



TROTTER Series

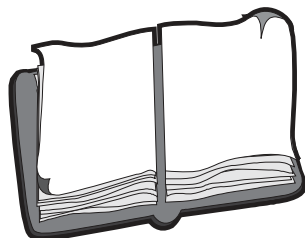
Mod. 860

Mod. 860 F

Mod. 860 V



INSTRUCTION AND MAINTENANCE MANUAL



Before operating the machine, read this book carefully and follow Operating and Safety instructions

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Tractor identification

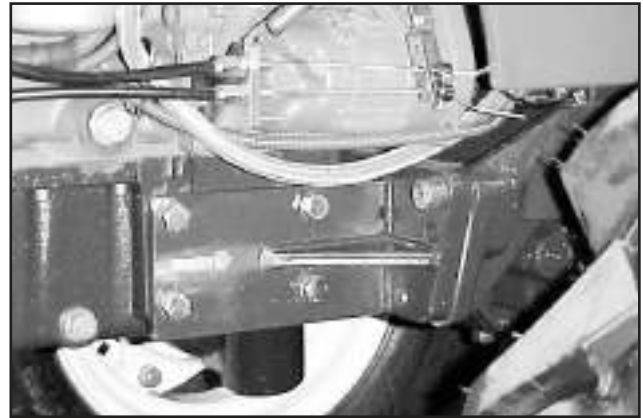
The tractor is identified by its chassis number, which is engraved on the right-hand side of the front body, and by the manufacturer's plate, located on the inner right-hand side of the dashboard.

The engine has its own manufacturer's plate, on the cylinder head cover.

To ensure rapid and effective assistance, spare parts or other information, always refer to:

- Type of tractor.....
- Chassis number.....
- Type of engine.....
- Engine serial number.....
- Date of purchase.....
- Local dealer.....
- Owner/user.....

NOTE: *Keep this manual in good condition and read it regularly, mainly when there are doubts on the use and maintenance of the tractor.*



Tractor chassis number



Tractor manufacturer's plate



Engine identification.
The manufacturer's plate C is on the valve cover.

Introduction

Introduction

This manual provides the characteristics and information required to maintain and correctly use the tractor.

The tractor's regular operation, economy and duration depend on its rational use and the good preservation of its parts.

When the tractor is delivered, ask the sales agent to explain the instructions of use and maintenance contained in this manual in detail until they are clearly understood. If you still have some questions, contact your local dealer or direct to AGRIA HISPANIA, S.A.

Because of the different use made of the tractor in different areas, and the use of specific agricultural implements in each area, AGRIA HISPANIA, S.A. is unable to adapt this manual to all of them. Therefore, AGRIA HISPANIA, S.A. does not accept liability for loss or damages eventually derived from errors or omissions.

If the tractor is used in special conditions (pronounced gradients, clay, mud), or with special agricultural implements, contact the sales agent or the local dealer to obtain specific instructions. Failure to comply with these instructions may cancel the Warranty.

Always use original AGRIA spares supplied by the approved agent or dealer.

The failure to follow these indications and the other instructions for use and maintenance in this manual may cancel the Warranty.

NOTES:

- a) The content of this manual is for general use, and its indications may vary in different areas or when using special agricultural implements. To obtain detailed information, please contact your local dealer.
- b) Some of the illustrations contained in this manual may not correspond to your tractor, because of changes made to production.

WARNING: Some of the illustrations in this manual may show a protective part removed for ease of explanation. NEVER start the tractor without these protective parts.

WARNING and ATTENTION

These words are used in this manual or on the stickers to identify operations that are particularly important for the safety of the parts of the tractor (WARNING) or the safety of the driver (ATTENTION).

Therefore, please pay special attention to the indications when the words ATTENTION or WARNING appear, followed by this symbol:



NOTE: The indications referring to the right and left included in this manual refer to the driver seated looking towards the engine.

WARRANTY

All the products manufactured by AGRIA HISPANIA, S.A. are covered by a SIX-MONTH warranty. The warranty covers, within certain limits, faulty materials or faulty manufacture.

The warranty conditions are established by AGRIA HISPANIA, S.A. Ask your sales agent for details when your purchase the tractor.

Due to technical improvements, AGRIA HISPANIA, S.A. reserves the right to make changes at any time and with no prior warning.

Before delivering the tractor, the sales agent should verify that it is ready for immediate use. He will also provide the owner and users with instructions for the use and maintenance of the tractor. These instructions refer to instruments and controls, maintenance and periodical adjustments and safety standards.

AGRIA HISPANIA, S.A. accepts no liability for the differences that may exist between the characteristics of the tractors and the descriptions contained in this manual.

Neither is it liable for eventual claims for the assembly and use of non-authorized accessories, agricultural implements or components.

WARRANTY EXCLUSION

The warranty does not include damage of faults occurring because of incorrect handling or negligence in tractor maintenance, or the use of parts other than original spares and non-authorized agricultural implements.

The warranty does not cover damages occurring during transport.

TECHNICAL ASSISTANCE

For the repairs and reviews that can not easily be performed with normal implements, the manufacturer recommends that you contact the authorized dealer in your area.

You can also contact:

AGRIA HISPANIA, S.A.
Bº Euba, s/n
48340 AMOREBIETA (Vizcaya)
Phone 34 946 30 00 55
Fax 34 946 30 01 34

SAFETY STANDARDS

The driver's safety is one of the main concerns when designing and manufacturing a new tractor. The design attempts to include as many safety devices as possible.

In spite of all these systems, accidents continue to occur and most of them are caused by failing to comply with the most elementary of safety standards. Being aware of possible risks and acting accordingly, with all due precaution, is the best way of avoiding accidents.

Before starting to use the tractor, the driver should be well aware of all the safety indications and warnings contained in this manual. All the safety protection devices must be in place, and if any of them is damaged or deteriorates, it should be repaired IMMEDIATELY. ONLY start the tractor when the driver is seated in the driver's seat. Raise and lower the driver's seat with the engine OFF. Make sure that all the stickers with instructions, warnings or calls for attention are in place and perfectly legible. Otherwise, replace them.

USE OF THE TRACTOR ON THE ROADS

The driver has to be familiar with current legislation on road traffic and hold a valid driving license.

Always drive with precaution and respect applicable standards and traffic signals.

To drive on the public road network, the registration plate has to be in place and the tractor's documentation available.

WORDS AND SYMBOLS INDICATING SAFETY AND DANGER

This safety symbol means ATTENTION! BE AWARE! YOUR SAFETY IS ENDANGERED!



This symbol identifies important safety warnings, included in the manual. When this symbol appears, pay attention to the possibility of an accident and follow the safety instructions following the symbol.

WHY IS SAFETY IMPORTANT FOR YOU?

ACCIDENTS CAN CAUSE INJURIES AND DEATH

ACCIDENTS ARE COSTLY

ACCIDENTS CAN BE AVOIDED

Safety of the tractor and the agricultural implement

The tractor is a source of mechanical and hydraulic power

The tractor alone is not worth much. It is only when it is attached to an agricultural implement that it becomes an operating unit.

This manual includes the safety standards to be applied to normal operations when using the tractor and the attached implement, but does not include all the possible implements that can be used with the tractor.

It is very important for the driver to understand and follow the instructions provided by the implement manufacturers.

Safety: Introduction

In this section on safety, we include the instructions for some of the situations that may arise during normal use and maintenance of the tractor. This section does NOT replace other safety indications contained in this manual.

Additional precaution may be required depending on the agricultural implement being used, the working conditions or maintenance and repair conditions.

The user is SOLELY RESPONSIBLE for following the safety standards required for each activity.

Safety: User standards

The user is responsible for reading and understanding all the safety indications in this manual, before using the tractor. The user must follow these safety standards at all times.

Pay special attention to the numbers of the figures with safety indications and how they are related to the texts in this manual.

Remember that YOU are responsible for YOUR safety, and the safety of others who may be within the tractor's scope of action.

Remember that these safety indications are specifically for this tractor. But the safety standards acquired during normal practice should also be followed.

REMEMBER THAT SAFETY IS YOUR RESPONSIBILITY, AND CAN PREVENT SERIOUS ACCIDENTS AND EVEN DEATH.

Keep this manual in good conditions at all times. Read it carefully and make sure that you use the tractor and its control in safe conditions. Do **NOT** allow others who have not read these instructions and have not been informed of the dangers involved, to drive the tractor.



DANGER: This symbol with the word **DANGER** indicates a risky situation which, if not avoided, could cause a serious accident or death.



ATTENTION: This symbol with the word **ATTENTION** indicates a potentially risky situation. If instructions are not carefully followed, it could lead to **SERIOUS INJURY** or **DEATH**.



WARNING: This symbol with the word **WARNING** indicates that special precautions have to be taken to prevent serious accidents.

IMPORTANT: This word indicates that special instructions have to be followed to prevent DAMAGE TO THE TRACTOR.

NOTE: This indicates points of particular interest for a better and more effective use or repair of the safety stickers.



ATTENTION: Do not remove **DANGER, ATTENTION, WARNING** and **INSTRUCTIONS** stickers. Keep them legible **ALWAYS** and if necessary, replace with new ones. Stick new stickers in the same place as the old ones.

Safe use of the tractor

For the safe use of an agricultural tractor, the driver has to be qualified and authorised. The driver has to understand the instructions in this manual and have been trained in the use of the tractor and informed of the danger involved. The owner is responsible for complying with applicable labour rules.



ATTENTION: When using the tractor, the driver will not be under the effects of alcohol or drugs.

Drivers taking prescribed drugs or narcotics need a doctor's authorisation to drive the tractor.

Precautions to take into consideration

- **NEVER** allow other people, and particularly children, to remain within the tractor's scope of action.
- Use the safety belt provided when the tractor is equipped with a safety chassis.
- Avoid using the tractor as much as possible in areas close to ditches or excavations.
- Reduce speed when on irregular or muddy ground.
- Keep away from slopes for safe operations.
- Drive with caution, especially at the end of the field or among trees.
- Do **NOT** allow anyone to come near the agricultural implement attached the tractor or when the tractor is moving.
- Work with caution and avoid sudden movements. Do **NOT** start or brake suddenly.
- Always use the trailer attachment. **NEVER** attach the implement in use to the rear axle.
- Put the hand brake on whenever the tractor is stationary.
- Never change or remove tractor parts.
- Do not use non-approved trailer attachments.

Safety structure

Safety Structure

The tractor is fitted with a drop-down arch structure (Fig. 1).

This protective structure prevents accidents if the tractor topples over. If a tractor without a protective structure topples over, serious material and personal harm can be caused.

Use

- Before using the tractor, make sure that the protective structure is correctly attached and undamaged.
- **DO NOT ATTACH** chains, cables, etc., to the protective structure, because the tractor could topple over. Always use the trailer attachment.



Fig. 1

Safety structure

If the tractor has toppled over or the safety structure has hit a bridge, tree, etc., replace it **IMMEDIATELY** with a new one.

After accidents, check the condition of the safety structure and, if necessary, replace damaged parts.

DO NOT WELD. REINFORCE OR DRILL HOLES in the protective structure. These operations reduce the safety level guaranteed by the original equipment.

Precautions to work in safety

Use suitable clothing and the protective devices required for the job in hand. Do not run risks (Fig. 2).

The recommended protective equipment consists of:

- Helmet
- Mask
- Ear protectors
- Glasses or eye-shield
- Suitable clothing, depending on the weather
- Reflecting bands
- Safety gloves
- Safety footwear

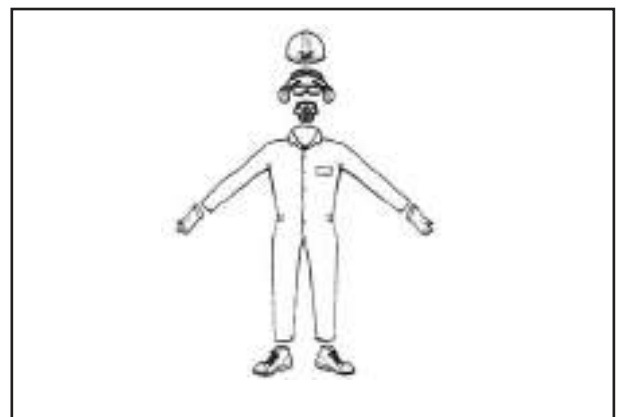


Fig. 2

DO NOT use clothing that is too loose, so that it will not catch on the controls or other tractor parts. We recommend having a fire extinguisher and first aid kit available. The driver should know where they are and how to use them (Fig. 3).

Familiarity with the tractor

Be familiar with the tractor's characteristics. Be aware of how to use the tractor and its equipment, and how to attach and remove the agricultural implements to be used, and also how they work. Be aware of how to use the controls. Be familiar with the load capacity, the speeds, brake and steering systems, turn radius, etc.

Always remember that rain, snow, ice and soft ground can change how the tractor has to be driven. In rough conditions and when driving at a high **speed, pay more attention and drive with care. Connect front-wheel drive.**

Be familiar with the **DANGER, ATTENTION** and **WARNING** stickers on the tractor, together with the information that they contain.

READ THIS MANUAL CAREFULLY AND LEARN HOW TO USE THE TRACTOR CORRECTLY AND WITH TOTAL SAFETY BEFORE STARTING THE ENGINE (Fig. 4).

IF YOU ARE STILL IN DOUBT, CONSULT YOUR LOCAL DEALER.

IMPORTANT: This manual provides general safety standards for agricultural tractors. Always maintain it correctly and keep it on the tractor. If you lose or damage it, ask your local dealer for another copy.

Always make use of the protective and safety systems available.

Keep the protective devices correctly positioned and attached and make sure that the safety signals and systems work properly.

To guarantee your safety and the safety of the people within the tractor's scope of action, it had to be fitted with:

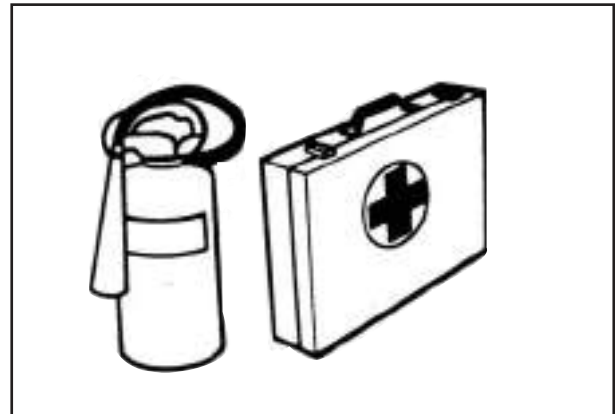


Fig. 3



Fig. 4

- Protective structures
- Casing protecting the power connection
- Rear mirror
- Other safety devices and signals required by current legislation (breakdown triangles, extinguisher, special lights, etc.).

Safety structure

Check the tractor

Before starting work, check the tractor and make sure that all its parts are in a good condition.

- Make sure that there are no broken, loose or faulty parts. Otherwise, replace or repair them.
- Make sure that all the safety devices are ready.
- Check the protective structure. If it is faulty, it should be replaced.
- Make sure that the implement is correctly attached. If the agricultural implement is connected to power, make sure that the transmission ratio is correct (rpm).
- Check the condition of the tyres and replace them if worn or cracked.
- Check that tyre pressure is correct.
- Check the brakes and adjust if necessary.
- Switch off the engine and wait for it to cool, before filling with fuel.
- **DO NOT SMOKE** when filling with petrol (Fig. 5) and keep away from sparks or flames
- Check the engine oil level and add oil if necessary.
- Complete all the other daily maintenance operations specified in this manual.
- Check that the power connection safety system is working properly.
- Make sure that the protective casings of the power connection and the cardan are correctly fitted.
- Check the tractor's hydraulic system and that it is correctly attached to the agricultural implement.



ATTENTION: the pressure in the fuel circuit and the hydraulic circuit can cause serious injuries to the skin and the eyes. Leakage of liquid under pressure may not be visible. Use a piece of cardboard or wood to detect the leak. NEVER use your hand. Use glasses to protect your eyes. If the liquid contacts the skin, see a doctor immediately (Fig. 6).

Before connecting pressure to the fuel injection circuit or the hydraulic circuit, make sure that all connections are closed and that the tubes are in good condition.

Before working on pressure circuits, make sure that the circuit is completely discharged (without pressure).



ATTENTION: In engines cooled by **AGRIA**, the cooling system is under pressure when the engine is warm. Before removing the radiator cap, switch off the engine and leave it to cool. Loosen the cap slightly and release residual pressure before removing completely

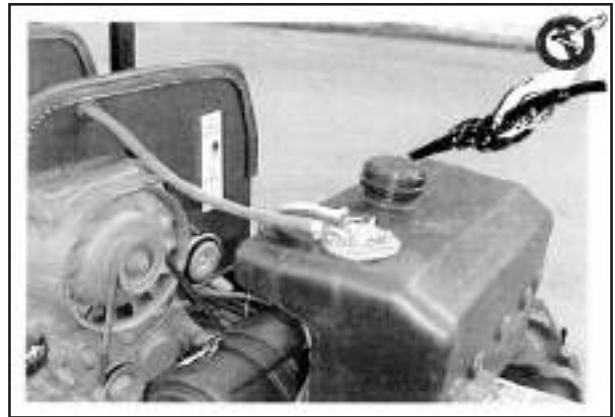


Fig. 5



Fig. 6

Cleaning

- Keep the engine clean
- Before cleaning the tractor, lower the implement to the ground, put the engine in neutral, pull on the hand brake, switch off the engine and remove the ignition key.
- Keep the platform, the foot rests and the pedals clean. Remove oil or grease stains. Remove all other dirt (dust, mud, etc.). In winter, remove snow and ice.
- Check and replace all implements and accessories.

Tractor maintenance

- Do not perform maintenance operations with the engine running, with the engine hot or when the tractor is moving (Fig. 7).
- Before performing maintenance operations on or adjusting the electric circuit, remove the negative (-) cable.
- To prevent fire or explosions, keep flames away from the battery and the hot parts of the engine.
- For all repairs and adjustments, we recommend the use of the Official **AGRIA** Service.
- Both the tractor and the implement should be supported by suitable blocks or wedges. **NEVER** use hydraulic jacks.
- Periodically, check that the screws and nuts are tight in the wheels, wheel disks and implement. Tighten to the specified torque.
- Periodically, check the brake and adjust if necessary. Make sure that braking power is correctly compensated, especially when the trailer is used.

