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## USER AND MAINTENANCE BOOKLET

TRANSLATION OF THE ORIGINAL INSTRUCTIONS - ENGLISH  
INSTRUCTIONS COMPLY WITH STANDARD ISO 3600:1996

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# Preface

*Thank you for choosing a product by BCS, an innovative leading brand in the specialised agricultural machinery sector.*

*We recommend you read this manual carefully and follow the instructions it contains to ensure optimal operation for your tractor.*

*Personnel who operate and service the tractor must be aware of the operational and maintenance instructions contained in this manual and the manager is responsible for ensuring that all workers have received, read and clearly understood these instructions.*

*These operational and maintenance instructions will be delivered and enclosed with each tractor. We recommend keeping them in a safe place where they are easily available to the tractor driver and operator. Should they be lost, the Dealer/Distributor shall immediately give the manager another copy.*

*We recommend carrying out the planned maintenance operations by following the time intervals set in the maintenance schedule and having your dealer confirm the operations by stamping and signing your service manual.*

*As the product is continually being improved, it may be necessary to update some obsolete parts of this manual. Your dealer will be always able to provide you with the latest updates; do not hesitate to contact him/her if you require further information.*



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# Chapter 1: Foreword

## Introduction and safety

**Carefully keep this "use and maintenance manual" and consult it regularly. It is an essential part of the machine and must go with it when it is resold.**

The purpose of this publication is to allow the machine manager and operator to use the tractor under 100% safe conditions.

In addition, the fact that the retailer installs the product ensures that these use and maintenance instructions are understood correctly. Nevertheless, if you do not understand parts of this manual, do not hesitate to contact your dealer since it is important that these instructions are understood and followed. Daily maintenance should be carried out regularly and the vehicle's operating hours should be recorded in a log.

When spare parts become necessary, only use original spare parts. Authorised retailers supply original spare parts and can give advice on their assembly and use. Installing lower quality spare parts could cause extensive damage. Therefore, we recommend buying original spare parts only.

Because of the considerable diversity of the conditions of use, the company cannot provide fully up-to-date and complete publications on the performance and use of the vehicles it manufactures. Therefore, it cannot assume responsibility for loss or damage deriving from what is published or any errors or omissions. If the vehicle must be used under particularly heavy unusual conditions (e.g. in deep water or very muddy soil), we recommend contacting your retailer for special instructions to prevent voiding the warranty.

The tractor manufacturer accepts no lia-

bility for damage or injury due to improper use of the vehicle, the risks of which are solely the user's responsibility.

This machine is designed exclusively for generic agricultural work or the like. Use in any other environment is considered improper use.

Compliance with and strict observance of the conditions of use, servicing and repair specified by the manufacturer are also an essential part of intended use.

To use, service and repair this tractor, you must be fully aware of all of its special characteristics and be informed about the relative safety standards (accident prevention).

Customers should contact an official retailer about any servicing or tuning problems.

Carefully read and follow the safety instructions described in detail in this manual.

## Tractor identification

The tractor is identified by the data engraved on the identification plate on the right-hand side of the gearbox case (Fig. 1.1).

To ensure prompt and efficient service, this data must be provided when ordering spare parts or requesting technical information or clarifications.

Type of tractor	
Tractor type-approval number	
Identification number	

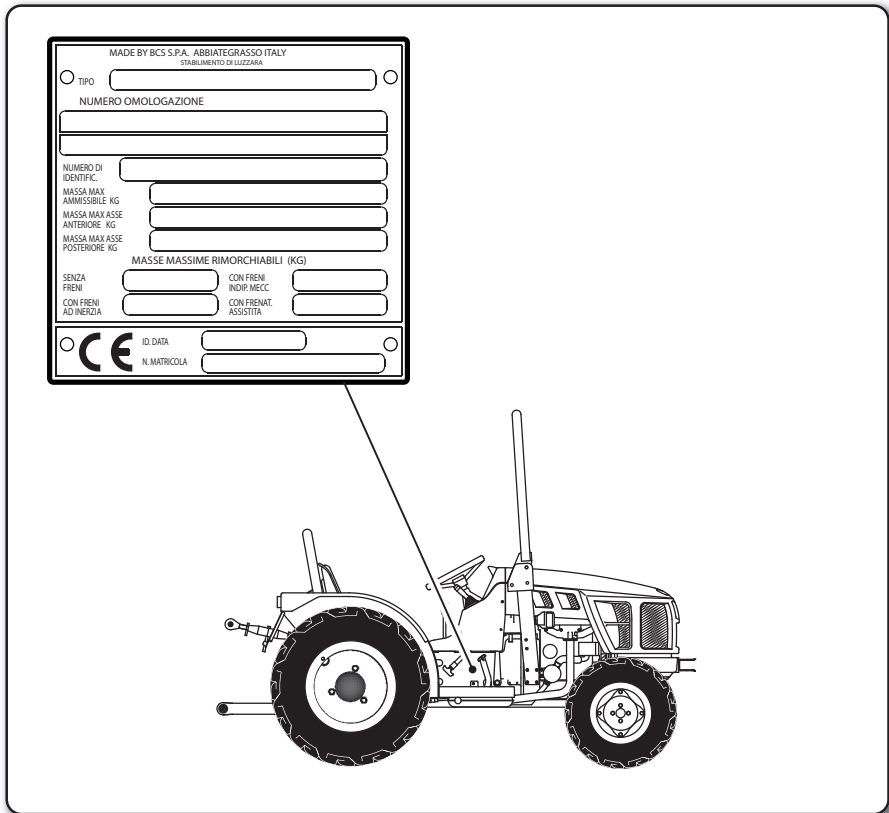


Fig. 1.1

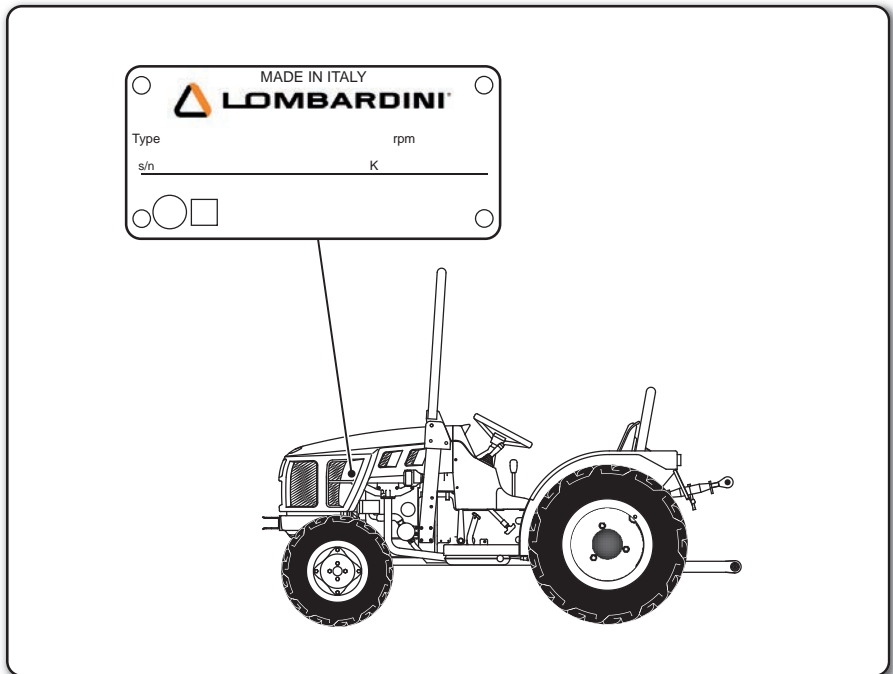
## Engine identification

The engine is identified by the data engraved on the identification plate on the front of the engine itself (Fig. 1.2).

To ensure prompt and efficient service, this data must be provided when ordering spare parts or requesting technical information or clarifications.

Address all notifications and queries to the Kohler Lombardini.

Engine type-approval number	
Type of engine	
Technical characteristics	



**Fig. 1.2**

## Warranty

BCS products are covered by a warranty that, under certain conditions, covers material and manufacturing defects. This manual is published for worldwide circulation. Thus, the exact warranty terms and conditions regarding retail sales in each individual country cannot be precisely described in detail. Purchasers of new tractors are kindly asked to request all the details from the retailer where the tractor was purchased.

The retailer or dealer is required to provide certain services when delivering a new tractor to a customer. These services include a thorough preliminary inspection at the time of delivery to ensure that the vehicle can be used immediately, as well as an explanation of all of the instructions on the main principles of use and maintenance. These instructions are related to control instruments and commands, periodic maintenance and precautionary safety measures. This training course must be provided to anyone in charge of using and servicing the tractor.

 **NOTE:**

*The tractor manufacturer accepts no liability for claims if unapproved components are installed or unapproved implements are hitched, i.e. unauthorised modifications and alterations.*

Correct use of the tractor and regular maintenance can be very helpful in preventing breakdowns. If however any operating problems occur while the warranty is still valid, the follow the procedure below:

- immediately notify the retailer where the tractor was purchased, providing the model and serial number. It is very important to do this right away since the warranty will be void if the anomaly is not resolved promptly, even if the

original breakdown was covered;

- provide your retailer with as much additional information as possible, including how many hours of work were done, the type of work the tractor was doing and the symptoms of the problem. Remember that routine maintenance operations such as tune-ups and brake/clutch adjustments, as well as supplying materials used for servicing (oil, filters, fuel and antifreeze products) are not covered by the warranty.

 **NOTE:**

*Installing non-original parts could mean using a lower quality spare part. The tractor manufacturer assumes no liability for any losses or damage due to the installation of such parts and, should they be assembled during the normal warranty period, this will void the manufacturer's warranty.*

As long as the warranty is valid, we recommend having all repairs and maintenance work carried out by your retailer, who will carefully monitor the operation and performance of your new tractor.

For best results from your tractor, it is important not to interrupt routine maintenance checks and servicing even after the warranty has expired. Contact your retailer for all the main servicing work: a specialised technician will assess the situation between services.

Mechanics are regularly informed and updated on the product, servicing techniques and the use of modern diagnostic instruments and equipment. They regularly receive servicing reports, have all the workshop manuals and all the other technical information required to ensure that repairs and assistance are up to standard.

 **NOTE:**

*The panels and guards were removed in some of the illustrations in this operator instruction manual for greater clarity. Never run the tractor without reassembling these components. If a panel or guard must be removed to carry out repairs, it must be reassembled before using the tractor.*

 **NOTE:**

*For all the details about the tractor warranty, refer to the "service manual" supplied with the tractor.*

## Annexes

In addition to this use and maintenance manual, the tractor is supplied with:

- the engine use and maintenance manual;
- the service manual.

## Units of measurement

1 m	= 3.28 ft
1 cm	= 0.39 in
1 mm	= 0.039 in
1 km	= 0.62 ml
1 km/h	= 0.62 mph
1 l	= 0.21 UK gal
	= 0.26 US gal lqd
1 Kg	= 2.20 lb
1 cv	= 735.49 W
	= 0.98 hp
1 kw	= 1.35 cv
1 bar	= 14.50 psi
	= 100 kPa
1 psi	= 6.89 kPa



# Chapter 2: General safety rules

## Introduction

This chapter of your operator instruction manual on safety is designed to outline some of the most common safety situations that can occur during the normal use and maintenance of your tractor and suggest what you can do in these situations. This chapter is not a substitute for other safety rules in other chapters of this manual.

Additional precautions may be necessary depending on the hitches used and the operating conditions on the field or in maintenance and repair areas. The tractor manufacturer does not have direct control over applications, operations, inspection, lubrication or maintenance of the tractor. As such, it is your responsibility to implement good practice in terms of safety in these areas, using common sense as well.

It is your responsibility to read and understand the chapter on safety reported in this manual before using the tractor. You will need to follow these safety rules and use them throughout your workday.

While reading this chapter, you will notice that illustrations are used to better explain specific situations.

Always remember that only you are the only party responsible for your own safety. Good practice in terms of safety protects you as well as those around you. Thoroughly examine the characteristics shown in this manual and make them an important part of your safety plan.

Always remember that this chapter was written exclusively for this type of machine. Apply all other usual precautions that ensure operating safety and above all remember that you are responsible for safety and you can prevent serious and even fatal accidents.

## Terms and abbreviations

**Driver/Operator:** person chosen and authorised based on his/her qualifications and skills required to drive, use and service the vehicle.

**PTO:** Power take-off

**Dangerous substances:** any substance like dust, steam and aerosol there may be while applying phytosanitary products and fertilisers which can pose a risk for the operator.

## Alarm and safety words and symbols

This instruction manual contains warnings on tractor safety and damage. Carefully follow these warnings to prevent the risk of injury or damage. Here below is a description of the types of warnings, their design and how they are used in this instruction manual:

### **DANGER:**

*This symbol and the word DANGER indicate an imminent risk for the safety of operator or other persons directly involved.*

### **WARNING:**

*This symbol and the word WARNING indicate a potentially dangerous situation for the machine, which could also compromise the operator's safety.*

### **CAUTION:**

*This symbol and the word CAUTION warn the operator that there is a risk of damaging the machine if he/she does not follow a specific procedure.*

### **NOTE:**

*Draws the operator's attention and informs him/her about the correct technique or procedure to carry out.*

## Tractor and implement coupling

- The tractor is a source of mechanical and hydraulic power.
- When the tractor is used with an implement or other equipment, it becomes a work unit.
- This instruction manual was written to illustrate the safety rules associated to the normal use of the tractor.
- This manual does not cover all the use and safety instructions for all the known implements and hitches that can be installed when the tractor is delivered or at any future time.

**! WARNING:**

*It is essential for the operator to carefully follow the instructions contained in the manual relating to these machines, both installed and towed ones, and to the trailer.*

**! WARNING:**

*Never use tractor-machine or tractor-trailer combinations unless you have carefully read the instructions for said equipment.*

## Safety decals

**! WARNING:**

*Do not remove or make the Danger, Warning, Caution or Instruction decals illegible.*

Replace every Danger, Warning, Caution and Instruction decal that is illegible or that has been lost. New decals are available from your dealer if lost or damaged. The exact position of the decals on the tractor is indicated at the end of this chapter.

If you purchase a used tractor, refer to "Position of the safety decals" paragraph to make sure that all the safety decals are in the right position and are legible.

## Following a safety plan

To use a farming tractor safely, operators must be qualified and authorised. Qualified means taking an instructional course and training at the workplace, knowing safety rules and work regulations and understanding the instructions contained in this operator instruction manual.

For example, some regulations specify that no one under the age of 18 (according to European standards) can use motorised machinery: this includes tractors. You are responsible for knowing these standards and observing them in the area or situation in which they are used.

These include, but are not limited to, the instructions below to use the tractor safely.

### **WARNING:**

*The operator must not use alcohol or drugs that can change or alter his/her state of alertness and coordination. Operators taking prescription medications or monitored for drug use require medical authorisation stating whether or not they can use the tractor safely.*

Observe the following precautions:

- Never allow children, teenagers or unqualified personnel to use your tractor. Keep others away from your work area.
- When possible, avoid operating the tractor near ditches, excavations or holes. Reduce the speed when turning, going over slopes or passing over bumpy, slippery or muddy surfaces.
- Stay away from excessively steep slopes to ensure safety when operating.
- Look where you are going, especially at the end of the field, on the road and near trees.
- Do not allow anyone to get on the tractor or the implement.

- Only tow with the drawbar or using the points set up for this purpose and never beyond the centre line of the rear axle.
- Operate the tractor smoothly, without sudden turns, starts or stops. Always engage the parking brake when parking your tractor.
- Never modify or remove any parts of the equipment or use hitches that are not foreseen for your tractor.

## Safety belt

The safety belt must be used by the driver in all working conditions, whether in the field or on the road, except when working with the roll over protective structure folded down. The driver must not fasten the seat belt if the protected structure is folded.

The safety belt must be worn and adjusted tightly against the body and must not be twisted.

After an accident, check the driver's seat, the safety belts and the belt anchoring points. Before using the tractor, replace all damaged parts.



Fig. 2.1

### **WARNING:**

*The safety belt must be replaced if it has been heavily stressed by a tractor overturning or when it shows wear and tear, cuts or any visible signs of overload.*

### **NOTE:**

*Only replace with spare parts that are approved for the machine in question. If you have doubts, contact your dealer.*

## Protective structure

The roll over protective structure (ROPS) consists of a two-pillar folding front safety frame (A) and a rear safety frame (B).

**Always work with the folding front protective structure in the upright position.**

### ! WARNING:

*The tractor may be used for brief periods with the protective structure folded solely at low speeds and on even, flat terrain with no obstacles which could cause the tractor to overturn. Return the protective structure to the vertical position as soon as the tractor can be used normally.*

### ! WARNING:

*Before using the tractor, ensure that the protective structure is fastened correctly to the tractor and that the safety lock fasteners and pins are all installed correctly and in good condition.*

Do not attach chains, cables etc. to the protective structure for towing, as this may cause the tractor to overturn: only tow from the drawbar.

### ! WARNING:

*If the tractor overturns or the protective structure is damaged (e.g. due to an impact during transport or an accident), it must be replaced to ensure the original safety conditions.*

### NOTE:

*Only replace with spare parts that are approved for the machine in question. If you have doubts, contact your dealer.*

Do not weld, drill, bend or straighten the protective structure: this will weaken the structure and reduce the protection it offers.

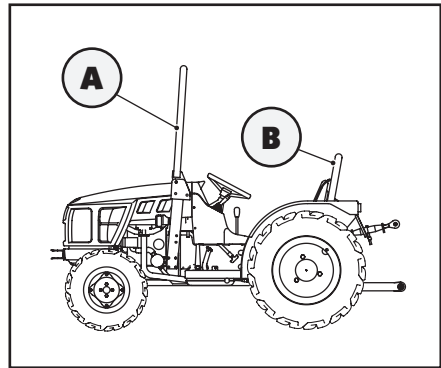


Fig. 2.2

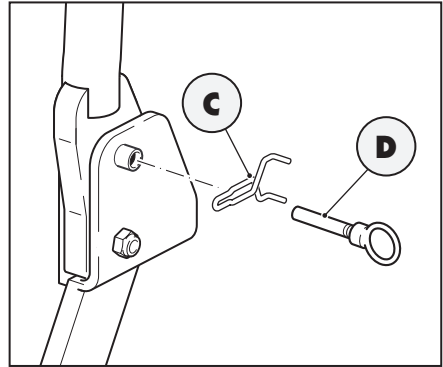
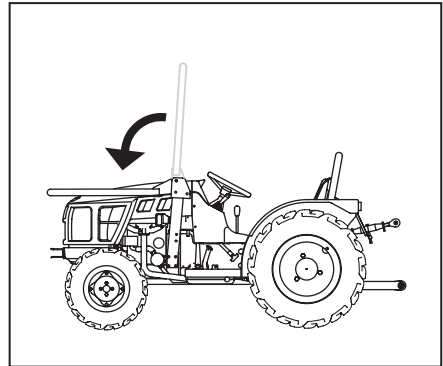
**! WARNING:**

*Never use the tractor if the protective structure is not correctly installed or has any signs of damage.*

**Folding down the protective structure**

Fold down the front protective structure as follows:

- remove the safety fasteners (C) and remove the lock pins (D);
- fold down the protective structure (Fig. 2.4);
- fit the lock pins and safety fasteners to secure the protective structure safely in position;

**Fig. 2.3****Fig. 2.4**

## Cab

contaminating particles off your shoes or boots.

### **WARNING:**

*The cab is type-approved as an anti-overturning protection device. Do not remove the cab for any reason, as the operator would be exposed to the risk of crushing in the event of overturning.*

**Do not use the machine, even if fitted with a cab, in environments with a risk of objects and/or materials falling from above, since it is not type-approved as a safety device for this type of risk.**

Never make holes in or modify the cab to install accessories or implements. Welding cab components or repairing damaged cab components is not allowed. Never hitch chains or ropes to the main cab frame to tow anything.

### **WARNING:**

*If the tractor overturns or the cab is damaged (i.e. due to an impact during transport or an accident), it must be replaced to ensure the original safety conditions.*

### **NOTE:**

*Only replace with spare parts that are approved for the machine in question. If you have doubts, contact your dealer.*

**Regarding the level of protection against hazardous substances, the cab meets "Category 1" requirements in compliance with EN 15695-1:2009 and therefore does not provide a specific level of protection.**

When operating in an environment where there are hazardous substances, before getting back into the cab, remove your protective clothing and keep it outside the cab in a closed container or inside the cab in something that is chemically resistant to pesticides, like a plastic bag. Before getting into the cab, wipe the soil or other



## Precautions for operating safely

Protect yourself.

Wear all the protective clothing and personal protective equipment made available to you and required for the work you need to carry out.

Do not take risks.

Personal Protective Equipment (PPE):

- Protective helmet.
- Protective goggles or mask.
- Protective earmuffs.
- Protective mask or filter to breathe.
- Suitable garments for poor weather conditions
- Reflective clothing.
- Heavy-duty work gloves (made of neoprene when using chemical products, made of leather for heavy-duty work).
- Accident prevention shoes or boots.

### **DANGER:**

*Do not wear loose clothing, jewellery or similar items and tie back long hair, which can get caught in the controls or other parts of the tractor.*

Locate the position of the extinguishers and the first aid kit or the emergency equipment and identify how to call for help quickly. Make sure you know how to use this equipment.

Learn about the characteristics of your tractor. Learn how to use all of the equipment on your vehicle and the implements and hitches used on it. Learn how to use each control, indicator and instrument and their functions. You must know the rated load capacity, the speed range, the brake and steering features, the turning radius and spaces associated with its use.

Always keep in mind that rain, snow, ice, gravel and loose soil can change how the



**Fig. 2.5**



**Fig. 2.6**

tractor needs to be driven. In difficult conditions, slow down and be more prudent and careful.

Examine the **DANGER**, **WARNING** and **CAUTION** signs on your tractor and all the information reported on them.

**Read this operator instruction manual before starting the engine.**

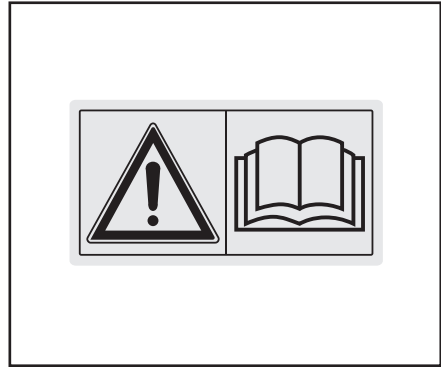
If you do not understand something in this manual, ask your retailer to explain it to you.

Always use all of the available protection and safety systems.

Keep all protective devices in place and safely secured. Make sure that all the guards, protective shields and safety signs are correctly installed as specified and are in good condition.

To ensure your safety and the safety of others, your tractor must be equipped with:

- Roll-over protective structure (ROPS frame or cab).
- Safety belts according to the legislation in force in the various markets.
- PTO protective shields.
- Rear-view mirrors.
- A fire extinguisher with features that comply with the legislative requirements in force in the various markets.
- Slow moving vehicle symbol (SMV). Additional guards, lights or decals and a back-up alarm.



**Fig. 2.7**

Learn which devices are necessary to operate safely and always use them. Make sure that they are in place and in good condition. Never remove them or disconnect them.

## Checking the equipment

Before starting your workday, check the tractor and make sure all the systems are working properly.

- Do not smoke while refuelling. Do not use open flames.
- Make sure there are no loose, broken, lost or damaged parts. Carry out proper repairs as necessary. Make sure all the safety devices are in place.
- Check that the protective structure and the seat belts have no signs of damage (replace the protective structure or seat belt if damaged).
- Make sure the implements and hitches are installed correctly and the tractor and the implements connected to the power take-off have the correct speed ratios (rpm).
- Make sure the tyres do not have cuts or bulges and that the pressure is correct. Change damaged or worn tyres. Make sure that the brake pedals and the parking brake work properly. If necessary, adjust them.
- Stop the engine and wait for it to cool down before refuelling.
- Check the level of oil in the engine and top it up, if necessary.
- Carry out all the maintenance and adjustment operations indicated in the corresponding chapter of this manual.
- Make sure the power take-off safety locking systems are connected.
- Make sure the guards on the power take-off and drive shafts are in place and work properly.
- Check the tractor's hydraulic systems and connected implements. Have any parts that are damaged or leaking repaired or replaced.
- Check the engine's cooling circuit and add coolant, if necessary.



Fig. 2.8

**! WARNING:**

*Fuel or hydraulic fluids under pressure can penetrate the skin and eyes and cause serious injury, blindness or death. Leaks of pressurised fluid may not be visible. Use a piece of cardboard or wood to find the leaks. Never use bare hands. Always wear goggles to protect your eyes. If, for any reason, fluid penetrates the skin, it must be surgically removed within a few hours by a doctor specialised in this kind of accident.*

Before pressurising a fuel injection system or a hydraulic system, make sure all the connections have been tightened and that the lines, pipes and hoses are not damaged. Before disconnecting the hydraulic or fuel pipes, make sure that the circuit is not pressurised.

Make sure all the hydraulic lines are installed correctly and are not tangled.

**! WARNING:**

*The cooling circuits are pressurised when the engine is hot. Before removing the radiator plug, stop the engine and let it cool down.*

## Cleaning the tractor

- Keep the work surfaces and the engine compartments clean.
- Before cleaning the machine, always lower the implement to the ground, put the gearbox levers in neutral, engage the parking brake, turn off the engine and take the start key out of the ignition.
- Clean the footboards, steps and pedals. Remove grease and oil. Eliminate dust and mud. Remove ice and snow.

**Remember that slippery surfaces are dangerous.**

- Do not use gasoline, paraffin, paint thinners, etc. to clean plastic parts like the console, instrument panel and indicators. To clean these parts, only use water, mild soap and a soft cloth. Using petrol, paraffin, paint thinners, etc. causes discoloration, cracks and warping of cleaned parts.
- Remove implements, keys, locks, etc. and put them back into place.
- If you use a pressure washer, do not get too close to the tractor and do not spray water directly onto the ignition panel, electrical components, electro-hydraulic controls, adhesives and cab air filters.
- To clean the upholstery inside the cab, if any, use water mixed with preferably mild soap. In any case, you can use any product available on the market to clean car interiors.


## Protecting the environment

- Polluting canals, waterways or the soil is illegal. Use authorised waste disposal facilities, including municipal zones and garages that have containers to dispose of used oil. If in doubt, contact local authorities for information.
- For information on how to dispose of oils, filters, tyres, etc. correctly, contact your local recycling centre or your dealer.

## Scrapping the tractor

- The tractor is made up of parts that are subject to disposal regulations and standards. As such, when the tractor is discarded and no longer used, it must be scrapped by authorised centres.
- Do not discard the tractor or its components into the environment.

## Tractor maintenance

- Do not service the tractor while the engine is running or hot or when the tractor is moving.
- Before adjusting or servicing the electrical system, disconnect the battery cables, always starting from the negative one .
- To prevent fires or explosions, do not use open flames near the battery or the cold start devices. To avoid creating sparks and possible consequent explosions, use jumper cables in accordance with the instructions.
- When making repairs or adjustments, we recommend contacting your dealer and have the work done by specialised personnel.
- Periodically check the tightness on all the nuts and bolts, particularly the nuts on the wheel hubs, discs or rims. Tighten to the specified tightening torques.
- Regularly check oil levels and, if necessary, top-up with approved oil.
- Regularly check the brakes and, if necessary, top-up the tank and/or adjust them. Make sure the brakes are adjusted correctly, especially when towing trailers.

## Getting on and off the tractor

When getting on the tractor, make sure you are facing it and use three points of contact. (three points of contact means both hands and one foot or one hand and both feet in contact with the tractor at all times when getting on or off it).

Clean your shoes and dry your hands before getting on. Use the support points, handles, steps or rungs (if any) when getting on and off.

Never use the control levers as handles and never place your feet on the control pedals when getting on and off.

Never attempt to get on or off of the tractor while it is moving. Never jump down from the tractor at any time.

### **WARNING:**

*Before getting off the tractor, engage the parking brake. Leaving the gear engaged, even with the engine stopped, does not stop the tractor from moving.*

## Start-up

Before starting the engine, walk around the tractor and the attached implements. Make sure that no one is under, above or near them. Inform other workers or people present that the tractor will be started and do not start it until they have moved to a safe distance from the tractor, implement or trailer.

**Make sure that all those present especially children, are in a safe position before starting the engine.**

### DANGER:

*Before starting the engine, make sure there is sufficient ventilation. Never start the engine in closed spaces. The exhaust fumes can cause asphyxiation (Fig. 2.9).*

Always start the engine from the driver's seat with all the gear levers and the power take-off lever in neutral.

Make sure that the brakes are correctly adjusted and engage simultaneously.

Adjust the seat, fasten the seat belts (where applicable, according to the standards in force in your country) and put all of the controls in neutral before starting the tractor.

### WARNING:

*Before starting, always make sure that there are no people or obstacles in the tractor's range of action (Fig. 2.10).*

Carry out the starting procedures described in Chapter 5 "Operating instructions" in this instruction manual; these include normal start-up and start-up in cold climates.

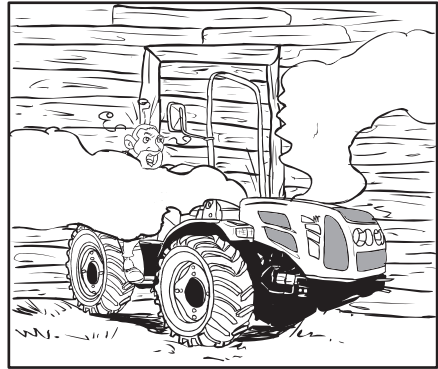


Fig. 2.9

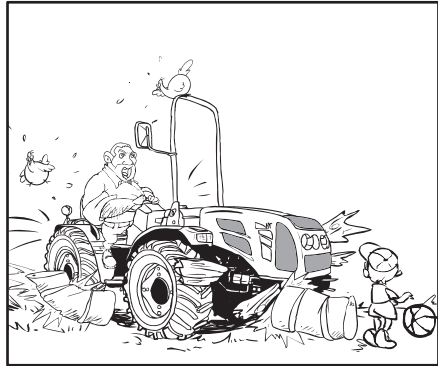


Fig. 2.10



 **DANGER:**

*Start the engine using the start key from the driver's seat only. Never attempt to start the engine by bridging the starter terminals. If the normal electrical circuit is excluded, the tractor might start with an engaged gear. This could cause serious injury or death to people that are near the tractor.*

After start-up, check all of the instruments and lights. Make sure that they are all in good working order. If the tractor does not respond correctly to the controls, do not use the vehicle until the fault has been resolved.

