GOLDONI

OPERATOR MANUAL

E 45-60

MACHINES FOR LIFE

SUMMARY

1 : General Informations

Index

1.1 Introduction

Keep this "owner's manual" carefully and do not neglect to consult it regularly.

Because of the considerable diversity of conditions of use, it is impossible for the company to provide perfectly up-to-date and complete publications relating to the performance or methods of use of the tractors of its manufacture and thus to assume responsibility for loss or damage that may result from what is published or from any error or omission. In the event that the vehicle is to be used in particularly severe abnormal conditions (e.g., high water or very muddy terrain), we recommend that you consult your Dealer for specific instructions to avoid voiding the warranty.

The Tractor Manufacturer will accept no responsibility for any damage or injury due to improper use of the tractor, the risks of which will be borne solely by the user.

Compliance with and strict adherence to the conditions of use, service and repair specified by the Manufacturer are also substantially part of the intended use.

When operating, servicing and repairing this tractor, it is necessary to be fully aware of all its specific features and to be exactly informed of the relevant safety regulations (accident prevention).

We recommend that you contact an Official Reseller for any service or registration problems that may arise.

It is specified that all trademarks that differ from those GOLDONI KEESTRACK s.r.l., companies that are part of the owner group, licensees or controlled by them, referring to third-party products and/or services in the following document belong to their respective owners.

1.2 Note to the owner

This manual contains useful information for proper maintenance. The tractor provided is reliable. Its performance and longevity depend on good maintenance and proper use of the tractor. This manual should be read by all tractor operators and kept handy at all times.

Upon delivery, The dealer will provide instructions on the general operation of the new tractor. Maintenance personnel are available to provide any clarification regarding the operation of the tractor.

The dealer has a full line of original spare parts. Parts are carefully manufactured and inspected to ensure high quality and fit of the parts needed. When ordering replacement parts, provide the dealer with the product serial number and model of the equipment. Locate these numbers now and transcribe them in the spaces provided below. Refer to the "General Information" section of this manual for the location of the model number and product identification number.

Contact the authorized dealer to learn about and order any additional fittings. Use the identification data of your vehicle copied from the plates and reported manually on this page.

Note
Using genuine spare parts safeguards and ensures the perfect efficiency of the tractor. Using non-original spare parts or fitting them incorrectly will cause forfeiture of warranty.

RECORD THE FOLLOWING DATA IN THE SPACE BELOW

Model:	
Tractor identification number:	
Engine identification number:	
Date of purchase:	
Name of authorized dealer:	
Phone NumberOf the authorized dealer:	

Safety plates with or without precautionary notations are provided on the tractor to warn the user of potential hazards that could result in personal injury. Comply with all safety messages to avoid possible injury or death

The tractor was designed and built in compliance with the quality standards required by current safety regulations. Nevertheless, the risk of accidents can never be completely eliminated. Therefore, it is essential to follow the required elementary safety rules and precautions. To avoid the risk of injury when using or repairing the tractor, read this manual carefully and pay special attention to the instructions on safety, operation and maintenance.

Use this tractor only for the jobs and applications given in this manual. When using the tractor in work requiring the application of special equipment, consult the dealer to be sure that adaptations or modifications comply with the tractor's technical specifications and meet current safety regulations .

Modifications or adaptations without the manufacturer's approval may invalidate the tractor's initial compliance with safety requirements.

The instruction manual should be kept on the tractor. Verify that it is complete and in good condition. To receive additional copies of the manual or copies in languages other than your country of residence, contact your dealer.

The manufacturer is committed to the constant improvement of its products. Therefore, the company reserves the right to make improvements or modifications whenever possible, without incurring any obligation to modify or change the means previously sold

The tractor should undergo periodic inspections, the frequency of which varies according to the type of use. Contact the authorized dealer.

Warning

The information in this manual is provided based on information available at the time of writing. Settings, procedures, part numbers, software, and other items may change which may affect the maintenance of the tractor. Check with the dealer that you have the complete and up-to-date information before operating the tractor. All data provided in this manual are subject to manufacturing variations.

ATTENTION:

The injection system and engine installed on the tractor comply with government emission standards. Any tampering applied on the tractor is strictly prohibited by law. Failure to comply with these provisions could result in:

- government sanctions;
- Charging costs for adjustments;
- Forfeiture of warranty;
- legal action and possible confiscation of the tractor until it is restored to its original condition.

ATTENTION:

Maintenance and/or repair of the engine should only be carried out by a trained technician!

1.3 Correct and incorrect use of the tractor

1.3.1 Intended use

Note
The tractor has been designed and built in accordance with European directives on the prevention of health and safety risks.To minimize possible risks, to avoid any possible exposure to hazards or risks, it is essential that you read this manual carefully. You must understand and observe the indications and warnings on all decals, nameplates, and labels on the tractor. For any further information on this matter, please contact your dealer.

Note
The tractor is also approved for road use, if it is registered and provided bylicense plate.

To operate in accordance with the intended use of this tractor, it is necessary to follow the instructions in this manual, and the routine maintenance and repair rules established by the manufacturer.

Persons who operate, maintain, and repair the tractor must be fully familiar with the tractor itself, any associated hazards, and must be properly trained and informed on the proper operation of the tractor, the contents of this manual, and the rules established by the manufacturer.

People who use, maintain and repair the tractor must always operate in compliance with the rules on occupational safety and hygiene, occupational medicine and road legislation to prevent accidents that can even cause death.

Any other use that does not comply with the above statement will be considered unintended or improper use and will automatically relieve the manufacturer of any liability in case of accidents. The responsibilities will fall totally on the user.

All persons operating the tractor must have a valid local permit to operate the vehicle or comply with applicable local regulations.

Please read the following directions carefully:

- Use the tractor only for the uses intended by the manufacturer and listed in this manual.
- Use the tractor safely.
- Correctly connect equipment. Using unapproved or improperly fitted implements and accessories could be a cause of tipping over, caused by their detachment.
- Ensure that the three point linkage corresponds to ISO 730 standards.
- Check that the speed and dimensions of the PTO on the tractor match those of the attached implement.
- Before using tractor-connected implements, carefully read the specific Instruction Booklet supplied with the implement. The tractor is a tool that allows it to be used in multiple configurations. It is not possible in this manual to report all safety-related information in the various configurations of the tractor.
- Before using the tractor for towing, or stump extraction, carefully check the tractive effort. Especially when attempting to extract stumps, the tractor may tip over should the latter fail to yield.
- The center of gravity of the tractor may increase when lifting weights at the rear lift or using a front-lift or loader In these situations, the danger of sudden rollover increases.
- Leave the driver's seat and get off the tractor only after performing the following maneuvers:
    - Bring the speed shift levers into neutral.
    - Apply the handbrake and, if present, the parking lock.
    - Disconnect the PTO unless it is to be in operation for certain implements.
    - Lower any implements attached to the tractor.

- When maneuvering with the tractor, take care that there are no people close of the operating area, especially if restricted.
- When starting work, ask people to move away from the operating area. During the working phases, there is a risk of being hit by objects ejected from implements attached to the tractor (rotary mowers, power harrows, etc.).
- Be careful when working near roads or footpaths. Objects can be ejected beyond the work area, striking passers by. Stop and wait until the working area is clear before resuming operations.
- Only operators should ride on the tractor; do not allow anyone to stand or climb on the ladder accessing the driver's seat with the tractor in motion. In this situation, the operator's view is restricted, with the potential danger of falling.
- Maintain a safe distance from the implements working area. Do not stand between the tractor and the implement or the towed vehicle when using the external controls of the lift. Make sure that there are no untrained people in the work area.
- The tractor is equipped with software that controls certain safety functions. Do not tamper with these functions for any reason or download software that is not certified by the manufacturer. Uncertified software could compromise its proper functioning. This can be the cause of abnormal behavior of the tractor, thus reducing both performance and safety. For any software intervention, contact your dealer.
- Some safety functions are controlled by sensors. Their activation ensures their proper functioning.
- The tractor has only one operating station, so it can be operated by a single user.

1.3.2 Unintended and incorrect use

Any type of use not intended by the manufacturer is not considered to be in accordance with the intended use and therefore constitutes an incorrect use. The manufacturer will be relieved of any liability in the event of accidents and the user will be held responsible for all risks deriving from such use.

The list below lists a series of examples, uses and incorrect behaviors of this tractor that put the operator's life and health at risk.

- Allow the use of the tractor to people who have not been previously trained.
- Use the tractor on surfaces and spaces that cannot be defined as an agricultural work area or as a maintenance area
- Transporting people on tractors without a passenger seat. Transporting people without using the passenger seat (where available). Carry people in the field even in a passenger seat.
- Use the tractor for competitions or sporting events.
- Use the tractor to round up grazing animals.
- Start and move the tractor from the ground.
- Exceed the maximum admissible load.
- Do not follow the warnings on the tractor and in this manual.
- Repair and service the tractor while it is running and/or moving forward.
- Maintenance, cleaning, recording, and adjustments without complying with the safety recommendations contained in this manual.
- Make changes to the tractor without first contacting the Dealer or the manufacturer.
- Connect implements/equipment that are not compatible with each other and the tractor itself or that are not authorized.
- The use of non-original spare parts.

1.3.3 Electromagnetic Compatibility (EMC)

This tractor complies with European regulations on electromagnetic emissions. However, interference may occur due to the presence of auxiliary equipment. Auxiliary equipment may not conform to the standards required by those regulations.

These interferences could be the cause of serious abnormal operating and safety behaviors. To overcome these problems, follow the instructions below:

- check that all equipment other than that supplied by the manufacturer installed on the tractor bears the CE mark;
- the maximum power of emitting appliances must not exceed the limits imposed by the authorities of the tractorry's country of destination;
- the electromagnetic field generated by the auxiliary equipment must never exceed the value of 24 V/m at any point near electronic components.

Failure to observe these rules will result in the forfeiture of the tractor manufacturer's warranty.

1.4 General information and required training

1.4.1 Using the manual

This manual contains all the information related to service, the use of the tractor and the operations necessary to keep it in good working order.

Some of these operations must be carried out exclusively by specialized dealer personnel because they may require the use of adequate equipment/structures, not supplied with the tractor itself.

It is mandatory for all tractor users to read this manual carefully to:

- identify all hazards deriving from the use of the tractor;
- identify the components of the tractor, their function, the controls and all the implements for a correct and safe use of the tractor;
- become aware of the deadlines and methods of routine maintenance for a safe and correct use of the vehicle;
- quickly identify and locate possible faults to intervene in emergency situations.

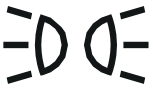
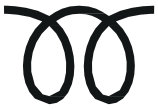
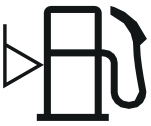
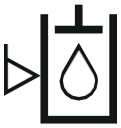
The manual must always be kept on board the tractor, in the appropriate housing, for the duration of its life.

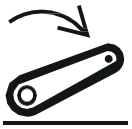
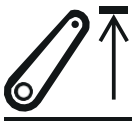
Note
If the tractor is sold, always hand over the operator's manual to the new owner. If the tractor is sold to a new owner without an operator's manual, the new owner could be in dangerous situations because he has no way of knowing the safety rules and the tractor itself.

Along with the User Manual, the following documents are provided:

- Warranty certificate: the details of the dealer, the customer and the spaces for the stamps of the coupons are listed.
- Warranty conditions: all the components covered by the warranty are detailed, everything that is excluded and that causes the warranty to lapse.

1.4.2 Unified signaling indicators

Symbol	Description	Symbol	Description	Symbol	Description
	Fault alarm		Acoustic alarm		Visual Alarm
	High beam warning lights		Low beam alarm		Work light indicator
	Rotating beacon indicator		Position lights indicator		Read The instruction manual
	Direction indicator		Status indicator by battery charger		Rear window washer wiper indicator
	Wiper alert		Windscreen wiper and indicator		Pressure indicator Engine oil
	Engine water temperature indicator		Engine alarm		Preheat alarm The engine
	engine failure indicator		clogged engine air filter indicator		Fuel level indicator
	Fuel supply system fault alarm		4WD alarm		Differential lock indicator
	Forward Direction indicator		Neutral position indicator (neutral)		Reverse Direction indicator
	Level indicator hydraulic fluid		Brake fluid indicator		Parking Brake indicator

	transmission oil Pressure indicator		maintenance request indicator; consult the technical manual		Rear PTO Indicator
	Front PTO Indicator	750	Rear 750 rpm PTO indicator	540	Rear 540-rpm PTO indicator
	Liquid level indicator		Braking system, first trailer or first auxiliary circuit		Braking system, second trailer or second auxiliary circuit
	Rear Lift Indicator		Upper limit lifting indicator		Lower limit lifting indicator
	Hydraulic oil filter indicator		Diesel particulate filter Pressure sensor indicator		for emissions
	Operator alert indicator		presence of water in the fuel Indicator		

1.4.3 Units of measurement used in this manual

Following listed units of measurement used in this manual:

Symbol	Description
°C	Degree centigrade
A	Ampere
cm	Centimeter
cm3	Cubic centimeter
dB(A)	Decibel
g	Gram
rpm	Revs per Minute
h	Hour
kg	Kilogram
km/h	Kilometers per hour
kW	Kilowatt
l	Liters
m	Metres
m3	Cubic meters
min	Minutes
mm	Millimeters
N	Newton
N·m	Newton meter
Pa	Pascal
s	According to
V	Volt
W	Watt

1.4.4 Orientation of the tractor

In this manual, to indicate the direction, seen from the operator's seat, are used following terms:

- 1- Front
- 2- Right
- 3- Rear
- 4- Left

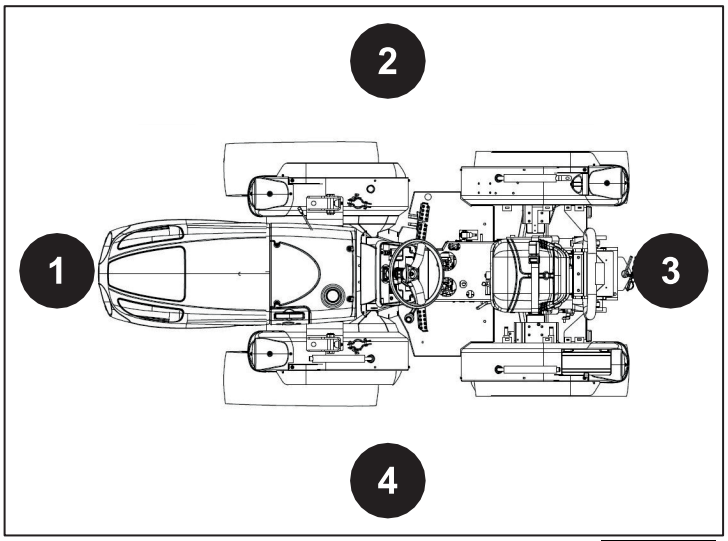


Fig. 1.1

1.4.5 Tractor delivery methods

Upon delivery of the tractor, the dealer must:

- Check the tractor according to the Manufacturer's procedure to ensure that it can operate immediately and safely.
- Explain to the user and all operators of the tractor the main notions of safety, the controls and implements of the tractor and the position of the components subject to maintenance. The illustration of the commands must include: signals (display included), adjustments, starting, stopping, stopping in emergency of the tractor and its components.
- Explain the sections of which it is composed, pointing out the obligation to read the chapter on safety and the one on owner responsibilities.
- Remind all operators intended to drive the tractor and the owner to comply with the regulations in force in the country of use relating to road traffic. Pay particular attention to the rules for speed, towing and transporting equipment.

Upon delivery of the tractor, the owner must:

- Receive the necessary training and information for himself and for all operators intended to use the tractor.
- Receive all the documentation supplied with the tractor, including warranty conditions

Upon delivery of the tractor, operators must:

- Receive the necessary training from the dealer relating to safety rules, tractor controls and implements, and the position of components subject to routine maintenance.
- Receive an explanation from the dealer of the contents of this manual as they are essential to operate safely, use the tractor correctly and carry out routine maintenance operations correctly.

1.4.6 Liability of the tractor owner

The tractor owner is responsible for:

- Read the safety chapter to understand the possible dangers to which operators are subject.
- Order parts for damaged decals to protect operator safety.
- If there are any misunderstandings or inconsistencies between this manual and the tractor, inform the dealer immediately.
- Train and inform everyone who will use the tractor about the dangers and the use of the tractor.
- Make sure that tractor operators read and understand the contents of the manual, especially the safety chapter.
- If necessary, contact the dealers/importers to request a copy of the manual translated into a language understandable to operators.

1.4.7 Operator liability

Note
By 'tractor operators' we mean all those who use the tractor even if rented or under concession.

Please read this manual carefully to:

- Read all safety messages carefully
- Learn how to operate and use the tractor correctly.
- Identify possible risks due to incorrect use of the tractor.
- How to properly maintain the various components.
- Identify the compatible implements for the various processes and the tractor itself.
- Identify the position of the various controls and how they work.
- Identify the position and message of the warning lights on the tractor.
- Report anomalies that compromise the correct functioning of the tractor.
- Carry out periodic inspections as reported in the manual.
- Carry out the scheduled routine maintenance correctly. For extraordinary maintenance or repairs, contact authorized workshops. The manufacturer declines any liability for damage to people or property resulting from repairs or maintenance carried out privately outside the authorized service circuit.
- Report or replace damaged components as a possible cause of safety hazards or damage to the vehicle and the environment.
- Use only original spare parts.
- Only use the tractor for its intended use. The manufacturer declines any liability for damage to people or property deriving from uncorrect uses different than those intended.

1.4.8 Warranty

The Goldoni product warranty system covers, under certain conditions, material or construction defects. Please note that this booklet is published for worldwide distribution, so it is impossible to describe in detail and exactly the terms and conditions of the warranty relating to retail sales in each individual country. All detailed information regarding the warranty terms and conditions can be requested from the Retailer where the tractor was purchased.

The tractor warranty is covered according to the conditions and terms reported in the warranty certificate.

The Service Department provides specialized personnel able to intervene on our products. It is the only service authorized to intervene on the product under warranty.

The Dealer or Dealer is obliged to provide certain services when delivering a new tractor to the customer. These services include a thorough check prior to delivery to ensure that the tractor can be used immediately and the illustration of all instructions relating to the fundamental principles of its use and maintenance. These instructions will cover implements and controls, periodic maintenance, and safety precautions. Training course must be extended to all persons involved in the use and maintenance of the tractor.

Upon delivery of the new tractor, the Dealer or Dealer will carry out a preliminary pre-delivery check to ensure that the tractor can be used immediately. The fundamental principles for its use and maintenance will also be explained. These instructions will cover control implements and controls, periodic maintenance, and safety precautions. The tractor owner undertakes to provide the same information received to all persons involved in the use and maintenance of the tractor.

Any modification, alteration or assembly of components and the use of unapproved implements will void any liability on the part of the Manufacturer.

1.5 Identification plates

1.5.1 Localization of tractor identification data

The tractor is composed of a series of main components that can be identified by plate and/or punching.

The identification data must be provided to the dealer whenever spare parts or service interventions are requested. The same data is also necessary in case of theft of the tractor.

It is recommended to keep them clean and legible. If necessary, request through your dealer the plates that should be damaged or lost and place them in the same position.

1.5.2 Engine Informations

The engine plate is located at the top of the right side of the engine, under the tractor hood.

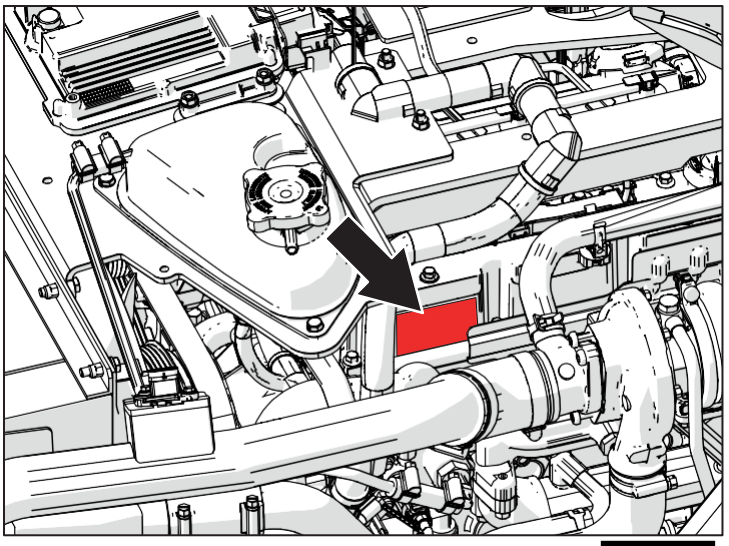


Fig. 1.2

A - manufacturer Identification
B - Serial number
C - Weight
D - Type
E - Family
F - Model
G - Version
H - Maximum power (kW)
L - Maximum rpm
M - Homologation number
N - Lubrication oil characteristics

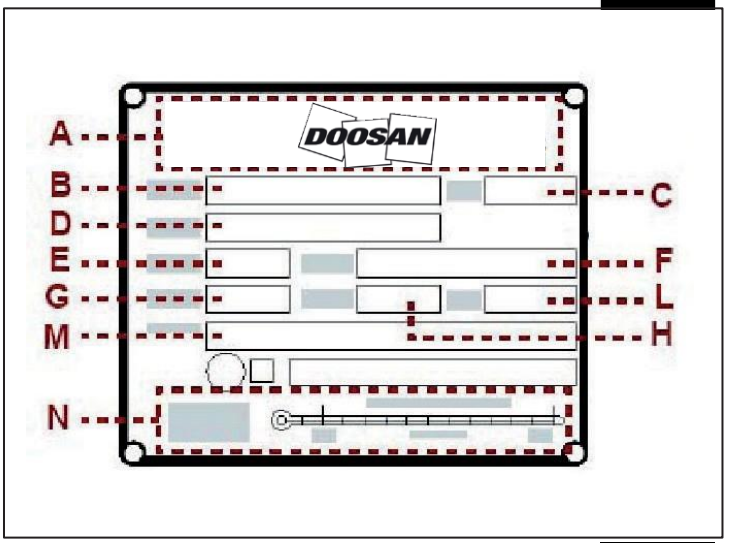


Fig. 1.3

1.5.3 Chassis

Steering wheel version

The data are punched on the right side radiator support cover.

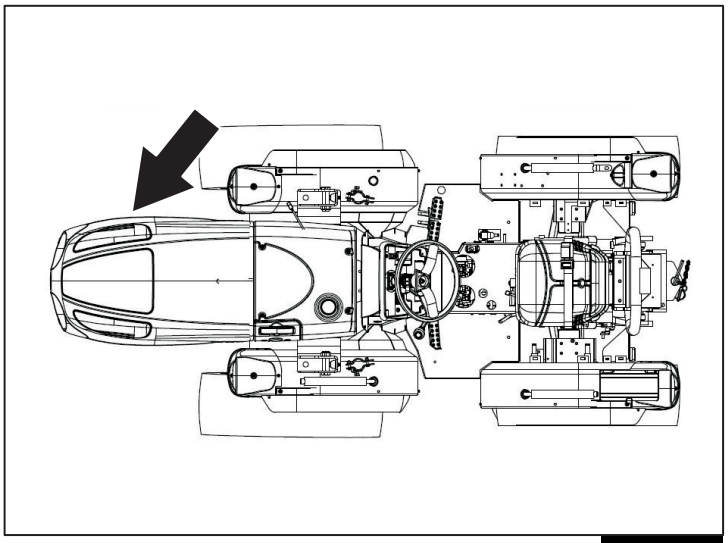


Fig. 1.4

Articulated version

The data are punched on the right side radiator support cover.

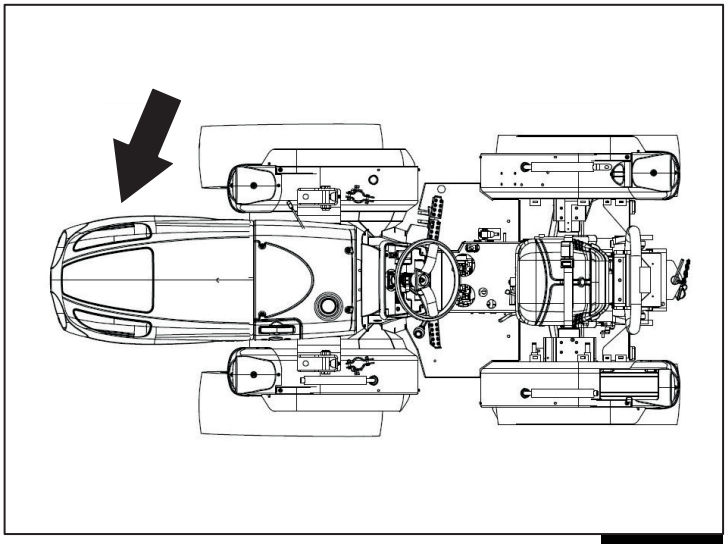


Fig. 1.5

1 - Manufacturer brand acronym

2 - Production series

3 - Variant
- Y1/Y2 - Engine Power
- Y3 - Protective Structure

4 - Version
- Y4 - Speed
- Y5 - Engine stage
- Y6 - Brand

5 - Chassis number (serial number)

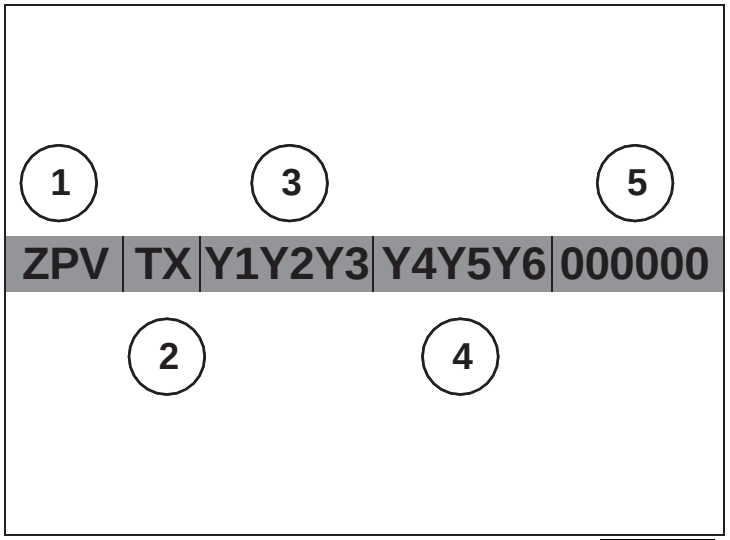


Fig. 1.6

1.5.4 Tractor identification plate

Steering wheel version

The plate is placed on the platform at the bottom right of the operator's seat.

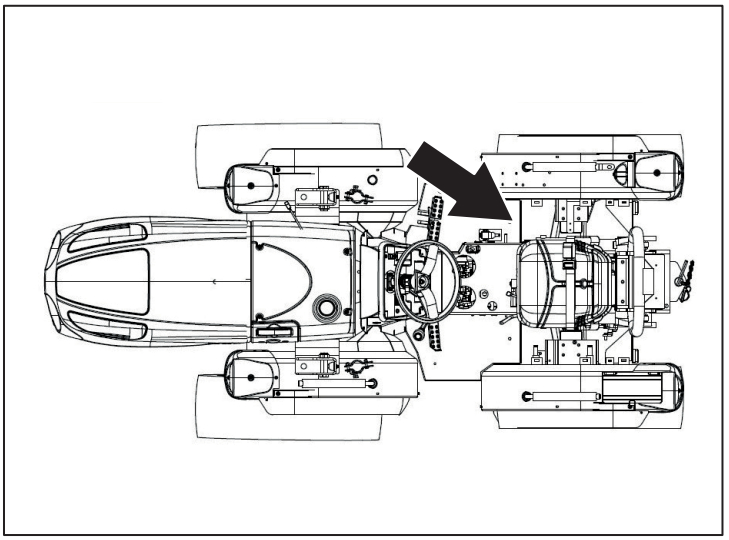


Fig. 1.7

Articulated version

The plate is placed on the central tunnel at the bottom right of the operator's seat.

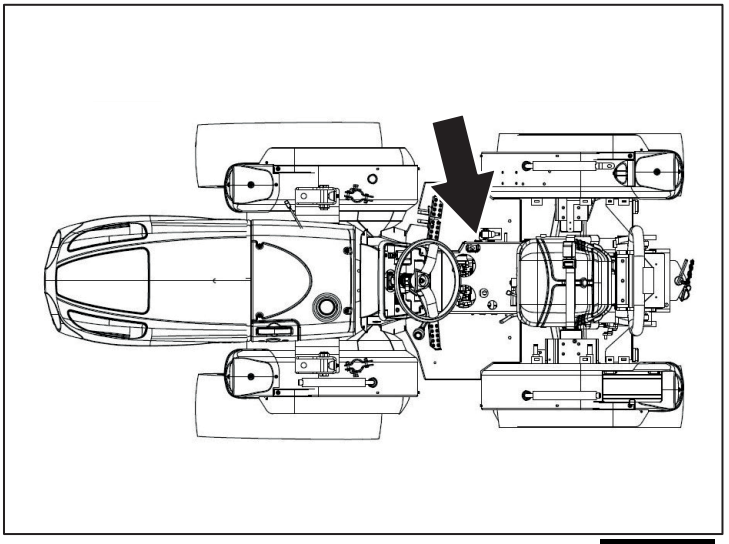


Fig. 1.8

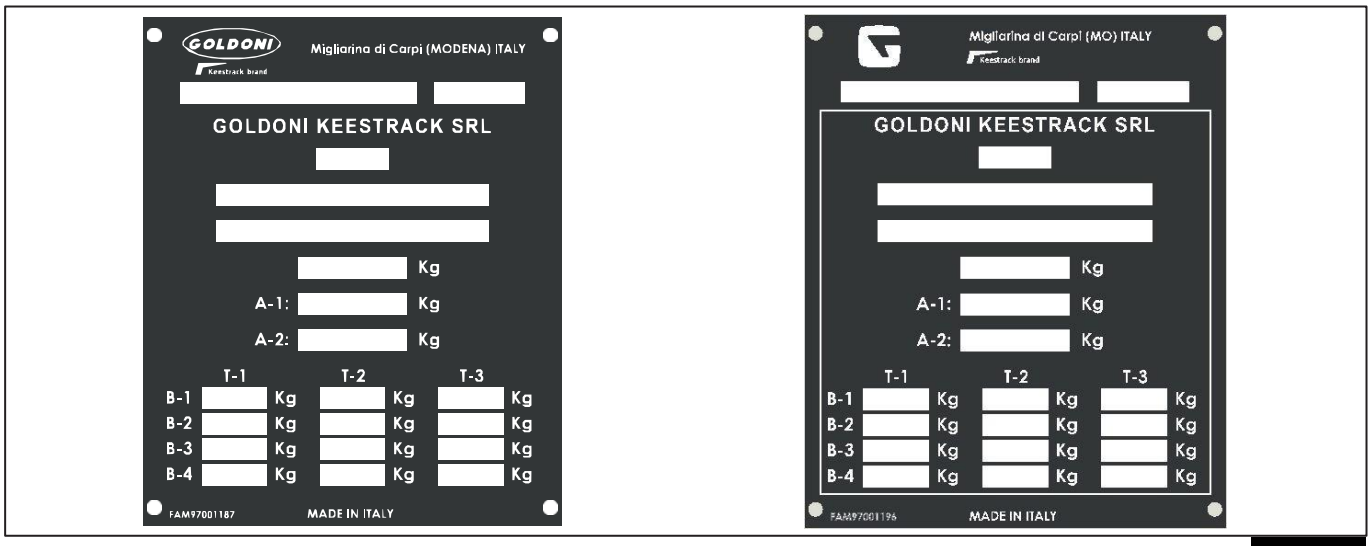


Fig. 1.9

1.5.5 Nameplate with ROPS frame type

The plate is placed on the right pillar of the protective frame.

Meaning of OECD/OECD codes:

- OECD/OCSE 6: The protective frame has passed the ROPS (Roll Over Protection Structure) tests for the front frame; in the event of a rollover, the driver is protected.

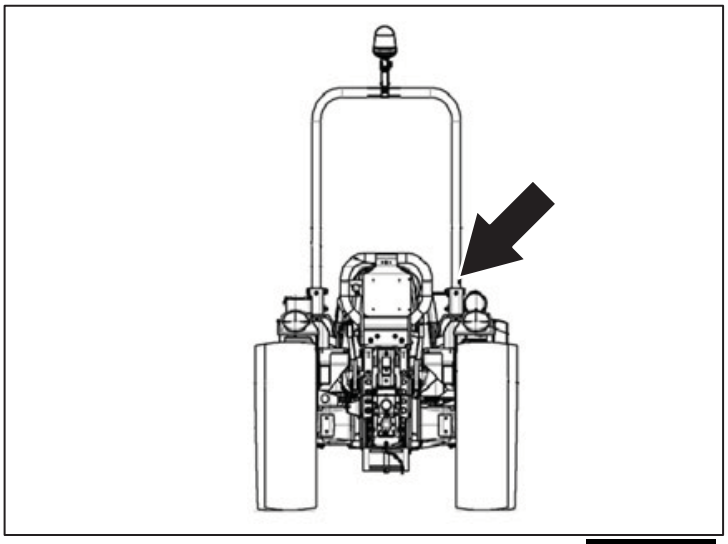


Fig. 1.10

1 - Manufacturer of the protective frame

2 - Name of the protective structure
3 - EEC approval code
4 - OECD Approval Code / OECD
5 - Chassis number (serial number)
6 - Tractor brand
7 - Variant/version

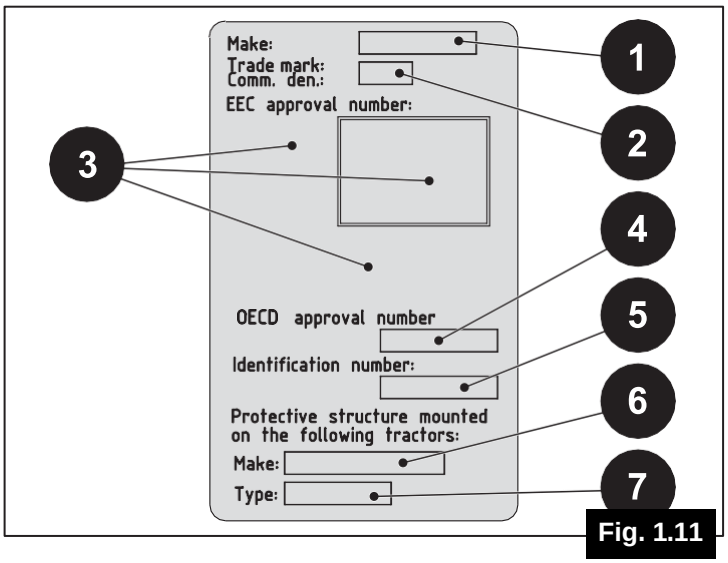


Fig. 1.11

1.6 Homologation types

Commercial name	Type	Variant	Version	Key Features
E60 RS	ZS	E11	2 GG	40.0 kW engine
E60 SN	ZA	E11	2 GG	40.0 kW engine
E45 RS	ZS	E01	2 GG	29.4 kW motor
E45 SN	ZA	E01	2 GG	29.4 kW motor

2 : GENERAL SAFETY REGULATIONS

Index

2.1 GENERAL SAFETY REGULATIONS

2.1.1 Important Warnings

Carefully read the safety regulations listed and follow the precautions indicated in order to avoid potential dangers and to safeguard your health and safety.

This tractor has been designed and manufactured only for agricultural uses. Any other use will be considered contrary to the use intended by the manufacturer who, therefore, cannot be responsible for damage to property and to the tractor itself or for injuries to people that may result from it.

The tractor must be used, serviced or repaired only by people who have been previously trained on the work environment and on safety regulations, in addition to being authorized to operate the tractor itself.

It should be considered that in taking the risk of improper use, subject also assumes the consequent responsibility.

Compliance with the operating, maintenance and repair operations described in this booklet are essential elements that qualify the use intended by the manufacturer.

The user must be trained and instructed in advance on tractor usage and on safety regulations before operating the tractor itself.

Any changes made to this tractor without first contacting and obtaining the consent of the manufacturer to intervene, relieves the Manufacturer himself of any liability for damage or injury.

The Manufacturer and all the Organizations in its distribution organization, decline any liability for damage that may result from the abnormal behavior of parts and/or components not approved by the manufacturer.

2.1.2 General Warnings

This tractor has been designed to make your work safer. Caution is irreplaceable, it is important to prevent accidents. It's too late to remember what should have been done when the accident has already happened. Do not attempt to start or operate the tractor without being in the driver's seat.

Read this manual carefully before starting, using, refueling, or other interventions on the tractor. The time dedicated to reading will give you an adequate knowledge of your tractor, useful to save you time and effort. It will also help you avoid the occurrence of any accidents.

Read all the safety decals on the tractor and comply with the regulations set out in this manual, before operating, restocking or servicing the tractor. Promptly replace damaged, lost or illegible ones. Clean them when they are covered by mud or debris.

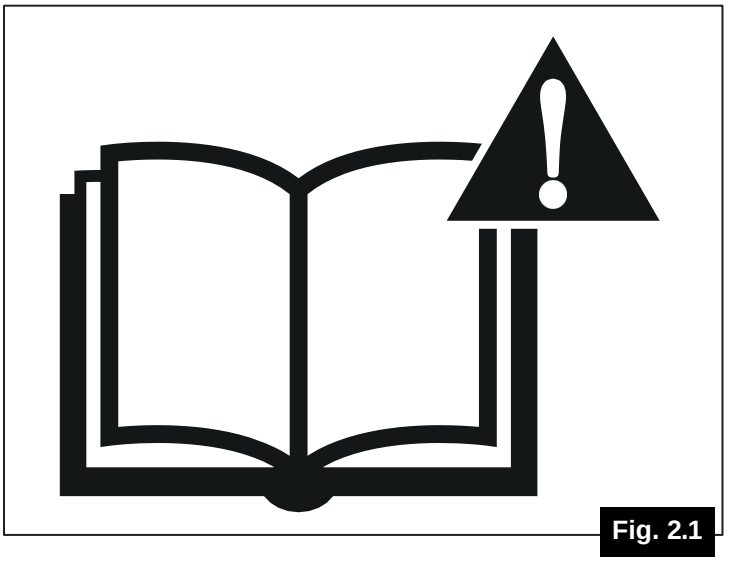


Fig. 2.1

Learn the characteristics of your tractor and how to use all the equipment, implements and attachments mounted on it. Learn the use and function of each command, indicator, and instrument.

To prevent accidents and for the correct use of the tractor, it is important to know how to use each command, indicator and instrument. You must know the nominal load capacity, the speed range, the characteristics of the brakes and the steering system, the turning radius and the application of use.

Always operate with the cab or ROPS intact and properly mounted on the tractor. Check periodically that the related fasteners are not loose and that the structures do not have injuries or deformations caused by accidental shocks. Do not make changes to it by welding parts, drilling holes, etc., so as not to alter the rigidity of the ROPS structure.

Keep a first aid kit available so that you can take action as soon as possible in case of need. Make sure you know how to use these equipments.

Don't wear fluttering clothing, jewelry that can be easily grabbed by any moving part or get entangled on the tractor controls. Tie long hair.

Check that all rotating parts connected to the power take-off shaft are well protected.

2.1.3 Safety Symbols

Within this manual, there are the precautionary annotations DANGER, WARNING and ATTENTION, followed by special instructions. These precautions are provided for the personal safety of the operator and his collaborators.

Read carefully all the messages contained in this manual, before carrying out repair/maintenance work.

Contact the authorized dealer to learn about and order any additional equipment. The spare parts catalog is in fact available only from the authorized dealer. Use the identification data of your vehicle copied from the plates and reported manually on this page.

Symbol used to alert the operator to the presence of potential hazards, which could, if not respected, cause personal injury. Respect all safety messages that follow this symbol to avoid possible injuries, even fatal ones.

Warning

This type of message indicates a potentially dangerous situation that, if not avoided, can result in minor or moderate injuries.

ATTENTION:

This type of message refers to potentially dangerous situations that may result in minor injuries, if not avoided

danger

This type of message indicates a potentially dangerous situation that, if not avoided, will cause death or serious injury.

2.1.4 Identification of dangerous points on the tractor

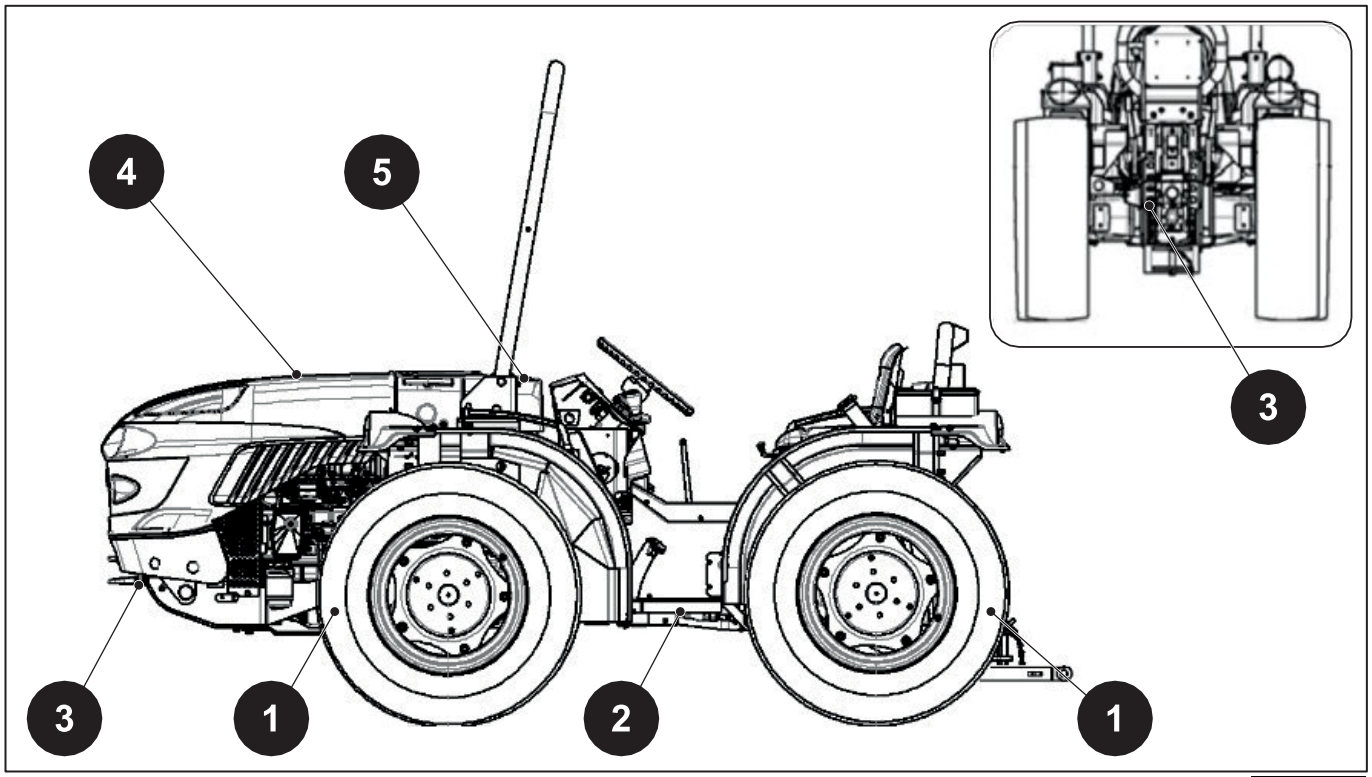


Fig. 2.2

1- Front/rear wheels	Running out by the moving tractor. Crushing by the tire. Tire explosion.
2- Access to the driver's seat	Falling hazard . Pay attention to contact with hot parts.
3- Front/rear implements attachment	Attention to rotating parts (PTO). Danger of crushing caused by connected implements. Danger of suspended loads falling. Danger of oil leakage under pressure.
4- Engine bonnet	Pay attention to contact with hot parts. Pay attention to possible contact with parts under load. Pay attention to the presence of sharp parts. Pay attention to rotating parts (e.g. fan).
5- Fuel supply	Beware of spilled fuel. Fire hazard. Pay attention to contact with hot parts.

2.1.5 Safety plates

Safety tags are applied to the tractor to safeguard the personal safety of operators and other persons involved.

Observe the contents and location of these safety signs before operating the tractor.

It is important to carefully read, understand, and observe the directions and warnings on all safety decals and the information provided in the operator's instruction manual.

Do not remove or obscure safety decals and instructions.

Keep the safety signs legible by cleaning them with a soft cloth, water and non-aggressive detergent. Replace any unreadable or missing safety labels and instructions that can be found at your dealer.

In the event of loss or damage, you can request replacement decals from authorized retailers. If you purchased a used tractor, check that all the decals and safety instructions are present, legible, and in the correct position. To do this, see the section on the presentation and location of these decals.

2.1.6 Location of security decals

The following safety decals should never be removed from their original position on the tractor. If, due to maintenance or deterioration, they should be removed or become unreadable, it is necessary to proceed with their restoration, applying them in the correct position, indicated in this paragraph.

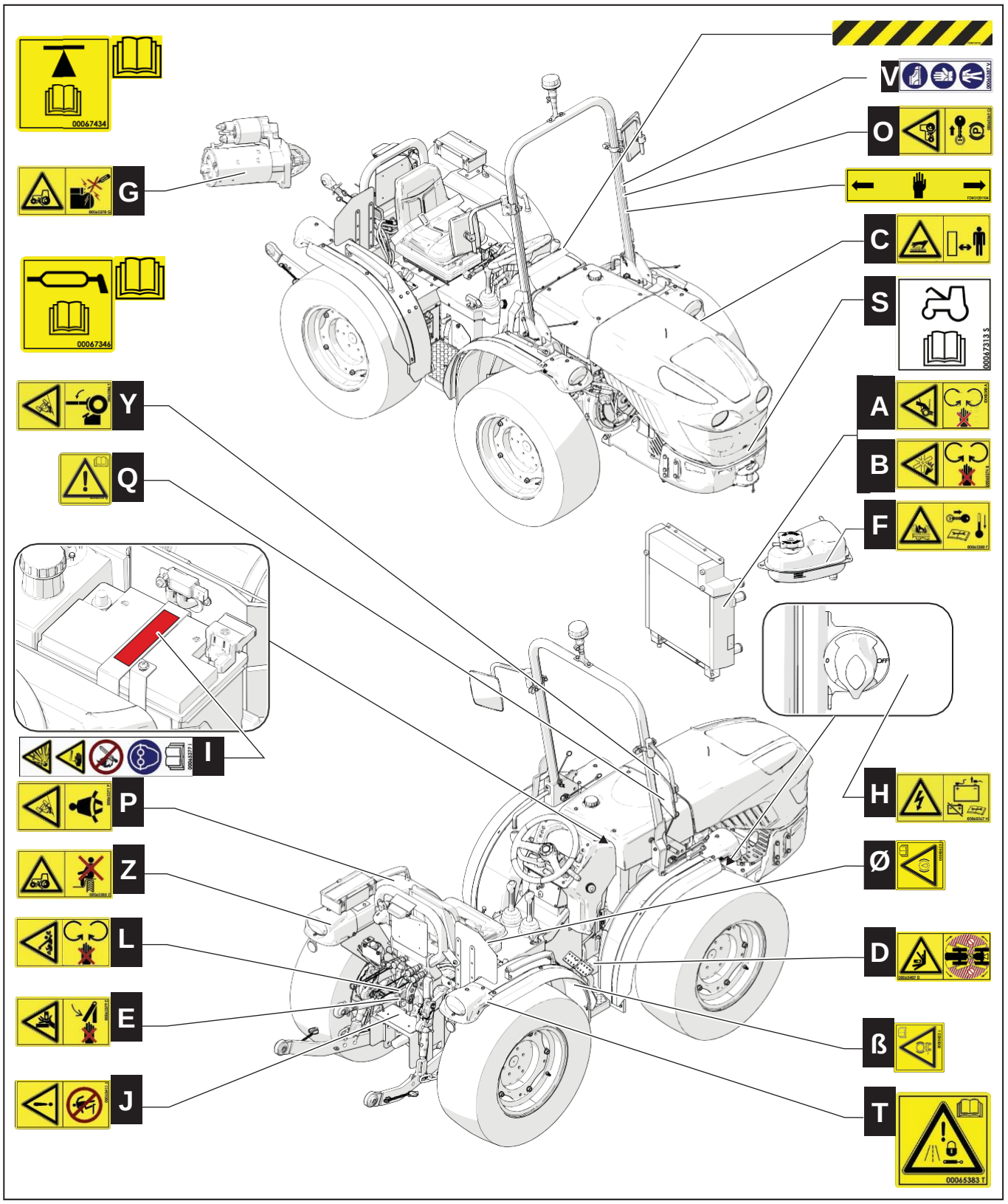


Fig. 2.9

(A) 00065368 - Entanglement hazard

WARNING: Danger of entanglement in belt drives. Keep your hands away from rotating parts and belts while the engine is running. Turn off the panel and remove the key before inspect the tractor. Read the technical manual for more information.

POSITION Radiator, right and left side.

Fig. 2.4

(B) 00065374 - Risk of shearing

WARNING: Shear hazard - motor fan. Keep your hands away from the fan and belts when the engine is running. Do not remove the safety protectors. Turn off the engine and remove the key before performing maintenance or repair work.

POSITION Water radiator, right and left side.

Fig. 2.5

(C) 00065415 - Risk of burns - hot surfaces

WARNING: Keep away from hot parts of the engine when it is running. Turn off the engine, remove the key, and wait for the system to cool down before carrying out maintenance or repair work.

POSITION Engine exhaust, hot surfaces.

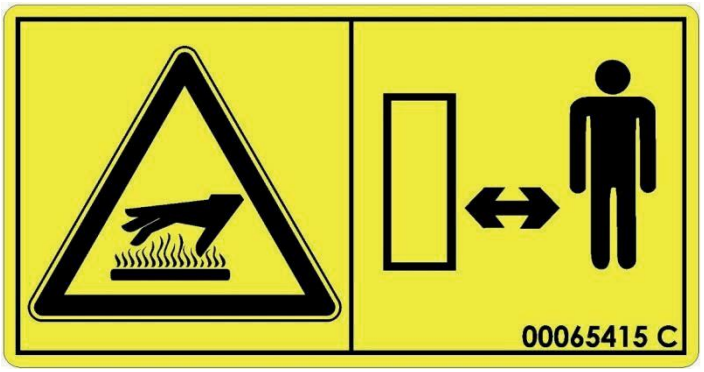


Fig. 2.6

(D) 00065407 - Articulation area

Note
Articulated version only.

DANGER: Stay away from the joint area while the engine is running.

POSITION Articulated tractor: Front fenders on the right and left side. tractor articulation area.

Fig. 2.7

(E) 00065379 - Pinch point danger

WARNING: Pinch point danger due to moving parts. Keep your hands away from the adjustable connecting levers. Never access the crush zone as long as the parts can move.

POSITION Rear lift area.

Fig. 2.8

(F) 00065380 - Risk of sunburn

ATTENTION: Risk of sunburn - High pressure steam and hot water. Turn off the engine, remove the key, and wait for the system to cool down before removing the radiator cap. Remove the filling cap with extreme care. Read the technical manual for more information.

POSITION Water radiator, right and left side /Water radiator expansion tank.

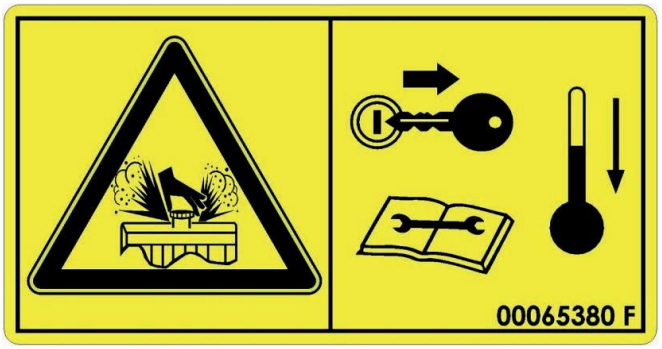


Fig. 2.9

(G) 00065378 - Tractor out of control, danger of being overwhelmed

DANGER: Danger of being overwhelmed. Start the engine only when you are sitting in the seat with the power outlet disconnected and the transmission in neutral mode. DO NOT short circuit the starter terminals to start the engine.

POSITION Starter

Fig. 2.10

(H) 00065367 - Risk of electric shock

WARNING: Electric shock hazard - Risk of personal injury and damage to components. Disconnect the battery before servicing the electrical system. Read the technical manual for more information.

POSITION Battery disconnect zone.

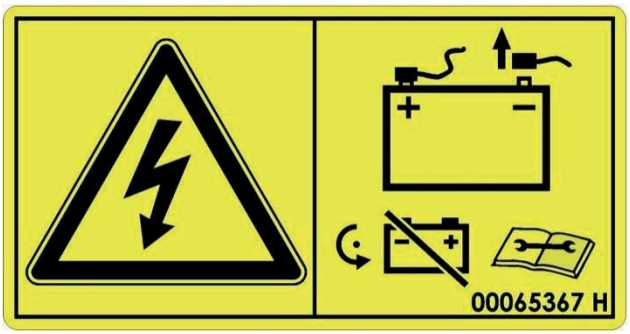


Fig. 2.11

(I) 00065377 - Battery Risks

DANGER: Lead-acid battery risks or explosive gases; or Corrosive liquid (sulfuric acid); Keep away from open flames or sparks. Protect your eyes when working on or around the battery. Read the Safety and Operating Information in the Operator Instruction Book for more information.

POSITION Battery support zone.

Fig. 2.12

(J) 00065413 - Risk of personal injury

DANGER: Do not climb on the parts where this decal is applied.

POSITION Towbar, possible tool box at platform height, possible fuel tank at platform height.

Fig. 2.13

(L) 00065376 - Entanglement Risk - PTO, Rotating Shafts

DANGER: Risk of entanglement —PTO. Keep your distance from rotating trees shaft Keep all PTO carters, rotating shafts, in neutral during operations.

POSITION PTO Carter.

Fig. 2.14

(O) 00065369 -Tractor out of control, danger of being overwhelmed

WARNING: tractor out of control. Danger of being overwhelmed. Turn off the engine, pull out the ignition key, and turn on the parking brake before leaving the tractor.

POSITION (Cabin version): left pillar.

POSITION (ROPS version): left pillar.

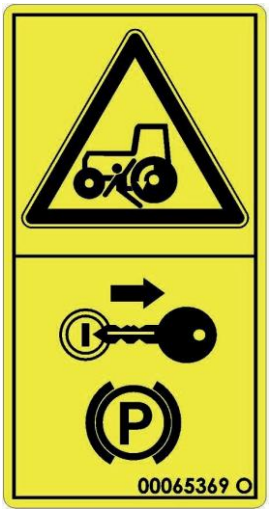


Fig. 2.15

(P) 00065371 - tractor rollover

WARNING: Falling or being crushed danger if the tractor overturns. Keep your seatbelts securely fastened while using, do not jump if the tractor starts to tilt. Do not use the tractor on slopes or in conditions that compromise its safety and stability limits.

POSITION (Cabin version): left pillar.

POSITION (ROPS version): left fender.

Fig. 2.16

(Q) 00065370 - Read the Operator Instruction Manual

WARNING: To avoid personal injury, read the Operator Instruction Manual and safety information before operating the tractor.

POSITION (Cabin version): right central pillar.

POSITION (ROPS version): right pillar.

Fig. 2.17

(S) 00067313 - Bonnet opening

WARNING: Engine bonnet opening: Before opening the bonnet, turn off the engine and read the instructions in the Operator's Manual.

POSITION Engine bonnet opening area.

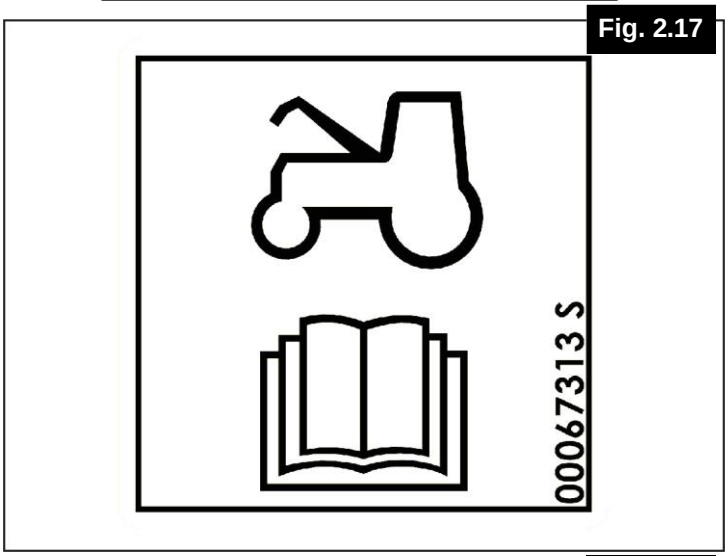


Fig. 2.18

(T) 00065383 - Spool Hydraulic Valves

WARNING: Hydraulic valves: For road driving, lift the implements to the required height and lock the hydraulic functions of the tractor. When the front lifter is not in use, it is essential to lock the hydraulic functions.

POSITION Draft Control /electronic rear lift: Lift flow locking zone Hydraulic spool valves levers: Hydraulic spool valves levers area.

Fig. 2.19

(V) 00065387 - Personal Protective Equipment (PPE)

WARNING: Wear the appropriate personal protective equipment (PPE) for the job to be performed, including safety shoes, protective glasses, face protection, helmet, work gloves, respirators, hearing protection headphones.

POSITION (Cab version): left side.

POSITION (ROPS version): left side.

Fig. 2.20

A - First Category
B - Second Category
C - Third Category

Fig. 2.21

(Y) 00065386 - Always Lock Rollbar

DANGER: Risk of rollover and personal injury. Always keep the ROPS protection structure in a raised position. Always lock ROPS in an upright position, unless it needs to be folded down to allow operations under trees or shrubs.

POSITION ROPS right side.

Fig. 2.22

(Z) 00065385 - Danger of being overwhelmed

WARNING: Do not stand on the fender while driving and do not carry people. Sitting in this tractor is allowed in a passenger seat and only if the driver's view is not obstructed.

LOCATION (ROPS version): Left rear fender.

Fig. 2.23

(Ø) 00065623 - Brake Oil/Fluid - Read the Operator's Manual

WARNING: Brake oil/fluid - The red indicator light on the dashboard indicates the presence of a brake system malfunction. Read the specific instructions in the Operator Instructions Manual carefully.

POSITION Oil/brake fluid tank area.

Fig. 2.24

(ß) 00065622 - Trailer brake - Read the Operator's Manual

Note

Only version with trailer braking.

WARNING: Trailer brake - The red indicator light on the dashboard indicates the disconnection and the need to check the trailer brake. Read the specific instructions in the Operator Instructions Manual carefully.

POSITION Trailer brake control lever area.

Fig. 2.25

00067346 - Grease lubricant

ATTENTION: The decal indicates the greasing points. Grease at the indicated points, read the instructions in the Operator's Manual.

POSITION Greaser point area.

Fig. 2.26

00067434 - Lifting point

WARNING: To identify the locations on the tractor where a lifting cylinder or support device may be used. Lift only the front or rear , never at the same time. Always place the wheel locking wedges on the axle that is not being lifted. Read the instructions in the Operator's Manual.

POSITION Front and rear axle center, front area.

Fig. 2.27

FDM51201104 - Roll-bar lifting point

WARNING: -

POSITION Left roll-bar column with a central height 1500 mm above the ground.

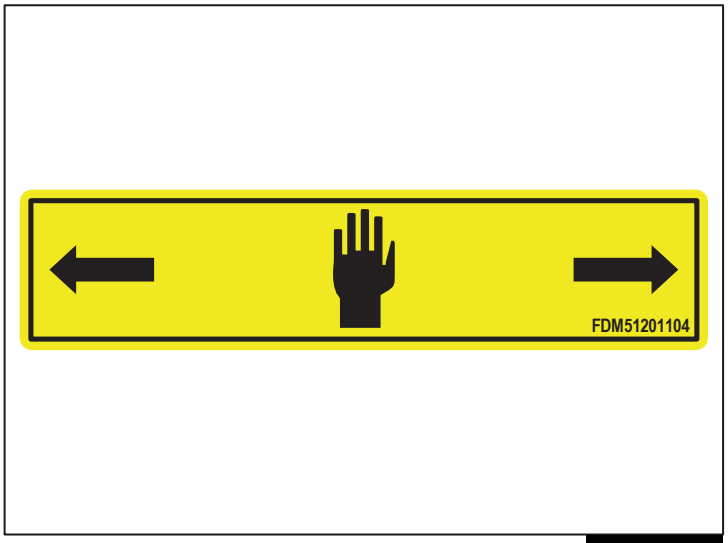


Fig. 2.28

FEM51201102 - Step presence

WARNING: -

POSITION Left Stepfoot.

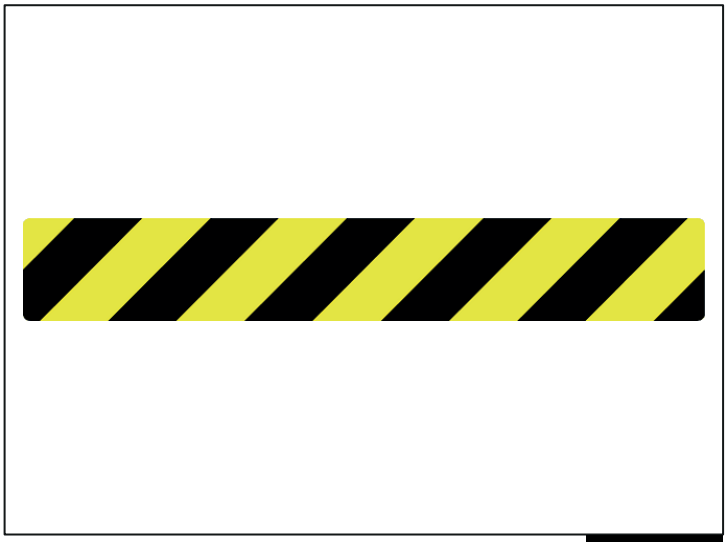


Fig. 2.29

2.1.7 Tractor usage

Select the Track width that are most suitable for the job to be carried out, always considering that you can have the best stability.

Gradually engage the clutch. An abrupt engagement, especially when disengaging from excavations, ditches, muddy ground or moving on a steep slope, can cause dangerous tractor sudden raise Disengage the clutch promptly when the front wheels tend to lift up.

