

VALTRA_S tractor series

Models S232-S262-S292-S322-S352



Foreword

We would like to welcome you to the ever-growing number of people who own a Valtra tractor; people who appreciate quality. We are proud of every tractor that leaves our factories, each being technically advanced and of a high quality.

This Operator Instruction Book contains the specifications for your new tractor. Please ensure that all operators read the instructions and follow them carefully. The pages that follow contain vital information on your tractor; please read them carefully.

Your Valtra dealer will guarantee you quality servicing and will provide you with all the assistance you need. When it comes to servicing, remember that your dealer knows your tractor best and that he wants you to be completely satisfied.

Please leave this Operator Instruction Book in the tractor if resold. The subsequent owner will need the information it contains.

All information and specifications in this Book are up to date at the time of publication. However, our ongoing policy to improve our products obliges us to reserve the right to make alterations at any time without notice.

Please note that this Book relates to all models and refers to both standard and optional equipment. You may therefore find details relating to equipment that is not fitted on your tractor.

Valtra, Beauvais

VALTRA_S tractor series

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1. Tractor identification

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1.1 Locating serial numbers

1.1.1 Locating serial numbers

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IMPORTANT: Please quote the serial number of your tractor in all correspondence with your dealer or agent.

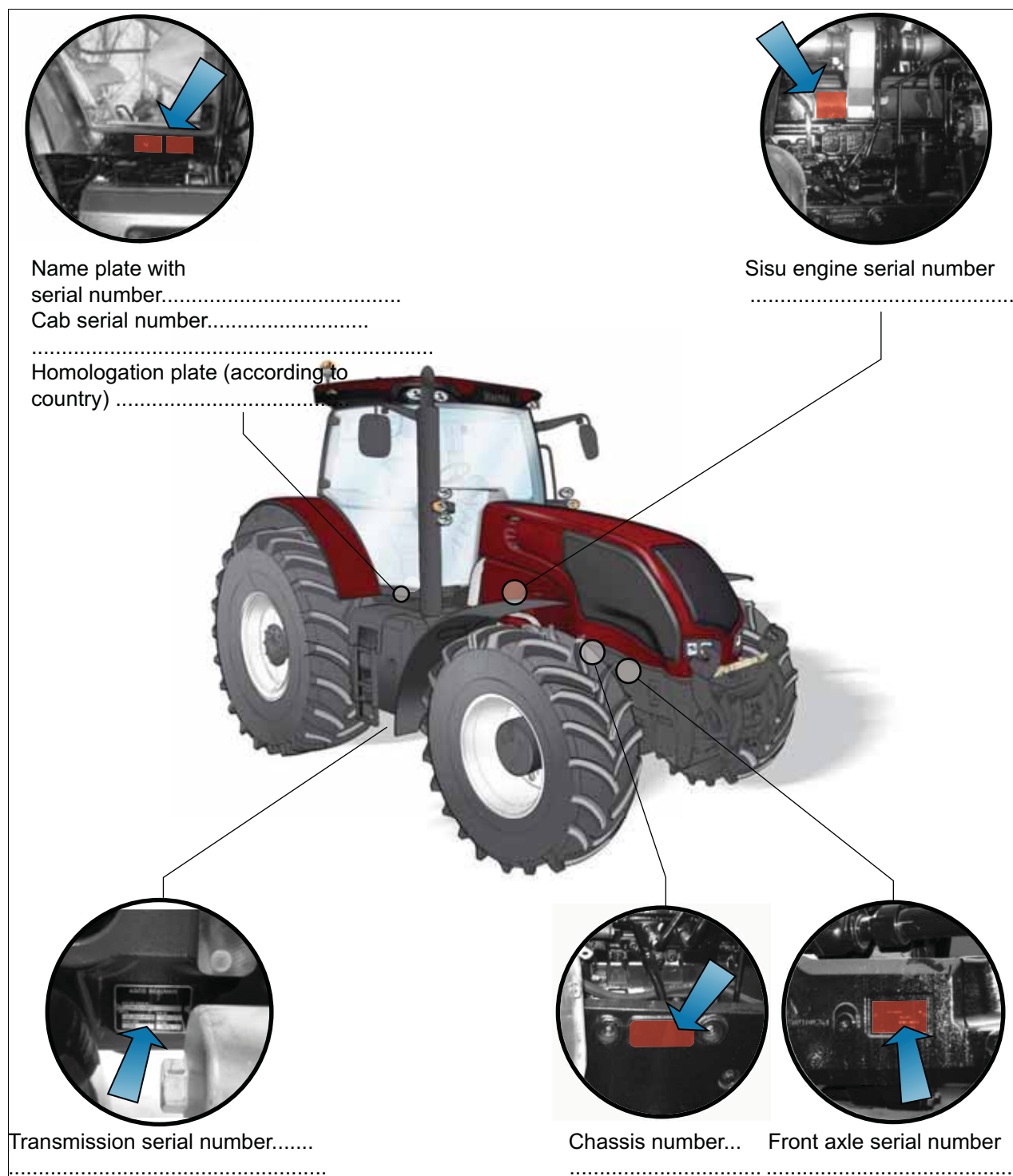


Fig. 1.

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2. Safety instructions and safety points - Warranty

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2.1 Introduction

2.1.1 Introduction - Safety instructions

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2

Operator Instruction Book

NOTE: This Operator Instruction Book is widely published and distributed and the availability of the attachments indicated, whether fitted to the basic tractor or as an accessory, may vary depending on the country or region in which the tractor is used. To find out which attachments are available in a given region, contact a Valtra dealer.

The purpose of this book is to enable the owner and the operator to operate the tractor appropriately under normal conditions of use. Providing they follow the instructions carefully, the tractor will give many years of service in the Valtra tradition.

The commissioning of equipment by the Valtra dealer on the user's premises enables the dealer to ensure that these operating and servicing instructions are properly understood. Always consult the Valtra dealer if there is any part of this book that you do not understand. It is important that these instructions are understood and followed.

This book does not cover all operation and safety instructions relevant to the implements and accessories that may be fitted at the time of tractor delivery or later. It is essential that operators use and understand the Operator Instruction Books relating to these implements and accessories.

IMPORTANT: This book must always be kept with the tractor. For extra copies, contact your Valtra dealer.

This chapter in the Operator Instruction Book highlights certain basic safety-related situations which may be encountered during normal operation and servicing of the tractor and provides the information needed to handle these situations.

This chapter supplements any safety instructions given in other chapters of this book.

It may be necessary to take additional precautions, depending on the implements and accessories used and the working conditions on-site or in the servicing area. Valtra can under no circumstances exercise direct control over the commissioning, operation, inspection, lubrication or servicing of the tractor. It is therefore YOUR responsibility to take suitable safety precautions in such areas.



WARNING:

It is your responsibility to read and understand the instructions that appear in this chapter before using the tractor. They must then be strictly adhered to throughout the working day.

Servicing, spare parts, accessories and conditions of use

Daily servicing should become a routine, and a logbook of operating hours should be kept.

When spare parts are required, it is important to use only genuine Valtra parts. Valtra dealers supply genuine parts and can offer advice concerning their fitting and use. The use of lower quality parts may cause serious damage. Customers are advised only to purchase their spare parts from an approved Valtra dealer. In the same way, you must only use accessories specifically adapted to your tractor.

Owing to the considerable variation in operating conditions, it is not possible for the manufacturer to formulate complete or absolute assertions in its publications concerning the performance or operating methods of its machines or to accept liability for any loss or damage which may result from such assertions or possible errors or omissions.

If the tractor is to be used in abnormal conditions which could cause damage (use in deep water or in paddy fields for instance), you should consult your Valtra dealer to obtain special instructions to prevent the warranty from becoming void.

These tractors are designed only for usual farming activities (intended use). Use for any other activity is considered to be contrary to the intended use.

Strict compliance with the repairs, servicing and operating conditions as specified by Valtra is also an essential component of the intended use.

IMPORTANT: Valtra accepts no responsibility in the event of damage to equipment or personal injury resulting from improper use.

The tractor must only be used, serviced and repaired by personnel who have full knowledge of their specific features and who are aware of the applicable safety measures (prevention of accidents).

Customers are strongly advised to contact a Valtra dealer in the event of after-sales problems and for any adjustments which may be necessary.

2.2 Safety — Symbols and terms

2.2.1 Safety — Symbols and terms

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Signal



This safety alert symbol means CAUTION! BE ALERT! YOUR SAFETY DEPENDS ON IT!

The safety alert symbol identifies important safety notices on machines, safety signs, in instruction books or elsewhere. When you see this symbol, be alert to the risk of injury or death. Follow the instructions in the safety notice.

SAFETY is paramount! Why?

- ACCIDENTS DISABLE AND KILL
- ACCIDENTS ARE COSTLY
- ACCIDENTS CAN BE AVOIDED

Terms

The terms DANGER, WARNING and CAUTION are used with the safety alert symbol. It is essential to learn how to recognise these safety messages and to follow the recommended safety measures and instructions.



DANGER:

indicates an imminently hazardous situation which, if not avoided, will result in DEATH or VERY SERIOUS INJURY.



WARNING:

indicates a potentially hazardous situation which, if not avoided, could result in DEATH or SERIOUS INJURY.



CAUTION:

indicates a potentially hazardous situation which, if not avoided, may result in MINOR or MODERATE INJURY.

The terms IMPORTANT and NOTE are not directly related to personal safety, but are used to provide additional information and advice on the operation or maintenance of equipment.

IMPORTANT: *identifies specific instructions or procedures which, if not strictly applied, could damage or destroy the tractor, its equipment or the surrounding area.*

NOTE: *identifies points of particular interest for the most effective and suitable operation or repair.*

2.3 Safety decals and instructions

2.3.1 Checking and replacing the safety decals and instructions

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**WARNING:*****Never remove or obscure the safety decals and instructions.***

Replace any safety decals and instructions that are illegible or missing. Replacement decals are available from the dealer in the event of loss or damage. If a second-hand tractor has been purchased, check that all of the safety decals and instructions are correct, legible and in the correct position. To do this, refer to the section on the presentation and location of these decals.

2.3.2 Presentation and location of the safety decals and instructions

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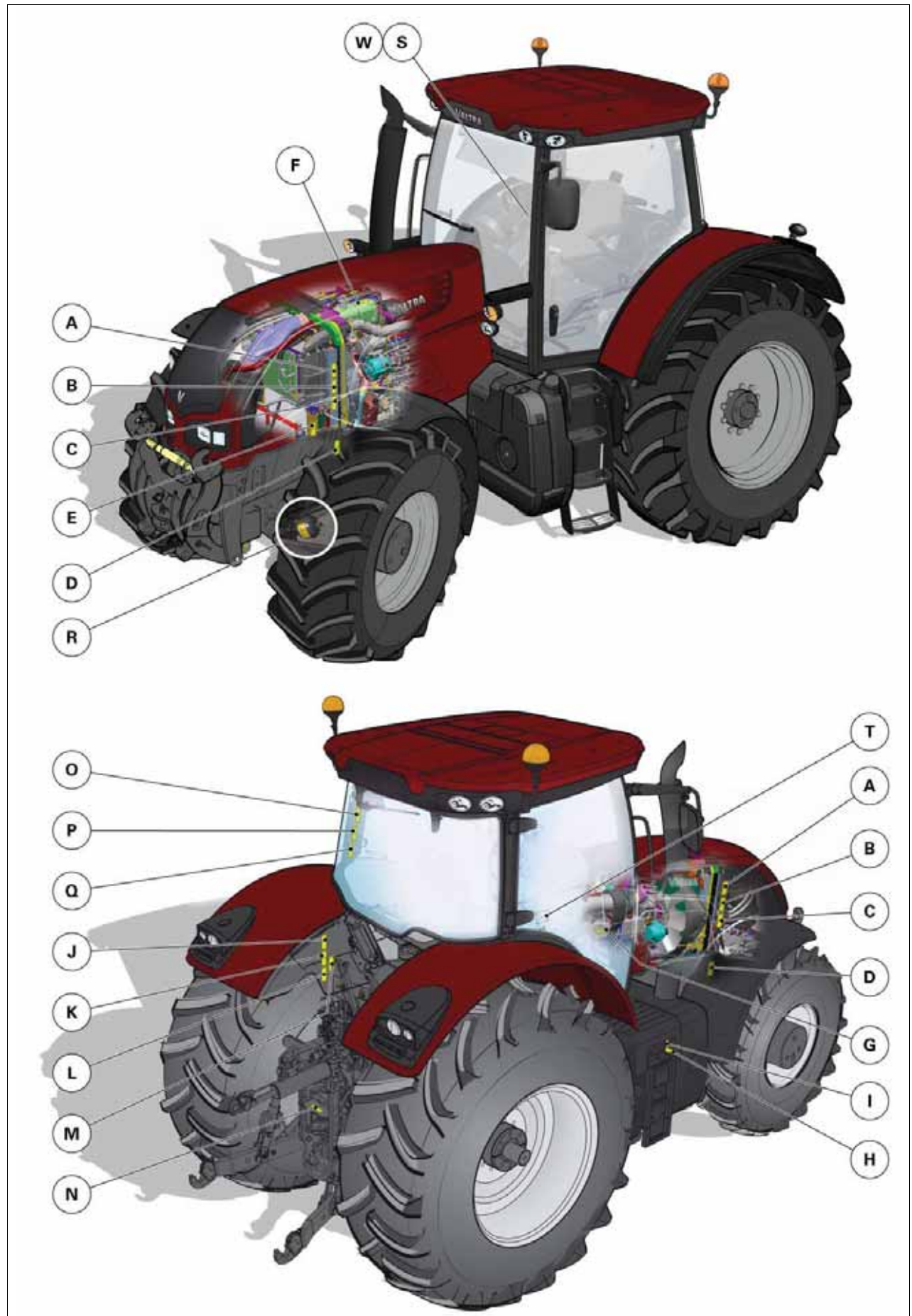
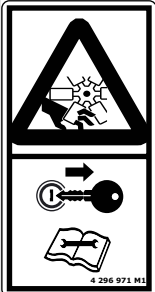



