



***USER AND MAINTENANCE***

***MULTIPURPOSE TOOL CARRIER PA20***



Rev. 00

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## 1. Foreword

This manual contains information necessary for the operation and maintenance of the electro-hydraulic PA20 multipurpose tool carrier:

It should be read carefully before carrying out any work operations upon the machine, and the instructions must be followed scrupulously. The manual itself must be kept in an accessible location so that it will always be available for consultation whenever necessary.

This "User and Maintenance" manual constitutes an integral part of the machine itself, and must accompany the machine in the event that it is sold or transferred to any third parties or users.

Contact the manufacturer:

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for any requirements you may have in terms of spare parts, accessories, intervention requests and general information.

All such requests must include the relative identification data for the PA20 multipurpose tool carrier, which can be found on the CE data plate (photo 3 in chapter 4) and in the technical data contained in chapter 16.

SAMPLE CE DATA PLATE



Figure 1

## 2. Safety warnings.

Various safety warnings are contained within this manual and are affixed to the machine itself.

All the warnings begin with specific symbols, the meanings of which, for the purposes of this manual, are provided below.



### **DANGER**

Indicates a situation of imminent danger, which, if not avoided, could result in serious personal injury or even death.



### **CAUTION**

Indicates a situation of potential risk to the machine's integrity, which, if not avoided, could result in damage to the machine itself, which, in turn, could result in serious personal injury or even death.

### 3. General safety standards.



DANGER

Carefully read this manual for the hydraulic/electro-hydraulic PA20 multipurpose tool carrier and follow the instructions scrupulously.



DANGER

The PA20 multipurpose tool carrier is suitable for performing various types of work upon the terrain for an optimised cleaning of vineyards and orchards:

- Windrowing
- Desuckering
- Localised weeding



DANGER

The electro-hydraulic PA20 multipurpose tool carrier can be used in conjunction with a tractor and can be operated with the following accessories mounted:

1. Desucker SP608, SP708;
2. Vertical desucker SPV;
3. Low pruning rake GB;
4. High narrow pruning rake with 3 brushes GAS3;
5. High pruning rake with 3 brushes GA3;
6. High pruning rake with 6 brushes GA6.



DANGER

The operator/user is required to make sure that the tractor employed is suitable for use with the PA20 multipurpose tool carrier, even in terms of the necessary electrical and hydraulic system features.



DANGER

The machine must only be used by properly trained and qualified personnel who are familiar with the locations and functions of all the machine's controls, instruments, indicators, warning lights and data plates.

The operator/user must have fully understood the machine's operating procedures prior to activating it.



DANGER

The equipment must only be operated by a single expert operator who has been properly trained for its use. This individual must only use the machine from on board the tractor itself.



DANGER

In case it is necessary to unlock the tool because of snag or jam during the soil cultivation:

1. Stop the machine and turn off the tractor;
2. Engage the brake;
3. Remove the key;
4. Unlock the steering wheel.



DANGER

Always arrest the machine's movement upon exiting the row.



DANGER

The user's failure to observe even just one of the safety requirements could result in serious personal injury to the operator or damage to the multipurpose tool carrier.



DANGER

For all the usage and maintenance operations that make reference to the accessories, please refer to the User and Maintenance Manuals for the same.



DANGER

For all the operations to be performed in order to start or stop the motor, to adjust the position of the seat, and to obtain the most comfortable position using the controls, please refer to the tractor's User and Maintenance Manual.



DANGER

Never use the PA20 multipurpose tool carrier to perform operations other than those for which it has been designed.



DANGER

In the event that any significant changes should be encountered in relation to the safety, integrity or functionality of the PA20 multipurpose tool carrier, immediately stop the machine and report the anomaly to a person in charge.

Any damage or malfunctions that could compromise the PA20 multipurpose tool carrier's safety must be repaired by either an authorized repair shop, the manufacturer, or qualified expert personnel who have undergone the manufacturer's training courses.



DANGER

Always return any protective guards and safety devices that may have been removed during maintenance operations to their appropriate positions.



DANGER

Functional checks must always be carried out following any repair operations in order to verify the proper outcome of the repair activities themselves.



DANGER

Do not smoke during the work activities.



DANGER

The PA20 multipurpose tool carrier is only designed for use away from the main roadways where vehicular traffic is normally present.



DANGER

The PA20 multipurpose tool carrier must only be inspected and repaired by authorized repair shops or by properly trained and authorized personnel who have undergone the manufacturer's training courses and are familiar with the machines' characteristics and potential risks.



DANGER

Always wear properly fitting clothing and make use of appropriate personal protective equipment (protective shoes, helmet, goggles and gloves).



DANGER

Never align the holes using your fingers: always use appropriate centring tools.



DANGER

Be sure to check the proper functionality of the safety devices every time you use the PA20 Multipurpose tool carrier.





DANGER

Never carry out work operations under conditions of poor lighting and visibility, or whenever any other visibility limitations might compromise the safety of the work operations themselves.



DANGER

Unless prior authorization has been obtained, never perform any modifications, replacements or changes that could alter the PA20 multipurpose tool carrier.



