



THREE POINTS LINKAGE SHAKER VL08



User and maintenance manual

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Annexed declaration of conformity

Thank you for choosing and purchasing this machine.

To obtain optimum performance, we advise you to strictly follow the instructions contained in this manual.

We advise against any modification that is not expressly authorised by the company **MONCHIERO**.

For the ASSISTANCE service our technicians are always at your disposal.

VL08 TOWED SHAKER

OPERATION AND MAINTENANCE HANDBOOK



ATTENTION!

IT IS ADVISABLE TO READ THE ENTIRE MANUAL CAREFULLY BEFORE OPERATING THE MACHINE.

TO AVOID POSSIBLE INJURIES DURING MAINTENANCE AND OPERATION OF THE MACHINE, IT IS NECESSARY TO FOLLOW THE WARNINGS ON THE MACHINE AND/OR IN THE MANUAL.

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1 CONVENTIONS USED IN THIS MANUAL



NOTE

The notes in the manual contain important information and useful suggestions for correct operation of the machine



ATTENTION!

These are instructions that must be followed carefully for correct operation of the machine



ALT!

DANGER!

These instructions must be strictly followed to avoid harm to personnel or serious damage to the machine.

For representation purposes, some images in this manual may not contain protective casings.

2 GENERAL SAFETY PRECAUTIONS

Please read the following carefully before operating the machine. To avoid possible accidents during maintenance and during machine operation, the warnings indicated below must be strictly adhered to.

The owner of the machine must comply with all the instructions described, and possibly the standards in force in the country where the machine is installed, in order to guarantee maximum safety of the personnel employed who must be instructed in detail on the possible dangers.



ALT!

Before commencing work, check the soil and its conditions to determine the danger points and the most appropriate working methods.



ALT!

All types of maintenance must be carried out with the machine stopped and secured.



ALT!

Before starting the engine, make sure there are no persons in the immediate vicinity.



ALT!

Check the machine daily for damage, unusual wear, fluid leaks or malfunction.



ALT!

Do not allow the machine to be operated by an untrained person.



USE FOOTWEAR AND WORK GLOVES.

It is very important to use work gloves during maintenance operations.



Exposure to operator noise must be assessed and, if necessary, reduced with the use of hearing protection PPE.



USE ONLY CLOTHING SUITABLE FOR THE WORK. It is very important to refrain from wearing clothes that could become caught up in moving parts such as ties and scarves, or jewellery such as necklaces, bracelets or rings.
Reference standard EN150.



DO NOT INTERVENE ON MECHANICAL PARTS IN MOTION. Any mechanical adjustment must be performed when the machine is stopped. Any maintenance must be performed with the machine off



ATTENTION TO MOVING PARTS. In a machine with moving parts, special attention must be paid to the possible crushing of body parts.

Be careful not to place your hands in dangerous places.



DO NOT REMOVE THE SAFETY PROTECTIONS. Do not remove or modify the guards or safety guards of the machine for any reason.



Keep a first aid kit on board in an easily accessible position on the vehicle. Check the kit regularly and immediately replace all items used.



Keep the safety decals in a good condition and replace any damaged ones.



Do not transport persons.



Getting onto or off the machine: the machine was not designed to support persons. Do not climb onto it or walk on it

Risk of overturning: Do not use the machine on excessive slopes, to avoid the risk of overturning, follow these suggestions:

- Do not connect the machine to tractors of inappropriate size
- Reduce speed according to the conditions of use
- Make large turns at reduced speed, do not bump or bounce the machine on uneven ground otherwise there is a risk of losing control.
- Do not brake suddenly; always brake gradually
- It is preferable to address ascents and descents following the lines of maximum slope
- When operating near ditches and banks, keep the machine behind the ridge line. Avoid ditches, dikes, embankments and river banks that could give way.
- Avoid, if possible, crossing sloping terrain or steep slopes. If forced to do so, avoid potholes or depressions on the downstream side. Avoid protrusions, trunks, rocks or raised areas on the upstream side.



The list of cases and tips to avoid overturning of the vehicle is necessarily incomplete: the operator must evaluate on a case by case basis if the operations to be undertaken involve a high risk of overturning, making its use absolutely forbidden.



Some parts of the machine cannot be completely protected due to functional and construction reasons. Particular attention must therefore be paid near the brushes.

For interventions that require the machine to be lifted, use means suitable for the weight of the machine (hoists, jacks).



Make sure that the equipment used is in a good condition and of adequate capacity for the weight of the machine to be lifted. Do not work under the machine if it is supported only by a jack. Remember that the lifting and movement of loads manually cannot exceed 30 kg per operator.



Carefully examine all the safety messages contained in this manual and found on the machine.

Attention, the hydraulic circuit is pressurised. The maximum pressure can reach 450 bar.



Do not disconnect pipes or hydraulic components under pressure.

Check the hydraulic pipes and replace them if they seem damaged with original hoses supplied by Monchiero.

Pressurised oil can pierce the skin and seriously injure persons.

Do not intervene on the hydraulic circuit but contact technical assistance.



The cardan shaft that will be used implies the risk of entanglement.

Stop rotation of the PTO before approaching it



For greater driver safety, use tractors with a cab designed to protect the driver from fruit or branches falling from trees.

3 WORK POSITION



ALT!

With the machine in operation, the operator must be seated in the driver's seat, as it is only from this position that it is possible to intervene correctly. Before leaving the driver's seat, the operator must stop the machine, engage the parking brake and switch off the tractor.

No person may remain within the radius of action of the machine or in any case at a distance of less than 25 meters.

4 INTENDED USE OF THE MACHINE



ALT!

The **VL08 TOWED SHAKER** machine produced by the company **MONCHIERO & C S.n.c.** is intended to shake the trees of walnuts, almonds, olives, pistachios, jojobas, apples and of other fruits.

It must not be used for any purpose other than for that for which it was designed.

It is supplied to the Customer with the best protection systems that guarantee a high level of processing safety and prevent any accidents.



It is clear that the safety of the machine also depends on the way in which it is used and therefore on the attention and responsibility of the operator: this is why we ask you to pay considerable attention to the instructions given in this manual, strictly following all the procedures described.



ALT!

WE ALSO REMIND YOU THAT ANY TAMPERING WITH THE MACHINE BY THE CUSTOMER, INCLUDING THAT OF THE SAFETY EQUIPMENT, FALLS UNDER THE FULL RESPONSIBILITY OF THE PERSON WHO PERFORMS IT AND IN ADDITION CAUSES IMMEDIATE INVALIDATION OF THE MACHINE WARRANTY

The VL08 towed shaker essentially consists of a metal structure including three-point connections, a telescopic arm and a hydraulic oil tank. A group of central pumps receives the motion from a reducer connected to the tractor through a cardan shaft (CE marked). On the end of the arm there is a large gripper that, once the tree is tightened, vigorously shakes it, causing the fruit to fall to the ground.

The machine is intended exclusively for agricultural use in orchards.

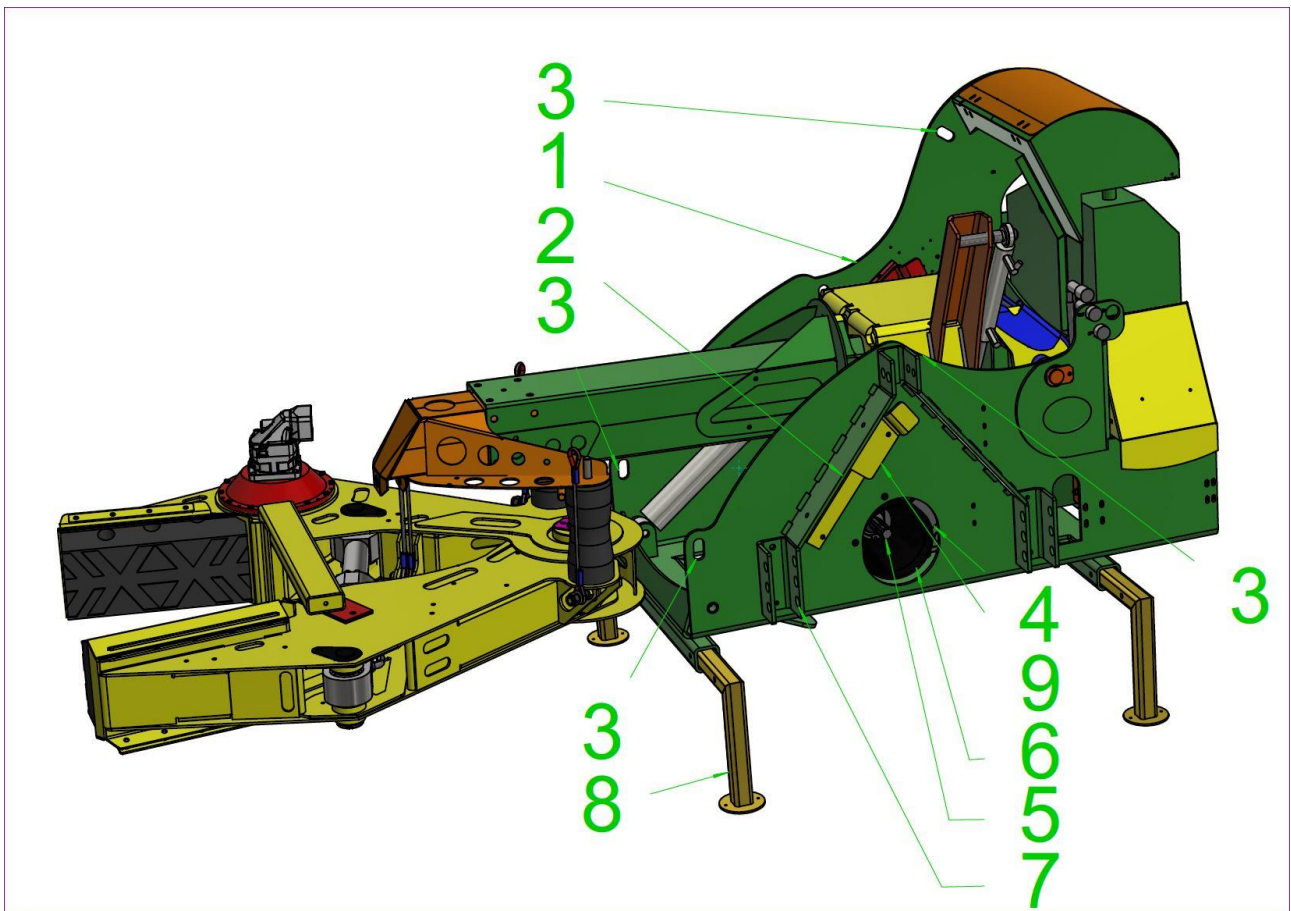


Figure 1 Machine components

- 1) Central frame
- 2) 3-point connections
- 3) Anchorage and lifting points
- 4) Gear unit
- 5) PTO
- 6) Cardan shaft protection
- 7) Tractor connections
- 8) Foot
- 9) Safety stop

5 IDENTIFICATION

Each machine is fitted with a data identification plate that reports the following data:

- CE marking
- Manufacturer's name and address
- Model
- Version
- Serial number
- Weight
- Year of manufacture



Figure 2 Identification plate

This data is transcribed in this manual and must be cited for technical assistance. The machine is supplied as standard with:

- Machine user and maintenance manual
- EC declaration
- Joystick function label
- Safety stop
- Lifting feet
- Split pins for these pins
- Four feet and relative anti-disengagement pins.

