

CE

Mantis

Cordless Tiller/Cultivator 3000 Series



3458-01

MAN 430202

Rev. A 1-29-18

Operator's Manual and Safety Instructions for Cordless Tiller/Cultivator
Original Operating Instructions



Welcome to the World of Mantis Gardening

IMPORTANT MESSAGE

Thank you for purchasing this Mantis tiller/cultivator. You have purchased a world class product, one of the best designed and built anywhere. This Operator's Manual contains Safety instructions. The useful life and good service you receive from this machine depends to a large extent on how well you read and understand this manual. Treat your machine properly, lubricate and adjust it as instructed, and it will give you many years of reliable service.

Your safe use of this Mantis product is one of our prime design objectives. Many safety features are built in, but we also rely on your good sense and care to achieve accident-free operation. For best protection, study the manual thoroughly. Learn the proper operation of all controls. Observe all safety precautions. Follow all instructions and warnings completely. Do not remove or defeat any safety features. Make sure those who operate this machine are as well informed and careful in its use as you are.

Mantis designs and builds its equipment to serve many years in a safe and productive manner. For longest life, use this machine only as directed in the manual, keep it in good repair and follow safety warnings and instructions. You'll always be glad you did.

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This Operator's Manual is an integral part of the machine. Suppliers of both new and second-hand machines must make sure that this manual is provided with the machine. THESE INSTRUCTIONS ARE FOR YOUR SAFETY. PLEASE READ THROUGH THEM THOROUGHLY BEFORE USE AND RETAIN THEM FOR FUTURE REFERENCE.

Safety Rules & Warnings

You will notice throughout this Operator's Manual Safety Rules and Important Notes. Make sure you understand and obey these warnings and all instructions for your own protection.

I. SPECIAL SAFETY INFORMATION

WARNING

Attention: This symbol points out our important safety instructions. When you see this symbol, heed it's warning!! Stay alert!!

WARNING

To reduce the potential for accidents, comply with the safety instructions in this manual. Failure to comply may result in serious personal injury, and/or equipment and property damage.

II. SAFETY & WARNINGS

WARNING

Improper use or care of this tiller/cultivator or failure to wear proper protection can result in serious injury. Read and understand the rules for safe operation and all instructions in this manual. Wear hearing and eye protection, proper non-slip footwear, long trousers, protective covering to contain long hair and protective gloves.

III. SAFETY DECAL INFORMATION

On the product, the rating label, and within these instructions you will find among others the following symbols and abbreviations. Familiarize yourself with them to reduce hazards like personal injuries and damage to property.



Lock / to tighten or secure.



Unlock / to loosen.



Note / Remark.



Caution / Warning.



Read the instruction manual.



Wear hearing protection.



Wear eye protection.



Wear a dust mask.



Wear protective gloves.



Wear protective, slip-resistant footwear.



Wear tight-fitted protective clothes.



Do not expose the tiller/cultivator to rain or wet conditions (moisture).



Work across the slopes, never up and down.



Inspect the area where the tiller/cultivator is to be used and remove all objects which can be thrown by the tiller/cultivator. If objects are hidden while operating stop the motor, wait for moving parts to stop and remove the object.

III. SAFETY DECAL INFORMATION (CONTINUED)



Objects thrown by the tiller/cultivator could hit the user or other bystanders. Always ensure that other people and pets remain at a safe distance from the tiller/cultivator when it is in operation. In general, children must not come near the area where the tiller/cultivator is being used or stored.



Tines continue to rotate after the tiller/cultivator is switched off. Wait until all machine components have completely stopped before touching the tiller/cultivator.



Pay special attention when working on or near the tilling tines!



Keep hands and feet away from sharp rotating parts – danger of injury! When cleaning, repairing, or inspecting, make certain the working tiller/cultivator and all moving parts have stopped.



Guaranteed sound power level value in 93dB.



The product complies with the applicable European directives and an evaluation method of conformity for these directives was done.



WEEE symbol. Waste electrical products should not be disposed of with household waste. Please recycle where facilities exist. Check with your Local Authority or local store for recycling advice.



Indoor use only. Only use battery charger indoors.

WARNING

If the tiller/cultivator is used improperly or safety precautions are not followed, the users risk serious injury to themselves, others and property. Read and understand this manual before attempting to operate this tiller.

CAUTION!

Moving parts will continue to run for several seconds after turning off the tiller/cultivator. Wait until the tines have completely stopped before lifting the tiller/cultivator or conducting inspection and maintenance.

IV. WARNINGS

Read the instructions carefully. Be familiar with the controls and the proper use of the product.

- Never allow children or people unfamiliar with these instructions to use the tiller/cultivator. Local regulations can restrict the age of the operator.
- Keep children, bystanders, and pets away – All spectators, including pets, should be kept a safe distance away from the work area.
- Keep in mind that the operator or user is responsible for accidents or hazards occurring to people or property.
- Dress properly - Always wear proper non-slip footwear and long trousers while working. Do not operate the product when barefoot or wearing open sandals. Do not wear loose clothing or jewelry as such articles can become caught in moving parts. Wear a protective covering to contain long hair. Wearing protective gloves is recommended when working outdoors. Use safety glasses and hearing protection.
- Thoroughly inspect the area where the tiller/cultivator is to be used and remove all objects which can be thrown by the product. Thrown objects can cause serious personal injury and property damage. Do not allow anyone in front of a running tiller/cultivator.
- Before using, always visually inspect to see that the tines, tine bolts, and tine assembly are not worn or damaged. Replace worn or damaged tines and bolts in sets to preserve balance.
- Maintain the tiller/cultivator with care – Keep the cutting edges clean for optimal performance and to reduce the risk of injury. Inspect the battery periodically and immediately replace it if damaged. Keep the handles dry, clean, and free from oil and grease. Follow the additional recommendations described in the maintenance section of this manual.