Oil pipes/Electric cables

Support

Picture 1



DANGER

Always move the PA20 multipurpose tool carrier when the tool is not mounted.



DANGER

During loading/unloading, storage or maintenance operations, or any other operations that require the unit to be lifted, always make use of a crane or bridge crane of a suitable capacity for the load to be lifted, as indicated on the CE data plate (see Chapter 4), using the appropriate lifting hooks on the PA20 multipurpose tool carrier itself as attachment points.



DANGER

Never use a forklift to handle the PA20 multipurpose tool carrier.



DANGER

For the sake of clarity, certain pictures contained within this manual might show the Inter-row tool support with its protective guards removed. Never use the PA20 multipurpose tool carrier if its protective guards have been removed and/or damaged.



DANGER

At the point in which the PA20 multipurpose tool carrier is attached, the tractor must be capable of sustaining a load equal to at least the weight of 200kg.

#### 4. List of affixed labels and signs.

1)



2)



3)



4)



5)



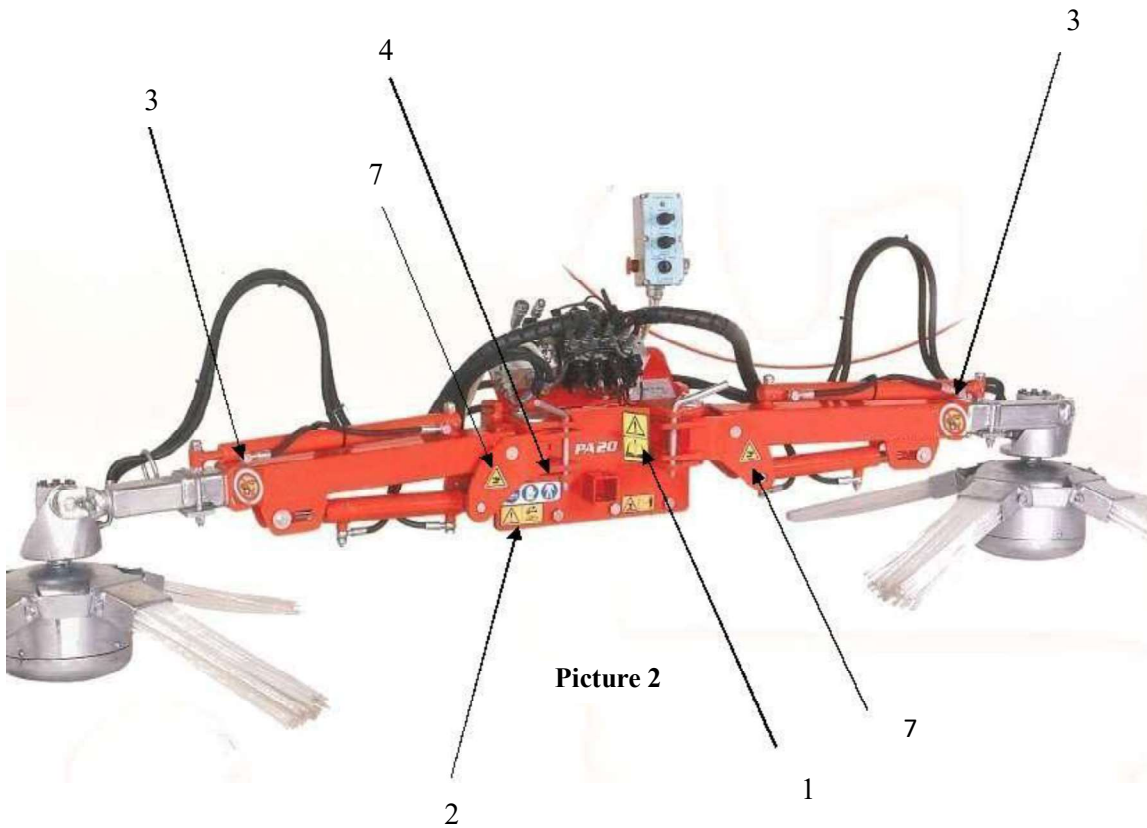
6)



7)



1. Read the User and Maintenance Manual
2. Stop the tractor, remove the key and refer to the Maintenance Manual before performing any maintenance or Adjustment operations
3. Never perform repairs or adjustments upon moving parts
4. Always wear the necessary personal protective equipment
5. Danger of lower limb shearing. Keep at a safe distance from the machine
6. Danger of flying materials, keep out of the work area
7. Caution, danger of hand crushing
8. CE Data Plate (picture 3)





**Picture 3**

6

5

8



DANGER

Carefully read all the signs affixed to the PA20 multipurpose tool carrier.