Environmental protection

It is forbidden to deposit fuel or oil anywhere other than approved containers. Collect this waste and recycle in accordance with applicable legislation.



Fig. 7

Start-up

Before starting the engine.

Before starting the engine, inspect the area around the tractor and the attached implement. Make sure that there is no-one within their scope of action.

Inform the people present that you are going to start the tractor and **DO NOT DO SO** until you are sure that there is no-one within its scope of action.

Make sure that everyone present, particularly children, are in a safe place before you start the engine.

Mounting and dismounting the tractor

To mount the tractor, support yourself by one foot and both hands.

To mount or dismount the tractor, use the support points provided. **NEVER** use the controls as supports or rest your foot on the pedals. **NEVER** attempt to mount or dismount the tractor when it is moving.

NEVER JUMP OFF THE TRACTOR in any circumstances.

Safety structure

Start-up in safety



ATTENTION: Before starting the engine, make sure that there is good ventilation. NEVER start the engine in a closed-in area, because the exhaust gases are toxic and could cause asphyxiation

Always start the engine from the driver's seat and in neutral.

Make sure that the two brake pedals are together when driving on roads and when working, unless the individual brake is needed.

Make sure that the brakes are well adjusted and that both sides work with the same power.

Adjust the seat position to the driver's needs, connect the brake and put all controls in neutral before starting the engine.



DANGER: Start the engine with the ignition key and only from the driver's seat. NEVER attempt to start the engine by hot-wiring the starter engine because a gear may be engaged and accidents could happen (Fig. 8).

Recommended starting system

Follow the start-up instructions recommended in the relevant section of this manual, both for normal start-up and start-up at low temperatures or in extreme conditions.

Controls and instruments

After starting the engine, check that all the instruments, including lights, work properly. If the engine or tractor do not respond correctly to controls, **DO NOT USE** the tractor until the problem has been solved.

Make sure that the starter engine protection is correctly installed.

Work in safety



ATTENTION: An unbalanced tractor could topple over and cause an accident. Make sure that you use the counterweights following the manufacturer's recommendations and that they are correctly installed. NEVER overload the tractor with additional counterweights.

ATTENTION: When working with the tractor, always remain in the driver's cabin

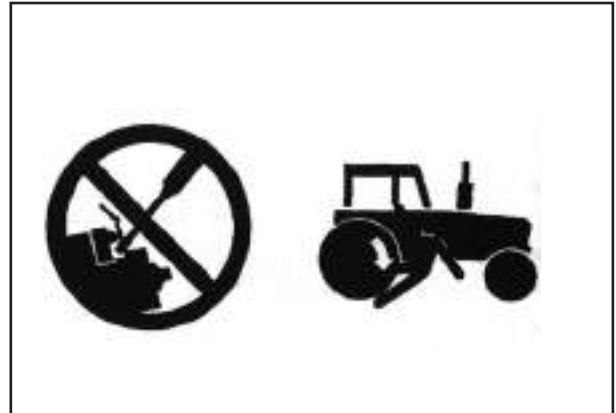


Fig. 8

Perform only the required manoeuvres

Make sure that the tractor is ready for the work to be done. **NEVER** exceed the specified load capacity.

Make sure that the implement attached does not exceed the tractor's load capacity.

Make sure that the implement is properly connected to the power connection.

Remember that, in normal conditions, the tractor should operate with **NO BALLAST**.

Only use ballast when trailing and remember that in some conditions, the maximum authorised load may be reduced.

Safe operations

- The controls must be handled with smooth movements. Do **NOT** perform sudden manoeuvres or brake suddenly.
- Do **NOT** mount or dismount the tractor when it is moving. When driving, keep both hands firmly on the steering wheel.
- Make sure that there is enough width and height for the tractor.
- Do **NOT** make unnecessary light use of the tractor or the implement.
- **ALWAYS** operate the controls from the driver's seat.
- Before dismounting the tractor, lower the implement to the ground, put the gearbox in neutral, connect the hand brake, switch off the engine and remove the ignition key.

NEVER touch or try to reach other elements through the agricultural implement. Do not let others try to do so.

Be aware when you are working. If something breaks, loosens or fails to work properly, stop working, switch off the engine and do not return to work before the problem has been solved.

Attention to other details

- Be aware of the manoeuvres being performed.
- Do not allow unqualified or uninformed persons to operate the tractor. This could be dangerous.



ATTENTION: Do NOT allow anyone to remain on the tractor or the implement when the tractor is moving, except if the implement is especially made for this purpose (Fig. 9).



ATTENTION: Do NOT allow children to mount the tractor or the implement attachment



ATTENTION: Before moving the tractor, make sure that the speed and steering are under control. Start smoothly once you have checked that everything is working properly. Move slowly, with the lock on, and only move the steering wheel when necessary.



ATTENTION: Never lift loads over people

- Keep people out of the tractor's scope of action. Do NOT allow people to remain or pass beneath lifted loads (Fig. 10).
- NEVER drive the tractor in areas close to walls or fixed objects that could limit manoeuvring capacity.
- Do NOT remain with the scope of action of loading or unloading manoeuvres.
- Do NOT allow anyone to sit on the safety structure or bumper.
- Keep away from moving elements: chains, hydraulic cylinders, cables, etc. Make sure all protective structures are in place.



Fig. 9



Fig. 10



ATTENTION: Do NOT stay behind the tractor or allow others to do so, unless the engine is switched off, the attached implement is lowered to the ground, the hand brake is on and the gear stick is in neutral.

Safety structure

Risk of toppling

For your safety, we recommend fitting your tractor with a safety chassis and belt.

If you topple over when the tractor is fitted with a safety chassis, hold tight to the steering wheel and do **NOT** attempt to leave the driver's seat until the tractor is stationary (Fig. 11). If the cabin doors are blocked, leave the tractor through the roof or the rear window.

Rules to avoid toppling to the side

- Adjust road width to the maximum permitted for the work being performed
- Join the two brake pedals before entering a public road or when driving at transport speed
- Drive at a suitable speed, depending on the land and the work to be performed
- If the tractor has front loading, take the precaution of keeping the load as low as possible
- Manoeuvre at low speed
- On irregular ground, do NOT make the tractor skid or jump, to avoid losing control over the tractor.
- Do NOT work with loads in excess of the maximum weight allowed for the tractor. It could be dangerous when driving down hill because the trailer load could push the tractor.
- Do NOT brake suddenly. Brake smoothly and gradually.
- When driving down hill, use slow gear. Select the gear before starting to move down hill.



ATTENTION: NEVER press down the clutch or try to change gear when moving down hill.

- It is advisable to drive vertically when driving up and down hill. Avoid driving horizontally on hills.
- Whenever possible, avoid crossing hilly land. If necessary, avoid pot holes, tree trunks or hillocks (Fig. 12).

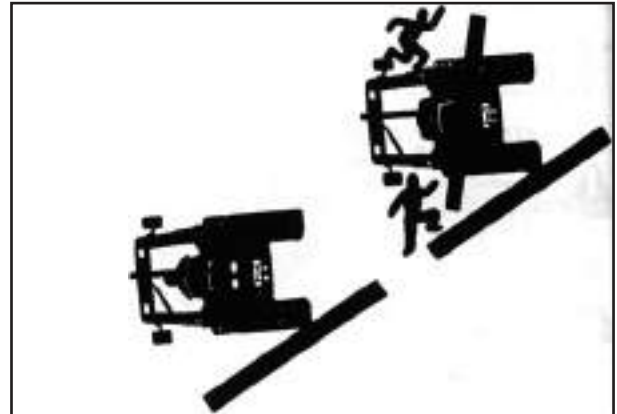


Fig. 11

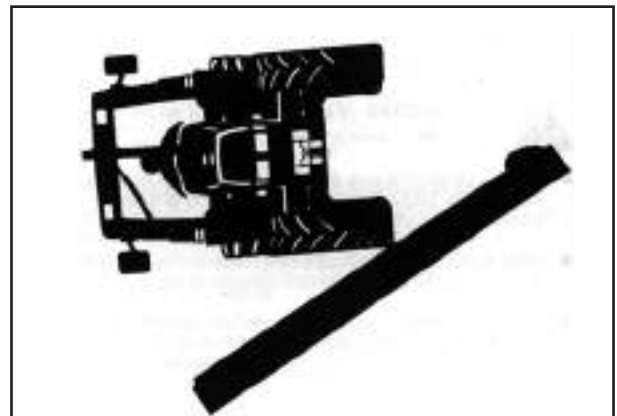


Fig. 12

- If you need to cross a pronounced slope, avoid driving on the high side. Drive slowly on the longest route possible.
- When crossing a slope with a lateral implement attached, drive with the implement on the high side of the slope.
- When crossing a slope, do **NOT** lift the implement. Keep it as near to the ground as possible.
- Avoid ditches, embankments, rivers and canals. Be aware of possible kerbs that may appear when driving.
- When driving with a loaded trailer, use safety chains.
- **NEVER** use the tractor to pick up animals.

Toppling backwards

- To prevent the front end of the tractor from rising and the tractor toppling backwards, always attach loads to the trailer attachment.



ATTENTION: Attaching loads to the rear axle or anywhere else higher than the trailer attachment can lead to the tractor toppling backwards

- Attaching loads to high points can lead the tractor to topple over backwards and serious accidents.
- When using the three-point attachment, always position the cross bar correctly.
- Use front counterweights to increase the tractor's stability when attached to a heavy load or agricultural instrument (Fig. 13).
- Start slowly and increase speed gradually. Do **NOT** accelerate the engine and do **NOT** use the clutch for a fast start. If the tractor has a heavy load or has caught, the incorrect use of the clutch could make the tractor topple over backwards.
- If the tractor rises at the front, reduce speed and step on the clutch.
- If the tractor gets stuck in the mud, do **NOT** attempt to drive forward. The tractor could turn on the rear wheels and topple over. Lift the attached implement and attempt to **MOVE IN REVERSE**. If this is not possible, use another vehicle to pull the tractor out.
- If the tractor is blocked in a ditch, **CONNECT REVERSE GEAR** if possible and move backwards with precaution.
- When crossing slopes, move vertically and never horizontally. Keep the heaviest side of the tractor on the high side of the slope.
- The tractor or tractor and implement attachment should move in reverse when climbing gradients and forward when driving down gradients.
- The tractor with an implement attached to the front has to reverse to move down the slope and move forward when going up the slope. Maintain the implement at the front as low as possible.
- Keep the gear engaged when driving down hill. **NEVER** drive down hill in neutral or with the clutch depressed.
- **Do NOT** pull on the third point attachment of the axle or the three-point lifting arm. Always use the tractor's original trailer attachment.



Fig. 13

Risky operations

- Make sure that the protective casing (1) is correctly assembled. When the power connection is not being used, make sure that the protector (2) is in place.
- Before assembling, removing, cleaning and adjusting implements connected to the power, switch off the power connection, switch off the engine, remove the ignition key and make sure that the power connection shaft is locked.
- Make sure that all the safety protections are in place and follow the instructions on the safety sticker (Fig. 15).

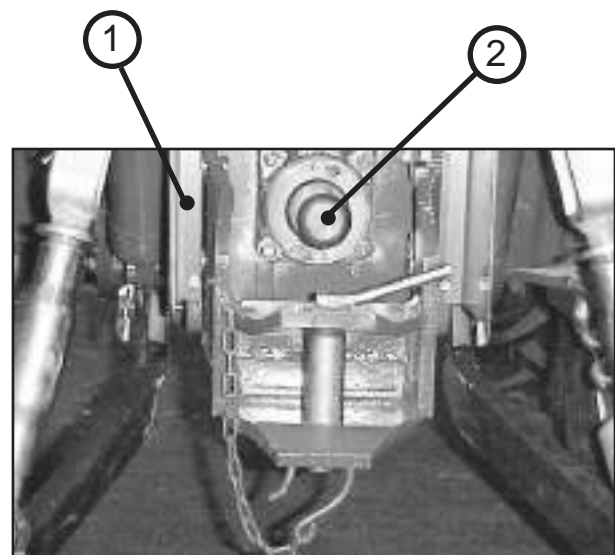


Fig. 14

Safety Standards

- Before connecting the power, make sure that there is no-one within the implement's scope of action. When the tractor is stationary, put the gears in neutral, connect the hand brake and use wheel wedges to ensure that the implement is stable.
- When working with implements connected to power, **NEVER** leave the driver's seat until the power has been switched off, the gear is in neutral, the hand brake is on and the ignition key removed.
- **Do NOT** use adapters, reducers or cable lengtheners to connect the cardan outside the power connection protection.
- Always use the original bolts for the third point and the vertical braces of the three-point attachment.



ATTENTION: NEVER attempt to loosen the hydraulic connections or adjust the implement with the engine running or the power on. These manoeuvres create dangerous situations that could lead to serious accidents or death

- When using chemicals, follow the manufacturer's instructions on use and handling and suitable protective equipment.
- When working at night or with limited visibility, switch on the rear working light and reduce speed (the use of working lights when on public roads is prohibited, except when reversing).
- Work with the maximum wheel clearance possible. To change wheel clearance, see the instructions for use included in this manual.
- Reduce speed when working on irregular land or when trees limit visibility.
- **AVOID** sudden turns, or fast angular steering wheel movements.



Fig.15



ATTENTION: front loaders (with forks or spoons) must have a load blocking device to prevent the lifting arms from falling into the driver's compartment when the load is in the lifted position.

- Agricultural implements mounted on the third point or laterally have a greater turning radius. Make sure that there is enough space for the manoeuvres.
- Read the instructions that come with the implement attachments carefully and make sure you understand them. Follow the safety instructions provided.
- Do not allow the implements to fall. Use wedges to guarantee balance before removing them.
- Never overload the trailer or attached implement. Use ballast to balance the weight and guarantee the tractor's stability. Mount heavy loads only on the pull-bar.

Driving on roads

Before entering public roads with the tractor, the following precautions are recommended:

- Be familiar with the current highway code and respect it
- Connect the two brake pedals
- Lift the attached implement to transport position and lock it in place
- Position the implement in the least bulky position possible
- Disconnect the power connection and the differential lock
- Make sure that the compulsory plaques are in place (Fig. 16).
- Make sure that the signals and lights work properly
- Make sure that the attached implement is fitted correctly and that the transport safety devices are in place
- Clean the headlights and pilot lights



ATTENTION: Do NOT allow any other person to remain on the tractor or attached implement.

- Be familiar with your route
- Connect the flashing light when driving on roads
- Drive with caution, especially if the trailer is loaded or with a heavy attachment
- Respect road speed and other rules
- Pay special attention if the road is wet or slippery
- Make sure that there is no traffic before crossing a road
- Pay special attention to other vehicles. Reduce speed if visibility is limited.
- Do no attempt to overtake other vehicles
- Reduce speed on bends
- Drive slowly on bends
- Signal before you brake or turn

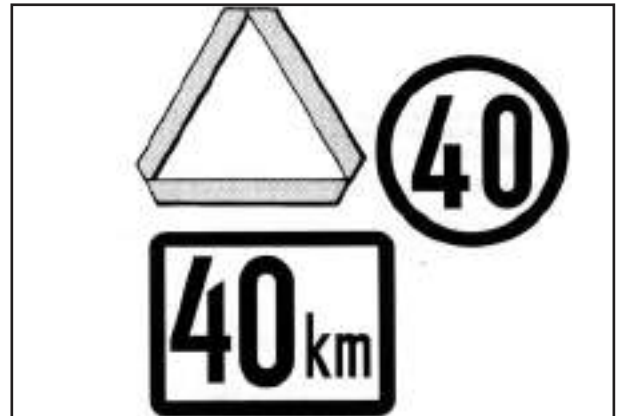


Fig. 16

- Get into low gear before or after a hill
- Always keep a gear engaged. NEVER drive down hill in neutral or with the clutch depressed
- Do NOT hinder other vehicle traffic
- Drive in the right direction, as close as possible to the edge of the road. If a queue forms behind you, stop on the edge of the road and let it overtake you.
- Drive with caution
- With a loaded trailer, brake first and reduce speed gradually
- Pay attention to possible height problems (bridges, arches, trees, cables, etc.)

After use

When you have finished work, stop the tractor. Drive to a safe place, pull on the hand brake, switch the power off and put the gear in neutral. Connect front or reverse gear, lower the attached implement to the ground, switch off the engine and remove the ignition key. Do ALL this before you leave the driver's seat.

Cabin

The safety cabin has been especially designed for this type of tractor and is compliant with applicable safety standards.

The safety cabin is compliant with international safety standards. It is PROHIBITED to perforate or alter the cabin to install accessories or equipment. IT IS NOT PERMITTED to weld cabin components or repair them when damaged. NEVER attach cables or chains to the main cabin chassis for trailing purposes.

Safety Standards

Additional indications

The following indications are in addition to the information in this manual, in order to ensure the reliable, safe and effective use of the tractor.

Agricultural tractors are designed basically to pull implements attached to the three-point attachment or to move implements connected to the TDF axle.

To obtain more traction capacity, respect the following indications on axle loads.

If supplementary implements are attached, the additional loads must respect the limits specified in this manual or the dealer's indications.

1.- Front axle loads

The front axle normally supports 40% of the weight of the empty tractor

With implements attached to the rear three-point attachment, it may be necessary to use frontal counterweights to ensure this load on the front axle.

With frontal attachments, never exceed the limit for the front axle (consult your dealer).

2.- Rear axle loads

Both with suspended and trailed implements, the rear axle load should not exceed the limit established by the tyres (consult your dealer).

Remember this whenever using ballast on the rear axle (not recommended).

3.- Maximum load

Never exceed the authorised maximum load limit, depending on the tyres being used. Remember that the maximum load is less than the sum of the front and rear axle capacities.

4.- Ballast and skidding

When working with dragging implements it is essential to control skidding.

On normal land, skidding of between 4% and 10% is admissible. On soft land, it may exceed 12%. If these values are exceeded, the tractor will not be stable.

In some working conditions it is advisable to use ballast to reduce skidding, but this increases the transmission effort and reduces the life of the parts involved.

Consult your dealer on the maximum loads admissible with ballast for the working conditions and implement attachment in question.

For working on slippery or sandy land, wider tyres may be used, but this increases the transmission effort, and on dry or hard land, the maximum load will be lower than authorised.

