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1. GENERAL INFORMATION

ATTENTION: Please read and understand perfectly the present instruction before using the machine.

SIMA S.A. thanks you for purchasing the FLOOR SAW model CAT 202 scarifier model.

This manual provides you with the necessary instructions to start, use, maintain and repair the floor saw. All aspects as far as the safety and health of the users is concerned have been stated. Respecting all instructions and recommendations assures safety and low maintenance. As such, reading this manual carefully is compulsory for any person responsible for the use, maintenance or repair of this machine.

As such, reading this manual carefully is compulsory for any person responsible for the use, maintenance or repair of this machine.

It is recommended to have always this manual in an easily accessible place where the machine is being used.

2. DESCRIPTION OF THE MACHINE

The scarifier CAT models have been designed and manufactured for use by professionals in the treatment of horizontal surfaces by the process of erosion with suitable tools for every need, concrete and asphalt surfaces.

• For construction characteristics and depending on the chosen tool for the surface to be treated, the milling of pavement CAT can perform the following functions:

- Elimination by milling.
- Standard Milling
- Minced
- Striated
- Cleaning
- Elimination of coatings
- Scaling
- Shelly
- Husked

• The milling tool is a set or drum group called dragged by a hexagonal shaft, this group features 4 heat-treated axles where the wheels are introduced milling grinder separated by washers.

• Incorporates a knob or steering wheel for manual control of the milling depth.

• Incorporates a vacuum cleaner intake for dust collection, thus avoiding contaminating the environment.

• A curtain of rubber prevents the projections started by the tool material, are projected towards the operator-

• As standard the machine drum group incorporates the corresponding cutters equipped with six tip.

• There are two engine versions for this machine, petrol and electric.

• The electric model can be single or three phase.

• CAT model incorporate a quick lifting device milling drum, used to lift it when it is moving and driving the machine tool without friction along the surface, another use is to lower the drum to the working position, this device is independent of adjustment of milling depth and is in the grip that is on the handlebar column at a height easily accessible to the operator.

- The scarifier CAT models adjust the depth which you want to perform a specific operation as the following:

Descending the drum to the working position, unlock the spindle, lifting up the drum by turning the depth adjustment wheel, start up the engine, lower the drum by turning the depth adjustment wheel or block the lifting screw.

- The machine frame is constructed of quality steel to withstand the harsh and aggressive work to which it is subjected.
- The machine frame is painted with epoxy - polyester which gives a high surface resistance and maintains the structure protected from corrosion.
 - The drum group is driven by the engine through pulley transmission and flexible belts, the transmission is protected with a protection to prevent access to moving parts.
- The driving handlebar height can be adjusted by offering convenience and ease driving to the operator.
- The electric equipment in the electric motor mounted models that meet EU safety standards.
- The machine is equipped with rubber wheels to facilitate the work and travel.

2.1 PICTOGRAMS

Pictograms included in the machine entail the following:



**READ
INSTRUCTIONS
MANUAL**



**USE HELMET AND EYE AND EAR
DEFENDERS**



USE SAFETY GLOVES



USE SAFETY FOOTWEAR

3. TRANSPORT

For short distances, the scarifier CAT 202 can be transported onto its own wheels.

When the machine must be lifted, use the a mechanist adequate to the weight of the machine-. It will be then easy to fix steel cables or chains. Its weight and dimensions make it easy to transport in small vehicles.

WARNING: use highly- resistant cables or chains (bear in mind the weight of the machine and see the metal label of the machine).

When you put down the machine, do it gently and avoid any strong bumps on the wheels that could damage other components.

4. ASSEMBLING INSTRUCTIONS

The different versions of scarifier CAT 202 are supplied and single-packed into reinforced cardboard boxes onto a wooden pallet.

With the machine, the operator will find the following components:

- Body of the machine bolted to the pallet, including a drum ready to work.
- Top of the handlebars ready for placement.
- Bottom spindle prepared for placement.
- Bag containing different tools for maintenance and an instruction manual of the machine with its security and an instruction book itself for petrol engine. Electrically powered versions are supplied with a intake main supply.