6 NOISE LEVEL

In order to avoid auditory damage to the user when working daily with the machine, the use of adequate headphones is recommended as personal protective equipment.

7 ATTACHMENT TO THE TRACTOR



ALT!

Attachment to the tractor is an operation that could be dangerous. Follow the instructions.

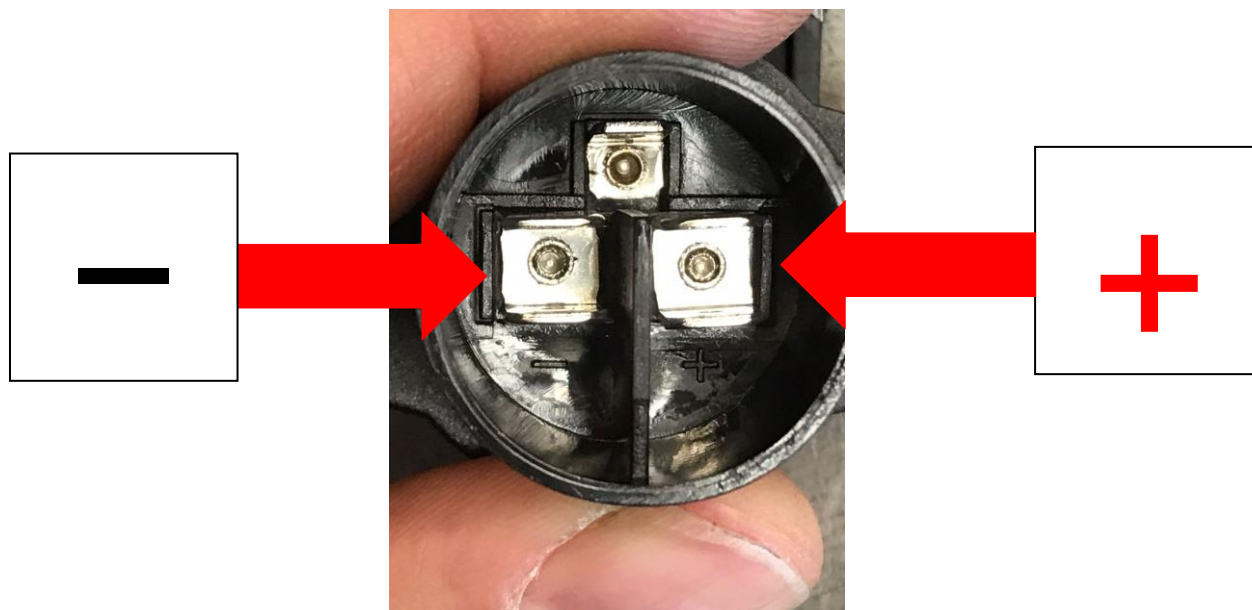
- 1) Be sure to use a tractor with a suitable configuration for use.
- 2) Check that there are no objects, persons or animals near the machine.
- 3) Check that the tractor power take-off is disengaged.
- 4) Check that the machine is in a stable position.
- 5) Approach the tractor in reverse
- 6) Adapt the height of the lifting arms to the height of the coupling pins
- 7) Place the lifting bars close to the coupling pins and lock the pins with the snap pins provided.
- 8) Turn off the tractor.
- 9) Connect the third point linkage and adjust it so that the machine is level.
- 10) Lock the tractor lift bars to prevent transverse movement of the machine.
- 11) Insert the cardan shaft into the power take-off of the machine making sure that it is perfectly locked and in position
- 12) Insert the cardan shaft into the PTO of the tractor making sure that it is perfectly locked and in position. Check that the plastic protection rotates freely and then secure it with the dedicated chain.
- 13) Switch on the tractor, lift the machine slightly and remove the feet.
- 14) Extend the joystick cable to the cab and secure it to the tractor
- 15) Extend the power cord and connect it to the tractor's electrical system.
- 16) Connect the quick couplings between the front brushes (optional) and the quick couplings of the shaker machine.

7.1 PREPARING THE ELECTRICAL CONNECTION ON THE TRACTOR

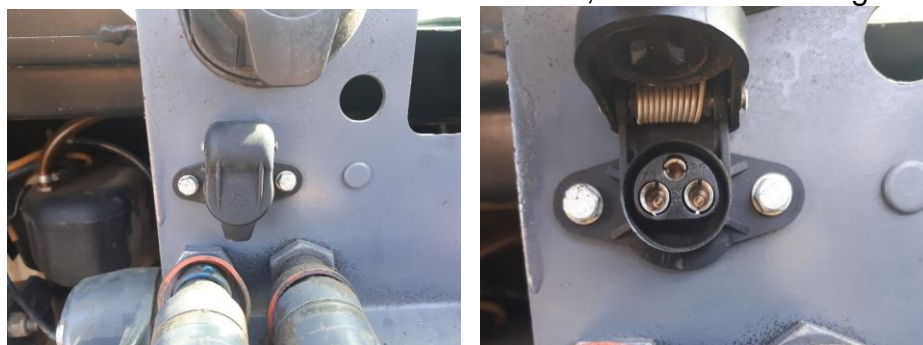
The machine requires a 12V power supply. The connector shown in the figure is provided:



Simply connect one cable from the positive terminal of the battery to the "+" terminal of the connector and one from the negative terminal to the "-" terminal.



Finally, install the connector on the back of the tractor, as shown in the figure:



8 PARKING

To park the machine and to unhook it from the tractor proceed as follows:

- Lower and shorten the telescopic arm
- Stop the power take-off
- Disconnect the machine's electrical connection
- Place the joystick and its cable inside the casing above the machine tank.
- Check and make sure that no-one is in the area where the machine will be parked.
- Check that the parking area is perfectly solid, flat and clear.
- Move closer to the area where the machine will be disengaged
- Brake the tractor



Figure 3 Cables and joystick housing

- Lower the support feet, using the anti-engagement pins
- Place the machine on the ground
- Stop the tractor leaving it braked.
- Disconnect the quick couplings between the shaker machine and the front brushes (optional)
- Remove the cardan shaft and lay it down.
- Disconnect the third point linkage
- Disconnect the lift arms
- Turn on the tractor and move away slowly.



ALT!

The parking space of the machine must be

Dry

Protected from weathering

Guarded and with limited access only to trained personnel

9 MAINTENANCE POSITION

To work on the central part of the machine, carefully follow these instructions:

- Place the machine on flat, solid and clean soil.
- Raise the arm completely
- Turn off the machine and the tractor
- Engage the safety stop

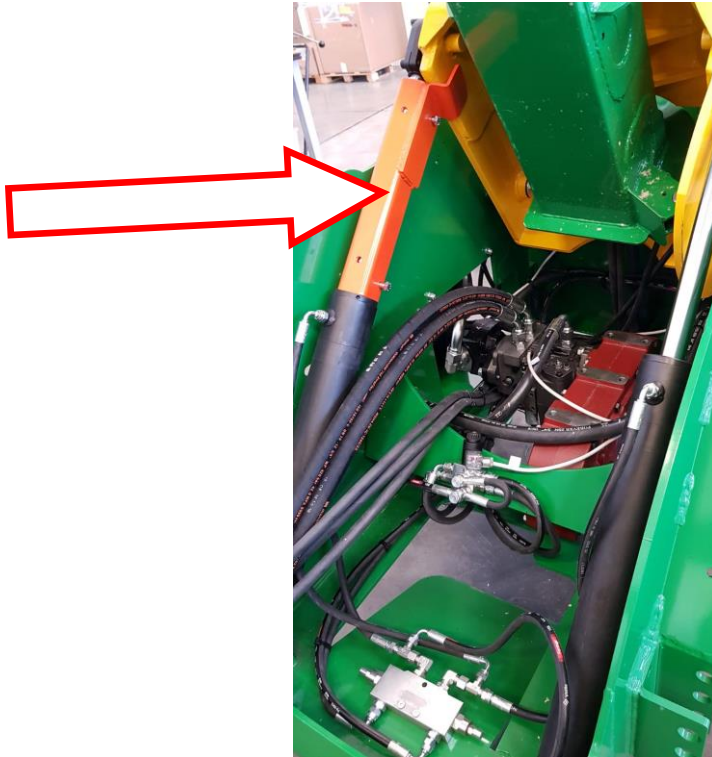


Figure 4 Safety stop

- Position its anti-disengagement screws

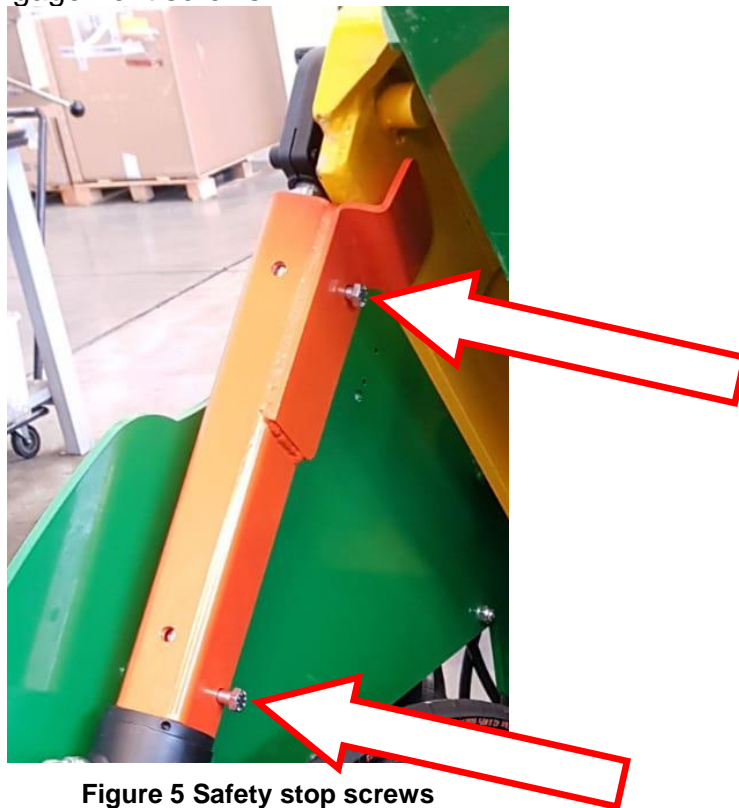


Figure 5 Safety stop screws



Only trained personnel can perform maintenance operations on the machine.
Contact your dealer.

10 TRANSPORTATION POSITION WITH THE TRACTOR

10.1 TILT STABILITY: front axle load

The front axle load of the tractor must always be 20% of the empty weight of the tractor.

