



VALID FOR MODELS

980 / 980S

970 / 970S

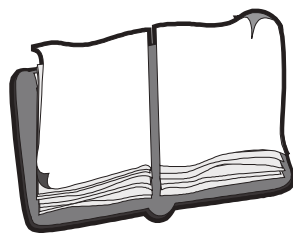
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INSTRUCTIONS AND MAINTENANCE BOOK



Before operating with the machine, read the indications of this book and have into account the instructions about how it works and security.

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Identification of the tractor

The Tractor is identified by its chassis number, engraved in the right side of the front body and by the manufacturer metal sheet plate, placed at the low right side of the central body.

The engine has its own manufacturer plate. The location of this plate is indicated on the engine maintenance book of the manufacturer.

To ensure a fast and efficient assistance service, delivery of spare parts or request any other information, you should indicate always:

- Type of tractor.
- Number of chassis
- Type of engine
- Number of serie of engine.
- Date of purchase.
- Dealer of the respective zone
- Owner/Operator

NOTE: Preserve in good condition this book and consult regularly, moreover when exist doubts about the use and maintenance of the tractor.



Number of chassis of the tractor

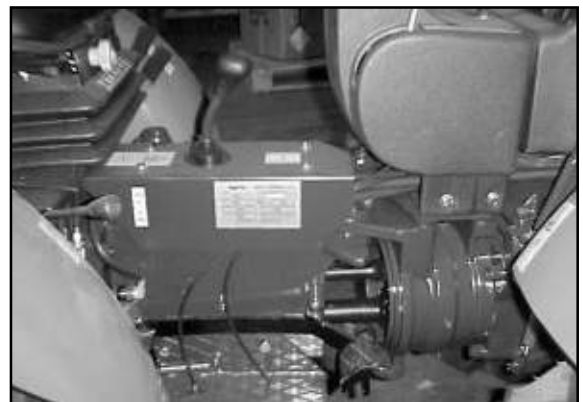


Plate of manufacturer of the tractor

Introduction

Introduction

In this book are indicated all the needed features and information for the acknowledge, maintenance and correct use of the tractor.

The optional operation, economy and durability of the engine depends mainly on the rational use of the possibilities of the tractor and good maintenance of it's components.

In the moment of the delivery of the tractor request to the Agent-Seller the detailed explanation of the use and maintenance instructions contained in this manual so you can feel satisfied in terms of understanding about the machine you own. If, any doubt exists ask for explanation to the Agent-Seller of your zone or request information directly to AGRIA HISPANIA, S.A.

Due to the different conditions of use of the tractor in the different zones; and the use of the specific implements of each zone, it is not possible for AGRIA HISPANIA, S.A. adecuate perfectly the content of this manual to all the conditions of use of the tractor. AGRIA HISPANIA, S.A. can not, subsequently, assumes responsibilities for lost or damages, eventually caused of any mistake or omission published on this book.

In case of using the tractor in special conditions (pronounced slopes, muddy terrains and so on) or with special implements, speak to the agent-seller or local dealer to obtain the specific instructions regarding to it.

Use always original spare parts of AGRIA, sent by our authorized local dealer.

Going again this instructions can be a cause of denying the warranty.

NOTES:

a) The content of this manual is for general use and its indications can vary depending on the different places of use of the tractor or on the use of special implements. To obtain detailed information for these cases go to the local dealer.

b)Some illustrations of this manual can not coincide with your tractor, due to the modifications made in the serie production.

WARNING: *In some illustrations of this manual can be represented some protection not being assembled to get a more clear explanation. Never switch on the tractor without this protection.*

ATTENTION AND WARNING

These words are used in this manual or decals to indicate the operations which have special importance about the security of the main organs of the tractor (warning) or about the security of the operator (attention).

It is adviced to keep special attention on the indications where figures the words "ATTENTION" or "WARNING" followed by the simbol:



NOTE: The indications of "right-left" indicated in this manual are refered to the sit operator sit in direction to the engine.

WARRANTY

All the products manufactured by AGRIA HISPANIA, S.A. are under WARRANTY OF SIX MONTHS, from the delivery date. The warranty covers, within certain limits, the defects of materials and manufacturing.

The conditions of concession of the warranty are established by AGRIA HISPANIA, S.A. and the details of the same should be requested to the agent-seller in the moment of the purchase of the tractor.

Due to technical improvements AGRIA HISPANIA, S.A. reserves the right to make modifications at any moment without previous notice.

Before the delivery of the tractor, the agent-seller has to verify that can be used immediatly. He has also to give to the owner and operator of the machine, the instructions about the use and maintenance of the tractor. These instructions are the refered to the instruments and control commands, maintenance and periodical adjustments and to the security rules.

AGRIA HISPANIA, S.A. frees itself of any responsibility derived of any difference that can exist among the features of the tractors and the correspondant descriptions content in this manual.

Likewise AGRIA HISPANIA, S.A. is not responsible of any possible complaints due to the assembly and use of accesories, implements or components not authorized.

EXCLUSION OF THE WARRANTY

There are excluded of the warranty the damages or breakdowns caused by manipulation or negligence on the maintenance of the tractor just as by use of not original spare parts or not authorized implements.

The warranty does not include any possible damage occurred during the transport.

ASSISTANCE SERVICE

For the assistance in the revision operations which cannot be ing taken easily, with the facilities that a normal person has available, the manufacturer reccomends to address to the zone authorized dealer.

You can also speak to:

AGRIA HISPANIA, S.A.
Bº Euba, s/n
48340 Amorebieta (Vizcaya)
Tel: 0034 94 630 00 55
Fax: 00 34 630 01 34
e-mail: comercial@agria.net

SECURITY RULES

The security of the operator represents one of the principal worries concerning to the design and production of one tractor. During the design, one of the objectives is to introduce as many security devices as possible.

With all the systems, still occurs several accidents caused by not complying with the more elemental warning rules.

To forseen the possible risks and perform subsequently, with the proper prudence and without doubts, is the best warranty to avoid accidents.

Before start using the tractor, the operator has to have clear all the indications and security warnings indicated in this manual. Besides there should be mounted all the tyres and security protections and, in case of spoiling of any of them, proceed immediatly to their reparation. Only start the tractor when the operator is sit at on the pilot's seat.

Upper or lower the pilot's seat with the engine stopped. Ensure that all the instruction decal, advise or warning are well placed and pefectly legibles. In contrary case, replace the damaged ones and put the lacking ones.

USE OF THE TRACTOR ON PUBLIC WAYS

The driver has to know the current rules about driving through public ways and to possess the corresponding driving licence.

Drive always with the maximum cautiously and respect the current rules and signals.

For driving through the public ways it is necessary have placed the number plate and have the documentation of the tractor.

SECURITY RULES

WORDS AND SIMBOLS OF SECURITY AND DANGER

This security symbol means ATTENTION!; BE IN ATTENTION!,
YOUR SECURITY IS IN DANGER!



This symbol indicates important security advice of the tractor, indicated in the manual. When this symbol appears, pay attention. Under the possibility of an accident, follow the indications of advertising and security given next to the symbol.

WHY SECURITY IS IMPORTANT FOR YOU? ACCIDENTS CAN CAUSE INJURIES AND DEATH ACCIDENTS ARE EXPENSIVELY PAID ACCIDENTS CAN BE AVOIDED

Security of the Tractor and the Attachment

The tractor is a source of mechanical and hydraulic power.

The tractor, alone, has little utility. Only when used with an attachment is when it forms one unity of work.

In this manual are indicated the security actions in relation with the normal operations of use of the tractor and the attachment and not affect all the security instructions concerning to all the possible implements to fit on a tractor.

It is very important that the operator understands and practices all the instructions that should provide the manufacturer of the attachments.

Security: Introduction

In this paragraph about security are indicated the instructions for some of the situations that can occur during the normal use and maintenance of the tractor. This paragraph does not replace other security indications content in this manual.

Additional cares can be necessary depending on the implement used, working conditions or maintenance and reparations.

The operator is the ONLY RESPONSIBLE of following the necessary security rules for each activity performed by him.

Security: Rules for the operator

It is responsibility of the operator to read and understand all the security indications of this manual, before using the tractor. The operator has to follow these security rules during all the working day.

Pay special attention to the numeration of the figures with security indications and their relation with the texts of this manual.

Remember always that you are responsible of your own security and of the security of the people who can be in the ratio of action of the tractor.

Bear always in mind that these indications about security are specifically indicated for this tractor but it is also recommended to follow the security rules acquired with the daily practice.

REMEMBER THAT THE SECURITY IS UNDER YOUR RESPONSIBILITY AND CAN PROVIDE FOR SERIOUS ACCIDENTS AND, IN EXTREME SITUATIONS, FOR DEATH. Place this manual somewhere easy to consult and keep it in good conditions. read it carefully and take care of use the tractor and it's commands with security. DO NOT let anybody drive the tractor if he has not previously read the use instructions and had been advised about the dangers that the use of the tractor can cause.



DANGER: This symbol with the word "DANGER" indicates one situation of risk that when not avoided can cause a danger of serious accident or death.



ATTENTION: This symbol with the word "ATTENTION" indicates one potential situation of risk. Not following the correct instructions can cause serious accidents or death.



WARNING: This symbol with the word "WARNING" indicates that it is recommended to follow special cautions to avoid serious accidents.

IMPORTANT: This word indicates that you have to follow special instructions because, otherwise, can cause DAMAGES IN THE EQUIPMENT OF THE TRACTOR.

NOTE: Indicates interest points for a better and more efficient use or reparation.

SECURITY DECALS



ATTENTION: Do not unstick the decals of DANGER, ATTENTION, WARNING or INSTRUCTIONS. Keep them always legibles and, in otherwise case, replace them by new ones. When replacing by new decals, respect the original situation.

Safety use of the tractor

For a safety use of one agricultural tractor, the operator has to be qualified and authorized.

The operator has to understand the instructions of this manual and has to be trained to operate the tractor and informed about the dangers that due to it's use can be caused.

It is responsibility of the owner to know the applicable labour rules.



ATTENTION: To make use of the tractor, the operator has not to be under the effects of the alcohol or drugs that can alterate his organism.

One operator with medical prescription or under narcotical products needs a medical authorization to be ensure if he can or can not operate the tractor in security conditions.

Warnings to consider:

- Never allow that other people, specially children, remain inside the ratio of action of the tractor.
- Use the security belt when the tractor is equipped with security frame.
- Avoid, when possible, the use of the tractor in zones next to ditches or excavations.
- Reduce the speed when driving by irregular or muddy terrains.
- Drive far from slopes to work safely.
- Drive with caution, overall at the end of a hill or between trees.
- Not allow anybody approach to the tractor or its implement when it is working.
- Work with caution and without sudden or unforeseen movements. Do not start or stop suddenly.
- To pull use the trailer hitch. Never hitch on the rear axle.
- When stopping the tractor, connect the hand brake.
- Not remove or modified parts or components of the equipment of the tractor.
- Necer use hitches or connexions not established in the tractor.

SECURITY RULES

Security structure

The tractor is equipped with a folding arch, in origin (Fig 1)

The protection structure avoids the risk of accident in case of overturn of the tractor. In this kind of accident, without the security structure, can occur serious material and personal damages.

Utilization

- Before using the tractor be sure that the protection structure is well fixed to the tractor and that does not present any damage.
- **DO NOT HITCH** chains, cables, etc, to the protection structure as can cause the overturn of the tractor. Pull always using the trailer hitch.



Fig. 1

Security structure

If the tractor has overturned or the security structure has hit against a bridge, tree, etc. should be replaced **IMMEDIATLY** by other new original structure.

After an accident check the condition of the protection structure and, if it is necessary, replace the damaged parts.

DO NOT WELD, REINFORCE OR DRILL the protection structure. These operations reduce the security level warranted by the original equipment.

Precautions for a safety work

Use adequate clothes and necessary protection devices for the work to do. Do not take risks (Fig. 2)

The recommended protection equipment is:

- Crash helmet
- Protection mask
- Ears protector headbands
- Glasses or eye-shield
- Adequate clothes, depending on the weather
- Reflecting bands
- Safety gloves
- Safety footwear

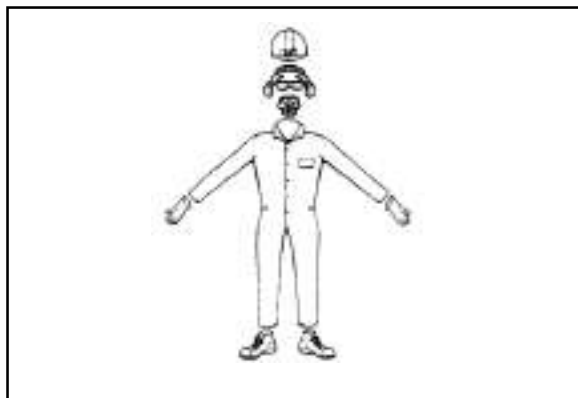


Fig. 2

DO NOT wear too big clothes to avoid they hitch with the commands or other parts of the tractor.

It is recommended to have a fire extinguisher and a first aid kit, just as to know its placing and utilization (Fig. 3)

Knowledge of the tractor

It is a must to know the features of the tractor; to know how to use it, its equipment, the assembly and disassembly and how the used attachments work; to know how the commands and controls operate, the load capacity, the speeds range, the brakes and steering system, the turning ratio, etc...

Take note that rain, snow, ice and soft soil can change the driving of the tractor. In conditions of little adherence and fast descence, pay more attention and drive with care.

You should know the decals of **DANGER, ATTENTION and WARNING**, placed over the tractor as well as the information the same have.

READ WITH ATTENTION THIS MANUAL AND LEARN TO OPERATE CORRECTLY WITH THE TRACTOR, WITH TOTAL SECURITY, BEFORE START THE ENGINE AND INICIATE THE WORK. (Fig. 4)

IF YOU HAVE DOUBTS, CONSULT WITH THE DEALER OF YOUR ZONE

IMPORTANT: This manual covers the general security rules for agricultural tractors. Keep it always in good conditions and carry with the tractor. In case of lost or deterioration, request one copy to the zone dealer.

Use always all the protection and security systems that are available.

Keep all the protection systems correctly placed and fixed and ensure that the security signals and systems work correctly.

To guarantee your security and the security of all the people who can be inside the ratio of action of the tractor, it has to be equiped with:

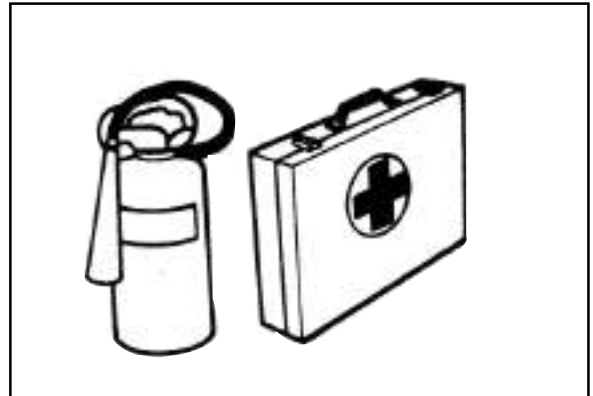


Fig. 3



Fig. 4

- Protection structure
- Protection of the P.T.O
- Rear mirror
- Other security and signalization elements according to the current rules (Signalization triangles, fire extinguisher, special lights, etc.)

SECURITY RULES

Control of the tractor

Before starting the work, control the tractor and ensure that all its elements are in good work conditions.

- Check there are not broken, damaged or released parts. In contrary case do the correct replacement or reparation.
- Ensure that all the security devices are in good conditions.
- Control the condition of the protection structure (if it has any defect, replace it)
- Make sure that the attachment is correctly installed and fixed. If the implement is connected to the power take off, make sure that it has the correct relation of transmission (r.p.m)
- Check the condition of the tyres and, if they present fisures or excesive ware, replace them.
- Control that the inflate pressure is correct
- Ccheck the brakes system and, if necessary, regulate them.
- Stop the engine and wait it is cold, before drop fuel.
- DO NOT smoke when filling the fuel tank (Fig. 5) and keep away from sparks or flames.
- Check the engine oil level and add it, if necessary.
- Observe all the other daily maintenance operations indicated in this manual.
- Verify that the starting –power connection- safety system works properly.
- Make sure that the power take off and cardan protections are correctly fitted.
- Check the hydraulic system of the tractor and that the implement is corectly fitted.



ATTENTION: The pressure in the fuel circuit and in the hydraulic circuit can cause serious injuries in 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 a protection mask or glasses to protect your eyes. If the liquid under pressure contacts the skin, consult a doctor immediatly (Fig. 6)

Before giving pressure to the fuel injection circuit or to the hydraulic circuit make sure that all the connections are dully closed and that the tubes are in correct state.

Before operating on the circuits under pressure, make sure that the circuit is totally discharged (without pressure).



ATTENTION: In WATER cooled engines, the cooling system is under pressure when the engine is hot. Before removing the radiator´s cap, stop the engine and let it get cold. Release slowly the cap one turn and let leave the residual pressure before removing it totally.



Fig. 5

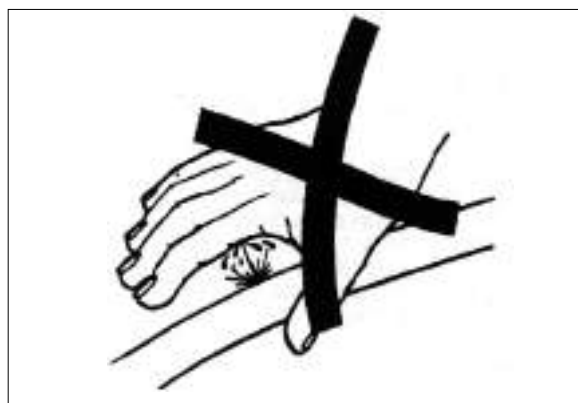


Fig. 6

Cleaning

- Keep the engine clean.
- Before proceeding to clean the tractor, lower the attachment to the ground, place the changing lever into neutral, pull on the hand brake, stop the engine and remove the ignition key.
- Keep the platform, the feet rests and pedals, clean. Clean grease or oil stains. Clean other dirt (dust, mud, etc.). In winter, remove snow and ice on the tractor.
- Check and replace all the tools and accessories.