When driving downhill, keep the tractor with one gear in place. Never disengage the clutch and never position it in neutral.

Proceed with the maximum care when operating near the edge of ditches or escarpments. If you have to work with a tractor in altitude, for example on the sides of hills, proceed at a moderate speed and avoid sudden or too tight steering.

When the tractor is moving, the operator must be properly seated in the driver's seat. Do not

get on or off the tractor in motion.

If you need to use the brake, press the pedal gradually.

Avoid taking corners at high speed.

When transferring to roads open to traffic, comply with traffic regulations. When driving, do not

keep your feet on the brake and clutch pedals.

Never carry passengers, not even inside the cabin, unless the tractor has a regularly approved additional seat. In this case, the passenger must be seated in the extra seat with the seat belt fastened.

When traveling on the road, always connect the brake pedals using the appropriate plate. Braking with the pedals not connected may cause the tractor rolling over Do not abuse the use of brakes but prefer the use of engine brakes.

2.1.8 Towing and transport

Towing

For good tractor stability while driving, follow the instructions listed below:

- The braking space increases with the speed and weight of the towed load. Proceed slowly and keep an extra amount of time and safety distance to arrest.
- Adjust the towing device correctly depending on the vehicle to be towed or the tool to be towed.
- Proceed slowly when towing very heavy loads.
- For your safety, do not tow trailers without an independent braking system.
- When towing, never take turns with the differential locked because you may not be able to steer the tractor.
- Never allow children or others to be carried in or on the towed implement
- Use only approved hooks.
- Tow only tractor equipped with a homologated towing hook. Towed implement must be attached only to the approved Hitching system.
- Never drive downhill with clutch in neutral.
- Do not stay in the area between the tractor and the towed vehicle.
- Do not make abrupt turns. Pay special attention when making turns or operating on surfaces in difficult conditions. Use caution when going reverse.
- Towing too much load can cause loss of traction and loss of control on slopes. Reduce the towed weight when operating on slopes.
- The total towed weight must not exceed the combined weight of the tractor, ballast and operator. Use counterweights or ballasts on the wheels as described in the implement or tractor operator's manual.

Transport

- The tractor must be towed just over short distances and not on public roads.
- An operator must remain in the driver's seat in the towed tractor.
- The speed must not exceed 10 km/h.

2.1.9 Passenger transportation

Only the presence of the operator is allowed on the tractor. Do not carry passengers. Passengers in the tractor or implement may be hit by external objects or thrown from the tractor with serious consequences.

The transportation of a passenger without a seat causes violent shocks in the event of an accident. DO NOT carry the passenger if the tractor does not have a special seat provided by the manufacturer.

Passengers obstruct the operator's view, with the result that the tractor is not used safely.

The passenger seat, if any, allows the passenger to be transported only in road operations. DO NOT carry the passenger while working in the field.

Note
For some markets and some tractor models, where permitted by local legislation, a foldable passenger seat is available.

2.1.10 Lifting points

When, for reasons of intervention on the tractor, it is necessary to lift it, follow the following:

- Park the car on a flat surface.
- Lock the wheels.
- Before lifting, make sure that there are no people nearby.
- Check the suitability of the equipment to be used before repare
- Use implements that can support the tractor complete or partial weight
- Do not intervene under the tractor lifted only by hydraulic jacks.
- Keep the tractor suspended with safety stands.
- To lift the tractor, use only the points indicated in the figure.
- Always lift the tractor only from the rear or front, never simultaneously
- Always place locking wedges in front of or behind the wheels of the not lifted axle

danger

When lifting the tractor from the front, place fixed support stands under the rear side axles to prevent the tractor swinging.

When lifting the tractor from the rear, place fixed support stands under the front side axles to prevent the tractor swinging.

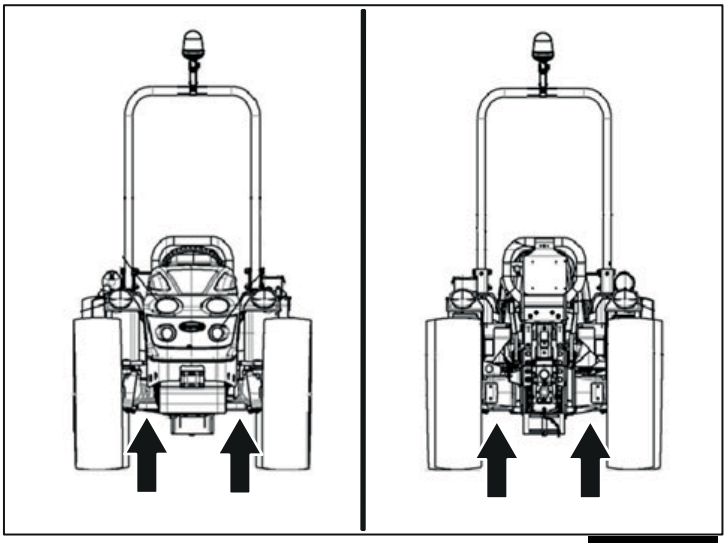


Fig. 2.30

The correct tractor lift points are listed below: Front axle.

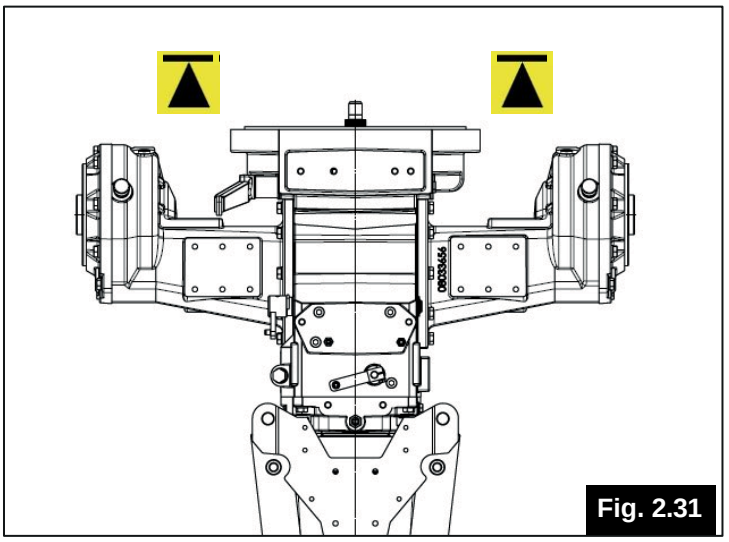


Fig. 2.31

Rear differential crankcase.

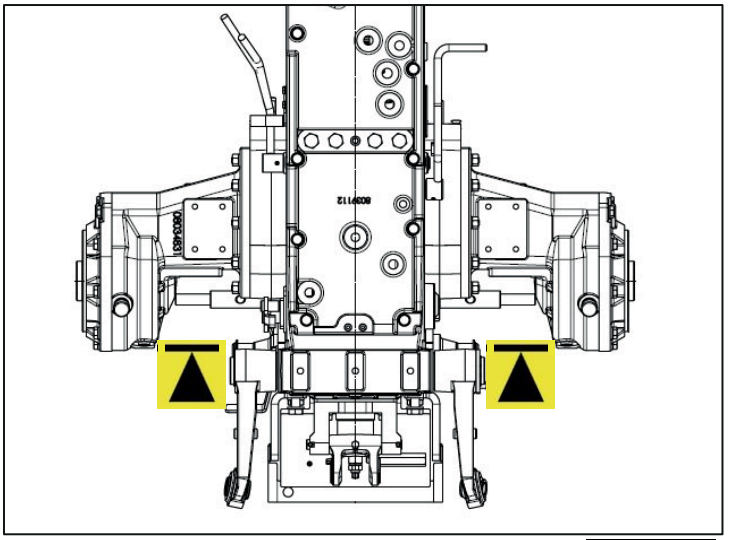


Fig. 2.32

2.1.11 Use of agricultural implements and tractorry

Do not attach implements or operating tractors to the tractor that require power greater than the tractor's class.

Do not face sharp turns with the PTO under heavy load; to avoid causing damage to the cardan joints of the drive shaft connected to the PTO itself.

When using implements that require a stationary tractor with the engine running, keep both the gear and the gear splitter in neutral, lock the handbrake. The use of a stopping wedge is also recommended.

Before using the PTO connected to an operating tractor, always make sure that there are no people within the operating tractor's range. Also check that all the rotating parts connected to the power take-off shaft are well shielded.

2.1.12 Do not stand between the tractor and the implement

The tractor may advance suddenly or the implement may suddenly start moving.

In order to avoid serious physical damage, sometimes even fatal, never stop between tractor and implement or between tractor and trailer to facilitate the connection when the tractor backs up.

- Before performing any type of operation that requires you to stop between the tractor and the connected implements, always turn off the engine.
- When it is necessary to operate the lift, keep distance from people and the affected area.

Most accidents are caused by carelessness and moving tractors.

2.1.13 Fire prevention

Remove grass and debris from the engine compartment and the muffler area, before and after using the

tractor. Always close the fuel valve, if present, when storing or transporting the tractor

Don't keep the tractor parked near open flames or ignition sources, such as a water heater or boiler.

Check frequently that the fuel pipes, tank, cap, and fittings are free of cracks or leaks. Replace damaged components if necessary.

Never store the tractor with fuel in the tank inside a building where the vapors can reach an open flame or spark.

Let the engine cool down before storing the tractor in any closed environment.

2.1.14 Safety measures for tires use and maintenance

Explosive separation of parts of the tire and rim can cause serious injury or death. Never attempt to fit

a tire with equipment and experience that is inadequate for the job. Always maintain the correct

pressure in the tire.

Do not inflate your tires at a higher pressure than the recommended pressure.

Do not keep the pressures lower than the required values, so as not to overheat the tires too much, this could cause:

- tire breakages;
- de-beading.
- Internal injuries;
- uneven wear and short lifecycle.

Do not weld or heat a mounted wheel and tire assembly. The heat can cause an increase in air pressure and therefore the tire to explode. Welding can structurally weaken or deform the wheel.

Check tire pressure by keeping your body out of the possible trajectory of the valve mechanism or cap.

When inflating tires, use a spindle and an extension tube long enough to allow the operator to stand on his side and NOT in front of or on top of the tire assembly.

Check your tires regularly for low pressure, cuts, bubbles, damaged rims, or missing or loose nuts and bolts.

Do not exceed the speeds reported on the tires, in addition to excessive overheating, it causes premature tire wear.

Do not ride your tires on hydrocarbons (oil, diesel, grease, etc.)

After installing the tires, check the tightening of the nuts after 100 km or 3 hours of driving. Then check the tightening periodically.

Have the tires checked by a specialist when one or more problems are found.

Tires mounted on tractors that remain parked for a long time tend to age more quickly than tires used more frequently. In this case, it is advisable to lift the tractor above the ground and protect the tires from direct sunlight.

ATTENTION:
The replacement of tires must be carried out by competent personnel in possession of the necessary equipment and technical knowledge. The replacement of tires carried out by incompetent personnel can cause serious physical injuries to people, injuries to the tire and deformations of the rim itself.

2.1.15 Wheel bolting control

If the wheel bolts are not properly tightened, a serious accident could occur with serious injuries. Check the

tightness of the wheel bolts frequently during the first 100 hours of operation.

The wheel bolts must be tightened to the specified torque with the correct procedure each time it is unscrewed.

2.1.16 Maintenance and storage

Keep nuts, bolts, and screws securely fastened to ensure that the tractor is operating safely.

Never store the tractor with fuel in the tank in an environment where vapors can reach open flames or sparks.

Allow the engine to cool down before storing the tractor in a closed environment.

To reduce the danger of fire, keep the engine, silencer, battery compartment, and fuel storage area clean of grass, leaves, or excess grease.

Safely replace worn or damaged parts.

If the fuel tank needs to be emptied, perform the operation outdoors.

When the tractor needs to be parked, put in the garage, or left unattended, lower the implement if a safety mechanical lock is not used.

Do not leave the tractor unattended while it is running.

2.1.17 Restarting after storage

Before using the tractor for the first time, or after a long period of inactivity, you must do the following:

- verify that the tractor is not damaged;
- verify that the mechanical parts are in good condition and not rusty;
- carefully grease all moving parts;
- check that there are no oil leaks;
- check the engine oil level;
- check the transmission oil level;
- verify that all protectors are correctly positioned.

2.1.18 Safety measures for parking

Before getting out of the tractor, follow the instructions below:

- stop the tractor on a horizontal surface, not on a slope;
- unplug the power outlet and stop the implements;
- lower the implements to the ground;
- block the parking brake;
- turn off the engine;
- remove the key;
- wait for the engine and all moving parts to stop before leaving the operator's seat;
- Close the fuel stop valve if the tractor has one.

2.1.19 Work suit

Always wear clothing and equipment appropriate to working conditions. You must have:

- safety glasses, or safety glasses with side protection;
- a helmet when working with the tractor;
- protective gloves (neoprene for chemical products, leather for heavy work);
- protective headphones or ear plugs;
- respirator or filter mask;
- waterproof and tight clothing;
- reflective clothing;
- safety shoes.

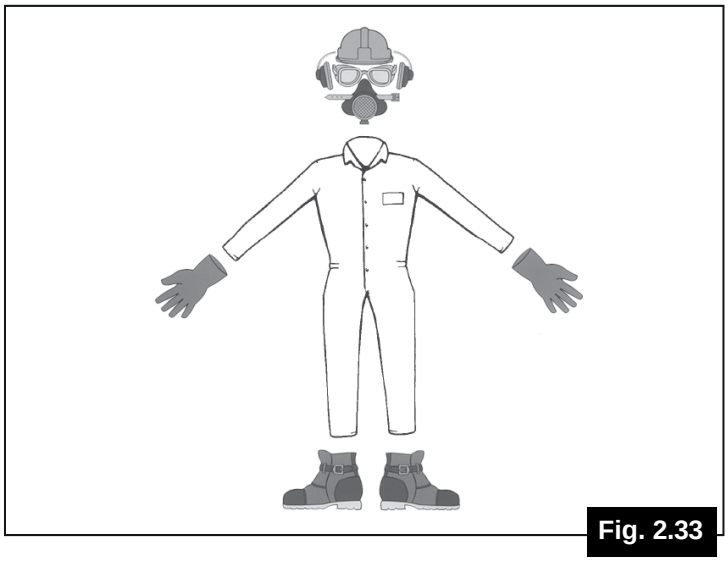


Fig. 2.33

2.1.20 Safety measures for maintenance

The only authorized interventions are those listed in the MAINTENANCE chapter. Any other intervention must be carried out in workshops authorized by the manufacturer. Refer to the retailer for authorized centers.

Ordinary tractor maintenance can only be carried out by qualified and experienced personnel. Understand the procedure well before carrying out service work.

Before servicing the vehicle, read carefully and follow the instructions below:

- never operate the tractor in a closed environment where dangerous accumulations of carbon monoxide may occur;
- keep the nuts and bolts perfectly tight, to be sure that the tractorry is operating safely;
- prevent debris of any kind from accumulating on the tractor. Collect the spilled oil or fuel, remove any debris soaked in fuel. Let the tractor cool down before storage;
- Never make adjustments or repairs with the engine running. Wait until all movements on the tractor have stopped before making adjustments, cleaning or repairs;
- Check the correct functioning of the brakes frequently. Have the necessary adjustment and maintenance operations carried out by authorized workshops;
- replace safety instruction labels, if damaged;
- keep any body wall and clothing away from moving parts and control levers to prevent them from getting entangled;
- before carrying out any cleaning or maintenance operation on the tractor, always lower any connected implements to the ground;
- disconnect all electrical supplies and turn off the engine;
- Lock the parking brake and remove the key. Allow the tractor to cool down;
- use secure supports for the elements of the tractor that need to be lifted for maintenance;
- use stands or lock service latches to support components if necessary;
- Disconnect the battery before performing repairs. Disconnect the negative pole first, then the positive one. Install the positive pole first, then the negative one;
- before any maintenance on the tractor or implements, carefully release the pressure from all components with energy storage, for example hydraulic components or springs;
- Relieve the hydraulic pressure by lowering the cutting implement to the ground or at the mechanical stop, and move the hydraulic control levers back and forth;
- keep all parts in good condition and properly installed. Repair any damage immediately. Replace broken or worn parts;
- charge the batteries in an open, well-ventilated area, away from sparks. Disconnect the battery charger before plug/unplug it Wear protective clothing and use insulated utensils.

2.1.21 Beware of high-pressure fluids

Hydraulic hoses can fail due to physical damage, aging, and exposure. Check the pipes regularly. For safety, follow the instructions below:

- hydraulic connections may become loose due to physical damage and vibration. Check connections regularly. Tighten loose connections;
- fluid leaks under pressure can penetrate the skin, causing serious injury;
- Relieve pressure before disconnecting hydraulic or other lines. Tighten all connections before applying pressure;
- Use a piece of cardboard to search for leaks. Protect hands and body from high-pressure fluids;
- if an accident occurs, seek medical attention immediately;
- any fluid injected into the skin must be surgically removed within a few hours to prevent gangrene Physicians who are not familiar with this type of injury should refer to a reputable medical source.

2.1.22 Safety measures for handling fuel

The fuel is extremely flammable and its vapors are explosive. To avoid personal injury or damage to property, use extreme caution when handling fuel and follow the listed safety precautions:

- NEVER approach the flammable source with cigarettes, cigars, pipes, and other trigger sources.
- use only portable, non-metallic containers for fuel. If a funnel is used, make sure it is plastic and does not contain nets or filters;
- NEVER remove the tank cap or add fuel when the engine is running. Let the engine cool down before refueling;
- NEVER add fuel to or drain it from the tractor in a closed environment Take the tractor outdoors and provide adequate ventilation;
- Collect spilled fuel immediately. If fuel is spilled on clothing, change it immediately. If fuel spills near the tractor, do not try to start the engine, but move the tractor from the spill area. Avoid creating ignition sources until fuel vapors have dissipated;
- never store the tractor or fuel container where there are open flames, sparks, or pilot flames, such as on a water heater or other equipment;
- Prevent fires and explosions caused by static electricity discharges. The discharge of static electricity can ignite vapors in a fuel container without grounding;
- Never fill tanks inside a vehicle or on a plastic-lined trailer or trailer platform. Always place the tank on the ground, away from the vehicle, before refueling;
- Consumables are harmful to health. Keep them away from children.
  If you swallow the liquid, contact a doctor immediately, otherwise you could run into serious health risks.
- All consumables and the connected components must be disposed of in accordance with what is described by the relevant legal regulations. Authorized workshops are equipped for proper disposal and to ensure respect for the environment.
- The use of special additives may compromise the right to warranty. Do not use lubricant additives.

2.1.23 Things to do before refueling

In order to be able to safely refuel the vehicle, it is necessary to follow the instructions below:

- remove the implement that uses fuel from the tractor and refuel it on the ground. If this is not possible, fill such implement with a portable container, instead of with the fuel pump;
- keep the pump nozzle in continuous contact with the edge of the tank or with the opening of the container until the filling is complete. Do not use a nozzle locking-opening device;
- Do not overfill the tank. Put the cap back on the tank and tighten it thoroughly;
- after use, put back and tighten all fuel container caps;
- for gasoline engines, do not use gasoline with methanol. Methanol is harmful to health and the environment.

2.1.24 Electrical equipment safety standards

The electrical equipment has been designed and built according to the provisions of current regulations on the subject. The list contains the warnings necessary for the proper functioning of the electrical equipment:

- Do not use boosters or quick starters to start the engine.
- Do not disconnect the power supply while the engine is running.

 **ATTENTION:**
Before disconnecting the power supply, turn off the motor and wait at least 2 minutes, so that the electronic control unit can carry out the “after-run” procedure.

 **ATTENTION:**
ALWAYS disassemble the electronic control unit and protect all electrically connected devices, located near the negative pole (mass), before performing arc welding on the frame on which the motor is installed.

2.1.25 Battery safety regulations

In order to service the vehicle batteries, the following instructions must be followed:

- always wear eye protection equipment;
- Do not produce sparks or use live flames near the battery.
- Ventilate the room while charging or using the battery in tight spaces.
- The negative (-) pole must be disconnected first and reconnected last.
- Do not weld, grind metal, or smoke near a battery.
- To start the engine with auxiliary batteries or jumpers, follow the procedure set out in the instruction manual.
- Do not short circuit the clamps. For battery storage and handling, follow the manufacturer's instructions. Battery terminals, poles, and related accessories contain lead or lead compounds. Wash your hands after maintenance work.
- Keep batteries out of reach of children and other unauthorized persons.
- Battery acid can cause burns. Batteries contain sulfuric acid. Avoid contact with skin, eyes or clothing.
- Antidotes (in case of external contact):
  - in case of eye contact:
  - Rinse with water for at least 15 minutes;
  - seek immediate medical attention.
  - If swallowed:
  - drink plenty of water or milk;
  - do not induce vomiting;
  - contact the medical staff immediately.

 **ATTENTION:**
When you need to start the tractor with an external booster or battery, do not remove the original battery. Remove the battery only when the engine is off, otherwise the engine control unit will be damaged.

2.1.26 PTO safety regulations (P.D.F.)

Equipment operated by the PTO can cause serious or fatal injuries. Before intervening on or near the PTO Shaft, or before performing maintenance or cleaning operations on the equipment operated by the PTO, disconnect the PTO itself, stop the motor and remove the key.

Always follow the following safety steps:

- NEVER remove the PTO shaft carter The removal of the carter could cause serious or fatal accidents for the operator or people near the work area;
- Do not wear loose clothing while using equipment activated by the PTO Failure to comply with these indications could result in serious or fatal accidents;
- When using the Power Take-Off PTO, and in particular when moving from one speed to another, always make sure that the implement working rpm corresponds to the rpm provided for the selected speed.
- Before using the PTO, make sure that there are no people or objects in the operating area.

2.1.27 seat belts

Seatbelt inspection and maintenance:

- use seat belts to minimize the risk of accidents such as a rollover;
- check that the safety belts are not damaged;
- keep objects with sharp edges that could damage it and compromise its safety at a distance from the belts;
- periodically check that the fixing bolts are properly tightened.

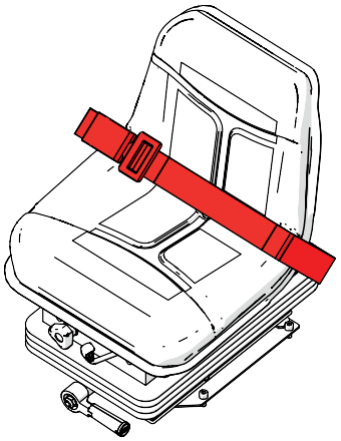


Fig. 2.34

2.1.28 Safety regulations - Lifting and suspended loads

Any lifted loads may fall off. Mounted implements and parts can be accidentally lowered, crushing or killing people who may be present.

To avoid physical damage, sometimes even fatal, due to crushing, follow the instructions below:

- identify the entire area of movement of the tractor and equipment and do not allow anyone to access it;
- do not stand under hydraulically raised loads. Lower the lifted loads to the ground before going under them;
- Do not keep the implements off the ground while the tractor is parked or during maintenance operations. If it is necessary to keep the hydraulic cylinders in a raised position, for maintenance or the need for access, lock them mechanically or support them;
- do not lift loads higher than necessary. Lower transport loads. Remember to keep a safe distance from the ground or other obstacles.

Note

In the event of incorrect use of the front loader or other equipment that could cause danger to the occupants in the cabin, the manufacturer is not responsible.

In versions with front loader:

- use front loaders only if the driver is adequately protected with safety devices (FOPS) or if restraint implements mounted on the charger are used;
- buckets, forks, or other loader equipment or other lifting, handling, or digging equipment and the related load modify the tractor's center of gravity. This may cause the tractor to tip over on slopes or rough terrain;
- suspended loads may fall from the loader bucket or lifting equipment and crush the operator. Use extreme care when lifting a load. Use the correct lifting equipment.

2.1.29 Rollover protection structure (ROPS)

The tractor is equipped with a protective arc or a cabin. The structure protects the operator in the event of a rollover. For greater security, follow the instructions below.

To avoid serious personal injury or death, follow the instructions below:

- avoid using the tractor on slopes or in conditions that compromise its safety and stability limits. Using the tractor beyond these limits may cause rollover.
- be especially careful when driving on steep slopes with the tractor loaded;
- it is forbidden to connect devices to the protective structure for the purpose of towing;
- do not modify the safety arc through welding, drilling, bending, grinding, etc. These changes cause the loss of the approval characteristics;
- always keep your seat belts fastened when using the tractor. The structure offers adequate protection only when the driver is properly secured to the seat;
- if the structure has deformations and wear due to accidents or overturns, it is essential to restore its efficiency before reusing the tractor in the field. For repairs or replacement of the structure, rely on qualified personnel;
- the protective arc must always be raised and locked. Always use seat belts;
- Lower the safety arc only if strictly necessary. In this situation, use caution. When the work is finished, raise the arc again and lock it before reusing the tractor;
- do not use the tractor with the protective arc to carry out treatments with plant protection products;
- Do not use the tractor for towing or extraction work whose magnitude of the tractive effort is unknown, as in the case of the extraction of logs. The tractor could tip backwards if the stump doesn't give way.

ATTENTION:

The list provided regarding possible cases of rollover is incomplete.

2.1.30 Operator Protection Structure (FOPS)

danger
The FOPS approved cab is not installed on these tractor models. Jobs that require a certain level of protection need additional protective measures.

The purpose of the cab is to avoid or limit risks for the operator due to objects falling from above during normal use. An uncertified cabin (FOPS) offers an insufficient degree of protection against falling rocks, bricks, or concrete blocks.

Use a certified (FOPS) facility when working with front loaders or for forestry applications.

2.1.31 Operator Protection Structure (OPS)

danger
On the tractor equipped with this type of cab, there are no fixing points for protective structures designed to protect operators (OPS), as defined by the ISO 8084:2003 standard. The tractor, not having a protective structure capable of effectively protecting the operator from the dangers mentioned above, is not suitable for use in forestry. Jobs that require a certain level of protection, need additional protective measures.

The operator protection structure (OPS) is mounted on the tractor to limit the chances of injury to the operator caused by the penetration of objects into the driver's seat area.

The cabin air filtration and ventilation system does not allow complete protection against the ingress of dust or gases during treatments with pesticides. Take the following precautions to increase the level of protection:

- always use Personal Protective Equipment (PPE) and protective clothing;
- keep doors, windows and roof closed during spraying work;
- keep the inside of the cabin clean;
- do not enter the cabin with contaminated shoes and/or clothing;
- store all Personal Protective Equipment (PPE) outside the cabin;
- bring the wiring into the cabin with the sprayer's remote control joystick;
- use only original replacement filters and make sure that the filter is properly installed;
- check the condition of the sealing material and filters by replacing them if damaged.

2.1.32 Front loader (if available)

Objects can fall from front loader causing serious, sometimes even fatal, injuries. To avoid accidents due to falling objects, follow the instructions below:

- never install a front loader for unprotected tractors (FOPS);
- adopt restraint accessories installed on the front loader;
- do not lift the front loader to a height that would cause objects to fall or overturn on the operator;
- Do not allow people to get close to the manouvring area of the tractor with front loader. Do not allow people to be near or under the raised bucket of a front loader;
- never use the front loader to lift people;
- Make sure that there are no suspended electrical cables in the area where the loader is used. Otherwise, keep a sufficient distance to be able to operate safely;
- Use the front loader to move hay bales, pallets, etc. only if equipped with the necessary terminal;
- In road transfers, place the loader in the transport position and lock it. Respect the maximum front overhang. If the overall size of the tractor with the loader exceeds 3.5 m, it will be necessary to ensure road safety with additional measures. It is forbidden to transport equipment and material with a front loader on public roads;
- danger of accidentally lowering the front loader. For this reason, block the valves after finishing the work. Lower the front loader to the ground before leaving the tractor;
- the assembly and disassembly of the front loader for safety reasons must be carried out only by one person, the driver himself;
- disassemble the front loader only with a mounted tool (shovel, fork) on a solid, flat area;
- when the front loader is mounted, connect all the hydraulic pipes, including the hydraulic return;
- carry out maintenance (greasing) job with a loader mounted on the tractor only in a lowered position;
- risk of injury due to lift height, passage under underpasses, bridges, etc..
- the speed of movement must always be adapted to the driving conditions;
- it is strictly forbidden to carry people. Store and lock the front loader so that external people, such as children, cannot overturn it.

2.1.33 Safety regulations Air conditioning system

The air conditioning system is under high pressure. Do not disconnect pipes. The release of high pressure can cause serious injury.

The air conditioning system contains gases that are harmful to the environment if released into the atmosphere. Do not attempt to service or repair the system by yourself.

Maintain the air conditioning system serviced, repaired or recharged only by specialized personnel.

2.1.34 Personal protective equipment

Personal protective equipment (PPE) is equipment worn by the worker to protect himself against one or more risks that arise during the working, maintenance and repairing phases, which could threaten his safety or health during work.

Always use PPE during working and maintenance, even if the risk of accidents is minimized, to prevent those risks that cannot be eliminated (residual risks).

Use the appropriate PPE for each specific procedure. For personal protective equipment that may be necessary, safety shoes, protective glasses and/or a face protector, helmet, work gloves, respirators, and hearing protection headphones are included.

Fig. 2.35

2.1.35 Safety regulations - 'Do not use' sign

Before starting tractor maintenance, place a “Do Not Use” warning sign on a visible area of the tractor, and remove the key from the starter switch.

2.1.36 Hazardous chemicals

Hazardous chemicals can cause serious injuries. Fluids, lubricants, paints, adhesives, coolants, etc. required for the operation of the tractor can be harmful.

Material Safety Data Sheets (MSDS) provide information on the chemicals contained in each specific product, how to use them safely, and what to do if that product is accidentally spilled. MSDS cards are available from the dealer.

Before carrying out maintenance job, carefully read the information sheets of the individual products on the safety of the materials used on the tractor.

The information on the fact sheets allows you to carry out operations on the tractor safely.

Follow the information provided by the manufacturer on the product containers and the information contained in this manual.

The disposal of fluids, filters and containers must be done with respect for the environment, in compliance with the regulations and laws in force on environmental protection. For correct disposal information, contact your local recycling center or dealer.

Fluids and filters must be stored according to the local regulations in force in your country. For the storage of chemicals or petrochemicals, use only appropriate containers.

2.1.37 Safety information for the application of plant protection products, Plant Protection Products (PPP)

The cab of this tractor corresponds to class 1 as specified by the EN 15695-1:2009 standard and does not provide protection against dangerous substances.

The tractor equipped with this cab cannot be used in conditions that require protection against dangerous substances. The cab only partially protects the operator against chemicals and dust.

To carry out treatments with plant protection products, follow the following instructions:

- during treatments, wear specific devices for protection against chemical vapors (PPE) even if you are inside the cabin;
- read the instructions carefully and follow the information provided by the manufacturer of the dangerous substance contained on the labels on the product containers;
- carefully read the operating instructions provided by the sprayer manufacturer;
- although the ventilation and air filtration system is unable to provide a full level of protection, the adoption of appropriate protective measures will help to increase it;
- sprayers can be used both towed and mounted on the tractor, but it is mandatory to use Personal Protective Equipment (PPE), in order to reduce the risks of intoxication;
- regardless of the type of chemical used, it is mandatory to use Personal Protective Equipment (PPE).

2.1.38 Get in and out of the tractor

Get on and off the tractor only on the side indicated by the manufacturer, holding on to the appropriate handles, steps or ladders.

Don't jump out of the tractor, especially if it's moving.

The steps, the ladders and the platform must be kept clean and free of debris. Don't

stand on steps or ladders with the tractor moving.

When getting on and off the tractor, don't use the steering wheel or other controls as a foothold.

2.1.39 Jobs in forestry

The tractor is not designed for use in forestry. Contact a GOLDONI dealer to verify the possibility of equipping the tractor itself with a structure suitable for the purpose. Protection against heavy falling objects is ensured only by adopting specific safety measures.

2.1.40 Vibration levels

ATTENTION:

Vibrations due to improper maintenance can cause injury to the operator. Check that the tractor is in good condition and that its maintenance complies with the instructions in this manual to avoid damage to health.

The vibrations to which the operator's body is subjected depend on various factors:

- land or surface on which you are proceeding;
- proper maintenance;
- Correct tire pressure;
- type of seat and condition of wear of the seat;
- tractor speed;
- malfunctioning steering and braking system.

The vibrations transmitted from the tractor to the operator are a source of disturbance for the operator.

Prolonged exposure to vibration could cause health problems and safety concerns.

Seat model/type	Vibration level in m/s² detected (test mass) - aws	
	Light-weight operator	Heavy-weight operator
GT62-M91	0,92	0,73

Note

In compliance with EU regulation 2018/830 (Annex XIV), the following table shows the vibration levels measured on the seats in terms of aws*.

aws* = rms (average square value) corrected for the weighted acceleration of the vibration measured on the seat during a bench test.

ATTENTION:

The level of vibration that the tractor transmits to the user's body depends on various parameters, some relating to the tractor, others relating to the terrain in which it operates, others to the type of working application and the tractor possibly connected and finally others specifically related to the driver.

For more information on vibrations transmitted inside the body (WBV) by agricultural tractors, please refer to specific publications on the subject and to local regulations concerning related risks; to correctly evaluate statistical values based on the daily use of the tractor, use a specific measuring device, such as a triaxial accelerometer for the seat.

2.1.41 Safety information for contacting overhead power lines

The tractor, during the opening and closing of foldable implements, during use and through antennas, may come into contact with overhead power lines.

To avoid deadly electrical shocks or fires derived from currents that are discharged onto the tractor:

- when opening/closing implements, keep a sufficient distance from high-voltage power lines;
- do not open or close implements near power poles or power lines;
- with the implement open, keep a safe distance from the high voltage line, so that you can perform maneuvers;
- do not abandon the tractor, or leave it under overhead power lines, to avoid possible dangers of electric shock due to electric arcs;
- In the presence of overhead power lines, electric arcs may be accidentally produced. These electric arcs produce, outside the tractor, very high electrical voltages and large voltage differences are created on the surrounding area.

To avoid often deadly tensions:

- do not walk in long steps, do not lie on the ground or touch the ground with your hands;
- Do not touch metal parts;
- do not make any contact on the ground;
- Warn the people present: DO NOT approach the tractor Electrical tensions on the ground can cause strong electrical discharges;
- wait for the intervention of specialized rescue personnel. The overhead power line must be turned off.

If you are forced to leave the cabin despite the electric arc due to the direct danger of death due to a fire:

- abandon the tractor by jumping as far as possible looking for a safe position;
- do not come into contact with the external parts of the tractor and move away from the danger zone.

2.1.42 Weather safety information

In the presence of storms and weather events such as, for example, lightning that may cause hazards to the safety of the operator and the tractor, it is necessary to take cover immediately.

2.1.43 Tractor electrical system

Some parts of the tractor may be under tension.

Avoid contact so as not to be hit by possible electrical shocks. To avoid

damage, sometimes even fatal, contact specialized personnel.

2.1.44 tractor stability

By connecting implements front and rear to the tractor, the weight distribution on the axles is varied.

Add or remove ballast from the tractor until a correct weight distribution is established depending on the implement in use.

Never exceed the maximum weights allowed on axles and tires.

Correct static weight distribution ensures maximum tractor efficiency, maximum productivity and extends the life of the tractors's components.

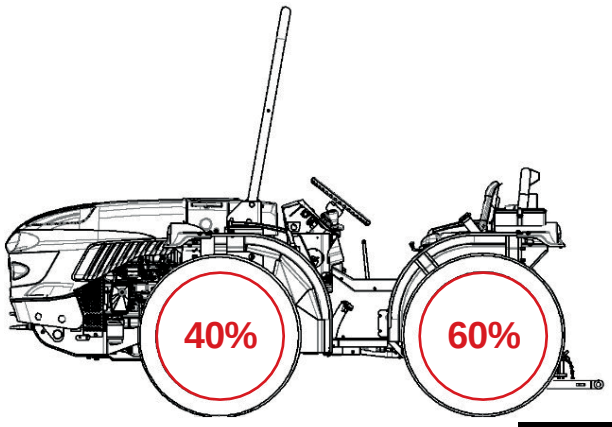


Fig. 2.36

Note

The percentages shown in the figure for 4WD models are indicative. They refer to the tractor complete with ballast and full fuel tank.

Warning

When attaching implements at the rear, it is recommended that a minimum weight of 20% be applied to the front

2.1.45 Ecological standards

Safeguarding the environment is very important. Improper disposal of fluids or waste could alter the ecological system.

All fluids (lubricants, fuels, refrigerants, etc.) must not be dispersed in the environment. Their disposal must be carried out according to the regulations in force in your country.

To dispose of properly, contact the competent authorities or the staff of your dealer.

When carrying out maintenance job, requiring the discharge of lubricants, always place a collection container under the affected component.

The containers used for draining the various fluids must be recognizable. To recover such substances, never use containers derived from food products, which may mislead.

2.1.46 Disposal and scrapping

The tractor is composed of parts that are subject to disposal rules and regulations, so when the tractor is discarded and no longer used, it must be scrapped by authorized bodies.

Do not disperse the tractor or its components in the environment.

Warning

In the event of scrapping, the engine must be disposed of in appropriate landfills, in accordance with current legislation.

Before proceeding with the scrapping, it is necessary to separate the plastic or rubber parts from the rest of the components.

The parts consisting solely of plastic material, aluminum and steel may be recycled if collected by the appropriate centers.

For the collection of waste oils and filters, it is mandatory to contact the “Required Used Oil Consortium”.

Used oil must be properly recovered and must not be dispersed in the environment, since, according to current legal regulations, it is classified as hazardous waste and as such must be transferred to the appropriate collection centers.

3 : Technical features

Index

3.1 Technical Data

3.1.1 Engine

E45

Tractor		E45 RS / E45 SN
Producer		DOOSAN
Model		DM01
Power supply		Electronic direct injection diesel
Emissions type		Stage V
Number of cylinders		3
Aspiration		Turbocharger + Intercooler
Rated speed	rpm	2600
Rated Power	kW / CV @ rpm	29,4 / 40 @ 2600
Liquid cooled		
Displacement	cm^3	1794
Specific fuel consumption (max torque speed)	g/kWh	220
Maximum torque	N·m	150,0
Maximum torque rating	rpm	1400
Torque backup	%	39
Tank capacity	l	33
Engine bonnet		RTM

E60

Tractor		E60 RS / E60 SN
Producer		DOOSAN
Model		DM01
Power supply		Electronic direct injection diesel
Emissions type		Stage V
Number of cylinders		3
Aspiration		Turbocharger + Intercooler
Rated speed	rpm	2600
Rated Power	kW / CV @ rpm	40 / 54,4 @ 2600
Liquid cooled		
Displacement	cm^3	1794
Specific fuel consumption (max torque speed)	g/kWh	220
Maximum torque	N·m	190,0
Maximum torque rating	rpm	1600
Torque backup	%	29
Tank capacity	l	33
Engine bonnet		RTM

3.1.2 Transmission

E45/60 RS

Transmission type		Mechanical traction, four-wheel drive
Gearbox type		16+16 synchronized
Shift command		Mechanical with central levers
Clutch		Dry single disc, 9" diameter (230 mm)
Hydraulic clutch control		
Shuttle type		Mechanical, synchronized
Mechanical reverse shuttle		
Front wheel drive clutch control		4WD Permanent
Rear differential lock		Mechanic
Front differential lock		Mechanic
Front axle oscillation		15° to the right + 15° to the left
Minimum speed	km/h	0,91
Maximum speed (approved)	km/h	29.61 (with 280/70 R18 tire)

E45/60 SN

Transmission type		Mechanical traction, four-wheel drive
Gearbox type		12+4 synchronized
Shift command		Mechanical with central levers
Clutch		Dry single disc, 9" diameter (230 mm)
Clutch control		Plumber
Shuttle type		Mechanical, synchronized
Mechanical Reverse Shuttle		
Front wheel drive clutch control		4WD Permanent
Rear differential lock		Mechanic
Front differential lock		Mechanic
Front axle oscillation		15° to the right + 15° to the left
Minimum speed	km/h	1,30
Maximum speed (approved)	km/h	30.3 (with 300/70 R20 tire)

3.1.3 Brakes

Rear braking type		With multiple discs in oil bath, mechanical control
Front braking type		-
Emergency brake and parking		Agent on the rear wheels, with independent mechanical control
Mechanical lever support for trailer brake		CUNA type

3.1.4 Steering

Tractor	E60 RS	E60 SN
Steering type	Hydrostatic with load sensing valve	Hydrostatic with load sensing valve
Steering angle	40°	32°

3.1.5 Rear PTO

Tractor		E60 RS	E60 SN
Type		Single shaft, independent And Ground speed	
Speed independent of progress	rpm	540-540E	
Other Speed independent		-	
Speed Ground speed synchronized		Yes	
Direction of rotation (looking at the PTO)		Clockwise	
Profile		1-3/8" 6-slot	
Clutch		Multiple discs in oil bath	Mechanical with dry disc (same clutch as the transmission)
Clutch control		Electro-hydraulic	Mechanic

3.1.6 Rear lift

Type		- Raise and lower
lifting capacity at ball ends	kg	1500
Three-point hitch category		Category 1
Mechanical Upper link		Category 1
HydraulicUpper link		-
Lower arms type		Fixed
Right tie rod type		Mechanic

3.1.7 Hydraulic system

Tractor		E45/60 RS	E45/60 SN
Type		Open center	Open center
Pump flow rate	l/min	44,4	44,4
	rpm	@2600	@2600
Rear spool valves		2	2
Front spool valves		-	-
Oil-free return		Quick 1/2 NPTF	Quick 1/2 NPTF

3.1.8 Electrical system

Battery		12 V 680A 74Ah
Safety		remote battery switch
Dashboard		Analog digital
1-pole socket	Volt	12
7-pin socket	Volt	12
Rear work light		Adjustable
Beacon		Orange

3.1.9 Driver's station

Platform	Semi-platform
Platform support	Rigid fastening
Front fenders	Integrated into the chassis
Rear fender protection	Rubber profile
Front fender protection	Rubber profile
Safety frame	Folding Roll Bar
Standard cabin	-
Left and right rearview mirror	Adjustable
Seat	On elastic suspension, with seat belts and OPS
Seat adjustments	Horizontal, vertical and driver weight adjustment
Toolbox	Yes
Operator’s Manual	Yes

3.1.10 Maximum operating inclination of the vehicle

Forward	Degrees	25°
Reverse	Degrees	25°
Left	Degrees	25°
Right	Degrees	25°

3.1.11 Towing devices

Rear tow bar	EEC category adjustable with pins
SLIDER rear tow bar	-
Front tow bar	Fixed
Towbar	-

Vertical loads

	Permissible vertical load on the hook (kg)
GTX001 type hook	1500
Hook type GTF30 028D	1350

3.1.12 Towable masses

R and S category vehicle brake	Towbar (kg)	Rigid drawbar (kg)	Central axis (kg)
Not braked	1350	1350	1350
GTX001 inertial braking	6000	6000	6000
GTF30 028D inertial braking	8000	8000	8000

Warning

Consult the road circulation documents for data on maximum vertical loads and maximum towable masses.

Take into account the load capacity of the tires. Do not exceed the mass allowed on the tires. Do not exceed the permissible mass on the rear axle of the tractor. Comply with local regulations. The values shown in the table may be limited by the road circulation regulations of each country.

3.1.13 Ballasts

Front	-
Water in the tire	With air/water valve

Warning

The ballasts are not used for road traffic.

3.2 Weights and dimensions

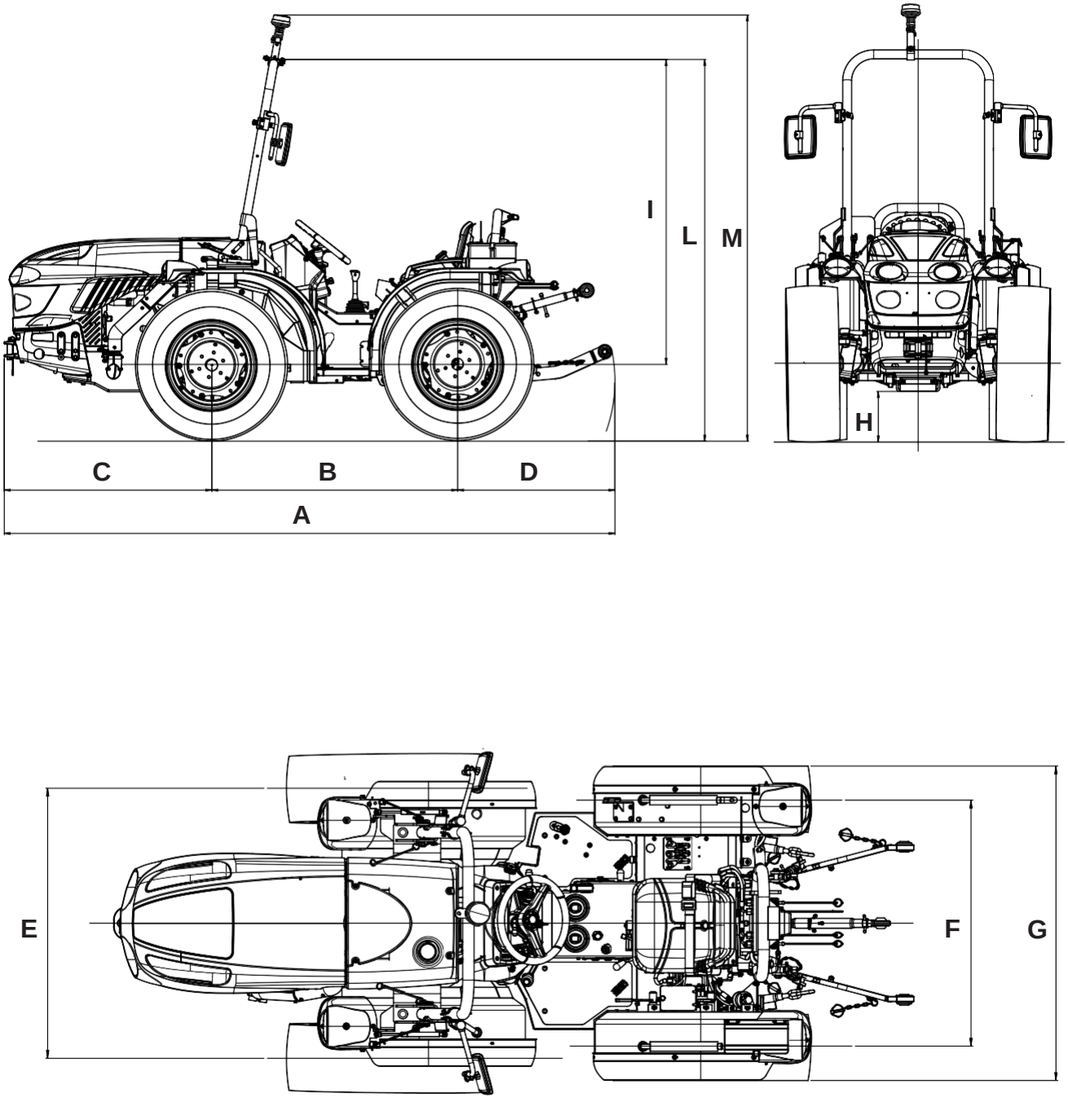


Fig. 3.1

sizes

Model			E45/E60 RS	E45/E60 SN
A	Length without ballasts		3407 mm	3407 mm
B	Wheelbase	2 wheel drive	N/A	N/A
		4 wheel drive	1372 mm	1372 mm
C	Distance between front axle and tow bar	2 wheel drive	N/A	N/A
		4 wheel drive	1070 mm	1070 mm
D	Distance between front axle and rear lifter	2 wheel drive	N/A	N/A
		4 wheel drive	875 mm	875 mm
E	Width at front wheels	2 Wheel Drive	N/A	N/A
		4 Wheel Drive	935 mm (min) 1371 mm (max)	696 mm (min) 1108 mm (max)
F	Width at rear wheels	2 Wheel Drive	N/A	N/A
		4 Wheel Drive	1015 mm (min) 1281 mm (max)	876 mm (min) 1108 mm (max)
G	Width at the fenders		1240 mm (min) 1521 mm (max)	1088 mm (min) 1394 mm (max)
H	Ground clearance	Standard 4-wheel-drive axle	228 mm (min) 240 mm (max)	225 mm (min) 279 mm (max)
I	Highness overall vehicle, from the center line to the rear axle	Cabin version	N/A	N/A
		ROPS frame version	1702 mm	1702 mm
L	Overall height	Cabin version	N/A	N/A
		ROPS frame version	2080 mm (min) 2092 mm (max)	1927 mm (min) 1981 mm (max)
M	Highness Overall vehicle with becon		2329 mm (min) 2341 mm (max)	2175 mm (min) 2229 mm (max)
/	Minimum turning radius with brakes			

Vehicle empty masses in running order

Model		E45/E60 RS	E45/E60 SN
Total Unladen Mass		1725 kg	1675 kg
Distribution between the axes	1st axis	1140 kg	1120 kg
	2nd axis	585 kg	545 kg

Max. Admissible Weight

Model		E45/E60 RS	E45/E60 SN
1st axis	kg	1200	1200
2nd axis	kg	1800	1800
Total	kg	3000	3000

3.3 Lubricants, fuels and coolants

Group	Lubricants, fuels and coolants	Capacity	Type	specs
Engine	Engine oil	6,3 l	SAE 10W-40	ACEA E9/E7 - API CK-4
	Fuel	33 l	MOTOR VEHICLE	DIN EN 590
	Coolant	3,75 l	ETHYLENE GLYCOL (1)	SAE J1034 ASTM D 3306 and 4985
Transmission	Transmission Oil - Rear differential (E45/60 SN)	22 l	15W-40	API GL 4
	Transmission Oil - Rear differential (E45/60 RS)	25 l		
	Front Axle Oil - Front differential (E45/60 SN)	11 l	80W-90	API GL 5
	Front Axle Oil - Front differential (E45/60 RS)	8,5 l		
	Side Reducers	0.7 l (each)		
	Clutch	0,3 l	TORQUE-O-MATIC D II ATF	GM DEXRON IID
Miscellaneous (greasing)	grease	-	MULTIPURPOSE E.P.	NLGI 2

(1) - The coolant must be composed of 50% protective fluid for radiators based on monoethylene glycol with an OAT organic inhibition formulation, in accordance with ASTM D 3306 type 1 standards and 50% of demineralized or distilled water.

3.3.1 Fuel

The engine was designed to be powered with standard fuels available on European territory (according to DIN EN 590 specifications).

ATTENTION:

The use of fuels with specifications other than those indicated is prohibited.

Using fuel that is not recommended could damage the engine. Do not use dirty fuel or gasoil-water blends because this would cause serious engine problems.

Any damage caused by the use of fuels other than those recommended will not be covered by warranty.

Warning

Properly filtered fuel prevents damage to the injection system. Clean any fuel spill immediately during refueling.

Do not fill the fuel tank completely. Leave room for fuel to expand.

Do not store fuel in galvanized (i.e. zinc-coated) containers. The fuel inside a galvanized container generates a chemical reaction, producing “compounds” that quickly clog the filters or cause failure of the injection pump and/or injectors.

3.3.1.1 Fuel for low temperatures

To operate the engine at temperatures below 0°C, use suitable fuels normally distributed by oil companies and in any case corresponding to the specifications listed in the fuel compatibility table.

In conditions of cold ambient temperatures (-10°C), supplement the diesel with specific additives to avoid the formation of paraffin.

When paraffin forms in the fuel, the diesel filter clogs up, stopping the flow of fuel.

3.3.1.2 Fuel Biodiesel

In the case of BIODIESEL fuel (according to UNI EN 14214 specifications), it can be mixed, up to 5%, with fuel available on European territory (according to the DIN EN 590 standard).

3.3.2 Engine oil

Warning

The motor may be damaged if operated with the wrong oil level.

Do not exceed the MAX level as its combustion may cause an abrupt increase in rotational speed. Only use the prescribed oil to ensure adequate protection, efficiency and engine life. If you use oil of lower quality than the prescribed one, the life of the engine will be significantly compromised. The viscosity of the oil must be adequate for the ambient temperature in which the engine operates.

danger

Prolonged skin contact with spent motor oil may cause epidermal cancer.

If contact with oil is unavoidable, wash your hands thoroughly with soap and water as soon as possible.

For the disposal of waste oil, refer to the 'Disposal and Scrapping' section, in the chapter 'General Safety Regulations'.

3.3.2.1 SAE oil classification

It identifies oils based on their viscosity, not taking into account any other quality characteristics.

The code consists of two numbers with an interposition of a 'W', where the first number determines the value in cold temperatures, while the second determines the value in conditions of high temperatures.

3.4 Table of speeds

3.4.1 Tractor speed E60 RS 16+16 (km/h)

Speed with tires: 280/70-R18

Index Radius	0,425 m

Range	Gear	Forward speed (km/h)	Speed Reverse (km/h)
Fast	1	9.80	7.03
	2	13.55	9.72
	3	21.20	15.21
	4	29.62*	21.25
Medium/Fast	1	3.79	1.95
	2	5.25	2.70
	3	8.20	4.22
	4	11.46	8.23
Medium/Slow	1	3.25	1.67
	2	4.49	2.31
	3	7.02	3.61
	4	9.81	5.05
Slow	1	0.94**	0.49
	2	1.30	0.67
	3	2.04	1.05
	4	2.85	1.47

*Maximum speed
**Minimum speed

3.4.2 E60 SN 12+4 tractor speed (km/h)

Speed with tires: 300/70-R20

Index Radius	0,45 m

Range	Gear	Speed (km/h)
Fast	1	13.91
	2	21.76
	3	30.40*
	Reverse	21.30
Medium/Fast	1	5.38
	2	8.42
	3	11.77
	Reverse	8.25
Medium/Slow	1	4.60
	2	7.20
	3	10.06
	Reverse	7.05
Slow	1	1.34**
	2	2.09
	3	2.93
	Reverse	2.05

Maximum speed
Minimum speed

3.5 Noise level

Note

Noise level in the driver's ear measured according to Annex XIII of Delegated Regulation (EU) No. 1322/2014 of the commission, as last amended by Delegated Regulation (EU) 2018/830.

Model	E45/60 RS	E45/60 SN
External noise level	86 db(A)	85 db(A)

3.6 Tires

3.6.1 Available tires

The characteristic values of tires are shown below.

E45/60 RS

	Tire	Load index	Speed Index Range (SRI)	Pressure (BAR)
Front	8.25 - 16	8 PR	400	2,9
Rear	8.25 - 16	8 PR	400	2,9
Front	250/80 R18	125 A8	410	2,5
Rear	250/80 R18	125 A8	410	2,5
Front	280/70 R18	114 A8	410	2,4
Rear	280/70 R18	114 A8	410	2,4

E45/60 SN

	Tire	Load index	Speed Index Range (SRI)	Pressure (BAR)
Front	8.25 - 16	8 PR	400	2,9
Rear	8.25 - 16	8 PR	400	2,9
Front	280/70 R18	114 A8	410	2,4
Rear	280/70 R18	114 A8	410	2,4
Front	280/70 R20	116 A8	425	2,4
Rear	280/70 R20	116 A8	425	2,4
Front	300/70 R20	110 A8	450	1,6
Rear	300/70 R20	110 A8	450	1,6

Note

If the wheel set is replaced with a different size, go to an authorized dealer to have the correct wheel parameters inserted into the vehicle control unit. This is necessary in order to be able to display the real speed of the vehicle on the display.

3.6.2 Eligible Masses Summary Table

Set	Axis	Tyre dimensions including the load capacity index and the speed category symbol	Pneumatic Radius (mm)	Tyre load rating for each of them (kg)	Maximum admissible vehicle weight (kg)	Maximum admissible weight per axle (kg)
1	Front	300/70 R20	450	1060	3000	1200
	Rear	300/70 R20	450	1060		1800
2	Front	280/70 R20	425	1250	3000	1200
	Rear	280/70 R20	425	1250		1800
3	Front	280/70 R18	410	1180	3000	1200
	Rear	280/70 R18	410	1180		1800
4	Front	250/80 R18	410	1650	3000	1200
	Rear	250/80 R18	410	1650		1800
5	Front	8.25 - 16	400	1250	3000	1200
	Rear	8.25 - 16	400	1250		1800

4 : Commands and instruments

Index

4.1 General list of commands

This paragraph provides an overview of all the available instruments and commands. Unless otherwise specified, they are valid for all versions. For the correct use of the commands listed here, you should carefully read the chapter “Rules of Use”.

