OPERATOR'S MANUAL

STAR 90 - 100

06381176 Edition 05 (English)

MANUFACTURER



Tractors for Life

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MODELS AND VERSIONS

ROLL BAR VERSION



Star 90 Star 90 High version

Star 100 Star 100 High version

CAB VERSION



Star 90 SG1 Star 90 SG1 High version Star 100 SG1 Star 100 SG1 High version



Star 90 GL11 Star 90 GL11 High version Star 100 GL11 Star 100 GL11 High version

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GENERAL INFORMATION



ORIGINAL INSTRUCTIONS

INTRODUCTION

This manual contains a description of how the machine operates and instructions about how to correctly use the machine and perform the main routine and supplementary servicing operations.

This manual is divided into chapters for practical consultation.

This manual must always be consigned together with the machine if this is transferred or sold. If the manual is damaged or lost, order a new copy from the manufacturer or from the previous owner. This manual is an integral part of the machine

The confidence you have shown in our company by choosing equipment carrying our trademark will be amply repaid by the excellent service it will give you over the years.

Correct use and normal routine maintenance will generously rewarded in performance, output and savings.

EN Inglese 6 GENERAL INFORMATION

HOW TO READ THE MANUAL



Certain sections of this manual containing information of particular importance in relation to safety or operation, are highlighted in the following way:



DANGER

Failure to comply with the instructions could lead to serious danger and serious personal injuries or harm to third parties.



WARNING

Failure to comply with the instructions could cause personal injuries or harm third parties.



IMPORTANT

The information is given with the intention of preventing damage to the machine or causing damage.

This manual is your operation and maintenance guide.

You are advised to strictly comply with the instructions herein and to consider the manual as an integral part of the product: it must be kept near the machine and consigned to all future users.

The illustrations, descriptions and specifications in this manual are not binding.

Our Company reserves the right to make any modifications dictated by technical or commercial requirements at any moment considered necessary.

Consult the specific manuals for safe operation and maintenance instructions about those parts of the machine manufactured by third parties.



All indications as to the "front", "rear", "right" and "left" parts of the machine refer to the operator on the machine.

A series of symbols have been make to make the texts easier to understand. Their meanings are described below:



Warning



Environment



Recycling



Legislation



i Information

Manual update

The information, descriptions and illustrations in this manual reflect the state-of-the-art at the time the machine was marketed.

The manufacturer reserves the right to make any modifications dictated by technical or commercial requirements at any time.

Such modifications do not oblige the manufacturer to modify the vehicles marketed up to that time nor to consider this publication to be inadequate.

Any integrations the manufacturer may provide must be kept together with the manual and will be considered an integral part of this latter.

Copyright

The copyrights of this manual belong to the manufacturer of the machine. This manual contains texts, drawings and illustrations of a technical kind that can neither be wholly nor partly disclosed or transmitted to third parties without written authorization from the manufacturer of the machine.

Standard symbols

Blocked

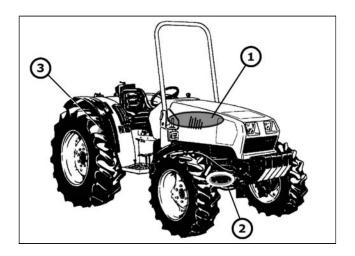
Standard symbols have been used to ensure the machine is used in the best way.

\bigcirc	Transmission	0	Power lift
₩	Differential lock	07	Power lift - Up
₿	Power take-off	3	Power lift - Down
	Power take-off rotation	2	Power lift – Floating mode
1	Clutch	≣O	Driving beam
呂	Four-wheel drive	 ■D	Dipped beam
†	Direction reverser	P≑	Parking light
N	Air valve	<u> </u>	Side lights.
	Linear accelerator		Hazard lights
$ \geqslant $	Rotational accelerator	沚	Indicator light
\geq	Working range	$\Diamond \Diamond$	Turn indicator
\bigcirc	Clockwise rotation	\$	Trailer turn indicator
\bigcirc	Counter-clockwise rotation	P	Field light
€ ₽∂	Forward direction	b∏J	Fuel level
-	Low speeds	团	Fuel filter
↟	Normal speeds	þ	Horn.
4	Fast speeds	- +	Battery charger
N	Neutral	岀	Hydraulic circuit
- 0	Engine oil pressure	<u>[d</u>	Hydraulic circuit filter
	Engine coolant temperature	\Diamond	Oil
6	Engine preheating	粋	Air conditioning
<u>Ø</u>	Engine oil filter	38	Air ventilation
<u>Z</u>	Engine air filter	<u>}}}</u>	Air heating
	Safety belts	P	Windscreen wiper
(P)	Parking brake	\Diamond	Windscreen wiper and window washer
s	Guard lowered	\Box	Rear window wiper

Rear window wiper and window washer

MACHINE IDENTIFICATION

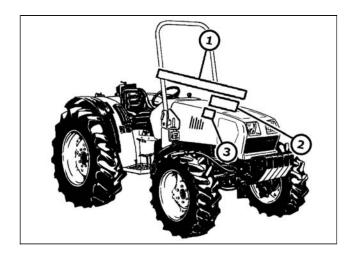
Identification criteria



The machine is identified in three different ways:

- 1 With decals.
- (2) Punch marks on chassis.
- (3) With a metal plate.

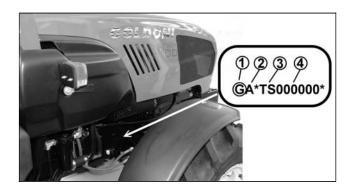
Decals



The decals affixed to the bonnet indicate:

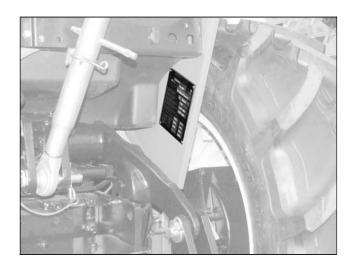
- 1 Brand.
- 2 Series
- Model

Punch marks on chassis



- 1 Manufacturer's code.
- 2 Production series
- (3) Type of machine
- 4 Identification number (serial number).

Metal plate



The metal plate is positioned in the interior of the right rear fender.

⊕41042 GOLDONI Migliarina di Carpi	S.	р. А мті(ми	LY C	E		
Den.com: 1 Type: 3 Var/Vers:	4	=	Serie: BS:	=		
Nr.OMOLOGAZIONE: EEC number:	100	6				
Numero d'identificazione: 7						
Massa totale ammissibile : Allowable total weight :		8	r,	Kg		
Carico ammissibile asse anterio Allowable load on front axle :	re :	9		Kg		
Carico ammissibile asse posteri Allowable load on rear axle :	ore :	10)	Kg		
Massa rimorchiabile ammissibile: NAZ. 13 EEC 12						
-Non frenata: -Unbraked:	11	Kg	12	Kg		
-Con frenatura -Indipendent indipendente: braking:	13	Kg	14	Kg		
-Con frenatura -Inertial ad inerzia: braking:	15	Kg	16	Kg		
-Con frenatura -Assisted ⊕ assistita: braking:	17	Kg	18	Kg		
MADE IN	ITALY			- ψ		

The metal plate gives the following information:

- 1. Commercial denomination
- 2. Production series
- 3. Type of machine
- 4. Variant/version
- 5. ABS coefficient
- 6. Approval number
- 7. Identification number (serial number)
- 8. Total permissible weight (KG)
- **9.** Permissible load on front axle (KG)
- **10.** Permissible load on rear axle (KG)
- 11. Non-braked permissible towed weight (in Italy) (KG)
- **12.** Non-braked permissible towed weight (European) (KG)
- **13.** Permissible towed weight with independent braking (in Italy) (KG)
- **14.** Permissible towed weight with independent braking (European) (KG)
- **15.** Permissible towed weight with overrunning braking (in Italy) (KG)
- **16.** Permissible towed weight with overrunning braking (European) (KG)
- **17.** Permissible towed weight with power braking (in Italy) (KG)
- **18.** Permissible towed weight with power braking (European) (KG)

	Star 90 Star 100	Star 90 GL11 Star 100 GL11	Star 90 SG1 Star 100 SG1
Position			
11	2320	2550	2515
12	2370	2500	2500
13	6000	6000	6000
14	6000	6000	6000
15	6000	6000	6000
16	8000	8000	8000
17	9280	10000	10000
18	10000	10000	10000

IDENTIFICATION OF THE COMPONENTS

The machine consists of a series of main components which are each identified by a metal data plate and/or by punch marks.

Engine

Metal data plate and punched code number.



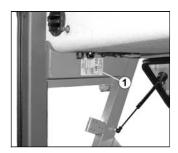
See engine's operation and maintenance manual.

Safety frame

Roll bar version



Cab version SG1

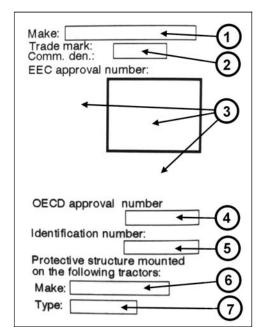


Cab version GL





Decal with the Type of safety frame.



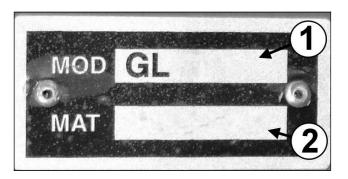
- (1) Manufacturer of the protection structure
- (2) Denomination of the protection structure
- (3) EEC approval code
- (4) OCSE / OECD approval code
- (5) Identification number (serial number).
- (6) Tractor brand
- (7) Variant/version

Meaning of OCSE / OECD codes:

- OECD/OCSE 6: The safety frame has passed the ROPS (Roll Over Protection Structure) tests for the front frame. The driver is protected if the machine overturns
- OECD/OCSE 7: The safety frame has passed the ROPS (Roll Over Protection Structure) tests for the rear frame. The driver is protected if the machine overturns
- OECD/OCSE 10: The safety frame has passed the FOPS (Falling Object Protective Structure) tests.
 The frame withstands falling objects with 1365 Joule energy level



With a metal plate.



- 1 Model
- 2 Identification number (serial number).

Towing attachments

Code punched on device:

- Make
- Type of device

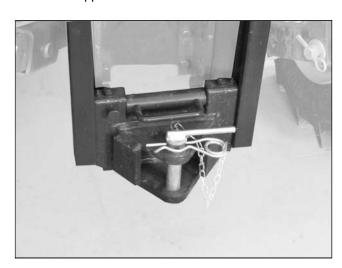
Type CUNA - Cat. C

Approval code **DGM-GA 4672 C**



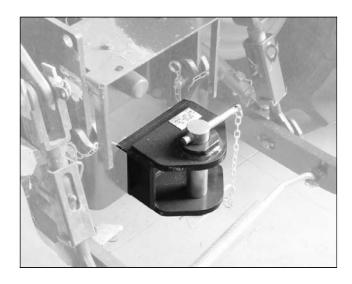
Type CUNA - Cat. C SLIDER

Approval code DGM*7*0008 GA



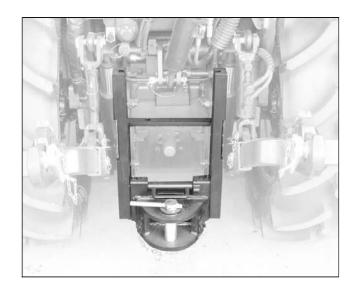
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Approval code DGM-GA 4552 D2



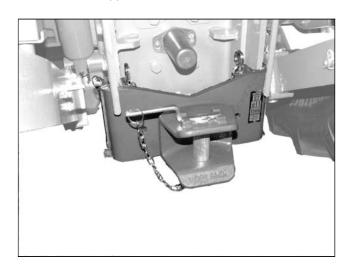
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Approval code DGM*3*0021 GA



CEE Cat.

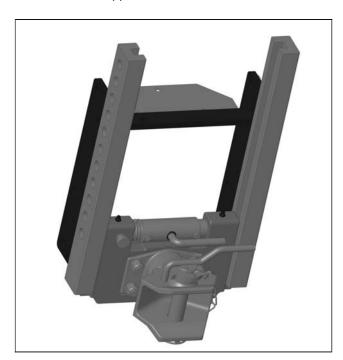
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CEE Cat.

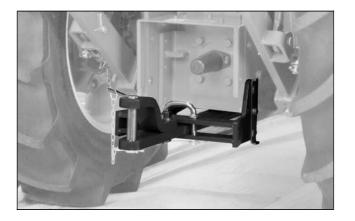
SLIDER

Approval code e11-2111



Type BT02 EEC Class drawbar

Approval code: e11*89/173*2006/96*2224



AFTER SALES

Warranty

Engine: conditions and terms established by the manufacturer

Tractor: within the terms laid down by our Certificate of Warranty.

Assistance

Contact the AUTHORIZED sales network



The Assistance Service provides specialized personnel able to work on our products. It is the only Service authorized to work on products covered by the warranty. Use of Genuine Spare Parts and compliance with the scheduled servicing operations according to the prescribed frequency will preserve the qualities of the machine over time and will entitle you to the WARRANTY that covers the product throughout the established period.

Spares



To order spares: Contact our Spares Assistance centres with the following information: **model, series and serial number of the machine**, punched on the data plate.

DECLARATION OF CONFORMITY

Declaration of conformity are at the end of the manual.

SAFETY

SAFETY REGULATIONS



DANGER

There is no substitute for prudence to make your work safer and to prevent accidents.

The following recommendations are important for all users of our machines:



IMPORTANT

Failure to follow the regulations relieves our firm from all liability.



DANGER

Do not go downhill with the clutch disengaged or the gear shift in neutral. Use the engine to brake the machine. If you find you are using the brake a lot when going downhill, shift to a lower gear.



DANGER

Check to make sure that all revolving parts on the machines (PTO, cardan couplings, pulleys etc.) are fully guarded.



DANGER

Do not wear loose clothing, jewelry, neck chains or bracelets and take care if your hair is very long as it could become caught up in parts of the machine and implements.



DANGER

Do not leave the engine running in an closed room: the exhaust fumes are poisonous.



DANGER

Do not leave the machine with engine running near flammable substances.



DANGER

After any maintenance work, grease and remove the grease from the engine to prevent the risk of a fire.



DANGER

Keep hands and other parts of the body away from holes or leaks in the hydraulic system: the hydrualic fluid that spurts from the leak is under pressure and can cause serious injuries.



DANGER

Do not carry persons or equipment on the tractor beyond the number allowed by the Certificate of Approval or provided as standard equipment.



DANGER

Do not get on or off the machine while it is moving.



WARNING

Do not tamper with the machine or the implements in any way.



WARNING

Before starting the engine make sure that the gear shift and the PTO are in neutral.



WARNING

Engage the clutch gradually to prevent the machine from suddenly moving off or pitching up at the front.



WARNING

Do not service, repair or make any kind of adjustment to the tractor or to the implements hitched to it without having first turned off the engine, removed the ignition key and lowered the implement to the ground.



WARNING

Lower the mounted implements to the ground before leaving the tractor.



WARNING

Always park the tractor so that its stability is guaranteed by applying the parking brake and engaging a gear (1st gear uphill and reverse downhill) and applying the parking brake. Use a chock for greater safety.



WARNING

Before driving the machine, check to be sure that there are no bystanders or animals within its range of action.



WARNING

Do not leave the machine unattended with the engine running and/or the key in the ignition.



WARNING

Whenever the PTO is not in use, the drive shaft must be covered by the special guard.



WARNING

The operator must check to make sure that all parts of the tractor, especially the safety devices, are in a good working condition and that they always comform to the purpose for which they were designed. They should be kept in a perfectly efficient condition. If you note any defects or faults, fix or repair them in good time. If necessary contact your nearest

Assistance Centre.



IMPORTANT

Follow the traffic code when driving on the roads.



IMPORTANT

Check the nuts and bolts of the wheels and safety frame from time to time, always with the engine shut off.



IMPORTANT

Do not use the differential lock near or in bends and avoid using it in fast gears or with engine running at a high rate.



IMPORTANT

Avoid tight steering angles when towed implements are mounted and the drive shaft is under strain since the coupling could be damaged.



IMPORTANT

Do not use the power lift's third-point as a towing hitch.



IMPORTANT

Adjust the hitch to its lowest possible positions to prevent the machine from pitching up at the front.



IMPORTANT

Keep the chains taut and the power lift raised when driving the machine with implements coupled to the three-point linkage.



IMPORTANT

Only use the front tow hook for towing the machine in an emergency.



DANGER

Do not drink fuels / lubricants / fluids. If these substances accidentally splash into the eyes, thoroughly rinse the affected part with plenty of water.



WARNING

Lengthy or repeated contact of the skin with fuels / lubricants / fluids should be avoided as skin disorders or other damage could ensue.



WARNING

Only use the tractor with towed and/or mounted implements or with the trailer, after having read and carefully complied with the instructions in the relative operation and maintenance manuals.

SAFETY OPERATIONS

Training

- Read the instructions carefully.Become familiar with the controls and how to correctly use the machine.
- Never ever allow children or persons who are unfamiliar with these instructions to use the machine.Local regulations can restrict the age of the operator.
- Never operate the machine while people, especially children, or animals are nearby.
- Remember that the operator or the user is responsible for any accidents or risks to which third parties or their property may be subjected.
- Do not carry passengers.

All drivers should seek and obtain professional and practical instructions. Such instructions should emphasize:

- the need for care and concentration when working with ride-on machines;
- control of a machine sliding on a slope will not be regained by applying the brake;

The main reasons for loss of control are:

- insufficient wheel grip;
- driving too fast;
- inadequate braking;
- the type of machine is unsuitable for its task;
- lack of awareness of the effect of ground conditions, especially slopes;
- · incorrect hitching and load distribution.

Preparation

- Check the machine with care before starting up each time
- The decals affixed to the machine provide important information: it is in the interests of your safety to comply with these indications.
- Make sure that the safety decals are in a good condition. If the decals are damaged or illegible, they must be replaced with other originals obtained from the manufacturer and affixed in the positions indicated in the operation and maintenance manual.
- Arbitrary modifications to this machine will relieve the manufacturer from all liability for

resulting damage or injuries to the operators, to third parties and to things.

- The manufacturer cannot make provisions for every rreasonably foreseeable improper use able to lead to a potential danger.
- Always wear substantial footwear and long trousers. Do not operate the equipment when barefoot or wearing open sandals.
- Thoroughly inspect the area where the equipment is to be used.
- WARNING-Fuel is highly flammable.
- Store fuel in containers specifically designed for this purpose.
- Refuel outdoors only and do not smoke while refueling.
 - To avoid the risk of the machine catching fire, periodically check the fuel pipe and replace it if it appears to be damaged to an extent that could impair its tightness.
- Refuel before starting the engine. Never remove the plug of the fuel tank or add fuel while the engine is running or hot.
- If fuel is spillt, do not attempt to start the engine but move the machine away from the place of spillage and avoid creating any source of ignition until fuel vapors have dissipated.
- Securely tighten the plugs on the tank and containers.
- Replace faulty silencers.
- Clean all foreign materials from the machine (dirt, tools, objects in general) that could impair the way it operates or injure the operator.

Operation

- Do not operate the engine in a confined space where dangerous monoxide fumes can collect.
- Only operate in daylight or in good artificial light.
- Before attempting to start the engine, disengage all the PTOs, shift the gear to the neutral position and fully depress the clutch lever.
- If you must cross a steep slope, consult section:

Danger of tipping over.

Remember that there is no such thing as a safe slope. Driving up and down grassy slopes requires particular care. To avoid overturning:

- do not stop or start suddenly when driving on slopes;
- engage the clutch slowly. Always keep the gear engaged, especially when traveling downhill;
- maintain a low speed on slopes and around tight turns;
- stay alert for humps and hollows and other hidden hazards:
- take the greatest care when working across the face of a slope.

Take care when pulling loads or using heavy implements:

- use only approved drawbar hitch points;
- limit loads to those you can safely control;
- do not turn sharply.
- take care when reversing;
- use counterweights or wheel ballast to increase the stability.
- Watch out for traffic when crossing or driving alongside roads.
- Never unload material in the direction of bystanders or allow anyone near the machine while it is operating.
- Never operate the machine with defective guards or without the protective safety devices in their correct positions.
- Do not change the engine governor settings or over-rev the engine. Operating the engine at an excessive speed can increase the hazard of personal injury.

Before leaving the operator's position:

- disengage the drive to any attachments and lower them;
- change into neutral and lock the parking brake;
- stop the engine and remove the key.

Disengage the drive to the implements, stop the engine and remove the ignition key:

- before clearing blockages;
- before checking, cleaning, or working on the machine;
- after striking a foreign object. Inspect the machine for damage and make repairs before restarting and using implements;
- if the machine starts to vibrate abnormally (check immediately).

• Disengage the drive to implements when transporting or not in use.

Switch off the engine and disengage the drive to the implement:

- before refueling;
- before making height adjustment unless the adjustment can be made from the operator's position.
- Reduce the throttle setting when slowing and, if the engine is equipped with a shut-off valve, turn the fuel off at the end of the operations.
- Read, understand and follow all the instructions in the manual and on the machine before starting.
- Inspect the machine before each job. For safety reasons, replace or repair damaged, very worn or missing parts. Make the necessary adjustments before you start work.
- Make sure that all drives are in neutral and that the parking brake is engaged before starting the engine. Only start the engine from the operator's position.
- Check brake action before you operate. Adjust or service the brakes as necessary.
- Stop machine if anyone enters the area in which you are working.
- Never leave the machine unattended when it is running.
- Take care when approaching blind corners, shrubs, trees and other objects that may impair the visibility.
- Only use the accessories and implements recommended by the manufacturer of the machine. Keep the safety decals visible when accessories or implements are fitted. Make sure that you have fully read the Instruction Manual of that accessory and/or of that implement and comply with the relative safety instructions.
- Do not use the machine if you are under the influence of medicines, alcohol or drugs.
- Before beginning to use the machine, check to make sure that the operator presence controls function correctly. Check the safety systems. Do not begin work unless they function correctly.
- Before starting the engine, turn off the air conditioner, fans and electrical accessories are not essential.

