# STAR 50 - 80 EXPORT

06380356 Edition 00 (English)

# **MANUFACTURER**



Tractors for Life

Registered offices and plant GOLDONI S.p.A.

## Address:

Via Canale, 3 41012 Migliarina di Carpi Modena, Italy

**Telephone:** +39 0522 640 111 **Fax:** +39 0522 699 002 **Internet:** www.goldoni.com

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# **MODELS AND VERSIONS**

# **4 DRIVING WHEELS**



# **2 DRIVING WHEELS**



- Star 50 Export
- Star 80 Export

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| 015511110 <b>-</b> 2770                          | OZ I             |                                   |                 |

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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 5 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.

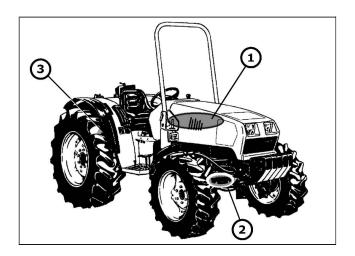
# Standard symbols

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

|                | Hydraulic circuit filter   | ≣O          | Driving beam               | $\Diamond$         | Oil                                 |
|----------------|----------------------------|-------------|----------------------------|--------------------|-------------------------------------|
|                | Dipped beam                | $\bigcirc$  | Transmission               | Qii                | Field light                         |
| <b>€</b>       | Differential lock          | P\          | Parking light              | <b>\$</b>          | Power take-off                      |
| €0 0€          | Side lights.               | <b>\$</b> į | Power take-off rotation    |                    | Hazard lights                       |
| <b>(</b>       | Clutch                     | 黨           | Indicator light            | (P)                | Parking brake                       |
| <b>\$</b>      | Turn indicator             | H           | Four-wheel drive           | <b>\$</b>          | Trailer turn indicator              |
| <del>5</del>   | Guard lowered              | þ           | Horn.                      | <b>←</b> ⊱-[]      | Forward direction                   |
| - +            | Battery charger            | •           | Low speeds                 |                    | Safety belts                        |
| $\boxtimes$    | Working range              | *           | Normal speeds              |                    | ldle                                |
|                | Fuel level                 | P           | Fast speeds                | $\bigcirc$         | Clockwise rotation                  |
| 圓              | Fuel filter                | Z           | Idle                       | $\bigcirc$         | Counter-clockwise rotation          |
|                | Engine preheating          | <b>←∘→</b>  | Direction reverser         | 88                 | Air ventilation                     |
|                | Engine air filter          | $\Diamond$  | Rotational accelerator     | $\frac{\infty}{2}$ | Air heating                         |
| <b>₽</b>       | Engine oil pressure        |             | Linear accelerator         | **                 | Air conditioning                    |
|                | Engine oil filter          |             | Power lift                 | P                  | Windscreen wiper                    |
|                | Engine coolant temperature |             | Power lift - Up            | $\Diamond$         | Windscreen wiper and window washer  |
| $ \mathbf{x} $ | Air valve                  | 7           | Power lift - Down          | $\Box$             | Rear window wiper                   |
|                | Hydraulic circuit          | 2           | Power lift – Floating mode | (I)                | Rear window wiper and window washer |

# **MACHINE IDENTIFICATION**

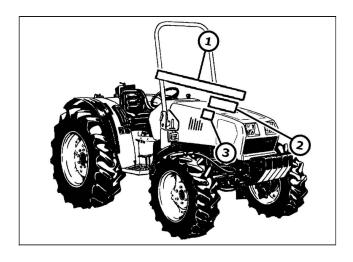
# Identification criteria



The machine is identified in three different ways:

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

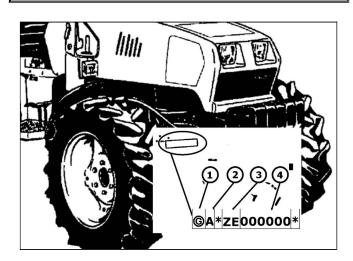
# **Decals**



The decals affixed to the bonnet indicate:

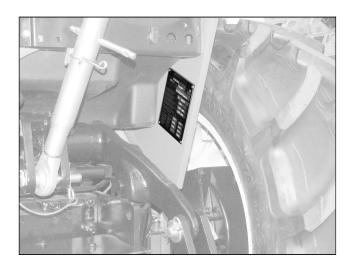
- 1 Brand.
- (2) Series
- 3 Model

# 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.

| ⊕ <sup>41042</sup> GOLDONI<br>Migliarina di Carpi                 | S<br>(MOD | .р.,<br>ENA)I | A .             | E   |
|---|-----------|---------------|-----------------|-----|
| Den.com: 1 Type: 3 Var/Vers: Nr.OMOLOGAZIONE:                     | 4         |               | Serie:<br> ABS: | 5   |
| EEC number:   |           | 6<br>         |                 |     |
| Numero d'identificazione:<br>Identification number:               |           | •             | 7               |     |
| Massa totale ammissibile :<br>  Allowable total weight :          |           |               | 8               | Kg  |
| Carico ammissibile asse anterio<br>Allowable load on front axle : | )re : [   |               | 9               | Kg  |
| Carico ammissibile asse posteri<br>Allowable load on rear axle :  | iore :[   | 1             | 0               | Kg  |
| Massa rimorchiabile ammissibile<br>Allowable towing weight :      | : NA      | Z. 13         | EEC             | 12  |
| -Non frenata: -Unbraked:  | 11        | I Kg          | 12              | Kg  |
| -Con frenatura -Indipendent<br> _indipendente: _braking:          | 13        | Kg Kg         | 14              | Kg  |
| -Con frenatura -Inertial<br>ad inerzia: braking:                  | 15        | Kg            | 16              | Kg  |
| -Con frenatura -Assisted<br>assistita: braking:                   | 17        | <b>Z</b> Kg   | 18              | _Kg |
| MADE IN   | ITAL      | Υ             |                 |     |

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)

# 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.

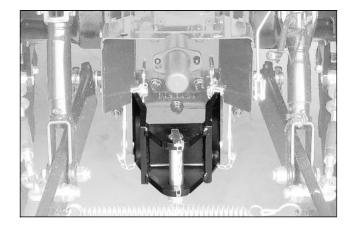
# **Towing attachments**

Code punched on device:

- Make
- · Type of device

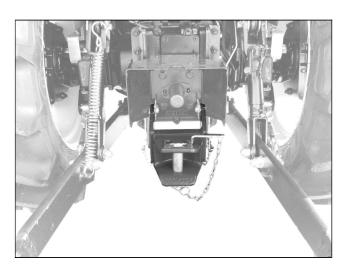
Type CUNA - Cat. C

Approval code DGM-GA 4689 C



**CEE Cat.** 

Approval code e11-1574



**Type BT01 EEC Class drawbar** 

Approval code e11\*89/173\*2006/96\*2223



# **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.

# **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 abd 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 shutoff 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.

# 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.

# **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.

# **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.

# 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.

# 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.

# 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.

# 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 fuelsoaked 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 heavyduty work)
  - protective ear muffs or ear plugs
  - respirator or filtering mask
  - close fitting, waterproof clothing
  - reflecting garments
  - safety footwear

# 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.

# 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.

# 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.

# 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.

# 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.

# 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 self-propelled 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

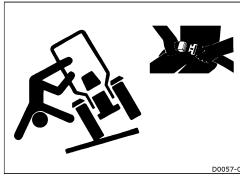




# **IMPORTANT**

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.