4.1 MACHINE ASEMBLING

It should proceed as follows:

- Unpack the top of the handlebar that is attached to the machine using a connecting piece for the transport specified.
- Unpack the spindle of the machine and thread to the top of the handlebar.
- Mount the machine on top of the handlebar, as shown in **Fig.3**. Tighten the screws **T**, **Fig.3** with the key that is supplied.
- Screw the bottom of the spindle **H**, **Fig.4** in their accommodation to **A**, **Fig.4**. You must enter the proper screw length so you can achieve the spindle caught in the wheels of the machine **B**, **Fig.4**.
- Secure the bottom of the spindle to the fork and tighten the screw **S**, **Fig 4** with the allen key that is supplied.

5. ELECTRIC AND PETROL ENGINE.

5.1 PETROL ENGINE

Scarifier CAT 202 model is supplied with oil and without fuel in the engine

Must be read at all times the manual of the engine itself.

Fuel spillage on the machine to fill the tank and they can be dangerous or involve some element of it. Before starting the engine check the oil level in the crankcase by placing the machine on a flat surface and the engine stopped, if necessary, fill to complete the level with the type of oil recommended by the engine manufacturer.

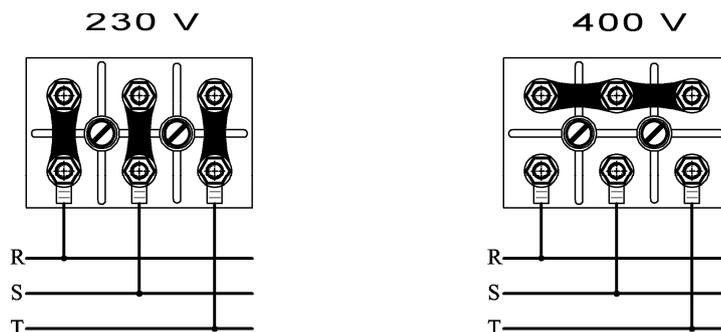
5.2 SINGLE- PHASE ELECTRIC MOTOR

These models are supplied with a 230V single phase electric motor with switch-plugs. The extension cord is used must have a minimum area of 4x2, 5 mm² to 25 meters in length. For a longer distance should use 4x4 mm². At one end is placed the extender switch that includes the machine in endowment, and the other a plug which is compatible with the output of the switchboard where you go to feed.

Scarifiers with single-phase electric motor leave factory always connected to work at 230 V.

5.3 THREE-PHASE ELECTRIC MOTOR WITH MACHINES.

These models are supplied with three-phase 230/400V electric motor with switch-plugs. The extension cord is used must have a minimum area of 4x2, 5 mm² to 25 meters in length. For longer distance should use 4x4 mm². At one end is placed the extender or air base that includes the machine in endowment, and the other a plug which is compatible with the output of the switchboard where you go to feed. The three-phase electric scarifier leaves factory connected to work at 400V. If necessary connect the machine to a supply voltage of 230V, we change the position of the bridge chips in the motor terminal box, as shown in the figure below:



WARNING: Always proceed to change the position of the bridge inserts in electric motors, disconnect the mains and must also ensure to change stickers indicating the supply voltage, to agree with the change made. Switches-plugs mounted on the electric motor and CAT models incorporate undervoltage coil that prevents unexpected start of them. In the event that there is a power outage or a voltage drop that occur stop the machine, and once restored to normal conditions of supply, the engine will not start until you press the start button.

5.4 SECURITY RECOMMENDATIONS

The machines equipped with electric motor should be connected to a standard electrical box that has a magneto, and a differential in accordance with the characteristics of the engine:

- 2.2kw /3 HP, single phase to 230 V, 20A breaker and differential 20A/300 mA
 - 2.2kw /3 hp, 400V three-phase, 15A breaker and differential 15A/300mA
 - 2.2kw /3 hp, three phase to 230V, 20A breaker and differential 20A/300mA
-
- Always use personal protective equipment (EPI) appropriate for each job.
 - Visually inspect the machine (levels, wear, shooting, etc.) before starting.
 - Do not operate the machine, or operate the controls if operator is not located in the operator location.
 - Examine the control panel and verify that all devices are working properly measuring and monitoring safety.
 - Before connecting or starting the equipment make sure that nobody is in their area of risk.
 - Starting the equipment according to the manufacturer's instructions.
-
- Visually inspect all connections: bolts, nuts, welds, corrosion, cracks, receipts, etc.
 - The ending should always be connected before start up the machine.
 - Ensure that the voltage supply to the net will be connected to the machine, it matches the voltage indicated on the sticker attached to the machine.
 - Use standard extension cords.
 - Check that the extension cord cannot be trapped by the machine.
 - Make sure the extension cord does not come into contact with points of high temperature, oil, water or sharp edges.