10.1.1 Practical procedure:

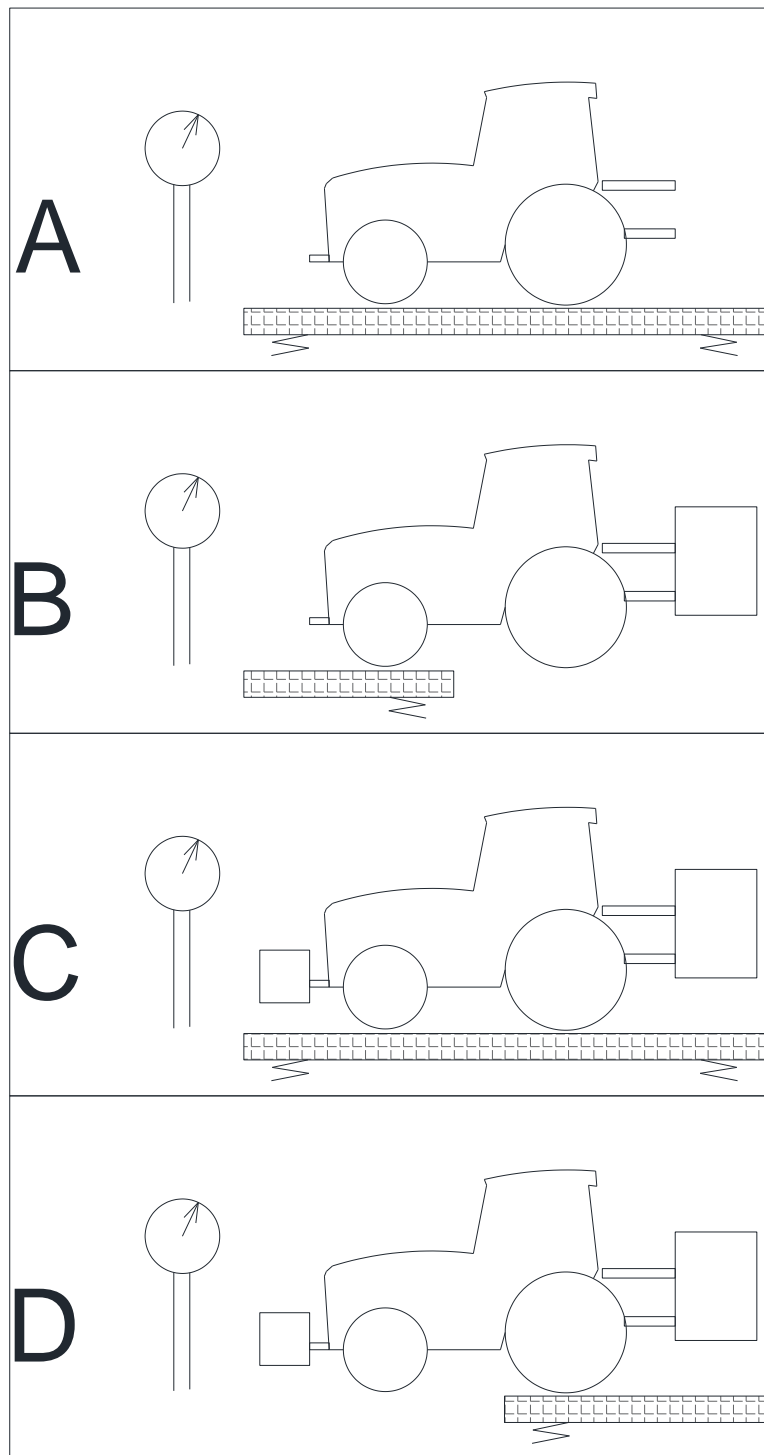


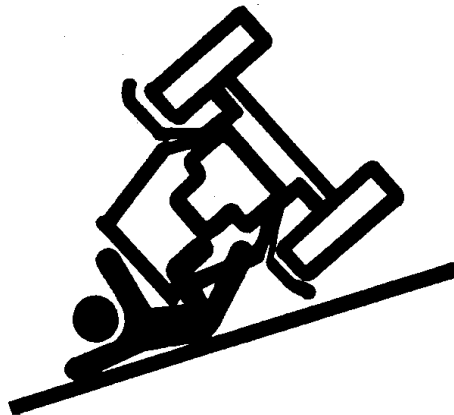
Figure 6 Axle load validation procedure

- Approach the tractor to the scale to weigh it.
- Weigh the tractor without the shaker machine.

T= _____ kg

- Calculate
 $T1_{limit} = 0.2 \times T = \underline{\hspace{2cm}} \text{ kg}$
- Combine the tractor and the shaker machine.
- Weigh only the front axle, leaving the rear axle off the scale.
 $t1 = \underline{\hspace{2cm}} \text{ kg}$
 - If $t1$ measured is greater than $t1$ limit, it is able to travel.
 - Otherwise, it is necessary to add front weights to the tractor until achieving the previous condition.
- Now measure the total weight of the tractor with shaker and any front ballast.
 $t = \underline{\hspace{2cm}} \text{ kg}$
 - If the measured weight is less than the "maximum permissible mass at full load" (PTAC) in the tractor manual, then it is possible to proceed.
 - If not, try with another tractor.
- Now measure the weight of the rear axle of the tractor with shaker and ballast.
 $T2 = \underline{\hspace{2cm}} \text{ kg}$
 - If the weight measured is lower than the "maximum load permitted on the rear axle of the tractor" in the tractor manual, then it is possible to proceed
 - If not, try with another tractor.
- Check the tyres and rims:
 - If the characteristics of the tyres and rims comply with the manufacturer's specifications, then it is possible to proceed,
 - If not, try with another tractor.

10.2 Stability against side tipping



Take appropriate precautions when driving according to:

- the weight of the machine and of the tractor
- ballasting of the front axle
- state of the land or road
- tractor grip
- road holding
- effectiveness of the braking devices.
- speed

The driving mode should be adapted to the terrain, roads and paths.

Avoid abrupt changes in direction.
Do not use a narrow-pitch tractor on rough or sloping terrain.
Never leave the driver's seat while the tractor is on.

10.3 TRANSPORTING OF THE MACHINE BY ROAD WITH TRACTOR

It should be remembered that the *VL08 TOWED SHAKER* is not approved for travel on public roads so transportation must take place using the correct vehicles with characteristics suitable for use in accordance with your country's traffic regulations.

Road transportation must take place:

- with the machine lifted off the ground by at least 40 cm
- with the telescopic arm completely raised (to respect the width limits)
- with the telescopic arm completely retracted
- with the power take off deactivated
- with the safety stop of the telescopic arm inserted



Figure 7 Road transportation position

Before entering the public road system, make sure that the machine is equipped with lighting and signalling devices in accordance with the local regulations.

10.4 LIFTING AND TRANSPORTATION ON PLATFORMS

- Park the shaker with the appropriate feet.
- Ensure the use of adequate lifting equipment by consulting the technical data in this manual.
- Fix the lifting chains to the anchor points indicated in the figure
- Lift the shaker without sudden changes in speed and keeping a distance of approximately 25 m from personnel.
- Place the shaker on a perfectly flat loading surface
- Lock the shaker in position:
 - connect the shaker to the platform using the lifting point
 - insert appropriate spacers between the machine frame and the floor.
- To unload the machinery, make sure it is stable, slowly removing the anchor points.



ALT!

Handling and lifting are dangerous operations that should only be managed with suitable materials and with specialist personnel.

11 FIRERISKS

The machine has been designed seeking to avoid the risk of fire as far as possible but given the nature of the products collected and the dry waste that could accumulate on the machine, the driver must check and clean all the parts on which harvest residues accumulate several times a day such as grass, leaves, branches and anything that could catch fire and which could therefore fuel a machine fire.



ALT!

The risks are even higher in case of collection with very dry waste and therefore in these conditions the machine should not be used.

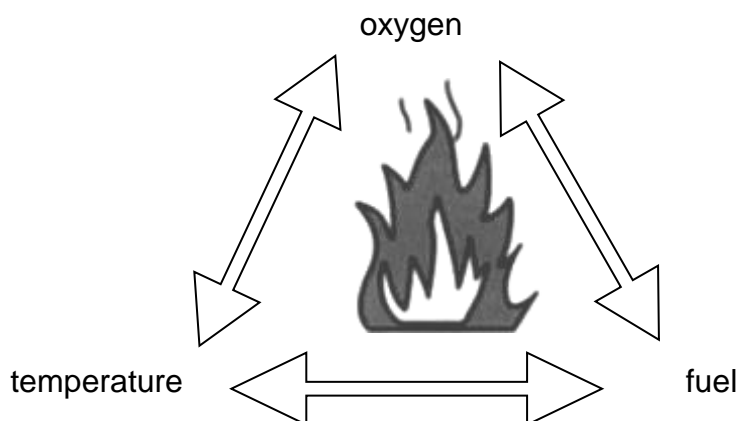
The machine is not equipped with a fire extinguisher on board.

The manufacturer will not assume any responsibility in the event of a fire due to insufficient or absent daily cleaning of the machine by the driver.

11.1 FIRE PREVENTION

A fire occurs when three elements, oxygen, fuel and temperature, are present simultaneously.

The fire triggering mechanism is shown in the figure below.



It is sufficient, therefore, to be able to effectively counteract even one of the elements themselves to prevent combustion from taking place and thus causing a fire to occur.

These considerations are a fundamental principle of fire prevention.

In the case of machines intended for shaking trees, the main fuel of a fire consists of everything that is present on the trees such as leaves, branches, nut shells, etc.



ALT!

The risks are even higher if the harvesting conditions are particularly dry and therefore the risk of fire is amplified.

In such cases the machine must not be used.

Another fuel that can cause a fire is hydraulic oil. A thorough inspection of all the mechanical and hydraulic elements reduces this type of risk.

Careful and frequent (even several times a day) cleaning is required for correct fire prevention on board the vehicle.

Actions to be carried out regularly for correct fire prevention:

- check and if necessary clean oil and/or fuel leaks,
- clean the machine of all wood and/or grassy material and everything that can constitute fuel,
- at the end of the day disconnect the power supply and clean the machine,
- frequently check that there are no signs of overheating,
- check the pipes and cables, and replace the worn ones.

11.2 EXTINGUISHING A POSSIBLE FIRE



ALT!

A fire can cause **serious damage** to property and **especially to persons**.
Emergency interventions to eliminate a fire are equally dangerous.

- immediately turn off the machine,
- disconnect the electrical power supply from the tractor
- approach the vehicle carefully and direct the jet of a fire extinguisher (not supplied by Monchiero or supplied at the express request of the customer) at the base of the flame. Do not direct the jet upwind,
- after carefully extinguishing the fire, verify extinguishing of any hidden embers,
- if possible, try to remove anything that could catch fire from the vehicle,
- never turn your back to the fire,
- if you are unable to extinguish the fire, move as far away as possible from the vehicle.

12 CLEANING THE MACHINE

correct use of the machine requires it to be cleaned carefully and several times during the working day.

Cleaning the machine means:

- avoiding overloading the machine
- avoid overheating of the hydraulic oil
- prevent fire hazards

- maintain the collection qualities and the efficient general functioning of the machine over time
- arrange for easy and faster routine and extraordinary maintenance operations to be performed.

All parts of the machine must be cleaned using compressed air and water.



ALT!

All cleaning operations must be carried out in conditions of maximum safety.

The cleaning operations must be carried out with the machine off and with all the parts stopped.