IV. WARNINGS (CONTINUED)

8. Avoid accidental starting – Do not carry the garden tiller/cultivator with your finger on the switch. Make sure the switch is off before inserting or removing the battery.
9. Remove the battery from the tiller when it is not in use.
10. Moving parts – Keep hands and feet away from moving parts. Keep guards in place and in proper working order.
11. Do not force the tiller/cultivator – It will perform better with less likelihood of personal or mechanical injury if it is used at the rate for which it was designed.
12. Do not overreach – Keep proper footing and balance at all times.
13. On multi-bladed machines, take care as rotating one tine can cause other tines to rotate.
14. Keep work area clean and well-lit – Cluttered, dark areas invite accidents. Work only in daylight or in good artificial light.
15. Always be sure of your footing on slopes.
16. Walk, never run with the tiller/cultivator.
17. Work across the slopes, never up and down.
18. Exercise extreme caution when changing direction on slopes.
19. Do not work on excessively steep slopes.
20. Use extreme caution when reversing or pulling the product towards you.
21. Start the motor carefully according to manufacturer instructions and with feet well away from the moving tines.
22. Do not put your hands or feet near or under rotating parts.
23. Never pick up or carry a tiller/cultivator while the motor is running.
24. Never operate the tiller/cultivator with defective guards or shields, or without safety devices, for example deflectors and/or catchers in place.
25. Stop the tiller/cultivator and remove the battery. Make sure that all moving parts have come to a complete stop...
 - before unclogging or changing the tines.
 - before checking, cleaning, servicing or working on the machine.
 - after striking a foreign object. Inspect the tiller/cultivator for damage and make repairs before restarting and operating the machine.
 - whenever you leave the tiller/cultivator. Never leave the tiller/cultivator running when unattended.
26. If the tiller/cultivator starts to vibrate abnormally turn it off, wait for moving parts to stop, and check immediately:
 - inspect for damage,
 - check for and tighten any loose parts,
 - replace or repair any damaged parts
27. Store idle tiller/cultivator indoors – When not in use, the tiller/cultivator along with the battery and charger should be stored indoors in a dry and high or locked-up place out of the reach of children.
28. Avoid dangerous environments – Do not use the tiller/cultivator in rain or in damp or wet locations. Do not operate the tiller/cultivator in gaseous or explosive atmospheres or use the tiller/cultivator near flammable or combustible liquids. Motors in these type of tools normally spark, and the sparks might ignite fumes.
29. Protect your battery charger from moisture and rain. Moisture and rain can cause dangerous cell damage. Do not use the battery charger near vapors, flammable or combustible liquids.
30. Check for damaged parts – Before further use of the tiller/cultivator, a guard or other part that is damaged should be carefully checked to determine that it will operate properly and perform its intended function. Check for alignment of moving parts, binding of moving parts, breakage of parts, mounting, and any other condition that may affect its operation. A guard or other part that is damaged should be properly repaired or replaced.
31. Keep the tiller/cultivator free of grass, leaves, or grease to reduce the chance of fire hazard.
32. The motor housing remains hot for a short period after the tiller/cultivator is turned OFF. Allow the motor housing to cool completely before touching or storing near combustible material.
33. Do not use near underground electric cables, telephone, lines, pipes, or hoses. If in doubt, contact your utility or telephone company to locate underground services.
34. Be aware that the tiller/cultivator may unexpectedly bounce upward or jump forward if the tines should strike buried obstacles such as large stones, roots, or stumps.
35. Don't grasp the exposed tines or cutting edges when picking up or holding the tiller/cultivator.

V. BATTERY & CHARGER SAFETY INSTRUCTIONS

We pay a great deal of attention to the design of every battery pack to ensure that we supply you with batteries that are safe, durable and have a high energy density.

Despite all the safety precautions, caution must always be exercised when handling batteries. Read and follow all instructions, warnings and cautions to ensure safe use. Safe use can only be guaranteed if an undamaged battery is used. Incorrect handling of the battery pack can cause cell damage.

⚠WARNING! Incorrect use and poor care of batteries are the main factors responsible for personal injury and/or product damage.

⚠WARNING! Use only approved replacement batteries; other batteries may damage the cordless tiller/cultivator and cause it to malfunction, which can lead to serious personal injury.

⚠CAUTION! To reduce the risk of injury, charge the Mantis lithium-ion battery only with supplied Mantis charger. Other types of chargers present risk of fire, personal

injury and damage. Do not connect a battery pack to a power supply plug or car cigarette lighter. Such misuse will permanently disable or damage the battery pack.

⚠WARNING! Avoid dangerous environments – Do not charge the battery pack in rain, snow or in damp or wet locations. Do not use the battery pack or charger in the presence of explosive atmospheres (gaseous fumes, dust or flammable materials) because sparks may be generated when inserting or removing the battery pack, which could lead to a fire.



V. BATTERY & CHARGER SAFETY INSTRUCTIONS (CONTINUED)

- Charge in a well-ventilated area – Do not block the charger vents. Keep them clear to allow for proper ventilation. Do not allow smoking or open flames near a charging battery pack since it may explode.

NOTE: The safe temperature range for discharging the battery is -20°C to 45°C. Do not charge the battery outside in freezing weather; charge it at room temperature.

- Maintain charger cord – When unplugging the charger, pull the plug, not the cord, from the receptacle to reduce the risk of damage to the electrical plug and cord. Never carry the charger by its cord or yank it by the cord to disconnect it from the receptacle. Keep the cord away from heat, oil and sharp edges. Make sure the cord will not be stepped on, tripped over or subjected to damage or stress when the charger is in use. Do not use the charger with a damaged cord or plug. Replace a damaged charger immediately.
- Do not use an extension cord unless it is absolutely necessary – Using the wrong,

damaged or improper extension cord poses a risk of fire and electric shock. If an extension cord must be used, plug the charger into a 16 gauge or larger extension cord with the female plug matching the male plug on the charger. Make sure that the extension cord is in good electrical condition.

- Charger part number 3405-2 is rated for 220-240 volt AC only – The charger must be plugged into an appropriate receptacle.
- Use only recommended attachments if applicable.
 - Use of an attachment not recommended or sold by Mantis may result in risk of fire, electric shock or personal injury.
- Unplug charger when not in use – Make sure to remove battery packs from unplugged chargers.
- Do not burn or incinerate battery packs
- Do not crush, drop or damage battery packs – Do not use the battery pack or charger if they have been dropped, run over or have been damaged in any way

(i.e. pierced with a nail, hit with a hammer, stepped on, etc.).

- Do not disassemble the battery– This may pose a serious risk of electric shock, fire or exposure to toxic battery chemicals. If the battery or charger are damaged, contact the Mantis customer service center at the number listed on the warranty statement located at the end of this operating instructions.
- Do not short circuit – A battery pack will short circuit if a metal object makes a connection between the positive and negative contacts on the battery pack. Do not place a battery pack near anything that may cause a short circuit, such as paper clips, coins, keys, screws, nails and other metallic objects. A short-circuited battery pack poses a risk of fire and severe personal injury.
- Store your battery pack and charger in a cool, dry place – Do not store the battery pack or charger where temperatures may exceed 40°C, such as in direct sunlight or inside a vehicle or metal building during the summer.

WARNING

To reduce the risk of electric shock, always unplug the charger before performing any cleaning or maintenance. To reduce the risk of electric shock, do not allow charger or charger's AC/DC plug to get wet. Use a Ground Fault Circuit Interrupter (GFCI) to reduce shock hazards.

WARNING

Battery packs may explode, causing personal injury or damage. Toxic fumes and materials are created when battery packs are burned.