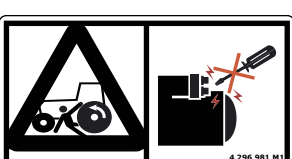
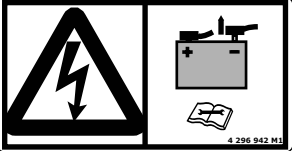


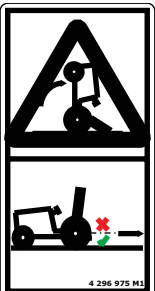



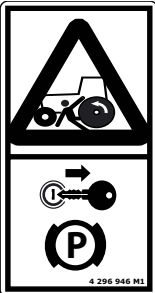
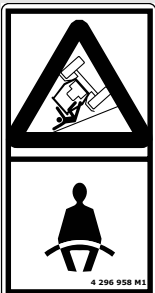
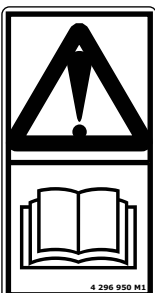
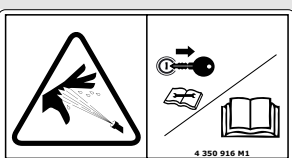
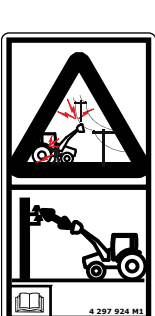


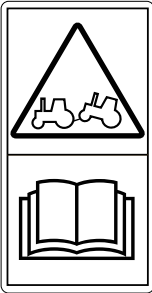


Fig. 1.

1009747

	<ul style="list-style-type: none"> – 4296944M1 ((A) <i>fig. 1</i>) – WARNING: Entanglement hazard in belt drives. Keep hands clear of rotating parts and belts while engine is running. Switch off the ignition and remove the key before working on the tractor.
	<ul style="list-style-type: none"> – 4296971M1 ((B) <i>fig. 1</i>) – WARNING: Shearing hazard – engine fan. Keep your hands away from the fan and the belts when the engine is running. Shut off engine and remove key before performing maintenance or repair work.
	<ul style="list-style-type: none"> – 4296967M1 ((C) <i>fig. 1</i>) – WARNING: Burn hazard – hot surfaces. Keep away from hot engine components when engine has been running. Shut off engine, remove key and wait for system to cool before performing maintenance or repair work.
	<ul style="list-style-type: none"> – 4296952M1 ((D) <i>fig. 1</i>) – WARNING: Pinch point hazard Keep clear of axle suspension system when engine is running. Switch off the ignition and remove the key before working on the tractor.
	<ul style="list-style-type: none"> – 4296985M1 ((E) <i>fig. 1</i>) – WARNING: Pinch point hazard due to moving parts Keep hands clear of linkage when pivoting coolers
	<ul style="list-style-type: none"> – 4298645M1 ((F) <i>fig. 1</i>) – WARNING: Scalding hazard – high pressure steam and hot water. Shut off engine, remove key and wait for system to cool before removing radiator cap. Remove the filler cap with extreme care.
	<ul style="list-style-type: none"> – 4296981M1 ((G) <i>fig. 1</i>) – DANGER: Runaway machine and runover hazards. Only start the engine when seated in the seat with the PTO disengaged and the transmission in the neutral position. DO NOT short across starter terminals to start engine.

	<ul style="list-style-type: none"> – 4296942M1 ((H) <i>fig. 1</i>) – WARNING: Electric shock hazard – risk of personal injury and component damage. Remove negative (ground) cable from battery before removing starter solenoid cover and before servicing electrical system.
	<ul style="list-style-type: none"> – 4296979M1 ((I) <i>fig. 1</i>) – DANGER: Lead-acid battery hazards <ul style="list-style-type: none"> o Explosive gases; o Corrosive liquid (sulphuric acid); Keep away from all naked flames or sparks Shield eyes when working on or around battery. Read safety and operating instructions in the Operator Instruction Book for further information.
	<ul style="list-style-type: none"> – 4296954M1 ((J) <i>fig. 1</i>) – WARNING: Driveline separation hazard, which may result in personal injury and machine damage. Make sure drawbar / 3-point hitch is in correct position and check length of PTO driveshaft when attaching PTO driven equipment. See Operating section of manual for detailed information.
	<ul style="list-style-type: none"> – 4296975M1 ((K) <i>fig. 1</i>) – DANGER: Rear overturn hazard, which may result in personal injury or death. Pull only from approved drawbar or lower links of 3-point hitch at horizontal position or below. Never pull from above rear axle centerline.
	<ul style="list-style-type: none"> – 4296977M1 ((L) <i>fig. 1</i>) – DANGER: Entanglement hazard – PTO driveline. Stand clear of rotating shafts. Keep all driveline, tractor and equipment guards in place during operation.
	<ul style="list-style-type: none"> – 4296969M1 ((M) <i>fig. 1</i>) – WARNING: Crushing hazard between tractor and implement. Stand outside of tractor tire when using external controls for 3-point hitch. Do not stand between tractor and implement.

	<ul style="list-style-type: none"> – 4297148M1 ((N) <i>fig. 1</i>) – WARNING: Falling hazard Do not step on PTO shield.
	<ul style="list-style-type: none"> – 4296946M1 ((O) <i>fig. 1</i>) – WARNING: Runaway machine and runover hazards. Shut off engine, remove key and apply park brake before leaving the tractor unattended.
	<ul style="list-style-type: none"> – 4296958M1 ((P) <i>fig. 1</i>) – WARNING: Falling and crushing hazard. Wear the seat belt when using the instructor seat Read the Operator Instruction Book for more information: – The instructor seat is not intended for use by children. – The instructor seat must not be used to transport passengers. – The instructor seat must only be used by service personnel or for training purposes.
	<ul style="list-style-type: none"> – 4296950M1 ((Q) <i>fig. 1</i>) – WARNING: Avoid personal injury Read the Operator Instruction Book for safety information and operating instructions before operating the tractor.
	<ul style="list-style-type: none"> – 4350916M1 ((R) <i>fig. 1</i>) – DANGER: Explosion hazard – contents under pressure. Fill accumulators with nitrogen only – other gases may explode. See Operation section of manual for detailed information.
	<ul style="list-style-type: none"> – 4297924M1 ((S) <i>fig. 1</i>) – DANGER: Electrocution hazard Tractors fitted with a front loader: Exercise extreme caution to avoid coming into contact with power lines.

	<ul style="list-style-type: none"> – 4349217M1 ((T) <i>fig. 1</i>) – WARNING: Towing – Carefully read the specific instructions from the Operator Instruction Book before towing the tractor.
	<ul style="list-style-type: none"> – 4350591M1 ((W) <i>fig. 1</i>) – WARNING: Long axle shafts. Remain at a safe distance from persons and objects when driving with long axle shafts.
	<ul style="list-style-type: none"> – 4365863 M1 ((T) <i>fig. 1</i>) – WARNING: Hydraulic valves For driving on roads, raise the tools to the required height and lock the tractor's hydraulic functions. When the front linkage is not in use, it is essential to lock the hydraulic functions.

2.4 General safety instructions

2.4.1 Awareness of the safety instructions and symbols

T000880

Remember that you alone are responsible for safety. Good safety practices protect not only you, but also bystanders. Before using the tractor, study the instructions given in this book with care, as well as all of the safety decals and instructions fixed to the tractor: Make them an integral part of your safety procedure. Also note all the usual protective measures which should be taken when working and above all, don't forget:

Safety depends on you. You can prevent accidents which could cause serious injury or death.



WARNING:

In some of the illustrations in this book, the safety panels and guards have been removed for reasons of clarity. Never use the tractor if these parts are not in place. If some of these parts have been removed for repair purposes, they must be refitted before use.

2.4.2 Operator familiarity in the use of the tractor

T000881



WARNING:

The operator must not drink alcohol or take any medication that may affect his concentration or co-ordination. If taking medication, whether prescribed or not, the operator must seek medical advice with regard to his ability to operate machinery safely.

To be able to use your tractor, it is first necessary:

- to be familiar with operating an agricultural tractor
- to have been trained in the operation of the tractor that you have just purchased
- to have read and understood this entire book — always consult the dealer as soon as there is any doubt or lack of understanding *fig. 1*
- find out about the rules and safety regulations applicable to the work you are doing. Some regulations specify that no one under the age of 16 may operate power machinery, for example. This includes tractors. It is your responsibility to know what these regulations are and to observe them in the operating area or situation. These rules include, but are not limited, to the safety instructions relating to correct operation of the tractor as described in this book.
- Do not allow children or unqualified persons to operate the tractor.
- Do not allow children to use the instructor seat.
- The instructor seat is only intended for short periods of use.

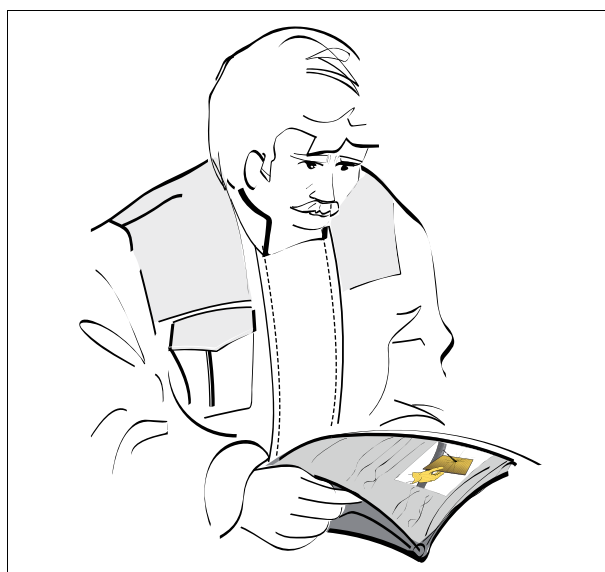


Fig. 1.

I002903

- **WARNING:**
In poor conditions, slow down and be extra careful, and engage 4-wheel drive if fitted.

It is important to have good knowledge of the operation of the tractor as well as all of its accessories and attached implements.

Remember that rain, snow, ice, loose gravel or soft ground can change the performance of the tractor.

2.4.3 Filling the fuel tank

T001555

- Always switch off the engine before filling up.
- Do not smoke while refuelling the tractor. Keep away from naked flames *fig. 2*.



Fig. 2.

I005000

Filling with AdBlue/DEF

Avoid all contact with the eyes, skin and clothing.

- If swallowed. If large quantities of this product are swallowed, seek medical advice immediately. Do NOT induce vomiting unless indicated to do so by medical staff. Do not administer liquid to a person who is unconscious.
- In case of contact with skin, rinse with plenty of water and remove contaminated clothing.
- In case of contact with the eyes, rinse immediately under running water. In the event of irritation, seek medical advice.
- If fumes are inhaled, breathe in fresh air and seek medical advice, if necessary.
- Prevent AdBlue/DEF from coming into contact with other chemical products.
- Urea spillages must not be discharged into the drains.



Fig. 3.

I006195

2.4.4 Getting into and out of the cab


T000883

- Always use three-point contact with the tractor and face the tractor when mounting and dismounting. (Three-point contact means that both hands and one foot or one hand and both feet are in contact with the tractor at all times when getting on and off).
- Clean your shoes and wipe your hands before getting on the tractor.
- Use handrails, grab handles, ladders or steps (if fitted) when getting on and off. Do not use the control levers as a handhold.
- Do not step on pedals when getting in and out.
- Never attempt to mount or dismount a moving tractor.
- Never jump off a tractor when it is running except in an emergency.

2.4.5 Mandatory procedure before dismounting the tractor

T000902

Before getting out of the cab, whether during the course of or at the end of the working day, always:

1. Immobilise the tractor by applying the parking brake or engaging ParkLock in the locked position (closed padlock symbol) (depending on option).
2.  **DANGER:**
Place the reverse shuttle lever in the neutral position.
3. Disengage the front and rear PTO.
4. Lower the implements to the ground.
5. Turn off engine.
6. Remove the ignition key.

2.5 Specific recommendations for application of the Machinery Directives 2006/42/EC on agricultural and forestry tractors as defined in 2003/37/EC.