DANGER

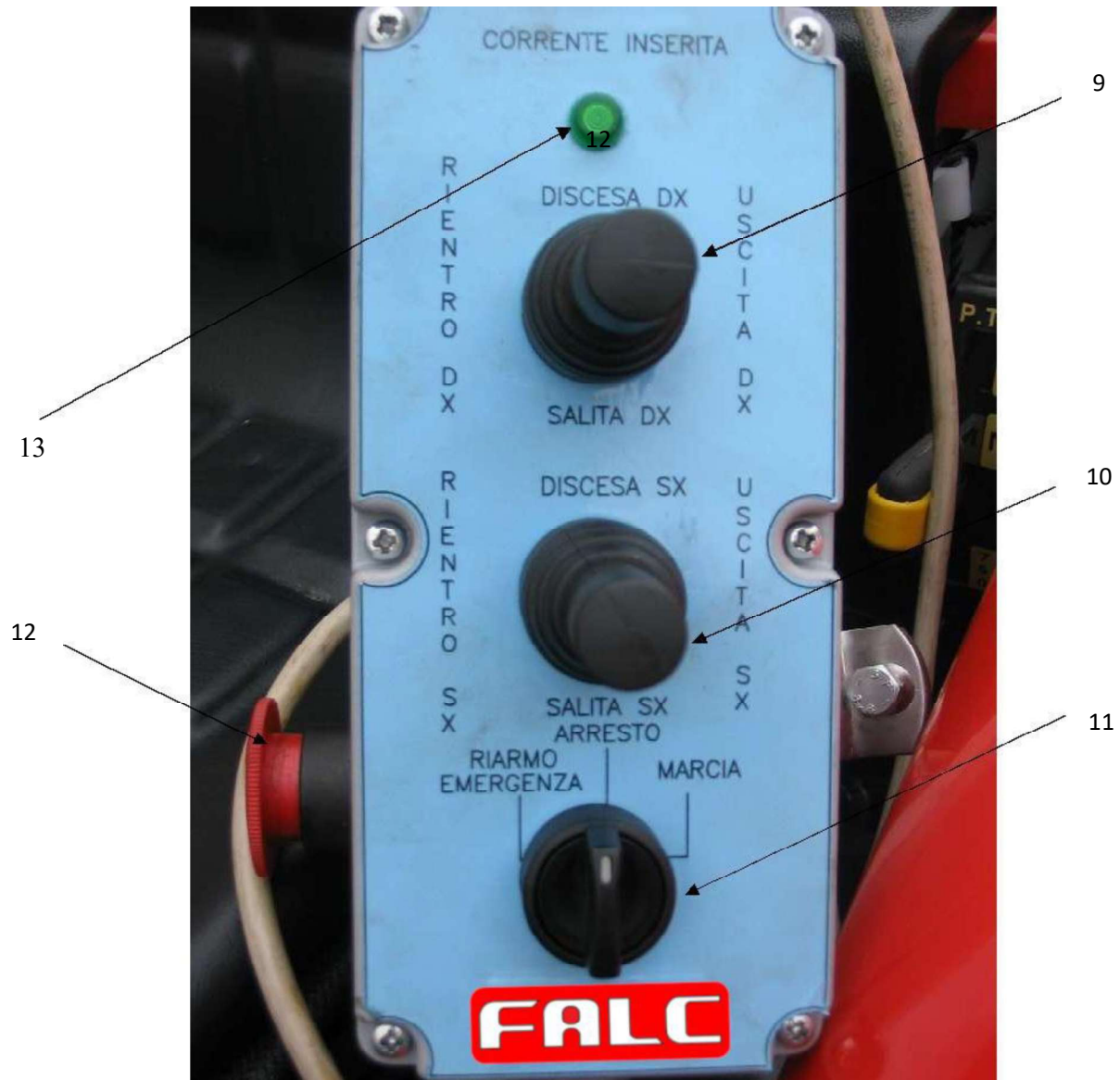
Be sure to immediately replace any labels or signs that have been rendered illegible.



DANGER

Any failure to properly consult or promptly replace any damaged or lost safety signs could result in serious accidents.

## 5. Control panel.



Picture 4





CAUTION

The PA20 multipurpose tool carrier's control panel is mounted on a special support in a stable position that can be easily accessed from the driver's seat.



CAUTION

The right (dx), left (sx), forwards and backwards positions are based on the operator's position when correctly seated in the driver's seat of the tractor. They can also refer to the control levers right (dx), left (sx), up (alto) and down (basso) when looking at the control panel.



CAUTION

The control panel is shown in Picture 4:

1. The lever (9) controls the right arm of the PA20 multipurpose tool carrier; by moving it upwards or downwards, the cylinder that adjusts the tool's height is activated:
  - The upward movement of the lever causes the tool to descend and to move closer to the ground;
  - The downward movement of the lever causes the tool to ascend and to move away from the ground;
2. Moving the lever (9) laterally operates the cylinder that adjusts the extension/retraction of the telescopic arm, which allows to decide the lateral working distance of the tool:
  - By moving the lever to the right, the telescopic arm opens;
  - By moving the lever to the left, the telescopic arm closes;
3. The lever (10) works in the same way as the other one (9), but it controls the left arm of the PA20 multipurpose tool carrier.
4. The selector (11) allows to:
  - carry out an emergency reset;  
Before resetting the machine, be sure you have eliminated all the causes that led to the activation of the emergency system;  
Turn the mushroom-shaped button (12) a quarter turn in the clockwise direction;
  - Turn on the motors and start the tool's rotation (on);
  - Stop the tool's rotation (off)
  - The indicator light (13) indicates that voltage is present.