Maintenance of the tractor

- Do not perform maintenance operations with the engine working or when the tractor is moving (Fig. 7).
- Before doing the maintenance or adjusting the electric circuit, disconnect the negative cable (-).
- To prevent fire or explosions, keep flames away from the battery and from hot parts of the engine.
- For all repairs and adjustments, we recommend the use of the Official **AGRIA** Service.
- Both the tractor and the implements should be supported by adequate blocks or wedges. **NEVER** use hydraulic jacks.
- Periodically, check that the screws and nuts are well tight to the wheels, wheel discs and implement. Tighten according to the correct specific torque.
- Periodically, check the efficiency of the brakes and adjust them, if necessary.

Environmental protection

It is forbidden deposit fuel or oil anywhere other containers as the approved. Collect this products and recycle them according to current legislation.



Fig. 7

Start up

Previous attentions to the starting of the engine

Before starting the engine, inspect the area around the tractor and implement. Make sure that there are not persons into its scope of action.

Warn the present people that you are proceeding to start the tractor and **DO NOT DO SO** until you are sure they are out of the scope of action of the tractor and implement.

Make sure that all present people, specially children, are in a safe place before starting the engine.

Mounting and dismounting the tractor

To mount the tractor ensure three leaning points: one foot and the two hands.

To mount and dismount the tractor use the mentioned supporting points. **NEVER** use the commands or levers as supports or rest the foot on the pedals.

NEVER try to mount or dismount the tractor when it is moving.

NEVER jump off the tractor, in any circumstance.

SECURITY RULES

Start up in safety



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

Always start the engine from the driver's seat and with the speeds changing lever, inverter lever and connexion lever of the power take off, into neutral position.

Make sure that the brakes are well adjusted.

Adjust the seat position to the driver's convenience, pull on the brake and put all the commands in neutral position, before starting the engine.



DANGER: Start the engine with the ignition key and only from the driver's seat. NEVER try to start the engine by hot-wiring the engine because a gear may be engaged and can cause an accident to people (Fig. 8).

Recommended starting system

Follow the recommended starting instructions in the corresponding 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 any command does not respond correctly, **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: When a tractor is bad balanced can turn over and cause accidents. Make sure to use the counterweights according to the manufacturers recommendations and to fit and fix them well.

NEVER overload the tractor with additional counterweights.

ATTENTION: When working with the tractor, remain always inside the driving seat.

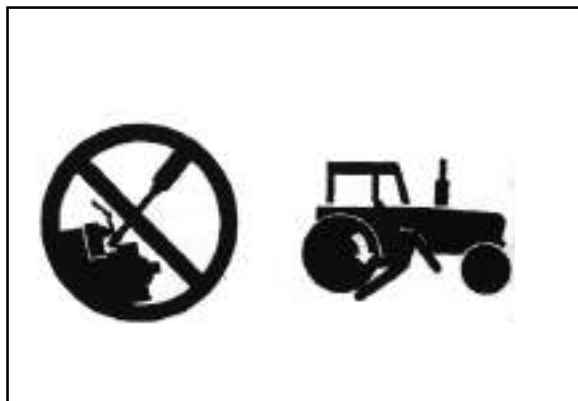


Fig. 8

Make only the required manoeuvres

Make sure the tractor is ready for the work to do. **DO NOT** exceed the specified load capacity.

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

Make sure the implement is correctly attached to the three point hitch and power take off.

Take into account that in normal conditions the tractor should work **WITHOUT** ballast.

Only use ballast when trailing. Remember that, in some conditions, the maximum authorized load may be reduced.

Safe operation

- 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 to enable it pass comfortably.
- Make sure the tractor or the implement are not used with unnecessary lightness.
- **ALWAYS** operate the commands and controls from the driver's seat.
- Before dismounting the tractor, lower the implement to the ground, put the gear box into neutral position, pull on the hand brake, switch off the engine and remove the ignition key.

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

Be aware while working. If any element breaks, release or works irregularly; stop working, stop the engine and do not return to work until the problem has been solved.

Attention with other details

- Be aware of the manoeuvres being performed.
- DO NOT allow operate with the tractor to unqualified or uninformed persons. 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.



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. Once moving, recheck that the steering and the brakes work properly. With the lock on, move slowly and move the steering only when necessary.



ATTENTION: Never lift loads over people.

- Keep people out of the tractor's scope action. **NEVER** allow anyone to remain or pass beneath lifted loads (Fig. 10).
- **Do NOT** lift materials that are not perfectly fixed. When working with load lifts do **NOT** operate abruptly. Keep the load well fixed during the transport.
- **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 and unloading manoeuvres of the tractor.
- **Do NOT** allow anyone to sit on the safety structure or mudguards.
- Keep away from moving elements, hydraulical cylinders, chains, cables, etc. Keep all the security protections well fitted



Fig. 9



Fig. 10



ATTENTION: Do NOT stay behind the tractor or allow others to do so, unless the engine is switched off, the implement lowered to the ground, the hand brake pulled on and the changing gear lever into neutral position.

SECURITY RULES

Risk of overturn

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

If you turn over when the tractor is fitted with a safety chassis, hold tight to the steering wheel and do **NOT** try to leave the driving seat until the tractor is stopped (Fig.11). If the cabin doors are blocked, leave the tractor through the roof or the rear window

Rules to avoid the lateral turn over

- Adjust the tread width to the maximum permitted according to the work being performed.
- Check the effectiveness of the brakes, before entering to the road.
- Drive at a suitable speed depending on the ground and work to be performed.
- If the tractor is equipped with a front loader, take the precaution of keeping the load as much low as possible.
- Manoeuvre at a slow speed.
- On irregular ground, do **NOT** make the tractor skip or jump, to avoid the lose of control of the tractor.
- **Do NOT** trail loads heavier than the maximum allowed by the tractor. It could be dangerous when driving down hill because the trailer load can push the tractor.
- **Do NOT** make abrupt brakes. Do it smoothly and gradually.
- When driving down hill, use a slow speed and the retention of the engine. Select the gear before starting to move down hill.



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

- It is recommended to drive vertically, when driving up and down hill. Avoid driving in the longitudinal direction of the slope.
- Whenever possible, avoid crossing inclined terrains or pronounced slopes. If possible, avoid pot holes, tree trunks or hillocks (Fig. 12).

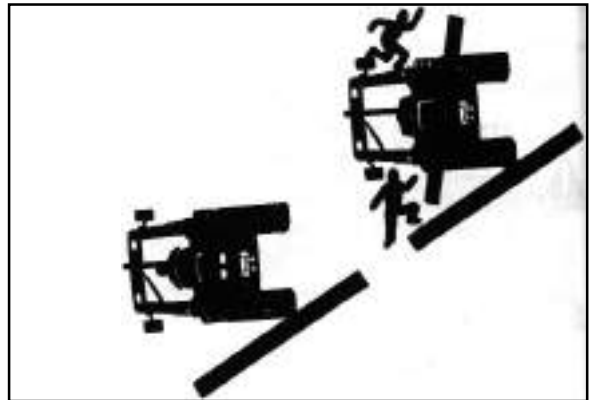


Fig. 11

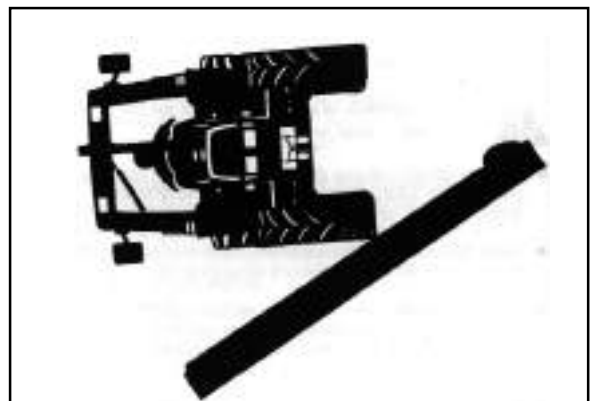


Fig. 12

- If you need to go through a pronounced slope avoid driving on the high side. Drive slowly through the longest route.
- When going through a slope with a lateral implement attached, drive maintaining the implement on the high side of the slope.
- When going through a slope **DO NOT** lift the implement. Maintain it as much close 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 trailer loaded, use the safety chains.
- **NEVER** use the tractor to pick up animals.

Turn over backwards

- To prevent the front of the tractor raise and over turn backwards, pull the loads always using the trailer hitch.



ATTENTION: Hitching loads to the rear axle or anywhere else in a higher position than the trailer hitch can cause to turn the tractor over.

- Hitching to high points for pulling can cause the to turn tractor over and cause serious accidents.
- If the three point hitch is used to pull loads, the cross bar should be correctly positioned.
- Use always counterweights or water inside the wheels to increase the stability of the tractor, when pulling a heavy load or a heavy rear implement.
- Start moving slowly and increase the speed gradually. **DO NOT** accelerate the engine and **DO NOT** press the clutch to get a fast start. If the tractor pulls a heavy load or it is caught, the incorrect use of the clutch can cause the backwards turn over of the tractor.
- If the tractor raises at the front, reduce the speed and press the clutch.
- If the tractor gets stuck in the terrain or mud, **DO NOT** try to move forward. The tractor can turn on its rear wheels and turn over. Lift the implement and try to **GET OUT INTO REVERSE**. If it is not possible, pull the tractor out with other vehicle.
- If the tractor is stuck in a ditch, **CHANGE INTO REVERSE GEAR**, if possible, and move backwards with precaution.
- When going across slopes, move vertically and never in longitudinal direction. Keep the heaviest side of the tractor on the high side of the slope.

- The tractor or the tractor with an implement attached to its rear side, has to drive into reverse to move up a slope and to drive into forward gear to move down.
- The tractor with a frontal implement has to drive into reverse to move down a slope and to drive into forward gear to move up. Maintain the position of a front implement as lower as possible.
- Keep the gear engaged when moving down a slope. **NEVER** move down into neutral position or with the clutch pressed.
- Do **NOT** pull by the three point hitch or by the axle or three point hitch arms. Use always the tractor's original trailer hitch, with its hitching device correctly fitted.

Risky operations

- Make sure the protective casing (1) is correctly assembled. When the power take off is not being used make sure the protector (2) is well placed (Fig. 13).
- Before assembling, disassembling, cleaning and adjusting implements attached to the power take off, disconnect the power take off, stop the engine and remove the ignition key.
- Make sure that all the safety protections are fitted and respect the indications of the security decals (Fig. 14)

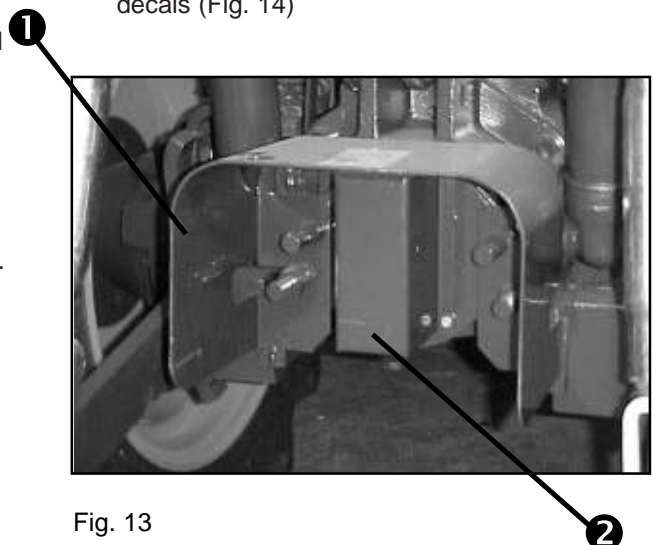


Fig. 13

SECURITY RULES

- Before connecting the power take off, make sure that nobody is inside the scope of action of the implement. Operating with the tractor stationed, put all the levers into neutral, pull on the hand brake and use wheel wedges to ensure the stability of the implement.
- Working with implements connected to the power take off, **NEVER** leave the driving seat until the power take off has been disconnected, the changing lever put into neutral, the hand brake pulled on, the engine stopped and the ignition key taken out.
- **NEVER** use adaptors, reductors or cable lengtheners to connect the cardan to other place out of the protection of the power take off.
- Always use original bolts and vertical braces for the three point hitch.



ATTENTION: NEVER try to release the hydraulical connections or adjust the implement with the engine running or the power take off in function. These manoeuvres create danger situations that can cause serious accidents or death.

- When using chemical products, follow the instructions of the manufacturer about their use, handling and suitable protection equipment.
- When working at night or with limited visibility, switch all the lights on and reduce the speed (it is forbidden to use the working lights when driving on public roads, except when driving reverse).
- Work with the maximum width tread that allows the work being performed.. To change the width tread, read the use instructions of this manual.
- Reduce the speed when working in irregular or skippy ground or when branches of trees limit visivility.
- **Do NOT** make sudden turns or fast angular turnings.



Fig.14



ATTENTION: the front loader (with shovels or forks) has to have a blocking device of the load (sticks, cables, etc) to avoid the lifting arms from falling into the drivers compartment when the loader is up.

- The implements attached to the three point hitch or laterally, have a better turning ratio. Make sure it exists space enough to make the manoeuvres.
- Read carefully, until the complete understading of the instructions of the implements and follow the safety instructions.
- Do NOT let fall the implements fitted in the trailer hitch. Place the wedges or adecuete supports to guarantee its stability and the tractor balance before removing them.
- Never overload the implement or trailed equipment. Use ballast to balance the weight and guarantee the tractor's stability. Hitch the heavy loads only in the pull-bar.

Driving on roads

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

- Know and respect the current driving codes.
- Lift the implement until the transport position and block it.
- Put the implement as much withdrawn as possible for driving.
- Disconnect the power take off and the differential lock.
- Make sure that it has the reglamentary plaques well placed (Fig. 15)
- Make sure that all the signalization and lightning equipment work properly.
- Make sure that the implement is well fixed and with the transport security elements installed.
- Clean the headlights and pilot lights.



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

- Know well your route
- When driving through public road, connect the headlight turning.
- Drive carefully, specially, if driving with the trailer loaded or with a heavy implement hanged.
- Respect driving speed and other current rules.
- Pay special attention if the ground is wet or slidy.
- Make sure the road has no traffic before crossing it.
- Pay special attention to other vehicles, reduce the speed if the visivility is not safe.
- Do not try to overtake other vehicles.
- Reduce the speed in curves and bends.
- Signal before you brake or turn.
- Drive in a slow gear before you start or drive down a slope.
- Keep the gear connected. **NEVER** drive down into neutral or with the clutch pressed.
- **DO NOT** hinder other vehicles that are in the road.

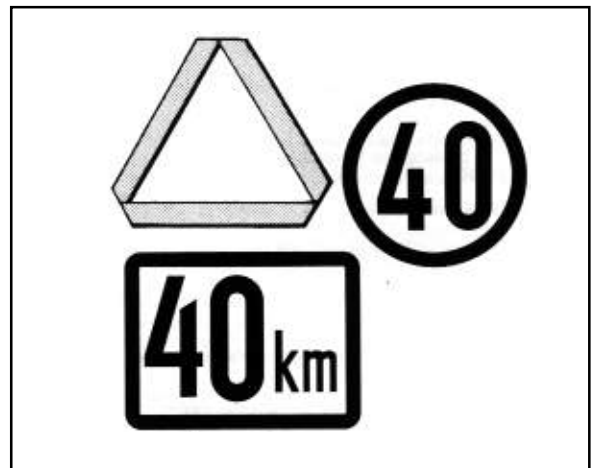


Fig. 15

- Drive in the right direction, as much close to the edge of the road as possible. If you are causing a queue behind you, stop at the edge of the road and let the traffic overtake you.
- Drive with attention and caution.
- With the trailer loaded, brake first and reduce the speed gradually.
- Pay special attention to the possible obstacles that are in heigh (bridges, trees, cables and so on.)

After the use

Once finished the work, stop the tractor completely. Drive the tractor to a safety place, pull on the hand brake and put the power take off into neutral. Change into forward, reverse or slow gear, as convenience; lower the implement to the ground; stop the engine and remove the ignition key.

THIS procedure must be done before leaving the driving seat.

SECURITY RULES

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 basically designed to pull implements attached to the three point hitch or to operate implements attached to the power take off.

To obtain more traction capacity, it is necessary respect the following indications about the loading of the axles.

If supplementary implements are attached, the additional loads have to respect the limits of this manual or the indications of the dealer.

1.- Load on the front axle

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

With front implements, do not exceed the limit on the front axle (consult your dealer).

2.- Load on the rear axle

Both with hanged and trailed implements, the load on the rear axles should not exceed the limits established by the tyres (consult your dealer).

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

3.- Maximum load

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

4.- Ballast and skidding

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

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

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

Consult your dealer about the maximum loads admissible with ballast for the working conditions and implement 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 ground, the maximum load will be lower than authorized.

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

The tractor has always the 4WD connected.

The original tractor tyres are fixed to have the same advance in the four wheels, being necessary to control the indicated inflate pressures.

When making replacements you should assemble of the same dimensions and brand.

Using different wheels can modify the advance relations.

Additional Indications

6.- Economic Power Take Off (PTO)

The economic PTO of 750 r.p.m. allows to use standard PTO speed with the engine at less revolutions.

This application can only be used for light work, in general with implements that require low power.

