VOLCAN

AR - AR DUALSTEER

RS - RS/MT

750-850-950 EP

User and maintenance booklet

Translation of the original instructions – English -
Instructions comply with standard ISO 3600:1996

Chapter 1 : Premise

Section 1 : Introduction and safety

NOTE:
Carefully store this "user and maintenance booklet" and consult it regularly.

The purpose of this publication is to allow the owner and operator to use the tractor under maximum safety.

The purpose of this publication is to allow the owner and operator to use the tractor under maximum safety. Nevertheless, if you do not understand parts of this booklet, do not hesitate to contact our dealer since it is important that these instructions are understood and observed. Daily maintenance should be carried out regularly and the vehicle's operating hours should be recorded in a register.

When replacement parts become necessary, use only original spare parts. Authorized retailers supply original spare parts and can give advice on their assembly and use. The installation of spare parts of a lower quality could cause extensive damage. The customer should therefore acquire the necessary spare parts exclusively from an authorized retailer.

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 methods of use of the vehicles it manufactures. It therefore cannot assume responsibility for loss or damages deriving from what is published or any error or omission. If the vehicle must be used under particularly heavy abnormal conditions (eg. in deep water or very muddy soil), we recommend contacting your retailer for special instructions to prevent annulment of the warranty.

The manufacturer of the tractor will not accept any responsibility for damage or injury due to improper use of the vehicle, whose risks are exclusively on behalf of the user.

This machine is designed exclusively for generic agriculture works or similar.
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 foreseen use.

To use, service and repair this tractor, all of its special characteristics and the relative safety norms (accident prevention) must be completely understood.

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

Since operator safety is one of the main concerns of those who design and develop new tractors, the designers try to provide as many safety devices as possible. In spite of this, each year many accidents occur which could have been avoided if the operator had been less hasty and more cautious when handling machinery and farming equipment. Carefully read and follow the safety instructions reported in detail in this chapter of the manual.

Unless otherwise indicated, the data and information contained in this manual apply to all models.

The content of this manual corresponds to the latest technical information available at the time of printing. The manufacturer reserves the right to make changes at any time without advance notice or penalty.

In addition to the present instructions booklet, each tractor is delivered with a user and maintenance manual for the engine, which is an integral part of the supplied documentation.

Section 2 : Tractor identification

The tractor is identified by the data engraved on the identification plate on the right side of the gearbox guard (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	

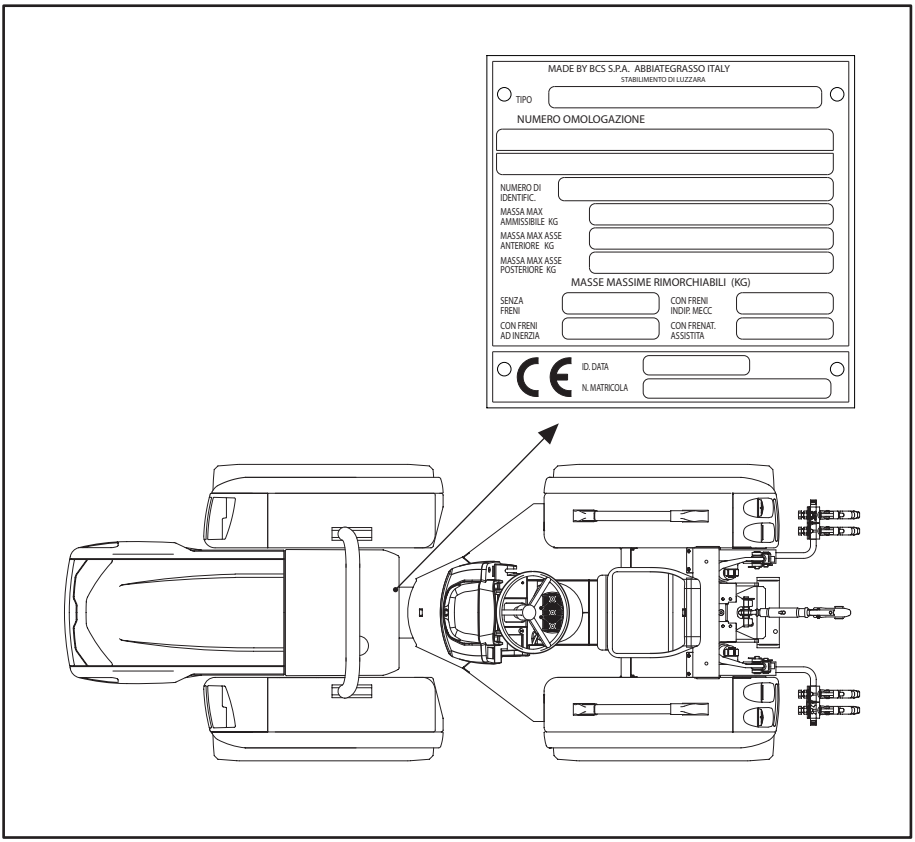


Fig. 1.1

Section 3 : 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.

Contact VM regarding all interventions and notifications.

Engine type-approval number	
Type of engine	
Technical characteristics	

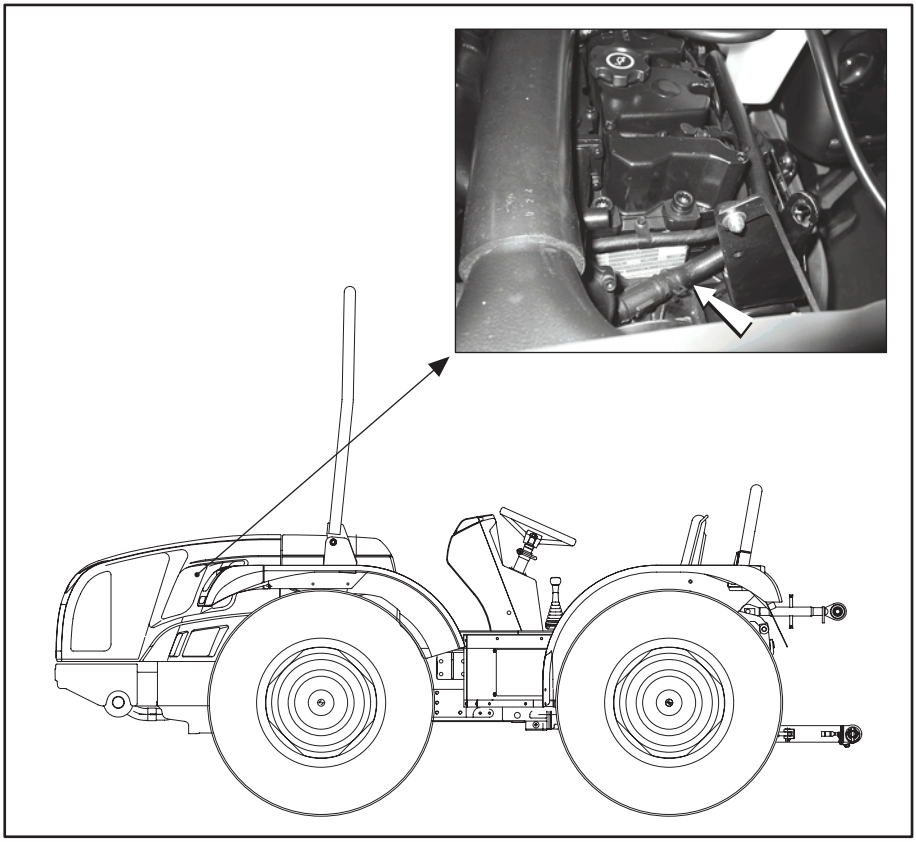


Fig. 1.2

Section 4 : Warranty

BCS products are covered by a warranty that, under certain conditions, protects against material and construction defects. This booklet is published for worldwide circulation. The precise warranty terms and conditions regarding retail sales in each country therefore cannot be precisely described in detail. Purchasers of new tractors are kindly asked to request all of the details from the retailer where the tractor was purchased.

The retailer or dealer is obliged to supply certain services when delivering a new tractor to the customer. These services include thorough preliminary testing 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 regard the instruments and controls, periodic maintenance and precautionary safety measures. This training course must be provided to all people who will use and maintain the tractor.

NOTE:
The tractor's manufacturer does not accept any responsibility for complaints due to unapproved installation of components or hitching of implements, and unauthorized modifications and alterations.

Proper installation and regular maintenance is very helpful in preventing breakdowns. If, nevertheless, operation problems occur during the warranty's lifetime, the following procedure should be used:

- Immediately notify the retailer from whom the tractor was purchased, indicating the model and serial number. It is very important that this be done right away since the warranty will not be valid if the anomaly is not resolved promptly,
  breakdown was covered.
- Provide your retailer with as much information as possible. The retailer will therefore know the number of operating hours, the type of work being carried out and the problem's symptoms. Remember that normal maintenance operations such as tune-ups and brake/clutch adjustment, as well as the supply of materials used for servicing (oil, filters, fuel and antifreeze) are not covered by the warranty.

NOTE:
The installation of non-original parts could mean using a spare part of lower quality. The tractor's manufacturer does not assume any responsibility for any loss or damage deriving from the installation of these parts. The manufacturer's warranty will be annulled if they are installed during the warranty's lifetime.

During the warranty's lifetime, all repairs and maintenance should be carried out by the retailer so that the operation and performance of your new tractor may be carefully monitored.

For optimum performance of your tractor, never skip regular maintenance checks or servicing, even after the warranty has expired. Contact your retailer for all of the main servicing operations: a specialized technician will take stock of the situation between one intervention and another.

The mechanics are regularly informed and updated about the product, servicing techniques and the use of modern diagnostic instruments and equipment. They regularly receive bulletins on servicing, possess all shop manuals and all other technical information necessary for ensuring that repairs and servicing are up to standard.

NOTE:
Panels and guards were removed in some of the illustrations in this operator instructions booklet for greater clarity. Never run the tractor without reassembling these components. If a panel or guard must be removed to carry out repairs, it will need to be reassembled before using the tractor.

Section 5 : Enclosures

In addition to this User Maintenance Manual, the tractor is supplied as standard with:

- Engine use and maintenance manual;
- Service booklet.

Notes

Chapter 2 : General safety regulations

Section 1: Terms and abbreviations

Transporter: person chosen and authorized, being in possession of the qualifications and skills required to load, unload and move the machine from the means of transport.

Driver: person chosen and authorized, being in possession of the qualifications and skills required to drive, use and service the vehicle.

RS tractor: tractor with steering wheels.

AR tractor: articulated tractor.

MT tractor: wheel tractor, haymaking model.

DS tractor: articulated tractor "Dualsteer" version.

Section 2: Alarm and safety texts and symbols

In the present instruction booklet there are warnings about tractor safety and damage. Observe these warnings carefully in order to prevent the risk of injury and damage. The types of warnings and how they appear and are used in this instructions booklet are described as follows:

⚠ Danger:
This symbol and the word DANGER warn of an imminent hazard that could endanger the operator or other directly involved persons.

⚠ 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 he could risk damaging the machine unless he complies with a certain procedure.

Note:
Underscores and informs the operator about the correct technique or procedure required.

Section 3 : Safety - Tractor and implement

- The tractor is a source of mechanical and hydraulic power.
- When the tractor is used together with an implement or other equipment, it becomes a work unit.
- This instructions booklet was compiled to illustrate the safety regulations associated with normal use of the tractor.
- This booklet does not cover all of the user and safety instructions for all of the implements and hitches that may be installed when the tractor is delivered or at any time in the future.
- **It is essential that the operator carefully follows the instructions contained in the manual relating to this machinery, both installed and towing and for the trailer.**
- **NEVER combine the tractor-machine or tractor-trailer unless you have carefully read the instructions for this equipment.**

Section 4 : Safety - Introduction

This chapter of your operator instructions booklet on safety intends to outline some of the most common safety situations that can occur during normal use and maintenance of your tractor WITH FOOTBOARDS or CAB and to suggest possible ways of behaving in these situations. This chapter is NOT a substitute for other safety regulations in other chapters of this manual.

Additional precautions may be necessary depending on the implements used and the work conditions on the field or in areas of maintenance and repair. The tractor's manufacturer does not have direct control of applications, operations, inspection, lubrication or maintenance of the tractor. It is therefore YOUR responsibility to practice good rules of safety in these areas, using common sense as well.

Section 5 : Safety - Recommendations for the operator

It is **YOUR** responsibility to read and understand the chapter on safety contained in this booklet before using the tractor. You will need to follow these safety regulations and use them throughout the workday.

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

Always remember that only **YOU** are responsible for your safety. Good safety regulations protect you as well as those around you. Thoroughly study 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 vehicle. Apply all other normal and regular precautions that ensure operating safety and especially REMEMBER THAT SAFETY IS YOUR RESPONSIBILITY AND YOU CAN PREVENT SERIOUS AND EVEN FATAL ACCIDENTS.

Every time you see the words and symbol indicated below, used in the present manual and on decals, you MUST take note of the indicated instructions because they refer to personal safety.

Section 6 : 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 not legible or that has been lost. New decals are available at your dealer if lost or damaged. The exact position of the decals on the tractor is indicated at the end of this chapter.

If a used tractor is purchased, refer to the figure at the end of this chapter to make sure that all of the safety decals are in the correct position and are legible.

Section 7 : Safety - Follow a safety plan

To use a farming tractor safely, operators must be qualifed and authorized. To be qualified, an instructional course and training must be taken at the place of work, the safety regulations and work regulations must be known and the instructions contained in this operator instructions booklet must be understood.

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

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

⚠WARNING:
The operator must not use alcohol or drugs that can change or alter his or her state of alertness and coordination. An operator taking medication or monitored for drug use needs medical authorization stating whether or not he or she is able to use the tractor safely.

Observe the following precautions:

- NEVER let children or young adults or unqualified personnel use your tractor. Keep others far away from your work area.
- Fasten the safety belts when the tractor is equipped with a vertical rollbar or cab.
- When possible, avoid operating the tractor near ditches, excavations and holes. Reduce the speed when turning, going over slopes or passing over bumpy, slippery or muddy surfaces.
- Stay away from steep slopes to operate safely.
- Watch where you are going especially at the end of the field, on roads and around trees.
- Do NOT let anyone get on the tractor or the implement unless an approved passenger seat has been installed.
- Tow only with the drawbar or from its points and never above the center line of the rear axle.
- Operate the tractor calmly without sudden turns, starts or stops. When the tractor is parked, engage the hand parking brake.
- Never modify or remove any part of the equipment or use implements not foreseen for you tractor.

Section 8 : Rollbar

The safety frame reduces the risk of injury should the tractor tip over.

Always operate with the safety frame in the upright position and the safety belts securely fastened.

Before using the tractor, make sure that the safety frame has not been damaged and that it is securely fastened to the tractor.

The operator must use safety belts in all work conditions, on the field as well as when driving on roads.

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

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

Fig. 2.1

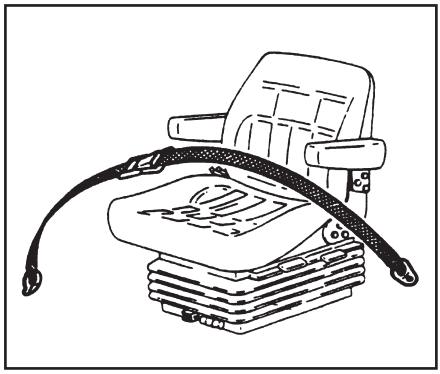


Fig. 2.2

Use:

- DO NOT ATTACH chains, cables, etc. to the rollbar for towing; they could cause the tractor to tip over: always tow from the drawbar.

If the tractor has rolled over or the rollbar has been damaged (for example, because it hit a suspended object during transport) it must be replaced to guarantee original safety.

After an accident, check the rollbar, the operator seat, the safety belts and their anchoring points. Before using the tractor, replace all damaged parts.

DO NOT WELD, DRILL, BEND OR STRAIGHTEN THE ROLLBAR: these operations reduce the guaranteed level of the protection.

Section 9 : Cab safety

The safety cab (Fig. 2.3) was specially designed to be installed on this series of tractors and observes all of the safety and noise requisites provided for by current norms.

NEVER use the machine, even if fitted with a cabin, 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.

As regards the level of protection against hazardous substances, the cabin fulfils the "Category 1" requirements in compliance with standard EN 15695-1:2009, it therefore does not provide a specific level of protection.

The cab MUST NEVER be drilled or modified to install accessories or implements. Welding the cab's components and repairing damaged cab components IS PROHIBITED. Never attach towing chains or cables to the cab's main chassis.

Fig. 2.3

Section 10 : Precautions for operating safely

Protect yourselves.

Wear all of the protective clothing (Fig. 2.4) and devices for personal safety made available and necessary for work.

Do not take risks.

You will need the following protective clothing:

- A protective helmet
- Goggles or a protective mask
- Earmuffs to protect the ears
- A protective mask or filter for breathing
- Clothing for bad weather
- Reflective clothes
- Heavy work gloves (in Neoprene for using chemical products, leather for heavy-duty work)
- Accident prevention protective shoes

Do NOT wear loose clothing, jewelry or similar items and tie long hair back, which could get caught on the controls or other parts of the tractor.

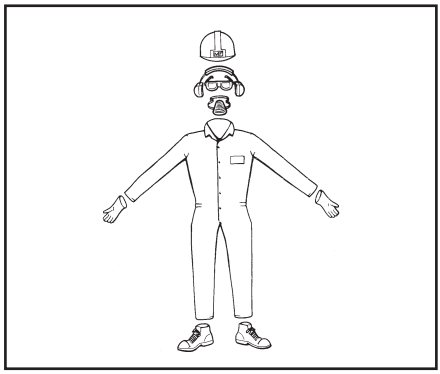


Fig. 2.4

Locate the position of the extinguishers and the first aid kit (Fig. 2.5) or the emergency equipment and identify how to call for help quickly. Make sure that you know how to use this equipment.

You must be familiar with your tractor.

Learn about your tractor's characteristics. 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 will need to know the rated load capacity, the speed range, the characteristics of the brakes and the steering system, the turning radius and necessary space of use.

Always keep in mind that rain, snow, ice, gravel and loose soil can change the tractor's handling. In difficult conditions, slow down and be more prudent and careful.

Study the DANGER, WARNING and CAUTION signs on you tractor and all of the reported information.

BEFORE STARTING THE ENGINE, READ THIS OPERATOR INSTRUCTIONS BOOKLET (Fig. 2.6).

STUDY THIS BOOKLET BEFORE BEGINNING WORK (Fig. 2.6).

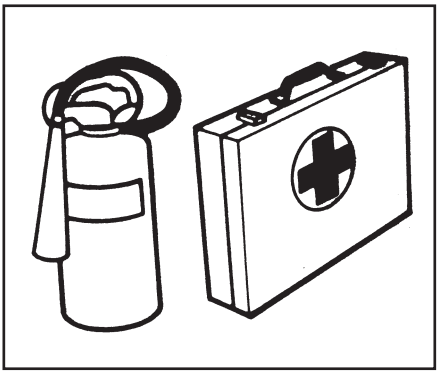


Fig. 2.5

IF YOU DO NOT UNDERSTAND SOMETHING IN THIS MANUAL, ASK SOMEONE (for example your dealer) TO EXPLAIN IT TO YOU.

Always use all of the available protection and safety systems.

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

To guarantee your safety and that of others, your tractor must be equipped with:

- A rollbar, which must always be mounted in the protective position (Fig. 2.1). Safety belts should be used in accordance with current laws in the various markets.
- Protective shields of the PTO
- Rearview mirrors
- An extinguisher with characteristics that correspond to the legislative requirements in force in the various markets
- A rollbar with a structure that protects against falling objects or with canopies (if installed). Remember that the safety frames of these shields do not protect against large falling objects such as large round bales or parts of fences.
- Slow moving vehicle symbol (SMV). Additional guards, lights or decals and a backup alarm.

Learn which devices are necessary for operating safely and always use them. Make sure that they are in their place and in good condition. NEVER remove them or disconnect them.

Fig. 2.6

Section 11 : Checking the equipment

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

- Do NOT smoke during refueling. Do not use open flames (Fig. 2.7).
- Make sure that there are no loose, broken, lost or damaged parts. Carry out proper repairs as necessary. Make sure that all of the safety devices are in their place.
- Make sure that the rollbar and safety belts are not damaged (a damaged rollbar or safety belt MUST be replaced).
- Make sure that the implements and attachments are installed correctly and that the tractor and the implements connected to the PTO have the correct speed ratios (rpm).
- Make sure that the tires do not have cuts or bulges and that the pressure is correct. Replace worn and damaged tires. Make sure that the brake pedals and the parking brake function correctly. If necessary, adjust them.
- Stop the engine and wait for it to cool before refueling.
- Check the engine oil level and top off, if necessary.
- Carry out all of the maintenance and adjustment operations indicated in the relative chapter of this manual.
- Verify that the safety hitching systems of the PTO are connected.
- Verify that the power take-off and the drive shaft guards are in position and function correctly.
- Check the tractor's hydraulic systems and the connected implements. Repair or replace any damaged or leaking parts.
- Check the engine's cooling circuit and add coolant, if necessary.

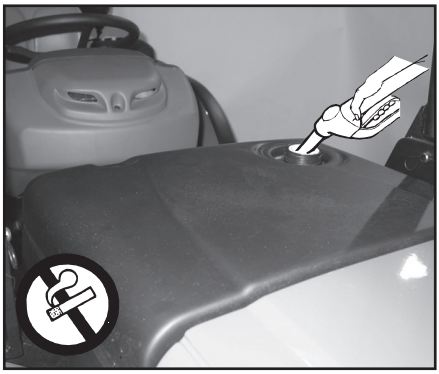


Fig. 2.7

⚠WARNING:
The fuel or hydraulic fluids under pressure can penetrate the skin and eyes and cause serious injury, blindness or death. Leaking pressurized fluids may not be visible. Use a piece of cardboard or wood to find leaks. Never use bare hands. Always wear goggles to protect eyes. If, for any reason, a fluid penetrates the skin, it MUST be surgically removed within a few hours by a doctor who specializes in these types of accidents.

Before pressurizing a fuel injection system or a hydraulic system, make sure that all of 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 pressurized.

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

⚠WARNING:
The cooling circuits are pressurized when the engine is hot. Before removing the radiator cap, stop the engine and let it cool.

Section 12 : Cleaning the tractor

- Keep the work surfaces and engine compartments clean.
- Before cleaning the vehicle, always lower the implement onto the ground, place the gear levers in neutral, engage the parking brake, turn off the engine and remove the key.
- Clean the footboards, steps and pedals. Remove grease and oil. Eliminate dust and mud. Remove ice and snow. Remember that slippery surfaces are dangerous.
- To clean the plastic parts like the console, instrument panel and the indicators, avoid using gasoline, paraffin, paint solvents, etc.
  To clean these parts of the tractor, use ONLY water, neutral soap and a soft cloth.
  The use of gasoline, paraffin, paint thinners, etc. causes discoloration, cracking, and deformation of the cleaned parts.
- The use of gasoline, paraffin, paint thinners, etc. causes discoloration, cracking, and deformation of the cleaned parts.
- If using a self-propelled sprayer, never stand too near the tractor and avoid directing jets of water on the ignition panel, electrical components, electric-hydraulic controls, adhesives and on the cabin's air filter.

Section 13 : Protecting the environment

- Polluting canals, waterways and the ground is illegal. Use authorized dumping facilities, including municipal zones and garages that have containers for disposing of used oil. If in doubt, contact local authorities for information.
- To understand the correct methods for disposing of oil, filters, tires, etc., contact your local differentiated waste collection center or your dealer.
- **Scrapping the tractor** : the tractor is composed of parts that are subject to disposal regulations and norms. Therefore, when the tractor is discarded and no longer used, it must be scrapped by authorized agencies. **Do not dispose of the tractor or its components in the environment.** .

Section 14 : Safety - Tractor maintenance

- Do NOT carry out maintenance (Fig. 2.8) on the tractor while the engine is running or hot or while the tractor is moving.
- Before carrying our adjustments or maintenance on the electrical system, disconnect the battery's cables, starting with the negative cable (-).
- To prevent fire and explosion, do not use open flames near the battery or cold start devices. To avoid creating sparks and possible consequent explosions, use jumper cables according to the instructions.
- When making repairs or adjustments, contact your local dealer and have specialized personnel carry out the work.
- The implements and/or the tractor must be supported with wooden blocks or suitable supports, NOT with hydraulic jacks.
- Periodically check the tightness of all of the nuts and bolts; especially the bolts of the wheel hubs, disks and rims. Tighten to the specified tightening torque.
- Regularly check the power steering tank and top off with approved oil, if necessary.
- Regularly check the brakes and, if necessary, top off the tank and/or adjust them. Make sure that the brakes are correctly adjusted, especially when towing trailers.

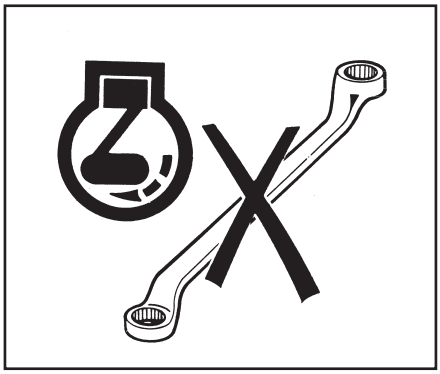


Fig. 2.8

Section 15 : Safety - Startup

Before starting the engine, walk around the tractor and the mounted implements. Make sure that no one is under, above or near them. Notify 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 present, **especially children** , are in a safe place before starting the engine.

15.1 Getting on and off of the tractor safely

When getting on the tractor, face and use the 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 of it).

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

NEVER use the control levers as handles or rest 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 starting the engine, make sure that there is sufficient ventilation. Never start the engine in closed environments. The exhaust gases can cause asphyxia (Fig. 2.9).

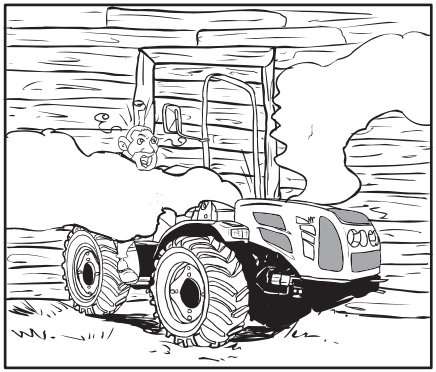


Fig. 2.9

15.2 Safe startup

Always start the engine from the operation position will all of the gear levers and the PTO lever in neutral.

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

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

⚠WARNING:
Before starting, always make sure that people and obstacles are not present within the tractor's radius of action (Fig. 2.10).

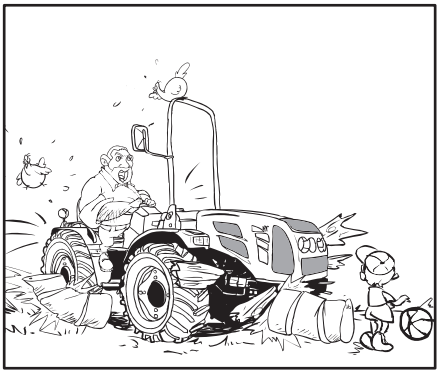


Fig. 2.10

Carry out the starting procedures described in chapter 5 - User Regulations of this instructions booklet; these include normal starting and starting in cold climates.

⚠WARNING:
Start the engine using the ignition key from the operator seat only. Never attempt to start the engine by creating a bridge between the starter's terminals. The tractor could start with an engaged gear if the safety ignition circuit is bypassed in neutral. This could cause serious injury or death to people that are near the tractor.

After starting, check all of the instruments and lights. Make sure that they all function correctly. If the tractor does not respond correctly to the controls, do NOT use the vehicle until the breakdown has been resolved.

Section 16 : Working safely

⚠WARNING:

An unbalanced tractor could tip over and cause serious injury or death. The weights of the wheels and the ballasts must be used as recommended by the manufacturer. NEVER add additional weight to compensate for overloading; reduce the load instead.

⚠WARNING:

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

Section 17 : Carrying out the right maneuvers

Make sure that the tractor is ready for the type of work that must be carried out. Know the rated load capacities and never exceed them. Make sure that every implement or piece of equipment that must be used does NOT exceed the load capacity of your tractor. Check the output shaft/implement coupling.

Keep in mind that the tractor normally operates on bumpy, often uneven or sloping surfaces and not on paved roads. The operating conditions could reduce the maximum load permitted for transport or towing.

Section 18 : Operating safely

- Activate the controls without sudden movements. Do not make sudden turns or abruptly use other controls.
- NEVER attempt to get on or off of the tractor while it is moving. Hold the steering wheel firmly at all times with the fingers far from the spokes of the wheel itself when driving.
- Make sure that there is enough space in all directions for the tractor, cab, rollbar and the implement.
- Do NOT use the tractor or the implements irresponsibly and do not joke around with them.
- NEVER use the controls while not seated in the operator position.
- Before getting off of the tractor, always disengage the power take-off, lower the hitches and implements to the ground, place the gearbox in neutral, engage the parking brake, turn off the engine and remove the key.

Do NOT touch, rest on or attempt to reach other components using the mechanisms of implements or allow others to do so.

Be very careful. If something breaks, comes loose or is not functioning, stop work, turn off the engine, check the vehicle and repair or make adjustments before starting work again.

Before starting the tractor, make sure that you have safe control of the speed and direction controls.

- Before starting work, inspect the area where work will be done to determine the best and safest work procedure. Plan work so that the tractor can be driven straight and forward, where possible. Pay attention to ditches, holes, front and side dips, slopes, trunks and logs, still water, etc. Check for all conditions that could be a hazard. If you are using a front lift or foldable implements or raised components, make sure that nothing blocks their passage.

⚠WARNING:

Contact with high-voltage lines can cause death. In the case 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).

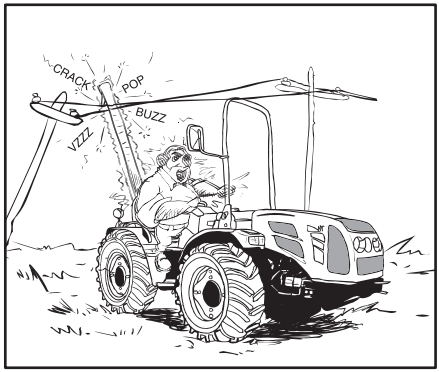


Fig. 2.11

Section 19 : Paying attention to others

- Be aware of the maneuvers you are going to carry out. Never let unqualified or insufficiently trained people operate your tractor. They can be a risk to themselves and 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 provided for, but only during actual harvesting (not during transport). This equipment must have instructions that define the area that can be safely climbed onto. 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 functioning normally. After starting, recheck turning to the right and left. Make sure that the steering and the braking system function. If the differential lock is engaged, do NOT operate at high speeds or change direction until it is disengaged.

⚠WARNING:

NEVER raise a load above someone.

- Keep others far away from your area of maneuver. Do not let anyone stand or pass under a raised implement.
- Do NOT lift objects that are not perfectly housed in the bucket; use the appropriate hitch. Do not let anyone stand on the rollbar or fenders.
- When using a loader, avoid sudden starts, stops, and turns and sharply reversing direction. Keep the loads as close to the ground as possible during transport.
- Never stand in front of (or let others), underneath or behind equipment that will be loaded or under a load. Never drive the tractor toward someone that is near a wall or fixed object.
- Keep others away from the cardan joints, drawbars or lift beams, power take-off shafts, cylinder transmission belts, pulleys and other moving parts. Keep the protective shields installed in their places.

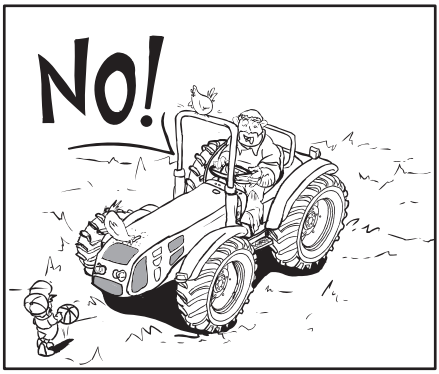


Fig. 2.12

Section 20 : Risk of overturning

If a tractor overturns, 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 cabin doors are jammed, exit the tractor through the front hinged window (Fig. 2.13).

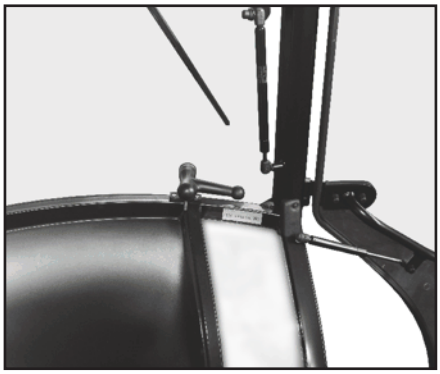


Fig. 2.13

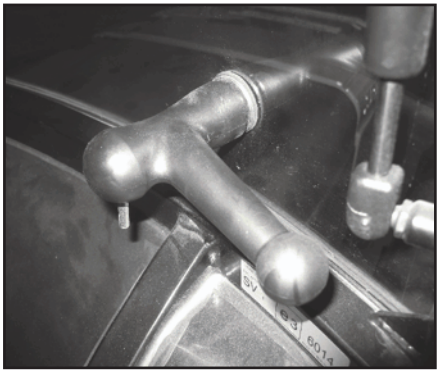


Fig. 2.13.1

Section 21 : To prevent lateral overturning:

- Adjust the wheel tract to the widest position, suitable for the type of work to be carried out.
- Lock the brake pedals together before driving on roads at transportation speed.
- Reduce the 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 slowly.
  Do NOT let the tractor bounce on bumpy ground. You could lose control.
- Do NOT tow a load that is too heavy for your tractor. You could lose control of it on a steep hill or the tractor could rear up and rotate 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 for going uphill. Insert the appropriate gear before starting downhill.

⚠WARNING:
NEVER disengage the clutch or attempt to change gears after starting downhill.

- It is always better to drive vertically when going up or downhill, rather than longitudinally.
- Do not overload a front implement or a trailer. Use suitable counterweights to maintain tractor stability (Fig. 2.14).
- When towing a load at transportation speed, lock the drawbar at the center position and use a safety chain.
- NEVER use the tractor for rounding up animals or herds.

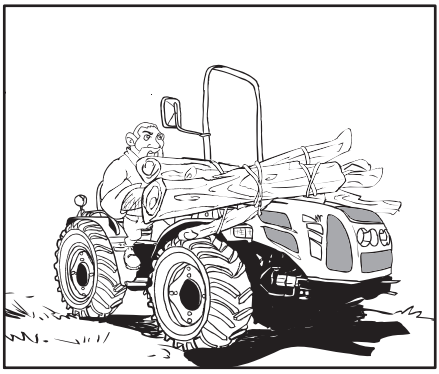


Fig. 2.14

- If operating near ditches or banks, keep the tractor behind the fracture line. Avoid ditches, embankments, banks and edges of rivers which could cave in (Fig. 2.15).
- If a steep slope must be passed over, avoid steering toward the incline, slow down and steer clear. Always travel the slope 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 travel over a hill with side implements installed, keep the implements on the side of the incline. Do not raise the implements. Keep them as low as possible and near to the ground when going over a slope.
- Avoid, if possible, going uphill or over steep slopes. If you must do so, avoid holes or depressions on the downhill side. Avoid projections, trunks, rocks or raised areas on the uphill side.

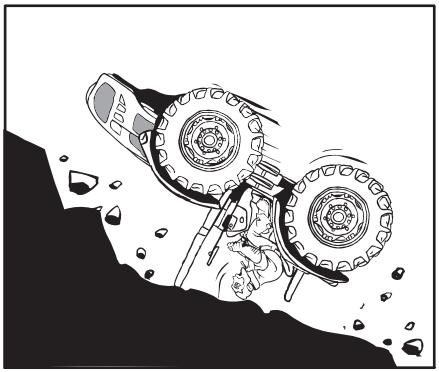


Fig. 2.15

Section 22 : Preventing backward overturning

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

⚠WARNING:

Overloading is ALWAYS dangerous. Verify the rated load capacities of your tractor and NEVER exceed them.

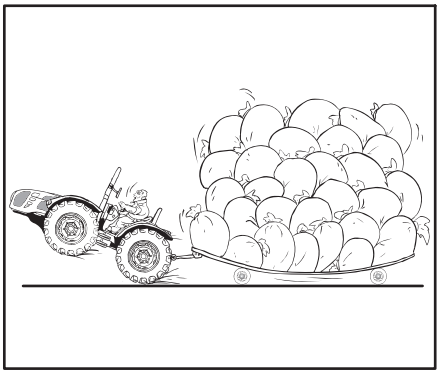


Fig. 2.16

- Start slowly and gradually increase the speed. Do NOT increase the engine rpm or lower the clutch. If the tractor is hitched to a heavy load or an unmovable object, improper use of the clutch could cause overturning.
- If the front 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 exit by driving forward. The tractor could rotate on its rear tires and overturn (Fig. 2.17). Lift or remove the installed implements and try to MOVE IN REVERSE. If this is not possible, tow the tractor out with another vehicle.
- If it is stuck in a ditch, try to BACK OUT, if possible. If you must go forward, do so slowly and carefully.
- A tractor with or without an implement hitched onto the rear must move in reverse when going uphill and move forward when going down a slope.
- A tractor with a front load must be driven in reverse when going downhill and forward when going uphill. Keep the bucket of the loader 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.

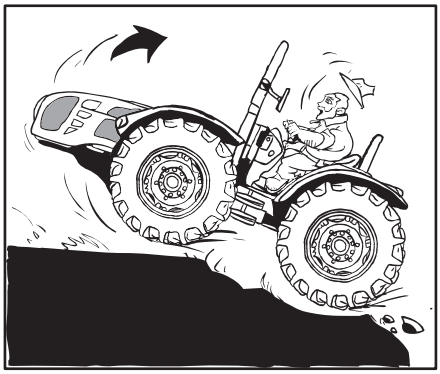


Fig. 2.17

Section 23 : Risky operations

- Make sure that the power take-off (110) guard is in position and that the shaft's cap (111) is on when the power take-off is not used.
- Before connecting, disconnecting, cleaning or adjusting towed implements from the power take-off, turn off the engine, remove the key and make sure that the power take-off's shaft is locked in placeo (Fig. 2.19).
- Make sure that all of the power take-off shaft's safety devices are installed and observe the instructions on the safety decals.
- Make sure that everyone is away from the tractor before engaging the power take-off. During stationary use of the tractor, always place the gearbox in the neutral, engage the parking brake and block the wheels of the tractor and the implement with wooden wedges or wheel clamps.
- When working with implements connected to the power take-off, never leave the driver seat until the power take-off has been disengaged, the transmission placed in neutral, the parking brake engaged, the engine off and the ignition key removed.
- Do NOT use adaptors, reducers or extensions that can lengthen the coupling shaft of the power take-off or the cardan joint beyond the protection offered by the power take-off's protective shield.
- The top link of the three-point hitch and the vertical tie rods of the three-point hitch must not be extended beyond the point where the thread begins to appear.

⚠WARNING:

NEVER attempt to unscrew the hydraulic connections or adjust an implement while the engine is running or the power take-off's shaft is moving. This creates a dangerous situation with the risk of serious injury or death (Fig. 2.20).

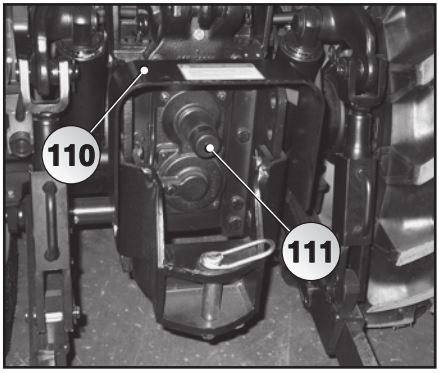


Fig. 2.18

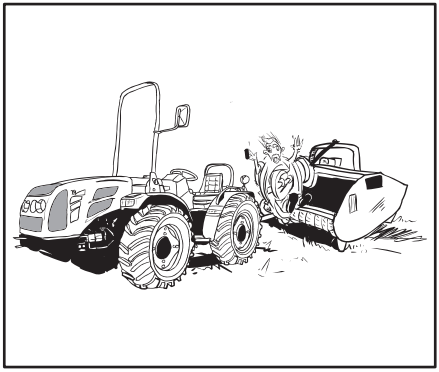


Fig. 2.19

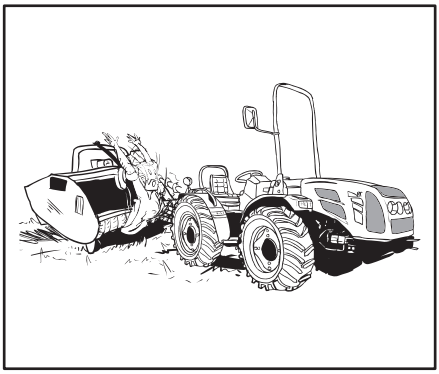


Fig. 2.20

- When using chemical products, carefully follow the instructions for use, storage and disposal. Furthermore, follow the instructions of the manufacturers of the equipment for using chemical products.
- When working under conditions of poor visibility or in the dark, turn on the work lights and reduce the speed.
- Work with the wheel track in the widest position possible for the type of work that is being carried out. To adjust the wheel track, refer to the paragraph in chapter 5 of the User Regulations.
- Reduce the speed when working on bumpy ground or slippery surfaces or when leaves and the foliage of trees reduce visibility.
- Do NOT make sharp turns at high speeds.

Section 24 : Implements and hitches

- The implements installed on the three-point hitch or laterally have a radius of turning space greater than implements towed from the drawbar. Make sure that there is enough space for the turn.
- When using implements or equipment with the tractor, carefully read the part of the operator instructions booklet on these implements and equipment and observe the recommended safety regulations.
- Tow only from the drawbar. Towing or hitching from other points can cause the tractor to overturn (Fig. 2.21).
- Improper use of the drawbar, even if positioned correctly, can cause longitudinal overturning backward.
- Do NOT overload a towed implement or device. Install ballasts to balance the weight and guarantee tractor stability. Attach heavy loads to the drawbar only.
- Use 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 appropriate adaptors, attach the chain to the support of the tractor's drawbar or to other specified anchoring points. Leave the chain fairly free so that turning is possible. Ask your dealer for a chain that has a capacity equal to or above the gross weight of the towed machine.
- The implements must be hitched and unhitched when the tractor is on flat ground without obstructions.
- Do not hitch implements with characteristics that are unsuited to those of the tractor (power, weight, etc.).
- Connect to the driveline in the correct way and make sure that the safety protections are perfectly efficient.
- First connect the driveline to the PTO of the implement and then to that of the tractor. Connect the safety chains correctly, to prevent the driveline protections from turning.
- Make sure that the driveline is the right length.
- Never operate the PTO unless the driveline that connects to the implements has been installed correctly.
- Never operate the driveline when manoeuvring the tractor, driving on the roads or when the implement is not in its operating position.
- Do not unhitch the implement unless it is resting on the ground and when the tractor has been stopped in safe conditions.
- Never use the front hook to tow implements.
- Hitch and tow implements that are preferably equipped with an independent braking system. Towed implements without independent braking systems may only be hitched if the weight (empty and with a full load) is within the permitted values.
- Do not make the hydraulic or electrical connections of the implement or insert any retention devices (plugs, split pins, etc.) unless the tractor has been stopped in safe conditions.
- Always lower the implement to the ground before leaving the tractor.

Section 25 : Driving on roads

Before driving the tractor on public roads, take appropriate precautions.

- Observe the local and national rules of the road that apply to your tractor.
- Couple both brake pedals (RS model).
- Lift the implements into the transportation position and lock them into place.
- Place the implements in the tightest transportation configuration.
- Disengage the power take-off and differential lock.
- Make sure that the tractor and any other implements have slow moving vehicle symbols or a rotating light, if provided for by law (Fig. 2.22).
- If the mounted implements project from the sides of the tractor, the overall width must be indicated by fitting panels with red and yellow stripes on the side ends. Make sure that the revolving beacon is installed and that it functions correctly.
- Make sure that an appropriate safety plug with a suitable safety restraint is used.
- Thoroughly clean all of the front and rear lights and make sure that they function correctly.
- Implements installed on the three-point hitch and implements that project out to the side when turning have a greater turning radius than towed implements. Always maintain a safe amount of space when turning.

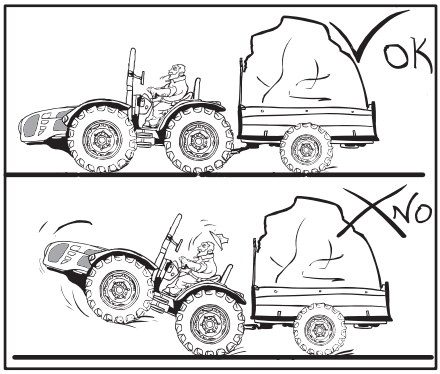


Fig. 2.21

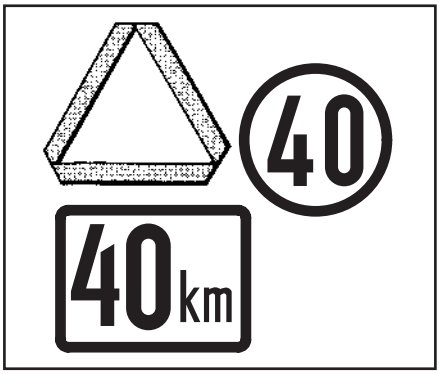


Fig. 2.22

Section 26 : Rules of the road

Take appropriate 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 that you are familiar with the road that you will travel.
- Use intermittent lights or the rotating light during the day and at nighttime, unless prohibited by law, on roads.
- Use precaution when towing loads at transportation speed, especially if the towed implement is NOT equipped with brakes.
- Observe local and national regulations regarding the speeds allowed for your tractor.
- Pay very careful attention when driving on surfaces covered with snow and on slippery roads.
- Wait for the road to be clear before pulling out.
- Be very careful at blind intersections. Slow down until you have sure visibility.
- Do NOT attempt to pass at intersections.
- Always signal your intention to slow down, stop or turn.
- Engage a slow 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 impede approaching traffic.
- Drive in the correct lane, staying near the edge of the road as much as possible.
- If the traffic increases behind you, stop at the side and leave the road.
- Pay attention when driving. Anticipate the maneuvers that others could make.
- When towing a heavy load, start braking early and slow down gradually.
- Be careful of high obstructions.

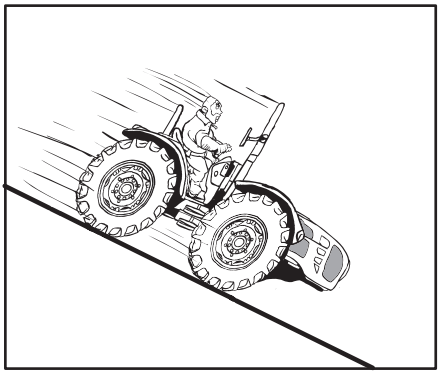


Fig. 2.23

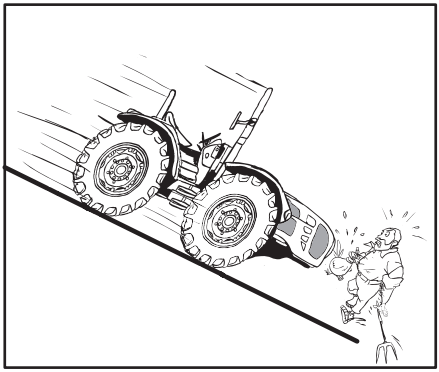


Fig. 2.24

Section 27 : Safety - After use

Whenever stopping work, safely bring the tractor to a halt (do NOT park the tractor on a descent), engage the parking brake, disengage the power take-off, place all of the gear levers in neutral, completely lower the implement to the ground, turn off the engine and remove the ignition key BEFORE leaving the operator position.

28.2 Individual means of protection against noise

The individual means of protection lessen the sound intensity transmitted to the ears through the air.

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

Various types with different attenuation capacities exist: helmets, earmuffs, earplugs (Fig. 2.25).

Helmets and earmuffs offer the greatest muffling but are bulky and annoying and therefore are useful for exposure to high noise levels for short periods of time (max. 2 hours).

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

If the daily exposure level to noise is equal to or higher than 85 dBA, adequate individual means for protecting hearing should be used.

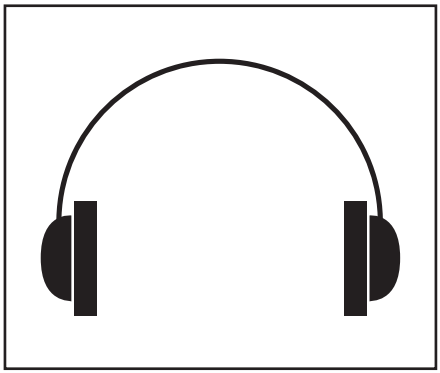


Fig. 2.25

Section 29 : Position of safety decals

The following safety decals must never be removed from their original position on the tractor. If, for reasons of maintenance or deterioration, they need removing or become illegible replace immediately, contact your nearest dealership for replacements.

29.1 58074880 (Fig. 2.26)

General risk

WARNING: read the user and maintenance booklet of the tractor and the engine for information on safety and use of the tractor.

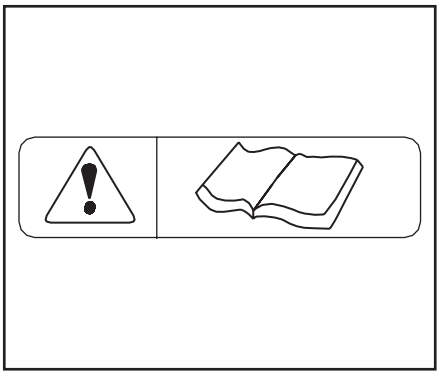


Fig. 2.26

29.2 580A1016 (Fig.2.26.1)

Danger of burns

WARNING: Very hot surfaces. Danger of burns.

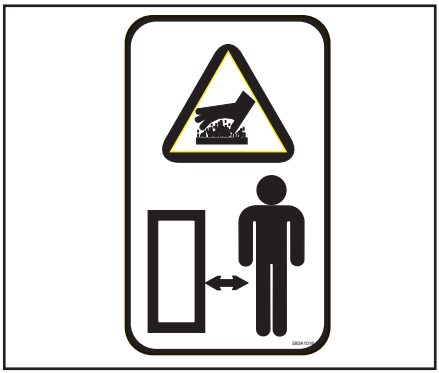


Fig. 2.26.1

29.3 580A1607 (Fig.2.26.2)

Danger of entanglement

Take **care**: keep well away from spinning shafts. Take care NOT to remain caught up by the PTO driveline. Keep all the guards mounted on the transmission shafts, on the tractor and on the implements.

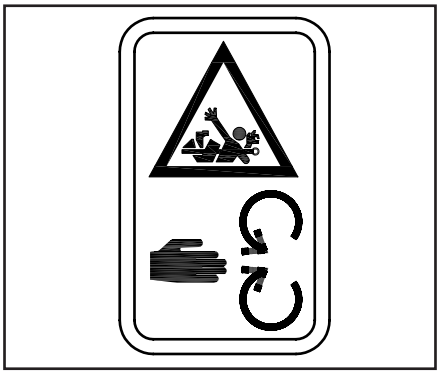


Fig. 2.26.2

29.4 580A1606 (Fig.2.26.3)

Danger of being crushed

Take **care**: risk of parts of the body being crushed. Keep will away of the area when the components are on the move.