- When the engine is off do not use electrical devices when not needed. These absorptions can download the batteries in a profound and damaging them.
- Do not wear headphones to listen to music or the radio. Safe service and operation requires your full attention.

Maintenance and Storage

- Keep all nuts, bolts and screws perfectly tightened so as to be sure that the machinery operates in safe conditions.
- Never store the equipment with fuel in the tank inside a building where fumes could reach an open flame or spark.
- Allow the engine to cool before storing the machine in a closed place.
- To reduce the risk of fire, keep the engine, silencer, battery compartment and fuel storage area free of grass, leaves, or excessive grease.
- For safety reasons, replace worn or damaged parts.
- If the fuel tank has to be drained, this should be done outdoors.
- When machine is to be parked, stored or left unattended, lower the attachment unless a positive mechanical lock in used.
- Never leave the machine unattended when it is running.

Putting back into service after storage

Comply with the following instructions before using the machine for the first time or after a long idle period:

- Make sure that the machine is not damaged in any way.
- Check the mechanical components, which must be in a good condition with no signs of rust.
- Carefully grease all mobile parts.
- Make sure that there are no oil leaks.
- Check the engine oil level.
- Check the transmission oil level.
- Make sure that all the protections are in their correct places.

Parking Safely rules

- Stop the machine on level ground, not on a slope.
- Disengage PTO and stop the implements.
- . Lower implements to the ground.
- Lock the parking brake.
- Turn off the engine.
- Remove the key.
- Wait until the engine and all moving parts have stopped before you leave the operator's station.
- Close the fuel shut-off valve if the machine is equipped with this component.

Avoid Tipping



- Slopes are a major factor related to loss of control and tip-over accidents, which can result in severe injury or even death. All operations that take place on sloping ground require extra caution.
- Be aware that mechanical front wheel drive (MFWD) can improve access to dangerously sloping terrain, thereby increasing the possibility of overturning.
- Drive up and down hills, never across them.
- Watch out for holes, ruts, bumps, rocks or other hidden objects. Uneven terrain could cause the machine to overturn. Tall grass can hide obstacles.
- Take the utmost care on wet grass. Tires may lose their grip on slopes even though the brakes are functioning properly.
- Choose a low ground speed so you will not have to stop or shift gear on the slope.
- Always keep the gear engaged when going down slopes. Never coast downhill with the machine in neutral.
- Avoid starting, stopping or turning on slopes. If the tires lose their grip, disengage the PTO and proceed slowly, straight down the slope.
- Keep all movement on slopes slow and gradual. To not make sudden changes in speed or direction as this could cause the machine to tip over.
- Do not use the machine near ravines, ditches, embankments or bodies of water. The machine could suddenly tip over if a wheel goes over the edge or the edge caves in. Allow for a safety area between the machine and any hazard.
- The risk of tipping over increases to a considerable extent if the tires have been regulated with a narrow track width and the machine is driven at high speed.

 Comply with the manufacturer's recommendations for wheel weights or counterweights, which can increase stability when work is performed on slopes or when front or rear-mounted implements are used. Remove the weights when they are not required.



WARNING

This list is not exhaustive.

Do not use the tractor if overturning hazards exists.

Do not pick up Passengers on board



- Only one operator is allowed to work on the machine. Do not carry passengers.
- Passengers on the machine or on the implement may be struck by foreign objects or be thrown off the machine, causing serious injury.
- Passengers obstruct the operator's view, resulting in the machine being operated in an unsafe manner.

Keep a distance from the driveline shaft in motion



- Entanglement in rotating driveline can cause serious injury or death.
- . Wear close fitting clothing.
- Stop the engine and make sure that the PTO driveline has stopped before going near the PTO shaft.

Towing Loads Safety rules

- The stopping distance increases with speed and the weight of a towed load. Drive slowly and allow extra time and distance for stopping.
- The total towed weight must not exceed the combined weight of the tractor, ballast and operator. Use counterweights or wheel weights as described in the instruction manual of the implement or tractor.
- Towing of an excessively heavy load can cause loss of traction and loss of control on slopes. Reduce the towed weight when working on slopes.
- Never carry children or other persons in or on towed implements.
- Only use approved hitches. Only tow with a machine equipped with a hitch designed for towing. Only attach towed equipment to the approved hitch point.
- If you are unable to back up a slope with a towed load, it means that the slope is too steep to work on with the towed load. Reduce the towed load or do not operate.
- Do not turn sharply. Use additional caution when turning or operating under adverse surface conditions. Take care when reversing.
- Never coast downhill with the machine in neutral.
- Keep well away from the zone between the tractor and the towed vehicle.

Safety measures for use of the front loader

- Keep well away from the operating and danger zone when working with the front loader. Bystanders must be kept well clear of the operating area.
 - Only work if the operating zone is visible. Use lights to illuminate the operating zone if necessary.
- The supplied version of the front loader must not be used as an aerial platform. Further safety devices are required if the front loader is to be used as an aerial platform.
- Only handle items like rotobales or pallets with the front loader is this is fitted with the necessary equipment.
 - If there is a danger of falling objects, the front loader can only be used if the driving seat is protected by a suitable roof.
- High risk of overturning with the front loader raised. The efficiency of the rear brakes may be impaired. Adapt your driving technique and weight the tractor sufficiently at the rear. Fit weights on the wheels and fill them with water if necessary.
- Keep a sufficient distance away from high voltage wires.
- Bring the loader to the transport position and lock it when driving on the roads.
 - Comply with the maximum front overhang parameter. If the overall dimensions of the vehicle with the implement hitched exceeds 3.5 m, road traffic safety must be guaranteed by further measures.
 - It is forbidden to use the front loader for transporting implements and material on the public roads.
- Risk of the front loader lowering accidentally.
 For this reason, you must lock the valves once you have finished work.
 - Lower the front loader to the ground before leaving the tractor.
- For safety reason, the front loader must only be assembled and disassembled by one person, the driver himself.
- Always keep well away from the moving parts of the front loader.
- Only disassemble a front loader with an implement hitched (loading shovel, fork) on a

solid, flat surface.

- Store and lock the front loader so that unauthorized person, such as children for example, are unable to tip it over.
- Connect all the hydraulic hose pipes, including the hydraulic return, when the front loader is assembled.
- Maintenance work (greasing) when the loader is hitched to the tractor, must only be performed with the loader in the lowered position.
- Risk of accidents caused by the height of the raised loader, when passing under underpasses, bridges, etc.
- Always adapt your speed of movement to the driving conditions.
- It is strictly forbidden to transport persons.

Front loader servicing instructions

- Lower the loader to the ground, turn off the engine and remove the ignition key before performing servicing provided.
- If the fall protection device has tripped, rest the load before repairing and allow the hydraulic cylinders to slowly retract.
- The hose pipes age. Periodically check the hose pipes of the hydraulic circuit and replace them with original spares before they become too damaged.
- Retighten all the bolts and nuts after a short drive and check them periodically to make sure that they have not worked loose.
- Adjust the eccentric pin that fastens the front loader if necessary.

Safety measures for maintenance

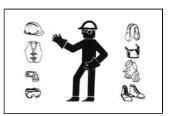


- The only authorized interventions are the ones described in the MAINTENANCE chapter. All other interventions must be performed by the technicians of workshops authorized. Your dealer will be able to provide information about your nearest authorized servicing center.
- Routine servicing of the machine may only be performed by qualified and trained adults.
 Fully familiar with the procedure before performing servicing work.
- Do not operate the machine in a confined space where dangerous monoxide fumes can collect.
- Keep all nuts, bolts and screws perfectly tightened so as to be sure that the machinery operates in safe conditions.
- Never ever tamper with the safety devices.
 Check them regularly to make sure that they function properly.
- Prevent grass, leaves and other debris from building up on the machine. Clean up spilt oil or fuel and remove any fuel-soaked debris.
 Allow the machine to cool before storing.
- Never make adjustments or repairs with the engine running. Wait for all movement in the machine to stop before making adjustments, cleaning or repairing.
- Check brake operation frequently. Have the brakes adjusted and serviced by an authorized workshop when required.
- Replace the safety instruction decals if damaged.
- Keep hands, feet, clothing, jewelry and long hair well away from moving parts and control levers to prevent them from getting caught.
- Lower any implements to the ground before cleaning or servicing the machine. Disengage all electric power sources and stop the engine. Lock the packing brake and remove the key. Allow the machine to cool.
- Securely support any machine components that must be raised for service work. Use

stands or lock service latches to support the components when needed.

- Disconnect the battery before making any repairs. First disconnect the negative terminal and then the positive one. First install the positive terminal and then the negative one.
- Before servicing the machine or implement, carefully relieve the pressure from all components with stored energy, such as hydraulic components or springs.
- Relieve the hydraulic pressure by lowering the implement or cutting equipment to the ground or to the mechanical stop point and move the hydraulic control levers back and forth.
- Keep all parts in a good condition and properly installed. Repair all damage immediately. Replace worn or broken parts.
- Charge the batteries in an open, wellventilated area, well away from sparks. Unplug the battery charger before connecting or disconnecting it to or from the battery. Wear protective clothing and use insulated tools.

Wear Appropriate Clothing



- Wear close fitting clothing and safety equipment appropriate for the job.
- The following equipment is required:
 - safety goggles or safety glasses with side shields
 - a hard hat when working with the machine
 - protective gloves (in neoprene for chemical products, in leather for heavy-duty work)
 - protective ear muffs or ear plugs
 - respirator or filtering mask
 - close fitting, waterproof clothing
 - reflecting garments
 - safety footwear

Fire prevention

- Remove grass and debris from the engine compartment and silencer area before and after using the machine.
- Always shut off the fuel valve, if installed, when the machine is stored or transported.
- Do not park the machine near an open flame or source of ignition, such as a water heater or a boiler.
- Frequently check the fuel lines, the tank, plugs and fittings for cracks or leaks. Replace them if necessary
- Never store the machine with fuel in the tank inside a building where fumes could reach an open flame or spark.
- Allow the engine to cool before storing the machine in a closed place.

Beware of high pressure fluids



- Hydaulic hoses and lines can fail due to physical danage, kinks, age and exposure.
 Check the hoses and lines regularly. Replaced damaged hoses and lines.
- Hydraulic fluid connections can loosen due to physical damage and vibration. Check the connections regularly. Tighten any loose connections.
- Escaping fluid under pressure can penetrate the skin, causing serious injury. Avoid this hazard by relieving the pressure before disconnecting hydraulic or other lines. Tighten all connections before applying pressure.
- Search for leaks with a piece of cardboard.
 Protect hands and body from high pressure fluids.
- Seek medical help immediately if an accident occurs. Any fluid injected into the skin must be surgically removed within a few hours or gangrene may result. Physicians who are unfamiliar with this type of injury should refer to a reliable medical source.

Tire safety measures



Explosive separation of a part of tire and rim can cause serious injury or death:

- Never attempt to mount a tire without the proper equipment and experience to perform the job.
- Always maintain the correct tire pressure. Do not inflate the tires above the recommended pressure. Never weld or heat a wheel and tire assembly. Heat can cause an increase in air pressure resulting in a tire explosion. Welding can structurally weaken or deform the wheel.
- When inflating tires, use a clip-on chuck and extension hose long enough to allow you to stand on one side and NOT in front of or over the tire assembly.
- Check tires for low pressure, cuts, blisters, damaged rims or missing lug bolts and nuts.

Checking Wheel Hardware

- A serious accident could occur causing serious injury unless the wheel hardware is securely tightened.
- Check the tightness of the wheel hardware often during the first 100 hours of operation.
- The wheel hardware must be tightened to the specified torque value using the correct procedure whenever it works loose.

Handling fuel safely measures





To avoid personal injury or property damage, use extreme care in handling fuel. Fuel is extremely flammable and fuel vapors are explosive.

- Extinguish all cigarettes, cigars, pipes, and other sources of ignition.
- Use only approved non-metal, portable fuel containers. If using a funnel, make sure it is plastic and has no screen or filter.
- Never remove the fuel tank cap or add fuel with the engine running. Allow engine to cool before refueling.
- Never add fuel to or drain fuel from the machine indoors. Move machine outdoors and provide adequate ventilation.
- Clean up spilled fuel immediately. If fuel is spilled on clothing, change clothing immediately. If fuel is spilled near machine, do not attempt to start the engine but move the machine away from the area of spillage. Avoid creating any source of ignition until fuel vapors have dissipated.
- Never store the machine or fuel container where there is an open flame, spark. or pilot light such as on a water heater or other appliance.
- Prevent fire and explosion caused by static electric discharge. Static electric discharge can ignite fuel vapors in an ungrounded fuel container.
- Never fill containers inside a vehicle or on a truck or trailer bed with a plastic liner. Always place containers on the ground away from your vehicle before fueling.
- Remove fuel-powered equipment from the truck or trailer and refuel it on the ground. If this is not possible, then refuel such equipment with a portable container, rather than from a fuel dispenser nozzle.
- Keep the nozzle in contact with the rim of the

fuel tank or container opening at all times until the fueling is complete. Do not use a nozzle lock-open device.

- Never overfill fuel tank. Replace fuel tank cap and tighten securely.
- Replace all fuel container caps securely after use.
- For gasoline engines, do not use gas with methanol.

Methanol is harmful to your health and to the environment.

ECOLOGY



It is of fundamental importance to safeguard the environment. Incorrect waste disposal can alter the environment and the ecological system.



Do not discard fluids like fuels, lubricants, coolants or other, in the environment.



Do not use food or dink containers, which could lead to mistakes, to drain off fluids like fuels, lubricants, coolants or other.



Do not dispose of parts of the cooling system (such as radiators, fluids, tanks, etc.) in the environment.



Contact an authorized organization or ask your dealer for advice about how to recycle or dispose of waste products in the correct way.



ALWAYS place a vessel under the drain hole so as to collect the fluid when draining a tank or reservoir.

Disposal waste product and chemicals

Waste products, such as, used oil, fuel, coolant, brake fluid, and batteries, can harm the environment and people:

- Never ever use beverage containers for waste fluids: someone may drink from them.
- Contact your local Recycling Center or authorized dealer for information about how to recycle or dispose of waste products.
- Use oil must be collected and must not be dispersed in the environment since, in accordance with the current laws, it is classified as dangerous waste and as such, must be taken to an authorized collection center.

JOBS IN FORESTRY

Dangers

The major dangers when using the machine for forestry work are:



DANGER

Take great care of falling trees and branches if a log crane is mounted on the rear part of the tractor.



DANGER

Take great care if a winch is mounted on the rear part of the tractor as trees could enter the space where the drivers sits.

Roll bar version



WARNING:

On machines equipped with safety frames, there are no places on which protections able to safeguard against the dangers of forestry work can be fitted.

The safety structures originally installed on the machines are not certified as F.O.P.S.



WARNING:

The machine is not suitable for forestry work as it is without a safety structure able to sufficiently protect the operator from the risks indicated above.

Jobs requiring a certain level of protection need further measures of protection.

GL11 cab version

This protection is certified as F.O.P.S. accordance with the requirements of the OECD Code no. 10



WARNING:

On machines equipped with cab, there are no fixing pionts for protective structures designed to protect operators (OPS) as defined by ISO 8084:2003.



WARNING:

The machine is not suitable for forestry work as it is without a safety structure able to sufficiently protect the operator from the risks indicated above.



WARNING:

definite protection against dangers deriving from use of the machine for forestry work is not provided

Jobs requiring a certain level of protection need further measures of protection.

SG1 cab version



WARNING:

On machines equipped with cab, there are no places on which protections able to safeguard against the dangers of forestry work can be fitted.

The safety structures originally installed on the machines are not certified as F.O.P.S.



WARNING:

On machines equipped with cab, there are no fixing pionts for protective structures designed to protect operators (OPS) as defined by ISO 8084:2003.



WARNING:

The machine is not suitable for forestry work as it is without a safety structure able to sufficiently protect the operator from the risks indicated above.



WARNING:

definite protection against dangers deriving from use of the machine for forestry work is not provided

Jobs requiring a certain level of protection need further measures of protection.

WORK WITH CROP SPRAYERS (RISK OF HAZARDOUS SUBSTANCES)

Roll bar version

The version of the machine with the folding safety frame does not provide any protection against entrance of dangerous substances. Jobs requiring a certain level of protection need further measures of protection.



WARNING:

Both towed and mounted crop sprayers can be used but to reduce the risk of intoxication, it is obligatory to use Personal Protective Equipment



WARNING:

It is obligatory to use Personal Protective Equipment regardless of the chemicals used.

Cab version

The cab of this tractor corresponds to Class 1 as a specified by EN 15695-1:2009 and does not provide protection against hazardous substances.

The tractor fitted with such a cab shall not be used under conditions requiring protection against hazardous substances.

The information of the PPP manufacturer (given on the label) shall be followed.

SAFETY DECALS



DANGER

Safety decals have been affixed to various parts of the machine. They indicate potential dangers.



IMPORTANT

The decals must be kept clean and legible. If damaged, they must be replaced.



IMPORTANT

Some of the machine components can be equipped with the manufacturer's specific safety decals.

SAFETY DEVICES

Safety frame

The term protection frame is commonly understood to mean the device that protects the user if the machine overturns. This term therefore refers to both the cab and the roll bar.

Depending on the versions, agricultural tractors and selfpropelled machines can be fitted with one of the two types of protection frame



WARNING

The roll bar must be kept in the vertical position during work.

There are no conditions of work for which the roll bar is allowed to remain in the lowered position.



WARNING

When in the horizontal position, the safety frame will provide no protection if the tractor tips up.



WARNING

Make sure that the roll bar is in the correct position before starting the engine.

Power lift lock





IMPORTANT

Fully screw-in the adjuster to lock the implement in both the raised and lowered position. This provides a safety function when implements are transported on the roads.

Safety belts







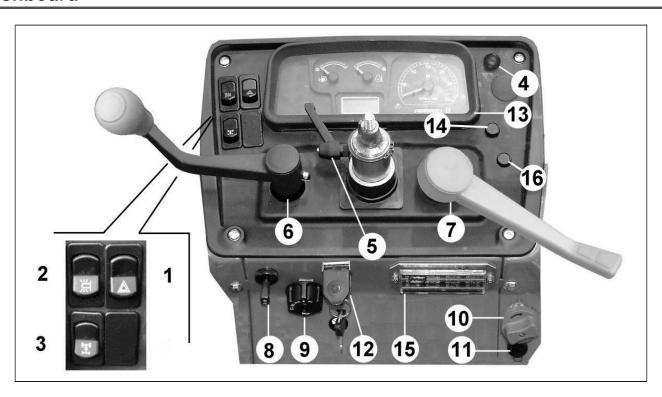
DANGER

Wear the safety belts when you use the machine with the safety frame (roll-bar or ROPS) to reduce the risk of accidents if the tractor tips up.

OPERATING INSTRUCTIONS

CONTROLS AND INSTRUMENTS

Dashboard



- Emergency lights switch
- 2 Revolving beacon switch
- 3 Front drive control button.
- 4 Button to change display / reset.
- 5 Steering wheel height adjuster lever
- 6 Reverse shuttle lever / Dual Power: forward, reverse selection / slow, fast.
- Hand throttle.

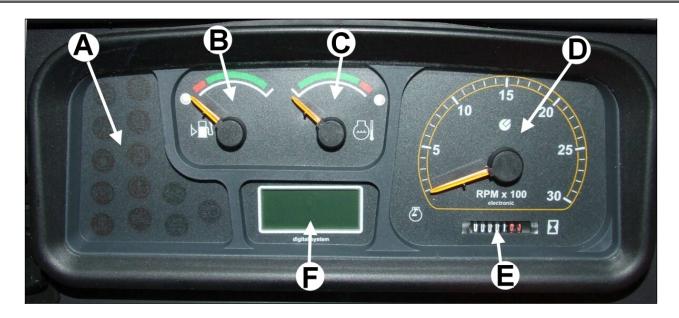
 Turn indicator / Flashing headlights.

 Light switch and horn

 Front power take-off (optional)

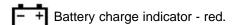
- 1-pin socket 12V
- Ignition switch
- Multifunction digital instrument
- Red light indicator for engaged PTO clutch
- 15) Fuse box
- Trailer brake indicator Only Italy version

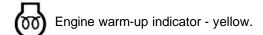
Multifunction instrument



Multifunction instrument indicators







Low engine oil pressure indicator - red.

Clogged engine air filter indicator - red.

PTO clutch disengaged indicator - red.

Front drive engaged indicator yellow.

(P) Hand brake engaged indicator - red.

Clogged oil filter indicator - red.

Tractor direction indicators - green.

Clogged oil filter indicator - red.

Safety frame lowered indicator - red.



Trailer direction indicators - green.



Driving beam indicator - blue.

Fuel level gauge



The green section shows how much fuel there is in the tank. The yellow fuel reserve light comes on when the lindicators light up in the red section.

Engine coolant temperature indicator



Excessively hot engine coolant is indicated by:

- Graduated scale with red full-scale.
- Red engine coolant temperature indicator.



WARNING

Immediately stop the engine if these indicators come on.

Carry out the following operations:

• Check the level of the cooling fluid.



WARNING

Never open the radiator's expansion tank whilst the engine is hot since the cooling fluid could cause burns as it is under pressure and very hot.

Clean the radiator core.

Engine RPM indicator



The engine rate is displayed on the graduated scale on the outside of the instrument.

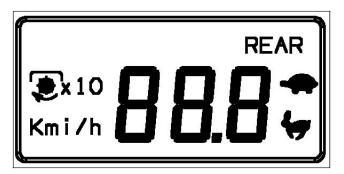
Total hour counter



The hour counter is situated in the lower part of the indicators. The work hours totalized by the machine are displayed.