The economic PTO saves fuel and not to use the total power of the engine.

7.- Work on slopes

This 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 conditions for a safety use. If it is expected to use the tractor in slopes higher than 15% of gradient, consult your dealer.

8.- External hydraulical applications

The hydraulical circuit of the tractor can be used for external applications (hydraulical cylinders). In these applications it is necessary to know the characteristics of the application to avoid exceeding the capacity of the tractor's hydraulic circuit.

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

9.- heavy loads trailing

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

Consult your dealer the necessary instructions for special applications.

10.- The clutch

The tractor is equipped with a dry 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 disks and reduces the life of the clutch.

11.- Other indications for the 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 transport people on the external structure, implement or trailer.

The safety structure protect only to people inside this structure. If the tractor is equipped only with the safety chassis, it is recommended not to transport passengers, even if the reglamentary driver seat is installed.

12.- Chemicals

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

It is necessary to read, understand and follow the indications of chemical substances that are going to be used and the filters to be used.

SECURITY RULES

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.

Characters 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 assesment

Risk of noise is higher as higher is the sound level and exposure time.

To asses the risk, it is used the value L_{aeq} (measured directly with a sound meter) and the LEP value, calculated in function with the sound levels and the exposure time.

Damages caused by noise

Exposure to noise causes disorders in the auditive systems causing 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, generally, 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 not only can cause deafness, but at higher levels than 70 dB(A) can cause other side subsequences such as stress, reduce of reflexes, tiredness, etc.

This effects are dangerous because can increase the risks of accidents.

Means of individual protection

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

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

For prolonged exposures and lower noise levels, ear plugs are effective.

For daily exposures to levels equal to or higher than 86 dB(A) it is recommended to use individual means of ear protecting.

Regarding to the tractor's noise levels see the Technical Characteristics section.

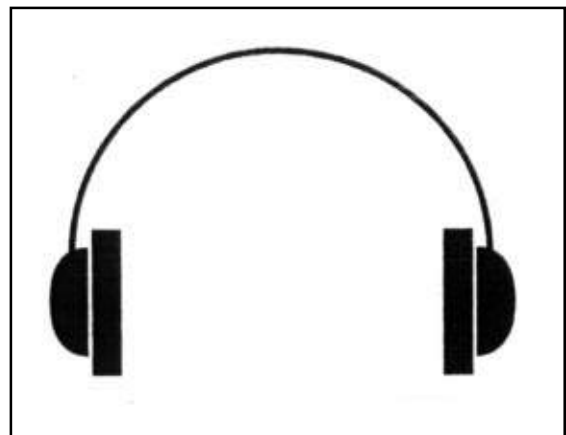


Fig. 16

SITUATION OF DANGER STICKERS

810295

Placed on the right post of the folding arch.

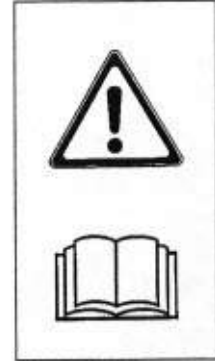
DANGER: Turning over and flattening of the torax. If the tractor is turning over, grasp strongly the steering wheel. Do not stand up of the driver's seat or try to leave the tractor.



807013

Placed on the central tunnel.

ATTENTION: Pay attention. Read the maintenance and instructions manual to be informed about the security and use of the tractor.



810296

Placed on the rear left mud-guard.

ATTENTION: Danger of flattening. Do not transport anybody, seated on the mud-guard or any other place of the tractor or implement.



810297

Placed next to the battery.

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



810298

Placed on the left post of the folding arch.

ATTENTION: Danger of turning over and flattening. Maintain the safety arch in place. Do not modify, do not weld, do not drill and NEVER remove the safety arch. Do not hitch implements to the safety arch. When necessary, fold or dismantle the safety arch (ONLY for maintenance operations) drive with the maximum precaution due to you are not protected by the safety arch.



810300

Placed on the PTO protection.

DANGER: Danger of running over. Keep away from the turning shafts. Do NOT remove the cardan when the Power Take Off is in movement. Keep all the cardan, tractor and implements protections dully installed and secured.



810378

Placed next to the radiator in water cooled engines.

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

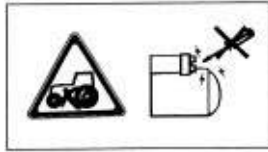


SECURITY RULES

810293

Placed on the starting engine

DANGER: Danger of flattening. Do not start the engine by hot-wiring the starting engine. This operation can cause serious accidents, even death. Start the engine ONLY from the driving seat.



810292

Placed on the rear separator metal sheet

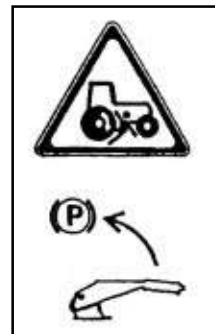
ATTENTION: Danger of electric discharge. Disconnect the negative battery terminal before loosening the solenoid cap and before doing any work on the electric circuit.



810294

Placed on the hand brake

ATTENTION: Danger of entrapment. Before leaving the tractor, pull the hand brake on, lower the implement to the ground, switch off the engine and remove the ignition key. If necessary, keep the engine running, pull the handbrake on, lower the implement and place the inverter lever into neutral position.



810299

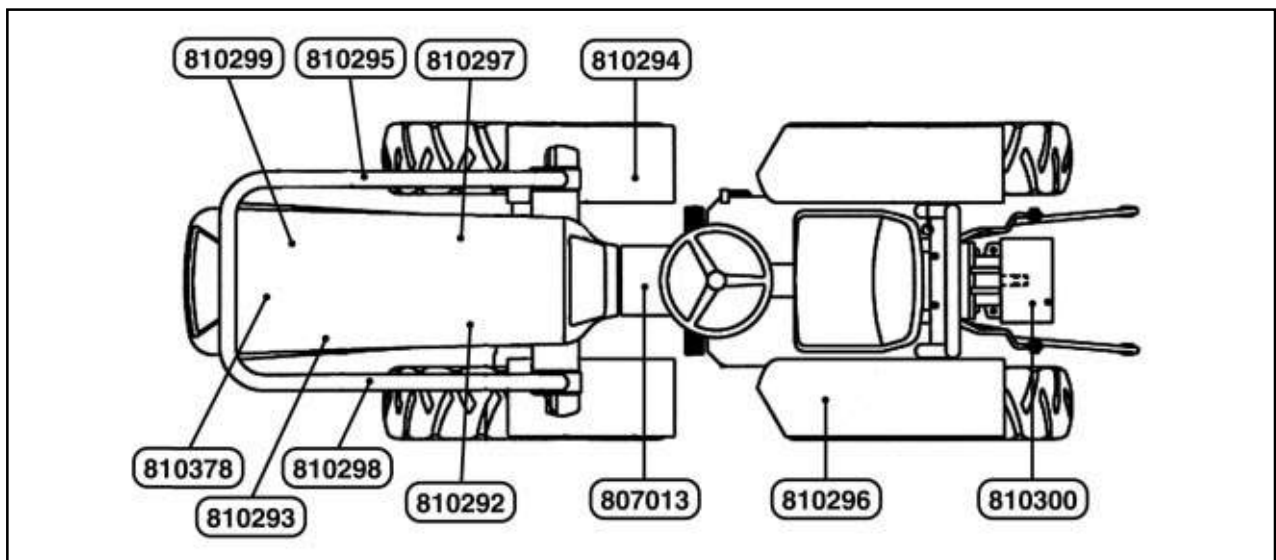
Placed on the front separator metal sheet.

ATTENTION: Hot surface. Danger of burns. Keep away from the hot areas. Keep the safety distances.

ATTENTION: Danger of entrapment. Keep the hands away from the belts and other rotating components while the engine is running. Keep the protections fully fitted.



POSITION OF THE DANGER STICKERS



COMMANDS AND INSTRUMENTS

Dashboard controls

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

Dashboard controls (Fig. 17)

- 1.- Ignition key
- 2.- Turning light switch
- 3.- Operating light switch
- 4.- Instrument panel
- 5.- Emergency light switch
- 6.- Lights command and horn.

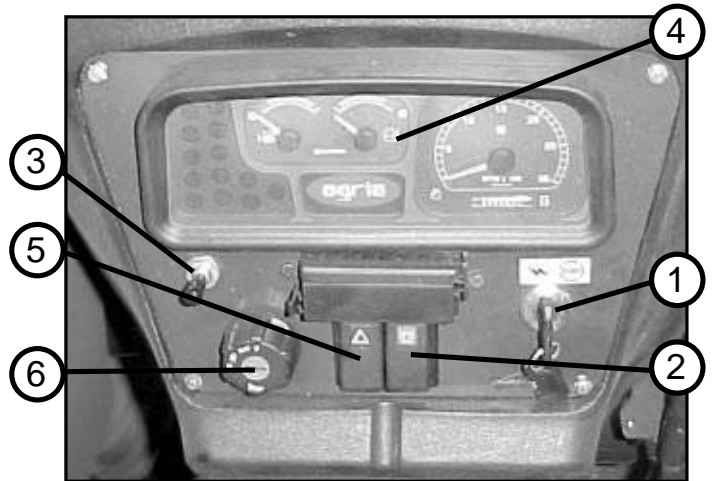


Fig. 17

Tractor controls

Commands (Fig. 18 and 19)

- 7.- Gear lever
- 8.- Manual accelerator
- 9.- Slow-medium-long lever
- 10.- Parking brake
- 11.- Brake pedal
- 12.- Accelerator pedal
- 13.- Lifter lever
- 14.- Clutch pedal
- 15.- 540-760 r.p.m. lever
- 16.- Power Take Off connecting lever (independent)
- 17.- Differential block lever
- 18.- Auxiliar distributor lever.

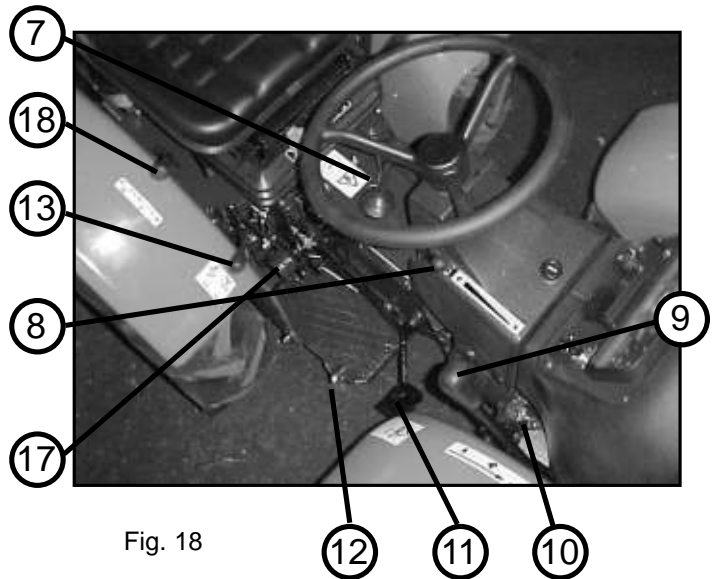


Fig. 18

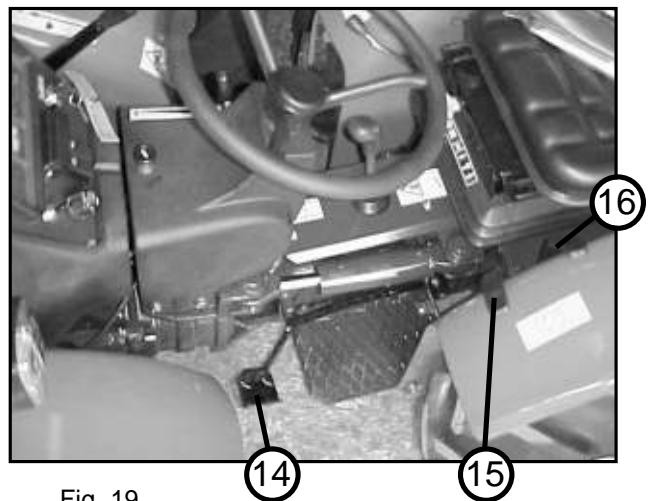
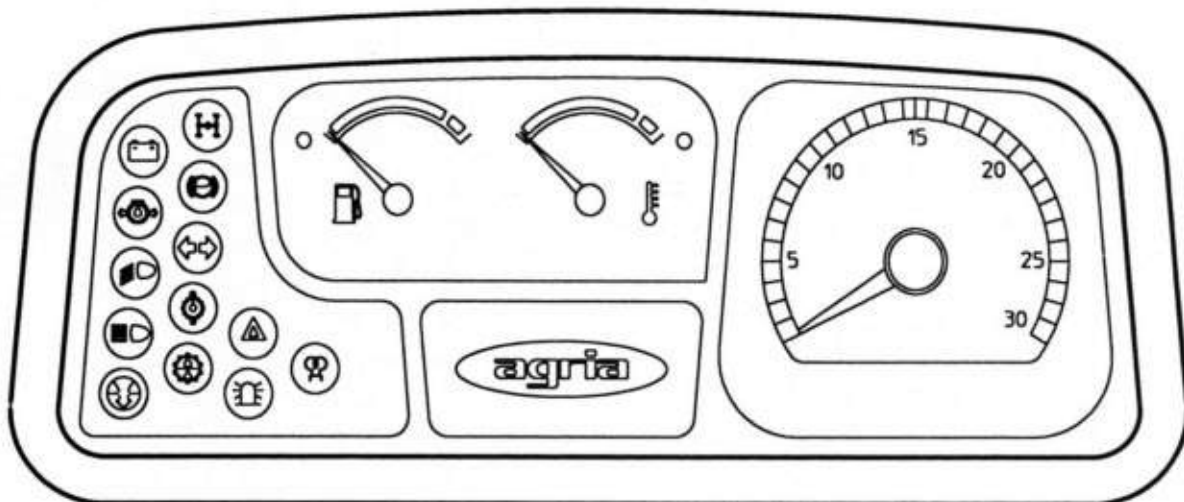


Fig. 19

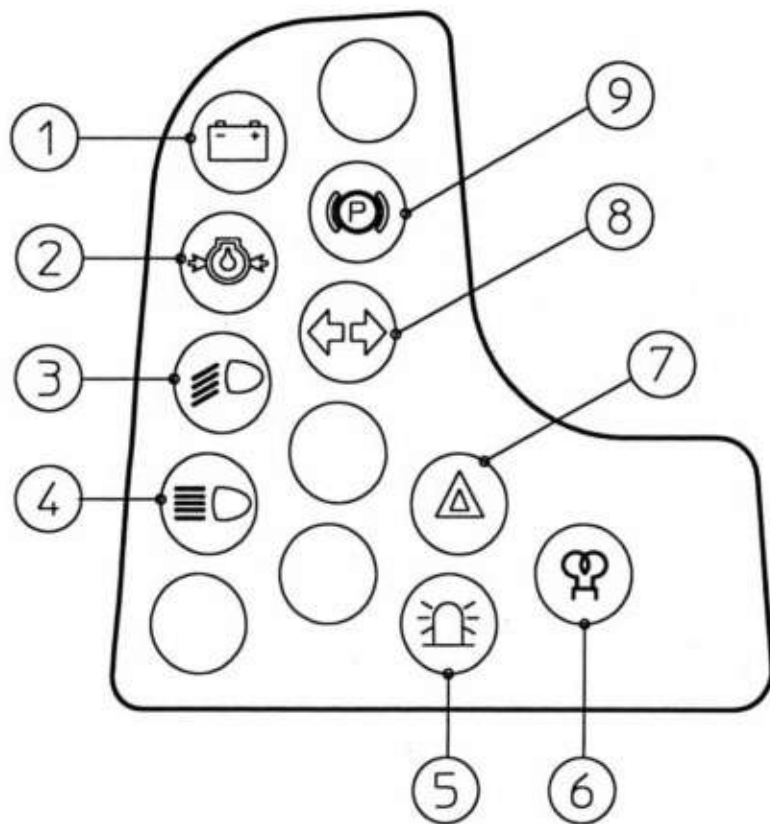
COMMANDS AND INSTRUMENTS



Instrument panel (Fig. 20)

Fig. 20

Lamps



1.-Battery load red sign. It should switch off itself when the engine starts.

2.- Oil pressure red sign. It should switch off itself when the engine starts. When the engine is hot, can switch on although everything is running normally.

3.- Dipped headlights green light.

4.- Blue long-beam lamp.

5.- Yellow lamp. It lights when the headlight turning is connected.

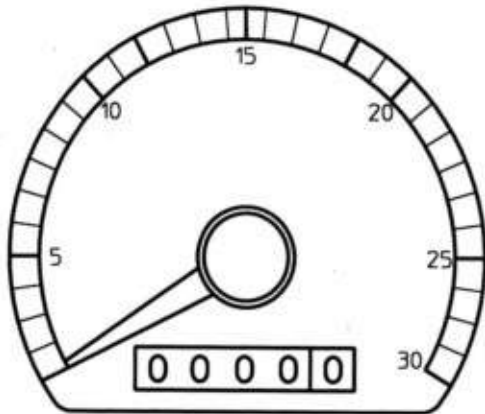
6.- Yellow lamp. It lights when the heating system for starting .

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

8.- Green lamp showing the indicators are working.

9.- Red lamp. It lights when the hand-brake is on.

Engine temperature of the engine



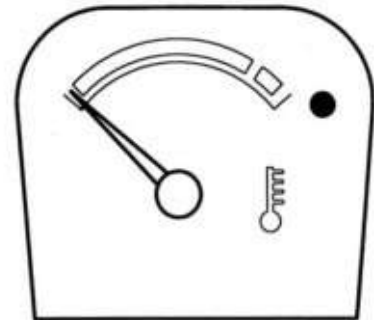
Engine r.p.m. counter.