Fig. 2.26.3

29.5 580A1605 (Fig.2.26.4)

Danger of overturning

Take **care**: never use the tractor when the protective structure is lowered.

Fig. 2.26.4

29.6 58076077 (Fig. 2.27)

Use of the PTO while the vehicle is not running

WARNING: Risk of dragging. Stay away from the rotating shafts. Be careful not to get caught by the PTO's propeller shaft. Leave all of the guards installed on the drive shafts, tractor and implements.

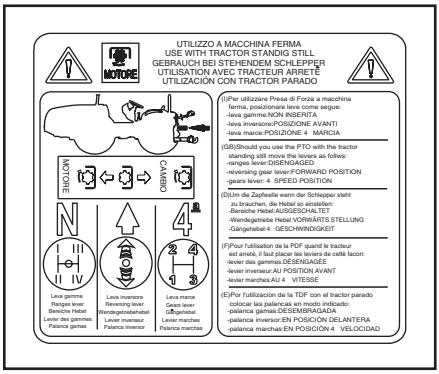


Fig. 2.27

29.7 580A1608 (Fig. 2.28)

Center articulated joint warning

WARNING: Risk of crushing. Stay away from this area when turning. Do not stand near the center joints.

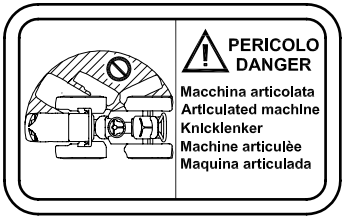


Fig. 2.28

29.8 580A1015 (Fig. 2.28.1)

Warning for hydraulic hitch controls

WARNING: Risk of blows and serious accidents.

Keep to one side of the tractor when using external hitch controls. Never stand between tractor and implement.

Fig. 2.28.1

29.9 580A1037 (Fig.2.28.2)

Danger: Moving power takeoff

Pay **Attention**: switch off the engine. Stand away from the power takeoff shaft when it is moving.

Fig. 2.28.2

29.10 580A1039 (Fig.2.28.3)

Danger: Moving mechanical parts

Pay **Attention**: switch off the engine, moving mechanical parts.

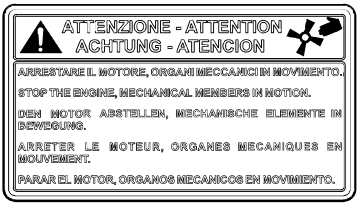


Fig. 2.28.3

29.11 580A1038 (Fig.2.28.4)

Danger: pressurised cooling circuit.

Pay **Attention**: switch off the engine. Before removing the radiator cap, wait for the circuit to cool.

Fig. 2.28.4

29.12 AR-DUALSTEER tractor

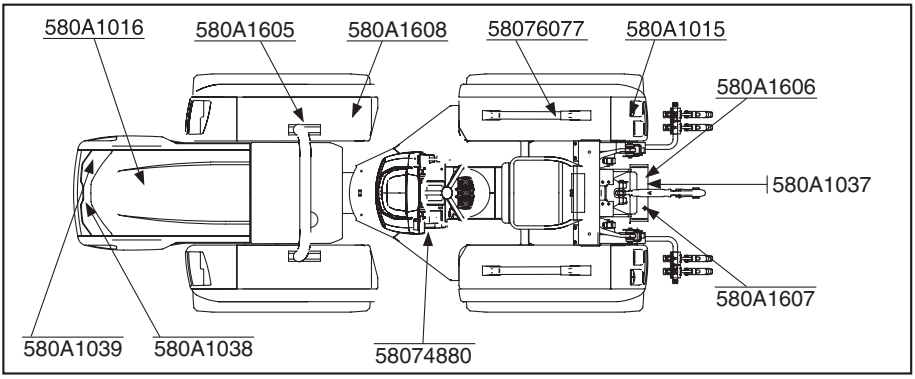


Fig. 2.29

29.13 RS-RS/MT tractor

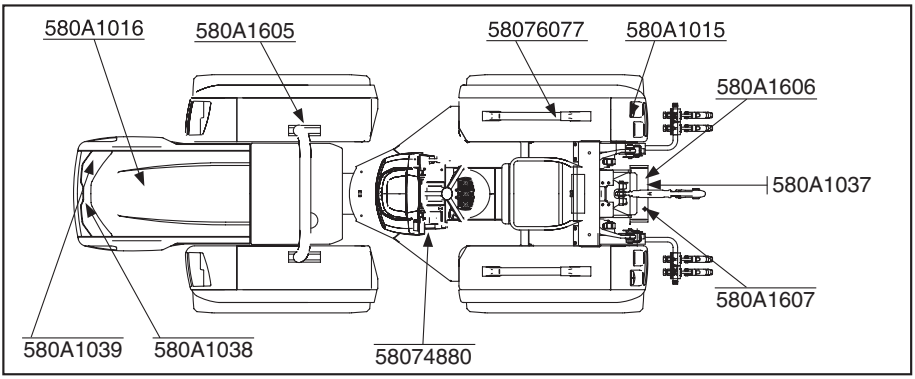


Fig. 2.30

Section 30: Using the loaders

Fastening points have not been designed on the tractor for enabling a front loader assembly. Therefore, it is forbidden the assembly of the above equipment. The tractor does not have any programmable functions with hydraulic sequential control.

Section 31: Forestal use

The tractor is not fitted with fastening points for the installation of protective structures (FOPS) and has no optional equipment, therefore it should not be used for forestry use.

Section 32: Using the sprayers

⚠ Danger:

The cabin meets “Category1” requirements in compliance with standard EN 15695-1:2009, therefore it 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 irrespective of the hazard class to which the substance belongs (highly toxic, toxic, etc). Activities that expose farmers to phytosanitary products vary from the preparation of mixtures, distribution, decontamination of vehicles and equipment used, to agronomical activities in treated plots of land. All operatives should be aware of the risks to which they are exposed.

In the case of tractors with open roll bar, it is necessary to use suitable “PERSONAL PROTECTIVE EQUIPMENT” (rubber non-slip boots and gloves, double filter mask; overall, protective eyewear and so on).

- After treatment work, always wash clothing with soap and water.

- Do not wear casual clothing during treatment work.

- In the event of poisoning, immediately seek medical attention or a medic presenting the toxicological sheet.

- Carefully clean the machine after carrying out treatments.

Note:

Treatment residues are classed as “hazardous special waste”, and therefore should be sent to specialised facilities to be processed in suitable hazardous waste treatment systems.

Chapter 3 : Technical data and characteristics

Section 1 : Weights and dimensions

1.1.1 750 AR Tractor

Weight:	2,130 Kg with rollbar 2,200 Kg with cab
The tractor's total weight is distributed on the axles as follows:	53% on the front axle 47% on the rear axle

Dimensions

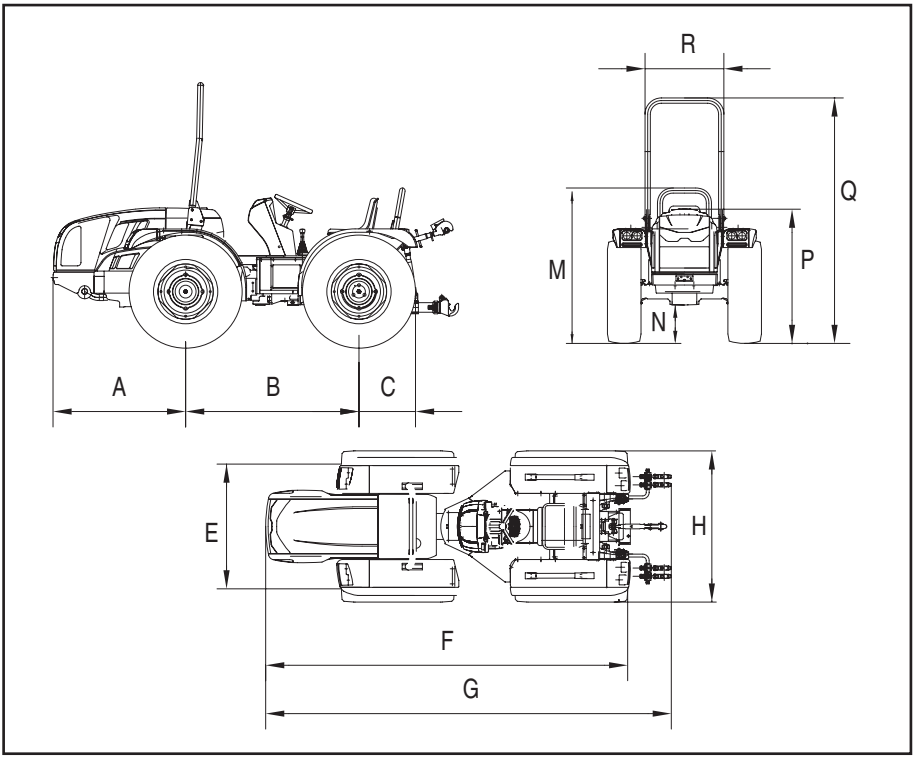


Fig. 3.1

	A	B	C	E		F	G	H		M		N		P		Q		R
				min	max			min	max	min	max	min	max	min	max	min	max	
mm	1030	1495	487	844	1230	3012	3448	1061	1475	1360	1450	248	328	1215	1350	2155	2245	740
inches	40.5	58.8	19.2	33.0	48.4	118.6	135.7	41.8	58.1	53.5	57.1	9.8	12.9	47.8	53.2	84.8	88.4	29.1

1.1.2 850-950 AR Tractor

Weight:	2,180 Kg with rollbar 2,250 Kg with cab
The tractor's total weight is distributed on the axles as follows:	55% on the front axle 45% on the rear axle

Dimensions

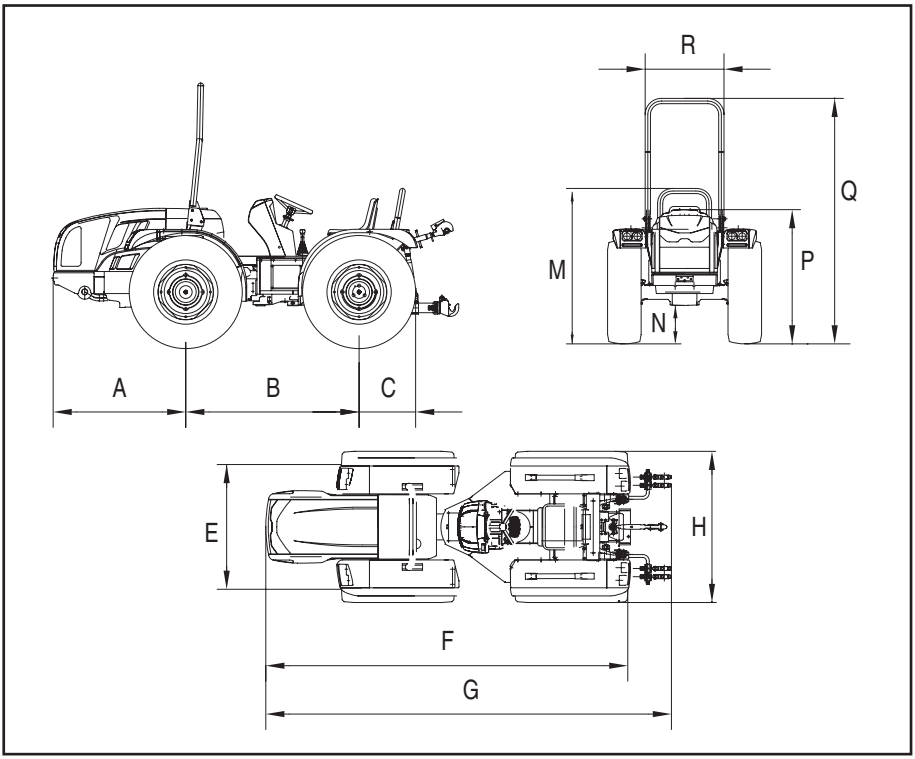


Fig. 3.2

	A	B	C	E		F	G	H		M		N		P		Q		R
				min	max			min	max	min	max	min	max	min	max	min	max	
mm	1142	1495	487	844	1230	3124	3560	1061	1475	1360	1450	248	328	1215	1350	2155	2245	740
inches	45.0	58.8	19.2	33.0	48.4	123	140.2	41.8	58.1	53.5	57.1	9.8	12.9	47.8	53.2	84.8	88.4	29.1

1.2.1 750 RS Tractor

Weight:	2,120 Kg with rollbar 2,320 Kg with cab
The tractor's total weight is distributed on the axles as follows:	53% on the front axle 47% on the rear axle

Dimensions

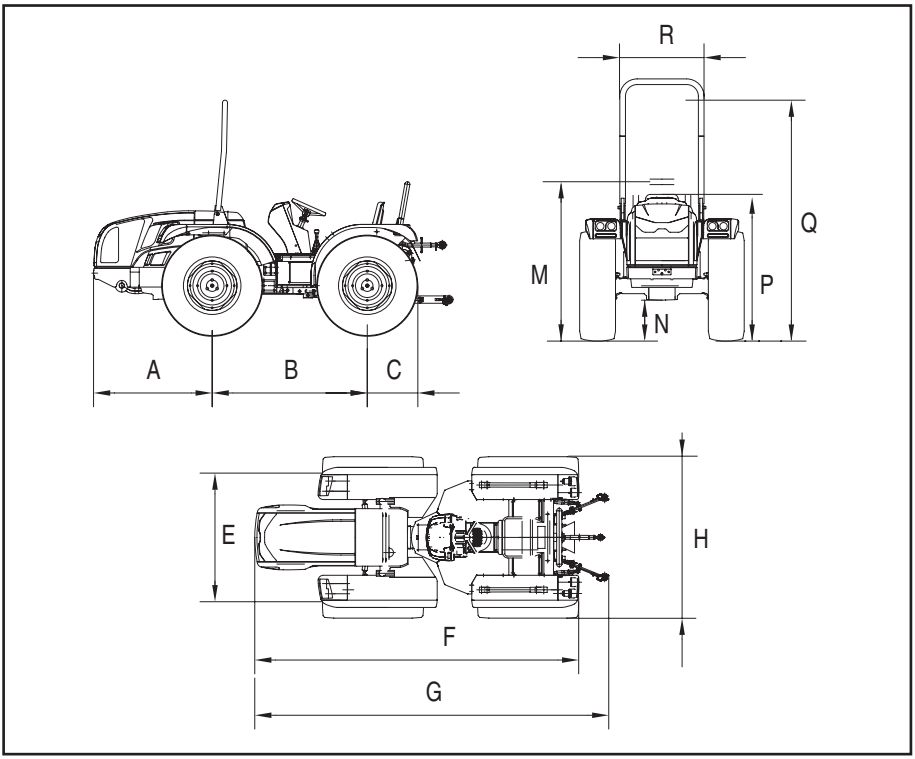


Fig. 3.3

	A	B	C	E		F	G	H		M		N		P		Q		R
				min	max			min	max	min	max	min	max	min	max	min	max	
mm	1030	1495	487	1046	1618	3012	3438	1291	1956	1360	1460	248	328	1215	1360	2155	2255	740
inches	45.0	58.9	19.2	41.2	63.7	118.6	135.3	50.8	77.0	52.7	57.5	9.8	12.9	47.2	53.5	81.0	88.8	29.1

1.2.2 850-950 RS Tractor

Weight:	2,170 Kg with rollbar 2,370 Kg with cab
The tractor's total weight is distributed on the axles as follows:	55% on the front axle 45% on the rear axle

Dimensions

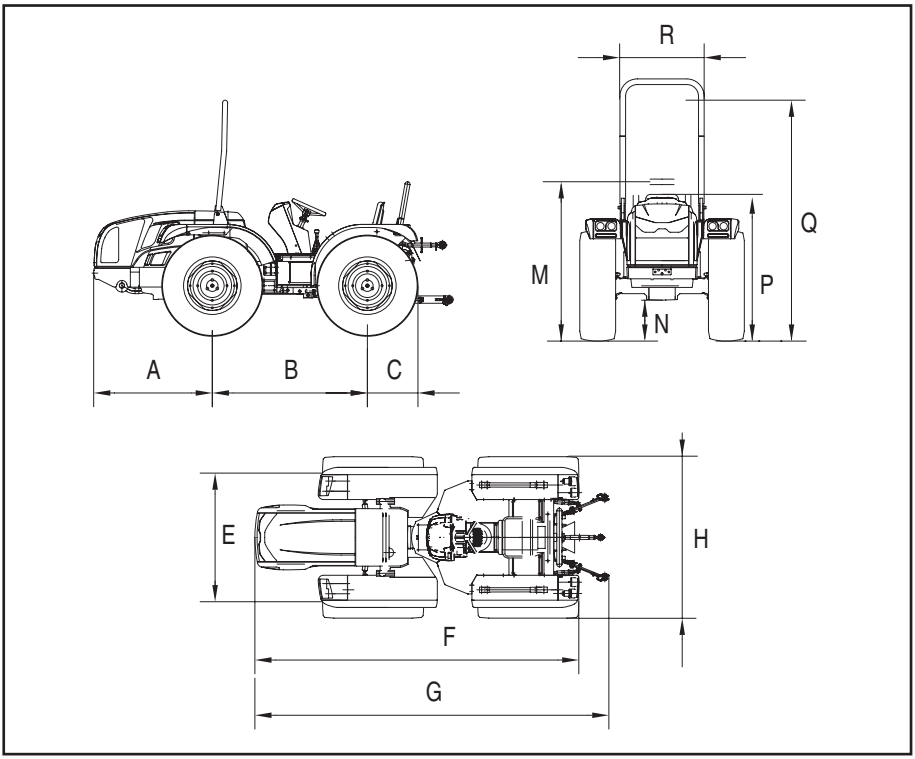


Fig. 3.4

	A	B	C	E		F	G	H		M		N		P		Q		R
				min	max			min	max	min	max	min	max	min	max	min	max	
mm	1142	1495	487	1046	1618	3124	3550	1291	1956	1360	1460	248	328	1215	1360	2155	2255	740
inches	45.0	58.9	19.2	41.2	63.7	123	139.7	50.8	77.0	52.7	57.5	9.8	12.9	47.2	53.5	81.0	88.8	29.1

1.3.1 750 DUASLTEER Tractor

Weight:	2,200 Kg with rollbar 2,290 Kg with cab
The tractor's total weight is distributed on the axles as follows:	53% on the front axle 47% on the rear axle

Dimensions

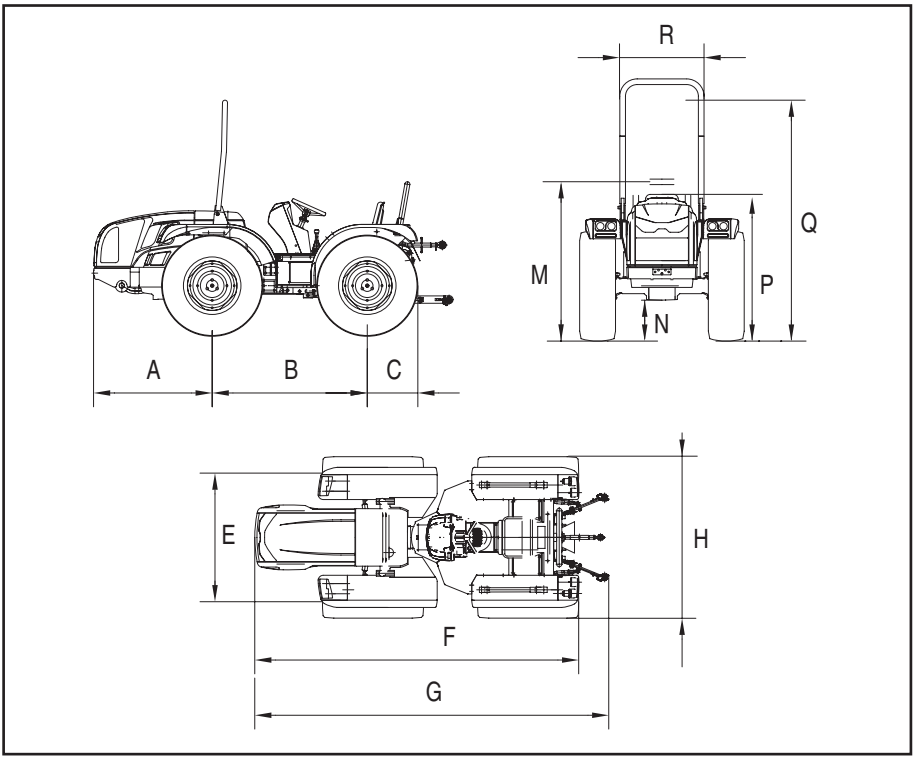


Fig. 3.5

	A	B	C	E		F	G	H		M		N		P		Q		R
				min	max			min	max	min	max	min	max	min	max	min	max	
mm	1030	1495	487	1046	1618	3012	3438	1291	1956	1360	1460	248	328	1215	1360	2155	2255	740
inches	40.5	58.9	19.2	41.2	63.7	118.6	135.3	50.8	77.0	52.7	57.5	9.8	12.9	47.2	53.5	81.0	88.8	29.1

1.3.2 850-950 DUASLTEER Tractor

Weight:	2,250 Kg with rollbar 2,340 Kg with cab
The tractor's total weight is distributed on the axles as follows:	55% on the front axle 45% on the rear axle

Dimensions

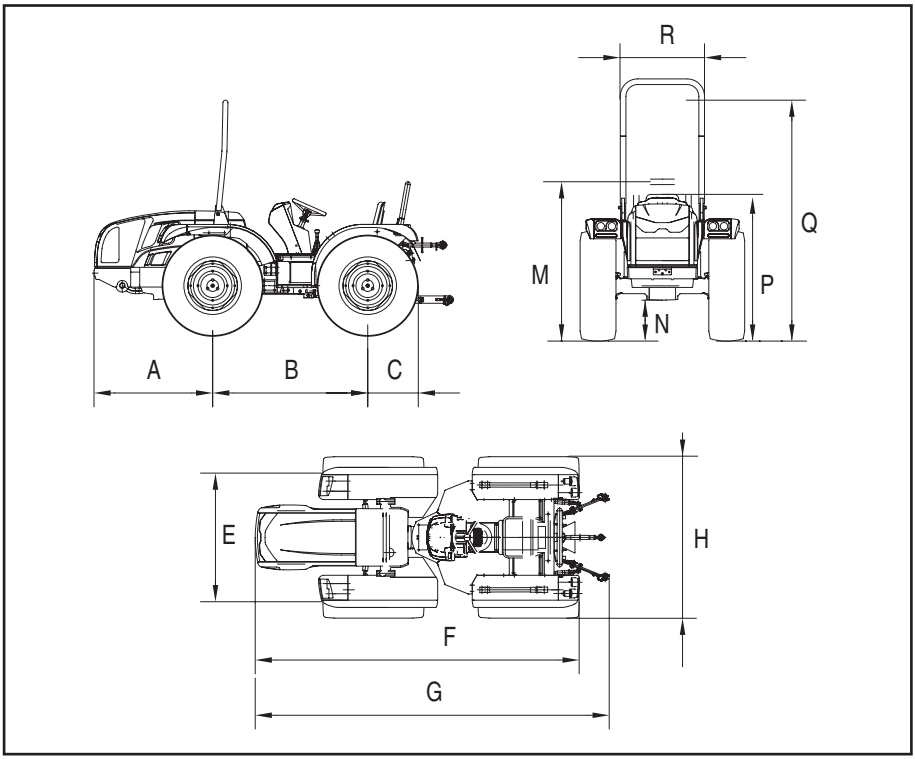


Fig. 3.6

	A	B	C	E		F	G	H		M		N		P		Q		R
				min	max			min	max	min	max	min	max	min	max	min	max	
mm	1142	1495	487	1046	1618	3124	3550	1291	1956	1360	1460	248	328	1215	1360	2155	2255	740
inches	45.0	58.9	19.2	41.2	63.7	123	139.7	50.8	77.0	52.7	57.5	9.8	12.9	47.2	53.5	81.0	88.8	29.1

1.4.1 850-950 RS/MT Tractor

Weight:	2,260 Kg with rollbar 2,330 Kg with cab
The tractor's total weight is distributed on the axles as follows:	55% on the front axle 45% on the rear axle

Dimensions

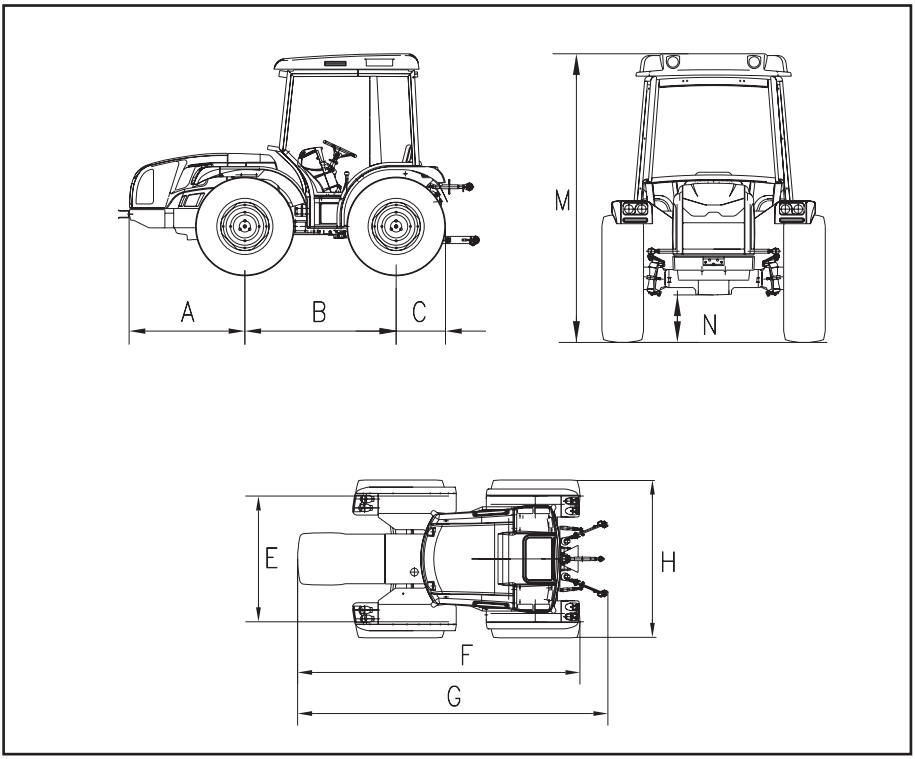


Fig. 3.7

	A	B	C	E		F	G	H		M	N	
				min	max			min	max		min	max
mm	1142	1495	487	1207	1618	3124	3550	1424	2008	2170	248	328
inches	45.0	58.9	19.2	47.5	63.7	123	139.7	56.0	77.1	85.4	9.8	12.9

Section 2 : Engine

	750	850	950
Manufacturer	VM Motori spa	VM Motori spa	VM Motori spa
Type	87C/9	83C/9	82C/9
No. of cylinders	3	4	4
Displacement (cc)	2228	2970	2970
Aspiration	turbo intercooler	turbo	turbo intercooler
Emissions level	complies with EEC directives: 2000/25 - 97/68 - 2005/13		
Power (KW/CV)	48,6/66	58/79	67/91
Rated speed (rpm)	2300	2300	2300
Maximum torque (Nm/rpm)	265 (at 1200 rpm)	274 (at 1800 rpm)	400 (at 1000 rpm)
Cooling	liquid	liquid	liquid
Specific fuel consumption (gr/KWh)	--	--	--
Tank capacity (lt.)	50	50	50

2.1 Noise level emissions in the environment (Directive 2009/63/EC)

	750	850	950
Machine noise level stationary dB (A)	80,5	81,3	79
Machine noise level moving dB (A)	83	83,7	81,4

2.2 Noise level in the driver's ears (Directive 2009/63/EC)

	750	850	950
Machine noise level with arch dB (A)	85,5	86	86
Machine noise level with cabin dB (A)	86	85,68	85,7
Machine noise level with half cabin dB (A)	-	85,9	85,7

2.3 Vibration level of the driver's seat (Directive 78/764/EEC)

	MASS 60 Kg.	MASS 100 Kg.
GT60 - M91	1,13 m/s^2	0,75 m/s^2
GT50 - M91	1,13 m/s^2	0,75 m/s^2
SC79 - M91	1,13 m/s^2	0,75 m/s^2
SC74 - M91	1,13 m/s^2	0,75 m/s^2
SC79 - M97	1,21 m/s^2	0,98 m/s^2
SC74 - M97	1,21 m/s^2	0,98 m/s^2
XH2 P1	1,17 m/s^2	0,93 m/s^2
XH2 P2	1,17 m/s^2	0,93 m/s^2

Section 3 : Clutch

The transmission has a hydraulically-actuated multi-plate clutch in oil. Progressive clutch pedal with parallelogram linkage and recovery of play.

Section 4 : Gearbox

The constant mesh gearbox with helical gearing has 4 speeds, 4 ranges, and reverser. A total of 32 speeds are available: 16 forward and 16 reverse.

Gears and reverser have synchronized engagement.

Section 5 : Rear drive

Helical bevel gear and differential with electrohydraulic locking.

Final epicyclic reduction gears on wheels.

Section 6 : Differential lock

Front and rear differential with simultaneous electrohydraulic locking.

Rear differential only with electrohydraulic control.

Section 7 : Front drive

Electrohydraulic front drive disengagement.

Section 8 : Power take-off

Independent Power Take-Off for implements or machine tools.

The independent PTO is engaged by means of an electrohydraulically-actuated multi-plate clutch in oil. The PTO's output shaft rotates to the right in forward gear. There are two available configurations:

- 540 / 750 rpm
- 540 / 1,000 rpm

Synchronized Power Take-Off for trailers.

The PTO shaft rpm for each rear wheel revolution are shown below:

- 540 rpm - 5,501
- 1,000 rpm - 10,198
- 750 rpm - 6,990

Section 9 : Service brakes

The four wheels have hydrostatic oil-immersed multi-plate service brakes.

They are activated by one pedal in the AR model and two pedals in the RS-RS/ MT-DS models for forward and reverse operation.

For simultaneous braking on roads, the pedals have to be coupled using the relevant lockbolt.

Section 10 : Parking brake

The parking brake is completely independent and automatically engages when the engine is off.

When the engine is running, it is electrohydraulically controlled with a knob that has a safety lock on the dashboard.

Section 11 : Front axle

The front drive axle oscillates at center (approx. ± 15°).

Electrohydraulic front drive disengagement by means of switch on dashboard.

The differential lock is electro-hydraulic controlled through a switch on the dashboard.

The differential lock can act on:

- The rear axle;
- On the rear and front axles at the same time.

Section 12 : Hydraulic circuit

The circuit is equipped with two independent hydraulic pumps delivering 30 l/min and controlled by timing gears. The system has a heat exchanger for cooling the oil.

One pump controls the power steering and the auxiliaries (diff. lock - drive disengagement) and has an adjusted flow rate of 13,5 lt/min.

The other pump controls the hydraulic lift and the additional directional control valves. The above given flow rates are taken at engine maximum RPM.

Section 13 : Rear hydraulic lift

The rear hydraulic lift is available in two mechanical configurations:

- up/down (with or without hydraulic suspension);
- position control, draft control, and combined position and draft control.

The lifting capacity is 2,300 Kg at the ball joints of the lift arms.

Section 14 : Hydraulic directional control valves

The additional hydraulic directional control valves are mechanically controlled with up to 8 hydraulic ports. They use the same pump that controls the lift, with a flow rate of 49 l/min.

Standard configuration:

- 1 single-acting directional control valve
- 2 double-acting directional control valves

with lever that remains in place with continual oil flow to hydraulic ports, free reverse flow and oil return.

Optional:

- 1 single-acting directional control valve
- 1 double-acting directional control valve
- 1 double-acting float directional control valve

As an option, the directional control valves can be electronically operated by a joystick in the following configuration:

- 1 single-acting adjustable flow directional control valve
- 1 single-acting directional control valve + 5 double-acting directional control valves, driven by a proportional valve

NOTE:
If the tractor is equipped with hydraulic suspension or a front lift, 4 double-acting directional control valves are available.

NOTE:
To guarantee the correct maneuvrability of the hydraulic implements it is advisable to use throttle valves on the hydraulic workings connected to the double-acting hydraulic drives.

Section 15 : Steering

The tractor has hydrostatic steering incorporated in the dashboard and 2 hydraulic jacks: in the AR model they are single-acting on the center joint, in the RS model they are double-acting on the front axle.

Steering angle:

- AR model - approx. 38°
- RS model - approx. 50°
- DS model - approx. 70°

The steering wheel's height is adjustable.

The turning radius depends on the type of tires installed:

AR Tractor

Type of tire	250/80-18	280/70-18	320/65-18	11.5/80-15.3	8.00-20	9.50-20	300/70-20	320/70-20	31x15.50-15
mm	2,680	2,700	2,770	2,710	2,660	2,670	2,740	2,760	2,930

RS Tractor

Type of tire	280/70-18	320/65-18	340/65-18	9.50-20	11/2-20	320/70-20	340/65-20	31x15.50-15	38/14-20
mm	3,240	3,260	3,280	3,150	3,200	3,250	3,280	3,280	3,280

RS/MT Tractor

Type of tire	31x15.50-15	425/75-17	340/65-20	38/14-20
mm	3,340	3,350	3,280	3,280

DS Tractor

Type of tire	280/70-18	320/65-18	340/65-18	9.50-20	11/02-2020	320/70-20	31x15.50-15	38/18-20
without the aid of the independent brakes (mm)	2300	2450	2570	2580	3000	2850	2570	2870
with the aid of the independent brakes (mm)	2200	2350	2470	2460	2850	2710	2460	2730

Section 16 : Hitch

Rear equipment connection

Cat. I and II three-point hitch with side stabilizers for controlling lateral sway of implements.

Optional three-point hitch tie rods with top link hydraulically controlled from operator position. Right vertical tie rod with control handle or optional hydraulic jack controlled from operator position.

Left vertical tie rod with control handle.

The lifting capacity is 2,300 Kg at the ball joints of the lift arms.

Front equipment connection

The tractor is equipped with drillings for the front equipment connection.

The front hydraulic lift (optional) is equipped with two external jacks with front guard, controlled by two double-acting directional control valves.

Standard three-point hitch arms are rigid with Cat. I quick hitches.

Lifting capacity: 800 Kg.

Section 17 : Hitches

The tractor is equipped with a front hitch.

Two types of rear hitches are available, depending on the norms of individual countries:

- Cat. C, approved for Italy hitch
- Hitch for the European approval

The maximum weight that the tractor can tow varies depending on the laws in force in individual countries.

The maximum towable mass (unbraked) for the AR and AR DUALSTEER models is 2,300 Kg and for the RS and RS/MT models is 2,400 Kg.

The maximum towable mass (with independent braking system) for the AR and AR DUALSTEER models is 4,600 Kg and for the RS/MT models is 6,000 Kg.

The maximum towable mass (with inertia braking) for AR and AR Dualsteer models is 5,000 Kg and for the RS-RS/MT models is 7,000 Kg.

⚠WARNING:
The front hitch must be used exclusively for emergency towing of the tractor. The towing direction must coincide with the longitudinal axis of the tractor itself. The tractor may not be towed in other directions that do not correspond to this axis or for purposes other than those described.

Section 18 : Electrical system

Voltage	12 V

Battery

type	"Maintenance Free"
Voltage	12 V
20-hour capacity	100 Ah

Alternator

type	55 A
Voltage	14 V
Power	700 W with built-in automatic voltage regulator

Starter

Voltage	12 V
Sustained power	2.4 KW

Rear auxiliary electrical outlet

7 pin

Headlights

four front optical groups with quartz iodine lamps; two lower beams (55W) and two groups including running light (3W) and high beams (55W);

four orange indicator lights (5W four lamps);

two tail lights including red running light (5W), stop light;

two red reflectors;

number plate light and rear working light (5W);

on tractors with cabin: two front working lights (55W) and two rear working lights (50W) with quartz iodine lamps.

Fuses

Safety fuses in the front part of the dashboard and at the inside top of the cab.

Section 19 : Cab

The cab is completely soundproof, monocoque, assembled on silent blocks with safety cell integrated in the structure.

Noise level according to EEC regulations.

Front and rear openable windows, ample visibility.

Heating and ventilation.

Air conditioning, optional.

Section 20 : Rollbar

The front safety frame is securely fixed to the tractor's transmission and can be lowered for particular maneuvers.

Frame with several uprights for the RS/MT model, with roof, front and rear window.

Section 21 : Body

The engine hood opens at the front.

Partially wrap-around fenders.

Diesel tank and battery under the hood.

Section 22 : Operator position and seat

Operator position with platform suspended on silent blocks.

The operator position is reversible for using the tractor in reverse. The platform rotates, suspended brake and clutch pedals on revolving turret.

The steering wheel's height is adjustable.

Seat reclining facilitated by gas spring and safety belts. The standard model has springs that may be adjusted to the operator's weight.

As an option, it is available the pneumatic suspension springing.

Otherwise, it is available the "KAB" seat.

Section 23 : Front and rear wheels

To adjust the wheel track, see the tables in chapter 5, User Regulations.

Tyres	Wheel radius		Model			
	(mm)	(in)	RS	AR	RS/MT	DS
8.00 - 20"	437	17.20		•		
9.50 R20"	436	17.17		•		
11.2 R20"	450	17.72	•			•(**)
320/70 R20"	439	17.28	•	•		•(**)
38x14 - 20"	439	17.28	•		•	•(**)
280/70 R18" (*)	380	14.96	•	•		•
320/65 R18"	400	15.75	•	•		•
340/65 R18"	405	15.94	•			•
31x15.5 - 15"	350	13.78	•	•	•	•
340/65 R20"	430	16.93	•	•	•	•
440/50 R17"	431	16.97			•	
250/80 - 18"	393	15.47		•		
300/70 R20"	429	16.89		•		•
11.5/80 - 15.3"	380	14.96		•		
13.6 - 16	432	17				
33x12.5 - 15	350	13.78				
250/85 R20	424	16.69	•			•

(*) Orchard model

(**) Tyres that cannot be assembled on tractors with cabin.

Section 24 : Supplies table

The engine's cooling circuit consists of a mixture of a special coolant and distilled water in variable proportions.
The proportion recommended by the building firm is 40% antifreeze and 60% distilled water. According to the working temperature of the tractor it is advisable to vary the given proportion as specified in the following table:

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

For the engine oil line quantities, see the instructions manual for the engine supplied with the tractor. Always store it in a safe place.

Quantity	AR	RS	RS/MT	DS	type
Fuel tank	50 lt	50 lt	50 lt	50 lt	diesel
Front axle	6.5 Kg	5.5 Kg	5.5 Kg	5.5 Kg	AGIP ROTRA JD/F oil
Reduction gear on front wheels	-	0.8 Kg	0.8 Kg	0.8 Kg	AGIP ROTRA JD/F oil
Rear gearbox-axle and reduction gears	23 Kg	23 Kg	23 Kg	23 Kg	AGIP ROTRA JD/F oil
Clutch and brakes system	1 Kg	1 Kg	1 Kg	1 Kg	AGIP LHM SUPER oil
engine cooling circuit coolant	10.5 lt	10.5 lt	10.5 lt	10.5 lt	antifreeze / distilled water mixture
conditioned air circuit coolant	1.1 Kg	1.1 Kg	1.1 Kg	1.1 Kg	R134a

Chapter 4 : Instruments and controls

Section 1 : General view of 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 properly use the controls listed here, carefully read chapter 5 - User Regulations.

1 - Clutch disengagement pedal
2 - Range lever
3 - Reverser lever
4 - Gearshift lever
5 - Brake pedals (RS-RS/MT-DS models)
6 - Brake pedals (AR model)
7 - Accelerator pedal
8 - Steering wheel
9 - Steering wheel height lever
10 - Analog instrument panel
11 - Lights switch and horn
12 - Ignition switch
13 - PTO engagement switch
14 - Differential lock engagement switch
15 - Four-wheel drive disengagement switch
16 - Auxiliary electrical outlet (12V)
17 - Emergency indicator lights switch
18 - Hand accelerator lever
19 - Parking brake knob

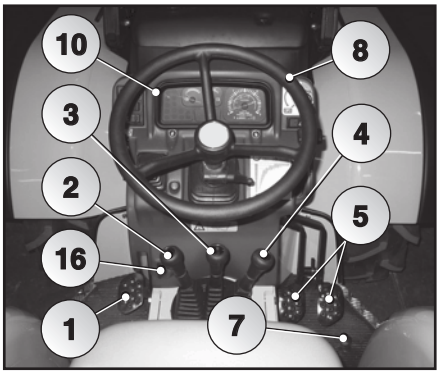


Fig. 4.1

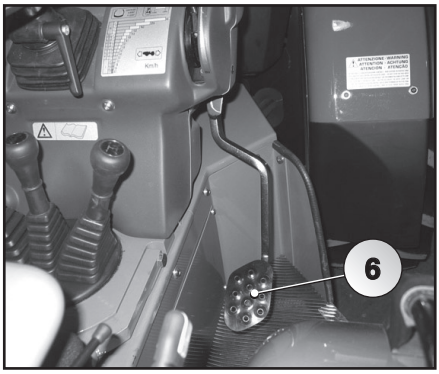


Fig. 4.2

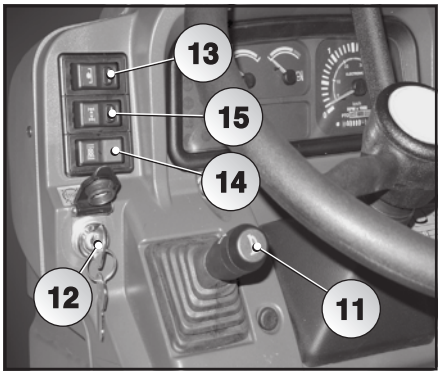


Fig. 4.3

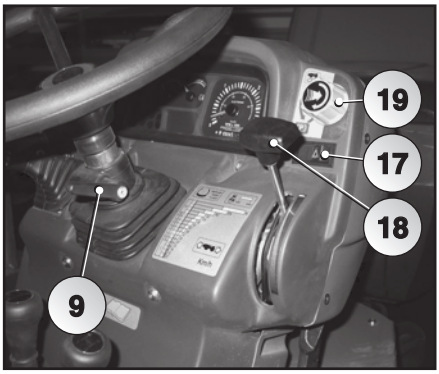


Fig. 4.4

20 - Digital instrument panel
21 - Digital panel functions button
22 - Up/down lift lever
23 - Lift arms down speed knob
24 - Position control lever (yellow) for pos./draft control lift
25 - Draft control lever (red) for pos./ draft control lift
26 - Position control lever stop knob
27 - Lift arms down speed lever

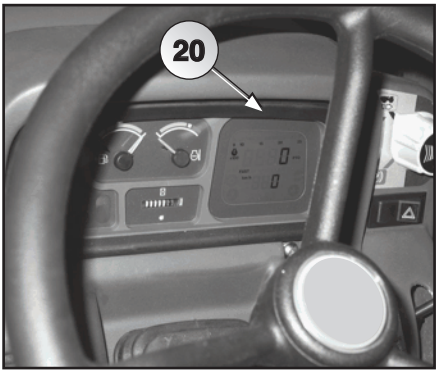


Fig. 4.5

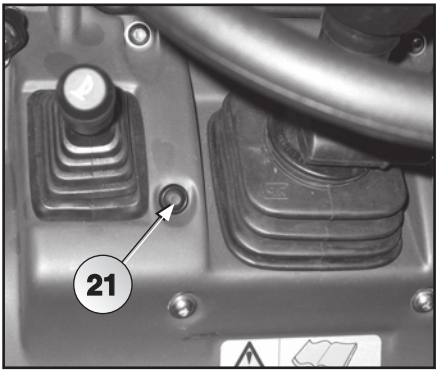


Fig. 4.6

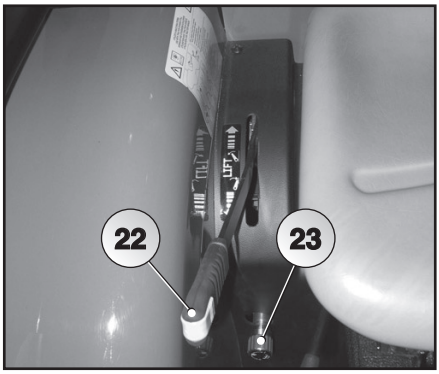


Fig. 4.7

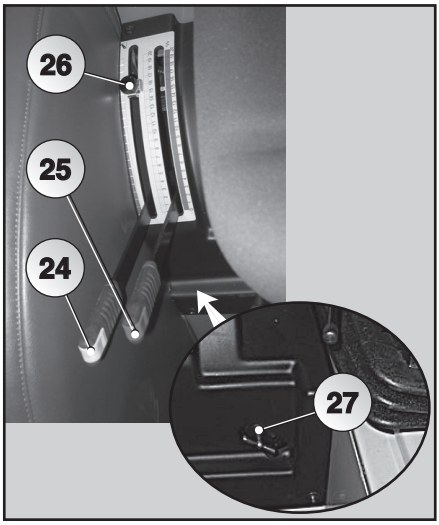


Fig. 4.8

28 - Independent or synchronized PTO lever
29 - Hydraulic directional control valve lever (matches rear quick hitch color)
30 - Hydraulic directional control valve lever (matches rear quick hitch color)
31 - Hydraulic directional control valve lever (matches rear quick hitch color)
32 - Hydraulic directional control valve lever (matches rear quick hitch color)
33 - PTO speed lever
34 - Electrical outlet for trailer
186 - Lift lever (hydraulic suspension model)
187 - Accumulator charge/discharge lever (hydraulic suspension model)
189 - Flow diverter lever (hydraulic suspension model)

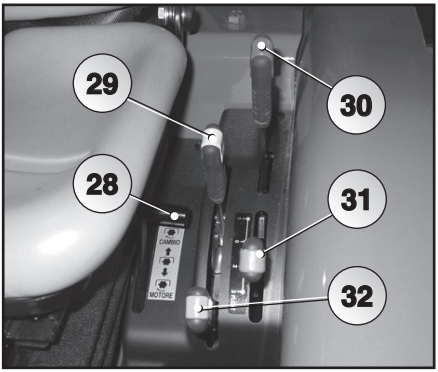


Fig. 4.9

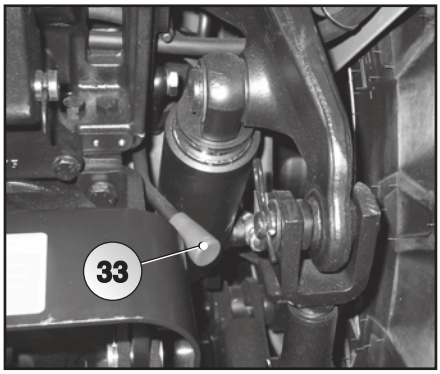


Fig. 4.10

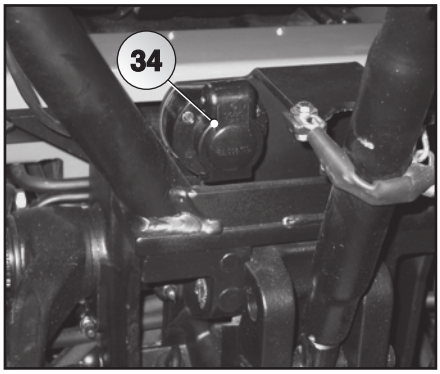


Fig. 4.11

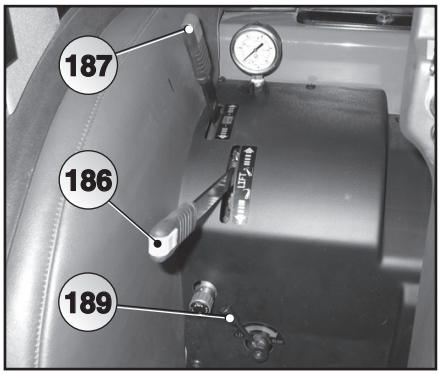


Fig. 4.12

Section 2 : Controls in cab

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

Unless otherwise specified, they apply for all versions.

To properly use the controls listed here, carefully read chapter 5 - User Regulations.

NOTE:
To clean the cab's upholstery, use water mixed with preferably neutral detergents; all products found on the market for cleaning car interiors may, in any case, be used.

50 - Front work lights switch
51 - Rotating light switch
52 - Rear work lights switch
53 - Front windshield wiper switch
54 - Fan speed knob
55 - Air-conditioning temperature knob
56 - Heating knob

NOTE:
The cab is equipped with front and rear work lights; these considerably improve visibility at night. They should therefore always be turned on when visibility is poor.

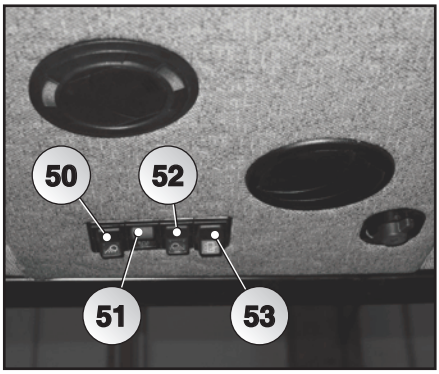


Fig. 4.13

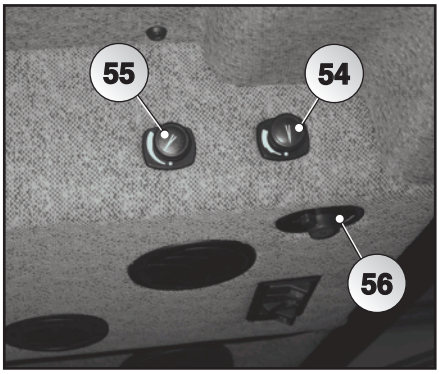


Fig. 4.14

Fig. 4.15

57 - Radio (optional)
58 - Cab interior lights switch

The switch (58) has three positions:

- Back - large interior light on
- Center - lights off
- Forward - reading light on

59 - Directional hot/cold air vents
60 - Directional hot/cold air vents
67 - Directional hot/cold air vents
68 - Directional hot/cold air vents

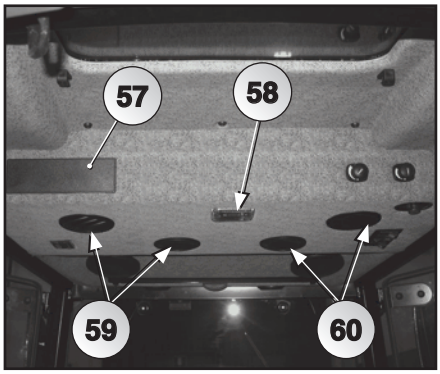


Fig. 4.16

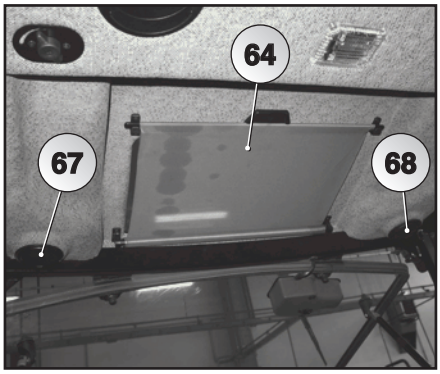


Fig. 4.17

61 - Front roller sun shade
62 - Button for front roller sun shade return
63 - Speakers
64 - Rear roller sun shade
65 - Rear windshield wiper switch
66 - Front and rear windshield wiper liquid tank

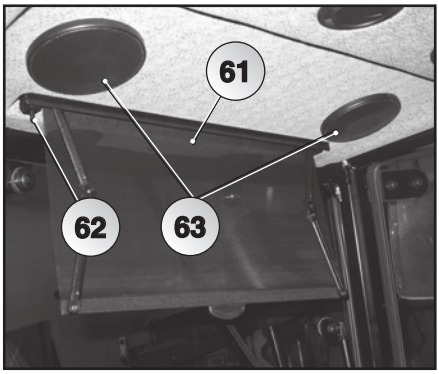


Fig. 4.18

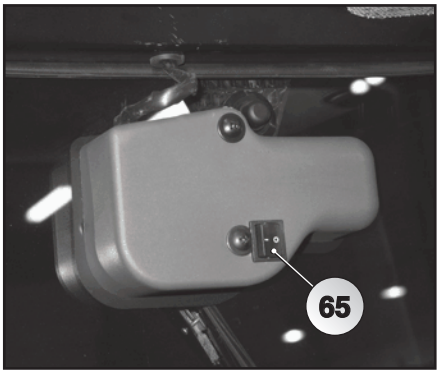


Fig. 4.19

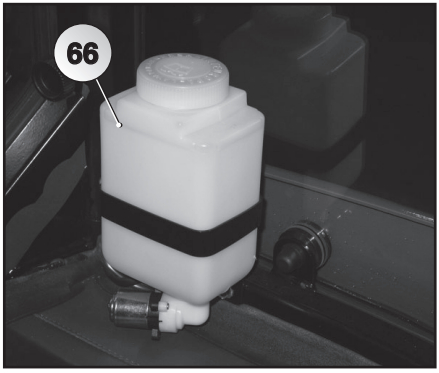


Fig. 4.20

Side doors

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

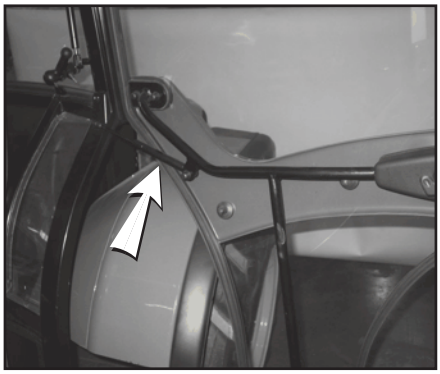


Fig. 4.21

Front and rear windows

The front and rear windows may be opened.