Remember that the limit of the effort transmitted to the tractor parts is established by the skidding of the wheels.

5.- Front wheels advancing with four-wheel drive connected.

In these conditions, the movement of the front wheels has to be greater than the rear wheels by between 1% and 4%.

A greater difference is only recommendable on very soft ground.

The original wheels supplied with the tractor are calculated to maintain these rates with the specific air pressure.

Always replace these wheels with wheels of the same brand and size.

The use of different tyres may alter this ratio. This could cause shaking, less adherence, excessive tyre wear, transmission overloads and unacceptable working conditions.

6.- Economic power connection

The economic power connection (750) allows you to use standard TDF speed with the engine at less revolutions.

This application can only be used for light work, in general with implements requiring less than 30 cv.

The economic TDF saves fuel and is not designed to make use of full engine power.

7.- Working on slopes

The manual provides instructions for working safely on slopes.

When driving or working on very steep slopes, you may have lubrication problems, both in the engine and the transmission, and this requires special lubrication. If you expect to use the tractor on gradients of over 15%, consult your dealer.

8.- External hydraulic applications

The tractor's hydraulic circuit can be used for external applications (hydraulic motors). In these applications, the characteristics of the application have to be known to avoid exceeding the capacity of the tractor's hydraulic circuit.

External applications, especially hydraulic motors, can heat the oil and the tractor's cooling system may not be sufficient. If additional cooling systems are planned, make sure that the oil is filtered and cooled to avoid faults in the tractor's hydraulic circuit.

9. Trailing heavy loads

To trail heavy loads at high speeds, a supplementary brake system and rear wheel ballast may be required.

Consult your dealer on the instructions for external applications.

10.- The clutch

The tractor is equipped with a metal-to-metal clutch.

Each time you change gear, the clutch slips and this can cause wear and heat. To make the clutch last longer, reduce engine speed when you change gear.

Prolonged clutch slipping heats the disk and reduces the life of the clutch.

11.- Other indications for users

This manual provides the instructions for guaranteeing the use of the tractor in safe conditions.

If the tractor is used by someone else, make sure that they are familiar with the safety instructions.

It is only possible to carry other people on the tractor if a passenger seat and safety belt are properly installed.

It is forbidden to carry people on the external structure of the tractor, attached implement or trailer.

The safety structure only protects the people inside it. If the tractor is only equipped with a safety chassis, it is advisable to refrain from carrying passengers, even if a passenger seat is installed.

12.- Chemicals

WHEN USING CHEMICALS (FUMIGATION), YOU MAY NEED TO USE PERSONAL PROTECTIVE EQUIPMENT:

If the tractor cabin has air conditioning, the use of filters with chemical absorption may increase the level of protection.

Always read, understand and follow the instructions for the use of chemicals, and the filters to be used.

Safety Standards

Risks derived from exposure to noise

Characteristics of noise

Noise is produced by the location of a material body, determining an undesired and often annoying acoustic sensation.

The characteristics of noise are:

- Intensity (noise level) expressed in decibels (dB(A)), which is the energy that reaches the ear.
- Frequency, expressed in Herz (Hz), which are sound wave variations per minute.

Risk assessment

Noise risk is greater the higher the sound level and the time of exposure.

To assess the risk, we use the Laeq value (measured directly with a sound meter) and the LEP value calculated from the sound level and time of exposure.

Damage caused by noise

Exposure to noise causes disorders of the auditive system and deafness.

This disorder is progressive and irreversible, and it worsens if exposure to noise continues, and does not improve when the noise ends.

Deafness appears, in general, after several years exposed to noise and depends on the LEP (risk practically null beneath 80 dB(A)) and individual characteristics. It is an incurable disease and the only effective remedy is prevention.

Noise can not only cause deafness, but at levels greater than 70 dB(A), it can also have other side effects, such as stress, reduced reflexes, tiredness, etc.

These effects are dangerous, because they can increase the risk of accident.

Individual means of protection

When it is not possible to avoid exposure to noise, individual means of protection help to mitigate the sound that reaches the ear.

For high noise levels, it is advisable to use headphones, but for short times of exposure.

For prolonged exposure and less intense noise levels, ear plugs are effective.

For daily exposure to levels equal to or greater than 85 dB(A), it is advisable to use individual means of ear protection.

With regards to the tractor's noise level, see the Technical Characteristics section.



POSITION OF SANGER STICKERS

810295

On the right-hand post of the arch

DANGER. *Toppling over and flattened thorax. If the tractor is toppling over, hold on tightly to the steering wheel. Do NOT rise from the driver's seat or attempt to leave the tractor.*



807013

On the central tunnel

ATTENTION: *Pay attention. Read the maintenance and use manual to inform yourself of the safety and use of the tractor*



810296

On the left of the rear bumper

ATTENTION: *Danger of flattening. Do NOT carry people sitting on the bumper or any other part of the tractor or agricultural implement.*



810297

Next to the battery

ATTENTION: *Danger of electric discharge. Disconnect the negative battery terminal before working on the battery or the electric circuit.*



810298

On the left-hand post of the arch

ATTENTION: *Danger of toppling over and flattening. Maintain the safety arch in place. Do NOT alter. Do NOT weld. Do NOT drill and NEVER remove the safety arch. Do not attach accessories to the safety arch. When the safety arch has to be removed (ONLY for maintenance operations), drive with the utmost precaution because you are not protected by the arch.*



810300

On the power connection protection

DANGER: *Danger of running over. Keep your distance from the rotating shafts. Do NOT remove the cardan with the power connection in movement. Keep all the protections on the cardan, tractor and implement well installed and secured.*



810378

Next to the radiator in water-cooled engines.

ATTENTION: *Jets of hot steam or water. Protect your face. When the engine is warm, the radiator is under pressure. Remove the cap with care and when the engine is cold.*



Safety Standards

810293

On the starter motor

DANGER: Danger of entrapment. Do NOT start the engine by hot-wiring the starter motor. This operation can cause serious accidents, and even death. ONLY start the engine from the driver's seat

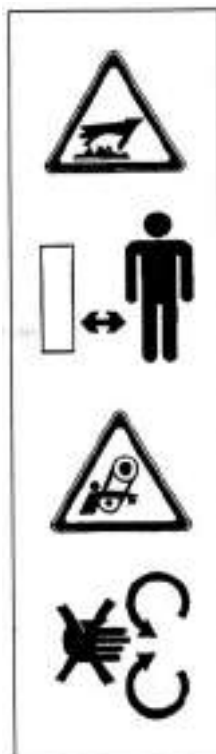


810299

On the front separating plate

ATTENTION: Hot surface, danger of burns. Remain away from hot areas. Keep a safe distance.

ATTENTION: Danger of entrapment. Keep your hands away from belts and other rotating parts while the engine is running. Keep the protections in place.



810292

On the rear separating plate

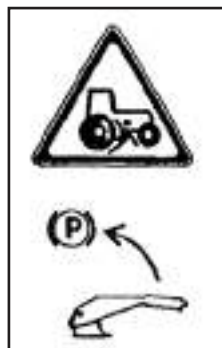
ATTENTION: Danger of electric discharge. Disconnect the negative battery terminal before loosening the solenoid cap and working on the electric circuit.



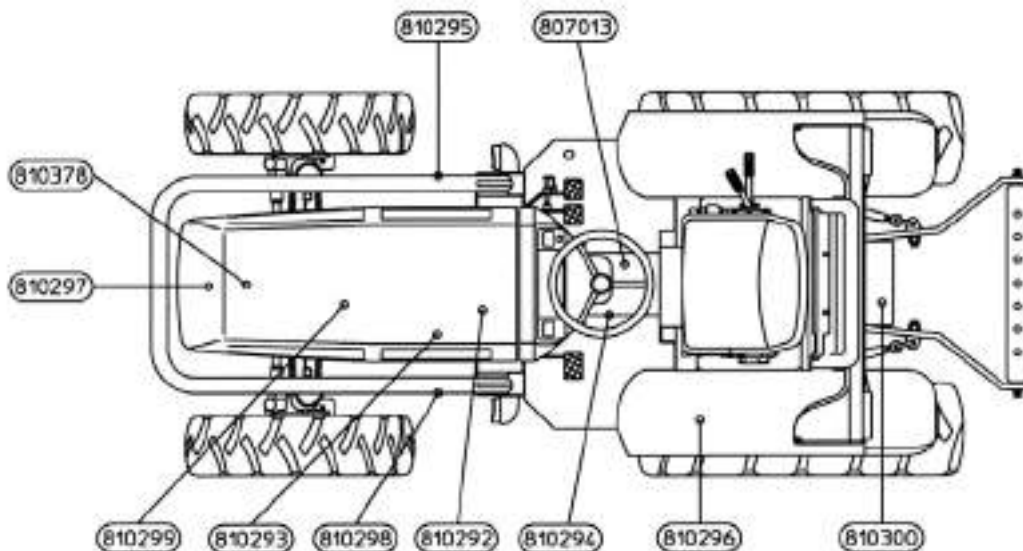
810294

On the hand brake

ATTENTION: Danger of entrapment. Before leaving the tractor, switch the hand brake on, lower the implement, switch off the engine and remove the ignition key. If necessary, keep the engine running, switch on the hand brake, lower the implement and put the engine in neutral.



POSITION OF THE DANGER STICKERS



Dashboard controls

Dashboard controls

NOTE: For the correct use of these controls, see the use section

Dashboard controls (Fig. 17)

- 1.- Ignition key
- 2.- Rotating light switch
- 3.- Operating light switch
- 4.- Instrument panel
- 5.- Emergency light switch
- 6.- Blocking switch
- 7.- Lights and horn control

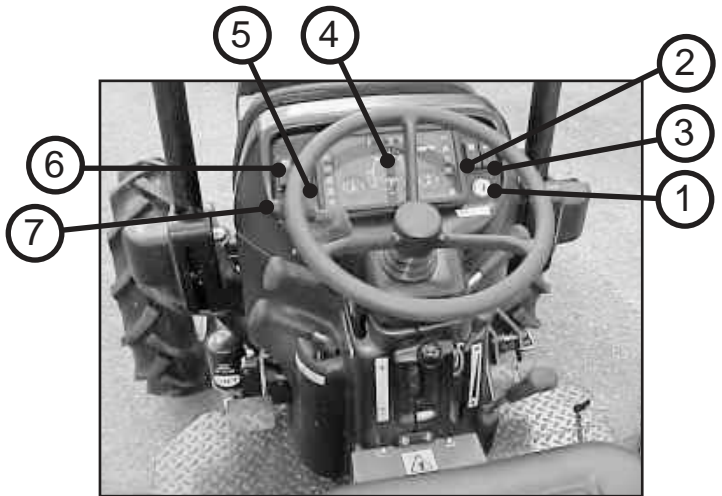


Fig. 17

Tractor controls

Controls (Fig. 18 and 19)

- 8.- Gear lever
- 9.- Manual accelerator
- 10.- Slow-medium-long lever
- 11.- Switch to block brake pedals
- 12.- Brake pedals
- 13.- Accelerator pedal
- 14.- Clutch pedal
- 15.- TDF clutch control
- 16.- TDF connection control
- 17.- Reverse lever
- 18.- Position control lever
- 19.- Effort control lever
- 20.- Hand brake
- 21.- 540-750 lever
- 22.- 4-wheel drive connection lever
- 23.- Auxiliary distributor levers

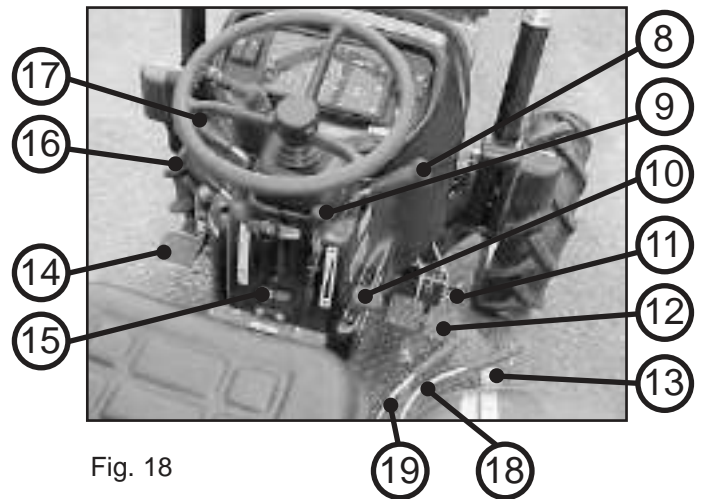


Fig. 18

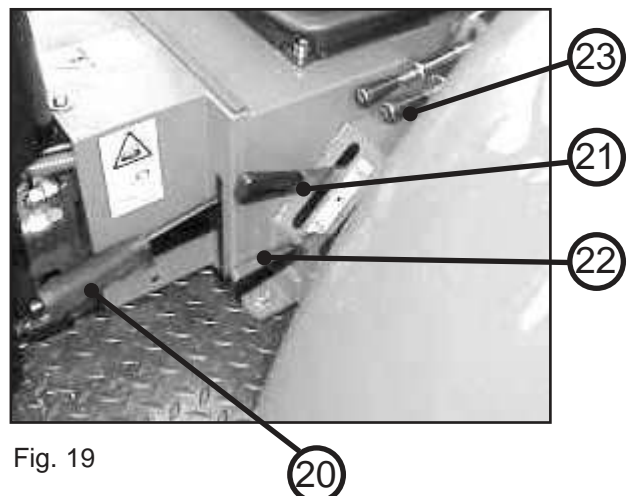


Fig. 19

Dashboard controls

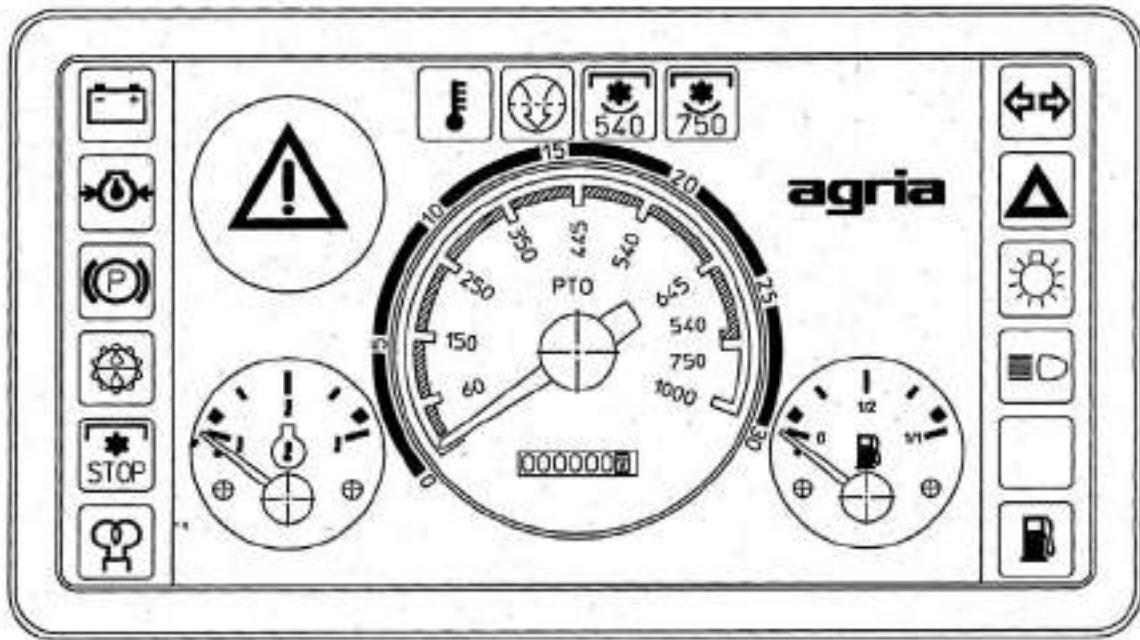


Fig. 20

Instrument panel (Fig. 20) Lamps



General danger lamp, red. If it lights up as the same time as another red lamp (battery charge, oil pressure, etc.), the lit-up symbol is not working correctly. When the ignition is switched on, all these lamps light up and go out again when the engine is running.



Battery charge red lamp. It should go out as soon as the engine is running.



Red oil pressure lamp. It should go out as soon as the engine is running. With the engine hot and idling, it may come on even when everything is running normally.



Red lamp. It lights up when the hand brake is on.



Red lamp. It lights up when the engine oil filter is dirty. See engine manual.



Red lamp. It lights up when the TDF is de-clutched.



Yellow lamp. It lights up when the starter heater system is on.



Engine temperature red lamp. If it lights up, engine speed falls to idling. See the engine manual, oil temperature chapter.



Red lamp showing air filter dirty. Clean or replace the air filter cartridge when it lights up.



Yellow lamp. It lights up when the TDF is in the standard 540 position.



Green lamp. It lights up when the TDF is in the standard 540E (economic) position.



Green lamp showing the indicators are working.



Red lamp. It flashes on and off when the emergency lights are on.



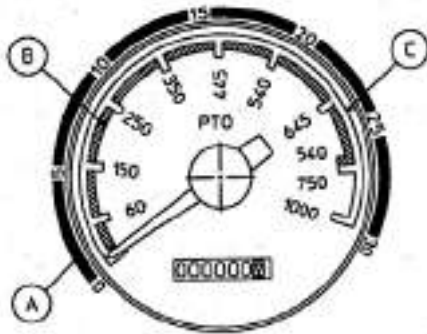
Green parking light lamp.



Blue long-beam lamp.



Yellow lamp. It lights up when the fuel tank is running on reserve.



Engine speed counter and TDF

The outer scale (A) indicates the engine speed. The green scale (C) indicates the speed of the power connection in 540 Economic position. The yellow scale (B) indicates the speed of the power connection in the 540 Standard position.

TDF speed counter

The green scale indicates that the lever (21, Fig. 19) has selected 750 rpm. The 540 Economic speed can also be obtained with the following ratios:

540 Economic = 1869 rpm

750 Economic = 2595 rpm

The yellow scale indicates that the 540 position has been selected with the lever (21, Fig. 19) with the following ratio:

540 Standard = 2538 rpm

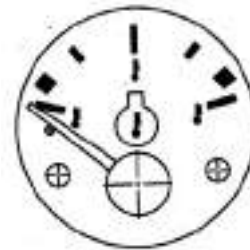
Hour counter

The indicator at the bottom of the instrument indicates the hours that the engine has been on, irrespective of engine speed.