The outer scale indicates the turning revolutions of the engine.

Hour counter

The indicator placed below the r.p.m. counter indicates the real hours of working of the engine, independently of its turning speed.

- 5 white numbers: indicate hours
- 1 yellow number: indicates 1/10 of hour
- 1 yellow square: indicates 1/100 of hour



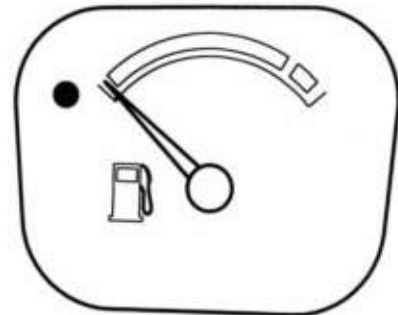
- Green area: normal temperature
- Red area: high temperature

When the indicator enters into the red area, the red lamp switch on. It indicates that the engine has heated due to:

- a) Lack of oil in the engine
- b) Entrance of dust and dirty in the engine.

WARNING: If the temperature of the engine is high, reduce the r.p.m. of the engine to idling and let it turn during for a while. If the indicator is still into the red area, stop the engine and make the indicated checks. If it is necessary, go to the authorized dealer of the zone.

Fuel level indicator



The green scale indicates the amount of fuel existing in the tank. When the indicator is positioned into the red area, remains into the tank 8 liters aprox.. In this moment the orange lamp switches on to indicate the reserve fuel.

COMMANDS AND INSTRUMENTS

Dashboard lamps

1.- Ignition key (Fig. 21)



•All the circuit is without electricity. You can remove the key. To stop the engine you can place the key in this position.

NOTE: depending on the type of engine, this position can be used to stop the engine.



•Starting the engine. When releasing the key, return automatically to the contact position.

NOTE: Optionally and depending on the type of engine, this key can stop a heating position to start the engine at low temperatures. For its use, consult the engine manual.

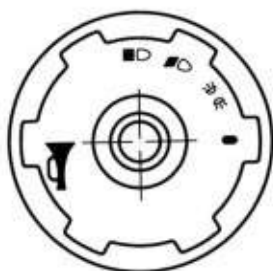
2.- Headlight turning button

When the headlight turning is connected, the yellow lamp lights. It is compulsory to drive through public roads.

3.- Emergency indicator button

The red lamp flashes on and off when you press this button. The four indicator switches on.

4.- Lights and horn command



Situation of rest. Lights switched off.



Position lights. Turn the command to the first position.



Dipped headlights. Turn the command to the second position.



Long-beam lamp. Turn the command to the third position and displace it forward.



Horn. Press the command.

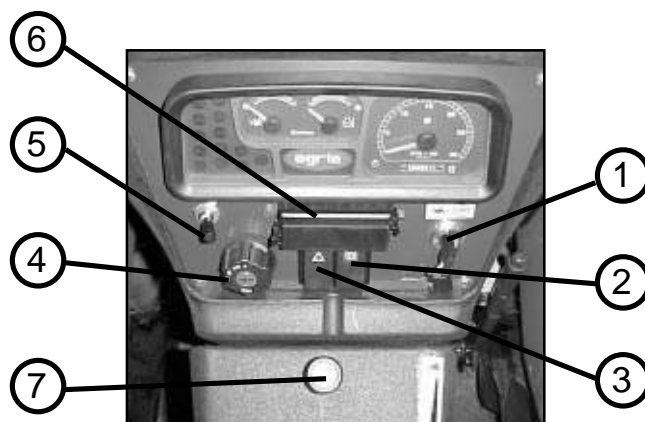


Fig. 21

5.- Direction indicators command



6.- Fusibles box (see electrical instalation)

7.- Stop handle

NOTE: Depending on the type of engine, this function can be made by the starting key (1)

Commands

Seat regulator (Fig. 22)

Longitudinal regulation

Release the hitch lever to regulate the seat forward or backwards.

Suspension regulation

The suspension of the seat can be regulated depending on the weight of the operator, turning the command (2). To hardener the suspension, turn in direction "+". To let it more soft, turn in direction "-".

Seat's heigh regulation

Turn the command (3) to rise or lower the seat.



Fig. 22

Manual accelerator (8, Fig. 18)

Up: Minimum speed

Down: Maximum speed

PREVIOUS CHECKS

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

- 1.- Check the oil level of the engine
(see the instructions of the manual of the engine)
- 2.- Check the oil level of the casing.
- 3.- Check the oil levels of the reducers.
- 4.- Check the hydraulic oil level.
- 5.- Check the pressure of the tyres.



Attention: Do not inflate the tyres with inflammable gases.

- 7.- Make sure there is enough fuel in the tank.



Attention: When filling fuel, keep away from sparks or flames.
Attention: Do not smoke.

- 8.- Check the charge of the battery



Attention: before check it, replace or recharge the battery, put out all flames . Do not smoke.



Attention: When working around or on the battery, protect yourself from splashes of the electrolit. In case that the electrolite contacts the skin, clean with water. If it irritates, see your doctor.



Attention: During the charge operation, remove the spark plug caps.

- 9.- Check the driving seat and safety structure are correctly installed.
- 10.- Check the screws and bolts and principal elements (wheels, protectors) are correctly tightened.

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 clutch is stepped on. In case of incorrect function of this system, go to your local service.



Attention: The tractor and any implement attached to it can only be operated by qualified people.



Attention: Only operate the controls from the driving seat.



Attention: Never start the tractor in a closed area, excepting it exists an appropriate ventilation to let the gases go out.



Attention: Never leave the tractor when the engine is running.



Attention: Before start the engine, make sure there is nobody into the scope of action of the tractor or implement. Use the horn to indicate that you are going to start the engine.

- 1) Verify that the PTO connection lever (Fig. 19) is into neutral..
- 2) Put the manual accelerator at half way.
- 3) Press the clutch completely down (Fig. 19)
- 4) Introduce the ignition key (Fig. 17) and turn **clockwise**, to the end. When the engine starts, release the key to let it return to its previous position.

NORMS OF USE

Starting the engine at low temperatures

See the engine's manual in case it has this device and, if so, proceed:

- Follow the before described instructions 1, 2 and 3.
- Introduce the ignition key (1) and turn it clockwise to the HEATER position.
- After 20 seconds, turn the key to the end to start the engine. If after 15 seconds the engine does not start, return the key to the heater position.
- Wait for 10 seconds and repeat the operation.
- When the engine starts, release the key and let it return to the previous position.
- If the engine does not start, start again, with the heating operation.

NOTE:

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

In case the engine does not start, do not insist.

Before trying it again, check:

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

Starting the tractor



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



Attention: Before starting the work, inspect the land to detect possible risky situations and perform accordingly.



Attention: start the tractor after checking there is nobody into the scope of action of the tractor. It is recommended to use the horn to advise the imminence of operation.

- 1) Press the clutch pedal 14 (Fig. 19) and select with the levers 7 and 9 (Fig. 18) the desired gear.
- 2) Pull down the hand brake (20).
- 3) Accelerate smoothly with the control (9) or with the pedal (13).
- 4) Release the clutch pedal, gradually (14).



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

Accelerator



Attention: Driving on road, use the foot accelerator and maintain the manual accelerator in the minimum position.

The accelerator pedal cancels the action manual accelerator, when the engine is hastened. When the accelerator pedal is released, the engine returns 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 speed of the engine to idling speed.
- Press to the bottom the clutch pedal and brake smoothly until get the tractor to stop.
- With the tractor stopped and the clutch pressed put the gear lever and the reductor into neutral and release the clutch pedal.
- Pull on the hand brake.

Stopping the engine

- 1) Let the engine in idling speed and pull the stop rod 7 (Fig. 21)
- 2) Put the ignition key in the position "O".



NOTE: Depending on the type of engine, the stop of the engine is produced when putting the ignition key in the position "O".



Attention: before leaving the tractor, take out the ignition key, make sure that all the implement is on the ground and that all the rules for a safety parking are respected.

Clutch pedal (Fig. 19)

- Up pedal: Clutch connected.
- Down pedal: Clutch disconnected. Press the pedal gradually. When the engine seems to stall, do not press the clutch to accelerate. Press the pedal to the bottom and change into a lower gear. During the work, DO NOT maintain the foot on the pedal. Put both feet on the feet rest.



Attention: Do not drive with the foot on the clutch pedal. Never entry a slope into neutral gear.

Gear box

Standard change

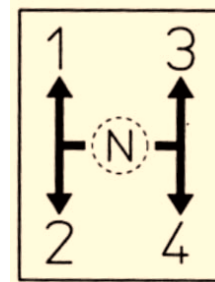
It has four speeds which combined with the reductor can be obtained 8 forward speeds (4 large, 4 short) and 4 reverse speeds.

Sinchronized change

Optionally can be installed a gear box with 4 sinchronized speeds.

Gear lever (Fig. 18)

It has 4 positions according to the drawing:



To change a gear with the standard change, press the clutch pedal to the bottom and stop the tractor. With the synchronized change it is not necessary to stop the tractor to change gears.

Reductor lever (Fig. 18)

According to the figure indications, it has 4 positions



AR Reverse Speed

● Neutral gear

Fast

Slow

To change the different gears it is necessary to press the clutch pedal to the bottom and to STOP the tractor completely.

NORMS OF USE

Use of the gear box and correct selection of advance relation

The speed should be chosen in function of the type of engine, type of implement and land conditions. It is always recommended to choose a speed in which the engine works at the 75% of its power, to let a reserve of power that enables the tractor to support eventual loads.

Selection of the correct speed

- 1.- Choose the range (fast-slow) adequate for the work to do.
- 2.- Choose the speed of work.
- 3.- Use the reverse speed to handle.

NOTE: The values of the different speeds are indicated in the table of characteristics.

Power Take Off (PTO)

The tractor is equipped with two rear power take off.

Upper PTO: SAE 1 1/8 type (Ø 28,5 and 6 grooves).
Lower PTO: Type 1, normalized (Ø 35).

The upper PTO can turn independently of the gear box speeds with ANTI-CLOCKWISE turn for auxiliar uses and SYNCHRONIZED to speeds (see technical features).

The lower PTO, cat I, normalized (Ø 35 and 6 grooves) has turns independent of the gear box speeds with different range of speeds (see technical features).



Attention: Before attaching any implement to the PTO, make sure that its features are convenient for the tractor. In case of doubt, consult your local dealer.

Connection of the Power Take Off (PTO)



Attention: always Select the correct speed of the PTO according to the implement to be used.

To connect or disconnect the shaft of the PTO you have to press the clutch pedal to the bottom.



Attention: Before starting the engine, MAKE SURE that the shaft of the PTO is DISCONNECTED.

Selection of Independent-Synchronized.

The selection is done by meaning of the lever 1 (Fig. 22), which has 3 positions:

- A.- Forward/Down: Synchronized.
- B.- Center: Neutral gear.
- C.- Backwards/Up: Independent

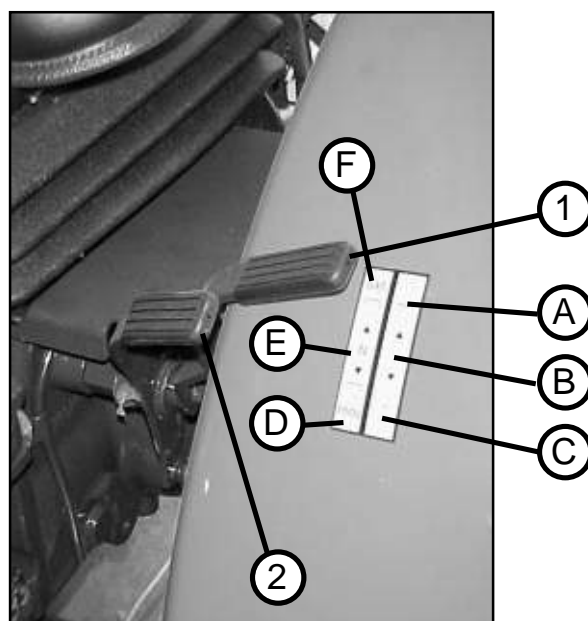
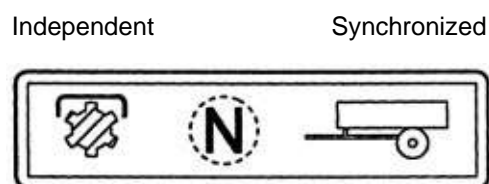


Fig. 22

Independent PTO

The shaft of the PTO has 2 speed ranges which can be put in relation with the lever (Fig. 22), which has 3 positions:

- D.- Forward/Down: Fast range (750/1000)
- E.- Center: Neutral gear
- F.- Backwards/Up: Slow range (540)

NOTE: The values of the different speeds are indicated in the table of characteristics.



The Fast range is used for implements which does not require the max. engine power. The adequate use of the PTO with the Fast range reduce the consume of fuel, noise and vibrations.



Attention: Connect and disconnect the PTO by meaning of the lever 1 (Fig. 22). Both to actionate this lever and to actionate the selection lever it is necessary to press the clutch pedal to the bottom.

Synchronized PTO

This application is for traction trailers or for implements that have to work synchronized to the advance of the tractor.

Connect the synchronized PTO when the tractor is stopped.

Press the clutch pedal to the bottom and put the lever 2 (Fig. 22) in the SYNCHRONIZED position.



Attention: The attachment of the traction trailer or the implement should be done to the upper PTO.



Attention: If it is necessary to reverse direction while using the synchronized PTO, remember that the shaft of the PTO will turn in the opposite direction. With certain implements it is recommended to disconnect the PTO when the direction of the tractor is reversed, to avoid damages.

Precautions in the use of the PTO



Attention: If it is forecasted to use the tractor in muddy lands, where the level of water can be higher the PTO heigh to the ground, it is necessary to go to the local dealer to take the necessary steps that guarantee the watertight. Not respecting these steps can be cause of cancelation of the GUARANTEE.



Attention: To avoid accidents it is necessary to keep all the protections in their position and keep away from transmission shafts when the PTO is being used (Fig. 13).



Attention: Before attaching, taking out or regulate one implement to the PTO you should always diconnect and stop the engine.



Attention: Before starting one imple ment attached to the PTO, ALWAYS check that nobody is into the scope of action of the implement.



Attention: When using the PTO with the tractor stopped, ALWAYS check that the gear box is into neutral and the handbrake is pulled on.



Attention: Before working with an implement attached to the PTO and the three point hitch, lift it to the maximum possible heigh and check that, at least, 1/4 of the length of the telescopic section of the transmission shaft is connected. Regulate the maximum heigh of lifting.



Attention: Before attaching an implement to the PTO, make sure that the characteristics are compatible with the characteristics of the shaft of the tractor's PTO. In case of doubt go to your local dealer.



Attention: Before attaching one traction trailer or synchronized implement, CONSULT with your local dealer. DO NOT RESPECT THIS INDICATION CAN CAUSE DAMAGES AND CAUSE OF TRACTOR'S GUARANTEE CANCELLATION.

NORMS OF USE

BRAKES

Service brakes

For braking the tractor use the pedal 1 (Fig. 23) which act simultaneously on the rear wheels brakes.



Attention: The service brake is hydraulically acted and it is NECESSARY to check the tank liquid level DAILY: 2 (Fig. 23) and to replace it if necessary.

If you observe any leak of liquid or that the braking capacity reduces, it is necessary to immediately to your local dealer.



Attention: To make any reparation or replacing of the brake system it is NECESSARY to go to the local authorized dealer.



Attention: Working in slopes, use the brakes only the necessary time and use slow speeds to brake with the engine.

Parking brakes

The parking brake lever: 4 (Fig. 24), act on the front wheels brake drums and, so, can be used as emergency brake.

To actionate the parking brake, pull the lever 4 on. To release it, press the button C and move the lever forward to the bottom.



Attention. When working with the tractor make sure that the parking brake IS NOT ENGAGED.

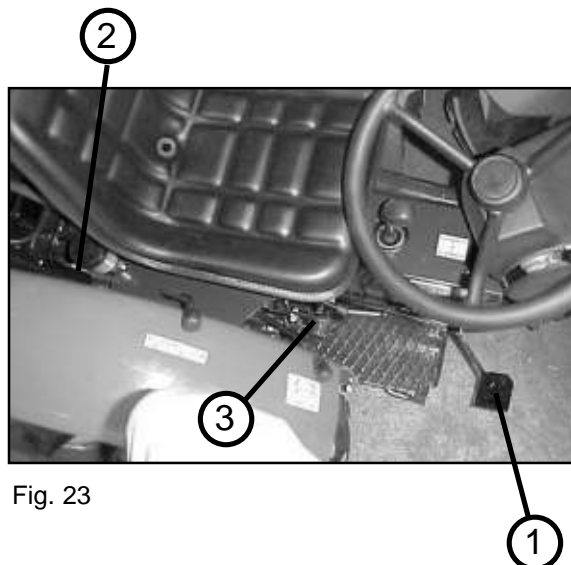


Fig. 23



Fig. 24

Differential lock

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

To lock the differentials, press the pedal 3 to the bottom (Fig. 23).

When releasing the pedal 3 it dislocks automatically. otherwise, turn the steering wheel to right and left, smoothly, until the pedal releases (3).

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



Attention: Disconnect the lock while driving on road or turning.

Wheels and tyres

Periodically, check that the screws and bolts are dully tightened.

Before starting the work, every day, check and adjust the tyres inflating pressure, according to the following aproximate values:

- Working in the field:.....1,3 bar
- Driving on road:.....1,8 bar

These pressures values can be used in all circumstances without danger for the tyres. If during the work in humid ground, the earth sticks to the tyre, it is recommended to reduce the tyre's inflating pressure. If, in these conditions you should drive on the road, it is recommended to run at slow speeds.