4.1.1 Dashboard controls

1 - Directional buttons, display menu
2 - Cruise control switch
3 - Particulate filter regeneration switch
4 - Emergency light switch
5 - Rear PTO switch **(RS version only)**
6 - AutomaticPTO button
7 - Display

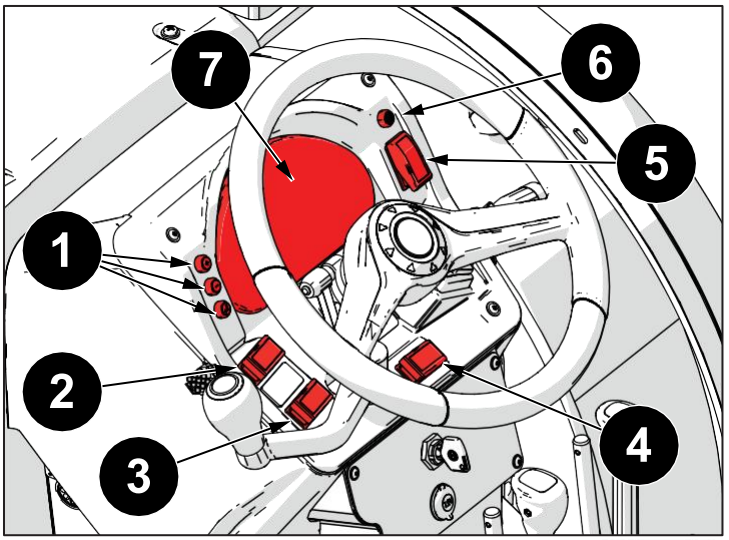


Fig. 4.1

8 - Starter key panel
9 - 12V socket

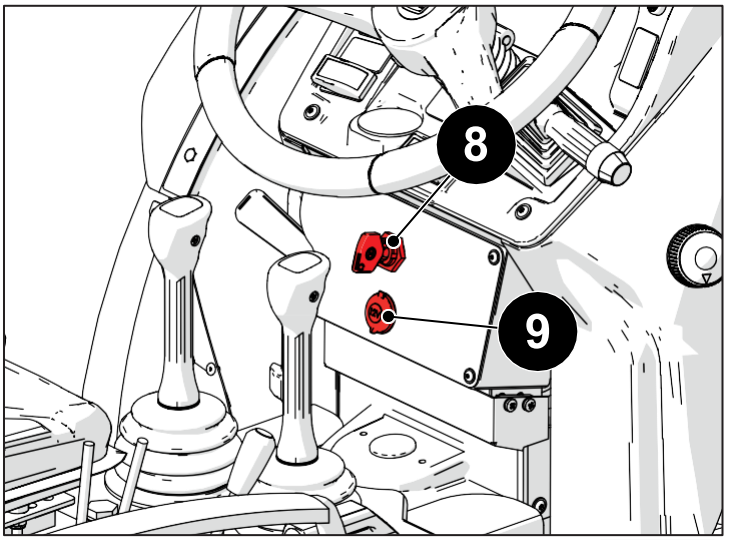
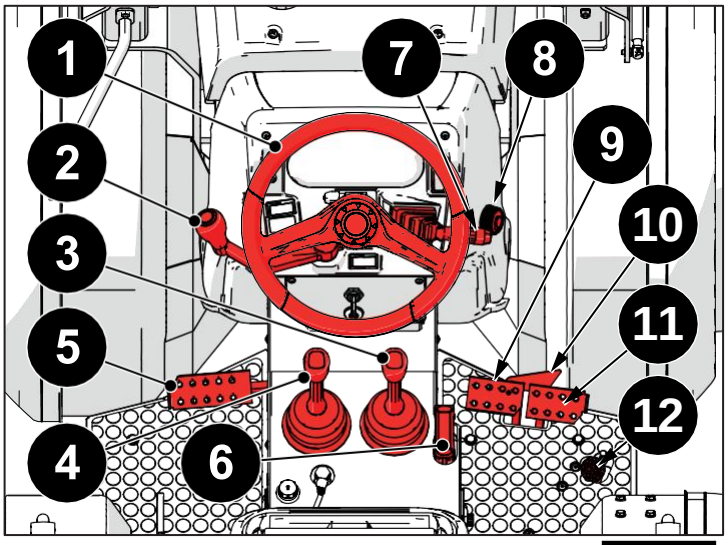


Fig. 4.2

4.1.2 Front zone controls

Indications valid for version with steering wheels

1 - Steering wheel
2 - Reverse lever: Forward, Reverse
3 - Gear shift lever
4 - Speed splitter lever
5 - Clutch pedal
6 - Parking brake lever
7 - Light diverter and acoustic alarm
8 - Hand throttle knob
9 - Left brake pedal
10 - Brake pedal connection blade
11 - Right brake pedal
12 - Accelerator pedal



Indications valid for articulated version

1 - Steering wheel
2 - Gear shift lever
3 - Hand throttle knob
4 - Clutch pedal
5 - Brake pedal
6 - Accelerator pedal
7 - Speed splitter lever
8 - Parking brake lever
9 - Front differential locking lever
10 - Light diverter and acoustic alarm-

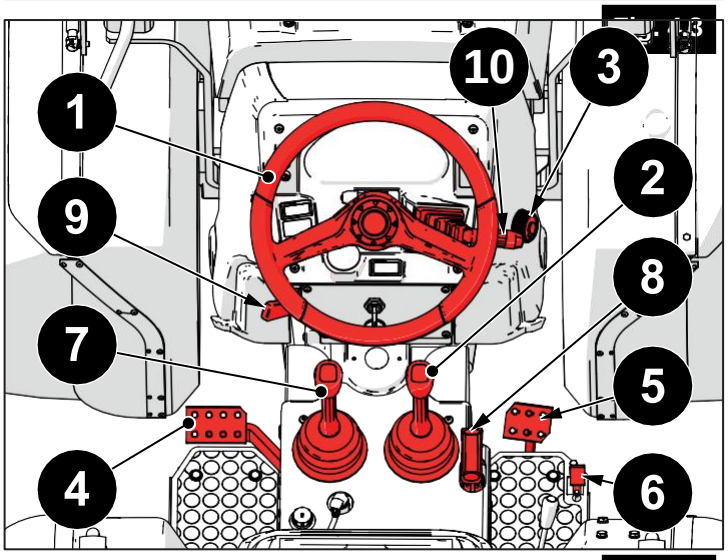


Fig. 4.4

4.1.3 Right side controls

1 - Rear lift position lever
2 - Control levers for rear hydraulic spool vlaves
3 - Descent speed regulator and lift lock
4 - Rear differential lock pedal

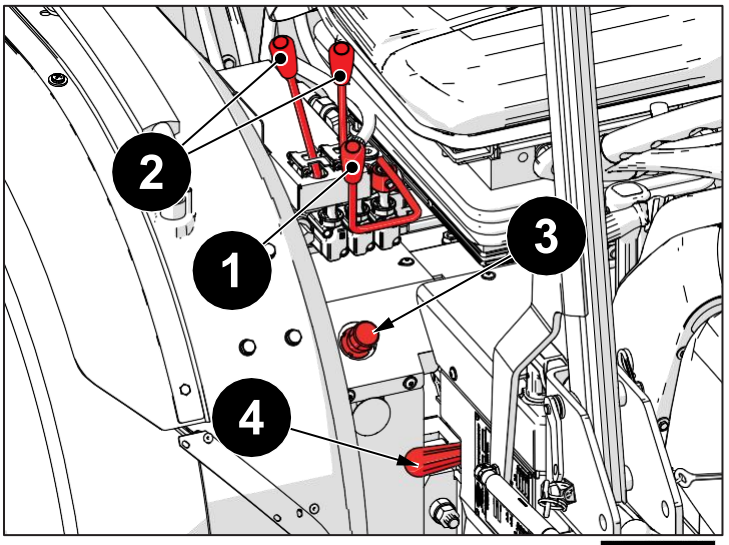


Fig. 4.5

4.1.4 Left side controls

Indications valid for version with steering wheels

1 - PTO Speed Selection Lever (540/540E)
2 - PTO mode selection lever (Ground Speed/Independent)
3 - Front differential locking lever

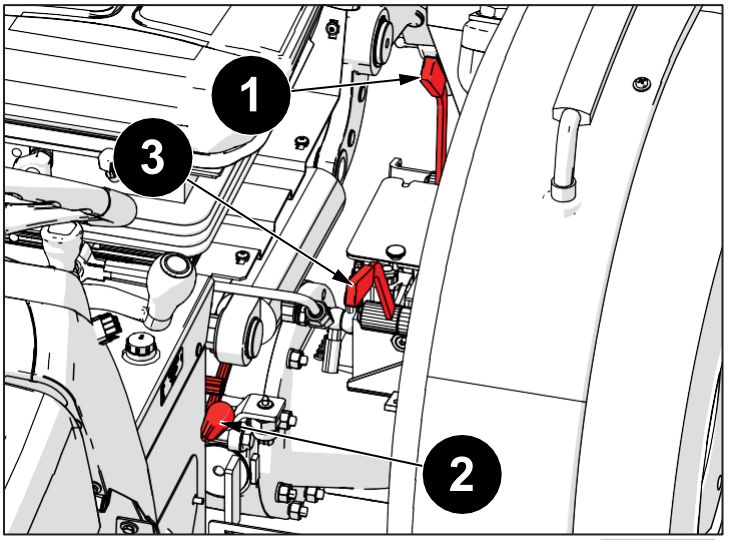


Fig. 4.6

Indications valid for articulated version

1 - PTO Speed Selection Lever (540/540E)
2 - PTO mode selection lever (Ground Speed/Independent)

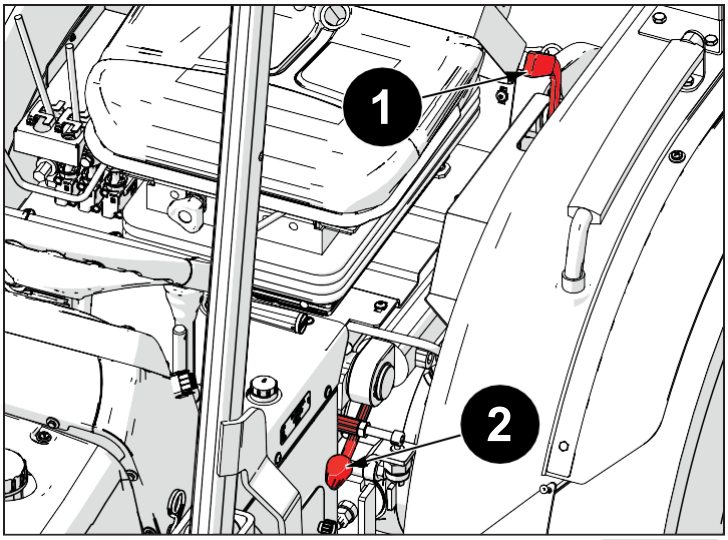


Fig. 4.7

4.1.5 External controls

1 - Remote Battery switch

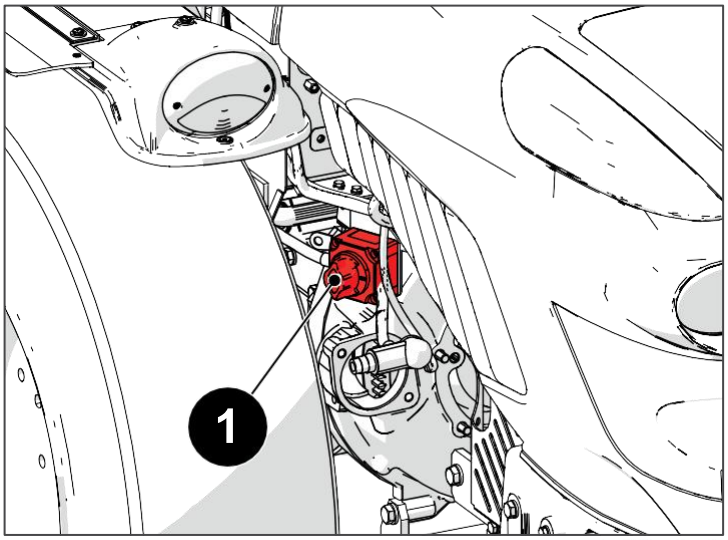


Fig. 4.8

2 - 7-pin trailer socket
3 - External 12V socket
4 - Quick connections for rear spool valves

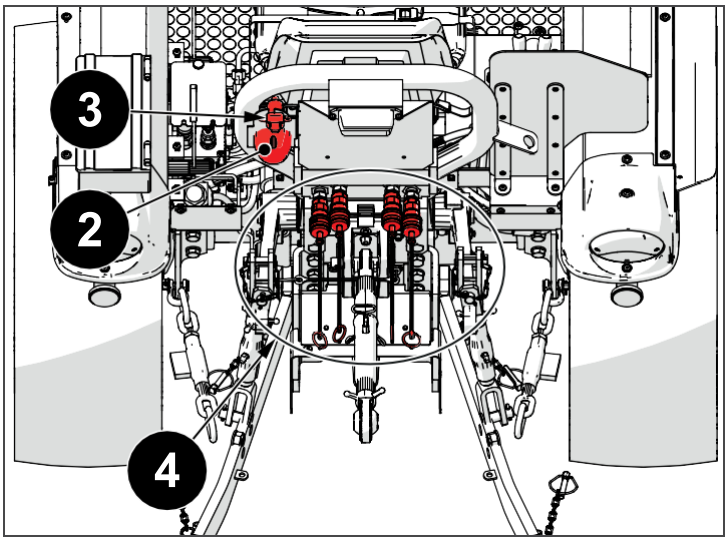


Fig. 4.9

4.2 Commands

4.2.1 Rear view mirrors

The rear view mirrors are adjustable in all directions, allowing the user an excellent view from the driver's seat.

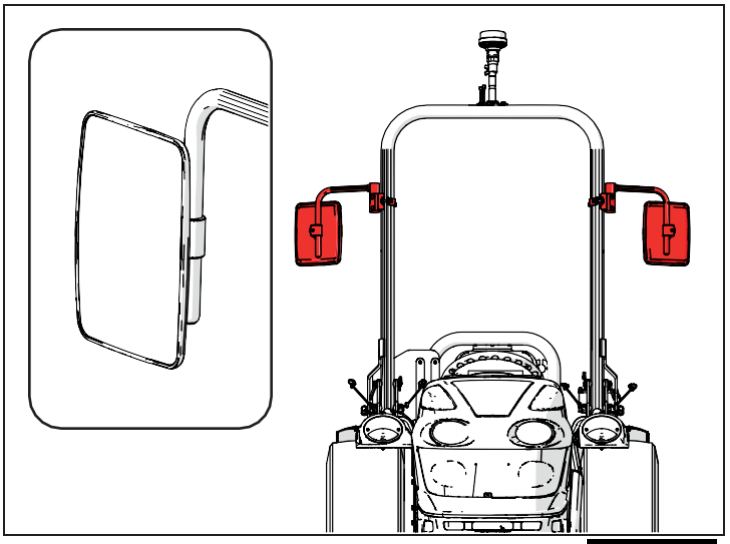


Fig. 4.10

4.2.2 Toolbox

The tool box is located on the left rear fender.

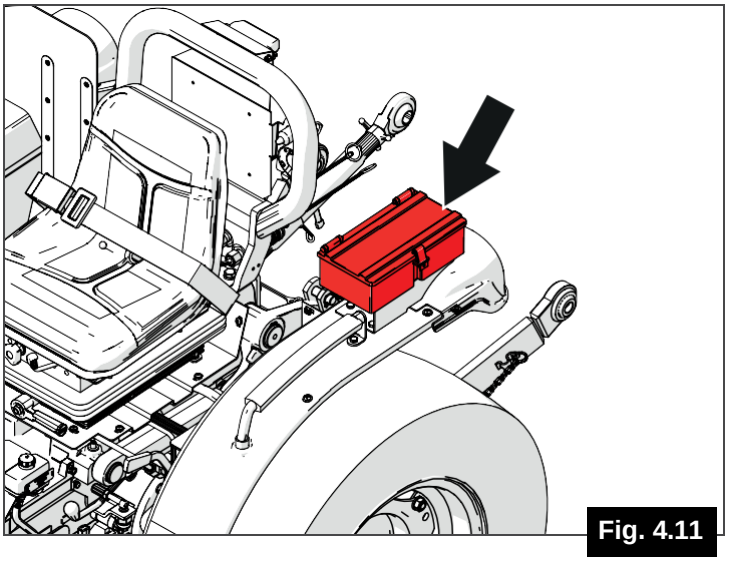


Fig. 4.11

4.2.3 Seat

danger
Do not get on or off the seat with the tractor moving.

danger
Seat adjustments must be made when the tractor is stopped, with the engine off and the parking brake on.

Seat controls:

1 - Longitudinal adjustment
2 - Height adjustment (limiter) 4 -
3 - Spring adjustment
Seat belts

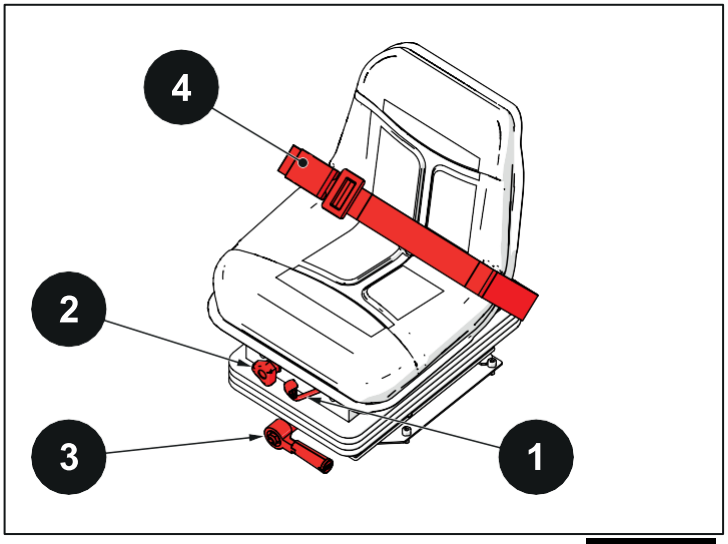


Fig. 4.12

Producer	COBO
Type	GT62-M91
Approval No.	e13*1322/2014*2018/830W2*00015*01
Category	A
Class	I, II
Central location	

Weight adjustment

Warning
Continuous adjustment of the driver's weight from 50 to 120 kg.

Turn the lever on the front side of the suspension clockwise or counterclockwise. The correct adjustment is achieved when the seat height is raised halfway through the suspension travel stroke.

If the seat has a window with a weight indicator, adjust according to the weight reading on the indicator.

If the seat is equipped with a window with an indicator needle (M99 suspension), the correct adjustment is achieved when the needle is in the center of the green area.

Some suspensions have a ratchet lever. The position of the handle must be adjusted according to the direction of rotation that the lever must take; pull the handle outwards and turn it 180° until it returns to position.

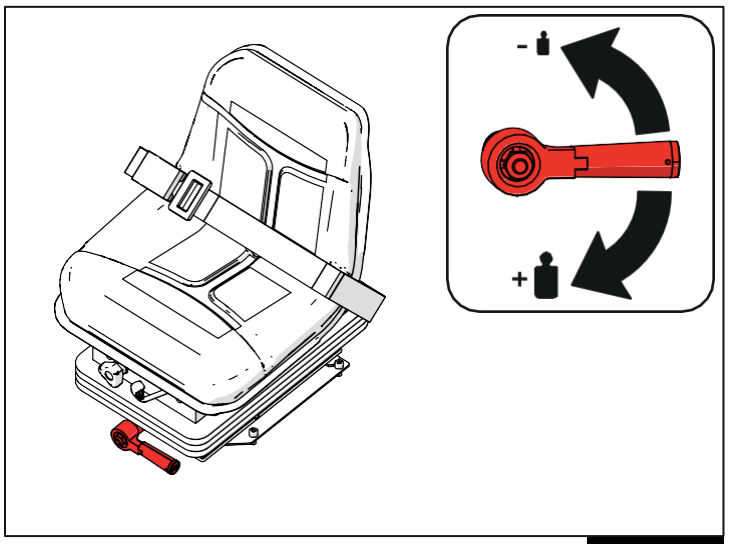


Fig. 4.13

Note
Make the adjustment with the operator seated, so that the seat is loaded.

Height adjustment (limiter)

The limiter limits the suspension's travel travel upwards.

The restriction is carried out continuously, to be carried out with the operator seated so that the seat is loaded. The seat height can be adjusted both upwards and downwards by turning the height adjustment knob.

After each height adjustment, the weight must be adjusted.

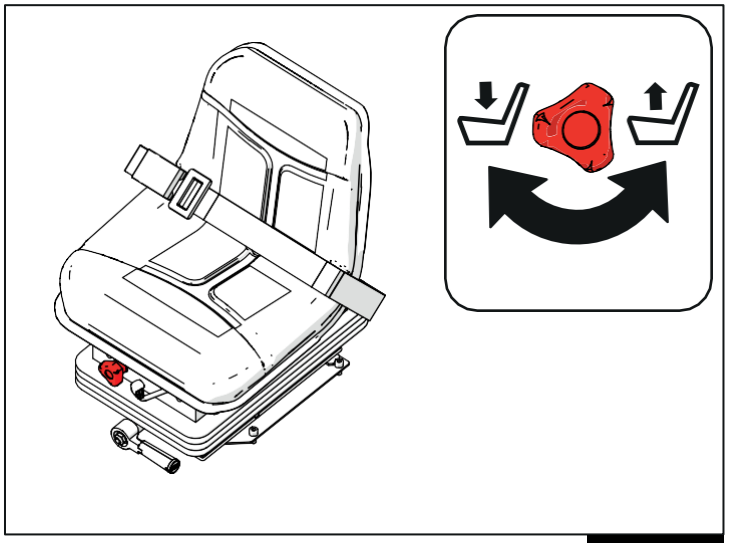


Fig. 4.14

Note
Make the adjustment with the operator seated, so that the seat is loaded.

Longitudinal adjustment

Move the adjustment lever to the right to unlock the guides; the lever can be located on the left guide of the seat. Make sure that, after making the adjustment, the lever “clicks” by locking the guides. Check that the seat does not move lengthwise.

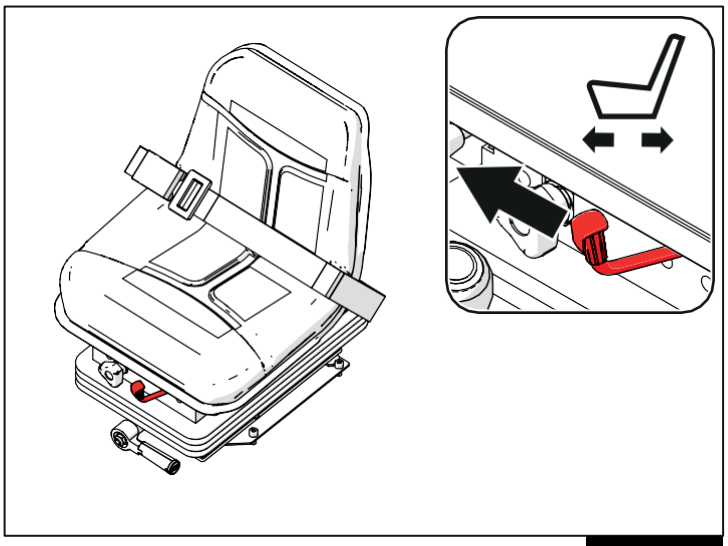


Fig. 4.15

Document pocket (if available)

Type	Operating Instructions
Hard pocket with back cover	Open the pocket by moving the cover to the back of the seat after removing the two side tabs from their seats
Flexible pocket with automatic button closure	Open the pocket by detaching the automatic button and lifting the closing flap upwards

4.2.3.1 Abdominal safety belt

Static belt: adjust the length of the belt according to the operator's abdominal size, leaning against the backrest and keeping the belt attached to the lower abdomen, on the thighs side. Keeping the tab perpendicular to the belt, shorten the belt by pulling on the part (5) (free end), lengthen the belt by pulling on the part (6).

For the belt with winder, the adjustment takes place automatically.

Check that once worn, the belt is not twisted and that it does not pass over sharp corners or fragile objects if these items are in contact with clothing.

Fasten the belt by inserting the tab into the slot of the buckle until it triggers (indicated by a 'click') and verify that the tab has been attached by trying to remove it by pulling the belt out.

Unfasten the seat belt by pressing on the red button on the buckle (7), until the tab is triggered and detached.

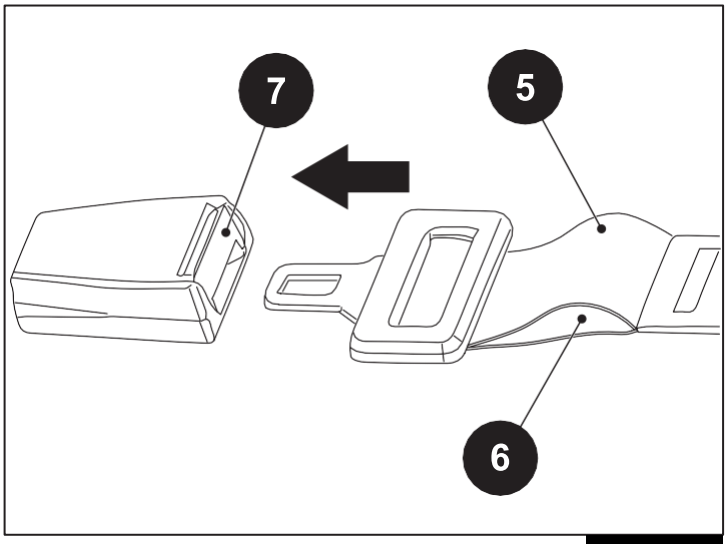


Fig. 4.16

How the winder works

The winder has two types of operation:

- lock the ribbon when the belt is fastened. Check, when the belt is worn, that the tape is blocked by trying to remove it slowly from the wrapper.
- lock the tape when it is abruptly removed from the winder.

Check, when the belt is on, that the wrapper is blocking the tape by abruptly removing it from the wrapper.

4.2.3.2 Seat care

Any intervention, including maintenance, must be carried out by specialized personnel and using appropriate personal protective equipment.

Dirt may compromise the functioning of the seat. So always keep the seat clean! To carry out the

cleaning, the padding must not be detached from the seat frame.

danger
Risk of injury due to the backrest being thrown forward! When cleaning the backrest padding, the backrest adjustment should be activated only if the backrest is supported with one hand.

Warning
Don't clean the seat with high-pressure steam cleaning tractors!

When cleaning the padding surfaces, avoid the passage of moisture through the padding.

Check the compatibility of the detergents for upholstery or synthetic materials on the market first on a hidden and small surface.

4.2.4 Steering wheel

The tractor is equipped with a height-adjustable steering wheel. Before delivery, the steering wheel and steering column were adjusted to the standard position.

To adjust the position of the steering wheel, unlock the safety latch to be able to raise or lower the steering wheel to the desired position. Then move the safety latch downwards to lock the steering wheel.

danger
This adjustment must be made when the tractor is stopped with the engine off and the parking brake on.

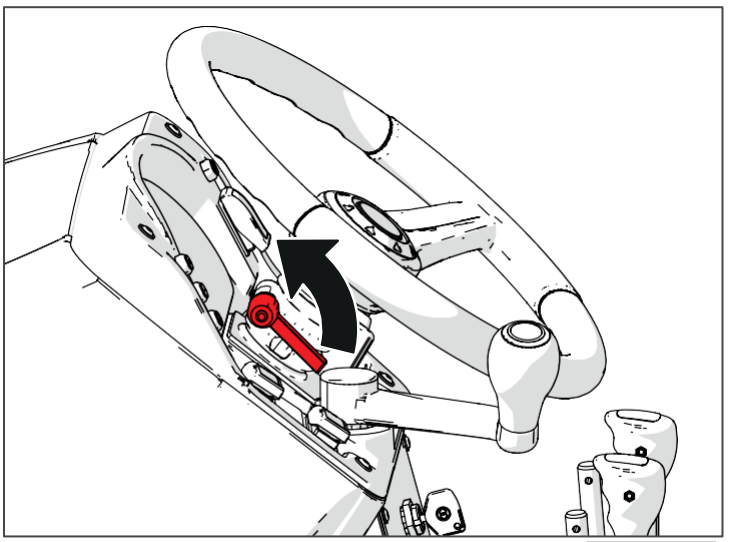


Fig. 4.17

4.2.5 Acoustic alarm

Press the audible warning switch at the end of the light switch lever. The audible alarm will start ringing.

Use the acoustic alarm to signal your presence to pedestrians or other vehicles while the tractor is running.

Note
The audible alarm works regardless of the position of the switch.

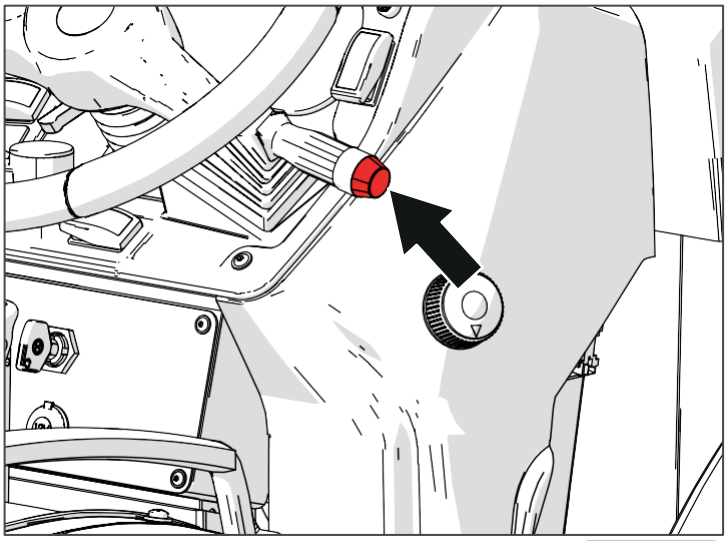


Fig. 4.18

4.2.6 CAN diagnostic interface

The CAN diagnostic interface is used to establish communication between the diagnostic device and the tractor so that faults can be detected.

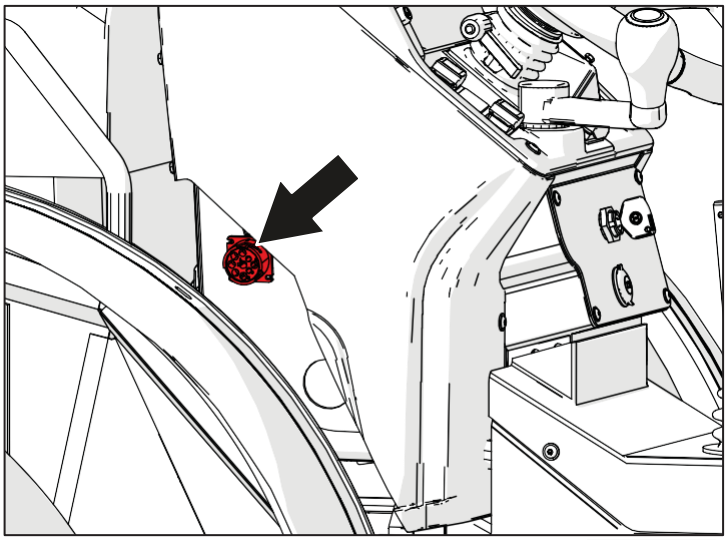


Fig. 4.19

4.2.7 Safety frame

danger
When working, always keep the protective frame mounted in the correct vertical position. If the roll bar is in a horizontal position, the safety conditions are lacking in the event of a rollover. Check the correct positioning of the roll bar before starting the engine.

danger
Under no circumstances should it be necessary to modify the structural components of the protective frame by welding additional parts, drilling holes, grinding, etc. Failure to observe these instructions may compromise the rigidity of the frame, reducing the level of protection guaranteed by the original equipment.

danger
In the event of the tractor overturning or damage to the protective frame or cab (for example due to impact), all deformed structural components must be replaced to ensure original safety.

To lower the safety frame, do the following on both sides:

- Remove the handle (1) then remove the pin (2).
- Lower the frame. Gas shock absorbers (3) help the lifting action and reduce the backlash when lowering.
- Insert the pin (2) into the hole (A) to fix the rollbar in a vertical position; insert the pin into the hole (B) to fix the roll-bar in a horizontal position.
- Lock the pin (2) with the handle (1).

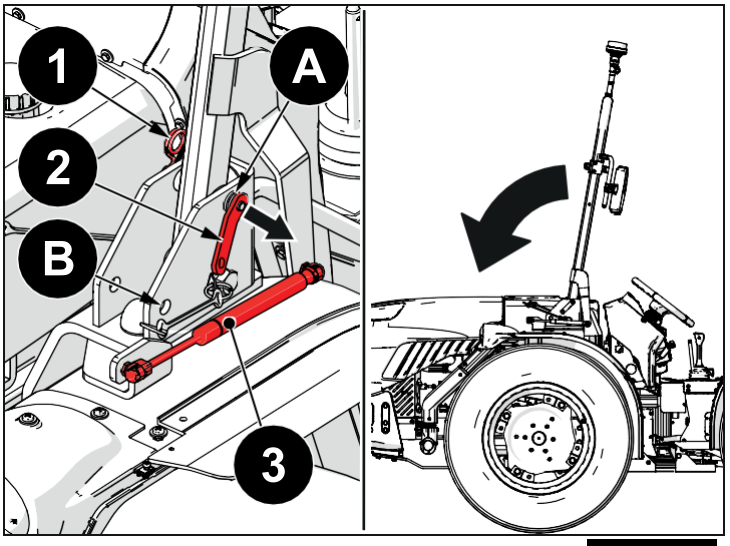


Fig. 4.20

4.2.8 Cruise Control

It is possible to activate the Cruise Control (in the following of this manual it will be called CC) with the single press of the “SET” button.

When the engine is off, the setpoint page will be displayed for 5 seconds.

When the engine is running, it will be possible to modify and store the RPM values.

Note
The minimum Cruise Control value is 1000 rpm/min. It is not possible to set a rpm value lower than this.

CC button.

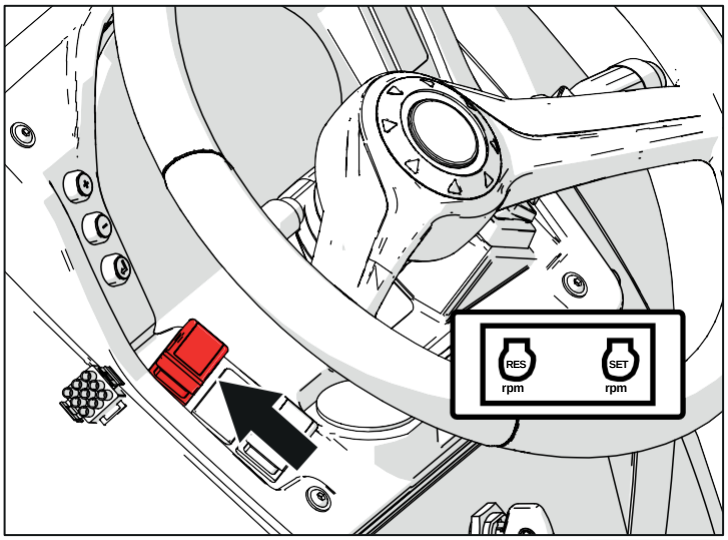


Fig. 4.21

Activation

Quick press of the “SET” button (1).

On the main screen, the two Setpoint values and the icon corresponding to the selected CC (2) will be shown, these are always the last ones stored. In this phase, the system is activated and remains in stand-by.

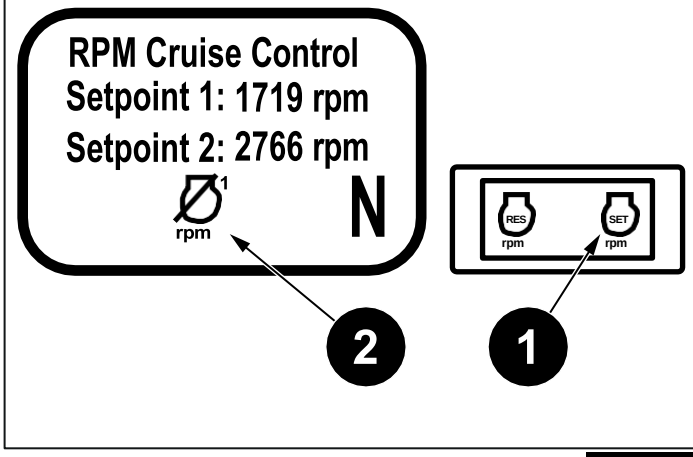


Fig. 4.22

If the two RPM values and the CC (2) displayed are adequate to the needs, wait 5 seconds and the display will return to the main screen showing at the bottom left the stored values and the icon on which the CC is set and on stand-by.

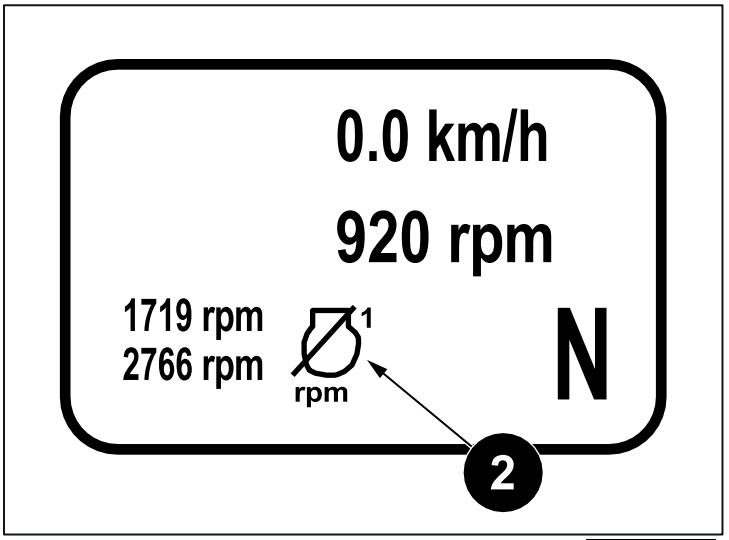


Fig. 4.23

To move from CC1 (3) to CC2 (4) and vice versa, press the 'SET' button twice in a row
(1) to change the selection.

The icon of the selected CC will appear on the screen. Wait 5 seconds to return to the main page (previous image).

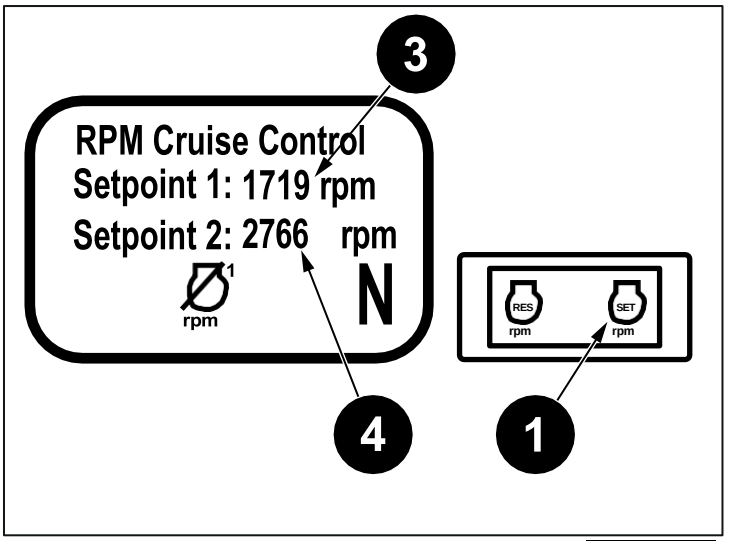


Fig. 4.24

Using CC

Press the “RES” button (5) (quick press) 1 time to use the CC. The tractor will be moved to the selected RPM speed, 1 or 2 depending on the icon shown.

Press the “RES” button (5) twice in a row to move from CC1 to CC2.

Warning

In order to use the CC, the tractor must be moving. It is not possible to use the CC starting from a standstill.

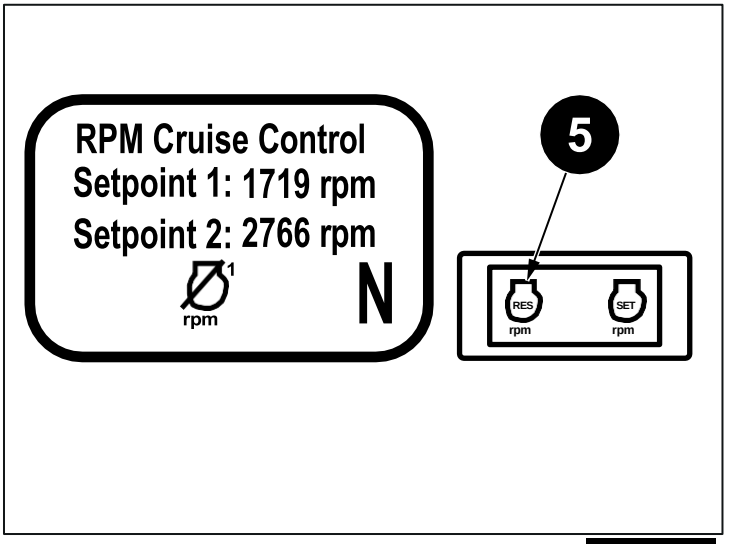


Fig. 4.25

RPM storage on the go

It is possible to store and use, in the dynamic phase, a certain RPM regime.

- Activate the CC function (if it is not already active) and wait 5 seconds for the home screen.
- To be able to memorize and use the RPM regime in which we are, press the “SET” button (1) once (quick press).
- The CC will store the current RPM, on the CC1 (3) or CC2 (4) value displayed at that time and will activate it immediately, keeping the speed constant.
- In stand-by mode, you can move from one CC to another by pressing the “SET” button (1) twice (quick press). The CC will remain in stand-by mode.

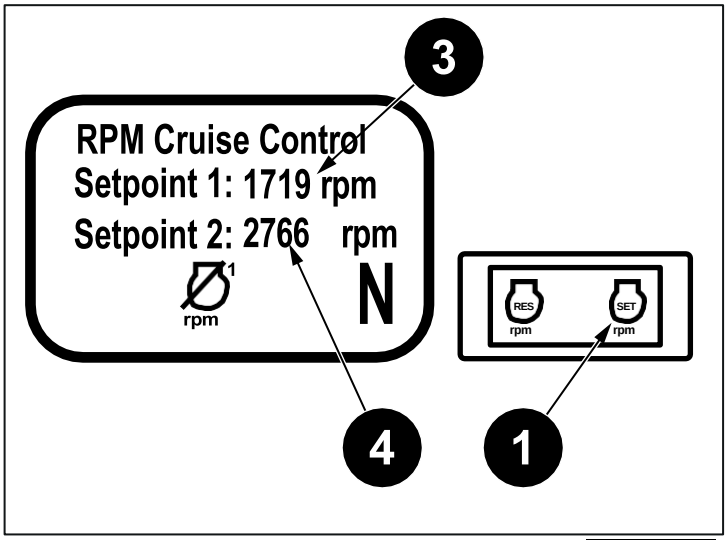


Fig. 4.26

'STEP by STEP' storage of the RPM value

It is possible to make a “STEP by STEP” selection using the “+” (6) and “-” (7) buttons on the dashboard.

The single pressure increases or decreases the stored RPM value by 10 RPM at a time.

Continuous pressure allows you to increase or decrease the set RPM value by 100 RPM at a time.

The new set RPM value is stored and will replace the previous one.

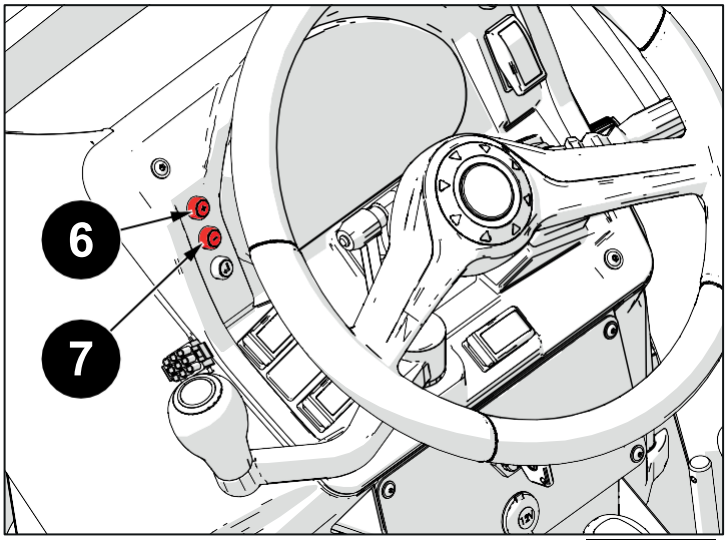


Fig. 4.27

CC activation and storage from standstill (V=0 Km/h)

It is possible to activate the CC and store the RPM values desired when stopped so that they can then be used during work.

- Activate the CC function. The display shows the Setpoint screen with the last RPM values stored and the CC (1 or 2) set.
- Press the “SET” button (1) once (quick press), the selected setpoint will start flashing.
- Turn the throttle wheel by hand to change the number of rpm to the desired speed.
- Press the “SET” button (1) once (quick press) to store the value.
- To be able to change CC, press the “SET” button twice (quick press), make sure that the CC icon has changed, repeat the previous steps to be able to store the desired RPM value on the new CC.
- Once the operation is finished, wait 5 seconds to return to the home screen. To be able to use the CC see Fig. : 4.25.

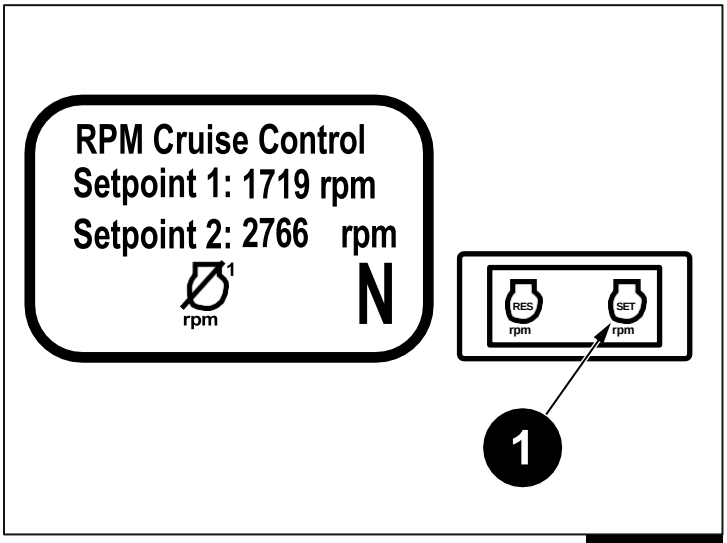


Fig. 4.28

Note

When the RPM values are stored when stopped, the motor remains in “LOW IDLE” (engine at idle) so as not to cause discomfort to the operator.

Turn off and off Cruise Control function

The CC stand-by takes place for:

- Clutch pedal pressure
- Brake pedal pressure
- Handbrake actuation
- Change to Neutral
- Single press of the 'RES' button

The CC is switched off by holding down the “RES” button (5) for at least 5 seconds or the tractor key off.

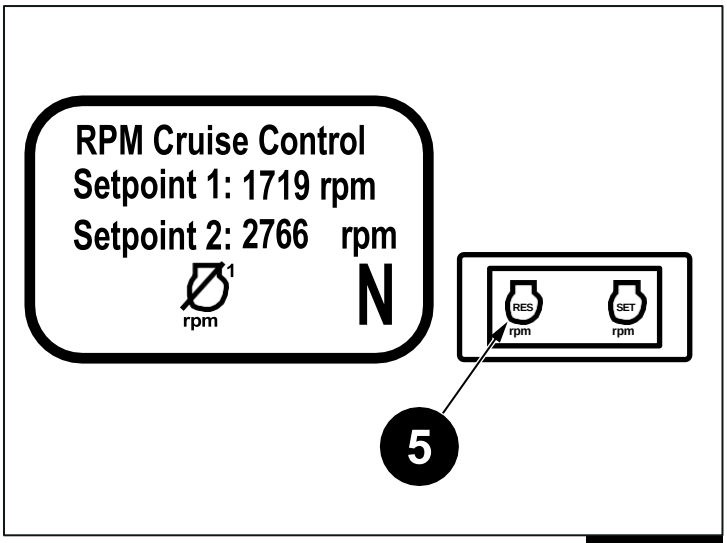


Fig. 4.29

4.3 Multifunctional tool

This chapter lists and describes the information on the multifunction instrument, both with regard to the warning lights, the analog indicators and the digital information display.

Version for models without an active trailer turn signal

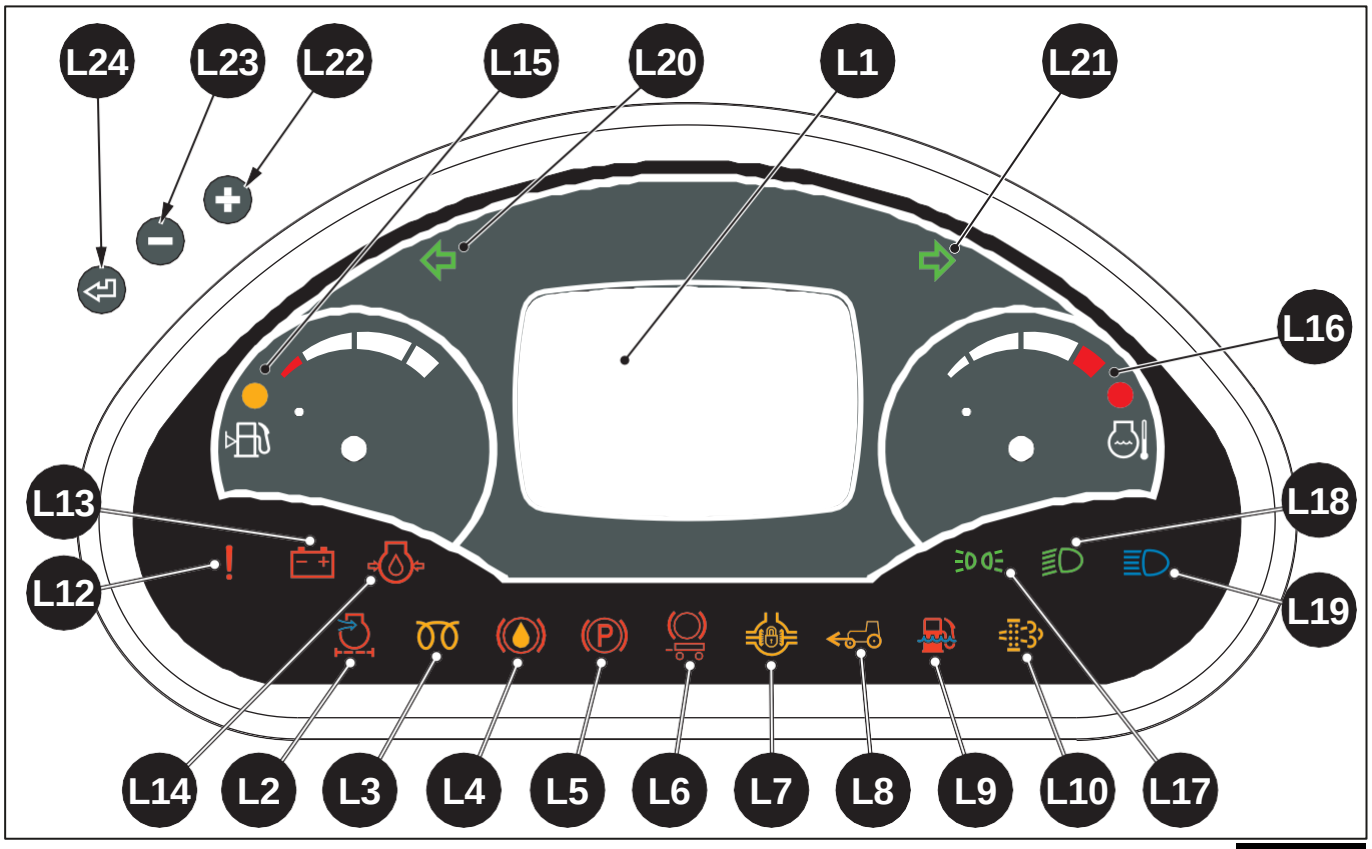


Fig. 4.30

Version for models with active trailer turn signal

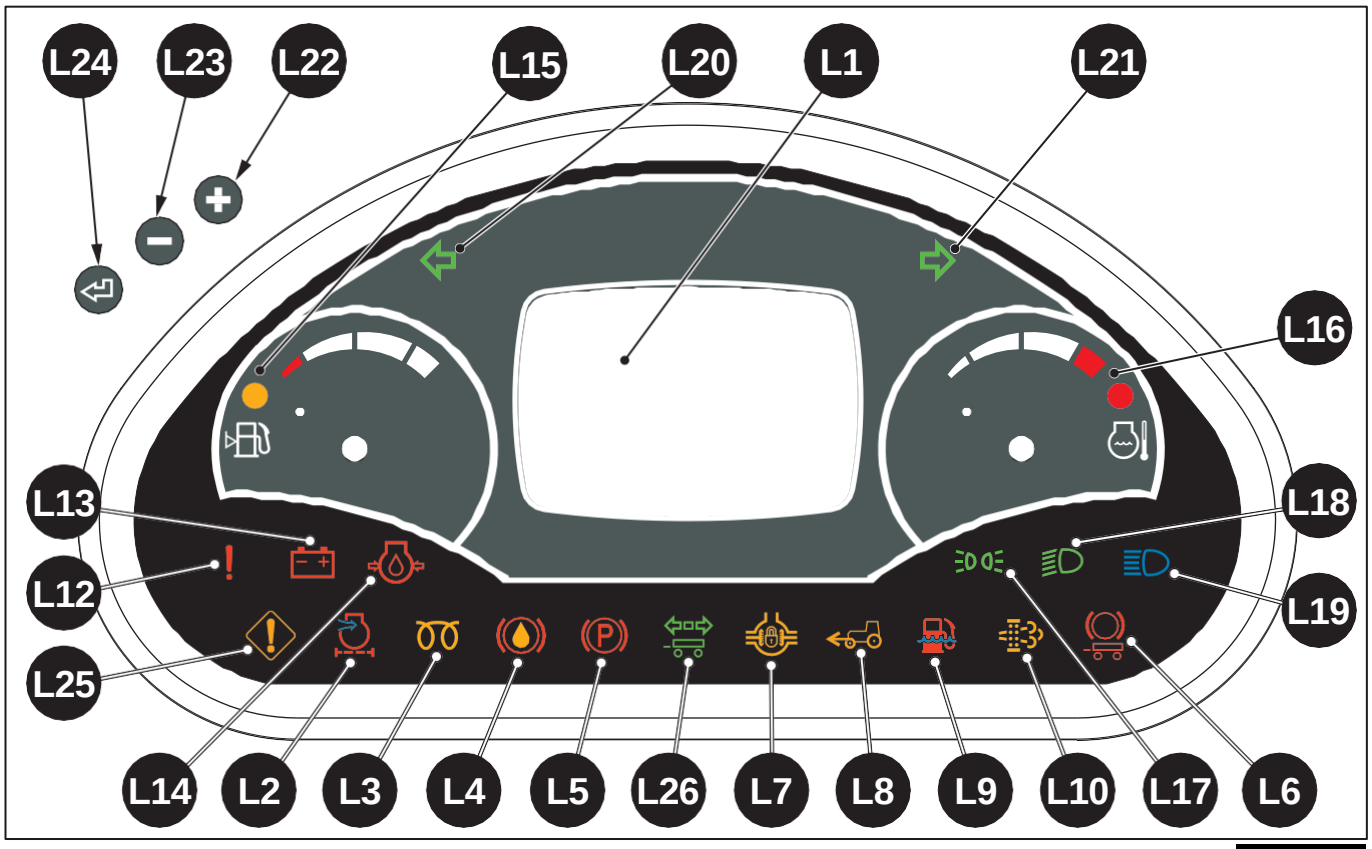


Fig. 4.31

L1 digital information display - L2
engine air filter obstruction - L3
glow plug preheating - L4 Low
brake oil level L5 - Handbrake
on
L6 - Trailer brake pressure malfunction L7 -
Differential lock inserted
L8 - 4WD Insertion
L9 - Water in fuel L10 - DPF
light
L12 - Generic warning light
L13 alternator malfunction - L14 -
low engine oil pressure L15 fuel
reserve light - L16 engine
temperature alert L17 - Position
lights
L18 - Low beam L19 -
High beam
L20 - Turn signal (left) L21 - Turn signal
(right) L22 - + button
L23 - Button -
L24 - Confirm/Submit button L25
- Operator Alert
L26 - Active trailer direction indicator

Turn the starter key clockwise to turn on the display. The welcome screen will be displayed.

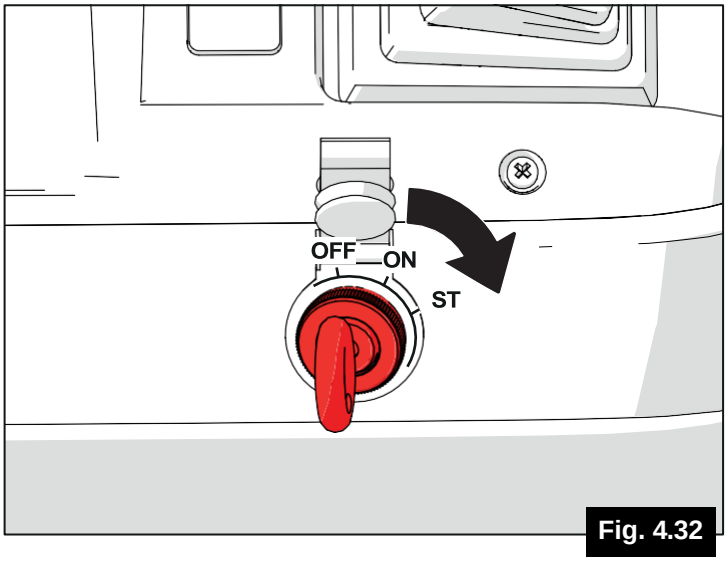


Fig. 4.32

To navigate between the display functions: L22 - Forward Button L23 - Back button L24 - Confirmation button

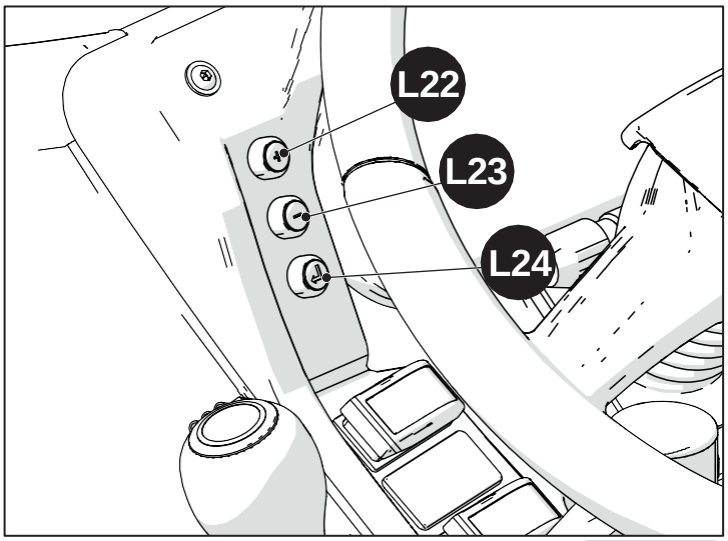


Fig. 4.33

Alarm light and buzzer

Every time the system detects an error, the warning light (L12) located on the dashboard lights up, accompanied by an audible signal.

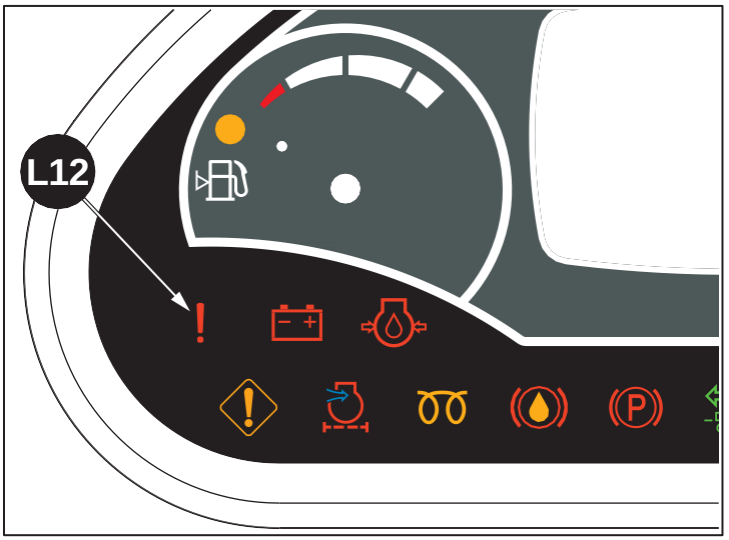


Fig. 4.34

The following table indicates in which situations the light (L12) and the buzzer come on; they will turn off when the conditions are resolved.

Condition	Led	Buzzer
CAN BUS line connection for engine control unit absent	On	On
Engine failure	On	On
Engine alarm	On	On
Operator absent and handbrake off	On	On for 15 seconds
Vehicle control unit failure	On	On
Particulate filter clogging	On	On
Action required to start the engine	Off	Impulse
Service maintenance required	Off	Impulse

4.3.1 Welcome screen

When the instrument panel is turned on, the Goldoni logo will be shown for 2.5 seconds.

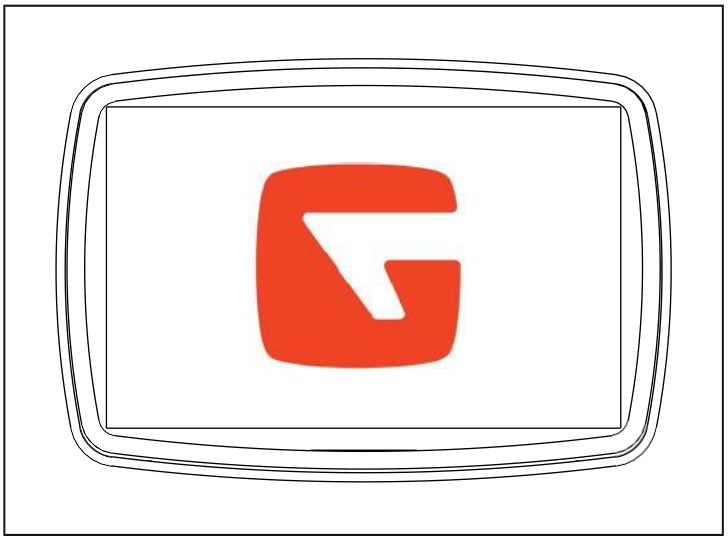


Fig. 4.35

In the next 2.5 seconds, the following screen will be shown:

(A) - Hours worked In this field, the dashboard shows the current hours worked.

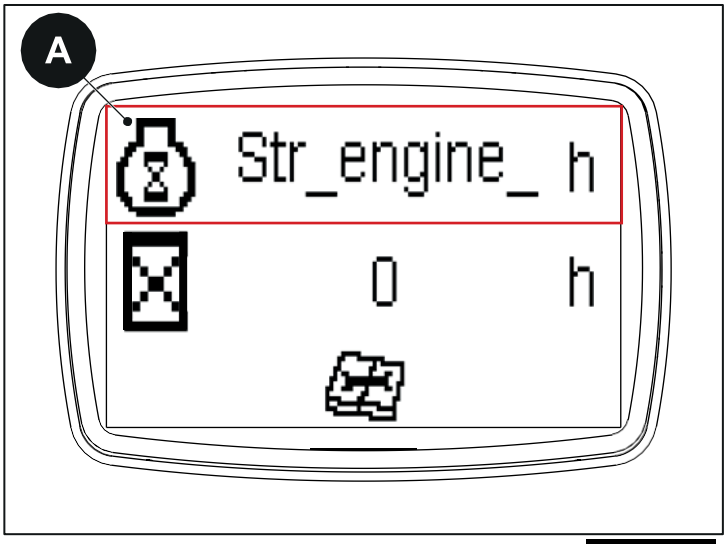


Fig. 4.36

(B) - Hours Remaining at the Service. In this field, the dashboard shows the hours remaining for the next service interval.

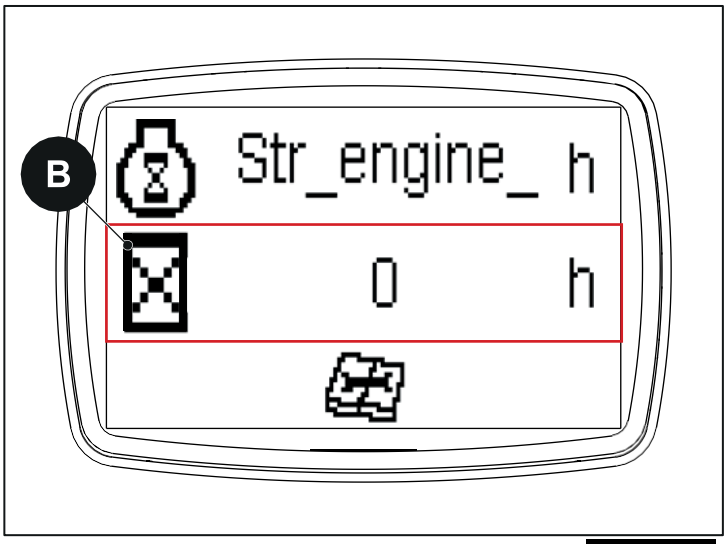


Fig. 4.37

(C) - Maintenance light. In this field, the dashboard shows, when necessary, the service request light accompanied by the acoustic sound. This light is no longer shown if, after maintenance work, the condition is reset by means of an appropriate CAN message from the Diagnostic Tool.

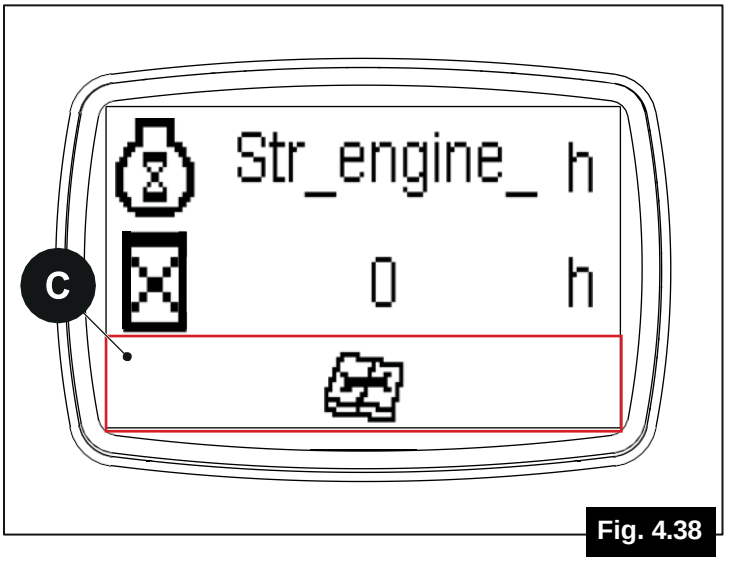


Fig. 4.38

During the total 5 seconds of stay on the welcome screen, the gauges will move from the rest position to the bottom of the ladder while the LEDs will all be on at the same time and then turn off again, and possibly immediately show a possible malfunction.

Note
If malfunctions occur, the LED lights that identify it will light up.

4.3.2 Main screen

The following information will be displayed on the home screen:

(A) - Vehicle speed

This field shows the speed, expressed in km/h or mph, with a decimal precision.

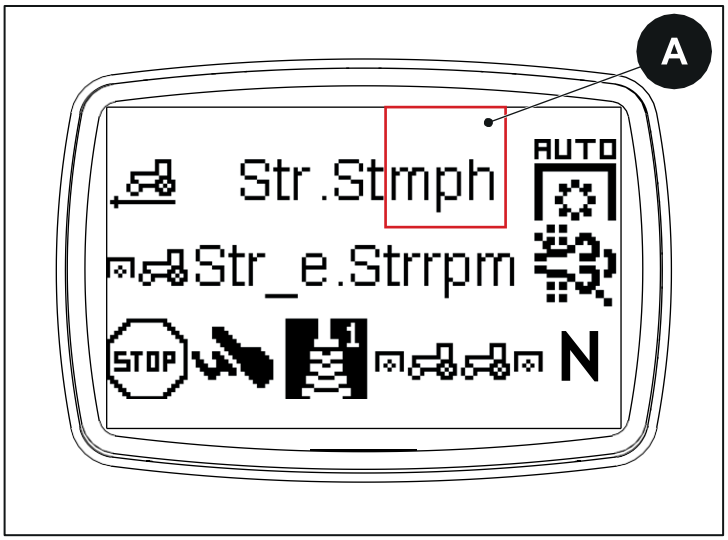


Fig. 4.39

(B) - Engine RPM/PTO RPM

Field (B) shows the number of engine revolutions, with the reference icon and the corresponding unit of measurement.