- 5 white numbers represent the hours
- 1 yellow number represents 1/10 of an hour
- 1 yellow sector represents 1/100 of an hour



Engine oil temperature indicator



- Green area = normal temperature
- Red area = high temperature

When the temperature is between 105 and 115°, the red lamp lights up. It shows that the engine has heated because of

- a no engine oil
- b entrance of dust and straw, etc., in the engine

WARNING: If the engine temperature is high, slow down the engine to idling speed and leave it to turn over for a while. If the indicator remains in the red area, switch off the engine and check. Is necessary, go to an approved technical service

Fuel level indicator



The green scale indicates the amount of fuel in the tank. When the indicator is in the red area, there are approximately 8 litres in the tank. The orange lamp indicating that the engine is running on reserve then lights up.

Dashboard controls

Dashboard instruments

1).- Starter (Fig. 21)



- The entire circuit has no power. The ignition key can be removed. To stop the engine, position the key like this.



- Contact position. There is power in several parts of the circuit. The signals and the control instruments are working.



- Heater position for starting at low temperatures. To use, read the instructions contained in this manual.



- To start the engine. When the key is released, it automatically returns to the contact position.

2).- Rotating lamp switch

The yellow lamp lights up when the rotating lamp is on. Compulsory when driving on public roads.

3).- Working light switch.

The yellow lamp and the working lamp switch on.

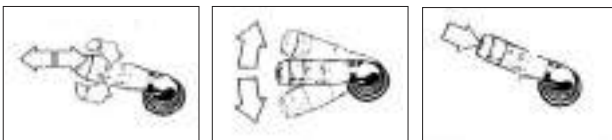
5).- Emergency signal switch

The red lamp flashes on and off when pressed, and the 4 indicators switch on.

6).- Differential lock switch

See instructions for use. When the button is pressed, the yellow lamp lights up and the rear and front locks automatically engage.

7).- Light, indicator and horn switch



At rest, lights off.



Parking lights, turn switch to first position



Short-beam, turn switch to second position



Long-beam, turn switch to second position and move forwards.

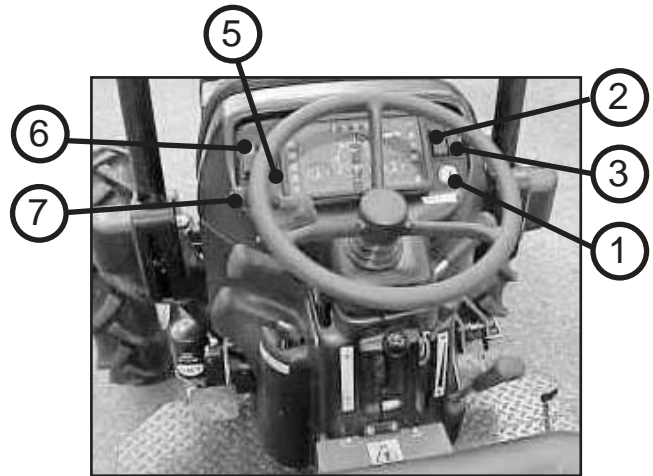
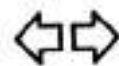


Fig. 21



To flash long-beam pull the control towards you



Indicators,
Switch up, RIGHT-HAND turn
Switch down, LEFT-HAND turn



Horn, press the button

Controls

Seat adjustment (Fig. 22)

Longitudinal adjustment

Unlock the catch lever (1) to move the seat back or forwards.

Suspension adjustments

The seat suspension can be adjusted to the driver's wait by turning the control (2). To harden the suspension, switch in (+) direction. To soften the suspension, switch in (-) direction.

Seat height adjustment

Turn the control (3) to raise or lower the seat.



Fig. 22

Manual accelerator (9, Fig. 18)

Up: minimum speed
Down: maximum speed

PRIOR CHECKS

Before starting a new tractor, or if the tractor has not been used for a time, make the following checks:

- 1- Check engine oil level (see instructions in the engine manual)
- 2 - Check level of the gear casing
- 3 - Check oil level of reducers
- 4 - Check the oil in the front 4-wheel drive bridge
- 5 - Check tyre pressure



Attention: Do not fill tyres with inflammable gases

- 7) Make sure that there is enough fuel in the tank



Attention: When you fill with fuel, keep away from sparks or flames. Attention: Do not smoke

- 8) Check the battery charge



Attention: Before checking, replacing or re-charging the battery, put out all flames. Do not smoke.



Attention: When working around or on the battery, protect yourself from splashes of the electrolyte. If your skin comes into contact with the electrolyte, wash with plenty of water. If it becomes irritated, see your doctor.



Attention: When re-charging, remove the spark plug caps

- 9) Check that the driver's seat is installed properly.
- 10) Check that the most important screws and bolts (wheels, lifting equipment, etc.) are tightened properly.

Running-in

See the instructions in the engine manual

Starting the engine

Attention: Check that the starter safety system is working. The engine will only switch on if the TDF clutch and the power connection lever are in neutral. If this system does not work properly, go to the local technical service.



Attention: The tractor and the implement attached should only be used by qualified persons.



Attention: Only operate the controls from the driving seat.



Attention: Never start the tractor in a closed area, unless there is good ventilation for the exhaust gases



Attention: Never leave the tractor with the engine running..



Attention: Before starting the engine, make sure there is no-one within the tractor and implement's scope of action. Use the horn to indicate that you are going to start the engine



- 1- Check that the TDF clutch control (15) and the power connection control (16) are in neutral. The safety device prevents you from starting the engine if these conditions are not met.
- 2- Position the manual accelerator (9) half way.
- 3- Press the clutch (14) down completely.
- 4- Introduce the ignition key (1) and turn in clockwise completely. When the engine starts, release the key for it automatically return to its previous position.

Norms of use

Starting the engine at low temperatures

Proceed as follows:

- Follow previous instructions 1, 2 and 3.
- Introduce the ignition key (1) and turn clockwise to HEATER position.
- After 20 seconds, turn the key completely to start the engine. If the engine has not started in 15 seconds, return the key to HEATER position.
- Wait for 10 seconds and repeat the operation
- When the engine starts, release the key for it to return automatically to its previous position
- If the engine does not start, start again with the heating operation

NOTE

- *If the engine does not start after two or three attempts or smoke comes out of the exhaust, start the engine without using the heater.*
- *Do not keep the key in ignition position for more than 15 seconds.*
- *Wait for 1 minute between successive attempts at starting*

If the engine does not start, do not insist. Before trying again, check:

- That the fuel filter is not blocked
- That the battery is charged
- That the heater works properly

Starting the tractor



Attention: *Only start the tractor from the driver's seat*



Attention: *Before starting work, inspect the land to identify possible dangerous situations and act accordingly.*



Attention: *Start the tractor after making sure that there is no-one within its scope of action*

- 1- Press the clutch (14) right down and select the desired gear with the gear levers (8, 19)



Attention: *Check that the reverse lever (17) (Fig. 18) is in the desired position.*

- 2- Switch off the hand brake (20)
- 3- Accelerate smoothly with the control (9) or with the pedal (13)
- 4- Release the clutch pedal (14) gradually.



Attention: *When driving, do not rest your foot on the clutch pedal.*

Accelerator pedal



Attention: When driving on roads, use the foot accelerator and maintain the manual accelerator at the minimum position.

The accelerator pedal cancels the action of the manual accelerator when the engine is revived. When you release the accelerator pedal, the engine goes back to the speed governed by the manual accelerator. When using the accelerator pedal, the manual accelerator should remain in the minimum position.

Stopping the tractor

- Reduce the engine to idling speed
- Press the clutch pedal completely down and brake heavily until the tractor stops
- With the tractor stopped and the clutch pressed down, place the gear stick and the short-medium-long lever in neutral and release the clutch pedal.
- Press both brake pedals completely down and switch on the hand brake.

Stopping the engine

- 1 Leave the engine idling
- 2 Turn the ignition key to "0" position.



Attention: Before leaving the tractor, remove the ignition key, make sure that the implement is fully resting on the ground and follow the instructions for safe parking.

Clutch

Clutch pedal (14) Fig. 18

Pedal up: clutch on

Pedal down: clutch off. Press the pedal gradually. When the engine tries to "stall", do not press the clutch to accelerate. Press the pedal right down and enter a lower gear. When working, DO NOT KEEP your foot resting on the pedal. Use the foot rest.



Attention: Do not drive with your foot resting on the clutch pedal. Never enter a slope in neutral gear

Gear box

Standard gear with reverse

It has four synchronised gears and a synchronised reverse gear, and combined with the Slow-Medium-Fast range, obtaining 12 forward and 12 reverse gears.

Super-reducer

Optionally, a 4 forward and 4 reverse gear super-reducer can be installed. This gearbox has 16 forward and 16 reverse gears.

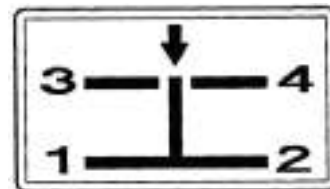
TO CONNECT THE SUPER-REDUCER THE TRACTOR HAS TO HAVE STOPPED COMPLETELY.

Gear lever (8, Fig. 18)

It has 4 synchronised positions

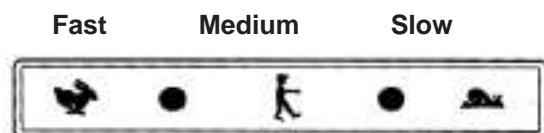
Down: 1st – 2nd
Up: 3rd – 4th

To change from one gear to another, press the clutch down completely.



Slow-Medium-Fast lever (10, Fig. 18)

It has 3 positions, corresponding to the Slow-Medium-Fast range and 2 neutral positions between one range and the other.



To change range, press the clutch down completely and COMPLETELY stop the tractor.

Norms of use

Reverse lever (17, Fig. 18)

To connect forward or reverse gear it is advisable, although they are synchronised, to press the clutch pedal right down and STOP the tractor.



Super-reducer lever

Optional. The lever is located next to the right-hand foot rest and has two positions.

Up: super-reducer

Down: normal

To connect and disconnect the super-reducer, TOTALLY STOP the tractor.

Use of the gearbox and selection of the correct gear.

Gear selection will depend on the type of work, the type of implement and the ground conditions. Always select a ration in which the engine works properly at 75% maximum power, to keep a power reserve to support eventual overloads.

Selection of right speed

- 1.- Select the right range (Slow-Medium-Fast) for the work to be done.
- 2.- Select working gear.
- 3.- Use the synchronised reverse gear to manoeuvre.

NOTE: The different gear values are specified on the characteristics table.

Power connection

The tractor has a rear, standard Type 1 power connection and is capable of working in the following ways:

- Directly from the engine: independent
- Depending on the gear box: synchronised

TDF clutch

To connect or disconnect the TDF axle, it is necessary to use the TDF clutch control (15, Fig. 18). This control has two positions (Fig. 22).

Up: Clutch (TDF) on

Down: De-clutched (TDF) off

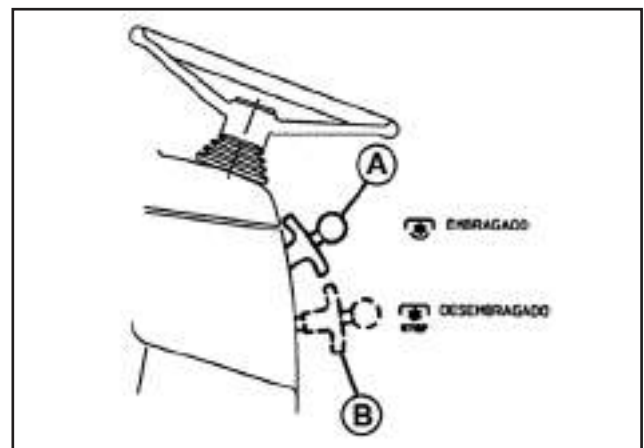


Fig. 22

To de-clutch, press button A until the control is in the down position. To clutch, pull Handle B and leave the control to move smoothly to the up position.



Attention: Set TDF clutch control in the de-clutch position just long enough for the manoeuvres. While working, keep it de-clutched.



Attention: The TDF has to be de-clutched before changing gear. Always select the correct TDF gear according to the implement being used. To start the engine, the TDF clutch has to be in de-clutched position.

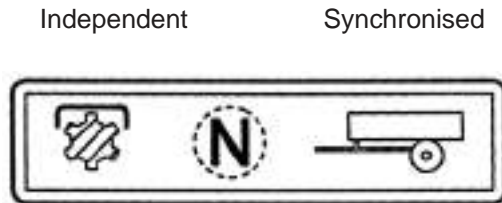
Independent-Synchronised selection

The selection is made using the lever (16, Fig. 18), which has three positions:

Forward: independent

Centre: neutral

Back: synchronised



To activate the lever, the TDF clutch control (15, Fig. 18) has to be de-clutched and the clutch pedal (14, Fig. 18) totally depressed.

Independent TDF

The TDF shaft has two speeds, which are selected with the lever (21, Fig. 23)



Fig. 23

Up: 540 rpm

Down: 750 rpm (540 E)

The 750 rpm position (540E) is used for implements that do not require maximum engine power, obtaining 540 rpm with 1869 rpm engine speed. The use of the TDD in the 750 position reduces the fuel consumption, the noise and the vibrations.



Attention: Connect and disconnect the TDF using the lever (16 Fig.18). This lever and the selection lever (21 Fig. 23) to activate both, the TDF clutch has to be in declutched position

Synchronised TDF

This application is for trailers with traction or implements that have to work in a synchronised manner with the tractor's movement.

Connect the synchronised TDF with the tractor stopped and as follows:

- 1- Press the clutch pedal and stop the tractor
- 2- Set the TDF clutch control (15, Fig. 18) to the DE-CLUTCHED position
- 3- Set the selection lever (21, Fig. 23) to the 750 position and the lever (22, Fig. 23) to the SYNCHRONISED position.
- 4- Connect the TDF setting the control (15, Fig. 18) to the CLUTCHED position



Attention: If it is necessary to reverse when using the synchronised TDF, remember that the TDF shaft will turn in the opposite direction. With some implements it is advisable to disconnect the TDF when reversing the tractor.

Precautions when using the TDF



Attention: If you expect to use the tractor on muddy ground, where the water level may exceed the TDF, visit your local dealer to adopt the measures required to ensure that it is watertight. If you do not respect these measures, the WARRANTY may not be applicable.



Attention: To prevent accidents, keep all the protective elements in place and keep away from the transmission shafts when using the TDF (Fig. 15).



Attention: Before attaching or removing an implement connected to the TDF shaft, always switch off the TDF and the engine



Attention: Before starting an implement connected to the TDF, ALWAYS check that there is no-one within the implement's scope of action



Attention: When using the TDF with the tractor stopped, ALWAYS check that the gearbox is in neutral and that the hand brake is on.



Attention: Before working with the implement connected to the TDF and attached to the three-point attachment, lift it as high as possible and check that at least 1/4 of the length of the telescopic section of the transmission shaft is connected. Adjust the maximum lifting height.

Norms of use

BRAKES

Service brakes

The tractor has two brake pedals (A, Fig. 24) that act separately on the brake of each of the rear wheels. Braking with only one of the pedals allows you to turn in a smaller radius. Blocking the internal curve brake, the tractor turns on the same wheel.

The simultaneous action of the brakes in normal use and on roads is obtained by blocking the two pedals with a pin (B, Fig. 24).



ATTENTION: When driving on roads, ALWAYS keep the brake pedals joined to obtain simultaneous braking on the four wheels. NEVER use the pedals independently when driving on roads.



ATTENTION: If you observe a reduction in braking capacity, check and solve it immediately. Working on slopes, use the brakes when strictly necessary. Use low gears to brake with the engine.

To disconnect the lock, switch off (6, Fig. 17) and press one of the brake pedals



Attention: Switch off the lock when driving on roads and when you are going to turn

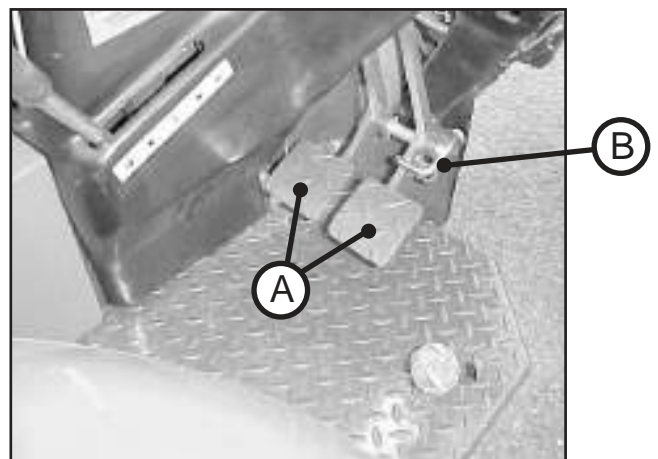


Fig. 24

Hand brake

The hand brake level (20, Fig. 25) acts on the service brake by means of an independent mechanical system, and can therefore be used as an emergency brake.

To activate the hand brake, pull the lever (20) upwards until it remains in a fixed position. To release, press button C and push the lever down. With the brake on, a lamp lights up on the instrument panel.

Differential lock

The tractor has a simultaneous connection system of the rear and front differential. It has to be connected when a wheel skids.

Differential lock on: to connect, press switch (6, Fig. 17). A lamp lights up when it is activated.

NOTE: To obtain better results, connect the differential lock before the wheels start to skid. Do not connect the differential lock when a wheel is skidding.



Fig. 25

4-wheel drive

4-wheel drive connection increases the traction on bumpy ground, where there is mud or on slippery surfaces.

NOTE: Only use 4-wheel drive when necessary. Do not use when not necessary, for example on hard ground, cement roads, public roads, etc., since it causes tyre wear.

Conexión de tracción 4 RM

4-wheel drive connection

4-wheel drive is connected using the lever (22, Fig. 26).

To connect, press the clutch pedal down, stop the tractor and move the lever to the 4 RM CONNECTION position (down).

4RM front axle

The maximum turning angle is 55°.

When the wheel clearance is at its narrowest, the wheels may touch the tractor's structure. In this case, adjust the turning angle.

