly to the self-cleaning pre-filter located at the top of the machine (figure below).

Checking and maintenance of the radiator - exchange surface
- Every 50 hours of operation
The engine manufacturer foresees 250 hours of normal use. This frequency is reduced to 50 hours if the machine works in particularly dusty environments.

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 LV400 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!

A machine that does not stop when the emergency button is pressed can cause a high risk of fatal accidents.

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.

Check command 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 of solid residues. Do not use graphite based lubricants.

Caution!

Failure to respect maintenance schedules, improper or lack of lubrication can damage the device and lead to high repair costs and downtime.

Danger!

The machine must not be operated in any way during lubrication as it would cause fatal danger. 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.

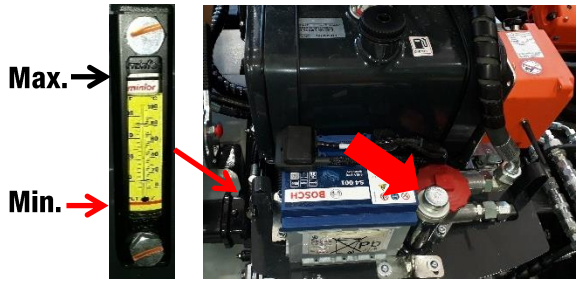
- Press the grease onto the support point.
- Remove any excess grease after lubricating.
- Excess grease cannot be reused.
- Dispose of excess grease as per national laws in force

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.

Important!

We recommend that the oil be replaced by an authorised 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:
Unscrew the 4 screws holding the tracks in place, as identified in the following figure, and remove them on a daily basis, or in any case if excessive sideways movement of the track is noted.

Locate the track tensioner cylinder lubrication unit indicated in the following figure.

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 180 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. Otherwise, any form of warranty is lost.

See the machine's operating time on the control unit display to schedule technical assistance.

The owner of the machine must start to schedule machine maintenance when the counter shows a use of 0 to 10 hours.
Keep a log book of the maintenance carried out.
All maintenance and repairs must be recorded in the log book and must be signed and stamped by the MDB authorised support 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
Checking and adjusting the V-belt of the radiator of the cooling system	
Motor oil	
Replace the engine oil filter	
Check and adjust governor lever and check engine speed	
Replace the air filter	
Replace the fuel filter	

Every 125 hours of operation or, in any case, once a year

Maintenance	Action
Tracks: wear, link condition, pinions, lower rollers	
Tighten the track screws	
Alternator belt	
Reversible radiator fan compressor filter	

Every 250 hours of operation or once a year

Maintenance	Action
Check and adjust the V-belt of the cooling system fan	
Engine oil	
Check and adjust the regulator lever and engine speed control.	
Empty the fuel tank	
Replace the air filter	

Every 500 hours of operation or once a year

Maintenance	Action
Engine oil	
Engine oil filter cartridge	
Fuel filter cartridge	
Track Alternator	
Hydraulic oil	
Hydraulic oil filter cartridge	
Remote control	
All safety devices	
Pump capacity - rpm	
Electrical lines/hydraulic pipes, tightening of screw clamps	
Control levers, control bars	
Rubber sleeves (air/coolant intake)	
Fuel pipes	

Every 1000 hours of operation

Maintenance	Action
Fuel tank	Clean
Rubber sleeves (air/coolant intake)	
Hydraulic piping	
Hydraulic oil filter cartridge	
Coolant fluid	
Coolant fluid sleeves	

Every 1500 hours of operation

Maintenance	Action
Fuel pipes	
Track Alternator (in the case of hard work)	

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

Maintenance	Action
Hydraulic oil	
Hydraulic oil tank	Clean

Every 5000 hours of operation

Maintenance	Action
Starter motor	Clean
Alternator	Clean
Track Alternator (in the case of normal working)	