2.5.1 Specific recommendations for application of the Machinery Directives 2006/42/EC on agricultural and forestry tractors as defined in 2003/37/EC

T006914

Hot surfaces

Be careful of surfaces which may be hot, in particular engine and hydraulics components, during operation and servicing.

FOPS (Falling Object Protection Structure)

- Alternative 1 (no FOPS available): Protection against falling objects is not provided, unless clearly specified otherwise.
- Alternative 2 (optional FOPS fitted): Protection against falling objects is provided under OECD-code 10 (Energy level 1362 J). If a higher protection level is necessary, additional safety equipment should be installed on the tractor (no original equipment available).

OPS (Operator Protection Structure)

- Alternative 1 (no OPS available): Protection against penetrating objects is not provided, unless clearly specified otherwise.
- Alternative 2 (optional OPS fitted): Protection against penetrating objects is provided under ISO 8084 (Machinery for forestry). Before operating, check if protection is adapted to your work conditions.

Hazardous substances

- Alternative 1 (less cab or cab under category 1): Protection against hazardous substances (agricultural chemicals, etc.) is not provided. Personal protective equipment must be used according to the chemical manufacturer's recommendations.
- Alternative 2 (cab under category 2): Protection against hazardous substances (agricultural chemicals, etc.) is not provided. Personal protective equipment must be used according to the chemical manufacturer's recommendations.
A protection against dust (category 2 of standard EN 15695) is provided under the following conditions:
 - all roof hatch, cab doors and cab windows are closed
 - cab ventilation is running
 - air filter is clean and is serviced under maintenance interval (refer to service guide).

Instructor (passenger) seat

- If an instructor (passenger) seat is provided, protection for the occupant of the seat is provided by the same roll-over protective structure (ROPS) that protects the operator.
Always use the seat belt correctly adjusted.

2.6 Special safety instructions for preparing the tractor for use

2.6.1 Protective clothing

T000873

Wear all the protective clothing and equipment with which you are provided or which is appropriate for certain working conditions [fig. 1](#).

For example, you may need:

- A safety helmet
- Goggles or a face shield
- Ear protection
- A respirator or filter mask
- Inclement weather clothing
- Reflective clothing
- Gloves suitable for the work to be carried out
- Safety footwear



DANGER:

Do not wear loose clothing, jewellery or other items and tie up long hair which could catch on controls or other parts of the tractor.

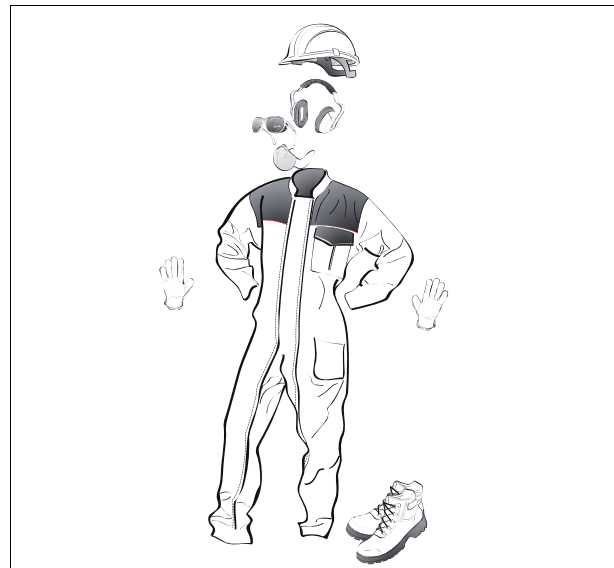


Fig. 1.

I002858

2.6.2 Activated carbon filter information

T011579



WARNING:

Due to the risk of contaminants entering the cab when the door is opened to enter or exit, use of a carbon filter is intended to supplement but not necessarily replace the use of personal protective equipment when operating in an environment containing aerosols and/or vapours, such as pesticides.

The specific chemical manufacturer's instructions regarding personal protective equipment (PPE) must be followed. If the cab being fitted with this filter does not already have a safety sign like the one included with this filter, install the safety sign in a prominent place inside the cab in view of the operator.

This filter is designed to reduce the concentration of aerosols and vapours entering the cab. To be effective, it must have an effective seal to prevent leakage around the filter and must be used in a cab air system that does not have leaks, especially in the zone between the filter and the fan. In addition, the cab and its ventilation system must be capable of maintaining a positive pressure inside the cab and an air flow of at least 30 cubic meters per hour (18 cubic feet per minute).

The cab with carbon filter is intended to be used as only one part of a managed system of occupational health and safety, as noted below:

Operator Enclosures as Part of an Occupational Health and Safety Management System (OHSMS)

Many self-propelled agriculture vehicles have operator enclosures (cabs) for comfort and protection of the operator and riders. The cab can provide an effective physical barrier between the occupants and the environment, but that barrier must, by necessity of occupant respiration, allow air to enter and exhaust the cab. This requirement is met by the cab's heating, ventilation and air-conditioning (HVAC) system.

The HVAC system should employ a filter through which air entering the cab is first passed for contaminant reduction. Filters should also be provided in the recirculation air-stream to reduce airborne contaminants already in the cab air space. In either application, these filters must be designed specifically for the HVAC system within which they are operating. The filters must also incorporate the correct media required to remove the specific air-borne contaminant for which it is being employed.

For such applications, the HVAC system must be of robust design, manufacture and maintenance. In such a system, fresh air and cab pressurization requirements are provided by an air supply drawn through a filter with negligible filter bypass.

Even with an appropriate cab and HVAC system, there are other opportunities for contaminants to enter the cab. While outside the cab, a person can become contaminated on his/her body or clothing. Contaminated objects can be brought into the cab. Another potential for cab contamination exists when doors or windows are open in a contaminated environment.

In any case, whenever the cab interior has been contaminated, the effectiveness of the cab to provide contamination protection will be diminished. Health and safety for agricultural machine operators as well as others working in, on or around these machines can only be addressed through a comprehensive program.

Such a program is defined as an Occupational Health and Safety Management System (OHSMS). While cabs may be used as an effective engineering control within an OHSMS, this is not intended to imply that the cab alone is appropriate for any specific application.

That determination can only be made by those responsible for the OHSMS in a specific application. It is the responsibility of those charged with managing the use of the vehicle on which the cab is attached to define and manage an appropriate OHSMS, and ensure that all federal, state and local regulatory requirements are followed.

Cabs should not be used as a replacement for any other engineering control or PPE that has been specifically required by federal, state or local regulatory authorities.

Hierarchy of Controls

The Hierarchy of Controls, in their preferred order of action:

1. Elimination
2. Substitution of less hazardous materials, processes, operations or equipment
3. Engineering controls
4. Warnings
5. Administrative controls
6. Personal protective equipment (PPE)

Continuous Improvement Cycle

Cabs should only be used to control operator air contaminant exposures within an OHSMS. This management system must consider occupational safety and health as a continuous improvement cycle that includes these on-going processes:

1. Management, Leadership and Employee Participation: This step in the cycle involves the formulation of the management system, the establishment of policy, statements of responsibility and the integration of the employees into the management system.
2. Planning: This step is based upon initial and going reviews of the management system and numerous factors affecting occupational safety and health within an organization. Included in these reviews is a review of the hazard, risks and controls and data collected to evaluate the hazards and the efficacy of the control measures. In explanatory comments, exposure measurements are included as part of the assessment processes. The results of audits and measurements are also to be reviewed.
3. Implementation and Operation: This section describes the organization components of a occupational safety and health program. It describes the hierarchy of controls mentioned above and several broad classes of management function. Among these requirements are employee training and evaluation of employee training. Furthermore, this section requires a written, clearly documented occupational safety and health program.
4. Evaluation and Corrective Actions: The section specifically requires management processes to monitor and evaluate hazards, risks and their controls. Explanatory comments note that this includes quantitative measures of worker exposure. Practically, this involves physically testing the efficiency of the cab being used as an engineering control within an OHSMS.
5. Management System Review: Management is required to review the management system to ensure its suitability, adequacy and effectiveness. This cycle includes provisions for exposure monitoring and the monitoring of control measure performance. It is the responsibility of the manager of the safety and health program to determine how worker exposure to air contaminants and other hazards are to be controlled. It is also the responsibility of this manager to take whatever actions are needed to control workplace hazards. This includes but is not limited to exposure assessment, audits of various programs such as respiratory protection, ventilation system maintenance, etc.

Limitations of Cabs Used in Hazardous Environments:

While it may seem that respiration (breathing) exposure would present the greatest risk for personal exposure to contaminants, this is not the case when working with pesticides. The most prevalent method of exposure for applicators and those working around agricultural pesticides is through dermal (skin) contact.

Dermal contact with contaminants may occur directly from air-borne contaminants. It may also happen when contaminants are transferred from one object to another or when air-borne contaminants settle on objects that are subsequently contacted. Any surfaces in or out of the cab that have been contaminated are potential hazards for dermal exposure.

Within the cab, seats, upholstery, controls and other surfaces that become contaminated will pose such a hazard. In addition to dermal exposure, a contaminated cab interior will also pose a respiration hazard as the contaminant may, after settling on a surface, become air-borne once again whereby it may be inhaled.

Recirculation filters can be used to help reduce these contaminants from the cab interior air space. When a vehicle is operated in an environment where air-borne contaminants exist, the cab can be an effective engineering control for reduction of exposure risk to persons within it.

In order for a cab to be used for this purpose, it must be of appropriate design. It must also be manufactured, maintained, tested and operated according to the specific requirements defined by evaluation of the hazards.

No cab should ever be considered an effective engineering control unless it has been qualified as such within a comprehensive OHSMS. While the cab manufacturer can design and manufacture a cab to physical specifications, the cab manufacturer can not qualify the cab as an appropriate engineering control for any specific application.

Site-specific information is needed to evaluate the appropriateness of control measures. To use the cab to control hazards, the managers of the OHSMS must carefully consider and evaluate the effectiveness of all engineering controls in their specific application.

The Cab as an Engineering Control

The engineering control requirements of the respiratory protection regulation may be fulfilled by the application of a cab, but this can only be done properly within an OHSMS. Elements of such a program are:

1. Assessment of the hazard with identification of the risk involved.
2. A survey of the machine and the cab involved in the hazardous operation.
3. Reviewing the cab ventilation system and the filter to ensure the filter provides the reduction in contaminants required.
4. Defining how long the filter can be used in this application.
5. Testing the cab ventilation system to ensure it provides the protection required for the operation to be performed. This also includes a review of any monitoring equipment to ensure it is working properly.
6. Repair and/or replacement of any defects or defective equipment found.
7. Retesting of the cab air system as required.
8. Recording in the appropriate log book all information regarding the test results, and repairs and replacement of parts and/or components.
9. Assessment of the effectiveness of the program at a specified time in the cycle of the activity.

2.6.3 Safety devices and items

T000874

Ensure that all safety devices and items are fitted as required and are in good condition.



WARNING:

The location of all these safety devices and items must be known and their use mastered. Never take off, remove or disconnect any of them.

Standard safety devices and items according to country regulations

- ROPS (Roll Over Protective Structure)
- Seat belt
- Power take-off guard
- SMV warning triangle
- Signalling lights
- Safety signs
- Fire extinguisher
- First aid kit



WARNING:

Also make sure you know the emergency numbers.



Fig. 2.

I002859

Additional devices and items

Depending on the work to be carried out, other safety devices and items may be required; for example, guards or additional lights and signs.

2.6.4 Checking the tractor

T000872

Check the tractor and ensure that all systems are in good operational condition before beginning the working day. Pay particular attention to the points mentioned below.

- Check for loose, broken, missing or damaged parts. Ensure that everything has been properly repaired.
- Check that the seat belt is in good condition. If it is not, replace it.
- Check that implements are correctly installed.
- Check that the PTO output speed is in keeping with the implement PTO input speed.



WARNING:

An unbalanced tractor could overturn and cause serious injury or death. Ensure that front frame counterweights, wheel weights and wheel ballasts are used as recommended by the manufacturer. Do not add extra counterweights to compensate for an overloaded tractor; the load must be reduced instead.

Check to ensure that the tractor is correctly balanced.

- Check the condition and pressure of tyres (absence of cuts and bulges). Replace worn or damaged tyres.
- Check the correct operation of the brake pedals and the parking brake. Adjust if necessary.
- Ensure that all PTO shaft locking devices are engaged.
- Ensure that the tractor PTO guard and the shaft guards are in place and operating correctly.

**WARNING:**

Fuel or hydraulic fluid under pressure can penetrate the skin or eyes and cause serious physical injury, blindness or death.

Leaks of pressurised fluid may not be visible. Use a piece of cardboard or wood to detect leaks. DO NOT USE YOUR BARE HANDS. Wear safety goggles for eye protection. If any fluid penetrates the skin, seek medical advice within a few hours from a doctor familiar with this type of injury -.

**WARNING:**

Release the pressure of the hydraulic or fuel systems before disconnecting them.

Check the hydraulic system for the tractor and the implement as well as the tractor fuel system: Correct tightening of all the unions; no damage to the lines, pipes and hoses; hydraulic systems do not cross one another.

Have any leakages or damaged parts repaired or replaced.

**WARNING:**

The liquid cooling system builds up pressure as the temperature increases. Stop the engine and let the system cool before removing the radiator filler plug.