Be sure to have always thoroughly cleaned these parts:

1. Internal area where the pumps and gearbox are housed
2. The radiator grill
3. The radiator



Cleaning that is not thorough can damage the quality of the product, the machine and impact on your harvesting season!



Cleaning must take place several times a day.

Cleaning the machine is the responsibility of the driver.

The driver is not responsible for checking the cleanliness of the machine.

Place the machine in the maintenance position as described in the specific chapter and then switch off the machine.

With the machine off check that the internal area is clean and that there are no branches, ropes or wires entangled. Extract any foreign bodies such as branches or fruits.



Figure 8 Road transportation position



Cleaning must take place several times a day.
 Cleaning the machine is the responsibility of the driver.
 The driver is not responsible for checking the cleanliness of the machine.

12.1 CLEANING THE RADIATOR

Check that the radiator is clean every day. Keeping the radiator clean means ensuring efficiency and reducing overheating.

Disconnect the power supply to the machine.

Open the grill in front of the radiator using the appropriate tools.



Figure 9 Hydraulic oil radiator

Remove any build-up of grass gone through the grille.

With the help of compressed air, blow carefully through the radiator. Make sure that the air can pass easily by blowing carefully from the fan side towards the outer part of the machine.

First blow from the inside towards the rear of the machine.

Then blow from the rear of the radiator towards the inside of the machine.



You can approach the machine only when it is not running. NEVER approach the fan when it is rotating and with the engine on.



The radiator must be cleaned several times a day.

The driver of the machine is responsible for cleaning and checking for worn parts.

The driver is not responsible for checking the cleanliness of the machine.



Keep the compressed air nozzle at a safe distance so as not to deform the radiator fins otherwise the radiator will be much less efficient.

13 FRONT BRUSHES (OPTIONAL)

The shaker machine can be completed with a tractor front brushes kit.

This kit consists of a metal crosspiece and two floating arms with rotating brushes. Their function is to remove the fruit from the front of the tractor before it advances.



Figure 10 Front brushes

13.1 Attachment to the tractor

The crosspiece must be fixed to the front of the tractor by the customer or dealer.

The lower part of the crosspiece should be 320 mm above the ground.

Each arm can be moved so that it is on the wheel path.

13.2 Hydraulic connection

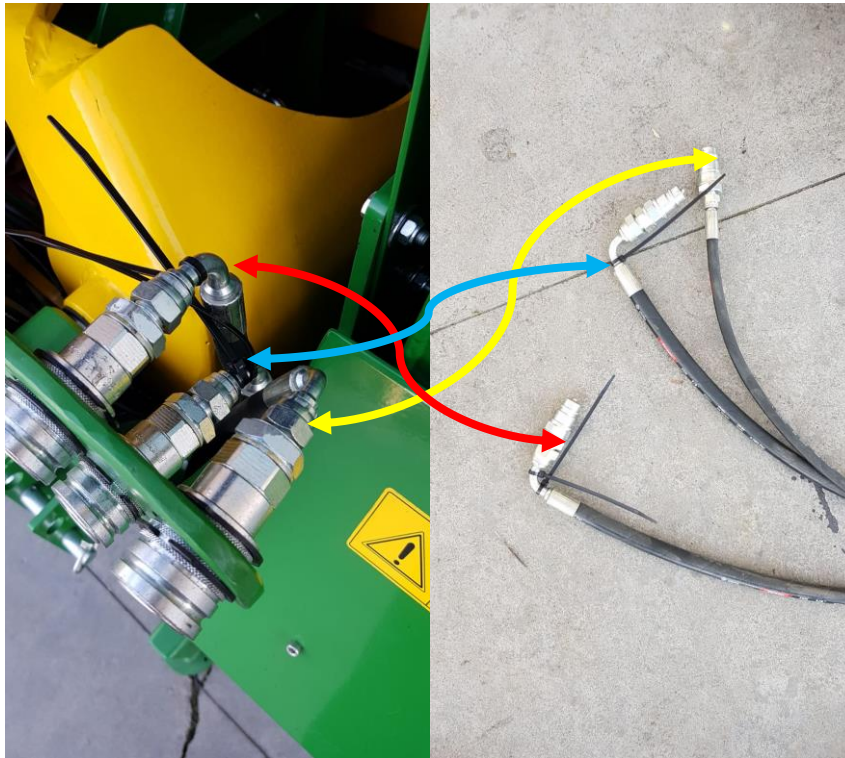


Figure 11 Attachments on machine - Pipes on brush group

The brushes must not be connected to the tractor's hydraulic system but to the outlet on the shaker machine.

Each hydraulic pipe with quick connection has a number of plastic rings. Connect the fittings with the same number of rings together.

13.3 Brush adjustments

Minimum height adjustment: by acting on the bolt, the minimum height at which the brush descends when it meets a hole is adjusted.



Figure 12 Brush minimum height adjustment

Adjusting the contact area of the brushes on the ground: positioning the lower mushroom of the brushes furthest from the disc reduces the contact area of the brushes with the ground. Positioning the lower mushroom of the brushes closest to the disc increases the contact area of the brushes with the ground.

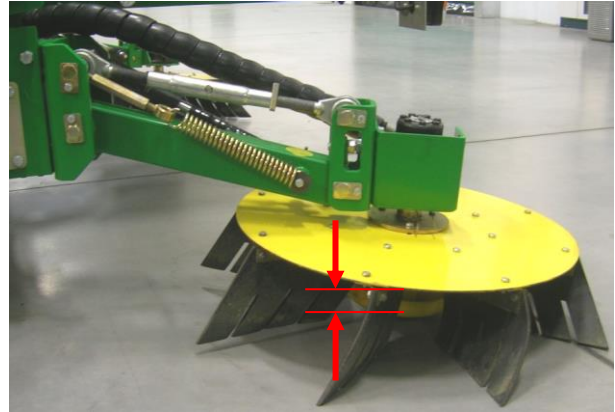


Figure 13 Front tilt adjustments

Adjusting the front inclination: by acting on the upper arm of the brush, it is possible to adjust the forward inclination of the brush. This inclination must be such as to have the brush lifted at the back so that it no longer touches the soil and any fruit, thus avoiding to push them outwards.

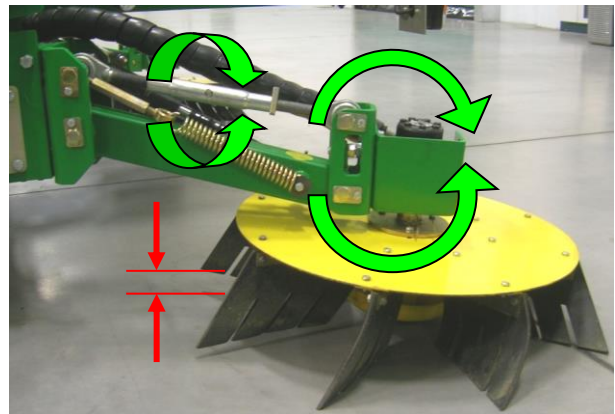


Figure 14 Front tilt adjustments

Side adjustment: the brush must be adjusted so that only the external part (with respect to the machine) touches the ground and closes and collects the fruit, while the inner part must no longer touch anything.



Figure 15 Brush adjustments

Spring suspension tension adjustment: this adjustment allows the brush to be made generally reactive by lifting itself out of the holes.

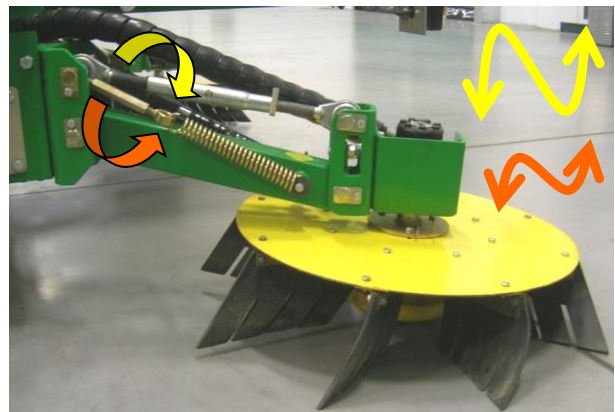


Figure 16 Brush adjustments

14 OPERATION

14.1 DAILY CHECKS

Before starting the machine, make sure that it is clean and perform the following checks:

- 1) Check the hydraulic oil level
- 2) Check the reducer oil level
- 3) Check that the eccentric bearings are greased

Before starting the machine, also perform the following checks:

- 1) operation of controls

14.2 USE

Connect the shaker to the tractor following the instructions above.

Drive the tractor into a row of the orchard.

14.2.1 Positioning

Position the tractor parallel to the row of trees to be shaken.

The tip of the shaker grippers must be in front of the trunk to be shaken at a distance of approximately 60 cm away.

Set the tractor engine speed to idle and slowly activate the power take-off.

Increase the PTO speed up to 540 rpm (do not exceed this limit).

Activate the brushes (optional) by pressing the white joystick button.

Open the gripper.

14.2.2 Shaking

Extend the telescopic arm to embrace the trunk with the gripper.

Raise the telescopic arm to the base of the first branches.

Rotate the gripper so that the rubber supports inside the gripper are parallel to the shaft.

Briefly press the red button to start shaking.

At the end of the cycle, the gripper opens automatically and the arm is shortened.

When the gripper has stopped, move the tractor to the next shaft.

Repeat the shaking operations until the end of the row.



Figure 17 Use

14.2.3 Automatic work sequence

Extend the telescopic arm until the head reaches the tree.

Raise the arm up to the first branches base.

Rotate the head so that the rubber supports in the head are parallel to the tree.

Close the gripper around the tree at the desired level.

Press (for less than 0.5 seconds, without holding it pressed) the red button for starting the vibration.

This pulse will start an operations sequence that ends with the retraction of the telescopic arm.

When the head is retracted, it is possible to move the tractor to the next tree.

Repeat these vibration operations for all the trees.

14.2.4 Automatic vibration with grab force control (GRAB&GO)

Activate the GRAB&GO function through the display, (see the dedicated section in the following pages).

Extend the telescopic arm until the head reaches the tree.

Raise the arm up to the first branches base.

Rotate the head so that the rubber supports in the head are parallel to the tree.

Close the gripper around the tree, once the grab force reaches the desired level, a sequence of operations starts, which will end with the retraction of the arm.

Once the head has been retracted, it is possible to move the tractor to the next tree.

Repeat these vibration operations for all the trees.

14.2.5 End of work

Shorten the arm and stop the brushes by pressing the white button.

Lower the PTO speed and turn it off.

15 CONTROLS AND INSTRUMENTATION

15.1 EMERGENCY SHUTDOWN

Turn off the tractor.

15.2 COMMANDS

The display and joystick are supplied mounted on a metal armrest. The armrest must be firmly mounted on the tractor cab, using at least 4 of the holes provided.