By default, engine speed information is shown. Pressing the Enter button for a long time (L24, shown in figure 4.30) will show, if engaged, the rpm of the rear PTO with the relative icon. Pressing the Enter button for a long time will show, if engaged, the rpm of the front PTO with the relative icon.

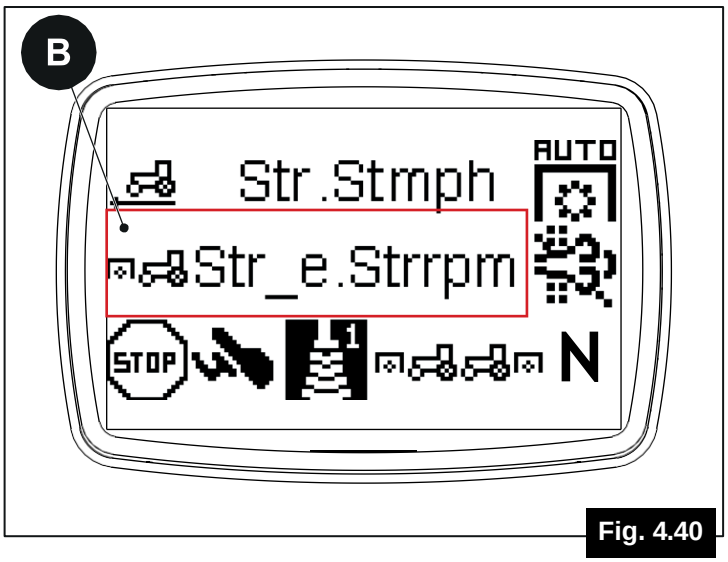


Fig. 4.40

(C) - Active error type

The icon of the active error will be displayed in this position. See the table below for a description of the icons displayed.

Icon	Description
	The display of this icon is accompanied by a continuous beep. TURN OFF THE ENGINE IMMEDIATELY. CONTACT GOLDONI CUSTOMER SERVICE.
	The display of this icon is accompanied by an intermittent beep. It is not necessary to turn off the engine but the problem that caused the error will still be diagnosed. CONTACT GOLDONI CUSTOMER SERVICE.

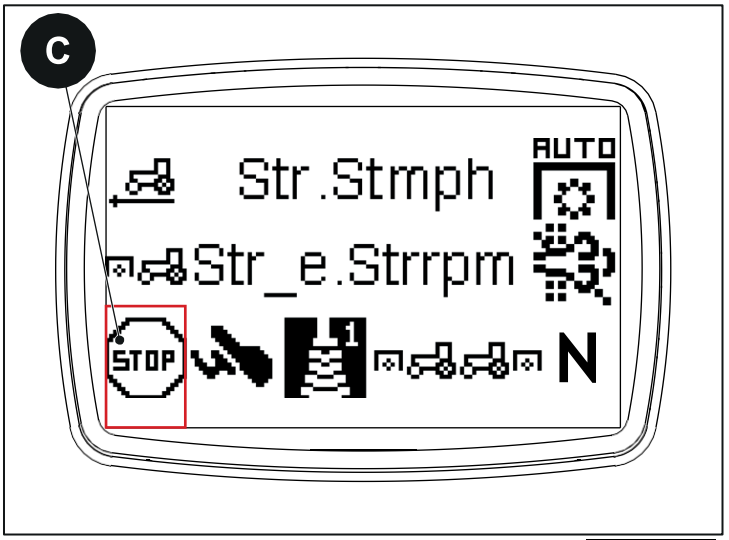


Fig. 4.41

(J) - Starter interlock

This chapter lists and describes the security measures applied to ensure the start-up phase.

In the box (J), the missing safety conditions will be shown in order to start the tractor.

Note

It will not be possible to start the tractor without carrying out safety operations.

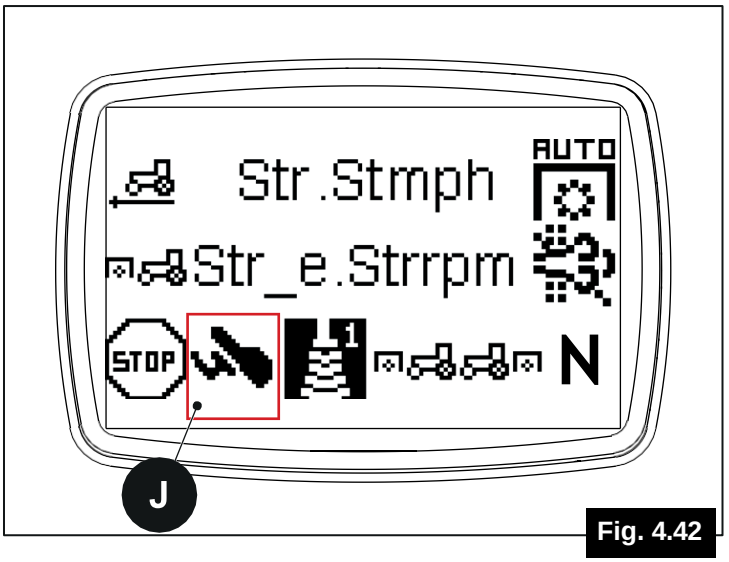


Fig. 4.42

Function	Icon displayed on the display	Icon description	Tractor behavior	Solution
Operator presence switch on seat		The icon indicates that the operator must be seated on the seat during the start-up phase of the tractor	If the system does not detect the presence of the operator in the seat, the icon will be displayed on the dashboard display followed by an acoustic signal. It will not be possible to start the tractor	Sit in the seat to be able to start the tractor
Sensor Shuttle lever position		The icon indicates that the shuttle's leverage must To be positioned in Neutral (N)	If the system does not detect that the shuttle lever is positioned in Neutral (N), the icon will be displayed on the dashboard display followed by an acoustic signal. It will not be possible to start the tractor	Place the shuttle lever in the Neutral (N) position
Front and rear PTO sensor not engaged		The icon indicates that the front and rear PTO do not need to be engaged	If the system detects that the front or rear PTO is engaged, the icon will be displayed on the dashboard display followed by an acoustic signal. It will not be possible to start the tractor	Disconnect the front PTO a nd Set the rear PTO to Neutral or Ground Speed mode
Parke brake sensor engaged		The icon indicates that the parking brake must be turned on	If the system detects that the parking brake is not engaged, the icon will be displayed on the dashboard display followed by an audible signal. It will not be possible to start the tractor	Switch on the parking brake
Clutch pedal Sensor pressed		The icon indicates that the clutch pedal must be pressed	If the system detects that the clutch pedal is not depressed, the icon will be displayed on the dashboard display followed by an audible signal. It will not be possible to start the tractor	Depress the clutch pedal

(D) - Electro-hydraulic spool valves (if available)

The field (D) indicates the status of the electrohydraulic spool valves. Here are the graphics :

Icon	Description
	Spool valve 1 selected/hooked
	Spool valve 2 selected/hooked
	Spool valve 3 selected/hooked
	Spool valve 4 selected/hooked
	Spool valve 5 selected/hooked
	Spool valve 6 selected/hooked
	Spool valve 1 selected andin floating/lock mode

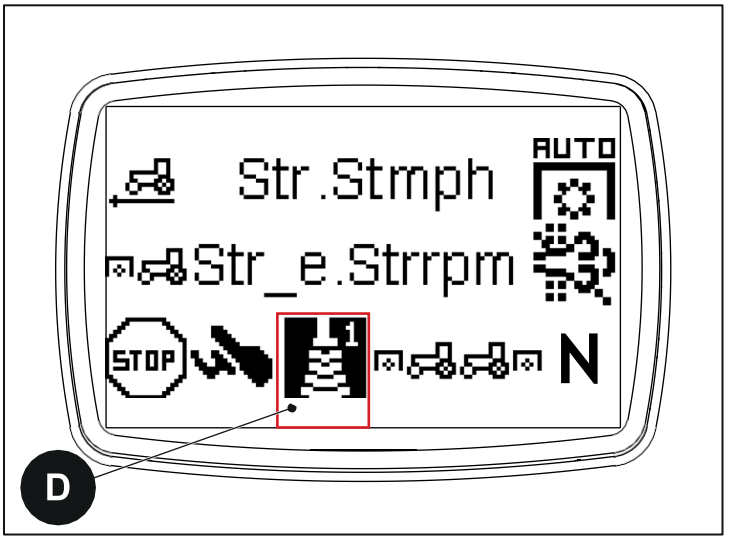


Fig. 4.43

(E) - Front PTO engaged (if available)

In this position, the status of the front PTO will be displayed. See the table below for a description of the icons displayed.

Icon	Description
	Front PTO engaged

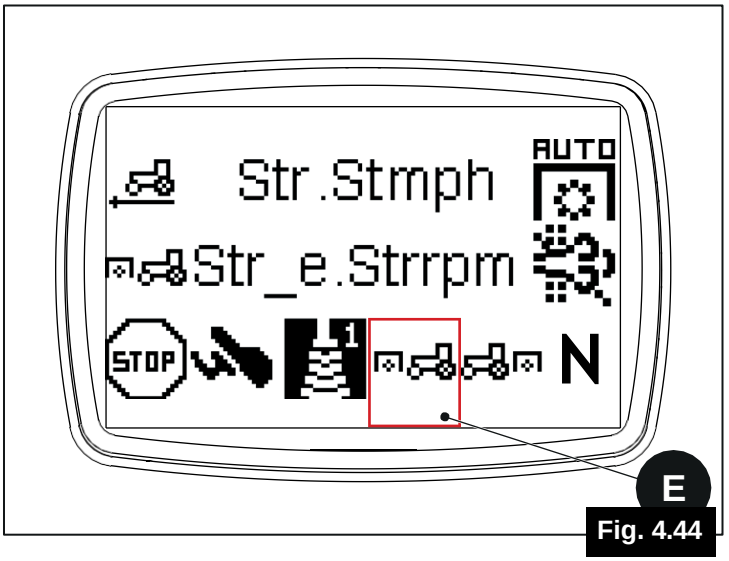


Fig. 4.44

(F) - Rear PTO engaged

In this position, the status of the rear PTO will be displayed. See the table below for a description of the icons displayed.

Icon	Description
	Front PTO engaged with 540 speed
	Front PTO engaged with 540E speed

The icon (F) is shown when calculating the speed PTO (540 or 540E) before showing the correct icon.

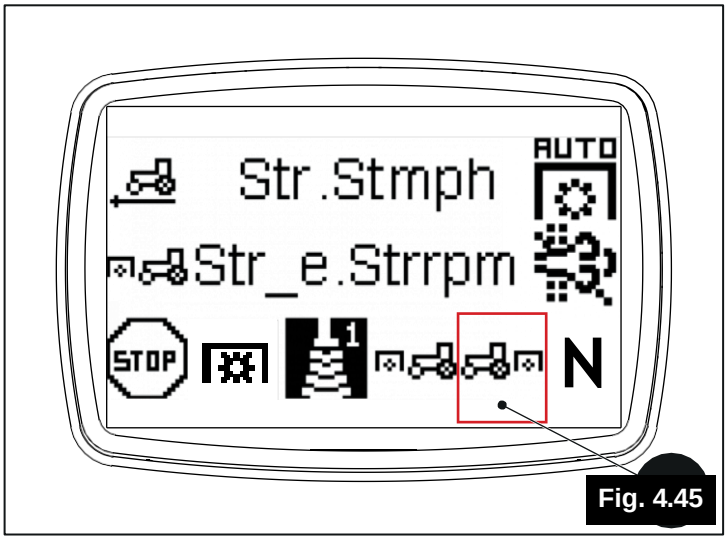


Fig. 4.45

(G) - Shuttle

In this position, the status of the shuttle will be displayed. See the table below for a description of the icons displayed.

Icon	Description
	Shuttle in Neutral position

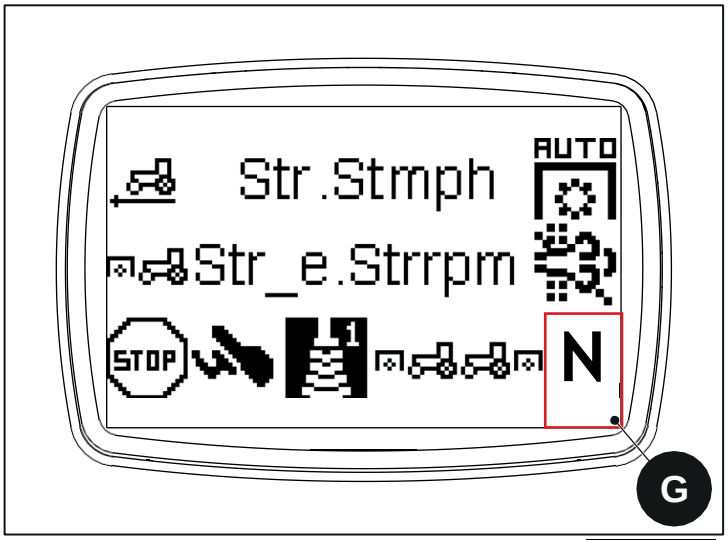


Fig. 4.46

(H) - PTO. Auto Mode

In this position, the status of the PTO Auto Mode will be displayed. See the table below for a description of the icons displayed.

Icona	Description
	- PTO AUTO Mode Active

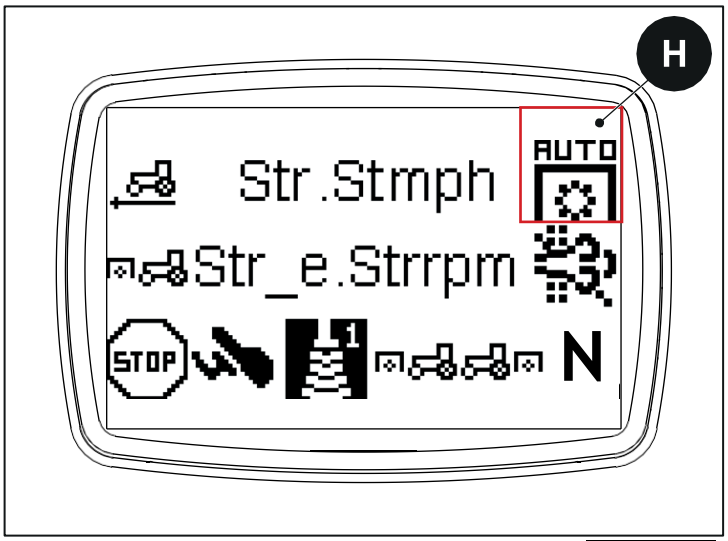


Fig. 4.47

(I) - Regeneration Actived or Inhibited

In this position, the regeneration status will be displayed. See the table below for a description of the icons displayed.

Icona	Description
	Regeneration Inhibited
	Regeneration Activated

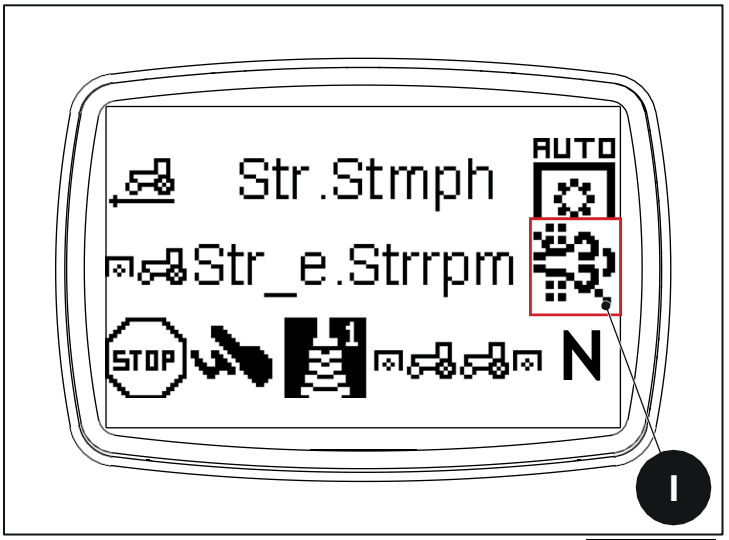


Fig. 4.48

(M) - Unit of measurement

By pressing the “+” and “-” buttons connected to the dashboard for a long time and at the same time, it is possible to change the measurement unit from km/h to mph and vice versa. The choice will also be remembered at the next key cycle.

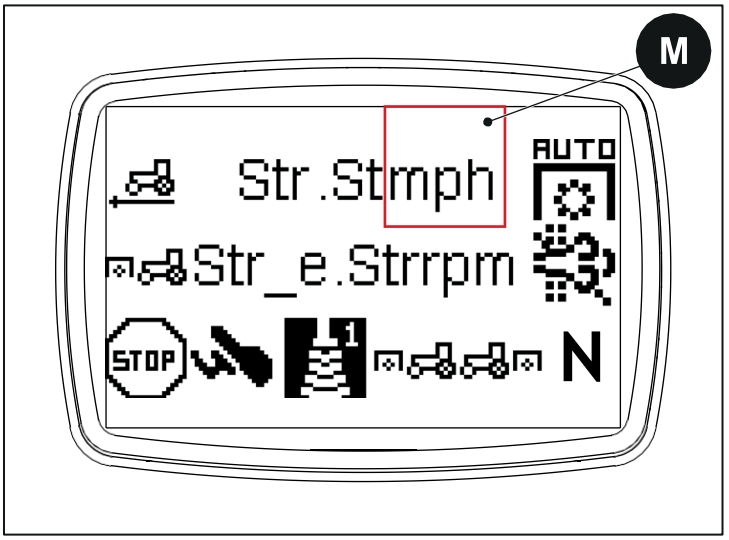


Fig. 4.49

4.3.3 Information screen

The following information will be displayed on the information screen:

(A) - Hours worked

In this position, the hours worked will be displayed.

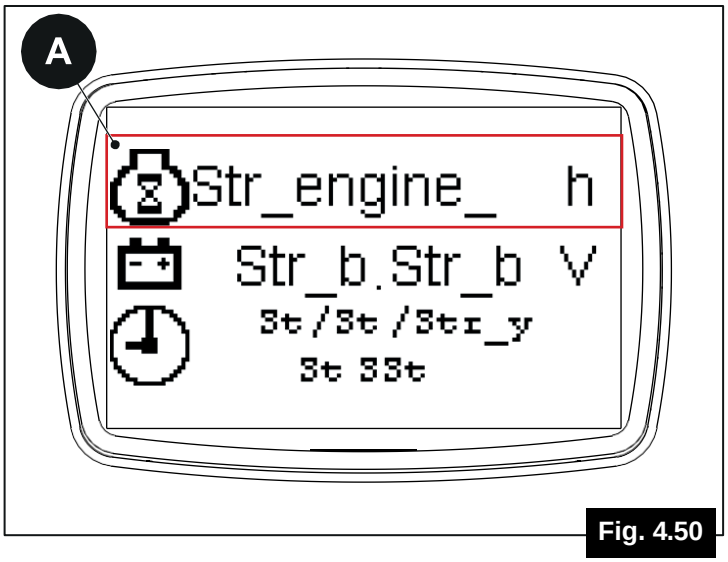


Fig. 4.50

(B) - Battery information

In this position, the voltage value detected on the battery will be displayed.

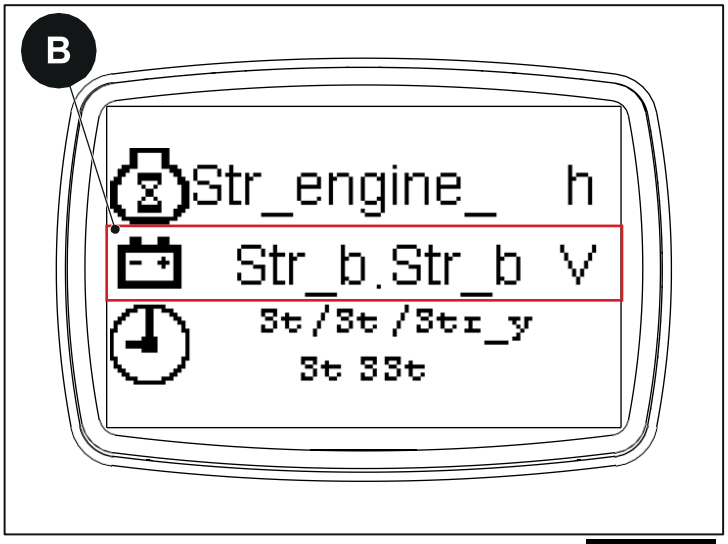


Fig. 4.51

(C) - Date and Time

In this position, the date and time will be displayed in the format 'dd/mm/yyyy hh:mm'

- dd - Day
- mm - Month
- yyyy - Year
- HH - Hours
- mm - Minutes

To modify the field, hold down the Enter key until the field of the day (dd) starts blinking. Press the + and - buttons to edit the field. Press Enter to save the set data and move on to editing the next fields.

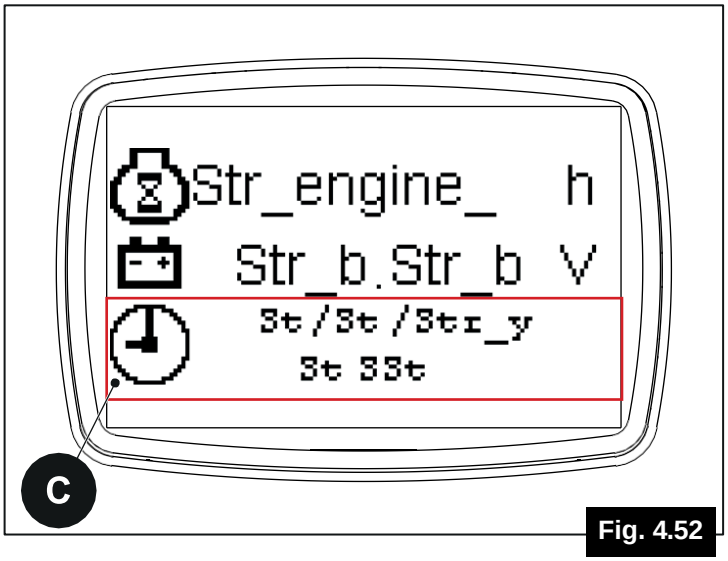


Fig. 4.52

4.3.4 Diagnosis screen

Use the 'OBD' socket to connect with the 'GKT' diagnostic tool.

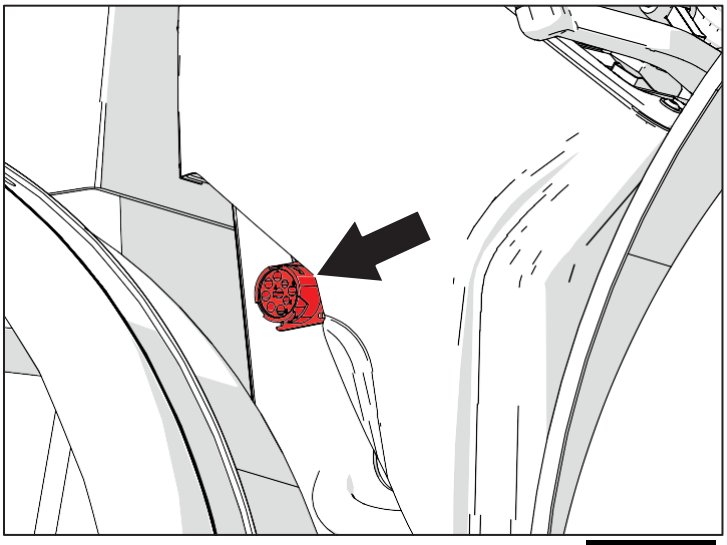


Fig. 4.53

To display the error screen, press the (+) and/or (-) buttons on the dashboard. On this screen, the active errors automatically reported by the tractor's diagnostic system will be displayed.

Each error code is identified according to 2 factors:

- (A) - Icon that identifies the error zone (PTO, VCU, Generic Error, ...);
- (B) - 4-digit code identifying the error.

If the tractor has more than 6 active errors, the most serious errors will be shown.

If there are errors with the same degree of severity, the chronologically most recent ones will be shown.

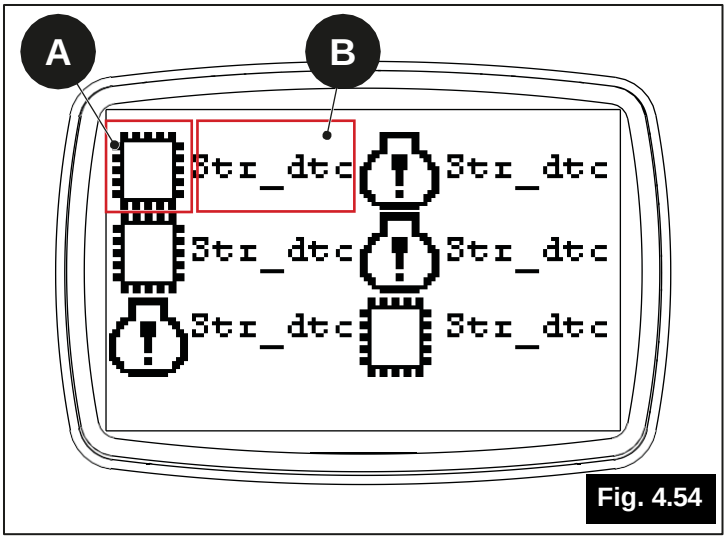


Fig. 4.54

Note

This screen is displayed only if there are active errors.

4.3.5 BUS OFF screen

This screen is displayed when an absence of communication from the electronic control units is identified. The icon of the control unit that is not communicating (A) will be displayed along with the STOP icon (B). A continuous beep will be active.

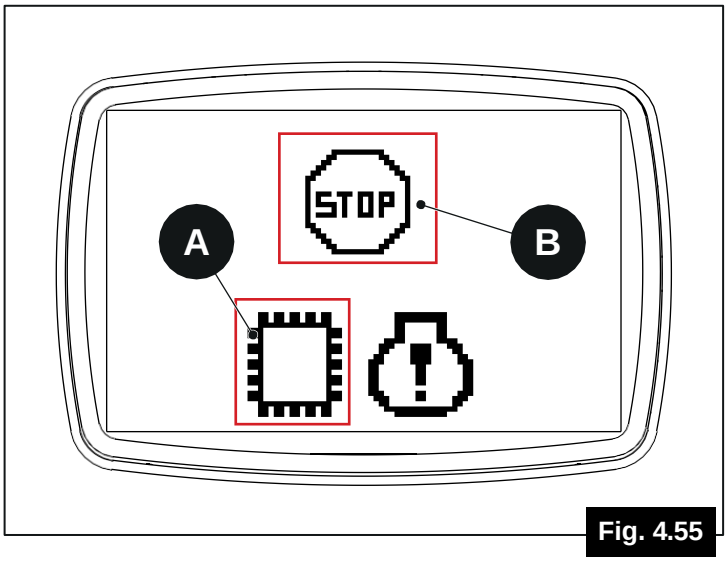


Fig. 4.55

4.4 Lights

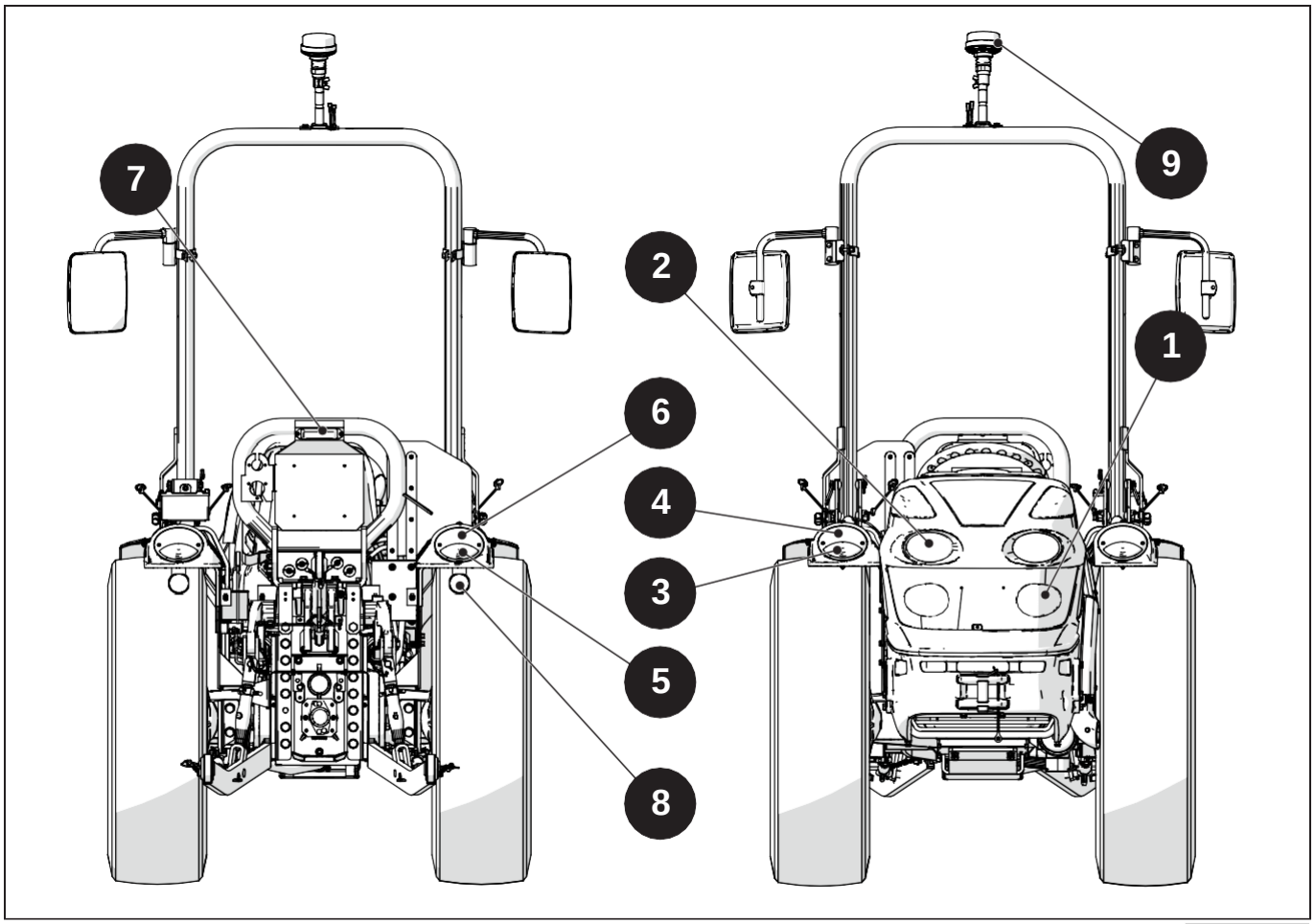


Fig. 4.56

1 **- High beam headlight (if available)**
2 - Low beam headlight
3 - Front position light
4 - Front turn signal
5 - Brake stop light and rear position
6 - Rear turn signal
7 - Rear license plate light
8 - Rear reflectors
9 - Rotating lamp **(optional)**

4.4.1 Light switch

Place the light diverter knob in position (1) to turn on the right and left side lights.

Place the light diverter knob in position (2) to turn on the low beam lights.

Move the light diverter lever forward to turn on the high beam lights and the high beam light on the dashboard will come on (if available).

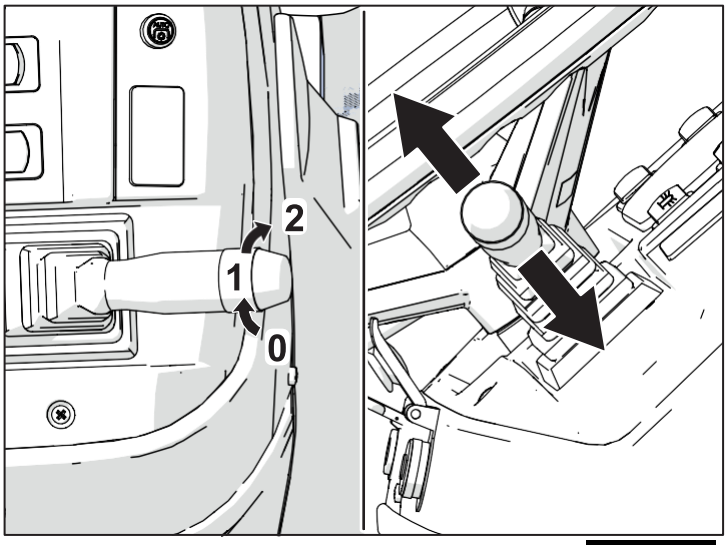


Fig. 4.57

4.4.2 Direction indicator

Move the light diverter lever downwards to activate the right turn signal. Move the lever upwards to activate the left turn signal. The light for the activated direction indicator will start to flash on the instrument panel.

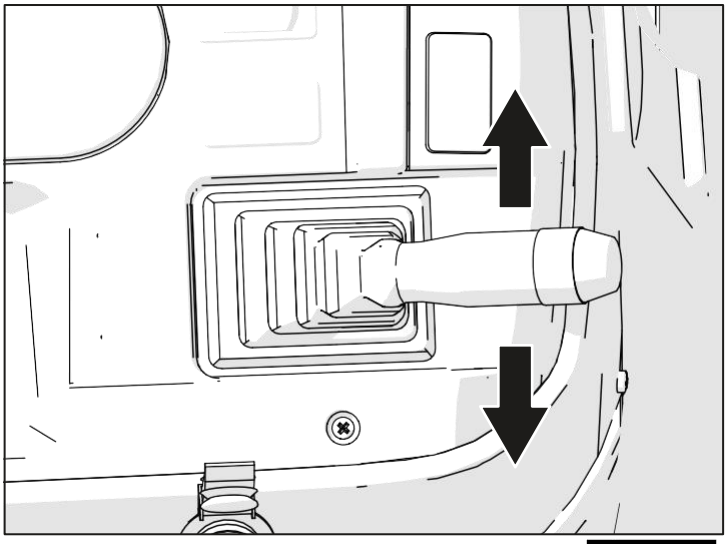


Fig. 4.58

4.4.3 Emergency lights

The emergency light switch is used to control the emergency lights. Pressing the switch in position (1) will flash the direction indicators at the same time. Pressing the switch in position (0) will stop the direction indicators from blinking.

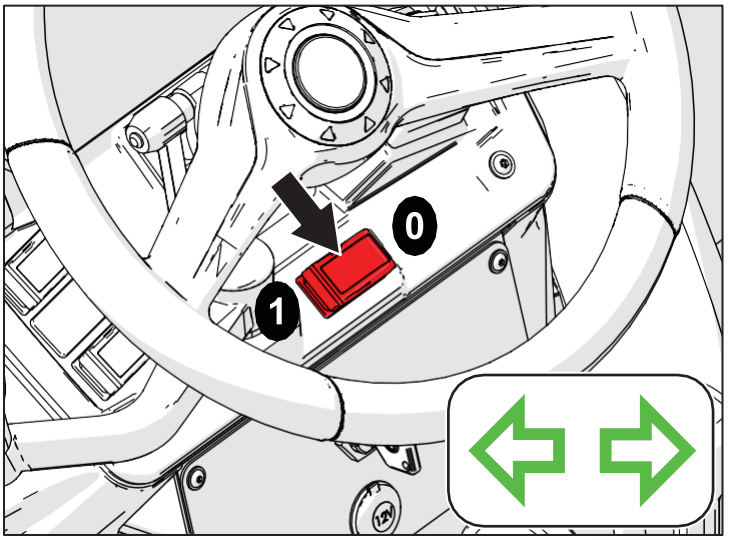


Fig. 4.59

4.4.4 Beacon (optional)

The beacon switch is used to control the ignition of the rotating lamp. Press the switch in position (1) to turn on the rotating lamp; press the switch in place (0) to turn it off.

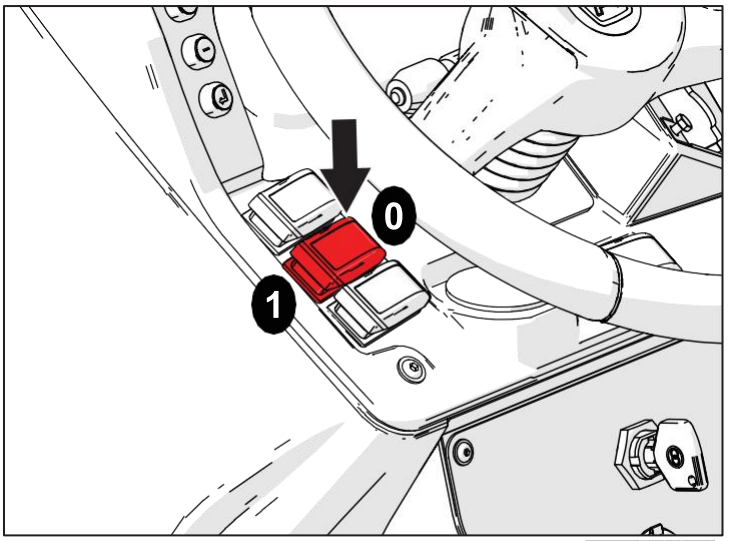


Fig. 4.60

5 : RULES OF USE

Index

5.1 Starting and arresting the engine

5.1.1 Startup safety systems

This chapter lists and describes the safety measures applied to the tractor in order to guarantee the minimum safety conditions during start-up.

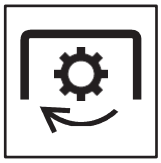
When turned on, the operations to be carried out to safely start the tractor will be shown on the display.

Note
It will not be possible to start the tractor without carrying out safety operations.

E60 RS

Function	Icon	Icon description	Tractor behavior	Solution
Switch presence operator upon seat		The icon indicates that the the operator shall to be seated on seat during The start-up phase Of the tractor	If the system does not detect The presence Of the operator on the seat a beep. It won't be Is it possible to start the tractor	Sit in the seat for be able to start the tractor.
Sensor position lever age shuttle		The icon indicates that the leverage of the shuttle shall being positioned in Neutral (N)	If the system does not detect That the shuttle lever is placed in Neutral (N) it will be an audible signal was made. It will not be possible to start the tractor	Position The leverage of the shuttle in Neutral (N) position.
Sensor Socket PTO Reverse not Engaged		The icon indicates that the ThevPTO Rear doesn't have to be engaged	If the system detects that Rear PTO It is engaged in a beep. It won't be Is it possible to start the tractor	Position The leverage modes - PTO in position Neutral or Independent, Turn off the PTO switch
Brake sensor of engaged		The icon indicat es which Parking brake Parking must be inserted	If the system detects that The parking brake is not It is engaged it will be displayed The icon on the dashboard display floowed byan acoustic signal It won't be possible start the tractor	Engage the Parki ng brake
Pedal sensor Clutch pressed		The icon indicates that the The pedal Of Friction must be Pressed	If the system detects that The clutch pedal is not It is pressed a beep. It won't be Is it possible to start the tractor	Press the pedal of the Clutch

E60 SN

Function	Icon	Icon description	Tractor behavior	Solution
Switch presence operator upon seat		The icon indicates that the the operator shall to be seated on seat during The start-up phase Of the tractor	If the system does not detect The presence Of the operator on the seat a beep. It won't be Is it possible to start the tractor	Sit in the seat for be able to start the tractor.
Sensor position lever age shift		The icon indicates that the Gear lever must being positioned in Neutral (N)	If the system does not detect What is the gear lever placed in Neutral (N) it will be an audible signal was made. It will not be possible to start the tractor	Position the lever of the shift in position Neutral (N)
PTO Sensor PTO Reverse not Engaged		The icon indicates that the ThevPTO Rear doesn't have to be engaged	If the system detects that Rear PTO It is engaged in a beep. It won't be Is it possible to start the tractor	Position The leverage modes - PTO in position Neutral or Ground speed
Brake sensor of engaged		The icon indicat es which The brake by Parking must be inserted	If the system detects that The parking brake is not It is engaged it will be displayed The icon on the dashboard display followed by an acoustic signal It won't be possible start the tractor	Engage the parking brake of
Pedal sensor Clutch pressed		The icon indicates that the The clutch pedal Friction must be Pressed	If the system detects that The clutch pedal is not It is pressed a beep. It won't be Is it possible to start the tractor	Press the pedal of the Clutch

5.1.2 Access to the driver's seat

Follow the instructions below to safely and correctly access the driver's seat:

- Make sure you grab the handrails (1) then carefully get on the tractor.

danger
The platform (2) can be slippery, grip the handrails (1) securely during the entering phase

- Sit on the seat.
- Adjust mirrors and seat position, as explained in the previous chapter.
- Familiarize yourself with the location of the various tractor controls.
- **Fasten your seatbelt.**

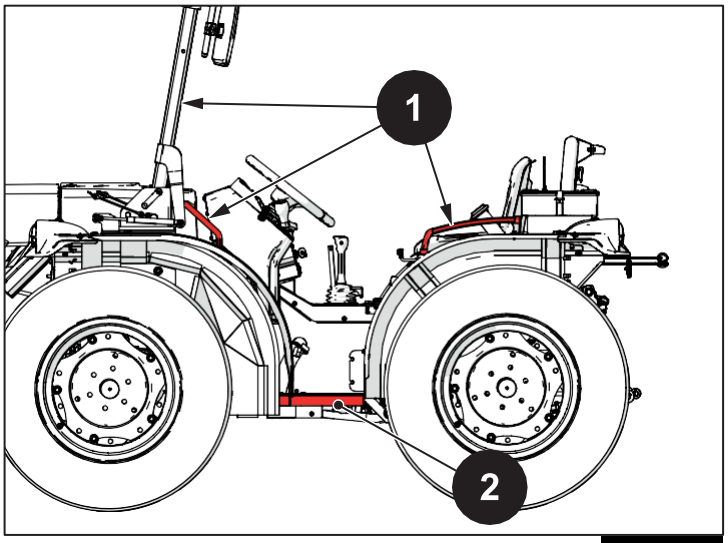


Fig. 5.1

5.1.3 Starting the engine

To start the engine, you must be properly seated in the driver's seat and follow the instructions below:

- insert the handbrake;
- press the clutch pedal deeply, then bring all the control levers to the neutral position;
- wait for the system check to finish.
- Turn the starter key to the start position.
- The key lock is equipped with an anti-repetition system. To perform a second starting operation, return the key to the 'OFF' position.

Before moving the tractor, wait at least 30 seconds with the engine running idle, to allow all the organs to be properly lubricated.

Warning
Before attempting to start the engine, verify that there is fuel in the tank.

Insert the key into the starter switch. The starter switch has 3 positions:

- OFF: In this position the engine is off and you can insert or remove the key.
- ON: In this position, the tractor circuit is run and the display will turn on. (If the outside temperature is below -8 °C the preheating system will be activated automatically.)
- ST: In this position, the engine can be started. As soon as the engine is started, release the key that will automatically return to the ON position.

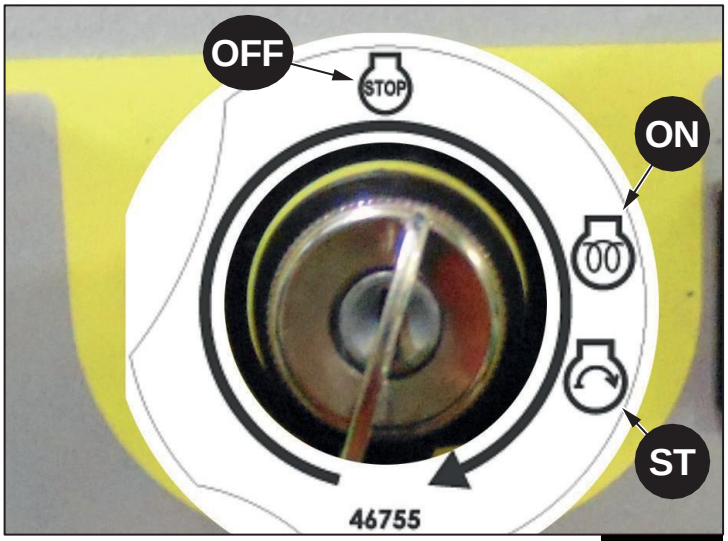


Fig. 5.2

To start the engine, press the clutch pedal (1) deeply and place the key on. Check that there are no fault lights on on the display.

As soon as the preheating light goes out, you can start the engine by placing the key on ST. Wait for the engine to start and release the key.

Warning
After starting the engine, release the key immediately so as to reposition it to ON, otherwise the motor will be damaged.

Warning
Do not attempt to start the engine for more than 20 consecutive seconds. If the engine does not start, wait 2 minutes for it to cool down and try again. If the ignition fails 4 consecutive times, look for the solution to the problem before restarting another time.

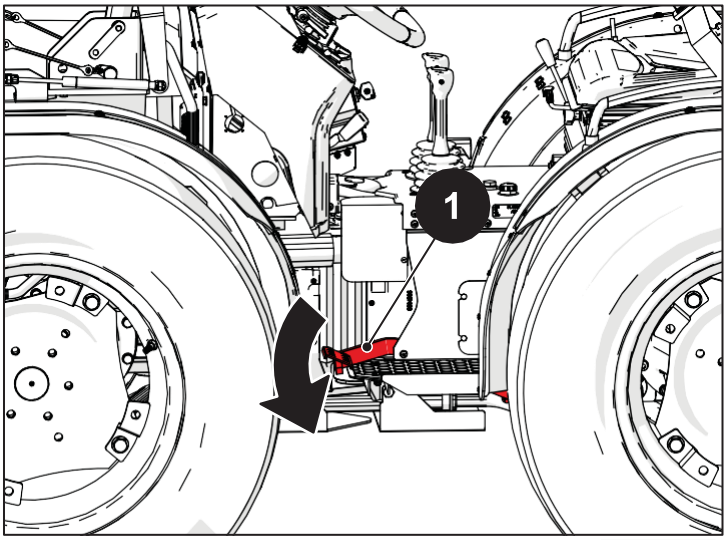


Fig. 5.3

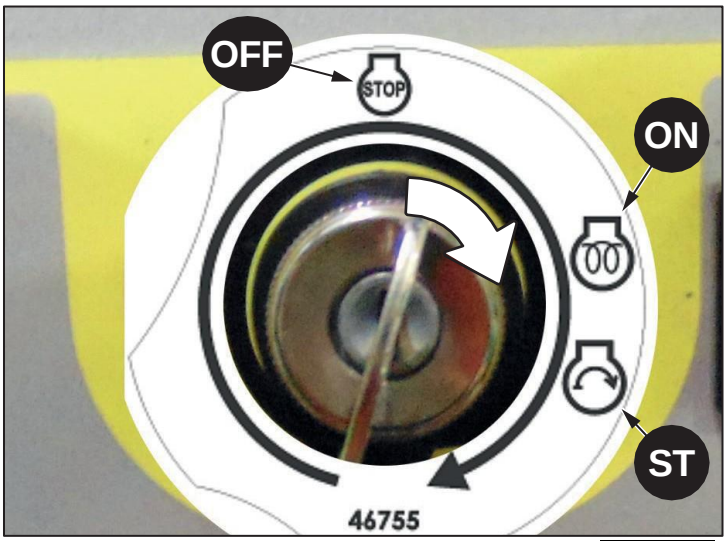


Fig. 5.4

5.1.3.1 Starting the engine at low outside temperatures

ATTENTION:
DO NOT use ether or other fluids to start the engine at low temperatures, this could cause serious harm to people and the vehicle.

Warning
DO NOT attempt to start the engine for a long time, otherwise the battery will run out.

Warning
When the temperature is below 8°C, turn the key to ST position only when the preheating phase is over.

To maintain the life of the motor and its efficiency, it must be heated in both hot and cold seasons.

At low temperatures, after starting the engine, run it at low revs for 3-4 minutes before starting work.

When the temperature is below 0°C, it is advisable to insert the recommended refrigerant mixture into the cooling circuit and introduce the anticoagulant additive into the tank, and only then the diesel.

Warning
For the amount and type of liquid, see 'Lubricants, Fuels, and Coolants'.

5.1.4 Engine shutdown

danger
Always lower the mounted implement to ground level.

Warning
Do not turn off the engine under full load or at high rotational speed.

Before turning off the engine, stop the tractor following the instructions described in the “Tractor Stop” section.

Before moving the ignition key to the OFF position, wait a few minutes with the engine running at idle speed in order to obtain homogeneous cooling of all components and avoid possible damage caused by high temperatures and poor lubrication.

Place the starter key in the OFF position.

Remove the key from the switch to prevent non-personnel from starting the engine qualified.

Warning
If the battery is disconnected, do not disconnect the power supply while the engine is running to turn off the tractor. Before disconnecting the power supply, turn off the engine and wait at least 3 minutes, so that the electronic control unit can carry out the “after-run” procedure: if this procedure is not respected, the electronic engine management control unit may be damaged.

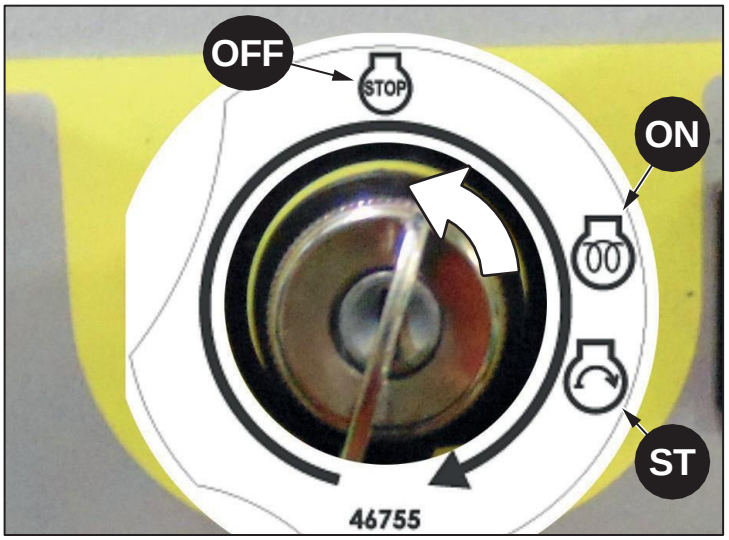


Fig. 5.5

5.1.5 Starting the tractor

danger

Always start the engine from the driver's seat with all gear levers and the PTO lever in a neutral position. The brakes must be registered correctly and engaged at the same time. Adjust the seat and fasten your seat belts.

danger

Never run the engine indoors without making sure that it has adequate ventilation, the exhaust gas are harmful to your health and can even be lethal.

danger

Before starting the engine, make sure that the handbrake is locked and that the gearbox and the PTO are in neutral, even if the tractor is equipped with a safety device when starting. Never exclude the safety switch when starting. If this does not work regularly, contact the specialized staff of your Dealer.

danger

Before starting the engine, make sure that all connected implements have been completely turned down.

danger

Make sure that all the intended guards and protections are properly installed on the tractor (safety frame, side panels, bonding, power gain protection, front deck transmission shaft protection, etc.).

danger

Before starting the tractor, always make sure that there are no people or obstacles within its range of action.

danger

After starting the tractor, always check that all lights and implements are working properly. If a fault or malfunction is detected, DO NOT use the tractor until the problem has been solved.

After starting the engine, proceed as follows:

Press the clutch pedal.

Use the gear ever (2) to enter the desired gear;

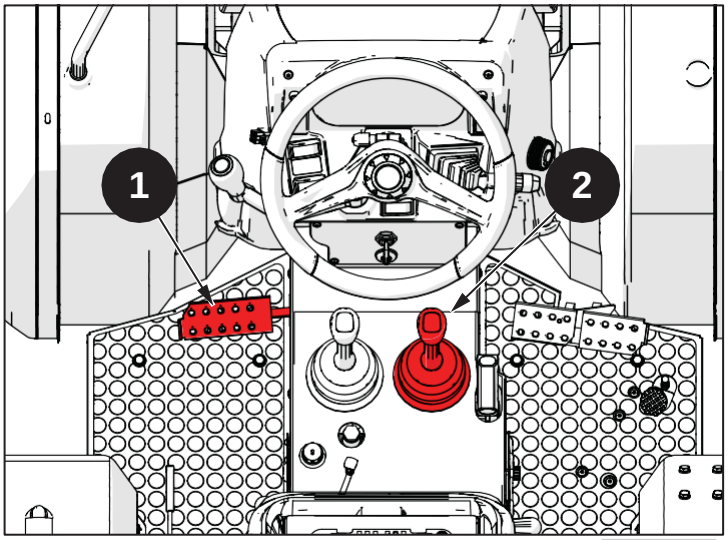


Fig. 5.6

Use the range levers (3) to enter the desired range;

E60 RS: Use the shuttle lever (4) to enter the desired direction of travel;

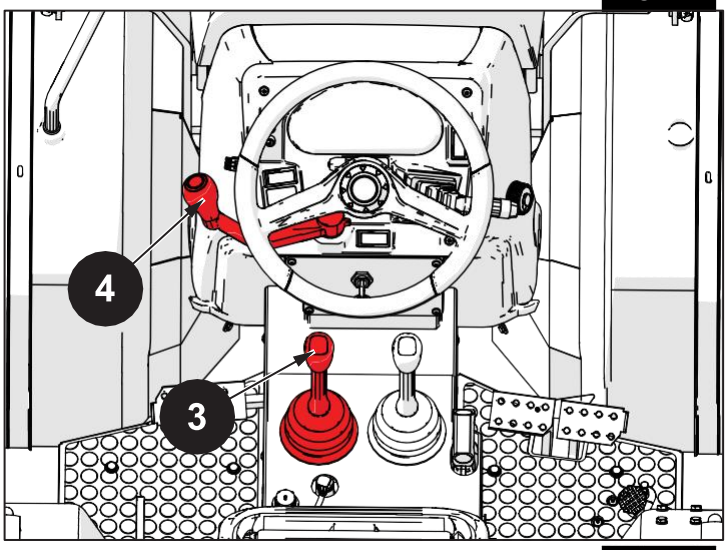


Fig. 5.7

Disconnect the parking brake (5);

Gradually release the clutch pedal (1) and increase the engine speed using the accelerator.

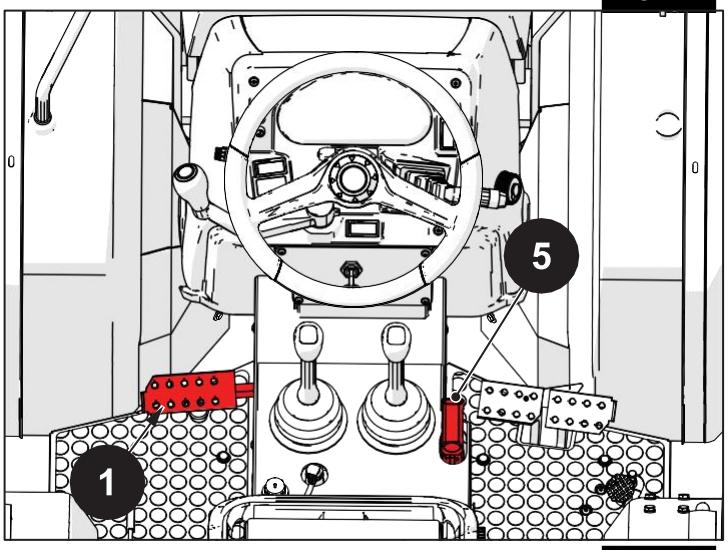


Fig. 5.8

5.1.6 Tractor shutdown

danger

Before leaving the tractor, always lower the implements connected to the ground. Never leave it in a raised position above the ground.

danger

When leaving the tractor, always bring all the control levers to the neutral position, insert the handbrake, stop the engine and engage a gear.

danger

When the tractor is abandoned and left unattended, always remove the starter key.

danger

If possible, park the tractor on level ground, enter a gear and lock the handbrake. On sloping terrain, in addition to locking the handbrake, switch on the first gear of the uphill gearbox or the first reverse gear downhill. For greater safety, also use some stopping wedges, don't fail to do so if you park with a connected trailer.

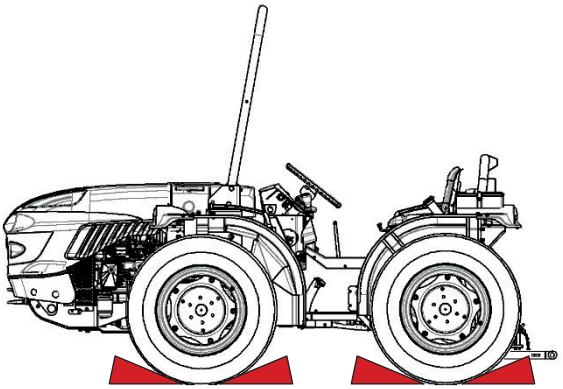


Fig. 5.9

To stop the engine, proceed as follows: Decrease engine speed;

Press the clutch pedal (1) and the brakes (2) to slow down until it stops;

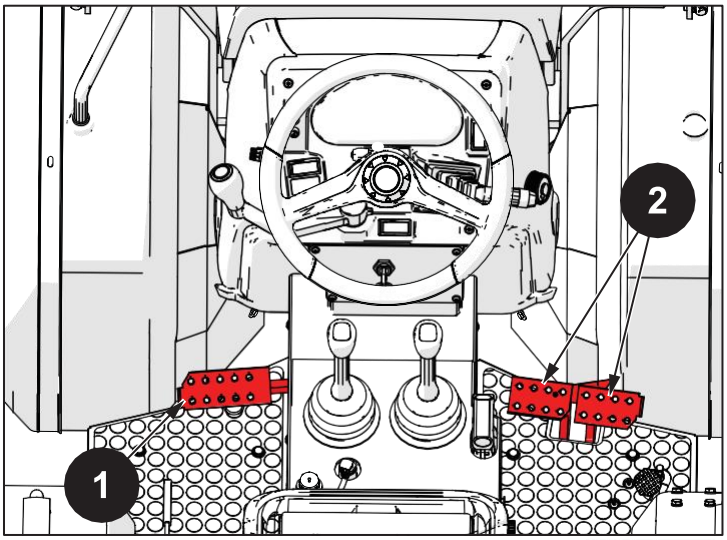


Fig. 5.10

Position the levers of the ranges (3) and of the gears (4) in a neutral position;

E60 RS: Place the shuttle lever (5) in a neutral position;

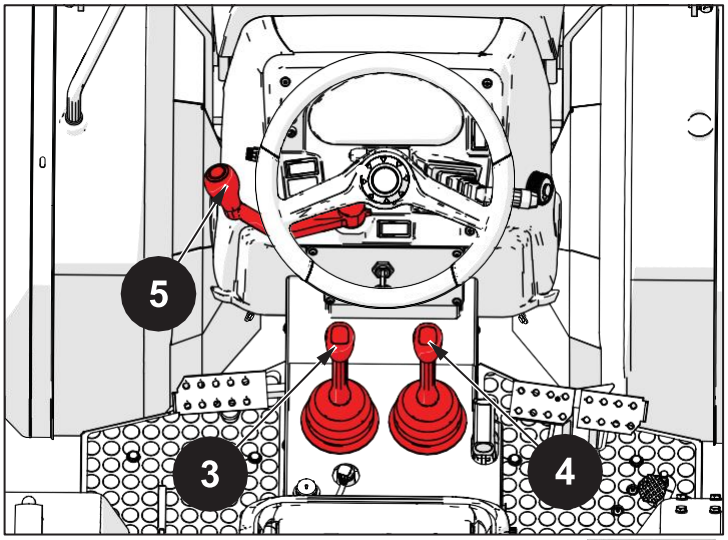


Fig. 5.11

Release the clutch pedal (1);

Insert the parking brake (6) by pulling the lever;

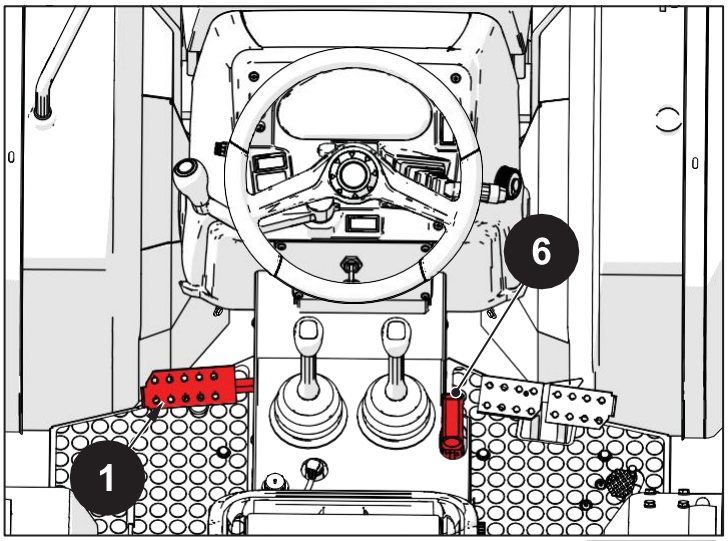


Fig. 5.12

Place the key in the OFF position.

Remove the key from the switch to prevent unqualified personnel from starting the engine.

> **Warning**
>
> Refer to the 'Engine Stopping' section to turn off the engine properly.

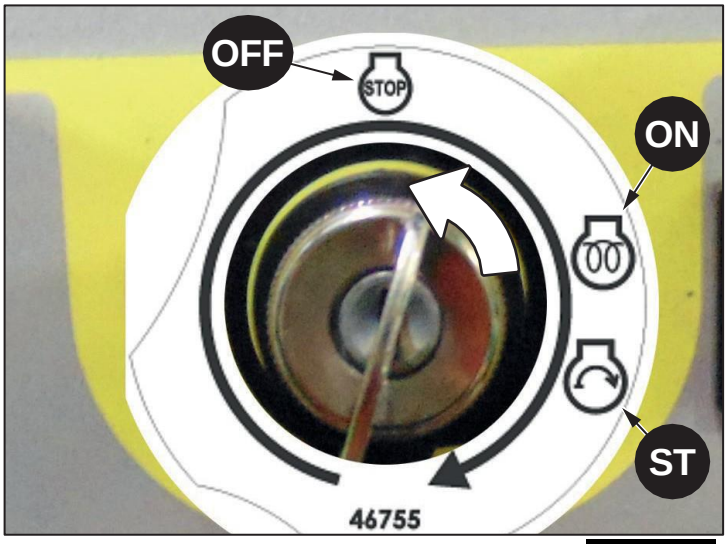


Fig. 5.13

5.1.7 Run-in

Before being used, the tractor must be operated for a certain time under the expected lubrication, rotational speed and load conditions. At the same time, carry out the necessary checks, adjustments and maintenance, to normalize the technical conditions.