## Working safely

**!** **WARNING:**

*An unbalanced tractor could tip over and cause serious injury or death. The weight of the wheels and the ballasts must be used according to the manufacturer's recommendations. Never add additional weight to compensate for overloading; it is better to reduce the load instead.*

**!** **WARNING:**

*When using the tractor, always stay inside the operator compartment without extending any part of your body outside it.*

## Performing the right manoeuvres

Make sure that the tractor is ready for the type of work that must be carried out. Learn the rated load capacities and never exceed them. Make sure that every implement or piece of equipment you need to use does not exceed the load capacity of your tractor. Check the power take-off/ implement shaft coupling.

Bear in mind that the tractor normally operates on bumpy, unpaved, often uneven or sloping surfaces. The operating conditions might reduce the maximum load permitted for transport or towing.

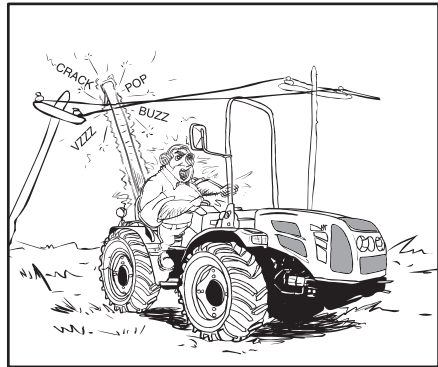
## Operating safely

- Operate the controls without sudden movements. Do not make sudden turns or abruptly move other controls.
- Do not get on or off the tractor while it is moving. Hold the steering wheel firmly at all times with your fingers away from the spokes of the steering wheel itself when driving.
- Ensure that this is sufficient space in all directions around the tractor, cab, protective structure and implement to move safely.
- Do not use the tractor or the implements carelessly and do not play with them while working.
- Never use the controls unless you are sitting in the driver's seat.
- Before getting off the tractor, always disengage the power take-off, lower the hitches and implements to the ground, put the gear in neutral, engage the parking brake, turn off the engine and take the start key out of the ignition.
- Do not touch, lean on or try to reach other components using the mechanisms on the implements or allow someone else to do so.
- Be very careful. If something breaks, becomes loose or is not functioning, stop working, turn off the engine, check the vehicle and repair or make adjustments before starting to work again.
- Before starting the tractor, make sure you are safely in control of the speed and direction controls.
- Before starting work, inspect the area where you have to work to determine the best and safest operating procedure. Plan work so that the tractor can be driven straight and forward, where possible. Pay attention to ditches,

holes, front or side depressions, slopes, trunks or stumps, standing water, etc. Check any condition that could be a source of danger. If you are using a front lift or foldable implements or raised components, make sure there is nothing preventing them from passing.

### ⚠ WARNING:

*Contact with high-voltage lines can cause death. In the event of contact with voltage conductors, do not get off of the tractor, but rather move the tractor and/or the lift to eliminate contact and reach a safe distance (Fig. 2.11).*



**Fig. 2.11**

## Being aware of others

- Be aware of the manoeuvres you are about to make. Never let unqualified or insufficiently trained people operate your tractor. They can be a risk to themselves and to others.

### ! WARNING:

*Your tractor is designed to be used by one person only. Do not allow others to get on the tractor or the implements (Fig. 2.12). Do not allow anyone to climb onto the implements or other equipment, including trailers, except on certain harvesting implements where it is specifically envisaged, but only during actual harvesting (not during transport). This equipment must have indications that define the area where you can safely climb onto it. Do not allow children to get on the tractor.*

### ! WARNING:

*Make sure that the speed and direction is safely under control before moving the tractor. Move slowly until you are sure that everything is working normally. After starting, check the steering again to the right and to the left. Make sure that the steering and the braking system work. If the differential lock is engaged, do not operate at high speeds or change direction until it is disengaged.*

### ! WARNING:

*Never lift a load over a person.*

- Keep others away from the manoeuvring area. Do not allow anyone to stand or walk under a lifted implement.
- Do not lift objects that are not perfectly positioned in the bucket and use the appropriate hitch. Never carry anyone

on the roll over protective structure or mudguards.

- Never stand or allow anyone else to stand in front of, under or behind loading equipment or under a load. Never drive the tractor towards someone who is near a wall or a fixed object.
- Keep others away from the universal joints, drawbars or lifting bars, power take-off drive shafts, cylinders, transmission belts, pulleys or other moving parts. Keep the protective shields assembled in place.

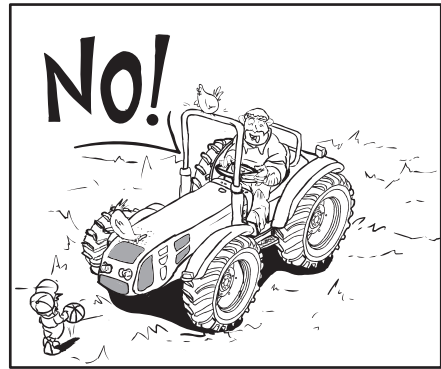


Fig. 2.12

## Risk of overturning

Should the tractor overturn, hold on tightly to the steering wheel and do not attempt to leave the seat until the tractor has come to a stop. If the cab doors cannot be opened, escape from the tractor via the hinged windscreen (Fig. 2.13).



Fig. 2.13

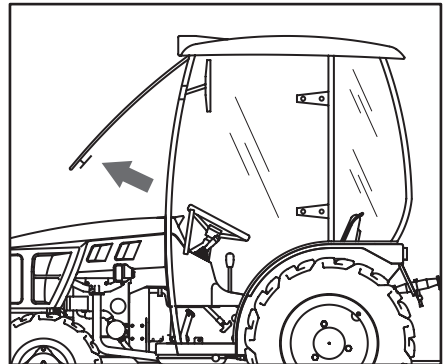


Fig. 2.13

## How to prevent lateral overturning

Carefully read the following instructions and bear in mind that they may not foresee certain situations and, therefore, be incomplete.

- Adjust the track to the widest suitable setting for the job in hand.
- Couple the brake pedals together before driving on roads at transport speed.
- Reduce speed according to the conditions of use. If the tractor is equipped with a front loader, keep the bucket and the load as low as possible.
- Make wide turns at low speed.
- Do not let the tractor bounce on uneven ground. You could lose control of the vehicle.
- Do not tow loads that are too heavy for your tractor. You could lose control of it on a steep hill or the tractor could rear up and roll onto the towed load.
- Do not brake suddenly. Always brake gently and gradually.
- When going downhill, use the engine brake and the same gear as you would to go uphill. Insert the appropriate gear before starting to go downhill.

**! WARNING:**

*Never disengage the clutch or attempt to change gears after starting to go downhill.*

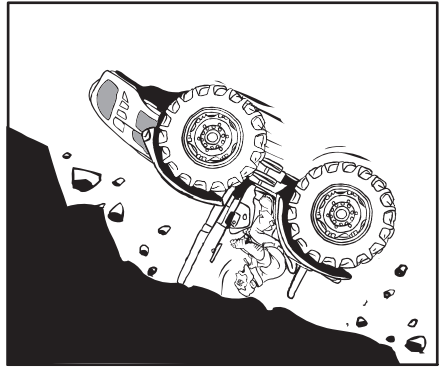
- It is always best to drive vertically, both going uphill and downhill, rather than longitudinally.
- Do not overload front implements or trailers. Use suitable counterweights to maintain tractor stability (Fig. 2.14).
- When towing a load at transport speed, lock the drawbar in the central position and use a safety chain.

- Never use the tractor to round up animals or herds.



**Fig. 2.14**

- If operating near ditches or banks, keep the tractor behind the fracture line. Avoid ditches, embankments, banks and edges of rivers that could collapse (Fig. 2.15).
- If you must cross a steep slope, avoid steering toward the incline; slow down and make a wide turn. Always go directly uphill or downhill and never longitudinally. When going up or down a slope, keep the heavy part of the tractor and the implement facing uphill.
- If you cross a hill with side implements mounted, keep them on the uphill side. Do not raise the implements. Keep them as low as possible and near the ground when driving along a slope.
- If possible, avoid going uphill or over steep slopes. If you must do so, avoid potholes or depressions on the downhill side. Avoid protrusions, trunks, rocks or raised areas on the uphill side.

**Fig. 2.15**

## How to prevent backward overturning

Carefully read the following instructions and bear in mind that they may not foresee certain situations and, therefore, be incomplete.

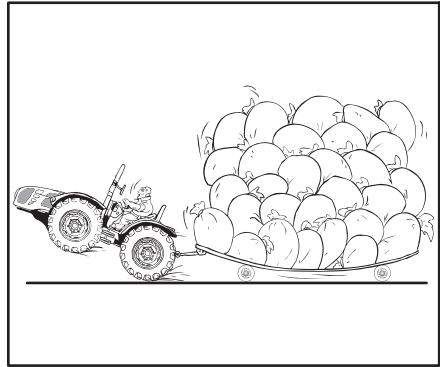
**! WARNING:**

*Towing from the rear axle or any other point above the drawbar can cause the tractor to overturn backwards.*

- Do not tow anything from the three-point hitch or from any other point above the longitudinal axis of the rear axle. Always use an approved drawbar exclusively with the locking pin installed in the correct position.
- High tow hitching points can cause the tractor to overturn backwards and cause serious injuries or death. Tow loads from the drawbar only.
- When using the three-point hitch for towing, the top links must be installed and kept in the lowered position.
- Use front ballasts to increase tractor stability when towing a heavy load or to counterbalance a heavy implement mounted at the rear.
- Do not overload or load beyond your tractor's load capacity. Never add ballasts to compensate for overloading. Reduce the load (Fig. 2.16).

**! WARNING:**

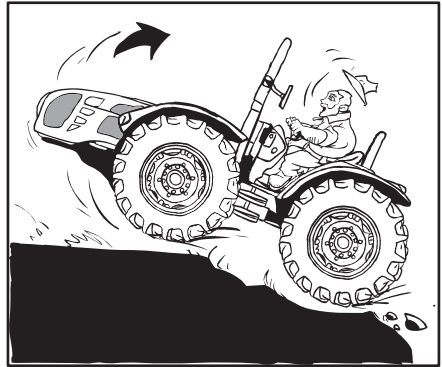
*Overloading is always dangerous. Check your tractor's load capacity and never exceed it.*



**Fig. 2.16**



- Start slowly and gradually increase speed. Do not increase the engine rpm or press the clutch. If the tractor is coupled to a heavy load or a fixed object, using the clutch improperly could lead to overturning.
- If the front part of the tractor begins to rear up, promptly disengage the clutch.
- If the tractor is mired in mud or stuck in the ground, do not attempt to get out by driving forward. The tractor may pivot around the rear wheels and overturn backwards (Fig. 2.17). Lift or remove the mounted implements and try to reverse. If this is not possible, tow the tractor out with another vehicle.
- If you are stuck in a ditch, try to reverse, if possible. If you must go forward, do so slowly and carefully.
- A tractor with or without an implement coupled to the rear must move in reverse when going uphill and move forward when going down a slope.
- A tractor with a front load must move in reverse when going downhill and move forward when going uphill. Keep the loader bucket as low as possible.
- Always keep the tractor in gear when going downhill. Never let the tractor go downhill with the clutch disengaged or the transmission in neutral.

**Fig. 2.17**

## At-risk operations

- Make sure that the power take-off (1) guard is in position and that the shaft cap (2) is on when the power take-off is not used.
- Before connecting, disconnecting, cleaning or adjusting implements towed by the power take-off, disengage the power take-off, stop the engine, take the start key out of the ignition and make sure the power take-off shaft is locked.
- Make sure that all the power take-off shaft safety guards are installed and follow the instructions on the safety decals.
- Make sure there is no one near the tractor before engaging the power take-off. When the tractor is used in a stationary position, always put the gearbox in neutral, engage the parking brake and block the wheels of the tractor and the implement with wooden wedges or stumps.
- When working with implements connected to the power take-off, never leave the driver's seat until the power take-off is disengaged, the transmission is in neutral, the parking brake is engaged, the engine is off and the start key has been taken out of the ignition.
- Do not use adaptors, reduction gears or extensions that can extend the power take-off coupling shaft or the universal joint beyond the protection offered by the power take-off's protective shield.
- The three-point top link and the three-point hitch vertical tie rods must not be extended beyond the point where you can begin to see the threading.

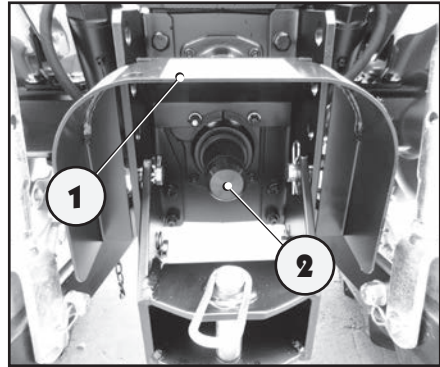


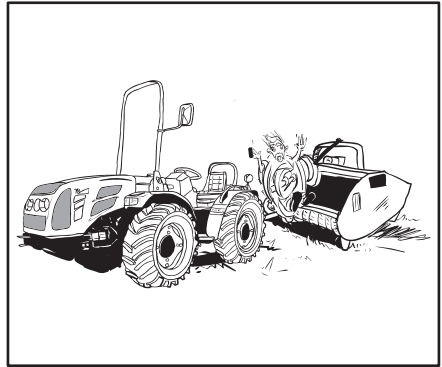
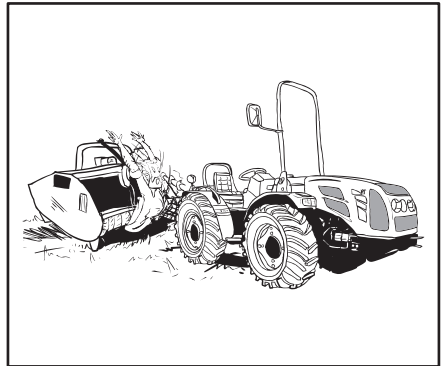
Fig. 2.18

ù

**! WARNING:**

*Never attempt to unscrew the hydraulic connections or adjust an implement when the engine is running or the power take-off shaft is in operation. This creates a dangerous situation with the risk of serious injury or death (Fig. 2.19-2.20).*

- When using chemicals, carefully follow the use, storage and disposal instructions. Moreover, follow the instructions of the manufacturers of the equipment to apply the chemicals.
- When working with poor visibility or in the dark, turn on the work lights and reduce speed.
- Use the widest possible track settings for the job in hand. See the specific paragraph in Chapter 5 "Operating instructions" for adjusting track width.
- Reduce speed when working on uneven ground or slippery surfaces or when tree leaves or foliage reduce visibility.
- Do not make sharp turns at high speeds.

**Fig. 2.19****Fig. 2.20**

## Implements and hitches

- Implements installed on the three-point hitch or laterally have a wider turning radius than implements towed by the drawbar. Make sure that there is enough space to turn.
- When using implements or equipment with the tractor, carefully read the part of the operator instruction manual on these implements and equipment and observe the recommended safety rules.
- Only tow from the drawbar. Towing or coupling from other points can cause the tractor to overturn (Fig. 2.21).
- Improper use of the drawbar, even if positioned correctly, can cause longitudinal backward overturning.
- Do not overload a towed hitch or device. Mount ballasts to balance the weight and ensure tractor stability. Attach heavy loads to the drawbar only.
- Use the ballasts as recommended. Never add additional ballasts to compensate for a load that is heavier than permitted. Reduce the load.
- A safety chain will control the towed implement if it accidentally becomes separated from the drawbar while being transported. Using suitable adaptors, hitch the chain to the support on the tractor drawbar or to other specified anchoring points. Leave the chain fairly free to allow for turning. Ask your dealer for a chain that has a capacity equal to or greater than the gross weight of the towed machine.
- Implements must be hitched and unhitched when the tractor is on flat ground with no risks.
- Do not hitch implements if they are not suited to the features of the tractor (power, weight, etc.).
- Carry out the connection to the drive shaft properly and make sure that the safety devices are perfectly efficient.
- Connect the drive shaft first to the implement PTO, then to the tractor PTO. Properly couple the safety chains to prevent the drive shaft guards from turning.
- Make sure the drive shaft is the right length.
- Never activate the power take-off if the drive shaft connecting the implements is not installed properly.
- Do not activate the power take-off while manoeuvring, driving on roads or when the implement is not in the work position.
- Do not unhitch the implement unless it is resting on the ground and the tractor has been stopped in safe conditions.
- Never use the front hitch to tow any implements.
- Hitch and tow implements that are preferably equipped with independent braking systems. Towed implements without independent braking systems can only be hitched if the weight (when empty and fully loaded) is within the permitted values.

- Do not electrically or hydraulically connect the implements or insert any retaining devices (pins, split pins, etc.) unless the tractor is stopped in safe conditions.
- Always lower the implement to the ground before getting off the tractor.

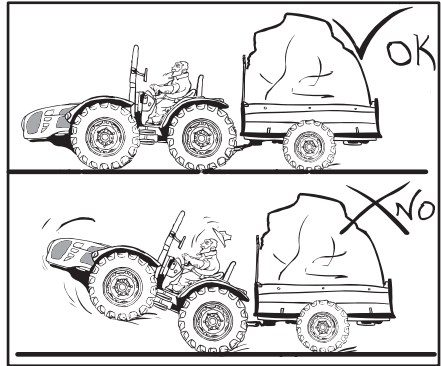


Fig. 2.21

## Driving on the road

Before driving the tractor on public roads, you must take suitable precautions.

- Observe local and national rules of the Highway Code that apply to your tractor.
- Couple both brake pedals.
- Lift the implements into the transport position and lock them in place.
- Put the implements in the tightest transport configuration.
- Disengage the power take-off and the differential lock.
- Make sure the tractor and any other implements have slow moving vehicle symbols or a rotating light if required by law (Fig. 2.22).
- If the mounted implements protrude from the sides of the tractor, the overall width must be marked with yellow and red striped panels positioned on the side ends. Make sure the rotating light is installed and works properly.
- Make sure you use an appropriate safety pin with a suitable safety restraint.
- Thoroughly clean all of the front and rear headlights and road lights make sure they work properly.
- When turning, implements mounted on the three-point hitch and mounted implements that protrude from the side have a wider turning radius than towed implements. Always ensure you have enough space when turning to do so safely.

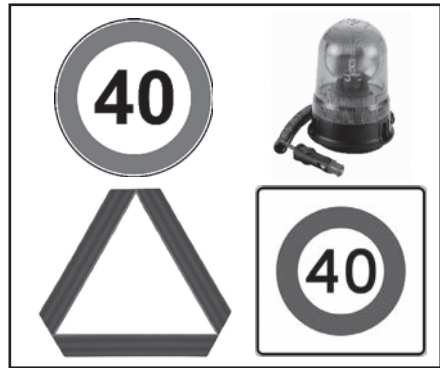


Fig. 2.22

## Rules of the Highway Code

Take suitable precautions when driving the tractor on public roads.

### ! WARNING:

*Do not allow other passengers to climb onto the tractor or the towed implement.*

- Make sure you are familiar with the road you need to take.
- Use the hazard lights or the rotating light both day and night on the road, unless it is prohibited by law.
- Use caution when towing loads at transport speed, especially if the towed implement is not equipped with brakes.
- Follow local and national rules regarding the speed limits for your tractor.
- Be very cautious when driving on snowy surfaces or slippery roads.
- Wait for the road to be clear before pulling out.
- Be very careful at blind intersections. Slow down until you have safe visibility.
- Do not attempt to pass at intersections.
- Always signal your intention to slow down, stop or turn.
- Engage a low gear before starting downhill or uphill (Fig. 2.23).
- Keep the gear engaged. Never drive downhill with the clutch disengaged or the gear in neutral (Fig. 2.24).
- Do not obstruct approaching traffic.
- Drive in the correct lane, staying near the side of the road as much as possible.
- If traffic builds up behind you, pull over and let it pass.
- Drive carefully. Anticipate the manoeuvres that others could make.

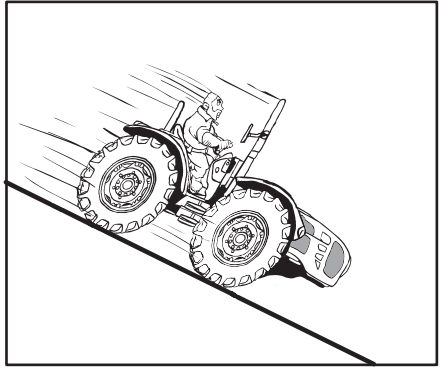


Fig. 2.23

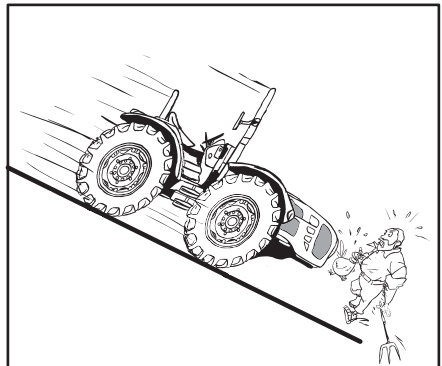


Fig. 2.24

## Safety after use

Whenever you stop, bring the tractor safely to a stop in a suitable location (do not park the tractor on a downhill gradient), engage the parking brake, disengage the power take-off, put all the gear levers in neutral, lower the implement completely to the ground, turn off the engine and remove the key from the ignition switch before leaving the driver's seat.

**⚠ WARNING:**

*Never leave the tractor unattended with the engine still running.*

## Personal protective equipment against noise

Personal protective equipment lessens the intensity of sound transmitted to ears through the air.

They should be used when harmful exposure cannot be avoided in other ways.

There are various types with different attenuation capacities: helmets, earmuffs, earplugs (Fig. 2.25).

Helmets and earmuffs offer the highest attenuation but are bulky and bothersome and, therefore, are useful for exposure to high noise levels only for short periods of time (max. 2 hours).

Earplugs are generally more tolerated and are especially useful in the event of long exposure to less intense noise.

If the daily noise exposure level is equal to or greater than 85 dBA, suitable personal protective equipment for hearing must be used.



**Fig. 2.25**



## Safety decals

Safety decals are applied in a number of important locations on this tractor to indicate potential hazards. The safety decals must never be removed from their original positions on the tractor. If, due to maintenance or wear, the safety decals must be removed or become illegible, they must be replaced with new decals ordered from your dealer

### General hazard

Use **caution:** read the use and maintenance manual of the tractor and engine for information on safety and using the tractor.

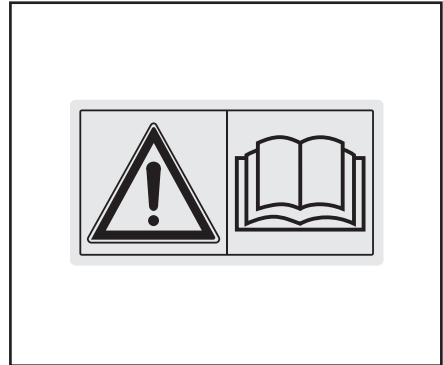


Fig. 2.26

### Burn hazard

Use **caution:** burn hazard. Keep away from hot surfaces (engine, exhaust manifold).



Fig. 2.27

### Crushing hazard

Use **caution**: always keep the seat belt correctly fastened and the protective structure in the upright position.



Fig. 2.28

### Overturn hazard

Use **caution**: always ensure that the protective structure is locked correctly in the upright position.

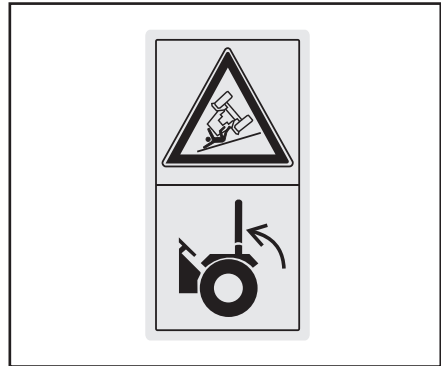


Fig. 2.29

### Crushing hazard

Use **caution**: crushing hazard for the fingers and hands. Work with extreme caution.



Fig. 2.30

## Impact and crushing hazard

Use **caution**: always stand to one side of the tractor when using the external lift controls. Do not stand between the tractor and the implement. Only connect and disconnect implements on level ground after ensuring that the tractor is braked.



Fig. 2.31

## Danger: moving power take-off

Use **caution**: stop the tractor engine and remove the key from the ignition switch before performing any work on the machine. Keep away from the power take-off shaft when it is moving.

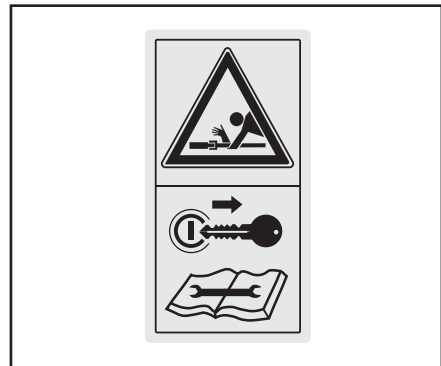


Fig. 2.32

## Entanglement hazard

Use **caution**: keep away from rotating shafts. Take all precautions to prevent becoming entangled with the power take-off drive shaft. Keep all protective guards fitted correctly on drive shafts, on the tractor and on implements.

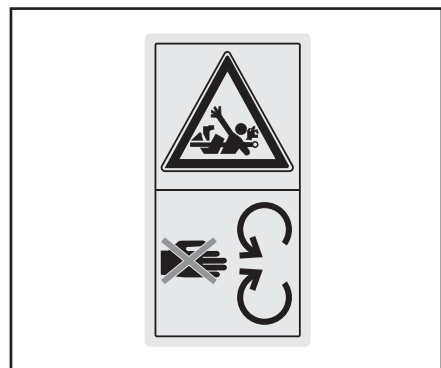


Fig. 2.33

### Danger: moving mechanical parts

Use **caution**: stop the engine and all moving mechanical parts.

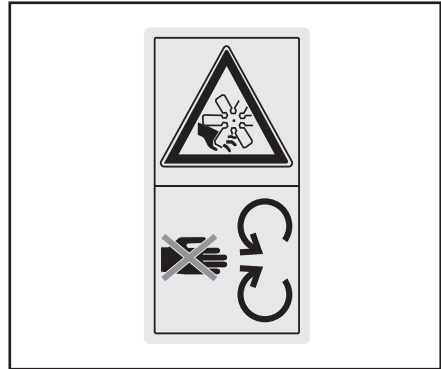


Fig. 2.34

### Danger: pressurised cooling circuit

Use **caution**: stop the engine. Wait for the circuit to cool before removing the radiator cap.

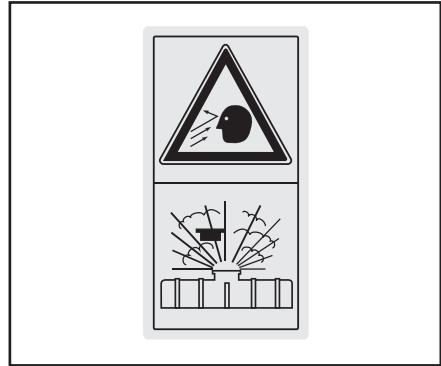


Fig. 2.35

### Moving vehicle hazard

Use **caution**: never attempt to start the engine by bridging the starter terminals. This may cause a potentially fatal accident. Only start the engine from the driver's seat.

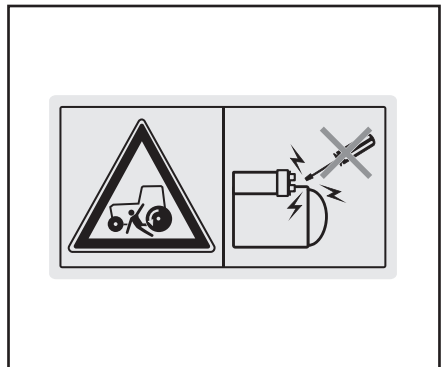


Fig. 2.36

## Burn hazard

Use **caution**: Wear protective gloves before accessing the battery.



Fig. 2.37

## Electric shock hazard

Use **caution**: always isolate the battery before performing any maintenance on the electrical system.

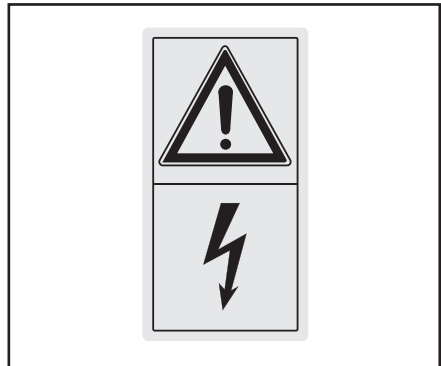


Fig. 2.38

### Position of the safety decals

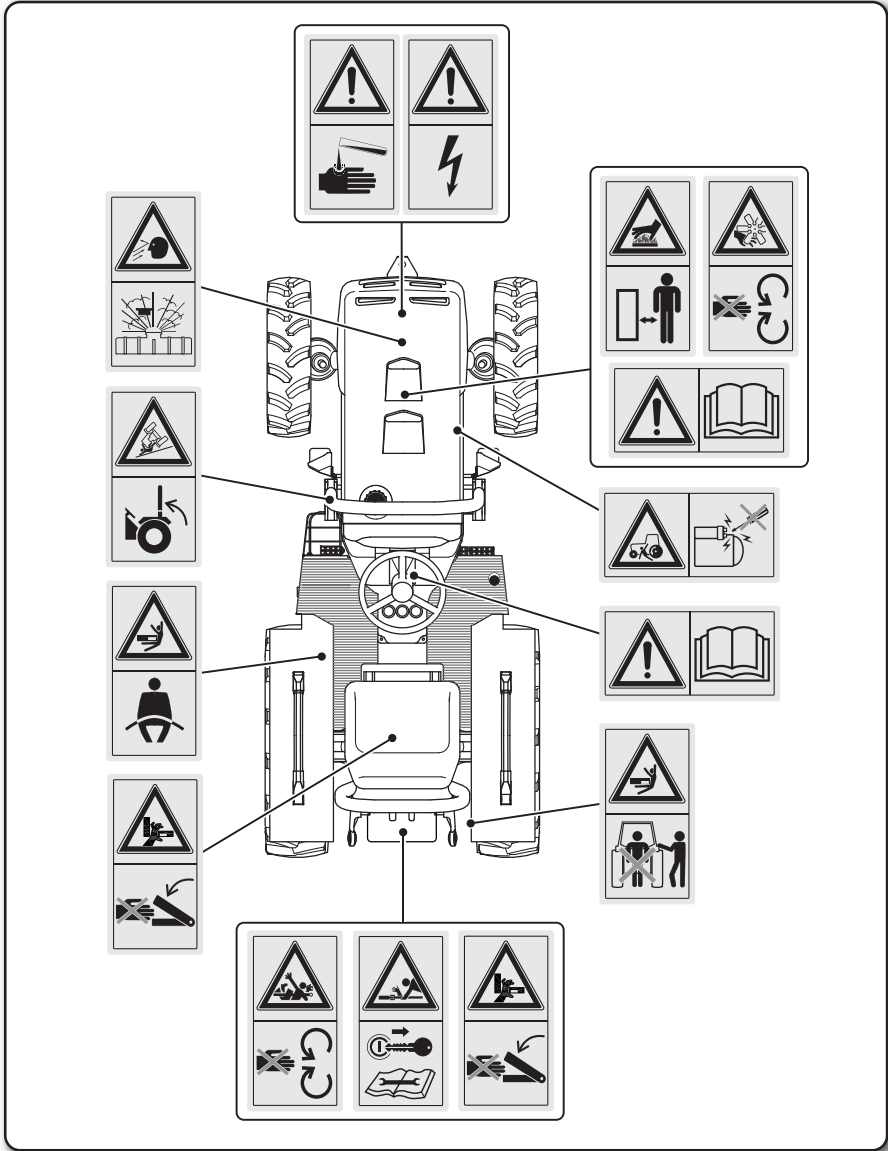


Fig. 2.39

## Using the loaders

There are no fastening points to install a front loader on the tractor body. Therefore, installing said implements is prohibited. The tractor has no programmable functions with hydraulic sequential control.