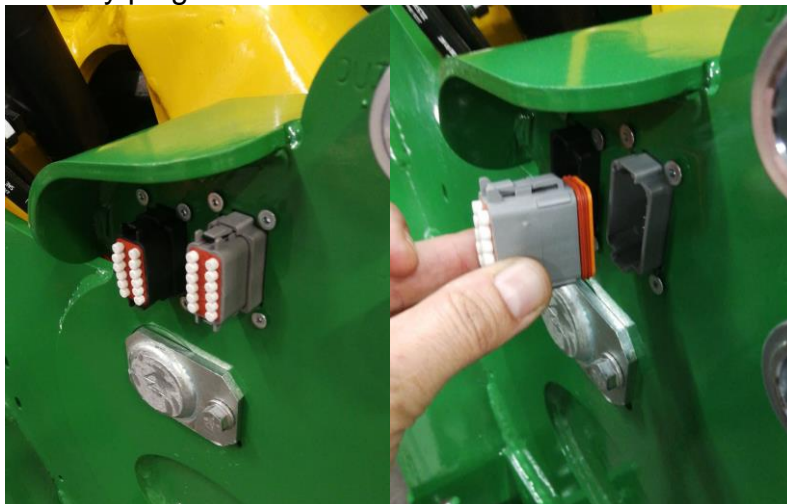
In case of imperfect joints, the machine could receive unintended commands that harm people. This fixation and its consequences are not the responsibility of the manufacturer.




Figure 18 Joystick

The armrest is provided with a cable with two plugs, that have to be connected to the sockets on the machine frame.

1. Remove the safety plugs.



2. Insert the two plugs in the proper sockets.

 **Warning: the grey plug must be inserted in the grey socket and the black plug must be inserted in the black socket.**



Buttons:

Green: the telescopic arm is shortened

Grey: the telescopic arm extends

Blue: the telescopic arm lifts up

Yellow: the telescopic arm is lowered

Orange: the telescopic arm rotates

Black: the telescopic arm rotates in the opposite direction

White: the brushes (option) are lowered and rotate if the arm is not working.

Red:

- if pressed for less than half a second, the sequence of vibration, opening and shortening of the arm begins.
- if pressed for more than half a second, the vibration only starts until the button is released

Lower shackle: gripper closing

Upper shackle: gripper opening

The label of the gripper functions must be placed in the cab, near the joystick, in a clearly visible place.

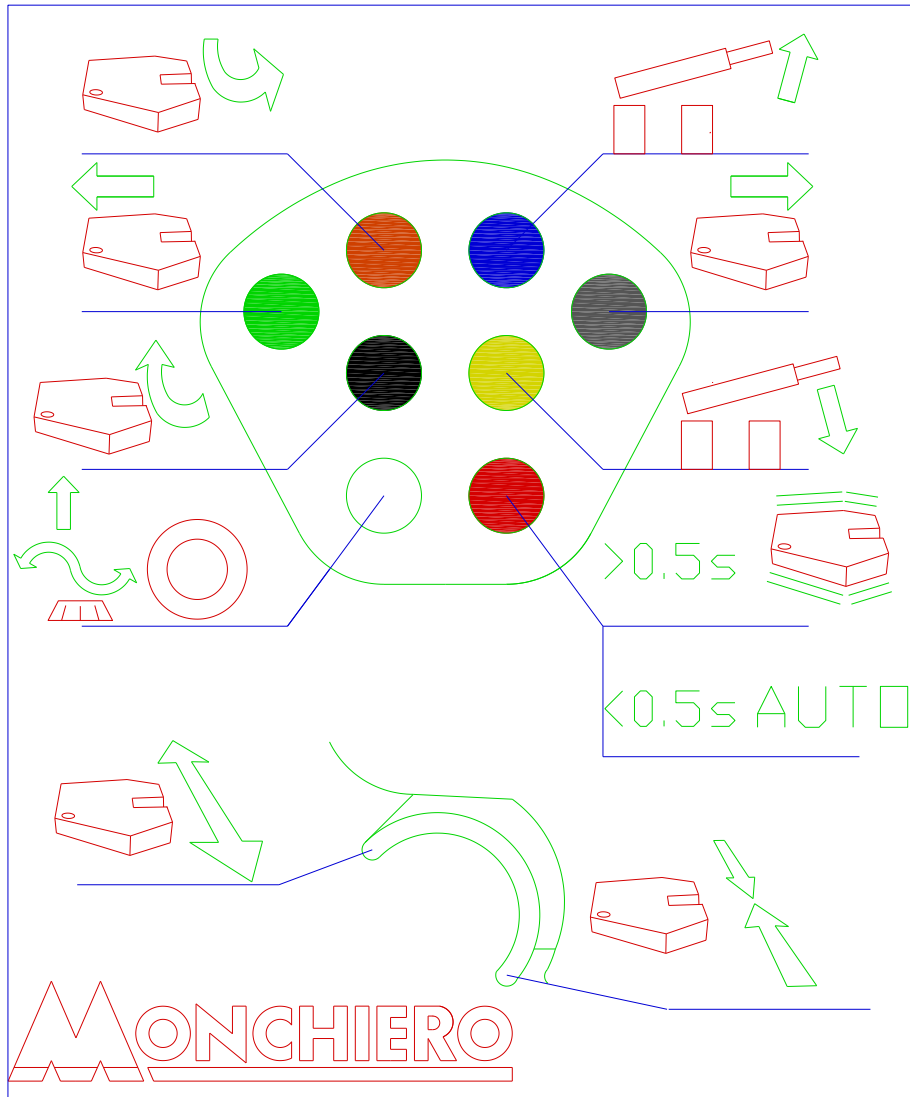


Figure 19 Joystick function label

15.3 CONTROL PANEL

The shaker is equipped by a display to adjust the machine functions. It has to be mounted, with the joystick, inside the tractor cabin.

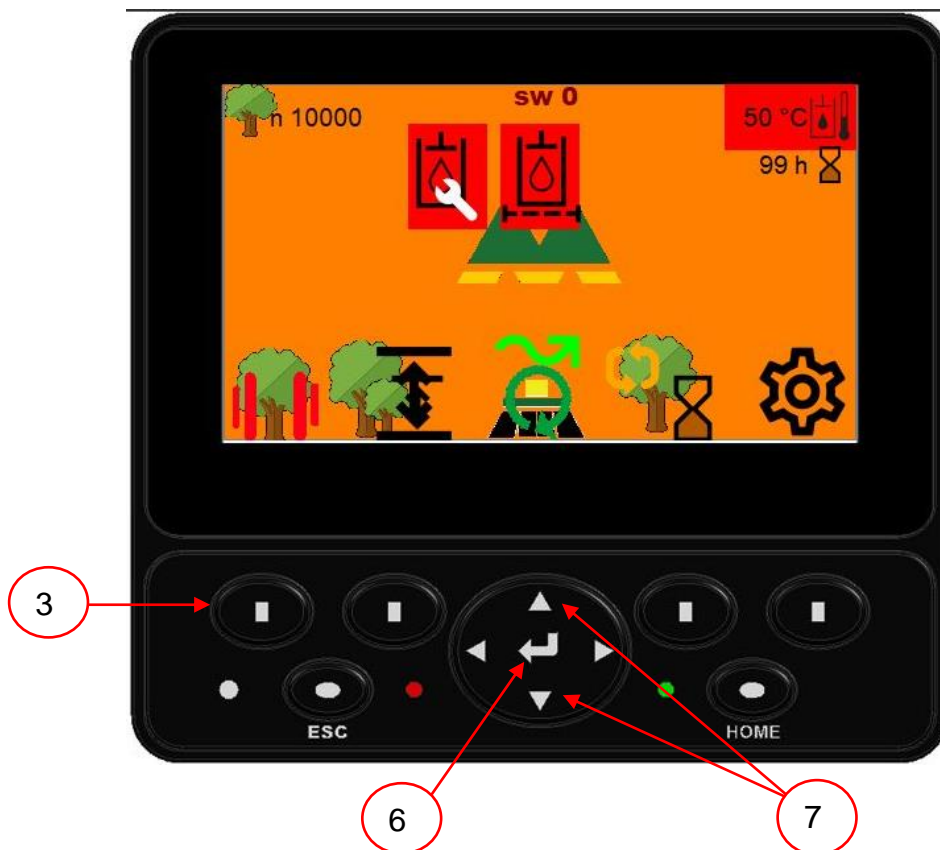


1. Number of shaken trees: at each vibration, the counter is increased by one. It is possible to reset the counter through the settings page, as reported below.
2. Icon of the tree selected size
3. Shaking power setting
4. Selection of tree size: it is possible to switch between two sets of work parameters, that can be adapted to the trees sizes. In this way, it is possible to work, for example, with big trees (and their dedicated parameters) and quickly recall the small trees parameters double clicking this button.
5. Back to main page
6. Confirmation
7. Increase or decrease a value
8. Back to main page
9. Automatic work sequence settings: it is possible to adjust the duration and the timing of shaking, head opening and arm retraction.
10. Setting page: it allows to access the machine management.
11. Actual working hours of the hydraulic system

12. Hydraulic oil temperature: the background of this icon becomes red when the temperature overcomes the tolerated threshold. In this case, stop from using the machine until the temperature will return under the threshold.
13. Filters substitution required icon. It appears when 100 hours have passed since the last substitution. Contact the dealer for the maintenance.
14. Hydraulic oil substitution required icon. It appears when 200 hours have passed since the last substitution. Contact the dealer for the maintenance.

15.3.1 Adjustments

15.3.1.1 Vibration intensity adjustment



In the main page:

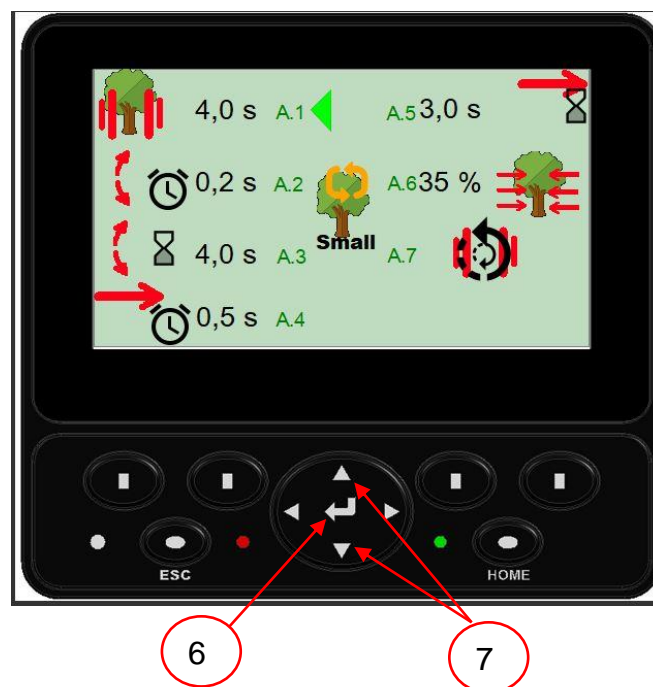
1. Press the button (3)
2. A percentage between 0 to 100 will be displayed: adjust the intensity considering that the 0 value refers to the minimum intensity and the 100 value refers to the maximum.
3. Use arrows (7) to increase or decrease the value
4. Press button (6) to confirm

15.3.1.2 Tree size selection

In the main page, double-clicking on the button (4) it is possible to choose between two sets of work parameters, that are adaptable to the trees sizes. Therefore, using a single button, it is possible to change both the vibration intensity and the settings of the automatic work sequence, switching from the small trees parameters to the big trees ones and vice versa. The icon (2) on the display shows the selected size.