Preparations before the run-in

- Lubricate the front hub oil pan, the front drive axle coupling pin, and the water pump shaft. Check the level in the engine oil pan, in the transmission system and in the lift, in the central control of the front wheel axle and in the final reducer, making the necessary refills
- Top up the diesel and coolant, updating the labels accordingly.
- Check that the tires are inflated to normal pressure.
- Check that the electrical circuit is working properly and that its connections are secure.
- Move all control levers to a neutral position.

Running-in

During the run-in period (first 50 hours of operation), it is necessary to use the engine with a percentage of load absorbed between 50% and 70% of the maximum power.

- Avoid using the engine at its maximum performance for long periods during run-in.
- Do not run in the engine with an absorbed load percentage of less than 50% or with a low rpm for long periods. A run-in carried out in this way may be the cause of excessive oil consumption and/or oil spillage from the drain.
- If the engine is also run-in for a duration of more than 50 hours with a percentage of load absorbed between 50% and 70% of the maximum power, a longer operating life of the organs and a lower maintenance cost can be guaranteed.
- During the run-in, carry out maintenance according to the established intervals (see the chapter “Maintenance coupons”).

5.2 Particulate filter regeneration (DPF)

5.2.1 Particulate filter regeneration

The diesel particulate filter (DPF) is a device designed to remove polluting particles from diesel engine exhaust gases.

The exhaust gas treatment system is based on the ability to capture and retain unburned polluting particles inside a special filter, and then regularly eliminating them through combustion during a subsequent phase, called “regeneration”.

The procedure takes about 15-30 minutes (depends on the type of engine and the amount of particulate matter accumulated in the DPF filter).

The regeneration of the particulate filter can take place automatically or manually.

The particulate filter regeneration button has two positions:

- Position (A): FORCED REGENERATION. Hold down the button for 3 to 5 seconds and release.
- Position (B): REGENERATION INHIBITION Hold for 3 to 5 seconds and release.

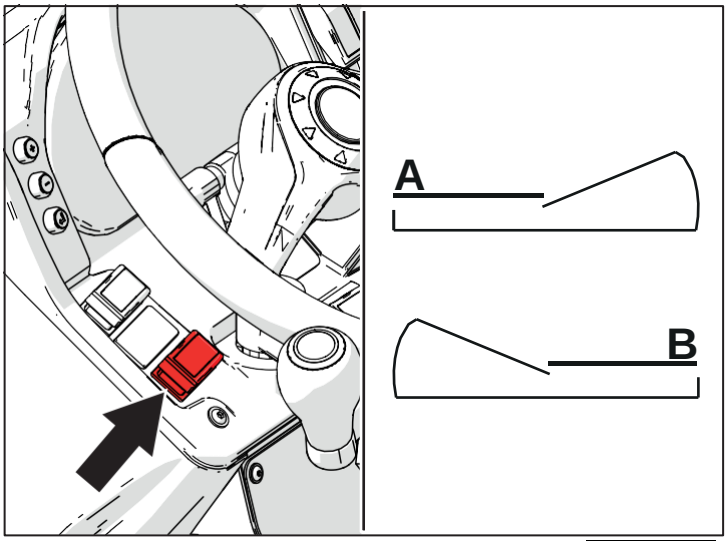


Fig. 5.14

The start of the automatic regeneration phase is indicated to the operator on the LCD display of the instrument panel. The indication is necessary for safety purposes to inform the operator of the high temperature reached by the exhaust during the process.

Automatic regeneration does not affect engine performance. During the procedure, the operator can continue to use the vehicle normally.

Under certain conditions, automatic regeneration may not be completed (for example continuous engine stops and starts, long periods at idle speed) and therefore it may be necessary to repeat it.

The start of automatic or manual regeneration, if set, is highlighted when the light (1) on the LCD display comes on.

Once the operation is finished, the light goes out.

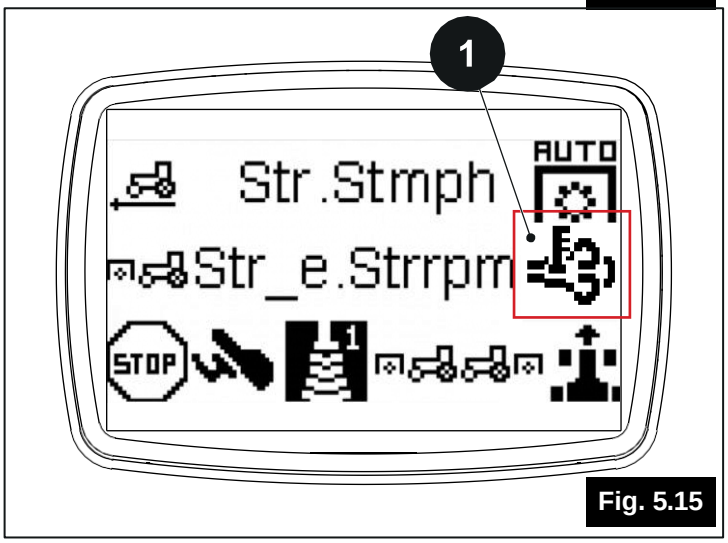


Fig. 5.15

Warning

The operator must continue to drive the vehicle during the regeneration process.

Warning

If the filter is not regenerated when required, whether automatic or manual, the functionality of the filter itself is compromised. By continuing to ignore this request, in addition to having a sharp reduction in engine power, the filter is damaged to the point that the dealer's intervention will be necessary to replace the filter with a new one.

danger

During regeneration, incandescent gases are expelled that may cause damage to people and/or property. Always carry out the regeneration outdoors, away from potentially flammable elements (for example hay, straw, dry leaves, etc.) and away from people or animals.

Always keep the bonnet area clean from potentially flammable elements (e.g. hay, straw, dry leaves, etc.).

If the regeneration starts in unsafe places, it is possible to inhibit the regeneration itself by placing the command in position (C), see figure 5.14. Inhibited regeneration, if set, is highlighted when the light (2) on the LCD display comes on.

Regenerate as soon as you are in a safe place.

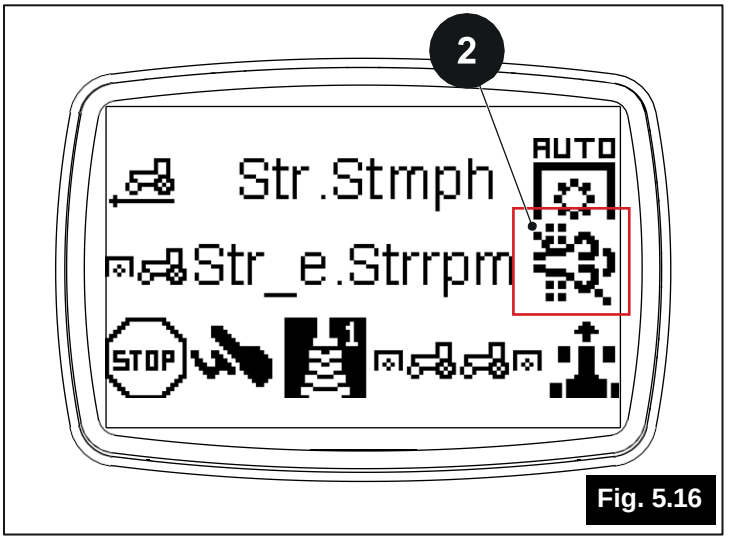


Fig. 5.16

Continuing to work with inhibited regeneration, the DPF becomes clogged with a consequent reduction in engine performance, indicated by the flashing of the light (3) on the instrument panel together with an acoustic warning.

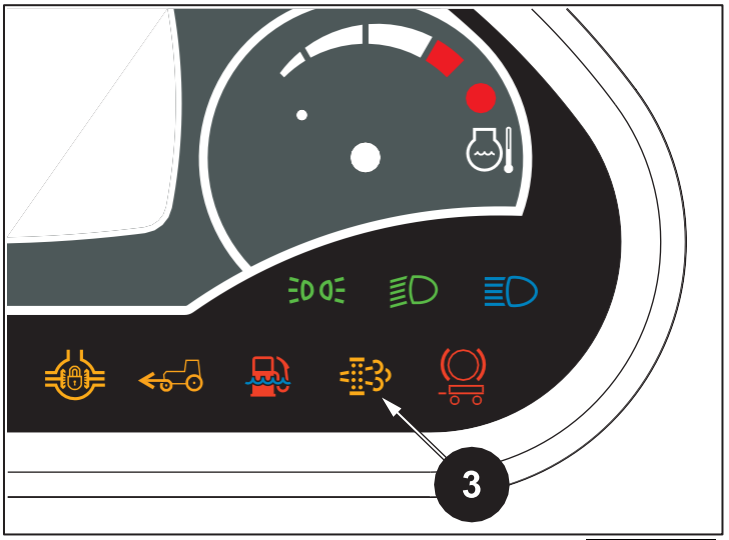


Fig. 5.17

Note

If an excessive number of regenerations have been carried out, an additional engine oil replacement is required compared to what is indicated in the maintenance plan.

The request for oil replacement is indicated when the alarm light on in the instrument panel display comes on, this request does not result in any weakening of the engine.

It is possible to complete the regeneration process by pressing and holding the button in position (A) until the regeneration starts; the button automatically returns to position (B) when released. This procedure is called "Manual Regeneration."

danger

Manual regeneration must be carried out with the tractor parked. Park the tractor outdoors, away from potentially flammable elements (e.g. hay, straw, dry leaves, etc.) and away from people or animals.

Do not stay on the tractor during the manual regeneration procedure.

Keep the tractor under strict control throughout the process.

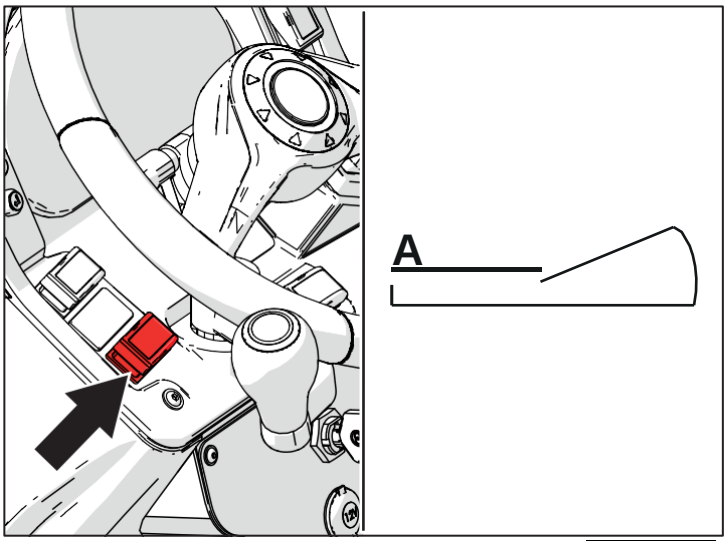


Fig. 5.18

danger

In order to avoid accidents caused by inhaling engine exhaust gases, always operate the engine in a well-ventilated area. Engine exhaust fumes are toxic.

danger

During regeneration, the exhaust gases become extremely hot and cause fire if directed at combustible materials. The vehicle during this procedure must be parked outside.

danger

During the regeneration phase of the particulate filter, do not park the vehicle on surfaces that have flammable materials and that may burn in contact with the exhaust system.

danger

During regeneration, the muffler reaches extremely high temperatures. Make sure that the exhaust system is not in contact with or near people or things. It is forbidden to use exhaust gas aspirators in contact with the muffler.

Note

The temperature of the engine coolant must be above 65°C.

The engine will increase its rpm up to about 2000 rpm.

The regeneration process of the DPF filter is to be considered complete when the motor returns to idle speed.

When manual regeneration is finished, turn off and on the engine again.

5.2.2 DPF regeneration strategy

5.2.2.1 DPF operating thresholds

Note
Completing the regeneration reduces the mass of the particulate matter to a value below the minimum threshold.

Particulate mass less than 100%

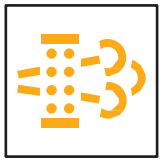
Initialization of particulate matter accumulation.

Particulate mass between 100% and 105%

The request is made to start automatic regeneration; if regeneration starts, the indicator lights up:

Particulate mass between 105% and 110%

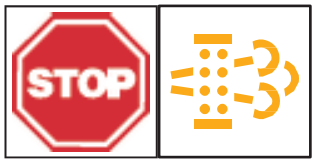
The following light blinks slowly:



The operator must carry out a forced regeneration as far as possible. When regeneration starts, the indicator lights up:

Particulate mass between 110% and 120%

The error code “3254" is reported and the following light comes on (fixed engine light, DPF light, slow blinking):



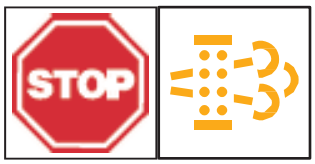
The torque of the motor is limited by 25%. The operator must start the service regeneration manually as soon as possible.

Warning
Continuing to use the tractor, further delaying the execution of the regeneration, may damage the particulate filter.

If the engine fault light does not go out after the regeneration has been completed, contact an authorized GOLDONI workshop.

Particulate mass more than 120%

The error code “3253” is reported and the following light comes on (blinking engine light, DPF light flashing fast):



The engine torque is limited to 50%. Automatic and manual regeneration are disabled. The operator must contact an authorized GOLDONI workshop as soon as possible.

Warning
Continuing to use the tractor, further delaying the execution of the regeneration, may damage the particulate filter.

5.2.2.2 Automatic regeneration

Regeneration duration: 20-30 min. depending on the driving cycle.

Factors that enable regeneration:

- Refrigerant temperature > 25°C
- Engine ignition time > 10s
- Engine speed > 950 rpm

Automatic regeneration is interrupted if:

- Engine at idle > 90s
- Overrun time > 180s (guide in release, example: downhill)
- DPF temperature in > 700°C
- Regeneration inhibitor button (optional)

The regeneration is blocked for 2 hours if the duration of the regeneration > 30 min, for example in the case of a very unfavorable driving cycle.

5.2.2.3 Manual service regeneration

Regeneration duration: 30-40 min. at 2000 rpm.

Manual regeneration is initiated by the operator and is activated if:

- Refrigerant temperature > 40°C
- Vehicle speed = 0 km/h
- Accelerator pedal = 0%
- No auxiliary load connected (also turn off the air conditioning system).
- Hand brake pulled
- Vehicle in neutral
- Engine at idle

Regeneration can be activated through the dedicated button by pressing it for 2 seconds.

Note
If the regeneration is not activated, contact an authorized GOLDONI workshop.

Manual regeneration is interrupted if:

- Refrigerant temperature < 65°C
- Vehicle speed > 0
- Accelerator pedal > 0%
- Applying an auxiliary load
- Clutch release
- Engine speed > 2100 rpm
- Fuel temperature > 100°C
- Temperature DPF In > 700°C
- Regeneration duration > 1500s
- After 300s if DPF In temperature < 520°C
- After 300s if DOC In temperature < 250°C

5.3 Transmission controls

5.3.1 Hand Throttle

Warning

Use the throttle by hand only when you want to work with a constant number of engine revolutions. Do not use it when driving on the road.

The hand throttle allows you to manually control the engine speed while keeping them constant.

Turn the knob counterclockwise to have the minimum number of engine revolutions. Turn the knob clockwise gradually to increase engine speed.

If the knob is left in a position other than the minimum, the next time it is turned on, it must be returned to the minimum position in order to use it, otherwise it will not accelerate.

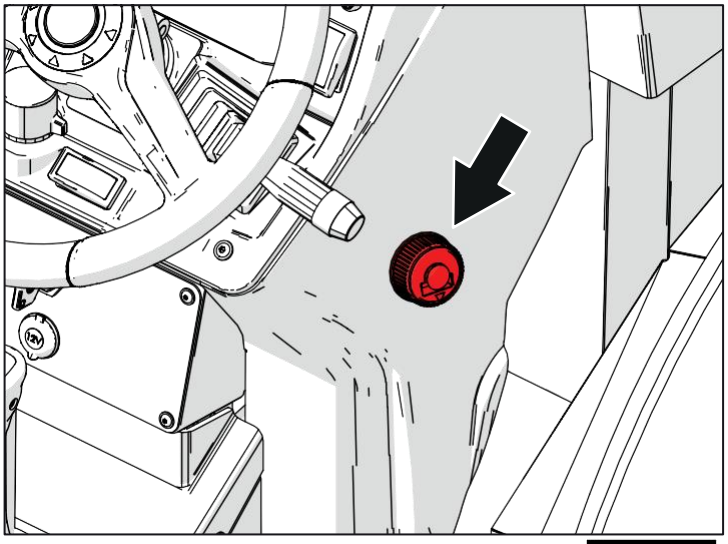


Fig. 5.19

5.3.2 Pedal accelerator

Warning

When using the pedal accelerator, it is recommended that the hand throttle be placed completely at the bottom by hand with the engine at idle speed.

Pressing the accelerator pedal cancels the position of the Hand throttle. By releasing the pedal, the engine returns to the speed established by the hand throttle

Press the pedal to increase the speed. Release the pedal to decrease it.

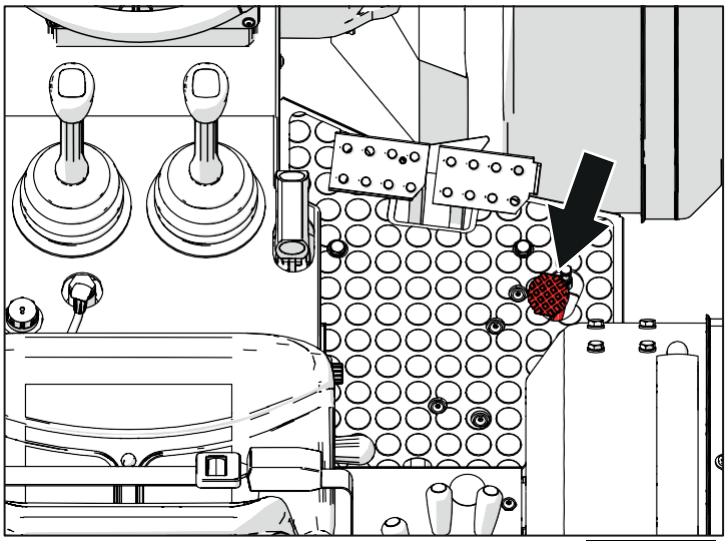


Fig. 5.20

5.3.3 Gearbox clutch pedal

danger
NEVER face a slope with the clutch disengaged.

Warning
Do not work with your foot resting on the clutch pedal in order to avoid premature wear of the clutch disc.

Warning
A prolonged disengagement of the clutch causes wear of the thrust bearing.

With the pedal at the top, the clutch is engaged and transmits motion between the engine and the transmission. Depress the pedal (1) to disengage the clutch. Release it to reengage the clutch.

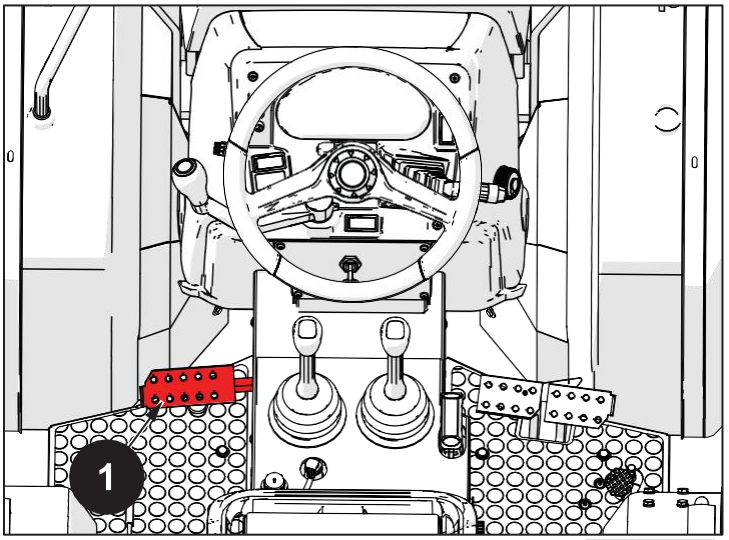


Fig. 5.21

5.3.4 Shuttle lever (E60 RS only)

The lever allows you to select the direction of travel for the tractor:

- Forward: lever in position (F)
- Neutral: lever in position (N)
- Reverse: lever in position (R)

To select the direction of travel, it is necessary to: stop the tractor, press the clutch pedal, select the desired direction of travel, and finally release the clutch pedal gradually.

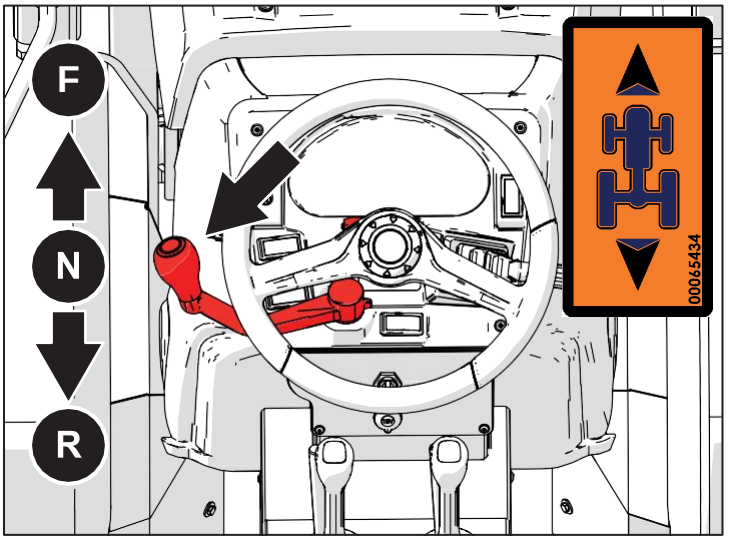


Fig. 5.22

Warning
Never reverse the direction of travel with the tractor moving otherwise the transmission could be damaged.

5.3.5 Range selection

With the range selection lever, four different work ranges can be selected. The selections are not synchronized

To switch from one range to another, it is necessary to: stop the tractor, disconnect the transmission clutch by pressing the pedal, select the desired range by acting on the lever, and finally gradually release the clutch pedal.

The lever can take four positions (plus the neutral position):

	Slow
	Medium/Slow
	Medium/Fast
	Fast
	Neutral

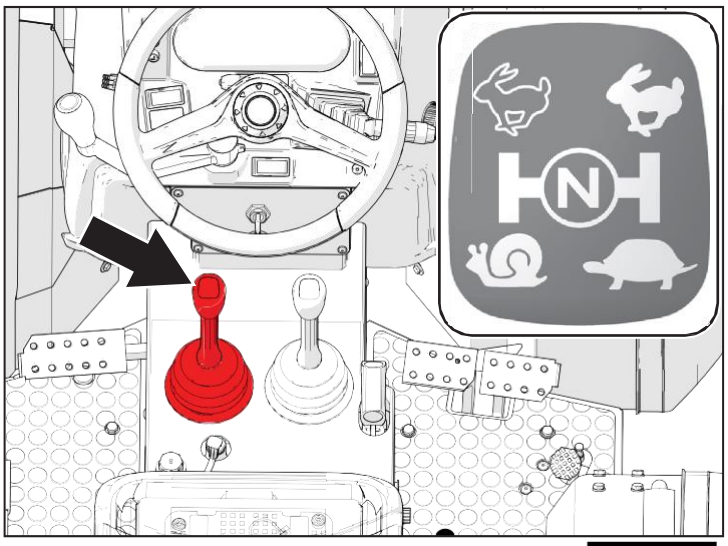


Fig. 5.23

5.3.6 Gear lever

E60 RS

With the gear lever, it is possible to select four different synchronized gears in forward and reverse gears. The selections are synchronized. Each gear is identified by a number on the handle.

With the lever in the central position, no gear is engaged (Neutral position).

To switch from one gear to another, it is necessary to disconnect the transmission clutch by pressing the pedal and select the desired gear, then gradually release the clutch pedal.

The lever can take four positions (plus the neutral position):

1	First speed
2	Second speed
N	Neutral
3	Third speed
4	Fourth speed

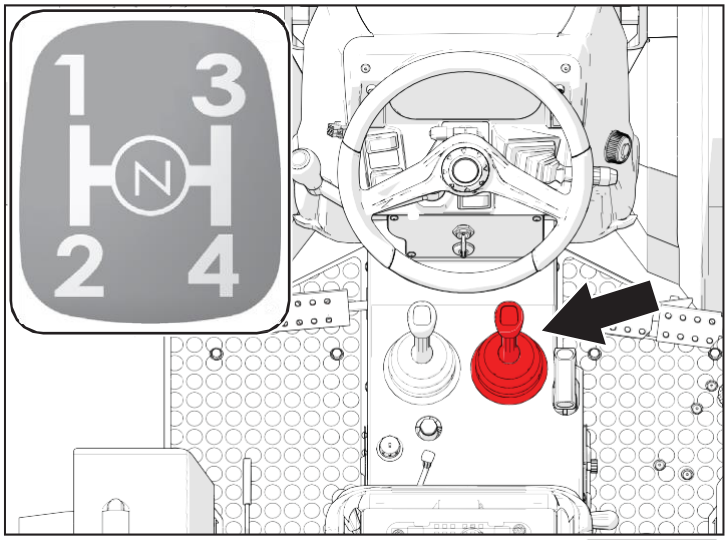


Fig. 5.24

E60 SN

With the gear lever, it is possible to select three different synchronized gears in forward and one in reverse. The selections are synchronized. Each gear is identified by a number on the handle.

To switch from one gear to another, it is necessary to disconnect the transmission clutch by pressing the pedal and select the desired gear, then gradually release the clutch pedal.

With the lever in the central position, no gear is engaged (Neutral position).

The lever can take four positions (plus the neutral position):

	Reverse gears (RM)
	First speed
	Neutral
	Second speed
	Third speed

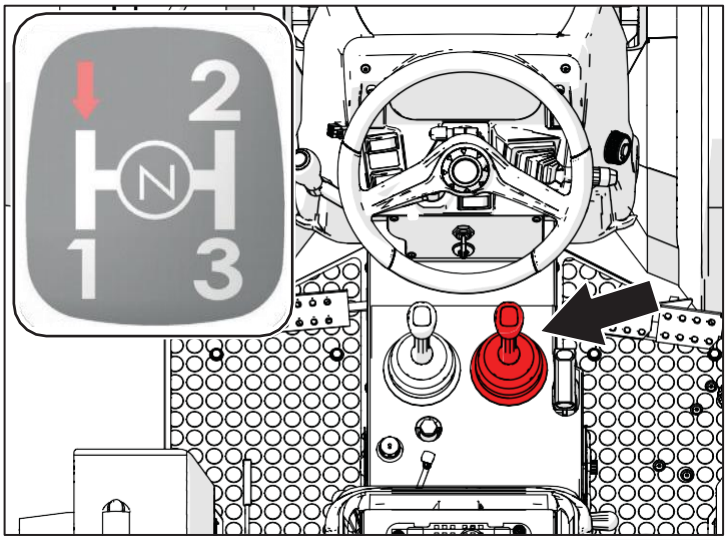


Fig. 5.25

5.3.7 Front differential lock

The front differential locking system is installed in the vehicle's front axle and allows the front wheels to be locked so that they rotate together.

It is particularly useful when plowing or when one of the two-wheel drive is in poor grip conditions due to muddy, rough, slippery terrain.

Note
To optimize the effect, insert the differential lock before the wheels start to slip. Do not insert the lock while a wheel is already sliding.

Warning
The differential lock inserted prevents the Tractor from steering.

Warning
Do not use the differential lock near and at curves, and avoid using it with fast gears and with a high speed motor.

Warning
If the wheel sinks into the ground, reduce the engine speed before inserting the differential lock so as to avoid damaging the gearbox.

danger
Do not use the differential lock at speeds above 10 km/h.

The locking of the front differential is controlled by mechanical lever (1). Unlocking is done by releasing the lever (1).

A - **E60 RS:** the lever (1) is located to the left of the operator's seat.

B - **E60 SN:** the lever (1) is located on the lower left side of the instrument panel.

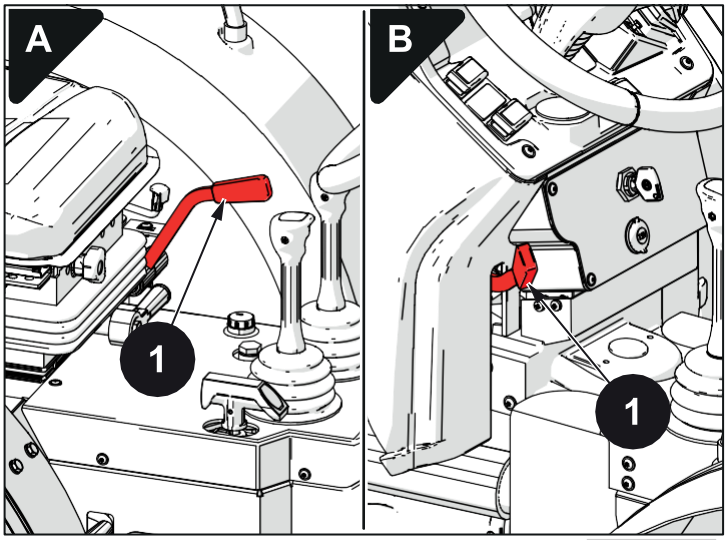


Fig. 5.26

The insertion of the differential lock is indicated by the lighting of the light (2) on the instrument panel. The light goes out when the differential lock is disconnected.

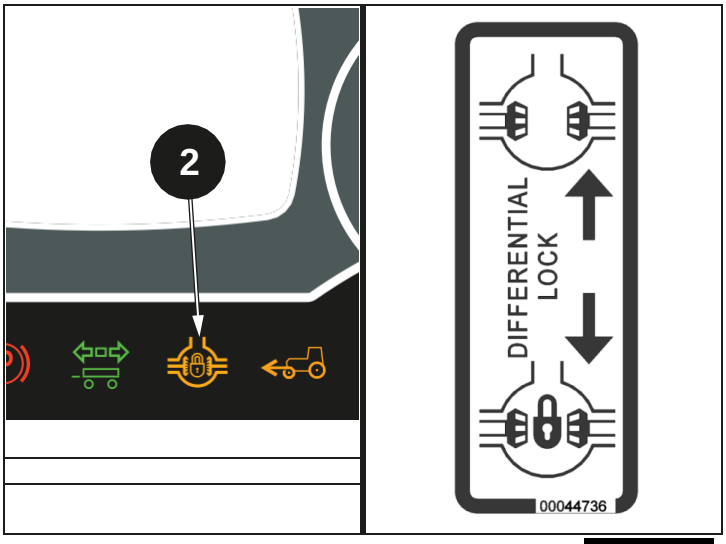


Fig. 5.27

5.3.8 Rear differential lock

The rear differential locking system is installed in the rear axle of the vehicle and allows the rear wheels to be locked so that they rotate together.

It is particularly useful when plowing or when one of the two-wheel drive is in poor grip conditions due to muddy, rough, slippery terrain.

Note
To optimize the effect, insert the differential lock before the wheels start to slip. Do not insert the lock while a wheel is already sliding.

Warning
The differential lock inserted prevents the Tractor from steering.

Warning
Do not use the differential lock near and at curves, and avoid using it with fast gears and with a high speed motor.

Warning
If the wheel sinks into the ground, reduce the engine speed before inserting the differential lock so as to avoid damaging the gearbox.

danger
Do not use the differential lock at speeds above 10 km/h.

The differential lock is controlled by pedal (1). Press and hold the pedal (1) to lock the differential. Unlocking is done by releasing the pedal (1).

The insertion of the differential lock is indicated by the lighting of the light (2) on the instrument panel. The light goes out when the differential lock is disconnected.

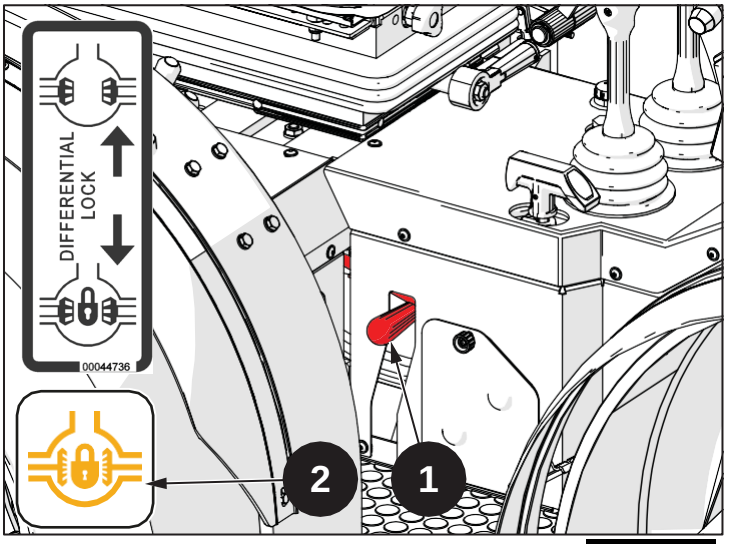


Fig. 5.28

5.4 Braking system

5.4.1 Service brakes

Note
Avoid braking abruptly except in situations of extreme necessity. Braking smoothly will increase safety and decrease brake wear and tear, increasing their lifespan.

danger
Check the efficiency and proper functioning of the brakes before starting the tractor.

danger
Don't keep your foot on the brake pedals when you don't need to.

If you experience excessive pedal loosening during braking or you reach end position freely:

- Don't set the tractor in motion.
- Identify the cause immediately and eliminate the defect.
- If you are unable to remedy it, contact an authorized GOLDONI workshop immediately.

E60 RS

The service brakes can be used independently or simultaneously when connected with the appropriate pin.

If independent brakes are used, you can press the left pedal (1) to lock the left wheel and the right pedal (2) to lock the right wheel

To use the brakes simultaneously on both wheels, pair the pedals with the connecting pin (3). Press the pedals to brake on both wheels at the same time.

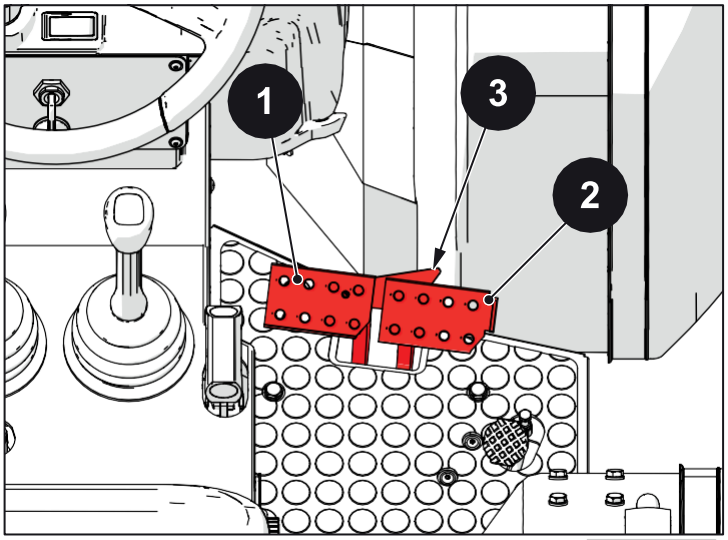


Fig. 5.29

danger
Always pair the brake pedals with the connecting pin when driving on the road.

E60 SN

The service brakes are used at the same time. Press the pedal (1) to brake on both wheels simultaneously.

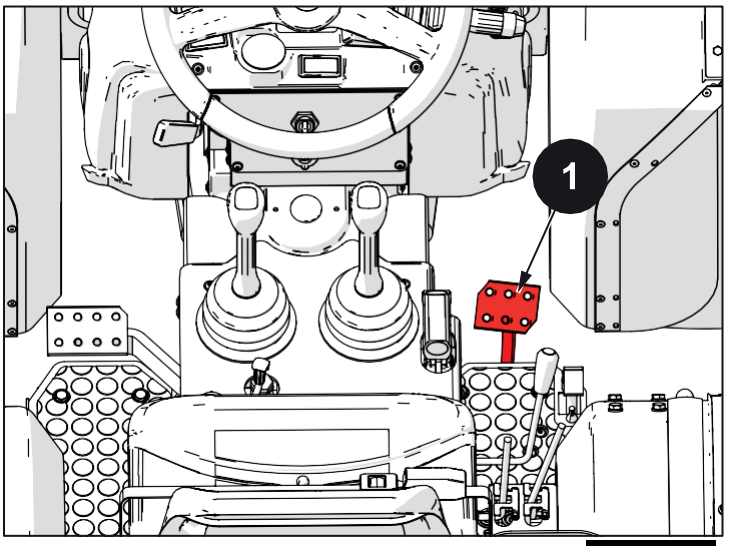


Fig. 5.30

5.4.2 Parking brake

The parking (or park) brake is controlled by lever (1).

To insert the parking brake, press the service brake pedals deeply, pull the lever (1) upwards, then release the pedals. The brake is inserted is indicated when the red light on the instrument panel comes on.

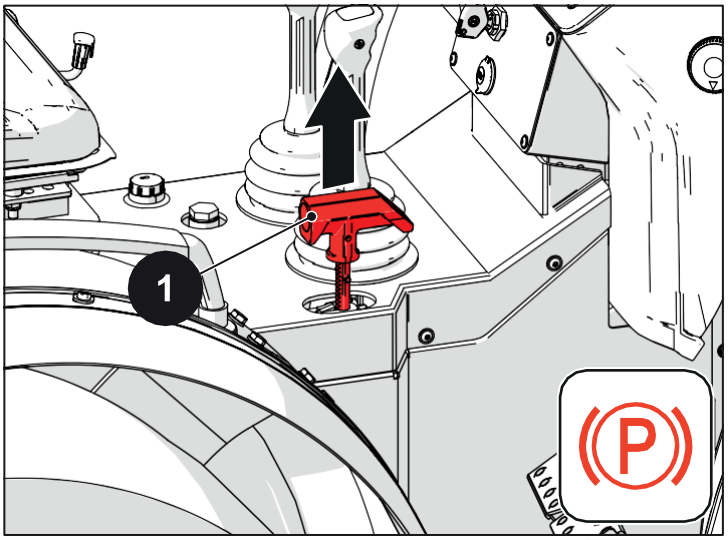


Fig. 5.31

To turn off the parking brake, turn the lever (1) clockwise and then lower the lever completely. The brake is disconnected is indicated when the red light in the instrument panel is turned off.

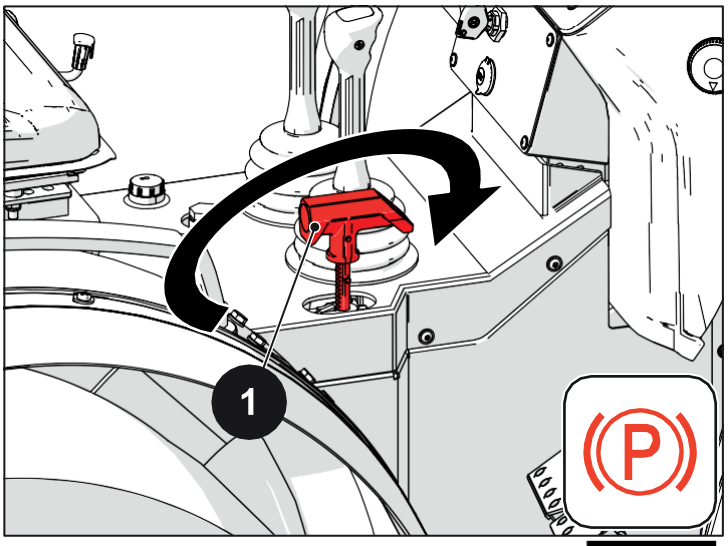


Fig. 5.32

danger

Before starting the drive, make sure that the parking brake has been disengaged and the appropriate light on the display is off.

danger

Insert the parking brake every time you leave the driver's seat.

Warning

Do not use the parking brake as a replacement for the brake system.

5.5 PTO

The PTO is a rotating shaft to which implements for particular processing uses can be connected.

Note
For safety reasons, it is not possible to start the engine with the PTO in motion.

Warning
If you are not using the rear PTO, move the mode selection lever to the Neutral position. This prevents the PTO shaft and other rotating organs from being accidentally rotated.

danger
Do not remove or damage the sheet metal carter.

danger
When the PTO is not used, the shaft must be covered with the appropriate protection.

danger
If equipment with high inertia (for example, lawn mowers, etc.) is connected to the PTO, use a cardan transmission with a “free wheel” device. This device avoids the transmission of motion from the equipment to the tractor, allowing the immediate arrest when the clutch is pushed.

5.5.1 Mechanical rear power outlet (E60 SN)

The rear power outlet can be used in two modes (Ground Speed or Independent) and two speeds (540 rpm or 750 rpm).

1 - PTO Shaft
2 - Sheet metal carter
3 - PTO shaft protection

Turn the cover (3) clockwise to unlock it, then remove it. Reassemble the cover (3) making it fit with the locking pins and turning it counterclockwise to lock it.

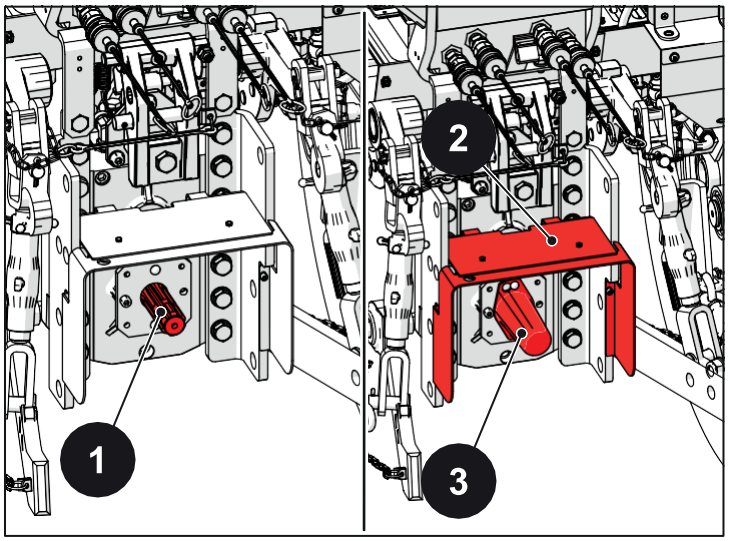


Fig. 5.33

PTO Command

The rear PTO is managed by two levers.

The PTO mode selection lever (1) has three positions:

- Groundspeed - high lever (S)
- Neutral - center lever (N)
- Independent - low lever (I)

Select Ground speed mode by moving the lever (1) up. Select Independent mode by moving the lever (1) down. In both cases, the lamp (L) will come on on the instrument.

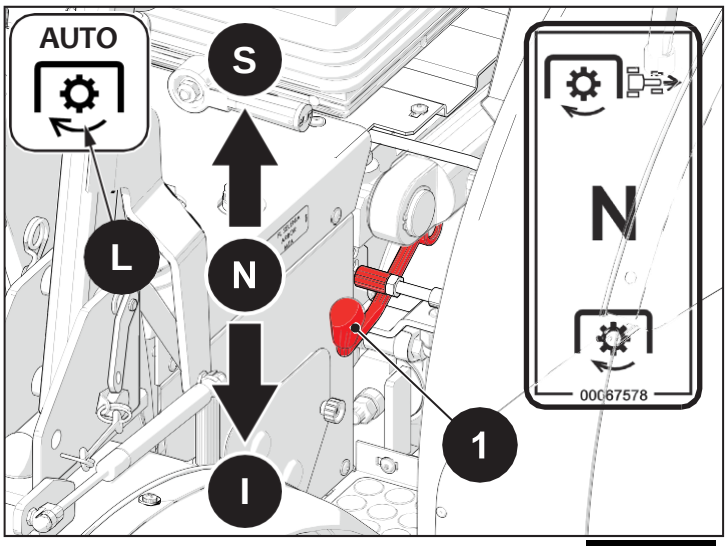


Fig. 5.34

The PTO speed selection lever (2) has three positions:

- Fast 750 rpm. (540E) - reverse lever (A)
- Neutral - center lever (N)
- Slow 540 rpm - forward lever (B)

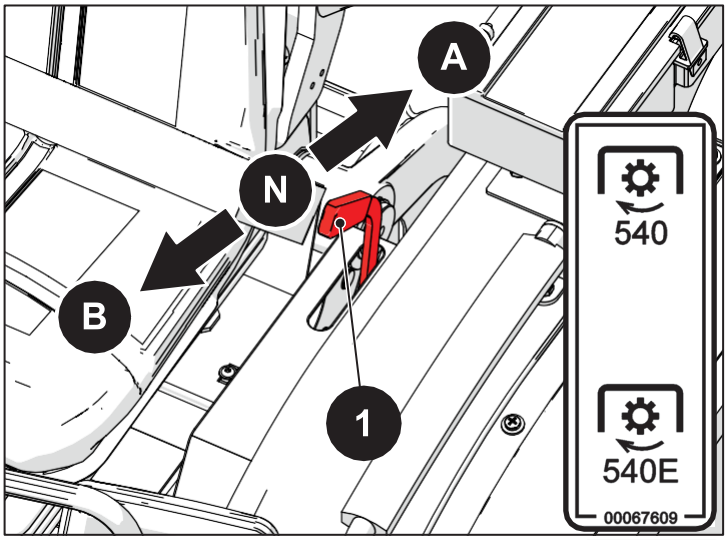


Fig. 5.35

To insert the rear PTO, proceed as follows:

- Press the clutch pedal.
- Move the PTO mode lever (1) to the Ground Speed (S) or Independent (I) position.
- Move the PTO speed lever (2) to the Fast (A) or Slow (B) position.
- Release the clutch pedal gradually.
- Once the work is finished, return both levers (1) and (2) to the Neutral (N) position.

The tractor is equipped with a safety system that stops the engine when the operator get up from the seat while the rear PTO is active.

When the operator gets up from the seat while the PTO is active, an alarm buzzer is activated and the PTO light (L) on the dashboard starts to flash: if the operator sits back within 6 seconds, the light (L) and the buzzer turn off; otherwise, within 7 seconds the engine stops, the buzzer goes off but the light (L) continues to blink because the PTO is still on.

When the engine stops after 7 seconds have elapsed, it is necessary to carry out the normal engine starting procedure (see the “Starting and arresting the Engine” section), then reactivate the PTO following the procedures described in this section. It is not possible to reactivate the engine (and the PTO) automatically only by sitting in the tractor seat.

danger

The engine stops (thus disconnecting the PTO) after about 7 seconds from the moment the operator gets up from the seat. During this period of time, an audible signal (buzzer) indicates that the PTO is still operating.

To keep the P.D.F. running even when the operator gets up from the seat, it is necessary to activate the “PTO Auto” mode by pressing the button (3) twice within 2 seconds after inserting the PTO; the icon (L) is displayed on the display. The “PTO Auto” mode is deactivated once the operator sits back in the seat.

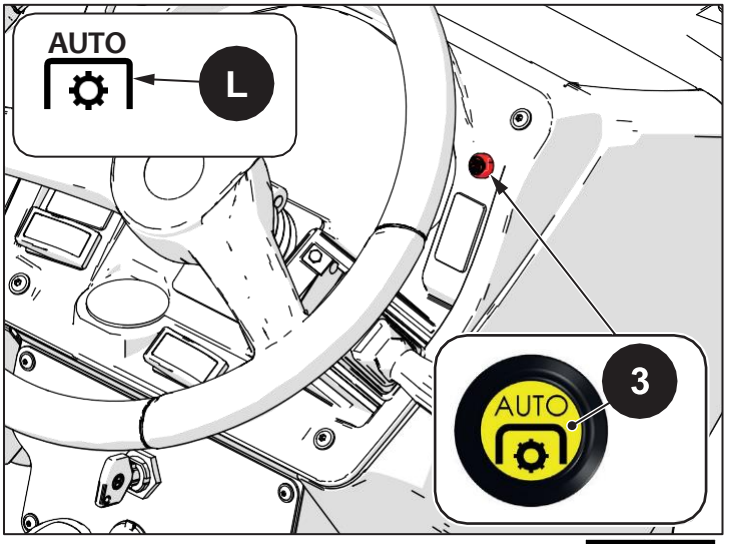


Fig. 5.36

PTO operating logic

If the PTO is active and the operator gets up from the car seat, the alarm buzzer sounds and the warning light
- PTO (1) starts flashing. If the operator sits back then the buzzer goes off.

If the PTO is deactivated, the alarm buzzer is not activated. If the engine is turned off for safety reasons , the buzzer goes off.

When the engine is turned off for safety reasons concerning the PTO (for example, the operator gets out of the tractor seat) then the PTO indicator light (1) is flashing.

When the engine is turned off for safety reasons related to the PTO, it is necessary to turn the engine back on and re-insert the PTO from the beginning. It is not possible to reactivate the engine and PTO automatically only by sitting in the tractor seat.

If a malfunction is detected on the seat, an error is shown on the display and the engine shuts off automatically every time the PTO is inserted.

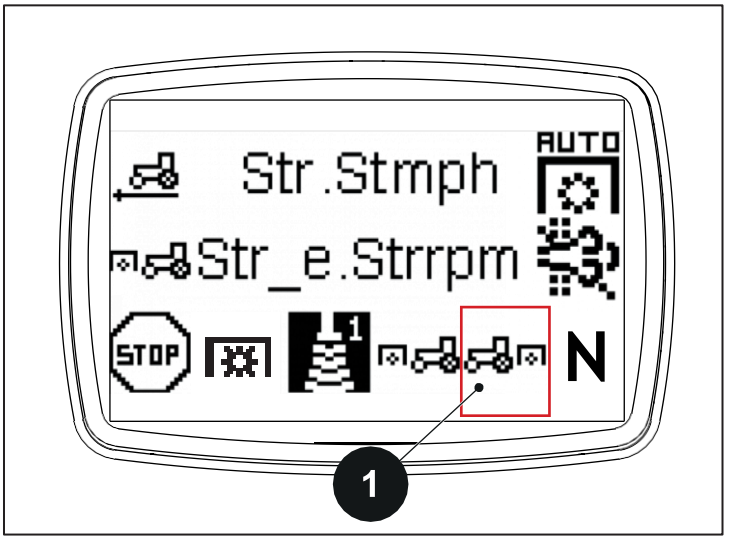


Fig. 5.37

5.5.2 Electro-hydraulic rear power outlet (E60 RS)

The rear power outlet can be used in two modes (Ground Speed or Independent) and two speeds (540 rpm or 750 rpm).

1 - PTO Shaft
2 - Sheet metal carter
3 - PTO shaft protection

Turn the cover (3) clockwise to unlock it, then remove it. Reassemble the cover (3) making it fit with the locking pins and turning it counterclockwise to lock it.

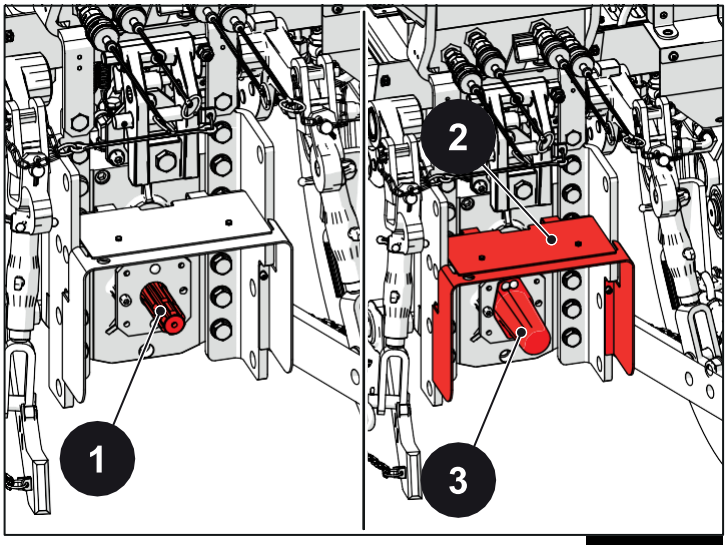


Fig. 5.38

PTO Command

The rear PTO is managed by two levers and a switch.

The PTO mode selection lever (1) has three positions:

- Groundspeed - high lever (S)
- Neutral - center lever (N)
- Independent - low lever (I)

Select Ground speed mode by moving the lever (1) up. Select Independent mode by moving the lever (1) down. In both cases, the lamp (L) will come on on the instrument.

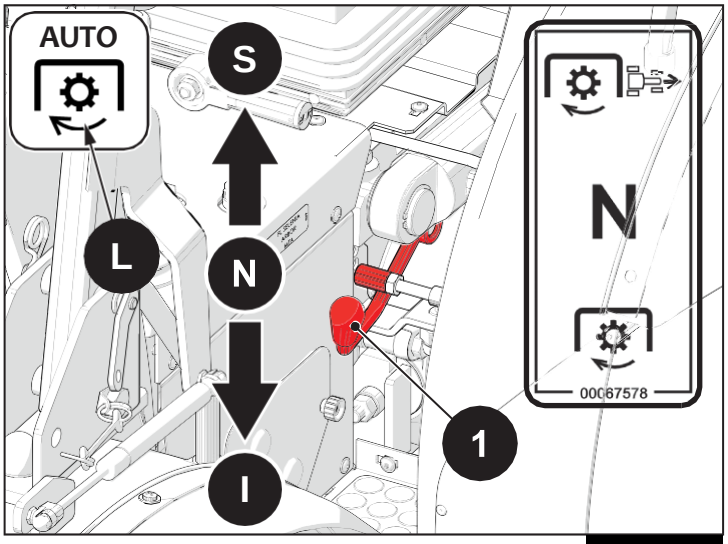


Fig. 5.39

The PTO speed selection lever (2) has three positions:

- Fast 750 rpm. (540E) - reverse lever (A)
- Neutral - center lever (N)
- Slow 540 rpm - forward lever (B)

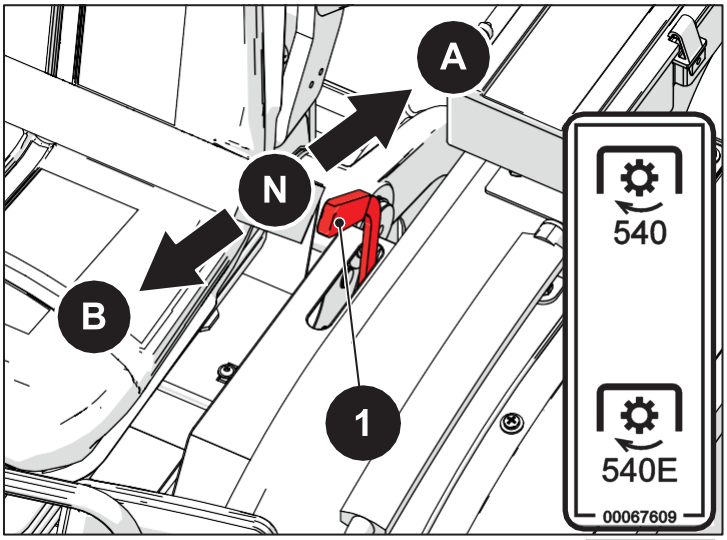


Fig. 5.40

After selecting the speed and mode with the respective levers, use the switch (3) to activate the electro-hydraulic control and insert the PTO:

- **Switch on the PTO:** press the switch (3) twice in a row. When the PTO is active, the light on the switch is on.
- **Disconnect the PTO:** press the switch (3) once.

Once the processing is finished, disconnect the PTO using the knob (3) and place the levers (1) in Neutral position .

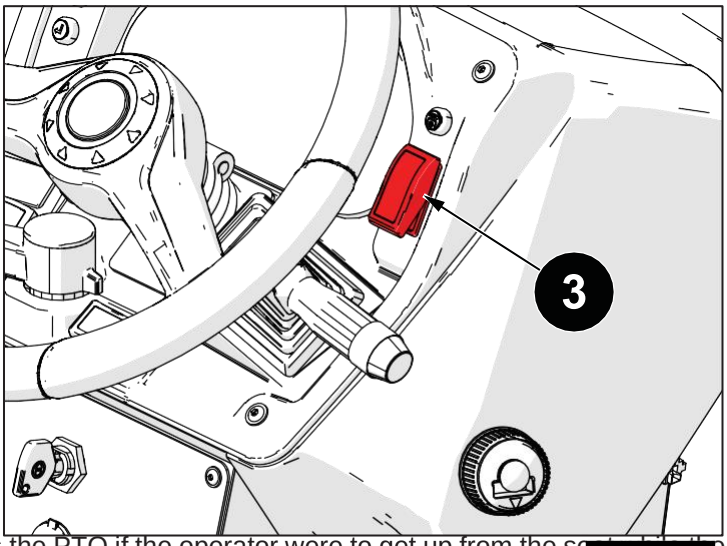


Fig. 5.41

The tractor is equipped with a safety system that stops the PTO if the operator were to get up from the seat while the PTO is active.

When the operator gets up from the tractor seat while the PTO is active, an alarm buzzer is activated and the PTO light (L) on the dashboard starts to blink: if the operator resides within 2 seconds, the light (L) and the buzzer turn off; otherwise, within 7 seconds the PTO stops, the buzzer goes out but the light (L) continues to flash because the PTO is still on.

When the PTO stops after the 7 seconds have elapsed, turn off and reinsert the power switch (3) to reactivate the PTO It is not possible to reactivate the PTO automatically only by sitting in the car seat.

danger
The PTO comes off after about 7 seconds from the moment the operator gets up from the seat. During this period of time, an audible signal (buzzer) indicates that the PTO is still operating.

To keep the PTO running even when the operator gets up from the seat, it is necessary to activate the “PTO Auto” mode by pressing the button (4) twice within 2 seconds after inserting the PTO; the icon (L) is displayed on the display. The “PTO Auto” mode is deactivated once the operator sits back in the seat.

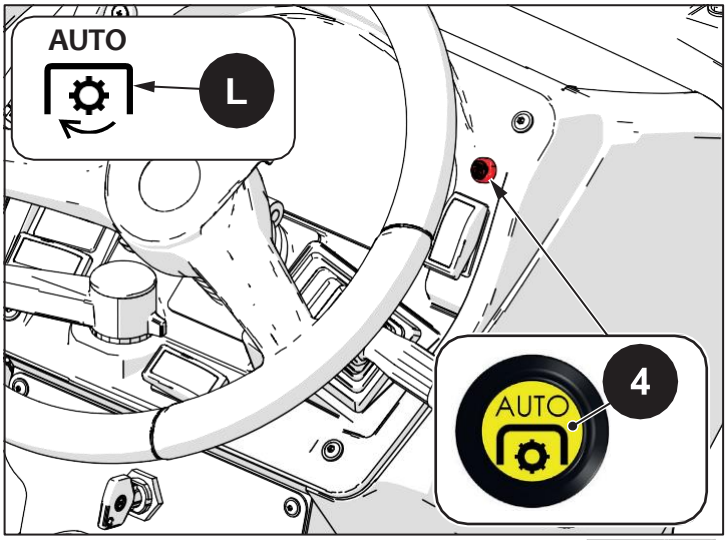


Fig. 5.42

PTO operating logic

If the PTO is active and the operator gets up from the car seat, the alarm buzzer sounds and the warning light
- PTO (1) starts flashing. If the operator sits back then the buzzer goes off.

If the PTO is deactivated, the alarm buzzer is not activated. If the PTO stops following protection, the buzzer goes off.

When the PTO is deactivated for safety reasons (for example the operator gets out of the car seat) then the PTO indicator light (1) is flashing.

When the PTO stops for safety reasons, it must be re-inserted through the switch (2) to reactivate it. It is not possible to reactivate the PTO automatically only by sitting in the car seat.

If a malfunction is detected in the car seat, an error is shown on the display and the PTO is permanently deactivated.

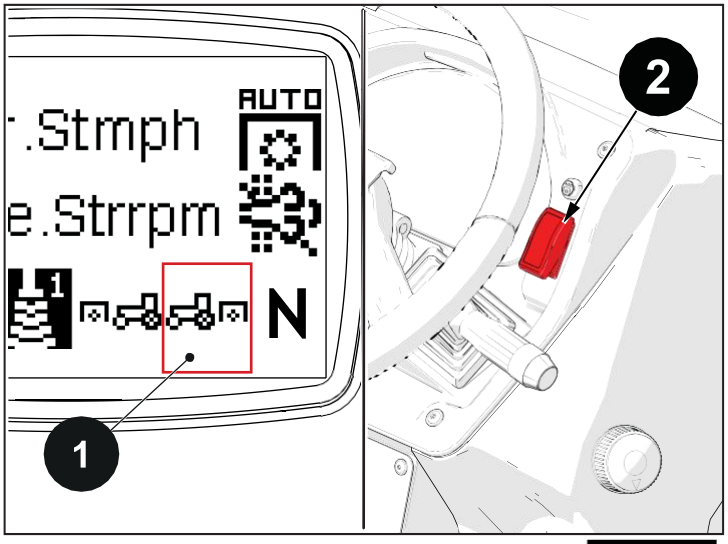


Fig. 5.43

5.5.3 PTO Speed

PTO	540	750 (540E)	1000
location	Rear	Rear	-
Direction of rotation	Clockwise	Clockwise	-
Type	Independent	Independent	-
Normalized speed (rpm)	540	750	-
Engine speed/ PTO Speed (rpm)	4,00 / 1	3,22 / 1	-
Engine speed @ normalized PTO speed (rpm)	2160	2415	-
PTO speed/wheel speed ratio (rpm)	9,08 1	11,27 1	-

5.5.4 Cardan Joint

For the rules of safe use and maintenance relating to some components of the tractor built by third parties, consult the specific booklet.

Warning

For the correct functioning of the cardan joint and to avoid damage to the components and protectors, keep in mind that the technically possible inclination of the cardan joint depends on the size and shape of the PTO carters, as well as on the shape and size of the cardan and its protective devices. Therefore, the possible inclination of the cardan joint may vary.

danger

Use only cardan joints equipped with adequate protection.

5.6 Rear Lift

This is a 3-point rear hydraulic lift with controlled by hydraulic spool valve.