## Forestry use

The tractor is not equipped with fastening points to apply protective structures (FOPS) and has no optional equipment; as such, it cannot be used for forestry purposes.

## Using the sprayers

**The cab meets "Category 1" requirements in compliance with EN 15695-1:2009 and therefore does not provide a specific level of protection against hazardous substances.**

Always remember that exposure to phytosanitary products can cause acute, chronic intoxication and allergic reactions regardless of the hazard class of the substance (highly toxic, toxic, etc). Activities that expose farmers to pesticides vary from preparing mixtures, distribution, decontaminating the vehicles and equipment used, to agronomic activities in treated plots of land. All workers should be aware of the risks to which they are exposed.

**Always wear suitable personal protective equipment (rubber gloves, anti-slip rubber boots, dual filter breathing mask, overalls, eyewear etc.).**

### NOTE:

*Treatment residues are classified as "special hazardous waste". As such, they must be given to specialised companies to be processed in suitable hazardous waste treatment plants.*

### WARNING:

*To spray safely, follow the instructions on the label of the dangerous substance and the instructions of the sprayer mounted on the vehicle or towed.*

- Do not wear everyday clothing during the treatments.
- After the treatment, take off and thoroughly wash the bonnet, overalls, goggles, etc. with soap and water to remove any contamination. Take special care especially when cleaning the mask and filter.
- In the event of poisoning, go to the A&E or to a doctor immediately and bring the product label or data sheet.
- Wash the tractor thoroughly after the treatment. Do not clean the tractor near bodies of water. If the tractor cannot be washed in the field, convey the water used for washing into special collection tanks.



# Chapter 3: Technical data and specifications

## Weights and dimensions

### 300 DT tractor with protective structure

#### Weights

Running order weight:	1025 Kg
The tractor's overall weight is distributed on the axes as follows:	30% on the front axle 70% on the rear axle

#### Dimensions

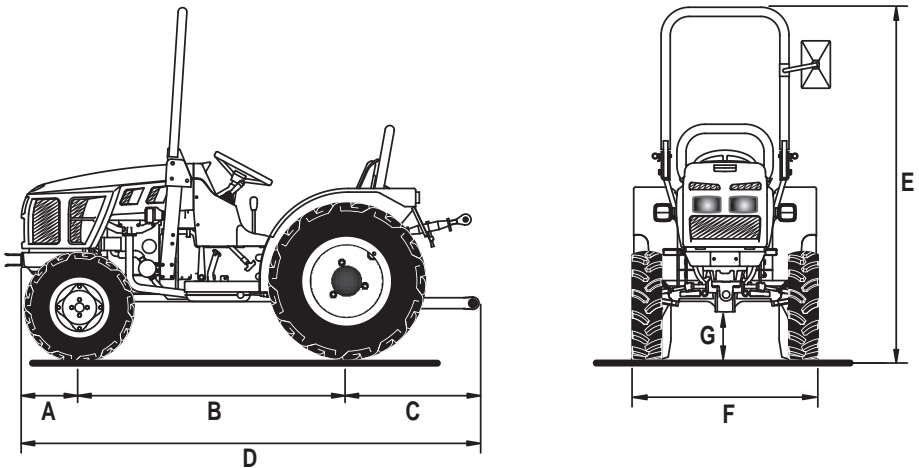


Fig. 3.1

	A	B	C	D	E	F	G
					max	max	min - max
mm.	316	1,470	730	2,516	2,025	1,348	206 - 246

## 300 DT tractor with cab

### Weights

Running order weight:	1195 Kg
The tractor's overall weight is distributed on the axes as follows:	32% on the front axle 68% on the rear axle

### Dimensions

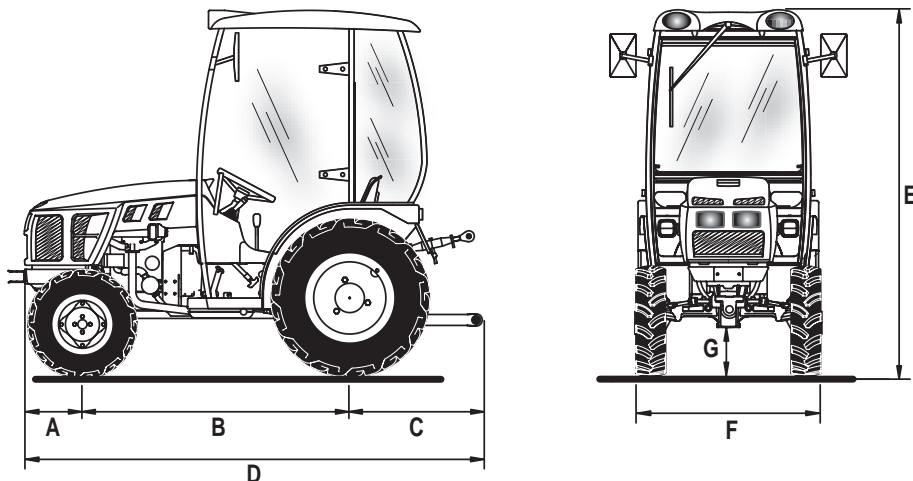


Fig. 3.2

	A	B	C	D	E	F	G
					max	max	min - max
mm.	316	1,470	730	2,516	1,940	1,348	206 - 246

## 400 DT tractor with protective structure

### Weights

Running order weight:	1,035 Kg
The tractor's overall weight is distributed on the axes as follows:	32% on the front axle 68% on the rear axle

### Dimensions

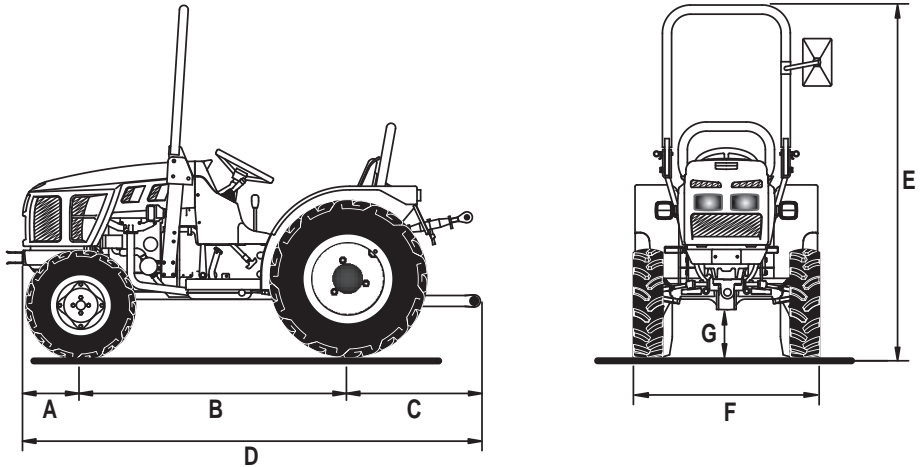


Fig. 3.3

	A	B	C	D	E	F	G
					max	max	min - max
mm.	316	1,553	730	2,599	2,025	1,348	206 - 246

## 400 DT tractor with cab

### Weights

Running order weight:	1,220 Kg
The tractor's overall weight is distributed on the axes as follows:	33% on the front axle 67% on the rear axle

### Dimensions

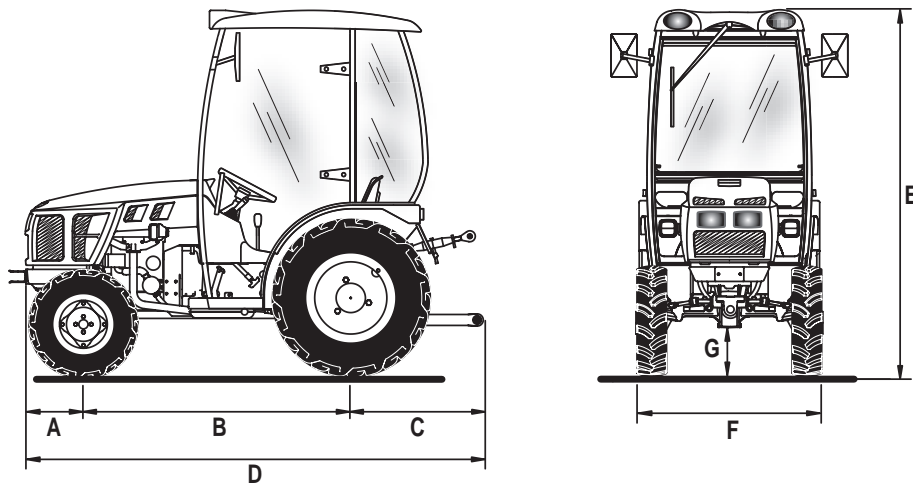


Fig. 3.4

	A	B	C	D	E	F	G
					max	max	min - max
mm.	316	1,553	730	2,599	1,940	1,348	206 - 246

## Engine

	300 DT	400 DT
Manufacturer	Kohler Lombardini	Kohler Lombardini
Type	LDW 1003	LDW 1404
No. of cylinders	3	4
Displacement (cc)	1,028	1,372
Intake	Natural	Natural
Emissions level	compliant with EEC directives: 2000/25 - 97/68 - 2005/13	
Power (kW/HP)	19.2/26.1	25.3/34.4
Rated speed (rpm)	3,400	3,400
Maximum torque (Nm/rpm)	60/2,200	83/2,200
Cooling	Liquid	Liquid
Fuel	Diesel	Diesel
Specific fuel consumption (gr/kWh)	--	--
Tank capacity (litres)	26	26

### Noise level emitted into the atmosphere (directive 2009/63/EC)

	300 DT	400 DT
Noise level with machine stationary dB (A)	80	79
Noise level with machine running dB (A)	77	77

### Driver-perceived noise levels (Directive 2009/76/EC)

	300 DT	400 DT
Noise levels with roll over protective structure dB (A)	86	86
Noise levels with cab dB (A)	86	86

### Vibration level in the driver's seat (78/764/EEC)

	Mass 60 Kg	Mass 100 Kg
GT60 - M91	1.13 m/s <sup>2</sup>	0.75 m/s <sup>2</sup>
XH2 - P1	1.17 m/s <sup>2</sup>	0.93 m/s <sup>2</sup>

## Transmission

24 speed synchronised gearbox: 12 forward speeds and 12 reverse speeds with synchronised reverse shuttle.

## Clutch

Mechanically controlled two disc dry clutch. Clutch pedal with engine start interlock microswitch.

## Front axle

Steering portal axle with bevel drive gear set and lateral drop boxes.

## Rear axle

Helicoidal and differential conical torque with electro-hydraulic locking device.

Epicyclic final drive reduction gears on wheels.

## Traction

Four wheel drive with driver selectable front wheel drive.

## Differential lock

Mechanically controlled rear differential lock.

## Service brakes

Mechanically operated wet multi-disc brakes

They are activated by two pedals both for forward and reverse operation.

### **WARNING:**

*Always connect the pedals using the designated latch when driving on the road or towing trailers.*

## Parking brake

Operates service brakes.

### **WARNING:**

*Always engage the parking brake before switching off the engine.*

## Rear power take-off

### Independent PTO for implements or machinery.

The independent PTO is mechanically engaged. The output shaft rotates to the right.

Configuration available:

- 540 rpm.

### Ground speed PTO for trailers.

Below are the values corresponding to the PTO shaft rotations for each rear wheel revolution:

- 8.686 (540 rpm.)

The output shaft rotates to the left when driving forward.

## Rear hydraulic lift

The hydraulic rear lift is available in two configurations:

- lift/lower operation;
- position control, draft control and combined position and draft control operation.

Lift capacity is 700 Kg at the lift arm ball joints.

## Implement hitch

Top link arms with normal category 1 hitches.

Manually adjustable top link tie-rods.

## Tow hitches

Depending on the type-approvals and regulations in individual countries, the following types of rear hitches are available:

- CUNA tow hitch;
- EEC tow hitch;

Front tow hitches available as an option.

## Hydraulic circuit

The circuit is equipped with a hydraulic gear pump with a delivery rate of 21.7 l/min.

## Hydraulic directional control valves

Standard configuration:

- 1 double acting distributor

Optional:

- 1 single-acting distributor and 1 double-acting distributor with float function;
- 2 double-acting distributors;
- 1 single-acting distributor and 1 double-acting distributor (with draft control function);

### NOTE:

*To ensure the hydraulic implements can be manoeuvred properly, we recommend using check valves on the hydraulic drives connected to the double-acting hydraulic valves.*

## Steering

With hydraulic steering system on front wheels.

Turning radius 2,700 mm.

## Seat

Padded, suspended seat with adjustable spring action and position.

## Cab

Homologated, soundproofed cab. Closed roof with external air intake, ventilation and heating system and hinged, openable windscreen and rear window.



## Electrical system

Voltage 12 V

### Battery

Type: "Maintenance Free"

Voltage: 12 V

Capacity: 45 Ah

### Alternator

Type: 30 A

Voltage: 14 V

Power: 420W with automatic built-in voltage regulator

### Starter

Voltage: 12 V

Continuous power: 1.6 kW

### Rear auxiliary power outlet

7 pins

## Tyres

Tyres Front	Type	Diameter	Theoretical radius (RT)
		mm	mm
6.5/80-12	4PR	604	302
	6PR		
7.00-12	4PR	685	342.5
	6PR		
23x8.50-12	4PR	577	288.5
25x8.50-14	4PR	645	322.5

Tyres Rear	Type	Diameter	Theoretical radius (RT)
		mm	mm
250/80-18	8PR	879	439.5
280/70 R18	114 A8	849	424.5
7.50-18	8PR	860	430
300/70 R20	110 A8	942	471
9.5 R20	105 A8	937	468.5
33x12.50-15	4PR	843	421.5

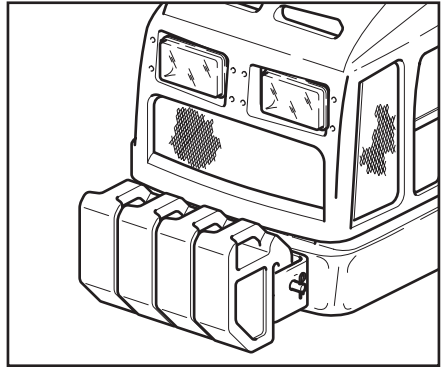
## Combinations

Tyres	
Front	Rear
6.5/80-12	250/80-18
	280/70 R18
	320/65 R18
	7.50-18
	11.5/80/15.3
7.00-12	300/70 R20
	9.5 R20
23x8.50-12	33x12.50-15
25x8.50-14	36x13.50-15 Garden

## Front ballast weights

If very heavy implements that can jeopardise the tractor's longitudinal stability are mounted on the lift, this requires front ballasting using specific cast iron plates.

Up to four plates weighing 15 Kg each may be mounted on the tractor.



**Fig. 3.5**

## Supply table

The engine cooling circuit consists of a mixture of specific antifreeze liquid and distilled water in varying proportions.

The proportion recommended by the manufacturer is 40% antifreeze liquid and 60% distilled water. Based on the temperature at which the machine is used, it is recommended to vary this proportion as specified in the following table:

antifreeze liquid (%)	freezing point (°C)	boiling point (°C)
30	-15	104
35	-20	105
40	-25	106
45	-30	107
50	-35	109
60	-36	113

		Quantity	Type
Fuel tank		26 lt	diesel
Engine oil	300 DT	2.4 lt	AGIP SINT 2000 oil (SAE 5W-40)
	400 DT	3.2 lt	
Front axle		5.6 Kg	BCS POWERLUBE W11T oil (API GL5 - SAE 80W-90)
Rear transaxle and rear reduction gears		12.4 Kg	BCS POWERLUBE W13T oil (API GL4 - SAE 5W-40)
Engine cooling circuit anti-freeze liquid		8.5 lt	mix BCS POWERLUBE F2/distilled water (ASTM D 3306)

# Chapter 4: Instruments and controls

## General view of the controls

This paragraph provides an overview of all of the instruments and controls on the tractor.

Unless otherwise specified, they apply for all versions.

To use the controls listed below correctly, carefully read Chapter 5 - "Operating instructions".

1. Clutch disengagement pedal
2. Work range selection lever
3. Direction selection lever
4. Gear selector lever
5. Brake pedals
6. Accelerator pedal
7. Steering wheel
8. Lamps and horn switch
9. Ignition switch
10. Auxiliary power outlet (12V)
11. Emergency switch
12. Digital instrument panel
13. Manual accelerator lever

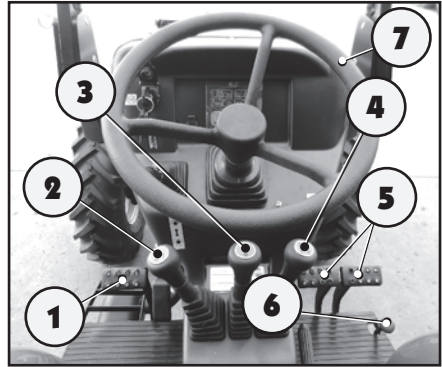


Fig. 4.1

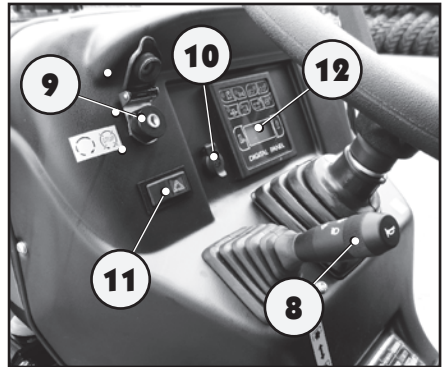


Fig. 4.2

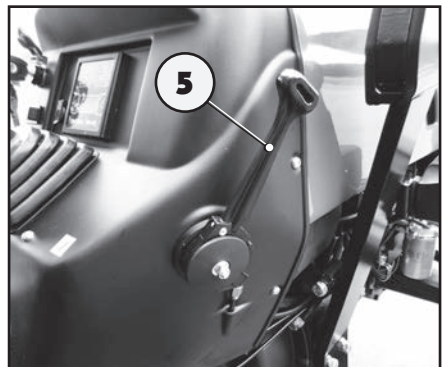


Fig. 4.3

- 14. PTO engage/disengage lever
- 15. Parking brake
- 16. Rear differential lock pedal

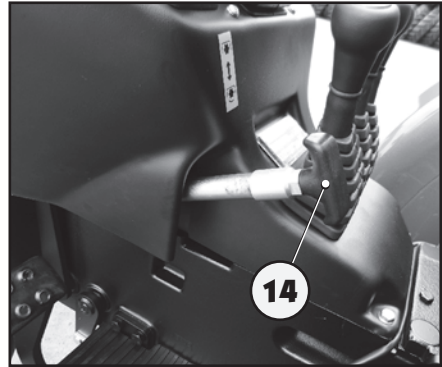


Fig. 4.4

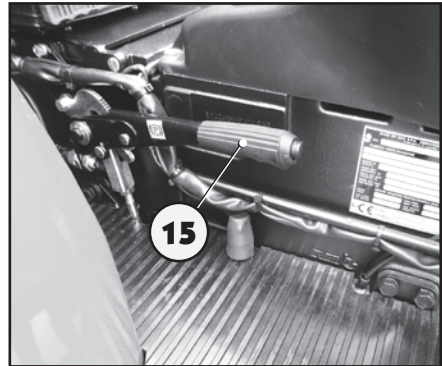


Fig. 4.5

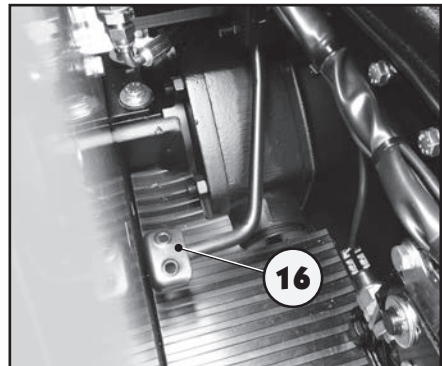


Fig. 4.6

17. Independent or synchronised PTO selection lever
18. Front wheel drive engage/disengage lever
19. Up/down lift lever
20. Hydraulic directional control valve lever (matches the colour on the rear quick coupling)
21. Lift arm drop rate adjustment valve

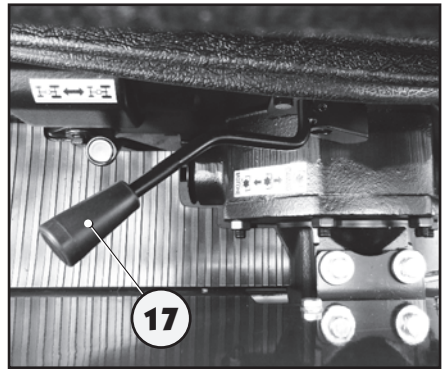


Fig. 4.7

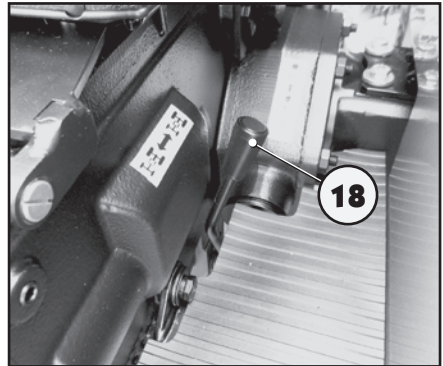


Fig. 4.8

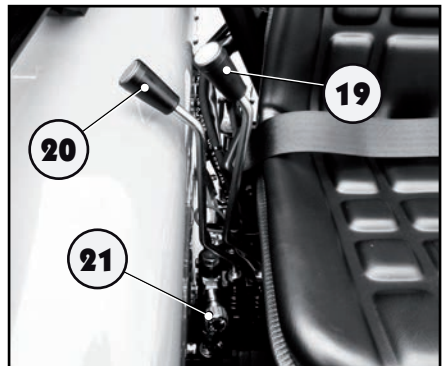


Fig. 4.9

- 22. Position control lever (yellow) for lift with position/draft control
- 23. Draft control lever (red) for lift with position/draft control
- 24. Position control lever stop knob
- 25. Lift arm lowering speed adjustment lever
- 26. Power outlet for trailer

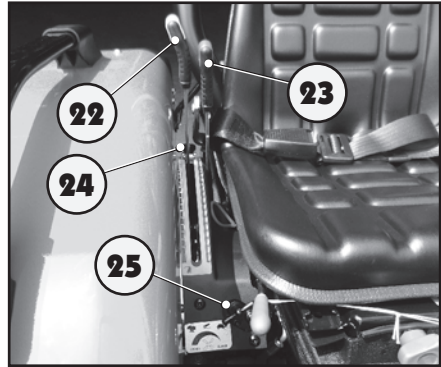


Fig. 4.10

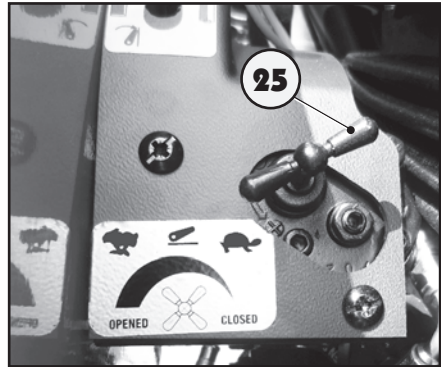


Fig. 4.11

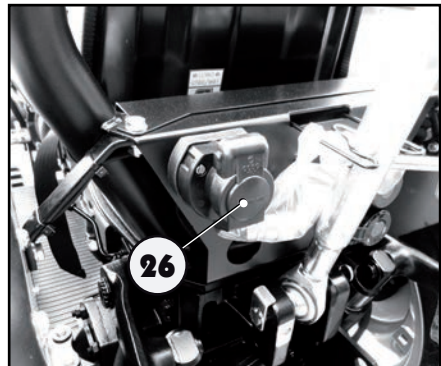


Fig. 4.12



## Controls in cab

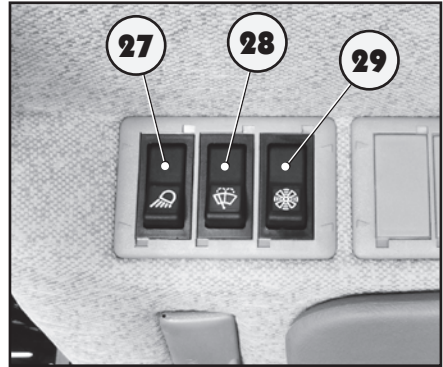
This paragraph provides an overview of all of the instruments and controls on tractors equipped with a cab.

To use the controls listed below correctly, carefully read Chapter 5 - "Operating instructions".

- 27. Front work lights switch
- 28. Front windshield wiper and washer pump switch (press all the way down)
- 29. Fan speed selector switch
- 30. Heating adjustment dial

 **NOTE:**

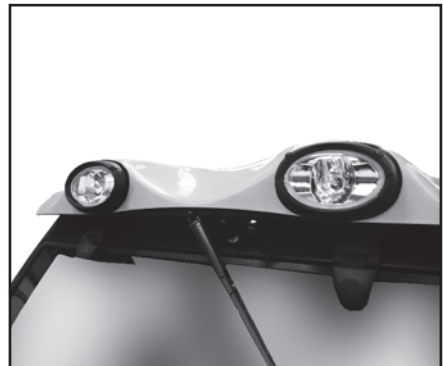
*The cab is equipped with front work lights (Fig. 4.15); These lights significantly increase visibility when working at night; and as such, we recommend always turning them on in low visibility conditions.*



**Fig. 4.13**



**Fig. 4.14**



**Fig. 4.15**

- 31. Cab internal lights switch
- 32. Adjustable hot/cold air vents
- 33. Front washer fluid reservoir

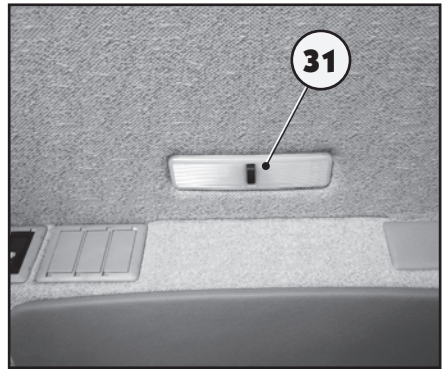


Fig. 4.16



Fig. 4.17



Fig. 4.18

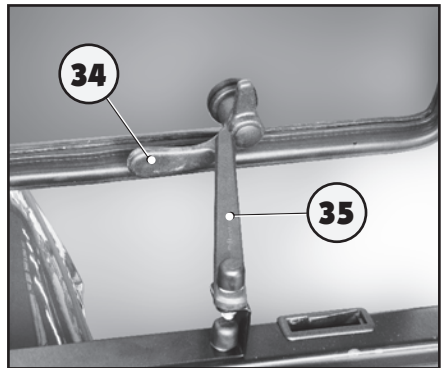
**Side doors**

Both doors can be opened from inside and outside and are held open by specific shock absorbers.

**Front and rear windows**

The windscreen and rear window are openable.

To open the rear window or windscreen, simply turn the handle (34) anticlockwise to release and push. The window/screen is held open by a strut (35).

**Fig. 4.19****Fig. 4.20**

## Ventilation and heating

The interior of the cab is equipped with directional air vents (32).

The driver may use the heating adjustment dial (30) to set the air temperature in the cab at any value desired between the minimum (cold) and maximum (hot) temperature settings.

Use the fan speed setting dial (29) to set the air flow into the cab.