To open the window, simply free it by turning the handle counter-clockwise and push. Special shock absorbers hold the window open.

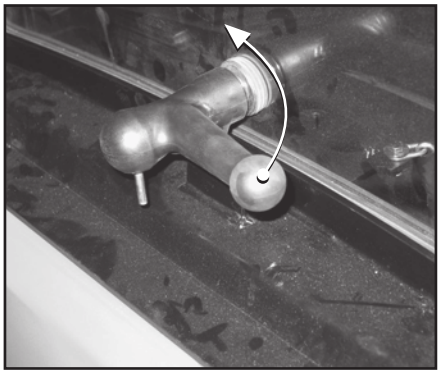


Fig. 4.22

Section 3 : Heating and air-conditioning

The cab is equipped with vents that can be positioned to direct the air as desired (59-60). The controls for ventilation and heating are on the roof of the cab (Fig. 4.23).

⚠WARNING:
If the tractor is not used for an extended period of time or if the air-conditioning is not used for a long time, run the system at least once a week for approximately 15 minutes to keep it operating well and to prevent gas leaks from the compressor.

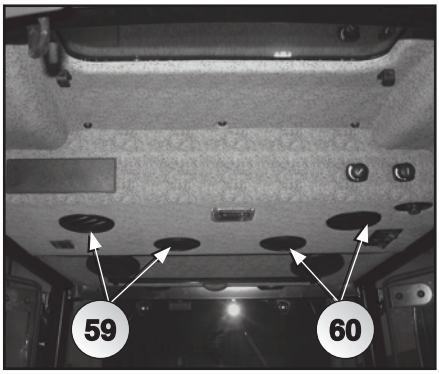


Fig. 4.23

3.1 Heating

The knob (56) is used to adjust the cab's internal temperature from cold to hot through all of the desired intermediate temperatures using water from the engine's cooling circuit. From the closed position (C), the valve can be turned until fully opened (A), corresponding to maximum heat.

To introduce air, use the fan speed knob (54).

NOTE:
To heat the cab quickly, open the air vents (59-60) inside the cab itself.

⚠WARNING:
When the heat is on, make sure that the air-conditioning knob (55) is in the off position.

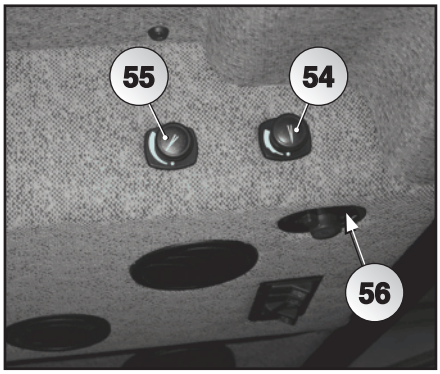


Fig. 4.24

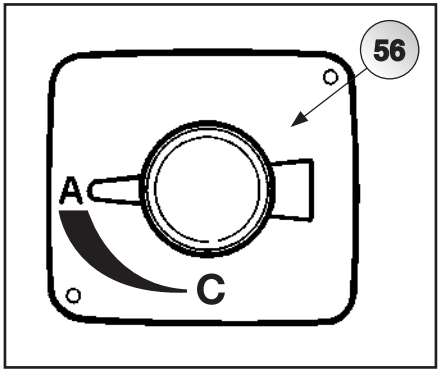


Fig. 4.25

3.2 Air-conditioning

NOTE:
Before turning on the air-conditioning, make sure that the heating knob (56) is in the off position. Also make sure that the side doors and the front and rear windows are closed.

To cool the cab:

- With the engine running, turn the temperature setting knob (55) ¼ from the off position clockwise.
- Turn the fan speed knob (54) clockwise to maximum.
- Direct the vents (59-60) for even distribution of the air.

Practical suggestions

To take the greatest possible advantage of the air conditioning system, always keep the cabin windows and doors well closed. The greatest efficiency is gained by keeping the fan speed in the 1St or 2nd speed and the thermostat to ¼ of its turn (follow the indications of the plate on the control knob).

Depending on the environment conditions, the setting of the thermostat in the highest cold position may lead to the freezing of the evaporating group with consequent reduction of the efficiency and water outcoming from the group itself. Should this happen, set the thermostat on the OFF-position (totally turned counterclockwise) keeping the ventilation in action for at least 3 minutes.

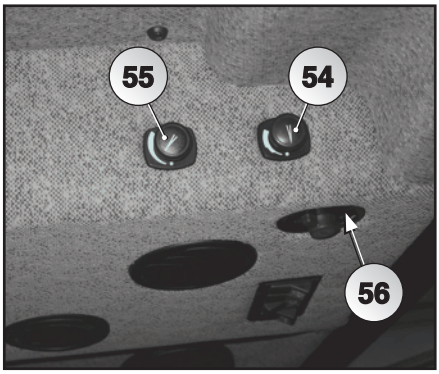


Fig. 4.26

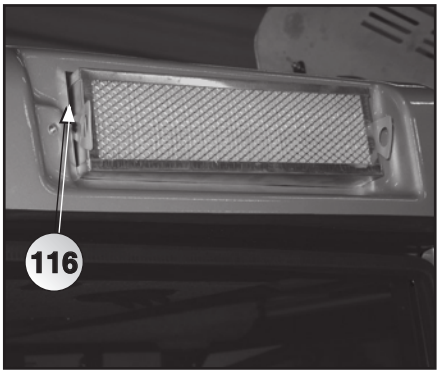


Fig. 4.27

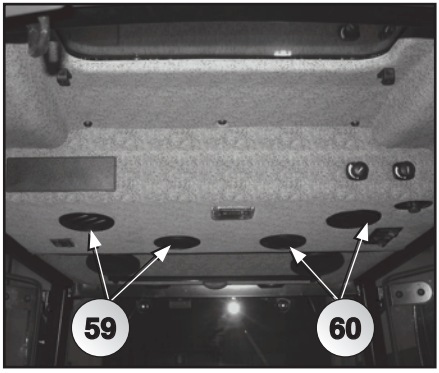


Fig. 4.28

NOTE:
The tractor's manufacturer does not assume any responsibility for any damages to people or objects resulting from the tampering of the system by third party or from lacks of maintenance or reparation.

NOTE:
A low fan speed will keep the air fresher.

⚠WARNING:
Clean the cab's air filter (116) at the specified times (see chapter 6 - Maintenance) and use special filters when using chemical products.

Section 4 : Analog instrument panel

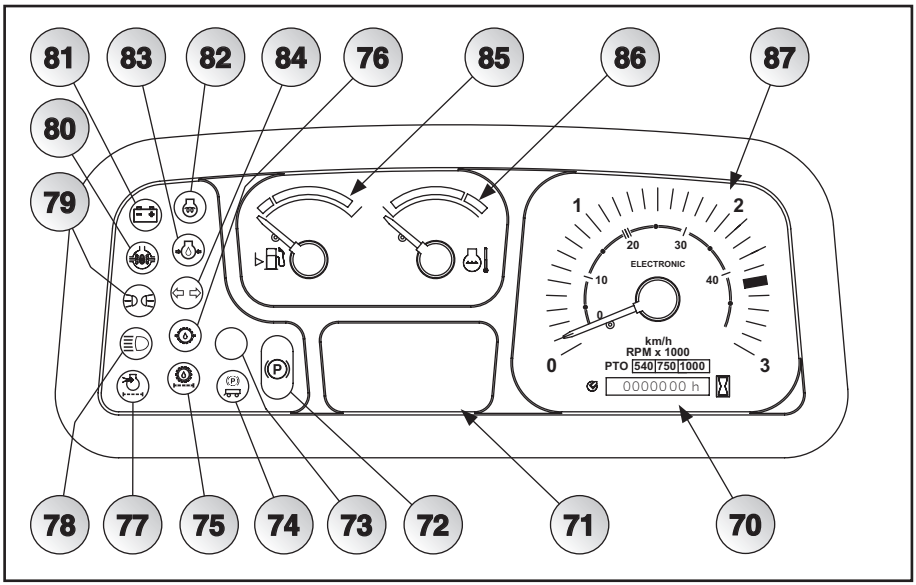


Fig. 4.29

70	Operation hours indicator	
71	Not used	
72	Parking brake engaged light	red
73	Not used	
74	Trailer parking light	red
75	Transmission oil filter light	red
76	Transmission oil pressure light	red
77	Engine air filter light	red
78	Full beam headlights light	blue
79	Position lights light	green
80	Front differential lock light	green
81	Battery light	red
82	Spark plugs preheating light	red
83	Engine oil pressure light	red
84	Turn signal light	green
85	Fuel level indicator	
86	Engine water temperature indicator	
87	RPM indicator	

Section 5 : Digital instrument panel

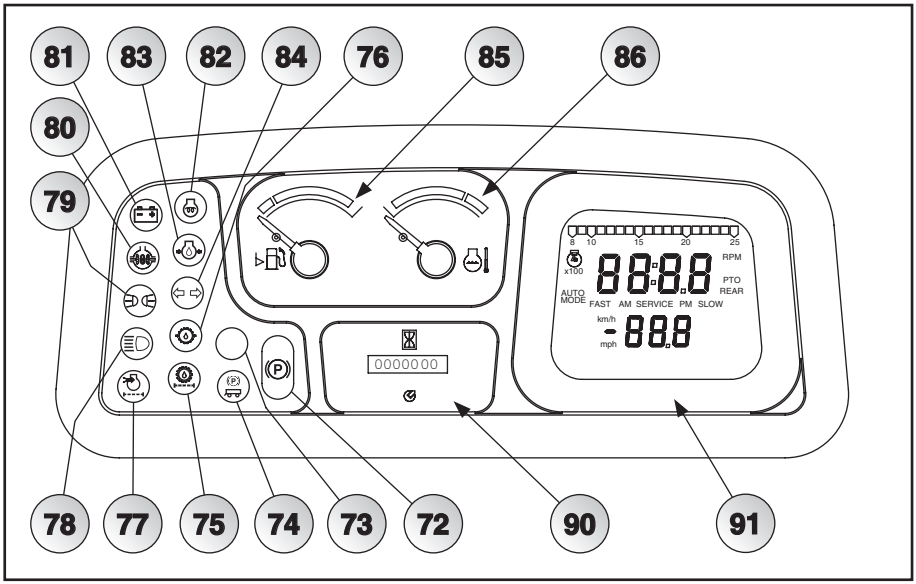


Fig. 4.30

72	Parking brake engaged light	red
73	Not used	
74	Trailer parking light	red
75	Transmission oil filter light	red
76	Transmission oil pressure light	red
77	Engine air filter light	red
78	Full beam headlights light	blue
79	Position lights light	green
80	Front differential lock light	green
81	Battery light	red
82	Spark plugs preheating light	red
83	Engine oil pressure light	red
84	Turn signal light	green
85	Fuel level indicator	
86	Engine water temperature indicator	
87	Engine RPM indicator	
90	Operation hours indicator	
91	Digital display	

Digital display

The button (92) on the dashboard between the steering wheel and the steering column switch selects and adjusts the parameters controlled through the digital display.

By turning the ignition key (12) to the simple contact position 1, as when starting the engine, 'SET' appears on the display followed by the number of the tractor's operation hours.

After a few seconds two items are shown on the display:

- the upper number (LCD1) indicates the engine's speed (rpm);
- the lower number (LCD2) indicates the tractor's speed (Km/h).

Using the button (92), the function of the information provided in the LCD1 position can be varied so that the PTO's rpm or the current time is displayed.

The information provided in the LCD2 position remains the same, or rather the tractor's speed (Km/h).

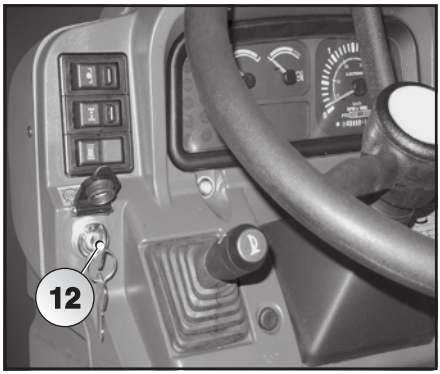


Fig. 4.31

Power take-off rpm

When the button (92) is pressed once, the PTO's rpm is displayed in the LCD1 space.

The PTO's type of speed is also displayed with the rpm:

- FAST (750 or 1,000 rpm depending on the tractor's configuration)
- SLOW (540 rpm)

The information on the display is changed by modifying the position of the lever (33).

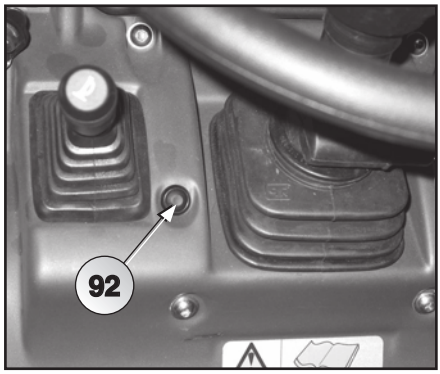


Fig. 4.32

Clock (current time)

Following the PTO's rpm, when the button (92) is pressed again the current time appears in the LCD1 space.

To modify the current time the button (92) must be kept pressed until the two numbers indicating the hours start to blink.

Press until the desired hour is obtained; each time the button is pressed the number increases one digit.

To modify the minutes, keep the button (92) pressed until the digits indicating the minutes blink.

Press until the desired minutes are obtained; each time the button is pressed the number increases one digit.

To confirm and exit the time settings keep the button (92) pressed until the engine's rpm appears in the LCD1 space.

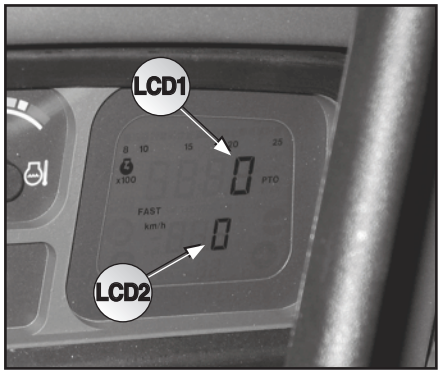


Fig. 4.33

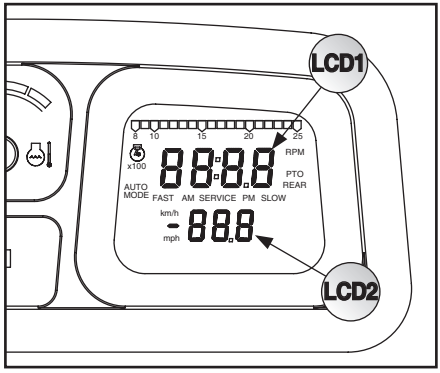


Fig. 4.34

Section 6 : Steering wheel adjustment

The wheel activates the power steering that operates:

- the center joint for AR tractor steering;
- the wheels for RS tractor steering;
- on the wheels and the central articulation at the same time, for the steering of the Dualsteer tractor.

⚠WARNING:
Adjust the steering wheel's height when the tractor is not moving.

The steering wheel's height may be adjusted by rotating the provided lever (9). The lever's movement (9) releases the steering wheel's position, allowing it to be adjusted to the operator's height.

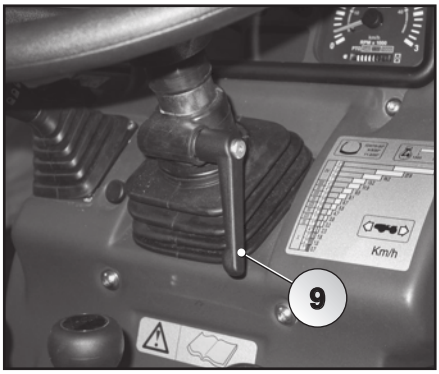


Fig. 4.35

Section 7 : Standard seat adjustment

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

⚠WARNING:
Adjust the seat's position when the tractor is not moving.

7.1 Vertical adjustment (operator weight)

The seat's suspension may be adjusted according to the operator's weight using the lever (42) under the rubber guard of the suspension itself.

To adjust:

- Pull the lever (42) outward.
- Turn the lever (42) clockwise to increase the weight sustained by the suspension; turn the lever (42) counterclockwise to reduce the weight sustained by the suspension.

NOTE:
The seat's longitudinal setting and height should be adjusted while the operator is sitting on the seat itself.

7.2 Longitudinal adjustment

The required position is achieved using the lever (40) and moving the seat longitudinally (forward or backward). After it has been adjusted, release the lever (40) to lock the seat in place.

7.3 Height adjustment (vertical)

Use the knob (41) to adjust the seat's height. When turned clockwise, the seat is lowered; when turned counterclockwise, the seat is raised.

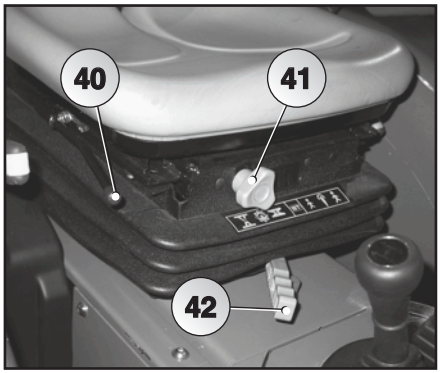


Fig. 4.36

Section 8 : "Comfort" seat adjustment

The tractor's seat is equipped with devices for longitudinal, height and vertical adjustment according to the operator's weight. The latter adjustment is achieved through convenient "pneumatic" control of the seat's suspension.

⚠WARNING:
Adjust the seat's position when the tractor is not moving.

8.1 Vertical adjustment (operator weight)

The seat's suspension may be adjusted according to the operator's weight using the control (43) under the rubber guard of the suspension itself. The control (43) operates the compressor that adjusts the seat's height.

To adjust:

- Press the control (43) to increase the weight supported by the suspension.
- Pull the control (43) to decrease the weight supported by the suspension.

NOTE:
The compressor must never operate for more than 1 minute.

NOTE:
The seat's longitudinal setting and height should be adjusted while the operator is sitting on the seat itself.

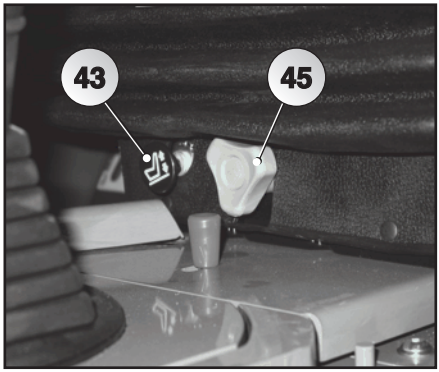


Fig. 4.37

8.2 Longitudinal adjustment

The required position is achieved using the lever (44) and moving the seat longitudinally (forward or backward). After it has been adjusted, release the lever (44) to lock the seat in place.

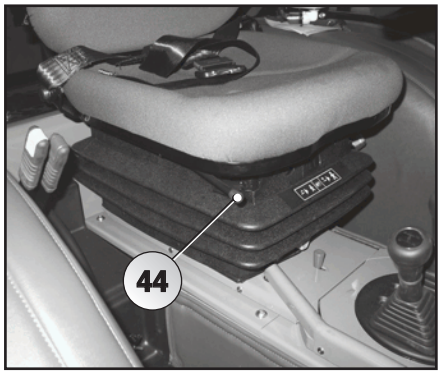


Fig. 4.38

8.3 Height adjustment (vertical)

Use the knob (45) to adjust the seat's height. When turned clockwise, the seat is lowered; when turned counterclockwise, the seat is raised.

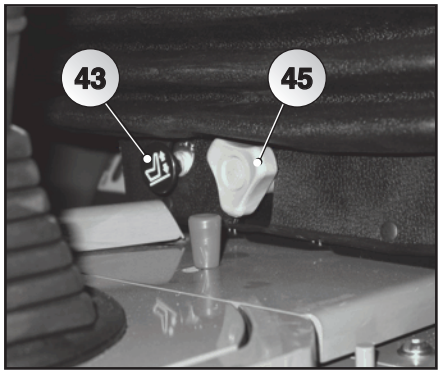


Fig. 4.39

8.4 Longitudinal suspension adjustment

Use the lever (46) to adjust the seat's longitudinal suspension. Moving it forward adjusts the seat's longitudinal suspension according to the operator's weight. After the correct adjustment has been made, move the lever backward to lock the seat into place.

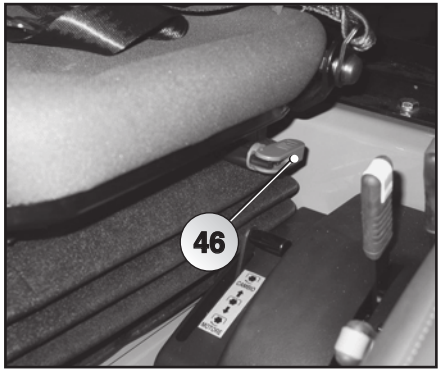


Fig. 4.40

Section 9 : Rotating light

Tractor with cab

On the tractors equipped with a cab, the rotating light is mounted at the rear of the cab itself.

It is turned on using the switch (51) inside the cab.

Tractor with platform

On the tractors with a platform, the rotating light must be installed, if necessary, on the rollbar.

It is turned on by inserting the connector of the "rotating light" kit into the auxiliary electric outlet (16) (12V) under the steering wheel.

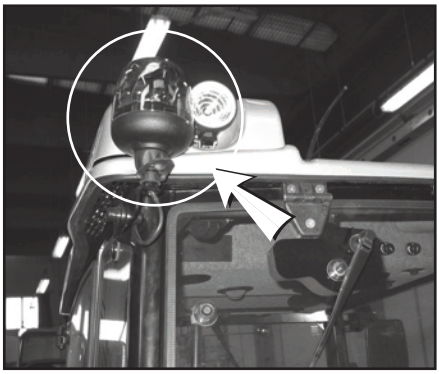


Fig. 4.41

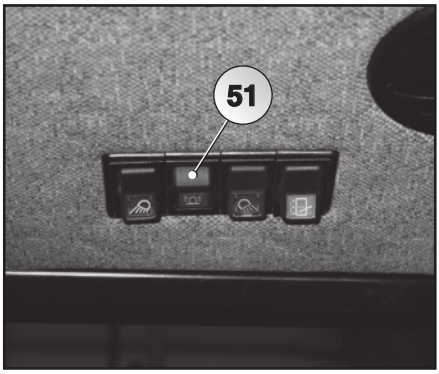


Fig. 4.42

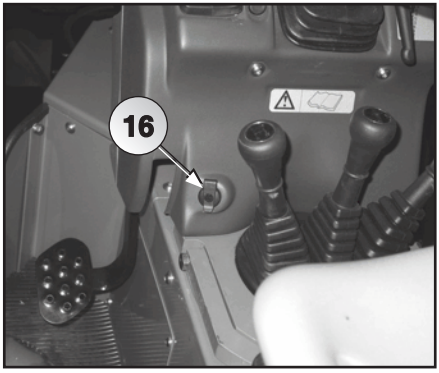


Fig. 4.43

Chapter 5 : User regulations

Section 1 : Operator position direction (reversible)

⚠WARNING:
The rollbar must always be installed and vertical when using the tractor. The rollbar itself may be folded forward only to temporarily reduce the tractor's overall height.

NOTE:
The operations and warnings regarding the operator position's direction apply to models with platforms and cabs.

The tractor's operator position may be directed in the normal direction of operation (A) or it may be reversed 180° (B).

NOTE:
By rotating the operator position 180Â°, the power steering's flow reverser is automatically positioned so that the vehicle's steering always corresponds to the direction of the steering wheel.

⚠WARNING:
The operator position must be in the normal operation direction when driving the tractor on roads.

To reverse the operator position, the following instructions must be observed:

⚠WARNING:
The engine must be off!

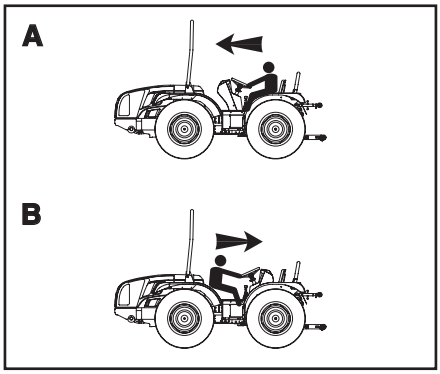


Fig. 5.1

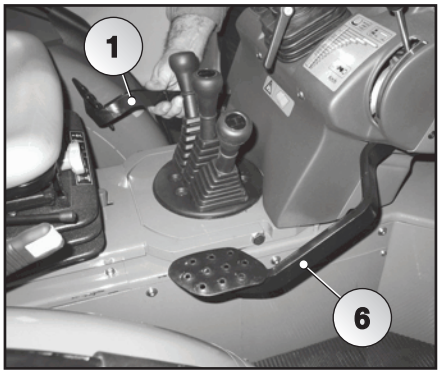


Fig. 5.2

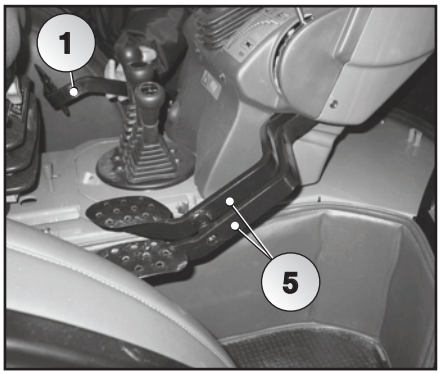


Fig. 5.3

1 - Position the three levers (2) (3) (4) (Fig. 5.4) Position the three levers.
2 - Manually raise the clutch pedal (1) and the brake pedal (6) (AR model) or brake pedals (5) (RS-RS/MT-DS model).
3 - Pull the lever (121) forward to release the seat.
4 - Raise the seat until the safety lock catches (122).
5 - Rotate the seat-dashboard unit counter-clockwise 180Â° to go from the normal operator position (road traffic) to the reverse operator position (Fig. 5.4); rotate clockwise to go from the reverse operator position to the normal operator position.
6 - Release the safety lock (122) and lower the seat again so that the lever (121) is reinserted into the locked position.
7 - Manually re-lower the clutch pedal (1) and the brake pedal (6) (AR model) or brake pedals (5) (RS-RS/MT-DS model).

NOTE:
To allow the operator to use the accelerator pedal (7) even when the operator position has been reversed, the relative control pedal (7) is found on both footboards.

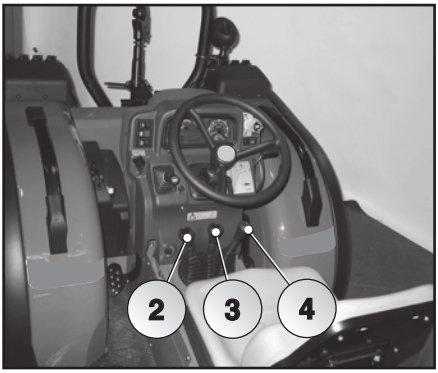


Fig. 5.4

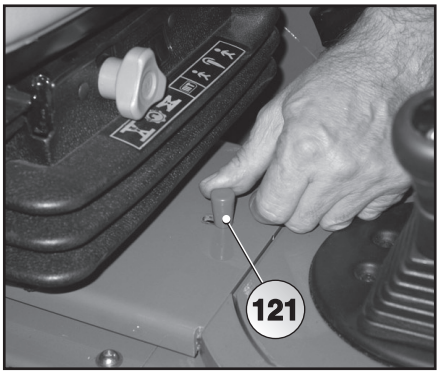


Fig. 5.5

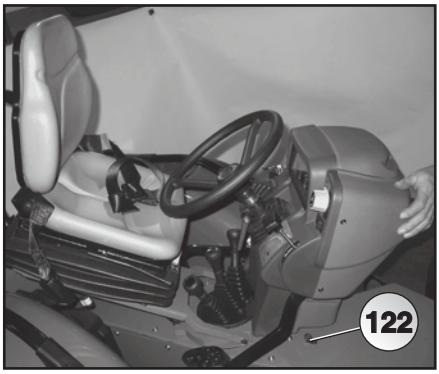


Fig. 5.6

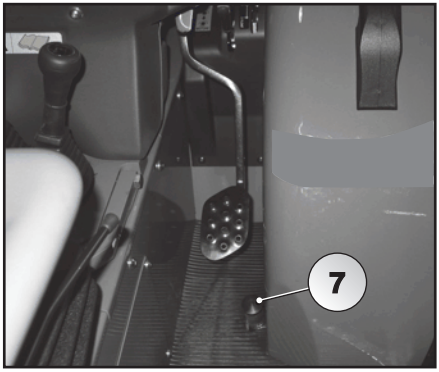


Fig. 5.7

Section 2 : Starting the engine

⚠WARNING:
NEVER RUN THE ENGINE IN A CLOSED ENVIRONMENT: THE EXHAUST GASES ARE TOXIC.

⚠WARNING:
THE PARKING BRAKE MUST ALWAYS BE ENGAGED WHEN THE TRACTOR IS STOPPED AND THE ENGINE IS OFF.

⚠WARNING:
Only start the engine when you are sitting in the driving seat.

NOTE:
A safety device prevents the engine from being started if the clutch pedal is not pressed down completely.

NOTE:
When the ignition key is turned to 1, the digital instrument panel carries out a brief operational test, turning on all of the display's lights, after which the engine's operation hours appear.

1 - Make sure that the parking brake's knob (19) is in the brake on position.
2 - Make sure that all of the control levers are in neutral.
3 - Make sure that all of the control switches are disconnected.
4 - Completely press the clutch pedal (1) down and keep it pressed.
5 - Press the accelerator pedal (7) approximately half way down.
6 - Insert the ignition key (12) into the switch and turn it clockwise to position 1. Make sure that the following lights on the instrument panel come on:
   - spark plugs preheating (82)
   - engine oil pressure (83)
   - battery charging (81)
   - parking brake engaged (72)

   As soon as the spark plugs preheating light (82) goes off, turn the key clockwise, keeping it in position 2. When the engine starts, release the key which will automatically return to position 1.
7 - After the engine has been started, make sure that all of the red lights have gone off (except for the parking brake).
8 - If one of the red lights has not gone off, the engine must be turned off. Identify and eliminate the cause of the problem and repair it.

Fig. 5.8

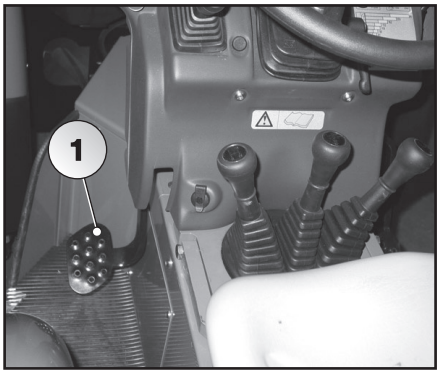


Fig. 5.9

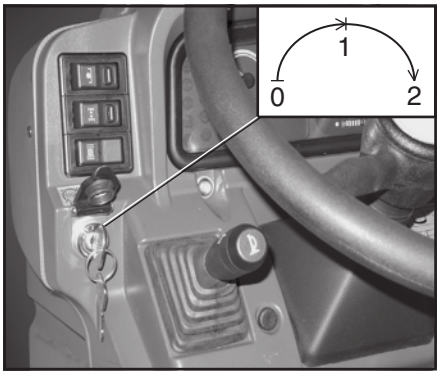


Fig. 5.10

⚠WARNING:
NEVER ATTEMPT TO START THE ENGINE FOR MORE THE 15 CONSECUTIVE SECONDS.

⚠WARNING:
To prevent accidents, never allow anyone to sit on the fenders or anywhere else on the tractor or the implement.

⚠WARNING:
When the engine is running, stay a safe distance away from the fan.

NOTE:
TURBO ENGINE: To permit turbo compressor lubrication, let the engine run at idle speed for a few minutes. Then bring the engine to 1,000-1,200 rpm without increasing it until the engine reaches the normal operating temperature.

Section 3 : Starting the engine with a low outdoor temperature

NOTE:
When the temperature is below or near 0Â°C, check and, if necessary, replenish the cooling circuit with the recommended antifreeze.

⚠WARNING:
Do not inject fluids (ethers) to facilitate starting at low temperatures. The tractor is equipped with a cold-start system.

Proceed as follows:

1 - Make sure that the parking brake knob (19) is in the brake on position.
2 - Make sure that all of the control levers are in neutral.
3 - Make sure that all of the control switches are disconnected.
4 - Completely press the clutch pedal (1) down and keep it pressed.
5 - Press the accelerator pedal (7) approximately half way down.
6 - Insert the ignition key (12) into the provided switch and turn it clockwise to the preheating position 1 and keep it there for 20 seconds. Then turn it to the engine "START" position 2. If the engine does not start after 15 seconds, place the key at the preheating position 1 again.
Wait another 10 seconds and repeat starting by turning the key to the "START" position 2.
When the engine has started, release the key.
If the engine does not start, begin the heating and starting cycle again.

NOTE:
If the engine does not start after two or three attempts and smoke comes out of the exhaust, start the engine without the thermostarter.

⚠WARNING:
NEVER ATTEMPT TO START THE ENGINE FOR MORE THE 15 CONSECUTIVE SECONDS.

NOTE:
Wait at least 1 minute between attempts.

If the engine does not start easily or normally, do not uselessly insist because the battery could run down. Instead, try to bleed any air that might be in the fuel circuit and, if the problem persists, check:

- that the fuel filters are not clogged;
- the battery and the thermostarter's condition;
- that the fuses of the ignition circuit are in good condition and that the solenoid valve that excludes the fuel is open (contact your dealer or specialized agent).

NOTE:
When the outdoor temperature is low and the engine is cold, the radiator may be covered with a protective screen. Remove the protective screen as soon as the normal operating temperature is reached.

Section 4 : Running-in

During the running-in period, the following precautions must be observed:

1 - Experience has shown that the tractor's first 50 hours of operation are fundamentally important to engine performance and lifetime. The tractor must be used right from the beginning under work conditions that subject the engine to a load that is as similar as possible to normal operating conditions.
2 - Use low gears when pulling heavy loads.
3 - During running-in, frequently verify the tightness of all of the screws, bolts, nuts, etc.
4 - For long lifetime of the clutch, the plates must settle correctly.

NOTE:
Carefully engage and disengage the clutch often during the tractor's first 15 hours of operation.

Section 5 : Turning off the engine

1 - If used, place the hand accelerator lever (18) in the idle position.
2 - Turn the ignition key (12) counter-clockwise to position 0.
3 - Engage the parking brake by turning the knob (19) counter-clockwise. Make sure that the red light on the instrument panel that indicates the parking brake is engaged is on.

NOTE:
After running at full load, the operation for turning off the engine must be carefully observed. The engine should run at idle speed for 3-4 minutes before turning it off. This will let the overheated turbo compressor cool and reach an acceptable temperature.

Fig. 5.11

Fig. 5.12

Section 6 : Starting the tractor

⚠WARNING:
Before setting the tractor in motion, 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.

1 - With the engine running, press the clutch pedal (1) down completely.
2 - Select the desired gear using the lever (4).
3 - Select the desired range using the lever (2).
4 - Select the desired direction using the reverser lever (3).
5 - Release the parking brake by turning the knob (19) clockwise and pressing the brake pedal (6) (AR model) or the brake pedals (5) (RS-RS/MT-DS model) (Fig.4.1).
6 - Gradually release the clutch pedal (1) and gradually accelerate the engine with the relative pedal (7).

⚠WARNING:
Watch out for surrounding people, especially when in reverse.

NOTE:
Do not drive with the clutch pedal pressed and, to prevent damage, do not neglect clutch maintenance.

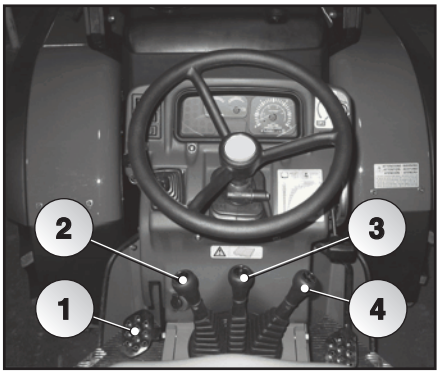


Fig. 5.13

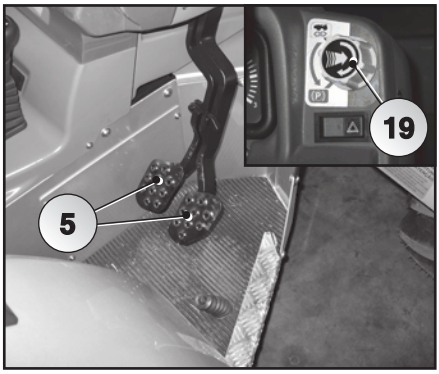


Fig. 5.14

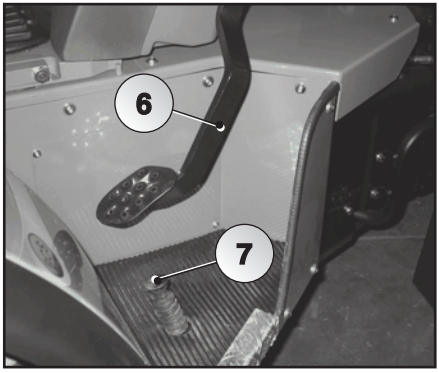


Fig. 5.15

Section 7 : Pedal accelerator

Use of the pedal accelerator (7) neutralizes the hand accelerator position (18) 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 the idle speed position when using the pedal accelerator.

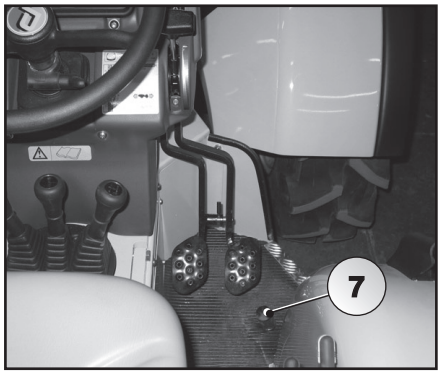


Fig. 5.16

Section 8 : Hand accelerator

The lever (18) permits manual control of the engine's rpm, keeping it constant.

The lever's "idle" position corresponds to the top position; pulling it downward proportionally increases the engine's rpm.

⚠WARNING:
The hand accelerator lever can only be used when a constant engine rpm is desired. The lever must not be used when driving the tractor on roads.

Fig. 5.17

Section 9 : Stopping the tractor

To temporarily stop the tractor:

1 - Decrease the engine's speed.
2 - Disengage the engine-gearbox clutch, keeping the clutch pedal (1) down completely.
3 - With the tractor stopped, place the gearshift lever (4) in neutral and gradually release the clutch pedal (1).

To definitively stop the tractor, follow the operations described here and the operations described in section 5 "Turning off the engine", and engage the parking brake.

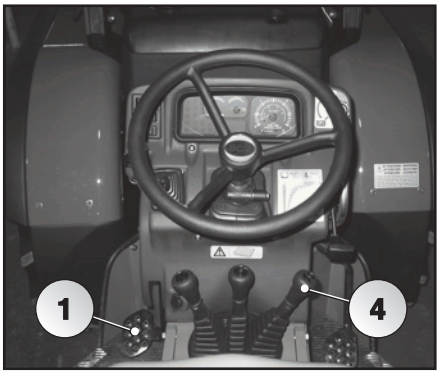


Fig. 5.18

Section 10 : Clutch pedal

The engine-gearbox clutch is a hydraulically-actuated multi-plate clutch in oil. The pedal (1) engages/disengages clutch:

- fully pressed pedal = disengaged clutch
- released pedal = engaged clutch

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 device prevents the engine from being started if the clutch pedal is not pressed down completely.

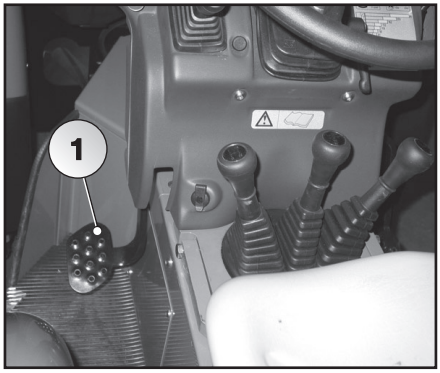


Fig. 5.19

Section 11 : Transmission levers

11.1 Range lever

The lever (2) allows four different ranges to be selected for each of the speeds selected with the gearshift lever (4). Each range is indicated by a roman numeral on the lever's handgrip (2):

- I - creep
- II - low
- III - normal
- IV - high

To move from one range to another, the engine's clutch must be disengaged by pressing the pedal (1) down completely, the tractor must be stopped and the desired range must be selected using the relative lever (2).

⚠WARNING:
Never attempt to change ranges while the tractor is moving.

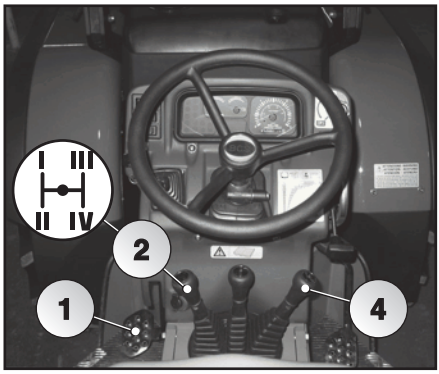


Fig. 5.20

11.2 Reverser lever

This lever (3) allows the tractor's forward direction to be selected. The forward and reverse gears have synchronized engagement. To engage them, the engine clutch must be disengaged by pressing the pedal (1) down completely down and the tractor must be stopped. This will safeguard the lifetime of the synchronizers.

⚠WARNING:
Never attempt to change the direction while the tractor is moving.

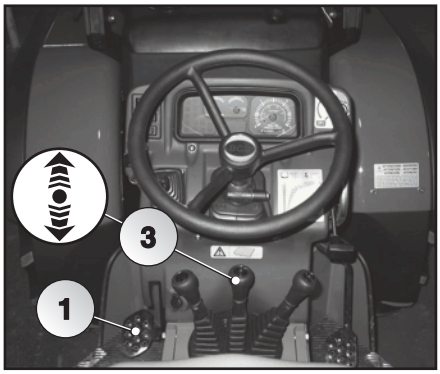


Fig. 5.21

11.3 Gearshift lever

This lever (4) allows 4 totally synchronized speeds to be selected, both forward and in reverse.

To move from one gear to another of the same range, press the clutch pedal (1) down completely and use the lever (4). The tractor does not need to be stopped. Each gear is indicated by a roman numeral on the lever's handgrip (4):

a - first gear
b - second gear
c - third gear
d - fourth gear

The decal (123) just under the steering wheel on the right indicates the perfect progressions of the gears without speed overlapping both in forward and reverse, with the indicated tires and an engine rpm between 1,300 and 2,300 (Fig. 5.23and Fig. 5.24).

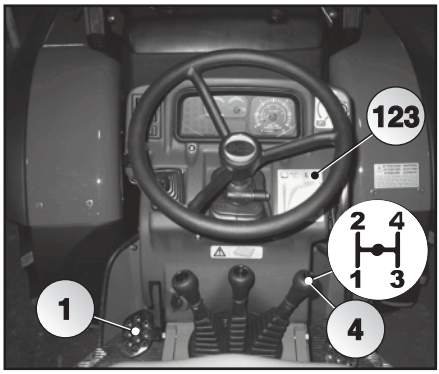


Fig. 5.22

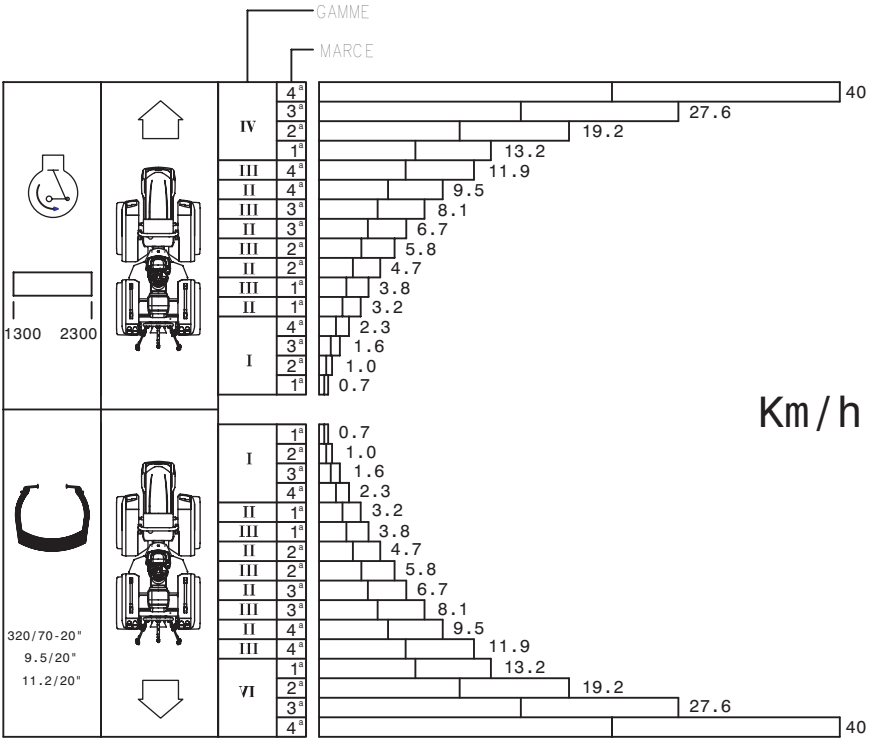

GAMME
MARCE
1300 2300
320/70-20"
9.5/20"
11.2/20"
IV 4ª 40
3ª 27.6
2ª 19.2
1ª 13.2
III 4ª 11.9
II 4ª 9.5
III 3ª 8.1
II 3ª 6.7
III 2ª 5.8
II 2ª 4.7
III 1ª 3.8
II 1ª 3.2
I 4ª 2.3
3ª 1.6
2ª 1.0
1ª 0.7
Km/h
I 1ª 0.7
2ª 1.0
3ª 1.6
4ª 2.3
II 1ª 3.2
III 1ª 3.8
II 2ª 4.7
III 2ª 5.8
II 3ª 6.7
III 3ª 8.1
II 4ª 9.5
III 4ª 11.9
VI 1ª 13.2
2ª 19.2
3ª 27.6
4ª 40

Fig. 5.23

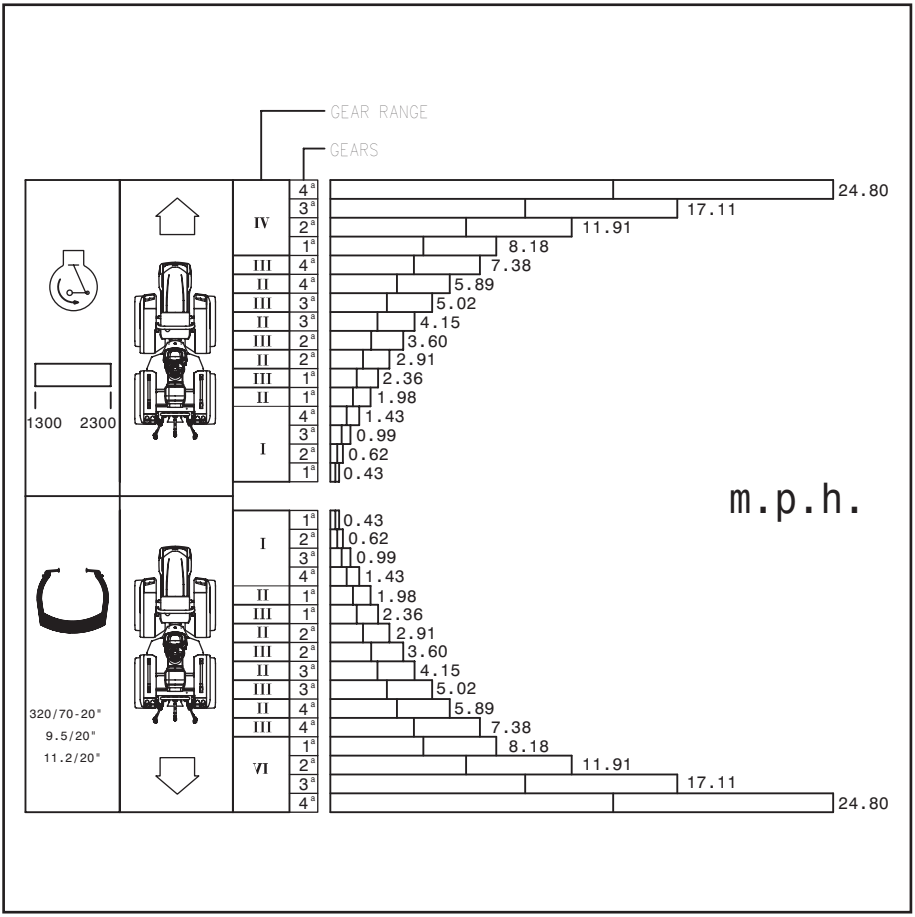

GEAR RANGE
GEARS
1300 2300
320/70-20"
9.5/20"
11.2/20"
IV 4ª 24.80
3ª 17.11
2ª 11.91
1ª 8.18
III 4ª 7.38
II 4ª 5.89
III 3ª 5.02
II 3ª 4.15
III 2ª 3.60
II 2ª 2.91
III 1ª 2.36
II 1ª 1.98
I 4ª 1.43
3ª 0.99
2ª 0.62
1ª 0.43
m.p.h.
I 1ª 0.43
2ª 0.62
3ª 0.99
4ª 1.43
II 1ª 1.98
III 1ª 2.36
II 2ª 2.91
III 2ª 3.60
II 3ª 4.15
III 3ª 5.02
II 4ª 5.89
III 4ª 7.38
VI 1ª 8.18
2ª 11.91
3ª 17.11
4ª 24.80

Fig. 5.24

Section 12 : Service and parking brakes

The **service brakes** on the four wheels are single-plate and hydraulically controlled. They are hydraulically actuated by means of hydraulic pumps activated by pedals. An oil tank constantly feeds the hydraulic control circuit.