The following conditions of use are possible:

- Raise and lower

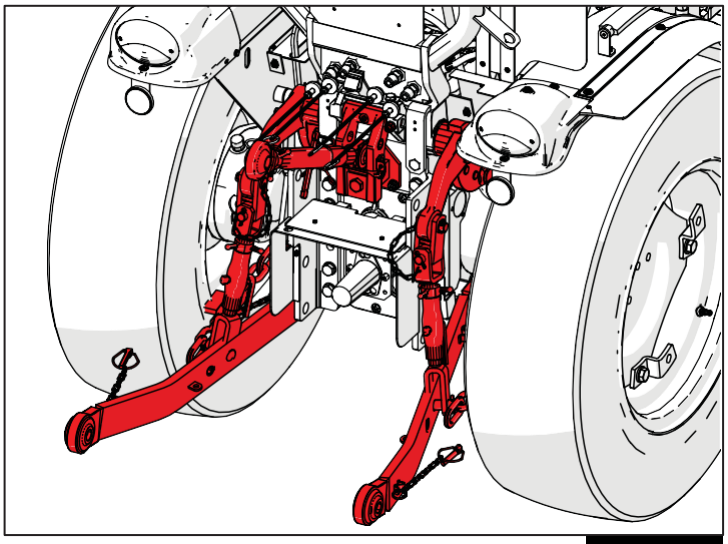


Fig. 5.44

5.6.1 - Raise and lower

The rear lift is controlled by the black lever (1):

- Back lever = Implement lifting.
- Forward lever = Implement lowering (floating use for implements that must follow the ground profile).
- Intermediate lever = Locks the tool at various heights.

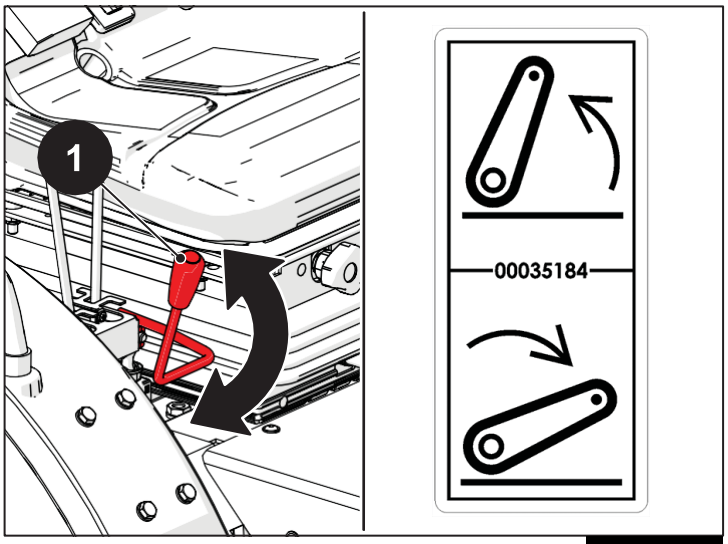


Fig. 5.45

5.6.2 Lift speed and sensitivity adjustment

By unscrewing the same register properly, you have a higher speed of descent of the lift.

> **Warning**
>
> By screwing the flow valve completely, you have the implement locked in both the raised and the lowered position. This provides safety for the transport of implements by road.

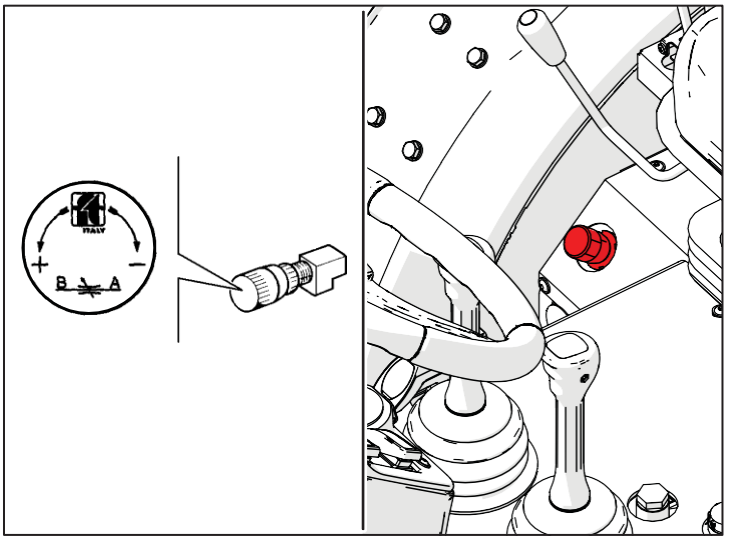


Fig. 5.46

5.7 Hook and towbar

5.7.1 Safety Warnings.

 **danger**
Perform all installation, use, cleaning, and maintenance or adjustment operations with tractor switched off and safely in a stationary position. Wear personal protective equipment during these operations (gloves and safety shoes).

 **danger**
To operate safely, it is necessary to choose the towing device based on the type of trailer or implement that must be towed in compliance with current laws.

 **danger**
The towing device in the highest position can increase the risk of soaring Do not linger in the area between the tractor and the towed vehicle.

 **danger**
Inspect and verify the operation of the implement before each use, to avoid damage and identify worn components. The use of a implement that has damaged, worn or missing components is strictly prohibited.

 **danger**
Do not make any changes or alterations to the implement.

 **Warning**
The implement should only be used by personnel with experience in the use of these types of tractors. The instructions described here should be consulted. Registration and maintenance operations must be carried out by authorized and qualified personnel.

 **Warning**
The driving ease of the tractor also depends on correct use and subsequent adjustment of the height of the towing device.

 **Warning**
When using a trailer equipped with synchronized traction, keep the drawbar as horizontal as possible.

 **Warning**
The tractor is equipped with a front rescue hook to carry out any emergency trailer maneuvers or to tow the tractor if necessary.

5.7.2 Front rescue hook

The tractor is equipped with a front rescue hook to carry out any emergency trailer maneuvers or to tow the tractor if necessary.

To prevent damage to the transmission and hydraulic system, make sure you have:

- differential lock disconnected;
- gear and range selection levers in a neutral position;
- parking brake off.

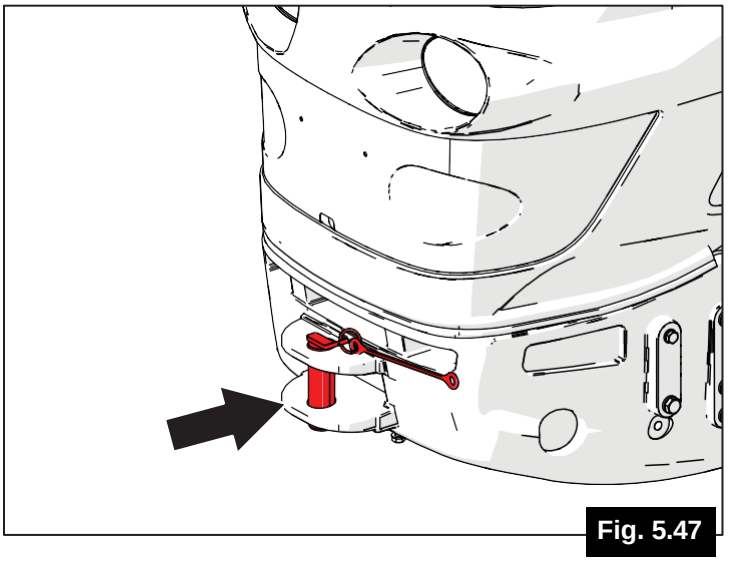


Fig. 5.47

Warning

Use the front tow bar only for emergency towing of the tractor. The direction of towing must coincide with the longitudinal axis of the tractor.

Use only for permitted purposes and methods.

ATTENTION:

The maximum speed allowed for towing a tractor is 10 km/h.

The presence of an operator on the towed vehicle is necessary to perform the necessary maneuvers.

Note

When the tractor is not running, higher steering force is required.

5.7.3 Rear tow bar

Rear tow bar

Proceed as follows.

- Remove the bushings (1) and the fixing pins (2) to unlock the hook. Adjust the hook to the appropriate height for the trailer drawbar eye, then reinsert the pins (2) and the handles (1) to lock it in place.
- Remove the eye-connecting pin (3) and move back with the tractor until the hook is correctly aligned with the trailer drawbar eye.
- Reinsert the connecting pin (3) into the hook and make sure that the protective cap (4) against accidental disengagement is inserted.

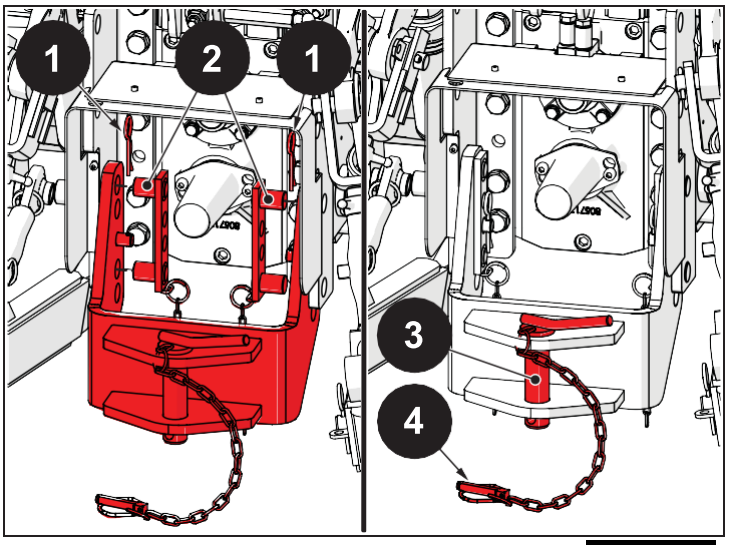


Fig. 5.48

CEE-X tow bar (D.28)

Category X fixed pin coupling device (ISO 6489-5): 2011) Technical data:

Brand	CBM
Type designation attributed by the manufacturer	GTX001
Brand or EU type-approval	e1*00578NS
Category	CEE-X
Pin diameter (mm)	28
T (t)	6
D (kn)	--
S (kg)	1500

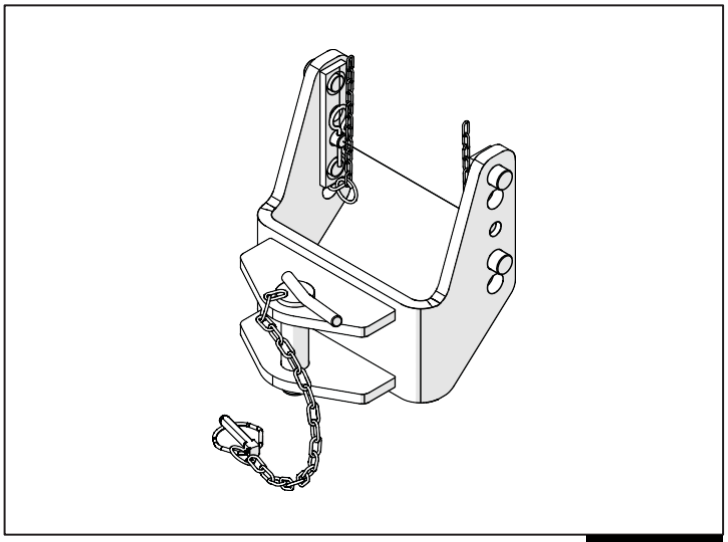


Fig. 5.49

EEC tow bar (D.30.5)

Mechanical pin coupling device (ISO 6489-2): 2002) Technical data:

Brand	CBM
Type designation attributed by the manufacturer	GTF30 028D
Brand or EU type-approval	e1 00560 ND
Category	EEC
Pin diameter (mm)	30,5
T (t)	--
D (kn)	40
S (kg)	1350

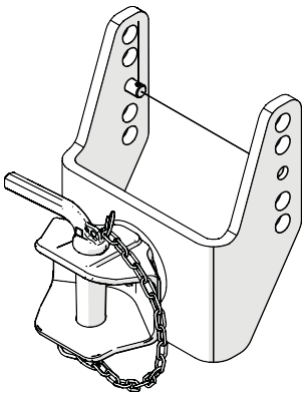


Fig. 5.50

5.8 Trailer towing

danger

The braking space increases with the speed and weight of the towed load. Proceed slowly and keep an additional amount of time and distance for safe stopping.

danger

The total towed weight must not exceed the combined weight of the tractor, ballast and operator. Use counterweights or ballasts on the wheels as described in the implement or tractor operator's manual.

danger

Towing too much load can cause loss of traction and loss of control on slopes. Reduce the towed weight when operating on slopes.

danger

Never allow children or others to be carried in or on the trailer

danger

Use only approved hooks. Tow only tractor equipped with a homologated towing hook. Towed implement must be attached only to the approved Hitching system.

danger

If it is not possible to back down a climb with a towed load, it means that the slope is too steep to work with the towed load. Reduce the towed load or give up work.

danger

Never drive downhill with clutch in neutral.

danger

Do not stay in the area between the tractor and the towed vehicle.

danger

Do not make abrupt turns. Pay special attention when making turns or operating on surfaces in difficult conditions. Use caution when going reverse.

Warning

If equipment reduces visibility of turn signals or other lights on the back of the tractor, use additional lights.

Position the hook at the correct height based on the characteristics and weight of the load to be towed.

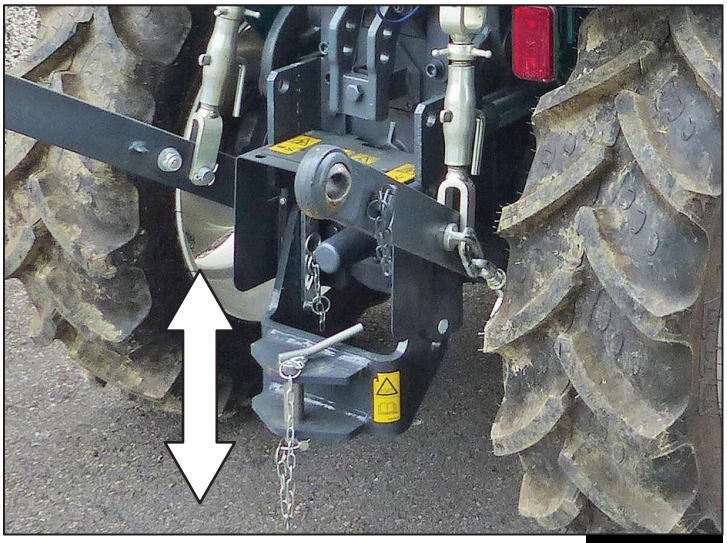


Fig. 5.51

5.8.1 7-pin trailer socket

The seven-pin socket allows you to connect lights, turn signals and other electrical devices to a trailer or equipment.

If equipment reduces visibility of turn signals or other lights on the back of the tractor, use additional lights.

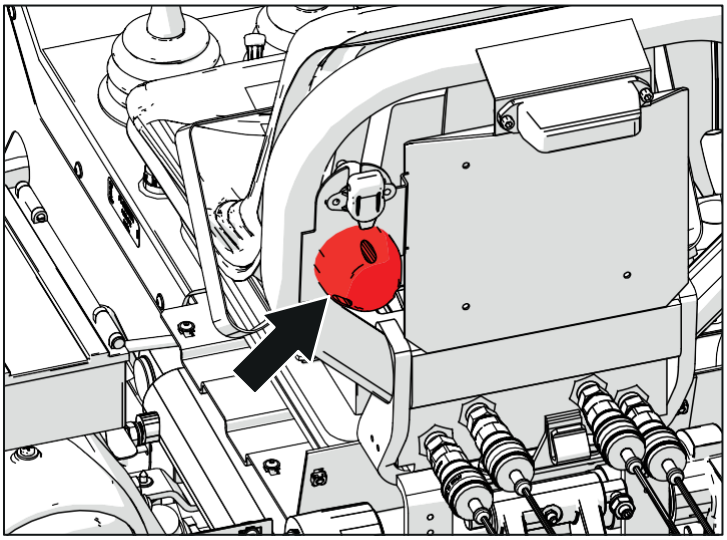


Fig. 5.52

Terminal function:

1 - Left turn signal
2 - Free
3 - Mass
4 - Right turn signal
5 - Right tail light
6 - Stop Lights
7 - Left tail light

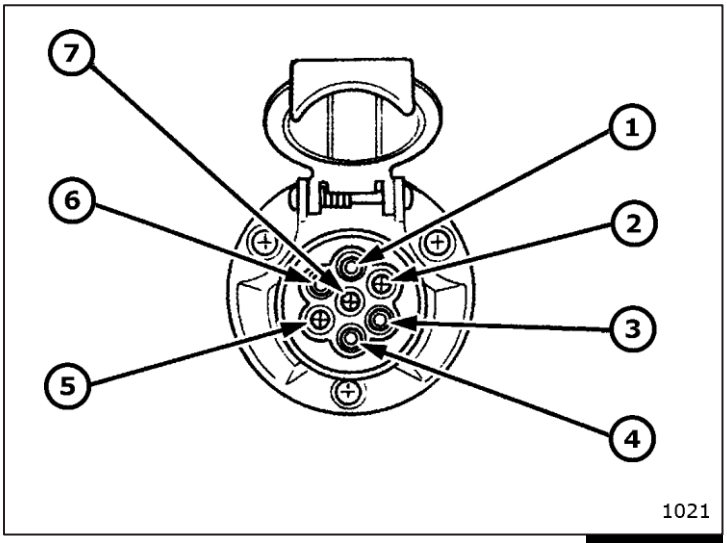


Fig. 5.53

5.9 Three-point linkage

danger
Make any adjustment to the three-point linkage or the implement with the engine turned off, with the key unplugged and the equipment grounded.

danger
Stay out of the engagement zone when controlling the three-point linkage.

danger
Do not use the third point linkage as a towing attachment.

danger
During transfers with mounted equipment, tension the chains and keep the lift up.

danger
Never work under a implements held up only by the hydraulic lift, but always lock it securely with a suitable support and turn off the engine.

ATTENTION:
The value of the maximum load allowed by the lift is only indicative. The weight of the implements to be lifted must be lower than the maximum liftable load as the distance from the three point linkage at which the tool's center of gravity is placed also significantly affects. The weight increases significantly as the distance increases.

The tractor is equipped with the three-point attachment system.

To achieve proper operation of the lift, carefully check the construction dimensions of the implements that must be attached to the tractor.

These must have the same standard as the tractor's three point linkage to prevent, during work, being subjected to irregular stresses due to incompatibility in dimensions.

5.9.1 Rear three-point linkage

Cat. 1 and 1N.

The three-point linkage consists of the following organs:

1 - Adjustable tie rod
2 - Side stabilizer
3 - Lift lower arm
4 - Implement attachment terminal

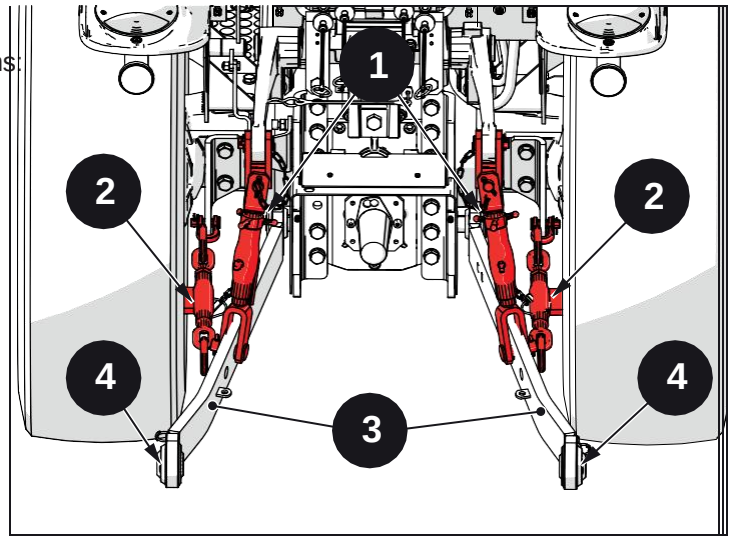


Fig. 5.54

5.9.1.1 Third point arm support

The third point arm support has two holes to facilitate the attachment and correct inclination of the implement.

To adjust the third point, remove the forelock from the pin , remove the pin from the brackets, place the third point at the height of the desired hole, put the pin and the forelock back.

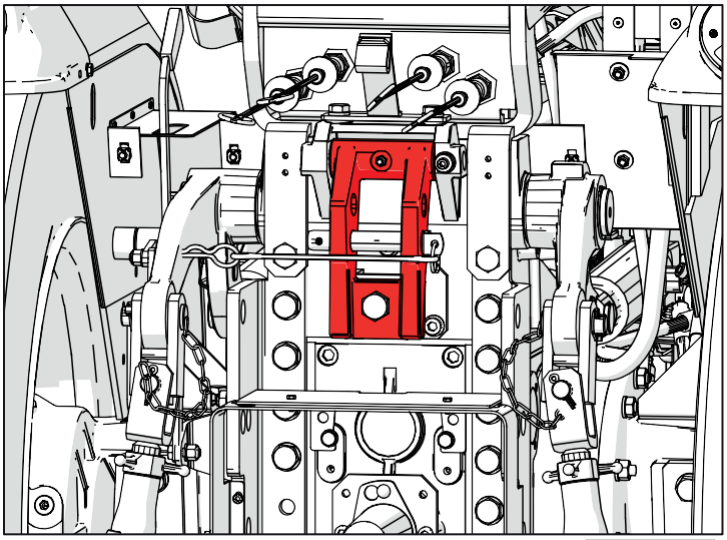


Fig. 5.55

Three-point linkage adjustment

danger
This adjustment must be made when the tractor is stopped with the engine off and the parking brake on.

5.9.1.2 third pointArm

Adjustable terminal implement attachment:

- Category 1 and category 2 spherical kneecap

Adjust the length of the arm (third point) to change implement inclination in relation to the ground.

Rotate the third stitch to the desired length using the lever (1).

The implement attachment ball (2) has two holes so that it can be used as category 1 or category 2.

To lock the third point to the desired length, screw the ring (3).

If the third point is not in use, hook the spring (4) to the fixed support (5).

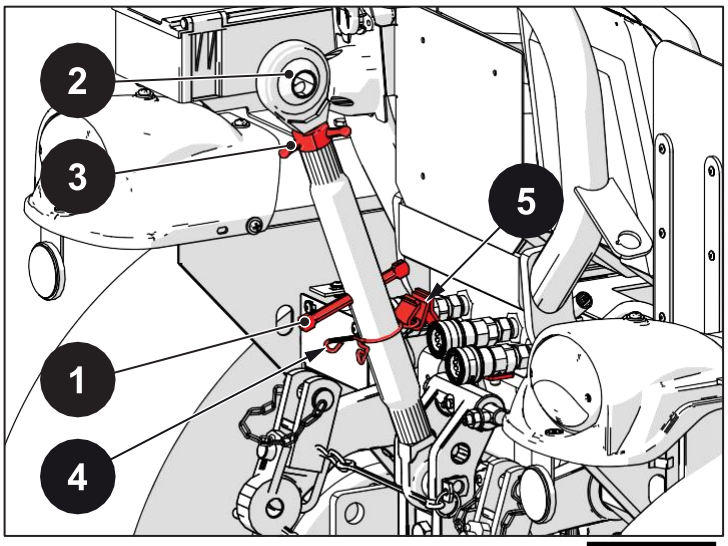


Fig. 5.56

5.9.1.3 Lower arms

The kneecap balls have two holes so that they can be used as category 1 or category 2.

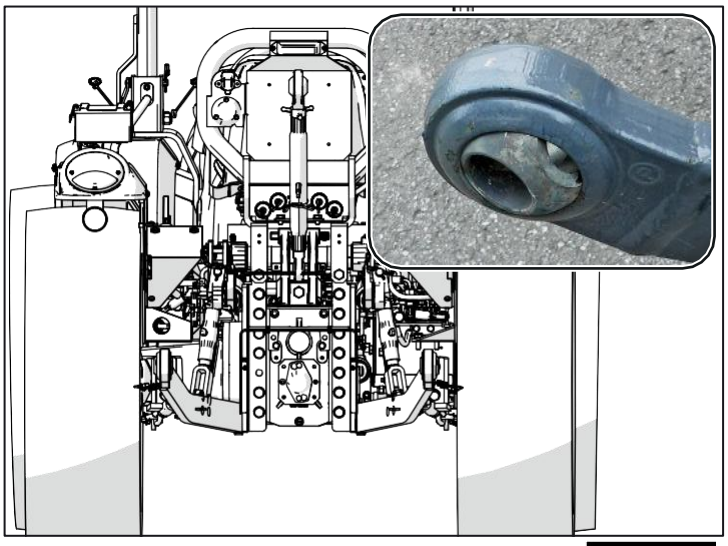


Fig. 5.57

5.9.1.4 Adjustable vertical tie rod

Adjust the tie rod to be able to level and align the lower arms of the lift depending on the equipment used and the type of work to be performed.

To adjust the tie rod, turn the handle (1) clockwise to raise the lower arm or counterclockwise to lower it, until the desired height is obtained.

After making the adjustment, check that with the lift completely up, the implement is not being lifted more than necessary, and with the lift down, the implement has the opportunity to make a further run downwards.

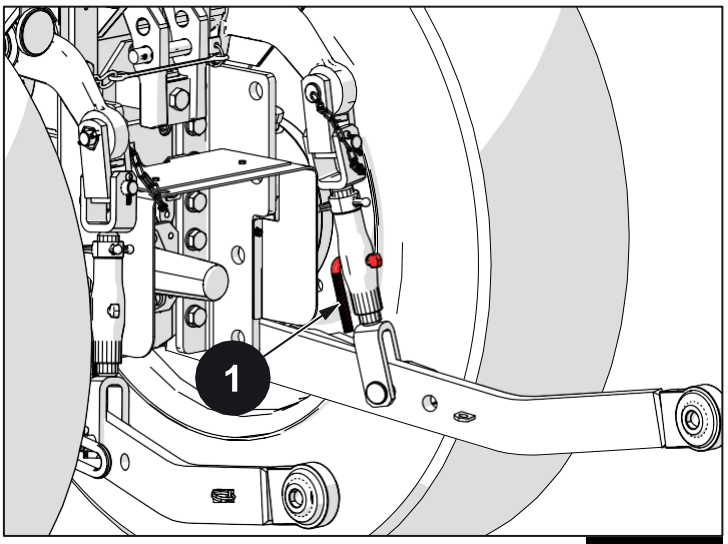


Fig. 5.58

5.9.1.5 Stabilizing chains

Adjust the side chains to limit the lateral movement of the lifter's lower arms:

- 50-60 mm oscillation for plows, rolling harrows, etc.;
- 10-50 mm oscillation for leveling blades, hoes, etc.;
- 0 mm oscillation for transporting equipment not at work.

To adjust the chains, unscrew the stop nut (1), screw or unscrew the chain through the handle (2) until the desired oscillation is obtained, screw the nut back to lock the chain.

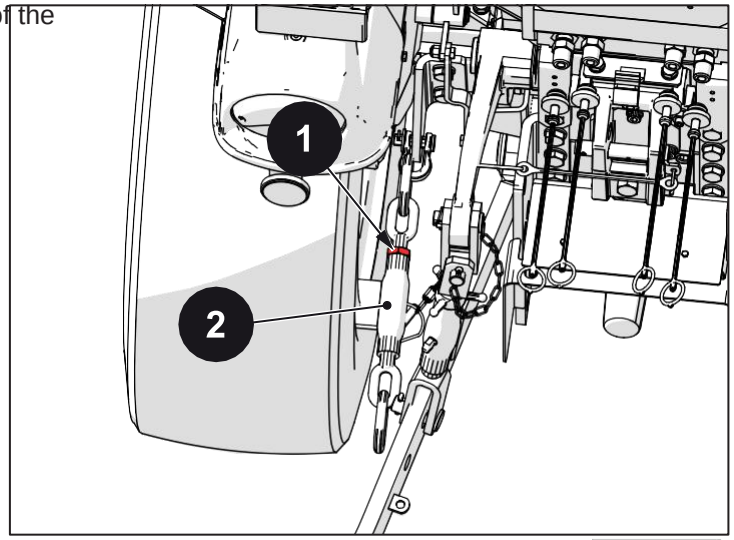


Fig. 5.59

Note

Make sure that the restraint spring (3) is attached to the lower arms to avoid dangerous rubbing with the wheels.

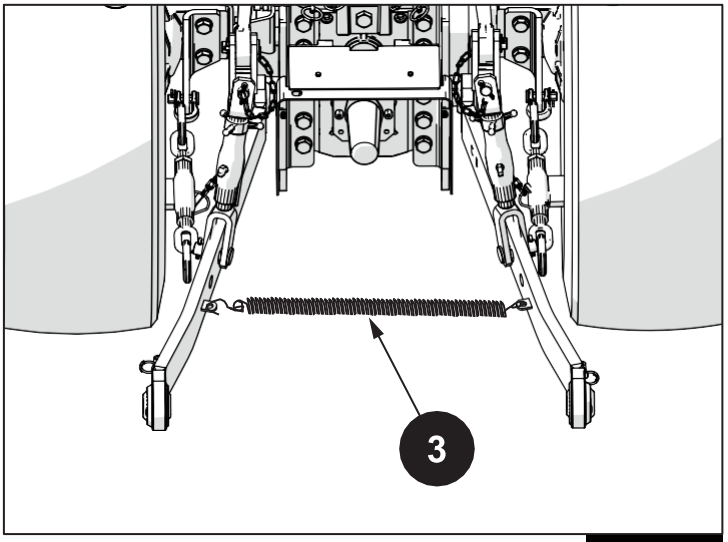


Fig. 5.60

5.10 Auxiliary hydraulic spool valves

danger

When detaching and reattaching implements, use the maxium care.

danger

Always wear gloves and safety glasses to protect your eyes.

danger

The release of hydraulic fluids under pressure can be so violent that it penetrates the skin. Hydraulic control fluid can also cause cuts in the skin. In the event of injuries caused by fluid spillage, seek immediate medical attention. Otherwise, you risk serious infections and skin reactions. Never control a hydraulic fluid leak with your hands, but use a piece of wood or cardboard.

danger

It is essential to check the tightness of all connecting devices and the condition of the flexible hoses and pipes before putting the system under pressure. Take the pressure off completely before disconnecting the pipes or before performing other types of work on the hydraulic system.

The tractor is equipped with additional hydraulic spool valves for controlling external hydraulic cylinders.

The spool valves are equipped with 1/2" NPTF female joints complete with rubber protectors.

The external hydraulic cylinders connected to the tractor's hydraulic circuit must be equipped with flexible pipes and 1/2” male joints, for connection with the quick couplings.

Various types of spool valves can be installed:

- simple effect;
- double effect;
- double effect with detent;
- double effect with floating

These spool valves are connected, through pipes, to special hydraulic outlets located on the rear or front right side depending on the equipment of the tractor. The color of the hydraulic outlet cap corresponds to the control lever of the same color.

The control levers (1) of the mechanical rear spool valves are placed on the right side of the driver's seat and control the hydraulic sockets (3) located on the rear side.

The levers (1) are equipped with safety latches (2) that can be inserted to lock the levers and prevent accidental actuation of the spool valves.

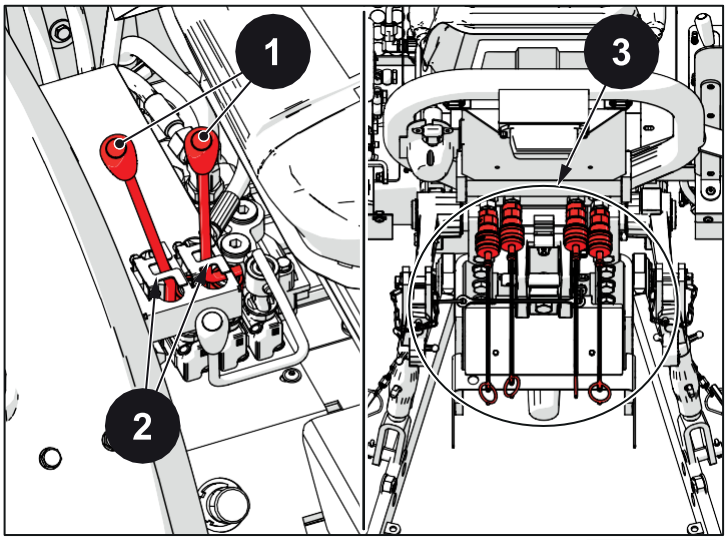


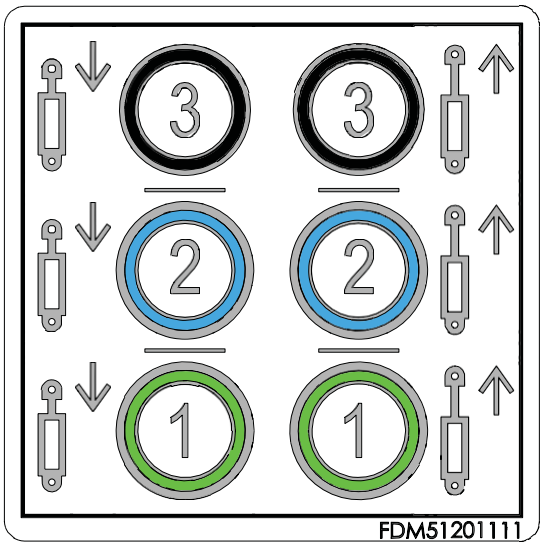
Fig. 5.61

Depending on the versions of the hydraulic spool valves installed, the control levers perform the following functions:

- **Single-acting hydraulic spool valve control lever**: with the lever in the raised position, the jack extends, with the lever in the lowered position, the jack retracts due to the mass of the installed implement.
- **Single-acting hydraulic spool valve control lever with connection in a floating position: with the lever in the raised position, the jack** extends, with the lever in the lowered position, the jack retracts due to the mass of the installed implement The floating function allows you to follow the soil profile with the implement
- **Double-acting hydraulic spool valve control lever: with** the lever in the raised position the jack extends, with the lever in the lowered position the jack retracts.
- **Double-acting hydraulic spool valve control lever with connection: with** the lever in the raised position the jack extends, with the lever in the lowered position the jack retracts. The locking function allows you to keep the spool valve lever in a raised position.
- **Double-acting hydraulic spool valve control lever with spring lever return: the** locking function allows you to keep the spool valve lever in position. The spring lever return function (KICK-OUT) allows the engagement function to be automatically disinhibited (unhooked), returning the lever to the neutral position once the set maximum pressure has been reached.
- Floating double-acting hydraulic spool valve control lever: with the lever in the raised position the jack extends, with the lever in the lowered position the jack retracts. The floating function allows you to follow the soil profile with the implement

Warning

Check the oil level in the transmission frequently to ensure smooth operation of the hydraulic circuit.



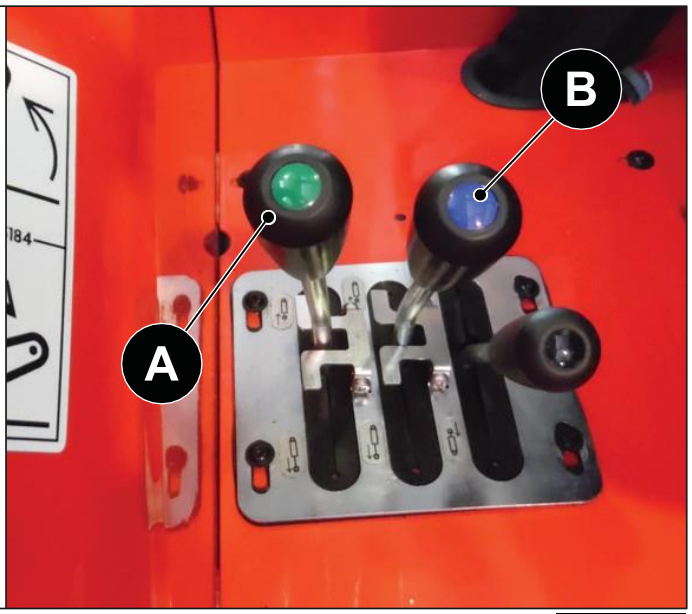


Fig. 5.62

The green lever (A) controls the two rear hydraulic outlets (quick couplings), whose plugs are green. By pulling the lever (A) upwards, the oil will cross the hydraulic outlet (A1), so as to allow the jack to be extended. By pulling the lever (A) downwards, the oil will cross the hydraulic outlet (A2), so as to allow the jack to withdraw.

The blue lever (B) controls the two rear hydraulic sockets (quick couplings), whose plugs are blue. By pulling the lever (B) upwards, the oil will cross the hydraulic outlet (B1), so as to allow the jack to be extended. By pulling the lever (B) down, the oil will cross the hydraulic outlet (B2), so as to allow the jack to withdraw.

5.10.1 Equipment available

5.10.1.1 Mechanical rear auxiliary spool valves

The tractor is equipped with a maximum of two double-acting spool valves

The green lever (A) controls the two rear hydraulic outlets (quick couplings), whose plugs are green.

By pulling the lever (A) upwards, the oil will cross the hydraulic outlet (A1), so as to allow the jack to be extended.

By pulling the lever (A) downwards, the oil will cross the hydraulic outlet (A2), so as to allow the jack to withdraw.

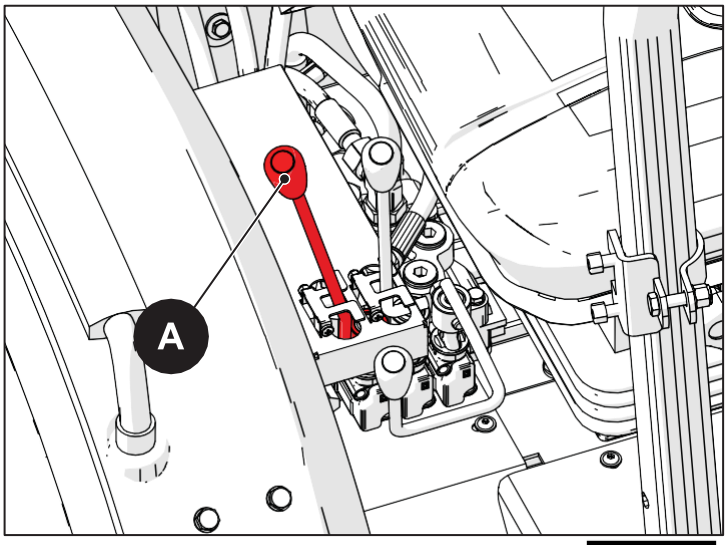


Fig. 5.63

The spool valve are 1/2" NPTF female and are complete with rubber protectors.

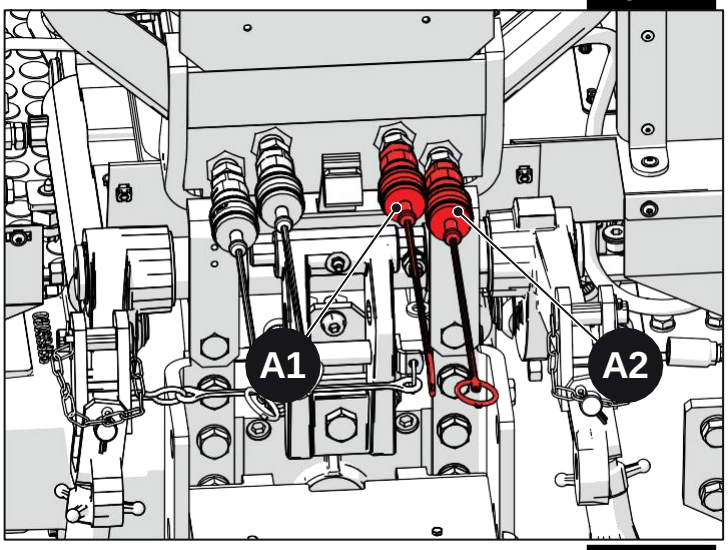


Fig. 5.64

The blue lever (B) controls the two rear hydraulic sockets (quick couplings), whose plugs are blue.

By pulling the lever (B) upwards, the oil will cross the hydraulic outlet (B1), so as to allow the jack to be extended.

By pulling the lever (B) down, the oil will pass through the hydraulic outlet (B2), so as to allow the jack to withdraw.

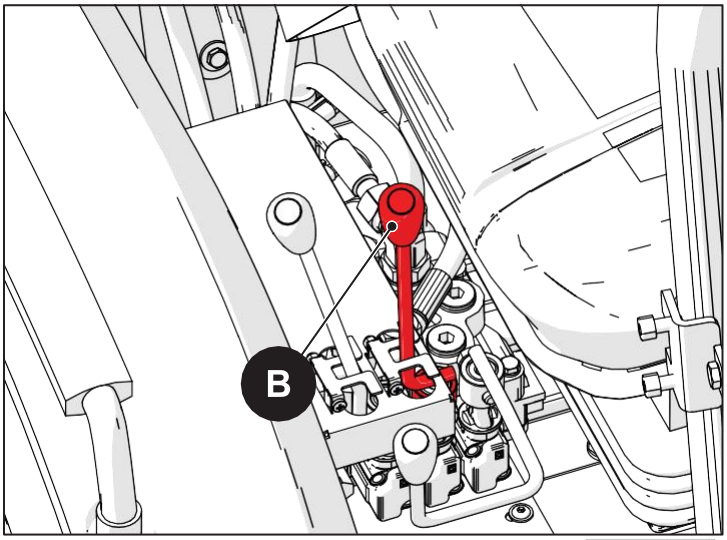


Fig. 5.65

The spool valve are 1/2" NPTF female and are complete with rubber protectors.

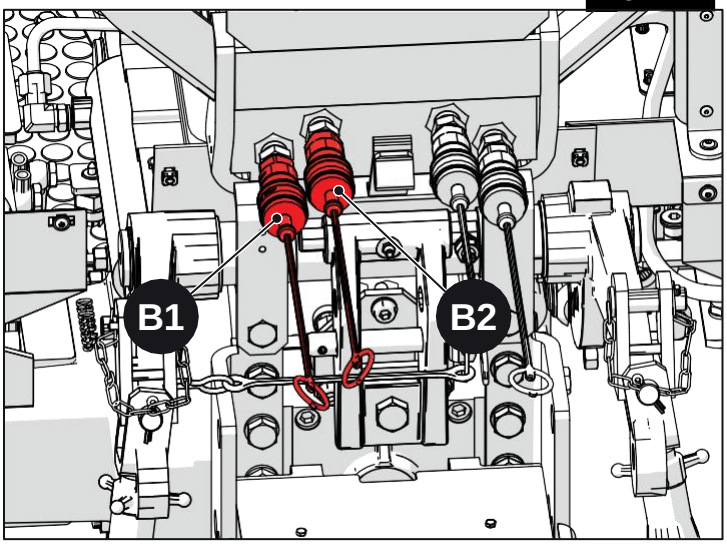


Fig. 5.66

5.11 Wheels and track width

danger

The replacement of tires must be carried out by qualified personnel with suitable implements and appropriate technical skills.

The operation could cause serious and fatal injuries, if not performed according to these indications.

danger

The tire may explode during inflation if damaged or if the wheel is not intact or correctly matched.

Warning

Replace tires that are damaged, injured, or bulging immediately.

Warning

Check periodically that the tires are at the correct pressure, verifying the data with the instructions provided by the manufacturer related to the use of the tractor.

Follow the following instructions for using, maintaining, and replacing tires:

- choose tires suitable for the use of the tractor, in the recommended combinations;
- use tires suitable for the expected workload;
- do not exceed the speed shown on the tires;
- check the tightening of the nuts of newly installed tires after 3 hours of work;
- periodically check the tightening of the nuts, the regular consumption of the tread and the absence of damage, swelling or injury;
- consult specialized technicians if a tire suffers violent shocks or is injured;
- do not park your tires on hydrocarbons (oils, grease, diesel...) so as not to damage them;
- tires mounted on tractors in storage can age faster, lift the tractor off the ground and protect them from direct sunlight.

1 - Tire
2 -
3 - Connecting bracket
4 - Circle (or disc)

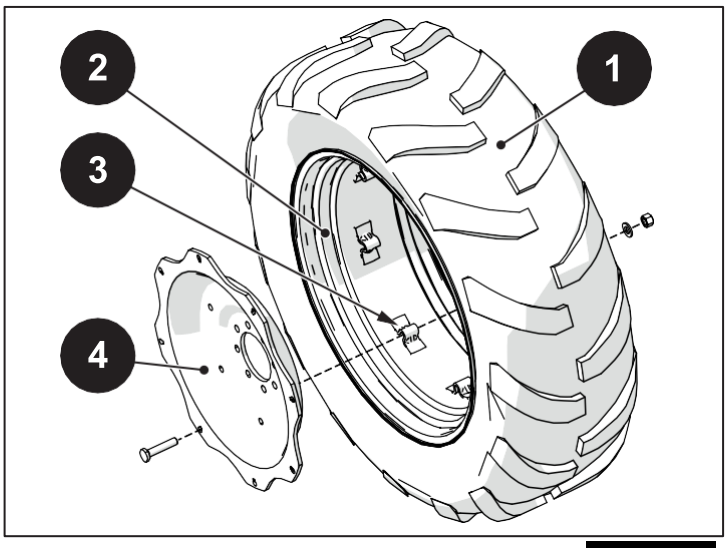


Fig. 5.67

5.11.1 Tire inflation

danger
Always keep the tire inflation at the correct pressure value. Never exceed this value, as excessive pressure may cause the tire to explode. Using inflated tires with incorrect pressures can have even deadly consequences.

Inflating tires to the right pressure is essential to ensure their safety and durability. Incorrect inflation pressure involves the following risks:

- Insufficient pressure causes premature and irregular wear and damage, significantly shortening the life of the tire. In addition, a flat tire can cause steel bead.
- Excessive pressure reduces the tire's resistance to shocks, increasing the probability that it will develop bulges and deformations, which can also affect the wheel and result in the tire bursting.

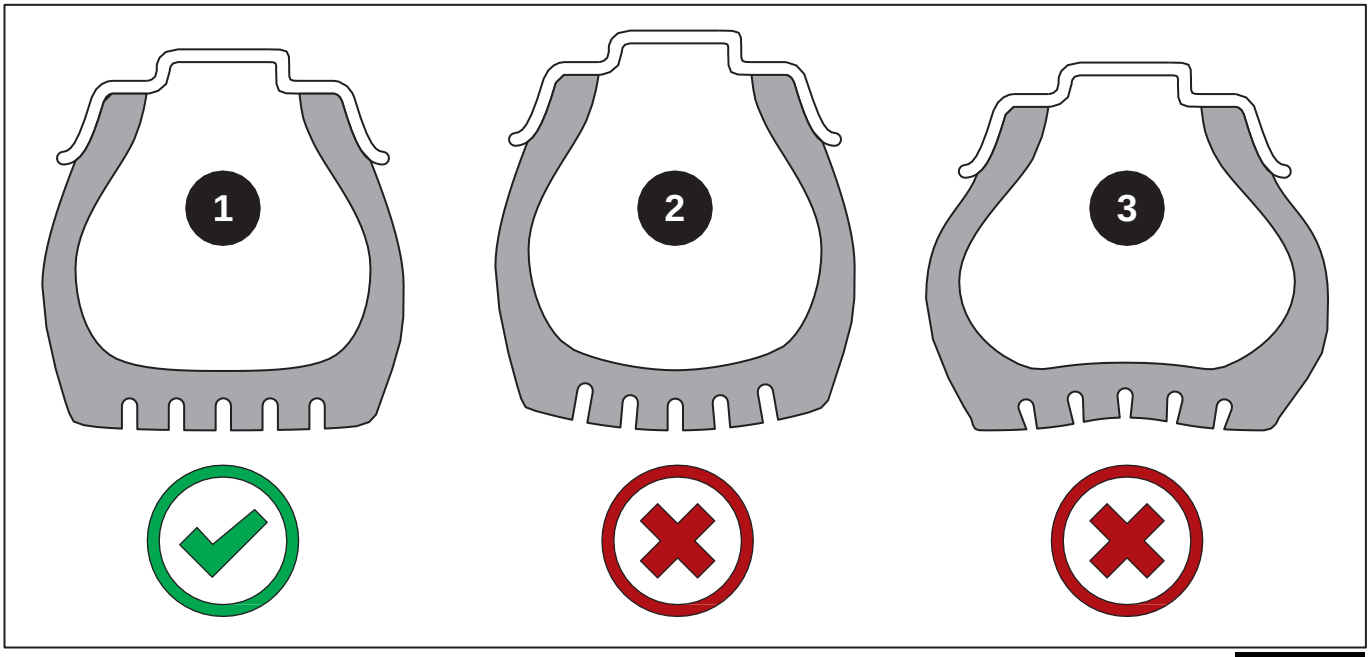


Fig. 5.68

1 - Correct pressure
2 - Excessive pressure
3 - Insufficient pressure

Pressure control

The pressure check must be carried out regularly, at least every 15 days, in particular if the tires are weighted with liquid.

Check when tires are cold because the pressure is altered by overheating. The tires are cold if they have not been used for at least 1 hour.

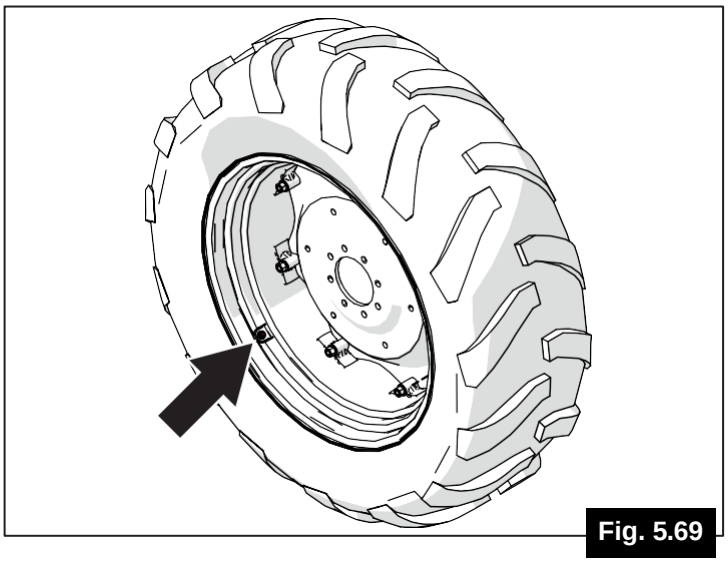


Fig. 5.69

ATTENTION:

When checking the tire pressure, position yourself outside the possible trajectory of the valve or cap.

Warning

Never reduce the inflation pressure while the tires are hot.

Warning

Avoid overloading the tractor when track width has been enlarged

Note

The load on the axles varies the inflation pressure.

5.11.2 Tire puncture

danger

Stop driving immediately if the tire is flat, as a result of a puncture, or any other cause.

If there are no safety conditions for immediate arrest, as in the case of road travel, it is necessary to identify the nearest parking area.

Repair and replacement operations must be carried out by authorized and qualified personnel.

The wheel replacement procedure is described in the 'Wheel Replacement' section.

5.11.3 Wheel replacement

Warning

If the user replaces the wheelset with one of a different size, go to an authorized dealer to insert the new wheel parameters into the vehicle control unit so that the real speed matches the one shown on the display.

To replace the wheel, proceed as follows.

danger

Repair and replacement must be carried out by authorized and qualified personnel, equipped with the appropriate equipment.

Make sure other people are at a safe distance during the operation.

1 - Remove the wheel ballasts, if installed.

2 - Lift up the tractor. See the 'Lifting points' section in the 'General Safety Regulations' chapter, for instructions on lifting the tractor safely.

3 - Completely deflate the tire of the wheel you want to replace.

4 - Unscrew the wheel fastening nuts to the drive shaft, then remove the wheel.

5 - Install the new wheel, then screw in the nuts/fixing screws using the correct tightening torque.

6 - Lift down the tractor.

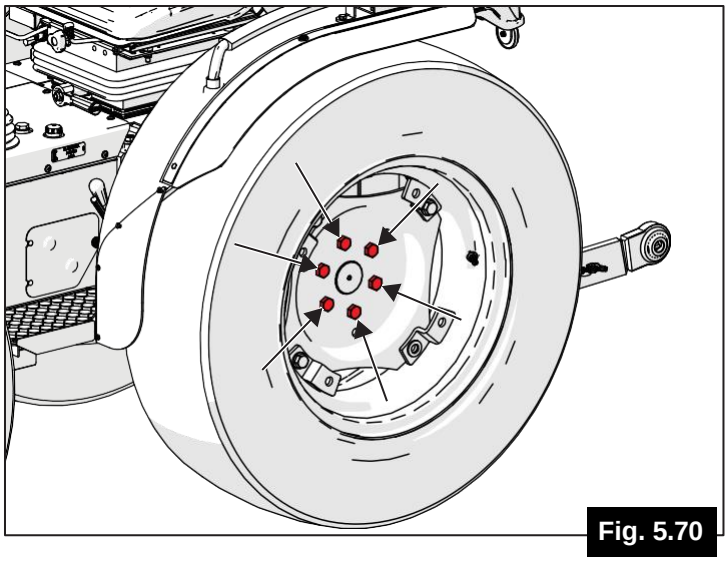


Fig. 5.70

Warning

After the first 10 hours of work elapsed since the wheel was reassembled, check the clamping torques by re-screwing the wheel screws, using an appropriate torque wrench.

Tightening torque

The following table indicates the tightening torques for fixing the wheels to the hubs (driveshaft).

Rear wheel tightening torque	127 N·m
Front wheel tightening torque	127 N·m

5.11.4 Adjusting the Track Width

danger
Only use the tractor if the wheels, rims and flange are securely attached. Screw bolts and nuts to the specified tightening torque.

The various types of agricultural operations may require different Track widths.

A simple variation of the Track width is obtained by fixing the wheel to the axle shaft (4) with the concave part facing inwards or outwards, reversing the position of the wheels on the axle in order to keep the vertices of the tread facing in the direction of travel.

If the wheels are equipped with an adjustable rims, it is also possible to remove the rim (2) from the flange (1) and reassemble it in a different orientation. The connecting brackets (3) are decentralized with respect to the axis of the flange (1), allowing different track width to be determined depending on the replacement configuration. This adjustment is not available for fixed rims, since rim (2) and flange (1) are a single piece.

Not all possible track width are feasible in practice, the tire may have insufficient space.

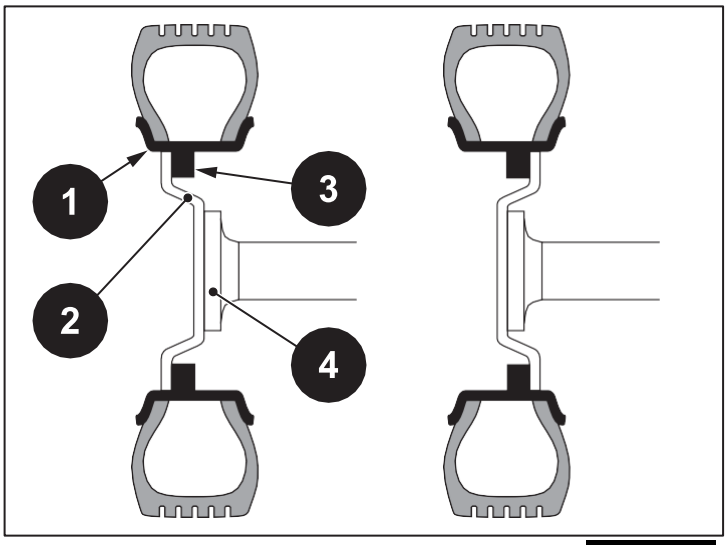


Fig. 5.71

Warning
When adjusting the track width, make sure that the tread remains oriented correctly for the forward direction. The orientation of the tread is indicated by an arrow on the side of the tire.

Warning
Use an appropriate lifting tool to support the wheels and wear appropriate protective clothing. Work on one wheel at a time and move on to the next only after you have completely fixed the previous one.

Check the maximum steering angle

Note
This procedure is valid only for models with steering wheels.

Warning
Once the track adjustment is complete, the maximum steering angle must be checked.

Proceed as follows.

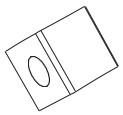
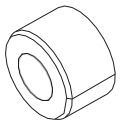
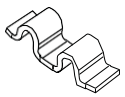
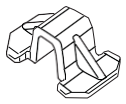
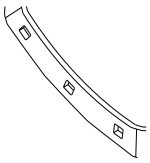
- Lift the front end above the ground so that the front axle can reach maximum oscillation. See the 'Lifting points' section in the 'General Safety Regulations' chapter, for instructions on lifting the tractor safely.
- Start the engine and steer until the end of the steering wheel stroke, both in the right and left directions.
- Make sure that the tires (or the fenders, if they are steering) remain at least **2 cm** away from the body (or from the fenders, if fixed).
  If this distance is not respected, the **steering angle must be adjusted** and, if necessary, the front fenders must be adjusted (see the “Front fenders” section).

5.11.4.1 Connection between disc and flange

In variable track wheels, it is possible to vary the track width by disassembling the wheels (or discs) from the channel and reassembling them in a different orientation. The disc is fixed to the channel by bolts screwed into special brackets.

There are different types of brackets for connecting the disc to the flange.

Types of connecting brackets

circular		Ring	
Zeta		Omega	
Omega double		H.D Omega	
Waffle		-	-

Tightening torques

The bolts for the connection between the circle and the channel must be screwed with a tightening torque of 150 N·m (15 kg·m).

5.11.4.2 Track Width

Axle width

'Axle width' means the altitude between the coupling planes of the axles (without wheels).

E60 SN:

A	Front width	flange	axle	893 mm
B	Rear width	flange	axle	893 mm

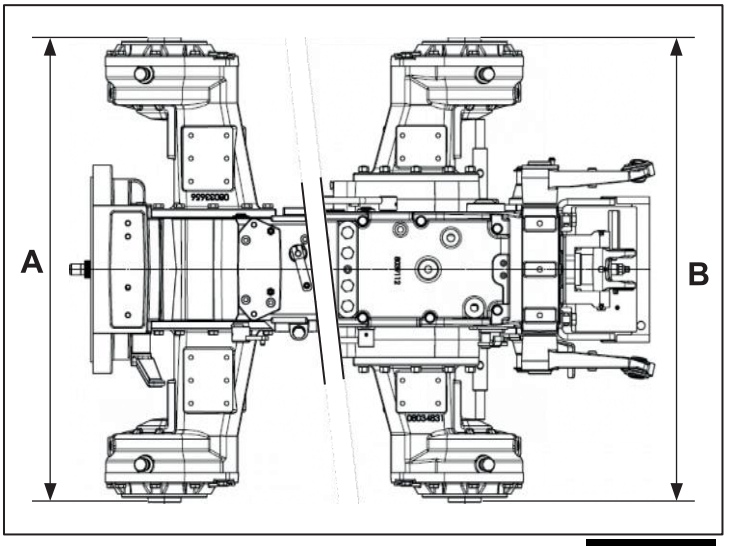


Fig. 5.72

E60 RS

A	Front width	flange	axle	1126 mm
B	Rear width	flange	axle	1033 mm

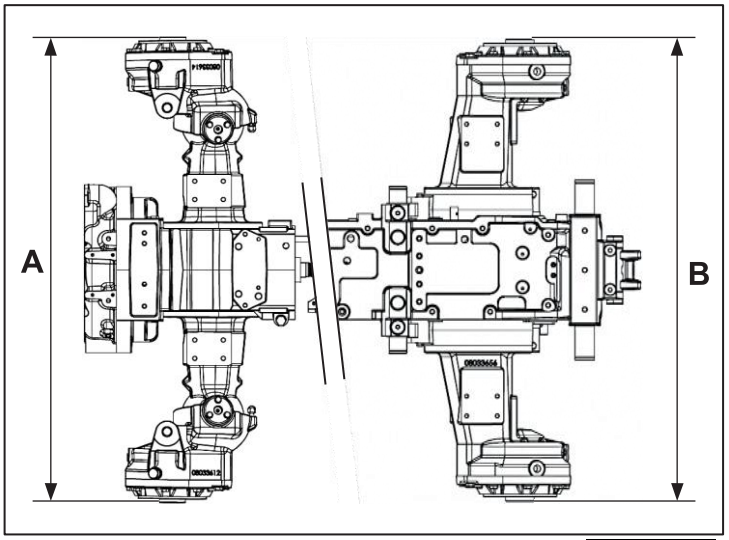


Fig. 5.73

Track width dimensions

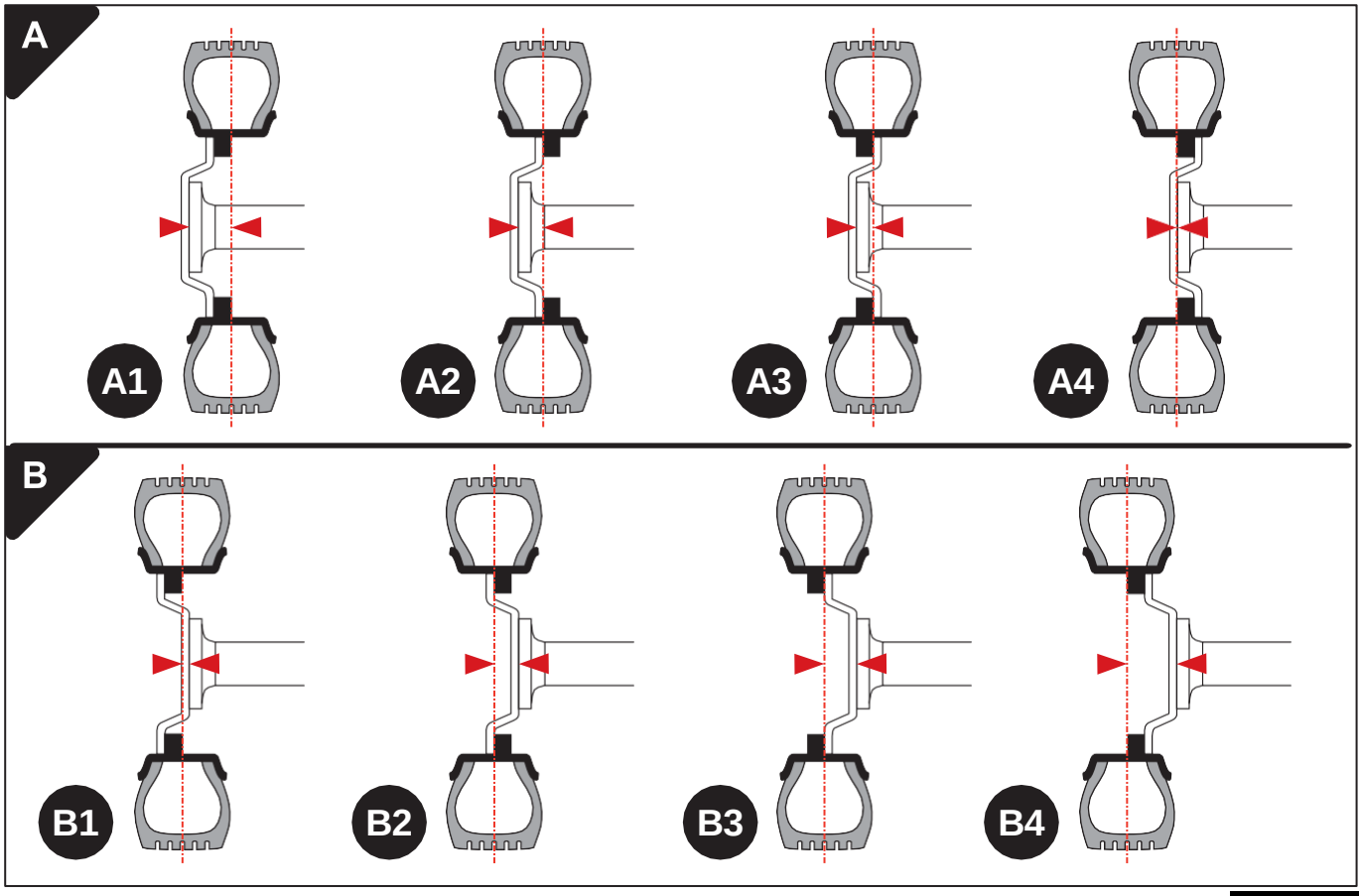


Fig. 5.74

A - Internally assembled flange
B - Externally assembled flange

E60 SN:

Set	Axle	Tire	Wheel rim	1A (mm)	2A (mm)	3A (mm)	4A (mm)	1B (mm)	2B (mm)	3B (mm)	4B (mm)
1	Front	8.25-16	7KX16	756	928	844	1.016	788	960	876 *	1.048
	Rear	8.25-16	7KX16	756 ‡	928‡	844 ‡	1.016	788 ‡	960	876 *	1.048
2	Front	280/70-18	9X18 F	706	802	794	890	914 *	1010	1002	1098
	Rear	280/70-18	9X18 F	706 ‡	802 ‡	794 ‡	890 ‡	914 ‡	1010	1002 *	1098
3	Front	280/70-20	9X20	696	870	786	960	844 *	1018	934	1108
	Rear	280/70-20	9X20	696 ‡	870 ‡	786 ‡	960 ‡	844	1018	934 *	1108
4	Front	300/70-20	9X20	696	870	786	960	844 *	1018	934	1108
	Rear	300/70-20	9X20	696 ‡	870 ‡	786 ‡	960 ‡	844	1018	934 *	1108

E60 RS:

Set	Axle	Tire	Wheel rim	1A (mm)	2A (mm)	3A (mm)	4A (mm)	1B (mm)	2B (mm)	3B (mm)	4B (mm)
1	Front	8.25-16	7KX16	985	1157	1073	1245	1017 *	1189	1105	1277
	Rear	8.25-16	7KX16	985 ‡	1067 ‡	983 ‡	1155 ‡	927 ‡	1099	1015 *	1187
2	Front	250/80-18	9X18	891	1063	991	1163	1099 *	1271	1199	1371
	Rear	250/80-18	9X18	801 ‡	973 ‡	901 ‡	1073	1009 ‡	1181	1109 *	1281
3	Front	280/70-18	9X18 F	935	1031	1023	1119	1143 *	1239	1231	1327
	Rear	280/70-18	9X18 F	845 ‡	941 ‡	933 ‡	1029 ‡	1053 ‡	1149	1141 *	1237

* - Basic version
† - Not recommended
‡ - Not possible
^ - Special on request
Set - Pairing tires

Note

Carriages lower than the factory track width may require the steering angle to be adjusted and the front fenders (if any) removed, if any.