WARNING

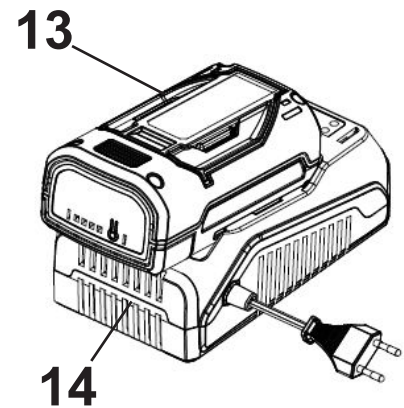
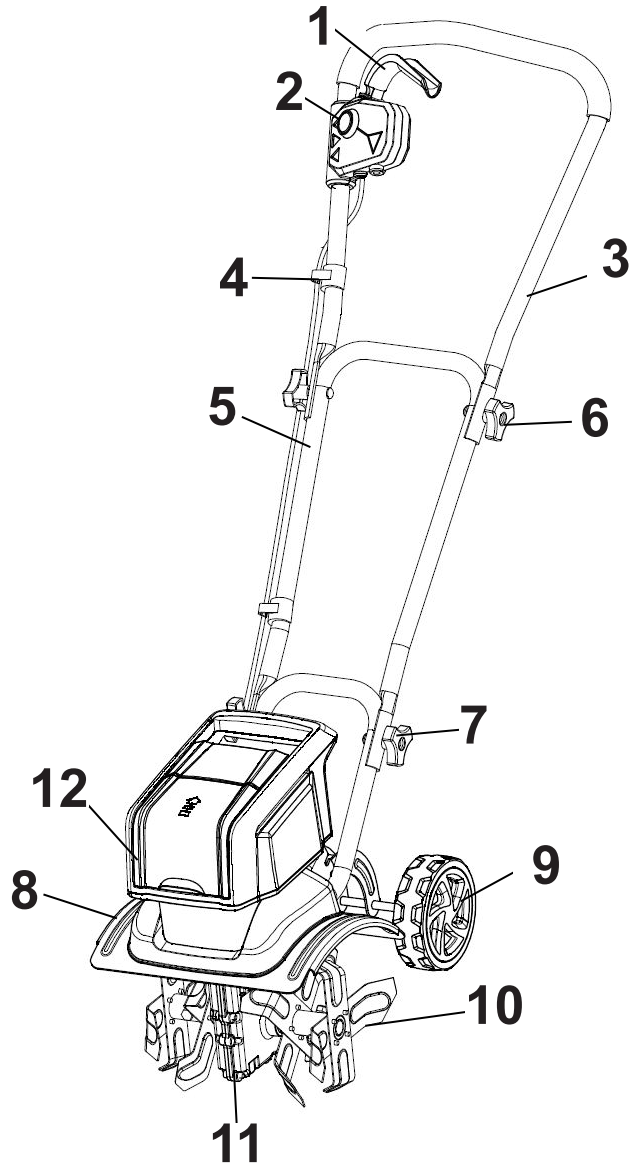
Battery chemicals cause serious burns – Never let a damaged battery pack contact the skin, eyes or mouth. If a damaged battery pack leaks battery chemicals, use rubber or neoprene gloves to safely dispose of it. If skin is exposed to battery fluids, wash the affected area with soap and water and rinse with vinegar. If eyes are exposed to battery chemicals, immediately flush with water for 20 minutes and seek medical attention. Remove and dispose of contaminated clothing.

VI. EMERGENCY

Familiarize yourself with the use of this product by reading of this instruction manual completely. Memorize the safety directions and follow them to the letter. This will help to prevent risks and hazards.

1. Always stay alert when using this tiller/cultivator, so that you can recognize and handle risks early. Watch what you are doing. Use common sense. Do not operate the tiller/cultivator when you are tired or under the influence of drugs, alcohol, or other medication. Fast intervention can prevent serious injury and damage to property.
2. Switch off and remove the battery if there are malfunctions. Have the tiller/cultivator and battery checked by a qualified professional and repaired, if necessary, before you operate it again.
3. Please contact the Mantis customer service center at the number listed on the warranty statement located at the end of this operating instructions for assistance.

Tiller/Cultivator Parts



- | | |
|------------------------------------|--------------------------|
| 1. On/off switch | 9. Wheels |
| 2. Lock-off button | 10. Steel Tines (blades) |
| 3. Upper handle | 11. Gear box |
| 4. Cord clip | |
| 5. Middle handle | 12. Motor housing |
| 6. Upper handle knob and bolt (2) | 13. Battery |
| 7. Middle handle knob and bolt (2) | 14. Charger |
| 8. Fender Guard | |

Technical Specifications

Battery Voltage	58 V D.C.
Battery Capacity	2.5 Ah
Battery Model	3501-01B, 3501-02B
Charger Model	3405-02
Charging Time	90 min (full charge)
Charger Input	AC 220-240V, 50/60 Hz, 145W
Charger Output	58V DC, 2A
Battery Run Time	20-30 min
Protection Degree	IPX1
Motor Power	650 W
Tine Speed (no load)	200+/-10% RPM
Tilling Width	30 cm
Digging Depth	20 cm
Wheels Height Adjustment	3 settings
Weight w/o battery	11 kg
Weight with battery installed	12.1 kg
Sound Values	
Sound pressure level LpA	74.3dB(A)
Uncertainty KpA	3dB(A)
Measured sound power level LWA	83.8dB(A)
Uncertainty KWA	2.5 dB(A)
Guaranteed sound power level LWA	93 dB(A)
Hand arm vibration values	
Hand arm vibration ah	0.467 m/s ²
Uncertainty K	1.5 m/s ²



The sound values have been determined according to noise test code given in 2000/14/EC. The sound intensity level for the operator may exceed 80dB(A) and ear protection measures are necessary.

WARNING

Adopt proper measures to protect yourself against vibration exposures. Take the whole work process including times the tiller/cultivator is running under no load or switched off into consideration. Proper measures include among others regular maintenance and care of the product and accessories, keeping hands warm, periodic breaks and proper planning of work processes.

Assembly

BEFORE YOU START

- Remove packing materials and unpack all parts and lay them on a flat, stable surface.
- Make sure the delivery contents are complete and free of any damage. If you find that parts are missing or show damage do not use the tiller/cultivator but contact the Mantis customer service center at the number listed on the warranty statement located at the end of this operating instructions for assistance. Using an incomplete or damaged tiller/cultivator represents a hazard to people and property.
- Ensure that you have all the accessories and tools needed for assembly and operation. This also includes suitable personal protective equipment.

TILLER/CULTIVATOR ASSEMBLY

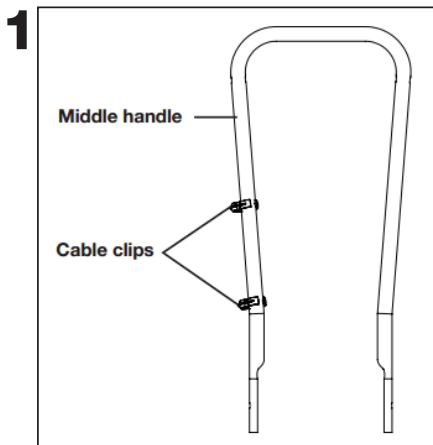
i NOTE: Take care of small parts that are removed during assembly or when making adjustments. Keep them secure to avoid loss.