# 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.



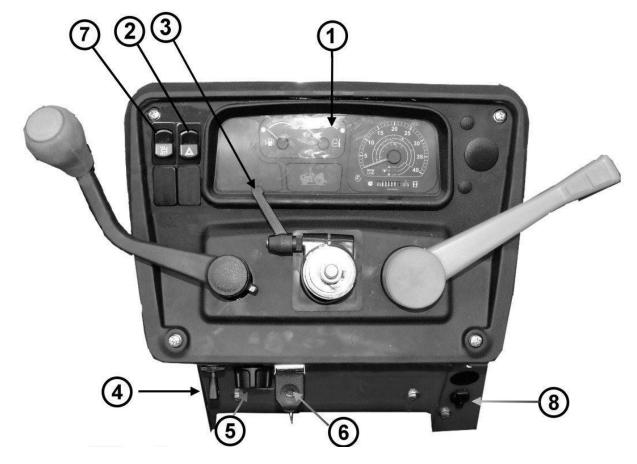
# **IMPORTANT**

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

# **OPERATING INSTRUCTIONS**

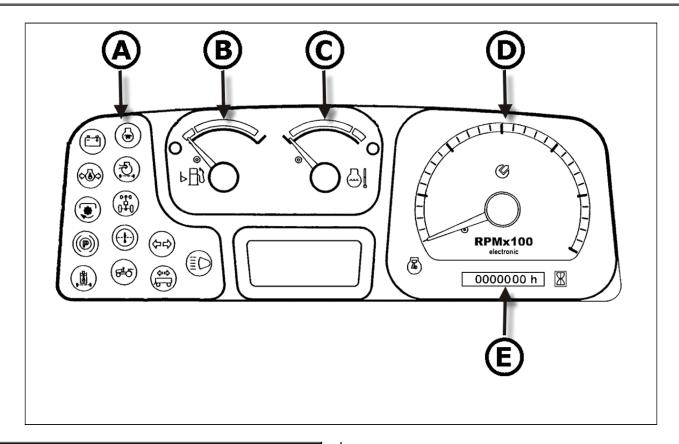
# **CONTROLS AND INSTRUMENTS**

# **Dashboard**



- Multifunction analog instrument
- Emergency lights switch
- Steering wheel height adjuster lever
- 1234 5678 Turn indicator Flashing headlights.
- Light switch and horn
- Ignition switch
- Revolving beacon switch
- 1-pin socket 12V

# **Multifunction instrument**



# **Multifunction instrument indicators**



- + Battery charge indicator - red.

Engine warm-up indicator - yellow.

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



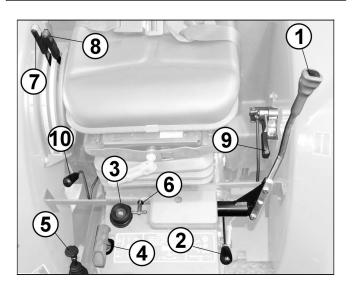
The hour counter is situated in the lower part of the indicators. The work hours totalized by the machine are displayed.

# **Controls in front part**



- 1 Steering wheel.
- (2) Hand throttle.
- Reverse shuttle lever: forward, reverse selection.
- (4) Rear PTO clutch lever.
- (5) Clutch pedal.
- 6 Gear select lever (1st-2nd-3rd-4th)
- (7) Accelerator pedal.
- 8 Left brake pedal.
- 9 Brake pedal latch.
- 10 Right brake pedal.

# Controls in rear part



- ① 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
- (7) Rear power lift position control lever.
- 8 Lever for the rear power lift's draft control.
- 9 Front drive control lever. Version 4 Driving wheels
- Rear supplementary spool valve 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.
- 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

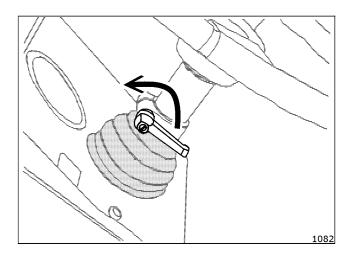
| Type                          | GT62/M200                                     |  |  |
|-------------------------------|---|--|--|
| Type-approval<br>N°           | e13*78/764*1999/57*0010                       |  |  |
|                               |   |  |  |
| Weight applied to the seat Kg | Corrected Weighted vibration acceleration awS |  |  |
|                               |   |  |  |
| 60                            | 1.22 m/s²                                     |  |  |

# Steering wheel



#### DANGER

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



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

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

# **Briefcases**



Located behind the seat

# 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.



Depress the clutch pedal.

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

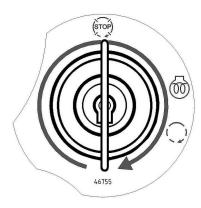
When the engine is off do not use electrical devices when not needed. These absorptions can download the batteries in a profound and damaging them.

# 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 (77)



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.

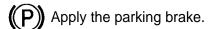
• Allow the engine to idle.



Depress the clutch pedal.

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.



- 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

### 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**

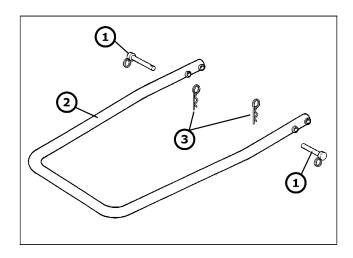
When in the horizontal position, the safety frame will provide no protection if the tractor tips up.



### **WARNING**

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





- Safety pin.
- (2) Safety frame.
- Safety pin.

To lower the safety frame, on both sides:

- Remove the safety pin.
- Remove the plug.
- Lower the safety frame
- Fit the plug into the second hole.
- Re-position the safety pin.

### 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.

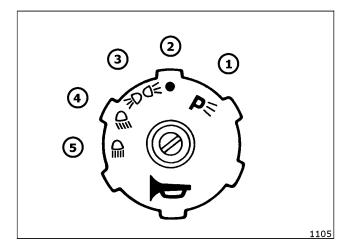
- Select the transmission ratio (consult the Gearbox chapter).
- (P) Disengage the parking brake.



Gradually release the clutch pedal.

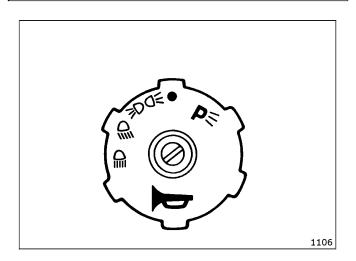
Gradually accelerate the engine.

### **Light switch**



- Turn the control to the required position:
- Parking lights. P<sup>≤</sup>
- 2 Lights off OFF
- ③ Side lights. <sup>₺ ₵₺</sup>
- 5 Driving beams. ≣D

### 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:

- Machine's turn indicator light (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

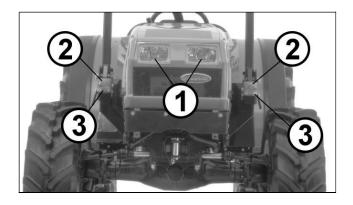


If the tractor must be driven on the public highways, the headlights must comply Highway Code with the regulations in force in the country of use.



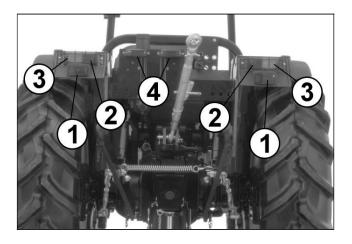
Use of driving beams is governed by the Highway Code in force in the country of use.

### **FRONT LIGHTS**



- (1) Headlight in dipped/driving positions.
- (2) Front turn indicator.
- (3) Front side light.

### **REAR LIGHTS**



- Rear reflector
- Rear brake light. Rear side light.
- Rear turn indicator.
- License plate light.

### 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**

### 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.



Consult the TECHNICAL SPECIFICATIONS

**OPERATING INSTRUCTIONS** 

### **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.

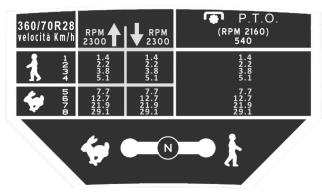
Use the **REVERSE SHUTTLE** command to select the **reverse** 

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





The lever has two positions (plus neutral):



Standard speeds (Man)



Neutral



High speeds (Hare)

Selection is not synchronized.