Multifunction digital instrument





The tractor has a dashboard with a digital function that gives the following values:

- Speed of the tractor (kph)
- Rear PTO rate (rpm)

Select button **(4) change display / reset** (with the tractor running) to read the value of the required function:

- **kph** function on: the display indicates the speed of
- **REAR** function on, two indications may be given:
 - REAR function and on: the display indicates the slow speed of the rear PTO (540)
 - REAR function and on: the display indicates the fast speed of the PTO (540E / 1000)

Digital dashboard calibration



The calibration code appears for a few seconds whenever the tractor starts up.

The calibration code reset when the battery wires are disconnected. To operate in the correct way, the digital dashboard must be calibrated with a code, as given in the table. This code varies depending on the tyres and type of PTO used:

Proceed as described in the following points to calibrate:

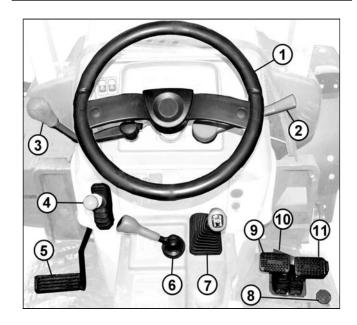
- 1. Keep button 4 depressed and turn the ignition key until the dashboard lights up. The word **SET** will appear when button 4 is released.
- 2. Press button 4 again until the first of the three values given starts to flash.
- 3. Press button 4 again to scroll the first value required.
- 4. Keep button 4 depressed to memorize and go on to the next value.
- 5. Repeat points 3 and 4 to memorize the second and third value also.
- 6. After having memorized the three values, press button 4 until the kph (1) or mi/h (2) indication appears.
- 7. Release and then press button 4 again until the word OFF appear. Calibration is now terminated.

Table of digital instrument regulation



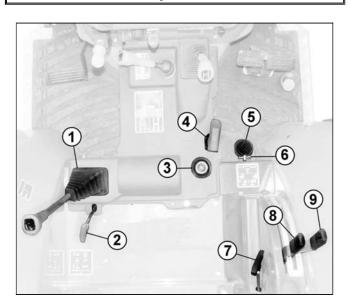
	540/540E (750 Rpm)		540 /	1000
Tyres	Low version	High version	Low version	High version
44x18.00-20" - 29x12.50-15"		147		165
380/70-R20" - 240/70-R16"	151		169	
320/70-R24" - 240/70-R16"	157		175	
360/70-R24" - 260/70-R16"	158		176	
380/70-R24" - 280/70-R16"	159	159	177	177
420/70-R24" - 280/70-R18"		160		178

Controls in front part



- 1) Steering wheel.
- (2) Hand throttle.
- Reverse shuttle lever / Dual Power: forward, reverse selection / slow, fast.
- (4) Rear PTO clutch lever.
- (5) Clutch pedal.
- **6** GEARSHIFT MODE selector lever: Dual Power 16+8 / reverse shuttle 8+8.
- Gear select lever (1st-2nd-3rd-4th)
- (8) Accelerator pedal.
- (9) Left brake pedal.
- Brake pedal latch.
- (11) Right brake pedal.

Controls in rear part



- Speed range select lever
 - (**†** 😂 🛱)
- 2 Lever for selecting the independent or synchronized rear PTO.
- (3) Gearbox casing oil filler plug and level
- 4 Parking brake lever
- (5) Rear differential lock button
- (6) Lift speed regulating and locking knob
- PTO speed selector lever
- **8** Lever for the rear power lift's draft control.
- Rear power lift position control lever.

Seat controls



DANGER

Do not get on or off the machine while it is moving.



DANGER

This adjustment must be performed when the machine is at a standstill, with the engine off and the parking brake engaged.



- 1 Distance of seat from controls.
- 2 Seat height adjustment.
- 3 Seat lengthwise adjusting lever
- 4 Safety belts



Effective weighted acceleration values measured in accordance with directive 78/64/EEC and successive amendments

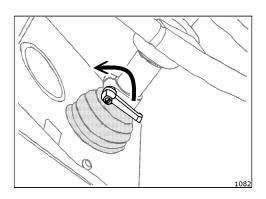
Туре	SC76/M91			
Type-approval N°	e13*78/764*1999/57*0004			
Weight applied to	Corrected Weighted vibration			
the seat	acceleration			
Kg	awS			
60	1.13 m/s²			
100	0.75 m/s ²			

Steering wheel



DANGER

This adjustment must be performed when the machine is at a standstill, with the engine off and the parking brake engaged.



The steering wheel can be adjusted in height. Using the lever:

- Release the safety retainer.
- Adjust the height.
- Lock the safety retainer.

Tools box

Star 90



Star 100



STARTING AND STOPPING THE ENGINE

Before starting the engine



WARNING

Before starting the engine make sure that the gear shift and the PTO are in neutral.



Apply the parking brake.



Move the gearshift lever to the idle position.



Move the **final drive** lever to the neutral position.



Move the lever used to select the independent or synchronized rear PTO to the neutral position.



Move the lever used to select the PTO speed to the neutral position.



Depress the clutch pedal.

The safety device "Push And Start "will prevent the engine from starting unless the clutch pedal is fully depressed.

Before starting the engine, turn off the air conditioner, fans and electrical accessories are not essential.

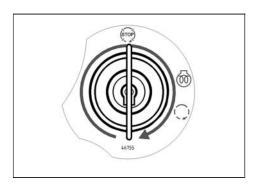
When the engine is off do not use electrical devices when not needed. These absorptions can download the batteries in a profound and damaging them.

How to start the engine



See engine's operation and maintenance manual.

Ignition switch



Insert the key and turn it as described below:

Position (STOP)



No circuit powered.

Position



Glow plug preheating. Keep the key in this position for 8-10 seconds.

For machines equipped with glow plug preheater indicator: wait until the indicator light goes out.

Position



Depress and turn the key. Engine starts.

Each starting attempt should last for just a few seconds. Do not make consecutive attempts to start the engine without having waited at least 20 sec. between one attempt and the next, otherwise the battery will quickly run down and the starter motor could be damaged.



WARNING

Do not keep operating the starter motor when the engine has already started.

Damage to the starter motor due to failure to comply with these instructions will not be covered by the warranty.

After the engine has started:

- Release the key. It will automatically return to the operating position
- Release the clutch pedal
- · Check the warning lights and instruments

How to stop the engine



WARNING

The steering action of the power steering system will be reduced if the engine accidentally stops. Depress the main brake to allow the machine to come to a full stop.



WARNING

Do not leave the tractor unattended with the ignition key inserted.

• Allow the engine to idle.



Depress the clutch pedal.

N

Move the **final drive** lever to the neutral position.

N

Move the lever used to select the independent or synchronized rear PTO to the neutral position.

N

Move the lever used to select the PTO speed to the neutral position.



Apply the parking brake.

- Turn the ignition key to position STOP.
- Remove the key and put it away in a safe place.

When the engine is off do not use electrical devices when not needed. These absorptions can download the batteries in a profound and damaging them.

HOW TO START AND STOP THE MACHINE

How to start the machine



DANGER

The machine could respond in a dangerous way if the clutch pedal is suddenly released.



WARNING

Engage the clutch gradually to prevent the machine from suddenly moving off or pitching up at the front.



WARNING

Make sure that the brakes are efficient before moving off.



IMPORTANT

Before starting the machine, make sure you become familiar with its main controls: brakes, transmission, PTO, diff lock and how to stop the engine.



IMPORTANT

Lengthy clutch disengagements could wear out the thrust bearing.



Depress the clutch pedal.

• Select the transmission ratio (consult the Gearbox chapter).



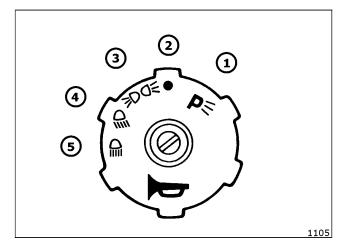
Disengage the parking brake.



Gradually release the clutch pedal.

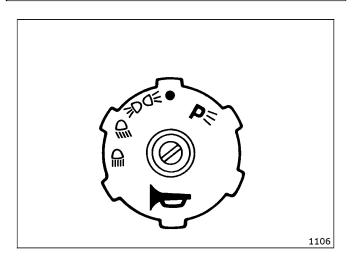
Gradually accelerate the engine.

Light switch



- Turn the control to the required position:
- 1 Parking light P€
- 2 Lights off OFF
- 3 Side lights. [€]
- 4 Dipped beam
 D
- ⑤ Driving beam

Horn



Press the control.

Turn indicator



Move the switch to the right to indicate that you are turning towards the right.

Move the switch to the left to indicate that you are turning towards the left.

The following symbols will light up:

- Tractor direction indicators green.
- Buzzer.

Move the switch back to the center once you have changed direction.

Flashing headlights



Push the switch down to flash the driving beams.

Lights



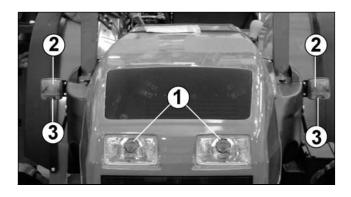
If the tractor must be driven on the public highways, the headlights must comply with the Highway Code regulations in force in the country of use.



Use of driving beams is governed by the Highway Code in force in the country of use.

FRONT LIGHTS

Roll bar version



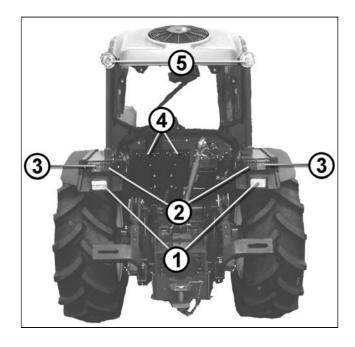
Cab version GL



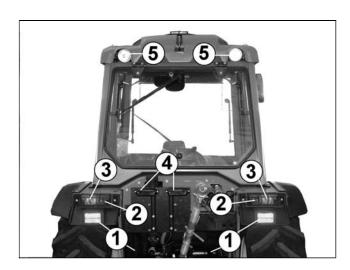
- 1 Headlight in dipped/driving positions.
- 2 Front turn indicator.
- 3 Front side light.
- 4 Working beams

REAR LIGHTS

Cab version SG1



Cab version GL



- 1 Rear reflector
- Rear brake light.
 Rear side light.
- (3) Rear turn indicator.
- 4 License plate light.
- (5) Working beams

Safety frame



DANGER

The machine is equipped with a folding safety frame. Always keep the safety frame assembled in the correct vertical position during work.



DANGER

Never ever modify the structural components of the safety frame by welding on additional parts, making holes, grinding, etc. Failure to comply with these instructions could impair the rigidity of the frame and reduce the level of protection provided by the original equipment.



WARNING

If the tractor tips up or the safety frame or cab are damaged (e.g. owing to a collision), all the damaged structural components must be replaced in order to guarantee the original degree of safety.



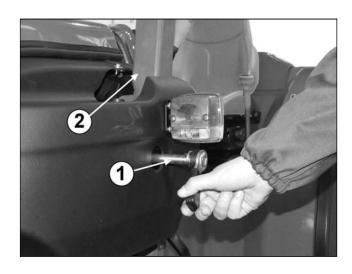
WARNING

When in the horizontal position, the safety frame will provide no protection if the tractor tips up.



WARNING

Make sure that the roll bar is in the correct position before starting the engine.



- Safety pin.
- 2 Safety frame.

To lower the safety frame, on both sides:

- turn the pin through 90° and remove it
- lower the safety frame
- insert the pin turn it through 90°

How to stop the machine

• Allow the engine to idle.



Depress the clutch pedal.

- Use both the brake pedals.
- Stop the machine.



Move the **final drive** lever to the neutral position.



Move the gearshift lever to the idle position.

Remember to disengage the PTO if used.



Apply the parking brake.

TRANSMISSION

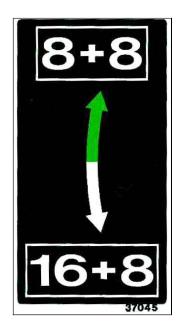
Sélection de type de transmission



 Λ

WARNING

The GEARSHIFT MODE lever must ALWAYS be used by depressing the clutch pedal and idling the engine with the wheels of the machine at a standstill.





The machine has a **Dual Power** transmission, which provides 2 different gearshift modes selected with the GEARSHIFT MODE lever.

Main clutch



WARNING

NEVER attempt to drive up or down slopes with the clutch disengaged.



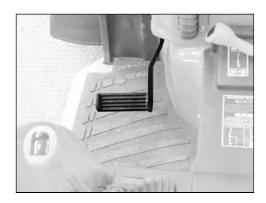
IMPORTANT

Remove your foot from the clutch pedal when not required. Do not ride the clutch.



IMPORTANT

Lengthy clutch disengagements could wear out the thrust bearing.



Transmits drive from the engine to the transmission.

Pedal up = clutch engaged (drive is transmitted). Pedal down = clutch disengaged (drive not transmitted).

Gearbox

The machine's transmission comprises a gearbox, final drive and synchronized reverse shuttle, each controlled by its own lever.

The speed at which you drive the machine must be chosen to suit:

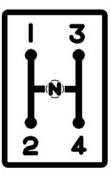
- The work required.
- The implement used.
- The type of ground.



[1] Consult the TECHNICAL SPECIFICATIONS

Gearshift lever





The lever can be moved in four positions (plus neutral):

1 First speed gear.

2 Second speed gear.

Neutral

3 Third speed gear.

4 Fourth speed gear.

The speed gear selections are synchronized. To shift gear:

- Depress the clutch pedal.
- Select the required range.
- Gradually release the clutch pedal.

Use the **FINAL DRIVE** command to select the **reverse gear**.



WARNING

Engagement of the reverse gear and/or the consequent engagement of the forward speed gear must ALWAYS be performed with the engine idling and with the wheels of the machine at a standstill.

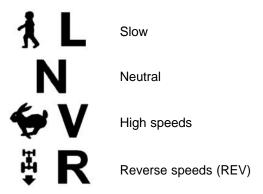
Final drive lever





• DUAL POWER MODE (16-8 SPEEDS)

The lever can be moved in three positions (plus neutral):



Selection is not synchronized.

To shift gear:

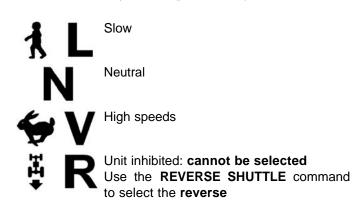
- Stop the machine.
- Depress the clutch pedal.
- Select the required range.
- Gradually release the clutch pedal.

WARNING

Engagement of the reverse gear and/or the consequent engagement of the forward speed gear must ALWAYS be performed with the engine idling and with the wheels of the machine at a standstill.

• REVERSE SHUTTLE MODE (8+8 SPEEDS)

The lever has two positions (plus neutral):



Selection is not synchronized.

To shift gear:

- Stop the machine.
- Depress the clutch pedal.
- Select the required range.
- Gradually release the clutch pedal.



WARNING

Engagement of the reverse gear and/or the consequent engagement of the forward speed gear must ALWAYS be performed with the engine idling and with the wheels of the machine at a standstill.

Reverse shuttle lever/Dual Power: forward, reverse selection, slow, fast.





• REVERSE SHUTTLE MODE (8+8 SPEEDS)

The lever has two positions (plus neutral):



N



Forward

Neutra

Reverse

The speed gear selections are synchronized.

Even though selection is synchronized, proceed as described below to select the forward or reverse speeds:

- Stop the machine.
- Depress the clutch pedal.
- Select the forward or reverse speed.
- Gradually release the clutch pedal.

In this operating mode, the lever **1** acquires the reverse shuttle function and provides:

•

DUAL POWER MODE (16-8 SPEEDS)

The lever has two positions (plus neutral):







High speeds (Hare) Neutral 20% Dual Power reduction

The speed gear selections are synchronized.

Proceed in the following way to select the forward speed or Dual Power function even when selection is synchronized:

- · Stop the machine.
- Depress the clutch pedal.
- Select the forward or reverse speed.
- Gradually release the clutch pedal.

In this operating mode, the lever (1) acquires the Dual Power function and provides:

8 reverse speeds: 4 speed gears for 1 final drive () + Dual power lever that reduces the speed of each gear by 20%



WARNING

Engagement of the reverse gear and/or the consequent engagement of the forward speed gear must ALWAYS be performed with the engine idling and with the wheels of the machine at a standstill.

The speed at which you drive the machine must be chosen to suit:

- The work required.
- The implement used.
- The type of ground.



Consult the TECHNICAL SPECIFICATIONS

Hand throttle



The throttle lever is located in the front right-hand side of the machine.

Increase or decrease the engine rate by gradually moving the lever.

Accelerator pedal



Accelerator pedal.

Front drive engaging control



WARNING

The front drive must ALWAYS be engaged by depressing the clutch pedal and idling the engine with the wheels of the machine at a standstill.

 Be aware that mechanical front wheel drive (MFWD) can improve access to dangerously sloped terrain, thereby increasing the possibility of a tipover.



To engage the front drive

- Press the button on the dashboard.
- The yellow light on the dashboard comes on to indicate that the front drive has been engaged.

Rear differential lock



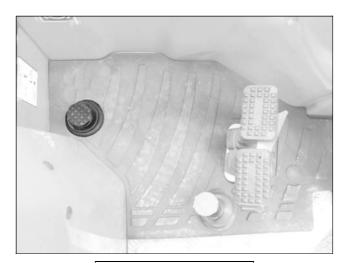
DANGER

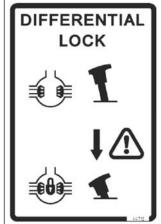
When the differential lock is engaged, the tractor cannot be steered.



IMPORTANT

Do not use the differential lock near or in bends and avoid using it in fast gears or with engine running at a high rate.





The tractor is equipped with a rear diff lock.

Use recommended for ploughing work or if one of the two driving wheels possesses insufficient grip owing to muddy, rugged or slippery ground.

The diff lock is controlled mechanically with the pedal. It is disengaged by releasing the pedal.

To get the most out of the device, engage the differential lock before the wheels begin to slip. Do not engage the lock while one wheel is already slipping.

If the diff lock fails to release, reduce the engine rate, stop the machine and release it by moving the steering wheel.

Front differential lock (NoSPIN)

The No-Spin device is a differential lock that is installed inside the front axle.

When the machine is driven on a straight road, the front wheels are enbloc with each other and there is no differential effect.

When the machine turns and the wheels exceed an angle of about 15°, the outer wheel releases and turns faster to allow it to turn while the wheel on the inner side maintains its driving function.

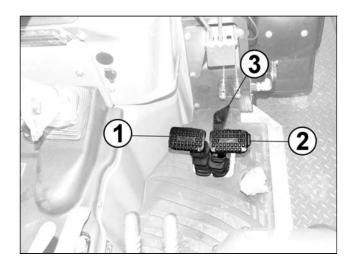
Disengagement of one of the wheels when the machine is turned may be preceded by a metallic noise due to the springs of the device as they release.



Consult the operation and maintenance manual of the **No-SPIN** device.

BRAKING SYSTEM

Main brake



- 1 Left brake pedal.
- (2) Right brake pedal.
- 3 Brake pedal connecting pin.



WARNING

Make sure that the brakes are efficient before moving off.

• Depress the brake pedal.

If the brake action becomes excessively spongy or the brakes reach end of travel:

- Do not start the machine.
- Immediately identify the cause and eliminate the defect.
- Immediately contact your nearest authorized workshop if you are unable to repair the defect.



WARNING

Before driving on the roads, lock both the brake pedals with the pedal latch.



WARNING

NEVER drive on the roads with the pedals unlatched.



IMPORTANT

Do not keep your foot on the brake pedals when this is unnecessary.

The braking action of the machine is obtained by depressing the brake pedals

Each pedal controls the brake of each corresponding rear wheel separately.

Only use the brakes separately for farming work.

M

IMPORTANT

When the brake pedals are depressed in the 40 kph versions, the IST Simultaneous Front Drive Engagement system engages automatically and disengages when the brake pedals are released.

Parking brake



WARNING

before beginning to drive, make sure that the parking brake is disengaged and that the red indicator light on the instrument panel is off.

The parking brake is the disc type, totally independent and mechanically controlled with a lever.

To engage the parking brake:

- Fully depress the main brake pedals.
- Pull the lever up:
- The red light on the dashboard comes on to indicate that the brake has been engaged.



To disengage the parking brake:

- Turn the lever in the counter-clockwise direction.
- Completely lower the lever.
- The red light on the dashboard goes out to indicate that the brake has been disengaged.



POWER TAKE-OFF

Rear power take-off (PTO)



WARNING

when the PTO is not used, move the mode selector lever to the Neutral or Independent position (depending on the model or version). This prevents the shaft of the PTO and other spinning components from accidentally turning.



WARNING

Do not remove or damage the protective plate



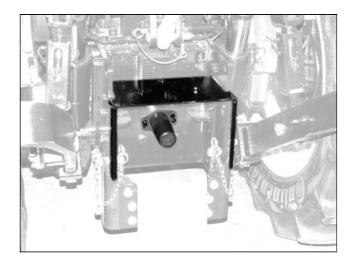
WARNING

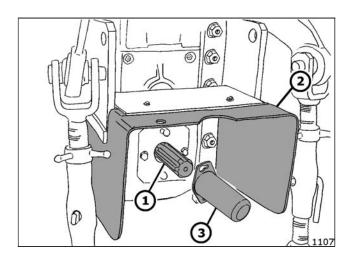
Whenever the PTO is not in use, the drive shaft must be covered by the special guard.



IMPORTANT

If implements that develop a high degree of inertia are connected to the PTO (such as lawn mowers, brushwood choppers, etc.), it is advisable to use a cardan-shaft transmission with "free wheel" device. This device prevents the implement from transmitting drive to the machine and allows it to stop as soon as the clutch is depressed.





- 1 Power take-off
- (2) Metal plate protection.
- (3) PTO shaft guard.