! WARNING

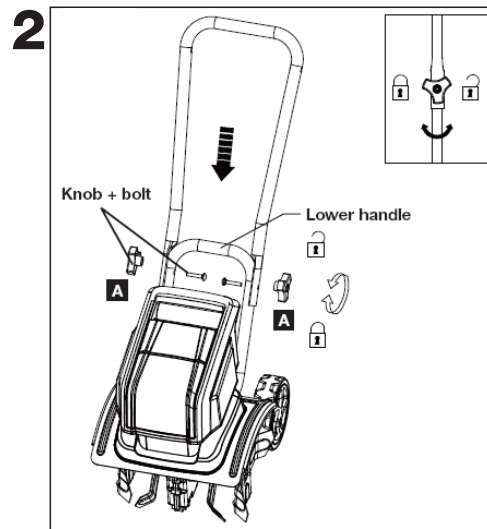
The tiller/cultivator and the packaging are not children's toys! Children must not play with plastic bags, sheets and small parts! There is a danger of choking and suffocation!

! WARNING

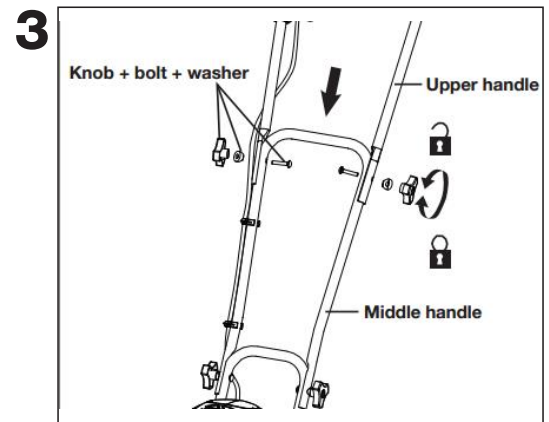
The tiller/cultivator must be fully assembled before operation! Do not use tiller/cultivator that is only partly assembled or assembled with damaged parts! Follow the assembly instructions step-by-step and use the pictures provided as a visual guide to easily assemble the product! Do not insert the battery before it is completely assembled! Failure to comply could result in accidental starting and serious personal injury.



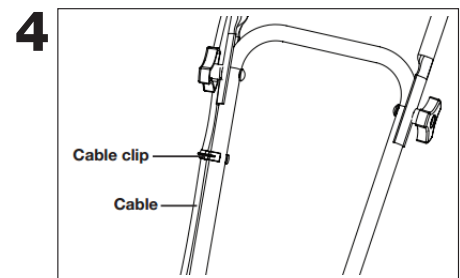
- Attach the cable clips to the middle handle bar



- Secure the middle handle to the lower handle using the first set of knobs, bolts, and plastic washers. Tighten the knobs on each side to ensure a secure fit.



- Connect the upper handle to the middle handle using the second set of knobs, bolts and plastic washers. Tighten the knobs on each side to ensure a secure fit.



- Secure the cable inside the cable clips.

! WARNING

Make sure all handle knobs are properly tightened before using the product.

BATTERY INFORMATION

Your tiller/cultivator comes with maintenance free, sealed 58 volt battery.

- Lithium-ion batteries are subject to a natural aging process. The battery pack must be replaced at the latest when its capacity falls to just 80% of its capacity when new. Weakened cells in an aged battery pack are no longer capable of meeting the high power requirements needed for the proper operation of your tiller/cultivator, and therefore pose a safety risk.
- Do not ignite the battery pack or expose it to fire as this poses a risk of explosion.
- Do not exhaustively discharge batteries. Exhaustive discharge will damage the battery cells. The most common cause of exhaustive discharge is lengthy storage or non-use of partially discharged batteries. Stop working as soon as the performance of the battery falls noticeably or the tiller/cultivator circuit overload protection is tripped. Place the battery pack in storage only after it has been fully charged.
- Protect batteries and the tool from overloads. Overloads will quickly result in overheating and cell damage inside the battery housing even if this overheating is not apparent externally.
- Avoid damage and shocks. Immediately replace batteries that have been dropped from a height of more than one meter (about 3 feet) or those that have been exposed to violent

BATTERY CHARGE LEVEL INDICATOR

The battery pack supplied with your cordless tiller/cultivator is only partially charged. The battery pack has to be charged completely before you use the tiller/cultivator for the first time.

The battery pack is equipped with a push button (Item A) to check the charge level. Simply press the push button to read off the battery charge level from the LEDs of the battery indicator (Item B).

- All 4 LEDs are lit: The battery is fully charged and ready for use.
- 3 or 2 LEDs are lit: The battery has an intermediate remaining charge.
- 1 LED blinks: The battery is empty, turn off tiller/cultivator and recharge the battery immediately. Otherwise the battery's service life will be greatly shortened

The battery should be charged in a cool, dry place. To improve battery life, store battery indoors in a controlled climate. Fully charge battery pack every 3 months. Note that 2 to 3 initial charging/discharging cycles may be required to achieve maximum run time/capacity.

Allow at least two (2) hours of charge time before initial use of the tiller/cultivator. When fully charged, the battery can be safely stored for a period of up to one month before requiring charging.

NOTE: If lights do not illuminate when you press the charge level button (Item A) place the battery pack on the charger and charge as needed.

Use the battery charge indicator lights to determine when to charge your Mantis lithium-ion battery pack.

You can “top-off” your battery pack’s charge before starting a big job or after a long day of use.

WARNING

The tiller/cultivator should be used only with the lithium-ion batteries of the Mantis series!

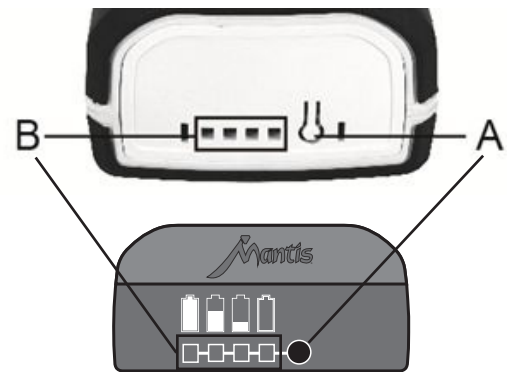
WARNING

If all LEDs flash, the battery pack has undergone exhaustive discharge and is defective. Do not use or charge a defective battery pack!

shocks, even if the housing of the battery pack appears to be undamaged. The battery cells inside the battery may have suffered serious damage. In such instances, please read the waste disposal information for proper battery disposal.

- If the battery pack suffers overloading and overheating, the integrated circuit overload protection will switch off the tiller/cultivator for safety reasons.

CAUTION! Do not continue pressing the ON/OFF switch if the circuit overload protection is tripped. This may damage the battery pack.