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

If you strictly follow these indications, the long life of the tyres are ensured.

NOTES: If the tractor is not going to be used for a time, it is recommended to eliminate weight on the tyres by meanings of putting wedges. Do not let the tyres under sun exposure during long time. If it is necessary, cover the tractor or tyres. Do not park the tractor on oily surfaces.

Adjusting of the TREADS

The variation of the treads can be done by changing the position of the wheels (wheels of fix disc) or by changing the position of fitting of the wheel and disc (wheels with screwed disc).

NOTE: Front and rear tread should ALWAYS be the same.

The tread width and the exterior width that can be obtained are indicated in the tractor's characteristics list.

NOTE: These dimensions are according to the standard tyres the tractor can be equiped. Consult your local dealer for any other possible options to fit different tyres and width treads.



Attention: To change the position of the wheels, lift the tractor, level the tractor with wedges and lock correctly the wheels. Tighten the bolts with the tightening stroke of 28.30 d a N

Ballast

When using heavy implements hanged in the three point hitch or if it is desired to increase the traction capacity of the tractor, it is recommended to ballast it., using wheel counterweights or by filling the wheels with water.

In places at very low temperatures it is necessary to add anti-freezing to the water. Consult your local dealer to be informed about the quantity of water to fill into the wheels.

Wheel counterweights (Fig. 25)



Fig. 25

The wheel counterweights: 1 (Fig. 25), of 50 kg, are fixed to the rim, by screws: 2.

Make sure that the counterweight is dully positioned to the rim and tighten the screws.

Filling the wheels with water (Fig. 26)

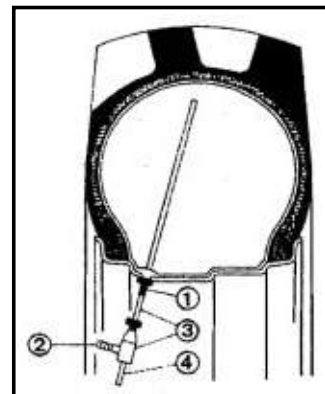


Fig. 26

- 1) Head of the valve (cap)
- 2) Tube for the hose of water.
- 3) Special racors for fill and take out the water.
- 4) Tube for air outlet.

- 1) Lift the wheel and leave it in the air. Place the valve up.
- 2) Release the racord of the valve and desin flate the tyre.
- 3) Tighten the cap (3) on the valve (1) and place the hose in the tube (2). While the water enters, the air goes out through the tube (4). When it is completely filled, the water starts coming out of the tube.
- 4) Release the racord of water filling and inflate the tyre at the recommended pressure.

NORMS OF USE

Draining water of the wheels (Fig. 26)

- 1) Lift the wheel and leave it in the air. Place the valve in a low position.
- 2) Release the racord of the valve and make sure that all the water of the tyre goes out.
- 3) Tighten the racord (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 racord (3) and install the inflate valve. Inflate the tyre at the recommended pressure.

IMPORTANT

- Do not overload the tractor over the maximums authorized.
- For light works or transports by road it is recommended to remove the ballast to avoid excessive wear and fuel consumption.
- When using ballast on the rear axle, take into account that the dimension of the implement angled due to its weight can overload the rear axle.

Three point hitch

These tractors have three point hitch, Cat. 1N (Narrow tractors). Optionally, can be fitted the three point hitch Cat. 1. To be sure the tractor works properly, check that the dimension of the implement corresponds to the three point hitch and the lifter.

Central pull: 1 (Fig. 27)

1.- Exist three fixing holes in the support of the bar of the three point hitch. The fixing hole depends on the height of the implement.

2.- Adjust the length to change 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. 27)

The right and left pulls can be adjusted to level the pulling bars, depending on the implement and the type of work.

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

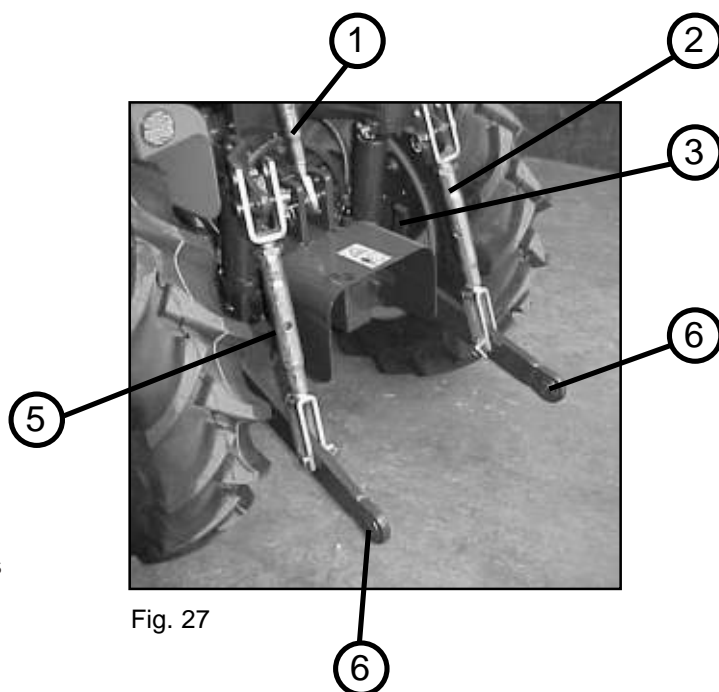


Fig. 27

Lower pull bars 4 (Fig. 27)

The low pulling bars have fixed ball joints:6 (Fig. 27) with holes of $\varnothing 22$ at their ends.

IMPORTANT

Check the height of the anchor of the pulling bars on the implement to make sure that the bars can skid over the ends: 3 (Fig. 27); limiting the lateral movement of the implement.

Optionally, a three point hitch of Cat.1 can be fitted. In this case, the ends: 3, are replaced by stretching belts to limit the oscillation of the implement.



Attention: When working, keep ALWAYS attention to the correct fixing of the implement and the adjustment of the three point hitch.

Attaching the implements

- 1.- Lower the three point hitch.
- 2.- Move the tractor back towards the implement.
- 3.- Lift the three point hitch until the ball joints are in line with the hitching bolt of the implement.
- 4.- Attach the implement and fix the safety pins.
- 5.- Attach the central brace and adjust it.

NOTE: With the three point hitch has tightening chains, after lowing the three point hitch, loosen the chains until getting a good oscilation of the pulling bars.

After attaching the implement and fixing the safety pins, adjust the tightening chains.

Removing the implement

- 1.- Lower the implement to the ground.
- In case there exist tightening chains, loosen them.
- 2.- release the safety pins and pulling bars. During the attaching and removing of the implements, pay attention to the following warnings:



Attention: ALWAYS Stop the engine before adjusting the three point hitch or the attached implements.



Attention: Before dismantling the tractor lower the tractor to the ground.



Attention: NEVER operate under a lifted implement by the hydraulic lifter and the three point hitch. Fix it to avoid a sudden fall and stop the engine.

Hydraulic lifter

The hydraulic lifter allows to lift and lower the implements attached to the three point hitch. It consists on a lifting group with its commands, two cylinders with their hoses and the gear hydraulic pump.

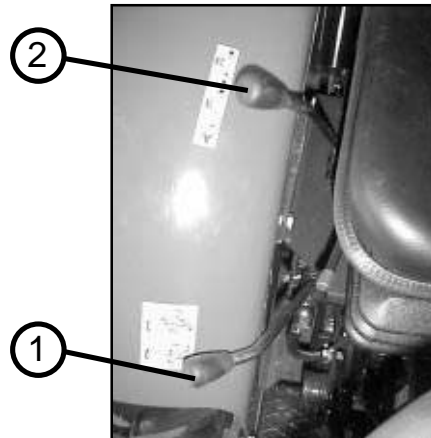


Fig. 28

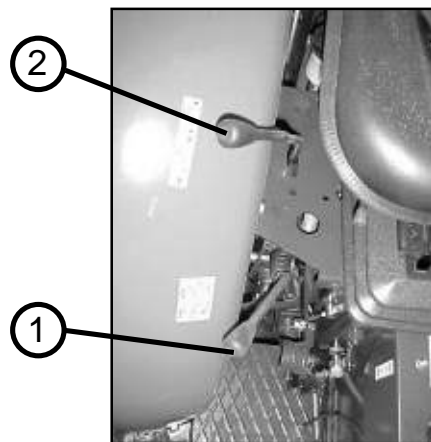


Fig. 29

Lifter operation

The hydraulic lifter is acted with the lever 1 (Fig. 28 and 29), which has 3 positions:

- Central position: Closed circuit
- Forward/down lever: the lifter descends (Fig. 30). The lifter can stay fix in this position to maintain the implement "floating".
- Backwards/up lever: The lifter goes up (Fig. 30). If it is released, the lever returns to the central position, closing the circuit.

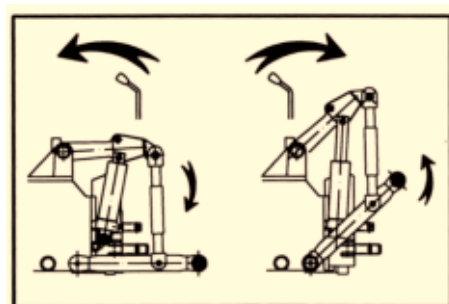


Fig. 30

NORMS OF USE

Auxiliar distributors

As serie equipment can be fitted an auxiliar distributor of simple or double effect, to actionate external cylinders.

These distributors are incorporated in the hydraulical circuit of the tractor so they use the same oil.

The extenal cylinder coupling is done by the fast conections of 1/2" placed in the rear side of the tractor (Fig. 32 and 33).



Fig. 31

Simple effect distributor working

This distributor moves the cylinder connected to the conection 1A (Fig. 32) and is acted with the lever 2 (Fig. 28) which has 3 positions:

- Center: Close circuit
- Backwards: The cylinder lowers (Fix position)
- Forward: The cylinder lifts (when releasing it returns to the center position)



Fig. 32

Double effect distributor working

This distributor moves the cylinder connected to the conections 1A and 2A (Fig. 33) and is acted with the lever 2 (Fig. 29) which has 3 positions:

- Center: Closed circuit
- Backwards: Outlet 2A
- Forward: Outlet 1^a



Fig. 33

NOTE: Optionally, can be fitted an additional distributor of double body (4 additional conections Fig. 34)



Attention. Before attaching an implement to the auxiliar hydraulic outlets, make sure that the characteristics are compatible with the characteristics of the tractor's hydraulic circuit.
In case of doubt, consult your local dealer.



Fig. 34

Trailer hitches

Frontal hitch

The tractor has a pulling front hitch (Fig. 35) to make eventual emergency maneuvers of trailing or pulling.



Fig.35

Rear hitch

The tractor is equipped with a rear trailer hitch: 1 (Fig. 36) Cat. "BO", as per EU 68014 which is used to hitch agricultural implements and to pull trailers of one or two axles. The features of this hitch are:

- Max. vertical load: 500 Kg
- Max. pulling load: 10.000 Kg.



Attention: Before coupling a trailer or implement to the trailer hitch, MAKE SURE that its coupling is compatible with the hitch type BO of the tractor.



Attention: Do not attach implements or trailers that load the rear axle with load exceeding the maximum weight authorized.

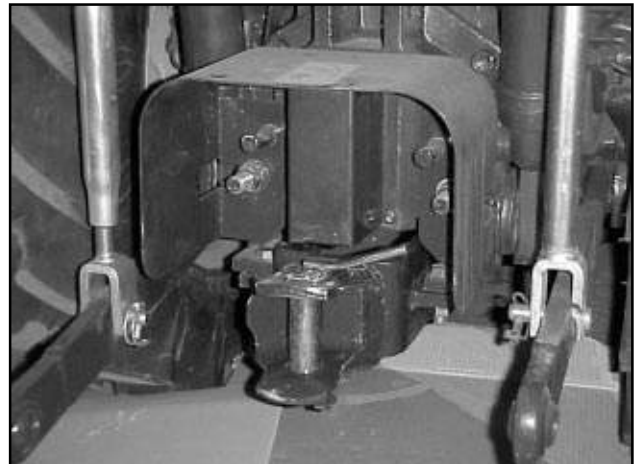


Fig.36



Attention: Respect the max. authorized load to be trailed and do not exceed the max. vertical load over the trailer hitch.

MAINTENANCE

PERIODIC OPERATIONS TABLE							
	Description	Daily (4)	100 Hours	250 Hours	500 Horas	1000(1) Hours	Points according to (Fig.36)
Engine	Oil level control	○ See engine maintenance book					1
	Oil replacement	See engine maintenance book					15
	Oil filter replacement	See engine maintenance book					16
	Swingletree control	See engine maintenance book					18
Feeding	Fuel filter cleaning	See engine maintenance book					2
	Fuel filter replacement	See engine maintenance book					19
	Inyection pump and injectors control	See engine maintenance book					20
	Air filter cleaning	△					3
	air filter replacement or cleaning (2)	△		△	□		3
	Fuel tank cleaning					△	21
Cooling	Engine's oil level control	○ See engine maintenance book					1
	Oil radiator and cylinder wing cleaning	△					4
	Cover grilles cleaning	△					4
Transmission Hydraulic circuit Braking circuit	Changing crank case level oil and hydraulic circuit control	○					5
	Braking liquid level control	○					25
	Reductor oil level control			○			6
	Changing crank case oil and hydraulic circuit control (2)			□		□	22
	Reducers oil replacement					□	23
	Hydraulic oil filter replacement (3)				□		22
Electric installation	Battery electrolit level control	○					9
	Ventilator and alternator belt stress control	▽					10
	Alternator ans starting engine efficiency control					□	24
	Braking pedal free stroke control	▽					7
	Clutch pedal free stroke control	▽					8
	Security devices working control	○					26
Several	Tyres pressure control	○					11
	Wheel nuts tightening control	○					12
	General bolt fixing control	○					14
	Security frame fixing tightening screws control	○					13

OPERATIONS REFERENCE SIMBOLS

- Inspection, filling, lubrication.
- Replacement.
- △ Cleaning.
- ▽ Regulation
- Operations to be done by authorized works

NOTES:

- (1) Operation to do once a year.
- (2) It is recommended to add the first oil replacement after the first 50 hours of work and, then, every 250 hours of working once a year minimum.
- (3) **ATTENTION:** To guarantee the integrity of the steering circuit make the first replacement of the aspiration filter of the steering circuit after the first 50 hours. Then, repalce it every 500 hours.
- (4) **ATTENTION:** The periodical maintenance operations have to be done when the operator decides it according to the weather and working conditions and to the experience he has. It is important to remember that is better to check periodically than few times.

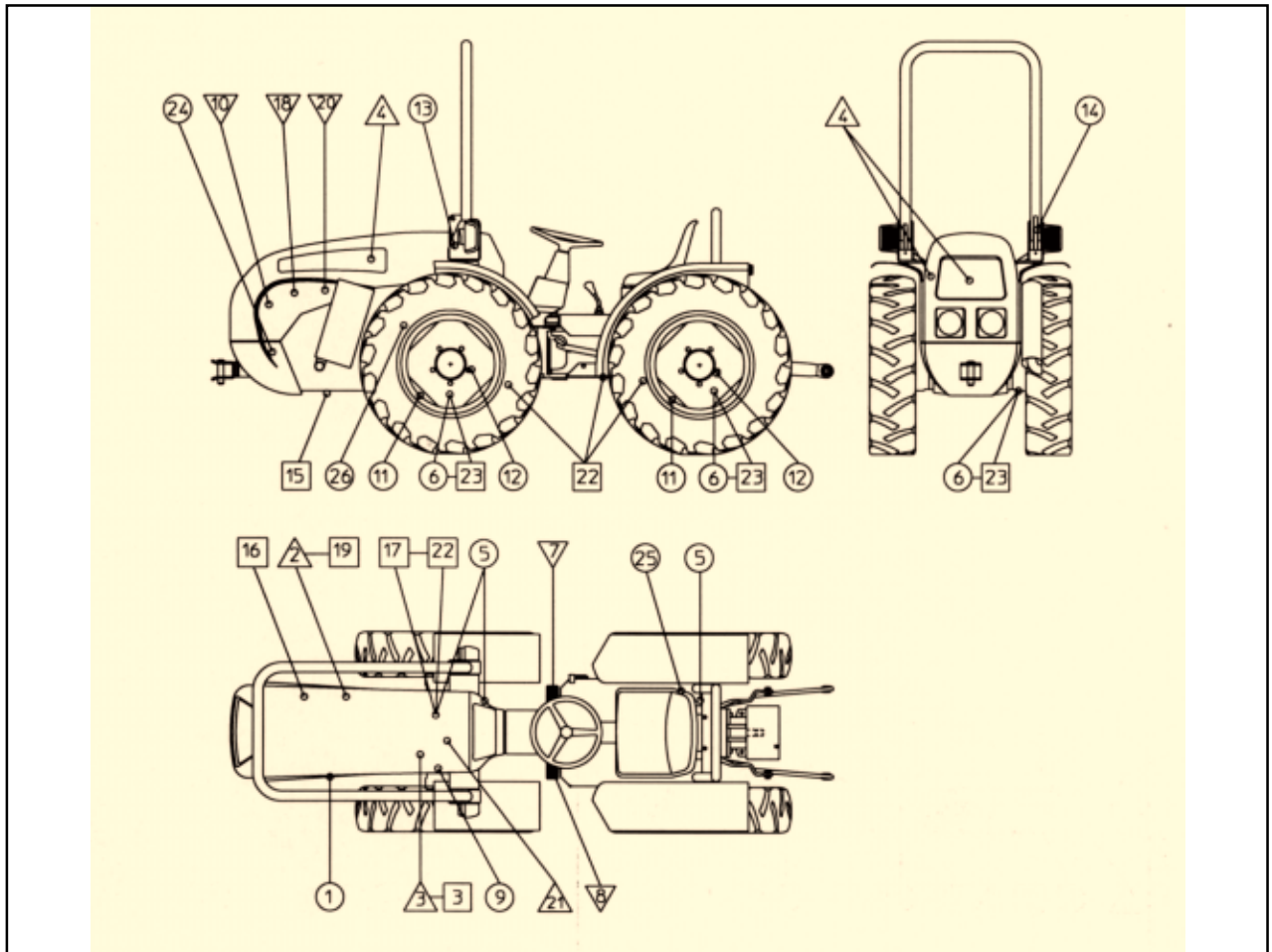


Fig.37

DAILY (4)		EVERY 500 HOURS
01. Engine oil level control. 02. Fuel filter cleaning. 03. Air filter: cartridge cleaning or replacement. 04. Radiator wings and grilles cleaning 05. Changing oil level hydraulic oil. 06. Reductors oil level. 07. Braking pedal regulation. 08. Clutch pedal regulation. 09. Battery electrolit level. 10. Ventilator and alternator belt stress.	11. Tyres pressure control. 12. Wheel nuts adjusting control. 13. Security frame fixing screws control. 14. General bolts fixing control. 15. Braking liquid level control. 16. Starting security system control.	20. Swingletree control. 21. Fuel filter replacement.
	EVERY 250 HOURS	EVERY 1000 HOURS (1)
	17. Engine oil replacement. 18. Engine oil filter replacement. 19. Hydraulic filter circuit replacement (3)	22. Injection and injection pump calibration control. 23. Fuel tank cleaning. 24. Hydraulic circuit and transmission oil change (2). 25. Reductors oil replacement. 26. Alternator and starting engine working control.