The tractor is equipped with a rear PTO that can operate in two ways:

- Independent.
- Synchronised. •••

Both can have two speeds:

- Slow. 540 rpm
- Fast. 540E (750 rpm)

The 540E (750 rpm) version can be substituted with the 1000 rpm version on request.

Turning direction: clockwise (in synchronised mode, turning direction is clockwise with forward drive).

The PTO speed is shown on the display of the multifunction digital instrument on the dashboard.

Independent PTO



It does not depend on the ground speed of the machine and can be operated when this is either at a standstill or on the move.



WARNING

To prevent injuries:

the safety device will prevent the engine from starting when the PTO mode selector lever is in the Independent position.



DANGER

The machine could respond in a dangerous way if the clutch lever is suddenly released.



 Disengage the PTO clutch by pushing the lever down.









IMPORTANT

The red PTO disengaged indicator light on the multifunction dashboard instrument comes on whenever the PTO clutch is disengaged by means of the PTO clutch lever. Only remain in this position for the time strictly required to engage the clutch and release the lever as quickly as possible.



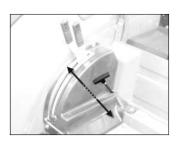
• The PTO mode selector lever must be in the **Independent** position.







- Use the gearshift lever of the PTO to select the best rate.
- 540/540E (750 Rpm)
- The 540E (750 rpm) version can be substituted with the 1000 rpm version on request.

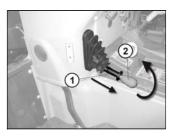






Engage the PTO clutch:

pull to release the safety lock 1 of the clutch lever and pull the lever up 2





 Having finished work, remember to move the PTO's mode selector lever back to the **Neutral (Idle)** position.

Synchronized PTO



Synchronised with all gears.

This PTO is used for trailers with driving wheels.

Used in difficult operating conditions (steep slopes, muddy or slippery ground).



IMPORTANT

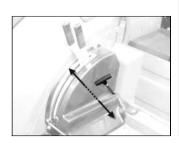
Do not use the synchronized power take-off near or round very tight bends.

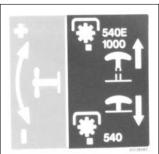


• Stop the machine.



- Use the gearshift lever of the PTO to select the best rate.
- 540/540E (750 Rpm)
- The 540E (750 rpm) version can be substituted with the 1000 rpm version on request.







 Move the PTO mode selector lever to the Synchronized position.





OPERATING INSTRUCTIONS

 Having finished work, remember to move the PTO's mode selector lever back to the **Neutral (Idle)** position.

Table of PTO speeds

PTO speed selector lever	Turning direction:	Ratio	PTO idling rate	Engine RPM
540		4,500	540	2430
540E	Clockwise rotation	2 471	750	2603
	1-3/8" profile with 6 splines	3,471	540	1874
1000	, , , , , , ,	2,214	1000	2214

Table of Synchronized PTO speeds

These are the revolution of the PTO for every wheel revolution

Speed					
540	540E	1000			
4,907	6,363	9,973			

Universal joint



Consult the specific manual for instructions about how to use and service certain of the machine parts manufactured by third parties, in safe conditions.



WARNING

To ensure that the universal joint functions correctly and to prevent the components from being demaged, remember that the extent to which the universal joint can technically slant depends on the size and shape of the PTO guard as well on the shape and size of the universal joint itself and its protection devices. The angle at which the universal joint can slant may therefore vary.



WARNING

Use only power take-off drive shafts with adequate guards.

Front power take-off (optional)



WARNING

Whenever the PTO is not in use, the drive shaft must be covered by the special guard.



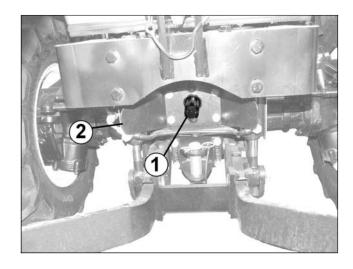
IMPORTANT

If implements that develop a high degree of inertia are connected to the PTO (such as lawn mowers, brushwood choppers, etc.), it is advisable to use a cardan-shaft transmission with "free wheel" device. This device prevents the implement from transmitting drive to the machine and allows it to stop as soon as the clutch is depressed.



WARNING

When the PTO is not used, move the mode selector lever to the OFF position (depending on the model or version). This prevents the shaft of the PTO and other spinning components from accidentally turning.



- Front power take-off (optional) 1000 Rpm
- 2 Metal plate protection.

To engage the front power take-off:

• Set the engine between 1300 - 1900 rpm.





- 1 Press and 2 turn to the **ON / Engaged** position the front PTO engagement selector knob.
- The red indicator light on the dashboard, which shows when the clutch of the front PTO is engaged, will start to flash and will then remain on while the front PTO is being used.

To disengage the front power take-off:





- Having finished work, press the selection knob of the front PTO to return this latter to the OFF / Disengaged position.
- The red indicator light on the dashoboard, which shows when the front PTO is engaged, must go out.

Turning direction:	Ratio	PTO idling rate	Engine RPM
Counter-clockwise rotation 1-3/8" profile with 6	2.35	1000	2350
splines			

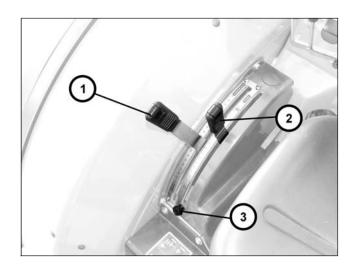
REAR POWER LIFT

It is a 3-point rear hydraulic power lift controlled by means of the valve system.

The following conditions of use are available:

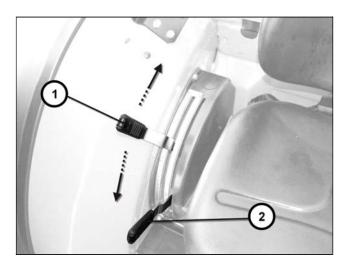
- Up-down
- Position control
- Draft control
- Floating mode
- Mixed regulation

Up-down



- (1) Rear power lift position control lever.
 - Lever back = Implement lifted.
 - Lever forward = Implement lowered (floating mode for implements that must follow the contours of the ground).
 - Central neutral position
 - Lever in intermediate position = Locks the implement at various heights. (Optional)
- 2 Lever for the rear power lift's draft control.
- (3) Lever position stop knob
 - Unscrew the ring nut and move the stop to the desired position
 - Retighten the ring nut

Position control

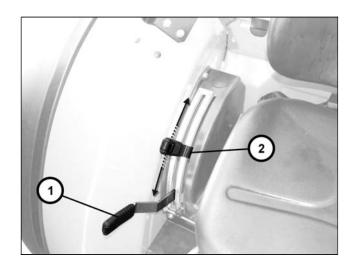


- 1 Rear power lift position control lever.
- 2 Lever for the rear power lift's draft control.

Ideal for jobs where the implement must remain in the same position (drills, scraper, mounted fertilizer spreader, etc.).

- Move the draft control lever to the end of its forward travel.
- Use the power lift's position control lever 1 to lift or lower the power lift. The power lift's position is proportional to the action on the lever.

Draft control



- 1 Rear power lift position control lever.
- 2 Lever for the rear power lift's draft control.

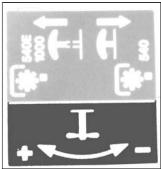
Automatically maintains the lugging power the machine must provide at a steady level, thus preventing slippage (ploughs, cultivators, etc.).

- Move the power lift's position control lever to the end of its forward travel.
- Use the draft control lever 2 to regulate the degree of draft required.
- Use the power lift's position control lever 1 to lift and lower the power lift.

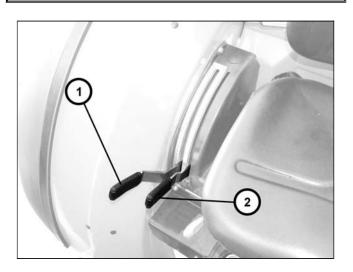
Power lift sensitivity adjustment

When the machine is used in the draft control mode, the speed at which the power lift lowers can be regulated by means of the power lift's locking adjuster:





Floating mode

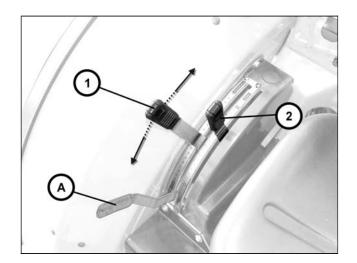


- 1 Rear power lift position control lever.
- 2 Lever for the rear power lift's draft control.

Ideal when the implement must be free to follow the contours of the ground (cultivators, ridgers, scrapers, etc.).

- Move the draft control lever to the end of its forward travel.
- Move the power lift's position control lever 1 to the end of its forward travel.

Mixed draft and position mode adjustment



- (1) Rear power lift position control lever.
- 2 Lever for the rear power lift's draft control.
- A Initial position of the power lift position adjuster lever

This operating mode is ideal for jobs performed in the draft control mode on irregular ground when the implement is liable to dig too deeply into the soil.

Dig the implement into the ground down to the desired depth as described for the draft control mode:

- Move the power lift's position control lever 1 to the end of its forward travel.
- Use the draft control lever 2 to regulate the degree of draft required.
- Use the power lift's position control lever (1) to lift and lower the power lift.

Having reached the required depth, gradually move the position control lever 1 back until power lift's links begin to lift.

The power lift will operate in the draft control mode but will stop the implement from digging too deeply into the soil if it encounters softer ground.

Only use the power lift's position control lever to lift the implement and dig it into the ground.

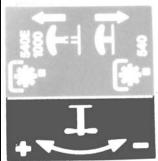
Power lift speed and sensitivity adjustment



IMPORTANT

Fully screw-in the adjuster to lock the implement in both the raised and lowered position. This provides a safety function when implements are transported on the roads.





Screw out this regulator to increase lift lowering speed.

3-point hitch sensitivity can be further increased by attaching it to one of the lower tractor hitch holes.

FRONT LIFT (OPTIONAL)

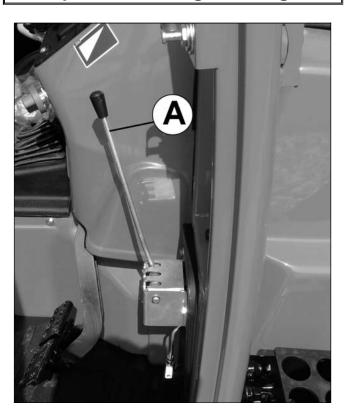
It is a 3-point front hydraulic power lift cat. 1 and 1N controlled by means of the valve system.



The following conditions of use are available:

Up-down

Front power-lift lifting-lowering



- A Power lift control lever
- Lever forward = Implement lifted.
- Lever in intermediate position = Loks the implement at various height.
- Lever back = Implement lowered.

THREE POINT HITCH

Rear 3-point hitch



DANGER

Keep well away from the hitching zone when you are checking the three point hitch.



WARNING

Do not service, repair or make any kind of adjustment to the tractor or to the implements hitched to it without having first turned off the engine, removed the ignition key and lowered the implement to the ground.



IMPORTANT

Do not use the power lift's third-point as a towing hitch.



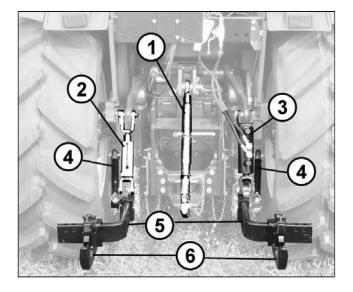
DANGER

Do not wear loose clothing, jewelry, neck chains or bracelets and take care if your hair is very long as it could become caught up in parts of the machine and implements.



IMPORTANT

Keep the chains taut and the power lift raised when driving the machine with implements coupled to the three-point linkage.



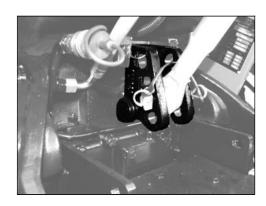
- 1 Top link linkage
 - Quick coupling
- Adjustable rod
- 3 Adjustable hydraulic rod
- 4 Side stabilizer
- 5 Power lift lower link



6 Adjustable implement hitch end fitting

Quick coupling

The machine is equipped with a three-point hitch. To ensure that the hitch always functions correctly, always make sure that the size and weight of the implements correspond to the specifications of the hitch and power lift.



The top link's linkage has four holes to facilitate the hitching operation and ensure that the implement slants in the correct way.

To adjust the top link, remove the split pin from the plug, remove the plug from the brackets, set the top link at the height of the required hole, then fit the plug and split pin back in position.

- Upper hole: less sensitivity (suitable for implements that produce a high amount of stress)
- Lower hole: greater sensitivity (suitable for light implements).

3-point hitch adjustment



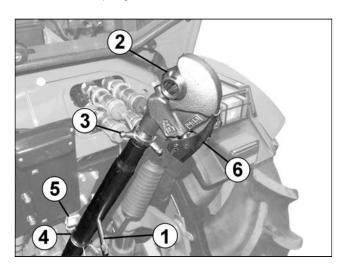
DANGER

This adjustment must be performed when the machine is at a standstill, with the engine off and the parking brake engaged.

Top link linkage

Top link linkage

Quick coupling



Adjust the length of the top link linkage to change the angle at which the implement digs into the ground.

Turn the top link to obtain the required length, using the lever $\widehat{\mathbf{1}}$.

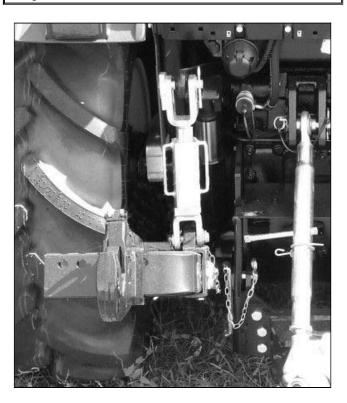
The ball-shaped implement hitch coupling ② is equipped with a reduction for use as cat 1 or cat 2.

Tighten the ring nut 3 to lock the top link in the required position.

Connect the spring 4 to the fixed support 5 if the top link is unused.

Implement hitching lever 6

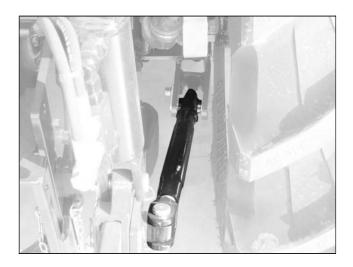
Adjustable rod



Adjust the adjustable rod so as to level and align the power lift's lower linkages to suit the implement used and the type of job that needs to be done.

To adjust the position of the rod, raise the sleeve, turn it until the required length is obtained and then set the sleeve back to its original position.

Side stabilizer



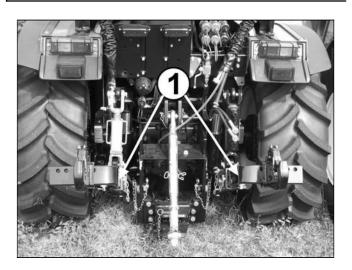
Adjust the side stabilizers to limit the side swing of the power lift's lower links:

Tighten or loosen it by means of the handle until obtaining the required degree of swing.

50-60 mm swing for ploughs, rotary harrows, etc. 10-50 mm swing for levelling blades, hoes, etc.

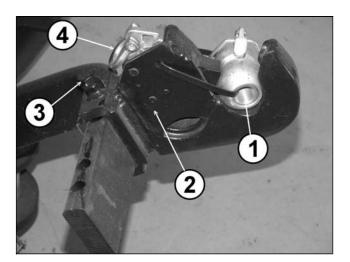
0 mm for transporting implements when they are not working.

Adjustable lower link



To adjust the lower link, remove the split pin from the plug 1, set the link to the correct length then fit the plug 1 and split pin back in place

Adjustable implement hitch end fitting



Adjust the width of the coupling ends 2 by unscrewing the bolt 3 and allowing them to slide in the slot of the lower links until the required width has been obtained. Retighten the bolt 3.

The ball ends 1 have a reduction for use as cat 1 or cat 2

Implement hitching lever 4

Front 3-point hitch (optional)



DANGER

Keep well away from the hitching zone when you are checking the three point hitch.



WARNING

Do not service, repair or make any kind of adjustment to the tractor or to the implements hitched to it without having first turned off the engine, removed the ignition key and lowered the implement to the ground.



IMPORTANT

Do not use the power lift's third-point as a towing hitch.



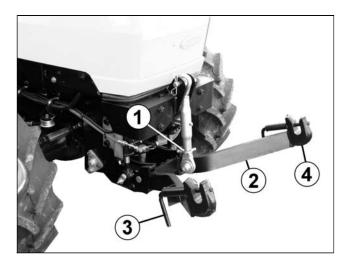
DANGER

Do not wear loose clothing, jewelry, neck chains or bracelets and take care if your hair is very long as it could become caught up in parts of the machine and implements.



IMPORTANT

Keep the chains taut and the power lift raised when driving the machine with implements coupled to the three-point linkage.



Cat. 1 and 1N

1 Top link linkage

2 Power lift lower link

3 Implement hitching lever

4 Implement hitch end fitting

The machine is equipped with a three-point hitch. To ensure that the hitch always functions correctly, always make sure that the size and weight of the implements correspond to the specifications of the hitch and power lift.



3-point hitch adjustment



DANGER

This adjustment must be performed when the machine is at a standstill, with the engine off and the parking brake engaged.

Consult the chapter entitled "Top link linkage" of the rear three-point coupling in order to adjust the top link.

AUXILIARY CONTROL VALVES



WARNING

Take extreme care when hitching and unhitching implements. Have all bystanders move well away from the area where these operations are being performed.



DANGER

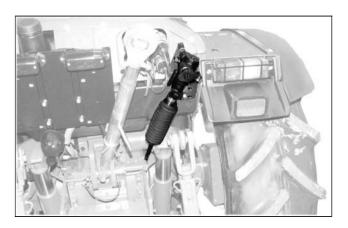
Pressurized fluids can penetrate under the skin and cause serious damage. Always stop the engine and relieve the pressure before connecting/disconnecting any pipes.



DANGER

The oil and diesel fuel are under pressure. They can cause serious injuries, blindness or even death if they spurt into the eyes or on to the skin. Leaking fluid under pressure may not be visible. Use a piece of wood or paper to find leaks. Never use the bare hands. Always wear safety goggles to protect the eyes. If the fluid penetrates under the skin it must be removed as soon as possible. Seek expert medical help.

Trailer braking valve



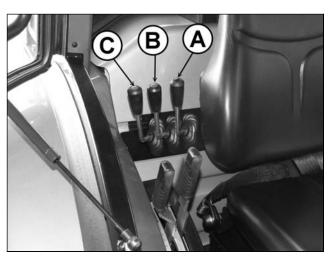
The trailer braking valve is activated by fitting the trailer's female hydraulic valve into the male socket. Remove the rubber protection before activating the valve.

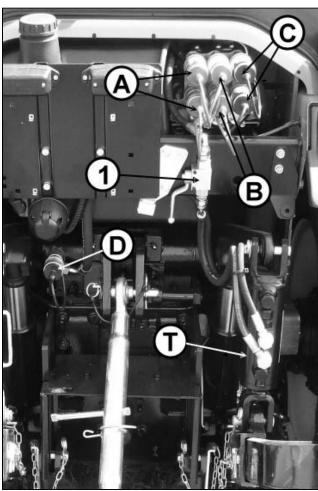
WARNING LIGHT - (Only Italy version)

- The red warning light comes on the pressure at the trailer brake coupling is less than 10 bar or when the coupling is disconnected. The indicator can therefore be used for a brief operating test.
- The warning light must be off during normal operation with the engine running, the trailer hitched, the hand brake lowered and and without depressing the brake pedal.
- The warning light must be on during normal operation with the engine running, the trailer NOT hitched, the hand brake lowered and without depressing the brake pedal. The red light may go out when the control valves are used.
- When the hand brake is applied, the red warning light remains on even when the brake pedal is depressed.
- The warning light also comes on when the engine is stopped on load, because this annuls the pressure on the trailer brake coupling.
- To set the trailer brake valve to the stand-by status, operate a control valve after having disconnected the trailer.

Rear hydraulic auxiliary control valves

The machine is equipped with up to three modular control valves, all of which are double-acting with a fourth floating position, which allows the two hydraulic ways of the valve unit to be connected at the same time to the outlet, so as to allow the hitched implement to freely folow the contours of the ground.





- Rear supplementary spool valve lever
 - Real Supplementary spool valve level
 - Rear supplementary spool valve lever
- Rear supplementary spool valve lever
- Valve with free oil discharge
- Adjustable hydraulic rod
- **(1)** Tap

The valves of the valve units are the 1/2" NPTF type and are complete with rubber protections.

• The levers have four positions:

LIFTING: pull the lever up

NEUTRAL: leave the lever in the intermediate position

LOWERING: push the lever down

FLOATING MODE: push the lever beyond the LOWERING position.

REAR CIRCUIT

The circuit has three double-acting control valves with a fourth floating position and a tap:

The tap 1 is connected to the circuit 0.

If the tap 1 is closed, its lever must be parallel to the tap itself, the control valve lever 0 controls the rear control valve 0.

If the tap ① is open, the lever must be perpendicular to the tap itself, the control valve lever ② controls the hydraulic link ① of the rear power lift; when the control velve lever ③ is pushed up, the rh power lift link rises. When the control valve lever ③ is pushed down, the rh power lift link lowers.





Rear hydraulic auxiliary control valves with selection electrovalve

The machine is equipped with up to three modular control valves, all of which are double-acting with a fourth floating position, which allows the two hydraulic ways of the valve unit to be connected at the same time to the outlet, so as to allow the hitched implement to freely folow the contours of the ground.