To shift gear:

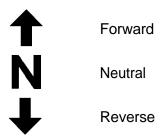
- Stop the machine.
- Depress the clutch pedal.
- Select the required range.
- Gradually release the clutch pedal.

Use the REVERSE SHUTTLE command to select the reverse

### Reverse shuttle lever



The lever has two positions (plus neutral):



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.

### 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

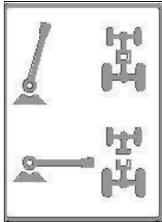
# **^**

#### **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

- Pull the lever up:
- 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.

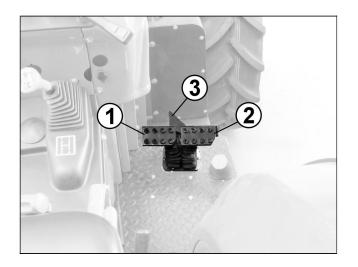
The diff lock is controlled mechanically with the pedal. It is disengaged by releasing the pedal.

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.

### **BRAKING SYSTEM**

### Main brake



- 1 Left brake pedal.
- 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.

### Parking brake



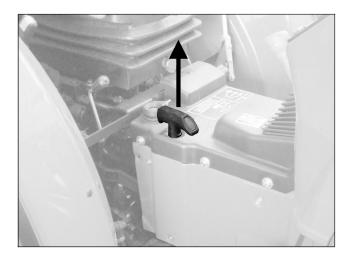
#### WARNING

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.

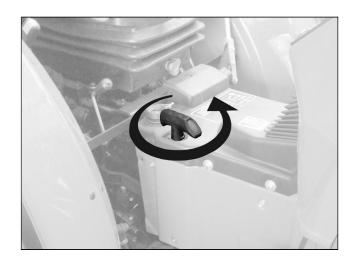
To engage the parking brake:

- 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



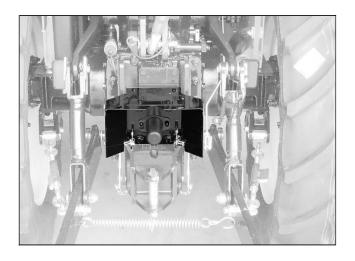
### **WARNING**

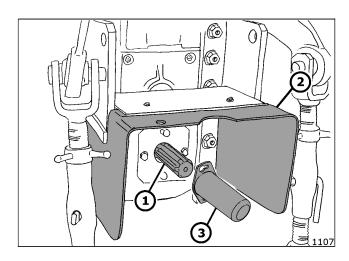
Whenever the PTO is not in use, the drive shaft must be covered by the special quard.



#### **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 power take-off able to function in the following mode:



- Independent.
- 540 rpm



Synchronised with all gears.

### **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 positione



### **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.







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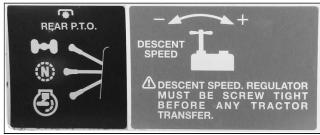
### **IMPORTANT**

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.



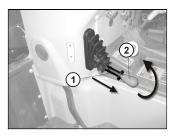
• The PTO mode selector lever must be in the **Independent** position.







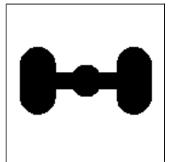
Engage the PTO clutch:
 pull to release the safety lock of the clutch lever and pull the lever up
 2





 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).



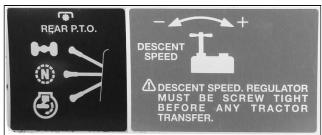
#### **IMPORTANT**

Do not use the synchronized power takeoff near or round very tight bends.



 Move the PTO mode selector lever to the Synchronized position.





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

### **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.

## Table of PTO speeds

| PTO speed selector lever | Turning direction:            | Ratio | PTO idling rate | Engine RPM |
|--------------------------|-------------------------------|-------|-----------------|------------|
|                          | Clockwise rotation            |       |                 |            |
| 540                      |                               | 4,500 | 540             | 2430       |
|                          | 1-3/8" profile with 6 splines |       |                 |            |

# Table of Synchronized PTO speeds

### These are the revolution of the PTO for every wheel revolution

| Speed          |       |       |  |  |  |  |  |  |
|----------------|-------|-------|--|--|--|--|--|--|
| Model          | 540   | 540E  |  |  |  |  |  |  |
| Star 50 Export | 4 670 | 6.050 |  |  |  |  |  |  |
| Star 80 Export | 4,672 | 6,058 |  |  |  |  |  |  |

### **REAR POWER LIFT**

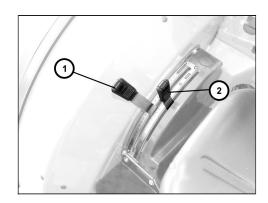
It is a 3-point rear hydraulic power lift controlled by means of the valve system.



The following conditions of use are available:

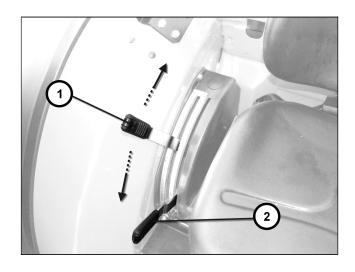
- Up-down
- Position control
- Draft control
- Floating mode
- Mixed regulation

### **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.

### **Position control**



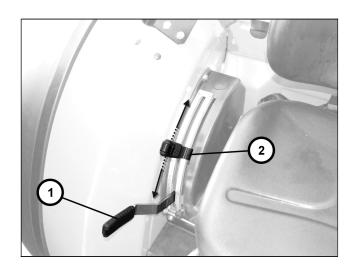
- 1 Rear power lift position control lever.
- 2 Lever for the rear power lift's draft control.

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

- Move the draft control lever 2 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.

**OPERATING INSTRUCTIONS** 

### **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.).

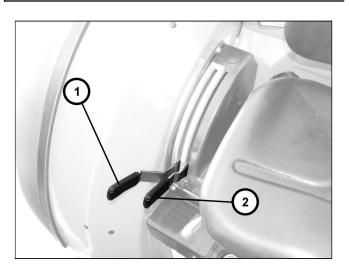
- Move the power lift's position control lever 10 to the end of its forward travel.
- Use the draft control lever 2 to regulate the degree of draft required.
- Use the power lift's position control lever 1 to lift and lower the power lift.

### 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

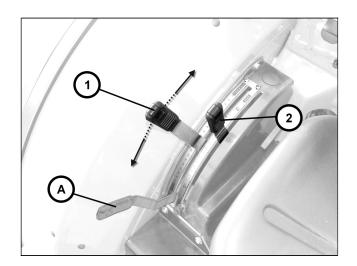


- 1 Rear power lift position control lever.
- 2 Lever for the rear power lift's draft control.

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

- Move the draft control lever 2 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.

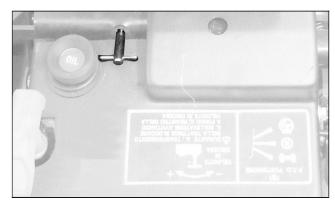
Only use the power lift's position control lever to lift the implement and dig it into the ground.

# Power lift speed and sensitivity adjustment

# M

#### **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.

### 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.



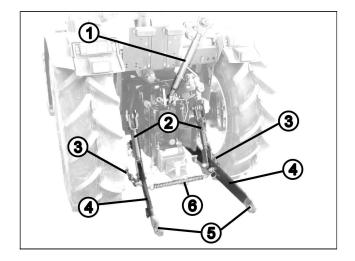
#### **DANGER**

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**

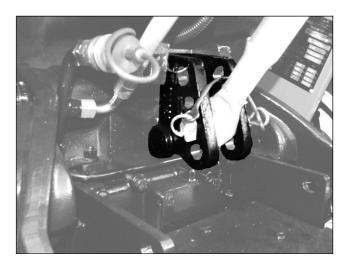
Keep the chains taut and the power lift raised when driving the machine with implements coupled to the three-point linkage.