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

MAINTENANCE

Maintenance

ENGINE: Follow the instructions of use and maintenance of the manual of the engine, attached.

GENERAL RULES:

Right below are described the operations that require some explanation to perform them. For the others, follow the indications of the periodical maintenance table. The information is referred to the maintenance operations decided to do within a scheduled time. These rules have informative purposes and their periodicity can vary depending on the weather or type of work to do and other times can be established according to the common sense and experience of the operator. 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 operating.

Running-in period

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

It is very important to follow these indications:

- It is not necessary to do the the running-in of the engine, gradual. It can be used at it's full power from the beginning, without overloading it and, taking into account that can only be used at full power when the temperature has risen to 60°.
- After starting and with the engine cold, it is necessary to let it work in idling for some minutes. This is important, overall, in turbo powered engines.
- Avoid leaving the engine idling for a long time.
- Check, frequently, there are not oil leaks.
- To obtain a long-lasting of the clutch, the discs have to be well seated. During the first 15 hours, use the clutch frequently, smoothly and with caution.

These indications have also to be followed when reairing the engine.

After the first 50 hours of work

- Engine: Follow the indications of the maintenance manual.

- Hydraulic circuit: Replace the aspiration filter for the pump. From this first replacement, change it every 250 h.
- Check the general torque of screws and bolts.
- Check the oil level and, if necessary, replace it with the recommended type of oil.
- Lubricate all the greasing points.
- Check tyres pressure.

Resting period

- Keep the tractor into a dry and protected place.
- Do a general cleaning of the tractor
- Lubricate all the controls, commands, articulations and grease points.
- Clean the fuel filter.
- Fill the fuel tank with new fuel.
- Release the injectors and pour a bit of quantity of engine oil in the cylinders.
- Take out the battery, clean the terminals and protect them with vaselin. Keep everything in a dry place.
- Recharge the battery every 3 months.

Fuel

For a proper working of the injection system, has to be used good quality fuel.



The fuel should not have any suspension dirty. If there are, it has to be cleaned by decantation 2 or 3 days before filling the tank.



Attention: Never use fuel that has been in an open container during long time as it can have water and dust.

Attention: Do not release the protection seals of the inyection pump or the regulation screw of the "maximum". If you have to operate in these elements go to the authorized local dealer. The manipulation of these elements its an immediate cause of losing the warranty.

Dry air filter

Daily, tap slightly on the cap C of the air filter (Fig. 38) to remove the dust that is inside. Press the draining valve V to remove the dust that is inside. Clean the draining valve.

Filter cartridge F (Fig. 39)

Every 150 h of work, you should clean the main cartridge F. Remove the cover C and take out the external element F (Fig. 38). Clean it carefully with air under pressure. Change the filter element F after 3 or 4 cleanings. **NOTE: When working in very dusty places, reduce these operations to the half.**



Attention: Stop the engine before operating in the filter.

Safety filter cartridge S (Fig. 38)

This cartridge has not to be cleaned. You have to replace it after every 3 cleaning of the external cartridge F.

Check always that the filter cover is dully closed and make sure that all the tubes and records are well tightened.

Maintenance of the dry filter (Fig. 38-39)

- 1.- Remove the tap C of the filter.
- 2.- Take out the cartridge F and S (Fig. 38)
- 3.- Clean the cartridge F as follows: blow air slightly at a safety distance (Fig. 39)
- 4.- After cleaning it, check it to make sure it does not does not have any damage in the joints or mesh.
- 5.- Before installing the cartridges, clean inside the filter with a dry and clean cloth.



ATTENTION: DO NOT try to clæen the interior safety cartridge: replace it.



ATTENTION: DO NOT try to clean the filter cartridge with the exhaust smoke. NEVER use oil to clean the filter. NEVER use petrol, gasoil, etc, to clean the filter cartridge.

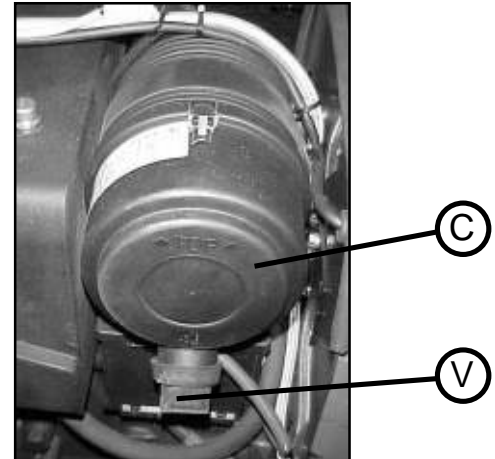


Fig.38

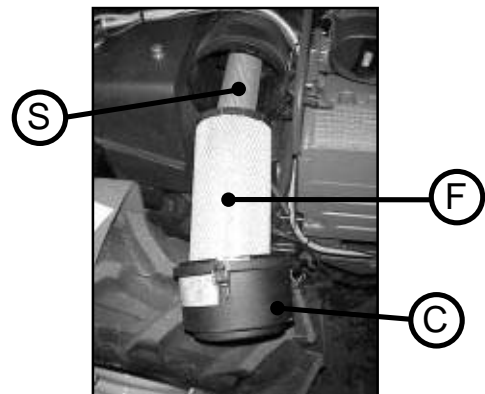


Fig.39

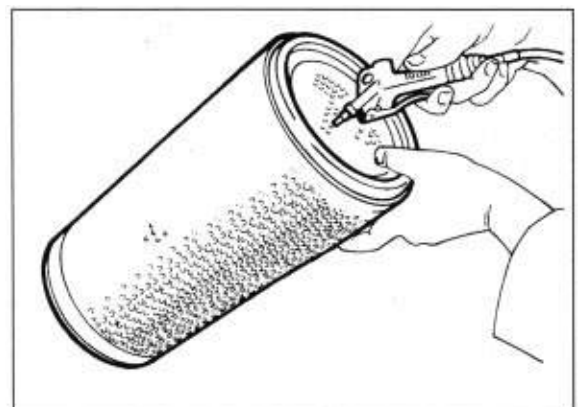


Fig.40

MAINTENANCE

Air filter in oil bath



Attention: When giving a new tractor and after an engine reparation and **BEFORE STARTING**, **MAKE SURE** that the engine filter has oil.

Maintenance of the filter (Fig. 41-44)

During the work and after the first 50 hours of work, clean the filter element and replace the oil, as follows:

- 1.- Remove the lower small housing of the filter (Fig. 41).
- 2.- Take out the filter element and clean it with gasoil and, afterwards, blow it (Fig. 42).
- 3.- Empty the oil of the housing and clean inside with gasoil and dry it (Fig. 43).
- 4.- Replace with new oil up to the level marked (Fig. 44).

Repeat this operation every 250 hours of work.



Attention: Stop the engine before operating in the filter.

Replace of the filter element

Every 500 hours of work, remove the lower housing and take out the filter element.

Clean the housing (Fig. 43) and replace with new oil (Fig. 44). Put a new filter element.



Attention: In each operation in the air filter and **BEFORE** putting the housing, impregnate with clean oil the rubber joint and **MAKE SURE** it is correctly assembled.



Attention: A defectuous assembly of the lower casing can make the dust entry the engine and can be **CAUSE** of cancellation of the warranty.



Fig.41

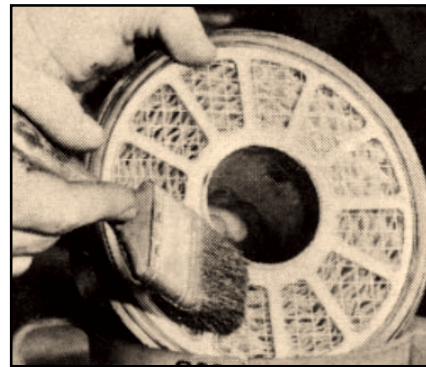


Fig.42



Fig.43



Fig.44

Cooling system



Attention: Before approaching to the engine **MAKE SURE** that it is enough cold to avoid burns.

Keep clean the oil radiator (I).
Release the screws (V) and remove the cap (L).
Clean the radiator with air under pressure blowing it from the upper side of the radiator (Fig. 45) –Only in engines with oil radiator–

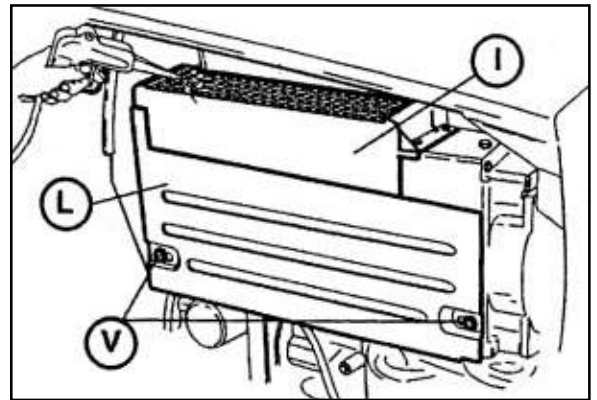


Fig.45

Cover grills

Clean daily the grills and frontal and lateral side of the engine cover, eliminating dust, grass, etc. Do it more frequently when working in very dusty or dirty places.



ATTENTION: To guarantee a good refrigeration of the engine, keep clean all the grills of the cover.



Fig.46

Gear box

Front and rear gear box have independent oils.
Check, periodically, the level with the rod V (Fig. 46-47).

If it is necessary, replace it. Check the LEAKS after the first 50 hours of work and, onwards, every 250 hours. Perform as follows:

- 1.- Release the rod level V (Fig. 46-47).
- 2.- Release the empty caps T (Fig. 48), placed under the gear casing.
- 3.- Empty the oil, keeping it in an adequate container and put, again, the caps T.
- 4.- Fill with the recommended oil up to the level indicated in the rod V.

NOTE: before checking the oil level, leave the oil extends into the gear box.

VERIFY THERE ARE NOT OIL LEAKS BY THE CAPS OR JOINTS.

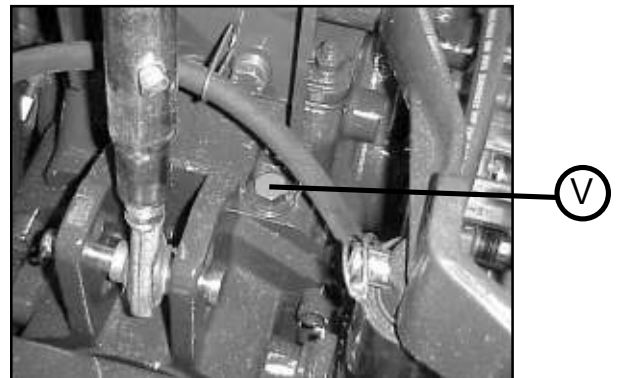


Fig.47



Fig.48

MAINTENANCE

Wheels reducers

If the gear boxes are equipped with reducers, its lubrication is with different oil of the gear box oil.

Front reductor (Fig. 49)

Check, periodically, the level: remove the cap T (Fig. 49). The oil can reach the lower edge of the hole.

To replace the oil, proceed in the same way as with the gear box, removing the emptying cap R (Fig. 50).

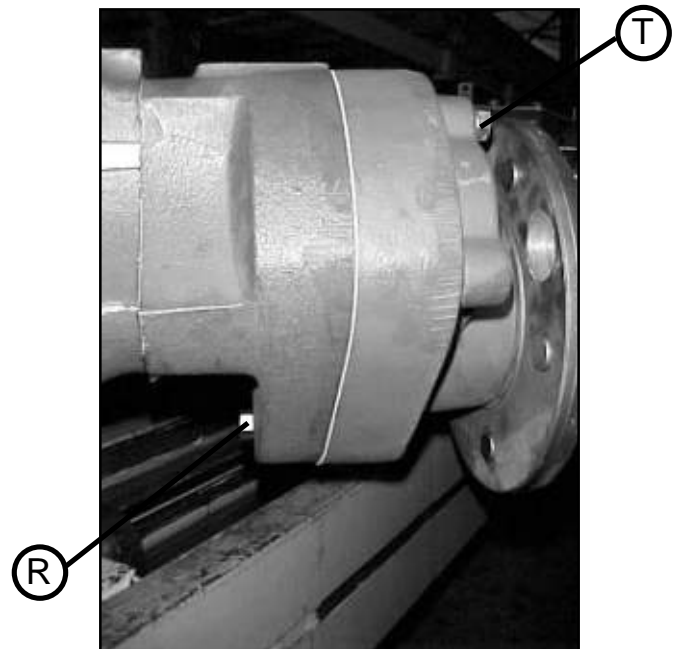


Fig.49

Rear reductor (Fig. 50)

Check, periodically, the level, with the rod V (Fig. 50).

To replace the oil, proceed in the same way as with the gear box, removing the emptying cap R (Fig. 50).



ATTENTION: DO NOT POUR OIL TO THE GROUND. Put it into adequate containers and give them to the authorized recycler.

After one change of oil, start the engine and leave it in idling for 5 minutes.

Verify there are not leaks of oil throughout the caps. If necessary, tighten them.

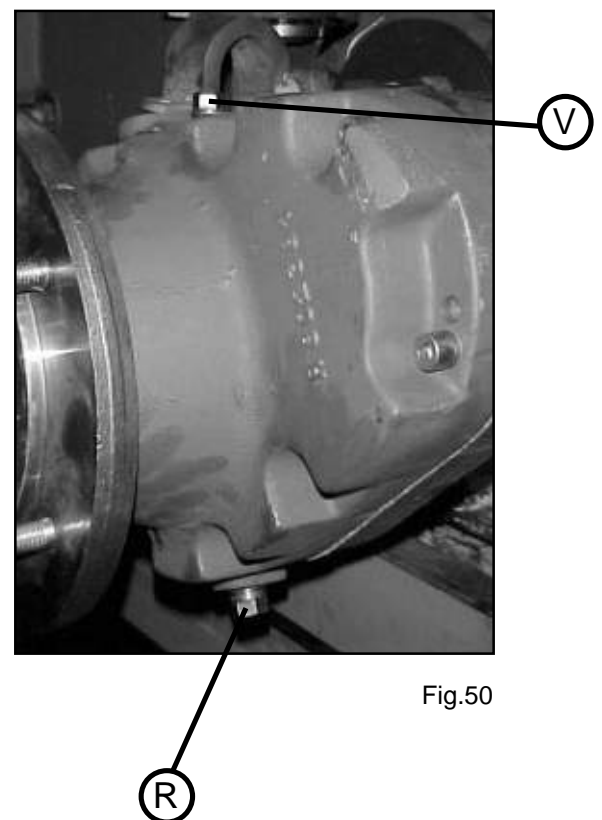


Fig.50

Hydraulic circuit

Check, periodically, the hydraulic oil level, contained into the tank H (Fig. 51).

Change of oil and filter

After the first 50 hours of work, replace the hydraulic oil and the aspiration filter F (Fig. 52).

Afterwards, replace the hydraulic oil every 250 hours of work and CLEAN THE FILTER with air under pressure. Replace the filter every 2 replacements of oil.

NOTE: After changing the oil filter, start the engine and control if there are oil leaks. Check the oil level and if necessary, fill it to the level.

NOTE: Make sure that the hydraulic system of the implement attached to the tractor's circuit uses the same oil. The use of different oils can cause different DAMAGES in the hydraulic circuits.

Clutch pedal (Fig. 53)

Periodically, check the clutch pedal stroke. The play of the pedal should be between 1,5 and 2,5 cm. To adjust it, act over the tighteners T until getting the recommended play.



ATTENTION: The clutch system has incorporated the starting security device. When adjusting the clutch system MAKE SURE that the clutch does NOT WORK if the clutch pedal is not pressed to the bottom. Otherwise case, GO TO the authorized dealer to proceed to adjust correctly the security system.