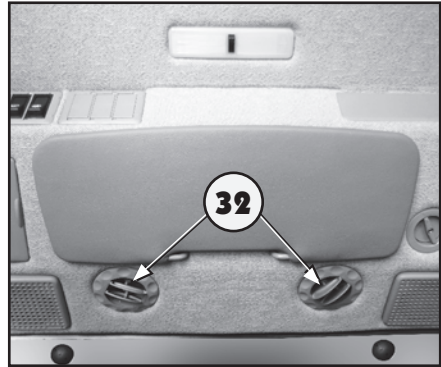


Fig. 4.21



Fig. 4.22

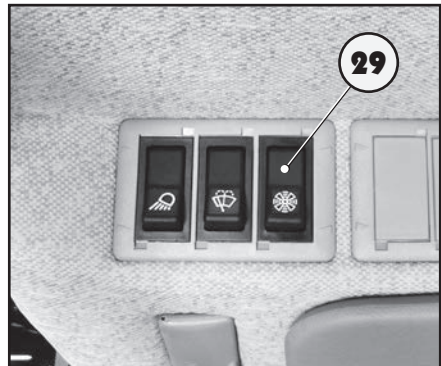


Fig. 4.23

## Digital instrument panel

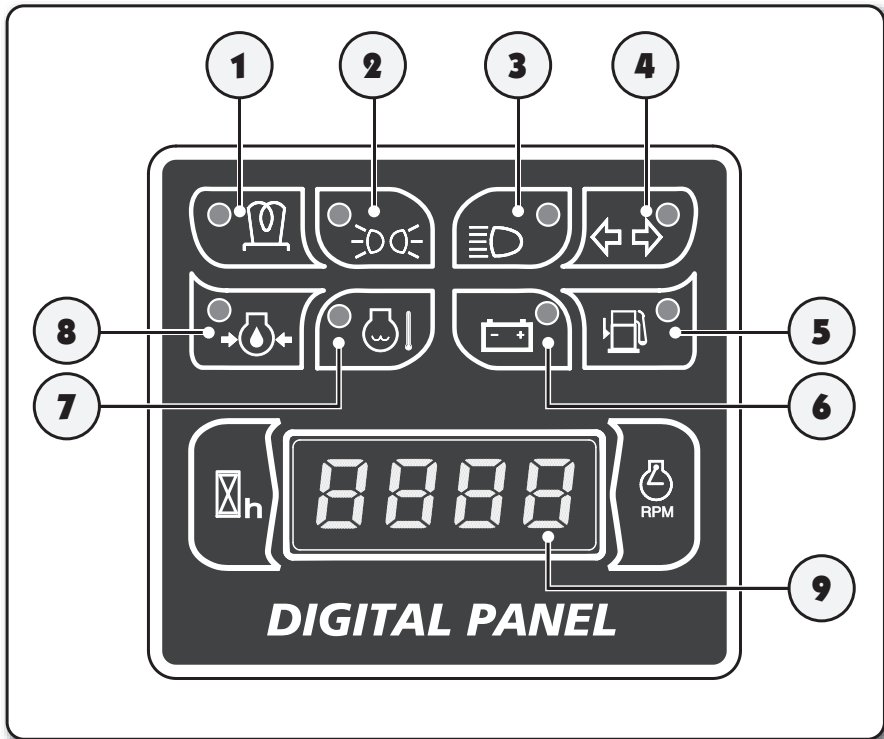


Fig. 4.24

1	Spark plug pre-heat light	amber
2	Side lights light	green
3	Full headlights light	green
4	Indicator light	green
5	Reserve fuel level warning lamp	red
6	Battery light	red
7	Engine coolant temperature indicator lamp	red
8	Engine oil pressure light	red
9	Engine speed/working hours digital display	

**1. Spark plug pre-heat light (amber)**

This light comes on when the starting pre-heater is activated by the ignition switch.

**2. Side lights light (green)**

This light comes on when the side lights are on.

**3. Full beam headlights indicator (green)**

This light comes on when the headlights are on full beam.

**4. Indicator (green)**

When this light is flashing, it means the indicators are on.

**5. Reserve fuel level warning lamp (red)**

Illuminates to warn the driver that there are only 3 litres of fuel remaining in the tank.

**6. Battery light (red)**

This light comes on to warn that the alternator supply is insufficient to charge the battery.

**Stop the tractor as soon as possible and contact your dealer.**

**7. Engine coolant temperature indicator lamp (red)**

If the engine temperature is too high, immediately lower the revs without turning off the engine. If the needle is still in the red area, quickly carry out the required checks and, if necessary, **contact your dealer.**

**8. Engine oil pressure light (red)**

This light comes on to indicate that the engine oil pressure is insufficient.

**Turn off the engine and contact your dealer.**

## Digital display

When the ignition switch is turned to "1" (ON), the display shows the total number of working hours of the tractor.

When the ignition switch is turned to "2" (START), the display shows the engine speed.

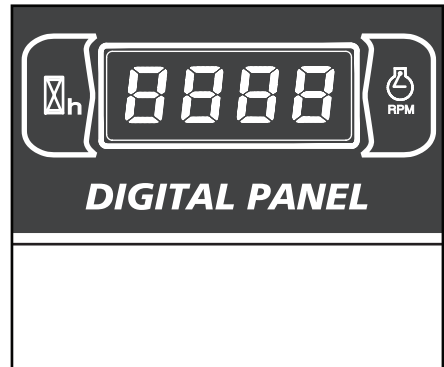


Fig. 4.25

## Adjusting the seat

The seat is equipped with devices for longitudinal, height and vertical adjustment according to the operator's weight.

**! WARNING:**

*Adjust the seat position only when the tractor is not moving.*

**✎ NOTE:**

*We recommend adjusting the seat longitudinally and in height with the operator actually sitting in the seat.*

**✎ NOTE:**

*Pull the cord (A) to release the seat in order to lift it. On cab versions, pull the lever (B) to release the seat.*

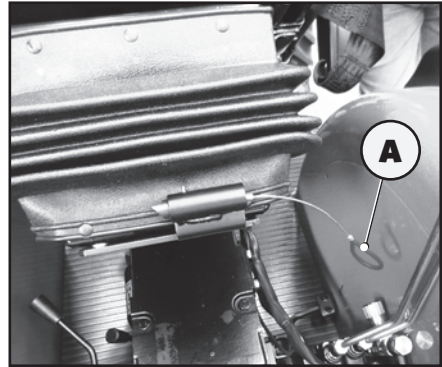


Fig. 4.26

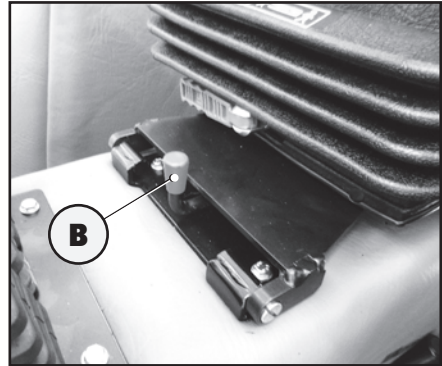


Fig. 4.27



## Standard seat

### Longitudinal adjustment

Use the lever (36) and move the seat longitudinally (forwards or backwards) to find the right position after adjusting as desired, release the lever (36) to lock the seat in place.

### Height adjustment

Use the knob (37) to adjust the seat height; turn the knob clockwise to lower it and anticlockwise to raise it.

### Operator weight adjustment

The seat's suspension can be adjusted according to the operator's weight using the lever (38) located under the rubber guard of the suspension itself.

To adjust:

- pull the lever outwards;
- turn the lever clockwise to increase the weight on the suspension and anticlockwise to reduce it.

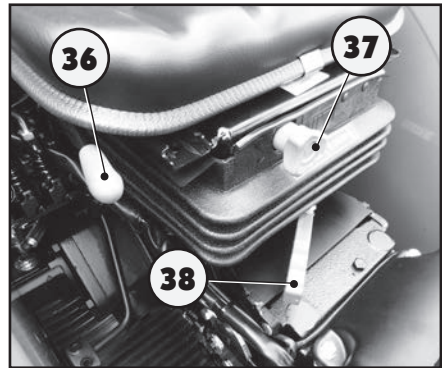


Fig. 4.28

## Bostrom seat

### Longitudinal adjustment

Use the lever (39) and move the seat longitudinally (forwards or backwards) to find the right position. Once adjusted, release the lever to lock the seat into place.

### Height adjustment

Move the knob (40) into one of the notches along the slot to set the required height setting, as indicated on the plate.

### Operator weight adjustment

The lever (41) selects preset settings for the operator weight adjustment system, while the pointer (42) shows the setting value relative to the indications on the plate.

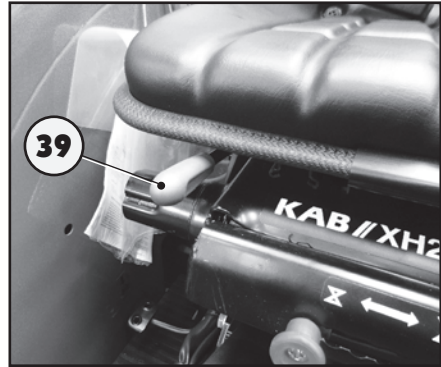


Fig. 4.29

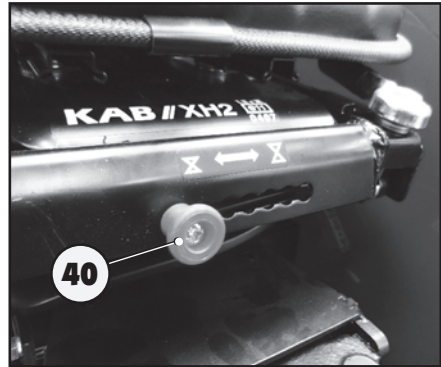


Fig. 4.30

To adjust:

- pull the lever outwards;
- pull and turn the lever to reveal the symbol  $\oplus$  in the window, to preset the system for an operator weight greater than the current selection, or to reveal the symbol  $\ominus$ , to preset the system for a lower operator weight;
- now move the lever to set the dial into the desired position; after adjusting as required, push the lever back inwards

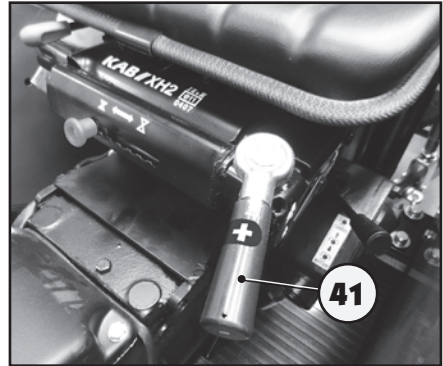


Fig. 4.31

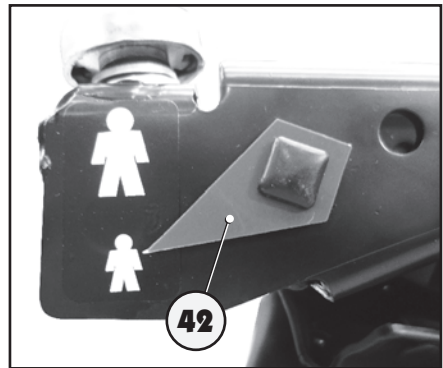


Fig. 4.32

## Steering wheel adjustment

As an optional feature, the height of the steering wheel may be adjusted by turning the specific lever (C). Moving the lever releases the position of the steering wheel, allowing it to be adjusted according to the operator's height.

**⚠ WARNING:**

*Adjust the height of the steering wheel only when the tractor is not moving.*



**Fig. 4.33**

## Rotating light

The rotating beacon must be installed when needed on the roll bar frame.

To switch the beacon on, connect the specific connector included in the "rotating beacon" kit to the auxiliary power socket (12 V) on the dashboard (10).

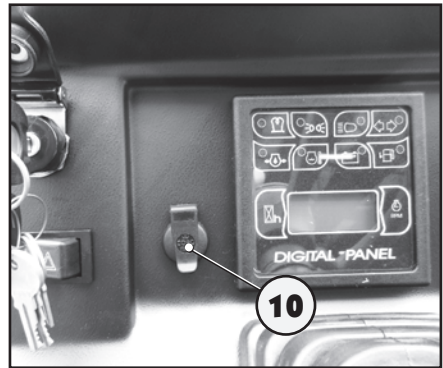


Fig. 4.34



# Chapter 5: Operating instructions

## Starting the engine

 **DANGER:**

*Never run the engine in a closed space: the exhaust gases are toxic.*

 **WARNING:**

*When the tractor is stopped and the engine is off, the parking brake must always be engaged.*

 **WARNING:**

*Only start the engine from the driver's seat.*

 **NOTE:**

*A safety device prevents the engine from being started unless the clutch pedal is pressed all the way down.*

 **CAUTION:**

*Do not attempt to start the engine for more than 15 seconds at a time.*

 **WARNING:**

*To prevent possible accidents, never allow anyone to sit on the fenders or on any other part of the tractor or implement.*

 **WARNING:**

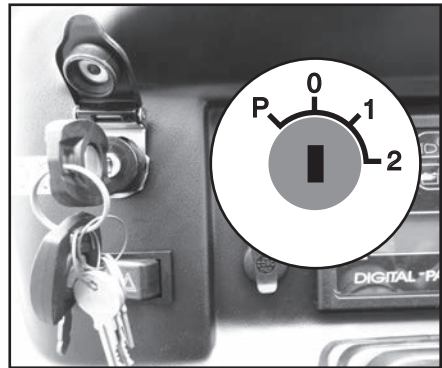
*When the engine is running, keep at a safe distance from the fan.*

Proceed as follows:

- check that the parking brake is engaged;
- make sure all the control levers are in neutral;
- make sure all the control switches are disconnected;
- press the clutch pedal all the way down and hold it;
- press the accelerator pedal about half-way down;
- insert the ignition key in the ignition switch and turn clockwise to position "1"; The display shows the total operating hours of the tractor. make sure the following lights on the instrument panel come on:
  - glow plugs
  - engine oil pressure
  - battery charge
- as soon as the glow plug indicator lamp extinguishes, turn the key clockwise and hold in position "2"; release the key when the engine starts - the switch automatically returns to position "1". The digital display switches from working hours display mode to engine speed display mode.

Once the engine has started, check that all red indicator lamps have extinguished.

If one of the red lights has not gone out, turn off the engine. Find and eliminate the cause of the problem and repair it.



**Fig. 5.1**



## Starting the engine with low outdoor temperature

 **NOTE:**

*When the temperature is below or near 0°C, check and, if necessary, top up the cooling circuit with the recommended antifreeze mixture.*

 **WARNING:**

*Do not inject fluids (ether) to facilitate start-up at low temperatures. The tractor is equipped with a cold-start system.*

 **NOTE:**

*If the engine does not start after two or three attempts and you notice smoke coming out of the exhaust, try starting without engaging the thermostarter.*

 **CAUTION:**

*Do not attempt to start the engine for more than 15 seconds at a time.*

 **NOTE:**

*Wait at least 1 minute between attempts.*

 **NOTE:**

*When the outdoor temperature is low and the engine is cold, you can cover the radiator with a protective screen. Remove the protective screen as soon as the normal operating temperature is reached.*

## Run-in

The following precautions must be taken during the run-in:

- Experience has shown that the tractor's first 50 hours of operation are crucial to engine performance and duration. The tractor must be used right from the beginning under operating conditions that subject the engine to a load that is as similar as possible to normal operating conditions.
- Use low gears when towing heavy loads.
- During run-in, frequently check the tightness of all the screws, bolts, nuts, etc.
- For the clutch to last over time, the discs must be correctly settled.

 **NOTE:**

*Engage and disengage the clutch often but carefully during the tractor's first 15 hours of operation.*

## Turning off the engine

- If used, move the hand accelerator control lever back to the minimum position;
- engage the parking brake; check that the parking brake engaged indicator lamp on the instrument cluster is lit;
- select first gear and range 1 or, if on a reverse slope, select reverse;
- turn the ignition switch anticlockwise to position "0".

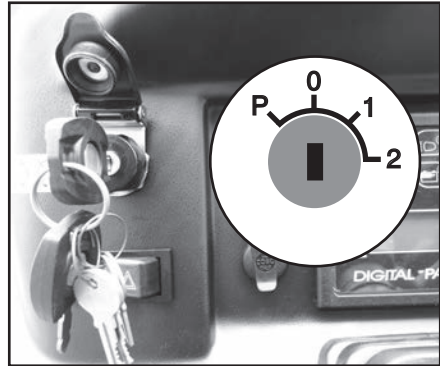


Fig. 5.2

## Starting the tractor

### ! WARNING:

Before setting the tractor in motion, you are required to become familiar with the controls, the braking system, the transmission, the PTO, the differential lock controls and the engine stop control.

### NOTE:

Do not exceed 70% of the engine's maximum power during the first 50 hours of operation.

- With the engine running, press the clutch pedal all the way down;
- select the desired gear using the lever (3);
- select the desired range using the lever (1);
- select the desired direction using the reverser lever (2);
- disengage the parking brake;
- gradually release the clutch pedal while gradually accelerating the engine, using the corresponding pedal.

### ! WARNING:

Pay attention to people around you, especially when reversing.

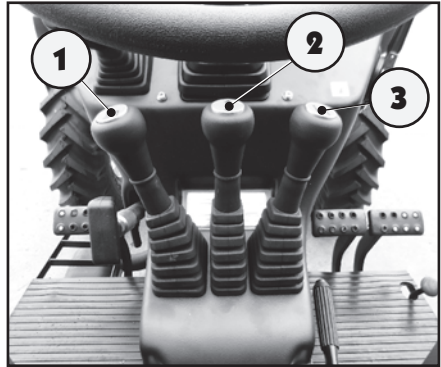


Fig. 5.3

## Pedal accelerator

Using the pedal accelerator (4) neutralises the hand accelerator position (5) when the engine's rpm increases. When the pedal is released, the engine returns to the rpm set by the hand accelerator.

The hand accelerator must be in idle when using the pedal accelerator.

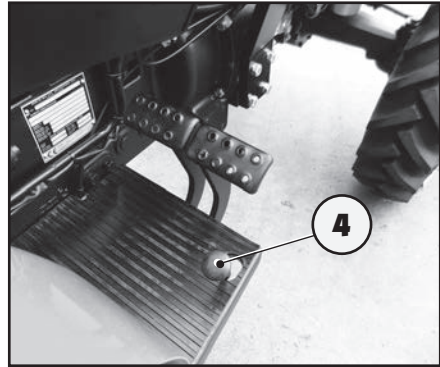


Fig. 5.4

## Hand accelerator

The lever (5) allows you to control the engine rpm manually and keep it constant.

When the lever is all the way up, it is in the "idle" position; pulling it down proportionately increases the engine's rpm.

**! WARNING:**

*The hand accelerator lever can only be used when you want to work with a constant engine rpm.*

*The lever must not be used when driving the tractor on roads.*

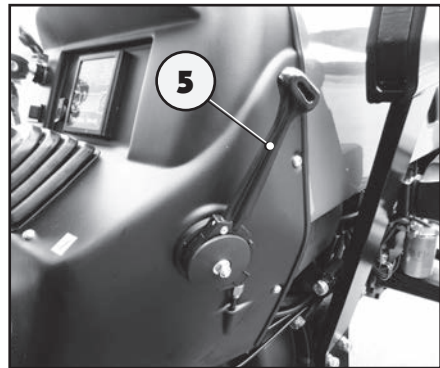


Fig. 5.5

## Stopping the tractor

To temporarily stop the tractor:

- reduce the engine speed;
- disengage the gearbox by pressing the clutch pedal all the way down and holding it;
- when the tractor is stopped, put the gearshift lever in neutral and gradually release the clutch pedal.

To stop the tractor definitively, follow the operations described here and in the "Turning off the engine" paragraph.

## Clutch pedal

The pedal (6) engages/disengages the clutch:

- pedal pressed all the way down = clutch disengaged
- pedal released = clutch engaged

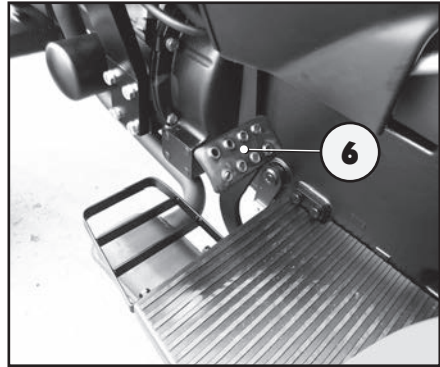
When the engine is carrying a load, avoid slipping the clutch to increase the rpm; instead, engage a lower gear.

### **WARNING:**

*Never leave your foot on the clutch pedal.*

### **NOTE:**

*A safety switch prevents the engine from being started unless the clutch pedal is pressed all the way down.*



**Fig. 5.6**

## Transmission control lever

### Range lever

The lever (7) allows you to select four different ranges. Every work range is marked by a Roman numeral on the lever grip:

- I - low range
- II - medium range
- III - high range

To go from one work range to another, disengage the clutch by pressing the pedal all the way down, stop the tractor and select the desired range using the lever.

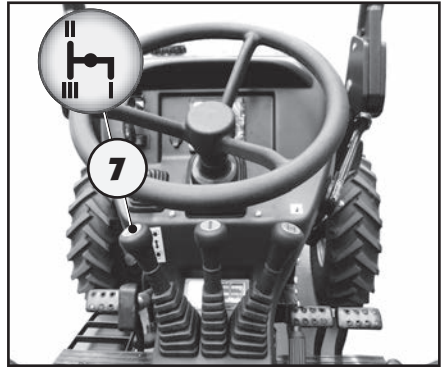


Fig. 5.7

**! WARNING:**

*Never attempt to change ranges while the tractor is moving.*

## Reverser lever

The lever (8) allows you to select the tractor's direction of travel. To reverse the direction of travel, press the clutch pedal all the way down, stop the tractor and use the lever.

- Control in the "forwards arrow" position: the tractor moves forwards;
- Control in the "central" position: neutral gear;
- Control in the "backwards arrow" position: the tractor moves in reverse;

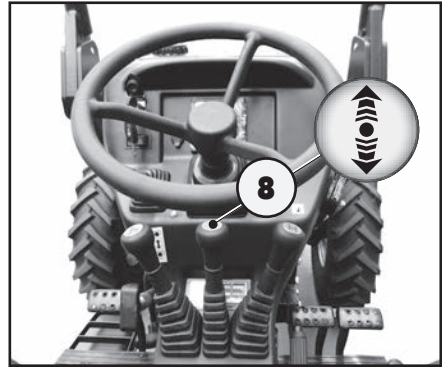


Fig. 5.8

### ⚠ WARNING:

*Never attempt to change the direction of travel while the tractor is moving.*

## Gear lever

This lever (9) allows you to select 4 fully synchronised speeds, both going forwards and in reverse.

To go from one gear to another in the same range, press the clutch pedal all the way down and use the lever. The tractor does not need to be stopped. Every gear is marked by a number on the lever grip:

- 1 - first gear
- 2 - second gear
- 3 - third gear
- 4 - fourth gear

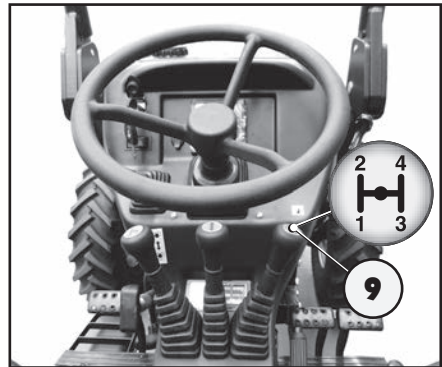


Fig. 5.9



## Speed chart

Indicates the perfect progression of the gears without speed overlapping both in forward and reverse.

300/70 R20" tyres - Engine speed: 3,400 rpm

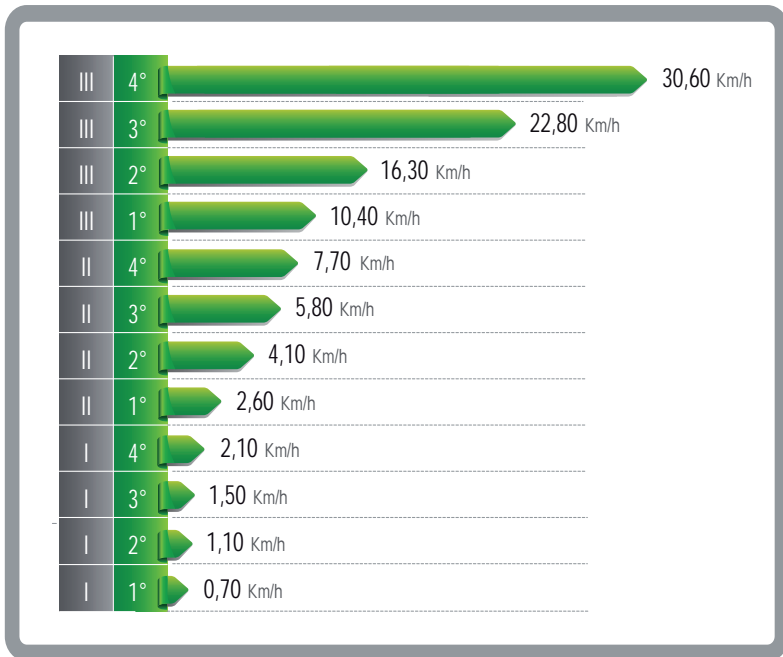


Fig. 5.10

## Service brakes

The tractor is braked using two pedals (10) that separately control the brake on each rear wheel. Braking with only one pedal allows you to make sharper turns. Indeed, by braking the internal rear wheel when turning, the tractor turns by pivoting on the wheel itself.

Lock the two pedals together with the specific latch (11) to use them simultaneously.

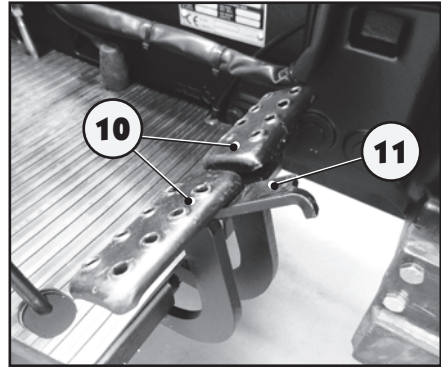


Fig. 5.11

**! WARNING:**

*Always connect the pedals using the designated latch when driving on the road or towing trailers.*

**! WARNING:**

*When the brakes feel loose, immediately identify the cause and eliminate the defect.*

**! WARNING:**

*When working in hilly areas, brake for the shortest necessary time only and always use the engine brake by inserting a low gear.*

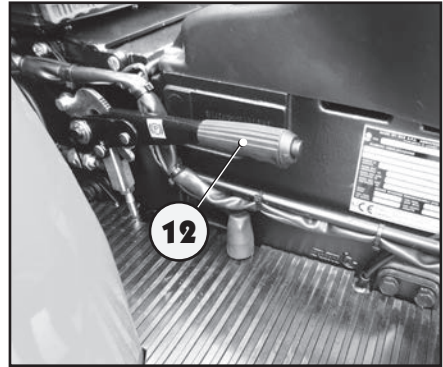
## Parking brake

The parking brake brakes the service brakes and is operated mechanically from a lever (12) on the right hand side of the driver seat.

**! WARNING:**

*Stop the tractor preferably on level ground, and apply the parking brake before leaving the driver seat.*

*When parking on gradients, as well as applying the parking brake, also place a chock under one of the wheels, on the side facing downhill.*



**Fig. 5.12**

## Dashboard controls

### Ignition switch

The ignition switch (13) has three positions:

- Pos. "0" - No circuits powered except for hazard warning lights switch. Engine off position. Key can be removed.
- Pos. "1" - Contact position, various utilities are powered on and the signalling devices and control instruments work. Engine is ready to start and spark plugs are pre-heated.
- Pos. "2" - Engine start-up position. If released, the key automatically goes back to the "1" contact position.
- Pos. "P" - Park position - park lights on and key may be removed. Press the key to turn into the park position.



#### NOTE:

*You must keep the clutch pedal pressed all the way down to start the engine.*

### Lamps and horn switch

The lamps and horn switch (14) is located right under the left-hand side of the steering wheel. This switch is operational with the ignition switch turned to "1", and functions as follows:

- **to the right** - right indicator;
- **to the left** - left indicator;
- **press** - horn (works in all ignition switch positions).

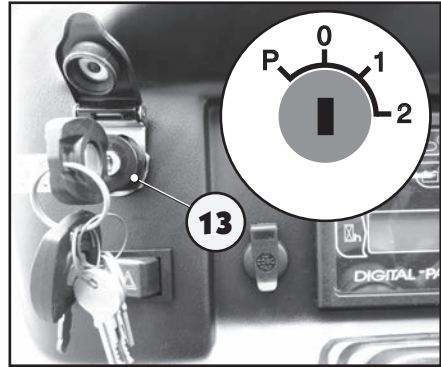


Fig. 5.13



Fig. 5.14

Turn the knob (15) located at the end of the switch to turn on the headlights:

- lights off;
- ☀ side lights on and light (16) on instrument panel on;
- ☾ dipped headlights;
- ☾ push the switch down to turn on the full-beam headlights and the corresponding light (17) on the instrument panel; by pushing the switch up, the full-beam headlights flash.

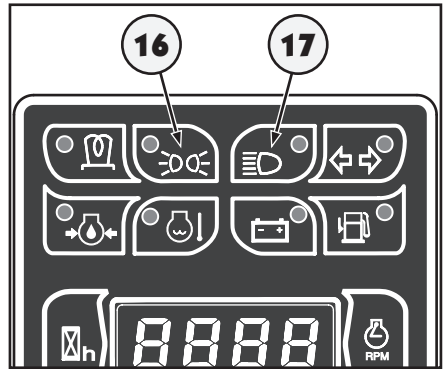


Fig. 5.15

**Hazard lights switch**

The hazard lights switch (18) is always powered on, regardless of the position of the ignition switch;

If pressed, all the indicator lights, the light on the switch itself and the light (19) on the instrument panel flash intermittently.



Fig. 5.16

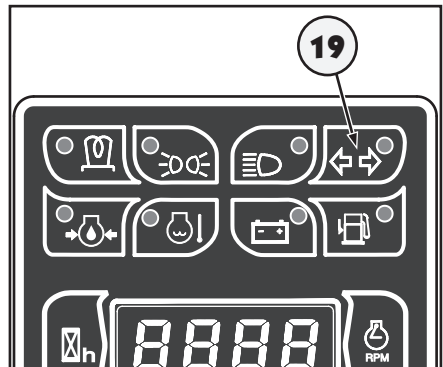


Fig. 5.17

## Power take-off

The rear power take-off can be "independent" or "synchronised". The PTO is engaged and disengaged manually.