- Top link linkage
- Adjustable rod
- 3 Side chains

- 4 Power lift lower link
- 5 Implement hitch end fitting
- 6 Retainer spring

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



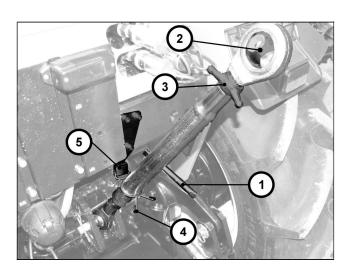
#### **DANGER**

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

### Top link linkage

Adjustable implement hitch end fitting

· Cat.1 and cat.2 ball end



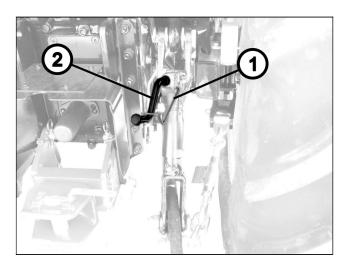
Adjust the length of the top link linkage to change the angle at which the implement digs into the ground. Turn the top link to obtain the required length, using the lever ①.

The ball-shaped implement hitch coupling ② is equipped with two holes 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.

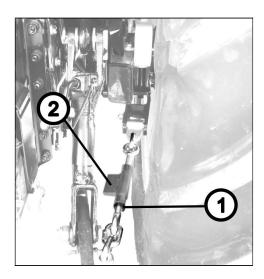
### Adjustable rod

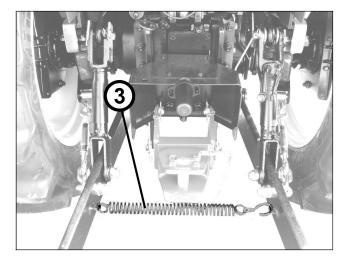


Adjust the adjustable rod so as to level and align the power lift's lower linkages to suit the implement used and the type of job that needs to be done.

To adjust the rod, raise the handle retainer, 1 turn the handle 2 clockwise to raise the lower link or anti-clockwise to lower it until reaching the desired height, then lower the handle retainer back in position.

### Stabilizer chains





Adjust the side chains to limit the sideways movement made by the lower link of the power lift::

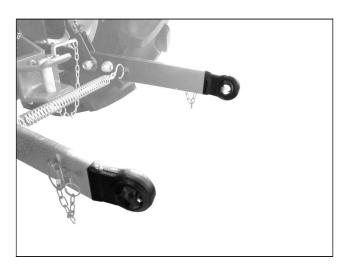
To adjust the chains, unscrew the retainer nut tighten or loosen the chain by means of the handle until the required amount of swing has been obtained then retighten the nut to lock the chain in

until the required amount of swing has been obtained then retighten the nut to lock the chain in place.

**NOTE.** Make sure that the retainer spring (3) is coupled to the lower links to prevent dangerous rubbing against the wheels.

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.

### Implement hitch end fitting



The ball ends have two holes for use as cat 1 or cat 2

### **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**

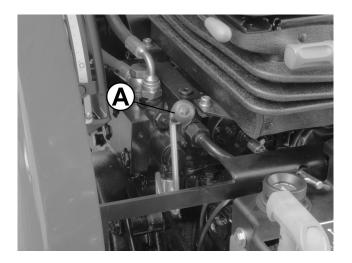
Pressurized fluids can penetrate under the skin and cause serious damage. Always stop the engine and relieve the pressure before connecting/disconnecting any pipes.

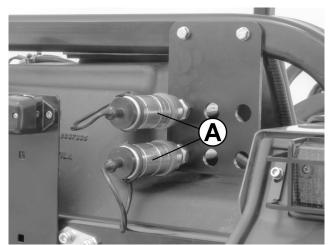


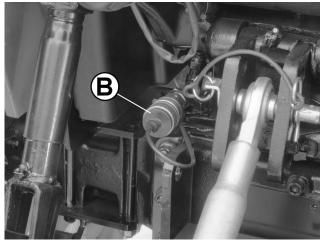
### **DANGER**

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.

# Rear hydraulic auxiliary control valves







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

- Rear supplementary spool valve lever Rear hydraulic auxiliary control valves
- B Valve with free oil discharge

### **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

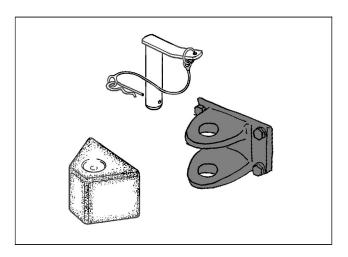
Only use, for both machines (the one that tows or the towed machine), the normal towing devices (drawbar or tow hook).

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

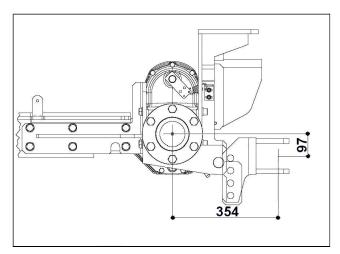


The machine is equipped with a front tow hook allowing emergency trailer manoeuvres to be made or for towing the machine if necessary.

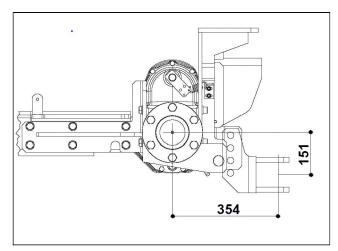
### **CUNA Class tow hook cat C**

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 4689 C



Maximum height



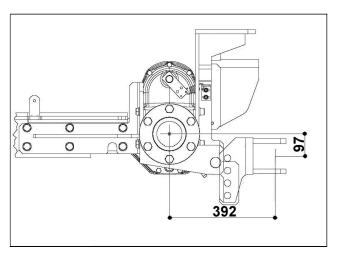
Minimum height

Tow hook adjustment (dimensions in mm).

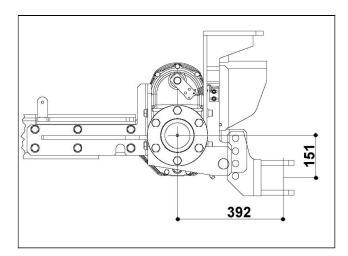
## **EEC Class tow hook**

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

Approval code e11-1574



Maximum height



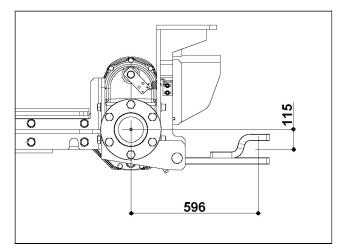
Minimum height

Tow hook adjustment (dimensions in mm).

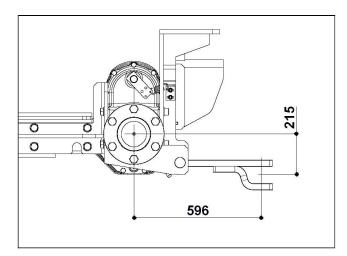
## Type BT01 EEC Class drawbar

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

### Approval code e11\*89/173\*2006/96\*2223



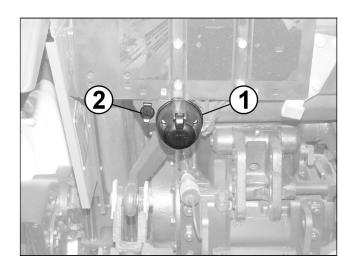
Maximum height



Minimum height

Tow hook adjustment (dimensions in mm).

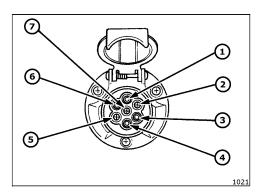
### Seven-pin trailer socket



- 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.
- Vacant
- 3 Ground.
- 4 Right turn indicator.
- **5** Right rear light.
- 6 Brake lights.
- 2 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)

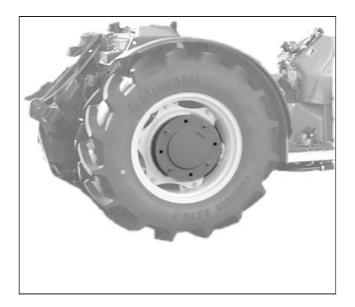
The values are given on the tractor's metal data plate.