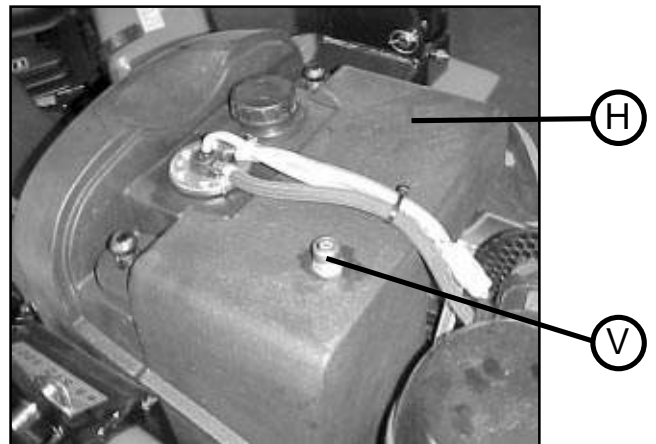


Fig.51

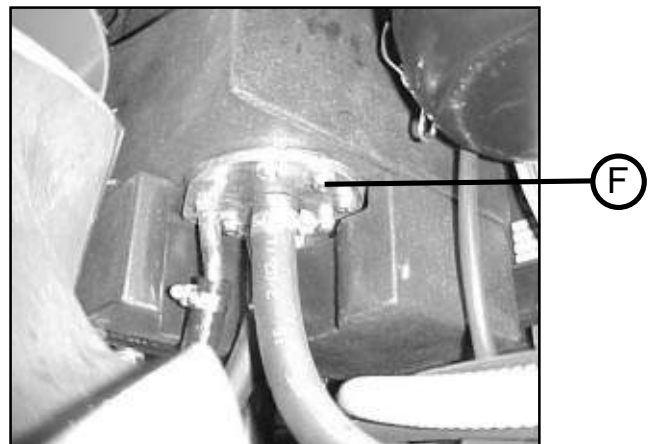


Fig.52



Fig.53

MAINTENANCE

Brakes

The tractor is equipped with two braking systems, totally independent between them: service brake on the rear axle and parking/emergency brake on the front axle.

Check, periodically, the efficiency of both braking systems.

Service brake

DAILY Check that the braking liquid level 2 (Fig. 23) is placed between the marks Max and Min of the tank. If necessary case, ad the recommended liquid purged from the circuit of the service brake.

After doing any operation or replacing the brake tablets, it is necessary to purge the circuit correctly. This operation is done by the purger screw P (Fig. 54) and to do it, it is RECOMMENDED TO GO TO the authorized service.

Adjustment of the service brake

The adjustment of the braking pedal is done by the pressing rod E (Fig. 55)

VERY IMPORTANT: Removing the bolt (Fig. 55), check the rod's E free stroke backwards es 1-15 mm. If necessary case, loosen the nut T (Fig. 55) and adjust the length of the rod E until obtaining the indicated free stroke. Put the bolt B on, ensuring it with the corespondent pin and tighten the nut T.

Parking brake

Check, periodically, that both front wheels brake simoultaneously. To check it, drive at moderate speed and pull the parking brake on, hardly (Fig. 56) and check that the tractor barks in straight line.

In necessary cse, lift the front wheels and adjust the tight of the brakes by the struts T (Fig. 56).

NOTE: To do any adjustment or replacement of the braking systems it is RECOMMENDED to go to the authorized local dealer.

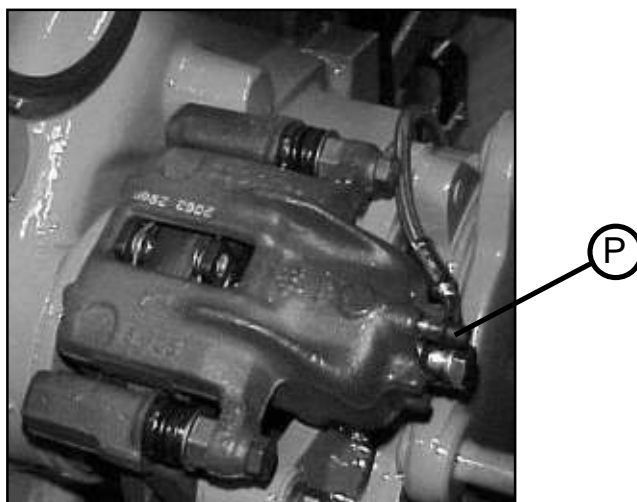


Fig.54

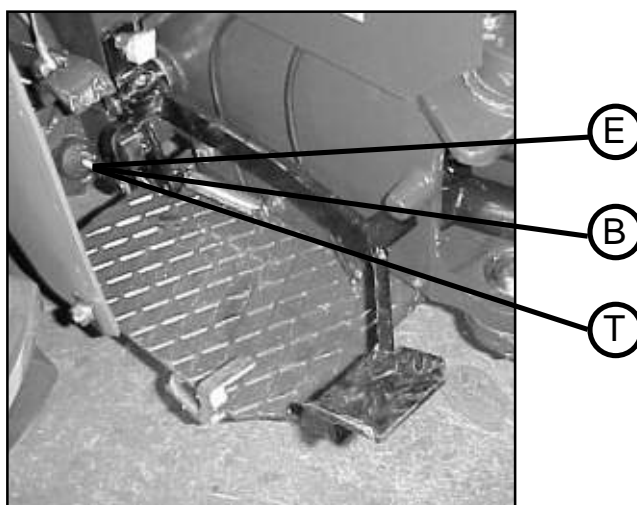


Fig.55

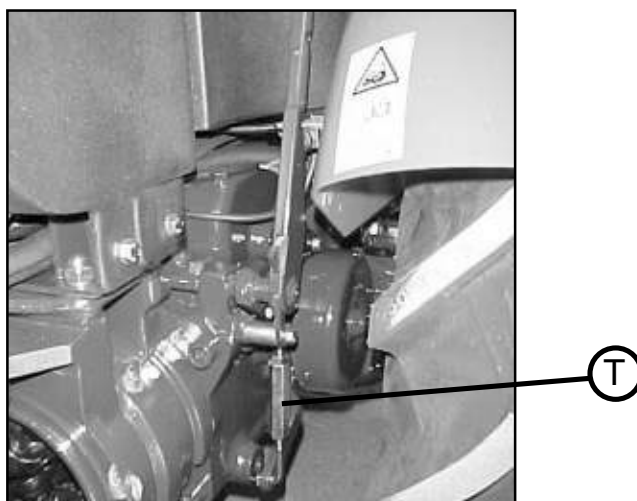


Fig.56

Electrical installation

Battery (Fig. 57)

It is a WITHOUT MAINTENANCE type battery. In normal conditions there is no need for special attentions. It is only recommended to check, periodically, the electrolyte level and to add, if necessary, destilate water. Only when recharging is necessary to take it out its place.

Before accessing to the battery, place the tractor in a flat surface, stop the engine and wait the battery get's cold.

To add destilate water proceed as follows:

- 1.- Remove the front cover of the tractor.
- 2.- Remove the upper cap of the battery.
- 3.- Pour destilate water, slightly, until reach to the top of the plac.
- 4.- Put the cap on .
- 5.- Cover the tractor, again, with the frontal cover.

Advices for the operator

The perfect maintenance of the battery depends on following these rules:

- Keep the battery clean, specially the upper part.
- To recover the electrolyte level, pour only destiled water.
- Check that the terminals of the cables are well fixed to the holes of the battery.
- Use always a fix key to tighten and loosen the screws of the terminals.
- Impregnate the terminals and poles with pure Vaseline. Never use common grease (it can cause corrosion)
- Never let the battery to discharge totally. If possible, recharge every month.



Attention: The electrolyte of the battery has sulphuric acid which can cause serious burns. It is absolutely necessary to AVOID any contact with the skin and eyes. Never approach flames, sparks or lighted cigarettes to a charged battery. Ventilate the sites when recharging.

Starter engine

Every 1000 hours or 1 year it is convenient to clean the starter engine, specially the brushers and collector. To do this, it is recommended to go to the authorized dealer.



Fig.57

Alternator

The alternator guarantees the maximum charge of the battery. It does not need any special maintenance due it does not require brushes.

Only should be taken the following indications:

- 1.- When fitting the battery check than the poles of the battery and of the alternator are of the same sign. If the poles are inverted, the battery will be in short circuit by the diodes. The intensity of the discharge is very high and can cause the destruction of the diodes and cables.
- 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, in order to avoid damages in the diodes and installation.
- 3.- Do not make work the alternator with the installation off. If the battery is not connected the intensity can be high and danger if anybody touches the alternator's outlet pole. Before doing any checking, be sure all the connections are locked.
- 4.- Do not create a short circuit or earth because the electrical installation would be damaged.
- 5.- Do not invert the polarity of the alternator. It is very important that the earth of the battery and the earth of the alternator have the same polarity to not damage the diodes.
- 6.- Do not weld the arcs if the alternator cables have not been previously disconnected.

MAINTENANCE

Electrical installation

Headlamps

When moving by the road the tractor has to be according the current driving rules, it is convenient check periodically the orientation of the front headlights as follows:

- Put the tractor without load and with the tyres inflated at the indicated pressure, over a flat surface in front of a white wall in shadow; draw an horizontal line on the wall at the height of the headlights centers.
- Drive the tractor reverse 5 meters.
- Control the divergence switching the long-beam lights on. The center of the light's beam have to be at the same level. It can be admitted a divergence of 130 mm.
- Check the inclination using the cross lights. The division line between the dark area and the illuminated area has to be under the two crosses, at least at 1/20 from the existing distance between the horizontal line and the ground.
- For eventual regulations use the regulation screws of the headlights.

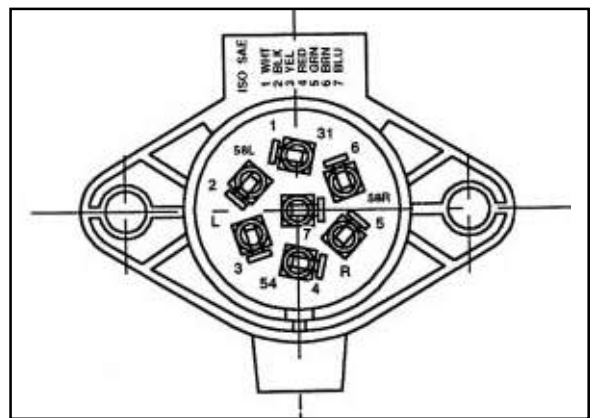


Fig.58

Pole electric inlet (Fig. 58)

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.

Electrical installation

Fuses

The tractor's electrical installation is protected against eventual short circuits and overloads, by fuses placed in their correspondent fuse box. (Fig. 57- A).

NOTE: Before replacing a blown fuse with other equivalent, look for the causes which have originated the damage.

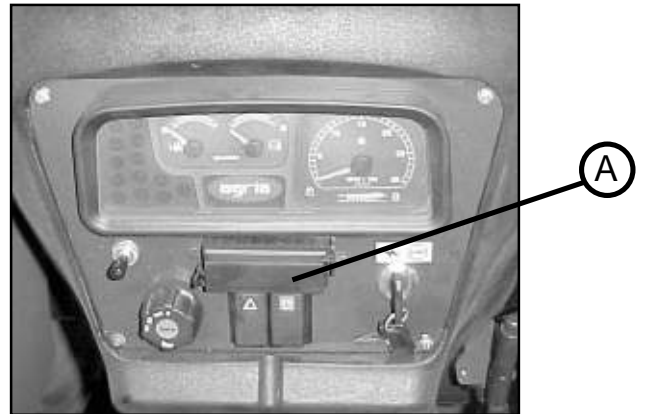
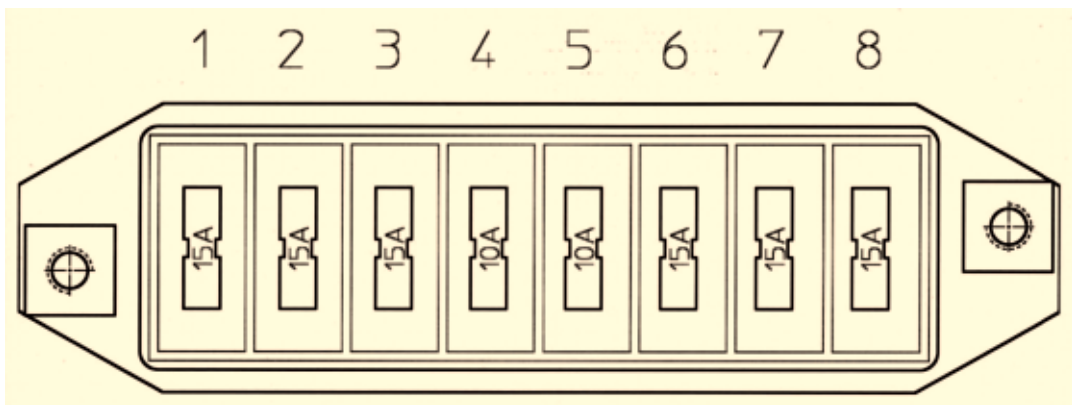


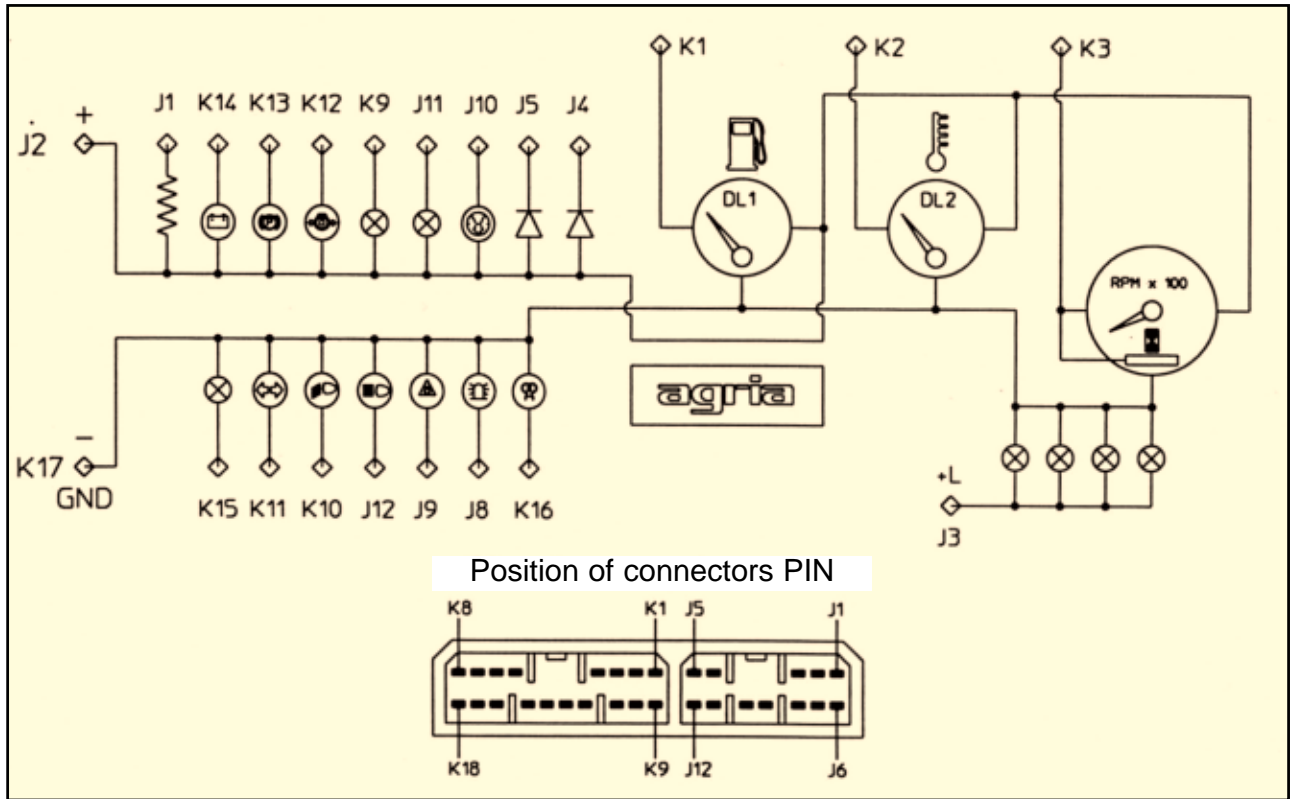
Fig.59



1.- Long-beam lights	15A
2.- Cross lights.	15A
3.- Position lights.	15A
4.- Right indicator.	10A
5.- Left indicator.	10A
6.- Horn and headlight turning.	15A
7.- Braking lights.	15A
8.- General fuse	15A