In the AR model, tractor braking occurs by means of one pedal (6).

In the RS-RS/MT-DS models, tractor braking occurs by means of two pedals (5) that separately control the brake of each rear wheel. Braking with only one pedal permits sharper turns. In fact, by locking the internal rear wheel at a curve, the tractor turns by pivoting on the wheel itself.

The simultaneous action of the brakes during normal use and on roads is done by locking the two pedals with the provided lockbolt (124).

⚠WARNING:
When driving on roads, always keep the brake pedals coupled to ensure simultaneous braking on all four wheels. Never use the pedals independently when driving on roads.

⚠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.

⚠WARNING:
When driving the tractor in the reversed position, the brake pedals are to be absolutely used coupled.

Fig. 5.25

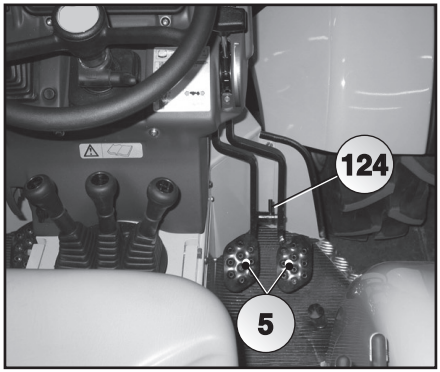


Fig. 5.26

The **parking brake** is mechanically engaged and has hydraulic disengagement. The parking brake may be engaged and disengaged while the engine is running using the knob (19); when pressed and turned clockwise the brake is disengaged (Fig. 5.27), whereas when turned counter-clockwise the brake is engaged (Fig. 5.28).

When the engine is off, the parking brake is always "mechanically" engaged.

NOTE:
After starting the engine and before setting the tractor in motion, the parking must be disengaged by pressing the brake pedal (AR model) or the brake pedals (RS-RS/MT-DS models).

A special red light (72) comes on on the instrument panel when the parking brake is engaged.

Fig. 5.27

Fig. 5.28

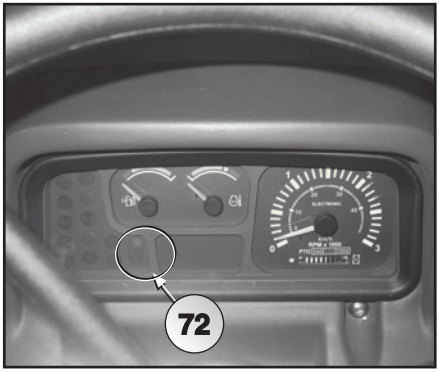


Fig. 5.29

Section 13 : Controls on the dashboard

The **ignition switch** (12) has three positions:

- Pos.0 - No circuit is powered except for the flashing indicator lights switch (17); engine off position; key may be removed.
- Pos.1 - Contact position, various users are powered and indicators and control instruments function; the engine is prepared for starting and the spark plugs are preheated.
- Pos.2 - Engine starting position; if released, the key automatically returns to contact position 1.

NOTE:
Engine starting position; if released, the key automatically returns to contact position 1.

The **lights switch and horn** (11) is located just under the steering wheel on the left. It works with the ignition switch (12) in contact position 1 and carries out the following functions:

- to the right - right turn signal
- to the left - left turn signal
- pressed - horn (functions regardless of the ignition switch's (12) position)

The lights are activated by rotating the knob (125) on the end of the switch (11):

Lights off

Position lights on and light (79) on instrument panel on

when the switch (11) is pushed upward, the low beam headlights come on; when pushed upward again, the low beams blink;

pushing the switch downward (11), the high beam headlights and the relative light (78) on the instrument panel come on.

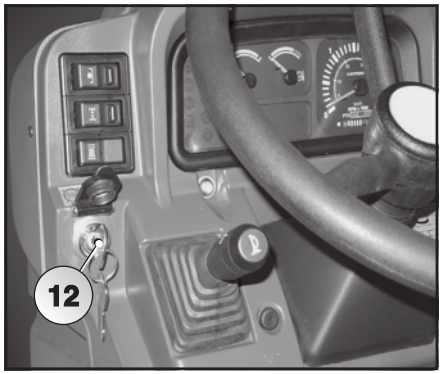


Fig. 5.30

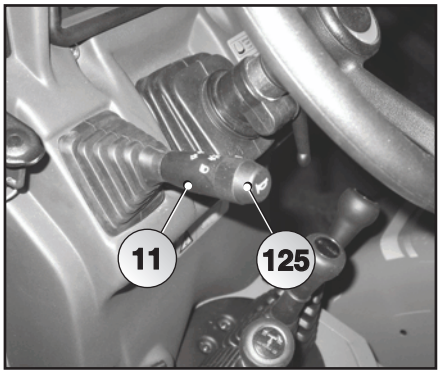


Fig. 5.31

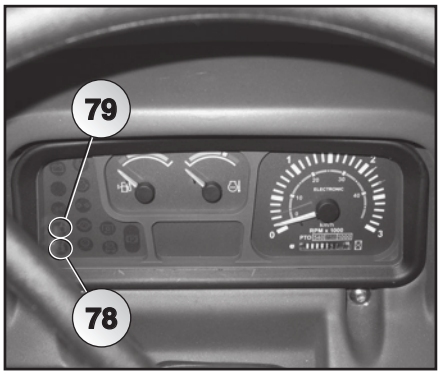


Fig. 5.32

The **flashing indicator lights switch** (17) is always powered regardless of the ignition switch's (12) position.

If pressed, all of the indicator lights, the light of the switch itself, and the light (84) on the instrument panel blink intermittently.

Fig. 5.33

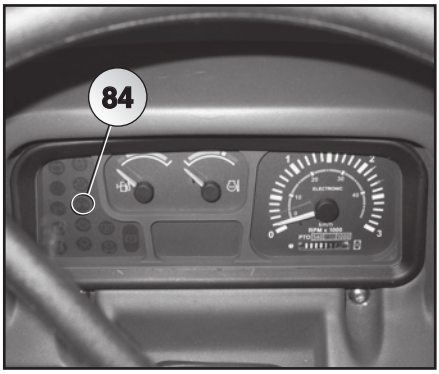


Fig. 5.34

Section 14 : Power Take-Off

The rear PTO may be "independent" or "synchronized" and it is engaged by means of a hydraulically-actuated multi-plate clutch in oil. Engagement and disengagement is electrohydraulic. The speed of the PTO synchronized with the gearbox is proportional to the tractor's speed. The PTO shaft rotates counter-clockwise in forward gear.

CAUTION:
To prevent damage to the PTO's braking system when pulling trailers, the PTO engagement button (13 Fig. 5.38) must be activated and/or kept activated, even if the PTO itself is not used. In this case, to prevent rotation of the PTO's output shaft, the lever (33 Fig. 5.37) must be placed in neutral.

The shafts of the power take-off and the implements activated by the power take-off can be extremely dangerous. The following safety warnings and common sense should therefore be used:

⚠ WARNING:
Do NOT drive without the PTO's cap (111) or guard (110) assembled. They protect personnel from injury and the shaft's grooves from damage.

⚠ WARNING:
Always disengage the Power Take-Off, turn off the engine, remove the key from the panel and activate the parking brake before getting off the tractor.

⚠ WARNING:
Keep well away from the machine until all its components, including the driveline, have stopped.

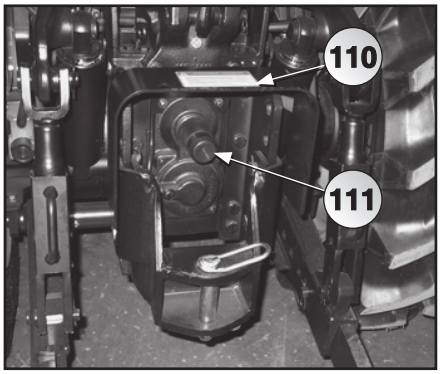


Fig. 5.35

⚠ WARNING:
Before connecting, adjusting or working on implements operated by the PTO, disengage the PTO, turn off the engine, remove the key from the panel and activate the parking brake. Do not work under raised implements.

⚠ WARNING:
Make sure that all of the implements activated by the PTO have the proper guards installed, are in good condition and conform with current regulations.

⚠ WARNING:
Before starting an implement connected to the PTO, ALWAYS make sure that people are at a safe distance.

⚠ WARNING:
Attach the drawbar at the center when using implements operated by the tractor's PTO.

⚠WARNING:

When using the PTO while the tractor is parked, ALWAYS make sure that the ranges lever is in the neutral position, the reversing gear lever is in the forward position, the gears lever is engaged in the 4th gear and the parking brake is engaged.

⚠WARNING:

Before operating an implement activated by the PTO on the three-point hitch, carefully raise it using the position control lever 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

When choosing a universal joint, it's necessary to make an assessment based on the connection between the tractor and machine on which it will be assembled (shaft dimensions), the power takeoff speed, tractor's HP, the need to insert special joints, clutches, uncouplers. Also, take into consideration the largest permissible angle, which must not be exceeded. For this aspect, comply with the manufacturer's operating features.

⚠CAUTION

Make sure that the length of the universal shaft falls within the manufacturer's tolerances and that it is able to compensate the movements of the machine during movement.

PTO levers

The independent or synchronised PTO must be selected, by means of the lever (28), while the engine is being turned off, before it comes to a complete standstill. In this way the internal selection organs can find the right alignment.

When the position has been selected, the lever (26) can be left always engaged, because the PTO can be engaged or disengaged by means of the button (13) on the dashboard.

PTO speed must be selected, on the contrary, with the engine off.

⚠WARNING:
The selection of the PTO speed must be effected while the engine is off with the PTO clutch disengaged.

⚠WARNING:
Engage the PTO at a low rpm to protect the clutch and drive shaft.

Before engaging the PTO, select the type of operation and rotation speed. The lever (28) to the left of the operator position selects the type of PTO:

- **indipendent** , where the PTO's output shaft receives motion directly from the engine. In fact, its rotation speed is proportional to the engine's speed.
- **synchronized** , where the speed of the PTO's output shaft is proportional to the tractor's rotation speed.

- Lever (28) toward A - independent PTO engaged
- Lever (28) toward center position N - PTO in "neutral"
- Lever (28) toward B - synchronized PTO engaged

The lever (33) on the rear of the tractor allows the rotation speed of the PTO output shaft to be selected.

- Lever (33) toward A
  - 1,000 rpm or
  - 750 rpm (depending on the tractor's configuration)
- Lever (33) in position N
  - PTO in "neutral"
- Lever (33) toward B
  - 540 rpm

⚠WARNING:
The shifting of the PTO speed must be achieved.

⚠WARNING:
When the PTO is not used, place the speed lever (33) in neutral (position N).

⚠WARNING:
High inertia implements will not immediately stop after the PTO is disengaged. Wait for the implement to slow down and stop completely before cleaning or making adjustments.

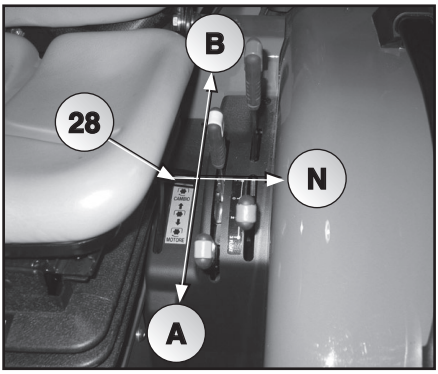


Fig. 5.36

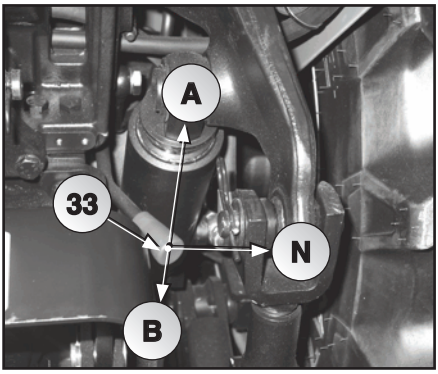


Fig. 5.37

NOTE:
Before engaging the PTO's clutch using the switch (13) Fig.5.38, the type of operation, independent or synchronized, must be chosen using the lever (28).

To engage the PTO's clutch, move the safety bar (112) Fig.5.38 to the side and press the switch (13) Fig.5.38 on the left side of the dashboard. When the switch is pressed, the relative light inside the switch itself comes on.

Using the independent PTO

⚠WARNING:
Do not connect implements or machine tools that require higher power than that provided by the PTO.

1 - Select "independent" operation by placing the lever (28) in position A.
2 - Select the desired speed (540 - 750 - 1000 rpm) using the lever (33).
3 - Move the safety bar (112) to the side and press the PTO clutch engagement switch (13). The light inside the switch will turn on.
4 - (analog instrument panel) Control the engine's rpm so that the pointer of the tachometer moves onto the colored radial line corresponding to the selected PTO speed.
    - (X) 2,100 rpm
    - PTO speed 540 rpm
    - (Y) 2,300 rpm
    - PTO speed 1,000 rpm
    - PTO speed 750 rpm
5 - (digital instrument panel) Control the engine's rpm so that the instrument's display shows the selected PTO speed.

The independent PTO receives motion directly from the engine and its operation is independent from the tractor's speed.

To stop the independent PTO, press the switch (13); the light inside the switch will turn off.

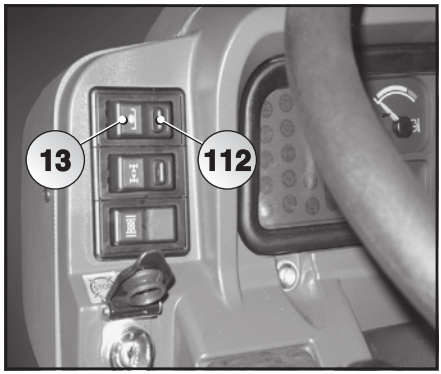


Fig. 5.38

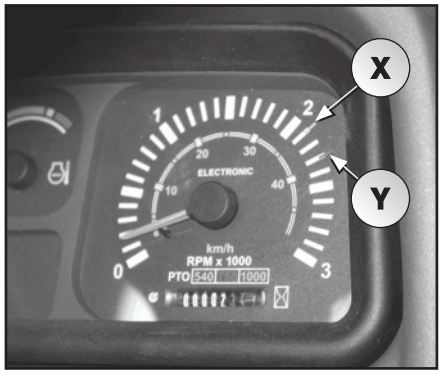


Fig. 5.39

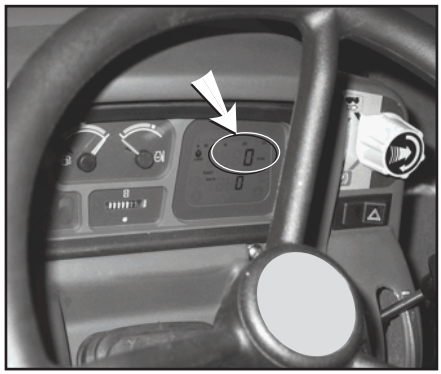


Fig. 5.40

Using the synchronized PTO

⚠WARNING:
When using the synchronized PTO, if one or more reverse operations must be carried out, remember that the shaft's rotation direction will be inverted. Thus, with certain implements, it is advisable to disengage the selector lever of the independent/synchronised PTO (28) and let only the PTO engagement button (13) to be active to avoid damages to rotating organs as well as to PTO braking system.

Use of the PTO synchronized with the gearshift is only necessary for operating self-propelled trailers and, in general, for all agricultural implements that require synchronization with tractor advancement; they must not absorb more than 40-45% of the engine's maximum power.

To engage the synchronized PTO:

1 - Make sure that the tractor is stopped.
2 - Select "synchronized" by placing the lever (28) in position B.

The synchronized PTO receives motion directly from the gearbox; the rotation speed of the PTO's shaft is therefore proportional to the tractor's speed.

To stop the synchronized PTO, place the PTO type lever (28) in "neutral".

With the synchronized PTO and any gear engaged, the PTO's grooved shaft carries out the following revolutions for every revolution of the rear wheels:

- 540 rpm - 5,501
- 1,000 rpm - 10,198
- 750 rpm - 6,990

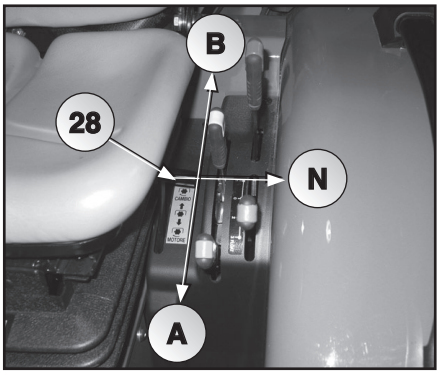


Fig. 5.41

Section 15 : Differential lock

The tractor is equipped with a front and rear differential lock, which should be engaged when a wheel slips due to a lack of traction. The differential lock may be engaged on the rear only or, alternatively, front and rear at the same time.

⚠WARNING:
Use the differential lock only when the tractor proceeds straight and when traction is unstable. Do not turn with the differentials locked.

⚠WARNING:
Disengage the lock when making turns.

To lock the rear differential:

1 - Decrease the tractors speed.
2 - Press the switch (14) to the right.

Locking of the rear differential is indicated by a light inside the switch (14) itself that comes on.

To lock the rear and front differential at the same time:

1 - Decrease the tractors speed.
2 - Press the switch (14) to the left.

Locking of the rear and front differentials is indicated by a light inside the switch (14) itself that comes on and of the warning light (80) on the dashboard.

To release the differentials:

1 - Press the switch (14), placing it in the center.

Release of the differential locks is indicated by a light inside the switch (14) itself that turns off and of the warning light (80) on the dashboard..

NOTE:
For best results, lock the differential before excessive slipping occurs. Do not insert it while a wheel is slipping excessively.

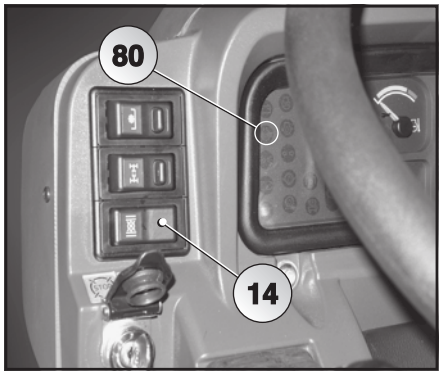


Fig. 5.42

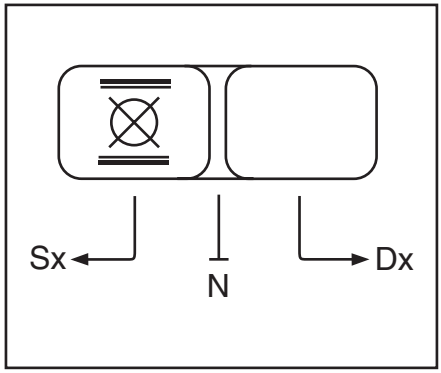


Fig. 5.43

LH - simultaneous front and rear differential locking
N - release of differential locks
RH - rear differential locking

Section 16 : Four-wheel drive

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

Four-wheel drive may be disengaged for certain jobs.

NOTE:
If maximum pull is not required, especially on paved roads, front traction should not be used, to prevent useless wear of the tires.

To disengage four-wheel drive:

1 - move the safety bar (112) to the side and press the switch (15) toward the left.

Disengagement of four-wheel drive is indicated by a light inside the switch (15) itself that turns on.

To engage four-wheel drive:

1 - Press the switch (15) to the right.

Engagement of four-wheel drive is indicated by a light inside the switch (15) itself that turns off.

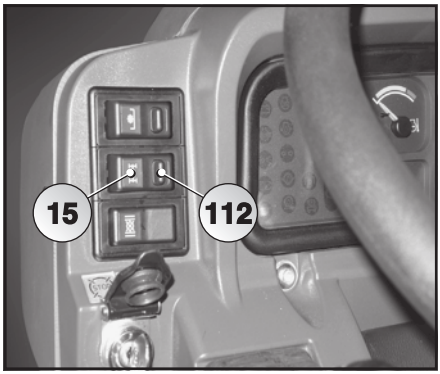


Fig. 5.44

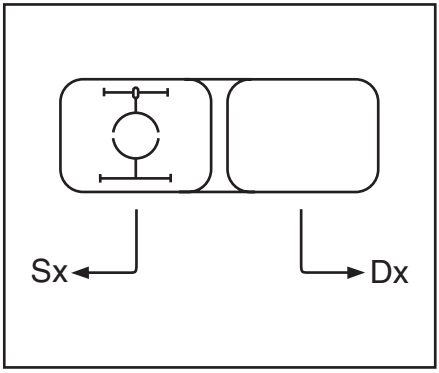


Fig. 5.45

LH - Front wheel drive disengagement
RH - Front wheel drive engagement

Section 17 : Hitch

Front hitch

The tractor is equipped with a front hitch (127) to tow the tractor.

⚠CAUTION:
The front hitch must be used exclusively for emergency towing of the tractor. The towing direction must coincide with the longitudinal axis of the tractor itself. The tractor may not be towed in other directions that do not correspond to this axis or for purposes other than those described.

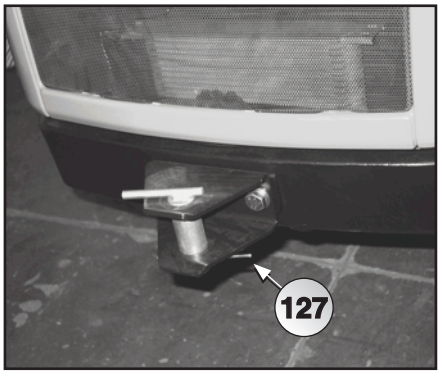


Fig. 5.46

Rear hitch

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

- Cat.C, approved for Italy hitch (128)
- Hitch for the European approval (129)

The choice depends on individual markets.

The maximum weight that the tractor can tow varies depending on the laws in force in the individual countries.

The maximum towable mass (unbraked) for the AR and AR DUALSTEER models is 2,300 Kg and for the RS and RS/MT models is 2,400 Kg.

The maximum towable mass (with independent braking system) for the AR and AR DUALSTEER models is 4,600 Kg and for the RS/MT models is 6,000 Kg.

The maximum towable mass (with inertia braking) for AR and AR Dualsteer models is 5,000 Kg and for the RS/MT models is 7,000 Kg.

These hitches can be used for farming implements and one or two-axle road trailers.

To facilitate hitching of the implement, the height of these devices can be adjusted to various positions using safety pins and rods.

The various heights from the ground are indicated in Fig. 5.51and Fig. 5.52.

To adjust the height, remove the pin (130) to free the hitch and secure it in the desired position.

NOTE:
Adjustment of the hitches is an operation that must be carried out carefully because proper hitch adjustment affects, in fact, the ease of handling of the tractor and, most of all, safety and stability during operation.

NOTE:
The hitch placed in the highest position makes towing easier but also increases the tractor's risk of rearing up.

NOTE:
With four-wheel drive, place the hitch in the low position, keeping the tongue nearly horizontal so that not too much weight is removed from the front axle.

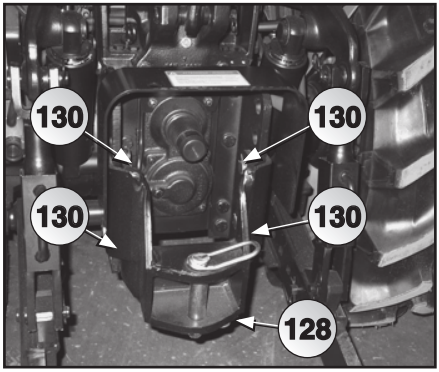


Fig. 5.47

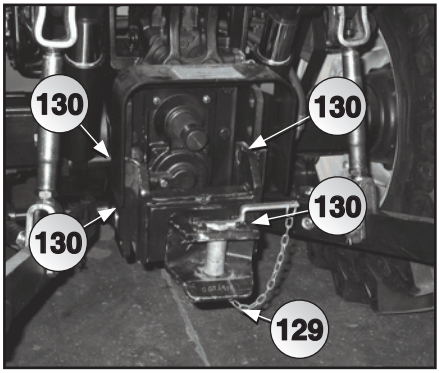


Fig. 5.48

Towing trailers

The braking system of the trailer is mechanical.

When a trailer is towed, the special hand brake system must be applied onto the tractor.

- Introduce the trailer's hand brake lever into the provided housing (131) on the right of the tractor's platform.
- Connect the trailer's electrical circuit to the tractor's using the provided 7-pin outlet (34).

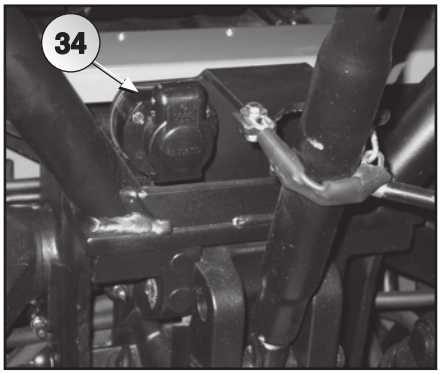


Fig. 5.49

⚠CAUTION:
Remove the ignition key before making the electrical connections/ disconnections.

⚠CAUTION:
Do not drive at a speed above 30 Km/h when towing a trailer.

NOTE:
If the trailer that must be towed has driving wheels, the hitch must be positioned so that the power take-off is free and the cardan joint that connects the trailer can be installed.

⚠CAUTION:
To prevent damage to the PTO's braking system when pulling trailers, the PTO engagement button (13 Fig. 5.38) must be activated and/or kept activated, even if the PTO itself is not used. In this case, to prevent rotation of the PTO's output shaft, the lever (33 Fig. 5.37) must be placed in neutral.

⚠DANGER:
It is strictly forbidden to remain in the area between the tractor and the towed vehicle as the engine will be running; and also without securely parking the tractor, using if necessary (on sloping or uneven ground) blocks under the wheels and steering crossways to the slope.

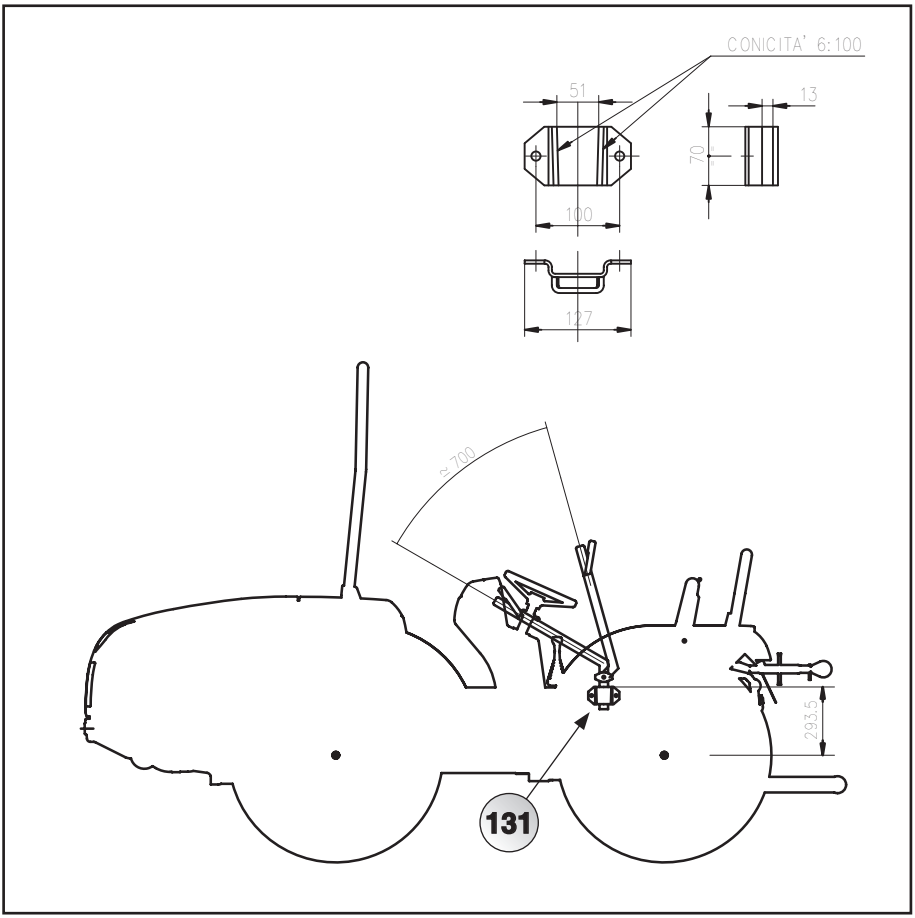


Fig. 5.50

Approved for Italy hitch

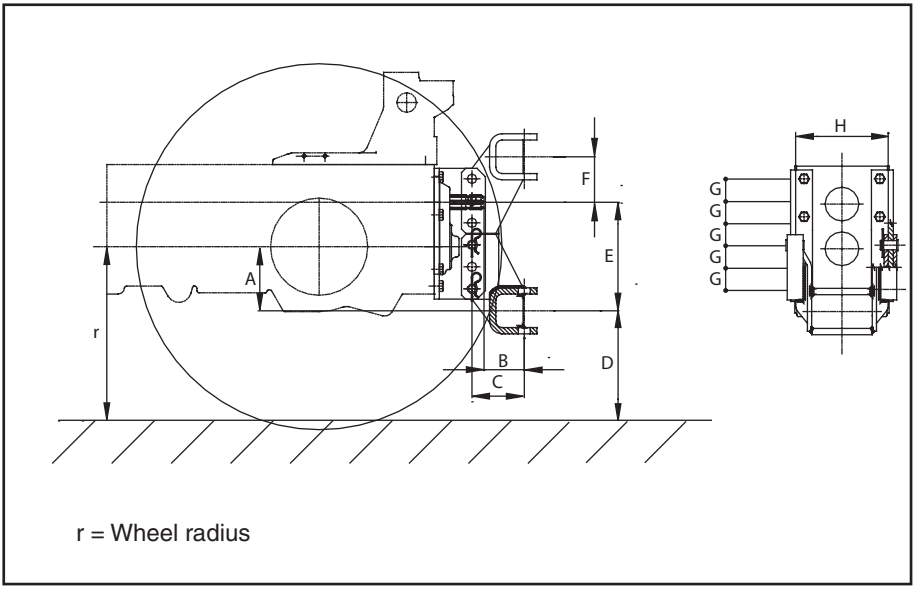
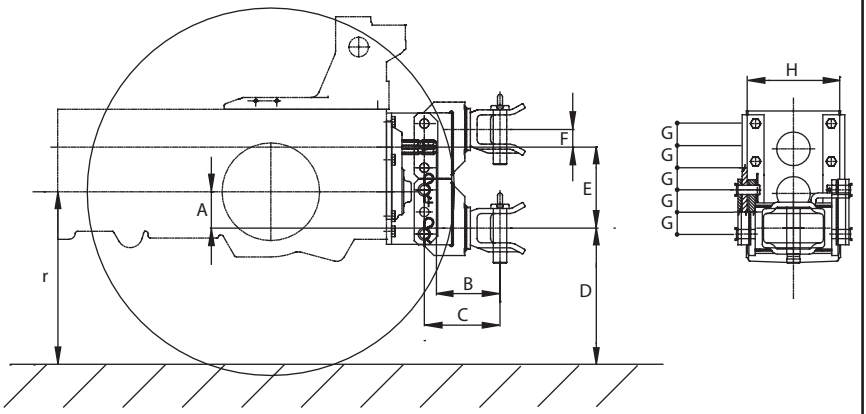


Fig. 5.51

	A	B	C	D	E	F	G	H
mm	153	96	125	r - A	367,5	108,5	52,5	220
inches	6	3.8	4.9		14.5	4.3	2	8.6

For the European homologation hitch



r = Wheel radius

Fig. 5.52.1

	A	B	C	D	E	F	G	H
mm	86,5	151	180	r - A	234,5	42	52,5	220
inches	3.4	5.9	7.1		9.2	1.6	2	8.6

Towing hook with "slider" frame for the European homologation

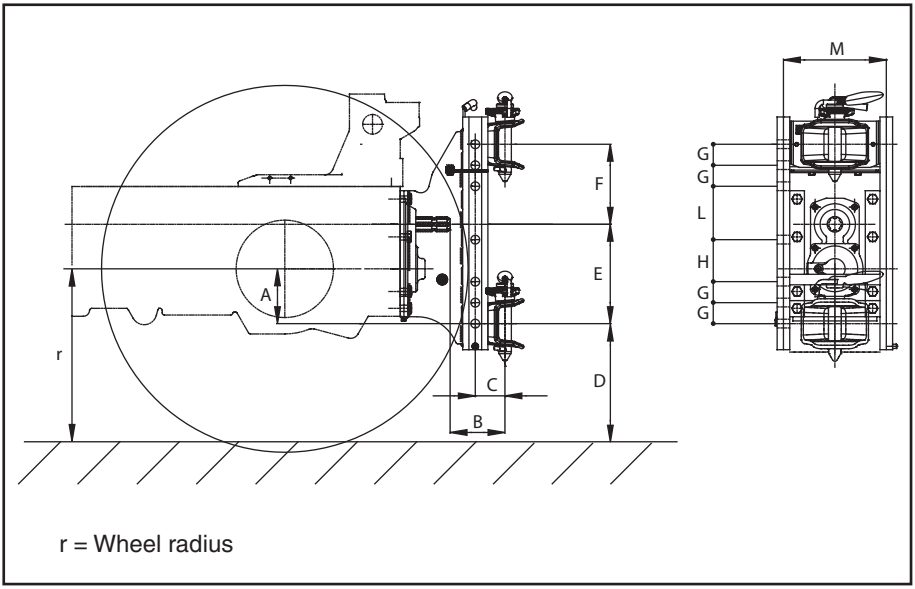


Fig. 5.52.2

	A	B	C	D	E	F	G	H	L	M
mm	130,5	131	71	r - A	236,5	190,5	50	100	127	245
inches	5,1	5,12	2,78		9,25	7,45	1,95	3,91	4,96	9,58

Towing hook with “slider” frame for the Italian homologation

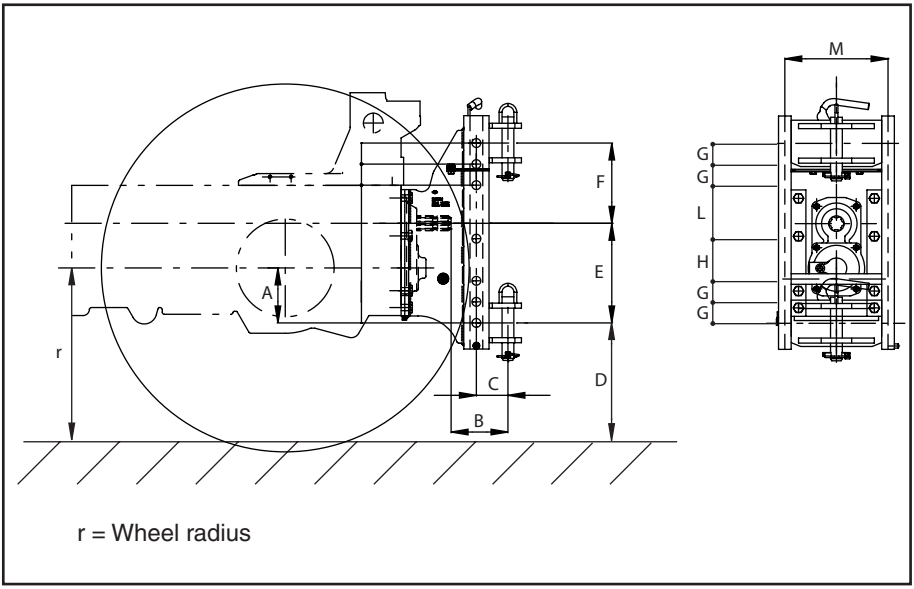


Fig. 5.52.3

	A	B	C	D	E	F	G	H	L	M
mm	130,5	135	75	r - A	236,5	190,5	50	100	127	245
inches	5,1	5,31	2,95		9,25	7,45	1,95	3,91	4,96	9,58

17.1 Maximum vertical load on Rear coupling - "RS" version

TRACTOR WITH CABIN						
Tyres Front and rear axes	Capacities (kg/Axle)	Vertical load on couplers				
		COUPLER "GRASSI EG31" CEE				
		Sz	Cz1	Cz2	Cz3	Cz4
8.00-20 (8 PR)	1570	350	270	420	350	410
31X15.50-15 (4 PR)	1690	430	360	510	440	500
250/80 R18 (102 A8)	1700	440	370	510	450	500
9.5 R20 (105 A8)	1850	550	480	620	560	610
320/65 R 18 (109 A8)	2060	700	630	780	710	770
11.2 R20 (111 A8)	2160	780	700	850	790	840
280/70 R18 (114 A8)	2160					
340/65 R20 (114 A8)	2160					
320/70 R20 (113 A8)	2160					
340/650 R18 (113 A8)	2160					
11.5X80-15.3 (8 PR)	2160					
38X14.00-20 (8 PR)	2160					
300/70 R20 (120 A8)	2160					
425/55 R17 (134 G)	2160					
13.6-16 (8 PR)	2160					
33X12.5-15 (6 PR)	2160					
400/60-15.5 (145 A8/132 A8)	2160					
250/85 R20 (116 A8/B)	2160					
440/50 R17 IMP	2160					

Sz: Without ballasts
Cz1: Ballasts on wheels
Cz2: Front ballasts
Cz3: Front ballasts + on wheels ballasts
Cz4: Side ballasts

TRACTOR WITH SAFETY FRAME						
Tyres Front and rear axes	Capacities (kg/Axle)	Vertical load on couplers				
		COUPLER "GRASSI EG31" CEE				
		Sz	Cz1	Cz2	Cz3	Cz4
8.00-20 (8 PR)	1570	480	400	550	490	540
31X15.50-15 (4 PR)	1690	570	490	640	570	630
250/80 R18 (102 A8)	1700	570	500	650	580	640
9.5 R20 (105 A8)	1850	680	610	760	690	740
320/65 R 18 (109 A8)	2060	840	760	910	840	900
11.2 R20 (111 A8)	2160	910	840	980	920	970
280/70 R18 (114 A8)	2160					
340/65 R20 (114 A8)	2160					
320/70 R20 (113 A8)	2160					
340/650 R18 (113 A8)	2160					
11.5X80-15.3 (8 PR)	2160					
38X14.00-20 (8 PR)	2160					
300/70 R20 (120 A8)	2160					
425/55 R17 (134 G)	2160					
13.6-16 (8 PR)	2160					
33X12.5-15 (6 PR)	2160					
400/60-15.5 (145 A8/132 A8)	2160					
250/85 R20 (116 A8/B)	2160					
440/50 R17 IMP	2160					

Sz: Without ballasts
Cz1: Ballasts on wheels
Cz2: Front ballasts
Cz3: Front ballasts + on wheels ballasts
Cz4: Side ballasts

TRACTOR WITH CABIN						
Tyres Front and rear axes	Capacities (kg/Axle)	Vertical load on couplers				
		COUPLER "BCS GT94" CUNA				
		Sz	Cz1	Cz2	Cz3	Cz4
8.00-20 (8 PR)	1570	360	280	430	360	420
31X15.50-15 (4 PR)	1690	370	370	520	450	510
250/80 R18 (102 A8)	1700	380	380	530	460	520
9.5 R20 (105 A8)	1850	490	490	640	580	630
320/65 R 18 (109 A8)	2060	650	650	800	730	790
11.2 R20 (111 A8)	2160	800	730	880	810	870
280/70 R18 (114 A8)	2160					
340/65 R20 (114 A8)	2160					
320/70 R20 (113 A8)	2160					
340/650 R18 (113 A8)	2160					
11.5X80-15.3 (8 PR)	2160					
38X14.00-20 (8 PR)	2160					
300/70 R20 (120 A8)	2160					
425/55 R17 (134 G)	2160					
13.6-16 (8 PR)	2160					
33X12.5-15 (6 PR)	2160					
400/60-15.5 (145 A8/132 A8)	2160					
250/85 R20 (116 A8/B)	2160					
440/50 R17 IMP	2160					

Sz: Without ballasts
Cz1: Ballasts on wheels
Cz2: Front ballasts
Cz3: Front ballasts + on wheels ballasts
Cz4: Side ballasts

TRACTOR WITH SAFETY FRAME						
Tyres Front and rear axes	Capacities (kg/Axle)	Vertical load on couplers				
		COUPLER "BCS GT94" CUNA				
		Sz	Cz1	Cz2	Cz3	Cz4
8.00-20 (8 PR)	1570	490	420	570	500	560
31X15.50-15 (4 PR)	1690	580	510	660	590	650
250/80 R18 (102 A8)	1700	590	520	670	600	650
9.5 R20 (105 A8)	1850	700	530	780	710	770
320/65 R 18 (109 A8)	2060	860	790	940	870	930
11.2 R20 (111 A8)	2160	940	860	1010	940	1000
280/70 R18 (114 A8)	2160					
340/65 R20 (114 A8)	2160					
320/70 R20 (113 A8)	2160					
340/650 R18 (113 A8)	2160					
11.5X80-15.3 (8 PR)	2160					
38X14.00-20 (8 PR)	2160					
300/70 R20 (120 A8)	2160					
425/55 R17 (134 G)	2160					
13.6-16 (8 PR)	2160					
33X12.5-15 (6 PR)	2160					
400/60-15.5 (145 A8/132 A8)	2160					
250/85 R20 (116 A8/B)	2160					
440/50 R17 IMP	2160					

Sz: Without ballasts
Cz1: Ballasts on wheels
Cz2: Front ballasts
Cz3: Front ballasts + on wheels ballasts
Cz4: Side ballasts

TRACTOR WITH CABIN						
Tyres Front and rear axes	Capacities (kg/Axle)	Vertical load on couplers				
		COUPLER "CBM GTF30023" CEE				
		Sz	Cz1	Cz2	Cz3	Cz4
8.00-20 (8 PR)	1570	350	280	420	360	410
31X15.50-15 (4 PR)	1690	440	370	510	450	500
250/80 R18 (102 A8)	1700	450	370	520	450	510
9.5 R20 (105 A8)	1850	560	480	630	570	620
320/65 R 18 (109 A8)	2060	700	640	700	700	700
11.2 R20 (111 A8)	2160	700	700	700	700	700
280/70 R18 (114 A8)	2160					
340/65 R20 (114 A8)	2160					
320/70 R20 (113 A8)	2160					
340/650 R18 (113 A8)	2160					
11.5X80-15.3 (8 PR)	2160					
38X14.00-20 (8 PR)	2160					
300/70 R20 (120 A8)	2160					
425/55 R17 (134 G)	2160					
13.6-16 (8 PR)	2160					
33X12.5-15 (6 PR)	2160					
400/60-15.5 (145 A8/132 A8)	2160					
250/85 R20 (116 A8/B)	2160					
440/50 R17 IMP	2160					

Sz: Without ballasts
Cz1: Ballasts on wheels
Cz2: Front ballasts
Cz3: Front ballasts + on wheels ballasts
Cz4: Side ballasts

TRACTOR WITH SAFETY FRAME						
Tyres Front and rear axes	Capacities (kg/Axle)	Vertical load on couplers				
		COUPLER "CBM GTF30023" CEE				
		Sz	Cz1	Cz2	Cz3	Cz4
8.00-20 (8 PR)	1570	480	400	550	490	540
31X15.50-15 (4 PR)	1690	570	490	640	570	630
250/80 R18 (102 A8)	1700	570	500	650	580	640
9.5 R20 (105 A8)	1850	680	610	760	690	740
320/65 R 18 (109 A8)	2060	840	760	910	840	900
11.2 R20 (111 A8)	2160	910	840	980	920	970
280/70 R18 (114 A8)	2160					
340/65 R20 (114 A8)	2160					
320/70 R20 (113 A8)	2160					
340/650 R18 (113 A8)	2160					
11.5X80-15.3 (8 PR)	2160					
38X14.00-20 (8 PR)	2160					
300/70 R20 (120 A8)	2160					
425/55 R17 (134 G)	2160					
13.6-16 (8 PR)	2160					
33X12.5-15 (6 PR)	2160					
400/60-15.5 (145 A8/132 A8)	2160					
250/85 R20 (116 A8/B)	2160					
440/50 R17 IMP	2160					

Sz: Without ballasts
Cz1: Ballasts on wheels
Cz2: Front ballasts
Cz3: Front ballasts + on wheels ballasts
Cz4: Side ballasts

TRACTOR WITH CABIN						
Tyres Front and rear axes	Capacities (kg/Axle)	Vertical load on couplers				
		COUPLER "CBM OC.0025" CUNA				
		Sz	Cz1	Cz2	Cz3	Cz4
8.00-20 (8 PR)	1570	350	280	430	360	410
31X15.50-15 (4 PR)	1690	440	370	520	450	500
250/80 R18 (102 A8)	1700	450	370	520	460	510
9.5 R20 (105 A8)	1850	560	490	630	570	620
320/65 R 18 (109 A8)	2060	720	640	790	720	780
11.2 R20 (111 A8)	2180	790	720	860	800	850
280/70 R18 (114 A8)	2160					
340/65 R20 (114 A8)	2160					
320/70 R20 (113 A8)	2160					
340/650 R18 (113 A8)	2160					
11.5X80-15.3 (8 PR)	2160					
38X14.00-20 (8 PR)	2160					
300/70 R20 (120 A8)	2160					
425/55 R17 (134 G)	2160					
13.6-16 (8 PR)	2160					
33X12.5-15 (6 PR)	2160					
400/60-15.5 (145 A8/132 A8)	2160					
250/85 R20 (116 A8/B)	2160					
440/50 R17 IMP	2160					

Sz: Without ballasts
Cz1: Ballasts on wheels
Cz2: Front ballasts
Cz3: Front ballasts + on wheels ballasts
Cz4: Side ballasts

TRACTOR WITH SAFETY FRAME						
Tyres Front and rear axes	Capacities (kg/Axle)	Vertical load on couplers				
		COUPLER "CBM OC.0025" CUNA				
		Sz	Cz1	Cz2	Cz3	Cz4
8.00-20 (8 PR)	1570	490	410	560	490	550
31X15.50-15 (4 PR)	1690	570	500	650	580	640
250/80 R18 (102 A8)	1700	580	510	660	590	650
9.5 R20 (105 A8)	1850	690	620	770	700	770
320/65 R 18 (109 A8)	2060	850	770	920	860	910
11.2 R20 (111 A8)	2180	920	850	1000	930	990
280/70 R18 (114 A8)	2160					
340/65 R20 (114 A8)	2160					
320/70 R20 (113 A8)	2160					
340/650 R18 (113 A8)	2160					
11.5X80-15.3 (8 PR)	2160					
38X14.00-20 (8 PR)	2160					
300/70 R20 (120 A8)	2160					
425/55 R17 (134 G)	2160					
13.6-16 (8 PR)	2160					
33X12.5-15 (6 PR)	2160					
400/60-15.5 (145 A8/132 A8)	2160					
250/85 R20 (116 A8/B)	2160					
440/50 R17 IMP	2160					

Sz: Without ballasts
Cz1: Ballasts on wheels
Cz2: Front ballasts
Cz3: Front ballasts + on wheels ballasts
Cz4: Side ballasts

17.2 Maximum vertical load on Rear coupling - "RS/MT" version

TRACTOR WITH CABIN						
Tyres Front and rear axes	Capacities (kg/Axle)	Vertical load on couplers				
		COUPLER "GRASSI EG31" CEE				
		Sz	Cz1	Cz2	Cz3	Cz4
6.50-16 (8PR) (105 A8)	1500	300	220	370	300	360
8.00-20 (8 PR)	1570	350	270	420	350	410
31X15.50-15 (4 PR)	1690	430	360	510	440	500
250/80 R18 (102 A8)	1700	440	370	510	450	500
9.5 R20 (105 A8)	1850	550	480	620	560	610
320/65 R 18 (109 A8)	2060	700	630	780	710	770
11.2 R20 (111 A8)	2160	780	700	850	790	840
280/70 R18 (114 A8)	2160					
340/65 R20 (114 A8)	2160					
320/70 R20 (113 A8)	2160					
340/650 R18 (113 A8)	2160					
11.5X80-15.3 (8 PR)	2160					
38X14.00-20 (8 PR)	2160					
300/70 R20 (120 A8)	2160					
425/55 R17 (134 G)	2160					
13.6-16 (8 PR)	2160					
33X12.5-15 (6 PR)	2160					
400/60-15.5 (145 A8/132 A8)	2160					
250/85 R20 (116 A8/B)	2160					
440/50 R17 IMP	2160					

Sz: Without ballasts
Cz1: Ballasts on wheels
Cz2: Front ballasts
Cz3: Front ballasts + on wheels ballasts
Cz4: Side ballasts

TRACTOR WITH HALF CABIN						
Tyres Front and rear axes	Capacities (kg/Axle)	Vertical load on couplers				
		COUPLER "GRASSI EG31" CEE				
		Sz	Cz1	Cz2	Cz3	Cz4
6.50-16 (8PR) (105 A8)	1500	350	270	420	350	410
8.00-20 (8 PR)	1570	400	320	470	400	460
31X15.50-15 (4 PR)	1690	490	410	560	490	550
250/80 R18 (102 A8)	1700	490	420	570	500	550
9.5 R20 (105 A8)	1850	600	530	680	610	660
320/650 R 18 (109 A8)	2060	760	680	830	760	820
11.2 R20 (111 A8)	2160	830	760	900	840	890
280/70 R18 (114 A8)	2160					
340/65 R20 (114 A8)	2160					
320/70 R20 (113 A8)	2160					
340/65 R18 (113 A8)	2160					
11.5X80-15.3 (8 PR)	2160					
38X14.00-20 (8 PR)	2160					
300/70 R20 (120 A8)	2160					
425/55 R17 (134 G)	2160					
13.6-16 (8 PR)	2160					
33X12.5-15 (6 PR)	2160					
400/60-15.5 (145 A8/132 A8)	2160					
250/85 R20 (116 A8/B)	2160					
440/50 R17 IMP	2160					

Sz: Without ballasts
Cz1: Ballasts on wheels
Cz2: Front ballasts
Cz3: Front ballasts + on wheels ballasts
Cz4: Side ballasts

TRACTOR WITH CABIN						
Tyres Front and rear axes	Capacities (kg/Axle)	Vertical load on couplers				
		COUPLER "BCS GT94" CUNA				
		Sz	Cz1	Cz2	Cz3	Cz4
6.50-16 (8PR) (105 A8)	1500	300	230	380	310	370
8.00-20 (8 PR)	1570	360	280	430	360	420
31X15.50-15 (4 PR)	1690	450	370	520	450	510
250/80 R18 (102 A8)	1700	450	380	530	460	520
9.5 R20 (105 A8)	1850	570	490	640	580	630
320/650 R 18 (109 A8)	2060	730	650	800	730	790
11.2 R20 (111 A8)	2180	800	730	880	810	870
280/70 R18 (114 A8)	2160					
340/65 R20 (114 A8)	2160					
320/70 R20 (113 A8)	2160					
340/65 R18 (113 A8)	2160					
11.5X80-15.3 (8 PR)	2160					
38X14.00-20 (8 PR)	2160					
300/70 R20 (120 A8)	2160					
425/55 R17 (134 G)	2160					
13.6-16 (8 PR)	2160					
33X12.5-15 (6 PR)	2160					
400/60-15.5 (145 A8/132 A8)	2160					
250/85 R20 (116 A8/B)	2160					
440/50 R17 IMP	2160					