Check the engine cooling system and add coolant if required.

- All maintenance procedures must have been complied with.
- Check that the weight of the tractor/implement assembly is less than the tractor total permissible load.

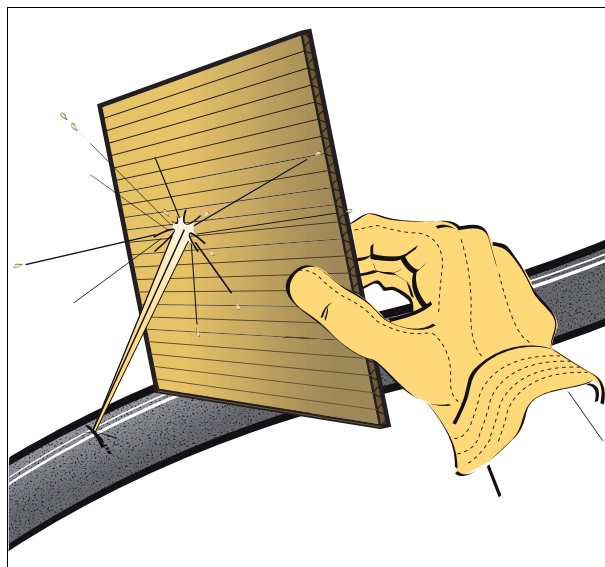


Fig. 3.

1002860

2.7 Specific safety instructions for starting the tractor

2.7.1 Protection of persons other than the operator



T000884

1. Before starting up, walk all the way round the tractor and any attached equipment. Ensure that no one is under it, on it or close to it.
2. Warn in advance any persons nearby that the tractor is about to start.
3. Only start up if there is nobody in the vicinity of the tractor/implement assembly. Pay particular attention to looking out for children.

2.7.2 Start up safely

T000885

General instructions

-  **WARNING:**
Before starting the engine, ensure there is plenty of ventilation in the area. Do not operate the engine in an enclosed space. The exhaust fumes may cause asphyxiation.
- Always start the engine from the operator's seat.
- Adjust the seat.
- For road use, ensure that the tractor brake pedals are locked together.
- Fasten the seat belt.
- Check that the parking brake is applied or that ParkLock is engaged.
- Place the reverse shuttle lever in the neutral position and deactivate the PTO controls.
- Follow the start-up procedures described in the chapter Operation of this book.
-  **DANGER:**
Start the engine with the ignition key and from the operator's seat only. Do not attempt to start the engine by short-circuiting the starter terminals: the tractor may start in gear and this could cause serious injury or death to anyone in the vicinity [fig. 1](#).

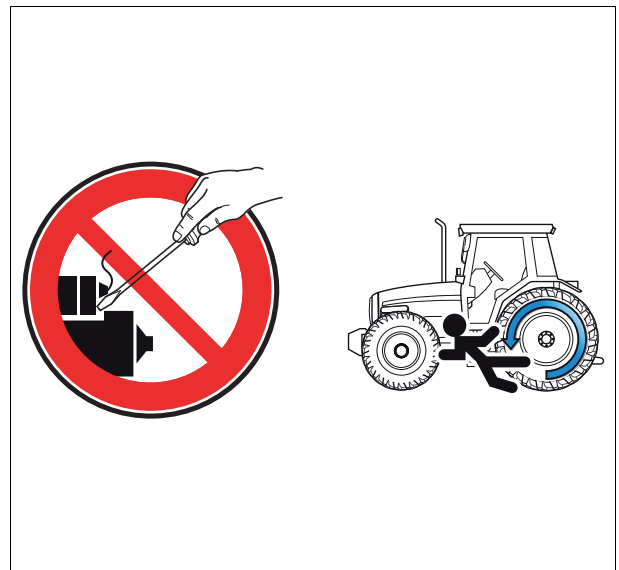


Fig. 1.

I002863

Starting assistance

**WARNING:**

Never use any starter fluid or aerosol sprays. This could cause an explosion and the risk of very serious injury.



Fig. 2.

I002864

2.7.3 Checks to be carried out after start-up

T000886

Controls and indicator lights

After having started the engine, check all the controls and all the indicator lights again. Ensure everything is functioning correctly.

**WARNING:**

In case of malfunction of a control or an indicator light, resolve the problem before using the tractor.

Mastering of the tractor

Move slowly until you are sure that everything is operating correctly. Be certain that you have full control of the steering and brakes. If the differential is locked, unlock it before continuing your route.

2.8 Specific safety instructions for using the tractor

2.8.1 General instructions

T000875

2

- Tractors and implements are not toys. Always comply with the conditions of use defined by the manufacturers.
- Never exceed the tractor total permissible weight.
- Always consider the way in which the tractor is to be used and the fact that the centre of gravity of the tractor/implement assembly changes according to the load being transported or towed.



WARNING:

An unbalanced tractor could overturn and cause serious injury or death. Ensure that front frame counterweights, wheel weights and wheel ballasts are used as recommended by the manufacturer. Do not add extra counterweights to compensate for an overloaded tractor; the load must be reduced instead.

Check to ensure that the tractor is correctly balanced.

- Check that the PTO output speed is in keeping with the implement PTO input speed.
- Keep all parts of your body inside the safety zone defined by the cab or by the protective structure for platform tractors.
- Operate the controls smoothly — do not jerk the steering wheel or other controls.
- Always operate the controls from the operator's seat.
- Keep a firm grip on the steering wheel at all times, with your thumbs clear of the spokes when driving the tractor.
- Operate the tractor smoothly — avoid jerky turns, starts or stops.
- Do not turn at high speed.
- Avoid driving close to ditches and banks.
- Avoid taking slopes that are too steep.
- Reduce speed when negotiating turns and slopes and on rough, slippery or muddy surfaces.
- Carefully observe the areas surrounding the route.
- Ensure you have adequate clearance in all directions for the tractor and the implement.
- When using chemicals, follow the chemical manufacturer's instructions for use and storage carefully.
- Adapt the tractor speed according to visibility, weather conditions and the type of terrain.



WARNING:

If a part breaks, loosens or does not operate correctly:

- ***stop work***
- ***switch off the engine***
- ***check the machine and make the necessary adjustments and repairs before resuming work.***



DANGER:

Do not attempt to unplug the hydraulic connections or adjust an implement with the engine running or the PTO in operation. To do so may result in serious injury or death.

2.8.2 Protection of persons other than the operator



WARNING:

A tractor is a machine with a single operator.

Do not permit anyone [fig. 1](#) to ride on the tractor or implements, including trailers, unless the implements are specially designed to carry passengers during field work. In the latter case, transport is permitted only for field work, but not for travelling on the road.

In all cases, never allow a child to ride on the tractor or implements.



Fig. 1.

I002865

- When operating, attention to the environment of the tractor/implement assembly.
- Never lift loads above someone.
- Do not allow anyone to stand or pass in front of, under or behind an implement [fig. 2](#).

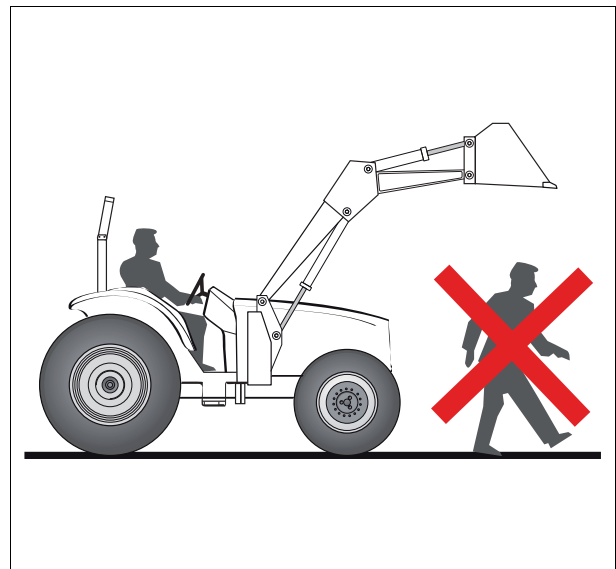


Fig. 2.

I002866

- Do not allow anyone to stand between the tractor and the implement.
- Keep others away from the working area.

2.8.3 Overturning

Overturning angle



DANGER:

For your safety, never exceed the maximum angle limits listed in the table below.

NOTE: These angle limits assume a maximum oil level.

It is recommended to top up the oil by 15 l when working on slopes of maximum gradient.

Models	Maximum angle: roll/pitch/combined
S232/S262/S292/S322/S352	25°/27°/17°

Procedure to follow if the tractor overturns

If the tractor should overturn, keep the seat belt fastened, hold the steering wheel firmly and do not attempt to leave the seat until the tractor has come to a complete stop *fig. 3*. For tractors fitted with a cab, if the doors are obstructed, leave through the rear window or roof hatch.

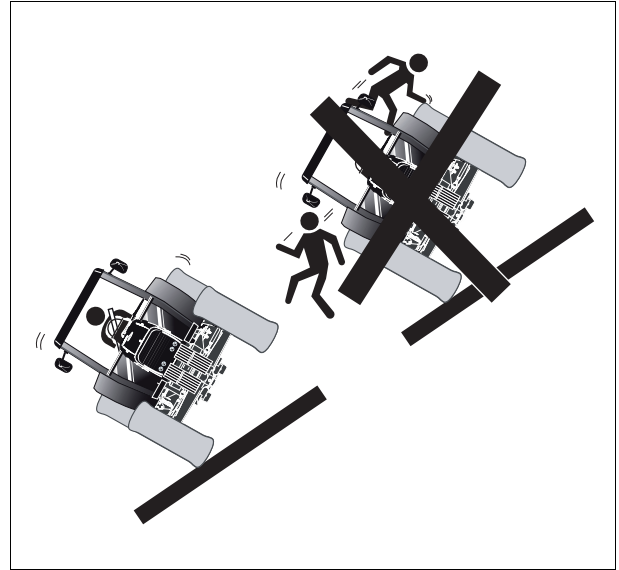


Fig. 3.

1002867

Preventing a lateral overturn

- Set the track width to the most appropriate width for the work being carried out.
- Lock the brake pedals together before driving at transport speed.
- Adapt the tractor speed according to visibility, weather conditions and the type of terrain.
- If the tractor is fitted with a front-end loader, carry the bucket and load as low as possible.
- Make wide turns at reduced speed.
- Do not allow the tractor to bounce as this may cause you to lose control.
- Never exceed the tractor total permissible weight.
- Do not brake suddenly. Apply brakes smoothly and gradually.



WARNING:

Do not disengage the clutch or attempt to shift gear after you have started downhill.

When driving down a slope, use the engine brake to slow the tractor down and choose the same gear ratio as used when climbing a slope.

- Engage four-wheel drive (if fitted) to enable four-wheel braking.
- Do not work near the edge of ditches and banks as there is a risk of them collapsing. The tractor must always be kept a distance from the edge that is equal to or greater than the height of the bank or ditch *fig. 4*.

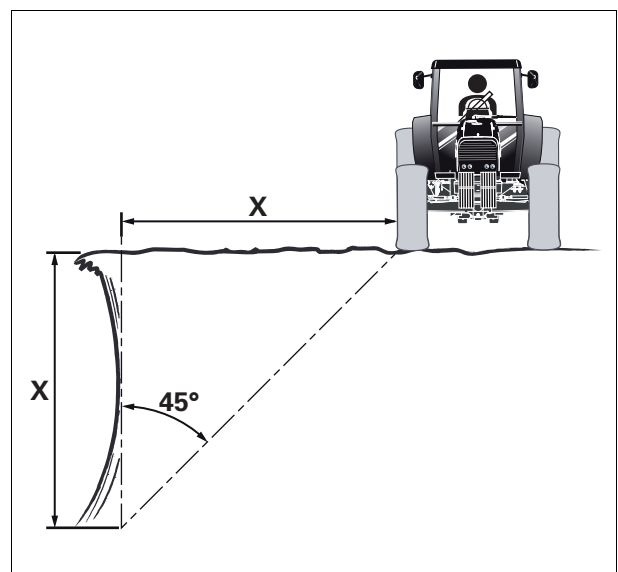



Fig. 4.

1002868

- Preferably, climb or descend a slope in a straight line, but do not cross it. When this is not possible, adhere to the following precautions:
 - Avoid holes and dips when driving downhill

- Avoid stumps, stones and raised areas when driving uphill
- when turning, avoid turning towards the top of the slope; always slow down and take a wide turn
- keep the heavier end of the tractor facing towards the top of the slope when driving up and down it.
- When driving across a slope with a tractor fitted with implements on one side, these implements must:
 - always be facing towards the top of the slope
 - never be raised
 - be left as close as possible to the ground
- When towing a load at transport speed, lock the drawbar in the centre position and use a safety chain.
- Do not use the tractor to round up livestock.