5.11.5 Steering angle setting

Note
This procedure is valid only for models with steering wheels.

The tractor is delivered with the steering characteristics optimized according to the original equipment tires set.

By changing the track width, the tires can come into contact with the body, when the wheels are in the maximum steering position. To correct this problem, it is necessary to act on the appropriate registry screws.

Warning
The procedure must be carried out by qualified personnel, equipped with the appropriate equipment.

Warning
The registration procedure must be done with the axle in the maximum travel position (on a wedge first for one wheel and then for the other).

E60 RS

Proceed as follows.

- Steer the wheels.
- Screw or unscrew the safety bolt (1) until a distance of at least 2 cm is determined between the tire and the body.
- Once the correct distance has been obtained, lock the safety bolt registration by fully screwing the lock nut (2).

Do the above for both front wheels.

Once the entire procedure is complete, check again that there is a distance of at least 2 cm between the tire and the body, on both sides.

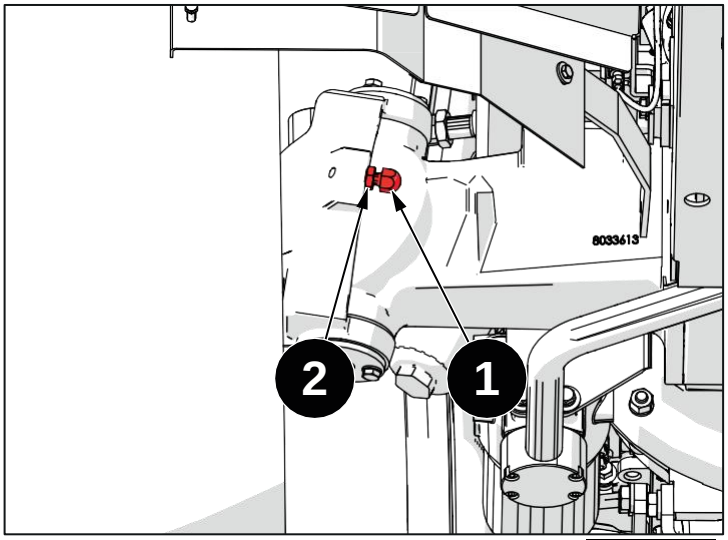


Fig. 5.75

E60 SN

There is no joint angle adjustment available. The maximum steering angle is determined by the stroke of the hydraulic joint cylinder.

5.12 Front fenders

The front fenders provide greater safety and help protect the tractor from excessive dirt.

Note
There are no adjustments available for the front fenders.

5.13 Ballasts

5.13.1 Liquid ballast (not for road traffic)

The ballast of the drive wheels is obtained by introducing water into the tires.

Warning
The installation of the liquid ballast requires special equipment and training. Contact your authorized dealer or a tire dealer.

Warning
NEVER fill a tire more than 90%. Excess fluid could damage the tires.

Warning
Preferably use wheels with air chambers. In the case of using wheels with tubeless tires, ask your dealer for proper lubrication of the disc to prevent it from rusting.

Warning
In case of low temperatures, use water with antifreeze solutions.

Warning
Do not use alcohol as a liquid ballast.

danger
Limit transport speed to 32 km/h (20 mph) when using liquid ballast.

To introduce water:

- place the valve at the top;
- carefully unscrew the movable valve connection;
- introduce water with a special tool;
- interrupt the filling from time to time to allow air to escape;
- fill the front tires to 40% or 75% depending on the need for ballast; fill the rear tires up to 40% at most;
- screw the movable valve connection;
- perform air inflation up to normal operating pressure.

Warning

All axle tires must be filled to the same level.

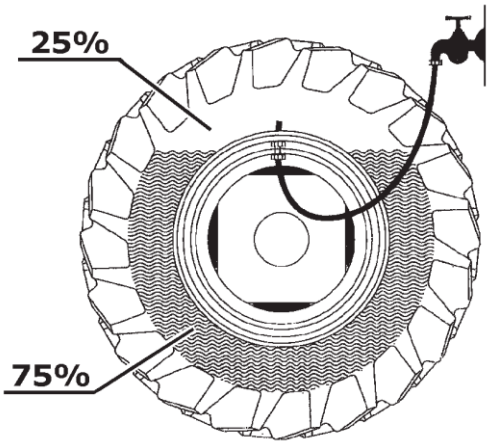


Fig. 5.76

To extract water:

- place the valve at the bottom;
- carefully unscrew the movable valve connection;
- let the water drain;
- complete the emptying through a special connection site with a hose (dip tube);
- perform air inflation until the water is completely emptied;
- screw the movable valve connection;
- perform air inflation up to normal operating pressure.

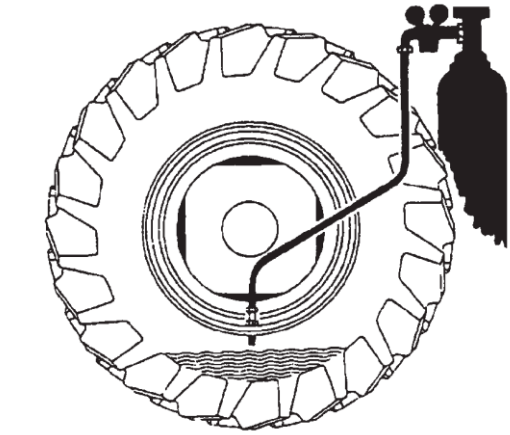


Fig. 5.77

6 : Service

Index

6.1 Technical maintenance intervals

See the table for the parts subject to maintenance, the items affected, and the maintenance period.

Warning

Carry out any operation with the engine off and at room temperature.

Warning

Refueling and oil level control must be carried out with the engine in a horizontal position.

Warning

Before each start-up, to prevent oil spills, make sure that:

- the oil level rods are inserted correctly;
- are properly tightened:
  - oil drain plugs;
  - the oil supply plugs.

Note

After servicing, cleaning, or repairing the tractor, reassemble all protective cases or plates before starting it.

6.1.1 Maintenance interval tables

Engine

Group	Intervention description	Replacement interval									
		Hours	50	150	300	500	900	900	1.200	4.000	8.000
		Months	12		12	24	12	24	24		
Engine (3)	Engine Oil (1) (2)					X					
	Filter Engine Oil (1)					X					
	Fuel Filter					X					
	Coolant								X		
	Air filter clog sensor							X			
	Engine air filter - External				X						
	Engine air filter - Safety					X					
	Particulate Filter									X	
	Engine Partial Review									X	
	Engine Total Review										X
Transmission	Clutch pedal stroke recording control			X							
	Transmission Oil Filter - Delivery			X (*)		X					
	Transmission Oil Filter - Suction					X					
	Transmission Oil Rear differential crankcase.						X				
	Transmission Oil - Final drives						X				
	Olio Front Axle - Front Differential						X				

Brakes	Brake Oil						X				
Lubrication	Rear Lifter		X								
	Front Axle		X								
	Breaking leverage		X								
	Greasers		X								

(*) First time only.

(1) In harsh working conditions, such as dusty environments and operation at extreme loads, replace every 150 hours.

(2) Every time the engine oil light comes on, it is necessary to replace the oil even if the scheduled hours have not passed.

(3) Routine engine maintenance (after run-in), referring to constant daily engine activity. For maintenance during the run-in phase, consult the appropriate section.

6.1.2 Engine technical maintenance operation

Note
The maintenance operations on the engine are indicated below. For detailed operations, see the specific sections.

Maintenance during run-in phase (first 50 hours)

Frequency (1)	Component	Type of intervention	Intervention methods
Every 10 hours (every day)	Engine Oil (2)	Level control	Refil, if necessary
	Coolant (3)	Level control	Refil, if necessary
	Air filter	Cleaning control	Clean with low-pressure compressed air
		Control of the clogging indicator placed on the filter body	Clean the filter or, if necessary, replace it with a new one
	Engine and vehicle cooling system (radiators, intercoolers, fan)	Cleaning control	Clean with a soft bristle brush and/or low pressure compressed air

(1) - In the event of a lack of meter, the frequency of interventions must be calculated according to the calendar day: a calendar day corresponds to 12 hours of operation.
(2) - In harsh working conditions, such as dusty environments and operation at extreme loads, Change the engine oil every 150 hours of operation.
If the engine has not been running for the specified time, it is still necessary to replace the oil at least once a year.
(3) - If the engine has not been running for the time indicated, it is still necessary to replace the liquid at least every 24 months.

Routine maintenance (after run-in)

Frequency (1)	Component	Type of intervention	Intervention methods
Every 10 hours (every day)	Engine Oil (2)	Level control	Refil, if necessary
	Coolant (4)	Level control	Refil, if necessary
	Air filter	Cleaning control	Clean with low-pressure air
		Control of the clogging indicator placed on the filter body	Clean the filter or, if necessary, replace it with a new one
	Engine and vehicle cooling system (radiators, intercoolers, fan)	Cleaning control	Clean with a soft bristle brush and/or low pressure compressed air
Every 300 hours	Air filter	Main cartridge replacement	-
Every 500 hours	Engine Oil (1)	Replacement	-
	Engine oil filter (2)	Replace the cartridge	-
	Fuel filter (3)	Replacement	-
	Air intake circuit and intercooler hose	Piping control	cleanin g and tightne ss -
	Oil separation circuit	Pipeline tightness check	-
	Vacuum circuit	Pipeline tightness check	-
	Throttle Valve wit h TVA suction	Cleaning control	Contact an authorized workshop

Every 900 hours	Fuel tank	Cleaning the fuel tank and checking the efficiency of the load cap	-
	Air filter	Indicator by Clogging replacement	-
Every 1200 hours	Coolant (4)	Replacement	-
Every 4000 hours	Particulate filter	Carry out the regeneration	Contact authorized workshop
	Engine	Carry out the partial review	Contact authorized workshop
Every 8000 hours	Engine	Carry out the general review	Contact authorized workshop

(1) - In the event of a lack of meter, the frequency of interventions must be calculated according to the calendar day: a calendar day corresponds to 12 hours of operation.
(2) - In harsh working conditions, such as dusty environments and operation at extreme loads, Change the engine oil every 150 hours of operation.
If the engine has not been running for the specified time, it is still necessary to replace the oil at least once a year.
(3) - If the engine has not been running for the time indicated, it is still necessary to replace the filter at least every 12 months.
(4) - If the engine has not been running for the time indicated, it is still necessary to replace the liquid at least every 24 months.

6.2 General maintenance and inspection

6.2.1 Opening the bonnet

Insert an appropriately sized Allen key (1) into the appropriate hole, then turn clockwise to release the lock.

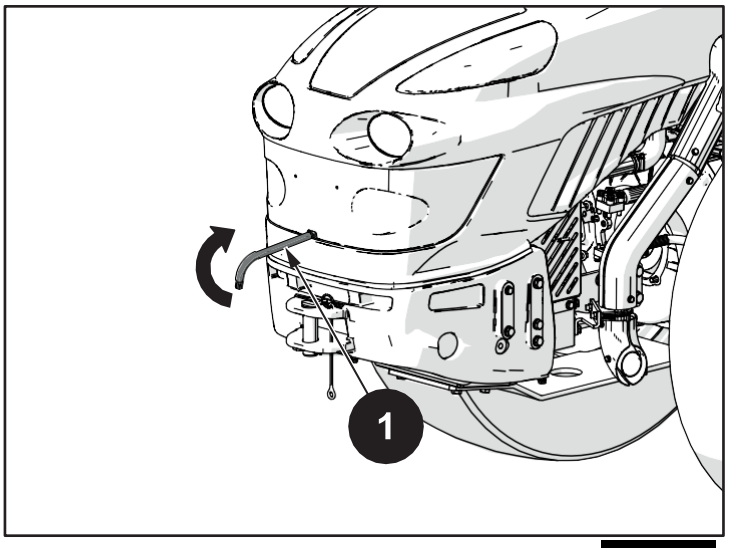


Fig. 6.1

6.2.2 Refueling

danger
Refuel strictly when the engine is off. All fuels are flammable. Leaking and falling fuel on hot surfaces and electrical components can cause fire. Do not smoke when you are filling up or when you are in that area.

ATTENTION:
Do not fill the tank completely, but keep about 1 cm from the maximum level, to allow some movement of the fuel. Before starting the engine, wipe off any fuel spills.

Warning
The use of fuels with specifications other than those indicated is prohibited. Avoid using fuel mixed with water or other substances so as not to cause engine damage.

To refuel, use a funnel to prevent fuel spills. During refueling, make sure that the fuel does not contain residues, otherwise use special filters.

Use a quality fuel with technical characteristics set out in the 'Lubricants, Fuels and Coolants' section, in the 'Technical Specifications' chapter.

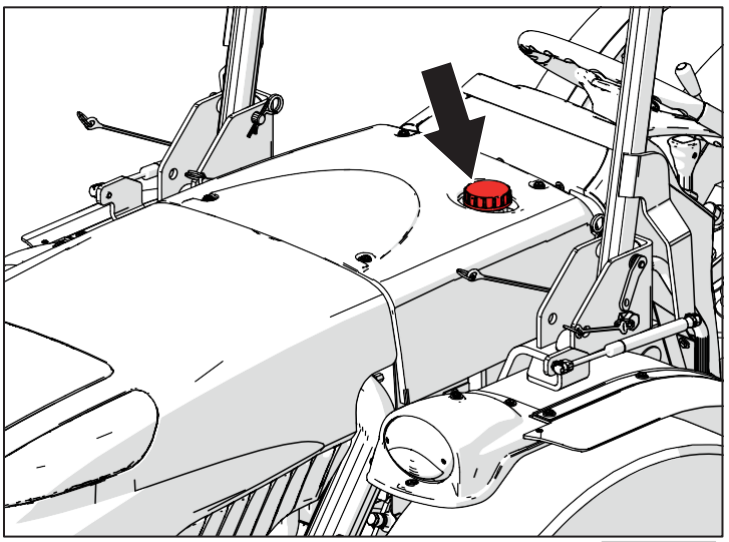


Fig. 6.2

6.2.3 Engine oil level and fuel control

ATTENTION:
Protect your hands because the oil and the control rod, if too hot, could cause burns.

Warning
Do not disperse polluting material into the environment. Carry out the disposal in compliance with the laws in force on the subject.

The engine oil level control rod (1) is located on the lower right side of the engine.

- Turn on the engine and bring it to operating temperature (70÷80 °C).
- Turn off the engine and unplug the ignition key.
- Place the engine perfectly flat.
- Wait a few minutes for all the oil to drain into the cup.
- Take out the rod (1) and check the oil level. If the level is close to or below the minimum reference (MIN), refill.

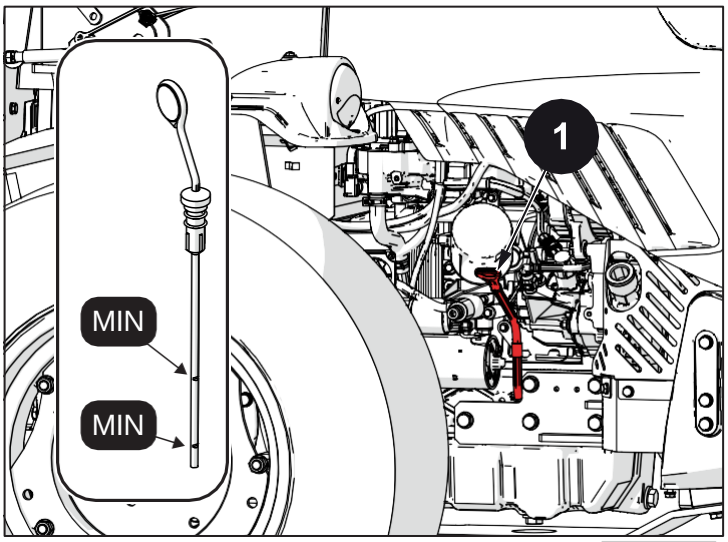


Fig. 6.3

- Refill, if necessary, from the cap (2). When refilling the oil, to avoid exceeding the maximum value allowed, introduce the oil in small quantities (100÷200 ml at a time) until the correct level is reached.

Warning
The oil level must be between the minimum (MIN) and maximum (MAX) references indicated on the rod (1). Don't mix oils of different brands or characteristics.

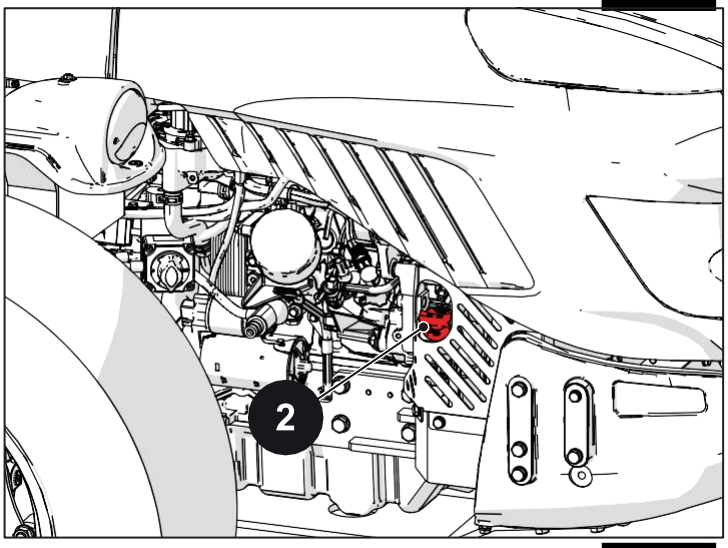


Fig. 6.4

6.2.4 Engine Oil Filter Cartridge Replacement

ATTENTION:

Exhausted engine oil can cause skin cancer if left in contact repeatedly and for extended periods. If contact with oil is unavoidable, wash your hands thoroughly with soap and water as soon as possible.

Warning

Do not disperse polluting material into the environment. Carry out the disposal in compliance with the laws in force on the subject.

Proceed as indicated.

- Turn off the engine and unplug the ignition key.
- Allow the engine to cool down properly, to avoid the risk of sunburn.
- Prepare a collector to contain any leaks.
- Unscrew the filter (1) and replace it.
- Check the condition of the seal (2) and, if necessary, replace it.
- Lubricate the new cartridge seal before installing it.
- Install the oil filter.

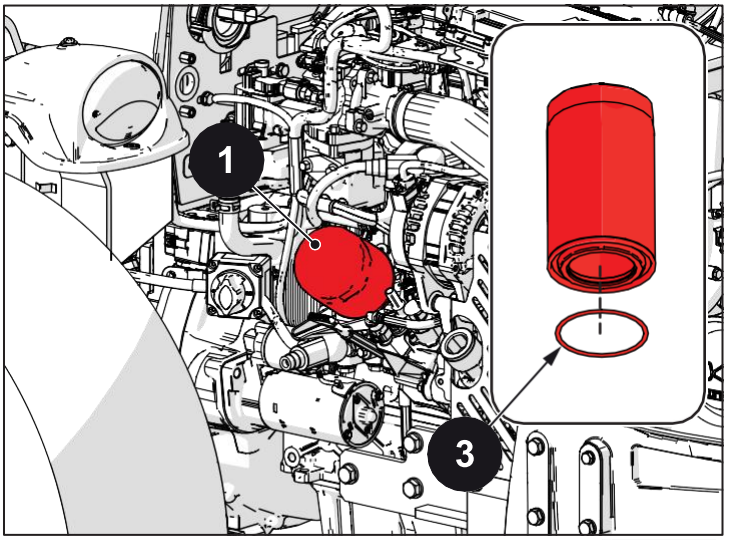


Fig. 6.5

Warning

Screw the oil filter with a tightening torque of 12.7 N·m.

- Turn on the engine and keep it at idle speed for a few minutes until it reaches operating temperature ( ).
- Turn off the engine and unplug the ignition key.
- Wait a few minutes for all the oil to drain into the cup.
- Check the correct oil level and, if necessary, refill. When refilling the oil, to avoid exceeding the maximum value allowed, introduce the oil in small quantities (100÷200 ml at a time) until the correct level is reached.

Warning

The oil level must be between the minimum and maximum references of the oil level rod.

- Check for oil leaks.

Warning

If oil leaks, stop the engine immediately and contact an authorized GOLDONI workshop.

6.2.5 Engine oil replacement

ATTENTION:

Protect your hands because the oil and the control rod, if too hot, could cause burns.

ATTENTION:

Exhausted motor oil can cause skin cancer if left in contact repeatedly and for extended periods. If contact with oil is unavoidable, wash your hands thoroughly with soap and water as soon as possible.

Warning

Do not disperse polluting material into the environment. Carry out the disposal in compliance with the laws in force on the subject.

ALWAYS place a liquid collection container under the tank to be drained, at the discharge point.

Warning

The oil must be replaced with the engine in a horizontal position.

Proceed as indicated.

- Turn off the engine and unplug the ignition key.
- Allow the engine to cool down properly, to avoid the risk of sunburn.

Note

Do not allow the engine oil to cool completely.

- Set up a collector of adequate capacity under the oil pan.
- Unscrew the load cap (2).
- Unscrew the drain plug (1) and allow all the oil to drain into the collector.
- Replace the copper seal and screw back the drain plug (1).

Warning

Tighten the cap (1) with a tightening torque of 55 N·m (5.5 kg·m).

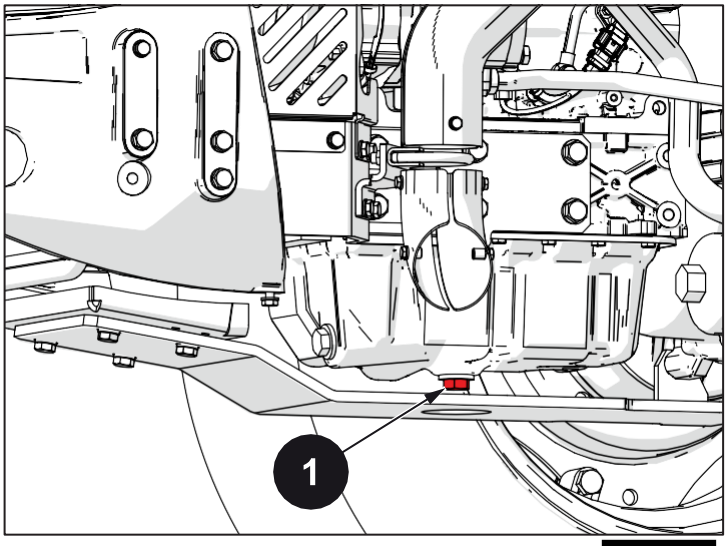


Fig. 6.6

- Introduce the new oil through the drain plug (2).

  To reach the correct engine oil level, enter the minimum amount of oil depending on the engine model (see “Lubricants, Fuels and Coolants”). Then fill it up.

  When refilling the oil, to avoid exceeding the maximum value allowed, introduce the oil in small quantities (100÷200 ml at a time) until the correct level is reached.

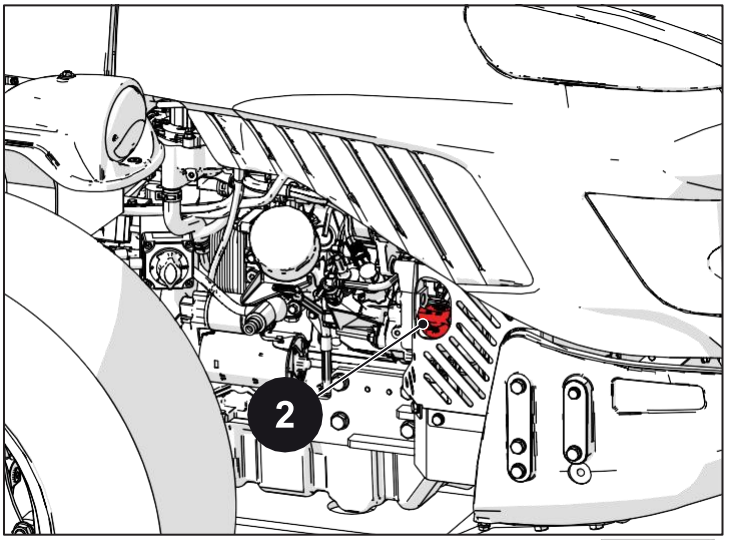


Fig. 6.7

Warning

The oil level must be between the minimum and maximum references of the oil level rod.

- Rescrew the load cap (2).
- Turn on the engine and bring it to operating temperature (70÷80 °C). Check for any oil leaks.
- Turn off the engine.
- Wait a few minutes for all the oil to drain into the cup.
- Check the oil level.

Warning

If oil leaks, stop the engine immediately and contact an authorized GOLDONI workshop.

6.2.6 screw tightening control and connection tightness;

Proceed as indicated.

- Start the engine and keep it at idle speed for a few minutes.
- Keep the engine running until it reaches the operating temperature (70÷80°C).
- Turn off the engine and allow it to cool down.
- Check the tightening of the fastening screws of the main organs.
- Check the tightness of the connections on the power supply circuit.
- Check the tightness of the clamps.
- Check for fluid leaks.

The tubes are checked by exerting a slight squeeze or bending, along the entire length of the tube and near the fixing clamps.

The components must be replaced if they have cracks, cuts, leaks and do not retain a certain elasticity.

Warning
If the components are damaged, contact an authorized GOLDONI workshop.

6.2.7 Car body maintenance

ATTENTION:
When using pressurized water jets, do not direct the jet to: - Electrical system components - TYRES - Hydraulic hoses - Radiator - Electrical organs - Soundproofing gaskets - Other organs that can be damaged by water pressure

Periodically check the condition of the body shop. To ensure durability over time, deep abrasions and scratches must be treated by specialized personnel. Check any areas of water stagnation.

Clean the body with normal water solutions and specific shampoo:

- If necessary for tractor use in normal environments.
- Frequently for use in marine areas.
- Immediately after the use of organic or chemical substances.

The fenders and bumpers should be cleaned regularly and any muddy sediment removed.

Note
Do not disperse liquids such as fuels, lubricants, refrigerants, various fluids in the environment.

6.2.8 Checks on the engine

The list shows some of the maintenance, verification and control activities to be carried out on the engine during normal operation:

- power supply circuit purge;
- screw tightening control and connection tightness;
- engine oil level control;
- engine coolant level control;
- belt tension check;
- engine oil change;
- coolant change;
- oil filter cartridge change;
- fuel filter change.

6.2.9 Air filter cleaning and replacement

ATTENTION:

For every maintenance operation, the engine must be turned off and cool.

ATTENTION:

Use protective safety glasses when using compressed air.

Note

On the instrument panel, there is a filter clogging light. Its ignition indicates that the air filter is clogged and it is necessary to proceed with maintenance or replacement.

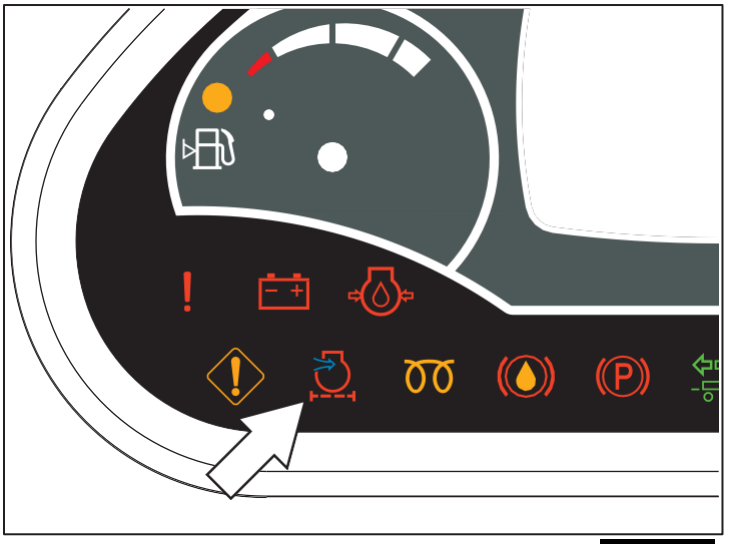


Fig. 6.8

Proceed as indicated.

- Pull the springs (1) and remove the cover (2) by pulling out to remove the filter.
- Clean the filter by means of a jet of compressed air (3 bar maximum) from the inside to the outside.
- Take out the internal filter and clean it with a jet of compressed air.
- Clean the inside of the air filter housing.
- Check that the filter elements are not damaged by using an inspection lamp or by scanning it against the light in an oblique position. If the filter elements should be damaged or worn out, replace them with new ones.
- Reassemble the internal filter.
- Reassemble the external filter and secure it by screwing the bolt.
- Reassemble the cover (2), taking care to orient it correctly as shown in the figure, then fix it by pulling on the springs (1).

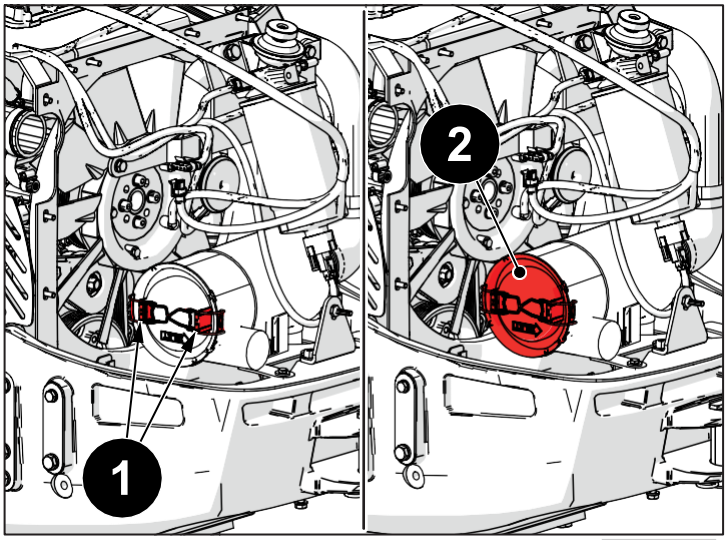


Fig. 6.9

Warning

Make sure that the filter is properly mounted to prevent dust or anything else from entering the suction ducts.

Warning

After replacing the external filter (6) two or three times, it is important to also replace the internal filter (7).

6.2.10 Service brake pedal height control and registration (E45/60 RS)

danger

Registration must be carried out exclusively by the dealer or specialized personnel.

Register when:

- The brake pedal stroke is too long or too soft.
- When one of the wheels brakes differently respect to the others.
- When braking distances increase compared to the same conditions of use.

The height between the pedal and the platform is 16 cm.

Note

Contact an authorized GOLDONI workshop to register.

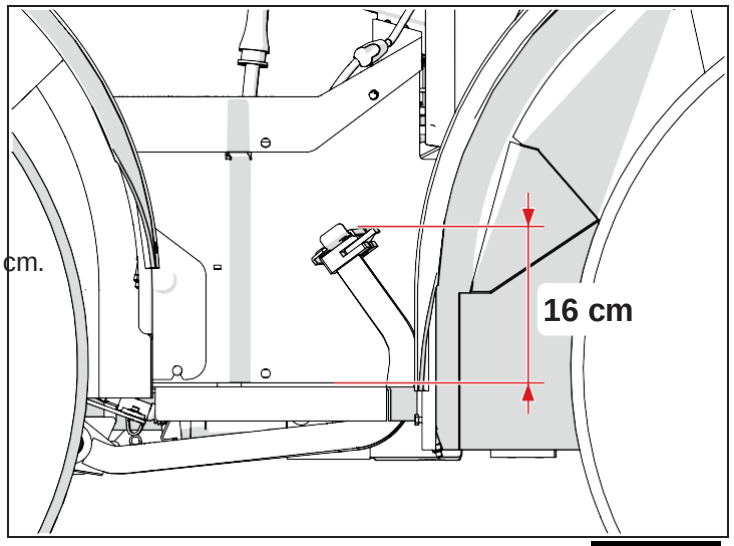


Fig. 6.10

6.2.11 Service brake pedal height control and registration (E45/60 SN)

danger

Registration must be carried out exclusively by the dealer or specialized personnel.

Register when:

- The brake pedal stroke is too long or too soft.
- When one of the wheels brakes differently respect to the others.
- When braking distances increase compared to the same conditions of use.

The height between the pedal and the platform is 16 cm.

Note

Contact an authorized GOLDONI workshop to register.

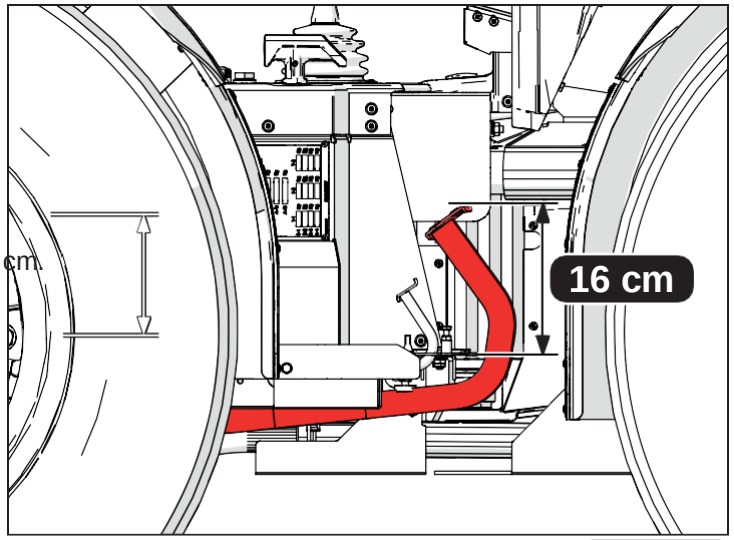


Fig. 6.11

6.2.12 Clutch pedal stroke control and recording

danger
Registration must be carried out exclusively by the dealer or specialized personnel.

Periodically check the free stroke of the command. The free stroke must be kept within the specified interval. If the free stroke found does not fall within this interval, the clutch pedal must be registered

Note
The figure is indicative.

E45/60 RS:

Starting stroke (A)	190 mm
Clutch release start (B)	170 mm
Limit switch (C)	50 mm
Free stroke	15 ÷ 25 mm

E45/60 SN:

Starting stroke (A)	185 mm
Clutch release start (B)	145 mm
Limit switch (C)	35 mm
Free stroke	35 ÷ 45 mm

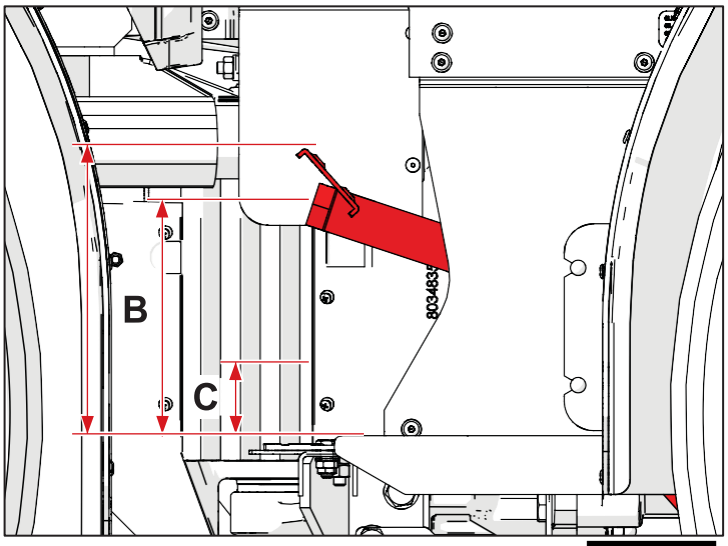


Fig. 6.12

6.2.13 Engine idle speed control

Check that the knob (1) is turned completely counterclockwise and make sure that the engine speed stabilizes at idle speed. Otherwise, contact an authorized workshop.

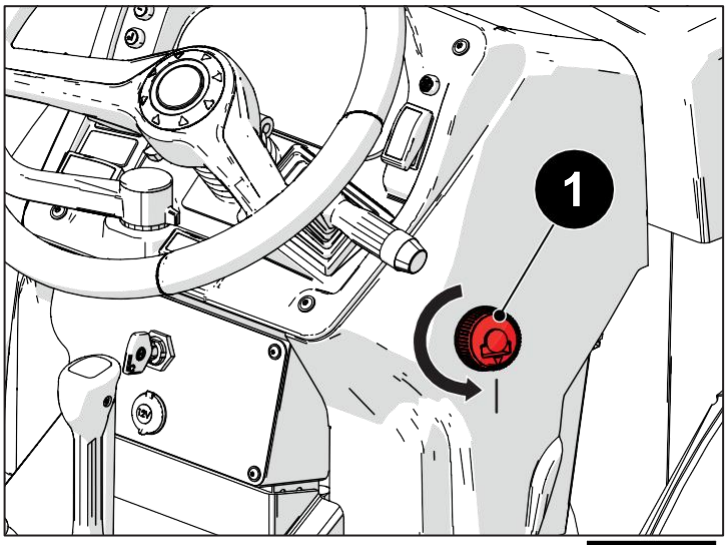


Fig. 6.13

6.2.14 Seatbelt check

Check the seat belt and the locking elements at least once a year. If the belt has cuts, breaks, excessive or abnormal wear, faded, rusty, scratched spots, or the elastic ring or wrapping device is damaged, it must be replaced immediately. For your safety, when replacing the belt, use only the accessories provided for this tractor.

6.2.15 Oil separation circuit

For the control and maintenance of the oil separation circuit, contact an authorized workshop.

6.3 Cooling system maintenance

ATTENTION:

The radiator must not come into contact with acidic, basic or corrosive substances.

Note

During winter, check the antifreeze concentration regularly according to temperature conditions.

ATTENTION:

Before starting the engine, check the coolant level in the radiator (1) to see if a refill is necessary and check that there are no leaks.

Check that the radiator cover is attached.

Check regularly for weeds, dirt, grease, or other contaminants on the radiator core and, if present, remove them.

Check that the thermostat constantly offers good performance, otherwise the circulation of the cooling water will be occluded, with a consequent reduction in the cooling effect.

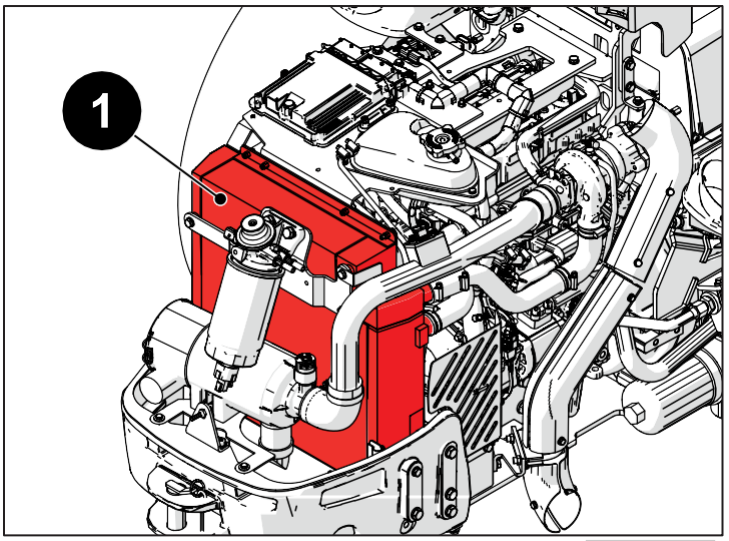


Fig. 6.14

6.3.1 Cleaning the cooling system

ATTENTION:

For every maintenance operation, the engine must be stopped and cool.

Do not open the radiator expansion tank with a hot engine, as the coolant is under pressure and at a high temperature, with a consequent risk of burns.

ATTENTION:

Use protective safety glasses when using compressed air.

Warning

Avoid using a pressure washer to clean the cooling system, because it could damage the components.

Clean with a soft bristle brush, making sure to remove weeds and debris.

Using a jet of compressed air (maximum pressure 3 bar), blow from the inside to the outside.

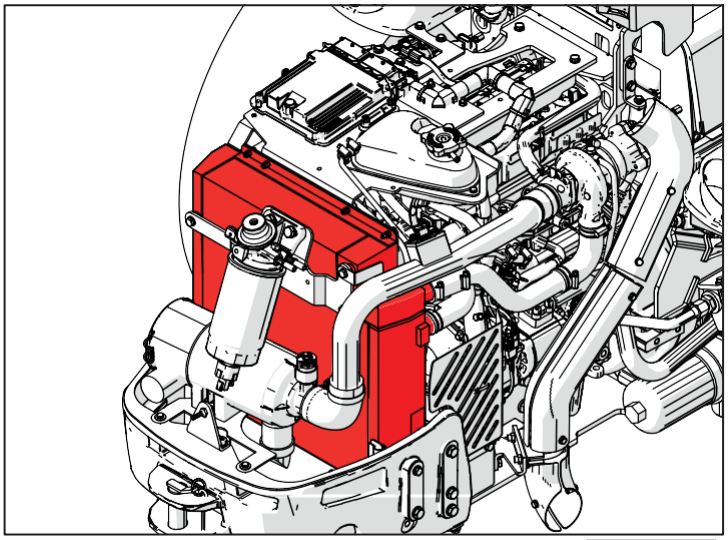


Fig. 6.15

6.3.2 Engine coolant level control

Proceed as indicated.

- Turn on the engine and bring it to operating temperature (70÷80 °C).
- Turn off the engine and unplug the ignition key.
- Allow the engine to cool down properly.
- Check that the coolant level in the tank (2) is higher than the minimum level mark (MIN).
- Top up the cap (1) if the liquid level is below the notch (MIN).

ATTENTION:

Open the cap (1) carefully to release the pressure.

- Once the refilling is finished, screw the cap (1) back on and tighten it tightly.

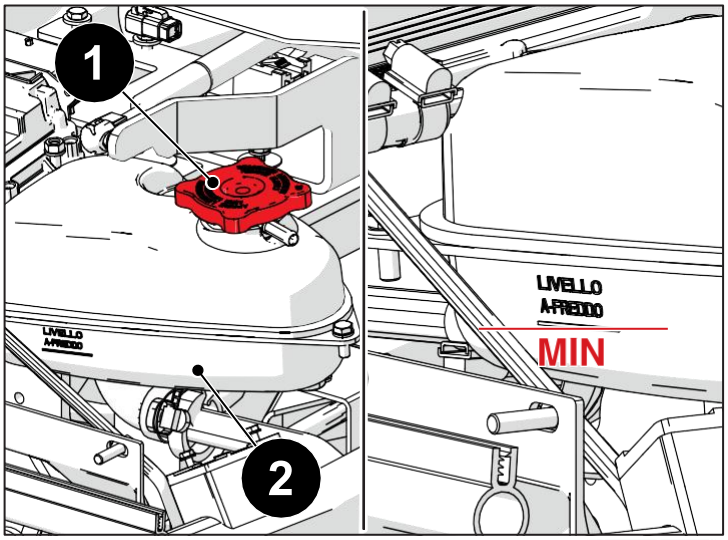


Fig. 6.16

ATTENTION:

Do not fill the tank (2) above the level indicated, the coolant must have the necessary space to expand when the temperature increases.

Warning

For the amount and type of liquid, see 'Lubricants, Fuels, and Coolants'.

6.3.3 Cooling circuit sleeve control

Proceed as follows.

- Squeeze the tubes (1) to assess their wear, and check the tightness of the clamps (2).
- Tighten the clamps (2) if the tightening is insufficient.
- Replace components if damaged or if they show signs of wear.

Warning

To make the replacement, contact an authorized workshop.

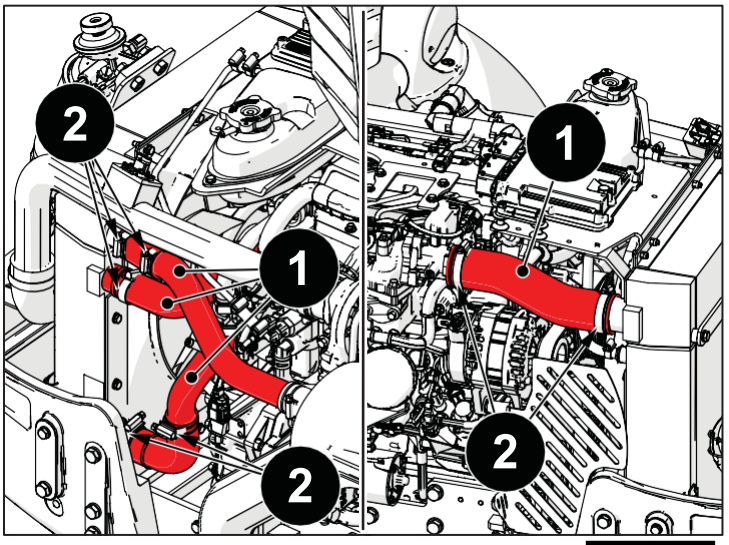


Fig. 6.17

6.3.4 Deaeration of the cooling circuit

Start the engine without a cap on the radiator or on the compensator tank, and keep it running, at the lowest speed of rotation, to allow the coolant to replace the air bubbles remaining inside the circuit. The liquid level made earlier, will drop more and more until it stabilizes. Stop the engine and refill. After a few hours of operation, when the engine is cold, it is advisable to recheck the coolant level.

6.3.5 Engine coolant replacement

Proceed as indicated.

- Start the engine and keep it at idle speed for a few minutes. The cooling circuit reaches the operating pressure.
- Turn off the engine and unplug the ignition key.

ATTENTION:

Allow the engine to cool down properly, to avoid the risk of sunburn.

- Unscrew the load cap (1).

ATTENTION:

Open the cap (1) carefully to release the pressure.

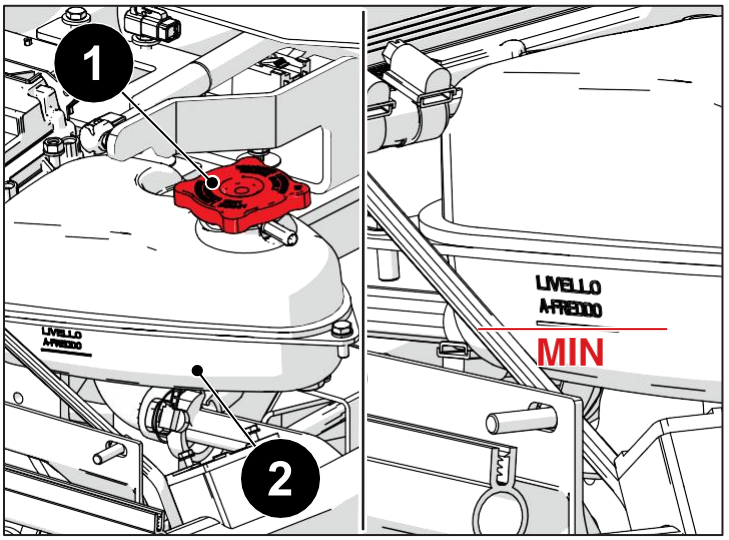


Fig. 6.18

- Set up a collector of adequate capacity under the radiator, then open the tap (2) located on the lower left side of the radiator.
- Allow the liquid to drain into the collector.
- Close the faucet (2).
- Introduce the new liquid. For the amount and type of liquid, see 'Lubricants, Fuels, and Coolants'.

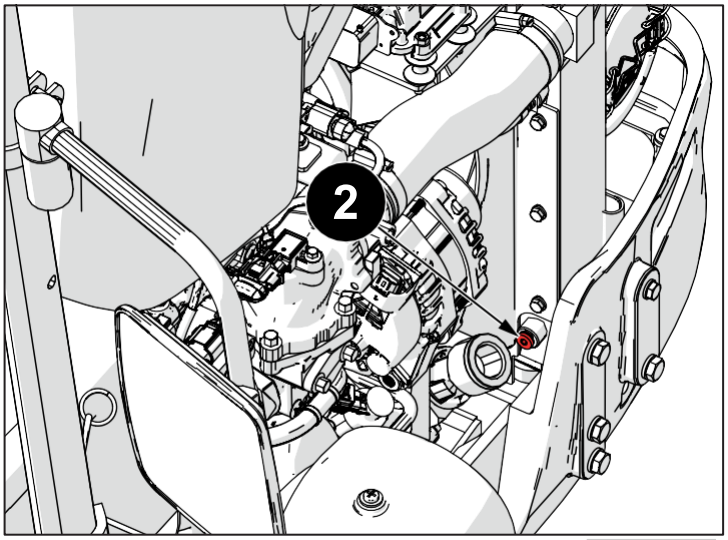


Fig. 6.19

Warning

The liquid level must exceed the minimum level mark (MIN), but avoid completely filling the tank.

- Screw back the cap (1) and tighten it tightly.
- Turn on the engine and keep it at idle speed for a few minutes until it reaches operating temperature (70÷80°C).

Warning

If the liquid level decreases, top up to keep it constant between the reference notches.

- Turn off the engine and allow it to cool down properly.
- Check the coolant level and, if necessary, top up.

Warning

Do not disperse polluting material into the environment. Carry out the disposal in compliance with the laws in force on the subject.

6.4 Power system maintenance

danger

All fuels are flammable.

Leaking and falling fuel on hot surfaces and electrical components can cause fire. Do not smoke or use

open flames during operations to avoid explosions or fires.

danger

The vapors generated by the fuel are highly toxic, carry out operations only outdoors or in well-ventilated environments.

Do not get too close to the cap with your face so as not to inhale harmful vapors.

danger

Do not waste fuel in the environment as it is highly polluting.

6.4.1 Fuel filter replacement

ATTENTION:

If fuel leaks, stop the engine immediately and contact an authorized GOLDONI workshop.

Warning

Do not disperse polluting material into the environment. Carry out the disposal in compliance with the laws in force on the subject. When replacing the fuel filter, keep it separate from other waste.

Proceed as indicated.

- Turn off the engine and unplug the ignition key.
- Allow the engine to cool down properly, to avoid the risk of sunburn.
- Prepare a collector to contain any leaks.
- Disassemble the filter (1) and replace it.
- Fill the new filter with the fuel from the disassembled filter.
- Lubricate the seal (2) of the new filter before installing it.
- Reassemble the filter.
- Purge air from the fuel supply circuit (see “Purging power circuit”).
- Start the engine and check for fuel leaks.

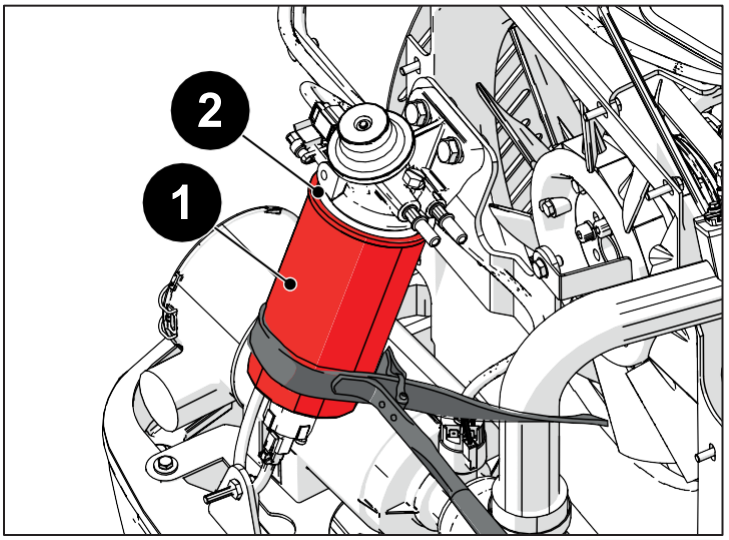


Fig. 6.20

6.4.2 Power supply circuit purge

danger

To avoid the risk of fire due to fuel leaks or spills, always carry out the operation with the engine off and cold.

Warning

This operation must be performed after each change of the fuel cartridge.

Proceed as indicated.

- Turn off the engine and unplug the ignition key.

ATTENTION:

Allow the engine to cool down properly, to avoid the risk of sunburn.

- Prepare a collector with an adequate capacity.
- Loosen the screw (1).

ATTENTION:

Do not loosen the high-pressure pipe fittings of the fuel supply circuit.

- Manually operate the pump (2) to remove air from the circuit.
- Check that a flow of clean airless diesel comes out of the purge screw (1).

Warning

Take care that all the fuel contained in the filter does not leak out. In this case, remove it, fill it manually and repeat the purge operation.

- Tighten the screw (1).
- Wipe off any fuel residue before starting the engine.

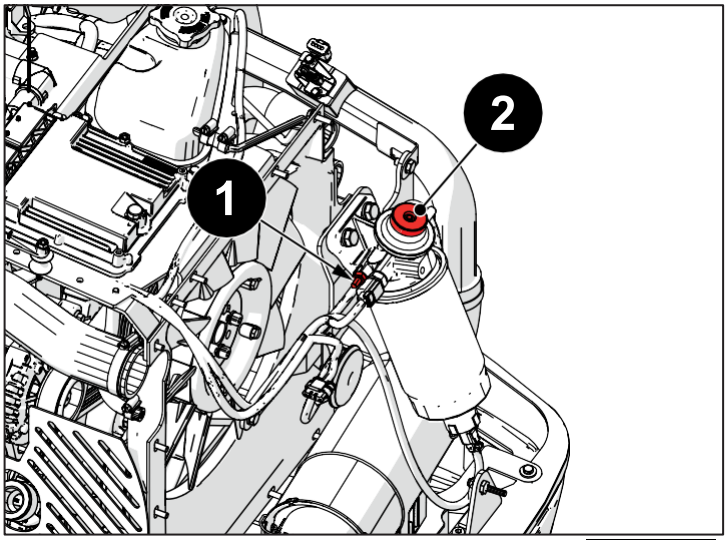


Fig. 6.21

Warning

If the engine fails to start, repeat the procedure described and, if necessary, contact an authorized GOLDONI service center.

6.4.3 Checking and replacing fuel hoses

Check that the tubes are free from leaks. In the event of leaks, contact an authorized GOLDONI workshop.

6.4.4 Purging sediment from the fuel tank

Park the tractor on a flat area, remove the drain plug (1) under the fuel tank and drain the sediment at the bottom of the tank.

danger

Empty the fuel tank when the tractor is stopped and the engine is cold.

Do not smoke near fuel and during operation.

Warning

Use a hose and funnel to avoid dispersing the fuel that drains out.

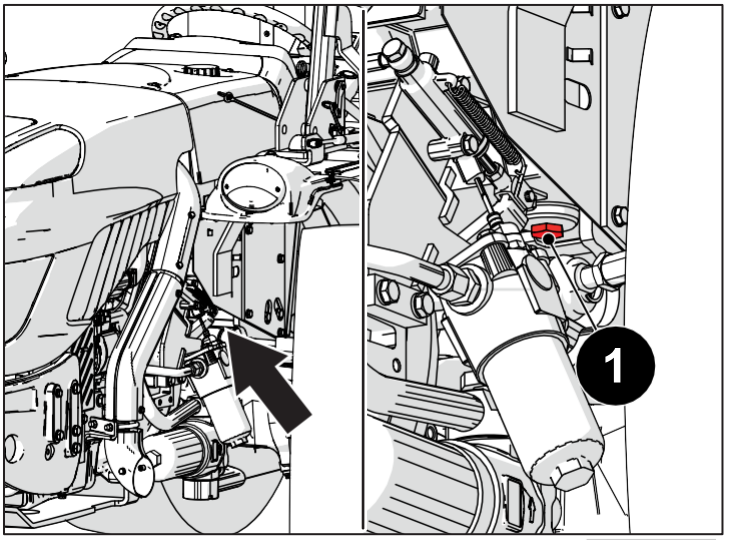


Fig. 6.22

6.4.5 Fuel tank maintenance

Clean the area around the tank cap. Replace the tank cap if missing or damaged, with an original replacement.

Check that the tank has no damages or abrasions. Replace the tank if damaged, with an original part.

Note

The replacement of the fuel tank must be carried out only by the dealer or specialized personnel. Contact an authorized GOLDONI workshop.

If necessary, clean the fuel filter (1) shown in the figure.

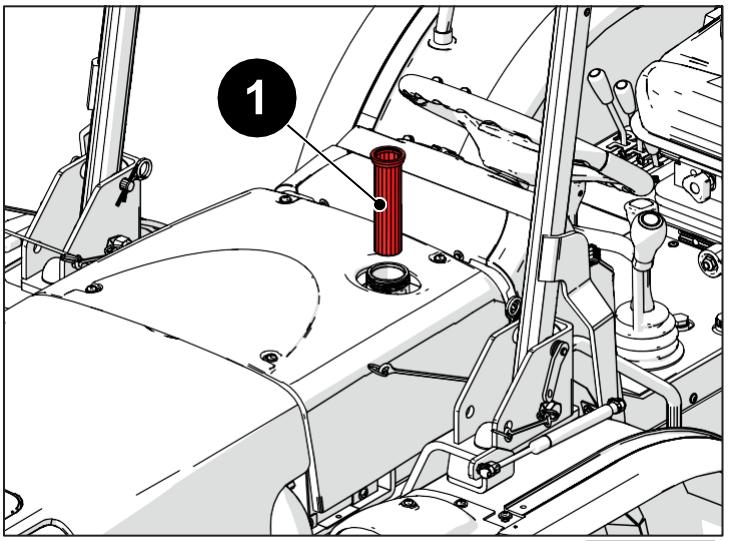


Fig. 6.23

6.5 Electrical system maintenance

ATTENTION:

Keep the battery away from open flames. This is because the gas released from the electrolyte is explosive.

Keep away from vibrations and fire. Before servicing the electrical system, first disconnect the negative cable (-). If you need to disassemble the battery, disconnect the positive cable (+).

After turning off the tractor and placing the key on OFF, wait 2 minutes before disconnecting the battery. If this time is not respected, serious damage can occur to the electronic engine management control unit.

ATTENTION:

The battery electrolyte is corrosive: avoid contact with eyes, skin or clothing. Should the acid come into contact with the eyes, wash immediately with water and go to the hospital as soon as possible, to avoid the risk of permanent injury.

If you use the battery and then store it, check at regular intervals that the exhaust vent works, to prevent the battery from warping or bursting.

When charging and discharging the battery, ensure good ventilation of the environment to evacuate the acid fog and the fuel gases generated during charging: the air coming from outside, in addition to lowering the degree of erosion on people and equipment caused by acid molecules, prevents the ignition of combustible gases.

During charging, the battery temperature must not exceed 45°C. To avoid the risk of explosion, lower the temperature with a water bath, temporarily reduce the charging current or charging voltage.

The environment in which the battery is charged must have good ventilation. This is because the battery releases hydrogen during charging, and if the concentration of hydrogen in the ambient air were to reach 4% ~ 7%, an explosion would occur in the event of a fire. In particular, do not smoke and do not keep open flames in the environment.

When connecting the charging cable, make sure that there is no short circuit, otherwise a fire may develop.

Note

Store the batteries in a dry, clean and well-ventilated place, at a temperature between 5-40°C. Keep them

out of direct sunlight and at least 2 m away from heat sources (heaters, etc.). Protect them from rain, dust

and other impurities. Avoid external short circuit discharges.

Don't turn them upside down, don't put them in horizontal position. Avoid shocks or stresses caused by other tractor.

The battery must be stored in the fully charged state instead of in the almost empty state. Avoid tilting the battery

while installing it, it is strictly forbidden to turn it upside down and bump it.

Check the battery voltage every three months. Charge the battery if the voltage drops below 12.5V, to avoid having to perform an intensive charge after long-term storage, which could reduce the service life of the battery itself.

Check the color of the density meter on the battery cover at regular intervals. Perform maintenance and possible replacement based on color.