Sz: Without ballasts
Cz1: Ballasts on wheels
Cz2: Front ballasts
Cz3: Front ballasts + on wheels ballasts
Cz4: Side ballasts

TRACTOR WITH HALF CABIN						
Tyres Front and rear axes	Capacities (kg/Axle)	Vertical load on couplers				
		COUPLER "BCS GT94" CUNA				
		Sz	Cz1	Cz2	Cz3	Cz4
6.50-16 (8PR) (105 A8)	1500	360	280	430	360	420
8.00-20 (8 PR)	1570	410	330	490	420	470
31X15.50-15 (4 PR)	1690	500	420	580	510	560
250/80 R18 (102 A8)	1700	510	430	580	520	570
9.5 R20 (105 A8)	1850	620	550	700	630	680
320/650 R 18 (109 A8)	2060	780	700	850	790	840
11.2 R20 (111 A8)	2160	850	780	930	860	920
280/70 R18 (114 A8)	2160					
340/65 R20 (114 A8)	2160					
320/70 R20 (113 A8)	2160					
340/65 R18 (113 A8)	2160					
11.5X80-15.3 (8 PR)	2160					
38X14.00-20 (8 PR)	2160					
300/70 R20 (120 A8)	2160					
425/55 R17 (134 G)	2160					
13.6-16 (8 PR)	2160					
33X12.5-15 (6 PR)	2160					
400/60-15.5 (145 A8/132 A8)	2160					
250/85 R20 (116 A8/B)	2160					
440/50 R17 IMP	2160					

Sz: Without ballasts
Cz1: Ballasts on wheels
Cz2: Front ballasts
Cz3: Front ballasts + on wheels ballasts
Cz4: Side ballasts

TRACTOR WITH CABIN						
Tyres Front and rear axes	Capacities (kg/Axle)	Vertical load on couplers				
		COUPLER "CBM GTF30023" CEE				
		Sz	Cz1	Cz2	Cz3	Cz4
6.50-16 (8PR) (105 A8)	1500	300	230	370	310	360
8.00-20 (8 PR)	1570	350	280	420	360	410
31X15.50-15 (4 PR)	1690	440	370	510	450	500
250/80 R18 (102 A8)	1700	450	370	520	450	510
9.5 R20 (105 A8)	1850	560	480	630	570	620
320/65 R 18 (109 A8)	2060	700	640	700	700	700
11.2 R20 (111 A8)	2160	700	700	700	700	700
280/70 R18 (114 A8)	2160					
340/65 R20 (114 A8)	2160					
320/70 R20 (113 A8)	2160					
340/650 R18 (113 A8)	2160					
11.5X80-15.3 (8 PR)	2160					
38X14.00-20 (8 PR)	2160					
300/70 R20 (120 A8)	2160					
425/55 R17 (134 G)	2160					
13.6-16 (8 PR)	2160					
33X12.5-15 (6 PR)	2160					
400/60-15.5 (145 A8/132 A8)	2160					
250/85 R20 (116 A8/B)	2160					
440/50 R17 IMP	2160					

Sz: Without ballasts
Cz1: Ballasts on wheels
Cz2: Front ballasts
Cz3: Front ballasts + on wheels ballasts
Cz4: Side ballasts

TRACTOR WITH HALF CABIN						
Tyres Front and rear axes	Capacities (kg/Axle)	Vertical load on couplers				
		COUPLER "CBM GTF30023" CEE				
		Sz	Cz1	Cz2	Cz3	Cz4
6.50-16 (8PR) (105 A8)	1500	350	280	420	360	410
8.00-20 (8 PR)	1570	400	330	480	410	470
31X15.50-15 (4 PR)	1690	490	420	570	500	550
250/80 R18 (102 A8)	1700	500	420	570	510	560
9.5 R20 (105 A8)	1850	610	540	680	620	670
320/65 R 18 (109 A8)	2060	740	690	740	740	740
11.2 R20 (111 A8)	2160	740	740	740	740	740
280/70 R18 (114 A8)	2160					
340/65 R20 (114 A8)	2160					
320/70 R20 (113 A8)	2160					
340/650 R18 (113 A8)	2160					
11.5X80-15.3 (8 PR)	2160					
38X14.00-20 (8 PR)	2160					
300/70 R20 (120 A8)	2160					
425/55 R17 (134 G)	2160					
13.6-16 (8 PR)	2160					
33X12.5-15 (6 PR)	2160					
400/60-15.5 (145 A8/132 A8)	2160					
250/85 R20 (116 A8/B)	2160					
440/50 R17 IMP	2160					

Sz: Without ballasts
Cz1: Ballasts on wheels
Cz2: Front ballasts
Cz3: Front ballasts + on wheels ballasts
Cz4: Side ballasts

TRACTOR WITH CABIN						
Tyres Front and rear axes	Capacities (kg/Axle)	Vertical load on couplers				
		COUPLER "CBM OC.0025" CUNA				
		Sz	Cz1	Cz2	Cz3	Cz4
6.50-16 (8PR) (105 A8)	1500	300	230	370	310	360
8.00-20 (8 PR)	1570	350	280	430	360	410
31X15.50-15 (4 PR)	1690	440	370	520	450	500
250/80 R18 (102 A8)	1700	450	370	520	460	510
9.5 R20 (105 A8)	1850	560	490	630	570	620
320/65 R 18 (109 A8)	2060	720	640	790	720	780
11.2 R20 (111 A8)	2180	790	720	860	800	850
280/70 R18 (114 A8)	2160					
340/65 R20 (114 A8)	2160					
320/70 R20 (113 A8)	2160					
340/650 R18 (113 A8)	2160					
11.5X80-15.3 (8 PR)	2160					
38X14.00-20 (8 PR)	2160					
300/70 R20 (120 A8)	2160					
425/55 R17 (134 G)	2160					
13.6-16 (8 PR)	2160					
33X12.5-15 (6 PR)	2160					
400/60-15.5 (145 A8/132 A8)	2160					
250/85 R20 (116 A8/B)	2160					
440/50 R17 IMP	2160					

Sz: Without ballasts
Cz1: Ballasts on wheels
Cz2: Front ballasts
Cz3: Front ballasts + on wheels ballasts
Cz4: Side ballasts

TRACTOR WITH HALF CABIN						
Tyres Front and rear axes	Capacities (kg/Axle)	Vertical load on couplers				
		COUPLER "CBM OC.0025" CUNA				
		Sz	Cz1	Cz2	Cz3	Cz4
6.50-16 (8PR) (105 A8)	1500	350	280	430	360	410
8.00-20 (8 PR)	1570	400	330	480	410	470
31X15.50-15 (4 PR)	1690	490	420	570	500	560
250/80 R18 (102 A8)	1700	500	430	570	510	560
9.5 R20 (105 A8)	1850	610	540	690	620	670
320/65 R 18 (109 A8)	2060	770	690	840	770	830
11.2 R20 (111 A8)	2160	840	770	920	850	900
280/70 R18 (114 A8)	2160					
340/65 R20 (114 A8)	2160					
320/70 R20 (113 A8)	2160					
340/650 R18 (113 A8)	2160					
11.5X80-15.3 (8 PR)	2160					
38X14.00-20 (8 PR)	2160					
300/70 R20 (120 A8)	2160					
425/55 R17 (134 G)	2160					
13.6-16 (8 PR)	2160					
33X12.5-15 (6 PR)	2160					
400/60-15.5 (145 A8/132 A8)	2160					
250/85 R20 (116 A8/B)	2160					
440/50 R17 IMP	2160					

Sz: Without ballasts
Cz1: Ballasts on wheels
Cz2: Front ballasts
Cz3: Front ballasts + on wheels ballasts
Cz4: Side ballasts

17.3 Maximum vertical load on Rear coupling - "AR" version

TRACTOR WITH CABIN						
Tyres Front and rear axes	Capacities (kg/Axle)	Vertical load on couplers				
		COUPLER "GRASSI EG31" CEE				
		Sz	Cz1	Cz2	Cz3	Cz4
8.00-20 (8 PR)	1570	400	330	490	410	470
31X15.50-15 (4 PR)	1690	490	420	570	500	550
250/80 R18 (102 A8)	1700	500	430	580	510	560
9.5 R20 (105 A8)	1850	610	540	690	620	670
320/65 R 18 (109 A8)	2060	760	690	840	770	830
280/70 R18 (114 A8)	2160	840	760	920	840	900
340/65 R20 (114 A8)	2160					
340/65 R18 (113 A8)	2160					
11.5X80-15.3 (8 PR)	2160					
300/70 R20 (120 A8)	2160					
425/55 R17 (134 G)	2160					
33X12.5-15 (6 PR)	2160					
400/60-15.5 (145 A8/132 A8)	2160					

Sz: Without ballasts
Cz1: Ballasts on wheels
Cz2: Front ballasts
Cz3: Front ballasts + on wheels ballasts
Cz4: Side ballasts

TRACTOR WITH SAFETY FRAME						
Tyres Front and rear axes	Capacities (kg/Axle)	Vertical load on couplers				
		COUPLER "GRASSI EG31" CEE				
		Sz	Cz1	Cz2	Cz3	Cz4
8.00-20 (8 PR)	1570	460	380	540	460	520
31X15.50-15 (4 PR)	1690	540	470	620	550	610
250/80 R18 (102 A8)	1700	550	480	630	560	610
9.5 R20 (105 A8)	1850	660	590	740	670	720
320/650 R 18 (109 A8)	2060	810	740	890	820	880
11.2 R20 (111 A8)	2160	890	810	970	890	950
280/70 R18 (114 A8)	2160					
340/65 R20 (114 A8)	2160					
320/70 R20 (113 A8)	2160					
340/65 R18 (113 A8)	2160					
11.5X80-15.3 (8 PR)	2160					
38X14.00-20 (8 PR)	2160					
300/70 R20 (120 A8)	2160					
425/55 R17 (134 G)	2160					
13.6-16 (8 PR)	2160					
33X12.5-15 (6 PR)	2160					
400/60-15.5 (145 A8/132 A8)	2160					

Sz: Without ballasts
Cz1: Ballasts on wheels
Cz2: Front ballasts
Cz3: Front ballasts + on wheels ballasts
Cz4: Side ballasts

TRACTOR WITH CABIN						
Tyres Front and rear axes	Capacities (kg/Axle)	Vertical load on couplers				
		COUPLER "BCS GT94" CUNA				
		Sz	Cz1	Cz2	Cz3	Cz4
8.00-20 (8 PR)	1570	420	340	500	420	480
31X15.50-15 (4 PR)	1690	510	430	590	520	570
250/80 R18 (102 A8)	1700	520	440	600	520	580
9.5 R20 (105 A8)	1850	630	550	710	640	690
320/65 R 18 (109 A8)	2060	790	710	870	790	850
280/70 R18 (114 A8)	2160	860	790	940	870	930
340/65 R20 (114 A8)	2160					
340/65 R18 (113 A8)	2160					
11.5X80-15.3 (8 PR)	2160					
300/70 R20 (120 A8)	2160					
425/55 R17 (134 G)	2160					
33X12.5-15 (6 PR)	2160					
400/60-15.5 (145 A8/132 A8)	2160					

Sz: Without ballasts
Cz1: Ballasts on wheels
Cz2: Front ballasts
Cz3: Front ballasts + on wheels ballasts
Cz4: Side ballasts

TRACTOR WITH SAFETY FRAME						
Tyres Front and rear axes	Capacities (kg/Axle)	Vertical load on couplers				
		COUPLER "BCS GT94" CUNA				
		Sz	Cz1	Cz2	Cz3	Cz4
8.00-20 (8 PR)	1570	470	390	550	480	530
31X15.50-15 (4 PR)	1690	560	490	640	570	620
250/80 R18 (102 A8)	1700	570	490	650	580	630
9.5 R20 (105 A8)	1850	680	610	760	690	740
320/650 R 18 (109 A8)	2060	840	760	920	850	900
11.2 R20 (111 A8)	2160	910	840	1000	920	980
280/70 R18 (114 A8)	2160					
340/65 R20 (114 A8)	2160					
320/70 R20 (113 A8)	2160					
340/65 R18 (113 A8)	2160					
11.5X80-15.3 (8 PR)	2160					
38X14.00-20 (8 PR)	2160					
300/70 R20 (120 A8)	2160					
425/55 R17 (134 G)	2160					
13.6-16 (8 PR)	2160					
33X12.5-15 (6 PR)	2160					
400/60-15.5 (145 A8/132 A8)	2160					

Sz: Without ballasts
Cz1: Ballasts on wheels
Cz2: Front ballasts
Cz3: Front ballasts + on wheels ballasts
Cz4: Side ballasts

TRACTOR WITH CABIN						
Tyres Front and rear axes	Capacities (kg/Axle)	Vertical load on couplers				
		COUPLER "CBM GTF30023" CEE				
		Sz	Cz1	Cz2	Cz3	Cz4
8.00-20 (8 PR)	1570	410	340	490	420	470
31X15.50-15 (4 PR)	1690	500	420	580	510	560
250/80 R18 (102 A8)	1700	510	430	590	510	570
9.5 R20 (105 A8)	1850	620	540	700	620	680
320/65 R 18 (109 A8)	2060	770	700			
280/70 R18 (114 A8)	2160					
340/65 R20 (114 A8)	2160					
340/65 R18 (113 A8)	2160					
11.5X80-15.3 (8 PR)	2160	780	770	780	780	780
300/70 R20 (120 A8)	2160					
425/55 R17 (134 G)	2160					
33X12.5-15 (6 PR)	2160					
400/60-15.5 (145 A8/132 A8)	2160					

Sz: Without ballasts
Cz1: Ballasts on wheels
Cz2: Front ballasts
Cz3: Front ballasts + on wheels ballasts
Cz4: Side ballasts

TRACTOR WITH SAFETY FRAME						
Tyres Front and rear axes	Capacities (kg/Axle)	Vertical load on couplers				
		COUPLER "CBM GTF30023" CEE				
		Sz	Cz1	Cz2	Cz3	Cz4
8.00-20 (8 PR)	1570	460	390	540	470	520
31X15.50-15 (4 PR)	1690	550	480	630	560	610
250/80 R18 (102 A8)	1700	560	480	640	570	620
9.5 R20 (105 A8)	1850	670	600	750	680	730
320/650 R 18 (109 A8)	2060	780	750	780	780	780
11.2 R20 (111 A8)	2160		780			
280/70 R18 (114 A8)	2160					
340/65 R20 (114 A8)	2160					
320/70 R20 (113 A8)	2160					
340/65 R18 (113 A8)	2160					
11.5X80-15.3 (8 PR)	2160					
38X14.00-20 (8 PR)	2160					
300/70 R20 (120 A8)	2160					
425/55 R17 (134 G)	2160					
13.6-16 (8 PR)	2160					
33X12.5-15 (6 PR)	2160					
400/60-15.5 (145 A8/132 A8)	2160					

Sz: Without ballasts
Cz1: Ballasts on wheels
Cz2: Front ballasts
Cz3: Front ballasts + on wheels ballasts
Cz4: Side ballasts

TRACTOR WITH CABIN						
Tyres Front and rear axes	Capacities (kg/Axle)	Vertical load on couplers				
		COUPLER "CBM OC.0025" CUNA				
		Sz	Cz1	Cz2	Cz3	Cz4
8.00-20 (8 PR)	1570	410	340	490	420	470
31X15.50-15 (4 PR)	1690	500	420	580	510	560
250/80 R18 (102 A8)	1700	510	430	590	520	570
9.5 R20 (105 A8)	1850	620	540	700	630	680
320/65 R 18 (109 A8)	2060	770	700	860	780	840
280/70 R18 (114 A8)	2160	850	770	930	860	910
340/65 R20 (114 A8)	2160					
340/65 R18 (113 A8)	2160					
11.5X80-15.3 (8 PR)	2160					
300/70 R20 (120 A8)	2160					
425/55 R17 (134 G)	2160					
33X12.5-15 (6 PR)	2160					
400/60-15.5 (145 A8/132 A8)	2160					

Sz: Without ballasts
Cz1: Ballasts on wheels
Cz2: Front ballasts
Cz3: Front ballasts + on wheels ballasts
Cz4: Side ballasts

TRACTOR WITH SAFETY FRAME						
Tyres Front and rear axes	Capacities (kg/Axle)	Vertical load on couplers				
		COUPLER "CBM OC.0025" CUNA				
		Sz	Cz1	Cz2	Cz3	Cz4
8.00-20 (8 PR)	1570	460	390	540	470	530
31X15.50-15 (4 PR)	1690	550	480	630	560	620
250/80 R18 (102 A8)	1700	560	480	640	570	620
9.5 R20 (105 A8)	1850	670	600	750	680	730
320/650 R 18 (109 A8)	2060	830	750	910	830	890
11.2 R20 (111 A8)	2160	900	830	980	910	960
280/70 R18 (114 A8)	2160					
340/65 R20 (114 A8)	2160					
320/70 R20 (113 A8)	2160					
340/65 R18 (113 A8)	2160					
11.5X80-15.3 (8 PR)	2160					
38X14.00-20 (8 PR)	2160					
300/70 R20 (120 A8)	2160					
425/55 R17 (134 G)	2160					
13.6-16 (8 PR)	2160					
33X12.5-15 (6 PR)	2160					
400/60-15.5 (145 A8/132 A8)	2160					

Sz: Without ballasts
Cz1: Ballasts on wheels
Cz2: Front ballasts
Cz3: Front ballasts + on wheels ballasts
Cz4: Side ballasts

17.4 Maximum vertical load on Rear coupling - "DS" version

TRACTOR WITH CABIN						
Tyres Front and rear axes	Capacities (kg/Axle)	Vertical load on couplers				
		COUPLER "GRASSI EG31" CEE				
		Sz	Cz1	Cz2	Cz3	Cz4
8.00-20 (8 PR)	1570	360	290	440	370	420
31X15.50-15 (4 PR)	1690	450	380	530	460	510
250/80 R18 (102 A8)	1700	460	380	540	460	520
9.5 R20 (105 A8)	1850	570	490	650	570	630
320/65 R 18 (109 A8)	2060	720	650	800	730	760
280/70 R18 (114 A8)	2160	790	720	870	800	850
340/65 R20 (114 A8)	2160					
340/65 R18 (113 A8)	2160					
11.5X80-15.3 (8 PR)	2160					
300/70 R20 (120 A8)	2160					
425/55 R17 (134 G)	2160					
33X12.5-15 (6 PR)	2160					
400/60-15.5 (145 A8/132 A8)	2160					

Sz: Without ballasts
Cz1: Ballasts on wheels
Cz2: Front ballasts
Cz3: Front ballasts + on wheels ballasts
Cz4: Side ballasts

TRACTOR WITH SAFETY FRAME						
Tyres Front and rear axes	Capacities (kg/Axle)	Vertical load on couplers				
		COUPLER "GRASSI EG31" CEE				
		Sz	Cz1	Cz2	Cz3	Cz4
8.00-20 (8 PR)	1570	430	350	510	430	490
31X15.50-15 (4 PR)	1690	510	440	590	520	580
250/80 R18 (102 A8)	1700	520	450	600	530	580
9.5 R20 (105 A8)	1850	630	560	710	640	690
320/650 R 18 (109 A8)	2060	790	710	870	790	850
280/70 R18 (114 A8)	2160	860	790	940	870	920
340/65 R20 (114 A8)	2160					
340/65 R18 (113 A8)	2160					
11.5X80-15.3 (8 PR)	2160					
300/70 R20 (120 A8)	2160					
425/55 R17 (134 G)	2160					
33X12.5-15 (6 PR)	2160					
400/60-15.5 (145 A8/132 A8)	2160					

Sz: Without ballasts
Cz1: Ballasts on wheels
Cz2: Front ballasts
Cz3: Front ballasts + on wheels ballasts
Cz4: Side ballasts

TRACTOR WITH CABIN						
Tyres Front and rear axes	Capacities (kg/Axle)	Vertical load on couplers				
		COUPLER "BCS GT94" CUNA				
		Sz	Cz	Cz2	Cz3	Cz4
8.00-20 (8 PR)	1570	370	300	450	380	440
31X15.50-15 (4 PR)	1690	460	390	550	470	530
250/80 R18 (102 A8)	1700	470	390	550	480	540
9.5 R20 (105 A8)	1850	580	510	670	590	650
320/65 R 18 (109 A8)	2060	740	670	820	750	800
280/70 R18 (114 A8)	2160	820	740	900	820	880
340/65 R20 (114 A8)	2160					
340/65 R18 (113 A8)	2160					
11.5X80-15.3 (8 PR)	2160					
300/70 R20 (120 A8)	2160					
425/55 R17 (134 G)	2160					
33X12.5-15 (6 PR)	2160					
400/60-15.5 (145 A8/132 A8)	2160					

Sz: Without ballasts
Cz1: Ballasts on wheels
Cz2: Front ballasts
Cz3: Front ballasts + on wheels ballasts
Cz4: Side ballasts

TRACTOR WITH SAFETY FRAME						
Tyres Front and rear axes	Capacities (kg/Axle)	Vertical load on couplers				
		COUPLER "BCS GT94" CUNA				
		Sz	Cz1	Cz2	Cz3	Cz4
8.00-20 (8 PR)	1570	440	360	520	450	500
31X15.50-15 (4 PR)	1690	530	450	610	540	590
250/80 R18 (102 A8)	1700	540	460	620	550	600
9.5 R20 (105 A8)	1850	650	580	730	660	710
320/650 R 18 (109 A8)	2060	810	730	890	820	870
11.2 R20 (111 A8)	2160	880	810	970	890	950
280/70 R18 (114 A8)	2160					
340/65 R20 (114 A8)	2160					
320/70 R20 (113 A8)	2160					
340/65 R18 (113 A8)	2160					
11.5X80-15.3 (8 PR)	2160					
38X14.00-20 (8 PR)	2160					
300/70 R20 (120 A8)	2160					
425/55 R17 (134 G)	2160					
13.6-16 (8 PR)	2160					
33X12.5-15 (6 PR)	2160					
400/60-15.5 (145 A8/132 A8)	2160					

Sz: Without ballasts
Cz1: Ballasts on wheels
Cz2: Front ballasts
Cz3: Front ballasts + on wheels ballasts
Cz4: Side ballasts

TRACTOR WITH CABIN						
Tyres Front and rear axes	Capacities (kg/Axle)	Vertical load on couplers				
		COUPLER "CBM GTF30023" CEE				
		Sz	Cz	Cz2	Cz3	Cz4
31X15.50-15 (4 PR)	1690	370	290	450	370	430
250/80 R18 (102 A8)	1700	450	380	540	460	520
8.00-20 (8 PR)	1570	460	390	540	470	520
9.5 R20 (105 A8)	1850	570	500	650	580	640
320/65 R 18 (109 A8)	2060	730	650		740	
280/70 R18 (114 A8)	2160					
340/65 R20 (114 A8)	2160					
340/65 R18 (113 A8)	2160					
11.5X80-15.3 (8 PR)	2160	770	730	770	770	770
300/70 R20 (120 A8)	2160					
425/55 R17 (134 G)	2160					
33X12.5-15 (6 PR)	2160					
400/60-15.5 (145 A8/132 A8)	2160					

Sz: Without ballasts
Cz1: Ballasts on wheels
Cz2: Front ballasts
Cz3: Front ballasts + on wheels ballasts
Cz4: Side ballasts

TRACTOR WITH SAFETY FRAME						
Tyres Front and rear axes	Capacities (kg/Axle)	Vertical load on couplers				
		COUPLER "CBM GTF30023" CEE				
		Sz	Cz1	Cz2	Cz3	Cz4
8.00-20 (8 PR)	1570	430	360	510	440	500
31X15.50-15 (4 PR)	1690	520	450	300	530	580
250/80 R18 (102 A8)	1700	530	450	610	540	590
9.5 R20 (105 A8)	1850	640	570	720	650	700
320/650 R 18 (109 A8)	2060	780	720	780	780	780
11.2 R20 (111 A8)	2160		780			
280/70 R18 (114 A8)	2160					
340/65 R20 (114 A8)	2160					
320/70 R20 (113 A8)	2160					
340/65 R18 (113 A8)	2160					
11.5X80-15.3 (8 PR)	2160					
38X14.00-20 (8 PR)	2160					
300/70 R20 (120 A8)	2160					
425/55 R17 (134 G)	2160					
13.6-16 (8 PR)	2160					
33X12.5-15 (6 PR)	2160					
400/60-15.5 (145 A8/132 A8)	2160					

Sz: Without ballasts
Cz1: Ballasts on wheels
Cz2: Front ballasts
Cz3: Front ballasts + on wheels ballasts
Cz4: Side ballasts

TRACTOR WITH CABIN						
Tyres Front and rear axes	Capacities (kg/Axle)	Vertical load on couplers				
		COUPLER "CBM OC.0025" CUNA				
		Sz	Cz	Cz2	Cz3	Cz4
31X15.50-15 (4 PR)	1690	370	290	450	370	430
250/80 R18 (102 A8)	1700	460	380	540	460	520
8.00-20 (8 PR)	1570	460	390	540	470	530
9.5 R20 (105 A8)	1850	570	500	660	580	640
320/65 R 18 (109 A8)	2060	730	660	810	740	790
280/70 R18 (114 A8)	2160	800	730	890	810	870
340/65 R20 (114 A8)	2160					
340/65 R18 (113 A8)	2160					
11.5X80-15.3 (8 PR)	2160					
300/70 R20 (120 A8)	2160					
425/55 R17 (134 G)	2160					
33X12.5-15 (6 PR)	2160					
400/60-15.5 (145 A8/132 A8)	2160					

Sz: Without ballasts
Cz1: Ballasts on wheels
Cz2: Front ballasts
Cz3: Front ballasts + on wheels ballasts
Cz4: Side ballasts

TRACTOR WITH SAFETY FRAME						
Tyres Front and rear axes	Capacities (kg/Axle)	Vertical load on couplers				
		COUPLER "CBM OC.0025" CUNA				
		Sz	Cz1	Cz2	Cz3	Cz4
8.00-20 (8 PR)	1570	430	360	520	440	500
31X15.50-15 (4 PR)	1690	520	450	600	530	590
250/80 R18 (102 A8)	1700	530	450	610	540	590
9.5 R20 (105 A8)	1850	640	570	720	650	700
320/650 R 18 (109 A8)	2060	800	720	880	800	860
11.2 R20 (111 A8)	2180	870	800	950	880	930
280/70 R18 (114 A8)	2160					
340/65 R20 (114 A8)	2160					
320/70 R20 (113 A8)	2160					
340/65 R18 (113 A8)	2160					
11.5X80-15.3 (8 PR)	2160					
38X14.00-20 (8 PR)	2160					
300/70 R20 (120 A8)	2160					
425/55 R17 (134 G)	2160					
13.6-16 (8 PR)	2160					
33X12.5-15 (6 PR)	2160					
400/60-15.5 (145 A8/132 A8)	2160					

Sz: Without ballasts
Cz1: Ballasts on wheels
Cz2: Front ballasts
Cz3: Front ballasts + on wheels ballasts
Cz4: Side ballasts

Section 18 : Three-point hitch

The three-point hitch is used to connect category I and II implements with standard dimensions and characteristics, controlled by the hydraulic lift, to the tractor.

⚠WARNING:

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

For proper operation of the lift, the dimensions of the implement to be attached to the tractor must be carefully checked.

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

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

In fact, if an implement is placed excessively 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 off the engine and remove the ignition key before making any adjustments to the three-point hitch or the implement.

⚠WARNING:

Always use the lift in the control position when implements are moved using the three-point hitch.

⚠WARNING:

Always use the lift in the control position when connecting or removing an implement of the three-point hitch.

⚠WARNING:

When the tractor is stopped, always lower the implements connected on the three-point hitch.

⚠CAUTION:

Before leaving the tractor always lower equipment connected to the three-point coupling to ground level.

⚠DANGER:

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

⚠DANGER:

To prevent injuries to persons, never remain between the equipment and tractor whilst operating the three-point coupling.

⚠CAUTION:

Generally, with the equipment connected to the three-point coupling, the universal joint has a reduced extension and the articulation angle is almost equal. With the equipment raised the shaft is at its maximum extension and diversification of its articulation angle Therefore for high lifting heights it may therefore be necessary to stop the rotation.

The three-point hitch basically consists of the following parts (Fig. 5.53):

1 - a top link hinged to the tractor's body, with a sleeve for adjusting the length
2 - two lateral stabilizers that prevent transversal shaking of the hitch
3 - two lower tie rods hinged to the tractor's body
4 - hitches with fixed ball joints (standard model)
5 - quick hitches (optional)
6 - “L” shaped arms;
7 - two vertical tie rods with adjustable height, which connect the lower tie rods to the lift's arms.

The lower tie rods (133) transmit the necessary pull and support to the implement. They have fixed ball joints (134) or quick hitches (135) on the ends.

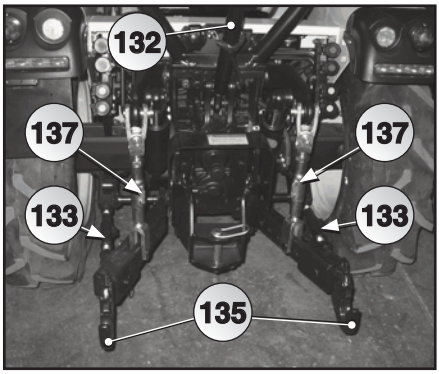


Fig. 5.53

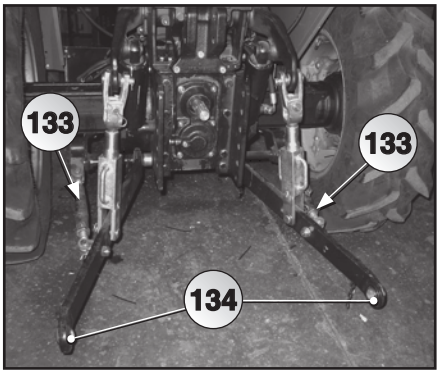


Fig. 5.54

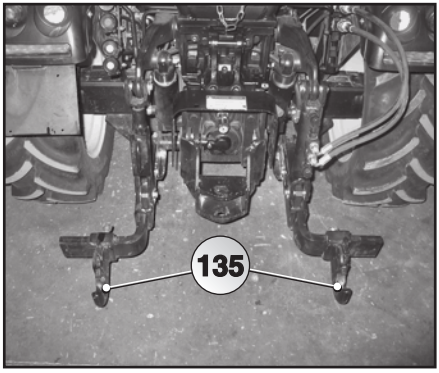


Fig. 5.55

⚠WARNING:
Always turn off the engine before adjusting the three-point hitch or the implement.

Vertical tie rods

The height of the vertical tie rods (137) can be adjusted using the provided handles (140). This adjustment is very useful for leveling the implement according to the type of job.

Turn the fork clockwise to shorten the vertical tie rod.

Turn the fork counter-clockwise to lengthen the vertical tie rod.

After adjusting make sure that, with the lift at its highest point, the implement is not raised higher than necessary and, with the lift lowered, that the implement can travel lower.

Upon request, the right vertical tie rod is available with a hydraulic jack (141), which permits adjustment of the transversal pitch of the implement from the operator position during work. The tie rod is controlled using the hydraulic directional control valve levers.

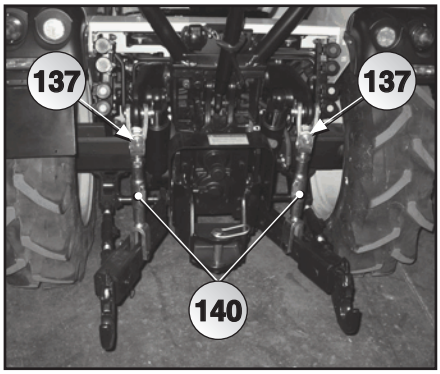


Fig. 5.56

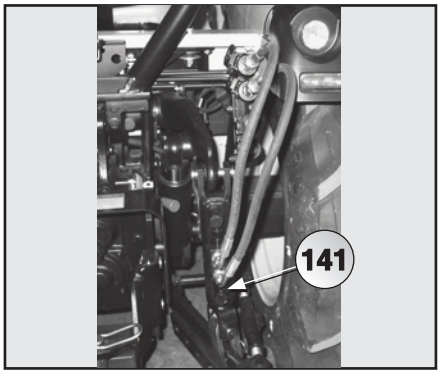


Fig. 5.57

Top link

The top adjustable link (132) is connected to the support by two holes. It must be selected based on the height of the implement.

The length of the top link may be varied so that the implement's angle of incidence can be adjusted in relation to the ground. When the top link is shortened, the incidence increases; when lengthened, the incidence decreases.

Upon request, the top link of the three-point hitch is available with hydraulic adjustment (142), so that the length can be adjusted from the operator position during work.

The three-point hitch has two holes for facilitating attachment and selection of the implement's pitch and determines the sensitivity of the draft control chosen according to the type of implement.

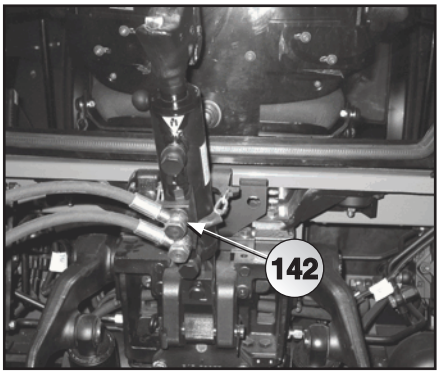
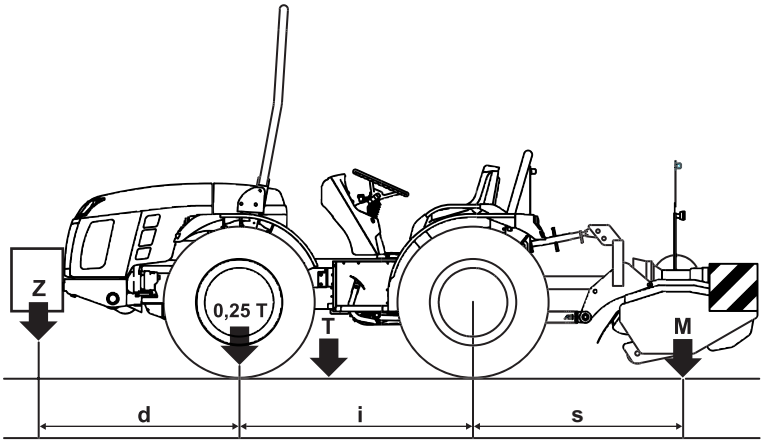


Fig. 5.58

Implement attachment to the tractor

⚠ WARNING:
When attaching implements to the front and rear three-point linkage, the following values must not be exceeded: - maximum total weight - maximum axial load - maximum load capacity of tyres Load on front axle must always be 25% at least of the tractor's empty weight. Before buying an implement, check accurately that the above requirements are met.

The tractor-implement assembly may be unstable owing to the weight of the machines: if the implements are too heavy for the tractor, they could lighten its front axle when they are hitched to the rear power lift, making the tractor difficult to drive and causing it to swerve round bends. Besides choosing the right tractor-implement combination, the remedy is to apply ballast, which must be done to suit the following conditions (Fig. 5.58.1):



$$\mathbf{M} \times \mathbf{s} \leq 0{,}25\ (\mathbf{T} \times \mathbf{i}) + \mathbf{Z}\ (\mathbf{d} + \mathbf{i})$$

$$Z = \frac{\mathbf{M} \times \mathbf{s} - 0{,}2\ (\mathbf{T} \times \mathbf{i})}{(\mathbf{d} + \mathbf{i})}$$

Fig. 5.58.1

Maximum permitted operating weights

	Maximum Permitted Operating Weights (kg)		
Tyre	Front axle	Rear axle	Total
8.00 - 20 (8PR)	1570	1570	3140
9.5 R20 (105 A8)	1850	1850	3500
11.2 R20 (111 A8)	2000	2160	3500
320/70 R20 (113 A8)	2000	2160	3500
38x14 - 20 (8PR)	2000	2160	3500
280/70 R18 (114 A8)	2000	2160	3500
320/65 R18 (109 A8)	2000	2060	3500
340/65 R18 (113 A8)	2000	2160	3500
31x15.5 - 15 (4PR)	1690	1690	3380
340/65 R20 (114 A8)	2000	2160	3500
425/55 .R17 (134 G)	2000	2160	3500
250/80 R18 (102 A8)	1700	1700	3400
11.5/80-15.3 (8PR)	2000	2160	3500
300/70 R20 (120 A8)	2000	2160	3500
13.6 -16 (8PR)	2000	2160	3500
33x12.50 – 15 (6PR)	2000	2160	3500
400/60 -15.5 (145 A8/132 A8)	2000	2160	3500
6.50-16 (8PR) (105 A8)	1500	1500	3000
250/85 R20 (116 A8/B)	2000	2160	3500
440/50 R17 IMP All Ground	2000	2160	3500

Points of attachment - AR tractor (basic)

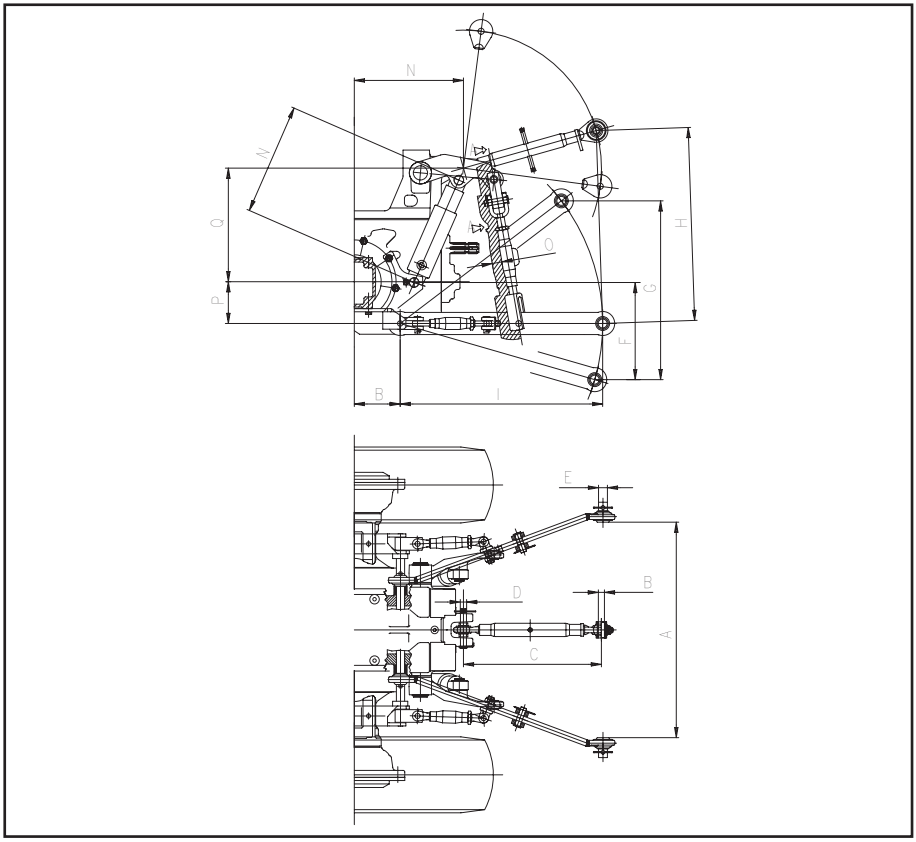


Fig. 5.59

	A	B	C		D	E	F	G	H		I	L	M	N		O	P	Q
			min	max					min	max				min	max			
mm	683	19.2	436	586	19.5	28	307	565	460	610	640	145	345	286	429	25	132	359

Points of attachment - AR-RS-DS tractor (optional)

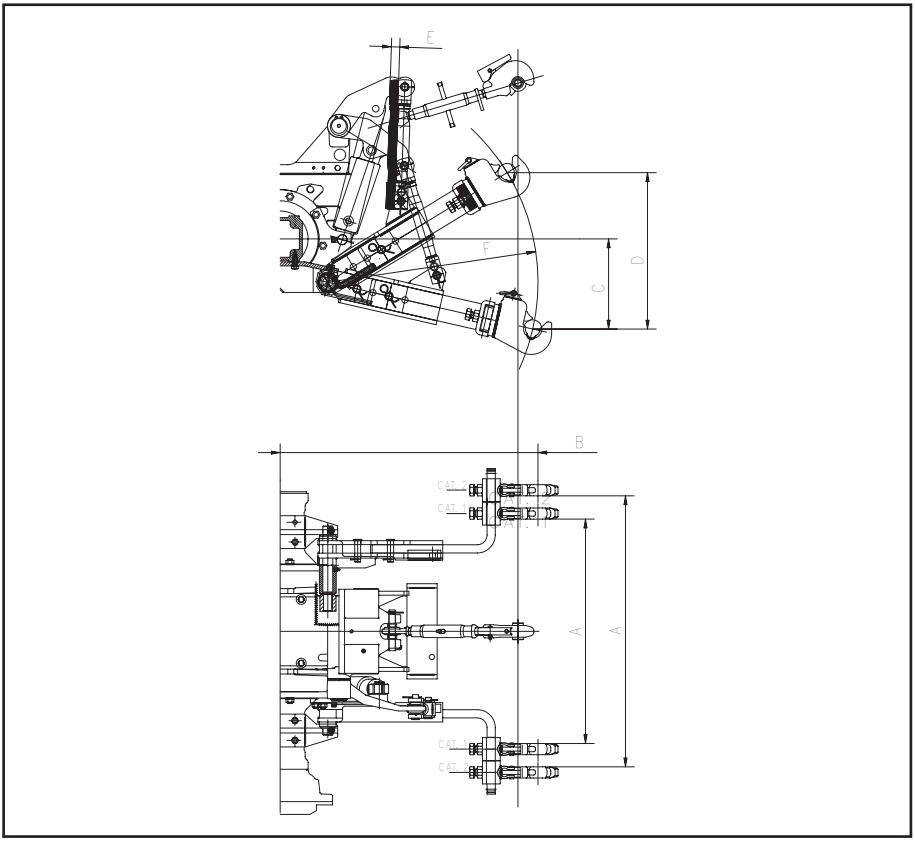


Fig. 5.60

	A	B	C	D	E	F
Cat.I						
mm	683	775	296	570.5	25	R630
Cat. II						
mm	825	775	296	570.5	25	R630

Points of attachment - RS-RS/MT-DS tractor (basic)

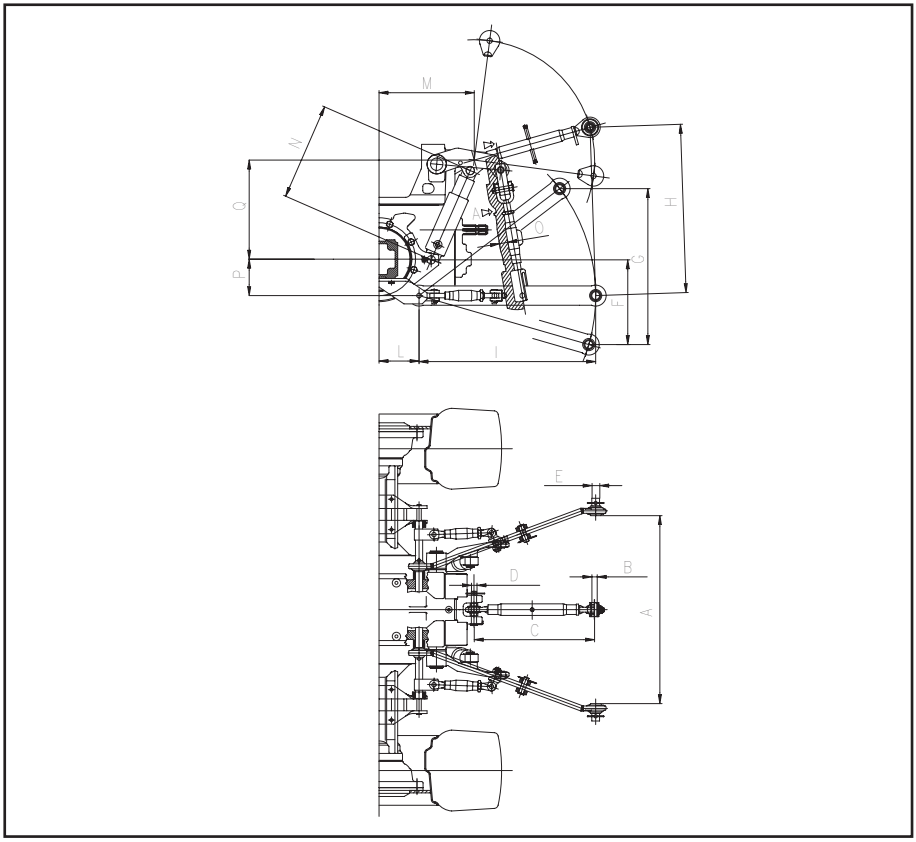


Fig. 5.61

	A		B	C		D	E	F	G	H		I	L	M	N		O	P	Q
	min	max		min	max					min	max				min	max			
mm	683	825	19.2	436	586	19.5	28	307	565	460	610	640	145	345	286	429	25	132	359

Points of attachment - RS-RS/MT-DS tractor (optional)

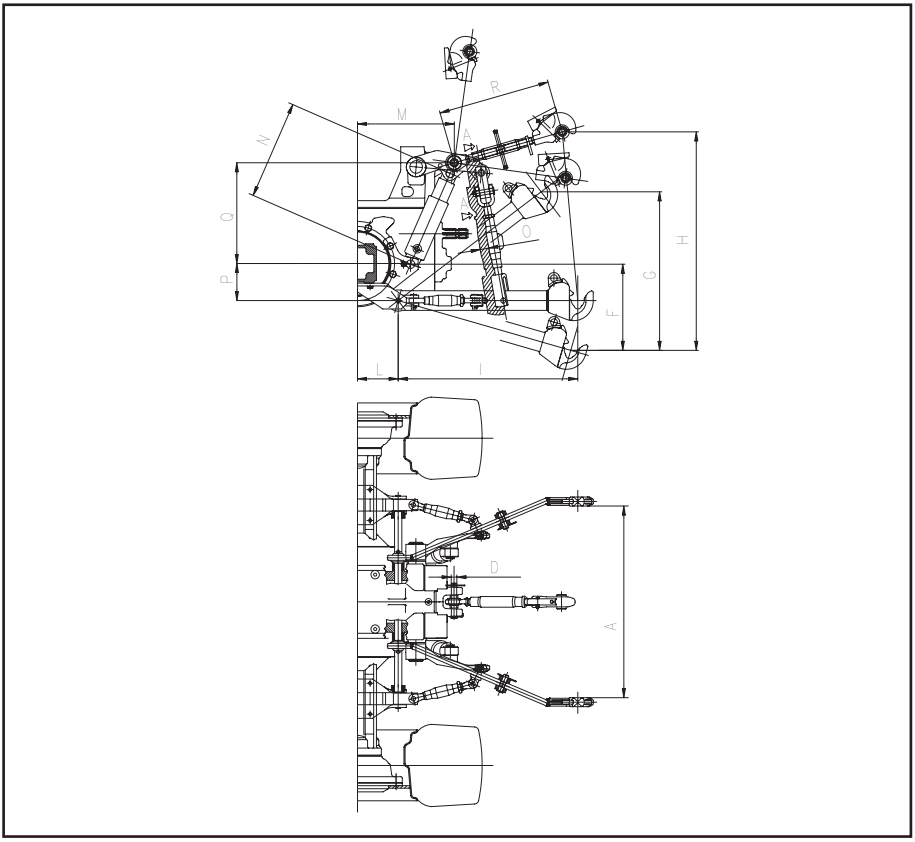


Fig. 5.62

	A		D	F	G	H		I	L	M	N		O	P	Q	R
	min	max				min	max				min	max				min
mm	683	825	19.5	307	565	460	610	640	145	345	286	429	25	132	359	400

18.1 Normal rear implement lift

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

The position of the lift's arms may be controlled using the lever (22), from completely raised to completely lowered.

- Lever (22) up - arms raised
- Lever (22) down - arms lowered

The lever (22) is on the right side of the operator's seat.

A special decal is located near the lever (Fig. 5.63) that indicates the position of the lift's arms in relation to the lever's positions.

With the lever down, the directional control valve is in the float position and the lever remains in place with discharging.

NOTE:
The lever may be locked in the lowest position (22) by pressing the same lever so that the arms are able to move freely (float).

The knob (23) adjusts the lowering speed of the lift's arms.

Turning it clockwise reduces the speed, while turning it counter-clockwise increases the speed.

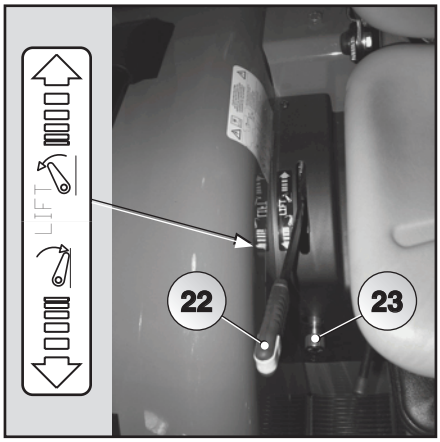


Fig. 5.63

18.2 Rear implement lift with hydraulic suspension "standard" version

NOTE:
To prevent damaging the hydraulic system and the lift's unit, if the tractor is moved with a mounted implement, the hydraulic suspension must be excluded by placing the lever (189) in position A.

"Suspension" is obtained using the flow diverter lever (189). The hydraulic flow can, in fact, be diverted for normal lift operation (up/down) or combined with hydraulic suspension, by means of a nitrogen accumulator (190) charged to 20 bar.

When the lever is positioned (189) toward the fender (pos. A), suspension is obtained; one jack therefore operates together with the accumulator and the other one is used for lifting.

NOTE:
The accumulator pressure must never exceed 140 bars.

The lever (186), connected to the directional control valve, controls the position of the arms of the implement lift, from completely raised (lever up) to completely lowered (lever down). When the lever is down, the directional control valve is in the float position and the lever remains in place with discharging.

In "suspension", the lever (187) is used for charging or discharging the accumulator to the desired pressure (lever up and lever down, respectively) based on the weight of the implement to be raised from the ground and to keep the system's pressure constant; the pressure of the accumulator (190) is indicated by the manometer (188).

When the flow diverter lever (189) is positioned toward the gearbox (pos. B), both jacks are used for lifting.

NOTE:
The hydraulic circuit is, in any case, activated by the accumulator. The accumulator is also under pressure when the jacks are activated and therefore, when used, the jacks themselves slow down.

The knob (23) adjusts the lowering speed of the lift's arms.

Turning it clockwise reduces the speed, while turning it counter-clockwise increases the speed.