CHARGER INFORMATION

WARNING

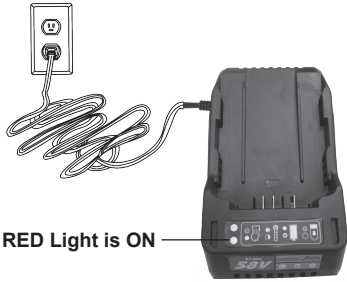
Use only Mantis lithium-ion batteries with the Mantis tiller/cultivator. Charge the Mantis lithium-ion battery with supplied Mantis charger only. Other types of batteries may cause personal injury and damage. To reduce the risk of electric shock, do not allow charger or charger's AC/DC plug to get wet.

- Please check the data marked on the rating plate of the battery charger. Be sure to connect the battery charger to a power supply with the voltage marked on the rating plate. Never connect it to a different mains voltage.
- Protect the battery charger and its cord from damage. Keep the charger and its cord away from heat, oil and sharp edges. If battery or charger are damaged contact the Mantis customer service center at the number listed on the warranty statement located at the end of this operating instructions for assistance.
- Electrical plugs must match the outlet. Never modify the plug in any way. Do not use any adapter plugs. Original plugs and matching outlets will reduce the risk of electric shock.
- Keep the battery charger, battery pack(s) and the cordless tiller/cultivator out of the reach of children.
- Do not use the supplied battery charger to charge other non-Mantis cordless tools.
- During periods of heavy use, the battery pack will become warm. Allow the battery pack to cool to room temperature before inserting it into the charger to recharge.
- Do not overcharge batteries. Do not exceed the maximum charging times. These charging times only apply to discharged batteries. Always unplug the charger when there is no battery pack in it. Do not leave batteries in the plugged in charger for days on end.
- Never use or charge batteries if you suspect that it has been more than 12 months since the last time they were charged. There is a high probability that the battery pack has already suffered dangerous damage (exhaustive discharge).
- Charging batteries at a temperature below 10°C will cause chemical damage to the cells and may cause a fire.
- Do not use batteries that have been exposed to heat during the charging process, as the battery cells may have suffered dangerous damage.
- Do not use batteries if they are bulging or deformed during the charging process or those that exhibit other atypical symptoms (gassing, hissing, cracking, etc.).
- Never fully discharge the battery pack (maximum recommended depth of discharge is 80%). A complete discharge of the battery pack will lead to premature aging of the battery cells. Use the battery charger and cordless tools only in dry conditions and at an ambient temperature of 10-40°C.
- Do not keep the battery charger in places where the temperature is liable to reach over 40°C. In particular, do not leave the battery charger in a car that is parked in the sunshine.
- Protect batteries from overheating. Overloads, overcharging and exposure to direct sunlight will result in overheating and cell damage. Never charge or work with batteries that have been overheated – replace them immediately, if possible.
- Prevent the lithium-ion battery pack from freezing. Battery packs that were stored below 0°C for more than 60 minutes must be discarded.
- When handling batteries, be wary of electrostatic charge. Electrostatic discharges can damage the electronic protection system and the battery cells. Avoid electrostatic charging and never touch the battery poles.

WARNING

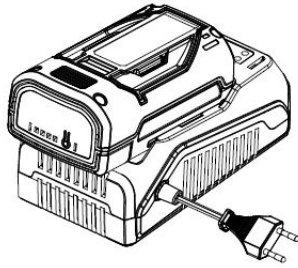
Use Mantis charger part number 3405-2 only with Mantis batteries, other type of batteries may cause personal injury or damage.

CHARGER INFORMATION (CONTINUED)

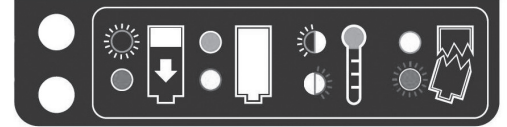


RED Light is ON

Insert the plug of the charger into the wall receptacle. The RED light will illuminate and stay red.



Place the battery pack into the charger by sliding the battery forward until it is fully seated.



Mantis charger also works as a battery diagnostic center and the charger's LED's will illuminate in specific order to communicate the current battery status. See table below.

CHARGER'S LED INDICATOR		
	RED is 'ON' continuously, GREEN is 'BLINKING'	Battery is charging
	GREEN is 'ON' continuously and RED is 'OFF'	Battery is fully charged. Remove the battery from the charger.
	Two lights are 'BLINKING' RED & GREEN	Abnormal Temperature. The battery pack is either too hot or too cold
	GREEN light is 'OFF,' the RED light is 'BLINKING'	Something is wrong with the battery. Remove and Replace it. For assistance contact the Mantis customer service center at the number listed on the warranty statement located at the end of this operating instructions.
<ul style="list-style-type: none"> • When charging is complete, remove the battery by sliding it out. <p>NOTE: Typical time required to reach a full charge is around 100 minutes.</p>		

CHARGING A HOT OR COLD BATTERY PACK

Batteries operate over a wide temperature range, but this does not give permission to also charge them at these conditions. The charging process is more delicate than discharging and special care must be taken. Extreme cold and high heat reduce charge acceptance, so the battery must be brought to a moderate temperature before charging.

If two charger indicator lights are flashing RED & GREEN, it means that the battery pack temperature is outside the charging range. Once the pack is within the acceptable range, normal charging will take place. Hot or cold battery packs may take longer to charge.

Lithium-Ion Charging Status		
Battery Pack Temperature	Indicator Lights	Charging Status
Too hot	Two lights are flashing RED & GREEN	Not charging
Normal range	RED is 'ON' continuously, GREEN is 'BLINKING'	Normal charging
Too cold	Two lights are flashing RED & GREEN	Not charging

INSTALLING THE BATTERY

Open the battery cover. This is done by pressing the lock release (Item C) as shown in Fig. 1 and swinging up the cover. Then connect the battery into the mounts as shown in Fig. 2 and push it forward until you hear it engage (click). In order to remove the battery, push the battery release button Fig.3 (item D) and slide it out.

Fig.1



Fig. 2



Fig. 3



ATTENTION!

The battery must always be fully charged before use. Close the battery cover by swinging it down, and make sure that it latches in place securely.

Cordless Tiller/Cultivator Operation

INTENDED USE

This tiller/cultivator is intended for loosening and working up the soil in a garden and for tilling coarse soil for mixing in fertilizer, peat and compost in planting areas. This tiller/cultivator should not be used to till extremely dry or wet soil.

This tiller/cultivator should not be used in rain or humid environments.

For safety reasons it is essential to read the entire instruction manual before first operation and to observe all the instructions.

This tiller/cultivator is intended for private household use only, not for any commercial trade use. It must not be used for any purposes other than those described.