## 6. Assembly upon the tractor.



DANGER

It may be useful to request the assistance of an operator on the ground who has undergone the necessary training courses held by the manufacturer in relation to all the PA20 multipurpose tool carrier's adjustment, maintenance, assembly and disassembly operations.



DANGER

Before performing the assembly operations, always put on protective gloves and safety shoes.



DANGER

Make sure that no one other than the operator/maintenance technician is in the work area.



DANGER

Make sure that the PA20 multipurpose tool carrier has been positioned on sturdy, level ground (i.e. cement)



DANGER

Before starting the tractor, check to make sure that the lever that supplies hydraulic oil to the tool is not activated (refer to the tractor's User and Maintenance Manual).



DANGER

1. Make sure that the machine is firmly fixed to the support stand (14).
2. Proceed with the tractor until the tool's mounting bracket (16) comes closer to the PA20 multipurpose tool carrier's mounting plate (15).



15

Picture 5

14



Picture 6

16



**CAUTION**

1. Bring the tractor closer to the PA20 multipurpose tool carrier;
2. Adjust the machine's height by rotating the crank (17) until the PA20 multipurpose tool carrier makes contact with the equipment's mounting bracket (15) by making the fixing holes fit together;
3. Fasten the two plates using M16 screws and nuts (18);
4. Remove the detent pin from the support stand (19);
5. After making sure that no-one is within the working range of the machine, turn on the tractor and move back in order to remove the support stand from the PA20 multipurpose tool carrier.



**Picture 7**

16

15



Picture 8

18



Picture 9

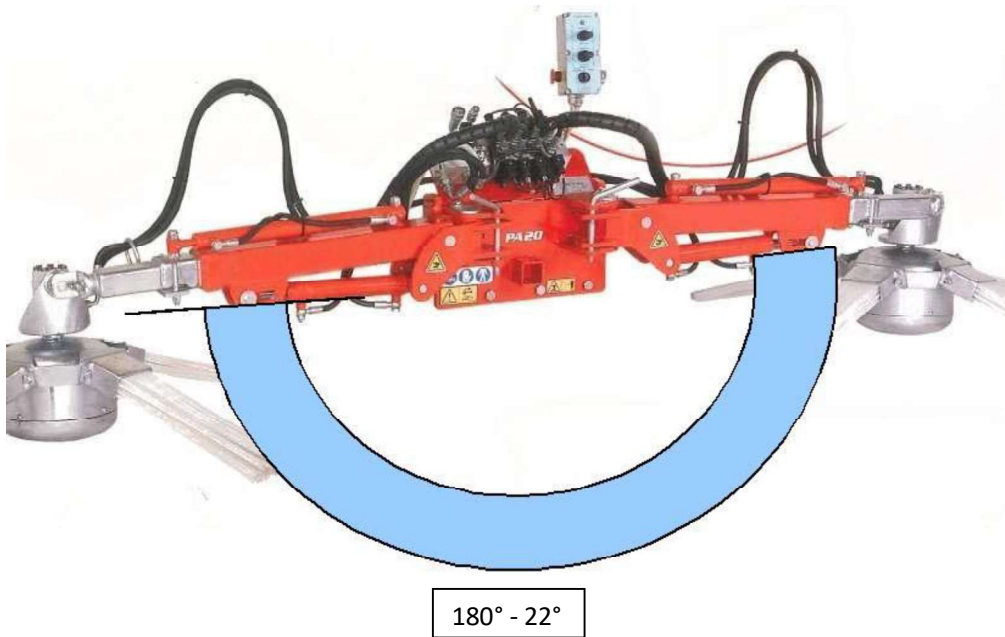
19



**Picture 10**

20

## 7. Adjusting the closing angle of the arms



Picture 11



### CAUTION

To adjust the closing angle ranging from 180° to 22° with four independent positions, proceed as follows:

1. Remove the locking pin (20);
2. Manually rotate the arm until the holes of the arm ears (21) match with those on the fixed seat (22) into the new desired position;
3. Re-insert the locking pin (20);
4. Repeat the operation on the other arm



Picture 12

20  
21  
22

## 8. Hydraulic connection



CAUTION

Connect the quick couplings of the oil pipes (23) to the tractor (See the tractor's Use and Maintenance Manual) (the female coupling of the oil delivery pipe is red).



Picture 13



## 9. Electrical connection



CAUTION

Connect the power cable of the control panel to the appropriate power outlet on the tractor (24) (refer to the tractor's Use and Maintenance Manual).