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 28" 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 5 plates can be installed, for a total of 100 kg.

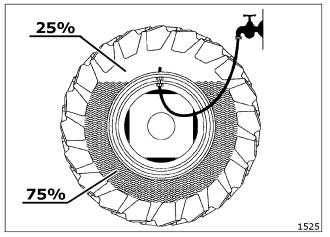
# Wheel ballasting by filling the tyres with fluid

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

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

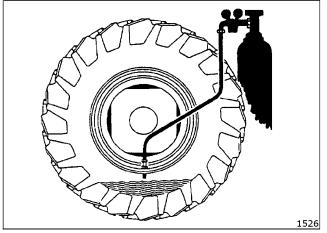
**Note:** if wheels with tubeless tyres are used, ask your dealer how to correctly lubricate the disc so as to prevent it from rusting.

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.

### **LIFTING POINTS**

### Hydraulic jack:

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



### **WARNING:**

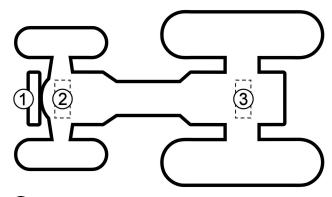
Make sure that the devices have been fixed correctly before using the hydraulic ram.



### **WARNING:**

Do not use the drawbar as a lifting point.

### The recommended lifting points are:



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

## **SCHEDULED SERVICING**

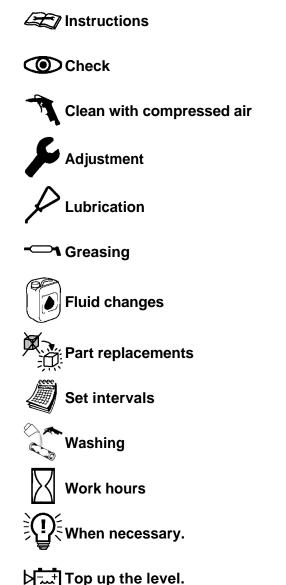


- Before using the machine
- With the machine at a standstill and the engine off (for at least the past hour).
- On a flat surface.

### 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:









#### **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 abd 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.

## Routine scheduled maintenance

WARNING

WARNING
The following table shows the maintenance intervals.

Extraordinary Maintenance:

| Working | range<br>7   | Hours                          | 50 | 8 | 16 | 50 | 300 | 500 |    | 1000 | <u>-</u> | Lubricants   |  |
|---------|--------------|--------------------------------|----|---|----|----|-----|-----|----|------|----------|--|--|
|         | 7            | Months                         | 12 |   |    |    | 12  | 24  | 24 | 24   | .∱.      |  |  |
| $\Box$  | Engin        |                                |    |   | 9  |    |     |     |    |      | ₩        | 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 to      | ank                            |    |   |    |    |     |     |    |      |          |  |  |
|         | Coolir       | ng system                      |    | 7 |    | 0  |     |     |    |      | ₩ 🐧      | We recommend Petronas Lubricants fluid: PARAFLU 11  Capacity L  -  |  |
|         | Trans        | mission belt                   |    |   |    | 0  |     |     |    |      |          |  |  |
|         | Dry ai       | ir filter - External           |    | 0 |    | 7  |     |     |    |      | 1        |  |  |
|         | Dry a safety | ir filter - Internal<br>filter |    |   |    |    |     |     |    |      |          |  |  |

**EN Inglese** 67 SCHEDULED SERVICING

| Working range |                       | Hours                           | 50 | 150 | 50       | 150      | 300      | 900 | <u> </u>   |  |
|---------------|-----------------------|---------------------------------|----|-----|----------|----------|----------|-----|------------|--|
|               | <u>`</u>              | Months                          | 12 |     |          |          | 12       | 12  |            | Lubricants   |
| $\bigcirc$    | Gearbox<br>differenti | housing, rear<br>al, power lift |    |     | 9        |          |          |     | <b>↑</b> ₩ | We recommend Arbor oil by Petronas Lubricants:  ARBOR UNIVERSAL 15W-40  Capacity Star 50 Export - 35 L Star 80 Export - 35 L |
|               | Delivery              | oil filter (Main Pump)          |    |     |          |          |          |     | 0          |  |
|               | Intake tra            | nsmission oil filter            |    |     |          |          |          |     |            |  |
|               | Front diff            |                                 |    |     |          |          | <b>©</b> |     | <b>↑</b> ₩ | We recommend Arbor oil by Petronas Lubricants: ARBOR TRW 90  Capacity 5.6 L  |
|               | Grease n              | ipple                           |    |     | <b>О</b> |          |          |     | <b>©</b>   | It is advisable to use Arbor all-purpose grease by Petronas Lubricants: ARBOR MP EXTRA                                       |
|               | Clutch                |                                 |    |     |          |          |          |     |            |  |
|               | Steering              |                                 |    |     |          |          |          |     | 4          |  |
|               | Brakes                |                                 |    |     |          |          |          |     | F          |  |
|               | Hydraulio             | pipes                           |    |     |          |          |          |     |            |  |
| - +           | Electrica             | l system                        |    |     |          | <b>©</b> |          |     |            | It is advisable to use Arbor all-purpose grease by Petronas Lubricants: ARBOR MP EXTRA                                       |

 $\ensuremath{\ensuremath{\mathfrak{O}}}$  : 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.

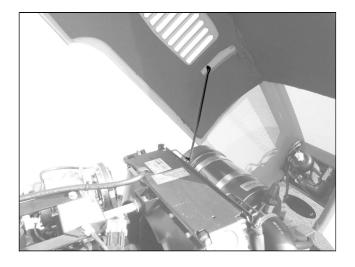
### How to open the bonnet

### **Star 50 Export**





Release the rods and lift the bonnet.

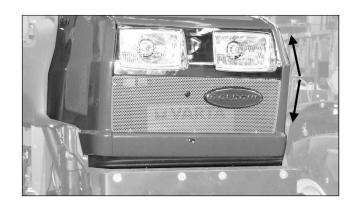


 Before shutting the bonnet, release the safety locking pin by pulling it upwards, as shown in the figure.

### **Star 80 Export**



 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

### **Cooling system**



#### WARNING

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



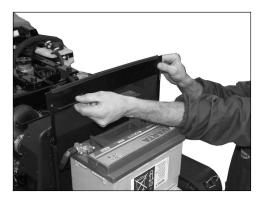
#### **WARNING**

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.



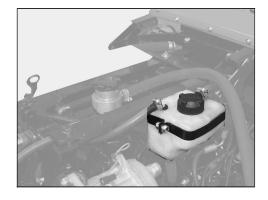
### Clean





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. 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.



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



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

### 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**

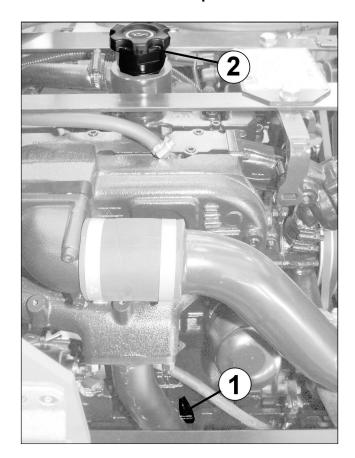
Protect your hands, because the oil could burn if it is very hot.



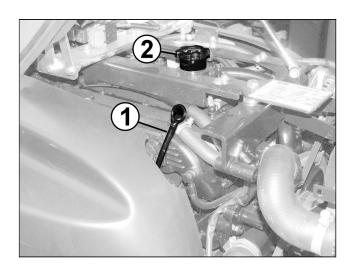
#### **DANGER**

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

### Star 50 Export



**Star 80 Export** 



- Oil level dipstick.
- 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.