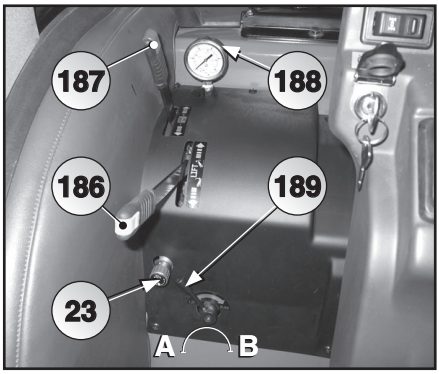


Fig. 5.64.1

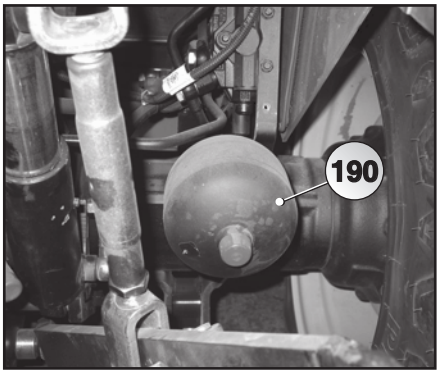


Fig. 5.65.1

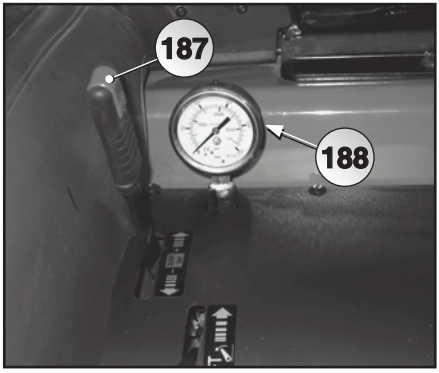


Fig. 5.66.1

18.3 Rear implement lift with hydraulic suspension "Dual Floating System" version

The hydraulic flow can be diverted for normal lift operation (up/down) or combined with hydraulic suspension, by means of a nitrogen accumulator (190) charged to 20 bar.

NOTE:
The accumulator pressure must never exceed 140 bars.

The lever (186), connected to the directional control valve, controls the position of the arms of the implement lift, from completely raised (lever up) to completely lowered (lever down). When the lever is down, the directional control valve is in the float position and the lever remains in place with discharging.

In "suspension", the lever (187) is used for charging or discharging the accumulator to the desired pressure (lever up and lever down, respectively) based on the weight of the implement to be raised from the ground and to keep the system's pressure constant; the pressure of the accumulator (190) is indicated by the manometer (188).

NOTE:
The hydraulic circuit is, in any case, activated by the accumulator. The accumulator is also under pressure when the jacks are activated and therefore, when used, the jacks themselves slow down.

The knob (23) adjusts the lowering speed of the lift's arms.

Turning it clockwise reduces the speed, while turning it counter-clockwise increases the speed.

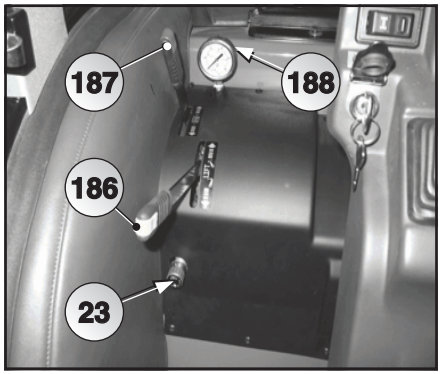


Fig. 5.64.2

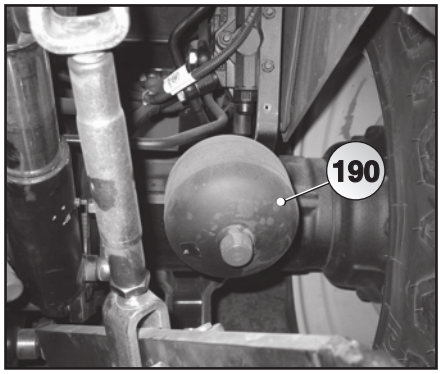


Fig. 5.65.2

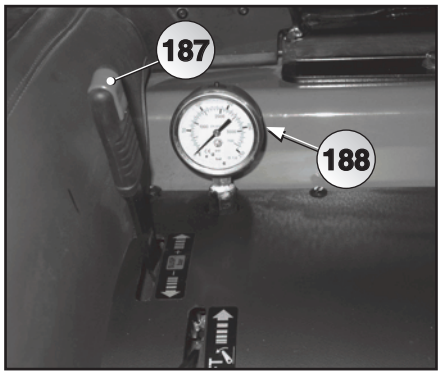


Fig. 5.66.2

18.4 Rear implement lift with position and draft control

The implement lift may be used under the following conditions:

- position control
- draft control
- float
- combined position and draft control

The lift may be used in various ways indicated above through combined use of the levers (24 and 25), position control and draft control, respectively.

The levers (24 and 25) are located to the right of the operator position, next to the seat (Fig. 5.67).

The lever (24) controls the position of the arms. Each position of the lever corresponds to a position of the lift's arms, from completely raised (lever all the way back) to completely lowered (lever all the way forward).

The lever (25) allows the implement to be placed in the ground at the desired depth.

The knob (26) returns the lever (24) to the same position at the beginning of each pass.

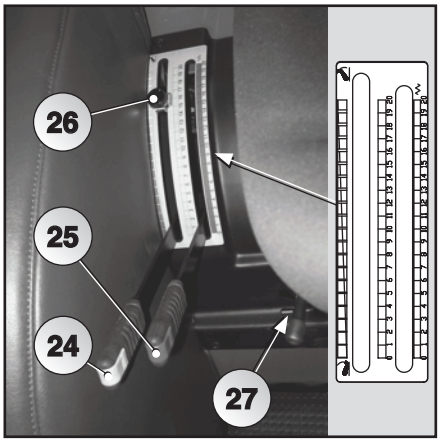


Fig. 5.67

Position control

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

Position control is used for:

- mounted implements, that is without wheels or other parts for resting on the ground;
- semi-mounted implements, that is with wheels or other parts for resting on the ground;

For this type of work:

- Place the draft control lever (25) completely forward.
- Place the position control lever (24) forward for lowering or backward for lifting.

NOTE:
The implement is moved proportionally to the position of the lever (24).

Draft control

Draft control of the lift consists of automatically keeping 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.

For this type of work:

- Place the position control lever (24) completely forward.
- Gradually move the draft control lever (25) forward until the implement is placed in the ground at the desired depth.

NOTE:
The implement's depth is proportional to the pull determined by the soil's consistency. In this condition, the lift automatically keeps the pull required by the tractor constant.

- Raise the implement at the end of each pass using the position control lever (24).

Float

For this type of work:

- Place the position control lever (24) and the draft control lever (25) completely forward.
- Lower and raise the implement at the beginning and end of each pass using the position control lever (24).

Combined position and draft control

For this type of work:

- Place the implement in the ground and set the desired depth following the instructions described under “draft control”.
- When the implement is at the desired depth, move the position control lever (24) backward until the arms of the lift tend to rise.

NOTE:
In this situation, the lift uses draft control. However, if the implement runs into less resistant soil, it prevents the implement from going too far into the ground.

- Lower and raise the implement at the beginning and end of each pass using the position control lever (24).

Driving on roads with an attached implement

Driving on roads with an attached implement:

- Turn the lever (27) that adjusts the lowering speed of the arms completely counter-clockwise.
- Place the position control lever (24) completely backward.

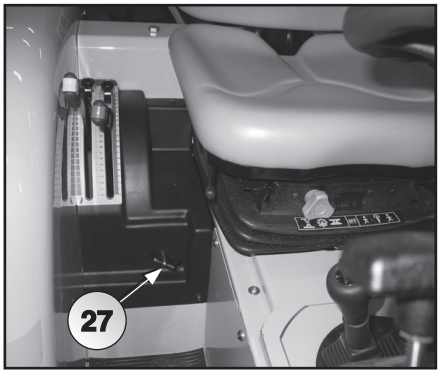


Fig. 5.68

18.5 Auxiliary hydraulic directional control valves

The tractor is equipped with additional hydraulic directional control valves for controlling external hydraulic cylinders. These additional directional control valves are combined with the lift's hydraulic circuit and therefore use the same oil.

NOTE:
To ensure smooth operation of the hydraulic circuit, check the transmission's oil level often and, if considerable oil is used for external circuits, increase the oil level as indicated in paragraph 6 - "Periodic Maintenance".

The directional control valves can be various types:

- single-acting
- double-acting
- double acting with lever locking in place
- double-acting float

These directional control valves are connected with pipes to hydraulic ports on the back of the tractor.

In the articulated model (AR), the hydraulic ports are located just above the rear fenders (Fig. 5.69).

On the RS-RS/MT-DS versions, the hydraulic couplings are inside the rear mudguards of the tractor (Fig. 5.70).

The color of the hydraulic port cover corresponds to its control lever (29-30-31-32) to the left of the operator position (Fig. 5.71). The levers carry out the following functions depending on the types of installed hydraulic directional control valves:

- Single-acting hydraulic directional control valve lever: when the lever is up the jack extends; when the lever is down the jack retracts as a consequence of the installed implement's mass.
- Double-acting hydraulic directional control valve lever: when the lever is up the jack extends; when the lever is down the jack retracts.

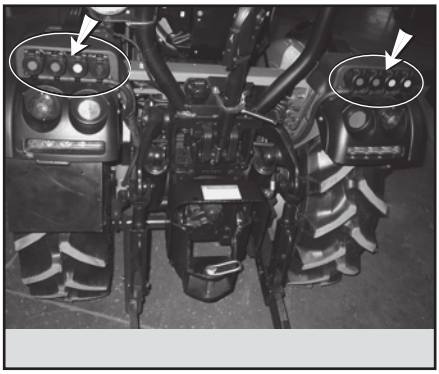


Fig. 5.69

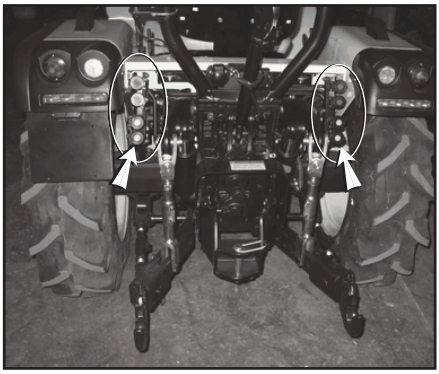


Fig. 5.70

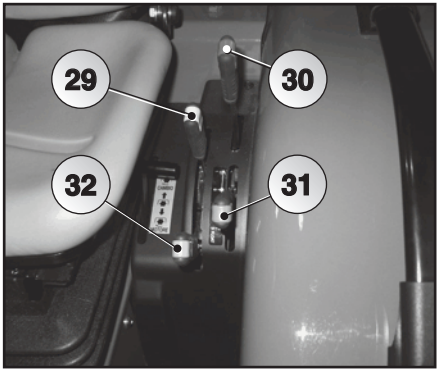


Fig. 5.71

⚠WARNING:
Make sure that the hydraulic cylinders of the implements that are connected contain the same type of oil as the tractor's transmission to prevent its pollution and possible malfunctioning.

The quick hitch with the black cover permits "free discharging" of the external implement's oil directly to the gearbox case.

The external hydraulic cylinders connected to the tractor's hydraulic circuit must be equipped with hoses and 1/2" "push-pull" male couplings for connection with quick hitches on the rear of the tractor.

⚠WARNING:
Leaking pressurized hydraulic fluid can be powerful enough to penetrate the skin. The fluid for hydraulic controls can also cause cuts in the skin. If injuries occur due to leaking fluid, immediately see a doctor. Otherwise, serious infection and skin reactions are possible. The tightness of all of the connection devices and the conditions of the hoses and pipes must be checked before placing the system under pressure. Completely release the pressure before disconnecting hoses and before carrying out other types of work on the hydraulic system. Never check for leaks with hands; instead, use a piece of cardboard or wood.

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

- Clean the implement's male fitting.
- Turn off the engine.
- Make sure that the hydraulic lift is lowered.
- Activate the directional control valve lever that will be used for the connection several times for its entire travel to discharge the pressure from the circuit.
- Raise the guard of the quick hitch connected to the directional control valve.
- Thoroughly clean the port and the coupling.
- Act on the locking ring nut and push the coupling onto the port. Make sure that it is securely engaged by lightly pulling it backward.

After these operations have been carried out, the engine may be restarted and the directional control valve may be used.

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

- Turn off the engine.
- Activate the directional control valve lever that will be used for the connection several times for its entire travel to discharge the pressure from the circuit.
- Act on the locking ring nut and forcibly pull the coupling to disconnect it from the rear port of the tractor.
- Cover the port with the cap and clean it.

⚠WARNING:
In order to guard the driver's safety when engaging the quick hitches it is necessary to keep at distance from the range of the implements. For a greater safety it is advisable to use throttle valves acting on the hydraulic workings.

Section 19 : Device of proportional control through a Joystick RS-DS-AR version

A device of proportional control through a joystick can be supplied on request. It is assembled on an overturning support on the RH side and it allows to control both the front and the rear hydraulic lifts, besides all the auxiliary control valves.

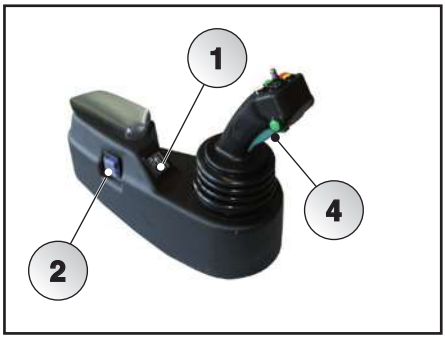


Fig. 5.72

Main controls

1 - Front lift floating raise/lower control switch (where present)
2 - General switch
3 - Rear lift floating raise/lower control switch
4 - Safety button
5 - Yellow button
6 - Red button
7 - Green button
8 - White button
9 - On-off switch
10 - Joystick lever
11 - Rear lift raise/lower control switch for moves with driver down the tractor

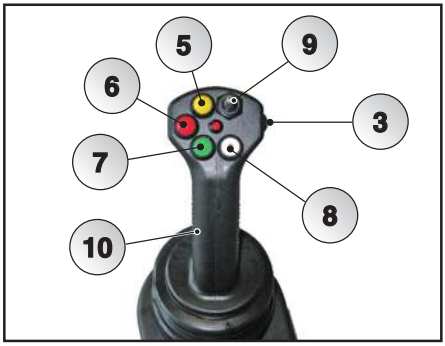


Fig. 5.73

⚠WARNING:
Keep to one side of the tractor when using the switch (11) to raise/lower the hitch. Never stand between tractor and implement.

RS-DS version

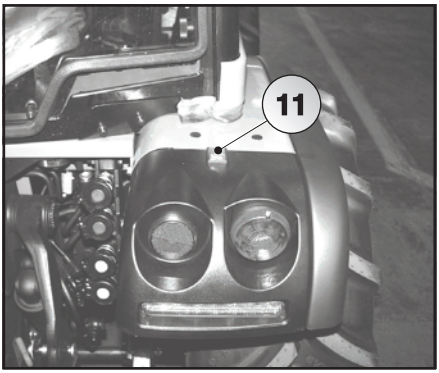


Fig. 5.74

AR version

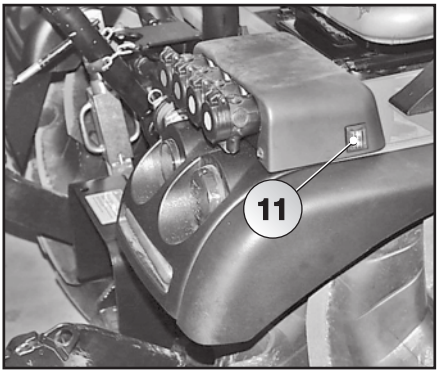


Fig. 5.75

Joystick employ with red button pressed

By keeping both the safety green button (4) (driver present) and the red button (6) pressed it is possible to move the joystick lever in the directions indicated in the picture 5.76, to power the quick couplings as indicated in the pictures 5.77/78.

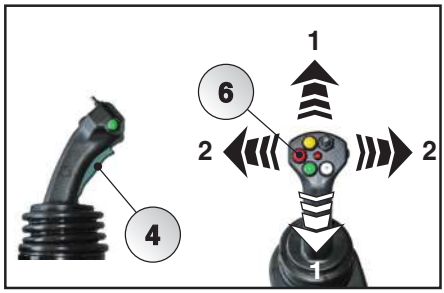


Fig. 5.76

RS-DS version

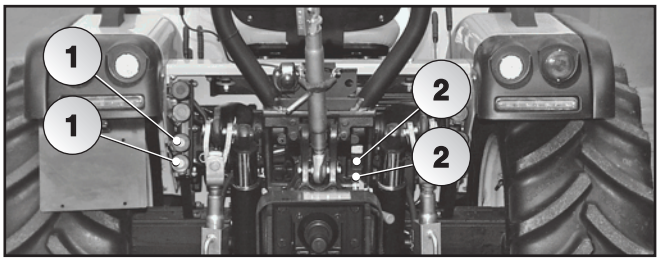


Fig. 5.77

AR version

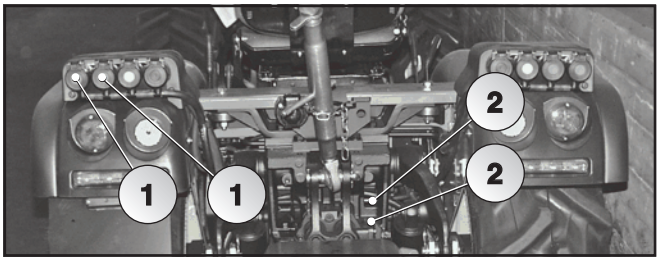


Fig. 5.78

Joystick employ with yellow button pressed

By keeping both the safety green button (4) (driver present) and the yellow button (5) pressed, it is possible to move the joystick lever in the directions indicated in the picture 5.79, to power the quick couplings as indicated in the pictures 5.80/81.

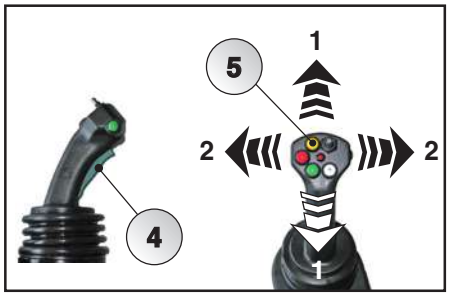


Fig. 5.79

RS-DS version

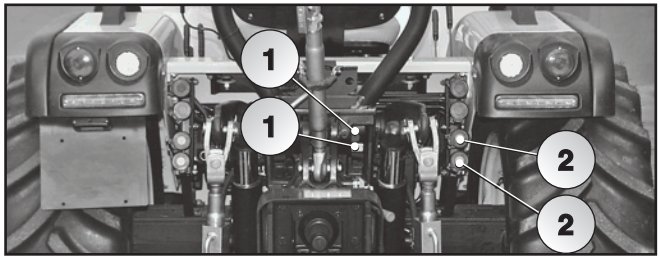


Fig. 5.80

AR version

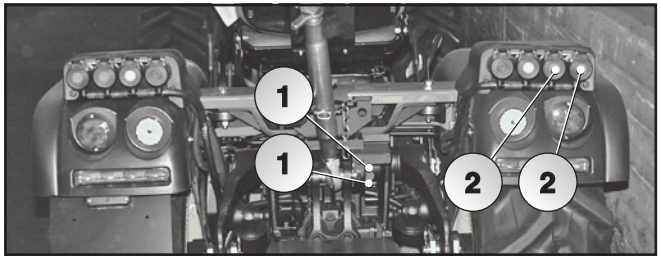


Fig. 5.81

Joystick employ with green button pressed

By keeping both the safety green button (4) (driver present) and the green button (7) pressed, it is possible to move the joystick lever in the directions indicated in the picture 5.82, to power the quick couplings as indicated in the pictures 5.83/84.

On all versions, by moving the lever in the position 1, the lift arms raise or lower. In this case, by pulling the lever backwards the lift arms raise, while by moving the lever forwards they lower.

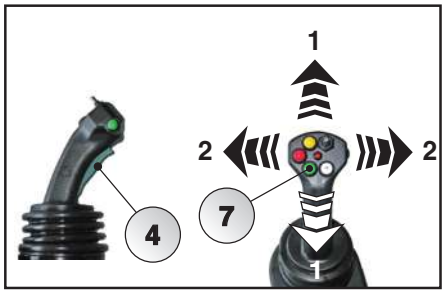


Fig. 5.82

RS-DS version

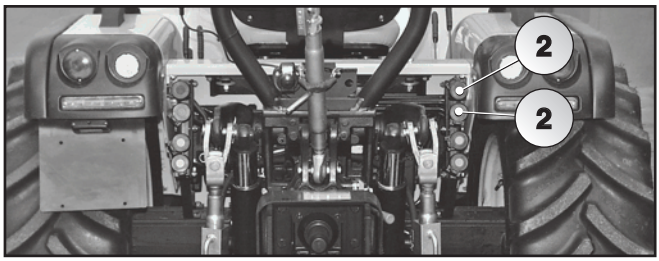


Fig. 5.83

AR version

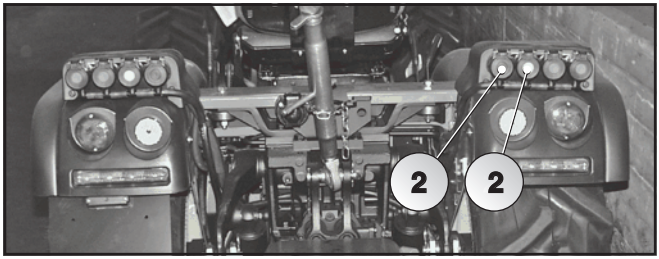


Fig. 5.84

Joystick employ with white button pressed and flow regulator

To put the hydraulic coupling (M) in action, so to achieve the continuous delivery of the oil in pressure (useful for ex. to control an hydraulic engine), keep the switch (9) pressed in the “on” position.
Press and then release the white button (8) (led on). Release the switch (9).
The hydraulic coupling (M) feeds the continuous delivery, while the coupling (R) is a free return (Fig. 5.87/88).

The function is deactivated on pressing the switch (9) in the “off” position and then releasing it (led off).

The knob (12) controls the flow rate of the hydraulic oil flowing from the pump, distributing the oil quantity among the continuous delivery (M) and all the other hydraulic couplings.

⚠WARNING:
Adjust the knob (12) when the hydraulic coupling (M) is not in pressure.

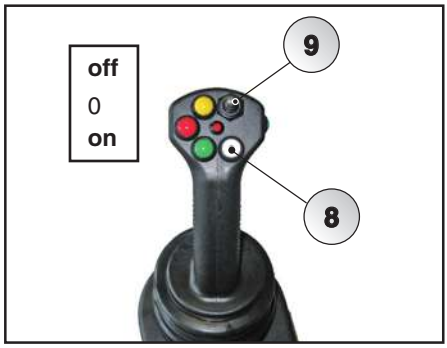


Fig. 5.85

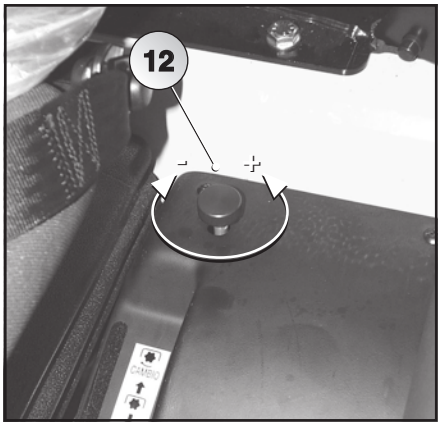


Fig. 5.86

RS-DS version

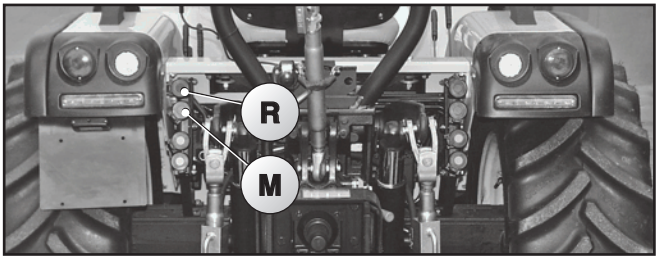


Fig. 5.87

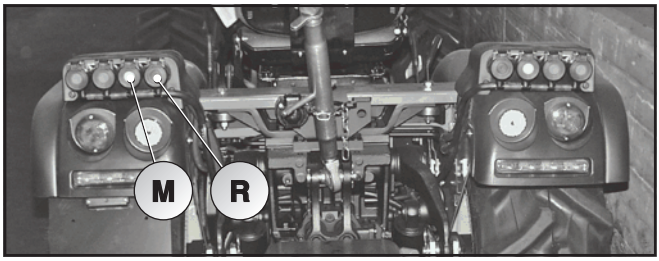
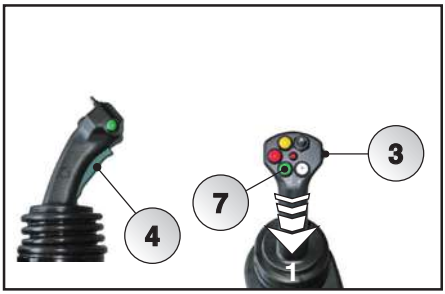


Fig. 5.88

Joystick employ with side green button pressed

To set the floating function of the rear lift in action, keep the safety switch (4) pressed (driver present), press and then release the side green button (3) (red led on). The function is deactivated on keeping the safety button (driver present), the green button (7) pressed and moving the handle toward the position “1”.



5.89

Section 20 : Device of proportional control through a Joystick RS/ MT version

A device of proportional control through a joystick can be supplied on request. It is assembled on an overturning support on the RH side and it allows to control both the front and the rear hydraulic lifts, besides all the auxiliary control valves.

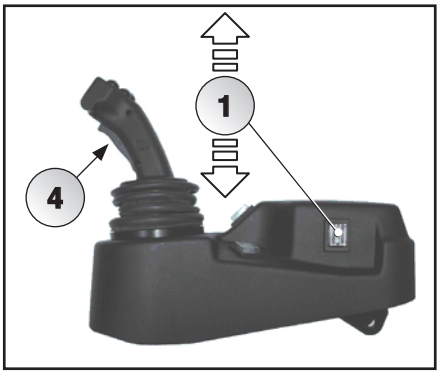


Fig. 5.90

Main controls

1 - Front lift floating raise/lower control switch (where present)
2 - General switch
3 - Rear lift floating raise/lower control switch
4 - Safety button
5 - Hydraulic suspension on-off switch
6 - Blue button
7 - Red button
8 - Green button
9 - Joystick lever
10 - Rear lift raise/lower control switch for moves with driver down the tractor

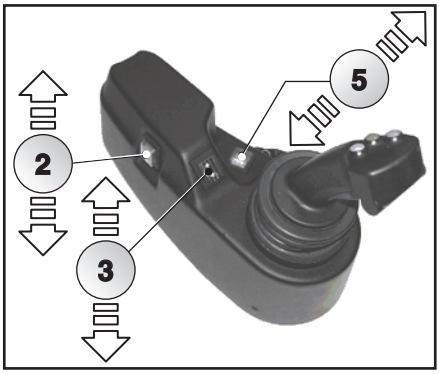


Fig. 5.91

NOTE:
On the RS/MT tractors provided with Joystick, there is always the DFS (Dual Floating System), which puts the rear lift and the hydraulic suspension in action.

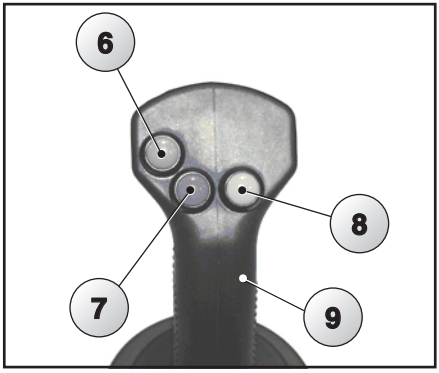


Fig. 5.92

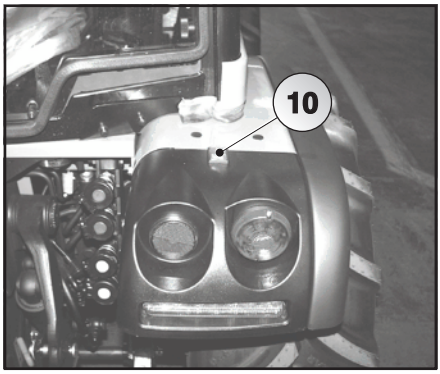


Fig. 5.93

Joystick employ with hydraulic suspension switch OFF (5) and red button pressed

By keeping both the safety green button (4) (driver present) and the red button (7) pressed it is possible to move the joystick lever (9) in the directions indicated in the picture 5.95, to power the quick couplings as indicated in the picture 5-96.

The movement in the directions 1 has no effect.

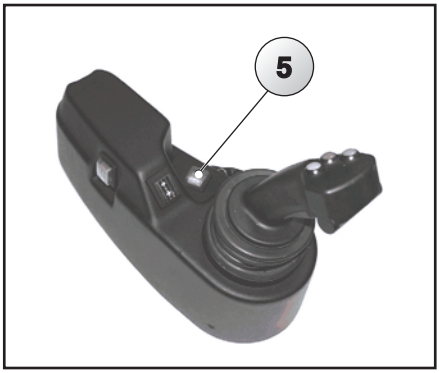


Fig. 5.94

Joystick employ with hydraulic suspension switch ON (5) and red button pressed

By keeping both the safety green button (4) (driver present) and the red button (7) pressed it is possible to move the joystick lever (9) in the directions indicated in the picture 5.95, to power the quick couplings as indicated in the picture 5-96.

The movement in the directions 1 allows to charge/discharge the accumulator of the hydraulic suspension. In the detail, by pulling the lever backwards the accumulator charges itself, while by moving the lever forwards it discharges itself.

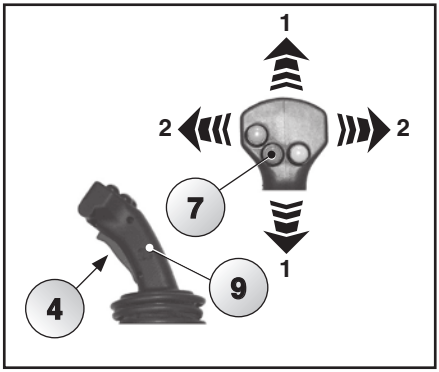


Fig. 5.95

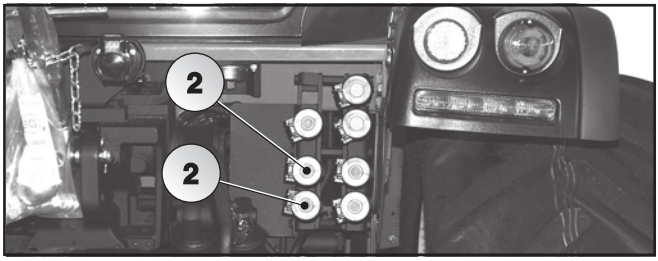


Fig. 5.96

Joystick employ with blue button pressed

By keeping both the safety green button (4) (driver present) and the blue button (6) pressed it is possible to move the joystick lever (9) in the directions indicated in the picture 5.97, to power the quick couplings as indicated in the picture 5-98.

The movement in the directions 1 allows to control the arms of the front lift. In the detail, by pulling the lever backwards the lift arms raise, while by moving the lever forwards they lower.

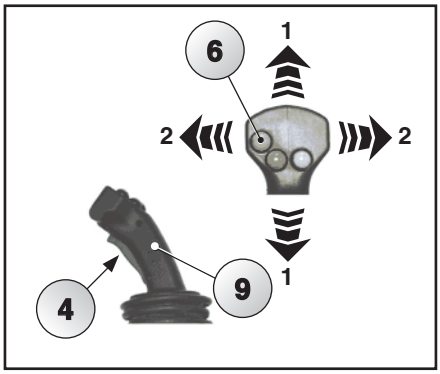


Fig. 5.97

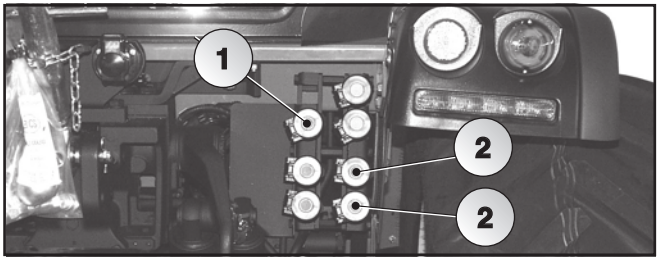


Fig. 5.98

Joystick employ with green button pressed

By keeping both the safety green button (4) (driver present) and the green button (8) pressed, it is possible to move the joystick lever (9) in the directions indicated in the picture 5.99, to power the quick couplings as indicated in the picture 5.100.

The movement in the directions 1 allows to control the arms of the rear lift. In the detail, by pulling the lever backwards the lift arms raise, while by moving the lever forwards they lower.

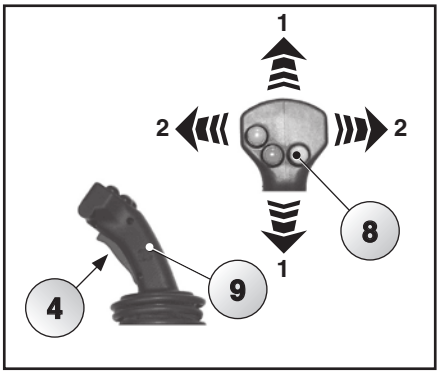


Fig. 5.99

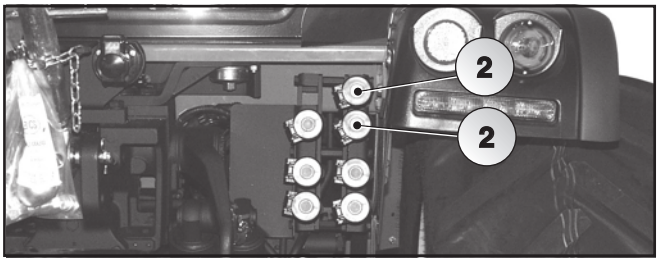


Fig. 5.100

Section 21 : Removing the tyres

⚠WARNING:
All persons fitting and removing tyres must have received appropriate training and possess the necessary equipment.

To remove the tyre, proceed as follows:

1. Park the tractor on a firm, level surface.

2. Switch off the engine and remove the key.

3. Disconnect any connected equipment from the power takeoff.

4. Dismantle any ballast on the tyres.

5. Position a jack underneath the central gearboxes and raise the tractor.

6. Completely unscrew the nuts and remove the tyre.

⚠WARNING:
Pay attention when raising the tractor that the weight is evenly distributed and stop the axle swaying by placing suitable supports underneath the wheels.

⚠WARNING:
Tighten all the nuts and bolts to the correct driving torque value.

Tightening torques (Nm)

	A	B
M14	-	112±12
M16	-	270±27
M18	285÷300	-

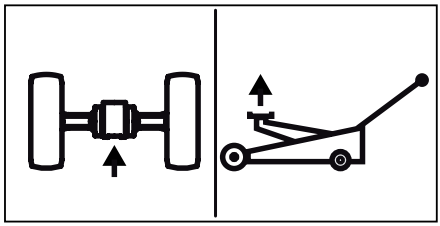


Fig. 5.100.1

Fig. 5.100.2

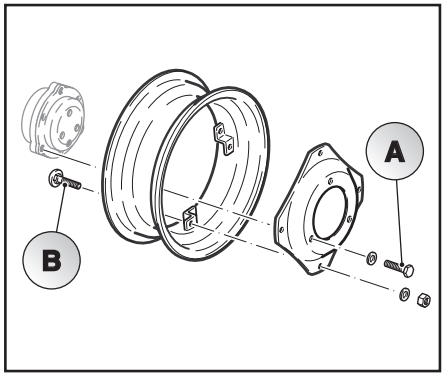


Fig. 5.100.3

21.1 : Adjusting the wheel track

The tractor may be adjusted to carry out the work of the various implements and various crops, by changing the front and rear wheel track.

The wheel track is modified by changing the position of the hubs and center disks as indicated in the following tables.

Certain tracks are not possible with certain types of tires.

NOTE:
Always check the pressure of the tires.

Fig. 5.101

Wheel track (AR tractor)

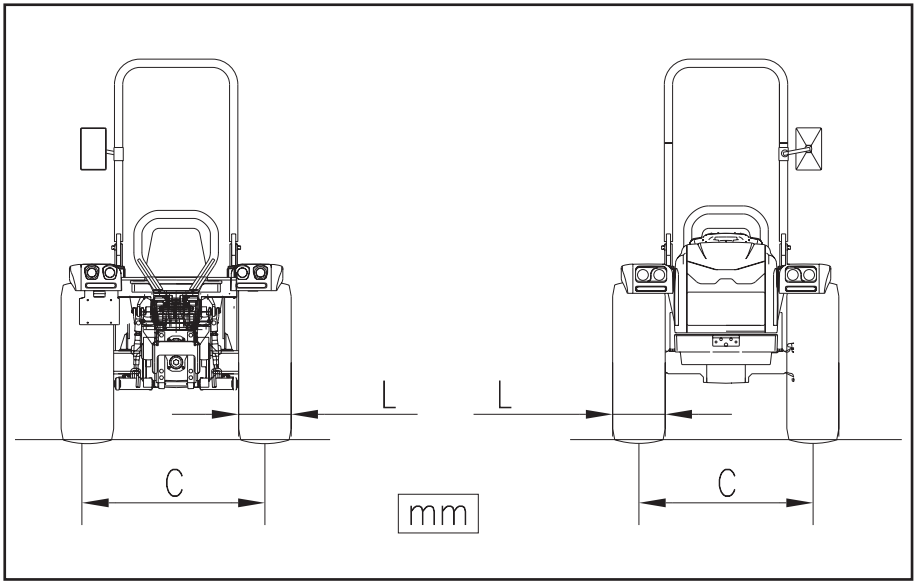


Fig. 5.102

Tyre	L	C							
8.00-20	217		1032	892	1080				
9.5-R20	245			882	948	970	1036	1142	1230
340/65-20	343					996	1040	1144	
300/70-20	286				924	996	1040	1144	
320/70-20 (**)	318					996	1040	1144	
250/80-18	240		900	1020	1108				
280/70-18	282			1020	1108				
320/65-18	320			1020	1108				
11,5/80-15,3	290	948	972						
31x15,5-15	390		1016						

(**) Tyres that cannot be assembled on the Dualsteer tractors with cabin.

Wheel track (RS-DS tractor)

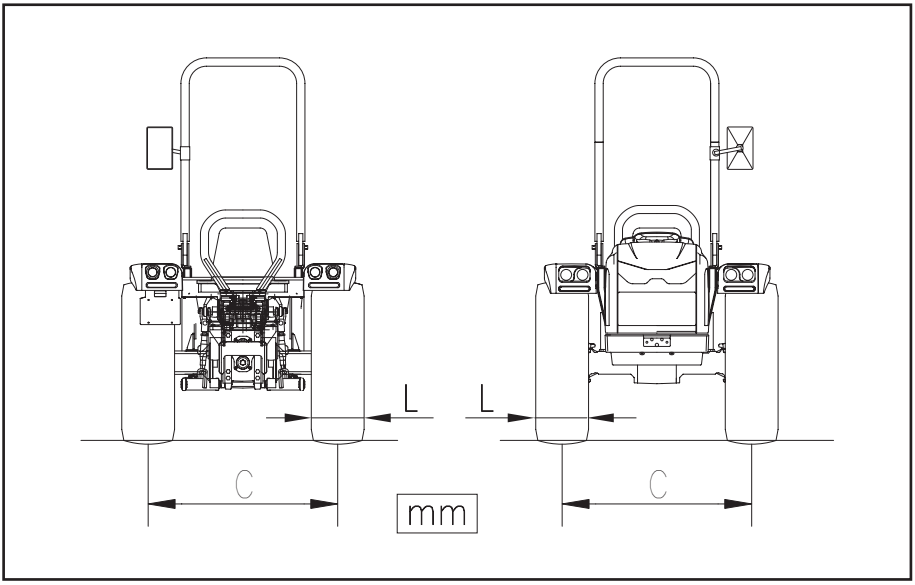


Fig. 5.103

Tyre	L	C							
									
9.5-R20	245	1046	1134	1240	1306	1328	1394	1500	1588
11,2-R20 (**)	277		1134	1238	1282	1354	1398	1502	1618
300/70-20	286		1134	1238	1282	1354	1398	1502	1618
300/70-20 (**)	318		1134	1238	1282	1354	1398	1502	1618
340/65-20	343		1134	1238	1282	1354	1398	1502	1618
38X14-15 (**)	355			1238	1282	1354	1398	1502	1618
280/70-18 (*)	282	1064	1180	1456	1572				
320/65-18	320	1170	1258	1378	1466				
340/65-18	343	1170	1258	1378	1466				
31x15,5-15	390	1260	1374						

(*) Orchard model.

(**) Tyres that cannot be assembled on the Dualsteer tractors with cabin.

Wheel track (RS/MT tractor)

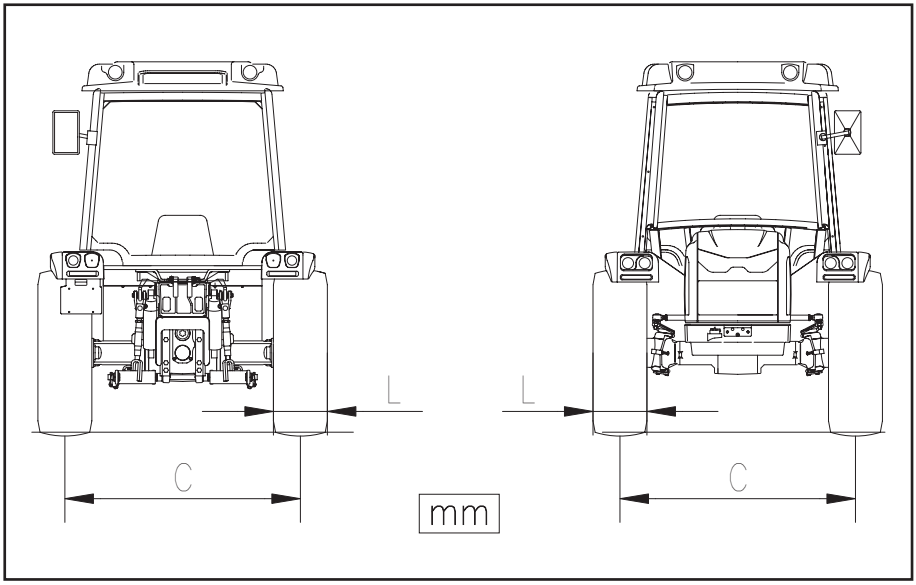


Fig. 5.104

Tyre	L	C							
									
340/65-20	343				1354		1398	1502	1618
38X14-20	355				1354		1398	1502	618
425/55-R17	430		1471						
31x15,5-15	390		1510						

Section 22 : Transporting the tractor

The tractor must be transported with 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 for loading on to the transport vehicle.

⚠WARNING:
Do not hook or connect chains around the tractor's parts, which could be damaged by the chains themselves or by excessive loads.

After the tractor has been loaded onto a suitable means of transportation, secure it with suitable anchoring belts or chains (143).

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

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

Always operate the tractor from the operator position and:

- place the transmission levers in neutral;
- disengage the parking brake; with the automatic parking brake, use the release screw (190) that compresses the cylinder stem. Move the screw back to its previous position when the tractor is started up again.
- place the PTO lever in neutral;
- always slow down and stop the tractor with the brake pedals coupled;
- use the rotating light and the flashing indicator lights.

NOTE:
When the engine is off, greater effort must be used for steering.

NOTE:
Always tow or push the tractor at a moderate speed.

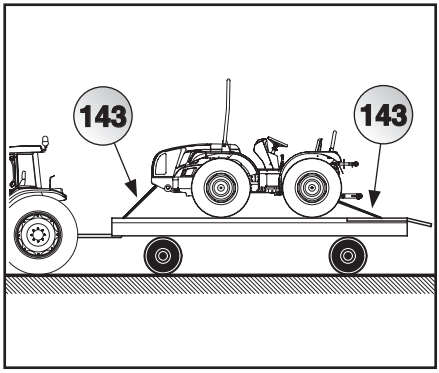


Fig. 5.105

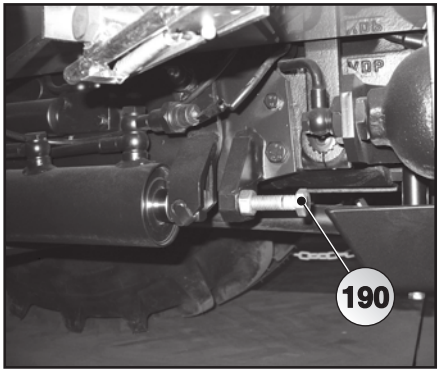


Fig. 5.106

Chapter 6 : Periodic maintenance

Section 1 : Introduction and safety

The maintenance procedures for keeping your tractor running well are indicated in this section. The table in the next section can be used as a quick reference for maintenance. Each operation indicated in the table is numbered and described in detail in later paragraphs. The intervals suggested in the table refer to "normal operating conditions" of the tractor. Under adverse operating conditions such as humidity, mud, sand and high dust levels, the intervals should be shortened.

NOTE:
The operations described in this section ensure proper operation of the tractor when carried out at the prescribed times.

NOTE:
For engine maintenance, refer to the relative user and maintenance manual supplied with the tractor.

Before proceeding with tractor maintenance, read and follow all of the safety precautions indicated in section 2 in the paragraph entitled "Tractor maintenance".

⚠WARNING:
Do not carry out checks, maintenance or adjustments on the tractor while the engine is running. All operations must be carried out with the engine off.

⚠WARNING:
Park the tractor on a level surface and, if possible, lengthen all of the cylinders before checking the oil levels.

NOTE:
Dispose of used filters and liquids appropriately, in complete observance of current laws.

Fig. 6.1

To prevent contamination when changing filters, oil, etc., always clean the areas surrounding the filler plugs, level plugs, drain plugs, dipsticks and filters.

NOTE:
The tractor's instrument panel has lights that indicate the condition of your vehicle. Some of these indicate anomalies. Promptly intervene when these come on (see Sec. 4 - Instruments and controls).

⚠WARNING:
No special equipment is required.

The following components should be periodically checked. In the case of anomalies, contact your area dealer for repair:

- Hydraulic hoses. The hoses must not

be flattened or have cracks or bulges in the external sheath and must not leak oil between the hose and the fitting.

- Nut tightness
- Tightness of screws that secure the rollbar
- Tightness of nuts and bolts in general

Section 2 : Refueling the tractor

⚠WARNING:
Do not smoke near diesel. Never add gasoline, alcohol, or a mixture of diesel or alcohol to diesel because the risk of fire and explosion increases considerably. In a closed container like a jerry can, they are more explosive than pure gasoline.

⚠WARNING:
Do not use these mixtures. Furthermore, diesel and alcohol mixtures are not approved due to insufficient lubrication of the fuel injection system.

⚠WARNING:
Clean the area of the filler plug and keep it clean. Fill the tank at the end of the day to limit nighttime condensation.

⚠WARNING:
Never remove the plug or refuel while the engine is running. Keep the fuel nozzle under control while filling the tank.

⚠WARNING:
Do not fill the tank completely. Leave space for increasing volume. If the tank's original plug is lost, replace it with an original spare part and tighten completely.

Fuel requirements

Fuel quality is an important factor regarding engine performance and reasonable lifetime. The fuels must be clean, well-refined and not corrosive to parts of the fuel system. Be sure to use fuel with a known quality from reliable source.

Fueling

Before filling the tank, clean the area around the filler plug to prevent foreign bodies from entering the tank. When fueling is finished, screw the plug on again and tighten well.

NOTE:
The fuel tank's capacity is 50 liters.

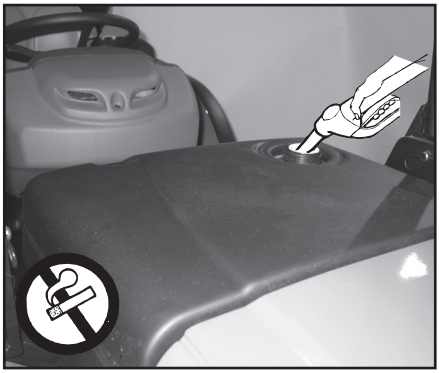


Fig. 6.2

Section 3 : Accessibility for inspection and maintenance

⚠WARNING:
Before opening the bonnet, always stop the engine, remove the ignition key and engage the parking brake.

⚠WARNING:
Touching hot surfaces causes burns. After running, the engine and its components and fluids may be hot. Let the engine cool down before carrying out servicing to the tractor or working near it.

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

The engine hood (Fig. 6.4) may be easily raised using the provided lever (154) located on the left just under the side guard panel.

The sides might need to be removed for certain maintenance operations using the screws.

Inspection windows are provided in the operator position footboard for lubrication operations. To remove them, use the screws that secure them to the tractor's chassis.

⚠WARNING:
Do not use the tractor without the hood or sides.

NOTE:
If the hood cannot be raised using the lever (154), remove the front hitch and use a screwdriver (155) to manually release the hood's coupling pin.

Fig. 6.3

Fig. 6.4

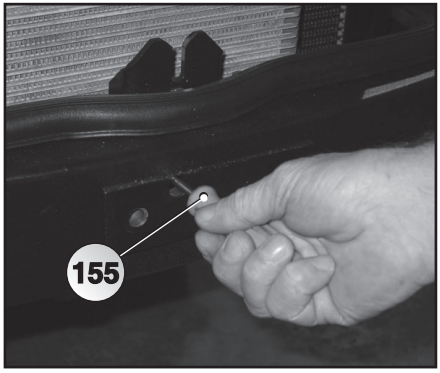


Fig. 6.5

Section 4 : Running-in period

The tractor's normal operation and long lifetime closely depend on the initial period of use (running-in) of the new vehicle. Following the instructions below is therefore very important:

- The new engine does not need to be gradually run-in. It must be used at full power right from the beginning (but not overloaded) with only one important warning: use at maximum power should take place only when the engine has reached at least 60°C.
- After every cold start, run the engine without a load at low speed for a few minutes. This is particularly important for turbo engines.
- Avoid running the engine at idle speed for long periods of time.
- Verify that there are no oil leaks often.

After the first 50 hours of operation

- Replace the hydraulic oil of the rear gearbox unit and filtering elements (152 and 153).
- Check the oil level of the rear transmission unit, as described in the periodic maintenance instructions.
- Check the tightness of all of the bolts, screws and nuts.
- Lubricate all of the points with lubricators.
- Verify all of the oil levels (Fig. 6.8) and, if necessary, replenish with the prescribed type of oil.