Picture 14

## 10. Hydraulic connection of the accessories



### DANGER

Make sure the tractor is off and that the hydraulic system is not pressurized (see the tractor's Use and Maintenance Manual)



### CAUTION

1. Connect oil supply quick coupling of the tool installed on the right arm (see the tool's Use and Maintenance Manual) to the quick coupling of the tool carrier (25) and insert the oil pipes into the support ring (25a);
2. Connect the right tool's oil discharge quick coupling (26) (see the tool's Use and Maintenance Manual) to the oil supply coupling of the left tool (27);



Picture 15

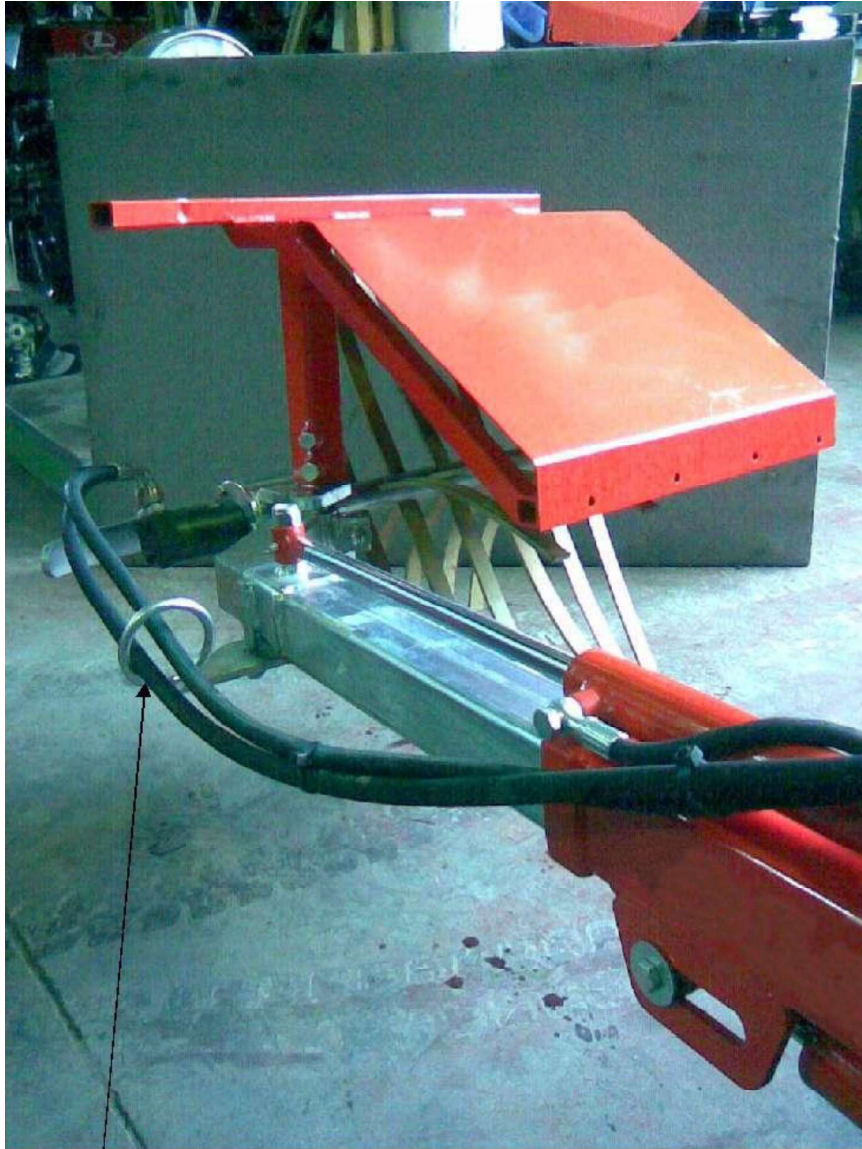
3. Connect the oil discharge quick coupling of the left tool (28) (see the tool's Use and Maintenance Manual) to the quick coupling on the tool carrier.



Picture 16

26

25a



**Picture 17**

25a

## 11. Transport



**DANGER**

Before moving the machine, make sure that nobody is within its range of motion.  
The machine can be transported to the work site or from the work site to an appropriate disassembly location while attached to the tractor.



**Picture 18**



**CAUTION**

Since the unit must be transported with the least possible encumbrance:

1. Completely close the arms, see Chapter 5;
2. Completely close the extensions, see Chapter 5

## 12. Disassembly



DANGER

Before performing the disassembly operations, always put on a helmet, protective gloves and safety shoes.



DANGER

Make sure that no one other than the operator/maintenance technician is in the work area.



DANGER

For this task it may be useful to request the assistance of an operator on the ground who has undergone the necessary training courses held by the manufacturer or an authorized dealer in relation to all the PA20 multipurpose tool carrier's adjustment, maintenance, assembly and disassembly operations.



DANGER

Make sure that the PA20 multipurpose tool carrier and the tool are not in function.