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



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

# Dry air filter - Star 50 Export



### **WARNING**

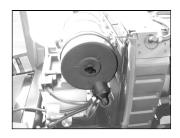
Stop the engine and wait until it has cooled down before proceeding with any servicing operations.

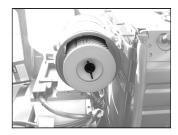






Clean the filter whenever the warning light comes on or when necessary, after evaluating the environmental conditions in which the machine works (dusty, dry, etc.). Proceed as described below:





### 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).



### Replace



300

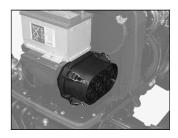
- Replace the external filter when required, or at least after every 300 h service.
- Replace the internal safety filter when required, or at least once a year.
- The internal filter changes colour when dirty

# Dry air filter - Star 80 Export



### **WARNING**

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







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



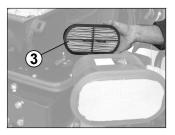


Cover.

Release and remove the cover.



- (2)External filter.
- Remove the external filter.
- Blow a jet of compressed air (maximum pressure 3 BAR) from the inside towards the
- 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 a year.
- The internal filter changes colour when dirty

### 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.

# $\bigwedge$

### **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**

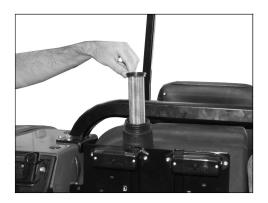
The fuel tank must only be replaced by the dealer or by specialized technicians.



### Clean



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.



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

### TRANSMISSION UNIT

# Gearbox housing, rear differential, power lift



### **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.

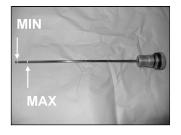
These parts of the tractor all use the same oil.





**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.

# $\Lambda$

### **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.



### **(**∕**~**)Top up level



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

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

| Model          | Quantity Oil L |
|----------------|----------------|
| Star 50 Export | 35             |
| Star 80 Export | 36             |



### **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.



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

### Intake transmission oil filter



**DANGER** 

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





300



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



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.

### Front differential



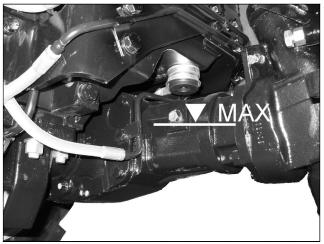
**DANGER** 

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





300



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



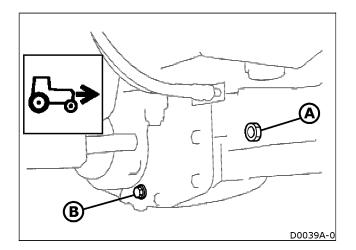
Keep the following parts clean:

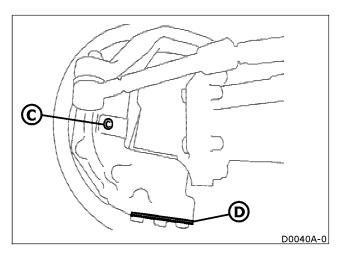
 The areas surrounding the oil level, drain and fill plugs.





900





- **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          |     |  |
| Star 50 Export | 6.7 |  |
| Star 80 Export | 0.7 |  |

### **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.

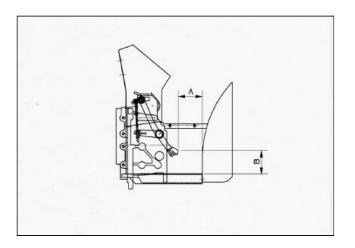


Do not discard fluids like fuels, lubricants, coolants or other, in the environment.

### Clutch







### **Star 50 Export**

| Ped<br>free |   | Pedal as it begins to disengage. |  | Pedal af<br>disengage |   |
|-------------|---|----------------------------------|--|-----------------------|---|
| Α           | В | A B                              |  | А                     | В |
| 190         |   | 245                              |  | 340                   |   |

### **Star 80 Export**

| Ped<br>free |   |     | Pedal af<br>disengage |     |   |
|-------------|---|-----|-----------------------|-----|---|
| Α           | В | A B |                       | А   | В |
| 190         |   | 230 |                       | 340 |   |

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.





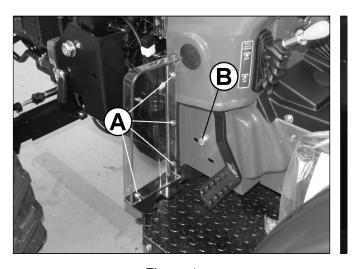


Figure 1

Disassemble the side protection by unscrewing the screws  $\textcircled{\textbf{A}}$  and  $\textcircled{\textbf{B}}$  (Figura 1) and adjust the idle travel of the pedal.

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



### **IMPORTANT**

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





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 from GOLDONI s.p.a.

# 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.





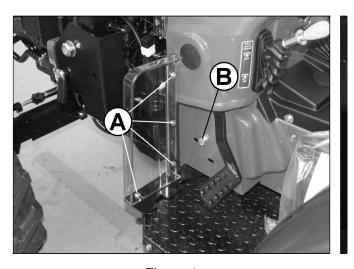


Figure 1

Disassemble the side protections by unscrewing the screws (A) and (B) (Figure 1) and adjust the idle travel of the lever.

Unscrew the adjuster nut (Figure 2) to increase the travel or tighten the nut 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.

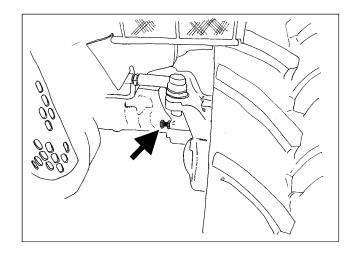
# **Steering**





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



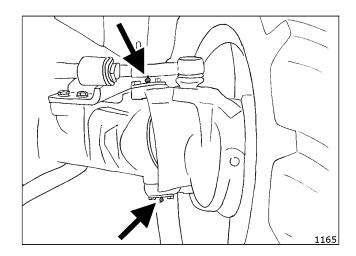
### **IMPORTANT**

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

### **──¹** Greasing



8



### Grease:

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

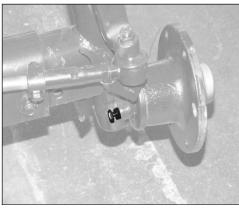
# Steering - 2WD

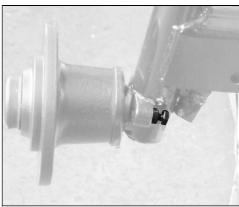




The machine is consigned with steering characteristics optimized to suit the first tyres installed.

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





Use the adjuster screws to regulate the steering radius

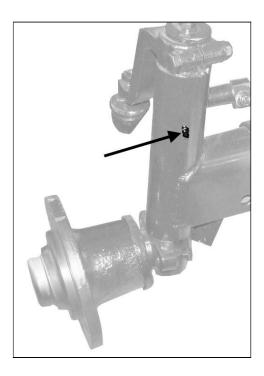


The service must only be performed by the dealer or by specialized technicians.

### **─**¹ Greasing



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.

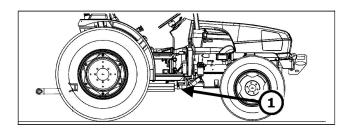


### **IMPORTANT**

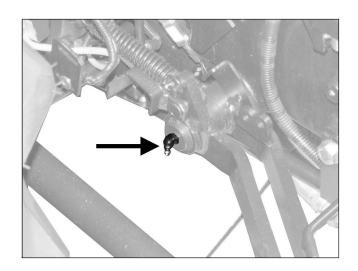
Only your dealer or specialized personnel may adjust the braking system.