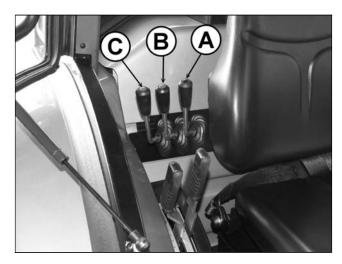


Fig. 1

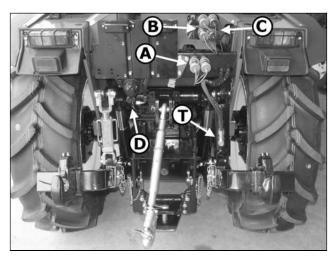


Fig. 2

- Rear supplementary spool valve lever
- 0
- B Rear supplementary spool valve lever
- **©**
- Rear supplementary spool valve lever
- Valve with free oil discharge
- Adjustable hydraulic rodselection switch



WARNING

Do not connect hydraulic motors to rear SCV section A. Connect only hydraulic cylinders used to position the implements.

The valves of the valve units are the 1/2" NPTF type and are complete with rubber protections.

• The levers have four positions:

LIFTING: pull the lever up

NEUTRAL: leave the lever in the intermediate position

LOWERING: push the lever down

FLOATING MODE: push the lever beyond the LOWERING position.

REAR CIRCUIT

The circuit has three doubleacting control valves with a fourth position and a switch that controls an electrovalve connected to selection.

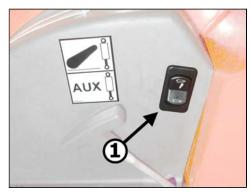


Fig.3

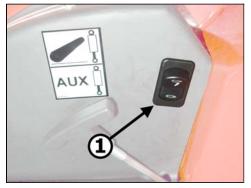


Fig.4

If switch 1 is selected as shown in Fig.3, SCV's lever 2 controls only rear lifter right hydraulic rod 1.

If switch 1 is selected as shown in Fig.4 (AUX), SCV's lever 2 controls only SCV's section 2.

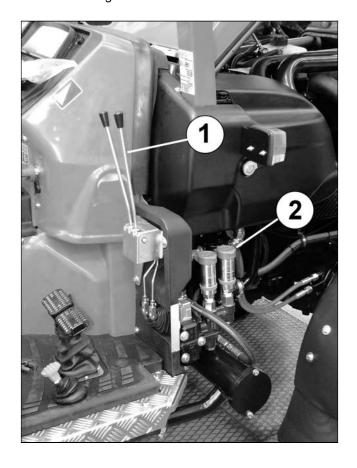
Front hydraulic auxiliary control valves (optional)

CONFIGURATION WITHOUT FRONT POWER LIFT:

- Up to 3 control valves can be installed in the configuration with ROLL BAR.
- Up to 3 control valves can be installed in the configuration with GL cab.
- Up to 2 control valves can be installed in the configuration with SG1 cab.

CONFIGURATION WITH FRONT POWER LIFT:

- Up to 2 control valves can be installed in the configuration with ROLL BAR
- Up to 2 control valves can be installed in the configuration with GL cab.
- 1 control valve can be installed in the configuration with SG1 cab.



- Front supplementary spool valve lever.
- Front hydraulic control valves

The valves of the valve units are the 1/2" NPTF type and are complete with rubber protections.

The following types of control valve can be selected:

- Single-acting with connection in floating position
- Double-acting
- Double-acting with double lever connection
- Double-acting with Fourth floating position and lever connection

Front hydraulic auxiliary control valves - 50 Litres

FRONT CIRCUIT

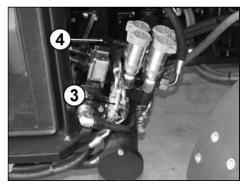
The circuit consists of two control valve, a flow governor and a tap:

The tap 3 is connected to the circuit 6.

If the tap 3 is closed, its lever must be parallel to the tap itself, the control valve lever controls the rear control valve c

If the tap 3 is open, its lever must be perpendicular to the tap itself, the control valve lever c controls the front power; when the control valve lever c is pushed up, the front power lift rises, otherwise the control valves lever c is pushed down, the front power lift lowers.

This regulator allows you to obtain a 0 to 25 liters flow rate in both the front control valves.

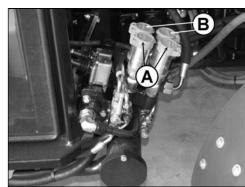


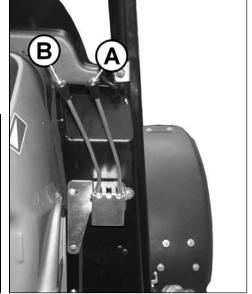




The two control valves are, respectively:

B double-acting with coupling and automatic overpressure release if the pressure exceeds 120 bar double-acting with spring return





TOWING ATTACHMENTS



WARNING

The machine could jack up if the towing device is used in the highest position.

 Keep well away from the zone between the tractor and the towed vehicle.



Choose the towing attachment to suit the type of trailer or implement towed, in compliance with the current laws in force.



The ease with which the machine can be driven also depends on the correct use and successive height adjustment of the towing device.



Keep the drawbar as horizontal as possible when using a trailer with synchronized drive.

Towing the machine

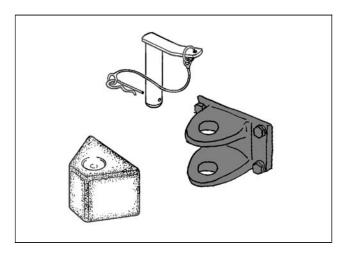
Only use, for both machines (the one that tows or the towed machine), the normal towing devices (drawbar or tow hook).

For connecting the two machines, only use a safe, strong, special chain or rope designed for this particular purpose.

NOTE:

- The tractor must only be towed over short distances and not on public highways.
- The speed must not exceed 10 kph.
- An operator must remain seated in the driver's seat of the towed tractor.

Front tow hook



The machine is equipped with a front tow hook allowing emergency trailer manoeuvres to be made or for towing the machine if necessary.

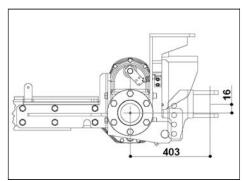
OPERATING INSTRUCTIONS

CUNA Class tow hook cat C

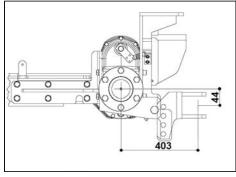
The tractor can be equipped with a rear tow hook of the "CUNA" Cat. C for towing trailers with one or two axles.

Approval code DGM-GA 4672 C

HIGH VERSION

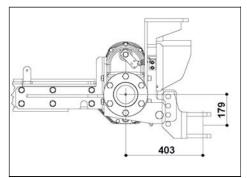


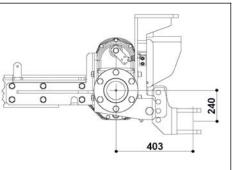
LOW VERSION



Minimum height

Maximum height





Tow hook adjustment (dimensions in mm).

	Max vertical load Kg									
Tyres	Star 90 Star 100	Star 90 GL11 Star 100 GL11	Star 90 SG1 Star 100 SG1							
	High version									
380/70-R24" 280/70-R16"	1170	1040	1070							
420/70-R24" 280/70-R18"	1170	1040	1070							
44x18.00-20" 29x12.50-15"	1170	1040	1070							
	I	Low version								
380/70-R20" 240/70-R16"	1170	1040	1070							
320/70-R24" 240/70-R16"	920	790	820							
360/70-R24" 260/70-R16"	1170	1040	1070							
380/70-R24" 280/70-R16"	1170	1040	1070							

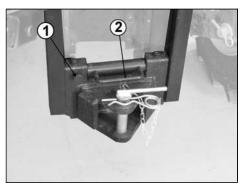


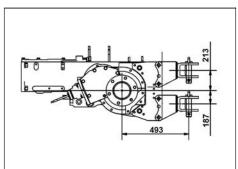
CUNA Class tow hook Slider cat C

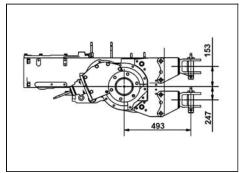
Approval code DGM*7*0008 GA

HIGH VERSION

LOW VERSION







Tow hook adjustment (dimensions in mm).

	Max vertical load Kg									
Tyres	Star 90 Star 100	Star 90 GL11 Star 100 GL11	Star 90 SG1 Star 100 SG1							
	High version									
380/70-R24" 280/70-R16"	1130	1000	1030							
420/70-R24" 280/70-R18"	1130	1000	1030							
44x18.00-20" 29x12.50-15"	1130	1000	1030							
		Low version								
380/70-R20" 240/70-R16"	1120	1000	1030							
320/70-R24" 240/70-R16"	890	760	790							
360/70-R24" 260/70-R16"	1120	1000	1030							
380/70-R24" 280/70-R16"	1120	1000	1030							



CUNA Class tow hook cat D2

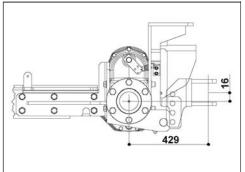
Approval code DGM-GA 4552 D2

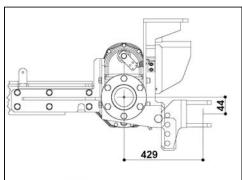
HIGH VERSION



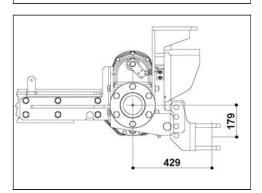
LOW VERSION

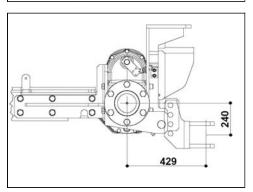
Maximum height





Minimum height





Tow hook adjustment (dimensions in mm).

	Max vertical load Kg									
Tyres	Star 90 Star 100	Star 90 GL11 Star 100 GL11	Star 90 SG1 Star 100 SG1							
	High version									
380/70-R24" 280/70-R16"	1160	1030	1060							
420/70-R24" 280/70-R18"	1160	1030	1060							
44x18.00-20" 29x12.50-15"	1160	1030	1060							
	•	Low version								
380/70-R20" 240/70-R16"	910	1030	1060							
320/70-R24" 240/70-R16"	1150	780	810							
360/70-R24" 260/70-R16"	910	1030	1060							
380/70-R24" 280/70-R16"	910	1030	1060							

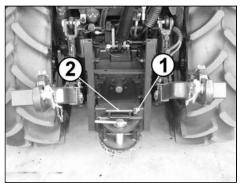


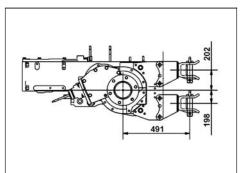
CUNA Class tow hook Slider cat D2

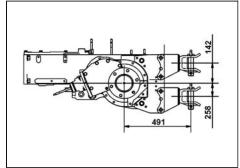
Approval code DGM*3*0021 GA

HIGH VERSION









Tow hook adjustment (dimensions in mm).

To adjust the height of the Slider sliding hitch press the release button 1 to release the hook from the firm, lift the handle place the hook at the desired height and release the handle to replace the latches of the hook.

	Max vertical load Kg								
Tyres	Star 90 Star 100	Star 90 GL11 Star 100 GL11	Star 90 SG1 Star 100 SG1						
	High version								
380/70-R24" 280/70-R16"	1130	1000	1030						
420/70-R24" 280/70-R18"	1130	1000	1030						
44x18.00-20" 29x12.50-15"	1130	1000	1030						
		Low version							
380/70-R20" 240/70-R16"	1130	1000	1030						
320/70-R24" 240/70-R16"	890	760	790						
360/70-R24" 260/70-R16"	1130	1000	1030						
380/70-R24" 280/70-R16"	1130	1000	1030						



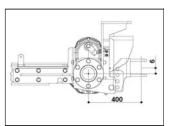
EEC Class tow hook

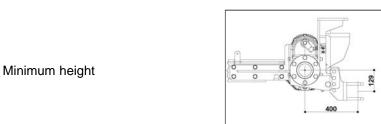
Maximum height

The tractor can be equipped with a rear tow hook of the "EEC" for towing trailers with one or two axles.

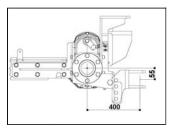
Approval code e11-1566

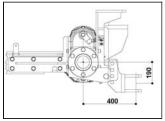
HIGH VERSION





LOW VERSION





Tow hook adjustment (dimensions in mm).

			Manager	<u>. 1</u>						
			Max vertical load							
		DaN								
Tyres	Star 90 Star 100	Star 90 GL11 Star 100 GL11	Star 90 SG1 Star 100 SG1	Height limitation for on road use (mm)						
High version										
380/70-R24" 680 700 730 471										
420/70-R24" 280/70-R18"	680	700	730	471						
44x18.00-20" 29x12.50-15"	840	870	900	405						
			Low version							
380/70-R20" 240/70-R16"	870	900	940	385						
320/70-R24" 240/70-R16"	910	780	940	360						
360/70-R24" 260/70-R16"	870	900	940	385						
380/70-R24" 280/70-R16"	870	900	940	385						

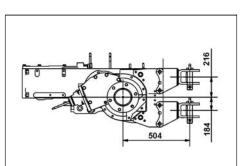


CEE class tow hook Slider

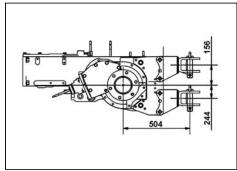
Approval code e11-2111

1 2

HIGH VERSION



LOW VERSION



Tow hook adjustment (dimensions in mm).

To adjust the height of the Slider sliding hitch press the release button 1 to release the hook from the firm, lift the handle 2 place the hook at the desired height and release the handle 2 to replace the latches of the hook.

Max vertical load										
		DaN								
Tyres	Star 90 Star 100	Star 90 GL11 Star 100 GL11	Star 90 SG1 Star 100 SG1	Height limitation for on road use (mm)						
	High version									
380/70-R24" 280/70-R16"	700	720	750	416						
420/70-R24" 280/70-R18"	700	720	750	416						
44x18.00-20" 29x12.50-15"	840 870 9		900	350						
			Low version							
380/70-R20" 240/70-R16"	870	910	930	331						
320/70-R24" 240/70-R16"	870	740	930	306						
360/70-R24" 260/70-R16"	870	910	930	331						
380/70-R24" 280/70-R16"	870	910	930	331						

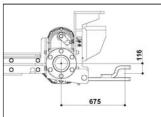


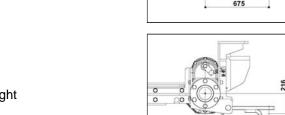
Type BT02 EEC Class drawbar (optional)

The tractor can be equipped with a rear drawbar for towing trailers with one or two axles.

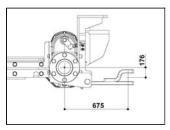
Approval code e11*89/173*2006/96*2224

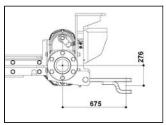
HIGH VERSION





LOW VERSION





Minimum height

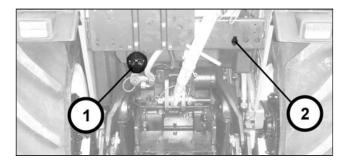
Maximum height

Tow hook adjustment (dimensions in mm).

Max vertical load										
	DaN									
Tyres	Star 90 Star 100	Star 90 GL11 Star 100 GL11	Star 90 SG1 Star 100 SG1							
	High version									
380/70-R24" 280/70-R16"	460	480	500							
420/70-R24" 280/70-R18"	460	480	500							
44x18.00-20" 29x12.50-15"	500	500	500							
		Low version								
380/70-R20" 240/70-R16"	500	500	500							
320/70-R24" 240/70-R16"	500	500	500							
360/70-R24" 260/70-R16"	500	500	500							
380/70-R24" 280/70-R16"	500	500	500							



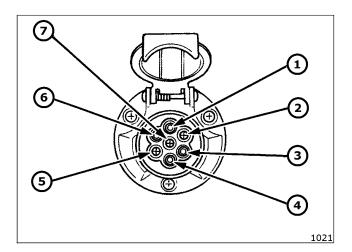
Seven-pin trailer socket



- 1 7-pin socket.
- (2) 1-pin socket 12V

This seven-pin socket is used to connect lights, turn indicators and other electrical devices for a trailer or implement.

Supplementary lights must be used if an implement obscures the turn indicators or other lights at the rear of the machine.



Terminal functions:

- 1 Left turn indicator.
- 2 Vacant
- (3) Ground.
- 4 Right turn indicator.
- Right rear light.
- 6 Brake lights.
- (7) Left rear light.

BALLAST

Ballast (optional)



WARNING

When you determine the type of ballast to use, make sure that you do not exceed the following limits between the implement and the ballast itself:

- The permissible load on the front axle (KG)
- The permissible load on the rear axle (KG)

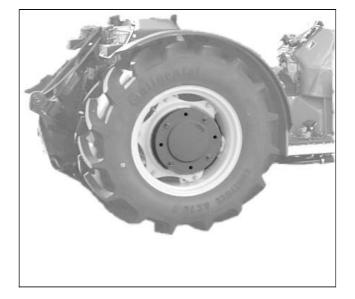
The values are given on the tractor's metal data plate.

If very heavy implements are hitched to the tractor, the longitudinal stability of this latter may be impaired. This can be corrected by using one of the various types of ballast available as optionals.

Rear wheel ballast (optional)

The ballast can be assembled on the 24" rear wheels.

Up to two pairs of weights can be installed, for a total of 140 kg.



Front ballast (optional)



WARNING

DO NOT overload the machine with additional weights or ones differing from those described in this manual.



WARNING

when the machine is used for light work or for travelling or towing on the roads, the ballast would stress the moving parts unnecessarily and should therefore be removed.



If heavy implements that could impair the stability of the machine are hitched, the optional plates can be used as front ballast.

The front ballast consists of cast iron plates.

The plates have handles so that they can be assembled and disassembled.

The ballast plates must be fitted to the front support (optional) and must be fixed in place with the relative links (optional).

• Up to 6 plates can be installed, for a total of 200 kg.

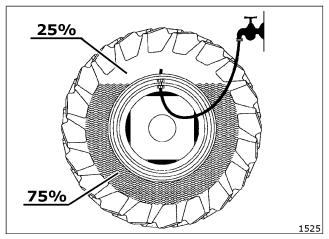
Wheel ballasting by filling the tyres with fluid

The driving wheels are ballasted by pouring water into the tyres.

Note: it is preferable to use wheels with air chambers.

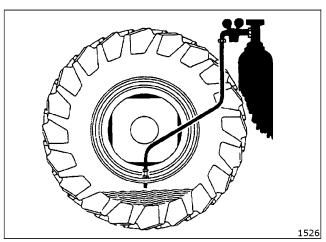
Note: if wheels with tubeless tyres are used, ask your dealer how to correctly lubricate the disc so as to prevent it from rusting.

Note: add antifreeze to the water in cold weather.



To pour in water:

- Move the valve to the top.
- Unscrew the mobile valve union with caution.
- Put in water through a special tool.
- Stop filling every so often, so as to allow the air to escape.
- Stop filling altogether when water spills from the valve.
- The filling level must equal 75% of water.
- Tighten the mobile valve union.
- Inflate with air until the normal operating pressure is obtained.



How to drain out the water:

- Move the valve to the bottom.
- Unscrew the mobile valve union with caution.
- Allow the water to drain out.
- Finish emptying with a union and draw pipe.
- Inflate with air until the water has been completely emptied out.
- Tighten the mobile valve union.
- Inflate with air until the normal operating pressure is obtained.

CAB



WARNING

Never use the tractor without the cab.



Safety notes

- a) Always shut the doors before moving off with the tractor.
- b) Keep the windows clean to ensure good visibility.
- c) The cab is approved as a safety structure. It is therefore absolutely forbidden to tamper with it, modify or add extra equipment and/or supports.

Before starting the engine, turn off the air conditioner, fans and electrical accessories are not essential.

When the engine is off do not use electrical devices when not needed. These absorptions can download the batteries in a profound and damaging them.

Cab version

GL



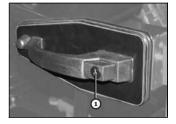
SG1



Doors

GL







Door opening from the outside

Unlock the lock, press the button and pull the door towards you.

Door locking from the outside

Both the doors have locks that are opened with the key. This means that both the left-hand and right-hand doors can be locked.

GL







Door opening from the inside

To open the door from inside the cab, pull the lever and push the door to overcome the resistance opposed by the gas cylinders

Windows

FRONT WINDOW

GL



- 1 Front window
- (2) Locking handle

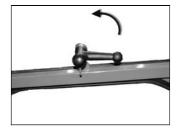
To open the front window:

- Turn the locking handle as shown.
- Push the window forwards.
- The window is kept in position by dampers.

REAR WINDOW

GL







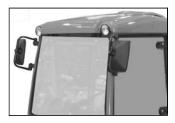
To open the rear window:

- Turn the locking handle as shown.
- Push the window forwards.
- The window is kept in position by dampers.

External rear view mirrors

GL

SG1

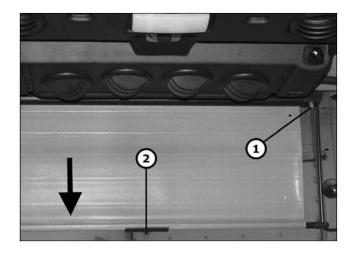




The rear view mirrors can be positioned in all directions and provide the user with excellent visibility from the driver's seat.

Sun shade

GL



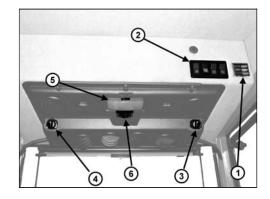
- 1 Curtain rewind control
- 2 Curtain control

To lower the curtain, pull it down as shown by the arrow (curtain control).

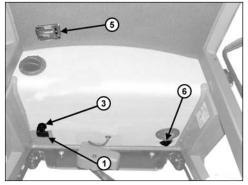
Press the curtain rewind control to rewind the curtain.