The power take-off shafts and the implements controlled by the power take-off can be extremely dangerous. As such, follow the safety warnings below and use common sense:

### ! WARNING:

*Do not drive without the PTO cap (21) or guard (20) mounted. They protect personnel from injury and the shaft grooves from being damaged.*

### ! WARNING:

*Always disconnect the PTO, engage the handbrake, turn the engine off and take the start key out of the ignition before getting off the tractor.*

### ! WARNING:

*Never approach the machine until all its components, including the drive transmission, have stopped.*

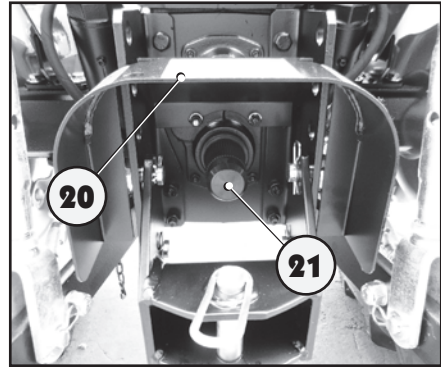


Fig. 5.18

### ! WARNING:

*Before connecting, adjusting or working on implements driven by the PTO, disengage the PTO, engage the parking brake, turn off the engine and take the start key out of the ignition. Do not work under lifted implements.*

### ! WARNING:

*Make sure all the PTO-driven implements have the right guards mounted on them, are in good condition and comply with the regulations in force.*

### ! WARNING:

*Before starting an implement connected to the PTO, always make sure that personnel are at a safe distance.*

### ! WARNING:

*Attach the drawbar in the central position when using implements driven by the tractor PTO.*

 **WARNING:**

*When using the PTO while the tractor is parked, always make sure that the range lever is in the neutral position, the reverser is in the forward position, the gearshift lever is in 4<sup>th</sup> gear and the parking brake is engaged.*

 **WARNING:**

*Before operating an implement driven by the PTO on the three-point hitch, carefully raise it using the position control lever up to maximum height. Check for play and make sure that at least 1/4 of the length of the telescopic section of the drive shaft is engaged.*

 **CAUTION:**

*We recommend using drive shafts equipped with a safety clutch. When using high inertia implements, use drive shafts equipped with a built-in free wheel.*

 **CAUTION:**

*When choosing the drive shaft, based on the tractor coupling on which it must be installed (shaft sizing), consider the power take-off speed, tractor power, the need to insert special couplings, clutches, disconnectors. Also consider the maximum permissible angle from the coupling and ensure it is not exceeded. In this regard, comply with the manufacturer's operating features.*

 **CAUTION:**

*Make sure that the drive shaft length falls within the tolerances established by the manufacturer and that it is able to compensate for the movements of the machine when running.*

## PTO control levers

The PTO is normally engaged at all times: with PTO engage/disengage lever (22) in bottom position (Fig. 5.19).

Pull the lever up to disengage the PTO. The lever must be released before it can be lifted, by gripping and pulling the T-shaped handle at the end of the lever itself (Fig. 5.20).

### CAUTION:

Engage the PTO at a low rpm value to protect the clutch and the drive shaft.

### NOTE:

Before engaging the PTO, select "independent" or "ground speed" mode with the lever (23).

### CAUTION:

"Independent" or "synchronised" PTO must be selected while the engine is being turned off, before it comes to a complete standstill. This ensures the internal selection parts are aligned correctly.

Use the lever (23) on the left of the driver seat to select the type of power take-off:

- **independent** - the PTO output shaft is driven directly by the engine, with a rotational speed directly proportional to engine speed;
- **synchronised** - the PTO output shaft speed is proportional to the tractor forward speed.
- Lever pushed towards "A" - independent PTO engaged.
- Lever in central "N" position - PTO in neutral.
- Lever pushed towards "B" - synchronised PTO engaged.

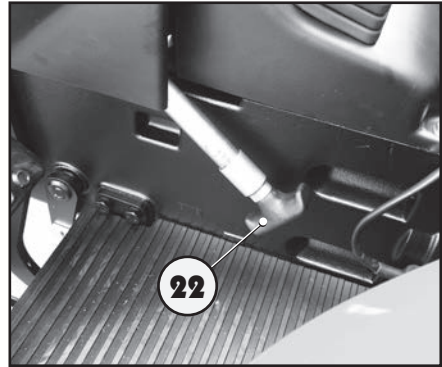


Fig. 5.19

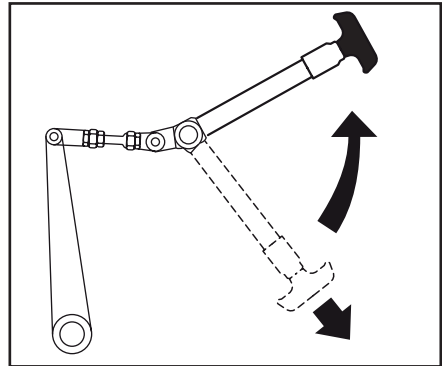


Fig. 5.20

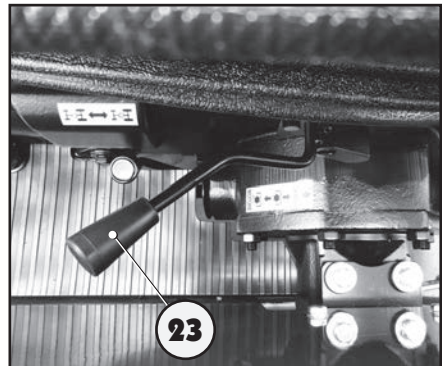
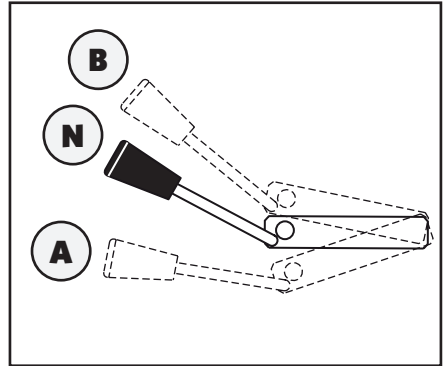


Fig. 5.21



**! WARNING:**

High inertia implements do not stop immediately after the disengagement of the PTO. Wait for the implement to slow and come to a complete standstill before cleaning or adjusting.

**Fig. 5.22**

## Using the independent PTO

### ! WARNING:

*Do not connect to the PTO implements or machine tools that require power value higher than the available one.*

- Disengage the PTO by lifting the PTO engage/disengage lever (22) into the top position;
- move the PTO selector lever (23) into position "A";
- engage the PTO by lowering the PTO engage/disengage lever completely;
- maintain an engine speed of approximately 2,740 rpm.

To stop the independent PTO:

- disengage the PTO by lifting the PTO engage/disengage lever (22) into the top position;
- move the PTO selector lever (23) into the neutral position "N";
- lower the PTO engage/disengage lever completely;

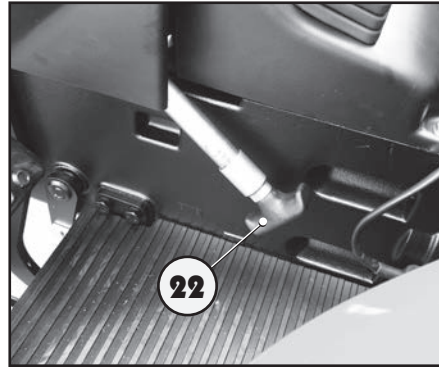


Fig. 5.23

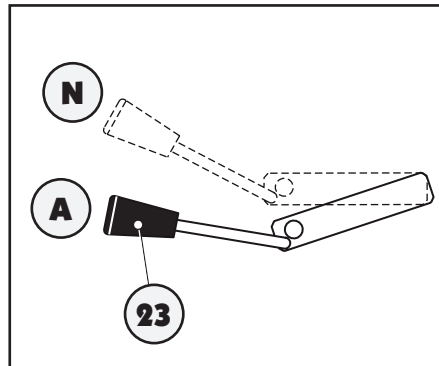


Fig. 5.24

## Using the synchronised PTO

### ! WARNING:

*When using the synchronised PTO, if you need to reverse once or more, bear in mind that the shaft inverts its direction of rotation. With certain implements, it is advisable to set the PTO engage/disengage lever (23) to neutral to prevent damage to rotating parts.*

Using the PTO synchronised with the gearshift is only required to drive self-propelled trailers and in general for all agricultural implements that need to be synchronised with tractor speed and must not absorb more than 40-45% of the engine's maximum power.

To engage the synchronised PTO:

- make sure the tractor has stopped;
- ensure that the PTO engage/disengage lever (22) is completely lowered (PTO engaged);
- press and hold the clutch pedal;
- select "ground speed" mode by moving the PTO selector lever (23) to position "B".

To stop the ground speed PTO, press the clutch pedal and move the PTO selector lever (23) into neutral "N".

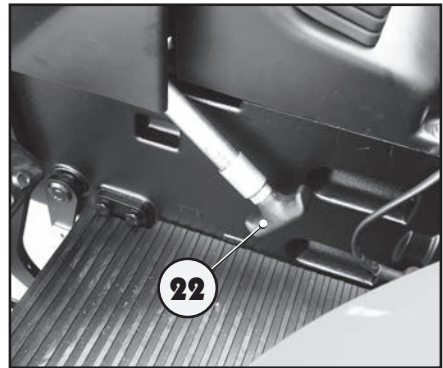


Fig. 5.25

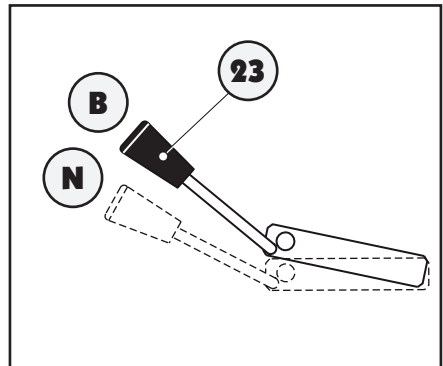


Fig. 5.26

## Differential lock

The tractor is equipped with a front and rear differential lock, which may be engaged when one of the wheels slips due to lack of traction.

**!** **WARNING:**

*Only use the differential lock when driving straight in poor ground grip conditions. Do not steer with the differential lock engaged.*

**!** **WARNING:**

*Disengage the lock when making turns.*

To lock the differential:

- decrease the tractor speed;
- press and hold the pedal (24); release the pedal to disengage the differential lock.

**✎** **NOTE:**

*For best results, lock the differential before excessive skidding. Do not engage it while a wheel is skidding excessively.*

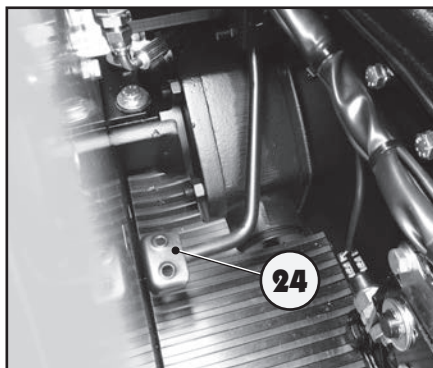


Fig. 5.27

## Four-wheel drive

The tractor is equipped with a four-wheel drive to increase traction, especially on loose, muddy and slippery soil.

The four-wheel drive can be disengaged for certain jobs.

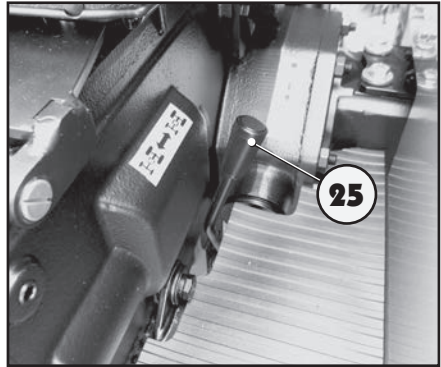
**NOTE:**

*If maximum traction is not required, especially on paved roads, it is better to work without the front wheel drive to avoid unnecessary wear on the tyres.*

To disengage the four-wheel drive:

- temporarily stop the tractor;
- press and hold the clutch pedal;
- move the gear selector into neutral;
- push the front wheel drive engage/disengage lever (25) fully forwards.

To engage dual traction and restore 4-wheel drive, repeat the procedure described above, moving the front wheel drive engage/disengage lever (25) fully backwards.



**Fig. 5.28**

## Front tow hitch

The tractor may be equipped with a front tow hitch (26) for towing the tractor.

**CAUTION:**

*The front hitch must be used exclusively to tow the tractor in an emergency. The towing direction must coincide with the longitudinal axis of the tractor itself.*

*The tractor cannot be towed in other directions that do not correspond to this axis or for purposes other than the ones described.*



**Fig. 5.29**

## Rear tow hitch

Depending on the type-approvals and regulations in individual countries, the following types of rear hitches are available:

- tow hitch type-approved for Italy
- tow hitch type-approved for Europe

The choice must be made based on the individual markets.

Maximum unbraked towable mass:

- 1,025 Kg (300 DT version)
- 1,195 Kg (300 DT version with cab)
- 1,035 Kg (400 DT version)
- 1,220 Kg (400 DT version with cab)

Maximum towable mass with independent braking system:

- 3,075 Kg (300 DT version)
- 3,585 Kg (300 DT version with cab)
- 3,105 Kg (400 DT version)
- 3,660 Kg (400 DT version with cab)

Maximum towable mass with inertial braking system:

- 3,075 Kg (300 DT version)
- 3,585 Kg (300 DT version with cab)
- 3,105 Kg (400 DT version)
- 3,660 Kg (400 DT version with cab)

These towing devices can be used for agricultural implements and road single or tandem axle road trailers.

These devices are height-adjustable to make it easier to couple the towed implement.

 **NOTE:**

*Positioning the tow hitch higher increases the towing capacity but also increases the risk of the tractor rearing up.*

 **NOTE:**

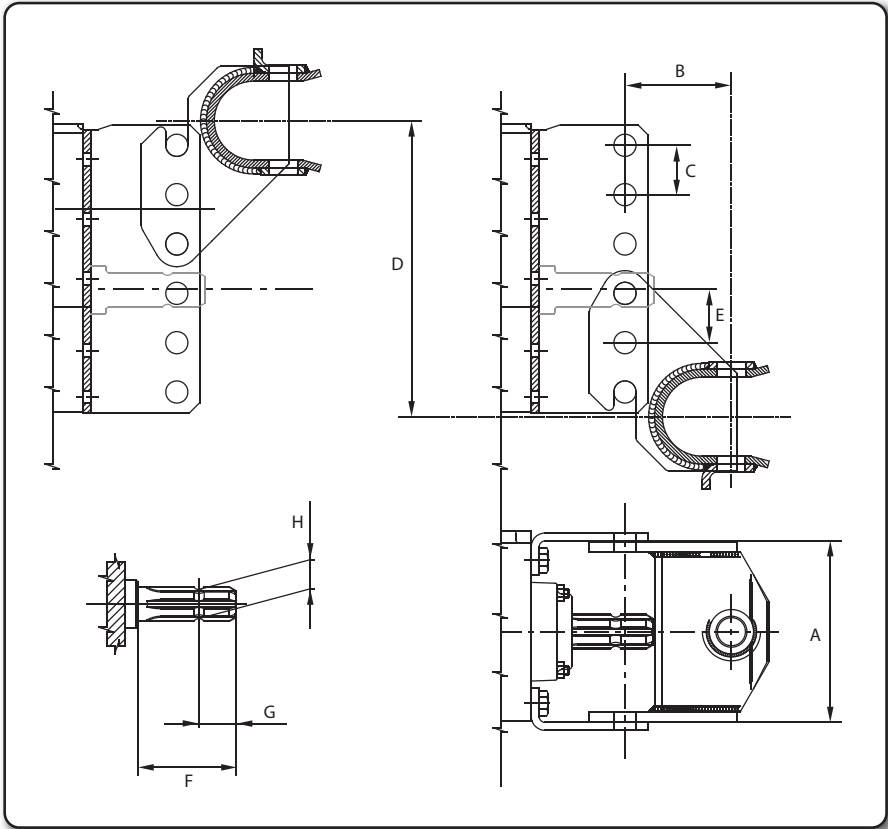
*In the four-wheel drive setup, put the tow hitch in the low position, keeping the drawbar nearly horizontal so as not to discharge too much weight from the front axle.*

 **WARNING:**

*Make sure that the vertical draft on the hitch is compatible with the approved maximum vertical load.*

 **NOTE:**

*Adjusting the hitches is an operation that must be done carefully as a correct adjustment affects how easy it is to drive the tractor and, more importantly, safety and stability during operation.*

**"DGM\*6\*0031GA" CUNA tow hitch, type approved for Italy****Fig. 5.30**

	A	B	C	D	E	F	G	H
mm	184	108	50	300	51	95	38	29.5



"GRASSI e11\*1572" EEC tow hitch, type approved for Europe

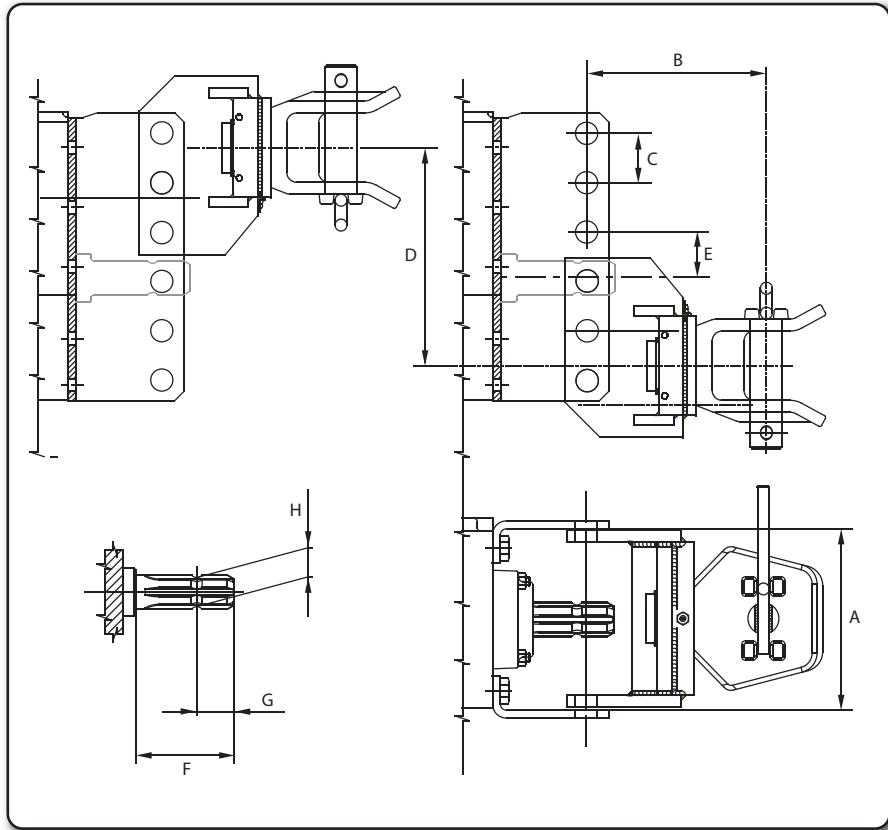


Fig. 5.31

	A	B	C	D	E	F	G	H
mm	184	180	50	220	49	95	38	29.5

## Maximum vertical load on rear hitch - "300 DT" version

### Tractor with protective structure

	"GRASSI e11*1572" TOW HITCH			"DGM*6*0031GA" TOW HITCH		
	Sz	Cz1	Cz2	Sz	Cz1	Cz2
kg	350	460	400	390	480	410

### Tractors with cab

	"GRASSI e11*1572" TOW HITCH			"DGM*6*0031GA" TOW HITCH		
	Sz	Cz1	Cz2	Sz	Cz1	Cz2
kg	370	390	320	380	400	330

## Maximum vertical load on rear hitch - "400 DT" version

### Tractor with protective structure

	"GRASSI e11*1572" TOW HITCH			"DGM*6*0031GA" TOW HITCH		
	Sz	Cz1	Cz2	Sz	Cz1	Cz2
kg	430	480	410	470	490	420

### Tractors with cab

	"GRASSI e11*1572" TOW HITCH			"DGM*6*0031GA" TOW HITCH		
	Sz	Cz1	Cz2	Sz	Cz1	Cz2
kg	370	390	320	380	400	330

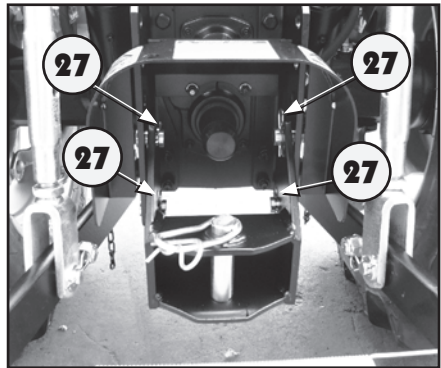
- Sz:** Without ballasts  
**Cz1:** With front ballasts  
**Cz2:** With front ballast weights + wheel ballast weights

## Tow hitch height adjustment

To adjust the height, remove the connecting pins (27) to free the hitch and secure it in the desired position.

**CAUTION:**

*Make sure the linchpins and safety pins are inserted correctly and not damaged.*



**Fig. 5.32**

## Towing trailers

To ensure stability and the tractor is easy to drive when towing, the height of the hitch must be positioned based on the features and the load of the trailer:

- for tandem axle trailers, the drawbar should be almost horizontal;
- for single axle trailers, we recommend connecting the drawbar in a low position; the trailer bed must be horizontal with the load distributed evenly.

For some markets, an anchoring support may be required to ensure independent mechanical braking for the trailer:

- put the trailer's handbrake lever into the specific housing (29) located on the right-hand side of the tractor bed;
- connect the trailer's electrical circuit to the tractor circuit with the specific 7-pin plug (28).

### ! WARNING:

*Before coupling, brake the trailer using the parking brake (if available) or with suitable blocking wedges under the wheels.*

### ! WARNING:

*Before making electrical connections/disconnections, engage the parking brake, turn off the engine and take the start key out of the ignition.*

### 📎 NOTE:

*Do not drive faster than 30 Km/h when towing a trailer.*

### 📎 NOTE:

*If the trailer has driving wheels, the tow hitch must be positioned so as to leave the power take-off free to be able to install the universal joint to connect to the trailer.*

### ⚠️ DANGER:

*It is strictly forbidden to stand between the tractor and the trailer when the engine is running or without having securely parked the machine, if necessary (on sloping or uneven ground) using wedges under the wheels and turning the wheels against the slope.*

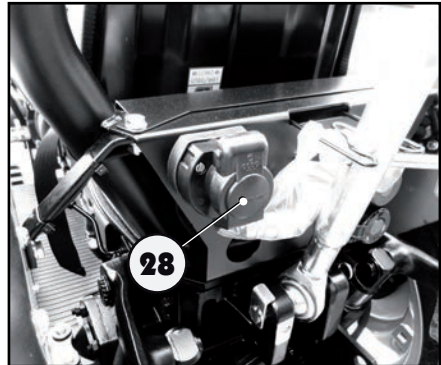


Fig. 5.33

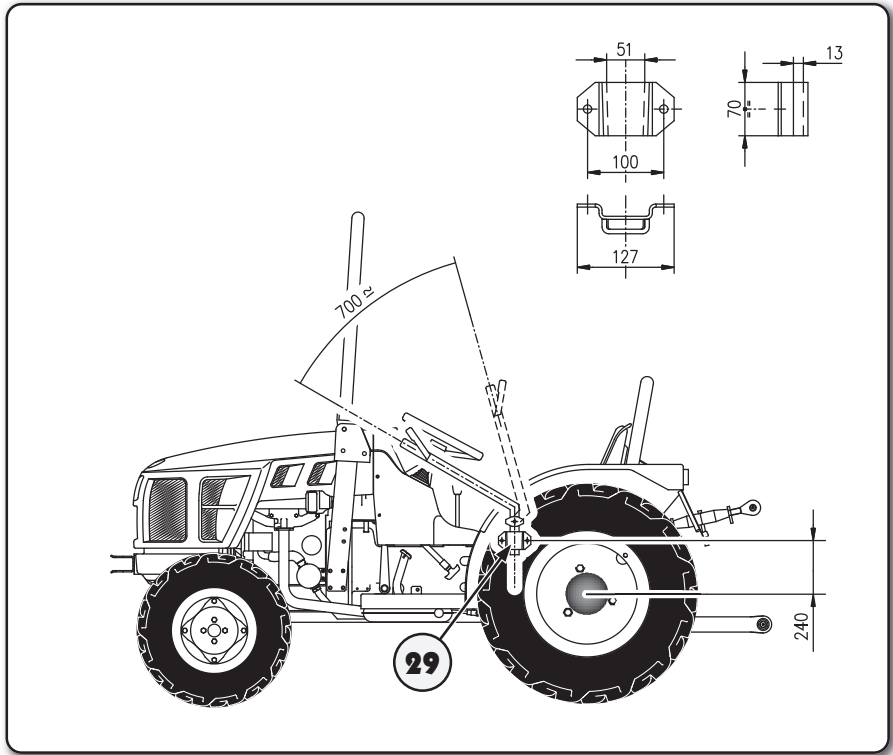


Fig. 5.34

## Three-point implement hitch

The tractor is equipped with a category 1 three point hitch, allowing the tractor to be used with any type of implement of compatible size and characteristics.

### **WARNING:**

*Always be very careful when using and adjusting the three-point hitch.*

For the lift to operate properly, you must carefully check the dimensions of the implements you need to couple to the tractor.

These hitches must have the same standard as the tractor's three-point hitch to prevent irregular stress on the assembly due to incompatible dimensions.

To avoid compromising regular operation of the lifting system, the weight of the implements must be less than the maximum load the lift can hold up. This is only an approximate value; the distance of the implement's centre of gravity in relation to the three-point hitch is also very important.

Indeed, if an implement is positioned too far from the tractor, the weight on the three-point hitch will be considerably greater than the weight of the implement itself.

### **WARNING:**

*Always turn the engine off and take the start key out of the ignition before making any adjustments on the three-point hitch or the implement.*

### **WARNING:**

*Always use the lift in a controlled position when transporting with implements mounted on the three-point hitch.*

### **WARNING:**

*Always use the lift in a controlled position when connecting or disconnecting an implement on the three-point hitch.*

### **CAUTION:**

*Before leaving the tractor, always lower the implements connected to the three-point hitch to the ground.*

### **DANGER:**

*Never work under an implement raised only by the hydraulic lift; instead, always use a suitable support to hold it in place and turn off the engine.*

### **DANGER:**

*To prevent injuries, do not stand between the implement and the tractor when checking the three-point hitch.*

### **CAUTION:**

*generally, when an implement is connected to the three-point hitch, the drive shaft has a reduced extension and the articulation angle is almost equal. when the implement is raised, the shaft is extended to the maximum and the articulation angle is diversified. therefore, for high lifting heights it may be necessary to interrupt the rotation.*

## Structure

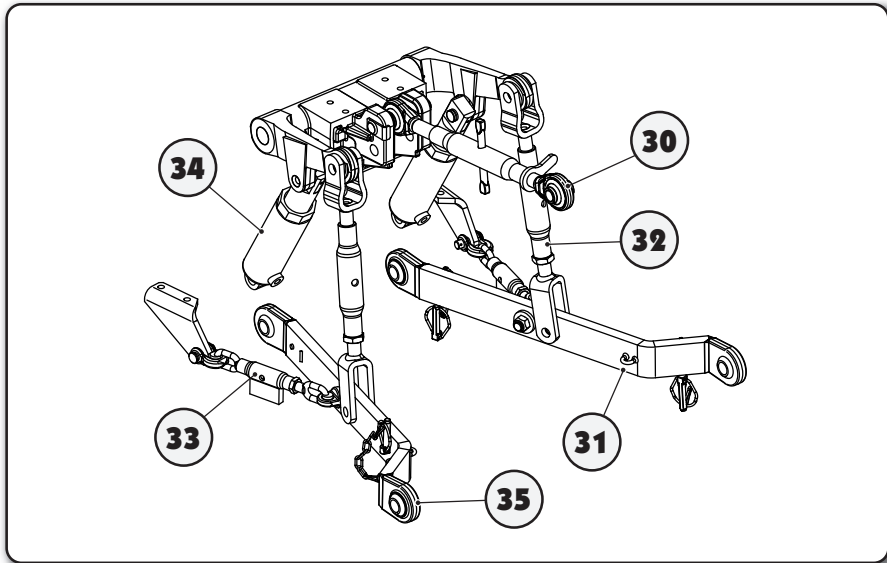


Fig. 5.35

30	length-adjustable top link
31	tool-carrying arm
32	length-adjustable vertical tie rod
33	length-adjustable side stabilising tie rod
34	Hydraulic lift cylinder
35	implement hook

## Upper top link

The upper adjustable top link is connected to the support via two holes. It must be selected based on the height of the implement.

The length of the top link can vary to be able to adjust the implement's angle of incidence in relation to the ground. When the top link is shortened, the incidence increases; when lengthened, the incidence decreases.

## Vertical tie rods

The vertical tie rods connect the lower tie rods to the lift arms.

The length of the tie rods may be altered by turning the adjuster sleeves. This adjustment is very useful, as it levels the implement according to the type of work to be done.

Turn the sleeve clockwise to shorten the tie rod.

Turn the sleeve anticlockwise to extend the tie rod.

After performing the adjustment, with the lift at its highest point, make sure the implement is not lifted more than necessary and with the lift lowered, ensure the implement can still move down.

## Implement carrier arms

The implement carrier arms are fixed.

## Side stabilising tie rods

The side stabilising tie rods are connected to the tractor body and to the tool-carrying arms. They allow you to adjust the distance between the lower arms, adapting it to the centre-to-centre distance between the implement coupling points.

## Implement hooks

The implement hooks have fixed ball joints.



## Attaching implements to the tractor

hitching and unhitching trailers or other machinery can often be dangerous for the safety of the operator unless appropriate devices to facilitate the operations are used.

### **! WARNING:**

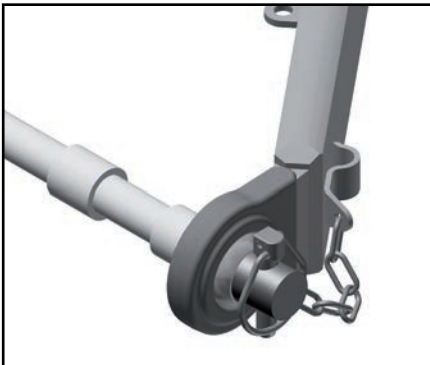
*Always make the connections on level, stable ground without the risk of landslides (away from the edges of steep banks, ditches, escarpments, etc.).*

### **! WARNING:**

*Always make sure the parking brake is engaged.*

### **! WARNING:**

*Secure the implements to the tool-carrying arms with the specific pins that go in the ball joints, locking them in place with the creep-resistant safety pins (Fig. 5.36).*



**Fig. 5.36**

## Tractor/implement stability

Due to the weight of the machine, the tractor/implement assembly may be unstable: namely, if the implements are not the appropriate size compared to the tractor, when they are attached to the rear lift, they lighten its front axle, making driving difficult and causing it to skid when making turns.