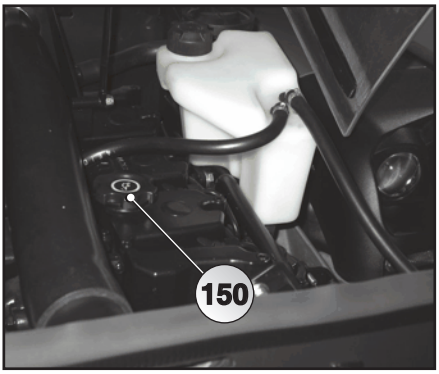


Fig. 6.6

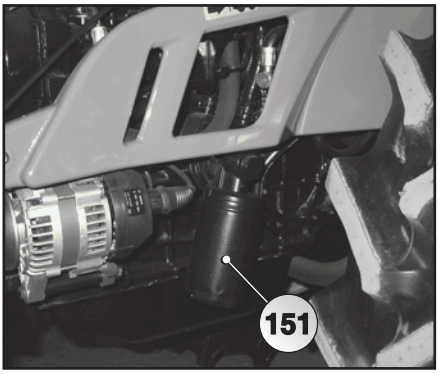


Fig. 6.7

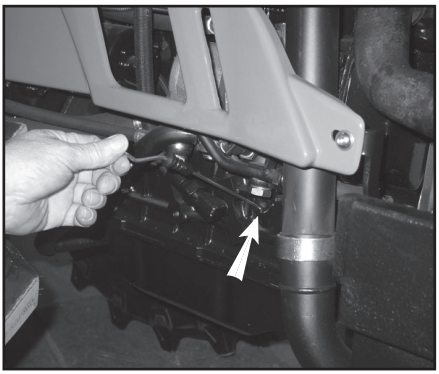


Fig. 6.8

- Verify the travel of the brake pedals.
- Check the pressure of the tires.
- Replace the oil in the engine's pan (150) and the relative filter cartridge (151). Then replace the engine oil and the engine oil filter at the times specified in the periodic maintenance section. Follow the instructions in the engine's user and maintenance manual.
- Check the V-belt, following the instructions in the relative user and maintenance manual of the engine.

NOTE:
If using hydraulically-controlled implements, which take oil from the tractor, it is necessary to keep the oil level in the gearbox under control.

NOTE:
The levels must be checked and topped up with the tractor parked on a flat surface and with the engine stopped for at least 10 minutes.

⚠ WARNING:
Use oil with the same characteristics as those indicated in the "Fuel and lubricants table". Do not dispose of polluting material in the environment. Dispose of oils in compliance with the pertinent laws in force.

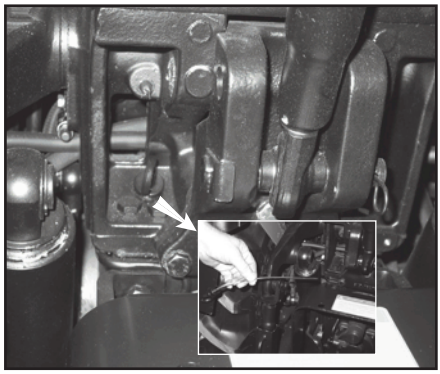


Fig. 6.9

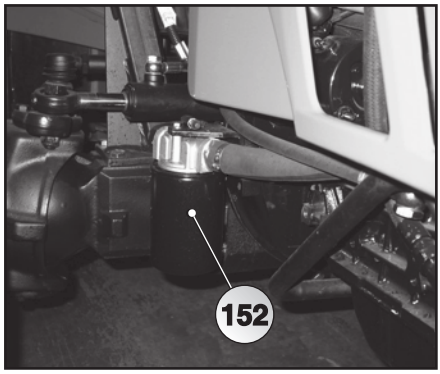


Fig. 6.10

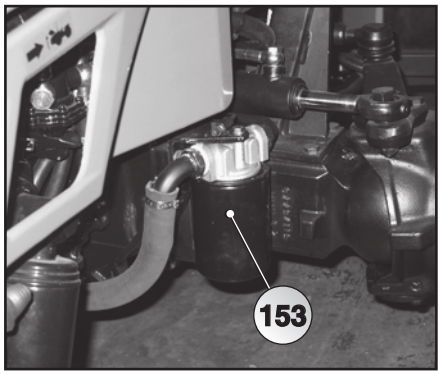


Fig. 6.11

Section 5 : Periodic maintenance summary table

Maintenance table during the initial 50 hours of tractor work

Frequency	Component	Intervention type	Intervention mode
Every 10 hours (daily)	Engine oil (1)	Check level	Top up, if necessary
	Air filter (2)	Check and clean	Clean with low pressure compressed air
	Coolant (4)	Check level	Top up, if necessary
	Radiator	Check and clean	Clean with a soft bristle brush
After the first 50 hours (end of run-in)	Engine oil (1)	Replace	
	Engine oil filter (3)	Replace the cartridges	
	Alternator belts / compressor air conditioner (5)	Check tension	Tension the belt
		Check integrity	Replace if necessary
	Grease points (6)	Grease	
	Tyres	Check pressure	
	Hydraulic oil transmission	Replace	
	Hydraulic oil filters	Replace the cartridges	

Common maintenance table

Frequency	Component	Intervention type	Intervention mode
Every 10 hours (Daily)	Engine oil (1)	Check level	Top up, if necessary
	Air filter (2)	Check and clean	Clean with low pressure compressed air
	Coolant (4)	Check level	Top up, if necessary
	Radiators Coolant	Check and clean	Clean with a soft bristle brush
Every 50 hours (Weekly)	Grease points (6)	Grease	
	Tyres	Check pressure	
	Hydraulic oil	Check levels	
Every 150 hours	Alternator belts / compressor air conditioner (5)	Check tension	Tension the belt
		Check integrity	Replace if necessary

Every 300 hours	Engine oil (1)	Replace	
	Engine oil filter (3)	Replace the cartridge	
	Fuel filter (3)	Replace the cartridge	
	Fuel circuit fitting	Check tightness	
	Hydraulic oil filter	Replace the cartridges	
Every 500 hours	Coolant (4)	Replace	
	Air filter (2)	Replace	
	Calibration pressure of injectors	Check the pressure	Contact an authorised dealership (7)
	Glow plugs	Check the integrity	Contact an authorised dealership (7)
Every 600 hours	Transmission hydraulic oil	Replace	
	Hydraulic pipes	Check the integrity	
Every 1000 hours	Alternator belts / compressor air conditioner (5)	Replace	
	Fuel tank	Inside clean	Drain and inside clean
	Radiator Coolant	Inside clean	
	Hydraulic system oil brakes / clutch	Replace	
Every 4000 hours	Motor	Partial engine overhaul	Contact an authorised dealership (7)
Every 8000 hours	Motor	General engine overhaul	Contact an authorised dealership (7)

(1) In heavy-duty conditions, such as dusty environment and operation with extreme loads, engine oil should be replaced every 150 operation hours. If the engine operation hours do not reach the above mentioned value, oil should be anyway replaced at least once in a year.

(2) Check more often if the tractor is operated in dusty environment.

(3) If the engine operation hours do not reach the above mentioned value, the filter should be anyway replaced at least every 12 months.

(4) If the engine operation hours do not reach the above mentioned value, the coolant should be anyway replaced at least every 24 months.

(5) If the engine operation hours do not reach the above mentioned value, the belt should be anyway replaced at least every 24 months.

(6) In heavy-duty conditions, such as dusty environment and operation with extreme loads, greasing should be carried out more frequently.

(7) This operation should be entrusted to a service centre authorized by the engine manufacturer.

Section 6 : Flexible periodic maintenance

The maintenance operations that must be carried out at the specified times to keep the tractor running well are described in the following paragraphs.

The tractor's hours of operation are indicated by the counter on the instrument panel (70 - analog panel) (90 - digital panel).

Before proceeding with lubrication of the parts with lubricators, thoroughly clean their surfaces and make sure that the ball bearing is free. After lubrication has been carried out, remove all grease residues to prevent the accumulation of soil and dust.

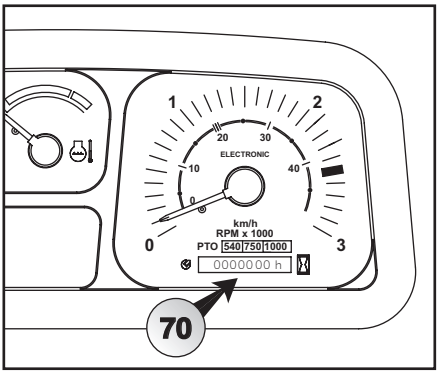


Fig. 6.12

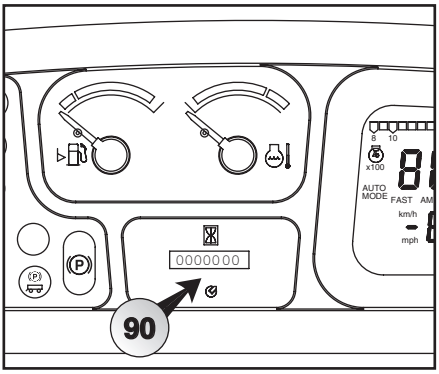


Fig. 6.13

1 Radiator (every 8 hours)

For proper operation of the cooling circuit, it is important that the radiator fins (156) and the front grille (159) of the engine hood be cleaned.

NOTE:
If the work environment is particularly dusty, it should be cleaned often, even several times a day.

Check the radiant surface often for obstructions, based on the conditions of the tractor's use. Monitor the engine cooling water temperature indicator (86) on the instrument panel.

⚠WARNING:
The engine cooling system build up pressure as the engine gets hot. Before removing the radiator cap, shut off the engine and wait for the system to cool down.

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

Clean the radiator (156) with compressed air directed from the inside to the outside.

Periodically clean the radiator (157) that cools the transmission oil, following the instructions for the engine cooling liquid radiator.

NOTE:
To facilitate the cleaning operations, remove the screws (158) and take out the two radiators.

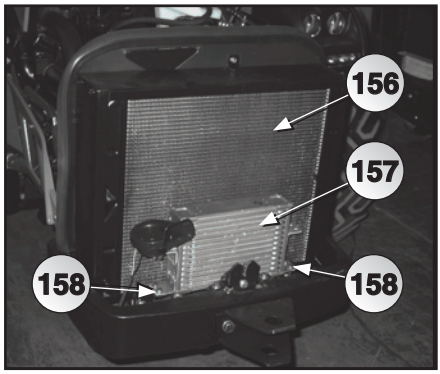


Fig. 6.14

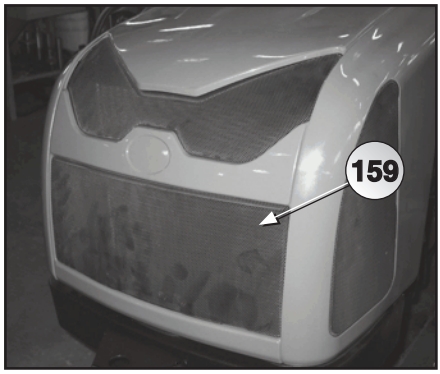


Fig. 6.15

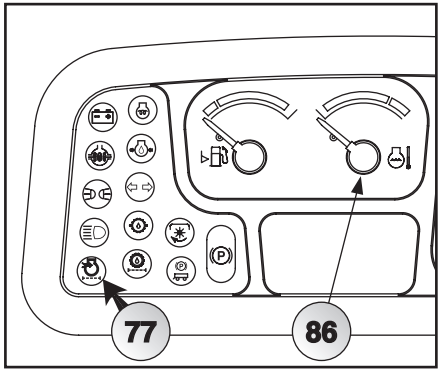


Fig. 6.16

SCS (Self Cleaning System)

The SCS is a device that keeps the bonnet's front grid (159) clean.

It is activated by means of a button (200) positioned on the gear levers cover. This device carries out 3 functioning modes: SCS-ECO-CMF. Once the SCS system has activated, unless the temperature of the radiator is so high to require the activation of the cooling fan, the second fan (201) activates and conveys the air towards the outside, thus cleaning the grid. By selecting the ECO mode, only the radiator cooling fan keeps turning. It automatically activates when reaching the preset temperature. This is an economical mode, as the cooling fan activates only in case it is necessary, thus saving fuel. By choosing the CMF mode, the SCS is excluded, while the radiator cooling fan keeps permanently operating. The buzzer (202) issues an alarm signal to warn of overheating. In case this happens, stop working immediately and investigate the cause.

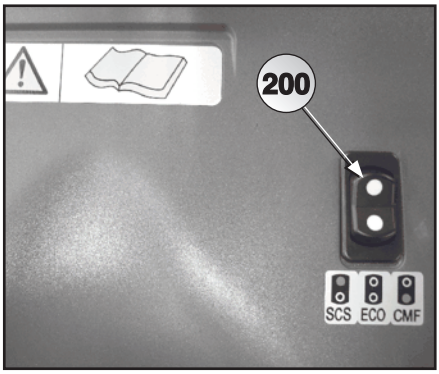


Fig. 6.17

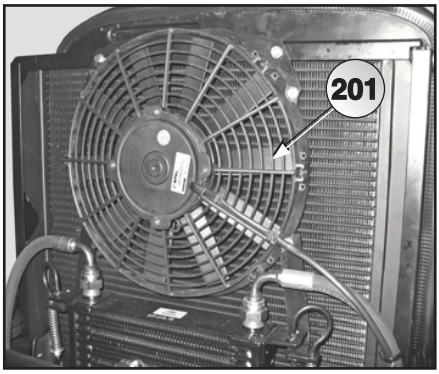


Fig. 6.18

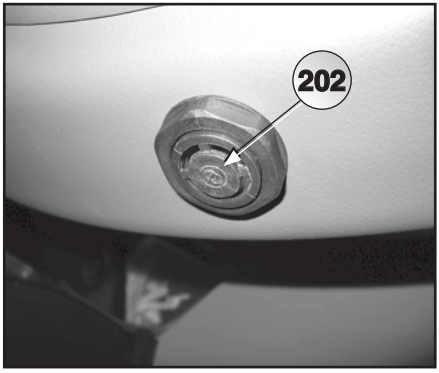


Fig. 6.19

2 Air filter (every 8-60 hours)

If working in particularly dusty environments, the air filter should be cleaned often. This operation should be carried out every 8-60 hours; follow the instructions in the engine's maintenance booklet.

⚠WARNING:
The filtering elements must always be cleaned while the engine is off.

If the light (77) on the instrument panel comes on, the engine air filter is clogged. In this case, the filtering elements must be cleaned.

⚠WARNING:
Never use oil, petroleum, diesel oil, paraffin or other solvents to clean the filter. Compressed air should be used.

To access the filter (161):

- Remove the guard panel (160).
- Open the filter's cover (162) by unscrewing the knob (163).
- Loosen the nut (164) that secures the filter's container to facilitate removal.
- Unscrew the knob (165) that holds the filter in place and remove the external cartridge (161) from the housing.

Clean the filtering element with compressed air or water, dry and reassemble. Always make sure that the filter's housing is not damaged and that all of the pipes and fittings are tightened.

The external cartridge (161) may be cleaned or washed a maximum of six times.

The external cartridge (161) and the internal cartridge (186) must be replaced every 400 hours and, in any case, at least once a year.

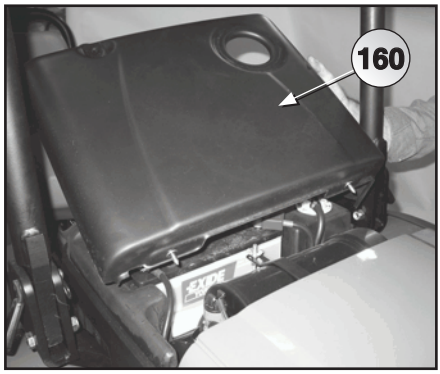


Fig. 6.20

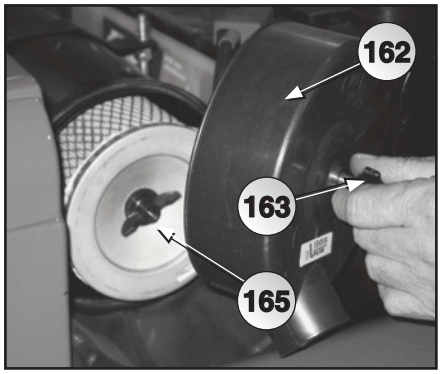


Fig. 6.21

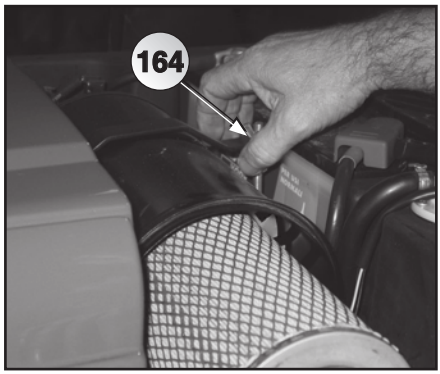


Fig. 6.22

3 Condenser (every 36/40 hours)

In case of work in heavy dusty environments, you had better clean the condenser every 36/40 working hours of the tractor, exclusively through compressed air (to prevent the fins bending), so to gain the best cooler yield.

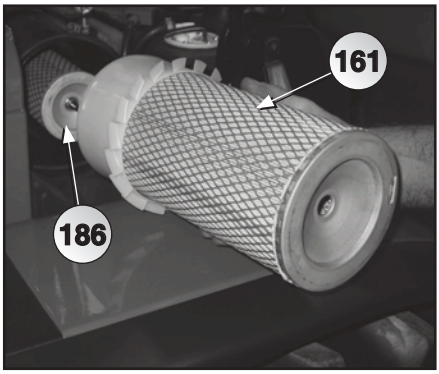


Fig. 6.23

3 Engine (every 10 hours)

Follow the information in the relative instructions and maintenance manual supplied with the tractor. Always store it safely for reference.

4 Tractor parts lubrication (every 50 hours)

Lubricate the tractor's various parts every 50 hours, or more often depending on the environmental conditions, at the grease points indicated below.

NOTE:
After lubrication, carry out a general check of the tractor to verify that there are no oil leaks, loose parts or damage.

Before proceeding with lubrication of these parts, thoroughly clean their surfaces and make sure that the ball bearings are free.

After lubrication has been carried out, remove all grease residues to prevent the accumulation of soil and dust.

Use AGIP GREASE SM 2 for lubrication.

Ref.	Parts that must be lubricated	AR/Q.ty	RS/Q.ty	RS/ MT/Q.ty	DS/Q.ty
A	Steering joint	2	4	4	9
B	Front axle oscillation	2	2	2	2
C	Clutch pedal pins	1	1	1	1
D	Lifting arm pins	2	2*	2*	2*
E	Lift three-point hitch (model with position and draft control only)	1	1	1	1
F	Top link	2	2	2	2
G	Steering jack pins	2	-	-	-
H	Accelerator pedal pins	2	2	2	2
I	Parking brake cylinder	2	2	2	2

* For the implements attachment with fixed arms only.

Lubrication points (AR model)

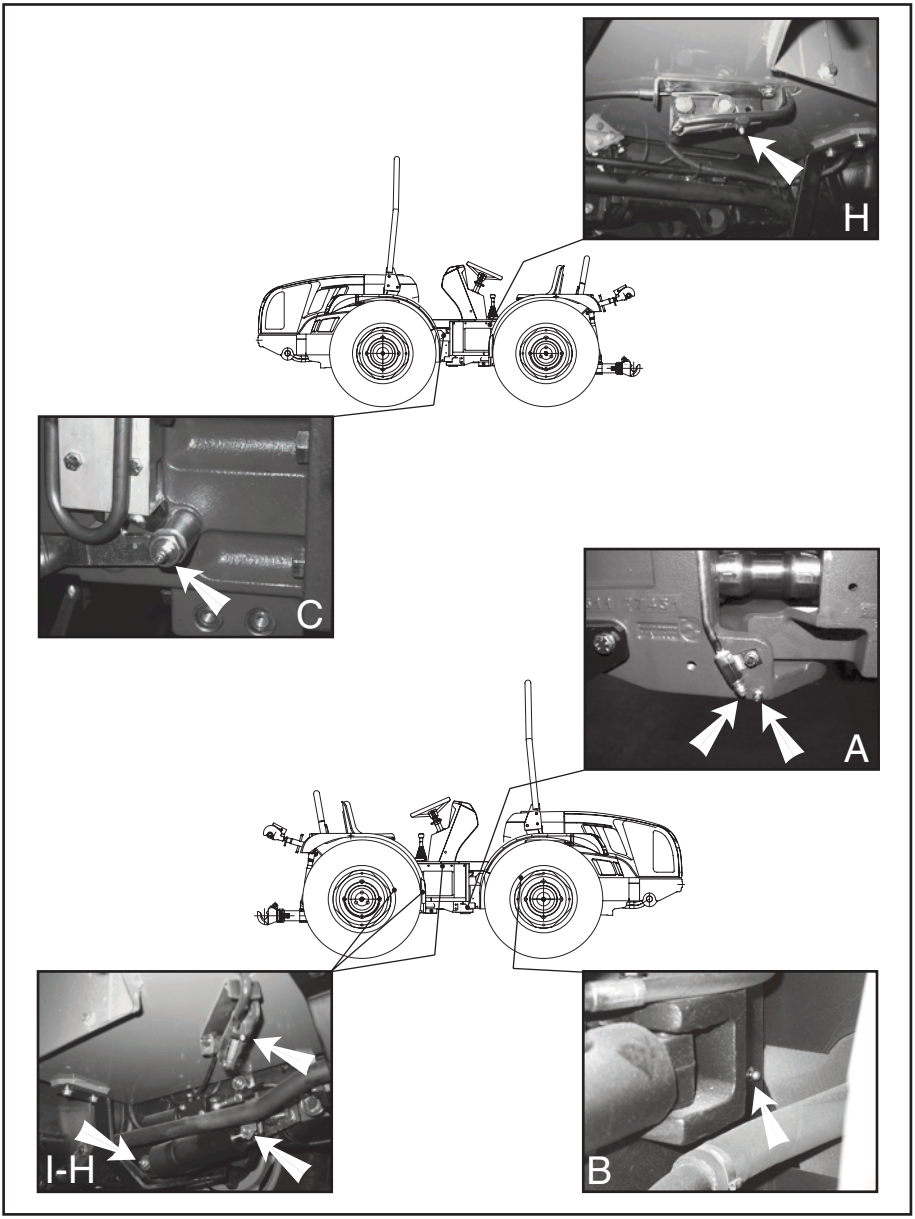


Fig. 6.24

Lubrication points (AR model)

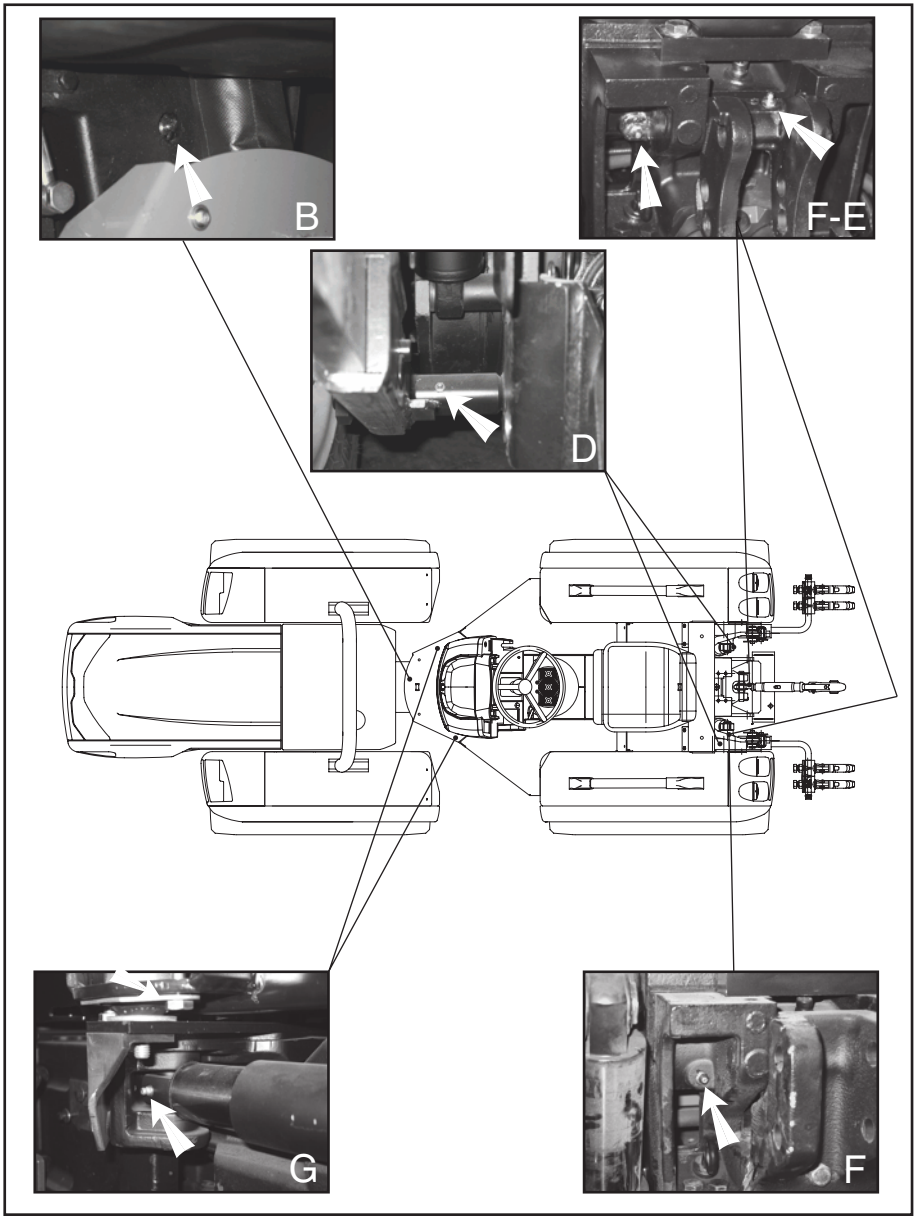


Fig. 6.25

Lubrication points (RS model)

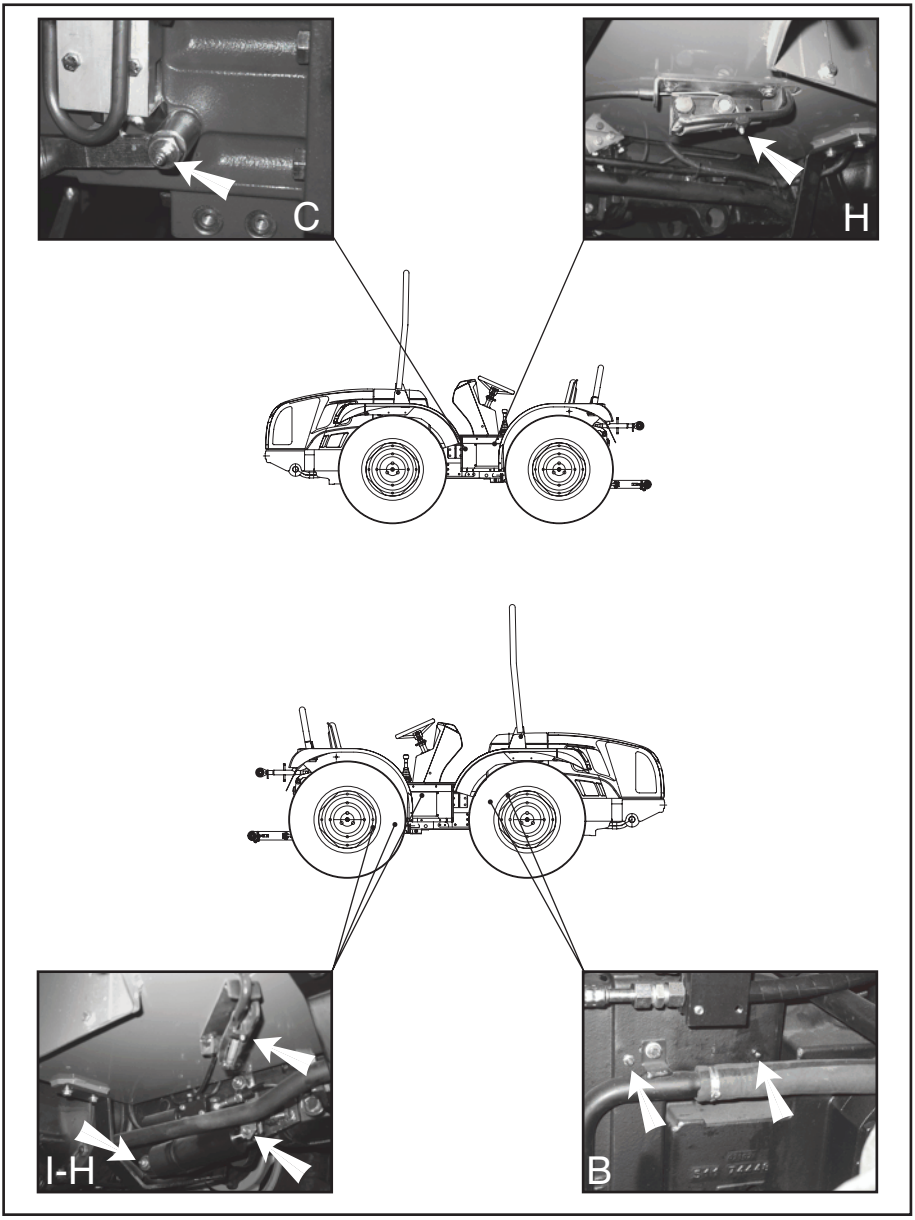


Fig. 6.26

Lubrication points (RS model)

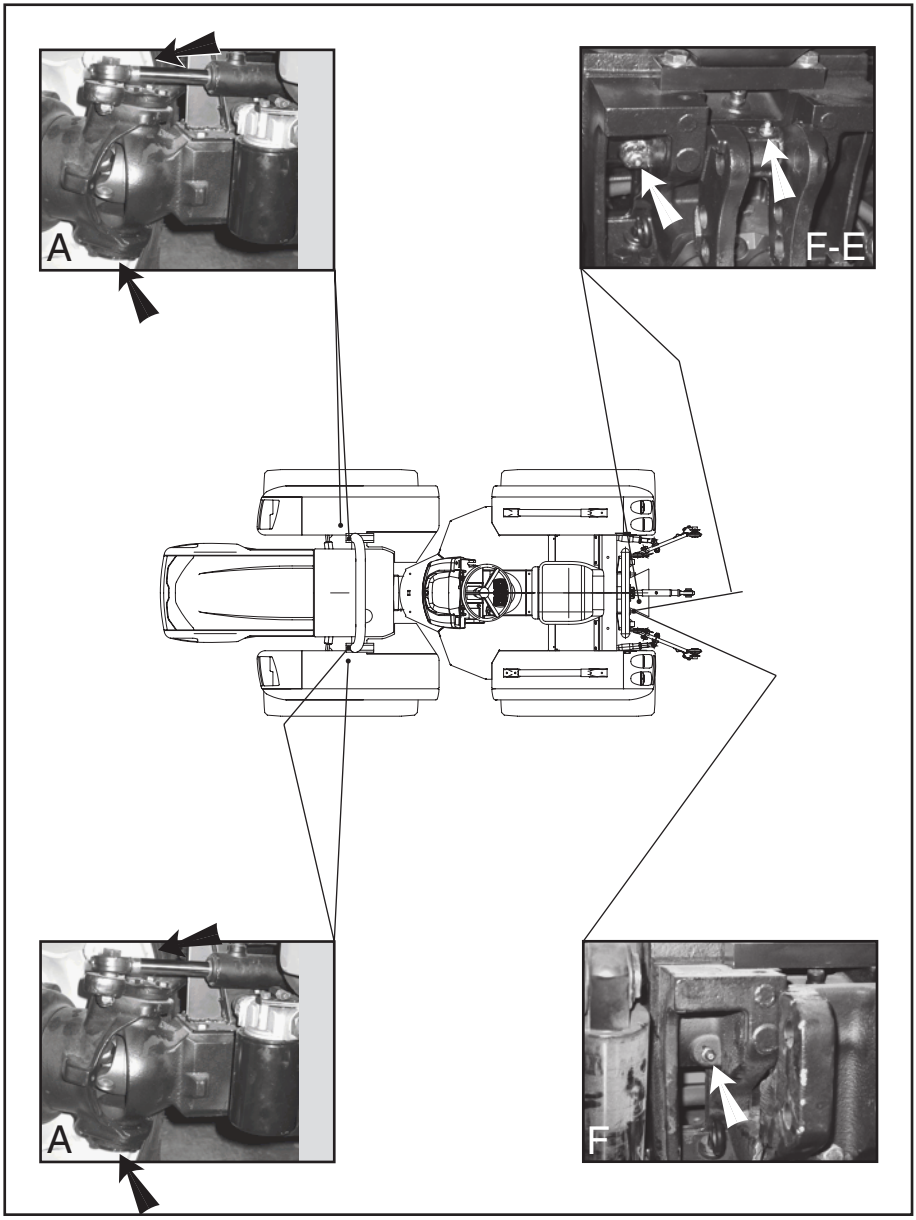


Fig. 6.27

Lubrication points (RS/MT model)

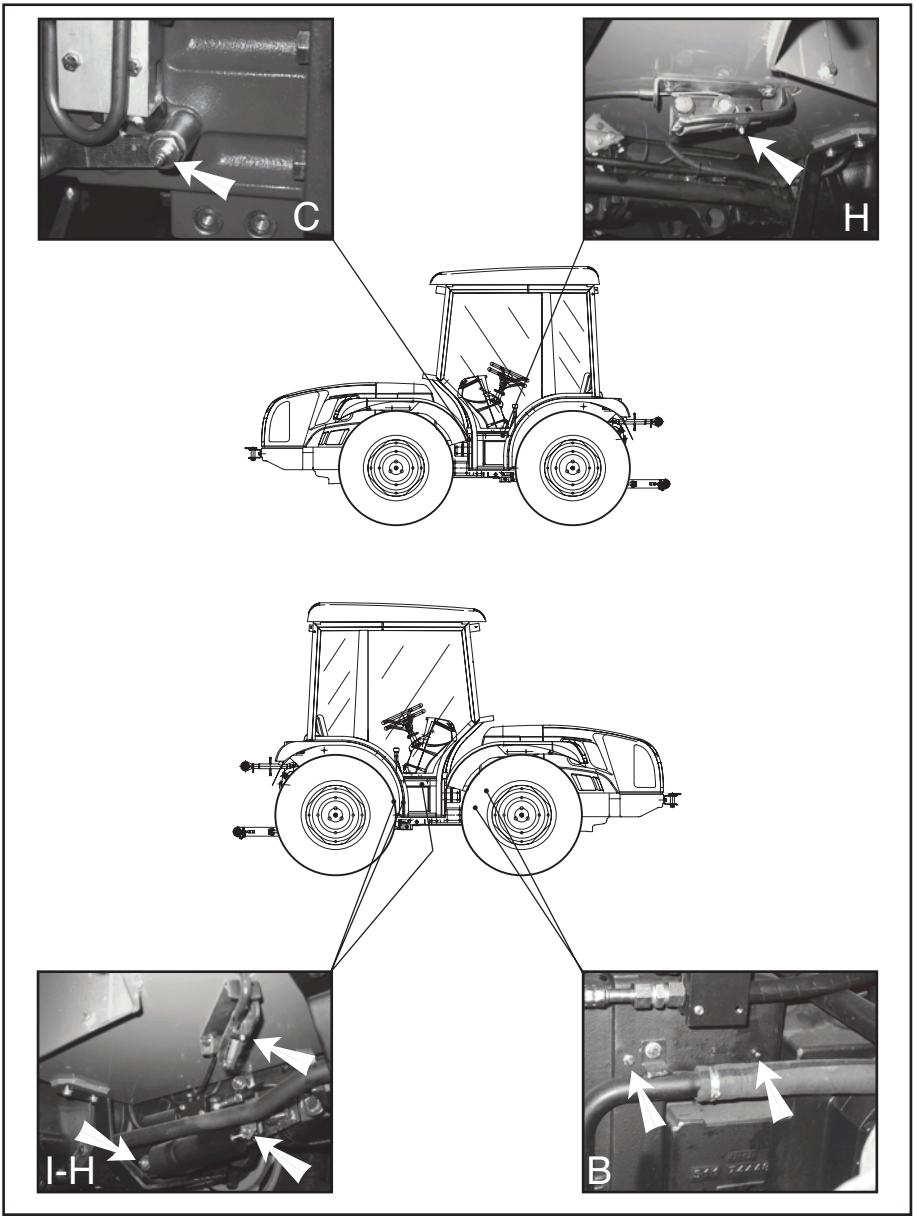


Fig. 6.28

Lubrication points (RS/MT model)

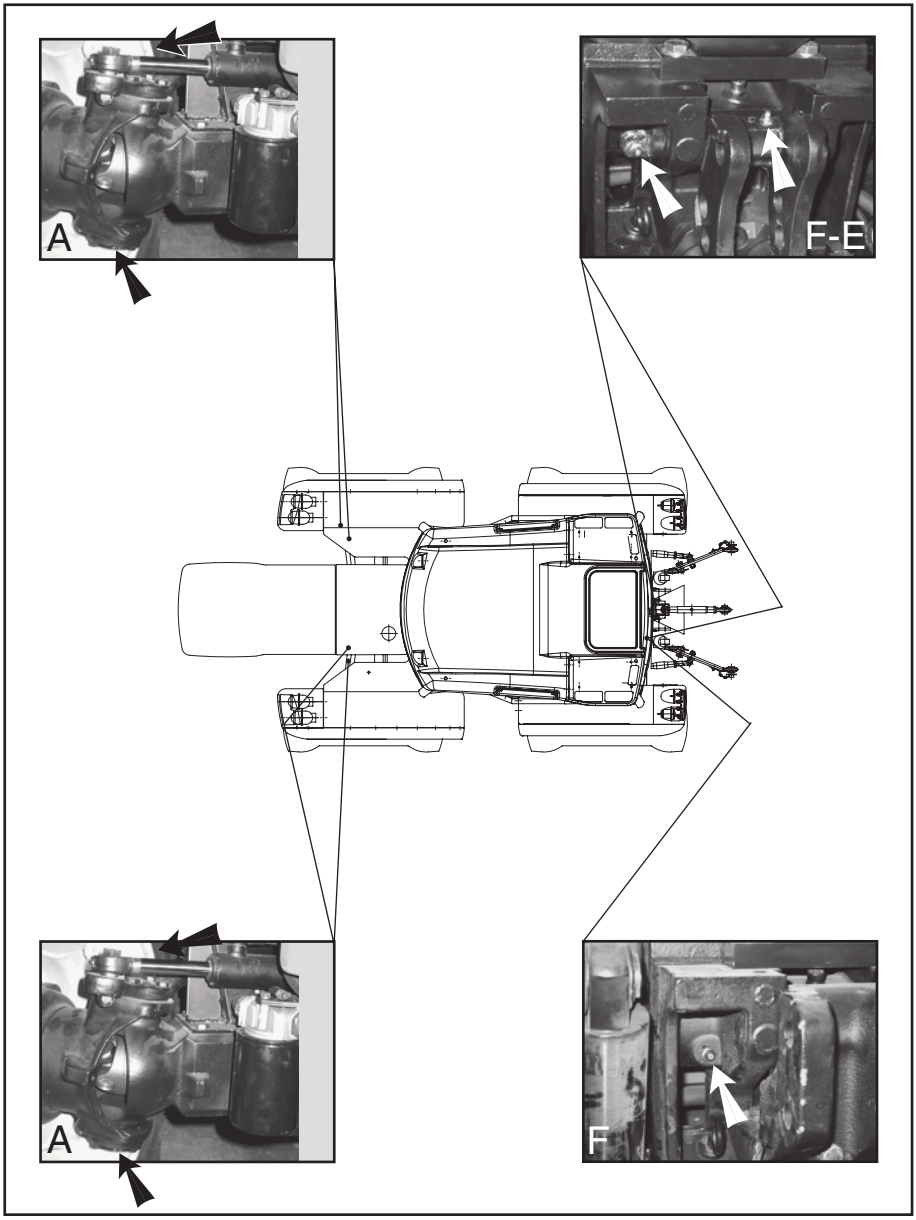


Fig. 6.29

Lubrication points (DS model)

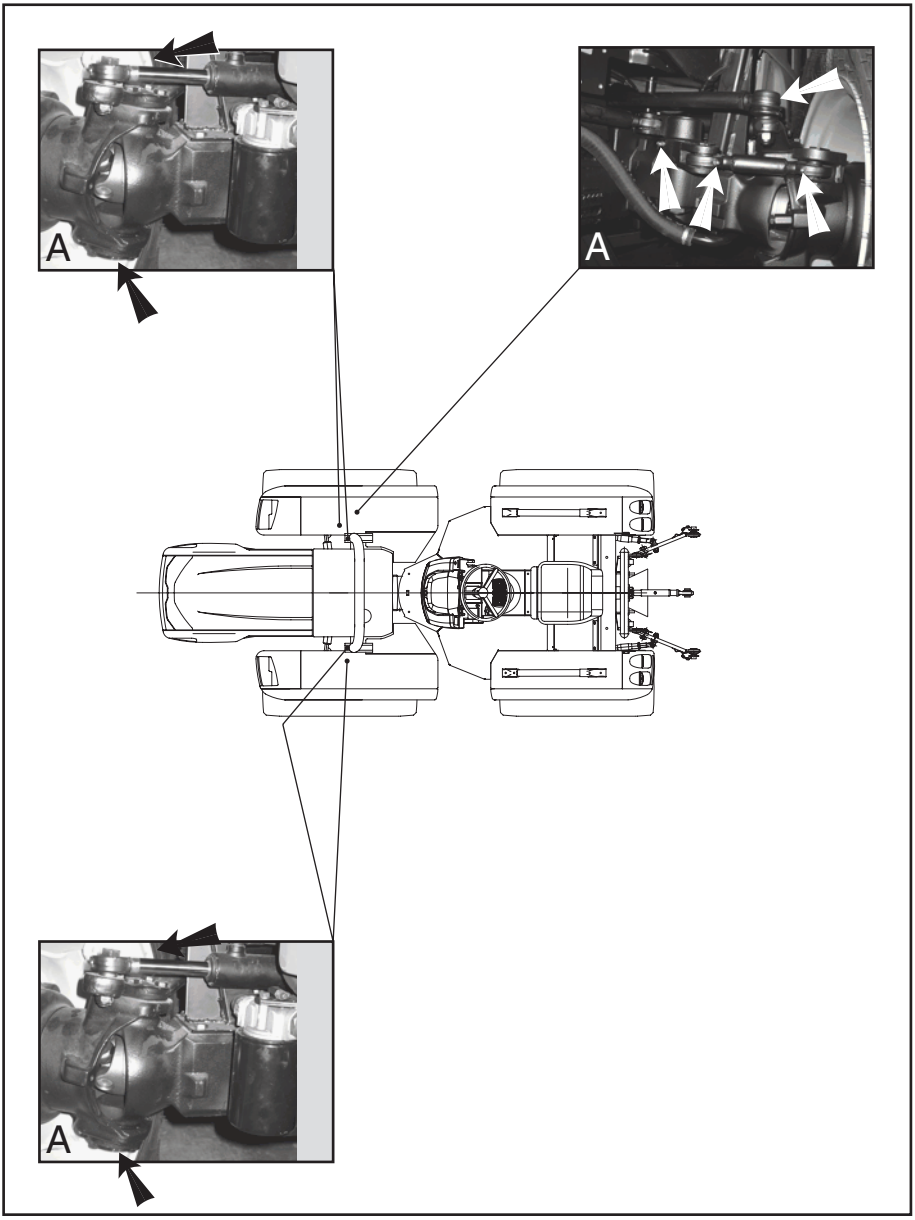


Fig. 6.30

Lubrication points (DS model)

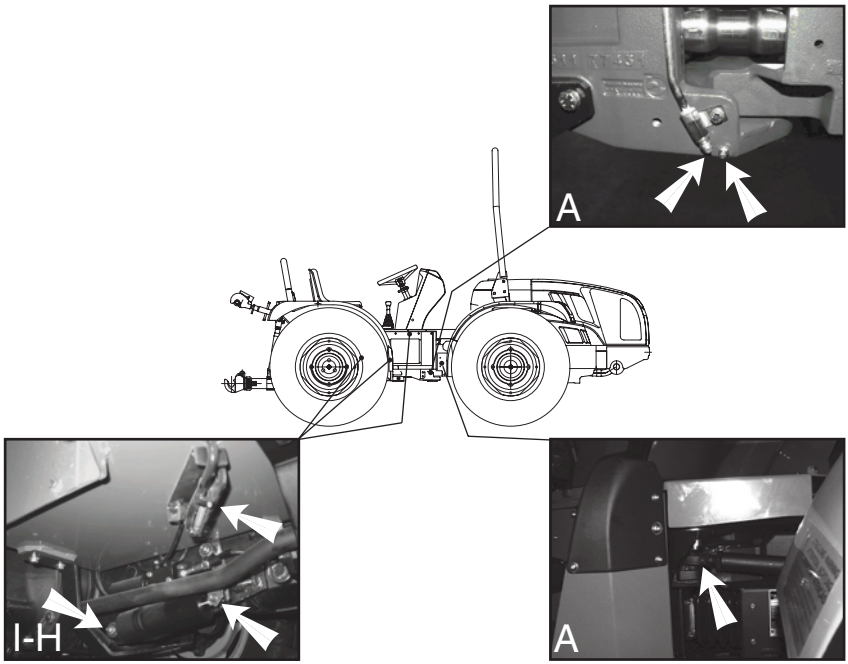


Fig. 6.31

Lubrication points (DS model)

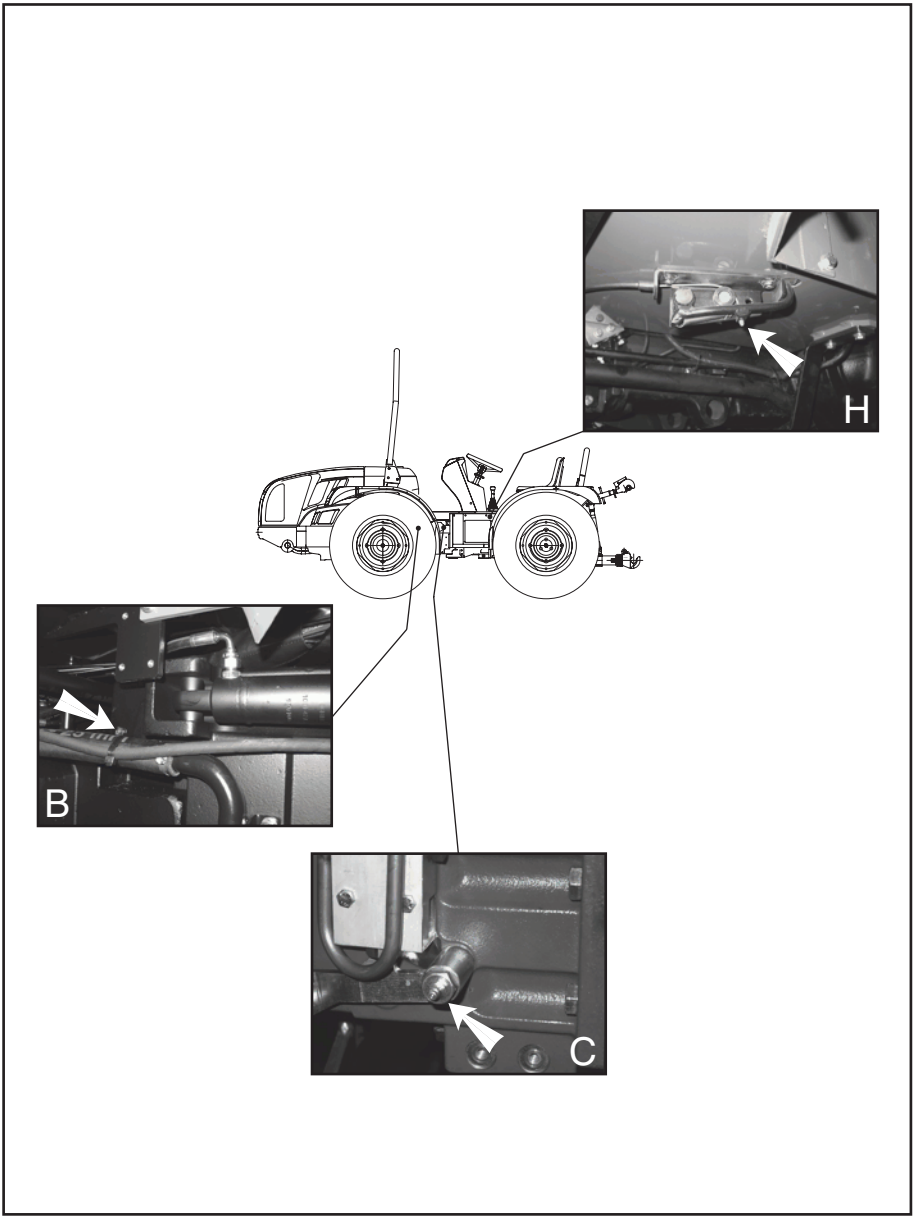


Fig. 6.32

Lubrication points (DS model)

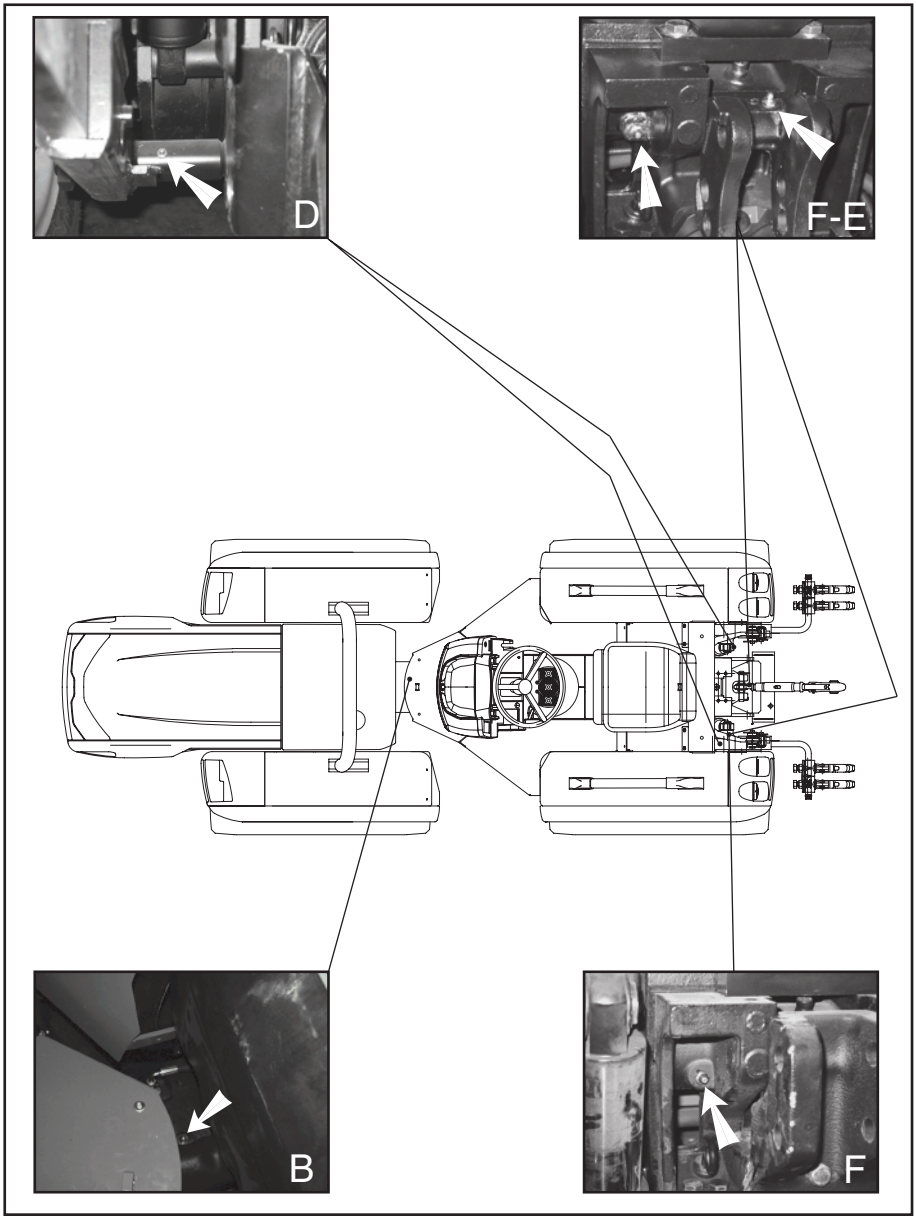


Fig. 6.33

Section 7 : Periodic maintenance, 100 hours

5 Engine

Follow the information in the relative instructions and maintenance manual supplied with the tractor. Always store it safely for reference.