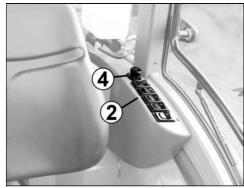
Cab switches

GL



SG1

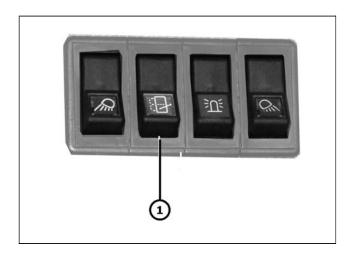




- 1 Fuse box
- 2 Switches
- 3 Air conditioning
- 4 Electric fan
- (5) Ceiling light
- (6) Heater knob

Windscreen wiper

GL



NOTE: The lower part of the button lights up when the light switch knob is turned to the side lights position (first position).

SG1

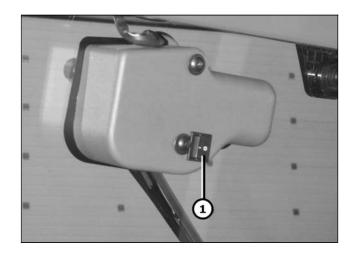


Operates when the ignition key is in the contact position.

Press the indicated switch to operate the windscreen wiper.

Rear window wiper

GL



- position 1 = activated
- position 0 = de-activated

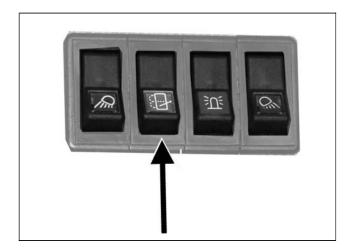
SG1



Operates when the ignition key is in the contact position. Press the switch in position one to operate the rear window wiper.

Windscreen-rear window washer

GL



SG1



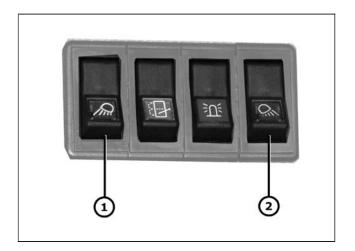
Operates when the ignition key is in the contact position.

Press the switch in the direction indicated by the arrow. By keeping it depressed, water will begin to spray on both the windscreen and rear window.

NOTE: Release the button and it will immediately return to the position where the windscreen wiper operates.

Cab headlights

GL



- 1 Front field light.
- 2 Rear field light.

The field lights are adjustable.

This means that you can direct the beam of light in the most suitable direction, depending on the job that must be done

Press the switches (1 and 2) down to turn on the field lights.

SG1

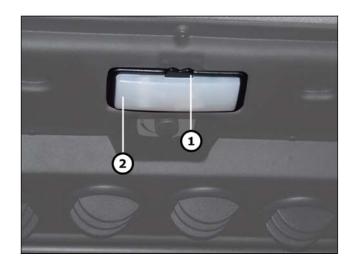


Rear field light.

Operates when the ignition key is in the contact position.

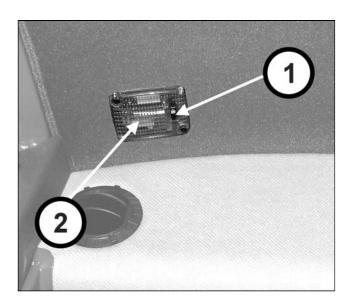
Light inside cab

GL



Operates when the ignition key is in the contact position. Press the indicated switch to turn on the light.

SG₁



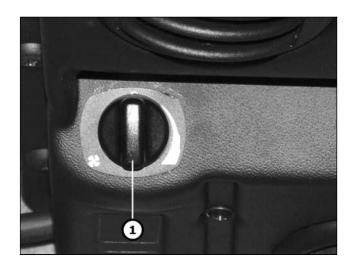
Also functions when the ignition switch is in position zero. Press the indicated switch to turn on the light.

- 1 Light switch.
- 2 Light inside cab.

Ventilation

The cab ventilation is turned on with the ventilation knob. The flow of air can be directed by means of the vents, which can be set in various positions.

GL



1 Electric fan

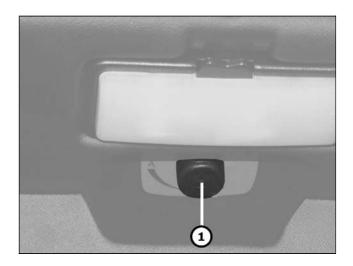
SG1



Select one of the electric fan's three speeds to change the amount of air that enters the cab.

Heating

GL



1 Heater knob

SG1



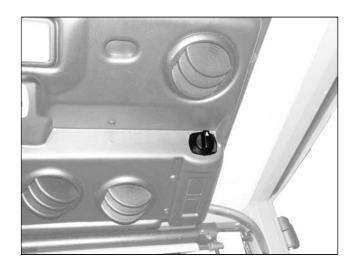
The hot air temperature can be regulated with the knob. Turn the knob to regulate the temperature. The highest temperature in the cab is obtained by turning the knob in the clockwise direction (fully towards the right). Turn the knob fully to the left tp stop hot air from circulating around the cab.

Select one of the electric fan's three speeds to change the amount of air that enters the cab.

Turn on the air conditioner to obtain the dehumidifying function.

Air conditioning

GL



SG1



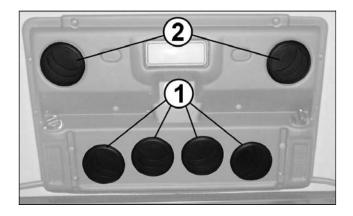
The cold air temperature can be regulated with the knob. Turn the knob to regulate the temperature. The lowest temperature in the cab is obtained by turning the knob in the clockwise direction (fully towards the right). Turn the knob fully to the left tp stop cold air from circulating around the cab.

Select one of the electric fan's three speeds to change the amount of air that enters the cab.

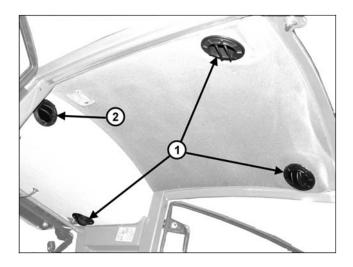
Make sure that the heating system is off to ensure that the air conditioner operates in a fully efficient way.

Diffusers

GL



SG1



(1) Vents

2 Aspirators

To allow air to circulate around the cab, allow the ventilation system to function with all the vents and aspirators open and the doors closed. This allows the circuit to draw air from inside the cab and not from the outside.

Cab air filter



WARNING: the cab air filter has not been designed to retain harmful substances! Comply with the instructions provided by the manufacturer of the substance used.



WARNING: use of the cab air filter with activated carbon does not relieve the operators from wearing recommended personal protective equipment to safeguard against the harmfulness of the individual substances used.

LIFTING POINTS

Hydraulic jack:

Consult your operation and maintenance manual for instructions about maintenance and how to perform the servicing operations.



WARNING:

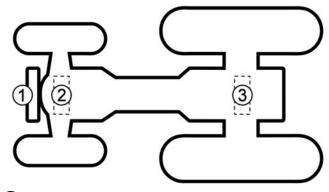
Make sure that the devices have been fixed correctly before using the hydraulic ram.



WARNING:

Do not use the drawbar as a lifting point.

The recommended lifting points are:

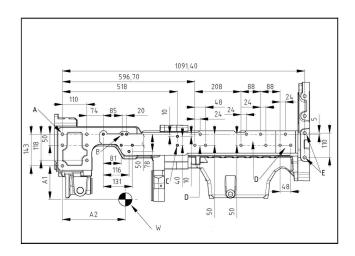


- 1 Weights support
- (2) Front axle
- (3) Rear differential housing

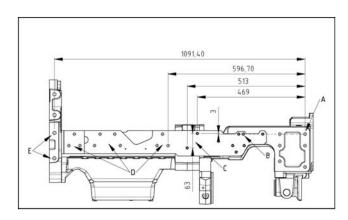
FRONT LOADER FIXING POINTS

The fixing points for a front loader are:

Left side view



Right side view



Position	High version	Low version			
Α	N°6 M14	N°6 M14			
A1	151.66	90.25			
A2	283.54	300			
В	N°6 M10	N°6 M10			
С	N°2 M10	N°2 M10			
D	N°10 M10	N°10 M10			
Е	N°2 M16	N°2 M16			
W	Front axle				

SCHEDULED SERVICING



WARNING

Check the levels:

- Before using the machine
- With the machine at a standstill and the engine off (for at least the past hour).
- On a flat surface.

SCHEDULED SERVICING

The user must have the machine itself regularly serviced to ensure that it continues to function correctly, and to benefit from the manufacturer annual warranty coverage. Most especially, the user must, at his expense, have all the following routine servicing work performed on his machine by his manufacturer area "Dealer" or "Authorized Workshop" in accordance with the peremptory conditions and terms indicated below.

A series of symbols have been make to make the texts easier to understand. Their meanings are described below:



Instructions





Clean with compressed air



Adjustment



Lubrication



Greasing



Fluid changes



Part replacements



Set intervals



Washing



Work hours



When necessary.



Top up the level.



Top up the level.





DANGER

Do not wear loose clothing, jewelry, neck chains or bracelets and take care if your hair is very long as it could become caught up in parts of the machine and implements.



DANGER

Do not leave the engine running in an closed room: the exhaust fumes are poisonous.



DANGER

Do not leave the machine with engine running near flammable substances.



DANGER

After any maintenance work, grease and remove the grease from the engine to prevent the risk of a fire.



DANGER

Keep hands and other parts of the body away from holes or leaks in the hydraulic system: the hydrualic fluid that spurts from the leak is under pressure and can cause serious injuries.



WARNING

Do not tamper with the machine or the implements in any way.



WARNING

Do not service, repair or make any kind of adjustment to the tractor or to the implements hitched to it without having first turned off the engine, removed the ignition key and lowered the implement to the ground.



WARNING

Always park the tractor so that its stability is guaranteed by applying the parking brake and engaging a gear (1st gear uphill and reverse downhill) and applying the parking brake. Use a chock for greater safety.



WARNING

Before driving the machine, check to be sure that there are no bystanders or animals within its range of action.



WARNING

Do not leave the machine unattended with the engine running and/or the key in the ignition.



WARNING

The operator must check to make sure that all parts of the tractor, especially the safety devices, are in a good working condition and that they always comform to the purpose for which they were designed. They should be kept in a perfectly efficient condition. If you note any defects or faults, fix or repair them in

good time. If necessary contact your nearest Assistance Centre.



IMPORTANT

Check the nuts and bolts of the wheels and safety frame from time to time, always with the engine shut off.



DANGER

Safety decals have been affixed to various parts of the machine. They indicate potential dangers.



IMPORTANT

The decals must be kept clean and legible. If damaged, they must be replaced.



WARNING

In case of maintenance on the electrical system, disconnect the circuit using the battery main switch or disconnect the ground cable (negative pole "-" symbol) battery.



WARNING

Work on the battery requires particular care: battery acid is corrosive and the gases released are inflammable.



It is of fundamental importance to safeguard the environment. Incorrect waste disposal can alter the environment and the ecological system.



Do not discard fluids like fuels, lubricants, coolants or other, in the environment.



Do not use food or dink containers, which could lead to mistakes, to drain off fluids like fuels, lubricants, coolants or other.



Contact an authorized organization or ask your dealer for advice about how to recycle or dispose of waste products in the correct way.



Do not dispose of parts of the cooling system (such as radiators, fluids, tanks, etc.) in the environment.



ALWAYS place a vessel under the drain hole so as to collect the fluid when draining a tank or reservoir.

SCHEDULED SERVICING

Routine scheduled maintenance



WARNING

 $oldsymbol{\lambda}$ The following table shows the maintenance intervals.

Extraordinary Maintenance:

Working	range 7	Hours	50	16	50	300	500		1000	<u>:</u>	Lukaisanta
\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \		Months	12			12	24	24	24	S.A.	Lubricants
	Engin			0						₩	We recommend Arbor oil by Petronas Lubricants: ARBOR ALFATECH SYNT 10W-40 Capacity See engine's operation and maintenance manual.
	Engin	e oil filter									
	Fuel f										
	Fuel t	ank									
	Coolir	ng system		(a)						₩ 🐧	We recommend Petronas Lubricants fluid: PARAFLU 11 Capacity 14 - 15 L
	Trans	mission belt			©						
	Dry a	ir filter - External								1	
	Dry a safety	ir filter - Internal filter									

Working range	7	Hours	50	150	50	150	300	900	<u>:</u>	Lubricants
\geq		Months	12				12	12	\$ \	Lubricants
\Diamond	Gearbox housing, rear differential, power lift				0				↑ ₩	We recommend Arbor oil by Petronas Lubricants: ARBOR UNIVERSAL 15W-40 Capacity High version - 40 L Low version - 37 L
	Delive (Main	ery oil filter Pump)							©	
	Deliv	ery oil filter ices pump)							(
	Intake oil filt	e transmission ter	()							
	Front	differential					©		↑ ₩	We recommend Arbor oil by Petronas Lubricants: ARBOR TRW 90 Capacity 8 L
	Greas	se nipple			Ţ				⊚ ∽₁	It is advisable to use Arbor all- purpose grease by Petronas Lubricants: ARBOR MP EXTRA
	Clutch								O	
	Steer	ing							۶	
	Brake	es							を強	
	Hydra	aulic pipes							O	
	Cab a	air filter			0				7	
1	Activ filter	ated carbon	Replace the filter when required, or at least after every 200 h service or 36 months. For maintenance, follow the instructions provided by the manufacturer.							
<u>-</u>	Elect	rical system				0				It is advisable to use Arbor all- purpose grease by Petronas Lubricants: ARBOR MP EXTRA

¹ In the applications where it is present.

ENGINE UNIT

Engine



Consult the specific manual for the safety notes and operation and maintenance instructions for certain of the components manufactured by other companies.

How to open the bonnet

STAR 90



Use the appropriate tool in the accessory pack (6 mm Allen wrench) by turning it counterclockwise.



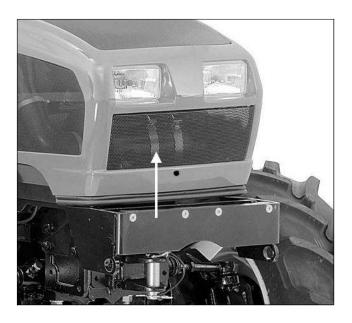
Once opene, the bonnet remains in the open position thanks to a gas spring

Close the bonnet by lowering it until it completely engages with the lock

STAR 100



 Use the appropriate tool in the accessory pack (6 mm Allen wrench) by turning it counterclockwise.



Once opene, the bonnet remains in the open position thanks to a gas spring

Close the bonnet by lowering it until it completely engages with the lock

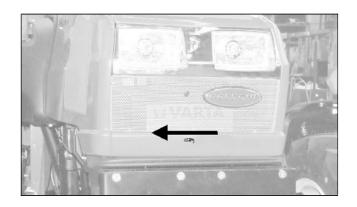


WARNING

During normal use be sure that the bonnet is correctly closed

How to open the bonnet

STAR 90



Lock releasing lever
 Move to the left the lever to release the lock



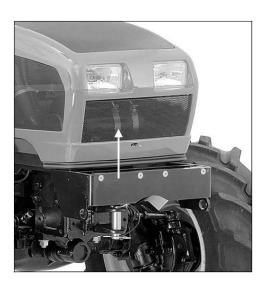
Once opene, the bonnet remains in the open position thanks to a gas spring

Close the bonnet by lowering it until it completely engages with the lock

STAR 100



Lock releasing lever
 Move to the left the lever to release the lock



Once opene, the bonnet remains in the open position thanks to a gas spring

Close the bonnet by lowering it until it completely engages with the lock



Engine oil level check



See engine's operation and maintenance manual.



DANGER

Take great care when used oil is being drained from the sump as it could be very hot and cause burns.



WARNING

Stop the engine and wait until it has cooled down before proceeding with any servicing operations.



DANGER

Protect your hands, because the oil could burn if it is very hot.



DANGER

Protect your hands, because the dipstick could be very hot and cause burns.

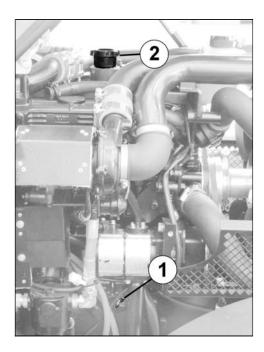


ALWAYS place a vessel under the drain hole so as to collect the fluid when draining a tank or reservoir.

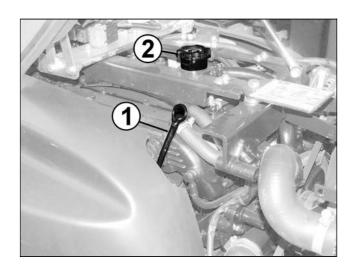


Do not discard fluids like fuels, lubricants, coolants or other, in the environment.

Star 100



Star 90



1

Oil level dipstick.

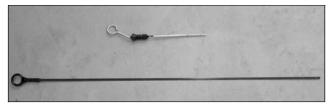
(2)

Oil top-up plug.





16



Check the oil level by means of the dipstick (MIN-MAX)





- Unscrew the oil top-up plug.
- Top up the level.
- Screw the plug back on and tighten it fully.

We recommend Arbor oil by Petronas Lubricants: ARBOR ALFATECH SYNT 10W-40





See engine's operation and maintenance manual.

Cooling system



WARNING

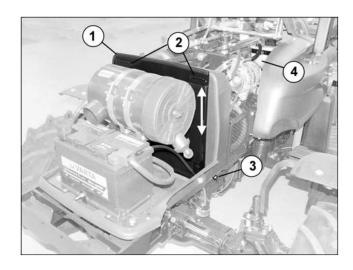
Stop the engine and wait until it has cooled down before proceeding with any servicing operations.



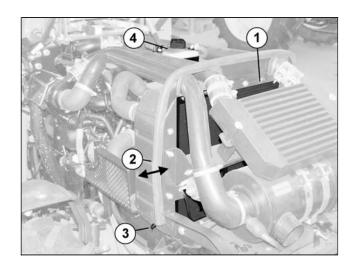
WARNING

Never open the radiator's expansion tank whilst the engine is hot since the cooling fluid could cause burns as it is under pressure and very hot.

Star 90



Star 100



- 1 Radiator grille
- (2) Handles for removing grille
- 3 plug at the bottom of the radiator.
- (4) Refrigerant expansion tank



Clean with compressed air



Clean the radiator guard when necessary, or at least once a week:

- · Remove the guard from its housing.
- Blow from the sides outwards using a jey of compressed air (maximum pressure 3 BAR).





50

- · Check the level of the cooling fluid.
- Make sure that the radiator guard is clean.



Replace



Change the cooling fluid every two years. Requires about 14 - 15 liters of fluid. Contact an authorized workshop when maintenance is required.





Top up the level of the cooling fluid when required:

- Remove the plug from the reservoir.
- . Top up the level.
- Screw the plug back on and tighten it fully.





IMPORTANT

The words "COOLANT LEVEL" are stamped on the expansion tank surrounded by two arrows, which indicate the correct coolant level.

We recommend Petronas Lubricants fluid: **PARAFLU 11** It is also advisable to use antifreeze solutions, complying with the specifications given on the relative package.

Fuel tank







Check:

- To make sure that there is sufficient fuel for the whole job.
- To make sure that there are no dents or abrasions on the tank.



Clean with compressed air



Clean the zone surrounding the tank plug.





Use good quality fuel with the technical specifications described in the engine's operation and maintenance manual.



WARNING

Top up the fuel level when the engine is off. Do not smoke near fuel or when the tank is being filled.





Replace the fuel plug with a genuine spare if it is missing or damaged.

Replace the tank with a genuine spare if it has been damaged by scratches, abrasions or dents.



Fuel tank drain plug.



WARNING

Empty the fuel tank when the machine is at a standstill and the engine cold since, as shown in the figure, the drain plug is in the immediate vicinity of the exhaust pipe.



IMPORTANT

The fuel tank must only be replaced by the dealer or by specialized technicians.





Clean the fuel filter shown in the figure when necessary.



Fuel filter



WARNING

Do not tamper with or remove the fuel tank, otherwise the engine's fuelling system could function in a faulty way.



ALWAYS place a vessel under the drain hole so as to collect the fluid when draining a tank or reservoir.



Dry air filter

 \triangle

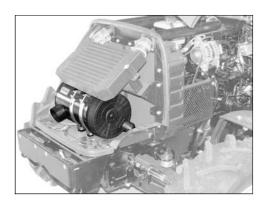
WARNING

Stop the engine and wait until it has cooled down before proceeding with any servicing operations.

Star 90



Star 100







Clean the filter whenever the warning light comes on or when necessary, after evaluating the environmental conditions in which the machine works (dusty, dry, etc.). Proceed as described below:





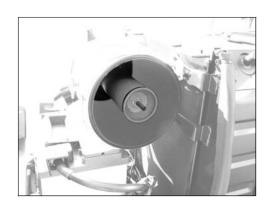
Cover.

Release and remove the cover.



External filter.

- Remove the external filter.
- Blow a jet of compressed air (maximum pressure 3 BAR) from the inside towards the outside.
- Fit the filter back into its housing.
- Close with the cover, with the drain valve in the lowest position.



Internal safety filter.

Remove the internal safety filter (it must be cleaned or replaced if damaged).





300

- Replace the external filter when required, or at least after every 300 h service.
- Replace the internal safety filter when required, or at least once every two years.
- The internal filter changes colour when dirty

TRANSMISSION UNIT

Gearbox housing, rear differential, power lift



WARNING

Always check oil level with tractor engine stopped from at least 3 hours on a flat surface.



DANGER

Protect your hands, because the oil could burn if it is very hot.



DANGER

Protect your hands, because the dipstick could be very hot and cause burns.

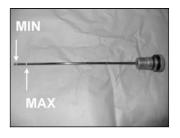
These parts of the tractor all use the same oil.