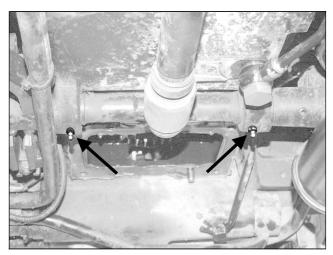
# **GREASE NIPPLE**

# Right side view

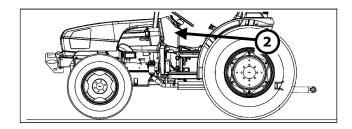


1 Brake pedal. Grease nipples N°:3

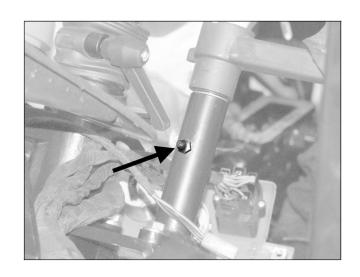




# Left side view

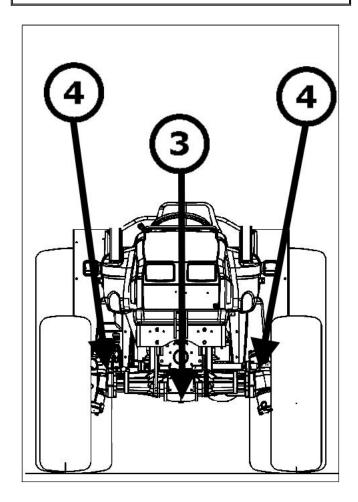


2 Direction reverser. Grease nipples N°:1

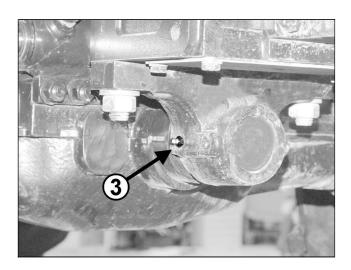


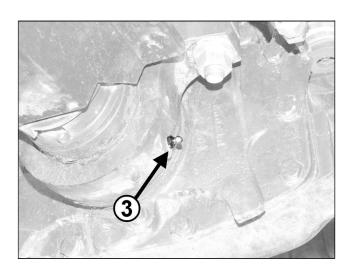
EN Inglese 84 SCHEDULED SERVICING

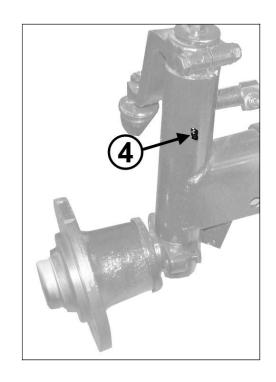
# Front view



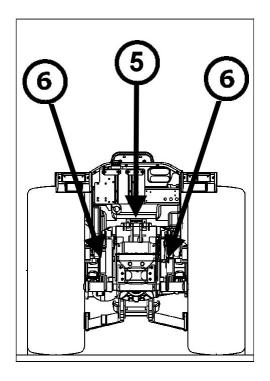
- 3 Front axle Grease nipples N°: 2
- 4 Front axle Grease nipples N°: 2



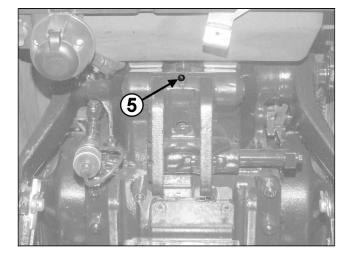


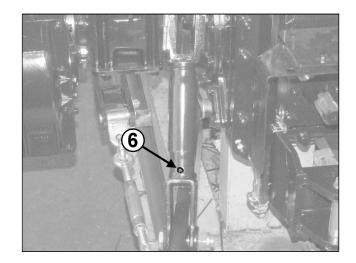


# Rear view



- 5 Top link linkage fix point Grease nipples N°: 1
- 6 Adjustable rod 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.

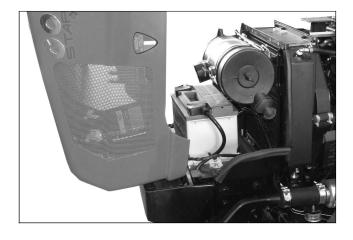
### **Battery**



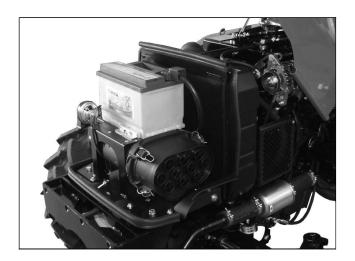
### **WARNING**

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

### Star 50 Export



Star 80 Export



# **O**Check



150

Make sure that the battery is firmly fixed to the machine.



### Clean

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.

# Top up level



Check the level of the battery acid and keep it topped up so that the battery elements are always covered. Add distilled water with the engine off and well away from naked flames.



### 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.



# Adjustment



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



### **IMPORTANT**

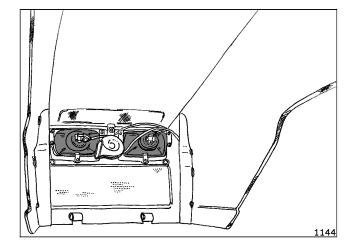
The service must only be performed by the dealer or by specialized technicians.





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

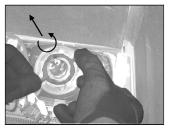




Figure 3

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 anticlockwise 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

# 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.

# Rear lights

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

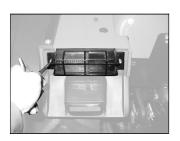


Figure 1



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

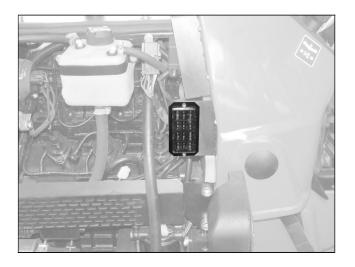


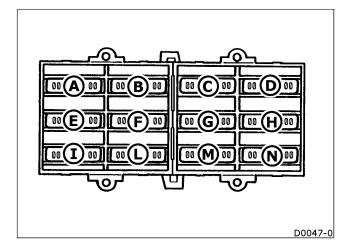
Figure 2

- 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.

### **Fuses**

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.

### **FUSE FUNCTIONS:**



Vacant





Emergency lights switch Parking brake Brake lights.



(C) 🖟 10A

Right front side light. Left rear side lights. 7-pin socket. Right license plate light.





Left front side light. Right rear side lights. 7-pin socket. Left license plate light. Multifunction instrument lighting





Power supply of engine stop solenoid. Multifunction instrument. PTO switch. Front drive engaged indicator yellow. Preheater plant energizing.





Cab power supply



Left dipped beam.



(H) 🕅 7.5A

Right dipped beam.







Field light





Light switch powering. Horn. 1-pin socket 12V 7-pin socket.





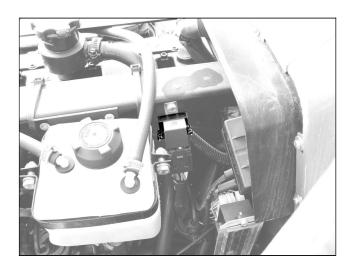
Cab power supply Emergency lights switch Flashing headlights.





Driving beams. Driving beam indicator. The machine is equipped with main fuses. These fuses protect the entire electric system.

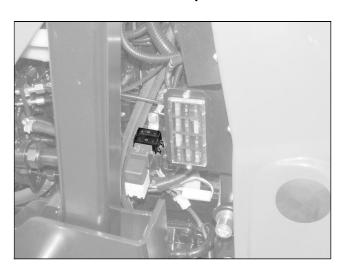
### Star 50 Export



(A) 🖟 50A

General protection of electrical system.

### Star 80 Export



(A) 🖟 40A

General protection of electrical system.

**(B)** 🖟 40 A



Engine preheating





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.