Preventing a rear overturn

-  **WARNING:**
Hitching a load to the rear axle or on any other part located above the rear axle may cause a rear overturn.
- Do not pull anything using the top link connection or from any point above the centre line of the rear axle. Always use a Valtra-approved drawbar and only use a lockable drawbar pin.
- When using a drawbar for a three point hitch, use the stabilisers and keep the drawbar in the bottom position.
- Use front weights to increase tractor stability when towing heavy loads or to counterbalance the weight of a heavy rear-mounted implement.
- Start off slowly and then gradually increase speed.
- Do not release the clutch suddenly.
- If a heavy load or immovable object is attached to the tractor, incorrect use of the clutch may cause the tractor to overturn.
- If the front end of the tractor starts to lift, disengage the clutch.
- If the tractor is bogged down in mud or frozen to the ground:
 - do not attempt to drive forward as the tractor could then rotate around its rear wheels and overturn
 - lift any attached implements and attempt to reverse. If this is not possible, tow the tractor out with another vehicle.
- If the tractor is stuck in a ditch, if possible, attempt to reverse out. If you must go forward, do so slowly and carefully.
- A bare tractor or a tractor fitted with a rear implement must climb a slope in reverse gear and descend the slope in forward gear.
- A tractor fitted with a full loader at the front must climb a slope in forward gear and descend the slope in reverse gear. The loader must be kept as close to the ground as possible.
- Always engage a gear when driving downhill. Do not allow the tractor to coast down the slope with the clutch disengaged or the transmission in neutral.



2.8.4 Tractor towing

T000878

Comply with the instructions described in the "Operation" chapter of this book.

2.8.5 Road use

T000879

-  **WARNING:**
Never allow any passengers to ride on the tractor and implements.
-  **WARNING:**
Do not use the work lights when travelling on a road because rear white lights are illegal except when reversing and may confuse following drivers.

- Ensure that all clearance flags and rotary beacons that indicate an abnormal load are in position and are in working order.
- Clean all the reflectors and the front and rear lights. Ensure that they are in working order.
- Ensure that the tractor and implements are fitted with SMV warning triangles and other markings recommended to improve visibility when driving on roads (unless the regulations state otherwise) *fig. 5*.

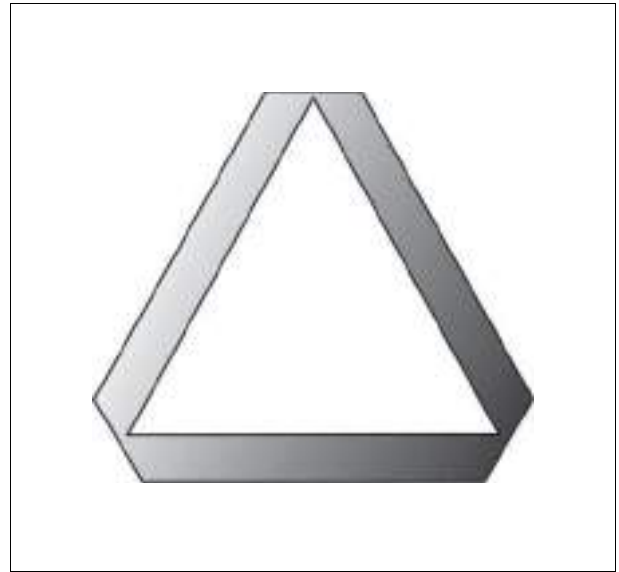


Fig. 5.

1002869

- Place all implements in the transport position so that they take up minimum space and lock them in position.
- Lock the brake pedals together.
- Disengage the power take-off and the differential lock.
- Observe all current local and national regulations regarding the use of a tractor on the road.
- Depending on the equipment fitted to the tractor and unless regulations state otherwise, use the rotary beacons or the hazard warning lights day and night.
- Familiarise yourself with the road you will be travelling on.
- Exercise the utmost caution when driving on snow-covered or slippery roads.
- Wait for traffic to clear before entering a public road.
- Beware of blind intersections: Slow down until you have a clear view.
- Do not attempt to push your way through at any intersection.
- Slow down for turns and curves.
- Make wide turns at a moderate speed.
- Signal your intention to slow down, stop or turn.
- Shift to a lower gear before going up or down hills.
- Always drive the tractor in gear. Do not coast with the clutch disengaged or transmission in neutral.
- Do not overlap the lane of traffic for vehicles travelling the other way. Stay in your lane, as close as possible to the roadside.
- If a traffic jam forms behind the tractor, pull off the road and allow the vehicles behind to pass.
- Drive carefully. Anticipate what other drivers might do.

If towing a load

- Always anticipate obstacles, especially if the trailed implement is not fitted with brakes.
- Start braking much earlier than usual and slow down gradually.
- Ensure that the load is not concealing the lights or the rotary beacons.
- Take account of your load, especially for high obstacles.

T001556

2.8.6 Emergency hand brake

If the brakes fail and in an emergency situation, use the emergency hand brake located to the left of the operator [fig. 6](#).



WARNING:

Never use this emergency brake as a parking brake. For tractors equipped with a ParkLock, it is this function that acts as a parking brake: its control is located on the steering wheel.

IMPORTANT: If the brakes fail, contact your dealer to resolve the problem.

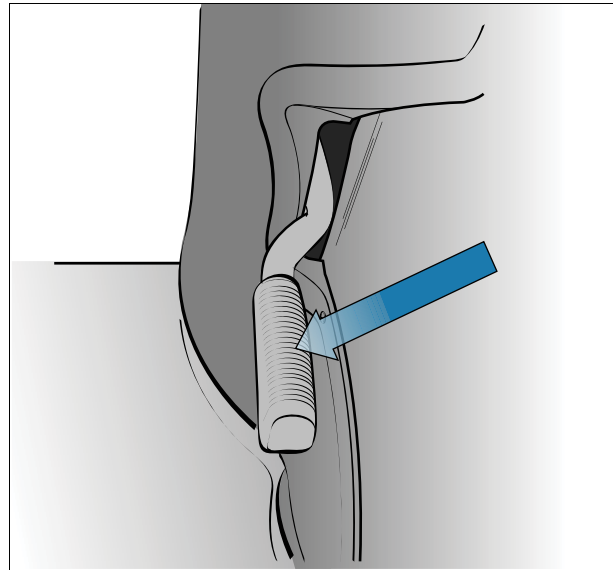


Fig. 6.

I004991

2.8.7 Power take-off

T000893



DANGER:

Do not attempt to unplug the hydraulic connections or adjust an implement with the engine running or the PTO in operation. To do so may result in serious injury or death.

- Ensure that all the PTO shaft guards are in place and check the presence of all safety decals [fig. 7](#).

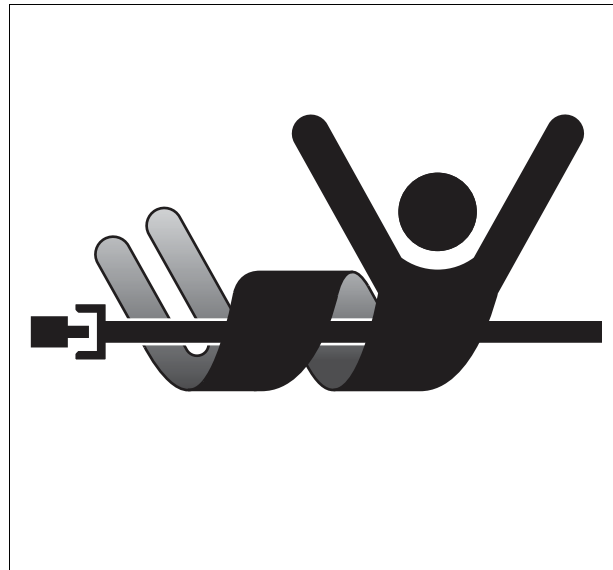


Fig. 7.

I002874

- Ensure that the PTO cap (1) is fitted when the PTO shaft is not in use [fig. 8](#).
- Before hitching, unhitching, cleaning or adjusting the implements driven by the PTO, follow the "mandatory procedure before dismounting the tractor" [see §2.4.5, page 30](#).
- Ensure that there is nobody in the vicinity of the implement before engaging the PTO.
- For stationary PTO operation, place the transmission lever and/or the shuttle lever (both if the tractor is fitted with them) in neutral, apply the hand brake or engage ParkLock (depending on option) and chock the wheels of the tractor and the implement.
- Do not use PTO adapters, reducers or extensions as they extend the PTO coupler beyond the protection offered by the guard.

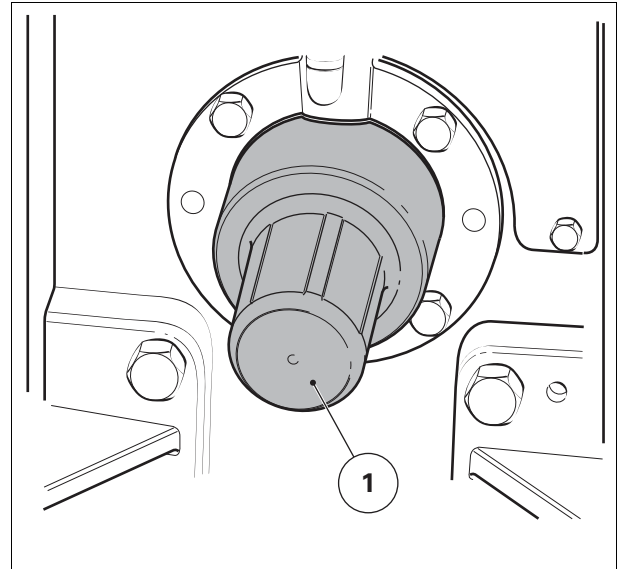


Fig. 8.

I002871

2.8.8 Implements

T000894

- Tractors and implements are not toys. Always comply with the conditions of use defined by the manufacturers.
- **⚠ DANGER:**
To avoid serious injury or death due to falling loads resulting from inadvertent raising or roll-back of the loader, do not connect loader hydraulics to any tractor auxiliary valve that has detents which cannot be locked out or removed, except for the float function in the loader lower circuit. If the tractor is equipped with such a valve, a dedicated, properly configured loader valve must be installed.

- **⚠ DANGER:**
A front-end loader with a bucket or forks must be fitted with a holding device. This device must prevent the load (bales, fence posts, rolls of fence, wire etc.) from rolling down the length of the loader arms when the loader is raised, as it could crush the operator. Objects that are incorrectly secured may also fall and injure people in the vicinity of the tractor.

When using a loader, avoid sudden stops, starts, turns or changes in direction. Keep loads close to the ground when transporting.

- Never lift loads above someone.
- Implements fitted to the three-point hitch or to the side of the tractor make a much larger arc when turning than trailed implements. Ensure there is enough room to manoeuvre in complete safety.
- Only use implements suitably adapted for your tractor.
- Always read the implement instruction books fully for implements to be used with the tractor and comply with the safety instructions they contain.
- Do not modify nor remove any parts of an implement.
- Do not touch the mechanism of an implement nor lean over it or attempt to reach it. Do not allow anyone else to do this either.
- Do not allow anyone (including yourself) to stand or pass in front of, under or behind an implement.
- If the tractor is not immobilised according to the "mandatory procedure before dismounting the tractor" [see §2.4.5, page 30](#), never stand or allow any person to stand between the tractor and the implement.
- Always use implements that are capable of safely carrying the load that you wish to place in it.
- Do not overload a trailed implement. Use appropriate weights to maintain tractor stability.
- The top link and the lift rods must never be taken beyond the point where the thread starts to appear.
- When using chemicals, follow the chemical manufacturer's instructions for use and storage carefully.

- All trailed implements and trailers should be connected to the tractor by a safety chain (1)

.fig. 9

Should a trailed implement accidentally become separated from the drawbar during transport, this safety chain will help to retain the trailed implement. Using the appropriate adapter parts, attach the chain to the tractor's drawbar anchor or any other specified anchor point. Leave only enough slack in the chain to allow for manoeuvring.

The safety chain must have a strength equal or greater than the weight of the trailed implement: contact your Valtra dealer to obtain a suitable chain.

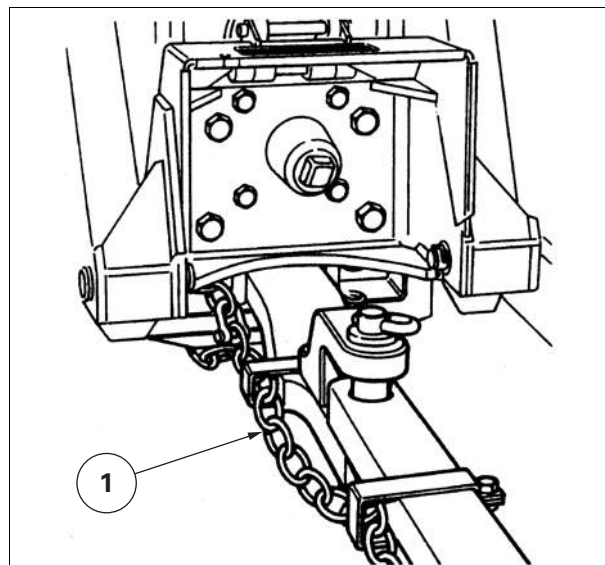


Fig. 9.

I002872

- Only tow using the drawbar. Attaching the trailed implement to another location could cause the tractor to overturn.