15.3.2 Automatic work sequence

For accessing this page, press the button (9); in this page there are several adjustments:



A.1: vibration duration

To set the automatic vibration duration, in seconds and tenths of seconds

A.2: gripper opening delay since the end of the vibration

To set the time, since the end of the vibration, after which the head begins to open. It is expressed in seconds and tenths of seconds. The minimum time is 0.2 s.

A.3: duration of head opening

To set how long the head is open. With this setting, the head may be not completely opened: when small trees are vibrated, it allows to save time.

A.4: telescopic arm delay since the head opening

To choose the time, since the head opening, after which the arm starts to retract. It is expressed in seconds and tenths of seconds since the opening beginning. The minimum time is 0.5 s.

A.5: telescopic arm retraction duration

To set the arm retraction. It allows to retract the arm for a short distance for saving time during the sequence.

A.6: GRAB&GO

For activating the GRAB&GO function, set a value between 1 and 100. The value 1 gives a low grabbing force, that can be gradually increased choosing higher values, until 100, that is the value referred to the maximum grabbing force.

For disabling the function, set the value to 0.

During the work, after the arm has been extended and the head closed around the tree, once the grabbing force exceeds the threshold given by this parameter, the machine locks the head and begins the vibration.

A.7: alternate vibration (optional)

The function allows the alternate vibration: for half of the vibration time (expressed in A.1) the machine vibrates in a direction; then it slows down for a while and finally vibrates in the opposite direction. Bring the cursor to A.7. Press ENTER, then press the upward arrow for activating the function and the downward function for deactivating it.

This function can be enabled only by the dealer.

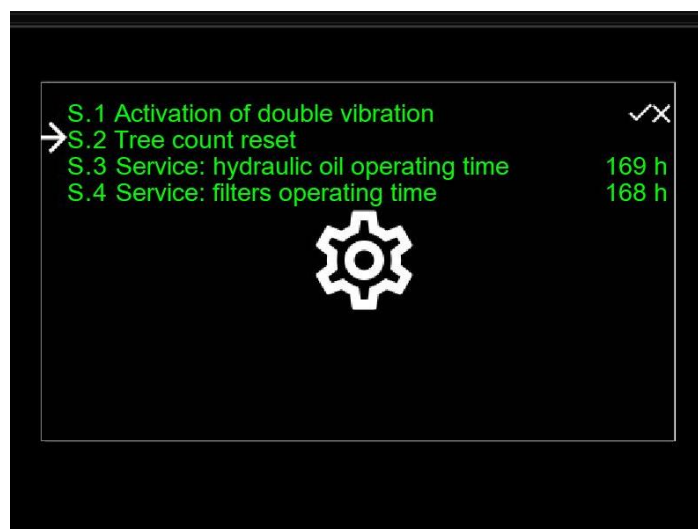
It is not possible to use this function in manual mode.

15.3.2.1 To adjust the different functions:

- using the arrows (7) move the green arrow close to the function to adjust
- press button (6) to confirm
- use arrow (7) to increase or decrease the value
- press on button (6) to confirm

15.3.3 Setting page

Pressing the button (10) it is possible to access the setting page. Use the upward and downward arrows for navigating the items in the page:



- The item **S.1** shows if the alternate vibration is active or not; this setting can be modified only by a dealer.
- The item **S.2** allows to reset the vibrated trees counter. The user has to activate the function S.2 using the arrows, then press “ENTER” and confirm again with “ENTER”.



- The item **S.3** displays the hydraulic oil work hours. It has to be replaced by the dealer every 200 hours, who will reset the counter.
- The item **S.4** displays the hydraulic oil filters work hours. The have to be replaced by the dealer every 200 hours, who will reset the counter.

15.4 CAMERAS SYSTEM (option)

The machine can be equipped with camera, controlled by a display positioned inside the tractor cabin. The camera is in colour, equipped with microphone and infrared illuminator for night vision and placed on the end of the telescopic arm.



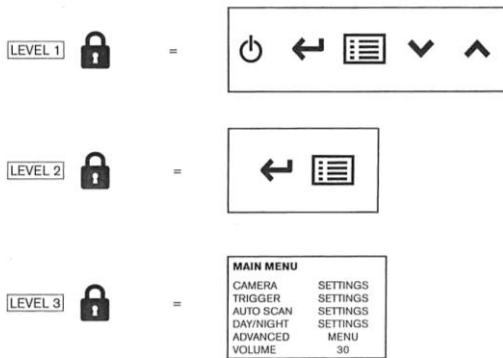
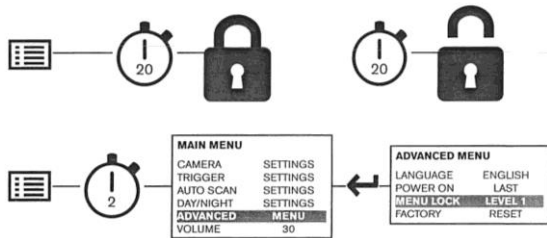
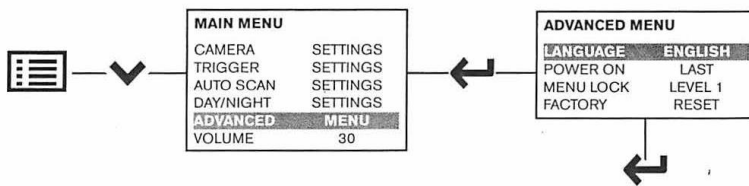
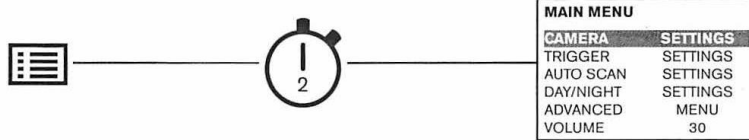


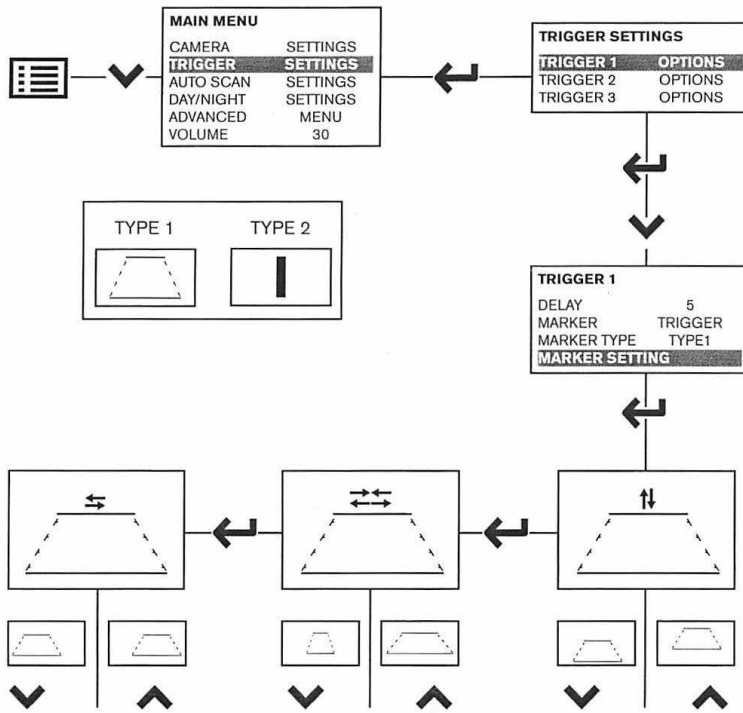
Functions of the buttons:

1. Power on / off
2. Camera selection
3. Menu
- 4/5 Arrows to move in the menu

- The video presents an automatic cabin background light sensor to adjust the light it produces.
- POWER: Power Screen
 - up and down arrows: allow you to adjust video parameters (such as brightness, cabin sound volume, color, contrast and brightness)
- 20S MENU: by pressing the button for more than twenty seconds, the video system switches to protection mode.
- 1x MENU: press once to access the image adjustment
- 2x MENU: press twice to access the language menu, image scale, and the setting of individual cameras (mirror image function).
- MENU 3X: by pressing three times to access the menu of advanced parameters of the image and its reflection
- 4x MENU: by pressing four times, you can adjust the camera delay in seconds.

MENU





The screen control system is an aid to the driver, but does not dispense with the obligation to take precautions when maneuvering the vehicle and during the working processes of the machine. Monchiero and distributors do not assume responsibility for damage resulting from the use or malfunction of the product.



Do not get wet or hit the screen or camera.

15.5 WORKING LIGHT (option)

The machine can be equipped with a work light placed on the chassis.



The power button is located on the armrest.



16 LIQUIDS AND LUBRICANTS

16.1 HYDRAULIC OIL

Tank capacity 110 Litres

The close tolerance precision hydraulic parts are subject to the effects of contamination. A dirty fluid causes wear, accelerating the leakages and heating of the system. Heat decreases the lubricity of a hydraulic fluid and causes increased wear.

From experience, it has been shown that the machines used in a very dusty environment with a strong air circulation require stronger components (like yours) and the filter cartridges need to be replaced more often.

For this reason, the mineral oil must meet the minimum requirements of the following standards:

- ISO 1158 (Category HV)
- DIN 51524 Part 3
- SS 15 54 34

Correct viscosity of the mineral oil:

- VG 46 for use in all seasons

Contact your machine dealer.

Use only this type of hydraulic oil:

Manufacturer	Abbreviation
JOHN DEERE	HYDRAU-GARD 46 PLUS Premium Hydraulic Oil



This oil has viscosity VG 46.
 This oil is certified ISO15380/DIN 51524 Part 3, also known as 51524.3 (category ISO 6743-4: HEES).
 No variations of any letter or number are tolerated.
A different oil will not only affect the life of the hydraulic parts and their effectiveness, but will also void the warranty.



*Do not use synthetic oils.
 Do not mix different types of oil because this will impair their properties. If in doubt, contact the manufacturer.
 Failure to comply with this measure will void the warranty.*

Only use a filter and cap for *Monchiero* oil and replace the components when indicated.

If one of the hydraulic components (a pipe, an engine, a pump or the tank) is faulty, stop the machine immediately and do your best not to contaminate the oil with dirt from the environment.



The manufacturer must not use the machine if the hydraulic oil may come into contact with dust, water, metal shavings, etc. because this causes:

- 1. the contamination of all the hydraulic oil*
- 2. the contamination of all the hydraulic filters*
- 3. the unreliability of the hydraulic checks*
- 4. a shortening of the life of all the hydraulic components*
- 5. the possible breakage of expensive hydraulic components*
- 6. the annulment of the warranty on all the components of the hydraulic circuit*

16.2 GREASE

The pieces indicated on the machine require the daily application of lithium grease:

- Neste Yleisrasva EP2
- Esso Beacon EP2
- Shell Retinax LX Lithium
- Mobilgrease
- Castrol LM Grease
- Texaco Molytex Grease EP 2

17 SCHEDULED MAINTENANCE

17.1 SCHEDULED MAINTENANCE PROGRAM

In order to maintain the reliability and safety of the machine, it is necessary to perform the maintenance and adjustment interventions listed below and in the scheduled maintenance table.