CAUTION

- 1) Place the equipment on sturdy, level ground that is suitable for the disassembly operations (e.g. cement);
- 2) Position the PA20 multipurpose tool carrier as in picture 19 with the arms completely open (180° angle)
- 3) Turn the crank (29) to adjust the height of the support of the PA20 multipurpose tool carrier until the support tube (30) matches with that on the machine (31);
- 4) insert the locking pin (32);
- 5) Unscrew the bolts that fix the plate and the backplate (33)



**Picture 19**

31

30

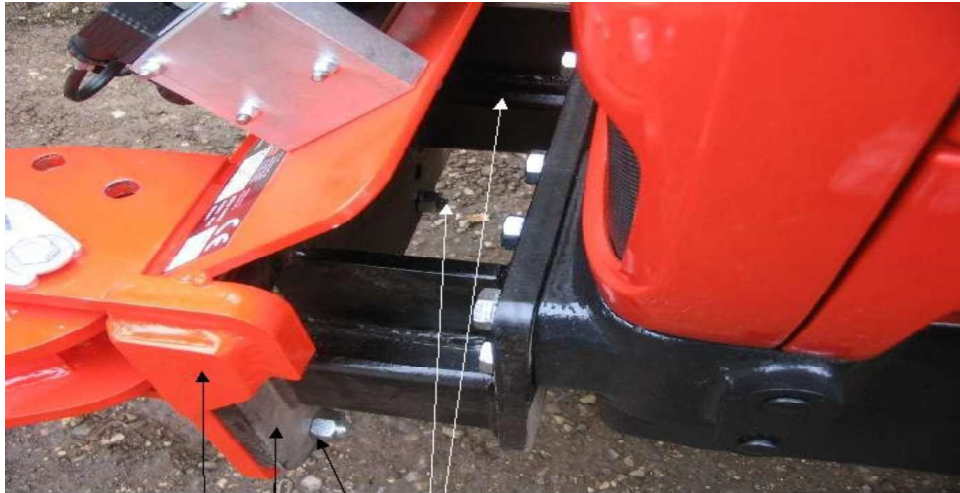
29



32

**Picture 20**





Picture 21

34

35

33



DANGER

Stop the tractor, engage the brake, remove the key from the dashboard and lock the cabin door.



DANGER

Before removing the PA20 multipurpose tool carrier from the tractor, remove the tool (see the tool's Use and Maintenance Manual).



CAUTION

1. Lift the machine and turn the crank (29) - see picture 19 - until the tool carrier's plate (34) disconnects from the connecting plate to the tractor (35);
2. Disconnect the oil quick coupling and the electric cable (see page 25 and 26 picture 13 and 14) and replace them on the special support of the support leg.

### 13. Assembling accessories



DANGER

Before performing the disassembly operations, always put on a helmet, protective gloves and safety shoes.



DANGER

For this task it may be useful to request the assistance of an operator on the ground who has undergone the necessary training courses held by the manufacturer or an authorized dealer in relation to all the PA20 multipurpose tool carrier's adjustment, maintenance, assembly and disassembly operations.



DANGER

Make sure that no one other than the operator/maintenance technician is in the work area.



DANGER

Before installing the tool, the PA20 multipurpose tool carrier must be already connected to the tractor.



DANGER

Only assemble the accessories when the tractor is stationary and turned off.



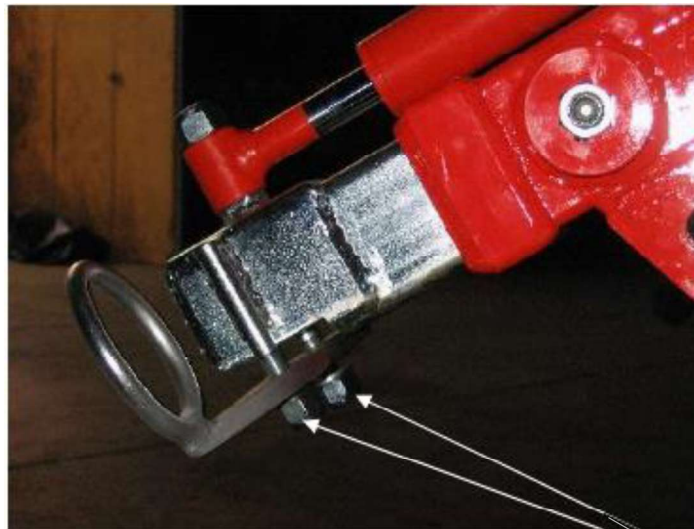
CAUTION

1. Loosen the screws (36);
2. Insert the tubular support of the tool (pruning rake/sucker remover) (37) into its seat on the PA20 multipurpose tool carrier (38);
3. Tighten the screws (36)



Picture 22

36



Picture 23

36



**Picture 24**

38

36

37



Picture 25



Picture 26

## 14. Emergency buttons

There is one emergency stop button on the control panel (12) (see picture 4, page16). This button can be pressed to stop the PA20 multipurpose tool carrier's movements and must be reset in order to reactivate the unit.

In order to reset the emergency button and reactivate the unit:

1. Give it a quarter turn clockwise,
2. Turn the selector to "reset" (riarmo emergenza) (11) (see picture 4, page16)

If the emergency stop button has been pressed, make sure that the emergency situation has been resolved before resetting and reactivating the machine.

## 15. Maintenance



DANGER

Before performing any maintenance operations, follow the instructions contained in Chapter 12 to disconnect the machine from the tractor and make sure you are on sturdy terrain (e.g. cement).



DANGER

Any mistakes can be extremely dangerous. Carefully read the use and maintenance manual before carrying out any repairs or greasing operations.



DANGER

Beware of possible flying metallic particles when performing the assembly and disassembly operations, as well as when using a hammer to strike the machine's parts. Always wear safety goggles.