Connect the battery anode to the charger anode, the battery cathode to the charger cathode. Don't reverse the links.

Lay down the battery. Secure the charging connections.

6.5.1 Battery

Maintenance-free battery condition check

Installing the battery

To perform maintenance on the battery located in front of the radiator, open the bonnet.

Battery cleaning

When the engine is off, wipe the battery with a damp cloth to clean it. If necessary, clean and tighten the contacts.

Disassembling the battery

ATTENTION:

Wait **2 minutes** from the moment the tractor is turned off (key in the OFF position). If this procedure is not respected, serious damage can occur to the electronic engine management control unit.

ATTENTION:

To avoid the risk of fire, first disconnect the negative pole for battery movement and finally connect the negative pole for installation first.

- Unscrew the fixing screws and remove the box (1).

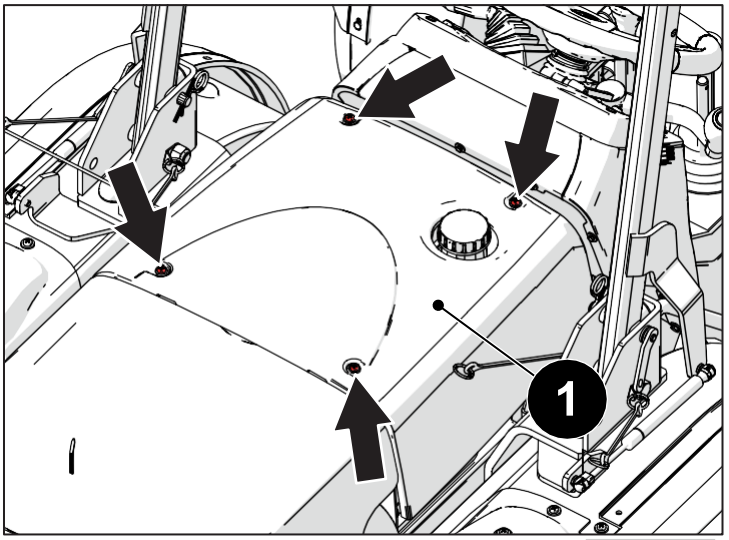


Fig. 6.24

- Disconnect the negative cable first, then disconnect the positive cable.
- Unscrew the nut (2) then unscrew the bracket (3)
- Remove the battery by lifting it up.

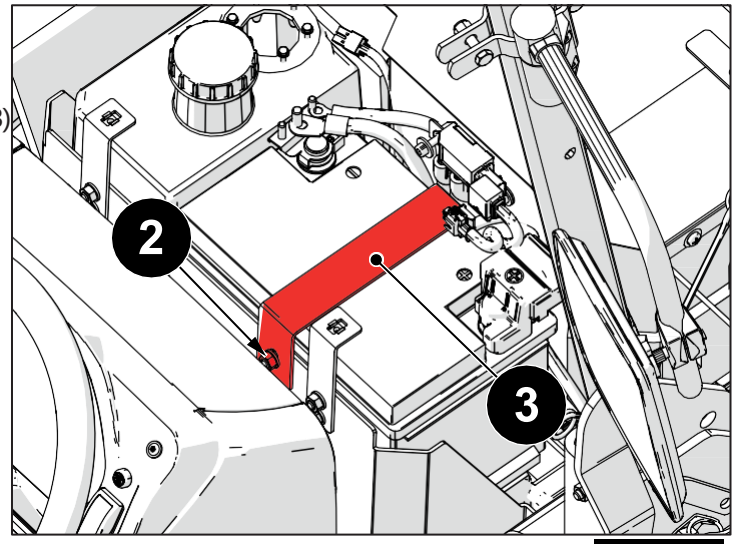


Fig. 6.25

Specifications for the replacement battery

To replace the battery, consult your dealer.

- Battery voltage: 12 V
- Starting current: 680A

Battery charging mode

Normally, the types of charging are divided into constant current charging, limited current charging with constant voltage, etc. For batteries that do not require maintenance, limited-current charging with constant voltage is recommended.

1) Constant current charging

After charging the battery at a voltage of 16 V with a current of 12 A, switch to a current of 6 A to continue charging. The charge ends when the battery voltage stabilizes for 1-2 hours without changes (with a difference between two voltages of *min* 0.03 V), or if the battery is recharged for 3-5 hours at a current of 6 A after the voltage reaches 16 V.

2) Constant voltage charging

14.8 V~15.5 V with constant voltage, the maximum current should not exceed 30 A. Continue charging for 3 hours after the charging current becomes *min* 0.5 A. The total charge time should not exceed 24 hours.

6.5.2 Alternator belt control

Check that the belt has no signs of wear or cracks, if there are these signs of deterioration, the belt must be replaced.

6.5.3 Poly-V alternator belt maintenance

Belt control

Check that the belt has no signs of wear or cracks.

Belt replacement with linear tensioner

ATTENTION:
Replacing the belt with a linear tensioner involves the use of special implements and must be strictly carried out by competent personnel. Contact an authorized workshop to do this.

6.5.4 Lights

Replacing the low beam headlight bulb

Proceed as indicated.

- Lift the bonnet.
- Disconnect the connector (1).
- Unscrew the nuts (2) and remove the entire headlight from the bonnet.

ATTENTION:

The nuts (2) secure springs, protect your eyes and make sure you don't lose them.

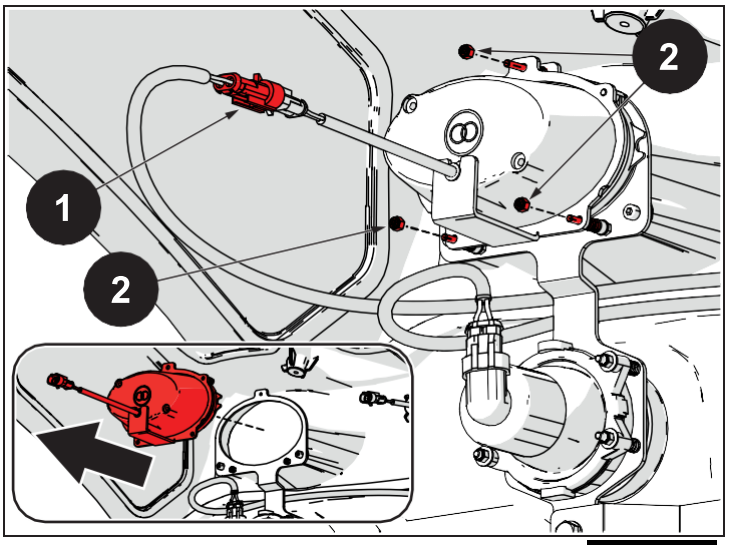


Fig. 6.26

- Unscrew the screws (3) and remove cover (4).
- Unclip the clip (5) then turn the cover (6) counterclockwise.
- Replace the bulb with a new original component, then screw the cover back on (6) and re-clip the clip (5).
- Insert the cover (4) and secure it by screwing the screws (3).
- Mount the complete light on the bonnet and screw the nuts (2) to secure it.
- Close and secure the bonnet.

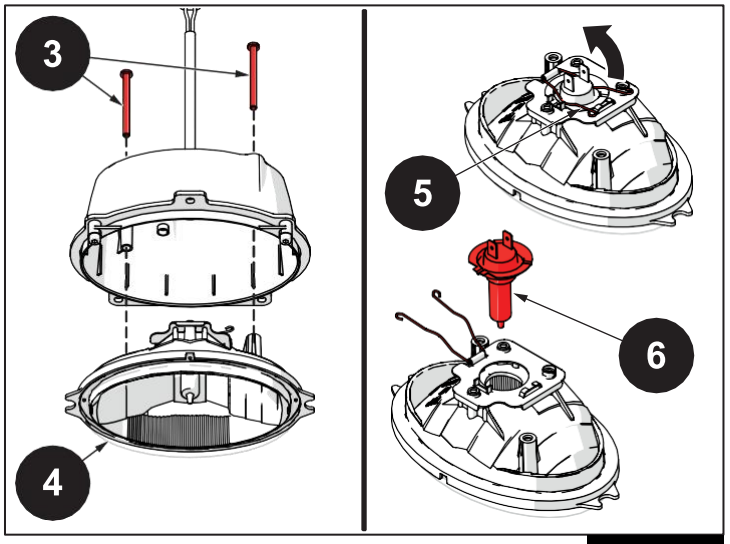


Fig. 6.27

Headlight calibration

Warning

The service must be performed exclusively by specialized personnel equipped with specific implements. Contact an authorized GOLDONI workshop.

Replacing the high beam headlight bulb (if available)

Proceed as indicated.

- Lift the bonnet.
- Disconnect the connector (1).
- Turn the cover (2) counterclockwise to remove the bulb.
- Replace the bulb with a new original component, then screw the cover back on (2) and reconnect the connector (1).
- Close and secure the bonnet.

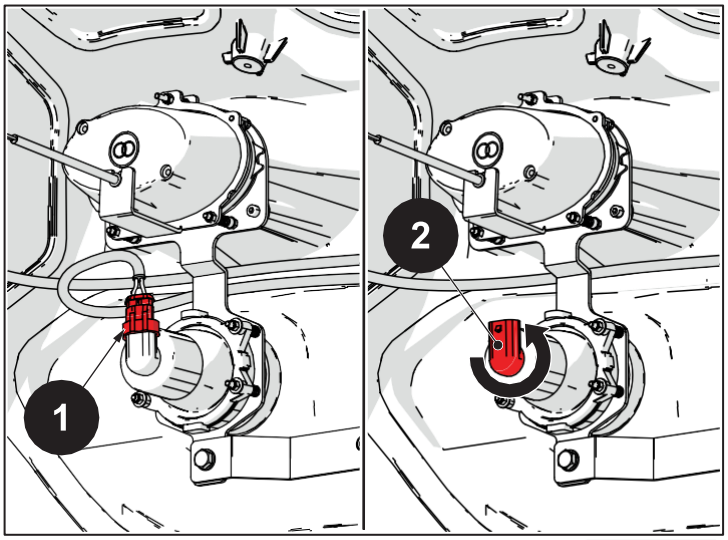


Fig. 6.28

Rear work projector bulb replacement

Proceed as indicated.

- Take out the lamp holder (1) from the headset (2).
- Unclip the clip (3) and remove the bulb.
- Replace the bulb with a new original component, then re-clip the clip (3) to secure the bulb in place.
- Insert the lamp holder (1) inside the headset (2). Make sure that the headset wraps around the lamp holder evenly.

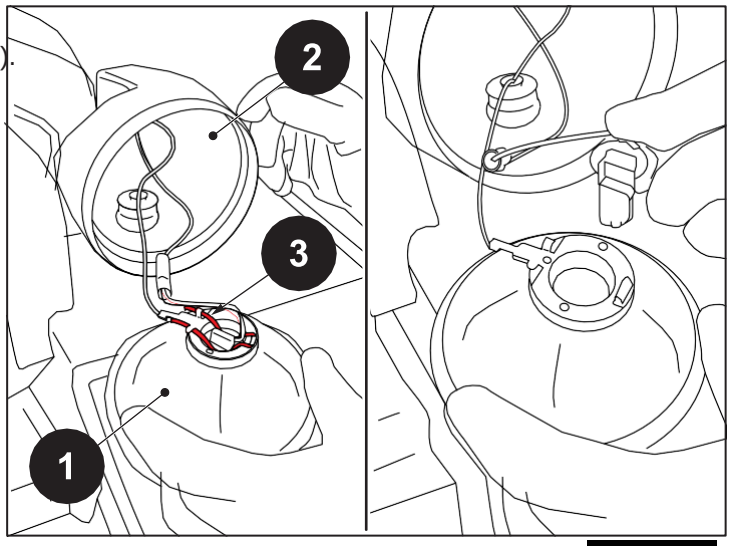


Fig. 6.29

Replacing the side bulkhead light and side direction indicator

Proceed as indicated.

- Unscrew the screws (1) and remove the lamp holder cover (2).
- Unscrew the bulb counterclockwise, pushing it at the same time.
- Replace the bulb with a new original component.
- Reassemble the lamp holder cover (2) and screw in the screws (1) to secure it.

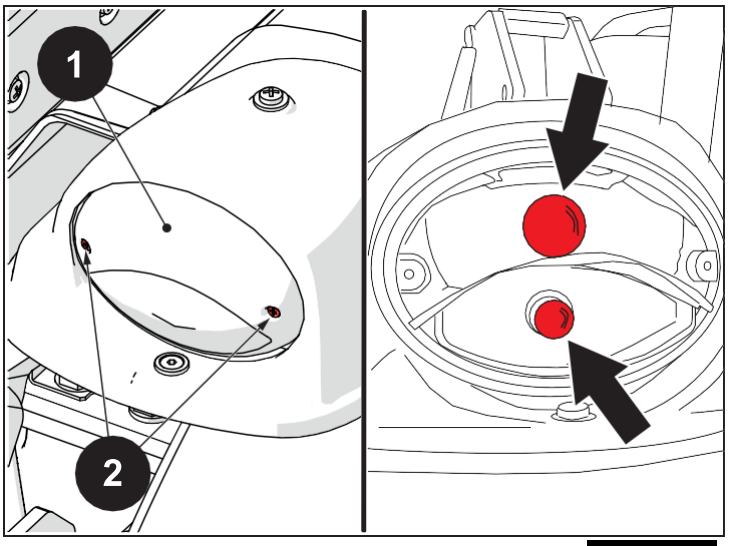


Fig. 6.30

Replacing the tail light, rear turn signal light and stop light

Proceed as indicated.

- Unscrew the screws (1) and remove the lamp holder cover (2).
- Unscrew the bulb counterclockwise, pushing it at the same time.
- Replace the bulb with a new original component.
- Reassemble the lamp holder cover (2) and screw in the screws (1) to secure it.

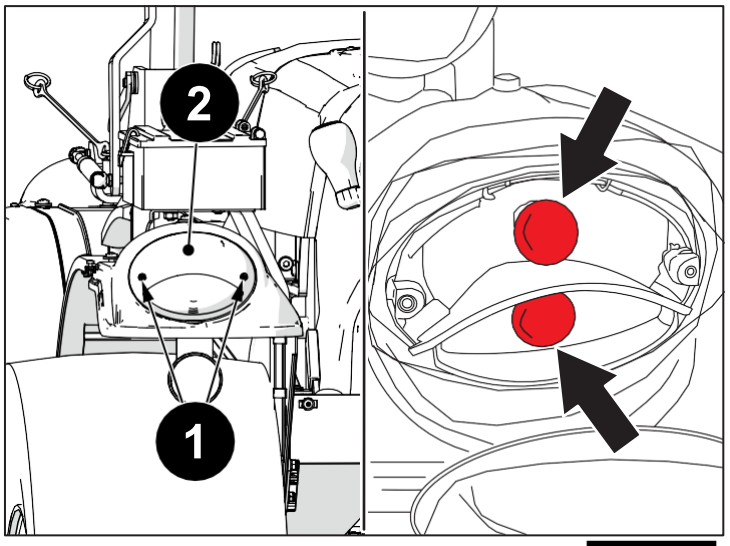


Fig. 6.31

Replacing the driving plate light

Proceed as indicated.

- Unscrew the screws (1) and remove the lamp holder cover (2).
- Unscrew the bulb counterclockwise, pushing it at the same time.
- Replace the bulb with a new original component.
- Reassemble the lamp holder cover (2) and screw in the screws (1) to secure it.

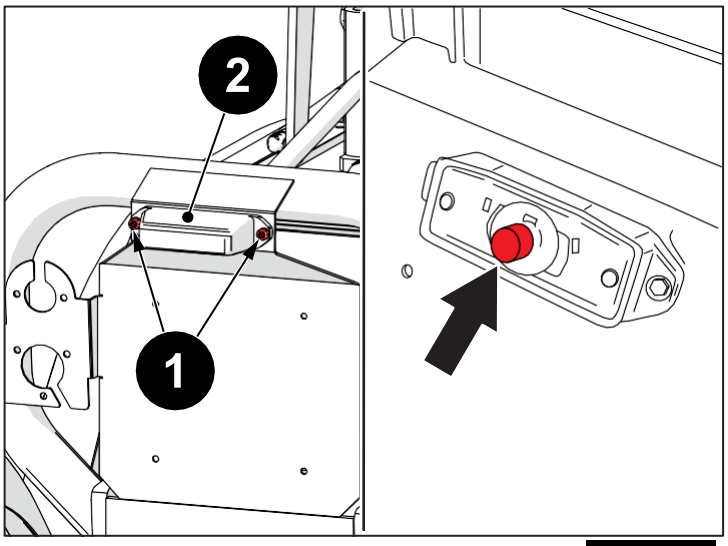


Fig. 6.32

6.5.5 Fuses and Relays

All electrical circuits are protected by fuses. Each fuse has a label that indicates its amperage. To distinguish between the various types of fuses, use the color code, which allows you to easily select the correct replacement.

Warning
Before replacing a fuse, eliminate the cause that caused the short circuit.

Warning
Do not replace a blown fuse with a fuse with a higher amperage. Otherwise, it could damage the tractor. If the fuse with the correct specifications maintains the same power load but continues to burn out, contact an authorized GOLDONI workshop.

Fuse box

The electrical circuit is fully protected by a fuse (1).

They are located on the lower right side under the dashboard.

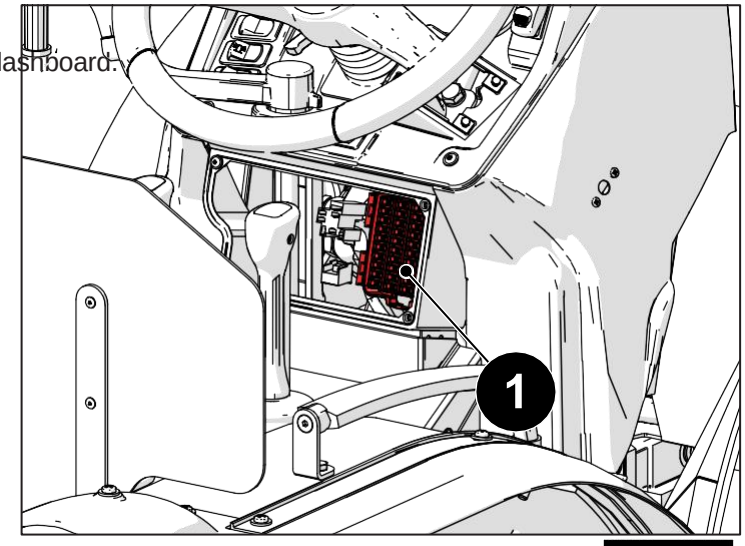


Fig. 6.33

Fuse functions (1), Figure 6.33:

F1	HORN/ROTATING LAMP	15A
F2	PARKING LIGHTS ON THE RIGHT SIDE	7,5A
F3	LEFT SIDE PARKING LIGHTS	7,5A
F4	AVAILABLE	REPLACEMENT
F5	LOW BEAM LIGHTS	15A
F6	LIGHTS DIRECTIONAL LEFT SIDE	-
F7	LIGHTS DIRECTIONAL RIGHT SIDE	-
F8	RIGHT SIDE BRAKE LIGHTS	7,5A
F9	LEFT SIDE BRAKE LIGHTS	7,5A
F10	3-PIN SOCKET	25A
F11	KEY SIGNAL FOR VCU AND ECM	15A
F12	POWER SUPPLY UNDER THE SENSOR KEY	10A
F13	EMERGENCY LIGHTS	10A
F14	DISPLAY KEY SIGNAL	5A
F15	CIGARETTE LIGHTER	10A
F16	REAR WORKING LIGHT	7,5A
F17	VEHICLE ECU POWER SUPPLY	20A
F18	PERMANENT POWER SUPPLY DISPLAY	7,5A
F19	EMERGENCY LIGHTS/OBD SOCKET/DOOSAN DIAGNOSTIC SOCKET POWER SUPPLY	15A
F20	POWER SUPPLY TRAILER OUTLET	25A
F27	REAR PTO POWER SUPPLY	7,5A
F28	3-PIN SOCKET	10A
R6	LOW BEAM RELAY	-
R7	LED DASHBOARD RELAY	-

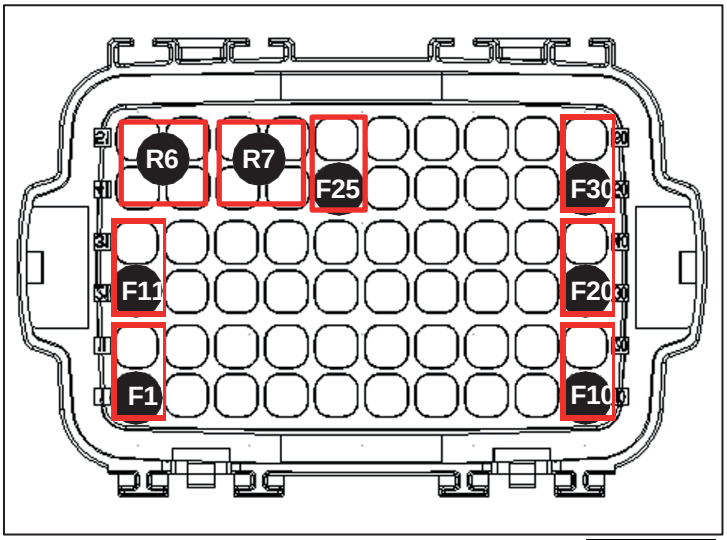


Fig. 6.34

Main fuse

It is located above the engine, behind the radiator fluid tank.

1	MAIN ENGINE CONTROL UNIT FUSE	30A
2	FUSE ENGINE CONTROL UNIT ACCESSORIES	10A
3	GLOW PLUG FUSE	40A
4	MAIN RELAY ENGINE CONTROL UNIT	-
5	VEHICLE CONTROL UNIT STARTER RELAY	-
6	ENGINE CONTROL UNIT STARTER RELAY	-

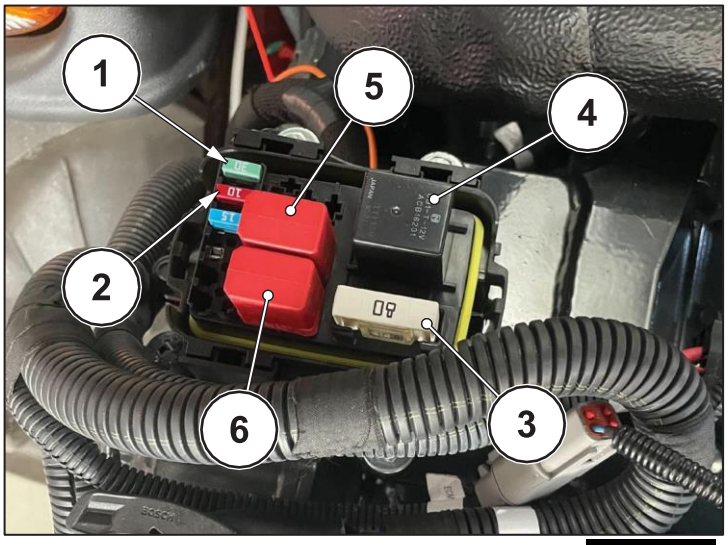


Fig. 6.35

6.6 Maintenance of the tractor hydraulic system

Warning

ALWAYS place a liquid collection container under the tank to be drained, at the discharge point.

Warning

Do not disperse liquids such as fuels, lubricants, refrigerants, various fluids in the environment. Dispose of used oil in compliance with current laws and regulations.

Note

Keep the area surrounding the caps clean with the graduated rod.

6.6.1 Front differential maintenance

Oil level control

Park the tractor flat then check the oil level by unscrewing the dipstick (1). The oil level must be below the notch (MAX). If the oil level is near the end (MIN) of the dipstick or if the oil does not wet the rod, top up with oil until the level is restored near the notch (MAX), but avoid exceeding it. Run the engine at idle for 5 minutes after the oil has been introduced, before measuring the level.

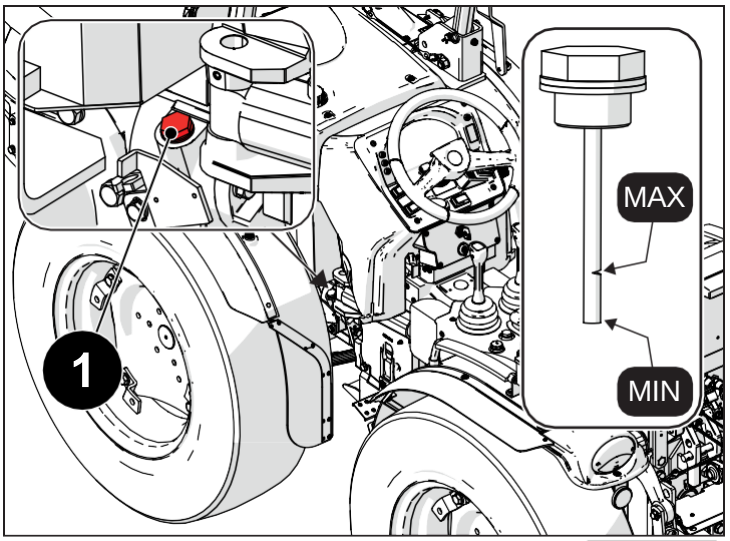


Fig. 6.36

Oil replacement

Proceed as indicated.

- Unscrew the load cap (1).
- Set up a collector of adequate capacity under the drain cap (2), then unscrew the cap and allow the oil to drain.
- Rescrew the drain plug (2).
- Insert new oil through the drain plug (1).
- Before checking the new level, allow the oil to stabilize.

Note

Dispose of used oil in compliance with current laws and regulations.

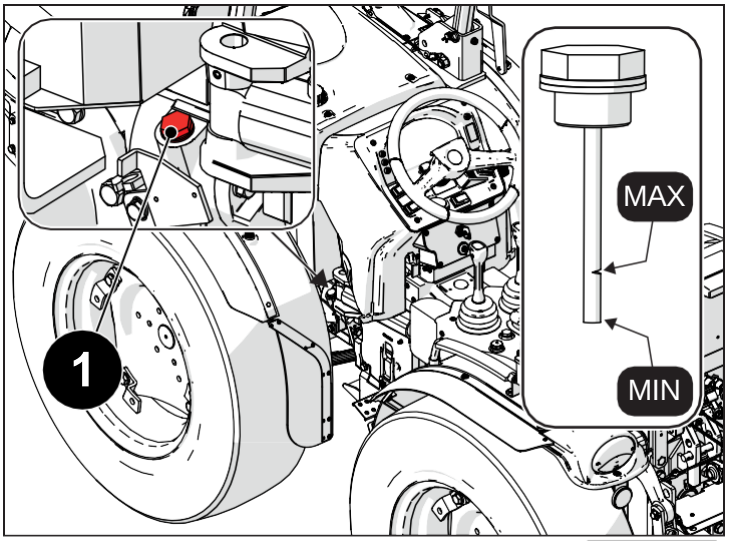


Fig. 6.37

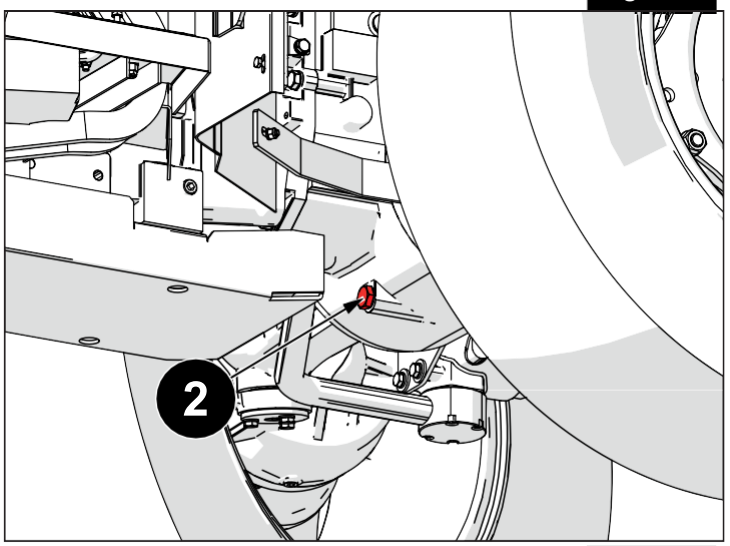


Fig. 6.38

6.6.2 Rear differential maintenance

Oil level control

Park the tractor flat, then check the oil level in the frame by unscrewing the dipstick (1). If the oil level falls below the lower notch (MIN), add transmission oil to the position between the lower notch (MIN) and the upper notch (MAX) on the dipstick (1). Run the engine at idle for 5 minutes after the oil has been introduced, before measuring the level.

Note

Do not overfill the box, otherwise it will overheat with subsequent damage to the gearbox.

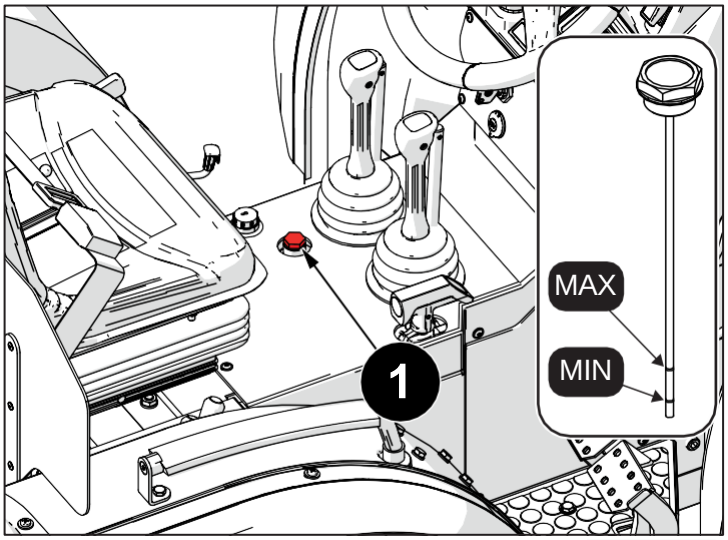


Fig. 6.39

Oil replacement

Proceed as indicated.

- Unscrew the load cap (1).
- Set up a collector of adequate capacity under the drain cap (2), then unscrew the cap and allow the oil to drain.
- Rescrew the drain plug (2).
- Insert new oil through the drain plug (1).
- Before checking the new level, allow the oil to stabilize.

Note

Dispose of used oil in compliance with current laws and regulations.

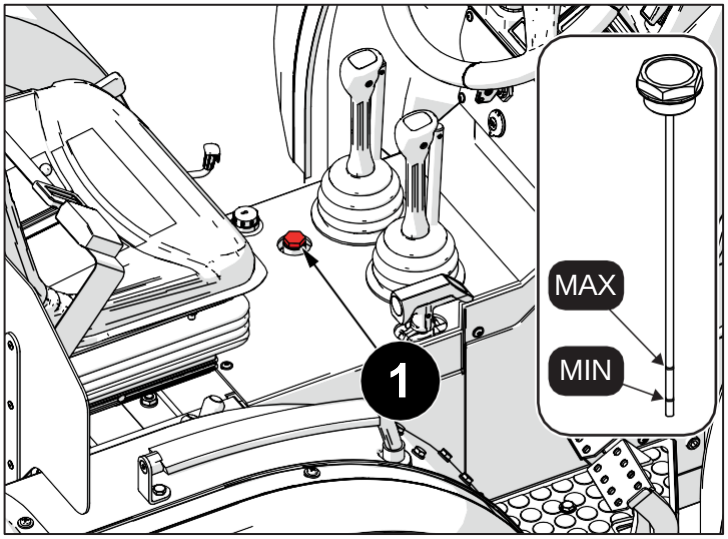


Fig. 6.40

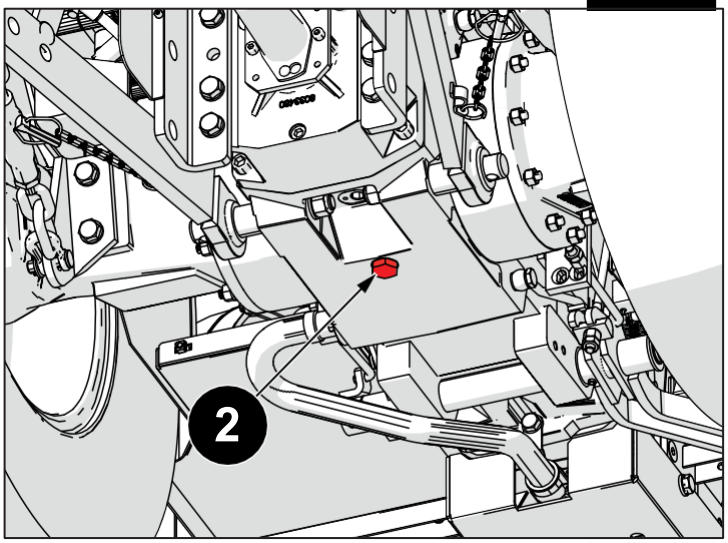


Fig. 6.41

6.6.3 Maintenance of the final drive reducer

Oil level control

A - E45/60 SN
B - E45/60 RS

The threaded inspection cap (1) is located on the inside of the reducer, the oil must touch the lower edge of the hole. If necessary, top up with the recommended type of oil through the drain plug (2).

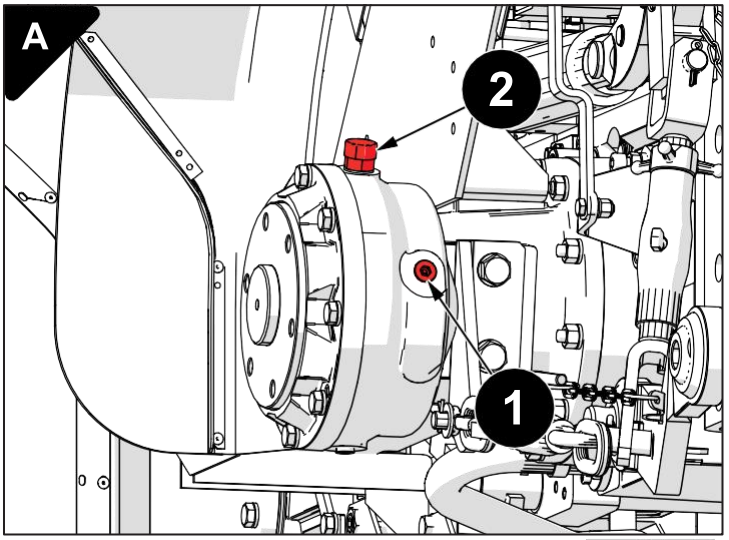


Fig. 6.42

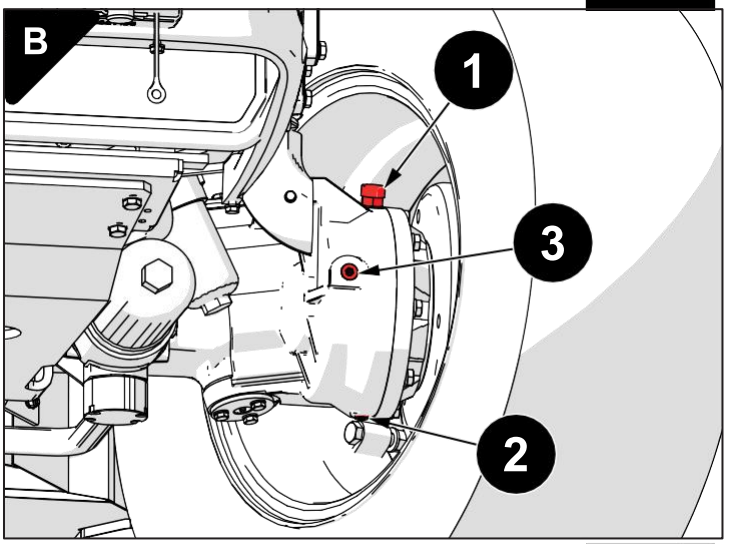


Fig. 6.43

Oil replacement

A - E60 SN
B - E60 RS

Proceed as indicated.

- Unscrew the load cap (1).
- Set up a collector of adequate capacity under the drain cap (2), then unscrew the cap and allow the oil to drain.
- Rescrew the drain plug (2).
- Unscrew the level control cap (3)
- Insert new oil through the drain plug (1) until it comes out of the level cap (3).
- Rescrew the level cap (3) and the load cap (1).

Note

Dispose of used oil in compliance with current laws and regulations.

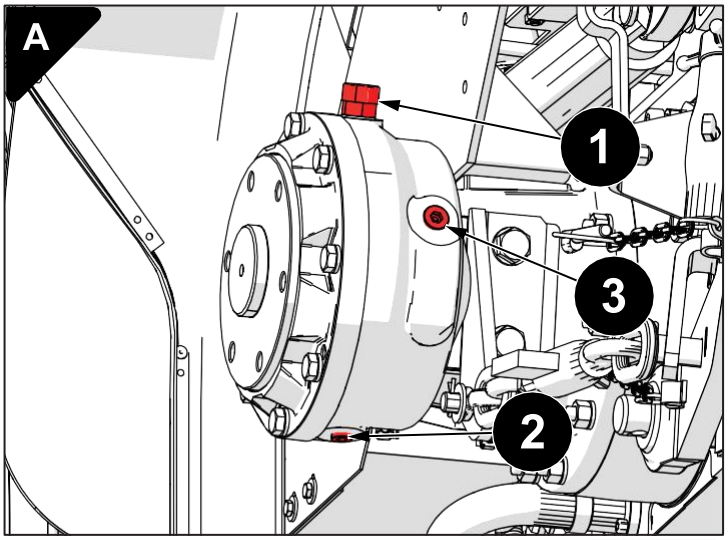


Fig. 6.44

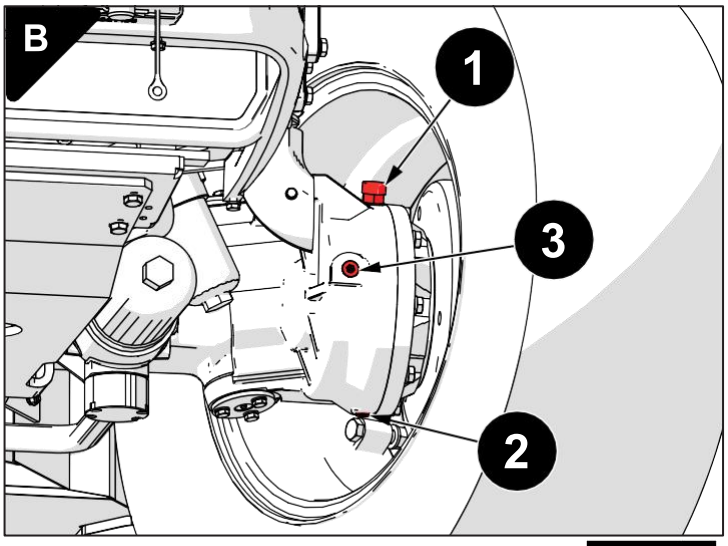


Fig. 6.45

6.6.4 Suction hydraulic filter maintenance (RS+SN)

The absorbent suction filter for hydraulic lift oil is located on the left side of the front gearbox, near the engine. The table shows the maintenance period. Proceed as follows.

- Place a collection vessel of adequate capacity under the filter.
- Unscrew the filter cover (1) with an appropriate wrench.
- Take out the filter cartridge. Check that there are no traces of dirt left in the chamber.
- Insert a new original cartridge and screw back the cover (1).

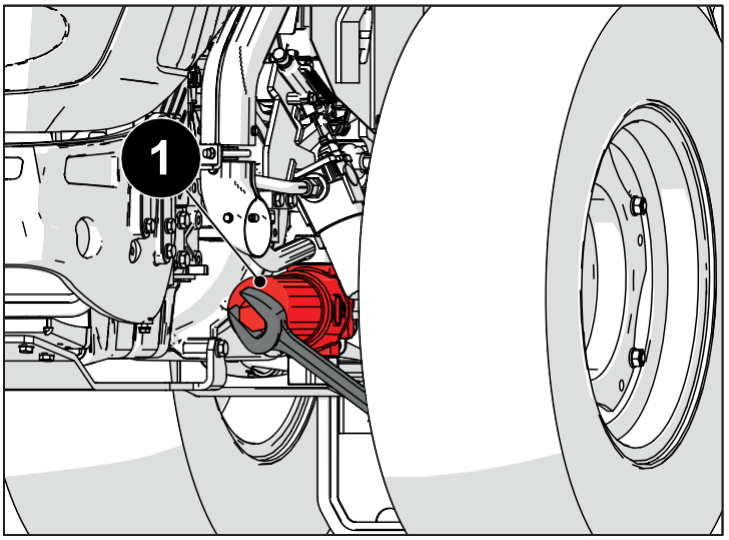


Fig. 6.46

ATTENTION:

Protect your hands because the oil, if too hot, could cause burns.

6.6.5 Hydraulic filter maintenance on delivery (E45/60 RS only)

The absorbent hydraulic lift oil filter is located on the left side of the front gearbox, near the engine. The table shows the maintenance period. Proceed as follows.

- Place a collection vessel of adequate capacity under the filter.
- Unscrew the filter cover (1) with an appropriate wrench.
- Take out the filter cartridge. Check that there are no traces of dirt left in the chamber.
- Insert a new original cartridge and screw back the cover (1).

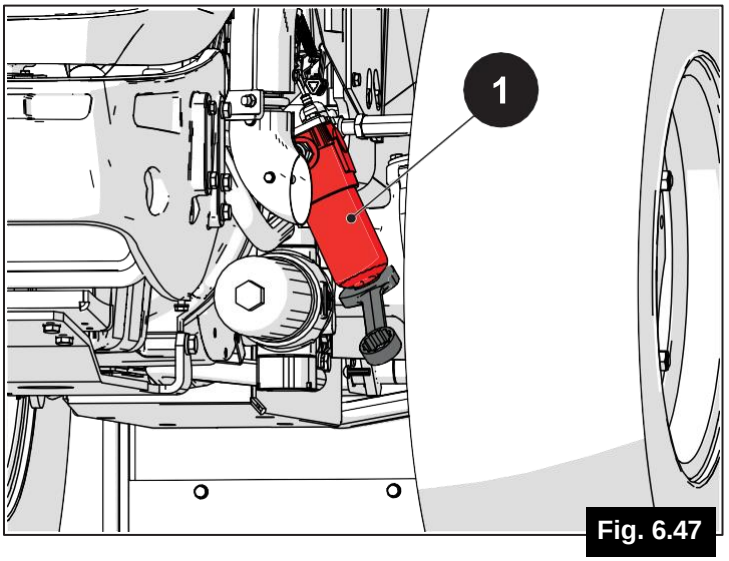


Fig. 6.47

ATTENTION:

Protect your hands because the oil, if too hot, could cause burns.

6.6.6 Control of the oil level of the clutch transmission circuit tank

The hydraulic clutch transmission system is equipped with a specific tank (1).

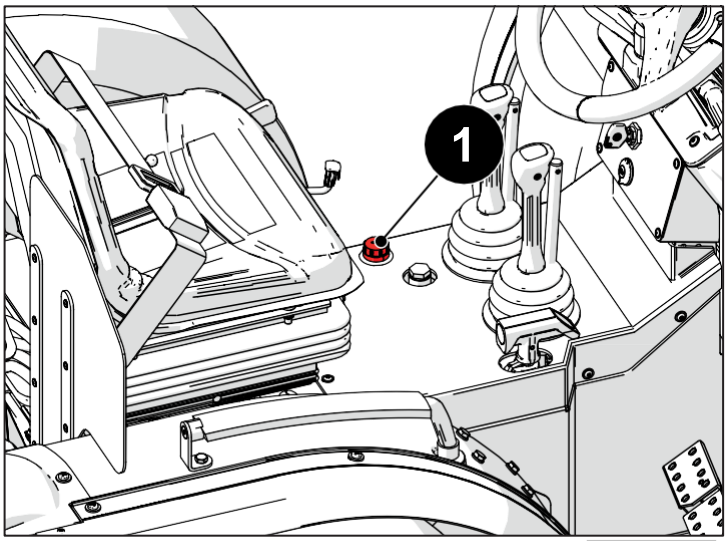


Fig. 6.48

6.7 Lubrication and greasing points

Add new grease at the indicated points. Perform the operation as needed or every 50 business hours.

Note
Lower the lifter before lubricating the components.

Note
Use lubricating grease recommended by the manufacturer.

6.7.1 Greasing points (E45/60 RS)

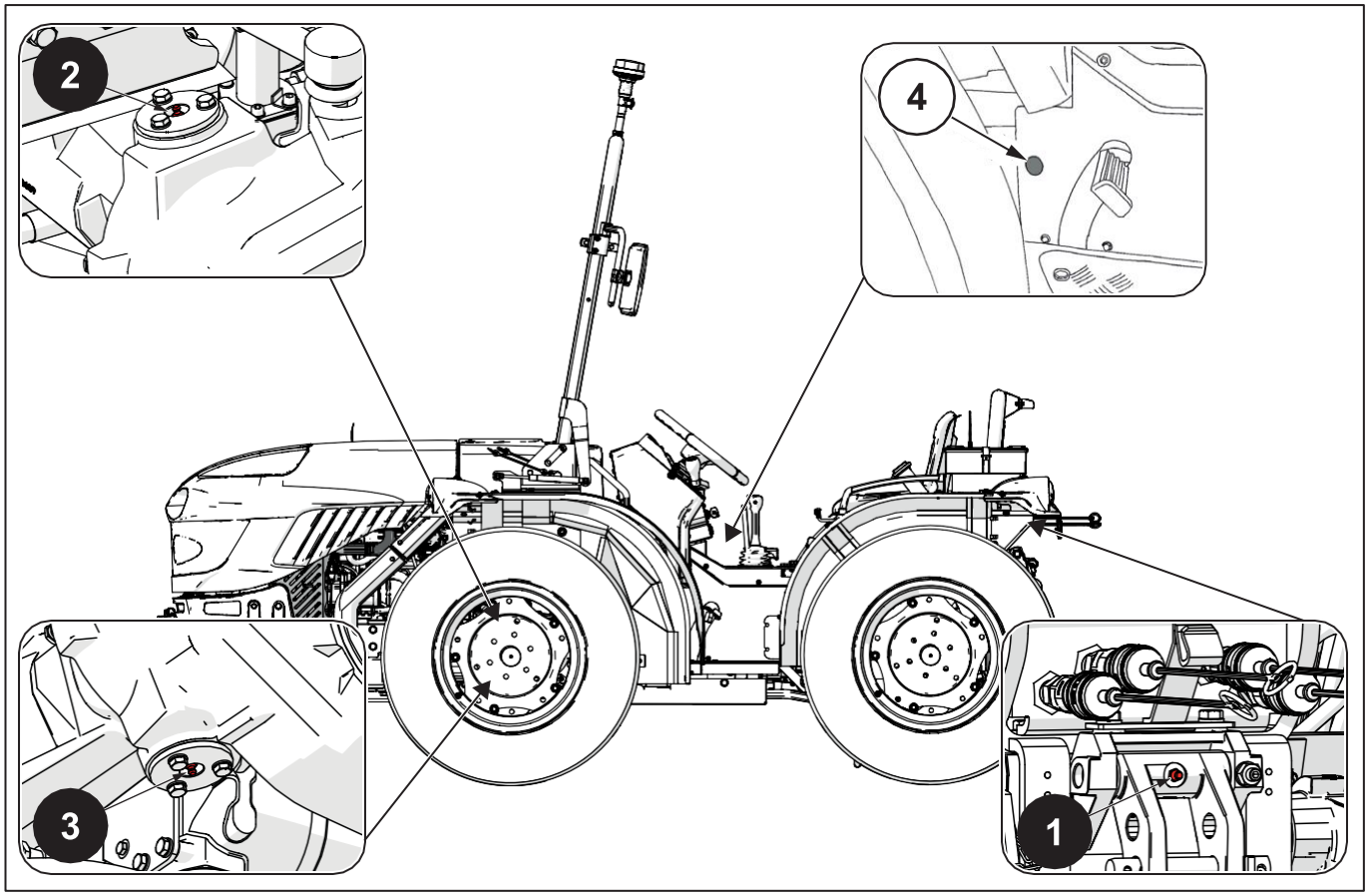


Fig. 6.49

1 - Three point Linkage attachment
2 - Front wheel joint on the upper side (1 greaser per wheel)
3 - Front wheel joint on the lower side (1 greaser per wheel)
4 - Axial central joint

6.7.2 Greasing points (E45/60 SN)

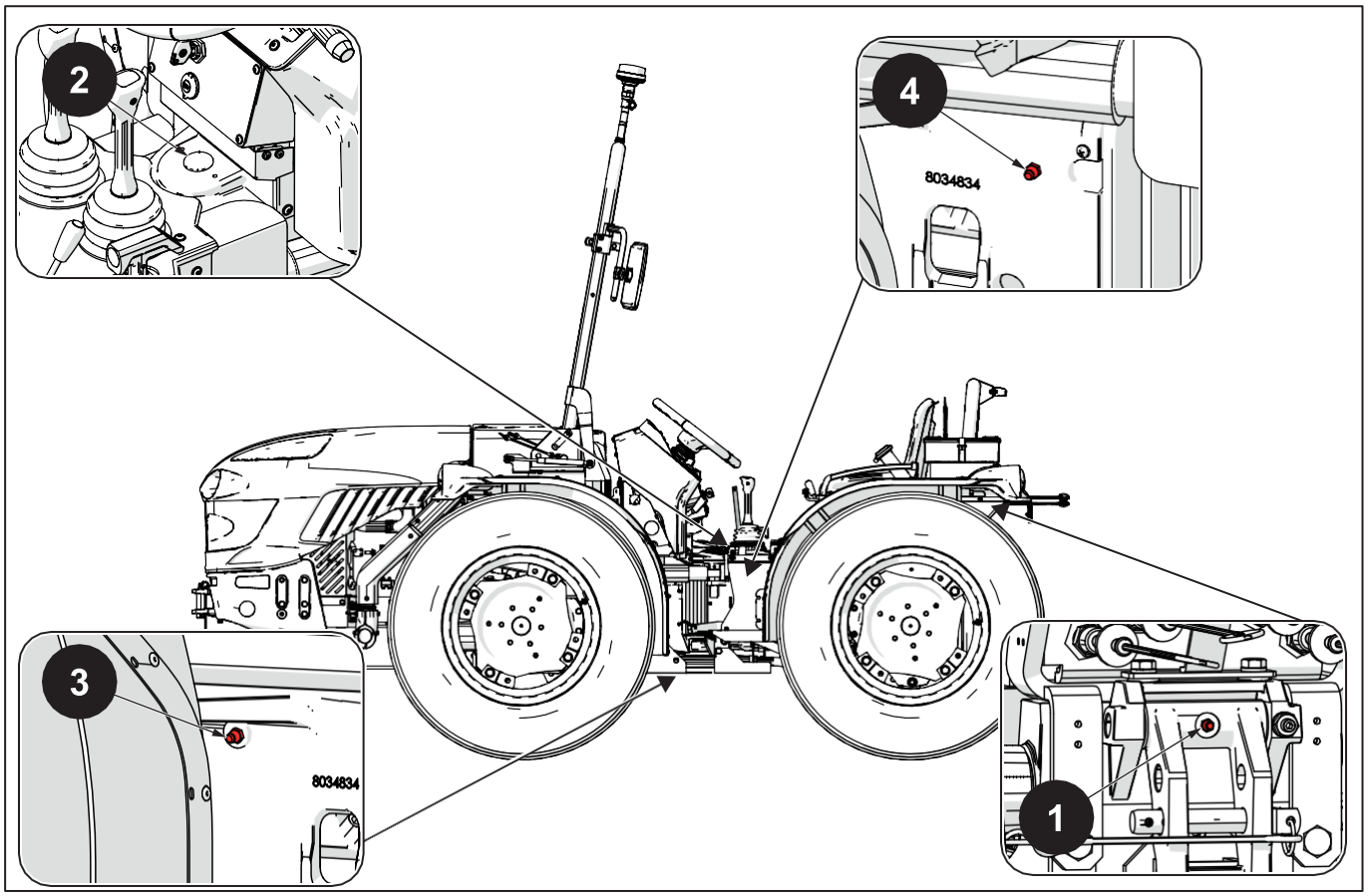


Fig. 6.50

1 - Three point Linkage attachment
2 - Central joint on the upper side
3 - Central joint on the lower side
4 - Axial central joint

6.8 Technical maintenance in case of long-term storage

tractor inactivity

If the vehicle/equipment on which the engine is installed remains idle, it is necessary to carry out some maintenance work to keep the engine in maximum efficiency.

In case of short periods of inactivity, carry out the following actions:

- check the efficiency of electrical contacts and, if necessary, protect them with an antioxidant spray;
- check the battery charge and the liquid level;
- carry out scheduled maintenance operations if necessary.

Warning

However, it is advisable to start the engine and bring it to operating temperature (70÷80°C) at least once a month.

If the engine is used for emergency applications, refer to the specific regulations in force for mandatory start-up: in the absence of specific regulations, it is recommended that it be started once a month.

When the tractor must be idle for more than a month, take the following precautions:

- Carry out the general cleaning of the tractor and especially of the body components, protect the painted parts by applying silicone waxes and the unpainted metal parts by means of a protective lubricant. Place the tractor itself in a covered, dry and possibly ventilated room.
- Seal the vents, the exhaust, the crankcase filler cap, the fuel tank cap, the flexible radiator overflow hose, and the transmission and plumbing filler cap using plastic bags and adhesive tape.
- Empty the diesel tank and fill it with new diesel to the maximum level.
- Change the engine oil and replace the filter (if necessary).
- Drain the engine coolant from the radiator and engine.
- Perform fuel filter cleaning.
- Lubricate all organs equipped with greasers. Perform general greasing.
- Grease all exposed metal surfaces such as the lifting cylinders and the steering cylinder stem with a light layer of grease.
- Lower the lift.
- Make sure that all controls are in a neutral position (including electrical switches).
- Do not leave the starter key inserted in the switch.
- Remove the batteries and store them in a cool, dry place away from sunlight. Keep the batteries charged- Spread stringy vaseline on the terminals and clamps
- Place stands or other supports under the axles, in order to keep the wheels suspended. If the tractor is raised, it is advisable to deflate the tires; otherwise, check the tire pressure periodically.
- Cover the tractor with a towel, avoiding the use of waterproof material (plastic sheets) because it retains moisture, encouraging the formation of rust.

If the tractor must be kept outside, follow the additional precautions.

- Cover the instrument panel, the control levers and the seat with layers of cardboard to protect them from sunlight.
- Clean the tractor thoroughly, touching up any painted surfaces that have been scratched or chipped.
- Wax or cover the entire tractor.
- Lift the tires off the ground and/or cover them to protect them from heat and sunlight.

Note

Disconnect the battery's ground cable only for short storage periods (20 to 90 days).

Restarting the tractor after a storage period

- Remove all covers placed on the tractor during the preparation of the storage.
- Clear all previously sealed openings.
- Remove any accumulated dirt or debris, especially around the engine and inside the engine compartment.
- Inspect the tires and check the inflation pressures. If the tractor had been placed on little stands, inflate the tires to the prescribed pressure and return the tractor to the ground.
- Re-tension the drive belt.
- Check if there are any liquid leaks under or around the tractor.
- Check the transmission/hydraulic oil level. Add oil if necessary.
- Check the engine oil level and, if necessary, refill or replace it according to the established frequency.
- Replace the engine oil filter according to the set frequency.
- Check the coolant level and, if necessary, refill or replace it according to the established frequency.
- Refill the fuel tank.
- Replace the fuel filter according to the set frequency.
- Replace the air filter according to the set frequency.
- Check the tightness of the hydraulic fittings.
  Check the integrity of the rubber sleeves and their fastening ties.
- Perform all maintenance procedures to be carried out daily or every 10 hours and the others scheduled as needed.
- Check the battery charge and the liquid level. Check
  the integrity and efficiency of the electrical contacts.
  Install the batteries and connect the cables.
- Diagnose engine functionality.
- Start and run the engine at idle speed, idle, for a few minutes.

Note

During engine operation at idle speed, visually inspect all instruments and lights to ensure proper operation.

- If no operating anomalies are found, bring the engine to operating temperature (70÷80°C).
- Check tractor systems and functions.
- Turn off the engine and check again that the engine oil and coolant are level.

Warning

If there are traces of oil leaks, do not start the tractor until the cause has been determined and the necessary repairs have been made.

Warning

Some lubricants or engine components, even when idle, lose their characteristics over time, therefore, when evaluating maintenance intervals, it is also necessary to consider replacing them due to aging and not for operating hours.

The following is indicatively the maximum time required to maintain the chemical-physical characteristics of some components or lubricants.

1 year - Lubricating oil

1 year - Fuel filter cartridge

2 years - Coolant

7 : INCONVENIENCES AND REMEDIES

Index

7.1 General

7.1.1 Engine

Engine: won't start

- Check the battery status:
  - Check the battery terminals: check if they are properly tightened; if dirty and/or oxidized, remove dirt and/or rust.
  - If the battery is empty, recharge or replace it.
- Check the starter:
  - Contact an electrician.

Engine: difficulty starting

- Check:
  - Fuel level.
  - Diesel filter cleaning (replace it if necessary).
- Inefficient injection system:
  - Check the presence of air in the circuit: if necessary, purge it. In case of persistence, check the calibration of the injection pumps and injectors.
  - Check the glow plug preheating system. Operation allowed only at authorized workshops.
  - Insufficient compression. Check the compression at authorized workshops.

Light smoke emission at the exhaust

- Inefficient injectors: Check the efficiency of the injectors at an authorized workshop.
- Injection pump phase in suboptimal condition: take the tractor to an authorized workshop.

7.1.2 Troubleshoot search

The information below is intended to help identify and correct any anomalies and malfunctions that may occur during use.

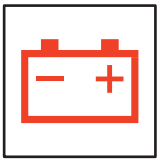
Some of these problems can be solved by the user, for all the others precise technical competence or special skills are required and therefore must be carried out exclusively by qualified personnel with recognized experience acquired in the specific field of intervention.

ATTENTION:
The activation of a visual and/or acoustic signal indicates the presence of an anomaly. In this case, turn off the engine immediately and consult the documentation provided by the manufacturer of the vehicle/device where the engine is installed.

Inconveniences, causes and remedies

Inconvenience	Cause	Remedy
During the ignition phase, the control panel and the engine do not turn on.	Low battery	Recharge or replace the battery
	Interrupted fuse	Replace fuse
	The electrical cables Disconnect or not guarantee continuity	Check electrical connections
	Faulty engine speed sensor	Replace the sensor Contact an authorized workshop
The engine is not running	Presence of air in the power supply circuit	Purge (see 'Power supply circuit purge')
	Dirty or defective injectors	Replace injectors Contact an authorized workshop
	Defective fuel pressure control valve	Replace the valve Contact an authorized workshop
	Failing start command	Replace the start command Contact an authorized workshop
	Presence of water or impurity in fuel	Contact an authorized workshop
	Clogged fuel filter	Replace the filter (see 'Replacing fuel filter')
The alternator is free running	The electromagnet is out of order	Check the starter Contact an authorized workshop
The alternator is by not running	Low battery	Recharge or replace the battery
	Interrupted electrical connection	Check electrical connections
	Worn out brushes	Replace worn out brushes Contact an authorized workshop

Inconvenience	Cause	Remedy
The engine stops after ignition	Presence of air in the power supply circuit	Purge (see 'Power supply circuit purge')
	Clogged fuel filter	Replace the filter (see 'Replacing fuel filter')
	Failing injection pump	Contact an authorized workshop
	Defective fuel pressure control valve	Replace the valve Contact an authorized workshop
	Presence of air in the power supply circuit	Purge (see 'Power supply circuit purge').
	Presence of water or impurity in fuel	Contact an authorized workshop
	The electrical cables Disconnect or not guarantee continuity	Check electrical connections
The engine does not reach operating speed	Clogged fuel filter	Replace the filter (see 'Replacing fuel filter')
	Presence of air in the power supply circuit	Purge (see 'Power supply circuit purge')
	Failing injection pump	Contact an authorized workshop
	Dirty or defective injectors	Replace injectors Contact an authorized workshop
	Presence of water or impurity in fuel	Contact an authorized workshop
	Clogged air filter	Clean or replace the filter
	Insufficient oxidizing air flow	Contact an authorized workshop
	Engine overheating	Contact an authorized workshop
	Overload	Reduce the load
Emission of black smoke from the exhaust pipe	Dirty or defective injectors	Replace injectors Contact an authorized workshop
	Defective supercharger turbine	Replacing the turbine Contact an authorized workshop
Slight white smoke emission from the exhaust pipe	Oil level too high	Restore oil level
	Worn segments	Check the compression Contact an authorized workshop
	Worn valve guide	Contact an authorized workshop
Abundant emission of white smoke from the exhaust pipe	Burnt head gasket	Contact an authorized workshop
	Failing water pump	Replace the pump Contact an authorized workshop
	Replace the belt	See " Belt Replacement "
	Thermostatic valve failed	Replace the valve Contact an authorized workshop
	Insufficient coolant	Top up, if necessary (see 'Engine coolant level control')

Inconvenience	Cause	Remedy
The pressure gauge indicates insufficient engine oil pressure and the relevant light comes on 	Failing pressure gauge	Check or replace the pressure gauge Contact an authorized workshop
	Insufficient oil level	Restore oil level (see 'Engine Oil Level')
	Failing oil pump	Check or replace the pump Contact an authorized workshop
	Faulty sensor	Check and replace the sensor if necessary. Contact an authorized workshop
	Clogged engine oil filter	Replace engine oil filter (see 'Engine Oil Filter Cartridge Replacement')
Cooling liquid temperature light turns on	Insufficient coolant	Restore engine coolant level (see 'Engine coolant level control')
	Load cap overpressure valve blocked	Replace the cap
	Failing water pump	Replace the pump Contact an authorized workshop
	Thermostatic valve failed	Replace the valve Contact an authorized workshop
	Broken or worn belt	Replace the belt (see "Replacing the belt").
Power reduction	Clogged fuel filter	Replace the filter (see 'Replacing fuel filter')
	Presence of air in the power supply circuit	Purge (see 'Power supply circuit purge')
	Failing injection pump	Replace the pump Contact an authorized workshop
	Dirty or defective injectors	Replace injectors Contact an authorized workshop
	Clogged air filter	Clean or replace the filter
	Engine overheating	Contact an authorized workshop
	Insufficient oxidizing air flow	Contact an authorized workshop
The battery light turns on 	Alternator does not charge the battery	Check and possibly replace the alternator Contact an authorized workshop
The oil pressure light turns on 	Insufficient engine oil pressure	Contact an authorized workshop

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