PETROL ENGINES

- Fill the fuel tank and do not overfill in ventilated places.
- Try to avoid inhalation of the vapor rising from the refill.
- Avoid spilling fuel and keep in mind this operation every time you fill the tank, the fumes and spilled fuel is highly flammable under certain conditions and may ignite.
- Do not smoke during the filling operation and avoid the presence of fire or sparks even in the fuel store.
- If fuel is spilled must be cleaned and allow dissipation of the fumes before starting the engine.
- Never place flammable items on the engine.
- Avoid contact with skin fuel.
- Do not allow the engine to be used without having in mind the necessary instructions.
- Do not touch the engine or allow anyone else to do it when still hot as it can cause skin burns.
- Never allow children or pets to be close to the engine.
- Keep the fuel out of the reach of children.
- Do not refuel with the engine running or smoke during operation, try to do it in well ventilated places.

WARNING: Must follow all safety recommendations outlined in this manual and comply with regulations for the prevention of occupational risks in each place.

Do not use the machine to the functions that it has been designed.

SIMA SA is not responsible for any consequences that may result in inappropriate use of the milling firm

6. STARTING UP AND USE INSTRUCTIONS

Warning: Follow all the mentioned safety recommendations and comply with the directives about labour accidents and risks.

For further details, consult the engine manual.

6.1 QUICK LIFTING DEVICE

The scarifier CAT model has a lifting device and rapidly dropping the machine. It is used to move the machine without losing the reference of milling depth.

This regulation is independent of adjustment of milling depth and is in the grip that is on the handlebar column at a height easily accessible to the operator. **E, Fig.5**

To raise the machine displace the handle until the lock pawl **T, Fig.5** reaches its top position. For the descent of the machine is moved slightly upward first handle to unlock the ratchet and then down until it reaches its lower position.

6.2 HANDLE TUBE ADJUSTMENT

The handlebar of the scarifier incorporates a rectangular tube **A, Fig.6** that height can be regulated as follows:

- Loosen the crank handle lock **M, Fig.6**
- Move the handle tube to find the most comfortable position for the user.
- To squeeze the handle to lock the handle in the position held.

6.3 REGULATION OF THE DEPTH OF MILLING.

The adjustment of the depth to which you want to perform a specified task is performed through the upper adjustment wheel. Proceed as follows:

- With the engine stopped, place the drum in the working position by quickly lifting device. **Fig.5**
- Make sure that being in the position of work, the milling drum does not touch the ground. To do this you need to unlock the nut that attaches the spindle **P Fig.7**.
- Turn the wheel counterclockwise to its maximum height, thus ensuring that the drum does not touch the ground when the machine starts working.
 - Start or connect the engine.
 - Lower the milling drum by turning the depth adjustment wheel **V, Fig.7** clockwise until the milling cutters begin to touch the ground.
 - Once you touch the ground with the milling cutters on the ground the machine is ready to get the desired depth. Blocked by the spindle locknut **P Fig.7** for the vibrations cannot change the depth selected by rotating the spindle unexpectedly.
 - To make a stop or a break from work, we will raise the machine by quickly lifting device **T, fig5** to the upper position of stalemate. This allows us to pause without losing the depth reference work soon established.

6.4 STARTING CONNECTION / DISCONNECTION

To start a machine with a gasoline engine, please proceed as follows:

- Raise the drum some centimetres from the ground, as indicated in this manual.

- Check the engine oil level.
- Open the fuel cock.
- Close the choke. (There is no need to close it if the engine is warm or temperature is high.)
- Put the choke lever halfway in a light accelerating position.
- Turn the engine switch to ON position.
- Release the stop button turning it upwards. This button is additional to the motor switch and allows stopping and starting the machine with more ease.
- For details on operations in the engine, see your instruction book.
- Lowering the milling drum as shown in this manual and start working

To stop the machine lift the machine by lifting system fast, slow down completely and put the engine switch OFF. Close fuel valve.

For versions with electric motor will proceed as follows:

- Raise the milling drum so that it does not rub on the floor as shown in this manual.
- Connect the air base of the extension cord to the main plug.
- Start the engine by pressing the green button from the outlet.
- lowering the milling drum as shown in this manual and start working.