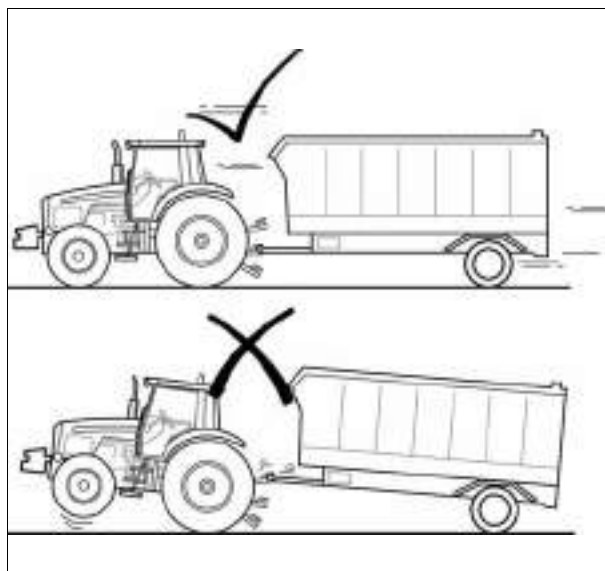


Fig. 10.

I002873

Towing: permissible load and speed



WARNING:

The stopping distance increases with the speed and weight of the trailed implements, and also on a slope. Whether they are fitted with a brake system or not, trailed implements that are too heavy for the tractor or that are towed at too high a speed may lead to a loss of control. Take account of the total weight of the trailed implement (including the load).

Never tow an implement:

- at a speed exceeding the speed limit in force in the relevant country and
- if the true weight of the tractor/implement assembly is greater than the tractor total permissible loaded weight indicated on the name plate.

Towed equipment without brakes:

Do not tow equipment that does not have brakes:

- at speeds of more than 32 km/h; or
- at speeds above those recommended by the manufacturer; or
- with a mass (weight) that is over 1,5 t (3300 lb) when fully loaded and is more than 1.5 times the mass (weight) of the tractor.

Towed equipment with brakes:

Do not tow equipment that has brakes:

- at speeds of more than 50 km/h; or

- at speeds above those recommended by the manufacturer; or
- with a mass (weight) more than 4.5 times the mass (weight) of the tractor when fully loaded;
- at speeds of more than 40 km/h if, when fully loaded, it has a mass (weight) more than 3.0 times the mass (weight) of the towing unit.

2.8.9 Front-end loader

T006905

**WARNING:**

The programmable features of the joystick or other control MUST NOT be used to operate a loader. In order to prevent involuntary loader motion, the loader joystick controller must be a self neutralising type. When the operator releases his grip on the joystick, the joystick must return to a non-operational neutral position - except for float detent position in the loader lower direction.

2.9 Specific safety instructions for servicing the tractor

2.9.1 Pollution warning to observe when servicing the tractor

T000889

IMPORTANT: It is illegal to pollute drains, water courses or soil. Use authorised waste disposal facilities, refuse tips or garages providing facilities for the disposal of used oil. If in doubt, contact your local authority for advice.

2.9.2 General instructions

T000887

- Never service the tractor while the engine is running or hot or if the tractor is in motion [fig. 1](#).



Fig. 1.

I002862

- Before making adjustments to or servicing the electrical system, disconnect the battery cables, negative (-) terminal first.
- To prevent risks of fire or explosion, keep batteries and cold weather starting aids away from naked flames.
- To prevent sparks which could cause explosions, use jump leads according to instructions.
- Consult your Valtra dealer for repairs or adjustments and have the work carried out by trained personnel.
- The implement and/or tractor must be supported on suitable blocks or stands and not on a hydraulic jack.
- Check all nuts and bolts periodically for tightness, especially wheel hub and rim nuts. Tighten to the torque values stipulated.
- Regularly check the brakes.
Ensure that the brakes are uniformly adjusted, especially if a trailer is used.
In case of malfunction, consult your dealer.
- Accumulators.
The accumulators contain nitrogen and are pressurised.
They may become hot and cause burns.
Modifications must not be made to the accumulators (by welding, drilling, attempting to open, cutting etc.).
The repair, maintenance and commissioning of the accumulators must only be carried out by trained personnel.
Consult your Valtra dealer regarding any maintenance.

2.9.3 Special instructions for cleaning the tractor

T000888

- Before cleaning the tractor, always:
 - follow the "mandatory procedure before dismounting the tractor" [see §2.4.5, page 30](#), and
 - remove or put away implements, buckets, chains and hooks.

- Clean steps, pedals and floor. Remove grease or oil. Brush away dust and mud. In winter, scrape away snow and ice. Remember — slippery surfaces are hazardous.
- When washing the tractor with a jet of water, do not direct the jet straight onto electrical components.
- If using a high-pressure cleaning device, maintain a sufficient distance so as not to damage the paintwork and the sealed sections.
- Keep work surfaces and engine compartments clean.
- After washing, grease the lubrication points, the hinged sections and the bearings.

2.10 Protective structures

2.10.1 Protective structures: use and accreditation


T000935

The protective structures (cab, ROPS, seat belts) limit injuries as far as possible in case of an accident or if the tractor overturns.

They meet all applicable standards for agricultural tractors.

2.10.2 Cab or ROPS (depending on model)


T000936

- The cab and ROPS have been designed to be suitable for this tractor series.
- Never weld parts onto the cab or ROPS.
- Never bend or straighten the cab or ROPS.
- Never drill or modify the cab or ROPS to fit accessories or implements.
If other controls or displays have to be fitted in the operator's area, contact your Valtra dealer to find out what to do.
- Do not attach chains or ropes to the cab or to the ROPS in order to pull or tow anything.
- If the cab or the ROPS has been removed, refit it and tighten the fixings to the specified torque before using the tractor again.
-  **WARNING:**
A cab or ROPS damaged as a result of an accident, overturning or other incident must be replaced before using the tractor again.

2.10.3 Seat belt

T000934

- Wearing the seat belt is an important part of this protection.
- Always wear the seat belt adjusted correctly.

 **WARNING:**
A damaged seat belt must be replaced before using the tractor again.

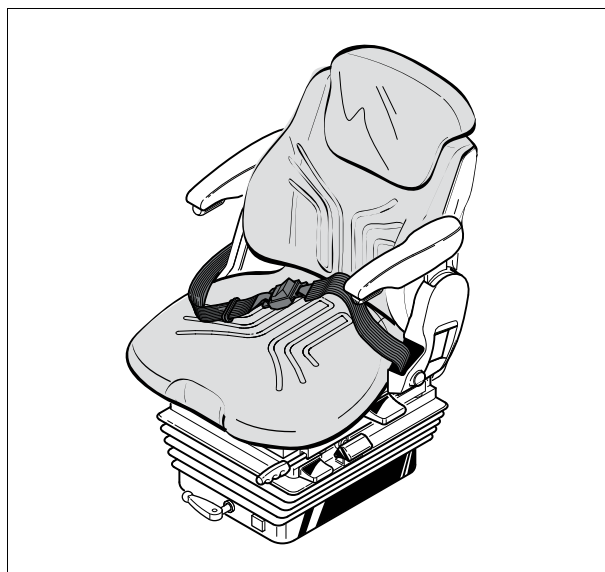


Fig. 1.

I002857

2.10.4 Instructor seat

T003334

- Use of the instructor seat is exclusively reserved for an instructor or technician. The seat is NOT suitable for children.
- The seat belt must always be worn and correctly adjusted when using the instructor seat.



Fig. 2.

I009902

2.11 Warranty

2.11.1 General

T000853

When selling new products to its dealers, the manufacturer provides a warranty which, subject to certain conditions, guarantees that the goods are free from defects in material and workmanship. Since this book is published worldwide, it is impossible to detail the exact terms and conditions of warranty that apply to all retail customers in all countries. Purchasers of new Valtra equipment should therefore request full details from their supplying dealer.

In accordance with the manufacturer's policy of continuous improvement of its products, the manufacturer reserves the right to make alterations to the specifications of machines at any time without notice. The manufacturer disclaims all liability for discrepancies which may occur between the specifications of its products and the descriptions thereof contained in its publications.

2.11.2 Pre-delivery inspection and commissioning on the user's premises

T000854

The dealer is required to carry out certain activities when supplying a new tractor. These consist of carrying out a full pre-delivery inspection to ensure that the tractor supplied is ready for immediate use, and providing full instructions to the user on the basic principles of operation and servicing of the tractor. These instructions will cover instruments and controls, and routine servicing and safety precautions. All persons who will be involved in the operation and servicing of the tractor should be present when these instructions are given.

IMPORTANT: Valtra disclaims all liability in the event of any claim resulting from the fitting of non-approved parts, accessories, implements or attachments or unauthorised modifications or alterations.

2.11.3 Warranty procedure

T000855

Correct commissioning on the user's premises and routine servicing help to prevent breakdowns. However, if operating problems do occur during the warranty period, follow this procedure:

- Immediately inform the dealer you purchased the tractor from, stating the model and serial number. It is very important not to delay, as even if the defect is covered by the original warranty, the coverage may no longer apply if the repair is not carried out immediately.
- Provide the dealer with as much information as possible. The dealer will need to know how many hours the tractor has been in service, what type of work it is used for and the symptoms of the problem.

Routine servicing operations not covered by the warranty

It should be noted that routine servicing operations such as tuning, brake and clutch adjustment, and the supplies used for the tractor servicing (oil, filters, seals, fuel, antifreeze etc.), are not covered by the warranty.

Warning concerning spare parts

Parts other than Valtra parts are likely to be of lower quality. Valtra disclaims all liability in the event of loss or damage arising as a result of such parts being fitted. The manufacturer's warranty may also become void if such parts are fitted during the normal warranty period.

2.11.4 Procedure to follow if changing region

T000856

Only the dealer from whom the tractor was purchased is liable for the protection provided by the warranty. Any repairs should, wherever possible, always be carried out by this dealer. If, however, the owner moves to another region or if the tractor is to be used temporarily at a location a long way from the dealer from whom it was bought, it is advisable to ask this dealer for the name and address of the dealer closest to the new address and arrange to have the obligations remaining to be fulfilled under the warranty transferred to this dealer.

If the customer leaves the region covered by the original dealer without having taken these steps, the new dealer will offer its services if needed, but may invoice them at the normal rate unless:

- the customer has clearly stated that the warranty period has not expired, and
- the repair dealer has been given the possibility of taking the necessary steps with the selling dealer.

2.11.5 Servicing during and after the warranty period

T000857

During the warranty period, all servicing and repair work must be carried out by the dealer, who will carefully carry out detailed checks of the progress and performance of the new tractor.

To obtain best results from a Valtra tractor, it is important to continue regular servicing and periodic inspections after the warranty has expired. All major overhaul work on the tractor must be carried out by a local dealer; an experienced technician will detect any problems which may arise between one overhaul and the next. Technicians regularly follow training courses to update their knowledge of the product and servicing and repair techniques, and the use of special tools and modern diagnostic equipment. They receive regular Service Bulletins and have access to all the workshop manuals and technical publications required to carry out repairs or servicing in accordance with the quality standards required by Valtra.

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3.1 Cab

3.1.1 Steering console

T001269

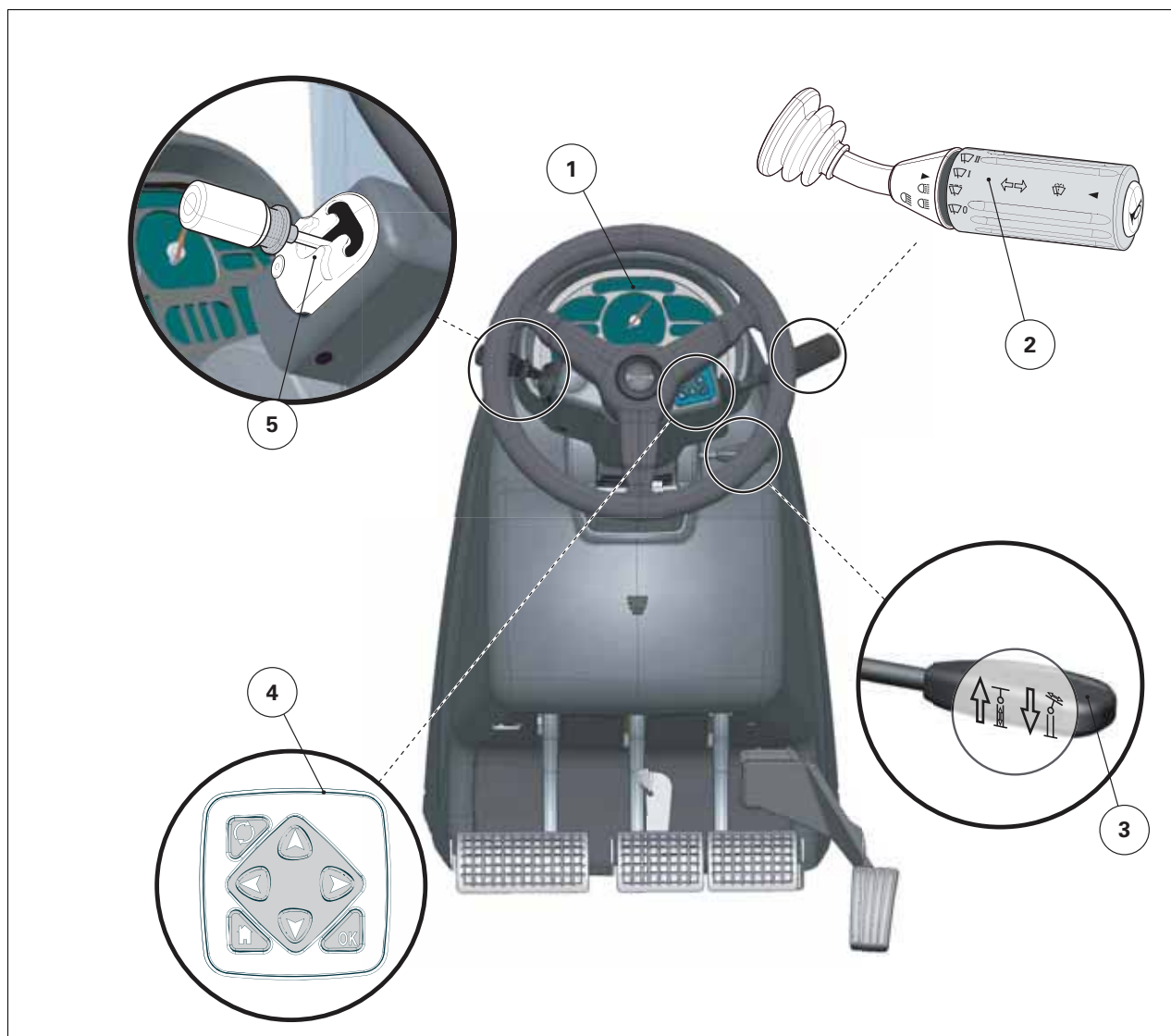


Fig. 1.