Adjusting the wheel angle (Fig. 27)

The screws (1, Fig. 27) located to the right and left of the front axle limit the wheel turn.

To adjust:

- 1- Lift the front axle until the front wheels are off the ground and the axle can be turned completely.
- 2- Use the screws (1) to limit the angle, so that the wheels never touch the structure of the tractor. Remember the axle movement. Once you have adjusted the angle, tighten the bolts (2).

NOTE: When the tractor has a front loaded, do not use maximum wheel clearance. Use standard front wheel clearance.

Adjusting maximum axle oscillation

When using minimum wheel clearance, it is best to limit the maximum axle turn to fit the conditions of use. For this adjustment, please consult the approved technical service.



Fig. 26



Fig. 27

Norms of use

Wheels and tyres

Periodically, check that the screws and bolts in the front and rear wheels are tight.

Before starting work every day, check and adjust tyre pressure, according to the following approximate values:

- Working in the fields 1.3 bar
- Driving on roads 1.8 bar

These pressure readings can be used in all circumstances. If earth sticks to the wheels when working on muddy ground, reduce tyre pressure. If you have to drive on a road in these conditions, it is best to do so in low gear.

If you see cuts on the sides of the tyres, vulcanise as soon as possible. Do not use tyres with more than 50% wear.

If you follow all these indications, your tyres will last for a long time.

NOTES: If the tractor is not going to be used for some time, it is advisable to remove the tyres.

Do not leave the tyres exposed to the sun for a long time. If necessary, cover them.

Do not park the tractor on surfaces containing oil or grease.

Wheel clearance adjustment

Front axle

Adjustment of front wheel clearance can be performed by changing the position of the wheels (fixed-disk wheels) or changing the disk and wheel assembly position (wheels with screwed disk).

The clearances and external widths possible are:

$$7.50 - 16 \left\{ \begin{array}{l} \text{Clearance: } 1060 / 1100 / 1150 / 1190 / 1260 / 1300 \\ \text{External: } 1265 / 1305 / 1355 / 1395 / 1465 / 1505 \end{array} \right.$$

$$7.00 - 12 \left\{ \begin{array}{l} \text{Clearance: } 980 / 1285 \\ \text{External: } 1220 / 1520 \end{array} \right. \quad 500 - 15 \left\{ \begin{array}{l} \text{Clearance: } 950 / 1070 \\ \text{External: } 1085 / 1200 \end{array} \right.$$

Rear axle

The variation of the rear wheels is made by changing the disk and wheel assembly position.

The clearances and external widths possible are:

Tyres

$$12.4 - 24 \left\{ \begin{array}{l} \text{Clearance: } 1010 / 1040 / 1115 / 1225 \\ \text{External: } 1330 / 1360 / 1435 / 1545 \end{array} \right.$$

$$11.2 - 20 \left\{ \begin{array}{l} \text{Clearance: } 980 / 1070 / 1105 / 1220 \\ \text{External: } 1260 / 1350 / 1385 / 1500 \end{array} \right.$$

$$260/80-20 \left\{ \begin{array}{l} \text{Clearance: } 832 / 865 / 980 / 1070 / 1105 / 1220 \\ \text{External: } 1100 / 1135 / 1250 / 1340 / 1370 / 1480 \end{array} \right.$$

NOTES: These dimensions correspond to the standard tyres with which the tractor is fitted. Check with your dealer about other possible tyre options and clearance.

Attention: To change the position of the wheels, lift the tractor and support it, and block the wheels. Tighten the bolts to the correct torque.



Front wheels: 27 – 29 da Nm

Rear wheels: 28 – 30 da Nm

Ballast

When using heavy implements suspended from the three-point attachment, use front weights (Fig. 27) to ensure that the tractor is balanced.

The front weights consist of 6 12-kg weights and an 8 kg support, giving a total of 80 kg.

The weight support is attached to the front of the tractor. The weights are attached using the screws (1, Fig. 28).

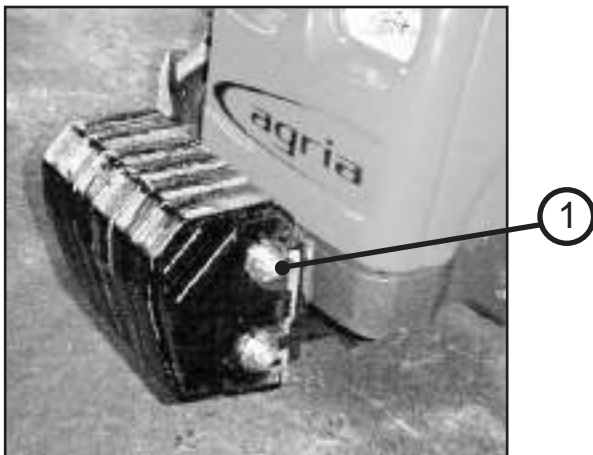


Fig. 28

If you wish to increase the tractor's traction capacity, counterweight the rear axle by filling the rear wheels with water. In areas with low temperatures, add anti-freeze to the water. For the amount of water to be added to each wheel, see your local dealer.

Filling wheels with water (Fig. 29).

- 1- Lift the wheel and leave in the air. The valve must be at the top.
- 2- Remove the valve cap and remove the air from the wheel
- 3- Tighten the cap (3) on the valve (1) and place the hose in the tube (4). When the wheel is completely full, the water starts to come out of the tube (4).
- 4- Release the cap and fill the tyre with air to the recommended pressure.

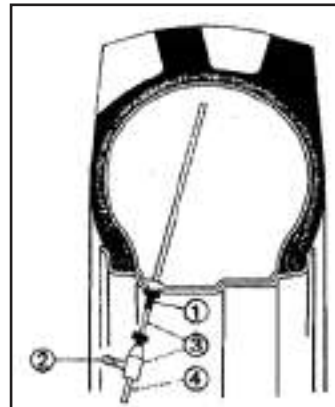


Fig. 29

- 1).- Valve cap
- 2).- Hose tube
- 3).- Special cap for filling with water
- 4).- Air outlet

Removing water from the wheels (Fig. 29).

- 1 Lift the wheel and leave in the air. The valve must be at the bottom.
- 2 Remove the valve cap and make sure that all the water comes out of the wheel.
- 3 Tighten the cap (3) on the valve (1) and introduce air into the tube (2)
- 4 The rest of the water comes out of the tube
- 5 Remove the cap (3) and install the air valve. Fill the tyre with air to the recommended pressure.

IMPORTANT

- Do not overload the tractor
- For lightweight work or road transport, remove all the ballast, to prevent excess wear and fuel consumption
- When using ballast on the rear axle, remember the size of the implement attached, because its weight overloads the rear tyres.

Norms of use

Three-point attachment

These tractors have a category 1 three-point attachment with fixed shafts. To make sure that the tractor works properly, check that the dimensions of the implements correspond to the three-point attachment and the hydraulic lifter.

Central pull (1, Fig. 30)

1.- There are two fixation holes in the bar support of the third point. The fixation hole used depends on the height of the implement.

2.- Adjust the length to vary the angle of incidence of the implement in relation to the ground.

- Shorten the central pull to increase the angle of incidence
- Lengthen it to decrease the angle

Adjustable pulls 2 and 5 (Fig. 30)

The right and left-hand pulls can be adjusted to level the pull bars, depending on the implement and the type of work

Turning clockwise, the length of the pull is shortened, and vice versa.

Tightening chains (3, Fig. 30)

These chains can be adjusted to limit the side movement of the lower pull bars of the three-point attachment.

- With ploughs, etc., adjust the chains to allow a variation of 5 to 6 cm.
- With implements such as levellers, rollers, rotavators, etc., adjust the chains to allow minimum side variation.
- When carrying implements on the three-point attachment, eliminate side variation totally.

To adjust the tightening chains:

- Turn clockwise to increase side movements, and vice versa.

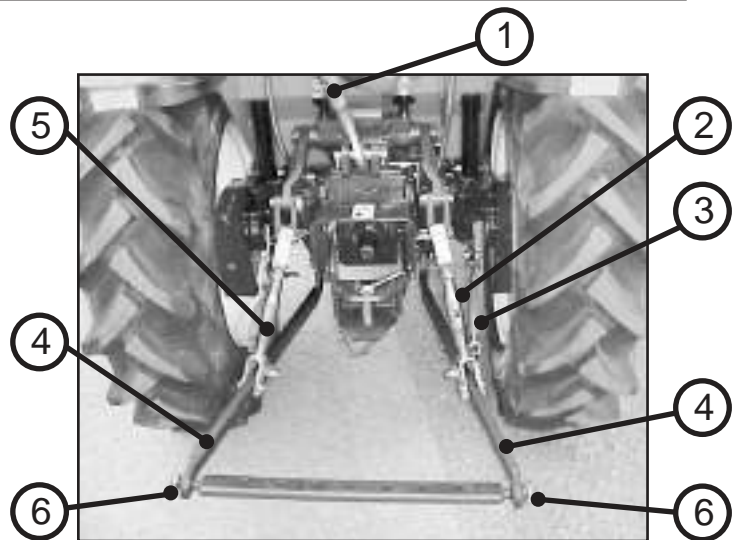


Fig. 30

Lower pull bars (4, Fig. 30)

The lower pull bars have fixed shafts (6, Fig. 30), category 1, at the ends.

Optionally, pull bars can be installed with the rapid attachment system.

To attach an implement to the three-point attachment with the rapid system:

- Reverse the tractor towards the implement so that the bars are beneath the shafts of the implement.
- Lift the three-point attachment until the shafts are attached to the rapid attachment.



Attention: ALWAYS pay attention when attaching the implement and adjusting the three-point attachment.

Attaching the implements:

- 1 - Lower the three-point attachment
- 2 - Release the tightening chains so that the lower pull bars can move freely
- 3 - Reverse the tractor towards the implement
- 4 - Raise the three-point attachment until the shafts are aligned with the attachment bolts
- 5 - Attach the implement and fit on the safety pins
- 6 - Adjust the tightening chains
- 7 - Connect the central pull bar and adjust

To remove the implement:

- 1 - Lower the implement to the ground
 - 2 - Loosen the tightening chains
 - 3 - Remove the safety pins and pull bars.
- When attaching or removing implements, pay attention to the following:



Attention: ALWAYS stop the engine before adjusting the three-point attachment and the implements.



Attention: ALWAYS use the position control when carrying implements attached to the three-point attachment, and block the hydraulic lowering circuit.



Attention: ALWAYS use the position control when attaching and removing implements.



Attention: Before dismounting the tractor, lower the implement to the ground.



Attention: NEVER work beneath an implement raised by the hydraulic lifter and the three-point attachment. Secure correctly, to prevent from falling, and switch off the engine.

Third lifting point (Fig. 31)

The third point has two holes to facilitate attachment and the choice of implement also determines the effort to be chosen depending on the work to be performed.

- More sensitive connected to the lower holes for lightweight implements
- Less sensitive connected to the upper holes for implements with high effort levels



Fig. 31

Norms of use

Hydraulic lifter

The hydraulic lifter raises and lowers the implements attached to the three-point attachment. It consists of a lifting group with its controls, two cylinders with their pipes and the hydraulic gear pump.

Lifter operation

The two control levers perform the following functions (Fig. 32)

A = Controlled position

B = Controlled effort

C = Mixed position and effort control

D = Floating position

These functions are selected depending on the work to be performed and the condition of the ground.

A Controlled position (lever 18)

Set lever 18 to the high sector position. Adjust the implement by raising or lowering lever 18. The movement of the implement is proportional to the lever 18, controlling the position of the lifter.

B Controlled effort (lever 19)

Set lever 19 in the high sector position. Start to work and adjust the desired depth, gradually lowering lever 19. The depth of the implement is proportional to the traction effort determined by ground conditions. In these conditions, the lifter automatically maintains the tractor effort required from the tractor at a constant value.

Remember the position of the lever 19 on the sector scale, to put it in the same position the next time. To raise the implement, lift lever 19 to the high sector position.

C Mixed position and effort control

When working with a controlled effort on unlevel land, where it is possible to go too deep, it is advisable to use the mixed control system, Lower the implement into the ground and adjust depth as indicated in section B.

Now, gradually lower lever 18 so that it controls the position.

The lifter works with a controlled effort, but also preventing using excessive depth on softer ground.

D Floating position (with implements resting on the ground).

Lower the two levers (18 and 19) completely.

Lever to adjust sensitivity

To obtain maximum control over traction effort, give the lifter the maximum sensitivity of reaction, with lever R (Fig. 32).

This lever must be adjusted to the maximum sensitivity to avoid continuous jumping of the implement during use.

Lever for adjusting sensitivity (L)

(Fig. 32)

- Turning clockwise = increases sensitivity
- Turning anti-clockwise = reduces sensitivity

NOTE: To increase the sensitivity of the controlled effort, fit the bolt in the lower hole of the third point. Fit in the upper hole for less sensitivity.



Attention: Never attach to the third point for trailing purposes.

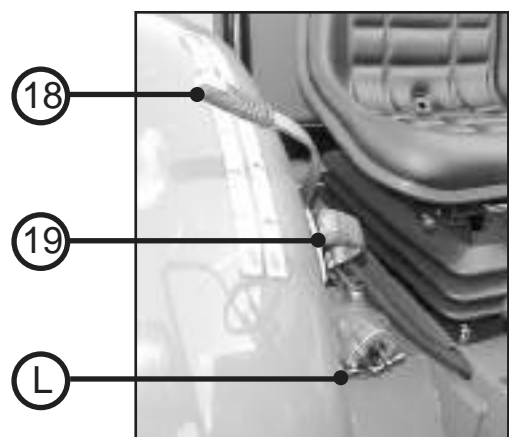


Fig. 32

Auxiliary distributors

On the rear, the auxiliary distributors to activate the external cylinders are fitted.

These distributors are added to the tractor's hydraulic circuit and use the same oil. The control levers of the auxiliary distributors are on the left-hand side of the driver's seat (Fig. 33-34).

The attachment of the implement to the auxiliary distributors is by means of the 1/2" rapid connections located to the rear of the tractor. Each distributor has 2 connections. As a standard, 2 double effect connections, which can be converted into to simple effect connections, are fitted. Optionally, 2 auxiliary distributors can be fitted (consult your dealer).

How the distributors work

- Standard distributor to feed simple and double effect cylinders.

The control levers (23, Fig. 33) have 3 positions.

Centre: circuit closed
Up: outlet A
Down: outlet B

To unlock the control levers (23) pull the safety device (24) upwards, set the lever in A or B position to send oil under pressure to one of the two rear outlets (Fig. 34). When the lever is released, it returns to the centre position and locks the implement in the required position.

The lever (23 A, Fig. 23) send pressure to the connections (1^a and 2^a, Fig. 34) and the lever (23 B) to the connections (1B and 2B).

Originally, the auxiliary distributors are adjusted to activate double-effect cylinders.

When working with simple-effect, only one connection is used per distributor and the connection is made as follows (Fig. 33).

- Loosen the screw (2)
- Release the prisoner (1) and tighten the screw (2) again.

To convert back to double-effect, loosen the screw (2) and tighten the prisoner (1) and tighten the screw (2) again.

In simple-effect operations, the connections used are 1A and 1B (Fig. 34).

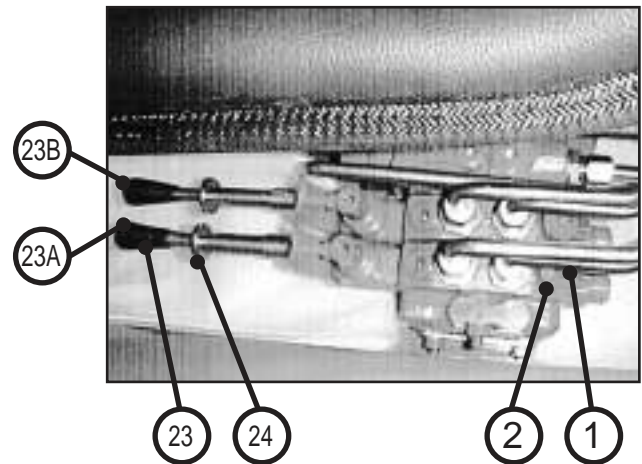


Fig. 33

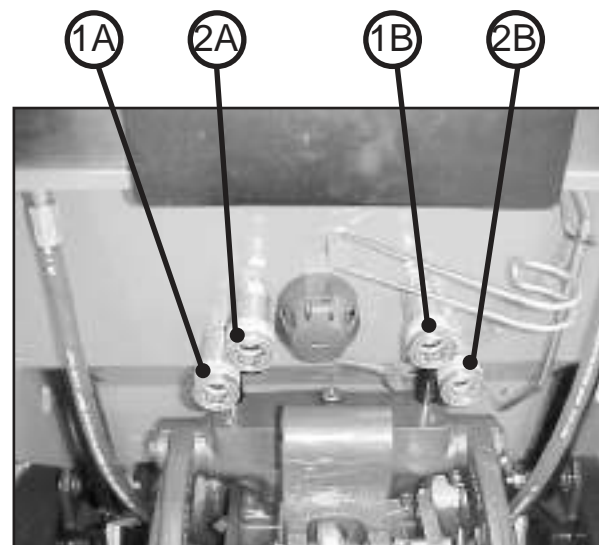


Fig. 34

Norms of use

Trailing attachments

Front attachment

The tractor has a front pull attachment (Fig. 35) for eventual emergency manoeuvres when the tractor has to be trailed or pulled.

Rear attachment

The tractor is fitted with a rear trailing attachment, ISO category, which is used to attach agricultural implements and for trailing from one to two axles (Fig. 36).

To make it easy to attach the implement trailed the height of this device can be adjusted.

To change the position of the attachment, remove the safety pins (1, Fig. 36) and bolts (2). Set the attachment to the desired position and replace the bolts (2) and the safety pins (1).

It is important to position the attachment at the right height, to facilitate driving and safety.

In the higher positions, there is more traction capacity but it is difficult to raise the front wheels.

When using 4-wheel drive, it is advisable to attach the attachment in the lowest possible position, so that the front wheels do not lose grip.