As well as properly choosing the tractor/implement combination, the solution is to add ballasts under the following conditions (Fig. 5.37):

### **! WARNING:**

*When mounting implements to the three-point hitch, you must not exceed:*

- *the maximum permissible overall load*
- *the maximum load on the axles*
- *the maximum tyre load capacity*

*The load on the front axle must always be at least 25% of the empty tractor weight.*

*Before purchasing implements, check to make sure they meet these requirements.*

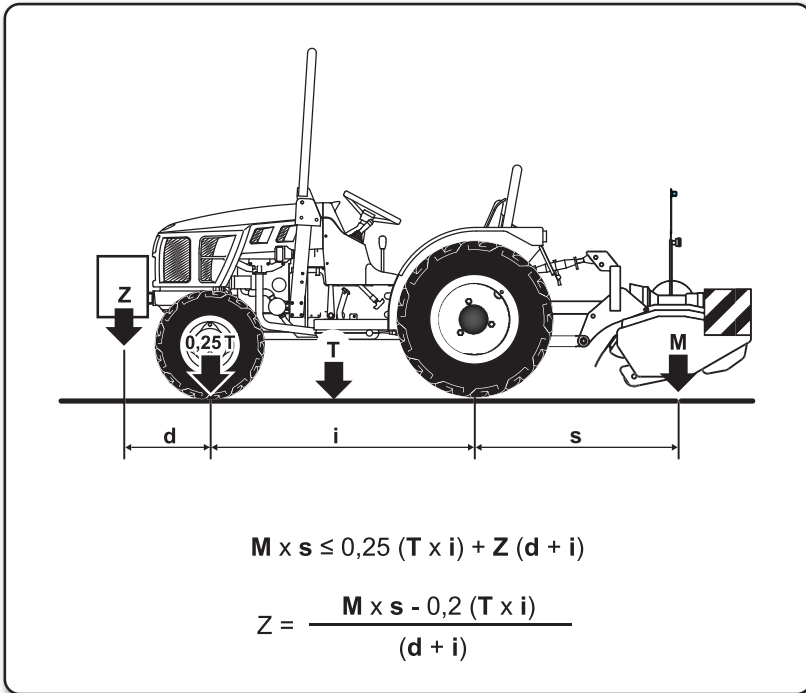


Fig. 5.37

**T** = tractor mass (kg) + 75 kg operator

**M** = machine tool mass (kg)

**Z** = ballast mass (kg)

**d** = distance between front axle and ballasts (m)

**i** = wheelbase between centres of front wheel and rear wheel/track (m)

**s** = distance between tool machine centre of gravity and rear axle (m)

## Maximum permissible loads

Tyres		Front axle	Rear axle	Total
Front	Rear			
		kg	kg	kg
6.5/80-12	250/80-18	640	1,300	1,600
	280/70 R18			
	320/65 R18			
	7.50-18			
	11.5/80/15.3			
7.00-12	300/70 R20	720	1,300	1,600
	9.5 R20			
23x8.50-12	33x12.50-15	800	1,300	1,600
25x8.50-14	36x13.50-15 Garden	800		

## "Ball joint" rear lifting unit

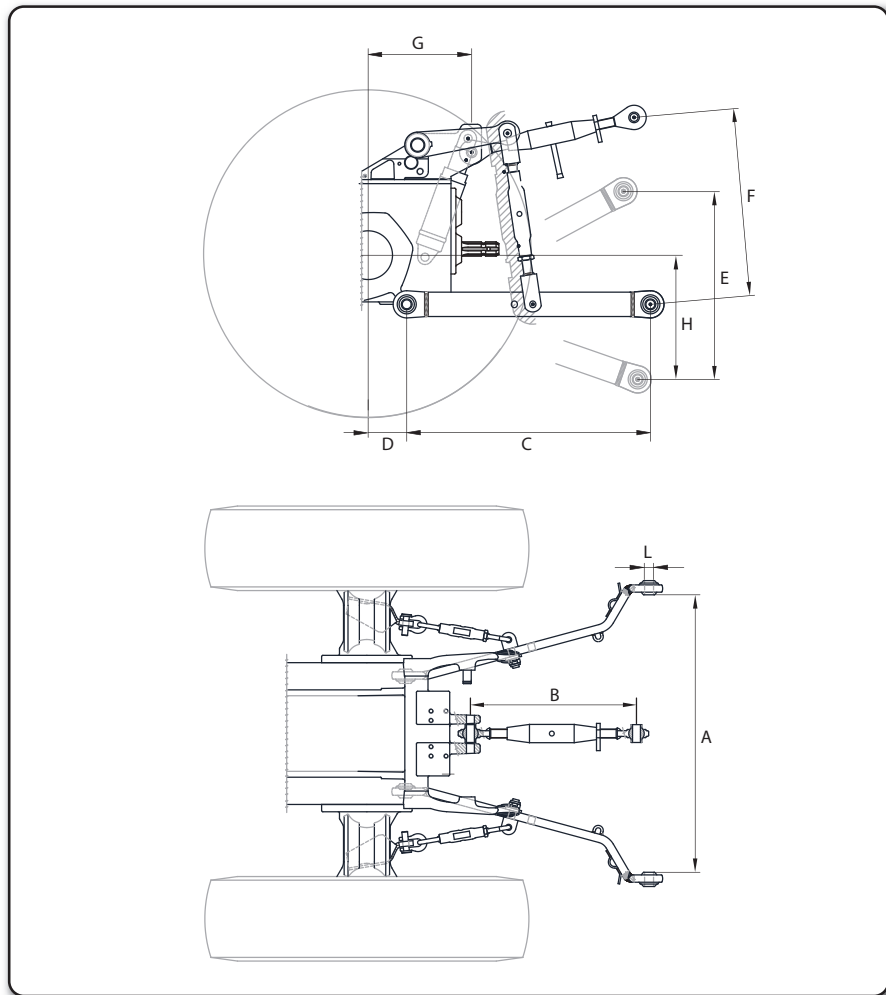


Fig. 5.38

		mm								
		A	B	C	D	E	F	G	H	L
min	683	350	600	95	465	460	255	305	22.1	
max		475								

## Normal rear implement lift

The hydraulic lift raises and lowers the implements connected to the three-point hitch.

The lever (36) controls the position of the lift arms from completely raised to completely lowered.

- Lever up - arms raised
- Lever down - arms lowered

The lever is located to the right of the driver's seat.

When the lever is down, the directional control valve is in the float position with the lockable discharge position.

The knob (37) adjusts the lift arm lowering speed.

Turn clockwise to reduce the drop rate, turn anticlockwise to increase the drop rate (Fig. 5.40).

### Double acting distributor control lever (38)

Used to control the double acting ram connected to the quick connector.

- Lever up - extend ram
- Lever down - retract ram

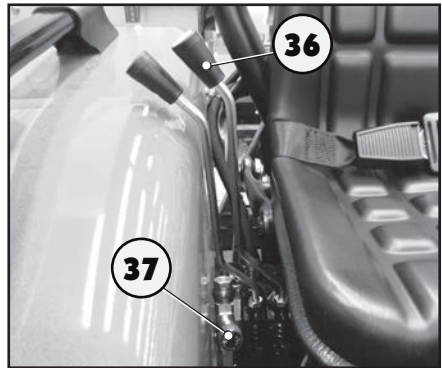


Fig. 5.39

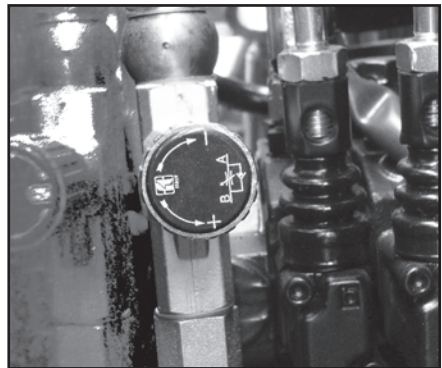


Fig. 5.40

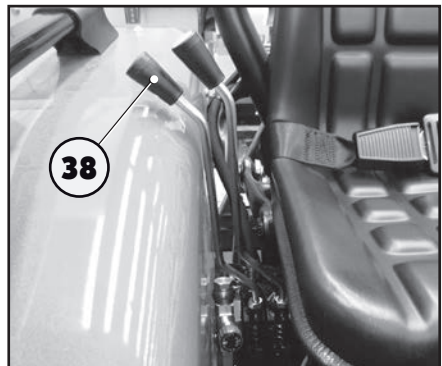


Fig. 5.41

## Rear implement lift with position and draft control

The implement lift may be used under the following conditions:

- position control;
- draft control;
- floating operation;
- combined position and draft control.

Using levers (39) and (40) to control position and draft, respectively, the lift can be used in the various ways indicated above.

The levers are located on the right side of the driver's seat (Fig. 5.42).

The lever (39) controls the position of the arms. Each position of the lever corresponds to a position of the lift arms, from completely raised (lever all the way back) to completely lowered (lever all the way forward).

The lever (40) allows you to lower the implement into the ground to the desired depth.

The knob (41) allows you to bring the lever (39) back to the same position at the beginning of each step.

### Position control

Position control brings and keeps the implement in a certain position, whatever it may be, including the highest and lowest positions, whether under or above ground.

Position control is used for:

- mounted implements, i.e. without wheels or other parts that rest on the ground;
- semi-mounted implements, that is, equipped with wheels or other parts that rest on the ground.

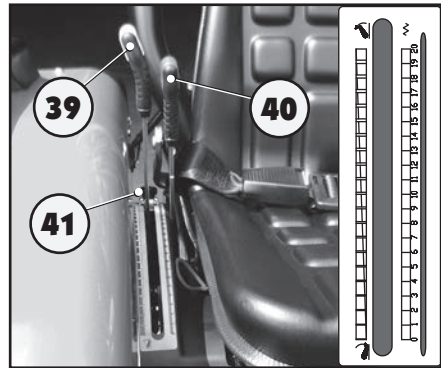


Fig. 5.42

To use this operating mode:

- move the draft control lever (40) all the way forward;
- move the position control lever (39) forward to lower or backward to lift.

 **NOTE:**

*The implement moves in proportion to the position of the lever (39).*

### Draft control

Using the lift in draft control keeps the tractor's pull constant regardless of the varying work conditions.

Draft control is used with all mounted tractor implements without ground support like runners, wheels, etc.

To use this operating mode:

- move the position control lever (39) all the way forward;
- gradually move the draft control lever (40) forward until the implement is under the ground at the desired depth;

 **NOTE:**

*The depth the implement reaches is proportional to the pull determined by the consistency of the soil. In this condition, the lift automatically keeps the pull required from the tractor constant.*

- lift the implement at the end of each step using the position control lever (39).

### Floating operation

To use this operating mode:

- move the position control lever (39) and the draft control lever (40) all the way forward;
- lower and lift the implement and the beginning and at the end of every step, using the position control lever (39).

### Combined position and draft control

To use this operating mode:

- put the implement into the ground and establish the desired working depth by following the instructions under "draft control";
- when the implement is stable at the desired depth, move the position control lever (39) backward until the lift arms tend to move up.

 **NOTE:**

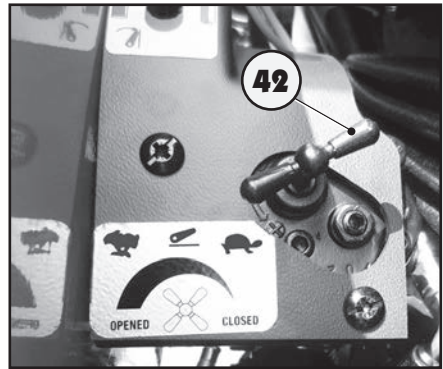
*In this condition, the lift works in draft control but should the implement encounter less resistant soil, prevent it from going too far into the ground.*

- lower and raise the implement at the beginning and at the end of every step, using the position control lever (39).

**Driving on roads with a connected implement**

When driving on roads with an implement connected to the tractor:

- move the position control lever (39) fully back;
- turn the arm downhill speed adjustment lever (42) completely clockwise.



**Fig. 5.43**



## Auxiliary hydraulic directional control valves

### NOTE:

*To ensure the hydraulic circuit operates smoothly, check the transmission oil level often and, if considerable oil is used for external circuits, increase the oil level as indicated in Chapter 6 - "Periodic Maintenance".*

The tractor may be equipped with the following different types of auxiliary distributor:

- single acting
- double acting
- double acting with lockable position
- double acting float

These distributors are connected via hoses to specific hydraulic couplings on the rear of the tractor.

Depending on the hydraulic distributor types installed, the control levers have the following functions:

- Single acting hydraulic distributor control lever: when the lever is raised, the jack extends; when the lever is lowered, the jack retracts due to the mass of the installed implement.
- Double acting hydraulic distributor control lever: when the lever is raised, the jack extends; when the lever is lowered, the jack retracts.

### CAUTION:

*Make sure that the hydraulic cylinders of the implements that are connected contain the same type of oil as the tractor transmission to prevent contaminating it and possibly causing it to malfunction.*

The external hydraulic cylinders connected to the tractor hydraulic circuit must be equipped with hoses and 1/2" male couplings to connect them to the quick cou-

plings on the back of the tractor.

### WARNING:

*Leaking pressurised hydraulic fluid can be powerful enough to penetrate the skin. The fluid for hydraulic controls can also cause cuts on the skin. If injuries occur due to leaking fluid, immediately seek medical attention. Failure to do this might cause serious infections and skin reactions. The tightness of all of the connection devices and the conditions of the hoses and pipes must be checked before pressurising the system. Completely release the pressure before disconnecting hoses and before carrying out other types of work on the hydraulic system. Never check for leaks with your hands; instead, use a piece of cardboard or wood.*

To connect the hose to the tractor, proceed as follows:

- Clean the male coupling on the implement;
- turn off the engine;
- make sure the hydraulic lift is lowered;
- operate the lever of the directional control valve you intend to connect several times all the way in order to release the pressure from the circuit;
- lift the protective cover on the quick valve connected to the directional control valve;
- thoroughly clean the valve and the coupling;
- use the ring nut and insert the coupling onto the valve. Make sure it is inserted well by slightly pulling it backwards.

Once this operation is complete, you can restart the engine and use the directional control valve as required.

To disconnect the hose from the tractor, proceed as follows:

- Stop the engine;

- operate the lever of the directional control valve that was used for the connection several times all the way to release the pressure from the circuit;
- use the ring nut and pull the coupling in order to disconnect it from the rear valve on the tractor;
- close the valve with the protective cap and clean it.

 **WARNING:**

*To prevent accidents when inserting the quick couplings, keep your distance from the range of action of the implements. We recommend using locking valves on the hydraulic drives for greater safety.*

## Ballasting

 **WARNING:**

*All ballast installation and removal operations must be carried out in a properly equipped location (workshop) in order to work safely.*

*Any operations must be carried out when the engine is turned off, the parking brake is engaged and the start key has been taken out of the ignition. Personnel must take all precautions possible to prevent the risk of crushing when fitting and removing ballast weights.*

 **WARNING:**

*The overall tractor weight including ballasts and implements must not exceed the maximum permissible load on the axles and the maximum technically permissible mass.*

 **NOTE:**

*Always contact your dealer for proper ballast installation.*

## Installing front ballast weights

The 15 kg plates are supplied with handles and can be easily mounted as follows:

- Remove the screws (A and B) and the relative washers from the ballast carrier;
- slide the plates into the support;
- fasten the plates with the screws and washers removed previously.

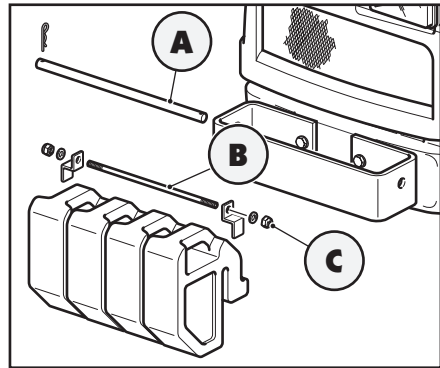


Fig. 5.44

## Installing rear wheel ballast weights

### ! WARNING:

*When fitted with wheel ballast weights, the tractor may be imbalanced under braking and when steering.*

The 45 Kg ballast weights may be fitted easily as follows:

- remove one wheel fastener screw (D) and the relative washer;
- fit one of the three special screws with extension (E) in the hole where the screw was removed;
- repeat the procedure for the other two wheel fastener screws, replacing one at a time;
- fit the ballast weight and fasten with the screws (F) and washers included;
- repeat on the opposite side.

### ! WARNING:

*It is important to check the driving torque on the fastening screws and nuts every 200 hours of operation. Use the provided anti-loosening devices to prevent dangerous damage to the tractor and the operator.*

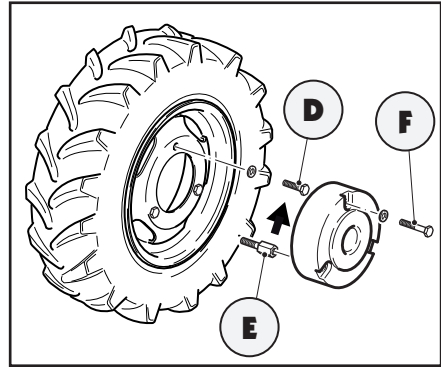


Fig. 5.45

### Driving torques (Nm)

	E	F
M14	-	135÷145
M18	235÷255	-

## Water ballasting



### CAUTION:

*The Highway Code does not allow vehicles with water ballasts on the road; however, should you consider it necessary, make sure it does not exceed 75% of the tyre volume (when tractor is lifted up, you must consider the highest valve as the maximum limit).*

In certain cases, it is possible to increase adhesion weight or lower the tractor's centre of gravity by ballasting the tyres with water.

If low temperatures are expected, use an anti-freeze solution. The antifreeze solution can only be used in temperatures up to  $-20^{\circ}\text{C}$ .



### CAUTION:

*Antifreeze products may aggravate wheel corrosion.*

### NOTE:

*As the volume of air ensuring pressure is low, it must be checked regularly. We recommend checking the pressure monthly.*

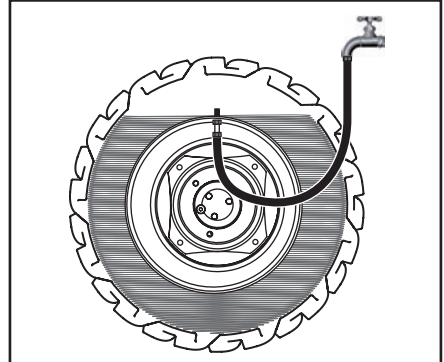


Fig. 5.46

## Filling

To fill a tyre, proceed as follows:

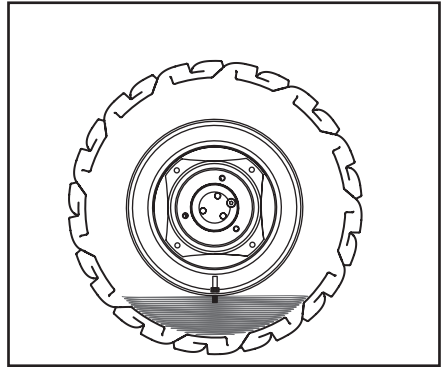
- lift the wheel and position it with the valve at the top;
- unscrew the valve insert and wait for the tyre to deflate;
- screw the specific water inlet fitting onto the valve seat and attach the water hose to the fitting. While the water goes in, the air comes out of the vent hole;
- stop filling when water comes out of the vent hole;
- screw the air valve insert back in and inflate the tyre at normal pressure.

If you want to put in less water for less ballasting, turn the wheel so that the valve is at the bottom.

**Discharging**

To discharge water from the tyre, proceed as follows:

- lift the wheel and position it with the valve in the lowest vertical position;
- unscrew the valve insert and drain out all the water;
- screw the specific fitting onto the valve seat and fill with pressurised air until the remaining water comes out of the hose;
- then remove the fitting, screw the valve insert back in and inflate the tyre at normal pressure.



**Fig. 5.47**

## Lifting points

### ! WARNING:

*Personnel in charge of tractor lifting operations must have been properly trained in advance and have the necessary equipment.*

To carry out lifting operations, proceed as follows:

- park the tractor on a compact, level surface;
- engage the parking brake, stop the engine and remove the key from the ignition switch;
- disconnect any implements attached to the power take off.
- remove any ballasts on the wheels;
- put a lifting jack under the central gearboxes and lift the machine.

### ! WARNING:

*When lifting the tractor, make sure the weight is distributed properly and stop the axle from oscillating by putting appropriate supports under the side axle boxes (Fig. 5.50).*

### ! WARNING:

*If kept in the raised position, the hydraulic lifting devices can come down due to leakage. Always use appropriate supports if the operation requires the machine to be lifted. Never work under a machine that is only supported by a jack.*

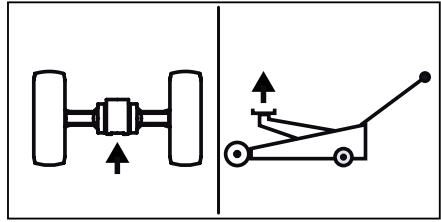


Fig. 5.48



Fig. 5.49

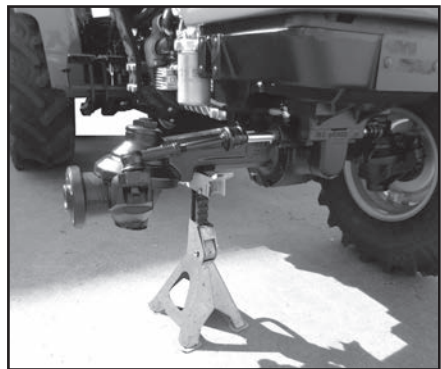


Fig. 5.50

# Wheel tracks

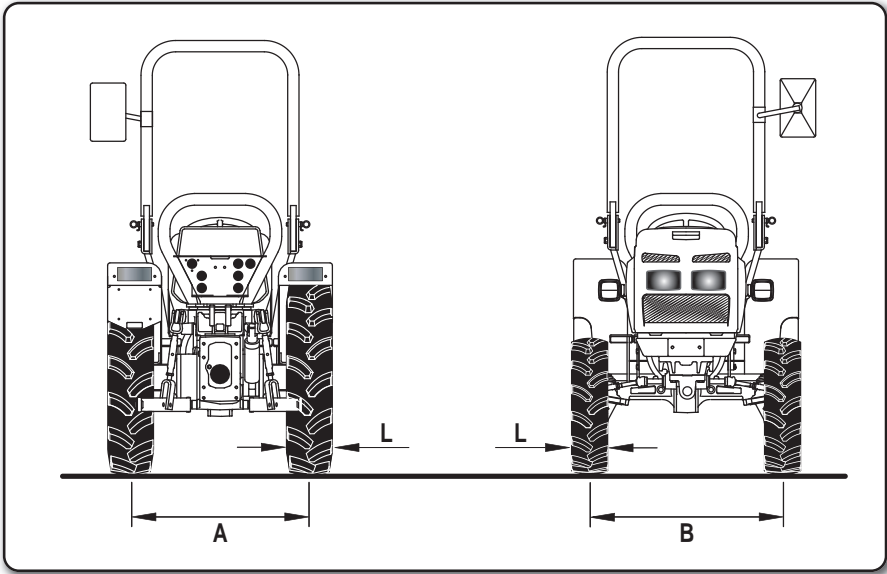


















Fig. 5.51



Rear tyre	L (mm)	A (mm)							
									
250/80-18	240	791	881	865	955	943	1,033	1,017	1,107
280/70 R18	282	779	869	877	967	951	1,021	1,029	1,119
320/65 R18	320	779	869	877	967	951	1,021	1,029	1,119
7.50-18	205	795	1,103						
11.5/80/15.3	290	811	877	1,021	1,013				
300/70 R20	286	671	761	873	963	935	1,025	1,137	1,227
9.5 R20	245	782	902	846	966	936	1,056	1,000	1,120
33x12.50-15	345	861	1,037						
36x13.50-15	381	907	991						

Front tyre	L (mm)	B (mm)							
									
6.5/80-12	165	868	928	924	984	988	1,048	1,044	1,104
7.00-12	192	830	920	904	994	982	1,072	1,056	1,146
23x8.50-12	213	932	1,044						
25x8.50-14	213	960	1,016						

## Wheel track adjustment

The tractor can be adapted to the operating needs of the various implements and various crops by varying the front and rear wheel tracks.

Vary the wheel track by changing the fastening the position of the hubs and central discs.

Some types of wheel tracks cannot be performed on certain types of tyres.

### ! WARNING:

*It is important to check the driving torque on the fastening screws and nuts every 200 hours of operation. Use the provided anti-loosening devices to prevent dangerous damage to the tractor and the operator.*

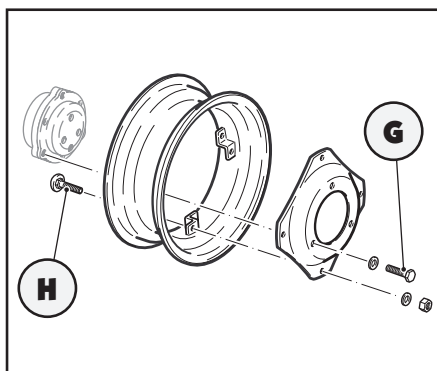


Fig. 5.52

### Driving torques (Nm)

	G	H
M12	84÷91	78±8
M14	135÷145	112±12
M16	-	270±27
M18	235÷255	-

## Transporting the tractor

The tractor must be transported using a suitable means of transportation.

**! WARNING:**

*Avoid lifting the tractor with a crane or other unsuitable lifting devices.*

Before transporting the tractor, the parking brake must always be engaged.

**! WARNING:**

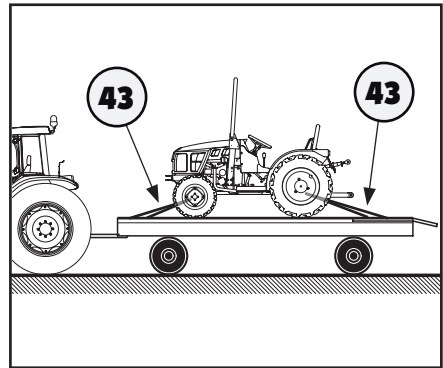
*Use suitable ramps to load the tractor onto the transport vehicle.*

**! WARNING:**

*Do not hook or connect chains around the tractor parts, which could be damaged by the chains themselves or by excessive loads.*

Once the tractor has been loaded onto a suitable means of transport, secure it with suitable anchoring belts or chains (43). The axles are the best places on the tractor to secure belts or chains (Fig. 5.53).

The trailer must always have the warning signs and lights required by law.



**Fig. 5.53**

## Towing the tractor

If the tractor is towed, remember that the hydrostatic steering system can be used to drive and turn for a short distance with the engine off.

Always steer the tractor from the driver's seat and:

- put the transmission levers in neutral;
- disengage the parking brake;
- move the PTO selector lever in neutral;
- always slow and stop the tractor using the coupled brake pedals;
- use the rotating light and flashing hazard lights.

**NOTE:**

*Steering requires greater effort if the engine is off.*

**NOTE:**

*Always tow or push the tractor at a moderate speed.*

# Chapter 6: Periodic maintenance

## Introduction and safety

This chapter contains the maintenance instructions needed to keep your tractor operating efficiently. Each operation is described in detail in the next paragraphs. The recommended maintenance intervals refer to the tractor under "normal working conditions".

In case of heavy-duty working conditions, such as in dusty locations or with extreme loads, some interventions must be carried out more often.

Before servicing the tractor, read and follow all of the safety precautions in Chapter 2 under the "Tractor maintenance" paragraph.

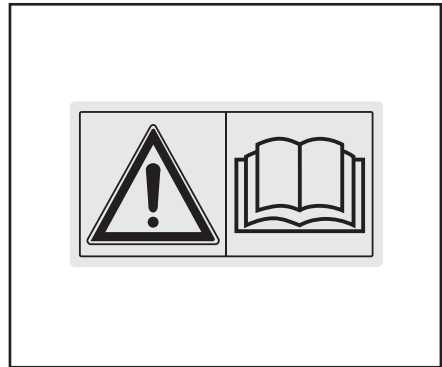
The operations described in this chapter will ensure your tractor operates normally.

 **NOTE:**

*The working hours of the tractor are indicated on the digital display when the ignition switch is turned to position "1".*

 **NOTE:**

*For engine maintenance, refer to the relative use and maintenance manual supplied with the tractor.*



**Fig. 6.1**

 **WARNING:**

*Never perform any checks, maintenance or adjustment on the tractor with the engine running. All procedures operations must be performed on level, firm ground, with the engine switched off, the parking brake engaged and the ignition key removed from the ignition switch.*

 **WARNING:**

*Park the tractor on a level surface and, if possible, extend all the cylinders before checking the oil levels.*

 **WARNING:**

*Before checking, servicing or adjusting the tractor, be sure you put on safety clothing and personal protective equipment (PPE).*

 **WARNING:**

*Oil level checks, top-ups and changes must be done with the tractor on a level surface and with the engine off for at least 10 minutes.*

**CAUTION:**

*Make sure the hydraulic equipment connected to the tractor hydraulic system uses the same type of oil. Using different types of oil can damage the tractor parts.*

**NOTE:**

*Keep an eye on the oil level in the gear-box if using implements with hydraulic controls that draw oil from the tractor.*

**CAUTION:**

*To prevent contamination when changing oils, filters, etc., always clean the area around the inlet, level and outlet caps, the dipsticks and filters. Before connecting auxiliary cylinders, make sure the oil they contain is clean, has not deteriorated due to prolonged storage and is the right type of oil.*

**NOTE:**

*Do not discard polluting material into the environment. Dispose of used filters and fluids appropriately, in full compliance with the standards in force.*

**NOTE:**

*The tractor instrument panel has lights that keep you informed on the condition of your vehicle. Some of these indicators warn of faults, and require immediate corrective action as soon as they illuminate. (see Chapter 4 - "Instruments and controls").*

**NOTE:**

*No special equipment is required.*

We recommend checking the following components periodically. In the event of problems, contact your dealer for repairs:

- hydraulic hoses. The outer sheath of the hoses must not be crushed, cracked or bulging and there must be no oil leaking from between the hose and the fitting;
- fastening nut tightness check;
- check tightness of fastener screws for protective structure or cab;
- general bolt and nut tightness check.