I007059

- | | |
|--|--|
| <p>(1) Instrument panel <i>see §3.1.2, page 60</i></p> <p>(2) Control unit <i>see §3.1.3, page 64</i>
This assembly controls the direction indicator, windscreen wiper, front and rear windscreen washer and horn.</p> | <p>(3) Steering wheel adjustment <i>see §3.1.6, page 66</i></p> <p>(4) Access controls to Dash Control Center menus</p> <p>(5) Power Shuttle control and ParkLock electrohydraulic brake</p> |
|--|--|

3.1.2 Instrument panel

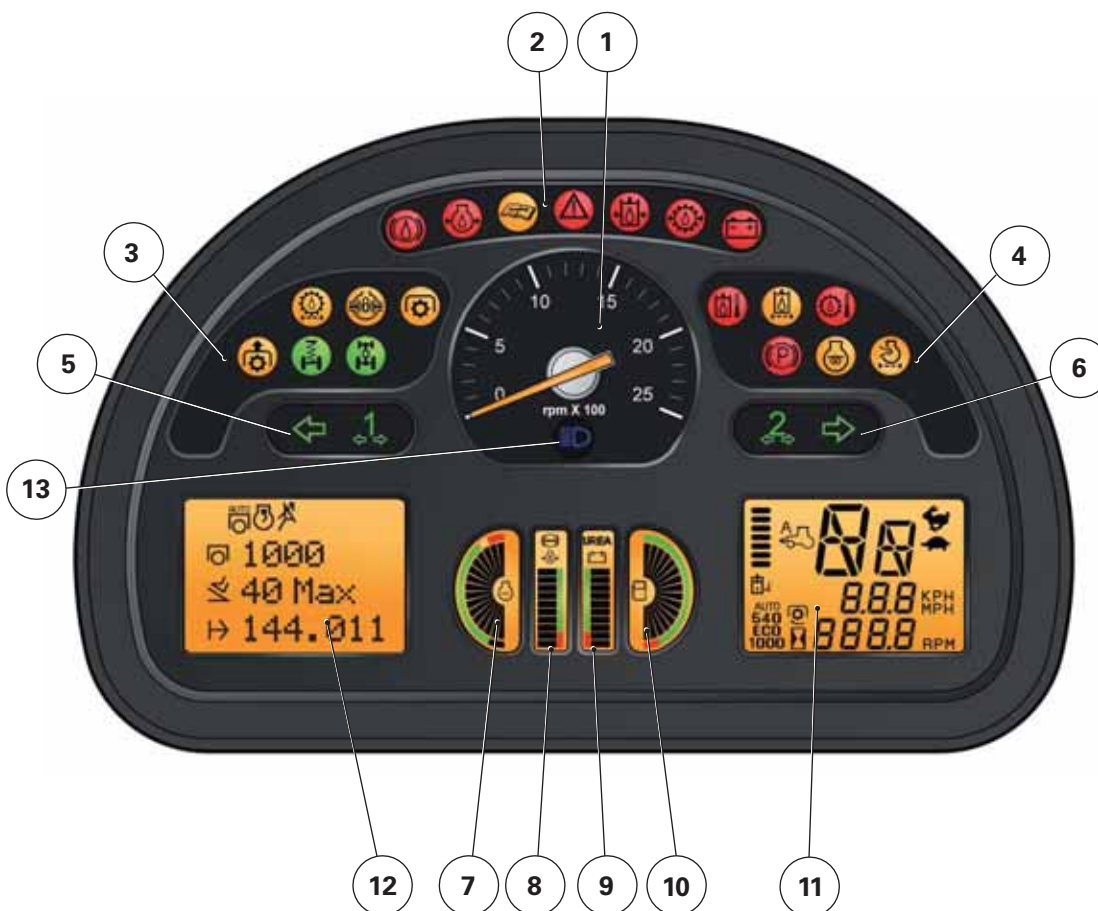


Fig. 2.

1004902

- | | |
|---|---|
| <p>(1) Tachometer
The tachometer shows the engine speed in hundreds of revolutions per minute.</p> <p>(2) Indicator light and service light panel fig. 3.</p> <p>(3) Indicator light panel for operation of front and rear PTO/front axle/suspended front axle/differential lock/high-pressure transmission oil filter blockage fig. 4</p> <p>(4) Indicator light panel for ParkLock parking brake/trailer brake/auxiliary hydraulics temperature/engine preheating/transmission hydraulics temperature/air filter/auxiliary hydraulics blockage fig. 5</p> <p>(5) Light for left-hand turn indicator and turn indicator on the 1st trailer.</p> <p>(6) Light for right-hand turn indicator and indicator on the 2nd trailer.</p> | <p>(7) Engine coolant temperature</p> <p>(8) AdBlue/DEF additive gauge (E3 engine with AdBlue/DEF technology only) and battery charge indicator light</p> <p>(9) Display for monitoring engine oil pressure and checking the pressure in the pneumatic braking system.</p> <p>(10) Fuel gauge for main tank (diesel).</p> <p>(11) Digital display for monitoring primary functions, forward/reverse speed, indicating PTO/engine speeds/gear range engaged</p> <p>(12) Digital display for monitoring the Dash Control Center functions fig. 9.</p> <p>(13) Main beams indicator light.</p> |
|---|---|

Indicator light panel

- (1) Pressure light for brake (ParkLock) and pneumatic brake (red).
This indicator light comes on when the ignition key is in the ON position (3) [fig. 12](#), but should switch off when the engine is started and is running. If the indicator light stays on when the engine is running, stop the engine and determine the cause of the low pressure or consult your dealer.
- (2) Engine oil pressure light (red).
This indicator light comes on when the ignition key is in the ON position (3) [fig. 12](#), but should switch off when the engine is started and is running. If the indicator light stays on when the engine is running, stop the engine and determine the cause of the low pressure or consult your dealer.
- (3) Service indicator light (yellow).
This lights up when a service is due. To switch off this indicator light, go to the Diagnostics screen 1 of the Dash Control Center [fig. 9](#) and press button (15) of the menu access controls [fig. 10](#) for 5 seconds
- (4) General failure alert light (red).
This lights up at the same time as the other alert lights (red).
- (5) Steering supply pressure (red).
- (6) Transmission oil pressure light (red).
If this indicator light comes on during operation, consult your Distributor or Dealer.
- (7) Alternator charge light (red).
If the indicator light comes on or flashes at a speed above 1000 rpm when the engine is running, determine the cause of the failure [see §4.14.2, page 265](#) or consult your dealer.

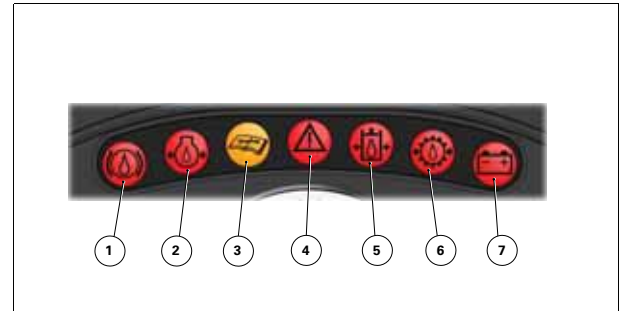


Fig. 3.

I004253

Left-hand indicator light panel

- (1) Front PTO engaged indicator light (yellow).
- (2) Suspended front axle engaged indicator light (green).
- (3) Four-wheel drive indicator light (green).
- (4) High-pressure transmission oil filter blockage indicator light (yellow).
- (5) Differential lock indicator light (yellow).
- (6) Rear PTO engaged indicator light (yellow).
- (7) Left-hand direction indicator light (green).
- (8) Direction indicator light for the first trailer (green).

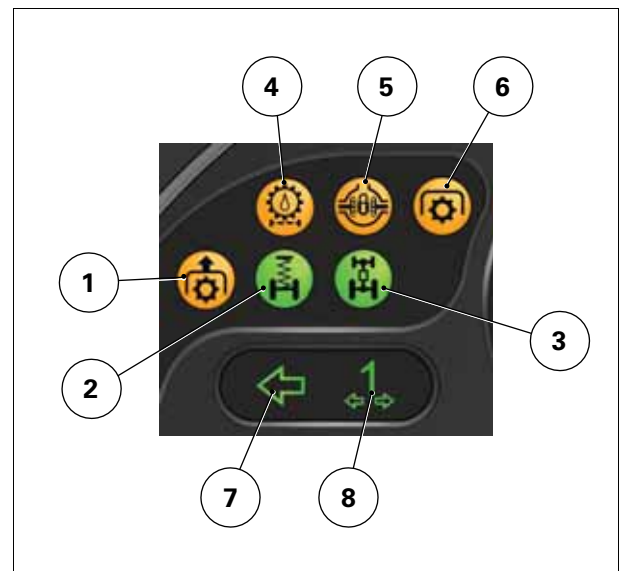


Fig. 4.

I004903

Right-hand indicator light panel

- (1) Engine air filter indicator light (yellow).
- (2) Engine preheater (Grid Heater) temperature indicator light (yellow).
- (3) Parking brake indicator light (red)
- (4) Transmission operating temperature indicator light (red).
- (5) Blockage indicator light for auxiliary hydraulic oil filter (yellow).
- (6) Temperature indicator light for auxiliary hydraulic oil (red).
- (7) Right-hand direction indicator light (green).
- (8) Direction indicator light for the second trailer (green).

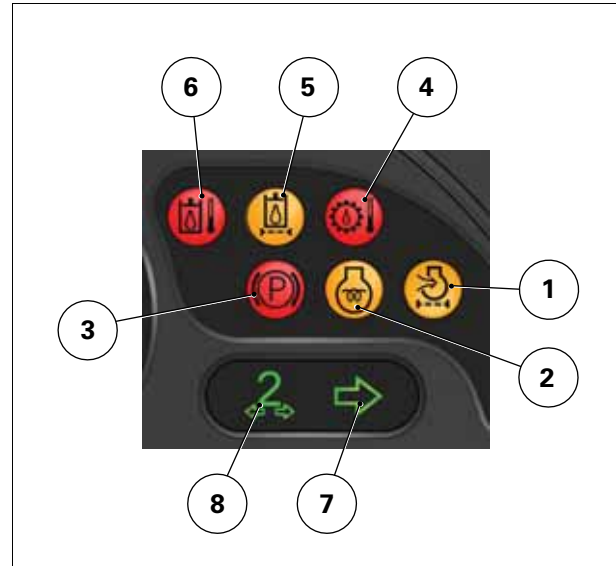


Fig. 5.

1004904

Monitoring display panel

- (1) Engine coolant monitoring display (range from 60 °C to 110 °C): Coloured segment display. The green zone shows the normal operating temperature range. If it reaches the red zone, stop the hydraulics and the PTO, declutch and accelerate fully until it returns to the normal operation zone (green). If the problem persists, check whether the cooler is blocked. If necessary, unblock it after stopping the engine. If the problem still persists, contact your dealer.
- (2) Diesel fuel level monitoring display: Coloured segment display.

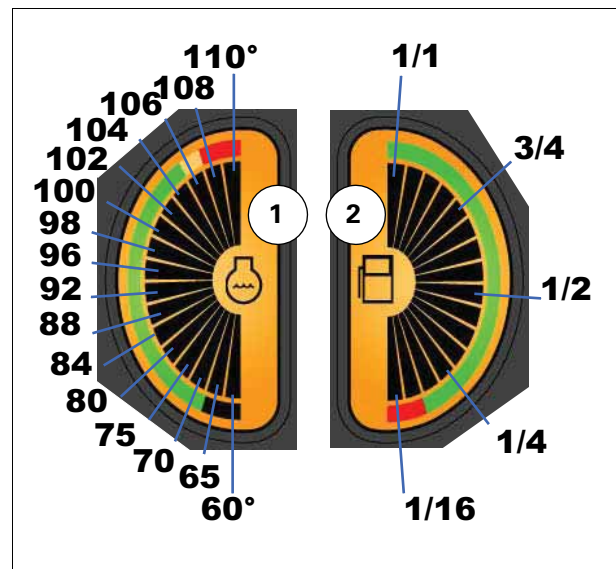


Fig. 6.