Track tread height ≤ 10 mm

Maintenance	Action
Tracks	

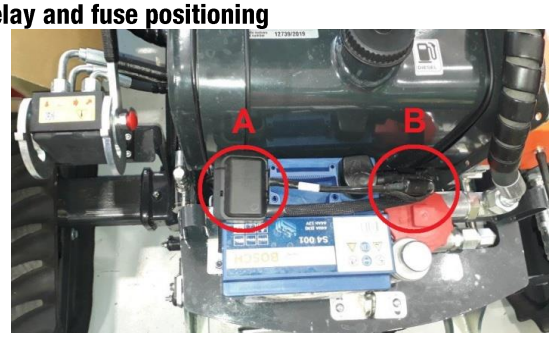
Relay and fuse battery

Battery

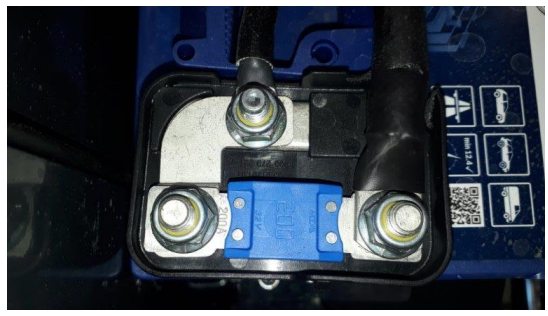
Proceed as follows to carry out maintenance on the battery, on the battery cables, or to inspect or replace the battery itself.

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;

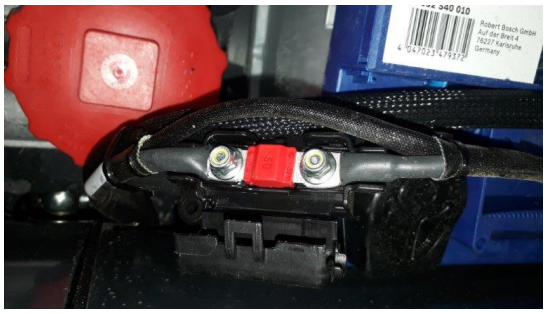
Relay and fuse positioning



Position of “A” Starter and “B” Main Fuse Boxes



Box "A": starter motor fuse (Starter)

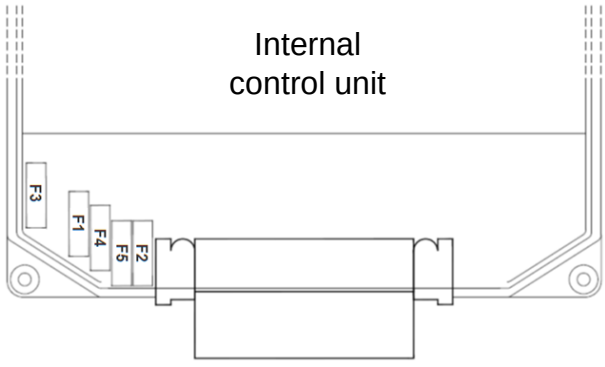


Box “B”: main fuse

Accelerator forward and return A and B fuses (linear actuator).

Fuse A: 5 A Forward (Acceleration)
Fuse B: 5 A Return (Slowdown)
C power relay: The spark plugs are powered by a Tyco 70 A during ignition.
Please refer to the respective manufacturers' manuals of use and maintenance with regards to the control panel relays and fuses and remote control system, contacting their authorised assistance centres or the parent company.

ATS-25 control panel fuses
The following figure shows the position of the fuses inside the ATS-25, and more precisely in the lower part of the same.



The fuses present and indicated in the previous image have the following characteristics:

Ref.	Description	Amp
F1	Power supply of the Cleaner outputs (Pin 13 Fan, Pin 42 Compressor)	20
F2	Power supply of Engine parts (Pin 2 Relay external spark plugs, Pin 14 EV ignition, Pin 16 EV holding, Pin 28 Starter, Pin 36 Diesel pump and Alternator pre-excitation)	20
F3	Value 5A, Protection of the internal power supply of the control unit (Internal relays and Tool D100 ATS-25)	5
F4	Auxiliary power supply (Pin 21 Charger, Pin 30 Lights, Pin 31 Horn)	7.5
F5	Power supply of the Radio control parts (Pin 1 B16 and A16 control unit of the Ilme radio control connector)	10

Unscrew and extract the screws indicated with the red arrows in the following image to access the aforementioned fuse housing area, located inside the control unit, in order to extract the front panel of the same.