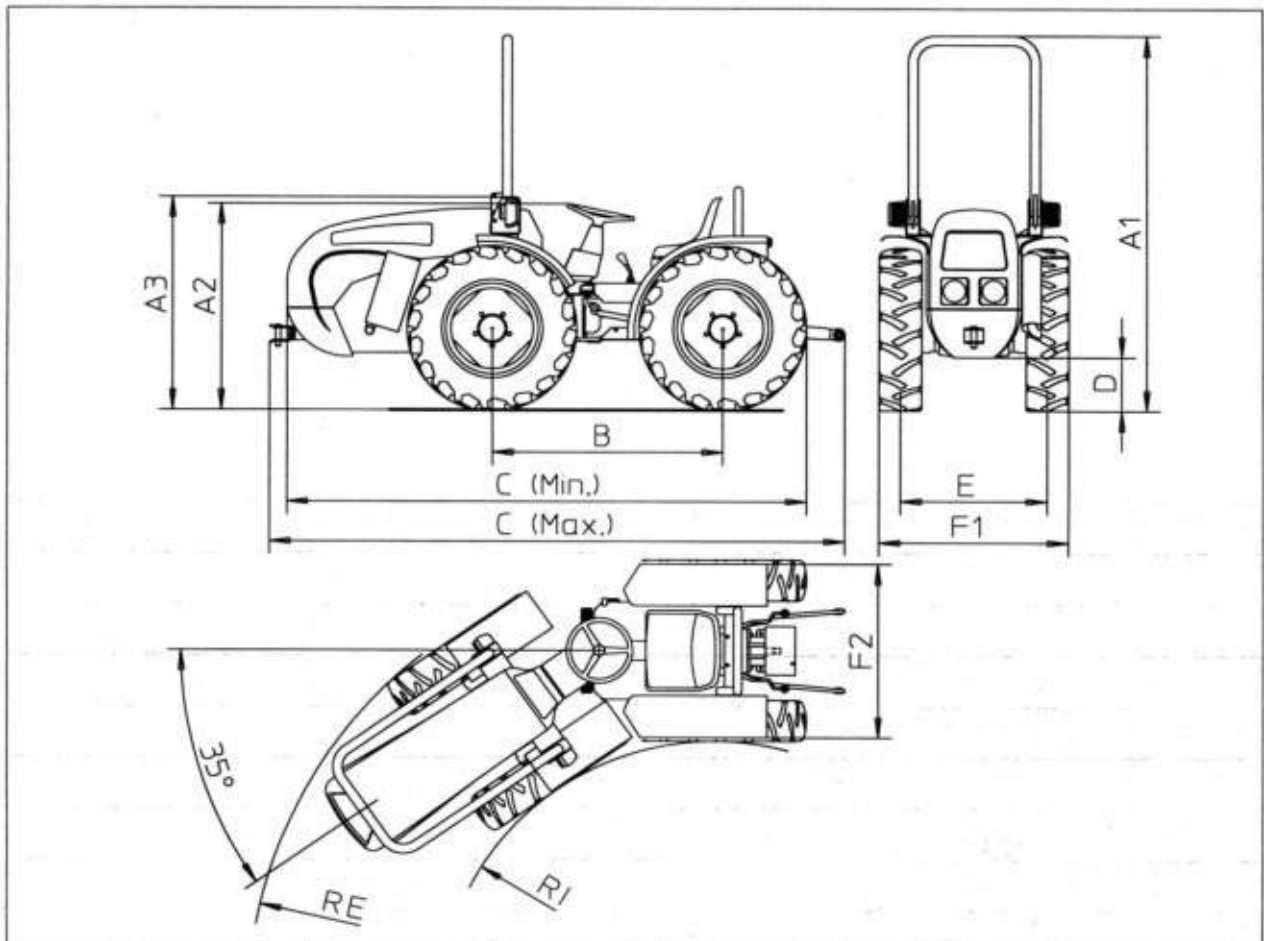
MAINTENANCE

DASHBOARD ELECTRICAL installation



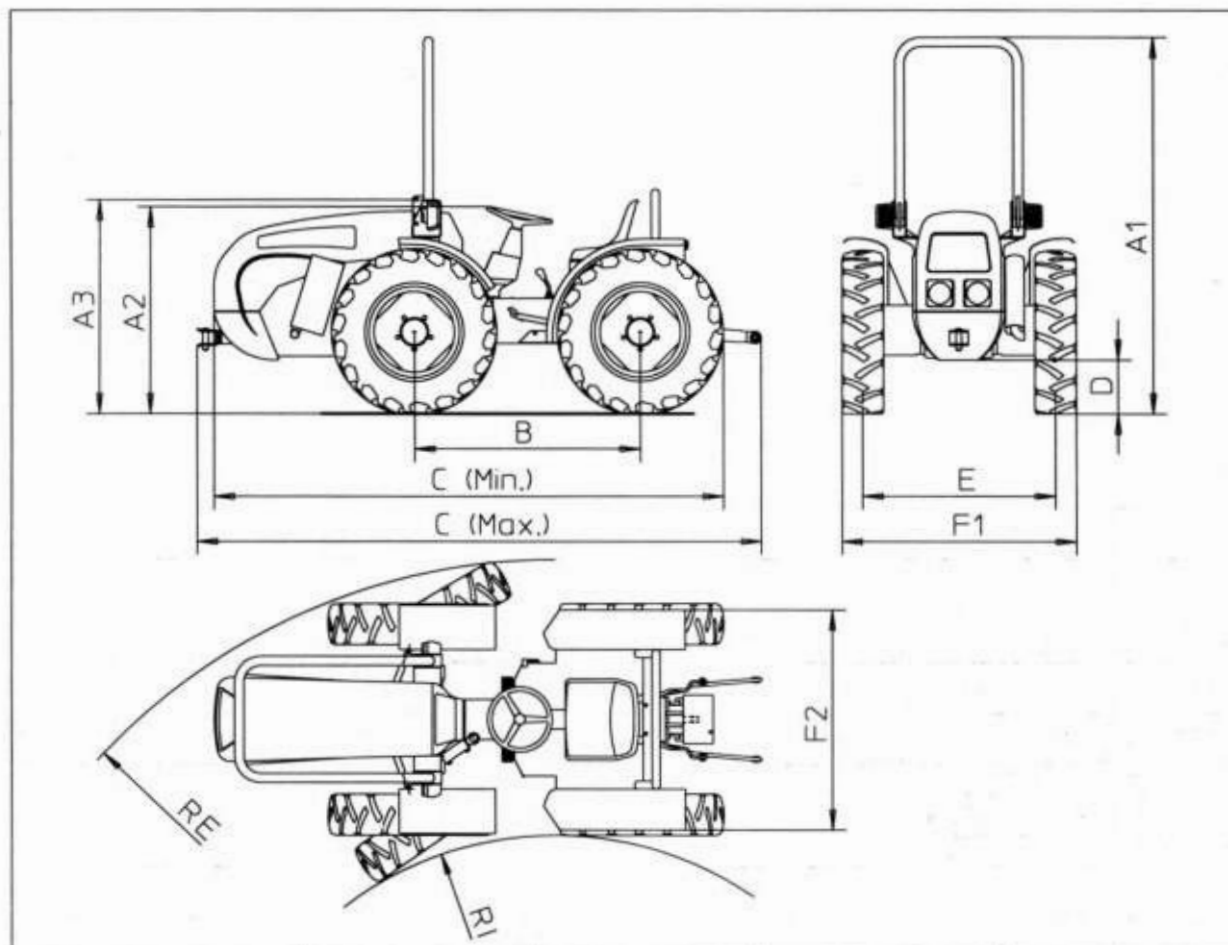
PIN	FUNCTION	POLE	PIN	FUNCTION	POLE
J1			K4		
J2	POSITIVE 12V	+12V	K5		
J3	LIGHTING (+)	+L	K6		
J4	LED TEMPERATURE	-DL2	K7		
J5	LED RESERVE	-DL1	K8		
J6			K9		
J7			K10	CROSS LIGHT	+
J8	HEADLIGHT TURNING PILOT	+	K11	INDICATOR	+
J9	EMERGENCY PILOT	+	K12	OIL PRESSURE	-
J10	FILTER COLMATATION	-	K13	HAND BRAKE	-
J11		-	K14	ALTERNATOR LOADING	-
J12	ROAD LIGHT	+	K15		
K1	FUEL LEVEL	ohm	K16	HEATER	+
K2	LED TEMPERATURE	ohm	K17	EARTH	-GND
K3	REVOLUTIONS	Hz	K18		

TECHNICAL FEATURES



General Data	980/970	960	955	940 N	935	
Tyres (4 equal)	11.5/80-15.3.9.50-20,11.2R20,300/70R20,320/70R20				11.5/80-15.3.7.50-16,7.50-18,2.60/80-18	
Weight-empty (Kg)	1550	1545	1505	1235	1145	
Maximum authorized (Kg)	2500			1900		
Dimensions (mm)	A1					
	2165-2220				2150	
	A2				1130	
	1190-1240					
	A3				1140	
	1200-1250					
	B				1130	
	1340					
	C (Min.)				2620	
	3125					
	C (Max.)				2965	
	3500					
	D				250	
	250-305					
	E			11.5/80-15.3.880-970,9.50-20:840-1020,11.2R20:860-1000		
	11.5/80-15.3.814-895,7.50-18:745-825					
	F1				945-1350	
	1086-1500					
	F2				905	
	1060					
	RI				1570	
	2060					
	RE				2550	
	3150					
Engine	Deutz BF4L1011F F4L1011F		Deutz D303-3	Lombardini 11LD626-3NR	Deutz D303-2	Lombardini 9LD626-2NR
Nber. Of Cylinders	4		3	3	2	2
Stroke (cm ³)	2732		2500	1871	1650	1248
Power (kW-rpm)						
Max. stroke (Nm-rpm)	154-1800	208-1600	150-2000	115-2000	98-2000	74-2200

TECHNICAL FEATURES



General Data	980 S	970 S	960 S	955 S
Tyres (4 equal)	11.5/80-15.3 , 9.50-20 , 11.2R20 , 300/70R20 , 320/70R20			
Weight-empty (Kg)	1625	1625	1625	1555
Maximum authorized (Kg)	2500			
Dimensions (mm) A1	2250-2305			
A2	1270-1320			
A3	1285-1335			
B	1264			
C (Min.)	3125			
C (Max.)	3500			
D	390-445			
E	11.5/80-15.3: 1236-1324	9.5-20: 1190-1370	11.2R20: 1148-1410	
F1	1425-1610			
F2	1360			
RI	3950			
RE	5375			
Engine	Deutz BF4L1011F	Deutz F4L1011F	Deutz 0303-3	Lombardini 11LD626-3NR
Nber. Of Cylinders	4	4	3	3
Stroke (cm ³)	2732	2732	2500	1871
Power (kW-rpm)				
Max. stroke (Nm-rpm)	208-1600	154-1800	150-2000	115-2000

Engine

Models 980/970/9805 and 9705

Cooling: Integral: air/oil

Air filter: Dry filter of 7", with double element.

Models 960/95/940 N/935/960S and 955S

Cooling: By forced air (axial ventilator)

Air filter: In oil bath with prefilter

Clutch

Dry monodisc, Mechanical actioning by pedal.

Disc: 250 mm. DIA (Mod. 935: 185 mm. DIA)

Material: Organic

Change

Standard change of 4 speeds, combined with reductor of shorts, larges and reverse speed. Total: 8 Fw speeds and 4 Rv.

Optionally, 4 synchronized speeds can be available.

Speeds table

	Nber. Of speed	Gama	980/970/960/955/980S/970S/960S/955S with tyres 11,2R20	940 N / 935 with tyres 7,50-18
FORWARD	1	I Short	1,65	1,50
	2	I Large	2,60	2,30
	3	II Short	3,75	3,40
	4	II Large	5,85	5,30
	5	III Short	8,50	7,70
	6	III Large	13,20	11,90
	7	IV Short	19,10	17,15
	8	IV Large	29,50	26,70
REVERSE	1	I	1,95	1,40
	2	II	4,45	3,15
	3	III	10,10	7,10
	4	IV	22,60	15,90

TECHNICAL FEATURES

Conic group and wheels reducers

Models 980/970/960/955/980S/970S/960/955S

Front and rear conic group: 12/43

Double reduction to the front and rear wheels with $i = 7,26$

Models 940N and 935

Front and rear conic group: 9/43

Reduction to the front and rear wheels with $i = 4,07$

Differential lock

Front and rear simultaneous differential lock, actioned mechanically by a pedal. Automatic disconnection by spring..

Power Take Offs (PTOs)

Two rear PTOs shafts.

Lower Shaft: 35 DIA and 6 grooves, according to ISO 500; independent to the speeds.

Speeds (980/970/960/955/980S/970S/960S/955S): 540/850/1000 and 1545 r.p.m. at the engine nominal speed.

Speeds (940N and 935): 540/750/850 and 1168 r.p.m. at the engine nominal speed.

Upper Shaft: 28,5 DIA and 6 grooves. Synchronized to the speeds.

Models 980/980S: 1 rotation of the wheels = 12,319 rotations of the PTO shaft.

Models 970/960/955/970S/960S/955S: 1 rotation of the wheels = 12,319 rotations of the PTO shaft.

Models 940N/935: 1 rotation of the wheels = 14,099 rotations of the PTO

Brakes

Service brake on the rear axle: Disc brake, assembled before the final reductor, with hydraulical actioning.

Parking brake on the front axle: Drum brake, before of the final reduction of the front wheels, with mechanical actioning.

It can be used as emergency brake. Drum DIA: 145 mm.

Adjustment of the width treads

To adjust the width treads, see the indications about Use Rules of this manual.

Steering

Hydrostatical steering actioned by the steering wheel.

Hydraulic system, with oil tank of 18 l and aspiration filter.

Double body gears pump

- 980/970/980S/970S: 22,5 l/min flow and max. working pressure of 135 bar.
- 940N: 10 l/min flow and max. working pressure of 90 bar.

Independent gears pump

- 960/955/960S/955S: 15 l/min flow and max. working pressure of 135 bar.

Simple gears pump: fitted in serie.

- 935: 18 l/min flow and max. working pressure of 90 bar.

Double effect steering cylinder, with steel ball joints in the articulations.

Turns of the steering: Right: 1,25. Left: 1,00

Hydraulic circuit

Oil tank of 18 liters and aspiration filter.

Double body pump for the models 980/970/980S and 970S, with flows of 32 l/min for lifting and auxiliars; and flow of 15 l/min for the steering circuit.

Model 935 with simple pump with flow of 18 l/min, assembled in serie for the steering and lifting service.

Pressure of the lifting circuit: 180 bar.

TECHNICAL FEATURES

Hydraulic lifter

Rear lifter with 2 exterior cylinders. Manual position manual.
Optionaly, can be fitted with automatical position and effort commands.

Three point hitch

Models 940N/935: Cat. 1N ISO 730 for narrow tractors.
Lifting capacity of 1.500 Kg.

Models 980/970/960/955: Cat. 1N ISO 730 for narrow tractors.
Optionaly can be fitted Cat.1.
Lifting capacity of 2.500 Kg.

Models 980S/970S/960S/955S: Cat. 1.Lifting capacity of 2.500 Kg.

Auxiliar distributors

Auxiliar distributor of closed center with plugs "Push-Pull".

Standard applications

- Models 940N/935: 1 inlet of simple effect.
- Rest of models: 2 inlets of double effect.

In all the cases the max. working pressure is 180 bar.

Optionaly, can be fitted up to 6 auxiliar hydraulic inlets with different combinations of simple and double effect.

Pulling devices

Front hitch for pulling the tractor.

Rear pulling hitch, type BO, UNE 68014.

Safety arch

Front folding arch, homologated according to CE rules.

Seat

Seat with adjustable suspension, depending on the operator's weight. Adjustable in height and longitudinal position.

Electrical installation

12 V tension, negative to earth.

Battery

Type "WITHOUT MAINTENANCE", according to SAE J 537 rules
Tension: 12 V; Capacity: 75 Ah

Alternator

See the engine instructions manual.
Automatic tension adjuster (incorporated).

Starter engine

See engine's instructions manual.

Lights

Front: Two headlights with lamps 40/45 W
Two pilots, with position lights (5W) and indicators (21W)

Rear: Two pilots with position lights (5W), indicators (21W) and braking lights (21W).
Number plate lighting pilot (5W)
Headlight turning.
Electricity inlet for trailing lights (7 poles)

Integral instruments table: Fuel level indicator.
Engine temperature indicator.
Engine r.p.m. counter with hours indicator.
11 control pilots.

Fuses

See indications in the section of the maintenance of electric installation.

TECHNICAL FEATURES

Tyres

The type of tyres are indicated in the following table. For more information about other possible types, consult your dealer.

The indicated pressures can vary depending on the manufacturers indications, type of ballast, use conditions, etc.

Operator experience and the advisings of the manufacturer allow choose the best adequate pressure for each case.

TYRES (Equal front and rear tyres)

Tyre	Sail (PR)	Pressure (Bar)	Rim	980/970 960/955	980S/970S 960S/955S	940N 935
11,5/80-15,3	8	2,7	9,00-15	X	X	X
7,50-16	8	3,25	5,50F-16			X
7,50-18	6	2,25	5,50F-18			X
260/80-18	8	2,5	W7-18			X
9,50-20	6	2,1	6L-20	X	X	
11,2R 20	Radial	1,6	W8-20	X	X	
300/70R20	Radial	1,8	W8-20	X	X	
320/70R20	Radial	1,6	W9-20	X	X	

Auxiliar applications

For auxiliar applications not included into this manual or when using special implements, consult your local dealer.

LUBRICANTS TABLE											
COMPONENT	LITERS	ESPECIF.	AMBIENT	SINCLAIR	MOBIL	ESSO	SHELL	BP	LAND OIL	AGIP	VERKOL
Gasoleo B											
FUEL TANK	36										
ENGINE WITH FILTER	See engine's manual	SAE CD	Below 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	From 0 to 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	Over 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	MAXIDIESEL 30
		CCMCD2/D4	All temperatures	HY VIS HD EXTRA S3 Plus 15W 40	MOBILAND SUPER UNIVERSAL	ESSOLUBE XD/3 EXTRA	UNIVERSAL FARM	BP SUPER TRACTOR OIL UNIVERSAL	UNILAND 15 W 40	SIGMA TURBO UMITRACOTRS	
Gear Box and Reductors	Front 9 Rear 10,5	API GL 4 MIL-L-21050	All temperatures E 90 - 140	HD GEAROIL GY 90 GP 80W 90	MOBILUBE GX 90 GP 80 W 90	GEAR OIL HD 80 W 90	SPIRAX OIL 80 W 90	BP HYPOGEAR 80 W 90	LOT CX	ROTRA HP	EP-90
		API GL 4 MF 1135	All temperatures	ATF DEXRON	MOBIL ATF-220	Superfluid ATF	DEXRON II	TERRAL 15			