• To stop the machine lift the machine by quickly lifting system, stop the engine by pressing the red button on the outlet. Disconnect the extension cable.

6.5 WORK PERFORMANCE. MILLING DIRECTION.

For best results with simple operation should be performed always milling forward. Traverse the work area in stages.

Not regulate the machine for milling depth too high. If necessary, repeat the process several times.

With the appropriate depth, the mills operate more evenly and avoid premature wear. If you use an inappropriate setting may appear excessive vibrations and uneven performances.

7. SAFETY RECOMMENDATIONS

- Any machine handling should be done with the engine stopped.
- Always consider the safety recommendations mentioned in this manual as well as appearing on the gasoline engine
- Grease every 40 hours the lifting screw.
- In gasoline-powered versions control the engine oil level with the machine always placed in a horizontal plane. Gasoline engines mounted CAT models, are alarmed by low oil level, so that when the level falls below the minimum, to the engine will not start until you have added enough oil.
- To use the engine oil SAE 15W-40.
- Clean the machine as often as necessary and see if anomalies or malfunctions it inspected by a qualified technician.
- Be sure to remove the machine tools and devices used in each maintenance operation.
- If the machine is not covered, cover it with waterproof material.

Prohibited any modification in any of the parts or elements of the machine that the user independently.

SIMA SA shall in no way responsible for any consequences that may result from failure of these recommendations.

8. TIGHTENING AND REPLACING THE TRANSMISSION BELT

The transmission belts **C, Fig.8** are elements that cab loosened by the time and frequent usage. **Therefore, it** should be checked after some time and then should be adjusted if necessary. Check frequently the belt tension and place finger pressure on the top of the belt.

- Remove the guard of the pulleys **P, T Fig.8** loosening the screws, **Fig.8**
 - Operate the **R, Fig. 8** tensor , manipulating engine nuts, tightening or loosening the belt to replace.
 - Replace damaged by a new strap.

- Raise the platform of regulating motor nuts **R, Fig.8** until the belt tension is just enough to avoid the oscillation of the band.
- Place the receipt of the pulleys **P, Fig.8** and secure with the screws **T, Fig.8**.

WARNING: When the transmission of the machine is synchronous toothed belt as they ride the CAT model, no adjustment is needed because the excessive tension of the same teeth prevents slippage and ensures a perfect transfer.

9. REPLACEMENT OF MILLING CUTTERS.

The change of strawberries drum is a normal operation, either because they are worn out, or because they are to perform other work that requires a different strawberry. To replace proceed as follows:

- Loosen the screws **T, Fig.9** and remove the flange side of the drum **B, Fig.9**. This flange has two threaded holes to use as extractors with two screws removed from the flange. Tightening the two screws into the wall of the chassis of the machine the flange will be separated from the machine.
- Remove the drum **S, Fig.10** chassis manually sliding on his hexagonal axis.
- Remove the caps that the drum **T, Fig.11** takes on both sides, loosening the screws to **A, Fig.11** remove milling cutter axes **E, Fig.10** pushing for the end that has a recess.
- Placing milling cutters as we advance is being made pursuant to the axis from side to side, taking into account the need to insert milling cutters **F, Fig.11** and washer **B, Fig.11**.

WARNING: The milling cutters in one axis should not be faced with another. Should be placed alternately so that each washer is in front of each milling cutter. If a shaft is positioned first in the washer, the following should be placed a milling cutter first **Fig.12**

Note that milling cutters should be comfortably placed and move horizontally on its axis.

- Replace the two ends of the drum **T, Fig.11** and enter it into the chassis by sliding it along its hexagonal axis.
- Tighten the flange side **B, Fig.9**.

Axes that support milling cutters should be replaced when significant wear is observed.