50







Check the oil level by means of the oil plug with the graduated stick situated near the parking brake. The level must be at its minimum with the plug just set in place, or, between the minimum and maximum with the cap screwed in.



WARNING

The level must not drop below the minimum mark as this could lead to hydraulic faults (loss

of pressure in the power steering system, the auxiliary control valves and power lift) and incorrect internal lubrication.





Check the oil level by means of the dipstick.

If necessary, top up with oil of the recommended type. We recommend Arbor oil by Petronas Lubricants: **ARBOR UNIVERSAL 15W-40**





900

Low version

Change the transmission oil with 37 litres of new oil.

High version

Change the transmission oil with 41 litres of new oil.

We recommend Arbor oil by Petronas Lubricants: **ARBOR UNIVERSAL 15W-40**



IMPORTANT

The service must only be performed by the dealer or by specialized technicians from GOLDONI s.p.a.



ALWAYS place a vessel under the drain hole so as to collect the fluid when draining a tank or reservoir.



Intake transmission oil filter



DANGER

Protect your hands, because the oil could burn if it is very hot.





300



Clean the transmission oil filter:

- After the first 50 hours service.
- · Whenever the oil is changed.
- After every 300 hours service.
- Whenever the red indicator on the dashboard denoting a clogged oil filter comes on

To clean the filter:

- · Unscrew the bolts that fix the cover.
- Remove the filter.
- Wash with gasoline or diesel fuel.
- Dry with compressed air.
- Fit the cover back on and close it.





The transmission oil filter must only be replaced if damaged.



IMPORTANT

The service must only be performed by the dealer or by specialized technicians.



ALWAYS place a vessel under the drain hole so as to collect the fluid when draining a tank or reservoir.



Do not discard fluids like fuels, lubricants, coolants or other, in the environment.

Delivery oil filter (Main pump)



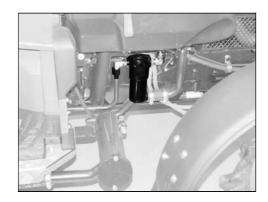
DANGER

Protect your hands, because the oil could burn if it is very hot.





300



The first replace must be made after 150 h

Replace the intermal cartridge of the transmission oil filter on the delivery:

- After every 300 hours service.
- When the red clogged oil filter indicator light comes on.
- Whenever the oil is changed.

Proceed as described below to change the filter cartridge:

- Unscrew the lower part of the filter.
- Remove the internal cartridge and replace it with an original spare.
- Fit the lower part of the filter back in place and screw it in as far as it will go.



IMPORTANT

The service must only be performed by the dealer or by specialized technicians.



ALWAYS place a vessel under the drain hole so as to collect the fluid when draining a tank or reservoir.



Delivery oil filter (service pump)



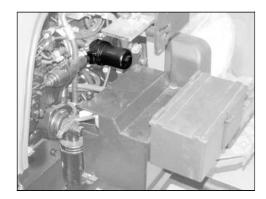
DANGER

Protect your hands, because the oil could burn if it is very hot.





300



The first replace must be made after 150 h

Replace the intermal cartridge of the transmission oil filter on the delivery:

- After every 300 hours service.
- When the red clogged oil filter indicator light comes on.
- Whenever the oil is changed.

Proceed as described below to change the filter cartridge:

- Unscrew the lower part of the filter.
- Remove the internal cartridge and replace it with an original spare.
- Fit the lower part of the filter back in place and screw it in as far as it will go.



IMPORTANT

The service must only be performed by the dealer or by specialized technicians.



ALWAYS place a vessel under the drain hole so as to collect the fluid when draining a tank or reservoir.



Front differential

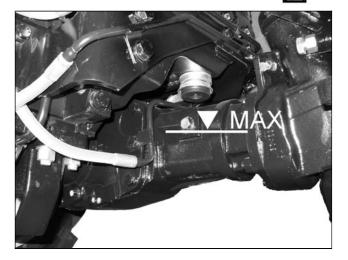
 Λ

DANGER

Protect your hands, because the oil could burn if it is very hot.







Check the oil level by means of the oil level plug. The oil must reach the lower edge of the hole.

If necessary, top up with oil of the recommended type.



Clean with compressed air



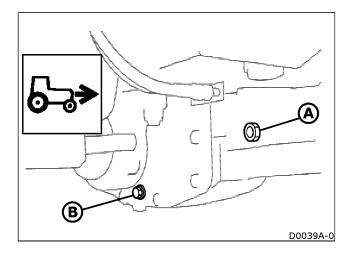
Keep the following parts clean:

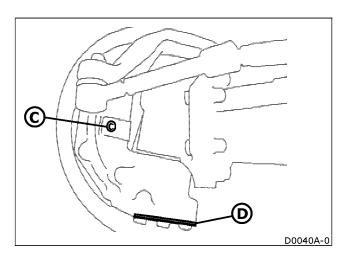
 The areas surrounding the oil level, drain and fill plugs.











- **B** Drain out the oil through the plug in the center of the front axle.
- Drain the oil through the drain plug in the lower part of the final drive on both the front wheels.
- A Pour in the oil through the plug used to top up the level.
- © Put in the oil through the plug on both wheels.

Pour in the oil through the plug used to top up the level.

Allow the oil to settle before checking the new level.

We recommend Arbor oil by Petronas Lubricants: ARBOR TRW 90

Quantity Oil L							
Model	Low version	High version					
Star 90	0	0					
Star 100	0	0					



IMPORTANT

The service must only be performed by the dealer or by specialized technicians from GOLDONI s.p.a.



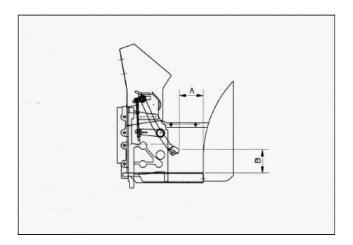
ALWAYS place a vessel under the drain hole so as to collect the fluid when draining a tank or reservoir.



Clutch







Ped free		Pedal as it b disenga	_	Pedal after disengagement		
Α	В	А	В	А	В	
165		205		364		

Periodically check the idle travel of the command.

The pedal's idle travel must not exceed 25 mm. Adjust the clutch pedal if the travel is longer.





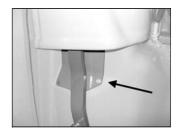


Figure 1



Figure 2



Figure 3

Disassemble the side closing flap (Figure 1) and adjust the idle travel of the command.

Unscrew the adjuster nut (Figure 2-3) to increase the travel or tighten it to shorten the travel.



IMPORTANT

The service must only be performed by the dealer or by specialized technicians.





If necessary, have the clutch assembly replaced by an authorized workshop. Only use a genuine spare.



IMPORTANT

The service must only be performed by the dealer or by specialized technicians.

Rear power take-off clutch







Periodically check the idle travel of the command.

The pedal's idle travel must not exceed 20 mm. Adjust the clutch pedal if the travel is longer.





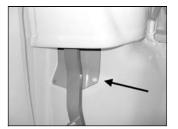


Figure 1



Figure 2



Figure 3

Disassemble the side closing flap (Figure 1) and adjust the idle travel of the command.

Unscrew the adjuster nut (Figure 2-3) to increase the travel or tighten it to shorten the travel.



IMPORTANT

The service must only be performed by the dealer or by specialized technicians.





If necessary, have the clutch assembly replaced by an authorized workshop. Only use a genuine spare.



IMPORTANT

The service must only be performed by the dealer or by specialized technicians.

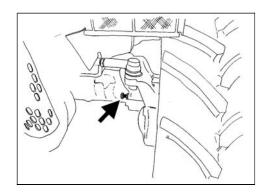
Steering





The machine is consigned with steering characteristics optimized to suit the first tyres installed.

If the tyres must be modified, the steering radius must be adjusted again.



Use the adjuster screws to regulate the steering radius



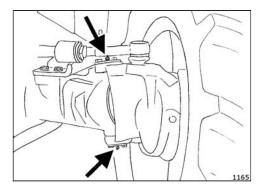
IMPORTANT

The service must only be performed by the dealer or by specialized technicians.





8



Grease:

It is advisable to use Arbor all-purpose grease by Petronas Lubricants: **ARBOR MP EXTRA**

Brakes





Make the adjustment when:

- The brake pedal travel is too long or spongy.
- When one of the wheels brakes differently from the others.
- When the braking distances increase but the conditions of use are the same.

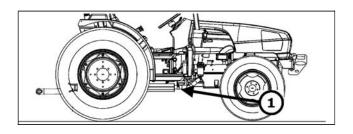


IMPORTANT

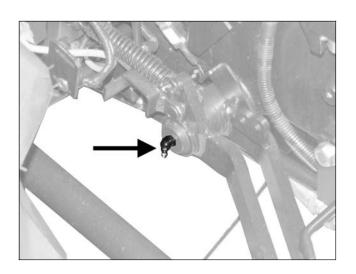
Only your dealer or specialized personnel may adjust the braking system.

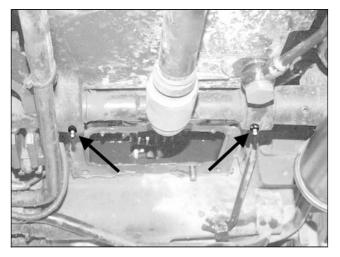
GREASE NIPPLE

Right side view

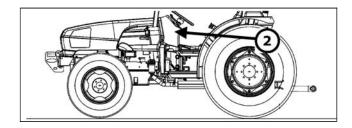


1 Brake pedal - Grease nipples N°:3

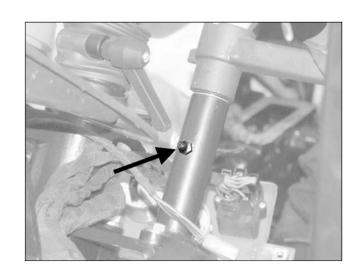




Left side view

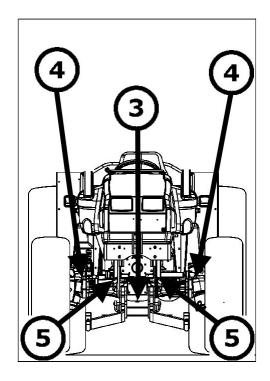


2 Direction reverser - Grease nipples N°:1

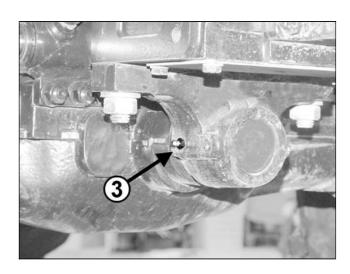


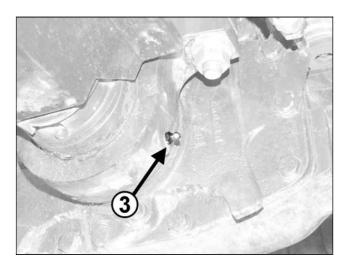
Front view

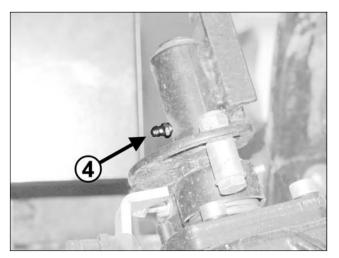
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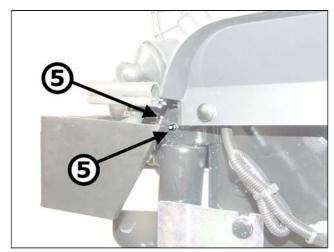


- 3 Front axle. Grease nipples N°: 2
- 4 Front mudguard. Grease nipples N°: 2
- 5 Cylinders Power lift. Grease nipples N°: 4



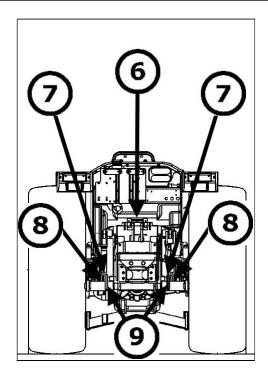




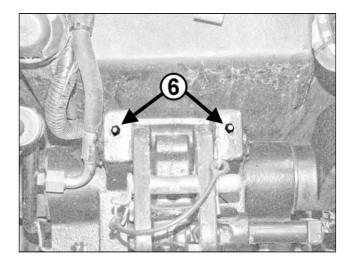


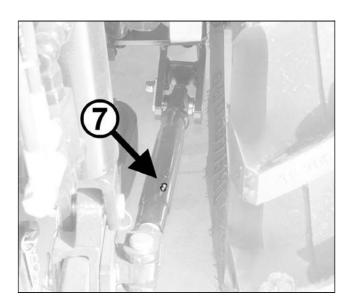


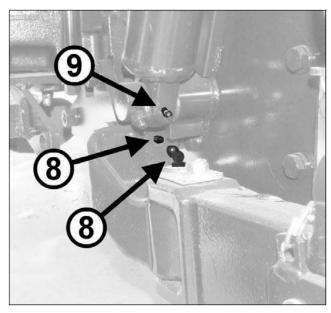
Rear view



- 6 Top link linkage fix point Grease nipples N°:2
- Side stabilizer Grease nipples N°:2
- 8 Power lift lower link Grease nipples N°:4
- 9 Cylinders Power lift Grease nipples N°:2







ELECTRICAL SYSTEM



WARNING

In case of maintenance on the electrical system, disconnect the circuit using the battery main switch or disconnect the ground cable (negative pole "-" symbol) battery.

Battery



WARNING

Work on the battery requires particular care: battery acid is corrosive and the gases released are inflammable.

Star 90



Star 100



Figure 1



Figure 2

Disassemble the left-hand protection shown in figure 1 to access the battery.

Check



150

Make sure that the terminals are fixed to the battery poles Make sure that the battery is firmly fixed to the machine.





Keep the battery clean with a damp, antistatic cloth. Keep the battery poles and cable terminals clean.

Greasing



Lightly grease the poles and terminals when necessary. Use Vaseline-based grease, not normal grease.



Idle periods

If the machine remains idle for a long period of time:

- Charge the battery as indicated by the manufacturer.
- Disconnect both the cables.
- Store the battery in a cool, dry, well ventilated place.





If the battery must be replaced, make sure the new one possesses identical technical specifications (the values are given on the actual battery itself).

Headlights



If the tractor must be driven on the public highways, the headlights must comply with the Highway Code regulations in force in the country of use.





Consult specialized personnel in possession of the specific tools required in order to have the headlights adjusted correctly.



IMPORTANT

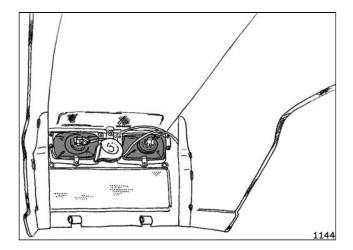
The service must only be performed by the dealer or by specialized technicians.





Replace burnt-out light bulbs with others if identical technical characteristics (see indications on the bulbs themselves).

Consult specialized personnel if in doubt.



To change the dipped beam / driving beam:





Figure 1

Figure 2





Figure 3

Figure 4

- Open the bonnet:
- Disconnect the wiring of the defective bulb (Figure 1).
- Remove the protective cover (Figure 2)
- Remove the retainer spring by pushing the 2 tabs downwards while turning them in the anti-clockwise direction (Figure 3).
- Remove the bulb and fit a new one in its place (Figure 4).
- Fit the spring and the protective cover back in place.
- Connect the wiring to the bulb.
- · Close the bonnet
- Test both the dipped beam and driving beam to make sure that they function correctly

Rear lights

To replace the side light and/or the turn indicator light:



Figure 1



Figure 2



Figure 3

- Disassemble the headlight protection (figure 1)
- Remove the glass holder (figure 2)
- Remove the bulb by turning it 1/4 of a turn in the anti-clockwise direction (figure 3)
- Fit a new bulb in its housing, push it into place and turn it 1/4 of a turn in the clockwise direction.
- Re-assemble the glass holder and protection
- Perform an operating test

Proceed as described below to change the license plate light bulb:



Figure 1



Figure 2

- Remove the tail lamp cover (figure 1)
- Remove the bulb by turning it 1/4 of a turn in the anti-clockwise direction (figure 2)
- Fit a new bulb in its housing, push it into place and turn it 1/4 of a turn in the clockwise direction.
- Fit the tail lamp cover back in place
- Perform an operating test.

Side lights and turn indicators





To replace the side light and/or the turn indicator light:

Replace burnt-out light bulbs with others if identical technical characteristics (see indications on the bulbs themselves).

Consult specialized personnel if in doubt.



Figure 1





Figure 2

- Remove the tail lamp cover (figure 1)
- Remove the bulb by turning it 1/4 of a turn in the anti-clockwise direction (figure 2)
- Fit a new bulb in its housing, push it into place and turn it 1/4 of a turn in the clockwise direction.
- Fit the tail lamp cover back in place
- Perform an operating test.

CAB VERSION GL





To replace the side light and/or the turn indicator light:

Replace burnt-out light bulbs with others if identical technical characteristics (see indications on the bulbs themselves).

Consult specialized personnel if in doubt.



Figure '





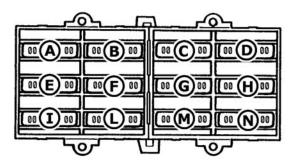
Figure 2

- Remove the tail lamp cover (figure 1)
- Remove the bulb by turning it 1/4 of a turn in the anti-clockwise direction (figure 2)
- Fit a new bulb in its housing, push it into place and turn it 1/4 of a turn in the clockwise direction.
- Fit the tail lamp cover back in place
- Perform an operating test.

Fuses

The electrical system is protected by fuses against short circuits or abnormal power draw.





D0047-0





Before changing a fuse, find and eliminate the short circuit that caused it to blow.

Replace the burnt-out fuses with others possessing the same technical characteristics (see indications on the actual fuse itself).

Consult specialized personnel if in doubt.

FUSE FUNCTIONS:





Left driving beam. Right driving beam.





Flashing headlights. Emergency lights switch Revolving beacon switch





(C) 🖟 15A

Light switch powering.

Horn.

7-pin socket.





(D) 🖟 20A

1-pin socket power supply. Rear



(E) 🖟 10A

Left dipped beam.



(F) 🖟 10A

Right dipped beam.





(G) 🖟 10A

Light switch Cab power supply



(H) 🖟 10A

PTO switch.

Preheater plant energizing.

Alternator energizing.

Power supply of engine stop solenoid.

Engine rate sensor.

Speed sensor

Lead variator





Multifunction digital instrument

Left license plate light.

7-pin socket.

Left front side light.

Right rear side lights.





(L) 🖟 10A

Right license plate light.

7-pin socket.

Right front side light.

Left rear side lights.





(M) 🖟 15A

4WD switch. Parking brake

Brake lights.

Differential lock





(N) 🖟 10A

1-pin socket power supply. Front

The machine is equipped with **main fuses**. These fuses protect the entire electric system.



Main fuse



Engine preheating



General protection of electrical system.



General protection of the cab's electrical system Only on machines with the cab assembled





Before changing a fuse, find and eliminate the short circuit that caused it to blow.

Replace the burnt-out fuses with others possessing the same technical characteristics (see indications on the actual fuse itself).

Consult specialized personnel if in doubt.

Engine air filter clogging sensor

 Λ

IMPORTANT

If the protection is positioned incorrectly, this could cause serious damage to the engine's air intake circuit.





Make sure that the engine air filter's clogging gauge is in the correct position and, in case of maintenance, if it is correctly assembled and protected against the outdoor weather conditions.

Oil filter clogging indicator



IMPORTANT

Incorrect positioning of the protection and detector could lead to hydraulic faults (loss of pressure in the power steering system, the auxiliary control valves and power lift) and incorrect internal lubrication.







Make sure that the engine air filter's clogging gauge is in the correct position and, in case of maintenance, if it is correctly assembled and protected against the outdoor weather conditions.

EN Inglese 118 SCHEDULED SERVICING

CAB





- Check and eliminate any water that may have collected in the areas covered by mats or seals.
- Protect the hinges and locks with lubricants and water-repellent products.
- Top up the windscreen washer fluid reservoir with the relative detergent products. During winter, make sure that the liquid possesses antifreeze properties.



Clean



 Keep the windows and rear-view mirrors clean so as to ensure good visibility.

Cab electrical system



WARNING

In case of maintenance on the electrical system, disconnect the circuit using the battery main switch or disconnect the ground cable (negative pole "-" symbol) battery.

Ceiling light

SG1





Remove the glass cover from the ceiling light by carefully levering it up with a screwdriver. Replace the bulb, test to make sure that everything functions correctly, then fit the cover back in place.

GL





Remove the glass cover from the ceiling light by carefully levering it up with a screwdriver. Replace the bulb, test to make sure that everything functions correctly, then fit the cover back in place.

Air conditioner

SG1





GL







Clean with compressed air



Clean with compressed air if necessary, depending on the environmental conditions in the place of work (dusty, dry, etc.), or once a week at least.

- The lateral ventilation grilles of the heat exchanger.
- The fan / heat exchanger compartment.
- To help cleaning it's possible to unscrew hand knob and remove/move rear grilles.

It is advisable to contact an authorized assistance center if there is an excessive aount of dirt in the exchanger or if the air conditioning system fails to function.



WARNING

Never carry out any work on the air conditioning system yourselves: always have such work done by specialized persons.



WARNING

Keep naked flames and heat sources well away from the air conditioning system.



WARNING

Do not loosen the unions and/or tamper with the pipes since the circuit is pressurized.



WARNING

The refrigerant gas can cause freezing of the skin and eyes.

Working lights



If the tractor must be driven on the public highways, the headlights must comply with the Highway Code regulations in force in the country of use.





Replace burnt-out light bulbs with others if identical technical characteristics (see indications on the bulbs themselves).

Consult specialized personnel if in doubt.

SG₁





Figure 1

Figure 2

To replace the bulbs in the cab lights:

- Disconnect the wiring of the defective bulb. (figure 1).
- Remove the bulb by turning it 1/4 of a turn in the anti-clockwise direction. (figure 2).
- Fit a new bulb in its housing, push it into place and turn it 1/4 of a turn in the clockwise direction.
- Connect the wiring to the bulb.
- Perform an operating test.