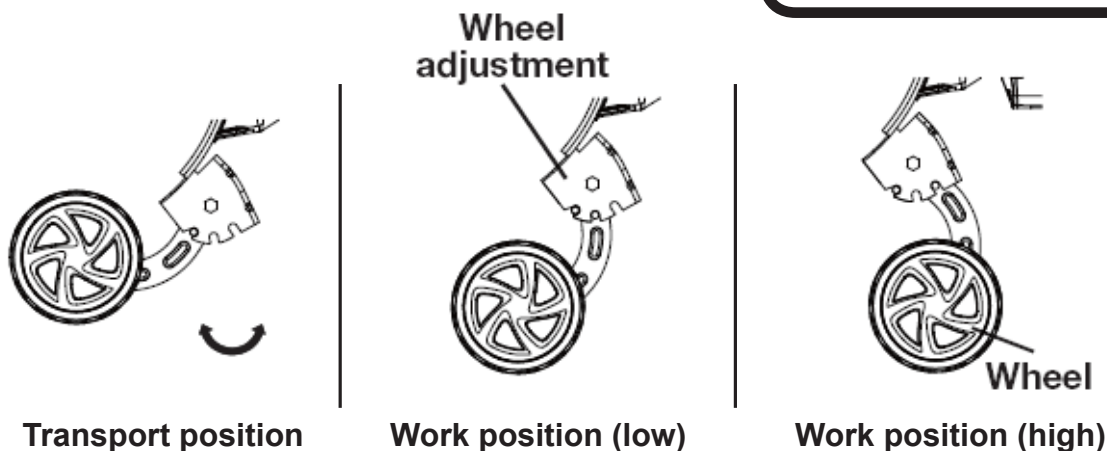
WHEEL ADJUSTMENT

The wheels can be adjusted to 3 positions. Lower the wheel height for shallow soil penetration. Raise the wheel height for deeper soil penetration.

Adjust the wheels when the tiller/cultivator is off, wait for moving parts to stop and remove the battery. Tilt the tiller/cultivator forward to rest on the motor housing. Grasp the wheel assembly by the axle and pull toward you. Move the assembly up or down (as needed) and allow the pins on the assembly to slot into one of the three pre-set positions.

WARNING

Always switch the product off and wait for moving parts to stop. Remove the battery before making any adjustments!



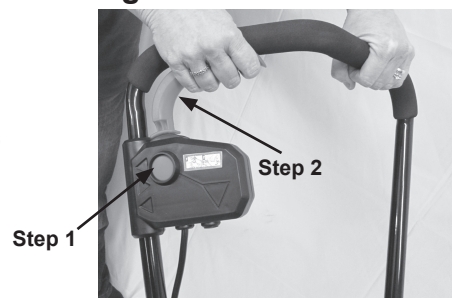
WARNING

The wheels can be adjusted in 3 different positions. Always ensure the wheels are securely locked! Do not attempt to use the tiller/cultivator with the wheels in any other position or unlocked!

STARTING AND STOPPING TILLER/CULTIVATOR

1. Insert fully charged power battery in the tiller/cultivator.
2. Press the lock-off button and hold it in position (Figure 1, step 1).
3. Squeeze the ON/OFF switch to turn the tiller/cultivator "ON" (Figure 1, step 2), release the lock-off button afterwards.
3. Release the ON/OFF switch to turn the tiller/cultivator "OFF" in order to stop it.

Figure 1



Cordless Tiller/Cultivator Operation (Continued)

GENERAL OPERATION

1. Check the tiller/cultivator, its battery as well as accessories for damage before each use. Do not use tiller/cultivator if it is damaged or shows wear.
2. Double check that the tines are properly fastened.
3. Always hold the tiller/cultivator by its handles. Keep the handles dry to ensure safe support.
4. During transportation of the tiller/cultivator, the operator must control the handles with two hands.
5. Ensure that the air vents are always unobstructed and clear. Clean them if necessary with a soft brush. Blocked air vents may lead to overheating and damage the product.
6. Switch the tiller/cultivator off immediately and wait for moving parts to stop if you are interrupted while working by other people entering the working area. Always let the tiller/cultivator come to a complete stop before taking your eyes off the machine.
7. Do not overwork yourself. Take regular breaks to ensure you can concentrate on the work and have full control over the tiller/cultivator.

WARNING

In some countries regulations define at what time of the day and on what special days products are allowed to be used and what restrictions apply! Ask your local agencies for all detailed information and observe regulations!

TILLING

1. Make sure that the working area is clear of stones, sticks, wire or other objects that could damage the tiller/cultivator or its motor. Be aware that the tiller/cultivator may unexpectedly bounce upward or jump forward if the tines should strike buried obstacles such as large stones, roots, or stumps.
2. Do not till very wet soil because it tends to accumulate around the tines, preventing proper rotation. It could also cause you to slip and fall.
3. Always maintain a firm grip on the tiller/cultivator. For better guidance apply light pressure to the handles (Figure 2). Hold onto the tiller/cultivator with both hands during operation. Ensure the grips are dry.
4. Do not try to till too deeply or force the product into soil that is extremely hard or resistant.
5. Walk the tiller/cultivator backwards through the soil at a normal pace and in as straight a line as possible.
6. Till in slight overlapping rows. The most effective pattern for tilling soils is moving the tiller/cultivator up and down in vertical lines, then move the tiller/cultivator in horizontal lines from left to right (Figure 3). This will keep the rows even and ensures that all the ground is tilled without missing any spots.
7. Pay special attention when changing direction. Apply light pressure onto the handle so that the tines are lifted to make a turn. Turn the product around guided by the wheels. Gradually release pressure and move the tines back to the ground.

Figure 2

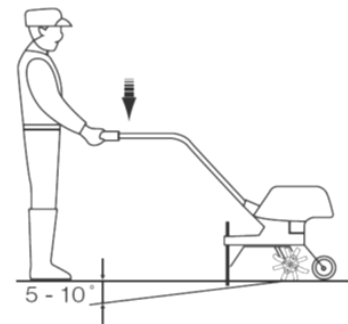
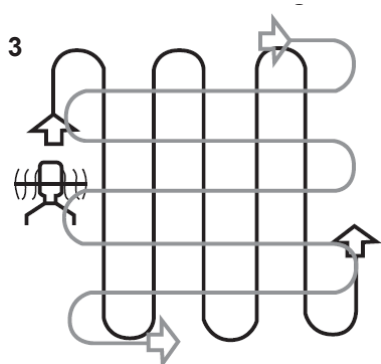
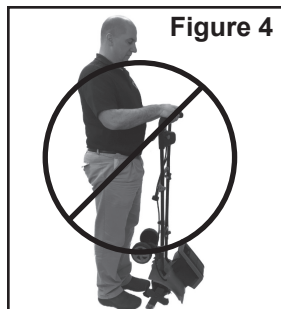


Figure 3



WARNING

Never carry this tiller/cultivator as the person in figure 4 is doing. If you do, and the tines engage, you could suffer serious injury.



WARNING

Stop the motor, if the tiller/cultivator strikes a foreign object! Switch the tiller/cultivator off, wait for moving parts to stop, remove the battery and let it cool down. Inspect the tiller/cultivator thoroughly for damage! Have any damage repaired before restarting! Extensive vibration of the tiller/cultivator during operation is an indication of damage! Stop the motor. The tiller/cultivator should be promptly inspected and repaired!

Cordless Tiller/Cultivator Care

AFTER USE


1. Switch the tiller/cultivator off, wait for moving parts to stop, remove the battery and let it cool down.
2. Check, clean and store the tiller/cultivator as described below.