## Refuelling the tractor

**⚠ DANGER:**

*Do not smoke or use open flames or sparks when filling up with fuel or lubricants.*

**⚠ WARNING:**

*Refuel in an open, ventilated place with the engine off and cooled and with the start key taken out of the ignition. Clean up any fuel or lubricant that has leaked out.*

**⚠ DANGER:**

*Never add gasoline, alcohol or a mixture of diesel or alcohol to diesel as the risk of fire and explosion increases considerably. In a closed container like a jerry can, they are more explosive than pure gasoline. Furthermore, diesel and alcohol mixtures are not approved due to the insufficient lubrication of the fuel injection system.*

**⚠ WARNING:**

*Do not fill the fuel tank completely. Leave space for the increase in volume. If the tank's original cap is lost, replace it with an original spare part and tighten completely.*

### Fuel requirements

Refer to the engine use and maintenance manual supplied with the tractor for the type of fuel to use. Fuel quality is an important factor for engine performance and reasonable lifetime. Fuel must be clean, well-refined and not corrosive to parts of the fuel system. Make sure you use fuel with a known quality from a reliable source.

Before filling the tank, clean the area around the inlet cap to prevent foreign objects from getting into the tank. When fuelling is finished, screw the cap on again and tighten it well.

**📌 NOTE:**

*The fuel tank has a 26-litre capacity.*



**Fig. 6.2**

## Accessibility for inspection and maintenance

**! WARNING:**

*Before opening the bonnet, engage the parking brake, turn off the engine and take the start key out of the ignition.*

**! WARNING:**

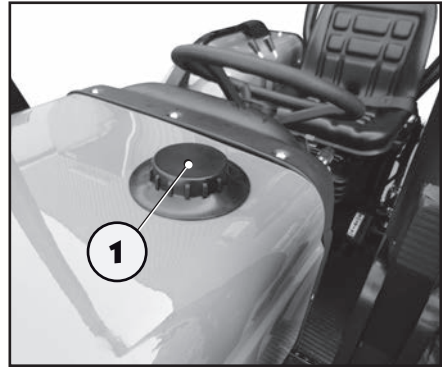
*Touching hot surfaces can cause burns. After running, the engine, its components and fluids may be hot. Let the engine cool down before servicing or working near the engine.*

To access the engine parts and carry out inspections and maintenance on the engine itself and all of the assembled parts, the tractor's bonnet must be opened.

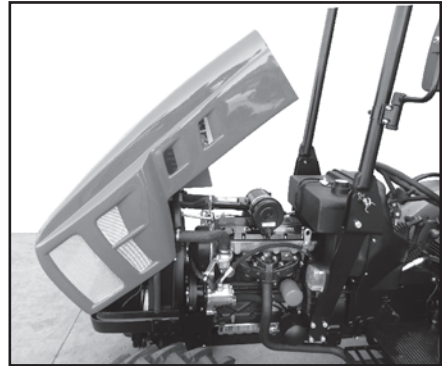
The engine hood may be tipped forwards easily by removing the fuel cap (1) and lifting the hood from the driver side (Fig. 6.4).

**! WARNING:**

*Never use the tractor without the hood in place.*



**Fig. 6.3**



**Fig. 6.4**



## Run-in period

Normal tractor operation and long life-time closely depend on the initial period of use (run-in) of the new vehicle. This is why it is very important to follow the instructions below:

- The new engine does not need a gradual run-in. It must be used at full power right from the beginning (but not overloaded) with just one important warning: only use at maximum power when the engine has reached at least 60°C.
- After a cold start, always run the engine at low speeds and with no load for a few minutes.
- Avoid running the engine in idle for long periods of time.
- Check often to make sure there are no oil or fuel leaks.

### After the first 50 hours of operation

- Check the rear transaxle oil and rear reduction gear unit levels, following the instructions in this chapter.
- Replace the hydraulic oil filter element.
- Check the front axle oil level, following the instructions in this chapter.
- Check the tightness of all the bolts, screws, nuts and fittings.
- Grease all the points that have lubricators.
- Check the brake pedal travel.
- Check the pressure of the types.
- Check the engine coolant level.
- Change the oil in the crankcase and the engine oil filter cartridge. Then change the oil and filters when specified in the periodic maintenance.
- Change the fuel filter. Then change the fuel filter when specified in the periodic maintenance.

- Check the alternator/fan belts, following the instructions in the respective engine use and maintenance manual.
- Clean the air filter.
- Clean the radiator externally.

## **Maintenance frequency table**

The periodic maintenance and inspection operations are listed in the "Routine maintenance" chapter of the service manual supplied with the tractor.

## **Structure to protect against the risk of overturning**

Have the tightness of the fastener screws of the front and rear protective structures or cab checked regularly by your dealer.

## Tyres

### Tyre maintenance

- Check the inflating pressure of the tyres every 50 hours of work or every week. Do this on the tread side from at least 2 metres away, using a pipe with an appropriate length.



#### NOTE:

*Check inflation pressures with cold tyres and with no implements mounted on the tractor.*

- Make sure there are no traces of impacts or cracks on the tyre.
- Make sure there are no cuts, abrasions or bulges on the sides. Change damaged or worn tyres.

### Storage

- Make sure tyres are not stored on rubber-corroding agents like sewage, diesel, hydrocarbons and the like.
- Unload the axis by resting any implements on the ground, releasing the body from compression.

### Changing the tyres

Change the tyres when they lose traction in the field and not only by considering the residual height of the studs.

When a tyre needs to be changed, also replace the inner tube (if it has one) or the valve if it is tubeless.



#### WARNING:

*Changing tyres can be dangerous for operator's safety and requires specific equipment and technical skills. As such, we recommend having it done by your dealer.*

### Inflating the tyres



#### DANGER:

*When inflating the tyres, keep a safe distance and always use an anti-explosion box.*

Non-compliant pressure can have serious consequences on the duration of your tyres:

- Over-inflation causes excessive sliding on the fields. On hard rocky ground, it causes premature wear.
- On the road, over-inflation causes the studs to wear quickly and unevenly.
- Under-inflation causes irreversible damage to the tyre casing, with the risk of breaking. It also causes excessive wear on the road and excessive driving resistance.

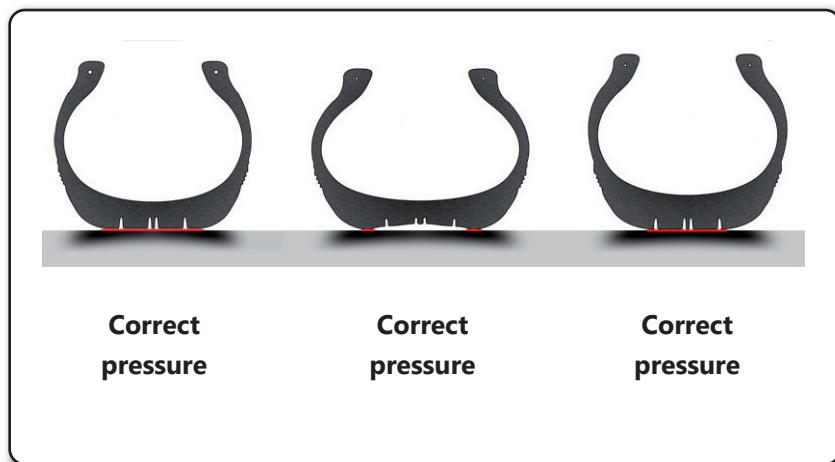
Inadequate tyre pressure on the tractor will affect your level of comfort:

- Over-inflation causes jolting (bouncing) and vibrations.
- Under-inflation compromises directional precision when driving on the road. Low speed manoeuvres or parking will be more difficult.

**Inflating pressures**

Tyres Front	Recommended running order pressure	Maximum pressure
	bar	bar
6.5/80-12 4PR	2.4	2.4
6.5/80-12 6PR	2.8	3.6
7.00-12 4PR	1.2	1.75
7.00-12 6PR	1.9	2.5
23x8.50-12	1.5	1.5
25x8.50-14	1.8	2.2

Tyres Rear	Recommended running order pressure	Maximum pressure
	bar	bar
250/80-18	1.6	3.1
280/70 R18	2.4	2.4
7.50-18	2.4	3.25
300/70 R20	1.6	1.6
9.5 R20	1.4	1.6
33x12.50-15	1.4	1.4



**Fig. 6.5**

## Checking the engine oil level

 **NOTE:**

*Check the level with the engine level and off for at least five minutes to allow the oil to settle in the crankshaft.*

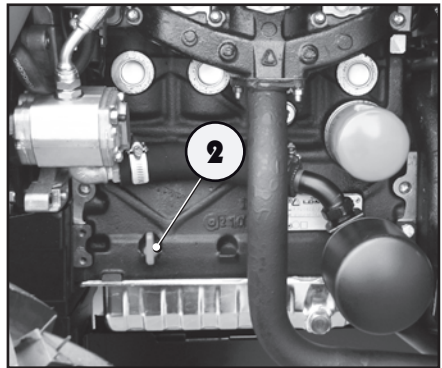
To check the level:

- pull out the dipstick (2), wipe it with a rag and put it back into the inlet;
- pull the dipstick back out and make sure the oil level is between the minimum and maximum markers.

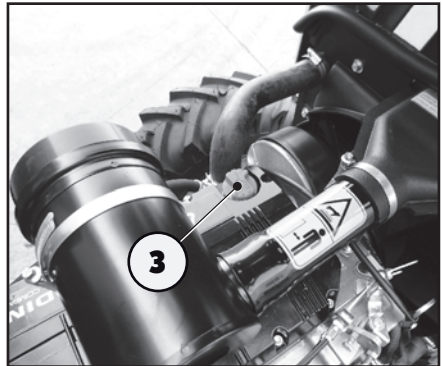
If necessary, unscrew the cap (3) and add oil from the fill inlet up to the correct level.

 **NOTE:**

*Use the type of oil as per the instructions in Chapter 3 - "Supply table".*



**Fig. 6.6**



**Fig. 6.7**

## Checking the engine coolant level

Periodically check the coolant level in the radiator.

Undo and remove the cap (4) from the filler orifice. The level should be visible. If not, top up to the indicated level.

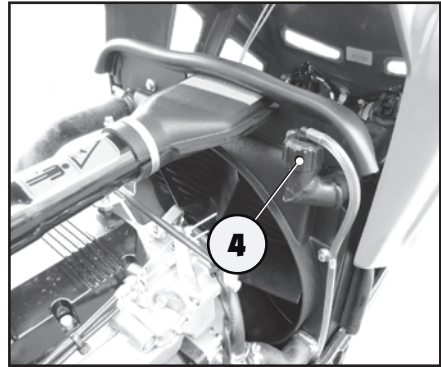
**NOTE:**

*Check the coolant level when the engine is cold.*

**WARNING:**

*Never remove the radiator cap when the engine is still hot. Unscrew the tank cap slowly to allow any pressure inside the operating circuit to gradually decrease.*

To prevent the possibility of ice forming on the radiator, add antifreeze as described in Chapter 3 - "Supply table".

**Fig. 6.8**

## Radiator

In order for the cooling circuit to operate properly, it is important to clean the radiator fins (5) and the front grille (6) of the engine bonnet.

 **NOTE:**

*Should the working environment be particularly dusty, we recommend cleaning the radiator often, even more than once a day.*

Check the radiant surface often for obstructions, based on the tractor's conditions of use. Frequently check the engine coolant overheat warning indicator (7) on the digital instrument panel.

 **WARNING:**

*The engine cooling circuit builds up pressure as the engine heats up. Before removing the radiator cap, turn off the engine and wait for the circuit to cool down.*

 **WARNING:**

*The radiators and grilles must be cleaned while the engine is cold; when overheated, they can burn your fingers and hands.*

Clean the radiator with compressed air directed from the inside to the outside.

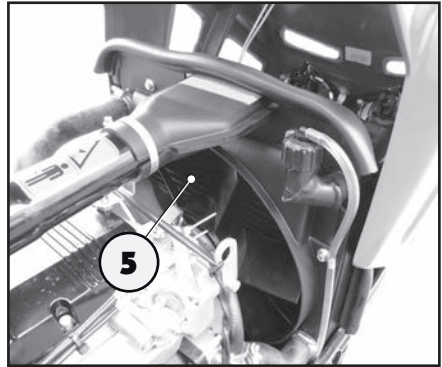


Fig. 6.9

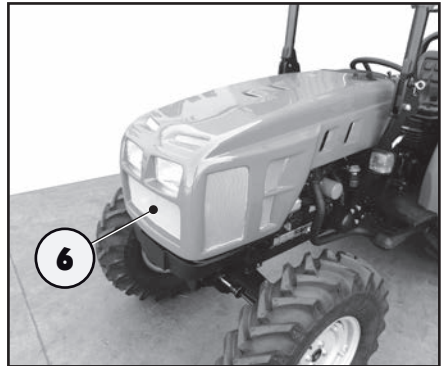


Fig. 6.10

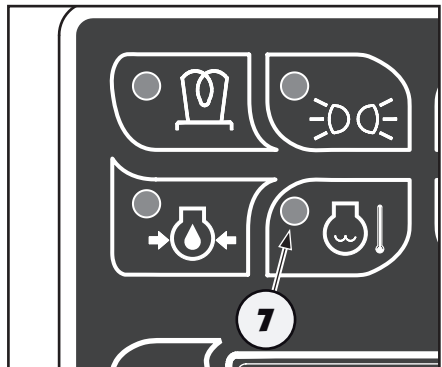


Fig. 6.11

## Air filter

### ! WARNING:

The filtering elements must always be cleaned when the engine is off.

Clean the air filter periodically.

If working in particularly dusty environments, the air filter should be cleaned more frequently.

### Air filter dust ejector valve

Daily empty any dust and sediment accumulating the filter by pressing the rubber valve (9) on the filter cover (10).

### Cleaning the air filter

To clean the filter (8):

- open the engine hood;
- open the filter cover (10) by unscrewing the knob (11);
- undo the knob (12) securing the filter cartridge (14), and remove the cartridge from the housing (Fig. 6.14);
- clean the cartridge with compressed air at no more than 3 bar (3.1 kg/cm<sup>2</sup>), directing the air flow along the entire length of the filtering cartridge's inner surface until all the dust has been removed;
- use a damp cloth to thoroughly clean all the internal surfaces of the container (13) and cover (10) before reassembly;
- reassemble the filtering element and always make sure the filter seat is not damaged and that all the hoses and fittings are tightened.

### ☞ CAUTION:

Never use oil, petroleum, diesel, paraffin or other solvents to clean the filter.

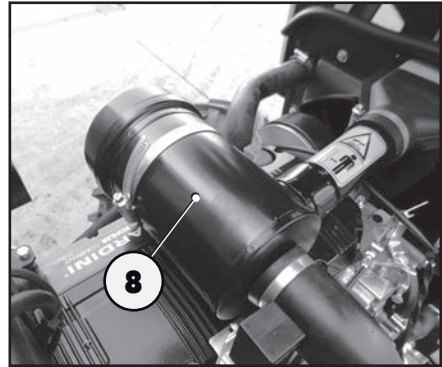


Fig. 6.12

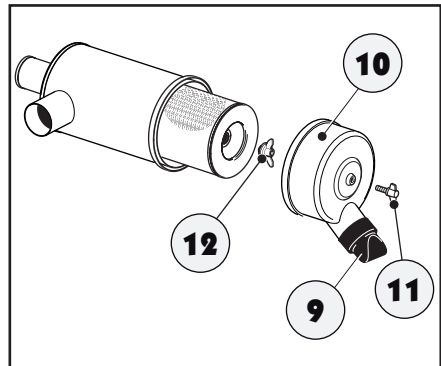


Fig. 6.13

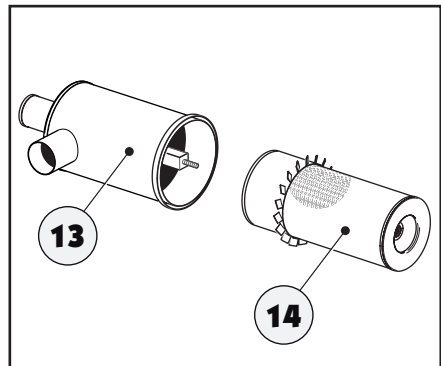


Fig. 6.14



**CAUTION:**

*Replace the air filter cartridge (14) after it has been cleaned 6 times or every 500 hours. If the cartridge appears excessively dirty, replace it right away.*

## Changing the fuel filter

**⚠ DANGER:**

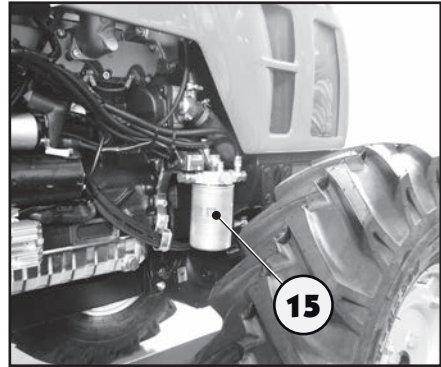
*Only change the filter when the engine is cold. Spilling fuel onto parts that are still hot can cause a fire. Clean up any fuel that has leaked out.*

To change it:

- position a container to collect any fuel leaks;
- unscrew the filtering cartridge (15) from its seat;
- lubricate the seal on the new cartridge before assembling it;
- fill the new cartridge with the fuel contained in the replaced cartridge;
- fit the new cartridge on the mounting and tighten it fully.

**👉 CAUTION:**

*Only use original filtering cartridges. Using non-original cartridges can damage the engine and reduce its life cycle.*



**Fig. 6.15**

## Notes

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## Lubricating tractor parts

Use the grease points shown below to lubricate the various tractor parts every 50 hours or more frequently, depending on operating conditions.

 **NOTE:**

*Once lubrication is complete, check the tractor in general to make sure there are no oil leaks, loosened or damaged parts.*

Before lubricating these parts, thoroughly clean the surfaces and make sure that the ball bearings are free.

After lubrication has been carried out, remove all grease residues to prevent soil or dust from accumulating.

Use "AGIP GREASE SM 2" grease for lubrication.

Lubrication points

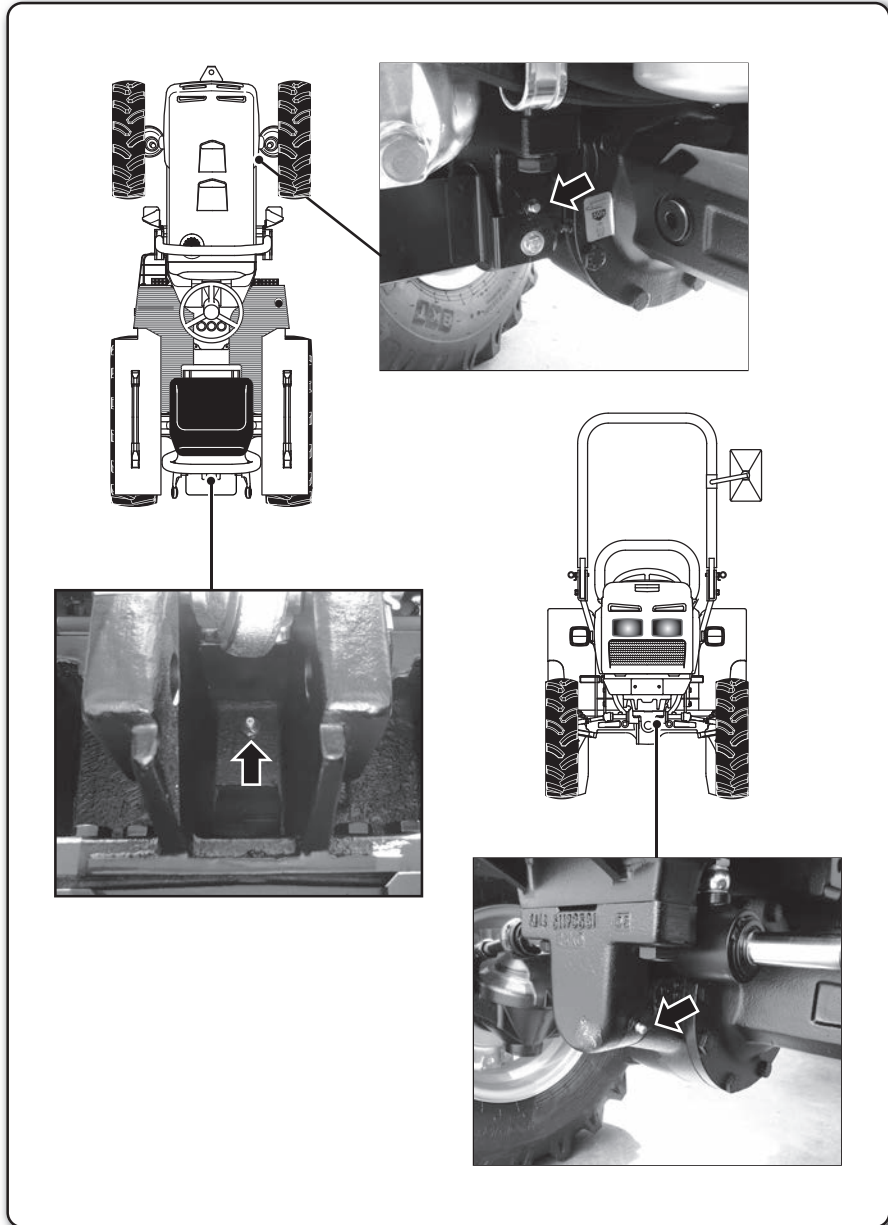


Fig. 6.16

## Front axle oil level

Regularly check the oil level in the front axle.

 **NOTE:**

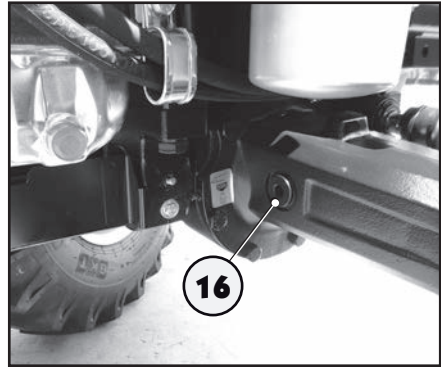
*Before checking the oil level, allow the oil to settle in the transmission.*

To check the level:

- remove the cap (16);
- make sure the oil comes up to the brim of the hole;
- if not, top it up;
- put the plug back in.

 **NOTE:**

*Use the type of oil as per the instructions in Chapter 3 - "Supply table".*



**Fig. 6.17**

## Gearbox and rear axle oil level

Regularly check the oil level in the transmission units.

 **NOTE:**

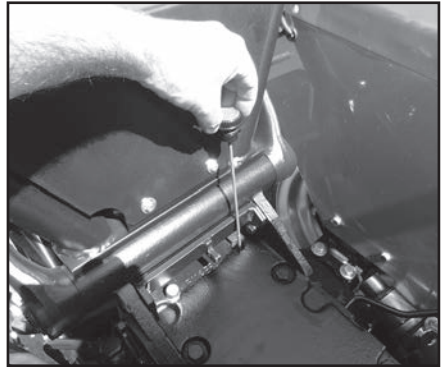
*Before checking the oil level, allow the oil itself to stabilise in the transmission and the hydraulic lift arms to lower completely.*

To check the level:

- lift the seat completely;
- pull out the dipstick (Fig. 6.18);
- wipe the dipstick with a rag;
- put the dipstick into the gearbox case;
- pull the dipstick back out and make sure the oil level is between the minimum and maximum markers;
- if not, top it up;
- put the dipstick back into the gearbox case.

 **NOTE:**

*Use the type of oil as per the instructions in Chapter 3 - "Supply table".*



**Fig. 6.18**

## Changing the engine oil

 **NOTE:**

*Change the oil with the engine level and off for at least five minutes to allow the oil to settle in the crankshaft.*

To change it:

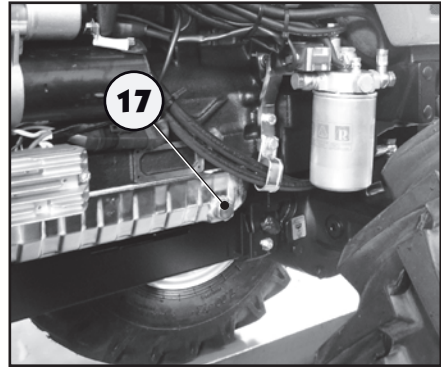
- position a properly sized container under the drain plug (17) located on the lower side of the crankshaft;
- unscrew the filler plug (18);
- remove the drain plug (17) and let the oil drain into the container;
- refit the drain plug, replacing the copper gasket with a new component, and tighten to 40 Nm;
- put in new oil through the inlet hole up to the level between the minimum and maximum markers on the dipstick;
- refit and tighten the cap (18);

 **NOTE:**

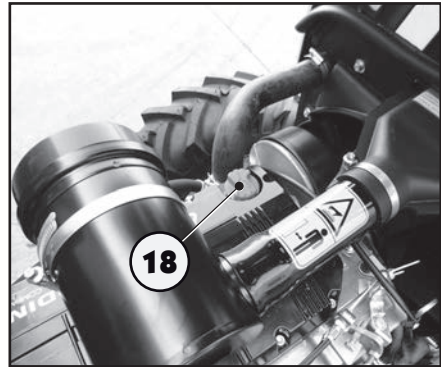
*Use the type of oil as per the instructions in Chapter 3 - "Supply table". Refer to the engine use and maintenance manual for use in special weather conditions.*

 **NOTE:**

*If the tractor is used infrequently, change the engine oil at least once a year, regardless of the number of operating hours.*



**Fig. 6.19**



**Fig. 6.20**



## Changing the engine oil filter

**! WARNING:**

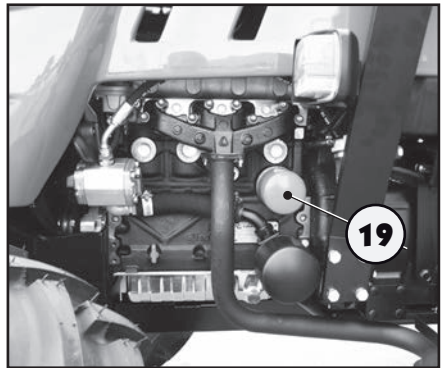
*Let the engine sufficiently cool down to prevent the risk of burns.*

To change it:

- position a container to collect any leaking oil;
- unscrew the filtering cartridge (19) from its seat;
- check the conditions of the seal and replace it, if necessary;
- lubricate the seal on the new cartridge with clean oil before assembling it;
- fit the new cartridge on the mount and hand-tighten only.

**☞ CAUTION:**

*Only use original filtering cartridges. Using non-original cartridges can damage the engine and reduce its life cycle.*



**Fig. 6.21**

## Changing the hydraulic circuit filter

The filter element must be replaced at the specified interval.

To change it:

- unscrew and remove the filter cartridge (20);
- before fitting the new cartridge, fill with oil and lubricate the gasket with new oil;
- assemble the new cartridge on the support and screw it all the way in.

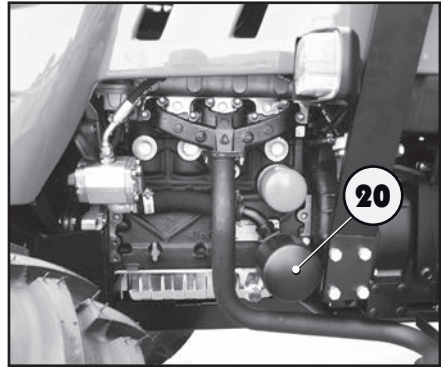


Fig. 6.22



**NOTE:**

*After changing the filter, run the engine and make sure there are no leaks. Check the oil level and top up, if necessary.*



**NOTE:**

*Use the type of oil as per the instructions in Chapter 3 - "Supply table".*



**CAUTION:**

*Only use original filtering cartridges. Using non-original cartridges can damage tractor parts and reduce their life cycle.*

## Changing the front axle oil

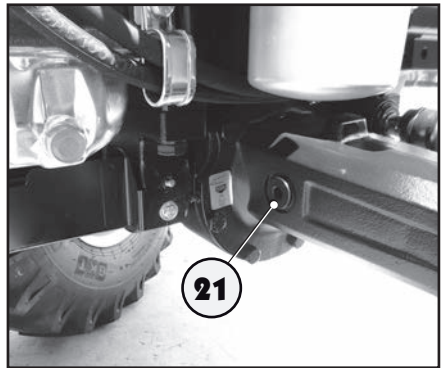
To change it:

- remove the cap (21);
- position an appropriately sized container under the drain plug (22) located on the lower side of the axle case;
- remove the drain plug and let the oil drain into the container;
- put the drain plug back in;
- top up the case with oil up to the brim of the plug (21);
- then put the plug back in.

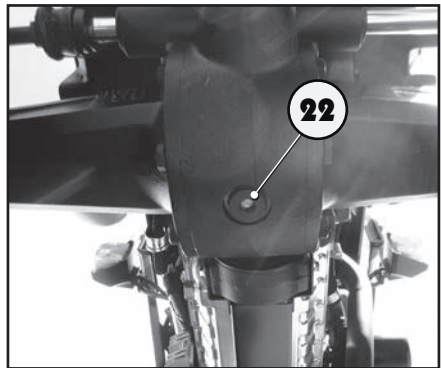


**NOTE:**

*Use the type of oil as per the instructions in Chapter 3 - "Supply table".*



**Fig. 6.23**



**Fig. 6.24**

## Changing gearbox and rear axle oil

 **NOTE:**

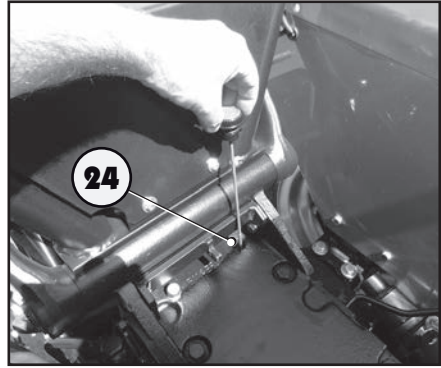
*Before changing the oil, let it stabilise in the transmission and let the hydraulic lift arms lower down completely.*

To change it:

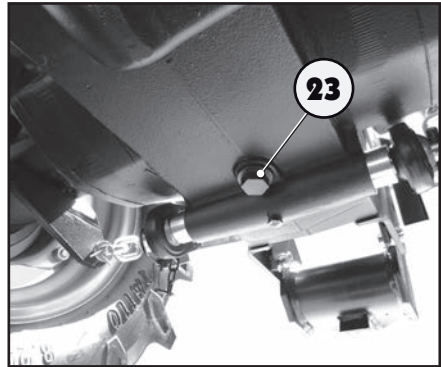
- lift the seat completely;
- pull out the dipstick from the gearbox casing (Fig. 6.25);
- position an appropriately sized container under the drain plug (23) located on the lower side of the gearbox case;
- remove the drain plug and let all the oil in the gearbox drain out;
- put the drain plug and its seal back in;
- using the filler hole (24), put in the new oil up to the level between the minimum and maximum markers on the dipstick;
- put the dipstick back in the gearbox case;
- start the engine and operate the hydraulic lift for a few cycles, then leave it in the lowest position;
- using the dipstick, check the oil level in the case again; top up, if necessary.