GL





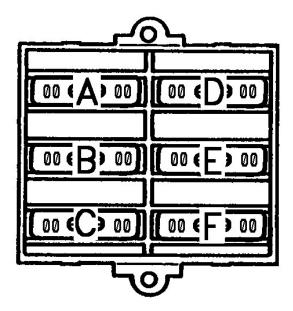
Figure 3

Figure 4

WARNING

The light bulb wiring connection is installed in the roof of machines with the GL cab. First unscrew the 4 screws that fix the roof (Figure 3), then raise this latter to detach the wiring and replace the light bulb.

Cab fuses



Cab version SG1



Windscreen wiper and window washer



The fan / heat exchanger compartment.

C 🖟 15A

Working beams

D 🖟 15A

Fan switch Air conditioner supply.

E ⋒ 30A

Ceiling light

F 5A Compressor

Cab version GL



Windscreen wiper and window washer

B 🖟 20A

Fan switch Ceiling light

C 🖟 15A

Working beams

(D) 🖟 25A

The fan / heat exchanger compartment.

E 10A Rear lights

(F) 🖟 20A

Revolving beacon





The electrical system is protected by fuses against short circuits or abnormal power draw.

Before changing a fuse, find and eliminate the short circuit that caused it to blow.

Replace the burnt-out fuses with others possessing the same technical characteristics (see indications on the actual fuse itself).

Consult specialized personnel if in doubt.

The cab fuses are positioned on the ceiling of the cab itself, on the right-hand side. The system is protected by a 40A maxi main fuse situated inside the cab roof (see wiring diagram).

Cab air filter

SG1





Figure 1

Figure 2





Figure 3

Figure 4



Clean with compressed air



Unscrew the knob that fixes the protection (figure 1), remove the protection (figure 2), take out the filter (figure 3) and clean it:

carefully tap the filter on a hard, flat surface with the perforated part pointing downwards.

Gently blow compressed air at a pressure of **no more than 7 bar** through all the pleats (figure 4) in the direction opposite to that of the arrow stamped on the filter itself.

NOTE: there are two filters in the SG1 cab, one on the left-hand side and the other on the right-hand side.





300

Replace the filter when required, or at least after every 300 h service or 12 months.

GL





Figure 1

Figure 2





Figure 3

Figure 4



Clean with compressed air



Unscrew the knob that fixes the protection (figure 1), remove the protection (figure 2), take out the filter (figure 3) and clean it:

carefully tap the filter on a hard, flat surface with the perforated part pointing downwards.

Gently blow compressed air at a pressure of **no more than 7 bar** through all the pleats (figure 4) in the direction opposite to that of the arrow stamped on the filter itself.

NOTE: there is only one filter in the GL cab.





300

Replace the filter when required, or at least after every 300 h service or 12 months.

Activated carbon filter



Replace the filter when required, or at least after every 200 h service or 36 months. For maintenance, follow the instructions provided by the manufacturer.

Windscreen wash system

SG1







Restore the level by using detergents and antifreeze.

Glass



WARNING

All the cab windows are the spproved type. If a window breaks, it must be replaced with an original spare bearing the same approval details.

BODYWORK



WARNING

If you use jets of pressurized water for cleaning, direct the jet well away from:

- Components of the electrical system.
- Tyres
- Hydraulic pipes
- Radiator.
- Electrical components.
- Soundproofing seals.
- Other components that could be damaged by the pressure of the water.



Periodically check the condition of the bodywork.

To ensure long life, have abrasions and deep scratches repaired by specialized personnel.

Make sure that water does not remain in hidden parts of the bodywork.



Clean

Clean the bodywork with a normal solution of water and a specific shampoo:

- When needed if the tractor is used in a normal environment.
- Frequently if it is used in places near the sea.
- Immediately after using organic substances or chemicals.



Do not discard fluids like fuels, lubricants, coolants or other, in the environment.

TECHNICAL SPECIFICATIONS

TECHNICAL SPECIFICATIONS

EN	GINE	Star 90	Star 100
T	уре	VM D754 TE3	VM D754 IE3
Rated power	Kw (hp) / rpm	60 (82) / 2600	70 (95) / 2600
Cylinders	N	4 Turbo	4 Turbo Intercooler
Cooling		Wa	ater
Displacement	СС	2970	2970
Torque reserve		25%	63%
Fuel tank	L	6	60

TRANSMISSION				
N° speed gears 40 speeds; a lever is used to select the 8+8 transmission with synchronized reverse selection 16+8 transmission with synchronized Dual Power (-20%).		40 speeds; a lever is used to select the 8+8 transmission with synchronized reverse shuttle or the 16+8 transmission with synchronized Dual Power (-20%).		
Clutch		11" diameter dry single-plate		
Direction reverser		Synchronized		
Rear difference	ential	Electrohydraulic		
Front differential No-Spin		No-Spin		
Speed	Kph	40		

BRAKES AND STEERING SYSTEM				
Type of brakes With IST and oil-cooled multiple-plates				
13 Parking and emergency brake lever Working on the rear brakes. Mechanical system indipendent from service				
Type of steering system Hydrostatic with load sensing valve				
Steering angle	57°			

POWER TAKE-OFF				
Rear	Speed	540/540E (750 Rpm) 540 / 1000		
Clockwise rotation	Туре	Independent - Synchronized		
4.0/01 (1) (1)	Clutch	Dry plate type		
1-3/8" profile with 6 splines	Control	Mechanical		
Front Speed		1000 Rpm		
Country alsoluving retation	Туре	Independent		
Counter-clockwise rotation	Clutch	Electromagnetic		
1-3/8" profile with 6 splines	Control	Electrical		

POWER LIFT					
	Туре		With position and draft control		
Rear	Lifting capacity	Kg	2500		
	3-point hitch		Cat. 1 and 2		
	Туре		Up-down Floating mode		
Front	Lifting capacity	Kg	1000		
	3-point hitch		Cat. 1 and 1N		

HYDRAULIC CIRCUIT				
Pump capacity It/min.		45		
Rear hydraulic control valves		Up to 3 Double-acting with Fourth floating position and lever connection		
Front hydraulic control valves		Up to 3		

DRIVER'S POSITION				
Platform	Integral platform on silent-blocks			
Safety frame.	Folding roll bar or cab			
Instrumentation	Multifunction digital instrument			
Seat	Adjustable in the horizontal and vertical directions and installed on type-approved elastic suspensions.			
Tow hook	 Type CUNA - Cat. C Type CUNA - Cat. D2 CEE Cat. Type BT02 EEC Class drawbar 			

DIMENSIONS AND WEIGHTS

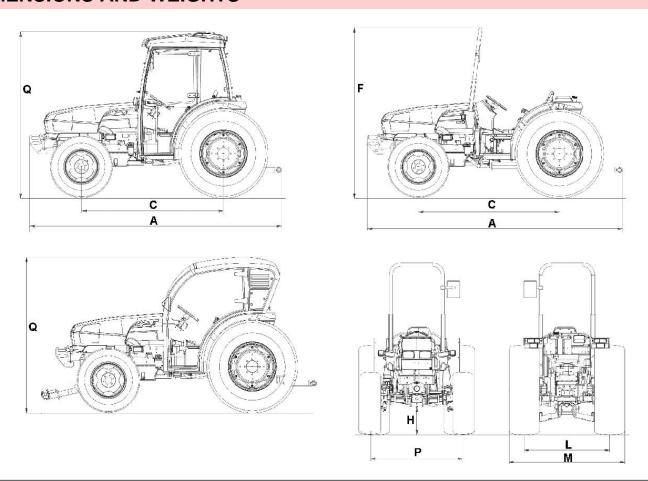


Table of Machine Dimensions and Weights

	The data are calculated with wheels:		Low version 380/70-R24"	High version 420/70-R24"
Α	Max length	mm	33	348
М	Min - max width	mm	1472 - 1800	1547 - 1800
F	Height to chassis	mm	2253	2346
Q_	Cab version GL	mm	2184	2273
`	Cab version SG1	mm	1977	2066
Н	Ground clearance	mm	270	360
С	Wheelbase	mm	1948	1968
Р	Min - max Front track	mm	1162 - 1458	1181 - 1459
L	Min - max Rear track	mm	1102 - 1450	1132 - 1510
	Minimum turning radius with brakes	mt	2	,9
	Weight with safety frame	Kg	2280	2300
	Weight with cab	Kg	2450	2470

Engine

For the engine dimensions and weights:



See engine's operation and maintenance manual.

Maximum load per axle



For information about the maximum loads per axle, refer to the certificates of conformity supplied with the machine

Low version				
	Loading capacity	Maximum load per axle (kg)	Total weight	
Tyres	Kg	Rear Front	Kg	
380/70-R20"	1500	2800	3700	
240/70-R16"	900	1800		
320/70-R24"	1250	2500	3700	
240/70-R16"	900	1800		
360/70-R24"	1500	2800	3700	
260/70-R16"	1030	1800		
380/70-R24"	1650	2800	3700	
280/70-R16"	1120	1800		

High version					
	Loading capacity	Maximum load per axle (kg)	Total weight		
Tyres	Kg	Rear Front	Kg		
380/70-R24"	1650	2800	3700		
280/70-R16"	1120	1800			
420/70-R24"	1900	2800	3700		
280/70-R18"	1180	1800			
44x18.00-20"	1625	2800	3700		
29x12.50-15"	630	1260			

WHEELS

Tyres



WARNING

The tyres must only be changed by competent persons in possession of the necessary equipment and technical know-how.



DANGER

It is absolutely essential to avoid:

- Improper use.
- Overloads (even localized).
- Unsuitable pressure.
- Unsuitable rim and tyre couplings.

Tyre life and performance depends on use of the correct operating pressure: if the pressure is too low, the tyre will quickly wear out while an excessive pressure will reduce the lugging power and make the wheels more liable to slip.

A correct tyre pressure depends on various factors:

- The operating conditions.
- Machine load.
- · Machine model.
- The tyre make.
- The tyre size.

You are therefore advised to consult your dealer or the tyre manufacturer.

The values given below are only approximate as they depend on the conditions described above:

Table of tyre inflation pressures

	Low version			High version		
Tyres	Bar (MAX)	Position	Tyres	Bar (MAX)	Position	
			44x18.00-20" 29x12.50-15"	1,6 2,4	Rear Front	
380/70-R20" 240/70-R16"	1,6 2,4	Rear Front				
320/70-R24" 240/70-R16"	1,6 2,4	Rear Front				
360/70-R24" 260/70-R16"	1,6 2,4	Rear Front				
380/70-R24" 280/70-R16"	1,6 2,4	Rear Front	380/70-R24" 280/70-R16"	1,6 2,4	Rear Front	
			420/70-R24" 280/70-R18"	1,6 2,4	Rear Front	

SPEEDS

Speed Chart

In **kph** with engine at 2600 Rpm and 420/70-R24" wheels (Speeds are purely indicative)

		Dual Powe	er mode (16-8 speeds)	Reverse shuttle mode (8+8 speeds)
		Normal speeds	20% Dual Power reduction	
	1°	1,86	1,39	1,86
Forward	2°	3,05	2,29	3,05
Slow	3°	5,27	3,95	5,27
	4°	7,00	5,25	7,00
	1°	10,59	7,94	10,59
Forward	2°	17,43	13,07	17,43
Fast	3°	30,08	22,56	30,08
	4°	39,96	29,27	39,96
	1°	4,43	3,32	1,58
Reverse	2°	7,30	5,47	2,60
Slow	3°	12,59	9,44	4,48
	4°	16,73	12,55	5,95
	1°	/	/	9,00
Reverse	2°	/	/	14,81
Fast	3°	/	/	25,57
	4°	/	/	33,97

NOISE

Table of maximum noise levels

TRACTORS WITH ROLL-BAR					
Model	Variant/version	Type-approval N°	Maximum noise level perceived at driver's seat dB (A)		Noise level of the moving tractor dB
			Chapter I	Chapter II	
Star 90	TS8100A TS8100B	e1*2003/37*0349	-	86	78
Star 100	TS9100A TS9100B	e1*2003/37*0349	-	86	81

TRACTORS WITH CAB						
Model	Variant/version	Type-approval N°	Maximum noise level perceived at driver's seat dB (A)			Noise level of the moving tractor dB
		Chapter I	Cha	oter II		
				Opening open	Opening closed	
Star 90 GL11	TS8000A TS8000B	e1*2003/37*0349	-	86	86	78
Star 90 SG1	TS8200A TS8200B	e1*2003/37*0349	-	85	85	78
Star 100 GL11	TS9000A TS9000B	e1*2003/37*0349	-	84	85	81
Star 100 SG1	TS9200A TS9200B	e1*2003/37*0349	-	86	85	81

Noise level information



The values of the noise produced by the tractors described in the Operation and Maintenance Manual, are given in compliance with Directive 77/311/EEC concerning noise levels perceived by the driver of wheeled agricultural tractors.



Since it is impossible for the manufacturer to foresee the normal working conditions in which the agricultural tractor will be operated by the user, the noise levels have been defined in accordance with the methods and conditions conforms to Directive 77/311/EEC (repealed by 2009/76/EEC) concerning noise levels perceived by the driver of wheeled agricultural tractors.

Annex 6 of directive 2009/63/EEC concerning the noise level of the moving tractor.

Recommendations for the user





IMPORTANT

Remember that the agricultural tractor may be employed in different ways, and may be connected to an infinite number of implements. In order to ensure that drivers are protected against risks deriving from exposure to noise, the entire tractor-implement group must be considered.





IMPORTANT

In view of the above-mentioned noise levels and the consequent health risk, the user must adopt the appropriate precautionary measures, as required by regulations in the country.

RECOMMENDED LUBRICANTS AND FLUIDS

Original lubricants

Genuine Lubricants ARBOR by PETRONAS LUBRICANTS

ARBOR ALFATECH SYNT 10W-40 oil

- Viscosity at 100° C (mm2/s) 14
- Index of viscosity 158
- Flash point V.A. (°C) 200
- Pour point (°C) -33
- Mass Volume at 15 °C (kg/l) 0.875

ARBOR UNIVERSAL 15W-40 oil

- Viscosity at 40° C (mm2/s) 110
- Viscosity at 100° C (mm2/s) 14
- Viscosity at -15° C (mPa.s) 3450
- Index of viscosity 135
- Flash point V.A. (°C) 220
- Pour point (°C) -36
- Mass Volume at 15 °C (kg/l) 0.886

ARBOR TRW 90 oil

- Viscosity at 40° C (mm2/s) 135
- Viscosity at 100° C (mm2/s) 14.3
- Viscosity at -26° C (mPa.s) 108000
- Index of viscosity 104
- Flash point V.A. (°C) 220
- Pour point (°C) -27
- Mass Volume at 15 °C (kg/l) 0.895

ARBOR MTA oil

- Viscosity at -40° C (mPa.s) 28000
- Viscosity at 40° C (mm2/s) 35.5
- Viscosity at 100° C (mm2/s) 7.5
- Index of viscosity 160
- Flash point V.A. (°C) 200
- Pour point (°C) -40
- Mass Volume at 15 °C (kg/l) 0.870
- Colour red

ARBOR MP Extra grease

- NLGI grade 2
- Manipulated penetration (60)(dmm) 285
- Dropping point (°C) 190
- 4 weld load balls (kg) 300
- Basic oil viscosity at 40°C (mm2/s) 200

Original protective fluids

ARBOR original protective fluids by PETRONAS LUBRICANTS

PARAFLU 11 antifreeze fluid

- Density at 15°C (g/cc) 1.135
- pH (dil. 50%) 7,7
- Alkaline reserve (ml HCI 0.1 N) 16
- Boiling point (dil. 50%) (°C) 108
- Graining point (dil. 50%) (°C) -38
- Foam at 88°C (cc) 50

PROBLEMS AND SOLUTIONS

GENERAL

Engine

Engine

Engine: does not start

- Check the condition of the battery:
 - o check the battery terminals: make sure that they have been tightened correctly, remove any turn or or tarnish;
 - o either recharge or replace the battery if it has discharged
- Check the starter motor
 - o have this done by a motor-vehicle electrician

Engine: difficult to start

- Check:
 - Fuel level
 - Whether the fuel filter is clean (replace it if necessary)
- Injection system efficiency
 - Check whether there is air in the circuit: bleed the circuit if necessary. If the engine is still difficult to start, check the injection pump settings and injectors.
 - o Check the glow plug preheating system. This operation may only be performed by an authorized workshop
 - Not enough compression. Have the compression checked by an authorized workshop

Light coloured smoke from exhaust

- Inefficient injectors: have the injectors checked by an authorized workshop
- Injection pump fase not in the best condition: have the machine checked by an authorized workshop

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NOTES

IDENTIFICATION CARD OF THE MACHINE

We will be able to provide you with better and faster service if you fill out the form below.

Please give the information indicated in this page for a clear and immediate reply (whenever you call the Technical Assistance Service or the Spares Assistance Service)

Type of machine			
Model / Version			
Identification number (serial number).			
Series			
Information about m	nanufacturer and/or importer		
Name			
Address			
Telephone / internet / email			
Owner or operator			
Name			
Address			
Telephone / internet / email			

DECLARATION OF CONFORMITY





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- ENLAFRER - TUNNETAL - BERAINDH - RATVETINA - APLIEDINA - BEONYTHA - JOSEPHA - CERTIFICENT CERTYFIKUJE - CERTIFIC URMATOAREN - POTVERDUJE - VARIOTAREN - ROFFERETH FEM BED - ERKLERER - BEVAN ETM EKTEDIR

THAT THE MACHINE

S DIE MASHINE , QUELA MÁQUINA , QUE A MÁQUINE , YE BALBINHATA , ZESTROJ , AT MASKINEN , ET MASIN , OT A , HOOV A G EP , IIII HADJIA , DAT DE MASHINE , ZE BASEVINA , ECHIPABIENTUL TEHN E , ZESTROJ , DASTROJ ETTA KOHE, ATT MASKINE , A GUELTZEMO , AT MASKINEN , BANGINEN , BANGINEN ,

MACHINE TYPE:

MOCCHINATIO. MOCHINETYE. MOCCHINETYE. MÖQUINATIO. MOQUINATIO. TUNI MULUHA. STROLI TYPU I MISKHTYPE. MASINATIOE. TYPOE MIKKANHMATOE. MASINOSTIPAS. MEKÄTTASTIPS. TÜVSÜĞEP. TÇETMƏDIB. TYPE MACHINE. MASINATIYPE. CHIPAMENTULTEHNIC TIP. STROLITYPU. TIP TRANTORIA. KONERNTYPPI. MASINATYPE. TEDUNO VETTEKIS. MASINTYPE. MAKINETÜPI

AGRICULTURAL TRACTOR

TRACTOR TYPE:

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MODEL NAME:

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HODERA. AVEZY MODELU. - PODELRAM. - HADERINATUS. ONOMETO Y HONTE DOY. - MODELS. - NODELA NOGALISHIS.
HODELL NEVE. - L'HER EL HA NOS. - NAGATIVAN HET HODEL MOZA MODELU. - NODEL NEVEO WODELU. - HAZIV HODELA. - MALIN
HIMI. - MODELLETE CRINICO. - MARTI GERBR. - MODELLAND, - NODEL NOS.

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Migliarina di Carpi (Italy)

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- ERLARER - TUNNETA - BERAINE - MYNETHA - APULEMA - BODNYTIA - JOSOMETA - CENTRICERT CERTYFIKUE - CERTIFIC URMATORALE - DOTVEDULE - ROTUNIONI - NOSACHARE - SAPPLEMENT HE NO - ERLARER - BEYAN ETH ENTEDIR

THAT THE MACHINE

CHEIA MCCHINA: QUELA MCCHINE: DASS DIE MASHINE: QUELA MQUINA: QUEA MQUINE: NE BALBIHATA : ZESTROJ: AT MCKINEN : ET MASN : OTT TO MIXAMHINA: IAXO MASNA: IAXI ENGRITA: HOOY A OE P. IIII-IANGUA: OAT DE MCCHINE: ZE BUSATA: ECHIPALI ENTUL TEHNO: ZESTROJ: ETTA (XI)E: ATT MCKINEN: AN OEUTREMO: AT MASKINEN: LIAVIEN.

MACHINE TYPE:

MACCHINATIFO. MACHINETYFE. MASCHINETYF. MÁQUINATIFO. MÁQUÍNATIFO. THI HALIBHA. STROJ TYPU. HASKINTYPE. MASINATÜÜP. TYROZ HIXANHINIZO. MASINOSTIRAS ELRATISATIRAS TÜRÜSÖĞE. TIÇIT MAŞDA. TYPE HACHINE. MASZYNATYP. ECHBAMENTULTERINC TIP. STROJ TYPU. TIP TRAKTORJA. KONERT TYPPI. MASKINTYP. TEGUNÜ VELTENS. MASKINTYPE. MAKKINTYP.

AGRICULTURAL TRACTOR

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MODEL NAME:

NOME GE, NODELO. NOM ST. PÉDELE: PROBEE SEMPLE, NOMES ST. PODEO, NOME ST. NODELO. NAMERIOTAMIE NA HOLBER: ARZEVINO PLU, MEDELANNI, HIUGELINIETTIS, STOULT TOV NOTTENOV, NODELE, NODEL, NOSAUSHIS. HOCELL NEVEL, Chess than-holf, NAMENAN HET POD LA, MAZONA HODE LU. HODEL: NAZOV HODE LU. KAZIV PODELA. PALLIN NMH. MODELLETE: NING. (NET O CREME, MODEL NAVY). HODEL AND LU. NAZOV HODE LU.

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NAME AND ADDRESS OF THE PERSON AUTHORIZED TO COMPILE THE TECHNICAL FILE:

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Migliarina di Carpi (Italy)

Signature

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