Quick troubleshooting

MOTOR		
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 signal	Use only one machine at a time
	Interference from other radio signal	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	

ATTACHMENTS

Attachment A - Example of EC declaration of conformity

DECLARATION N. ___/___

EC DECLARATION OF CONFORMITY

(according to attachment II item A of Directive 2006/42/EC

The undersigned Mario Di Biase, legal representative of MDB S.R.L., with registered offices in Lanciano (CH),

in C.da S.Onofrio 6/A, Italy, manufacturer of the following machine: MULTIFUNCTIONAL AND REMOTE CONTROLLED TRACTOR

USE	SELF-PROPELLED TRACTOR
SERIES	GREEN CLIMBER
VERSION	LV400 PRO
SERIAL NUMBER	___
YANMAR 3TNV88-BDSA2 ENGINE POWER	26.9 kW
HBC REMOTE CONTROL	FSE 727 radiobus – Spectrum 2
YEAR OF MANUFACTURE	___

with the following equipment:

TYPE/MODEL:	MTL 120 SHREDDER	serial number:	___

DECLARES under its own responsibility

THAT IT COMPLIES WITH THE DIRECTIVES:

2006/42/EC (Machinery) implemented in Italy by Legislative Decree n. 17/10, 2014/35 / EC (Low Voltage) implemented in Italy by Legislative Decree n. 80/16,2000/14/EC art. 12 Annex i n. 16 and 2005/88/EC (Environmental Acoustic Emission) implemented in Italy by Legislative Decree no. 262/02

AND HARMONIZED STANDARDS:

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, (as applicable)

Assessment procedure 2 complies with Annex VI of Directive 2000/14 / EC and was carried out by the notified body:

COMPANY XXX - EUROPEAN NOTIFIED BODY n. XXXX
Via Roma 1 - 20100 - MILAN – ITALY
which issued the EC examination certificate n. _____ on __ / __ / ____ Rev.00

Measured sound level: LWA = __ dB(A)
Measured sound level: LWA = __ dB(A)

Person authorized to prepare the technical file is Mr. Mario Di Biase, resident in Lanciano (CH), C.da S. Onofrio,

The equipment applicable to the Green Climber LV400 PRO authorized by MDB S.r.l., covered by the following EC declaration of conformity are:
MTL 120 SHREDDER - UT / 100 F SHREDDER - CS7135 TILLER - BV300 ATOMIZER - FTR400 TRUNK MILL - DS / 14 SNOW TURBINE - FM 120 GRASS CUTTER

Equipment not specifically described is excluded from the scope of this declaration.

MAY NOT BE HELD RESPONSIBLE

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

Lanciano, __/__/____

MDB S.r.l. Legal Representative

Mr. Mario Di Biase

M D B s.r.l.
C.da S. Onofrio, 6/A
66034 LANCIANO (CH)
Partita IVA 01960690699

Registered Offices:
MDB Srl
.da S. Onofrio, 6/A
66034 Lanciano, (CH), Italy
VAT number: IT01960690699
Website: www.mdbsrl.com

Production unit and warehouse:
MDB Srl
Via Cupone 13
66022 Fossacesia (CH) Italie