6 Front axle

Regularly check the oil level in the front axle.

NOTE:
Before checking the oil level, let the oil settle in the transmission.

To check the level:

- Remove the plug (166).
- Verify that the oil is close to the edge of the hole.
- If not, top off with AGIP ROTRA JD/F oil.
- Replace the plug (166).

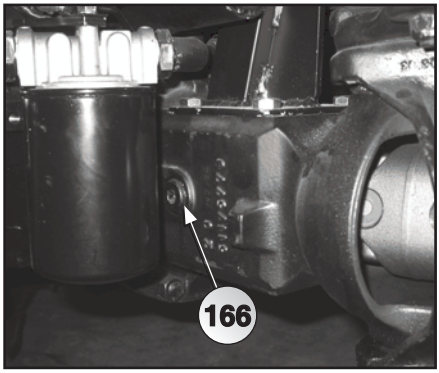


Fig. 6.34

7 Reduction gears of front wheels

CRegularly check the oil level in the front reduction gears.

NOTE:
Before checking the oil level, let the oil settle in the transmission.

To check the level:

- Position the tractor so that the plug (167) is located on the horizontal center line of the tractor itself.
- Remove the plug (167).
- Verify that the oil is close to the edge of the hole.
- If not, top off with AGIP ROTRA JD/F oil.
- Replace the plug (167).

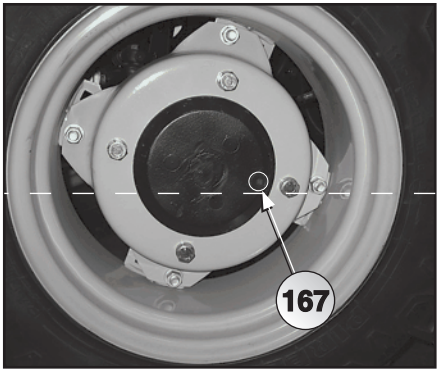


Fig. 6.35

8-9 Clutch and brakes system, gearbox and rear axle oil level

Regularly check the oil level into the brakes and clutch pumps feed tank . In case of topping up, pour the **AGIP LHM SUPER** oil.

Regularly check the oil level in the transmission units.

NOTE:
Before checking the oil level, let the oil settle in the transmission and make sure that the hydraulic lift's arms are completely lowered.

To check the level:

- Remove the dipstick (168) of the gearbox case on the rear near the lift's unit.
- Verify that the oil level is between the maximum and minimum notches on the dipstick (168).
- If not, top off with **AGIP ROTRA JD/F oil.** ;
- Reinsert the dipstick (168) into the gearbox case.

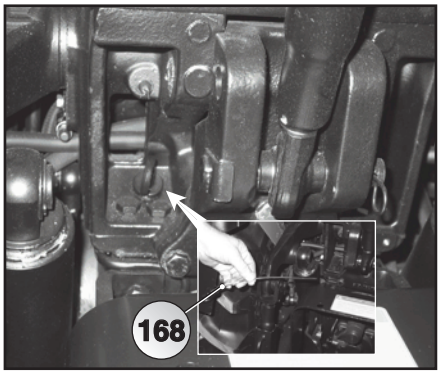


Fig. 6.36

10 Battery

For battery maintenance, follow the instructions described in the special paragraph of this section.

11 Tires

The tire pressure must be the same on all four tires. Therefore, periodically verify the correct inflation pressure.

The correct pressures are indicated in the table on the left.

NOTE:
The values in the table refer only to the tractor's weight. The inflation pressure of the tires should be increased depending on the type of implement attached.

Tires	Pressure (bar)	
	min	max.
8.00 - 20	1,9	2,5
9.5 R20	1,4	2,8
11.2 R20	1,4	1,6
320/70 R20	1,4	1,6
38x14 - 20	2,4	3,4
280/70 R18	1,8	2,4
320/65 R18	1,4	1,6
340/65 R18	1,4	1,6
31x15.5 - 15	1,2	1,4
340/65 R20	1,6	2
440/50 R17	1.6	2
250/80 R18	1,4	1,8
300/70 R20	1,4	1,6
11.5/80-15.3	1,6	2
13.6 -16	1.6	1,8
33x12.50 – 15	1.4	1,9
250/85 R20	2	2,4

Section 8 : Periodic maintenance, 150 hours

12 Engine

Follow the information in the relative instructions and maintenance manual supplied with the tractor. Always store it safely for reference.

Section 9 : Periodic maintenance, 300 hours

13 Engine

Follow the information in the relative instructions and maintenance manual supplied with the tractor. Always store it safely for reference.

Section 10 : Periodic maintenance, 400 hours

14 Air filters and hydraulic circuit filters

The filtering elements (161) (186) (152) (153) must be replaced after 400 hours of tractor operation. Their working order must also be verified whenever the light (75 Fig. 4.28 and Fig.4.29) on the instrument panel comes on.

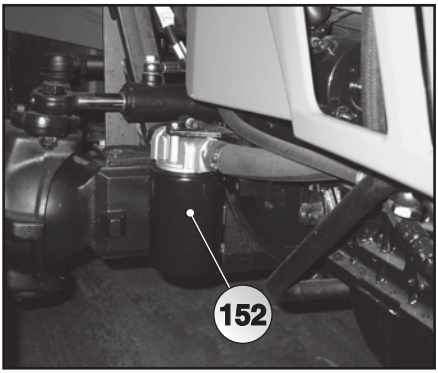


Fig. 6.37

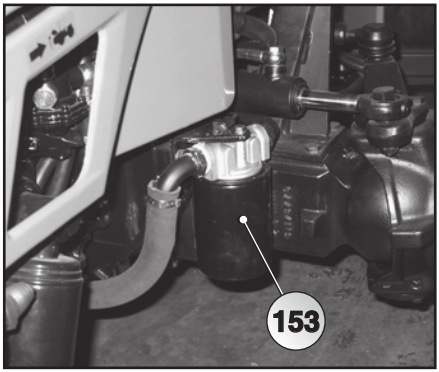


Fig. 6.38

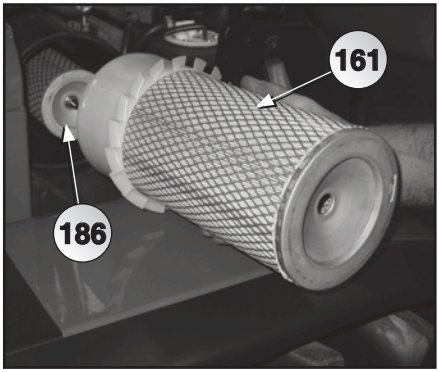


Fig. 6.39

Section 11 : Periodic maintenance, 500 hours

15 Engine

Follow the information in the relative instructions and maintenance manual supplied with the tractor. Always store it safely for reference.

Section 12 : Periodic maintenance, 600 hours

16 Front axle oil change

Change the oil in the front axle after 600 hours of tractor operation.

To change:

- Remove the plug (166).
- Position a container under the drain plug (169) underneath the axle's case.
- Remove the drain plug (169) and let all of the oil in the axle drain out.
- Then reinsert the drain plug (169).
- Replenish the case with 6.5 Kg (AR tractor) / 5.5 Kg (RS-RS/MT tractor) of **AGIP ROTRA JD/F oil** up to the edge of the plug (166).
- Then replace the plug (166).

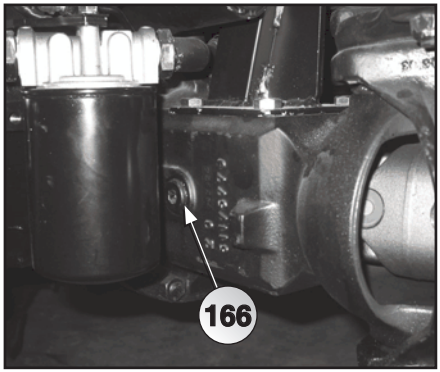


Fig. 6.40

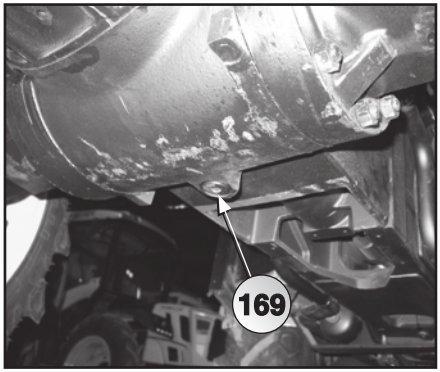


Fig. 6.41

17 Oil change of reduction gears on front wheels (RS-RS/MT-DS)

Change the oil in the reduction gears of the front wheels (RS-RS/MT-DS model only) after 600 hours of tractor operation.

To replace:

- Position the tractor so that the plug (167 Fig. 6.42) is at the lowest point of the tractor itself.
- Remove the plug (167) and let all of the oil in the reduction gear drain out.
- Position the tractor so that the plug (167 Fig. 6.43) is on the horizontal center line of the tractor itself.
- Replenish the case with **AGIP ROTRA JD/F oil** (0.8 Kg RS-RS/MT-DS tractor) up to the edge of the plug (167).
- Then replace the plug (167).

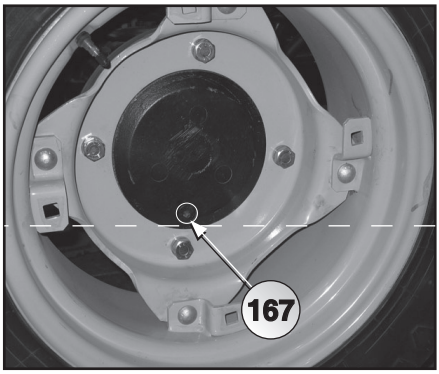


Fig. 6.42

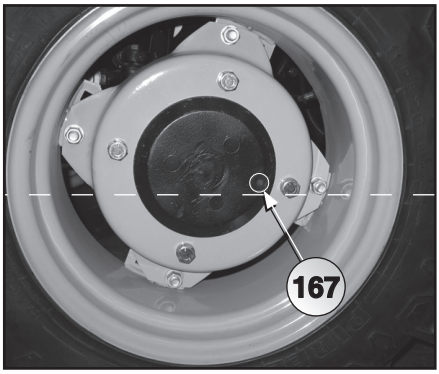


Fig. 6.43

18 Rear axle oil change

Change the oil in the transmission's case after 600 hours of tractor operation.

NOTE:
Before changing the oil, let it settle in the transmission and make sure that the hydraulic lift's arms are completely lowered.

To replace:

- Remove the dipstick (168) of the gearbox case on the rear near the lift's unit.
- Position a container under the drain plug (170) underneath the gearbox case.
- Remove the drain plug (170) and let all of the oil in the gearbox drain out.
- Then reinsert the drain plug (170) and the relative gasket.
- Replenish the case with 23 Kg of AGIP ROTRA JD/F oil through the filler hole (171).
- Reinsert the dipstick (168) into the gearbox case.
- Start the engine and operate the hydraulic lift for a few cycles and then leave it in the lowest position.
- Recheck the oil level in the case using the dipstick (168). If necessary, top off to the maximum level.

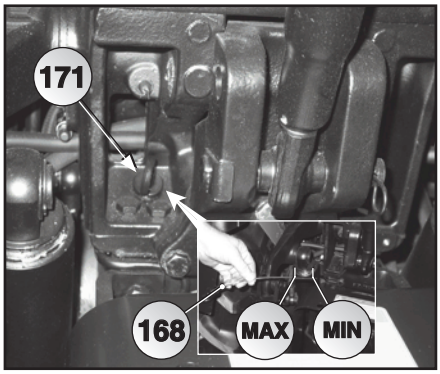


Fig. 6.44

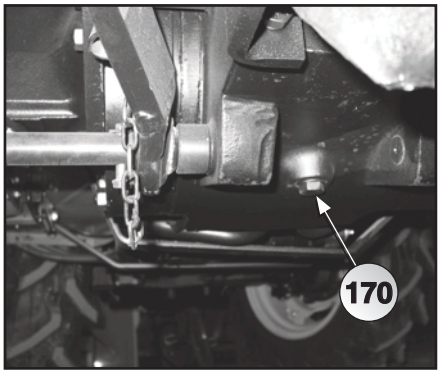


Fig. 6.45

19 Clutch

The hydraulic clutch normally does not require adjustment. In any case, common sense foresees verifying the pressure to ensure proper operation over time.

With the pedal completely pressed down, verify that there is at least 1 mm between the rocker arm and the cylinder of the clutch handler.

NOTE:
If the clutch malfunctions, contact your area dealer.

NOTE:
Periodically check the oil level in the reservoir (Fig. 6.48).

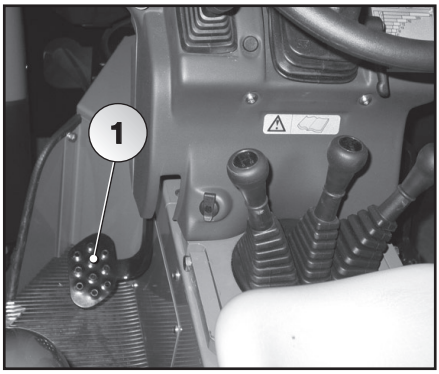


Fig. 6.46

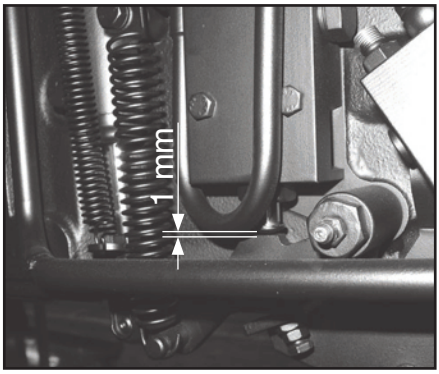


Fig. 6.47

Fig. 6.48

20 Service brakes

⚠WARNING:
When the brakes feel loose, immediately identify the cause and eliminate the defect.

Periodically check that the brake pedals (6-AR model) (5-RS model) have a slight no-load travel of approximately 20 mm.

NOTE:
Make sure that there is no air in the hydraulic circuit of the braking system. If so, bleed as described in the special paragraph in this section. Contact your area dealer for this operation.

NOTE:
Periodically check the oil level in the reservoir (Fig. 6.51).

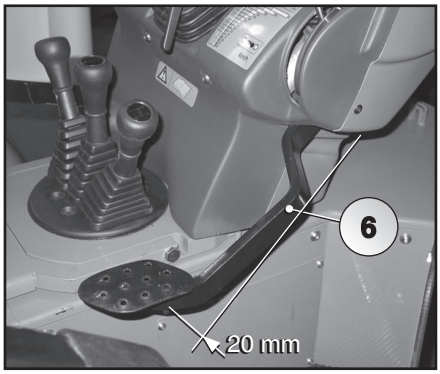


Fig. 6.49

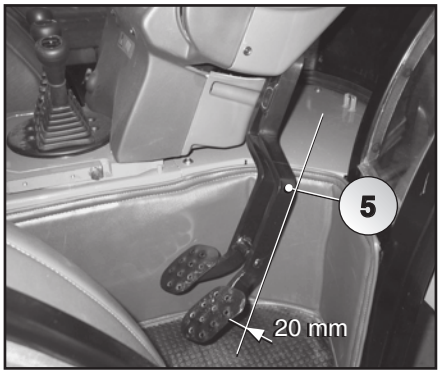


Fig. 6.50

Fig. 6.51

Section 13 : Periodic maintenance, 1,000 hours

21 Engine

Follow the information in the relative instructions and maintenance manual supplied with the tractor. Always store it safely for reference.

Section 14 : Periodic maintenance, 2,000 hours

22 Engine

Follow the information in the relative instructions and maintenance manual supplied with the tractor. Always store it safely for reference.

Section 15 : Extraordinary maintenance

If detailed inspection and maintenance operations become necessary such as tuning, adjustment, repair and replacement of components, contact qualified personnel. Contact your area dealer for these operations.

Section 16 : Fuel circuit air bleeding

The presence of air in the pipes of the fuel circuit makes engine starting difficult. Air can enter the circuit when the filters and pipes are disassembled, during long periods of inactivity and when the tank's fuel is depleted.

This operation should be carried out by qualified personnel; contact your area dealer.

NOTE:
Always try to keep fuel in the tank to prevent air from entering the engine's relative ignition circuit.

Section 17 : Brake circuit air bleeding

Bleeding becomes necessary when there is no oil left in the relative tank, air enters the hydraulic circuit or when maintenance operations are carried out on the braking system.

This operation should be carried out by qualified personnel; contact your area dealer.

NOTE:
Never use oil that was previously bled without filtering it first.

NOTE:
To replace and replenish the oil in the brake fluid tank, avoid changing or mixing different types of oil because they could cause the tractor's braking system to function poorly.

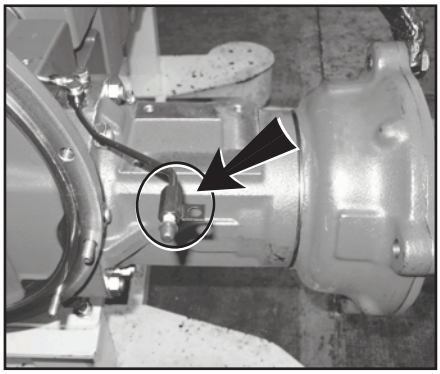


Fig. 6.52

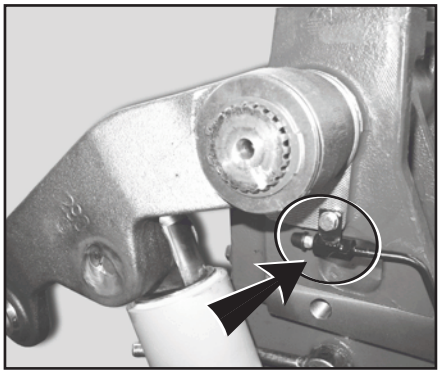


Fig. 6.53

Section 18 : Air-conditioning system

NOTE:
Before checking the air-conditioning system's operation, make sure that the fan's knob (54) is in the off position.

If the air-conditioning system does not work well, check the fans on the roof of the cab.

Remove the guard panel (178) and eliminate any dust from the fan with compressed air.

NOTE:
To carry out detailed maintenance or repairs on the air-conditioning system, contact you area dealer.

When the air-conditioning system is not used for at least 30 days, it should be turned on each week for 10-15 minutes. This lubricates the seals and helps to prevent gas leaks from the system.

⚠WARNING:
If there are leaks, wear protective clothing and goggles. The coolant can injure eyes. Coolant produces a toxic gas when it comes into contact with flames.

Periodically check the tension of the compressor belt (179). If the belt has cracks or needs to be adjusted often, it must be replaced at an authorized service center.

To gain the greatest efficiency, pour the R134a cooling charge and check the system every year (starting of the warm season).

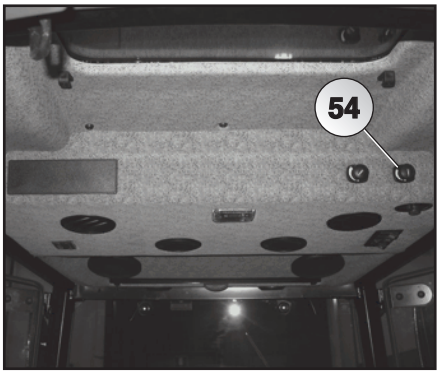


Fig. 6.54

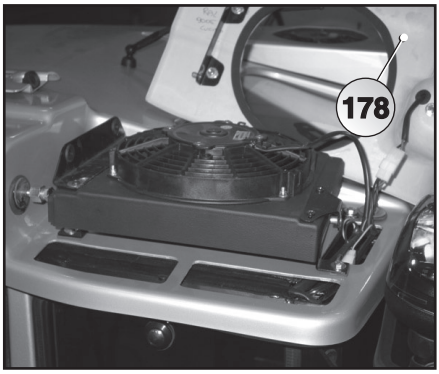


Fig. 6.55

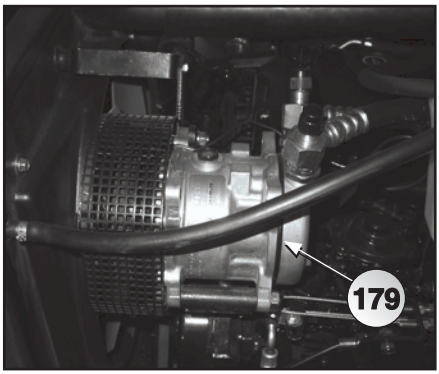


Fig. 6.56

Section 19 : Alternator belt tension check

Periodically check the tension of the alternator's belt.

To do so:

- Loosen the screws (171).
- Loosen the lock nut (172) on the tightener.
- Move the alternator until the belt reaches the correct tension.
- Tighten all of the screws and lock nuts.

NOTE:
If the belt has cracks or needs to be adjusted often, have it replaced at an authorized service center.

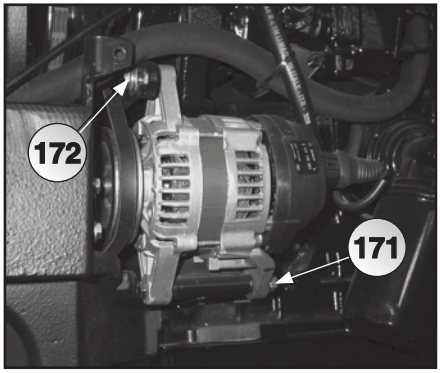


Fig. 6.57

Section 20 : Air-conditioning compressor belt tension check

Periodically check the tension of the compressor's belt.

To do so:

- Loosen the screws (173).
- Loosen the lock nut (174) on the tightener.
- Move the compressor until the belt reaches the correct tension.
- Tighten all of the screws and lock nuts.

NOTE:
If the belt has cracks or needs to be adjusted often, have it replaced at an authorized service center.

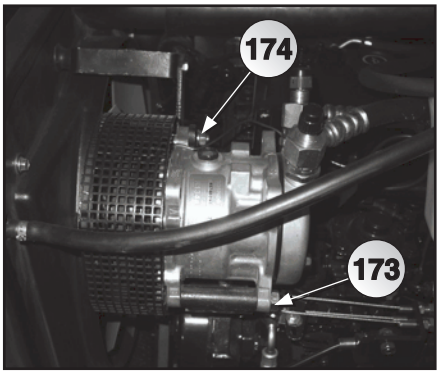


Fig. 6.58

Section 21 : Cab air filter

At flexible intervals, disassemble and clean the cab's air filters (116). Replace the filters every 1,000 hours of operation or at the most every year.

NOTE:
If the tractor is used in especially dusty environments for long periods of time, they should be replaced more often.

⚠WARNING:
When using chemical products for crops, carefully follow the manufacturer's instructions. Do NOT use the cab's air filter as protection against harmful chemical substances. Contact your area dealer to verify the availability of special carbon filters to reduce bad smells.

To access the filter:

- Remove the guard panel (117) by unscrewing the knobs (118).
- Extract the filter (116) from its housing, gripping it by the special extraction slots (119) on the sides.
- Clean the filter by carefully tapping it against the palm of the hand to eliminate large granules. Then direct compressed air (maximum air pressure: 4 bar) through the filter in the opposite direction of normal air flow, from the inside to the outside, keeping the nozzle at least 300 mm from the filter.
- Clean the chamber of the filter with a damp lint-free cloth.
- After thoroughly cleaning the filtering element, closely examine it to identify any signs of damage to the filter paper or gasket. Replace the filter with a new one if it is visibly damaged.
- Correctly reassemble the filter in its housing.

The removal and cleaning of the cab filter described here applies to both filtering elements.

NOTE:
If the cab is washed without disassembling the air filters, be careful not to direct jets of water onto the protective grille to avoid damaging them.

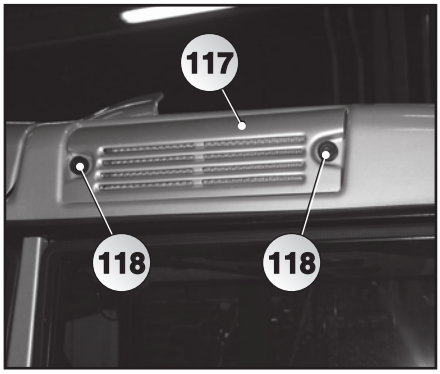


Fig. 6.59

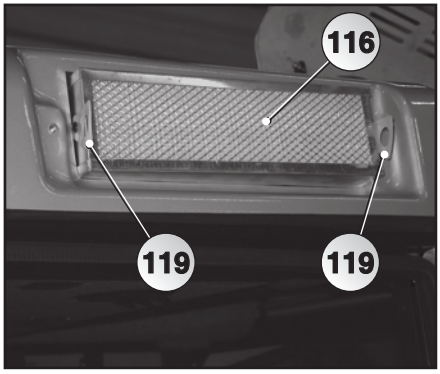


Fig. 6.60

Activated carbon air filters

⚠WARNING:
Do not blow onto or wash activated carbon filters.

NOTE:
If the cab is washed without disassembling the air filters, be careful not to direct jets of water onto the protective grille to avoid damaging them.

The standard carbon filtering element, when new, is 99.9% effective, as determined by an ISO 5011 1988 test. The carbon filtering element filters dust and reduces odors. It therefore contributes to improving the work environment. It does not provide total protection against the spraying of chemical substances. Always follow the instructions of the substance's manufacturer. If in doubt, wear protective clothing.

The carbon elements must be checked in the same way as the paper elements to verify any signs of damage to the filtering substance and the gasket. If necessary, replace them.

During this operation, a mask with a level of protection of at least FFP2 and protective clothing should be worn, suitable for the chemical substances used, especially if the element was previously used when spraying chemical substances.

Be careful when handling filters that were used when spraying chemical substances. These filters must be replaced every 250 hours or earlier if the odor of the chemical substances can be smelled inside the closed cab. Used filtering elements must be thrown into a closed container and eliminated as contaminated clothes are.

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

NOTE:
For long-lasting filters, use them exclusively for pesticide treatments. Disassemble and store them in a dry place after each use.

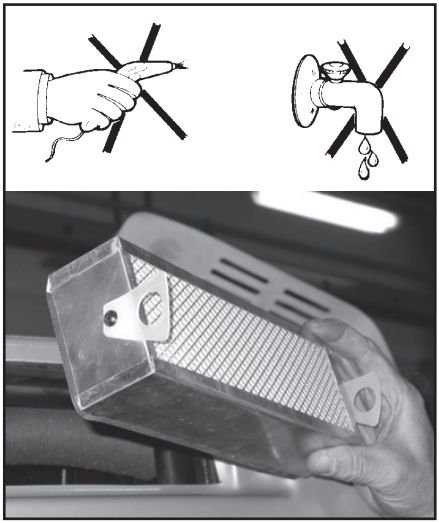


Fig. 6.61

Section 22 : Electrical system - battery

The battery (179) is located in the front, just under the hood. To access it, remove the guard panel (160).

The battery is maintenance free and therefore does not need to be topped off with distilled water. The top of the battery must be kept dry and clean. Periodically check that the fluid level never goes below the minimum mark.

If it must be replenished:

⚠WARNING:
Before recharging the battery, remember to disconnect the cables. It should be removed from its housing and should be recharged away from the tractor.

⚠WARNING:
During battery recharging, ventilate the room and do not approach it with sparks or lit cigarettes.

- Remove the caps of the elements.
- Add only distilled water to the specified level, being careful not to exceed the maximum line.

⚠WARNING:
Never top off the battery with sulphuric acid.

⚠WARNING:
The poles and terminals of the batteries and the relative accessories contain lead and lead compounds, chemical substances. Wash your hands every time they come into contact with these parts.

⚠WARNING:
When replacing the battery, disconnect the negative terminal first, then the positive terminal. When fitting the battery back, connect the positive terminal first, then the negative terminal.

⚠WARNING:
Do not connect any other accessory to the battery.

NOTE:
In the case of frequent topping off or if the battery tends to run down, have the electrical system of your tractor checked by specialized personnel from your area dealer.

NOTE:
The batteries and the electric accumulators contain various components that can be harmful to the environment if they are not correctly recycled after use. It is strongly recommended that all "dry" batteries that can be used in electric or electronic systems be returned to your dealer, which will guarantee proper disposal or recycling. In some countries this is required by law.

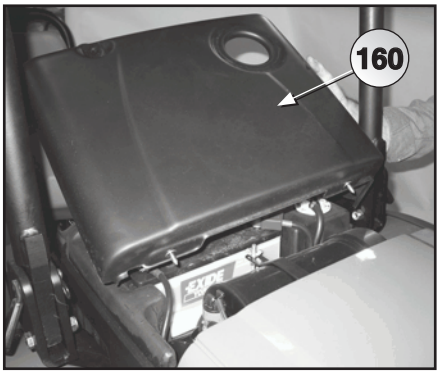


Fig. 6.62

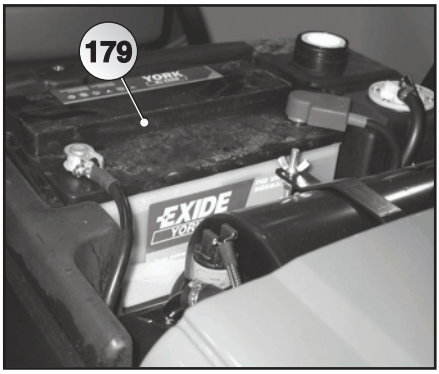


Fig. 6.63

Section 23 : Electrical system - starter

The starter (180) needs to be thoroughly cleaned at least once a year. In particular, periodically check the state of wear of the brushes and the manifold.

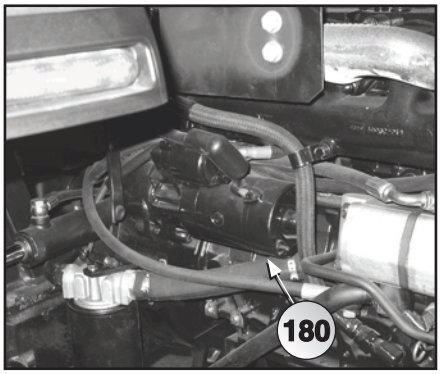


Fig. 6.64

Section 24 : Electrical system - alternator

The alternator (181) always ensures maximum battery charge.

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

1 - When the battery is installed, make sure that the ground poles of the battery and the alternator have the same mark. If the battery poles are inverted, it will short-circuit through the diodes.

2 - When charging the battery, make sure that the poles correspond exactly, the positive pole of the charger with the positive pole of the batter (+) and the negative pole of the charger with the negative pole of the battery (-), to prevent damaging the diodes and the system.

3 - Never operate the alternator with the system disconnected.
If the battery is disconnected, the voltage could become too high and dangerous if someone touches the alternator's output pole.
Before checking and testing the tractor, make sure that the connections are secured.

4 - Never short-circuit or ground one of the alternator's poles since this would damage the electrical system.

5 - Do not invert the alternator's polarity. It is extremely important that the battery's ground and the alternator's ground have the same polarity so that the diodes are not damaged.

6 - Never arc weld without first disconnecting the alternator's cables.

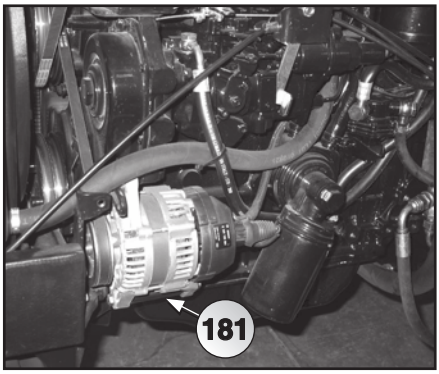


Fig. 6.65

Section 25 : Electrical system - fuses

The tractor's electrical system is protected against short circuits and excessive current absorption by fuses.

The main fuses (183) are located on the top of the dashboard just behind the instrument panel. To access them, remove the guard panel (182).

The tractor's power circuit is protected by a special fuse (Fp) located at the front just under the hood.

NOTE:
Before replacing a fuse with a similar one, the causes that created the problem should be identified and repaired.

The cab's electrical system is protected against short circuits and excessive current absorption by fuses.

The fuses (184) are located on the roof of the cab itself.

⚠ CAUTION:
If fuses must be replaced, only use ones with the same characteristics as those indicated in the following table.

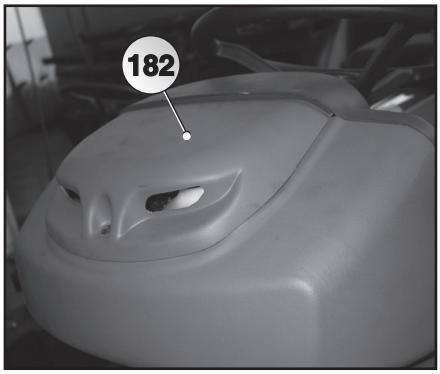


Fig. 6.66

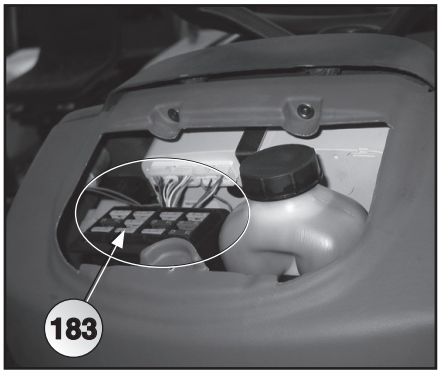


Fig. 6.67

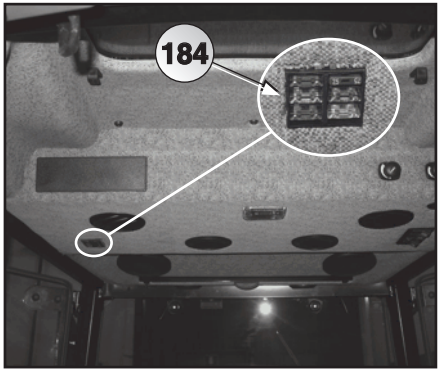


Fig. 6.68

Fuse (Fp) 60 A - power circuit.

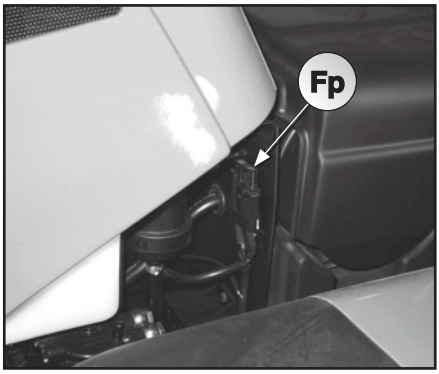


Fig. 6.69

Joystick fuse.

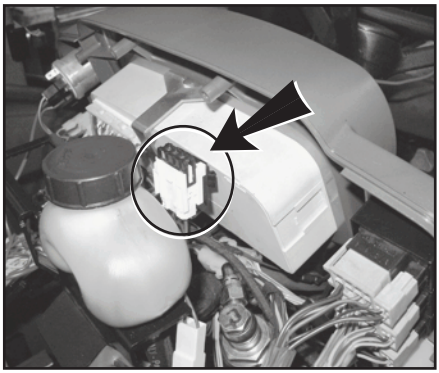


Fig. 6.70

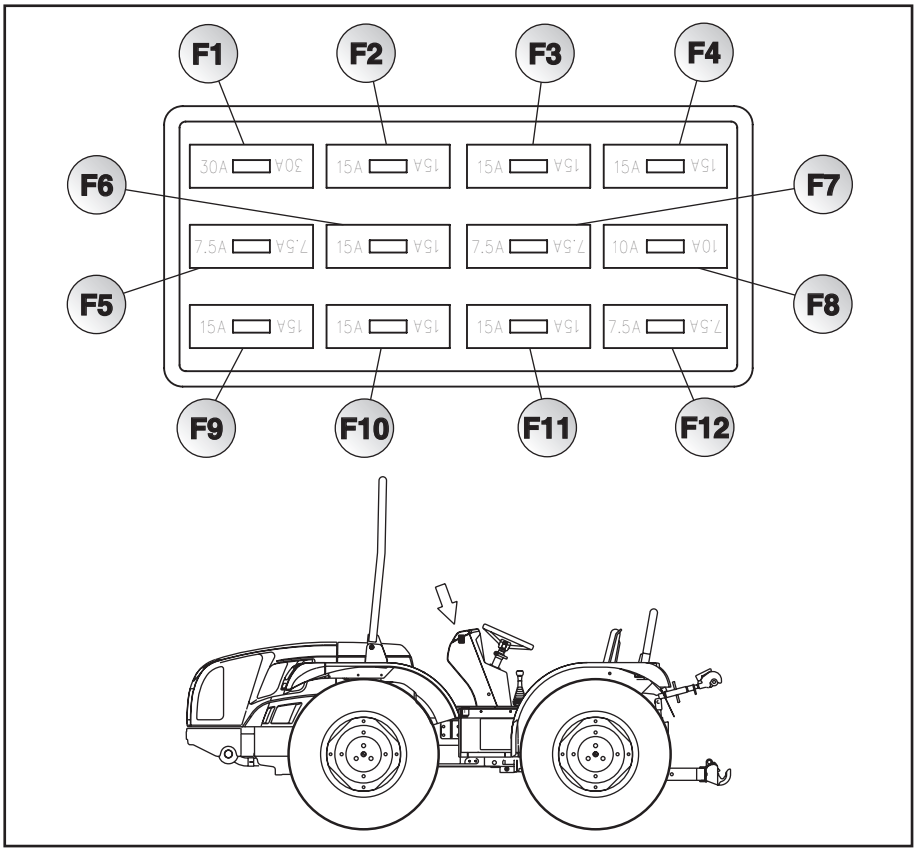


Fig. 6.71

F1	30	General fuse
F2	15	Full beam headlights
F3	15	Low beam headlights
F4	15	Front right and rear left position lights, rear work light, license plate light
F5	7.5	Left front and right rear position lights
F6	15	Horn
F7	7.5	Turn signals
F8	10	Differential lock and PTO solenoid valves, clutch switch, safety relay, brake pedal release, PTO engagement relay
F9	15	Brake lights and pneumatic seat
F10	15	Flashing indicator lights and instrument panel power (+15)
F11	15	Auxiliary electrical outlet and instrument panel power (+30)
F12	7.5	Engine stopping, preheating timer, KSB

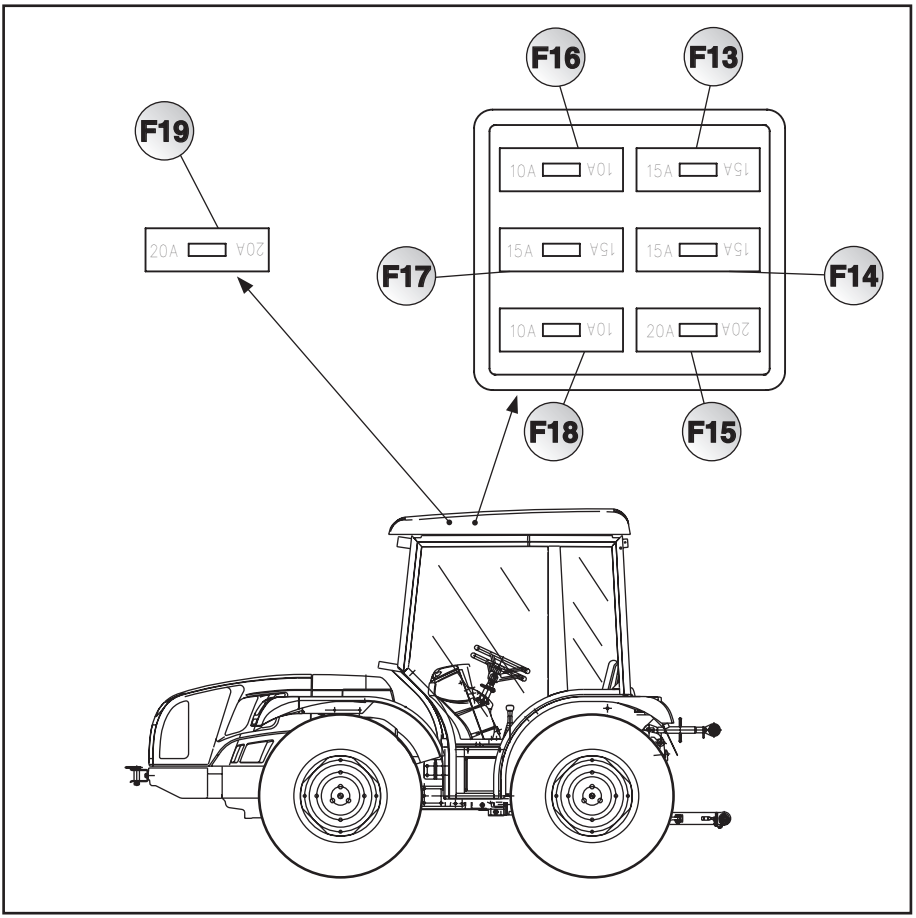


Fig. 6.72

F13	15	Rotating light, radio, courtesy light
F14	15	Rear work lights
F15	20	Internal ventilation, radio
F16	10	Rear windshield wiper motor
F17	15	Front work lights
F18	10	Front windshield wiper motor, windshield washer pump
F19	20	Fan motor, thermostat

Section 26 : Electrical outlet for trailer

On the rear of the tractor there is a 7-pole electrical outlet (34) for connecting the electrical system of the trailer (lights system).

⚠WARNING:
If fuses must be replaced, only use ones with the same characteristics as those indicated in the following table.

Section 27 : Lights - bulb replacement

When using the tractor on roads, it must always conform to current highway code regulations. The position of the front headlights should therefore be periodically checked.

NOTE:
The position of the lights should be checked when the tractor is not carrying a load and when it is on a flat surface with the tires correctly inflated.

To replace the bulbs:

- Remove the guards (185) under the fenders.
- Loosen the airtight guards that lock the bulb into place.
- Disconnect the bulb connectors and remove the bulb itself.

Front lights:

Position lights	5W
Turn indicators	3W
Dipped beams	55W
Headlight main beams	55W

Tail lights:

Position lights	5W
Turn indicators	3W
Brake lights	21W
Licence plate light	5W
Field light	55W
Field light on cab	50W

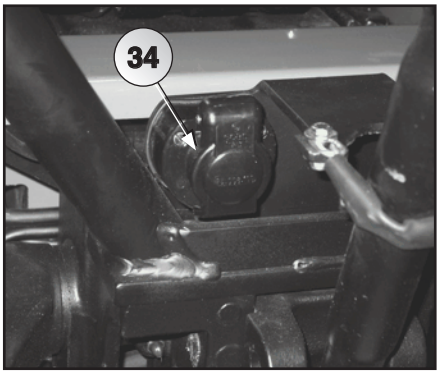


Fig. 6.73

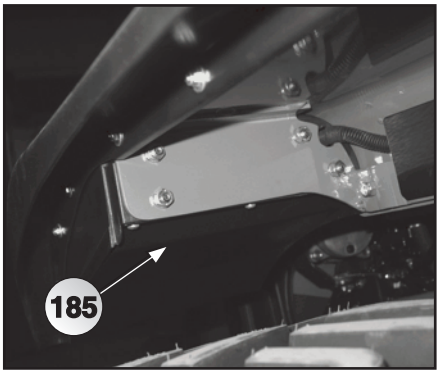


Fig. 6.74

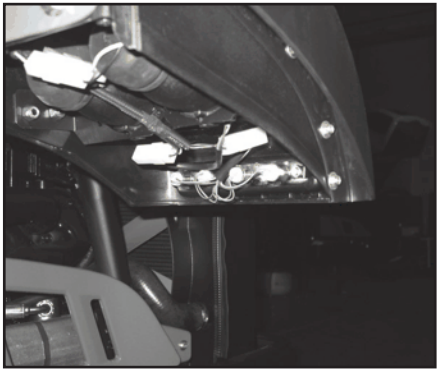


Fig. 6.75

Section 28 : Extensive non-use of the tractor

When your tractor must remain unused for longer than one month, take the following precautions:

- Place the tractor in a dry protected environment.
- Protect the engine by observing the directions in the relative instructions booklet.
- Drain the water from the radiator and the engine.
- Lubricate all of the parts with lubricators.
- Clean the fuel filter.
- Remove the injectors, place a little engine oil in the cylinders, rotate the engine by hand, and then reassemble them.
- Carry out general cleaning of the tractor and especially the body's components. Protect painted parts by applying silicone wax and lubricate the unpainted metal parts. Place the tractor in a covered, dry and, if possible, ventilated room.
- Make sure that all of the controls are in neutral (including the electrical switches).
- Do not leave the ignition key in the switch.
- Make sure that the shafts of the cylinders (power steering, lift, etc.) are in the inclined position.
- Empty the diesel tank and fill it with new diesel up to the maximum level.
- Remove the battery, wipe off the lid and cover the terminals with Vaseline. Then place the battery in a ventilated room where the temperature does not go below 10°C, protecting it from the sun.
- Check the battery's charge using a voltmeter and, if necessary, recharge it.
- Arrange stands or other supports under the axles to keep the wheels suspended. With the tractor raised, the tires should be deflated. Otherwise, periodically check the tire pressure.
- Generally lubricate.
- Cover the tractor with a cloth, avoiding waterproof material (oilcloth or plastic) because it tends to retain humidity, encouraging the formation of rust.

When non-use is finished, follow the operations below:

- Remove the protective cloth.
- If the tractor was raised onto stands, inflate the tires to the specified pressure and then lower it to the ground.
- Restore the engine to use by observing the directions in the relative user and maintenance manual.
- Recharge the battery and reinstall it on the tractor.

NOTE:
After the period of non-use, when restarting the engine, pay careful attention to the instructions on starting the engine in section 5 - User Regulations.

Section 29 : Extraordinary maintenance

Only qualified personnel should carry out detailed inspection and maintenance work, for example registration, adjustment, repairs and replacement of components. Contact your nearest dealership for information.

Section 30 : Troubleshooting

The following information will help you to identify and correct some of the more common faults and malfunctions.

Engine

Fault	*Cause*	*Remedy*
The starter motor fails to operate	Main fuse damaged	Replace the fuse
	Discharged battery	Recharge or replace the battery
	Tarnished battery terminals	Clean the terminals and smear Vaseline grease over them
	Starter motor damaged	Replace the starter motor
	Ignition switch damaged	Replace the switch
	Battery disconnector switch in the “off” position	Turn the switch “on”
The engine doesn't start	No fuel in the tank	Check the fuel level
	Fuel filter clogged	Clean or replace the filter
	Air in the fuelling circuit	Bleed the air from the fuel system
	Glow plug preheater fuse damaged	Replace the fuse
	Faulty fuel injectors	Contact the VM assistance service
	Fuel unsuitable for the operating temperatures	Use the correct type of fuel for the temperature conditions

Fault	Cause	Remedy
The engine functions badly or switches off	Polluted fuel system	Clean the system
	Faulty fuel injectors	Contact the VM assistance service
Black smoke from the exhaust pipe	Dirty or defective injectors	Contact the VM assistance service
The engine overheats (engine coolant temperature indicator light (red) on)	Radiator clogged	Clean the radiator
	Radiator fluid level low	Top up the level of the fluid in the radiator
	Faulty thermostat	Check the thermostat
	Faulty temperature gauge or indicator	Contact the VM assistance service
	Worn or loosened fan belt	Check the belt stretcher. Replace the belt if worn
	Engine oil level low	Top up the oil level
Oil pressure low (engine oil pressure indicator (red) on)	Oil of the wrong type or viscosity	Stop the tractor immediately. Drain out the oil and fill with oil of the correct type and viscosity
	Engine oil level low	Stop the tractor immediately. Top up the oil level
	Faulty lubrication system	Contact the VM assistance service
The engine fails to reach its maximum power	Engine overloaded	Engage a lower gear or reduce the load
	Air filter clogged	Clean the air filter
	Implement badly regulated	Consult the implement instruction manual

Call the VM assistance service if you are unable to find the cause of a fault.

Electrical system

Fault	Cause	Remedy
No current in the electrical circuit	Main fuse damaged	Replace the fuse
	Discharged battery	Recharge or replace the battery
	Tarnished battery terminals	Clean the terminals and smear Vaseline grease over them
	Battery disconnector in the “off” position	Turn the switch “on”
The battery fails to recharge (red alternator indicator light on with the engine running)	Worn or loosened alternator belt	Check the belt stretcher. Replace the belt if worn
	Faulty alternator	Contact your area dealer
	Faulty electrical system	Contact your area dealer
	Faulty battery	Replace the battery

Call your area dealer if you are unable to find the cause of a fault.

Hydraulic circuit

Fault	Cause	Remedy
The hydraulic circuit fails to function correctly	Oil level low	Top up the circuit
	Oil filter element clogged	Replace the filter
	Faulty hydraulic circuit	Contact your area dealer
The hydraulic oil overheats	Oil level too high or low	Top up the oil level
	Oil filter element clogged	Replace the filter
	Faulty hydraulic control valves	Contact your area dealer

Call your area dealer if you are unable to find the cause of a fault.

Hydraulic power lift

Fault	Cause	Remedy
The implement fails to lift	The implement is heavier than the maximum capacity of the power lift	Unhitch the implement. Before hitching another implement, make sure that its characteristics are compatible with those of the tractor.
	Transmission oil level low	Top up the oil level
	Oil pressure too low	Contact your area dealer
	Hydraulic pump damaged	Contact your area dealer
The implement lowers too fast	The lowering governor valve is not closed to a sufficient extent	Adjust the valve with the knob to obtain the best speed
The implement lowers too slowly	The lowering governor valve is not open to a sufficient extent	Adjust the valve with the knob to obtain the best speed

Call your area dealer if you are unable to find the cause of a fault.

Clutch

Fault	Cause	Remedy
The clutch fails to release correctly (the gears are difficult to engage)	Clutch incorrectly regulated	Use the adjuster nut
	The clutch is worn	Contact your area dealer

Call your area dealer if you are unable to find the cause of a fault.

Brakes

Fault	Cause	Remedy
The tractor fails to brake correctly	Brakes incorrectly regulated	Contact your area dealer
	Worn brake lining	Contact your area dealer
The hand brake fails to brake correctly	Hand brake incorrectly regulated	Contact your area dealer

Call your area dealer if you are unable to find the cause of a fault.

Wheels and steering system

Fault	Cause	Remedy
Tyres worn unevenly	Tyre pressure too low	Inflate the tyres to the correct pressure
Steering wheel excessively stiff to turn	Oil pressure too low	Contact your area dealer
The tractor fails to maintain the direction of the steering wheel	Air in the hydraulic circuit	Contact your area dealer
	Hydraulic cylinder seals worn	Contact your area dealer
The tractor fails to turn	Oil pressure too low	Contact your area dealer
	Hydraulic pump damaged	Contact your area dealer
	Defective power steering system	Contact your area dealer

Call your area dealer if you are unable to find the cause of a fault.

Notes

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