10. SOLUTIONS TO MOST FREQUENT ANOMALIES

ANOMALY	POSIBLE CAUSA	SOLUTION
Petrol engine will not start	Low oil level alarm is ON	Top up as necessary
	Fuel cock closed	Open fuel cock
	Motor switch is in OFF position	Turn switch to ON position
	Machine emergency stop switch is pressed	Release the button turning it upwards
Electric engine will not start	Nopower supply	Check mains
	Thermal protection is ON(single-phase engine)	Cool down machine and rearm the thermal protection
	Switch is not working	Change the switch
Insufficient milling depth	Drum is not rotating appropriately	Change bearings or tensing belt transimition
	Depth of milling is not appropriate	Regulate depth of milling
	Milling cutters too wear	Change foe a new set of milling cutters
	Inappropriate milling cutter for the type of work is being done	Change to the appropriate milling cutters
Strong vibrations	Some milling cutters are damage	Change for a new set of milling cutters
	Depth of milling is not appropriate	Regulate depth of milling

11. TECHNICAL CHARACTERISTICS

<i>DATA</i>	CAT-202 GH	CAT-202 ET	CAT-200 EM
MOTOR	HONDA GX 200	ELECTRICO TRIF.	ELECTRICO MONOF.
FUEL	Petrol		
START	Manual	Manual	Electrical
MAXIMAL POWER Kw (Hp)	4 (5,5)	2.2 (3)	2.2 (3)
R.P.M. MOTOR	3600	2850	2850
TENSION		230/400V~ 50-60Hz	230V~50-60Hz
Drum width mm.	240	240	240
Milling width mm.	189	189	189
Milling efficiency m²/h	30	30	30
Height Regulation Sistem	Mechanical	Mechanical	Mechanical
Weight Kg.	75	79	79
Ø Aspirate tube mm.	50	50	50
Dimensions L x A x H mm	1020x405x1150	1020x405x1150	1020x405x1150

13. WARRANTY

SIMA, S.A. the manufacturer of light machinery for construction possesses a net of technical services "SERVI-SIMA".

Repairs under warranty made by SERVÍ-SIMA are subject to some strict condition to guaranty a high quality and service.

SIMA S. A. guarantees all its products against any manufacturing defect; to take into account the conditions stated in the attached document "WARRANTY CONDITIONS". The latter would cease in case of failure to comply with the established payment terms. SIMA S.A. reserves its right to bring modifications and changes to its products without prior notice.

14. SPARE PARTS

The spare parts for the Scarifier CAT 202 model, manufactured by SIMA, S.A. are to be found in the spare parts plan, attached to this manual.

To order any spare part, please contact our alter-sales service clearly indicating the serial number of the machine, **model, manufacturing number and year of manufacturing that show on the characteristics plate.**

To order any spare part, please contact our alter-sales service clearly indicating the serial number of the machine, **model, manufacturing number and year of manufacturing that show on the characteristics plate**

15. ENVIRONMENT PROTECTION



Raw materials have to be collected instead of throwing away residuals. Instruments, accessories, fluids and packages have to be sent into specific places for ecological reutilisation. Plastic components are marked for selective recycling.



R.A.E.E. Residuals resulting from electrical and electronic instruments have to be stored into specific places for selective collection.