RULES FOR CARE

1. Keep the tiller/cultivator clean. Remove debris from it after each use and before storage.
2. Regular and proper cleaning will help ensure safe use and prolong the life of the tiller/cultivator.
3. Inspect the tiller/cultivator before each use for worn and damaged parts. Do not operate it if you find broken and worn parts.

GENERAL CLEANING

1. Clean the tiller/cultivator with a dry cloth. Use a brush for areas that are hard to reach.
2. In particular clean the air vents after every use with a cloth and brush.
3. Remove stubborn dirt with high pressure air (max. 3 bar/40 psi).

 **NOTE: Do not use chemical, alkaline, abrasive or other aggressive detergents or disinfectants to clean this tiller/cultivator as they might be harmful to its surfaces. Do not use cleaning fluids or solvents or spray the machine down with water (especially water under pressure) when cleaning the tiller/cultivator.**

4. Check for worn or damaged parts. Replace worn parts as necessary or contact the contact the Mantis customer service center at the number listed on the warranty statement located at the end of this operating instructions for assistance before using the tiller/cultivator again.

UNDERSIDE AND TINES

1. Keep the underside and tines clean and free of debris. Remove soil with a proper brush or tool.
2. All nuts and bolts must be checked periodically for tightness before operation. After prolonged use, especially in sandy soil conditions, the tines will become worn and lose some of the original shape. Tilling efficiency will be reduced and the tines should be replaced.
3. Have worn or damaged tines replaced with new ones of the same type.
4. To prolong the life span of tines and the tiller/cultivator it is recommended that the tines are lubricated after each use.

WARNING

Always switch the tiller/cultivator off, wait for moving parts to stop, remove the battery and let the tiller/cultivator cool down before performing inspection, maintenance and cleaning work!

WARNING

Only perform repairs and maintenance work according to these instructions! All further works must be performed by a qualified specialist!



WARNING

Wear protective gloves when working on the tiller/cultivator or close to it! Use proper tools to remove debris, e. g. a wooden stick! Never use your bare hands!

CAUTION!

Moving parts will continue to run for several seconds after turning off the machine. Wait until the tines have completely stopped before lifting the tiller/cultivator or conducting inspection and maintenance.

Cordless Tiller/Cultivator Maintenance

REPAIR

The motor transmission and electronics on this tiller/cultivator cannot be repaired by the consumer, only those repairs noted in this manual and/or on our website are recommended. For assistance contact the Mantis customer service center at the number listed on the warranty statement located at the end of this operating instructions

SPARE PARTS/REPLACEMENT PARTS

The following parts of this product may be replaced by the consumer. Spare parts are available through Mantis customer service.

Description	Model Number
Tine.....	8440-990101-01
Bolt.....	8NH-08D
Nut.....	8SFDD-40D

! WARNING

Always use only original Mantis replacement parts. The use of any unauthorized replacement parts, attachments or accessories can be dangerous and could cause injury or mechanical damage.

MAINTENANCE

Before and after each use, check the tiller/cultivator for wear and damage. If required, exchange worn or damaged parts for new ones as described in this instruction manual. Observe the technical requirements.

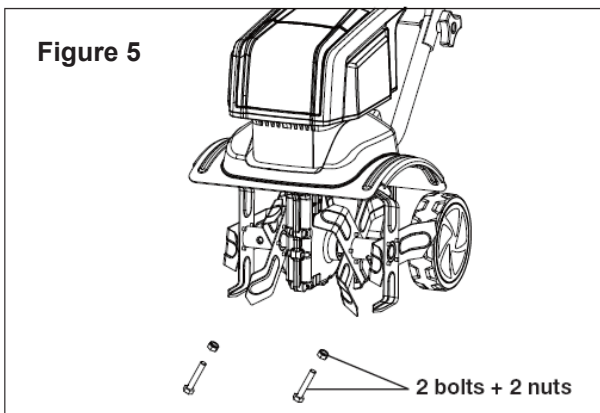
1. Follow the maintenance and repair instructions for this tiller/cultivator. Never carry out any modifications of this product. Information about maintenance and repair is provided in this user manual.
2. Keep all nuts, bolts and screws tight to ensure the tiller/cultivator is in safe working condition.
3. Make sure that air vents are not covered with debris
4. Replace worn or damaged parts for safe operation.
5. Be sure that tines are clear and can rotate freely – Accumulation of debris around the tines could impair performance or damage the motor. Inspect and clean the area around the tines before every use.

CHANGING THE TINES

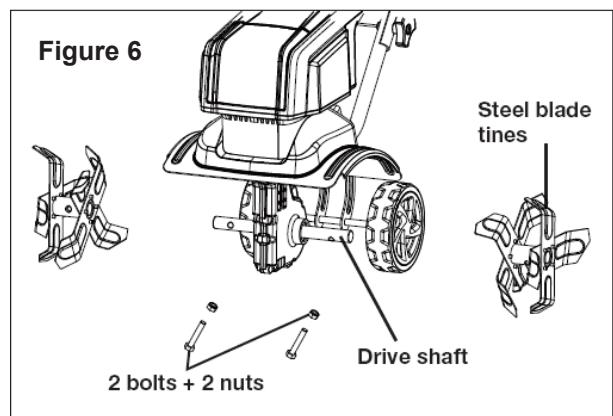
NOTE: The tiller/cultivator is fitted with four tilling tines that can easily be changed in pairs. Always change both tine pairs at the same time to avoid imbalance and damage to the machine.

To replace the tines, follow the steps below:

1. While standing on a flat and stable surface, switch off the unit, wait for moving parts to stop and remove the battery.
2. Remove the 2 bolts and 2 nuts, then remove the steel tines (Figure 5).



3. Clean the drive shaft
4. Place the new tines onto the drive shaft so that the holes on the tine hub line up with the holes on the drive shaft.
5. Insert the 2 bolts through the holes and secure them with the 2 nuts (Figure 6).



IMPORTANT: The tines must be set in the correct turning direction. Note the way the old tines came off and replace the new ones exactly the same way.

Cordless Tiller/Cultivator Maintenance & Storage

VIBRATION AND NOISE REDUCTION

To reduce the impact of noise and vibration emission, limit the time of operation, as well as wear personal protective equipment.

Take the following points into account to minimize the vibration and noise exposure risks:

1. Only use the tiller/cultivator as intended by its design and these instructions.
2. Ensure that the tiller/cultivator is in good condition and well maintained.
3. Use correct tines and ensure they are in good condition.
4. Keep tight grip on the handle grips.
5. Maintain this tiller/cultivator in accordance with these instructions and keep tines well lubricated.
6. Plan your work schedule to spread product use across a longer period of time.