Fig. 35

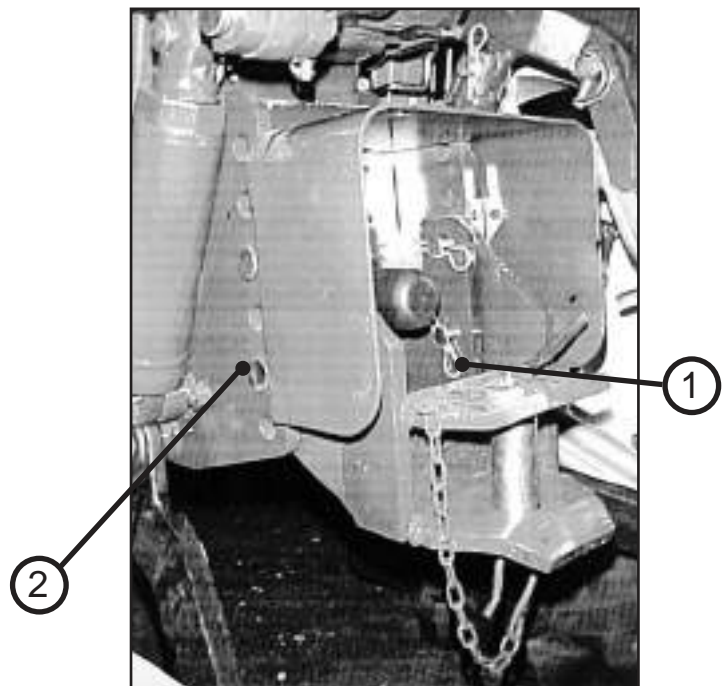


Fig. 36

PERIODICAL OPERATIONS TABLE							
	Description	Daily (4)	100 hours	250 hours	500 hours	1000(1) hours	Points according to (Fig. 37)
Engine	Check oil level	○	See engine maintenance book				1
	Change oil	See engine maintenance book					18
	Change oil filter	See engine maintenance book					19
	Check tappets	See engine maintenance book					21
Supply	Clean fuel filter	See engine maintenance book					2
	Change fuel filter cartridge	See engine maintenance book					22
	Check injectors and injection pump	See engine maintenance book					23
	Clean air filter (discharge valve)	△					3
	Clean or replace air filter cartridge	△			△		4
	Clean fuel tank					△	24
Cooling system	Check engine oil level/Check water level in radiator	○	See engine maintenance book				1
	Clean cylinder wing and radiator	△					5
	Clean radiator and grille	△					29
Transmission/brakes/hydraulic circuit/steering circuit:	Check gearbox oil level, rear reducers, steering and hydraulic system	○					
	Check oil in front differential and front reducers	○					8
	Change gearbox oil, rear reducers, steering and hydraulic system					□	26
	Change oil in front differential and front reducers					□	27
	Change oil filter of the transmission at hydraulic pump intake in steering circuit and elevator.			□			20
	Check brake pedals free movement	▽					9
	Check clutch pedal free movement and clutch lever power connection	▽					10-11
Electric installation:	Check electrolyte level in battery	○					12
	Check tension of the fan belt and alternator belt	▽					13
	Check alternator and starter motor efficiency					□	28
Miscellaneous:	Check tyre pressure	○					14
	Check torque of wheel screws	○					15
	Check torque of bolts in general	○					17
	Check torque of safety chassis fixation screws	○					16

SYMBOLS OF REFERENCE FOR OPERATIONS

- Inspection, fill, lubrication
- Replacement
- △ Clean/wash
- ▽ Adjustment
- Operations that have to be performed by an approved workshop

NOTES:

- (1) Operation to be performed once a year
- (2) The first gearbox oil change should be after the first 50 hours, and then every 100 hours.
- (3) **ATTENTION:** To guarantee the integrity of the steering circuit, change the aspiration filter of the steering circuit after 50 hours, and then every 250 hours.
- (4) **ATTENTION:** Periodical maintenance operations should be performed when the operator decides, depending on ambient and working conditions, and following his experience. It is important to remember that it is better to make frequent checks than otherwise.

Maintenance

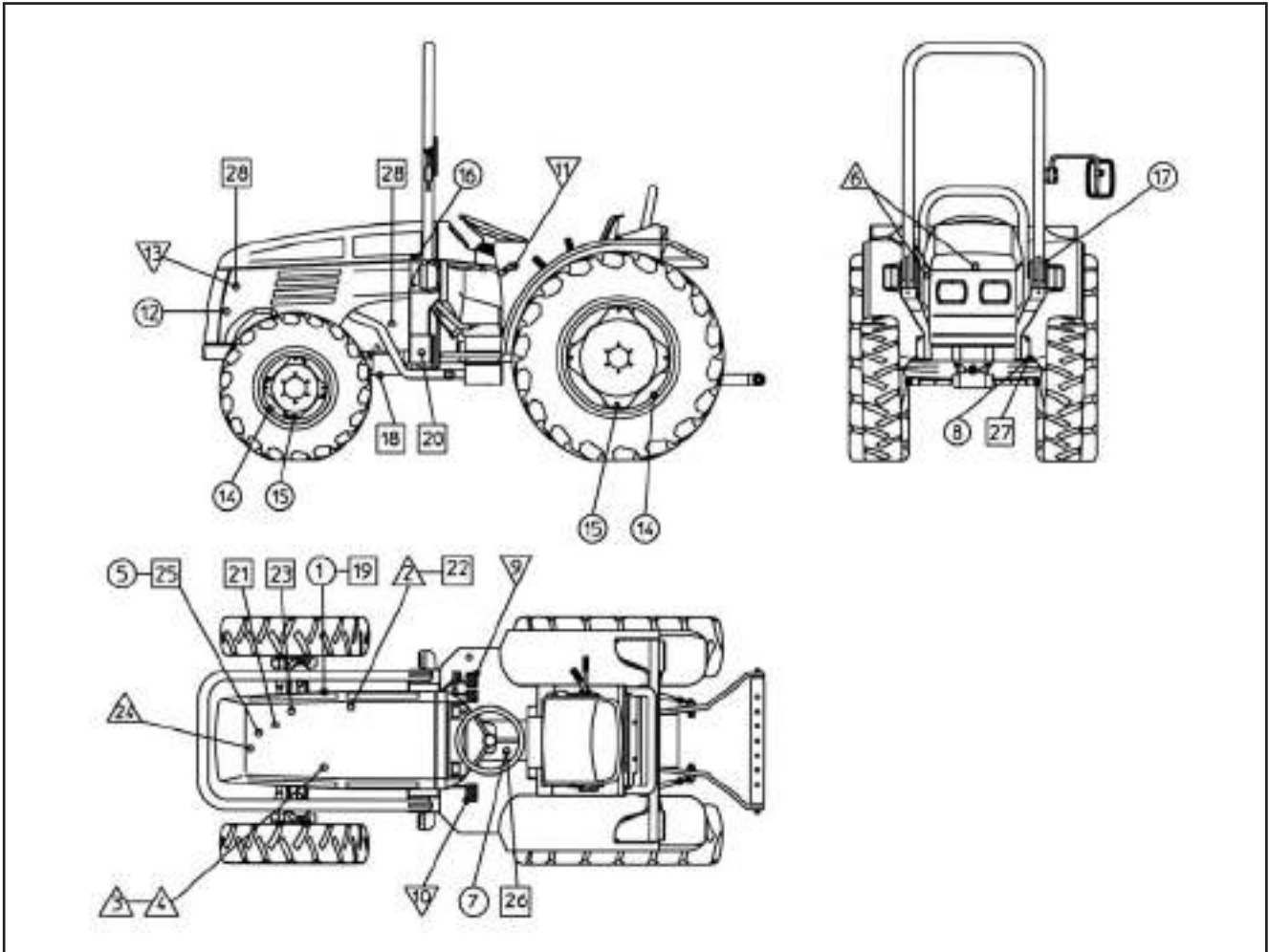


Fig.37

DAILY (4)	14 . Check tyre pressure 15 . Check adjustment of wheel screws 16 . Check safety chassis screws 17 . Check adjustment of bolts in general	EVERY 100 HOURS (1)	
1. Check level of oil in gear casing. 2. Clean fuel filter 3. Air filter, discharge valve 4. Air filter: clean or change cartridge 5. Level of water in radiator 6. Clean radiator wings 7. Gearbox oil level, steering circuit and hydraulic circuit 8. Level of oil front axle and reducers 9. Adjust brake pedals 10. Adjust clutch pedal 11. Adjust TDF clutch lever 12. Level of electrolyte in battery 13. Tension fan and alternator belt	EVERY 250 HOURS	23. Check calibration of injectors and injection pump 24. Discharge fuel tank deposits 25. Wash cooling circuit 26. Change oil in transmission, steering circuit and hydraulic circuit (2) 27. Change oil in front axle and front reducers 28. Check that the alternator and starter motor work properly	
	18. Change oil in gear casing 19. Change engine oil filter 20. Change transmission, steering and hydraulic circuit oil filter (3)		EVERY 500 HOURS
			21. Check tappets 22. Change fuel filter

NOTE: For notes (1), (2), (3) and (4), see periodical operations table.

Maintenance

ENGINE: Follow strictly the instructions for use and maintenance of the engine in the enclosed engine manual.

GENERAL RULES: Following is a description of the operations requiring an explanation. For all the others, follow the instructions on the periodical operations table. The information refers to maintenance operations programmed. These rules are for informative purposes and the frequency may vary depending on the weather conditions or the type of work performed by the tractor. Other frequencies may also be established based on common sense and the user's experience. It is a general recommendation to perform maintenance and lubrication operations with the frequency specified on the periodical operations table. For these operations, take into account the number of hours that the tractor has been operational.

Running-in period

The regular operation of the tractor, and its duration, depend essentially on how it is used during the running-in period.

It is very important to follow these indications:

- The engine does not have to be run-in gradually. It can be used at full power from the beginning, but without overloading it, and remembering that it can only be used at full power when it has reached a temperature of at least 60°C.
- After starting the engine, leave it to idle for a few minutes. This is particularly important in turbo engines.
- Avoid leaving the engine idling for long periods of time.
- Frequently check that there are no oil leaks.
- To obtain a long-lasting clutch, the disks have to be well seated. During the first 15 hours, use the clutch frequently but smoothly and with caution.

These indications also have to be taken into account when repairing the engine.

After the first 50 hours of work.

- Engine: Follow the indications in the maintenance manual.

- Hydraulic circuit: Replace the pump filter. Then replace it every 250 hours.
- Check the torque of screws and bolts in general.
- Check oil levels and top up with recommended oils
- Lubricate completely
- Check tyre pressure

Rest period

- Keep the tractor in a dry and protected place
- Clean the tractor
- Lubricate all the controls and grease points
- Clean the fuel filter
- Fill the tank
- Release the injectors and pour some engine oil in the cylinders. Run the engine by hand to lubricate the cylinders.
- Remove the battery, clean the terminals and protect with vaselin. Keep in a dry place.
- Recharge the battery every 3 months

Fuel

For the injection system to work properly, good quality fuel has to be used.

The fuel should have no impurities. It should be decanted 2 or 3 days before being used in the tractor.



Attention: Never use gas-oil that is kept in a container that has been open for a long time, because it may contain water and dust.



Attention: Do not remove the seals from the injection pump nor the maximum adjustment screws. If necessary, go to an approved workshop. If the user touches the seals, the WARRANTY loses effect immediately.

Maintenance

Air filter

Daily, tap lightly on the cover of the air filter (C, Fig. 38) to remove the dust from inside. Tighten the drainage valve (V) to remove the dust from inside. Clean the valve.

Filter cartridge (F, Fig. 39).

When the lamp lights up on the instrument panel, clean the main filter (F). Remove the cover © and remove the external element (F, Fig. 39). Clean carefully with air under pressure.

Change the filter F after 5 or 6 cleaning operations.

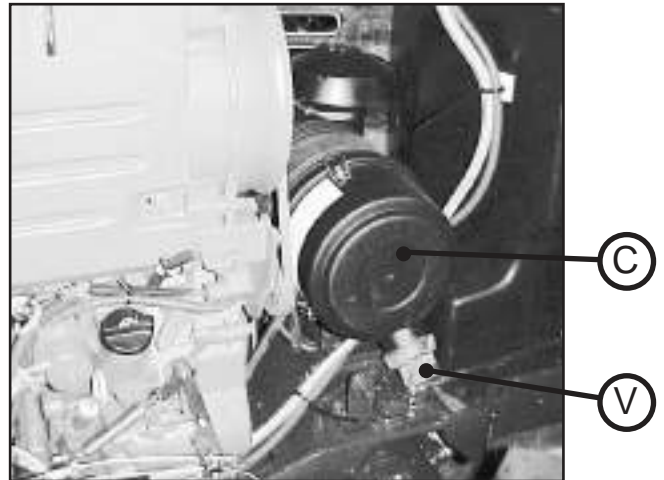


Fig.38



ATTENTION:
Stop the engine before handling the air filter.

Safety filter cartridge S (Fig. 39)

This cartridge has not to be cleaned. It has to be replaced every 3 times that the external cartridge (F) is cleaned.

Always check that the filter cover is well closed and make sure that all the tubes and hoses are tight.

Filter maintenance (Fig. 39 – 40)

1. Remove filter cover ©
2. Remove cartridges (F and S, Fig. 39)
3. Clean cartridge (F) as follows: Blow air with slight pressure inside the cartridge from a safe distance (Fig. 40).
4. After cleaning, check so make sure that it is not damaged.
5. Before installing the cartridges, clean inside the filter with a clean, dry cloth.

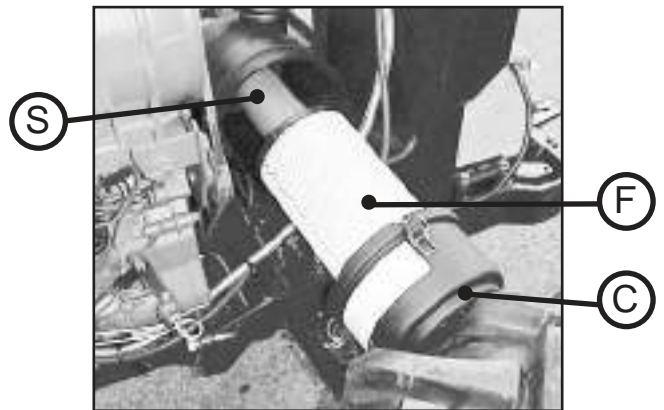


Fig.39



ATTENTION: Do NOT attempt to clean the internal safety cartridge. Replace it.



ATTENTION: Do NOT attempt to clean the filter cartridge with the engine exhaust gases. NEVER use oil for cleaning the filter. NEVER use petrol, gasoil, etc., to clean the filter cartridge.

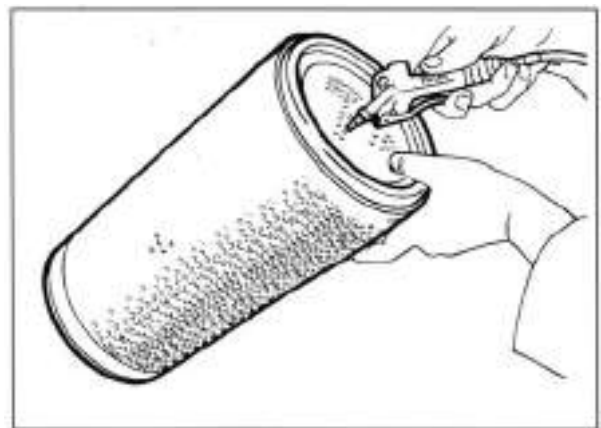


Fig.40

Cooling system (water-cooled engine)

Check the level of the coolant every day and top up, if necessary, using the expansion tank cap.



Attention: Do not remove the cap of the expansion tank when the engine is warm. Loosen the cap slowly and let the pressure out before completely removing.

Check radiator wings daily or at least every 100 hours and clean them with compressed air.

Precaution against ice

Check the density of the coolant; add anti-freeze according to the following table or following the instructions provided for the product used.

Degrees C°	-8°	-15°	-25°	-35°
Percentage of anti-Freeze per volume %	20	30	40	50

NOTE: To clean, fill and empty the cooling circuit (1000 hours or one a year for filling and emptying), go to an approved workshop.

DEUTZ engine oil radiator (Fig. 41)

Always keep the oil radiator clean. Remove screws (V) and cover (L). Clean the radiator with air under pressure, blowing from above the radiator (Fig. 41).



ATTENTION: To guarantee good engine cooling, always keep the oil radiator clean.

Grilles

Clean the grilles and the front and side of the casing daily, removing dust, grass, etc. Perform this operation more frequently when working in dusty atmospheres.



ATTENTION: To guarantee good engine cooling, keep all radiator grilles clean.

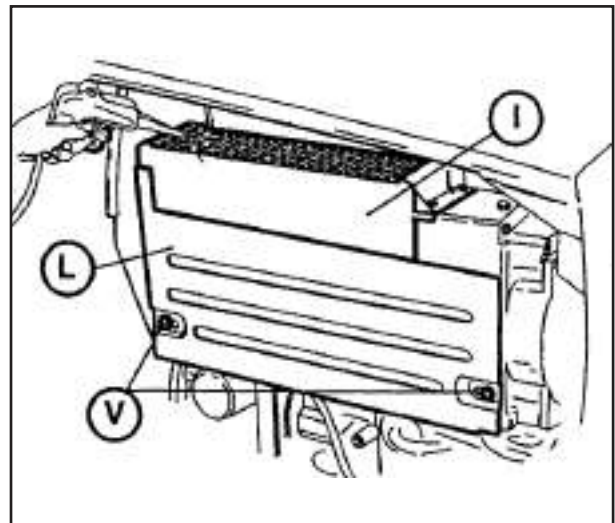


Fig.41

Maintenance

Transmission, rear reducers, steering circuit and hydraulic circuits

All these systems use the same oil, which is transmission oil.

Periodically, check the level of the transmission oil in the rear reducers.
With the lifting arms completely raised, the oil level should be within the Min and Max marks on the dip stick (1, Fig. 42).
Change the transmission oil and rear reducers every 1,000 hours.

NOTE: To access the dip stick (1), remove the front cover from the central tunnel.