16. NOISE LEVEL DECLARATIONS

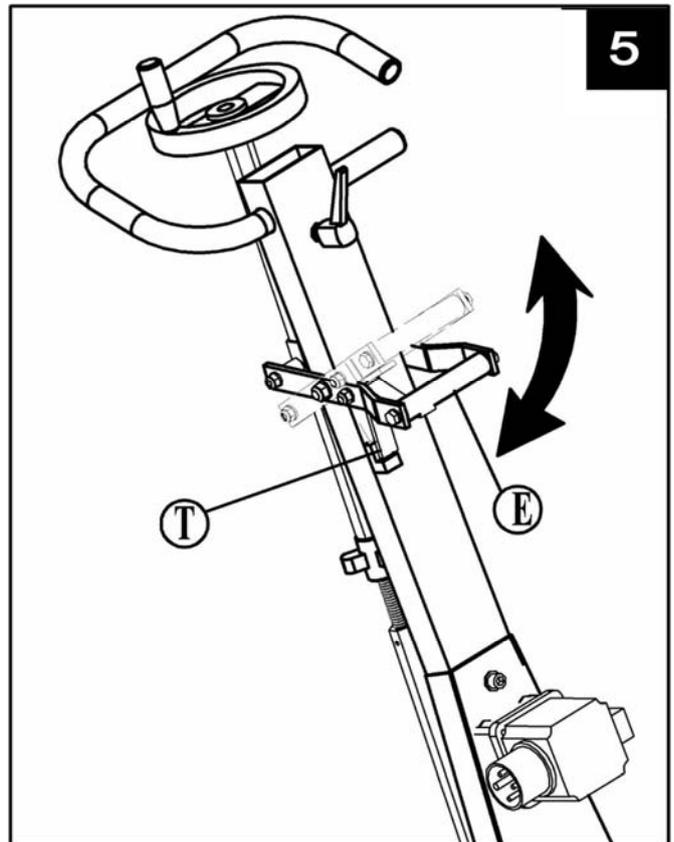
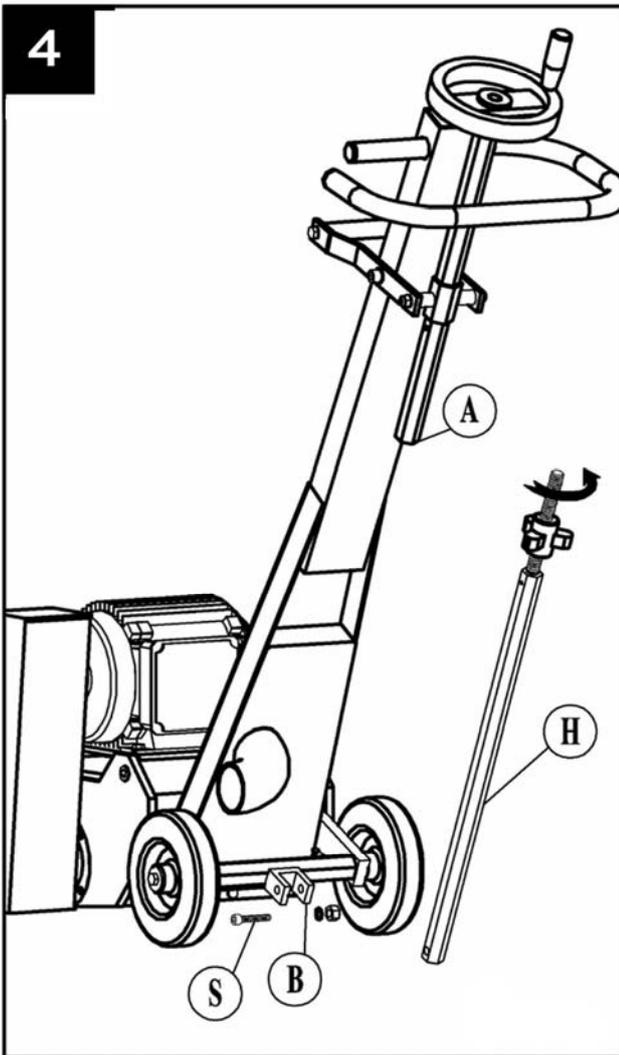
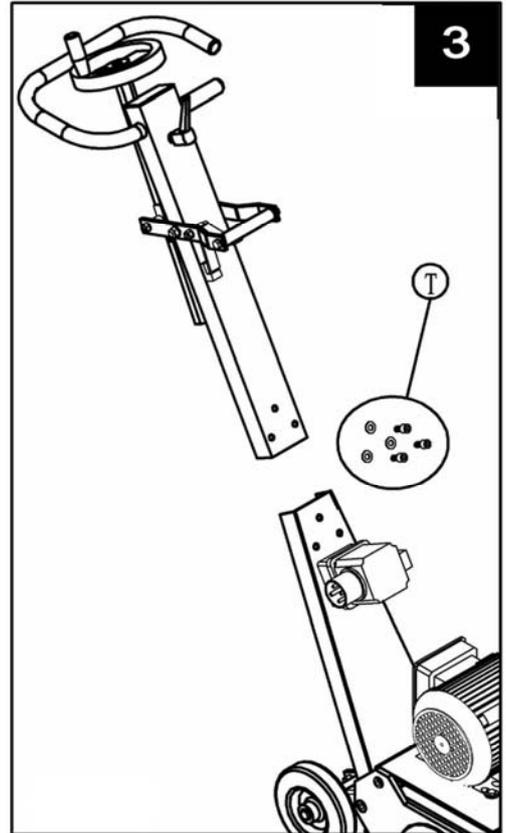
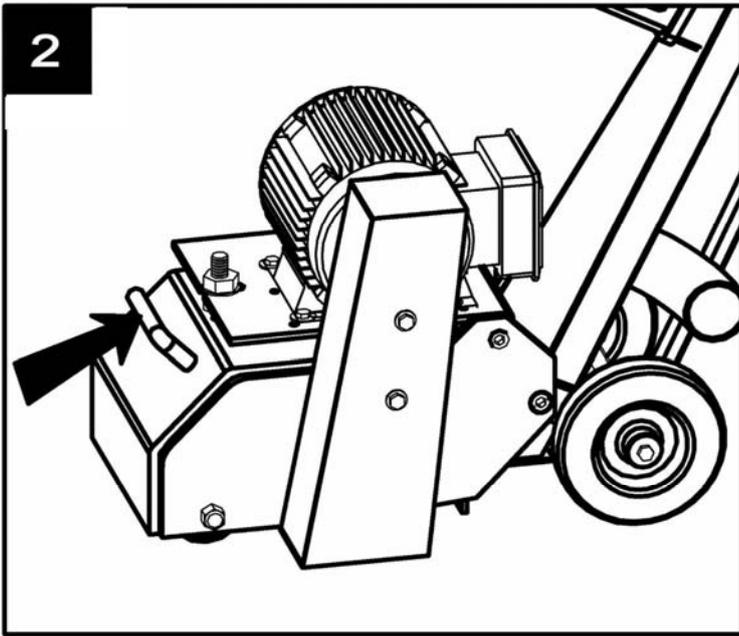
Level of acoustic power issued by the machine:

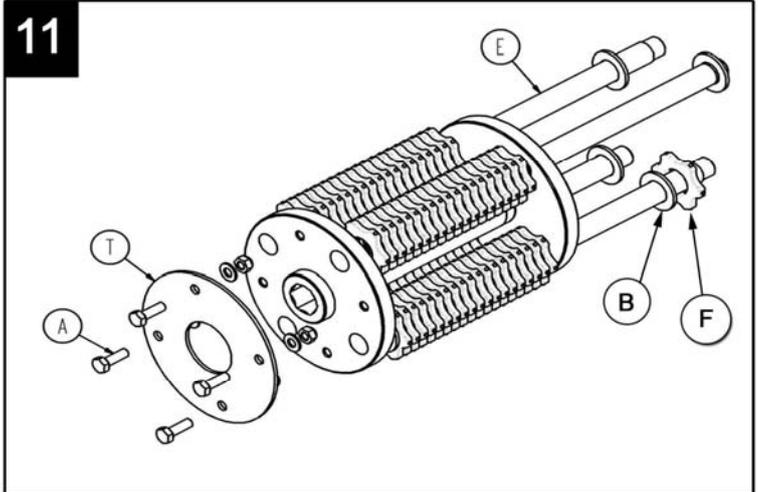
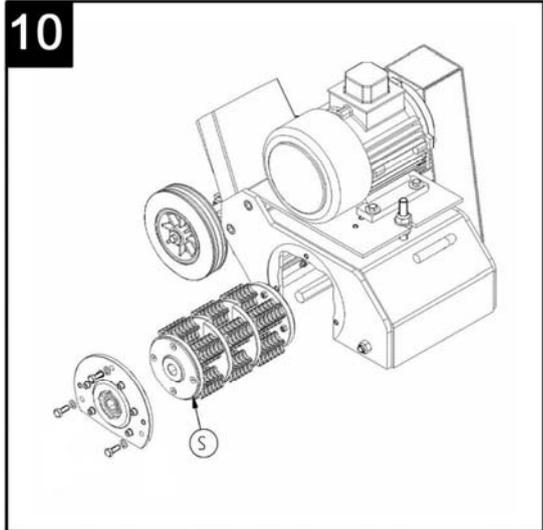
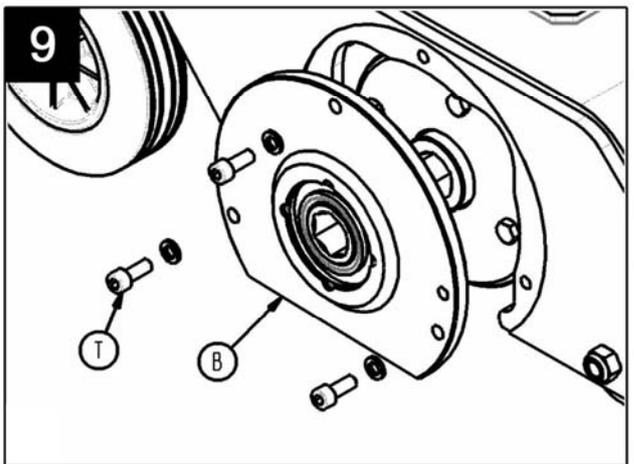
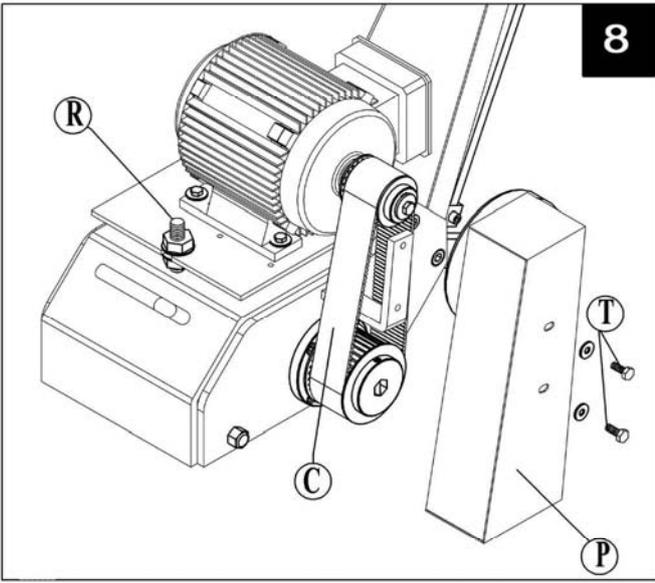
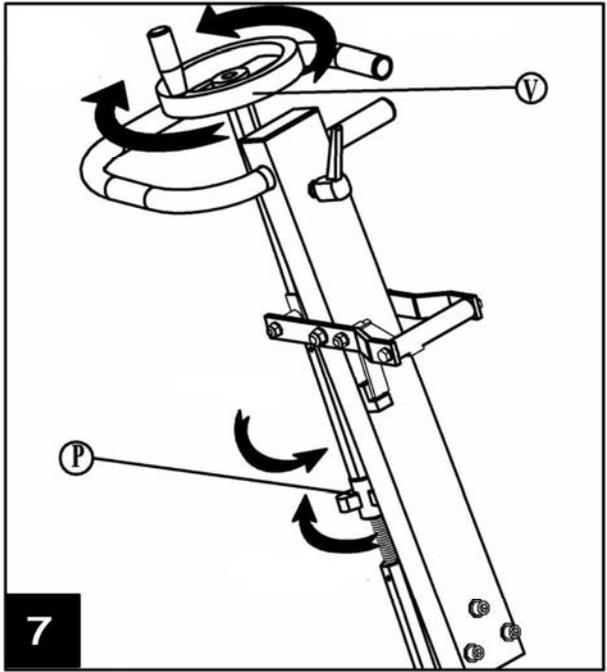
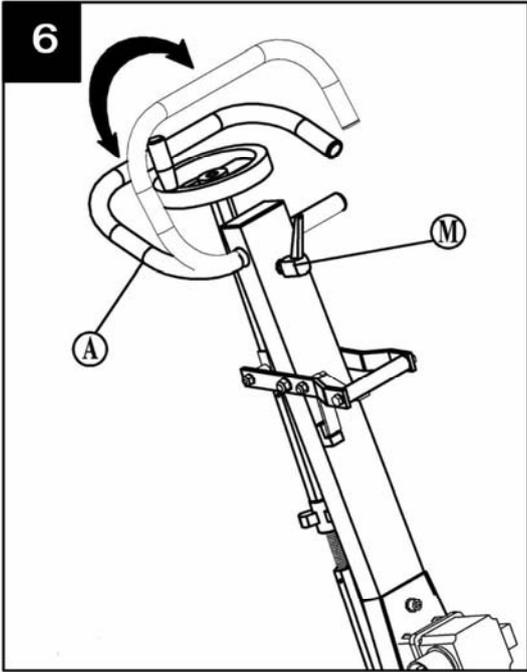
CAT-202 GH	LWA (dBa) 111
CAT-202-ET	LWA (dBa) 111
CAT-202-EM	LWA (dBa) 111

17. VIBRATIONS LEVEL DECLARATIONS

The level of vibrations transmitted to the hand-arm:

MODEL	LEFT HAND m/s^2	RIGHT HAND m/s^2
CAT-202 GH	5,10782200788	5,75841016977
CAT-202-ET	5,10782200788	5,75841016977
CAT-202-EM	5,10782200788	5,75841016977





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