 **NOTE:**

*Use the type of oil as per the instructions in Chapter 3 - "Supply table".*



**Fig. 6.25**



**Fig. 6.26**

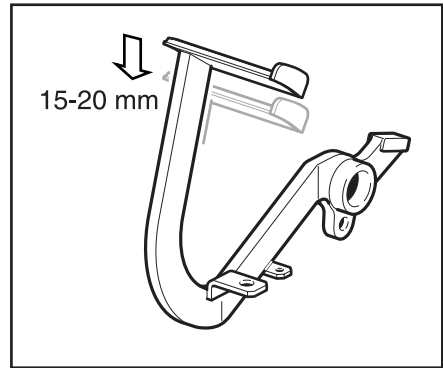
## Clutch

Periodically check that the clutch pedal has a dead zone of approximately 15-20 mm.

If not, have the system adjusted by your dealer.

**NOTE:**

*If the clutch does not work properly, contact your dealer.*



**Fig. 6.27**

## Service brakes

**! WARNING:**

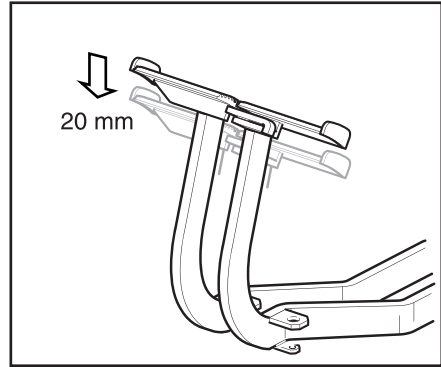
*When the brakes feel loose, immediately identify the cause and eliminate the defect.*

Periodically check that the brake pedals have a small dead zone of approximately 20 mm.

If not, have the system adjusted by your dealer.

**✎ NOTE:**

*If the service brakes do not work correctly, contact your dealer.*



**Fig. 6.28**

## Parking brake

Check that pulling the lever effectively locks the wheels.

If not, have the system adjusted by your dealer.

## Disengaging power take-off

The flat rod (25) operated by the PTO disengage lever must have a dead zone of approximately 3.5 - 4 mm before the PTO is disengaged. If the dead zone is excessive, adjust the threaded rod as follows:

- Detach and remove the pin with safety retainer (26) from the fork (27);
- Loosen the check nut (28) and turn the fork as necessary to obtain the correct dead zone;
- After adjusting, refit the pin with safety retainer and tighten the check nut;

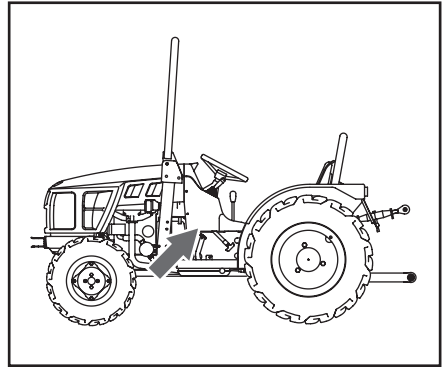


Fig. 6.29

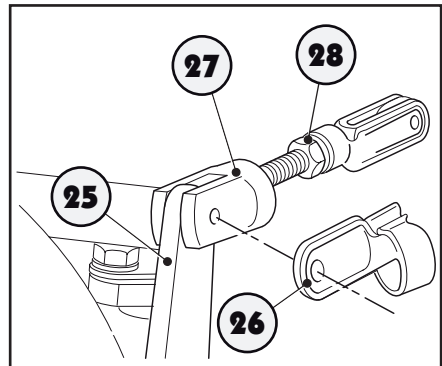


Fig. 6.30

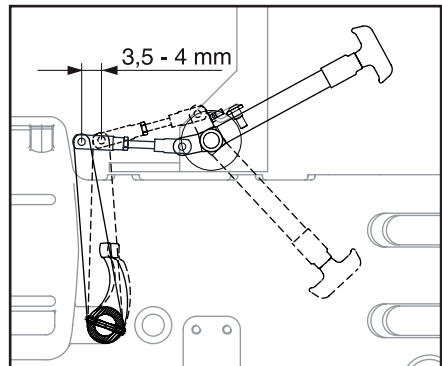


Fig. 6.31



## Fuel circuit air bleeding

Air in the fuel circuit tubes makes starting the engine difficult. Air can get into the circuit when the filters and tubes are disassembled, during long periods of inactivity and when the tank is out of fuel.

We recommend having qualified personnel perform this operation - contact your dealer.



### **CAUTION:**

*Always try to keep some fuel in the tank to prevent air from getting into the engine starting circuit.*

## Checking tension of V-belt

Periodically check the tension of the V belt.

To do so:

- loosen the fastening screws (29);
- loosen the lock not (30) on the tensioner;
- move the pump as necessary to adjust the belt tension correctly;
- tighten all the screws and lock nuts.

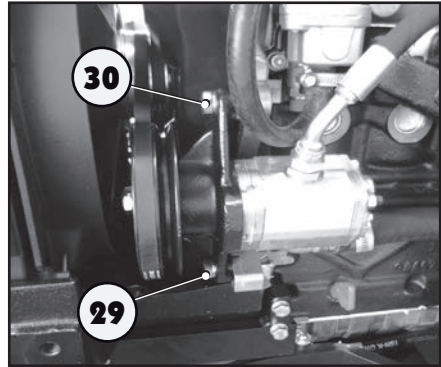


Fig. 6.32



**NOTE:**

*If the belt is cracked or requires frequent adjustments, it must be replaced by your dealer.*

## Checking alternator belt tension (version with cab)

Periodically check the alternator belt tension.

To do so:

- loosen the fastening screws (31);
- loosen the lock nut (32) on the tensioner;
- move the alternator until the belt is tensioned properly;
- tighten all the screws and lock nuts.

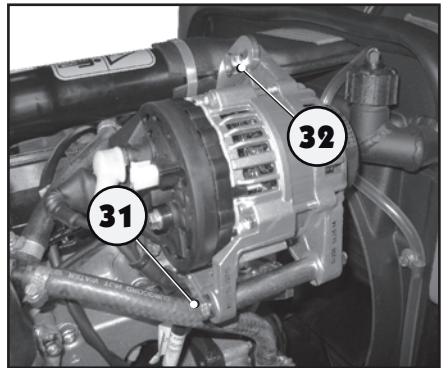


Fig. 6.33



**NOTE:**

*If the belt is cracked or requires frequent adjustments, it must be replaced by your dealer.*

## Cab air filter

Remove the cab air filter (33) at variable intervals, depending on intensity of use. Change the filters every 500 hours of operation or, at most, every year.

 **NOTE:**

*If the tractor is used in particularly dusty environments for long periods of time, they must be changed more often.*

 **WARNING:**

*When using chemicals for crops, carefully follow the manufacturer's instructions. Do not rely on the cab air filter for protection from harmful chemical substances. Contact your dealer to check whether special activated carbon filters are available.*

To remove the filter:

- pull the two lock clips (34) to release the filter;
- remove the filter from its seat;
- clean the filter by tapping gently against a flat surface, with the outer side facing down, or by blowing with compressed air at a pressure not exceeding 6 Bar (6.12 kg/cm<sup>2</sup>), until all the dust trapped in the filter is removed.
- if the paper filter element or gasket are damaged or worn, replace the filter with a new original component;
- clean the filter seat with a clean, damp cloth;
- refit the filter correctly in its seat, and fasten by pushing the lock clips forwards (34);

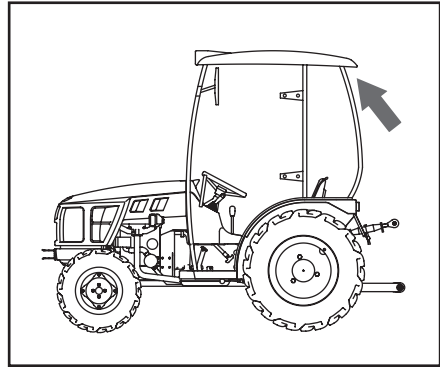


Fig. 6.34

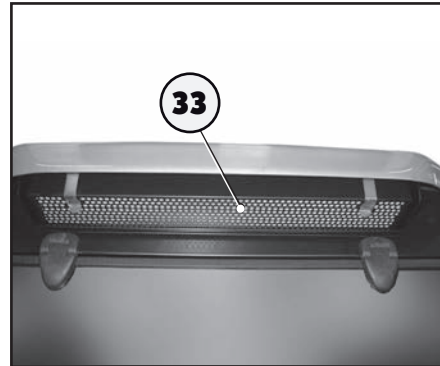


Fig. 6.35

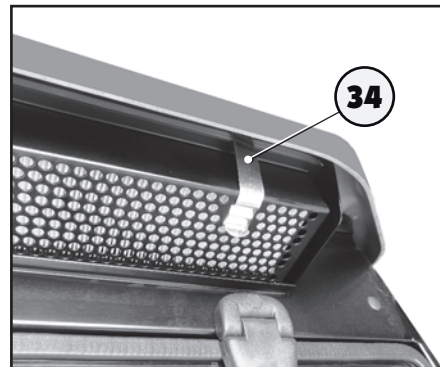


Fig. 6.36

 **NOTE:**

*If you wash the cab without disassembling the air filters, ensure you do not spray water directly onto the protective grille so as not to damage them.*

## Activated carbon air filters



### CAUTION:

*Do not blow the active carbon filters with compressed air or wash. These specific filters must only be mounted when using pesticides and replaced with the normal paper filters supplied with the machine at the end of every treatment to maintain efficiency and duration. Carefully follow the operating instructions on the packaging or on the labels of the filters themselves.*



### CAUTION:

*If you wash the cab without disassembling the air filters, ensure you do not to spray water directly onto the protective grille so as not to damage them.*

This particular type of filter is triple-layered, i.e. it has a pre-filter, an extremely high-efficiency filtering fabric and a layer of activated carbon that reduce polluting agents by absorbing them.

**They do not provide complete protection from the chemicals sprayed. Always follow the instructions supplied by the manufacturer of the substance and wear personal protective equipment.**

Activated carbon filters must be checked the same way as paper ones for any signs of damage to the filtering substance and the seal and they must be changed, if necessary.

Used filtering elements must be put into a closed container and eliminated.

For maximum paper or activated carbon filter performance, the tractor must be used with all the doors and windows closed.



### WARNING:

*Note how many hours the activated carbon filter has worked in a log in order to change it after 150 operating hours. In any case, change the filter when you notice reduced air flow, which indicates increased resistance to filtering. After disassembling it, keep the filter in a watertight, well-closed container. If correctly used, a filter has a maximum working life of 24 months from the first time the package was opened.*



### WARNING:

*Periodically check seal tightness to prevent polluted air from bypassing the filter.*

## Battery

The battery (35) is located at the front of the engine compartment.

Keep the upper part of the battery dry and clean and periodically check the electrolyte level. If necessary, top up the level with distilled water.

**! WARNING:**

*Be careful as the fluid in the battery is corrosive. Before servicing the battery, always wear suitable personal protective equipment (protective goggles or mask, neoprene work gloves, overalls, accident prevention shoes).*

**! WARNING:**

*Always disconnect the negative terminal before cleaning the battery or performing any work on the electrical system (-).*

**! WARNING:**

*Never top up the battery with sulphuric acid.*

The batteries must only be charged with direct current, using current equal to 1/20 of the rated capacity.

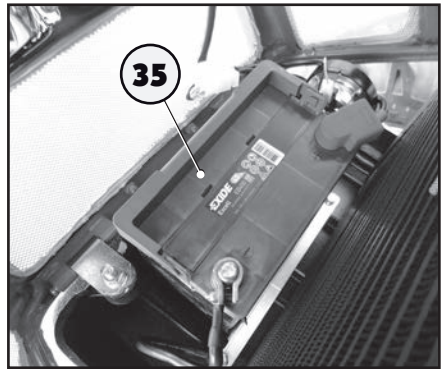
The battery can be considered completely charged when it has a voltage of 12.60 V or higher.

**! WARNING:**

*Before charging the battery, remember to disconnect the cables. It should be removed from its housing and charged away from the tractor.*

**! WARNING:**

*When charging the battery, ventilate the area and do not go near it with sparks, open flames or lit cigarettes.*



**Fig. 6.37**

**! WARNING:**

*The poles and terminals of the batteries and the corresponding accessories contain lead, lead compounds and chemical substances. Wash your hands every time you touch these parts.*

**! WARNING:**

*When replacing the battery, disconnect the negative (–) terminal first, then the positive terminal (+).  
Reassemble it by connecting the positive terminal first, then the negative one.*

**! WARNING:**

*Do not connect any other accessories to the battery.*

If the battery requires frequent top-ups or tends to lose its charge, have your tractor's electrical system checked by your dealer's specialised personnel.

The batteries and electrical accumulators contain different components that can be harmful to the environment if they are not properly recycled after use. We strongly recommend returning all "dry" batteries that are used in the electrical or electronic systems to your dealer, who will see to disposing of or recycling them properly. In some countries, this procedure is required by law.



## Starter

The starter (36) requires thorough cleaning at least once a year. Namely, periodically check the state of wear on the brushes and the manifold.

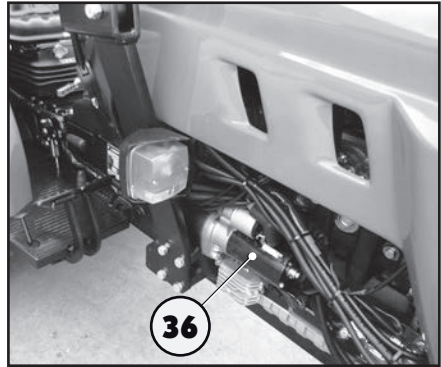


Fig. 6.38

## Alternator

The alternator keeps the battery fully charged at all times.

It does not require special maintenance since it does not have brushes, but it does require a few special precautions.

- When putting in the battery, make sure that the negative poles of the battery match the negative poles of the alternator. If the battery poles are inverted, it will short-circuit through the diodes.
- When you charge the battery, make sure the poles correspond perfectly. the positive pole (+) on the charger with the positive pole on the battery and the negative pole (-) on the charger with the negative pole on the battery, to prevent damage to the diodes and the system.
- Never run the alternator if the system is not connected. If the battery is disconnected, the voltage could become high and dangerous if someone touches the alternator output pole. Before checking and testing the tractor, make sure that the connections are firmly fastened.
- Never short-circuit or earth one of the alternator poles, as this would damage the electrical system.
- Do not invert the alternator's polarity. It is extremely important for the battery's earth and the alternator earth to have the same polarity so that the diodes are not damaged.
- Never do arc welding without first disconnecting the alternator cables.

## Electrical system fuses

The tractor's electrical system is protected from short circuits and excessive current absorption by fuse valves.

The fuse box (37) is situated on the underside of the dashboard, in front of the transmission control levers.

### Auxiliary cab electrical system

The cab is equipped with its own electrical circuit with dedicated fuses protecting the cab itself against short circuits and excessive current absorption.

The fuse box (38) is located on the left hand side of the headliner control panel.

A 30A fuse (39) and a 5A fuse (40) for general protection of the cab electrical system are also installed in the engine compartment (Fig. 6.41).

#### NOTE:

*Before replacing a fuse with a similar one, identify and repair the causes that created the problem.*

#### CAUTION:

*During replacement, only use fuses with the characteristics indicated in the following table.*

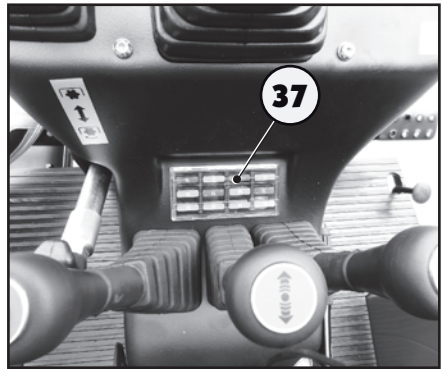


Fig. 6.39

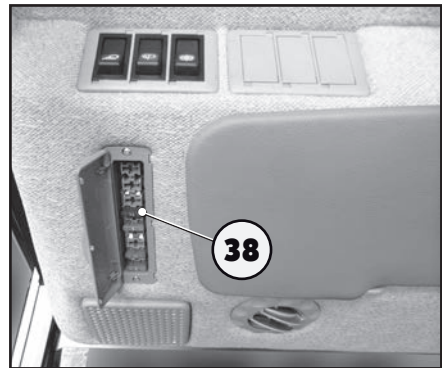


Fig. 6.40

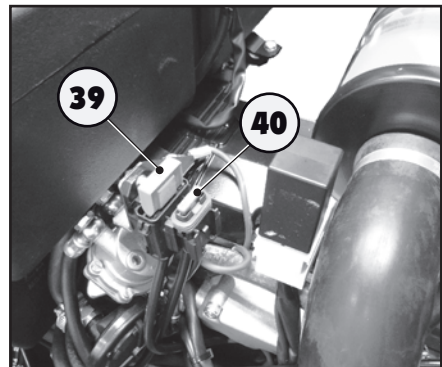


Fig. 6.41

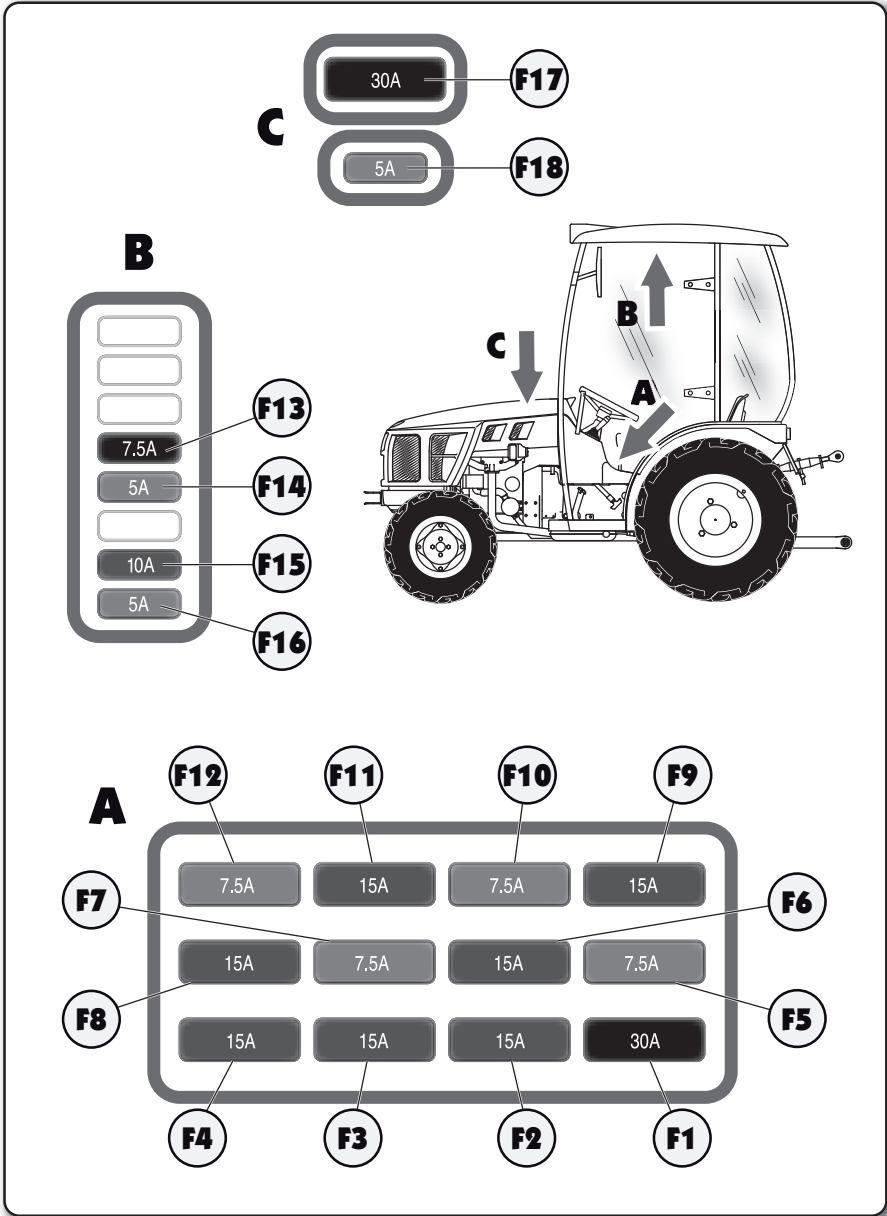


Fig. 6.42

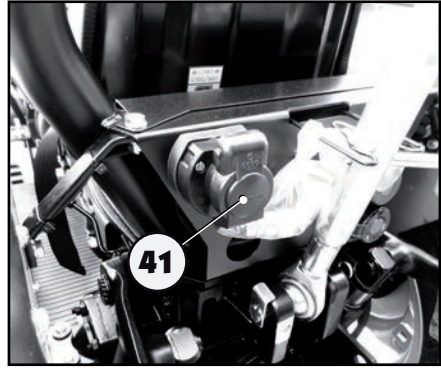
F1	30A	Main fuse
F2	15A	Full beam headlights
F3	15A	Dipped headlights
F4	15A	Front right and rear left side lights, rear work light, licence plate light
F5	7.5A	Left front and right rear side lights
F6	15A	Horn
F7	7.5A	Indicators
F8	15A	Alternator voltage regulator
F9	15A	Brake lights and digital instrument power feed
F10	7.5A	Hazard warning lights
F11	15A	Auxiliary power socket
F12	7.5A	Engine stop, preheat timer
F13	7.5A	Front windshield wiper motor, washer pump
F14	5A	Ventilator fan motor
F15	10A	Front work lights
F16	5A	Heating thermostat
F17	30A	Main fuse
F18	5A	Main fuse

## Power outlet for trailer

There is a 7-pole power outlet (41) on the rear of the tractor to connect the trailer's electrical system (lighting system).

**! WARNING:**

*Make the electrical connections only when the engine is off, the parking brake is engaged and the start key has been taken out of the ignition.*



**Fig. 6.43**

## Replacing headlight bulbs

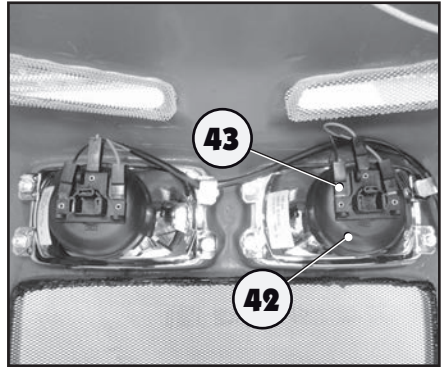
When using the tractor on roads, it must always comply with the Highway Code. Therefore, the position of the front headlights must be checked periodically.

 **NOTE:**

*The position of the headlights must be checked when the tractor is not carrying a load, when it is on a flat surface and with the tyres correctly inflated.*

To replace the bulbs:

- open the engine hood;
- release the waterproof cover (42) of the bulb holder block;
- disconnect the bulb connectors (43) and remove the bulb.



**Fig. 6.44**

Front lights	Bulbs
Position lights	C5W
Direction lights	P21W
Low beam/high beam headlights	H4 12V 55W
Cab work lights	H3 12V 55W

Rear lights	Bulbs
Position lights/brake lights	P21/5W
Direction lights	P21W
Plate lighting lights	C5W
Work light	H3 12V 55W
Cab work light	H3 12V 55W
Rotating light	H1 12V 55W

## Prolonged tractor inactivity

When your tractor needs to remain inactive for more than a month, take the following precautions:

- put the tractor in a dry, protected place;
- protect the engine by following the instructions in the use and maintenance manual;
- drain the water from the radiator and the engine;
- lubricate all the parts that have greasers;
- clean the fuel filter;
- clean the tractor and especially body-work components. Protect painted parts by applying silicone wax and lubricate the unpainted metal parts. Put the tractor in a covered, dry and, if possible, ventilated space;
- make sure that all of the controls are in neutral (including the electrical switches);
- do not leave the start key in the ignition;
- make sure the operating cylinder shafts (power steering, lift, etc.) are in an inclined position;
- empty the diesel tank and fill it with new diesel up to the maximum level;
- remove the battery, clean the cover and coat the terminals with Vaseline. Then put the battery in a ventilated space where the temperature does not drop below 10°C, protecting it from the sun;
- check the battery charge using a voltmeter and, if necessary, charge it;

- arrange stands or other supports under the axles to keep the wheels suspended. With the tractor raised, it is a good idea to deflate the tyres. Otherwise, periodically check the tyre pressure;

- do an overall greasing;

- cover the tractor with a cloth, avoiding waterproof material (oilcloth or plastic), as it retains humidity, favouring rust.

At the end of the period of inactivity, follow the operations below:

- remove the protective cloth;
- if the tractor was raised onto stands, inflate the tyres to the specified pressure and then lower it to the ground;
- preserve the engine by following the directions in the relative user and maintenance manual;
- charge the battery and reinstall it on the tractor.



## Special maintenance

You must contact qualified personnel to carry out detailed inspections and maintenance that can change the tractor safety conditions like, for example, component fine-tuning, adjustments, repairs and replacements. Contact your dealer for this purpose.

## Troubleshooting

The following information will help you identify and correct possible faults and malfunctions.

### Engine

Problem	Cause	Solution
<b>The starter does not run</b>	Main fuse damaged	Replace the fuse
	Low battery	Charge or replace the battery
	Battery terminals rusty	Clean the terminals and coat them with Vaseline
	Starter damaged	Replace the starter
	Starting switch damaged	Replace the switch
<b>The engine does not start</b>	No fuel in the tank	Check the fuel level
	Fuel filter clogged	Clean or change the filter
	Air in the fuel system	Bleed the fuel system
	Spark plug pre-heating fuse damaged	Replace the fuse
	Fuel injector anomaly	Contact the "Kohler Lombardini" Technical Support Service
	Fuel not suitable to the working temperature	Use the right type of fuel for the temperature conditions

Problem	Cause	Solution
The engine works poorly or stops	Fuel system contaminated	Clean the system
	Fuel injector anomaly	Contact the "Kohler Lombardini" Technical Support Service
Black smoke from the exhaust pipe	Injectors dirty or faulty	Contact the "Kohler Lombardini" Technical Support Service
Engine overheating (red engine coolant overheat warning indicator lit)	Radiator clogged	Clean the radiator
	Radiator fluid level insufficient	Top up the radiator fluid level
	Thermostat anomaly	Check the thermostat
	Temperature indicator or measurer anomaly	Contact the "Kohler Lombardini" Technical Support Service
	Fan belt loose or worn	Check the tensioner. Replace the belt if worn
	Engine oil level low	Top up the oil level
Low oil pressure (red engine oil pressure light on)	Oil with incorrect quality or viscosity	Stop the tractor immediately. Drain the oil and top up with oil with the correct quality and viscosity
	Engine oil level low	Stop the tractor immediately. Top up the oil level
	Lubrication system anomaly	Contact the "Kohler Lombardini" Technical Support Service
The engine does not achieve maximum power	Engine overload	Engage a lower gear or reduce the load
	Air filter clogged	Clean the air filter
	Implement adjusted incorrectly	Refer to the implement's user manual

Contact the "Kohler Lombardini" Technical Support Service if you cannot identify the cause of a problem.

### Electrical system

Problem	Cause	Solution
No current in the electrical circuit	Main fuse damaged	Replace the fuse
	Low battery	Charge or replace the battery
	Battery terminals rusty	Clean the terminals and coat them with Vaseline
The battery does not charge (red alternator light on with the engine running)	Alternator belt loose or worn (version with cab)	Check the tensioner. Replace the belt if worn
	Alternator anomaly	Contact your dealer
	Electrical system anomaly	Contact your dealer
	Battery anomaly	Replace the battery

If you are unable to identify what is causing the problem, contact your dealer.

### Hydraulic system

Problem	Cause	Solution
The hydraulic system is not working properly	Oil level low	Top up the system
	Oil filtering element clogged	Change the filter
	Hydraulic system anomaly	Contact your dealer
Hydraulic oil overheating	Oil level high or low	Top up the oil level
	Oil filtering element clogged	Change the filter
	Hydraulic directional control valve anomaly	Contact your dealer

If you are unable to identify what is causing the problem, contact your dealer.

**Hydraulic lift**

Problem	Cause	Solution
The implement does not lift	The weight of the implement is greater than the lift's maximum capacity	Detach the implement. Before connecting an implement, make sure its characteristics are compatible with the machine
	Transmission oil level insufficient	Top up the oil level
	Oil pressure insufficient	Contact your dealer
	Hydraulic pump damaged	Contact your dealer
The implement lowers too quickly	The descent regulating valve is too far open	Use the valve regulation knob to reach optimal speed
The implement lowers too slowly	The descent regulating valve is too far closed	Use the valve regulation knob to reach optimal speed

If you are unable to identify what is causing the problem, contact your dealer.

**Clutch**

Problem	Cause	Solution
The clutch does not disengage properly (gears are difficult to engage)	Incorrect clutch adjustment	Use the adjustment nut
	The clutch is worn	Contact your dealer

If you are unable to identify what is causing the problem, contact your dealer.

## Brakes

Problem	Cause	Solution
The tractor does not brake properly	Incorrect brake adjustment	Contact you dealer
	The brake lining is worn	Contact you dealer
The handbrake does not brake properly	Incorrect handbrake adjustment	Contact you dealer

If you are unable to identify what is causing the problem, contact your dealer.

## Wheels and steering

Problem	Cause	Solution
Uneven tyre wear	Inflation pressure insufficient	Restore inflation pressure
Excessively hard steering wheel manoeuvrability	Oil pressure insufficient	Contact you dealer
The machine does not keep the same direction as the steering wheel	Air in the hydraulic circuit	Contact you dealer
	Hydraulic cylinder seal worn	Contact you dealer
The machine does not steer	Oil pressure insufficient	Contact you dealer
	Hydraulic pump damaged	Contact you dealer
	Power steering faulty	Contact you dealer

If you are unable to identify what is causing the problem, contact your dealer.

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