It is important that the scheduled maintenance is performed accurately, respecting the pre-established intervals.

- The following table shows the scheduled maintenance intervals for the machine.
- It is advisable to write down the date of the maintenance operations in the spaces in order to perform the operations on a regular basis.
- At each maintenance interval, also perform the operations concerning minor intervals
- The intervals described in the program are for normal operating conditions. If the machine is used in particularly harsh working conditions, the maintenance operations must be performed at shorter intervals.

VL08 HYDRAULIC SERVICE



Figure 20 Filters

17.2 SCHEDULED MAINTENANCE TABLE

		VL08													
ACTIVITY		Every day	Every year	When required	50	100	200	300	400	500	600	700	800	900	1000
Hydraulic oil Cleaning	Clean the pump compartment														
	Clean the oil radiator														
Hydraulic oil	Check the hydraulic oil level														
	Replace the machine hydraulic oil														
	Replace all the oil tank filters														
Electrical system	Check the fuses														
	Check that the battery terminals are tight														
	Check that the unit connectors are fastened														
Machine body	Check the integrity and leaking of hoses														
	Check and tighten the screw connections.														
	Check the condition of the brushes														
	Tighten the locknuts of the main joint (see manual chapter)														
	Grease the bearings and joints														



For the correct operation of the machine, it is recommended to regularly contact authorised workshops for maintenance operations.



Do not dump used oil, but dispose of it in compliance with current laws.

17.3 MACHINE MAINTENANCE

17.3.1 Checks to perform every 8 hours or daily

17.3.1.1 Parts to be greased

The parts indicated in the image must be oiled or regularly greased.

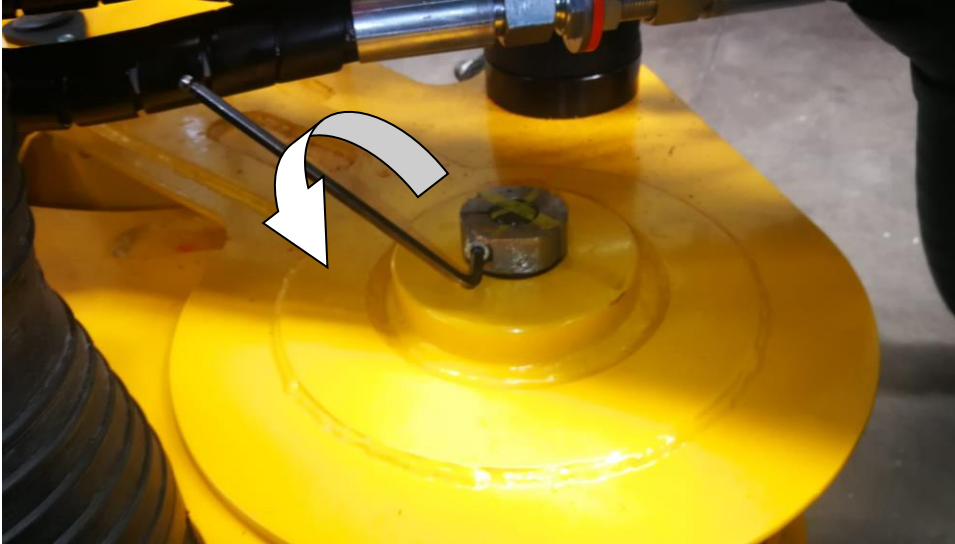


Figure 21 Grease the gripper bearings at the bottom and top

17.3.1.2 Parts to be tightened

The expansion joint must be tightened Every 20 working hours for the first 60 hours of work.

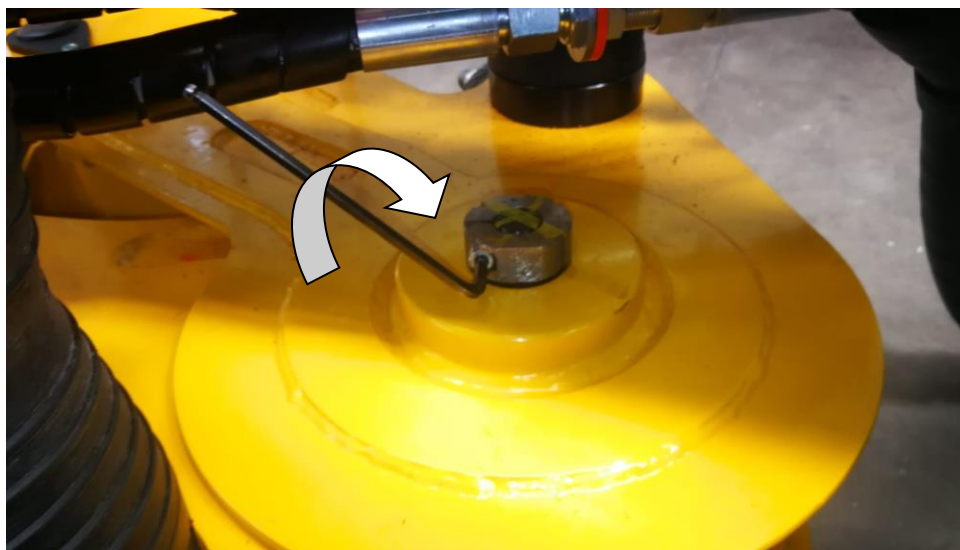
1. Unscrew the upper locking nut with a 6 mm BTR wrench



2. Tighten the upper locking nut with a 50 mm torque wrench with a torque of 120 Nm, at the same time keep the lower locking nut locked with a 50 mm wrench.



3. Close the locking nut screw with a 6 mm BTR wrench



4. Repeat the same operation 1-2-3 on the lower locking nut

17.3.1.3 Hydraulic oil

Check the level that must be within the limits (between min and max).



*If the level drops significantly, there may be leaks in the system.
Contact an authorised workshop immediately to check the system.*



Figure 22MAX level and min hydraulic oil

51

To ensure maximum cleanliness of the hydraulic oil, the machine is equipped with a manual filling pump. The long rigid suction tube should be placed inside the container with oil and with the last part of the flexible hose connected to the hose shown in the figure. To facilitate coupling and decoupling, the outlet of the quick coupling must be retracted. By moving the handle, you suck up the oil and force it to enter the hydraulic circuit.



17.4 ELECTRICAL SYSTEM

The *VL08 TOWED SHAKER* is equipped with a 12Volt powered system with the following features:

Do not invert the power supply terminals. An incorrect connection may seriously damage the equipment.



Figure 23 Power connector

Connect the power supply plug to the tractor's electrical system with the PTO off.

17.4.1 FUSES AND RELAYS

The electrical circuits are protected by fuses installed in an airtight box above the oil tank.

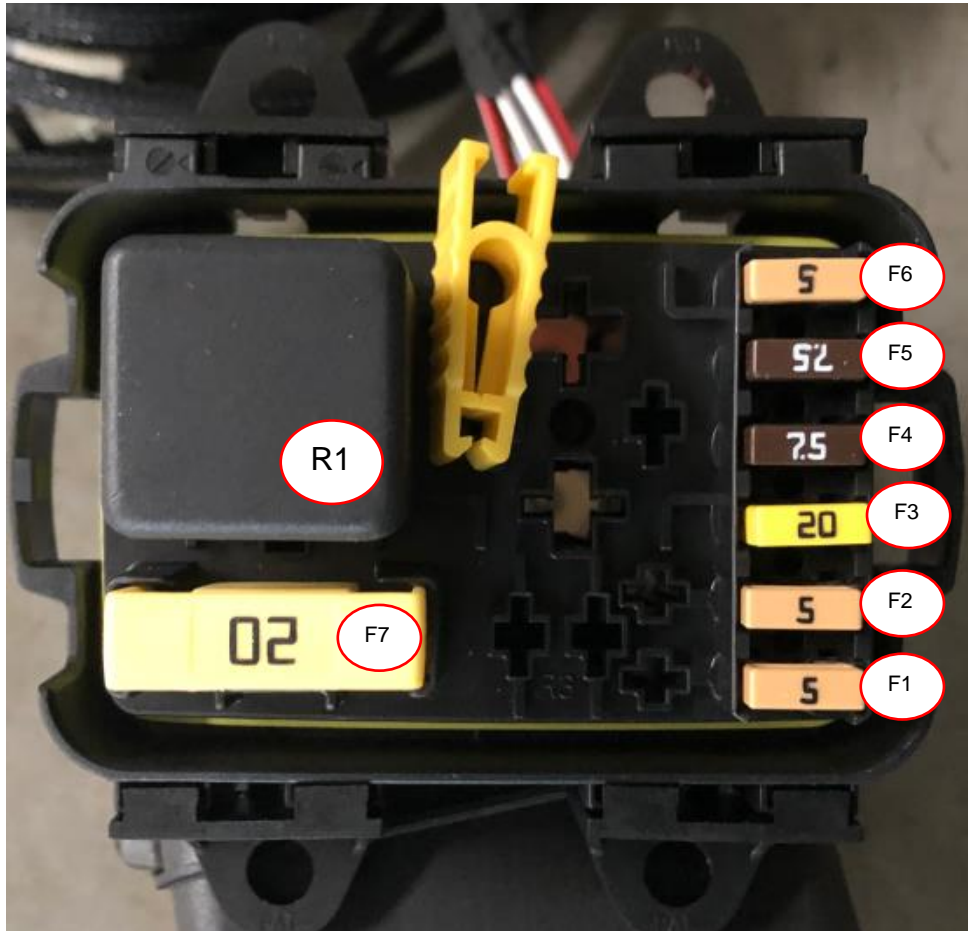
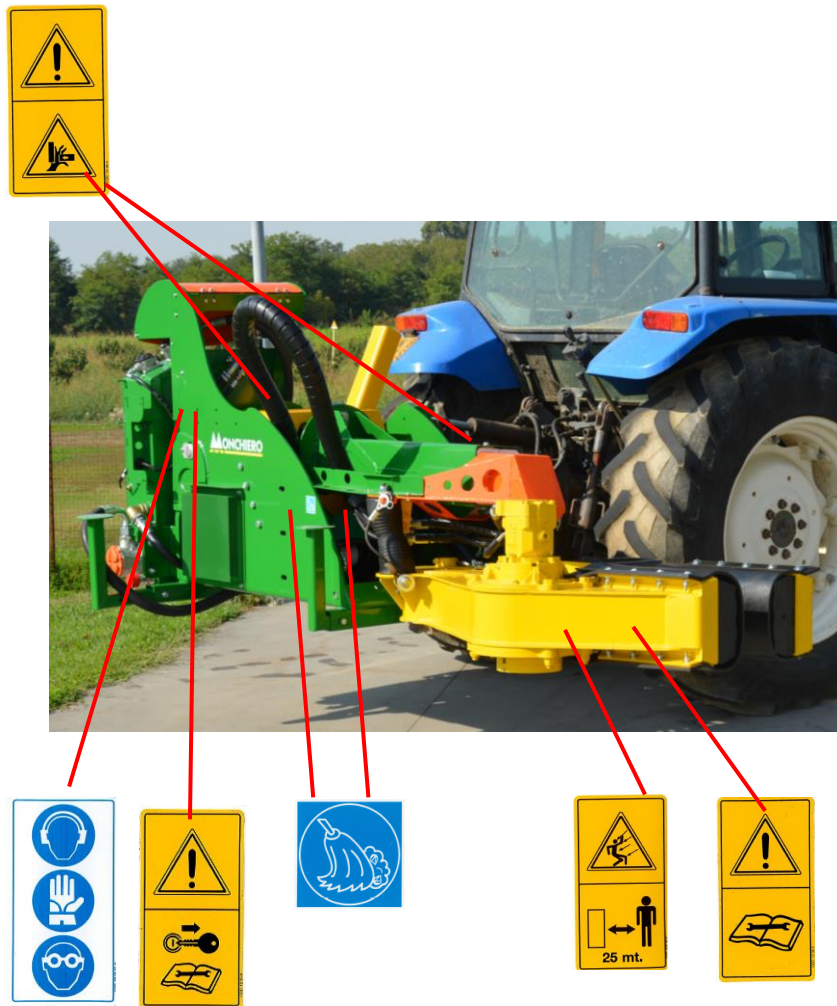