DANGER

It is forbidden to make any changes to the tool that involve the alteration of its components or the operating parameters established by the manufacturer.



DANGER

Never dispose of lubricants in the environment. Such products must always be collected and disposed of in accordance with the current regulations in the machine's country of use.



DANGER

Handle the parts with extreme care. Never place your hands or fingers between the machine's parts and always keep them away from any gaps, rotating parts or other similar elements. Always wear approved protective clothing, including goggles, gloves and safety shoes.



DANGER

Check the machine for any visible signs of damage on a daily basis (structural integrity, welds, oil pipes, electrical wires, etc.). Any changes that may be encountered (including functional behavior) must be immediately reported to a person in charge. Stop the machine.



DANGER

Check the efficiency of the safety stops.



DANGER

Never use gasoline, solvents, or other flammable liquids to clean the machine or its components. Use non-flammable or non-toxic commercial solvents.



DANGER

Before reactivating the PA20 multipurpose tool carrier, and following any maintenance or repair operations, make sure that no tools, rags or other materials have been left upon the machine, inside the compartments containing moving parts, or in close proximity to any moving parts.



DANGER

Always use original spare parts or parts that have been approved by the manufacturer.



DANGER

Have a general inspection performed upon the PA20 multipurpose tool carrier and the relative electro-hydraulic system once a year by the manufacturer or an authorized workshop (also check the efficiency of the block valves and the calibration of the pressure relief valves).





**CAUTION**

Grease all the PA20 multipurpose tool carrier's jacks via their appropriate greasing points (39), (40), (41), (42) (43); (44); (45); (46) every 50 work hours.



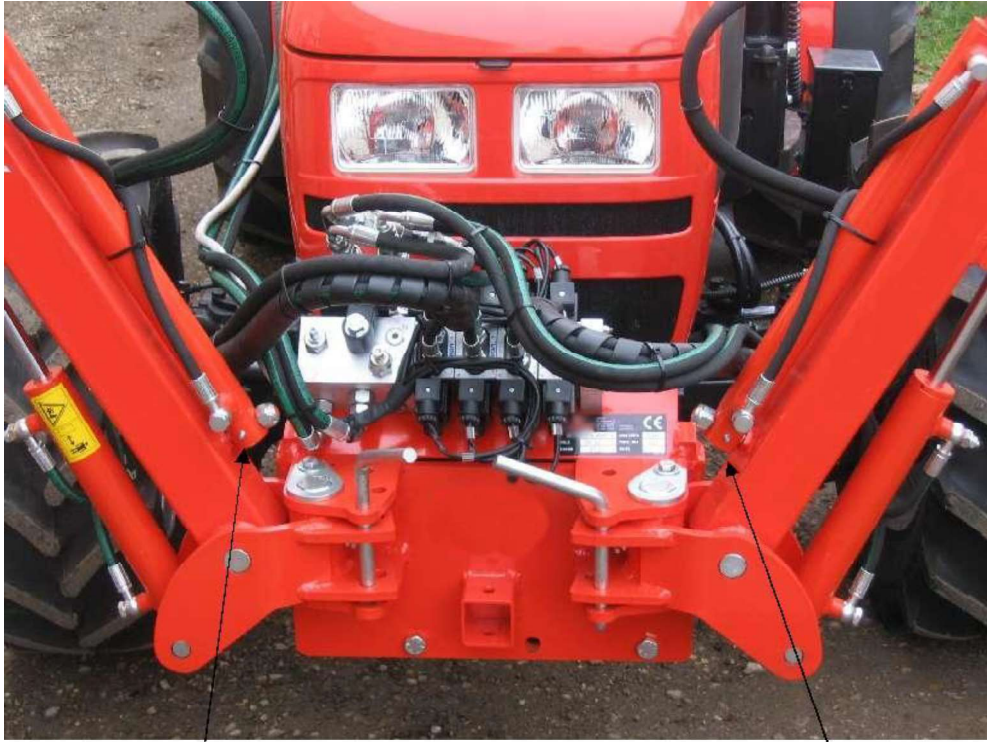
**Picture 27**

39

40

41

42



**Picture 28**

43

44



45

**Picture 29**

42



**Picture 30**

46



CAUTION

Check if there is any clearance on the extension weekly and remove it:

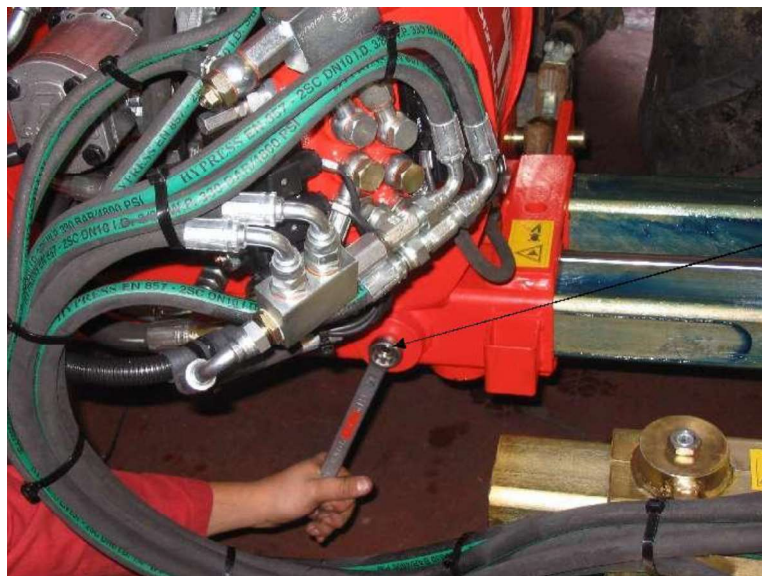
1. Loosen the nut (47);