Tel +39 0872 50221 Fax + 39 0972 50231

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

Attachment B - Use of shredder tools

FOREWORD

As described in this manual, the Green Climber LV400 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 (see attachment B) is one of these. The user must note that only equipment approved and authorised by the manufacturer can be applied to the Green Climber LV400 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 LV400 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 LV400 Pro in front of the attachment plate of the tool (figure A).**
2. **Manoeuvre the machine by bringing its swing plate into contact with the attachment plate of the tool.**
3. **Lift the swing plate so as to insert its upper edge into the two hooks of the attachment plate of the tool (figure B).**
4. **Fix the attachment plate of the tool to the lower edge of the swing plate by means of the 2 specific locks and relative 4 screws (figure C).**
5. **Lower the tool by means of the machine controls.**
6. Lower the lock lever positioned on the left hook of the attachment plate of the tool (figure D) and make sure that the pin of the lever fits into one of the grooves on the upper edge of the swinging 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

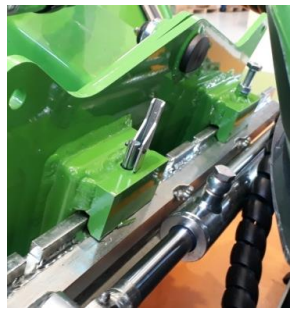


Figure B

Figure C

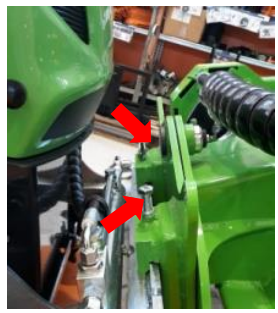


Figure D

Figure E

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: there is another connection (M/F type) in the front left area of the vehicle, with 2 couplings superimposed quick couplings, indicated by AUX1 in figure E, in addition to the couplings used for the lateral translation of the implement (controlled by joystick 2 in fig. N on the following page). The pair of pipes that power auxiliary services must be connected to these couplings, such as, for example, the opening of the front flap of the forage harvester, managed by lever "S14" of the transmitter (figure N). The couplings connect simply by inserting them firmly. Pull back the neckring on the female connector to disconnect them (figure E).
Connection 2: 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 on the front side of the machine (figure F). Move the lever forward by pressing

down the red button (figure G). Position the mobile plate onto the fixed plate (figure H) and push the lever back as far as it will go, i.e. until you hear the click of the red button (figures L and M).
Wait until the oil cools and then, holding down the red button, push the lever forward, disconnect the plate.

Figure F

Figure G

Figure H

Figure L

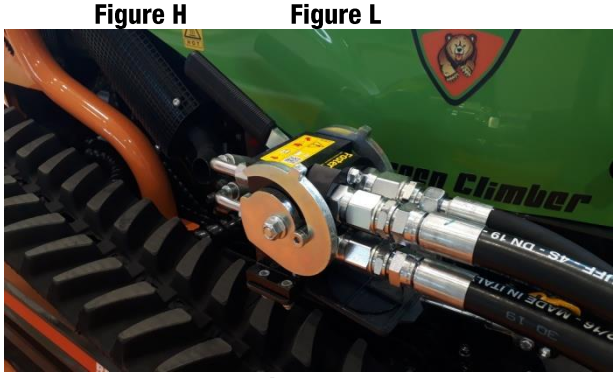
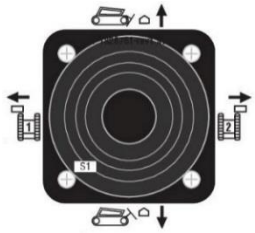
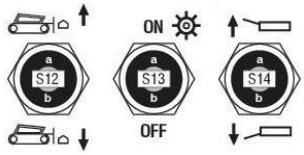


Figure M

<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.

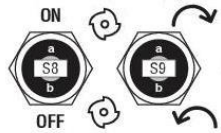


Joystick 2: sideways movement and position of the shredder (up or down)



Command S12:
floating or fixed tool;

Command S14:
shredder door open or closed



Command S8:
Shredder on/off

Command S9:
rotation direction of the tool

Figure N

LOG BOOK

Routine maintenance

NAME OF THE MACHINE	**Green Climber LV400 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

C.da Sant'Onofrio, 6/A
66034 Lanciano (CH) – ITALY
Tel. (+39) 0872.50221 – Fax (+39) 0872.50231
E-mail: info@mdbsrl.com – Web: www.mdbsrl.com