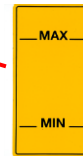
Figure 24 Fuse box

Component number and function

Fuse 1	diagnosis
Fuse 2	display
Fuse 3	control unit power and satellite
Fuse 4	arm work headlight
Fuse 5	base work headlight
Fuse 6	camera
Fuse 7	radiator's fan
Relay 1	radiator's fan power supply

18 POSITION OF PICTOGRAMS ON THE MACHINE





18.1 DESCRIPTION OF PICTOGRAMS

Use and maintenance manual

The use and maintenance manual contains all the information necessary for safe use of the machine. To avoid any risk of accident, it is mandatory to read it and to comply with all the requirements



Work on the machine

Before carrying out any work on the machine, disconnect the power take-off, stop the tractor engine, remove the ignition key and wait for all the moving parts to stop and pull the handbrake



Projections

Stones or foreign bodies can be projected at great distances. Remain at a safe distance from the machine.



Permitted power

Machine designed to receive power at 540 rpm



Danger of entanglement

Do not approach the moving cardan shaft



Crushing area

Never intervene in an area where there is a risk of crushing before complete stopping of the moving parts



Use of PPE

Wear the personal protective equipment corresponding to the work to be performed (gloves, footwear, glasses, helmet, ear protectors ...)



Hydraulic Oil

There is hydraulic oil inside the tank



Liquid level

It indicates the minimum/maximum level of the oil contained in the tank












Electrical hazard

There are a number of electrical components present



Parts to tighten

The expansion joint must be tightened every 20 working hours for the first 60 working hours according to the procedure indicated in paragraph 17.3.1

20h	40h	60h
		
120Nm	120 Nm	120 Nm
 	 	 

19 TECHNICAL SPECIFICATIONS

19.1 INDICATIVE DIMENSIONS

19.1.1 In the field

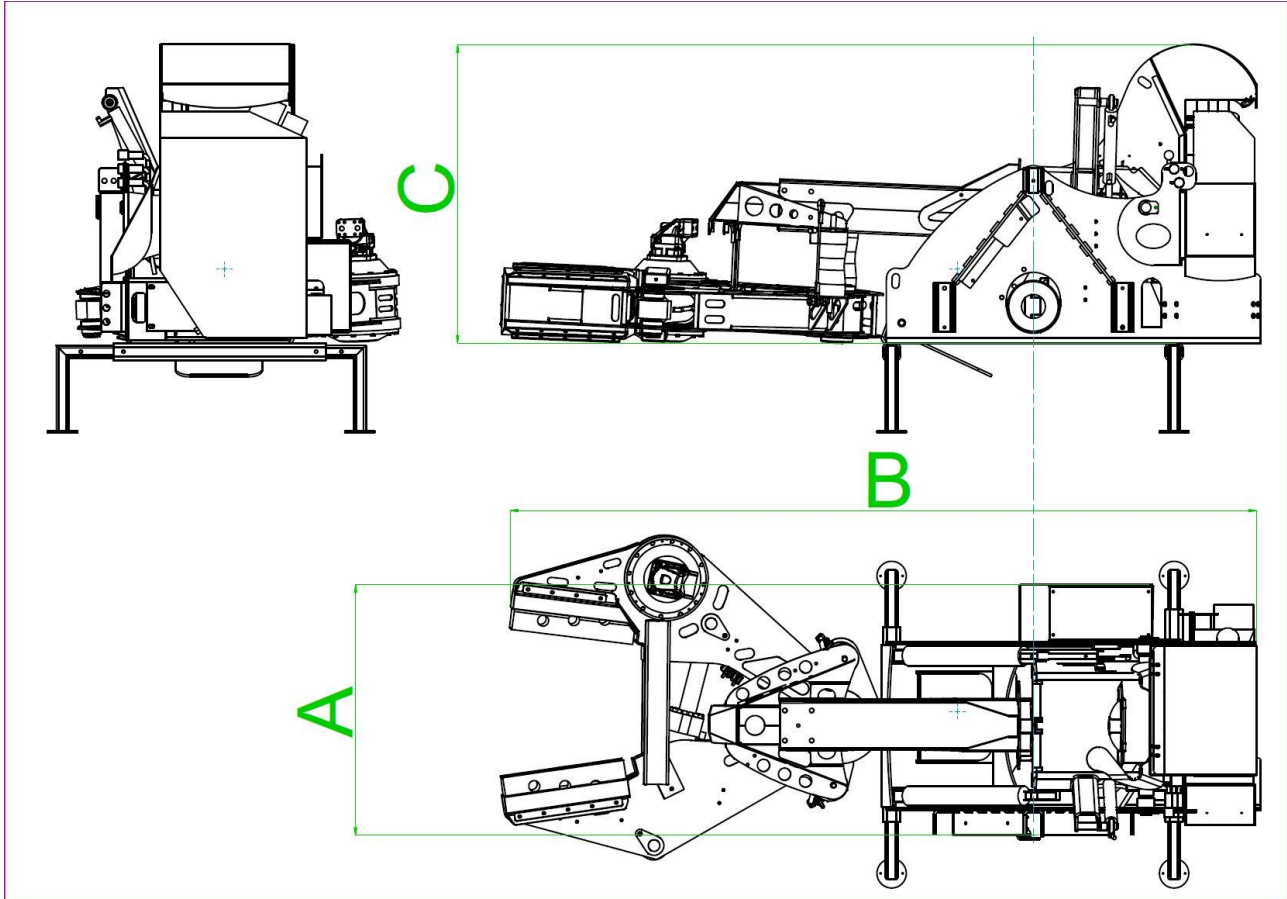


Figure 25 Dimensions in the work position

Length A		1040 mm
Width B		from 3115 to 4015 mm
	(extended boom option)	from 3665 to 4565 mm
Height C		1300 mm
Weight		1400 kg
	(extended boom option)	1417 kg
PTO speed		540 rpm
Minimum power		70 hp
Distance from the cardan shaft to the end of the gripper		from 2250 to 3150 mm
	(extended boom option)	from 2800 to 3700 mm
Distance from the cardan shaft axis to the centre of gravity		310 to 604 mm
	(boom extended option)	from 335 to 880 mm

19.1.2 In transportation

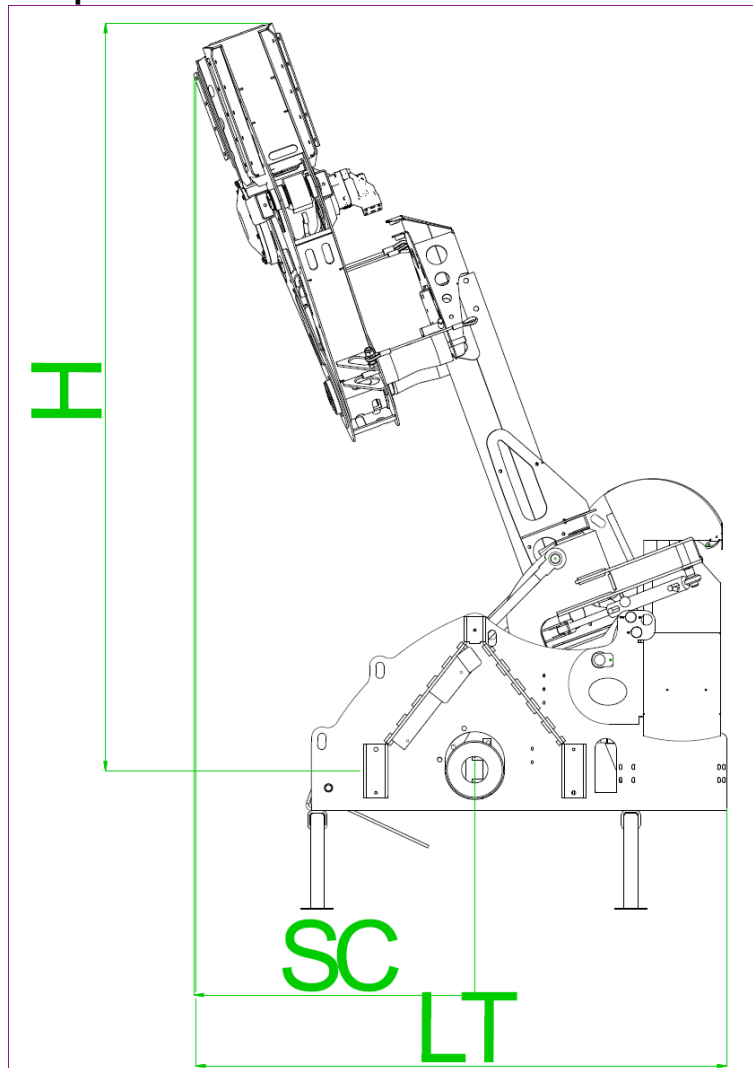


Figure 26 Dimensions in transportation position

Height H from the middle lifting pin	2580 mm (3080 mm*)
Width LT	1960 mm (2460 mm*)
Overall dimensions of the SC cardan shaft	1010 mm (1410 mm*)

(* with extended boom option)



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5050



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498



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info@monchiero.com - www.monchiero.com



Declaration of Conformity

(Machinery Directive 2006/42/EC, Annex II., part A)

Manufacturer: MONCHIERO &C SNC

Address (full): STRADA CROCIERA BURDINA 40 12042, POLLENZO DI BRA (CN)

Name and address of the person authorised to constitute the technical file:

Name: MAURO MONCHIERO

Address: STRADA CROCIERA BURDINA 40, 12042 POLLENZO DI BRA (CN)

Declares that:

THE TOWED SHAKER MODEL

Serial number

Year of manufacture.....

(Description and identification of the machine, with generic name, function, model, type, serial number, trade name, as appropriate)

- Complies with the requirements of the Machinery Directive (2006/42/EC)
- It complies with the conditions of the following other EC Directives: 2014/30/EU

The following (parts/clauses of) harmonised standards have been applied:

UNI EN ISO 13857:2008

UNI EN 349:2008

UNI EN ISO 14120:2015

UNI EN ISO 4254-1:2015

The following technical specifications have been applied: ISO 11684-1995

Place, date:

Signature:

.....