Picture 31

47

47



Picture 32

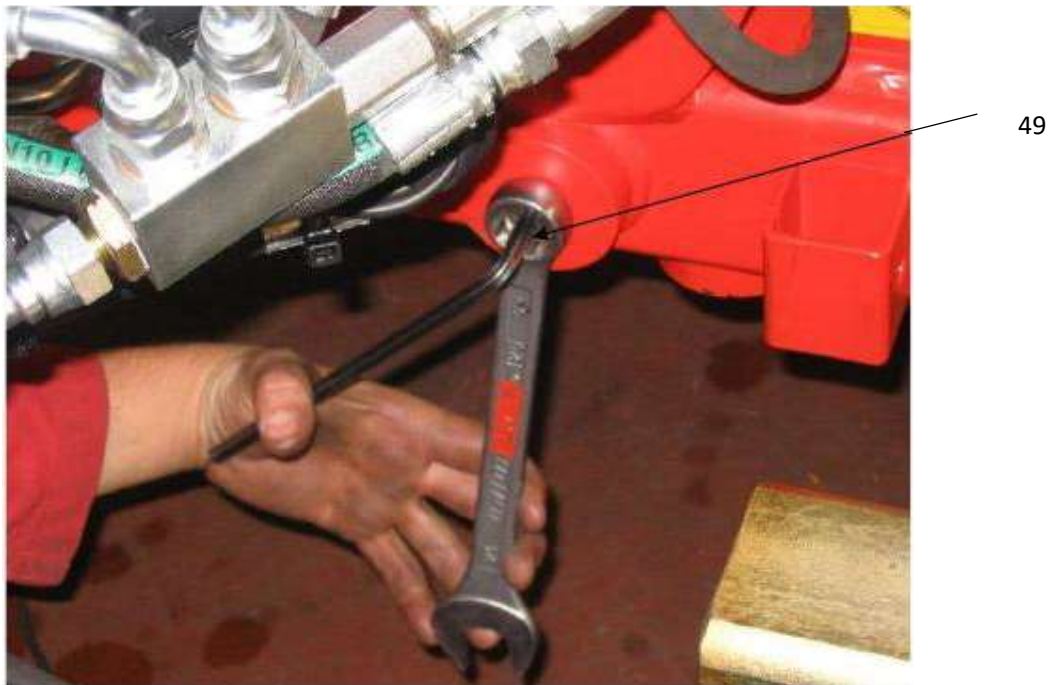
47

2. Tighten it with an allen wrench (48);



**Picture 33**

3. Screw the nut again while holding the grub screw and tighten (49).



**Picture 34**



CAUTION

Completely open the extensions and lubricate them on a daily basis (50).



Picture 35

50



CAUTION

At the end of each work shift, thoroughly clean the PA20 multipurpose tool carrier of any excess soil or leaves, as well as anything else that may have become entangled during the work operations.



CAUTION

Grease all the joint pins upon the machine on a daily basis.



CAUTION

Check the tightness of screws and nuts at least every 20 work hours, and tighten them if necessary.

**Table containing the technical characteristics of the Lubrisint 2 grease to be employed:**

Color	Appearance	Nature of the soap	n.l.g.i. gradation	Drip point	Additives	Oper. temp. range	Penetration astmd 217	Base oil viscosity
blue	medium density grease	lithium	2	185°C	adhesive polymer	-15 +120 °C	265 - 295	ISO 460

Table 1

**15.1 Summary maintenance scheme**

Maintenance interval	Operation to perform	Inspection	Lubrication	Replacement	Cleaning
Once a day	Joint pins		•		
Every 20 work hours	Tightness of screws and nuts	•			
Every 50 work hours	Jack greasing points		•		
When damaged	Oil pipes			•	
After each shift	Machine				•
Once a day	Extension tubes/telescopic arms		•		
Once a week	Extension clearance	•			

Table 2

## 16. Technical data

### 16.1 General technical characteristics

Max. OIL FLOW RATE (l/min.)	Max. oil press. (bar)	POWER SUPPLY (V)
<b>30 l/min.</b>	<b>160 (bar)</b>	<b>12 V</b>

Table 3

### 16.2 Cylinders

CYLINDER	BORE	ROD Ø	STROKE
<b>Extension</b>	<b>32</b>	<b>20</b>	<b>400</b>
<b>Tilt</b>	<b>40</b>	<b>20</b>	<b>370</b>

Table 4





# 18. Electrical system scheme