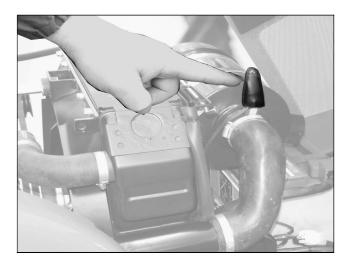
# Engine air filter clogging sensor

<u>^</u>

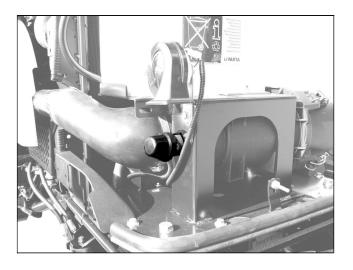
### **IMPORTANT**

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

**Star 50 Export** 



**Star 80 Export** 



# **O**Check

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.



### Check

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.

### **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**

| ENGINE         |               | Star 50 Export | Star 80 Export   |  |
|----------------|---------------|----------------|------------------|--|
| Туре           |               | VM D703 E3     | VM D754 TE3      |  |
| Rated power    | Kw (hp) / rpm | 35 (48) / 2600 | 55,2 (75) / 2600 |  |
| Cylinders      | N             | 3              | 4 Turbo          |  |
| Cooling        |               | Water          |                  |  |
| Displacement   | СС            | 2082           | 2970             |  |
| Torque reserve |               | 14%            | 23%              |  |
| Fuel tank      | L             | 50             |                  |  |

| TRANSMISSION            |     | Star 50 Export                                     | Star 80 Export |  |
|-------------------------|-----|--|----------------|--|
| N° speed gears          |     | 8+8 transmission with synchronized reverse shuttle |                |  |
| Clutch                  |     | 9"   | 10"            |  |
|                         |     | Dry single-plate                                   |                |  |
| Direction reverser      |     | Synchi   | ronized        |  |
| Rear differential lock  |     | Mech   | anical         |  |
| Front differential lock |     |  |                |  |
| Speed                   | Kph | 3  | 0              |  |

| BRAKES AND STEERING SYSTEM                                  |     |  |  |
|---|-----|--|--|
| Type of brakes oil-cooled multiple-plates                   |     |  |  |
| Type of steering system Hydrostatic with load sensing valve |     |  |  |
| Steering angle  | 55° |  |  |

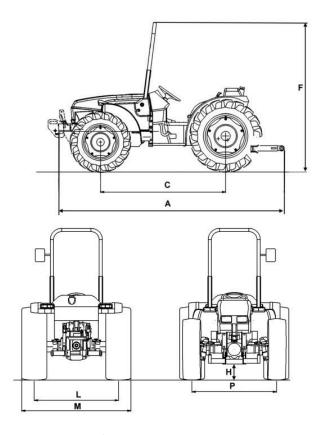
| POWER TAKE-OFF                |         | Star 50 Export     | Star 80 Export |
|-------------------------------|---------|--------------------|----------------|
| Rear                          | Speed   | 540/540E (750 Rpm) |                |
| Cladaviae retation            | Туре    | Independent        | Synchronized   |
| Clockwise rotation            | Clutch  | Dry pla            | ite type       |
| 1-3/8" profile with 6 splines | Control | Mechanical         |                |

| POWER LIFT                    |               | POWER LIFT Star 50 Export Star 80 Exp |                 | Star 80 Export   |
|-------------------------------|---------------|---------------------------------------|-----------------|------------------|
|                               | Туре          |                                       | With position a | nd draft control |
| Rear Lifting capacity Kg 1200 |               | 00                                    |                 |                  |
|                               | 3-point hitch |                                       | Cat. 1 and 2    |                  |

| HYDRAULIC CIRCUIT             |         | Star 50 Export Star 80 Export |      |
|-------------------------------|---------|-------------------------------|------|
| Pump capacity                 | lt/min. | 38                            |      |
| Rear hydraulic control valves |         | Up                            | to 3 |

| DRIVER'S<br>POSITION | Star 50 Export   | Star 80 Export   |  |  |  |
|----------------------|--|------------------|--|--|--|
| Platform             | Plat   | form             |  |  |  |
| Safety frame.        | Folding  | Folding roll bar |  |  |  |
| Instrumentation      | Multifunction analog instrument  |                  |  |  |  |
| Seat                 | Adjustable in the horizontal and vertical directions and installed on type-approved elastic suspensions. |                  |  |  |  |
| Tow hook             | <ul><li>Type CUNA - Cat. C</li><li>CEE Cat.</li><li>Type BT01 EEC Class drawbar</li></ul>                |                  |  |  |  |

# **DIMENSIONS AND WEIGHTS**



The data are calculated with wheels: Rear 360/70-R28" Front 7.50-16"

| Α | Max length                            | mm | 2975 |
|---|---------------------------------------|----|------|
| M | Min - max width                       | mm | 1570 |
| F | Height to chassis                     | mm | 2105 |
| Н | Ground clearance                      | mm | 405  |
| С | Wheelbase                             | mm | 1735 |
| Р | Min - max Front track                 | mm | 1237 |
| L | Min - max Rear track                  | mm | 1220 |
| / | Minimum turning radius without brakes | mt | 2,8  |
| / | Weight with safety frame              | Kg | 1770 |

# 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

| 4 Driving wheels |                            |                  |                            |              |
|------------------|----------------------------|------------------|----------------------------|--------------|
|                  |                            | Loading capacity | Maximum load per axle (kg) | Total weight |
| Model            | Tyres                      | Kg               | Rear<br>Front              | Kg           |
| Star 50 Export   | 360/70-R28"<br>280/70-R18" | 1650<br>1180     | 1950<br>1100               | 3050         |
| Star 80 Export   | 360/70-R28"<br>280/70-R18" | 1650<br>1180     | 1950<br>1100               | 3050         |

| 2 Driving wheels |                         |                  |                            |              |
|------------------|-------------------------|------------------|----------------------------|--------------|
|                  |                         | Loading capacity | Maximum load per axle (kg) | Total weight |
| Model            | Tyres                   | Kg               | Rear<br>Front              | Kg           |
| Star 50 Export   | 360/70-R28"<br>7.50-16" | 1650<br>870      | 1950<br>850                | 2800         |
| Star 80 Export   | 360/70-R28"<br>7.50-16" | 1650<br>870      | 1950<br>850                | 2800         |

### 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

| 4 Driving wheels           |            | 2 [           | Driving wheels          |            |               |
|----------------------------|------------|---------------|-------------------------|------------|---------------|
| Tyres                      | Bar (MAX)  | Position      | Tyres                   | Bar (MAX)  | Position      |
| 360/70-R28"<br>280/70-R18" | 1,6<br>2,4 | Rear<br>Front | 360/70-R28"<br>7.50-16" | 1,6<br>3,7 | Rear<br>Front |

# **SPEEDS**

# Speed Chart

In **kph** with engine at 2300 Rpm and 360/70-R28" wheels (Speeds are purely indicative)

|                 | Forward | Reverse |
|-----------------|---------|---------|
| 1° normal speed | 1.4     | 1.4     |
| 2° normal speed | 2.2     | 2.2     |
| 3° normal speed | 3.8     | 3.8     |
| 4° normal speed | 5.1     | 5.1     |
| 1st Fast        | 7.7     | 7.7     |
| 2nd Fast        | 12.7    | 12.7    |
| 3rd Fast        | 21.9    | 21.9    |
| 4th Fast        | 29.1    | 29.1    |

# 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 HCl 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:
  - 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.
  - 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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### GOLDONI S.p.A.

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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<br>number (serial<br>number). |                              |  |
| Series                                       |                              |  |
| Information about                            | manufacturer and/or importer |  |
| Name   |                              |  |
| Address                                      |                              |  |
| Telephone / internet / email                 |                              |  |
| Owner or operato                             | r                            |  |
| Name   |                              |  |
| Address                                      |                              |  |
| Telephone / internet / email                 |                              |  |