RESIDUAL RISKS

Even if you are operating this tiller/cultivator in accordance with all the safety requirements, potential risks of injury and damage remain. The following dangers can arise in connection with the use of this product:

1. Health defects resulting from vibration emission if the product is being used over long periods of time or not properly managed and maintained.
2. Injuries and damage to property due to broken components or the sudden impact of hidden objects during use.
3. Danger of injury and property damage caused by thrown objects.

WARNING

This tiller/cultivator produces an electromagnetic field during operation! This field may under some circumstances interfere with active or passive medical implants! To reduce the risk of serious or fatal injury, we recommend persons with medical implants to consult their doctor and the medical implant manufacturer before operating this product!

STORAGE

1. Switch the product off, wait for moving parts to stop and remove the battery from the tiller/cultivator.
2. Clean the tiller/cultivator as described above.
3. Store the tiller/cultivator in a sheltered, dry, frost-free, well-ventilated place.
4. When not in use, the tiller/cultivator should be stored indoors in a dry and high or locked-up place out of the reach of children. Store the charger and your cordless tool only in dry locations with an ambient temperature of 10-40°C. Store your lithium-ion battery pack in a cool, dry place at a temperature of 10-20°C. Protect the battery pack, charger and cordless tool from humidity and direct sunlight. Only place fully charged batteries in storage (charged to at least 40%).
5. We recommend using the original package for storage or covering the tiller/cultivator with a suitable tarp or enclosure to protect it against dust.
6. You can store your tiller/cultivator with the handles in an extended position or folded down (Figure 7). Loosening handle knobs will allow the handles to fold down as shown.

Figure 7



TRANSPORTATION

1. Switch the tiller/cultivator off, wait for moving parts to stop and remove the battery.
2. Attach transportation guards, if applicable.
3. Always carry the tiller/cultivator by its transportation handle.
4. Protect the tiller/cultivator from any heavy impact or strong vibrations which may occur during transportation in vehicles.
5. Secure the tiller/cultivator to prevent it from slipping or falling over.

Cordless Tiller/Cultivator Troubleshooting

Troubleshooting

Suspected malfunctions are often due to causes that users can fix themselves. Therefore check malfunctions using this section. In most cases the problem can be solved quickly.

WARNING

Only perform the steps described within these instructions! All further inspection, maintenance and repair work must be performed by an authorized service center or a similarly qualified specialist if you cannot solve the problem yourself! For assistance contact the Mantis customer service center at the number listed on the warranty statement located at the end of this operating instructions.

Problem	Cause	Remedy
1. Tiller/cultivator does not start	1.1. Battery is not correctly inserted 1.2. Motor terminals or capacitor disconnected 1.3. Battery is empty 1.4. Excessive working depth	1.1. Remove the battery and reinsert 1.2. Check by a specialist electrician 1.3. Charge the battery 1.4. Reduce the working depth
2. Tiller/cultivator does not reach full power	2.1. Battery has too low voltage 2.2. Air vents are blocked	2.1. Recharge the battery 2.2. Clean the air vents
3. Unsatisfactory result	3.1. Tines are dull/damaged 3.2. Tines not suitable for ground material	3.1. Replace with new tines 3.2. Use product only on suitable ground
4. Excessive vibration or noise	4.1. Tines are dull/damaged 4.2. Bolts/nuts are loose	4.1. Replace with new tines 4.2. Tighten bolts/nuts
5. The battery pack does not charge properly	5.1 No power to the outlet. 5.2 Charger contacts are clogged with debris or shorted with foreign material 5.3 Abnormal Temperature. The battery pack is either too hot or too cold	5.1 Make sure that the outlet is not turned off. 5.2 Clean charger contacts 5.3 Move the charger and battery pack to a location having room temperature Once the pack is within the acceptable range, normal charging will take place



RECYCLING AND DISPOSAL

The product comes in a package that protects it against damage during shipping. Keep the package until you are sure that all parts have been delivered and the product functions properly. Recycle the package afterwards.

WEEE symbol. Waste electrical products should not be disposed of with household waste. Please recycle where facilities exist. Check with your Local Authority or local store for recycling advice.



LIMITED WARRANTY

MANTIS extends this limited warranty against defects in material and workmanship for a period of two (2) years from the date of purchase by the original purchaser.

MANTIS will repair or replace, at its option, any part or parts of the product found to be defective in material or workmanship during the warranty period. Warranty repairs and replacements will be made without charge for parts or labor. All parts replaced under warranty will be considered as part of the original product, and any warranty on the replaced parts will expire coincident with the original product warranty. If you think your MANTIS TILLER/CULTIVATOR is defective in material or workmanship, please contact our Customer Service Department at 0161 474 1525 or via our Contact Us page on www.mantis.uk.com/contact/

United Kingdom

Mantis UK

4th floor, Lincoln House

300 High Holborn

London WC1V 7JH

You are responsible for pickup and delivery charges; the product must be returned to us postage paid.

MANTIS assumes no responsibility in the event that the product was not assembled or used in compliance with any assembly, care, safety, or operating instructions contained in the Operator's Manual or accompanying the product. This limited warranty does not cover damages or defects due to normal wear and tear, lack of reasonable and proper maintenance, failure to follow operating instructions or owner's manual, misuse, lack of proper storage or accidents or routine maintenance parts and service. This limited warranty shall not be effective if your MANTIS TILLER/CULTIVATOR has been subjected to negligence or has been repaired or altered by anyone other than an authorized dealer or authorized service center.

You must maintain your MANTIS TILLER/CULTIVATOR by following the maintenance procedures described in the owner's manual. Such routine maintenance, whether performed by you or a dealer, is at your expense.

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Specifications, descriptions and illustrative material in this literature are as accurate as known at the time of publication, but are subject to change without notice.

DECLARATION OF CONFORMITY

Business name of the manufacturer: MANTIS France SARL.

full address of the manufacturer: 20, rue des Garennes, 57155 Marly, France

name and address of the person (established in the Community) compiled the technical file:

Robert A. Kurzyna Mantis France Sarl – 20, rue des Garennes, 57155 Marly, France

We declaring that the machinery

product name: Motor hoe

commercial name: Motor hoe

function: service for tilling

model: 3458-01, 3458-02

type: DC tool

Serial Number: N/A

Seriennummer: N/A

fulfils all the relevant provisions of Directives

entspricht allen relevanten Anforderungen folgender Richtlinien

2006/42/EC, 2014/30/EU, 2000/14/EC&2005/88/EC, 2011/65/EU

tested in accordance with below standards

EN 62841-1:2015; EN 709:1997+A4, EN 62233: 2008, EN ISO 12100:2010;

EN 55014-1:2006+A1+A2, EN 55014-2:2015, EN 62321:2009

Measured sound power level: 83.8 dB(A)

Guaranted sound power level: 93 dB(A)

Notified Body for EC Directive 2000/14/EC:0036


TÜV SÜD Industry Service GmbH

Westendstrasse 199 • 80686 München • Deutschland

place and date of declaration:

signature of the person:

MANTIS DIVISION OF
SCHILLER GROUNDS CARE
1028 STREET RD
SOUTHAMPTON, PA 18956



1/26/18