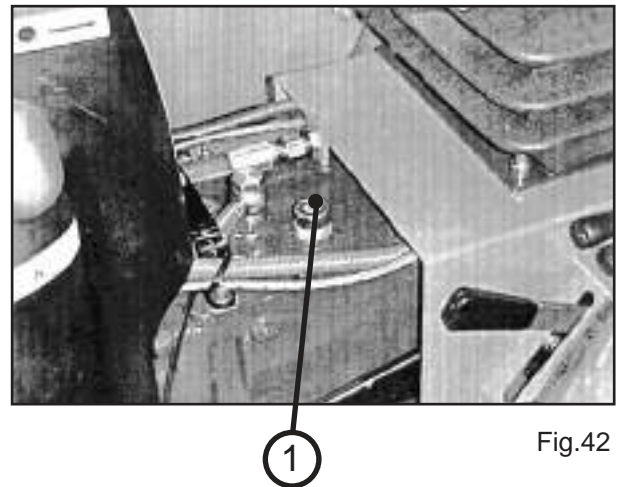


Fig.42

To empty the transmission oil:

- 1.- Completely lower the lifter arms
- 2.- Release the full cap (1, Fig. 42) and the emptying caps (2, Fig. 43), beneath the transmission casing. Also release the two emptying caps from the rear reducers (A, Fig. 44).
- 3.- Empty all the oil and collect in a suitable container. Replace ALL the caps. Oil to the level indicated fill with a recommended

NOTE: Before checking the level, leave the oil to stabilise in the transmission and the rear reducers.

Transmission, steering circuit and lifter oil filter



Attention: Change the paper filter at the intake to the hydraulic pumps in the steering circuit and the lifer after the first 50 hours, and then every 250 hours.

- 1.- Release the cartridge (2) to the left of the engine (Fig. 45)
- 2.- Clean the seating of the cartridge support
- 3.- Lubricate with clean oil the joints and face of the new filter cartridge
- 4.- Install the new cartridge pressing firmly with your hand

NOTE: After changing the oil filter, switch on the engine and check if there are oil leaks. Check the oil level and top up if necessary.

NOTE: Make sure that the hydraulic system of the implement connected to the tractor circuit uses the same type of oil. The use of different oils can produce FAULTS in the hydraulic circuits.

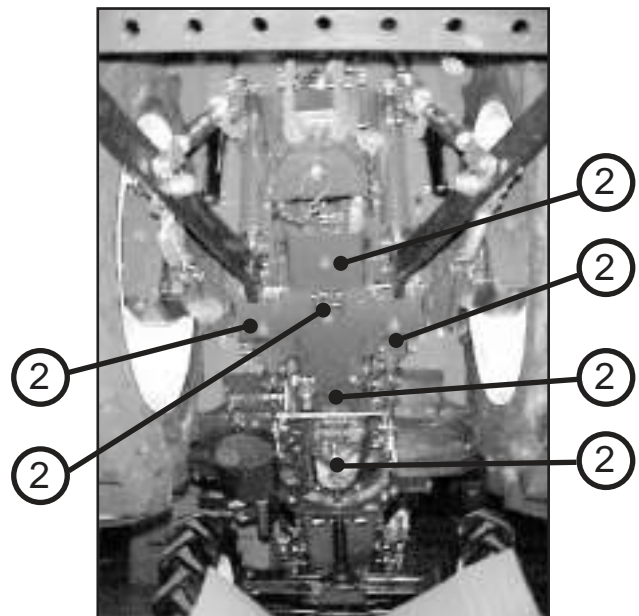


Fig.43

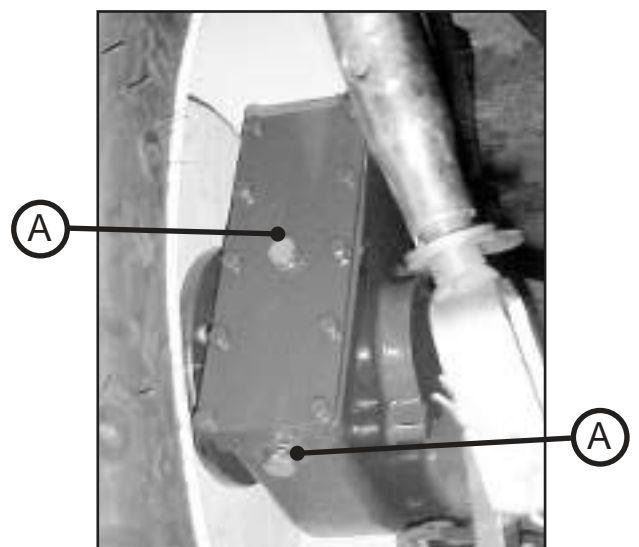


Fig.44

Clutch pedal (Fig. 45)

Periodically, check the travel of the clutch pedal. The pedal should move from 1.5 to 2.5 cm. To adjust, vary the length of the brace (3) until correct.

TDF clutch control (Fig. 46)

Periodically, check the travel of the control (15, Fig. 46). It should vary from 5 to 6 cm. If adjustment is required, visit an approved workshop.

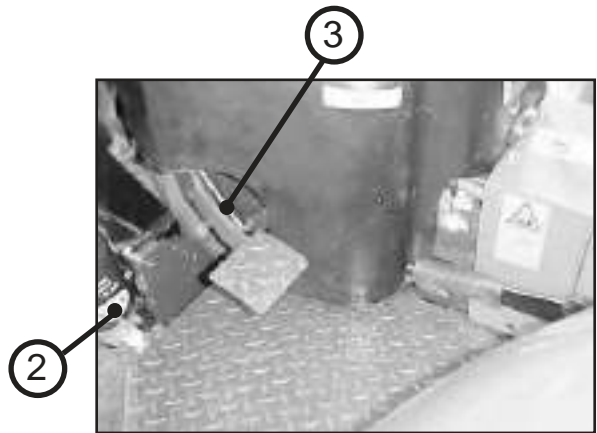


Fig.45

Brakes

Brake adjustment

Periodically, check the efficacy of the brake system

The play of the brake pedals (Fig. 47) should be from 3 to 3.5 cm.

It is also necessary to check that both pedals act at the same time. Driving the tractor at a moderate speed, press both pedals energetically and check that the tractor brakes in a straight line, without tending to the right or the left.

If the brake pedals have too much play or both wheel do not brake evenly, visit an approved workshop for adjustments to be made.



Fig.46

Hand brake

The hand brake control should lock the brakes in the third groove. If adjustment is required, visit an approved workshop. The hand brake should be adjusted after adjusting the brake pedals.



Fig.47

Maintenance

4-wheel drive (4RM) front axle

Adjustment of axial play (Fig. 49)

When the axial play of the front axle is excessive, adjust as follows:

- 1.- Lift the front of the tractor so that the wheels are in the air
- 2.- Loosen the lock bolt (2) and adjust the adjustment screw (1) until the axial play is between 0.1 and 0.3 mm. Tighten the lock bolt (2)
- 3 - After adjusting, check that the front axle moves freely

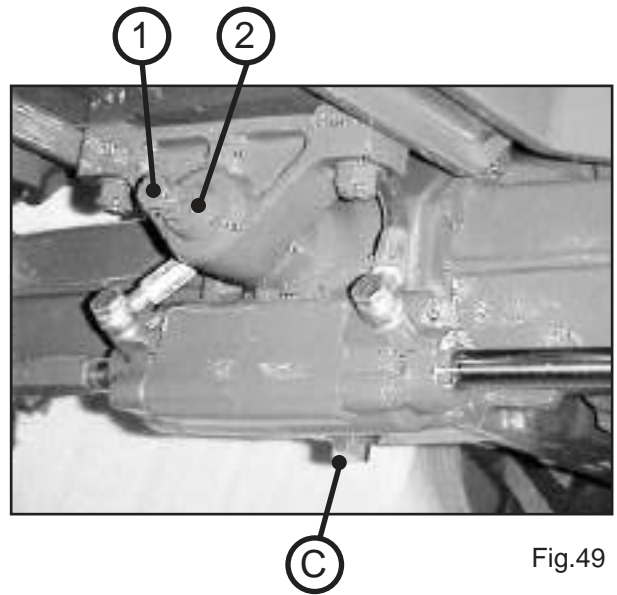


Fig.49

Oil levels and oil change (Fig. 50, 51, 52)

Periodically, check the oil level in the front axle differential and front reducers.

Release the cap (A, Fig. 50). The oil must be level with the hole. If necessary, add oil using the fill-cap (B, Fig. 50).

Change the oil in the central body of the axle and the reducers (every 1,000 hours). Release the empty cap (C, Fig. 49) and the cap (D, Fig. 51) and empty the oil. Replace caps C and D. Fill through the fill cap (B, Fig. 50) with oil of the indicated type up to hole level (A, Fig. 50). Wait for the oil to stabilise, check the level again and, if necessary, top up.

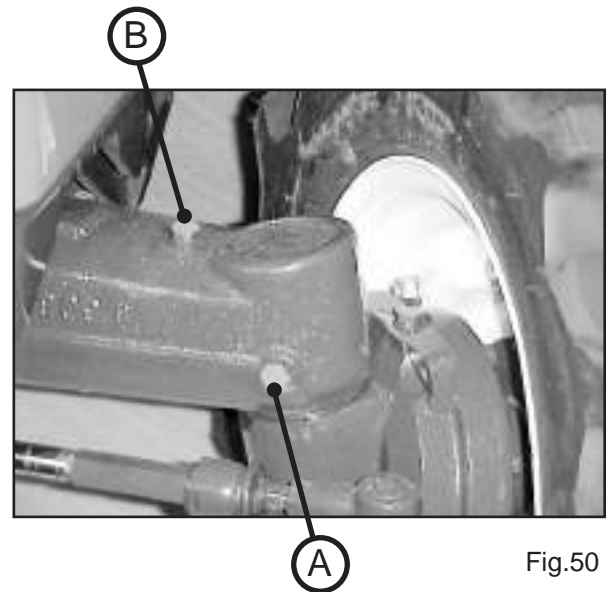


Fig.50

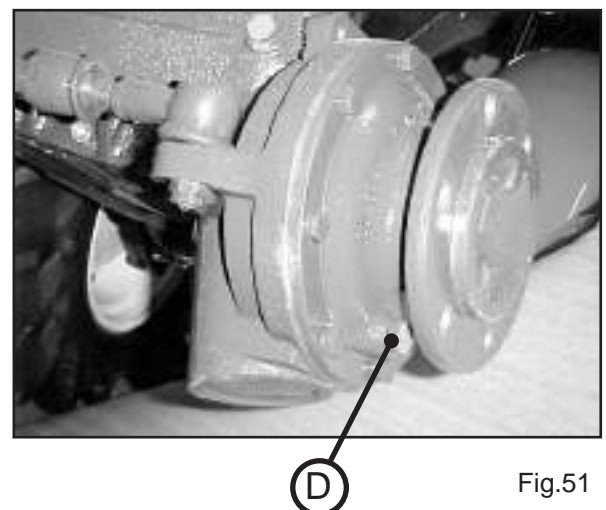


Fig.51

Electric installation

Battery (Fig. 53)

The battery is of the NO MAINTENANCE type and in normal operating conditions does not need special care. We only recommend that you periodically check the level of electrolyte and add distilled water, if necessary. Only when it is recharged, does it have to be removed.

Before accessing the battery, position the tractor on flat ground, switch off the engine and wait for the battery to cool.

To add distilled water, proceed as follows:

- 1.- Remove the front tractor bodywork
- 2.- Remove the battery cover
- 3.- Pour the distilled water gently until it covers the upper rim of the plate
- 4.- Replace the battery cover
- 5.- Replace the front tractor bodywork

User advice

Maintaining the battery in perfect condition depends on the following rules:

- Keep the battery clean, especially the top
- To re-establish the level of electrolyte, only use distilled water
- Check that the wire terminals are well attached to the battery poles
- Always use a spanner to tighten the terminal screws
- Grease the terminals and poles with pure vaselin instead of grease, to prevent rusting
- Never completely exhaust the battery. If possible, re-charge once a month.



Attention: The battery electrolyte contains sulphuric acid and can therefore cause serious burns. AVOID contact with the skin and the eyes. Keep away from sparks, flames or lit cigarettes when the battery is charging. Ventilate the premises while charging.

Starter motor

Every 1,000 hours or one year, it is convenient to clean the starter motor well, especially checking the wear on the brushes and the collector. We recommend that you visit an approved workshop.



Fig.53

Alternator

The alternator guarantees the battery charge. It requires no special maintenance, since it has no brushes. It only requires a few special precautions.

- 1.- When the battery is installed, check that the battery and alternator grounding poles are the same sign. If the battery poles are inverted, the battery will short circuit. The intensity of the discharge is very high and could destroy the diodes and the wires.
- 2.- When charging the battery, check that the poles correspond correctly: the positive pole of the charger with the positive pole of the battery (+) and the negative pole of the charger with the negative pole of the battery (-), to avoid damaging the diodes and the installation.
- 3.- Do not run the alternator when the battery is not connected. If the battery is not connected, voltage could be high and dangerous if you touch the alternator output pole. Before checking the tractor, make sure that all the connections are blocked.
- 4.- Never set one of the alternator poles to short circuit or earth, because this would damage the electric installation.
- 5.- Do not invert the alternator poles. It is very important that the battery earth and the alternator earth have the same polarity, to avoid damaging the diodes.
- 6.- Never perform arc welding without previously having disconnected the alternator wires.

Maintenance

Headlamps

Since the tractor, when driving on roads, has to follow the applicable traffic legislation, it is convenient to periodically check the direction of the headlamps, as follows:

Headlamp direction check

- Position the tractor, unloaded and with the tyres at the specified pressure, on a flat surface in front of a white wall in the shade. Draw a horizontal line on the wall at the height of the centre of the lamps.
- Reverse the tractor 5 metres
- Switch the headlamps on. The centre of each beam should coincide with the line you have drawn. The maximum discrepancy permitted is 130 mm.
- Check the inclination using the parking lights. The line dividing the dark area and the lit-up area has to be beneath the two crosses, at least 1/20 of the distance between the horizontal line and the ground.
- To adjust, use the headlamp adjustment screws.

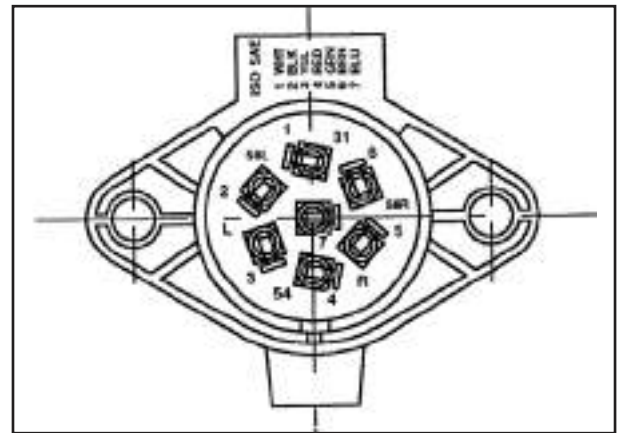


Fig.54

Pole electric inlet (Fig. 54)

At the rear of the tractor there is a 7-pole electric connection for the trailer lights circuit.

The connections are:

1. Left indicator
2. Free
3. Earth
4. Right indicator
5. Right parking light
6. Brake lights.
7. Left parking light

Fuses

The tractor's electric installation is protected against eventual short circuits and overloads by fuses lodged in the fuse-box.

The fuses in the tractor are (Fig. 57):

- A Main fuse box
- B General 40 A fuse

NOTE: Before changing a blown fuse for another one, check for what has caused the fault.

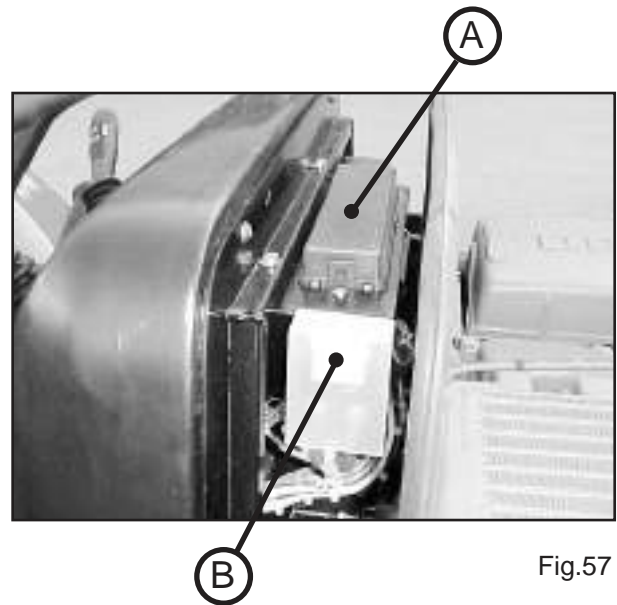
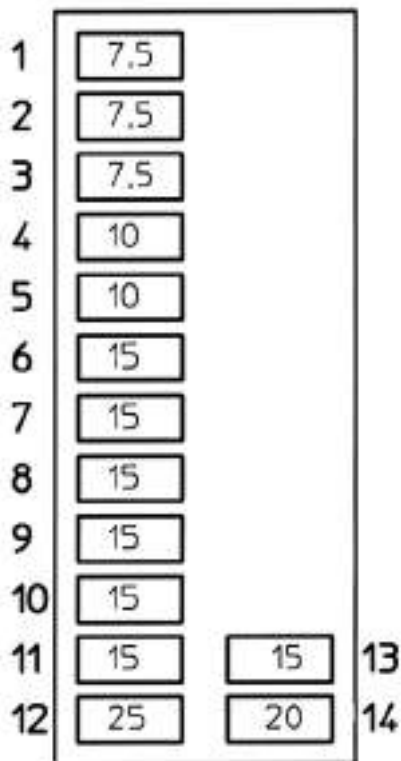


Fig.57



- | | |
|---------------------------------------|-----|
| 1.- Instrument panel lamps | 7,5 |
| 2.- Parking lights | 7,5 |
| 3.- Rear parking lights | 7,5 |
| 4.- Right indicators | 10 |
| 5.- Left indicators | 10 |
| 6.- Dipped beam | 15 |
| 7.- Headlamps | 15 |
| 8.- Horn | 15 |
| 9.- Brake lights | 15 |
| 10.- Working lights and rotating lamp | 15 |
| 11.- Lock valve | 15 |
| 12.- Starter | 25 |
| 13.- Engine supply pump | 15 |
| 14.- Electric current | 20 |

Maintenance

Electric Installation

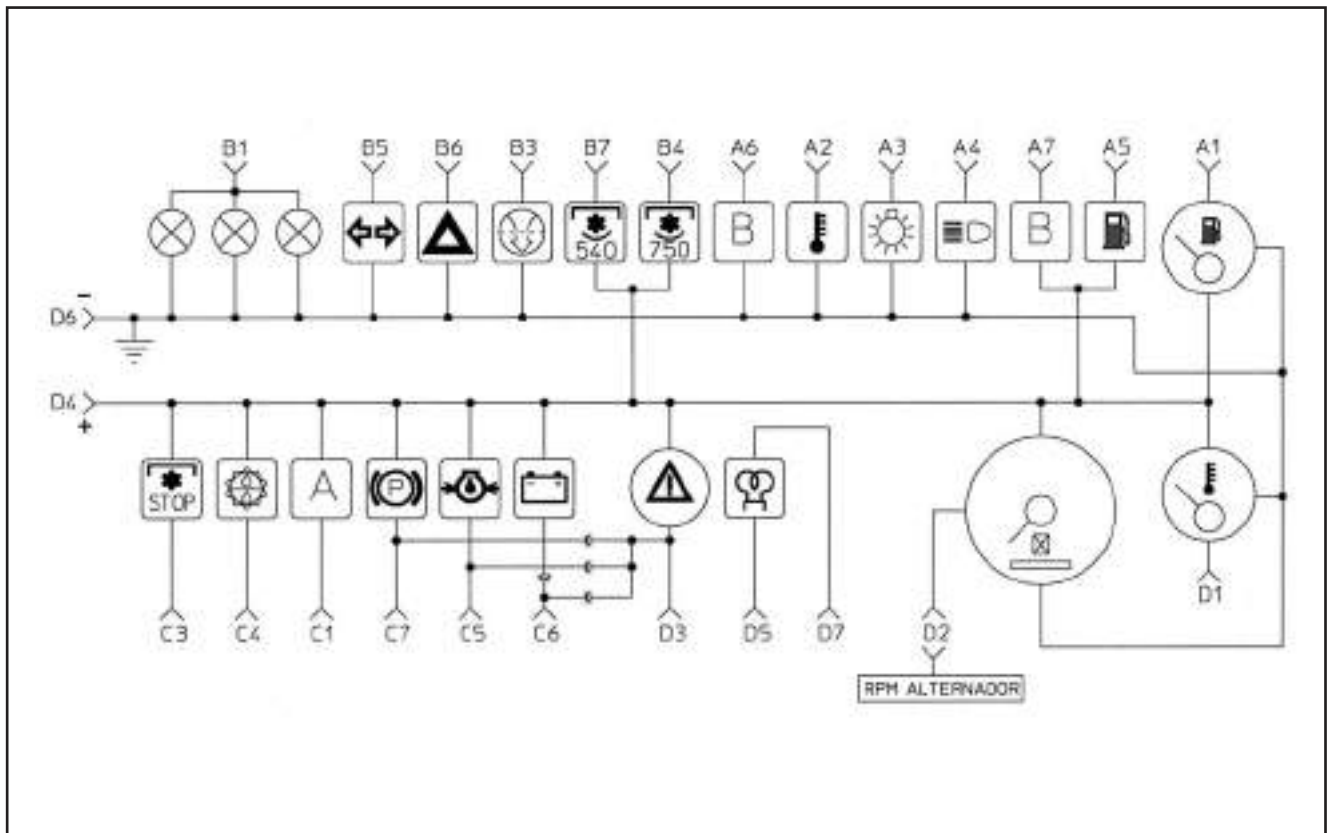


Fig. 58 Instrument panel diagram

Elements on the instrument panel

A1	Fuel level indicator	C1	Free
A2	Engine temperature warning lamp	C3	TDF off warning lamp
A3	Dipped beam warning lamp	C4	Engine oil filter warning lamp
A4	Headlamp warning lamp	C5	Engine oil pressure warning lamp
A5	Fuel reserve warning lamp	C6	Battery charge warning lamp
A6	Free	C7	Hand brake warning lamp
A7	Free	D1	Engine temperature indicator
B1	Panel lighting	D2	Engine speed – hour counter
B3	Air filter warning lamp	D3	General danger warning
B4	TDF at 750 rpm warning lamp	D4	Electric connection
B5	Steering warning lamp	D5	Starter heater warning lamp
B6	Emergency lights warning lamp	D6	Earth connection
B7	TDF at 540 rpm warning lamp	D7	Heater connection

Technical characteristics

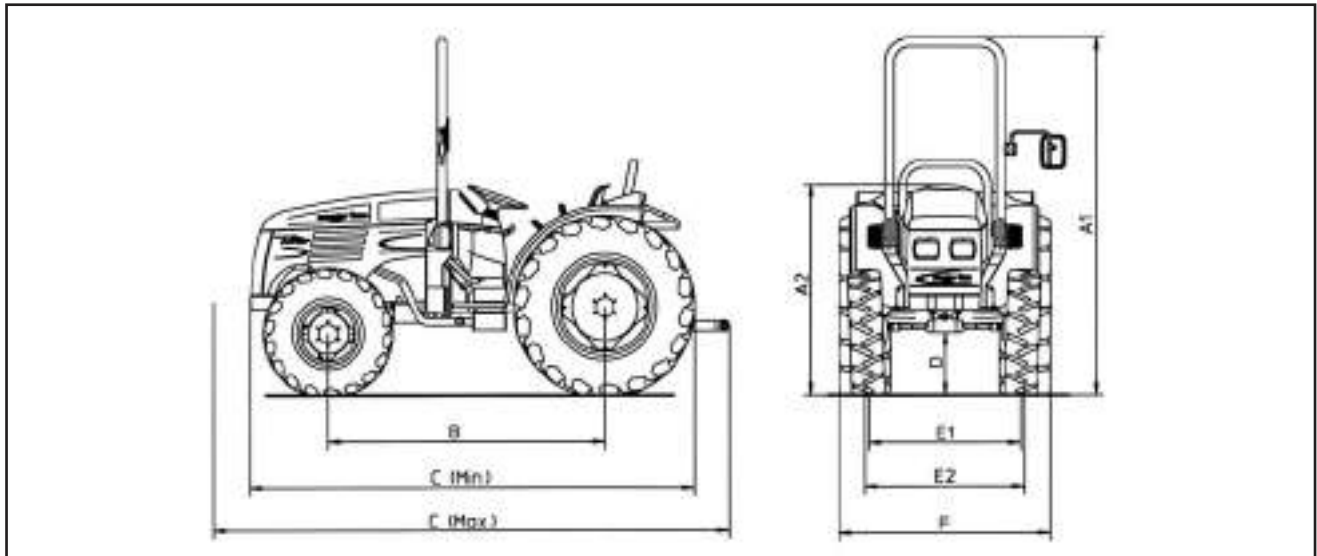


Fig.59

General data	860	860F	860V
With tyres			
Front	7,50 - 16	7,00 - 12	5,00 - 15
Rear	12,4 - 24	11,2 - 20	260/80 - 20
Weights			
Ready to move, with folding arch			
Without ballastKg.	1635	1530	1505
Max. AuthorisedKg.	2600	2400	2300
Dimensions			
A1.- Height up to folding archmm.	2220	2150	2150
A2.- Height up to steering wheelmm.	1320	1250	1250
B.- Axle clearancemm.	1750	1750	1750
C.- Total length			
Min.mm.	2900	2900	2900
Max.mm.	3280	3280	3280
D.- Free height from the groundmm.	380	330	295
E1.- Front clearancemm.	1060 - 1300	980 - 1285	950 - 1070
E2.- Rear clearancemm.	1010 - 1225	980 - 1220	832 - 1220
F- Widths			
Mín.mm.	1260	1260	1100
Máx.mm.	1545	1500	1480
Engine			
Type	Deutz, 3 cylinders, direct turbo injection		
Model	BF 3L 2011		
Diameter (Travel (mm))	91 / 112		
Cylinders (cc)	2331		
Compression ratio	17,5 : 1		
Max. Power (97/68/CE) KW/CV	46,5/63,2		
Max. Speed (rpm)	2800		
Max. Torque (Nm – rpm)	181-1700		
Cooling system	Integral air/oil cooling		
Air filter	Dry 7" filter with double filtering element		

Technical characteristics





Speed table

Following are the speeds in km/h with different wheel sizes and at nominal engine speed.

We indicate the 12 forward speeds of the standard gearbox. To obtain reverse speeds, multiply these values by 0.988.

The same table also indicates the 4 additional speeds that can be obtained with the Super-conductor option.

Speeds in Km/h at an engine speed of 2800 rpm

	Option	Range	Speed	Speeds with rear tyres km/h		
				260/80-20	11,2-20	12,4-24
MARCHAS ADELANTE E INVERSOR	Super-conductor		1	0,22	0,22	0,26
			2	0,32	0,49	0,39
			3	0,48	0,25	0,59
			4	0,73	1,13	1,30
	Standard speeds:	 Slow	1	0,74	0,77	0,89
			2	1,11	1,16	1,33
			3	1,70	1,76	2,03
			4	3,75	3,87	4,46
		 Normal	1	3,79	3,92	4,52
			2	5,69	5,88	6,76
			3	8,68	8,97	10,32
			4	19,11	19,75	22,72
		 Fast	1	5,06	5,23	6,02
			2	7,58	7,84	9,02
			3	11,58	11,96	13,77
			4	25,48	26,33	30,28

Transmission

Clutch

Double clutch, mechanical activation, with separate controls.

Pedal: Gear box

Hand lever: TDF clutch

Disks: 216 / 216 mm

Material: Organic / Organic

Gear box

Standard 4-gear synchronised gears combined with 3 Ranges (slow-normal-fast). In all, there are 12 forward speeds and 12 reverse speed with synchronised inverter max. 30 km/h.

Superconductor (optional) which obtains a range of 4 additional forward speeds and 4 additional reverse speeds, giving a total of 16 of each.

Final rear reducers and conical group

Rear conical group9/44

End reducers11/62

Differential lock

Simultaneous front and rear differential lock with electrohydraulic control activated by a button.

Disconnection is by means of the brake pedals.

Power connection

Rear TDF. Two types available: Independent and Synchronised with the gear box

Power connection shaft of 1-3/8" (35 mm) and 6 grooves, following ISO 500 standards.

Independent TDF

Mechanic 2 speed connection, 540 and 750 (540E)

540 rpm: engine speed 2538 rpm

750 rpm: engine speed 1869 rpm

Synchronised TDF

With the connection lever in 750 position, 1 wheel turn: 11,076 TDF turns

Brakes

Rear brakes

Multi-disk in oil bath brake, installed before end reduction.

Number of friction disksN. 4 (2 por parte)

Friction materialSintetizado

Hydraulic control by independent pedals. The two pedals can be joined by a pin to simultaneously brake all the wheels.

Hand brake: mechanical hand lever, which acts on the service brakes with an independent mechanical system. It can be used as an emergency brake.

Clearance adjustments

To adjust clearance values, see the indications in this manual

Steering components

Hydrostatic steering

Hydrostatic steering activated by the steering wheel.

Gear pump with max flow: 16 l/min

Filter in the intake line.

Double-effect steering cylinder integrated in the central body of the front bridge.

Maximum operating pressure110 bar.

Turn radius without brakes: 3.75 m

With 7.50-16 and 12.4-24 tyres and 1060 and 1010 clearance.

Technical characteristics

4RM front axle

Front bridge, oscillating in the centre, on 2 supports.
Mechanical 4RM connection by a hand lever.

Transmission axle without cardan joints and located on the tractor's longitudinal axis

Transmission by central differential and reducers with conical gearings

Central conical group13/41
Upper conical group21/22
Lower conical group11/45

Maximum turn angle50°
Maximum oscillation angle12°

Differential lock with electrohydraulic control. It is always connected at the same time as the rear differential lock. Disconnected by pressing the brake pedals.

Hydraulic circuit

Double-body gearing pump with single intake and filter cartridge on the intake line.

Pump 1:

Maximum flow 16 l/minute for the steering circuit with pressure of 110 bar and return with maximum pressure of 18 bar for differential locks.

Pump 2:

Maximum flow 30 l/minute for the lifter and auxiliary circuits. Maximum pressure 185 bar

Hydraulic lifter

Rear lifter with position control, effort control and floating operation.

Three-point attachment

Category 1 three-point attachment with fixed shafts and side tightening chains to adjust the lateral oscillation of the implements.

Vertical braces with adjustment.

Optionally, a three-point attachment with a rapid attachment system.

Three-point attachment activated by two single-effect hydraulic cylinders.

Max. Lifting capacity on the shafts with the lower braces horizontal: 1,350 Kg

Auxiliary distributors

Open centre auxiliary distributors with rapid "Push-Pull" plugs.

Versions:

- Standard version: 4 rear connections controlled by two double effect distributors that can be converted into single effect, double effect,.
- Optional version: 6 rear connections controlled by three distributors that can be converted from single to double effect.

The distributors use the same hydraulic lifting pump, so maximum operating pressure is 185 bar.

Pull devices

Front pull attachment.

Cat BO rear rigid attachment, adjustable height: 3 positions

Safety arch

Fold down front arch

Noise level

Tractor noise level in accordance with the 74/151/EEC directive.

Right side: 80.7 dB(A)

Left side: 85 dB(A)

Noise level in the driver's ears in accordance with the 77/311/EEC directive.

Tractor with no load: 89.4 dB(A)

Noise level of the stationary tractor: 80.3 dB(A)

Seat

Seat with adjustable suspension

The seat has a device to adjust the load and the distances, lengthways and heightwise.

Electric installation

Voltage: 1.2 V negative to earth

Battery

NO maintenance type. In accordance with SAEJ537 standards

- Voltage12 V.
- Capacity75 Ah.

Alternator

TypeBosch 60 A.

Automatic voltage adjuster incorporated into the alternator

Starter motor

Continuous power: 2.3 KW
Automatic connection by electromagnet

Lights

Front lights include:

- Two headlamps with double filament 40/45 W bulb
- Two dipped beams (5W bulb)
- Two headlamps (21W bulb)
- One rotating lamp fitted on the safety chassis

Rear lights include:

- Two parking lights (5W bulb)
- Two steering lights (21W bulb)
- Two brake lights (21W bulb)
- Number plate light (4W bulb)
- Rear power connection for trailer lights (7 poles)

Integral instrument panel.

- 15 warning lamps (3W)
- 3 dash panel lights (2W)

Fuses

See indications on the maintenance of the electric installation

Tyres

The types of tyres to be used and the possible combinations of front and rear tyres are shown on the following table. For further information on possible tyre combinations, consult your dealer.

The pressures indicated are orientative, and may vary with the following factors: different tyre characteristics from different manufacturers, type of ballast, conditions of use, etc. The driver's experience and the tyre manufacturer's recommendations help you select the best pressure.

Sets of Tyres

Front			Rear		
Tyre	Wheel	Bar.	Tyre	Wheel	Bar.
7,00-12 (6PR)	5JA-12	2,5	11,2-20 (Radial)	W9-20	1,6
5,00-15 (6PR)	700D-15	3,5	260/80-20 (Radial)	W9-20	1,6
200/70-16 (Radial)	W7-16	1,6	320/70-20 (Radial)	W10-20	1,6
240/70-16 (Radial)	W8-16	1,6	360/70-20 (Radial)	W10-20	1,6
280/70-16 (Radial)	W8-16	1,6	360/70-24 (Radial)	W10-24	1,6
7,50-16 (6PR)	5,5F-16	2,25	12,4-24 (Radial)	W10-24	1,7

Auxiliary applications

For auxiliary applications not contemplated in this manual, or special implements, see your dealer.

Technical characteristics

LUBRICANT TABLE											
Component	Litres	Specif.	Ambient Temp.	SINCLAIR	MOBIL	ESSO	SHELL	BP	LAND OIL	AGIP	VERKOL
Fuel tank	36										
Gasoleo B											
Engine with filter	8	SAE CD	Inferior a 0° C	HY VIS HD EXTRA S3 Plus 10 W	DELVAC 1310	ESSOLUBE D/3 PLUS 10 W	RIMULA CT OIL 10 W	BP VANELLUS C3 10 W	HDL S3 10W	DIESEL SIGMA 10 W	
		API CD-SF API CE-SF	de 0 a 27° C	HY VIS HD EXTRA S3 Plus 20 W 20	DELVAC 1320	ESSOLUBE D/3 PLUS 20 W	RIMULA CT OIL 20 W	BP VANELLUS C3 20 W	HDL S3 20W 20	DIESEL SIGMA 20 W	
		MIL-L-2104D MIL-L-2104E	Superior a 27° C	HY VIS HD EXTRA S3 Plus 30	DELVAC 1330	ESSOLUBE D/3 PLUS 30 W	RIMULA CT OIL 30 W	BP VANELLUS C3 30 W	HDL S3 30	DIESEL SIGMA 30	
Gearbox, steering and hydraulic circuits and reducers	24	CCMCD2/D4	Todas las temperaturas	HY VIS HD EXTRA S3 Plus 15W 40	MOBILAND SUPER UNIVERSAL	ESSOLUBE XD/3 EXTRA UNIFARIM	UNIVERSAL FARM OIL SHELL AGROMA	BP SUPER TRACTOR OIL UNIVERSAL	UNILAND 15 W 40 SUPERLAND UNIVERSAL 15W40	SIGMA TURBO UMITRACOTRS SUPER TRACTOR UNIVERSAL	MAXIDIESEL 30
		API GL 4 MF 1135	Todas las temperaturas	TRANSFLUID AS/B	MOBILEFLUID 422	TORQUE FLUID 62	DONAX TD	TRACTRAN 8	LOT OTRAS/B	ROTRA MULTITHT	STOV 15W 30
Front axle and front reducers	3.5	API GL 5 MIL-L-2105D	Todas las temperaturas EP 90 - 140	HD GEAR OL MOBILUBE HD90	MOBILUBE GX 90 GP 80 W 90	GEAR OIL HD 80 W 90	SPRAX OIL 80 W 90	BP HYPOGEAR 80 W 90	LOT CX	ROTRA HP	EP-90

PERIODICAL CHECK-LIST

Type of machine:

Chassis number:

Date of purchase:

Dealer:

PERIODICAL CHECK-LIST			
Date	Hours	Revision/Replacements/Repairs	Signature