1004665

- (3) (4) Dual-purpose display: monitors urea level ((3)) (AdBlue/DEF for E3 engine with AdBlue/DEF technology only) and battery charge voltage ((4)). To switch from one display to another, use the cancel button ((16)) on the Dash Control Center control keypad [fig. 10](#) when the main screen is displayed.
- (5) (6) Dual-purpose display: monitors engine oil pressure ((6)) and pneumatic braking pressure ((5)). To switch from one display to another, use the lower navigation button on the Dash Control Center control keypad [fig. 10](#) when the main screen is displayed.

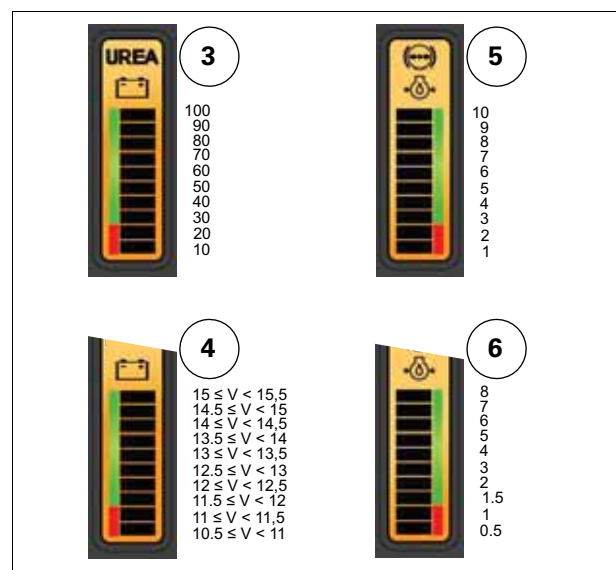


Fig. 7.

1004667

Main monitoring display

- (1) Forward/neutral/reverse liquid crystal display
- (2) Reverse shuttle sensitivity indicator
- (3) Forward speed display
- (4) Digital display (linked to the symbols (10)):
 - Rear PTO speed
 - Engine speed
 - Hours worked
 - Total engine time.
 Alternating display of number of hours and hundredths.

These parameters can be selected by pressing button (17) on the right-hand side of the steering wheel *fig. 10*

NOTE: Resetting the working time: Display the parameter in question, then press and hold the button (17) for approx. 5 seconds to reset the display to 0.

- (5) Fast range engaged display
- (6) Low range engaged display
- (8) Auxiliary hydraulic oil level display
- (9) Front axle automatic operation indicator
- (10) Display of symbols according to display (4):
 - Rear power take-off (PTO)
 - Engine speed
 - Hours worked
 - Total engine time
- (11) Display of rear PTO speed selected:
 - "AUTO": Automatic mode
 - "540": 540 rpm
 - "ECO": Economy mode
 - "1000": 1000 rpm

Dash Control Center control screen

- (1) Distance travelled display.
- (2) Maximum set speed display.
- (3) Power take-off speed display.
- (4) PTO speed in automatic mode display.
- (5) Engine underspeed supervisor display.
- (6) Quick Steering variable steering display.

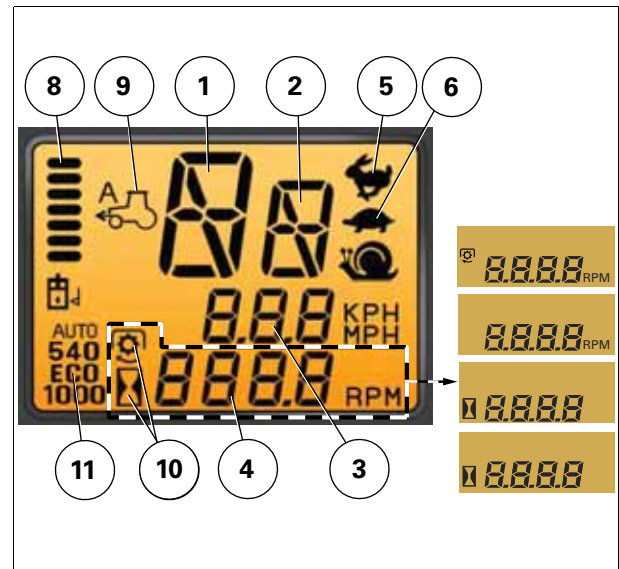


Fig. 8.

I011312

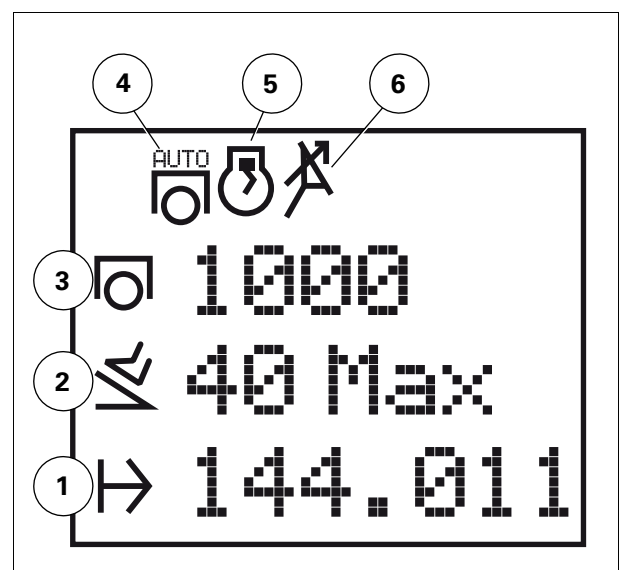


Fig. 9.

I011287

Access controls to Dash Control Center menu

- (11) Up scrolling key
- (12) Down scrolling key
- (13) Left scrolling key.
- (14) Right scrolling key.
- (15) Confirmation key
- (16) Cancel key.
- (17) Parameter display selector.

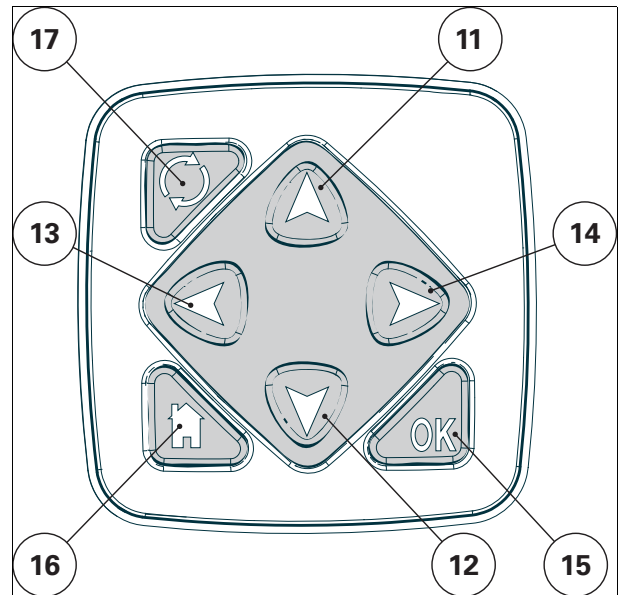


Fig. 10.

I004852

3.1.3 Control unit

T001274

- (1) Windscreen wiper
 - J. Intermittent
 - 0. Off
 - I. First speed
 - II. Second speed
- (2) Left-hand indicator:
 - (A): momentary. Cancels once it is released.
 - (B): locked. Cancels when the steering wheel returns to the centre (straight line). It is the left-hand indicators that flash.
- (3) Right-hand indicator:
 - (A): momentary. Cancels once it is released.
 - (B): locked. Cancels when the steering wheel returns to the centre (straight line). It is the right-hand indicators that flash.
- (4) Horn
- (5) Headlights flash
- (6) Headlights position (after engaging main lighting) [see §3.1.8, page 71](#).
- (7) Front and rear windscreen washer

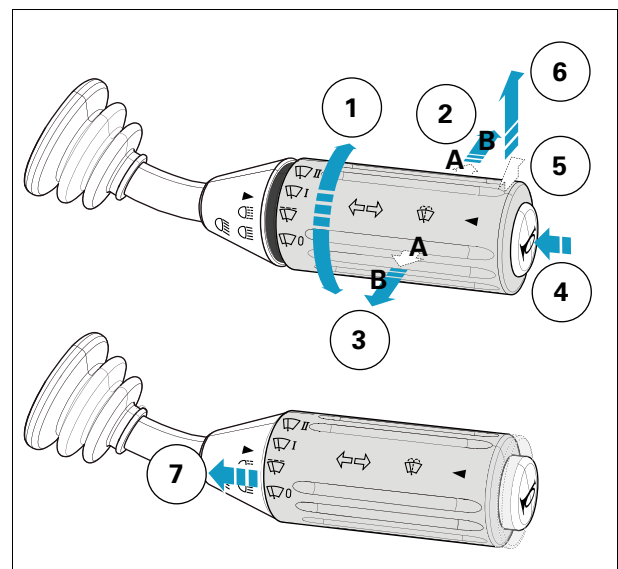


Fig. 11.

I004676

3.1.4 Start switch

T001275

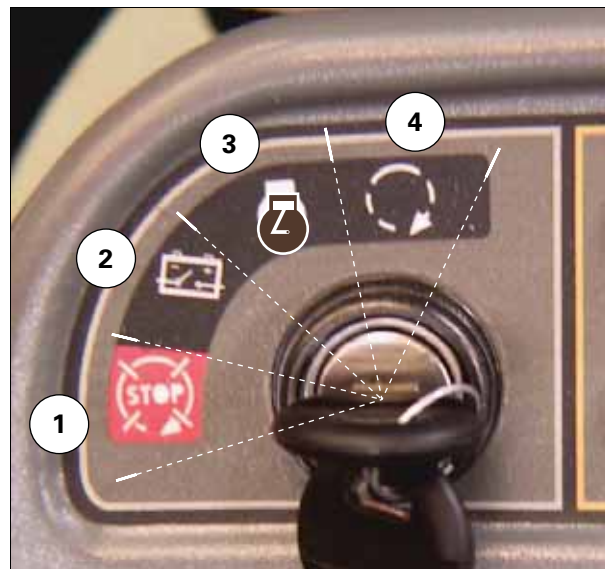


Fig. 12.

I007057

NOTE: The engine runs with the key in position (3). To fully disconnect all electrical equipment, the key must be moved back through the accessory position (2) to the stop position (1).

3.1.5 Pedals

T001276

- (1) Clutch pedal.
- (2) Brake pedals
- (3) Brake pedal locking latch.
- (4) Throttle pedal.

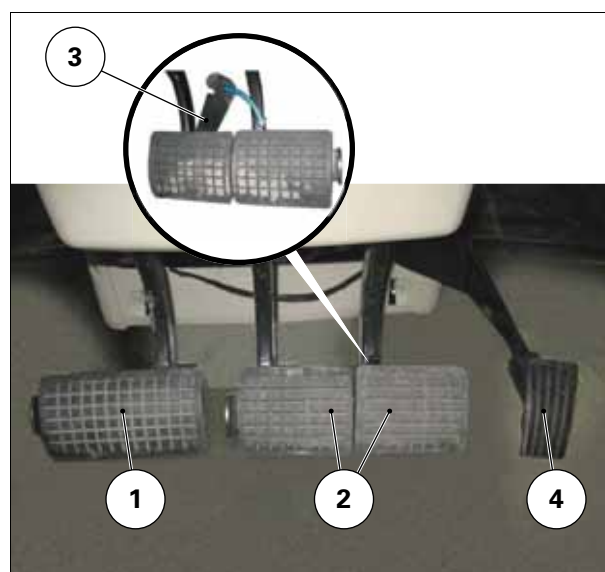


Fig. 13.

I004437

Clutch pedal

The clutch pedal has a safety start switch. The clutch pedal must be depressed fully before operating the starter switch.

IMPORTANT: Never keep your foot on the clutch pedal or keep it halfway engaged.

Brake pedals

The two brake pedals can be used either separately or locked together using the latch ((3)).

Throttle pedal.

Use of the throttle pedal enables a momentary increase of the engine speed set by the hand throttle.



WARNING:

When travelling on the road, only the throttle pedal should be used; the throttle lever should be moved to the idle position so that engine braking can be operational.

3.1.6 Steering wheel

T001277

The steering wheel tilt and height can be adjusted. Both adjustments are made using a single lever *fig. 14*:

- height adjustment: pull the lever upwards to adjust the height ((1))
- tilt angle adjustment: press the lever downwards to adjust the tilt angle ((2)).



Fig. 14.

I007058

3.1.7 Seat

T001278

Different seat models - are fitted according to the options chosen.

Availability of adjustments varies according to the seat option fitted

**WARNING:**

Never adjust the seat when the tractor is in motion.

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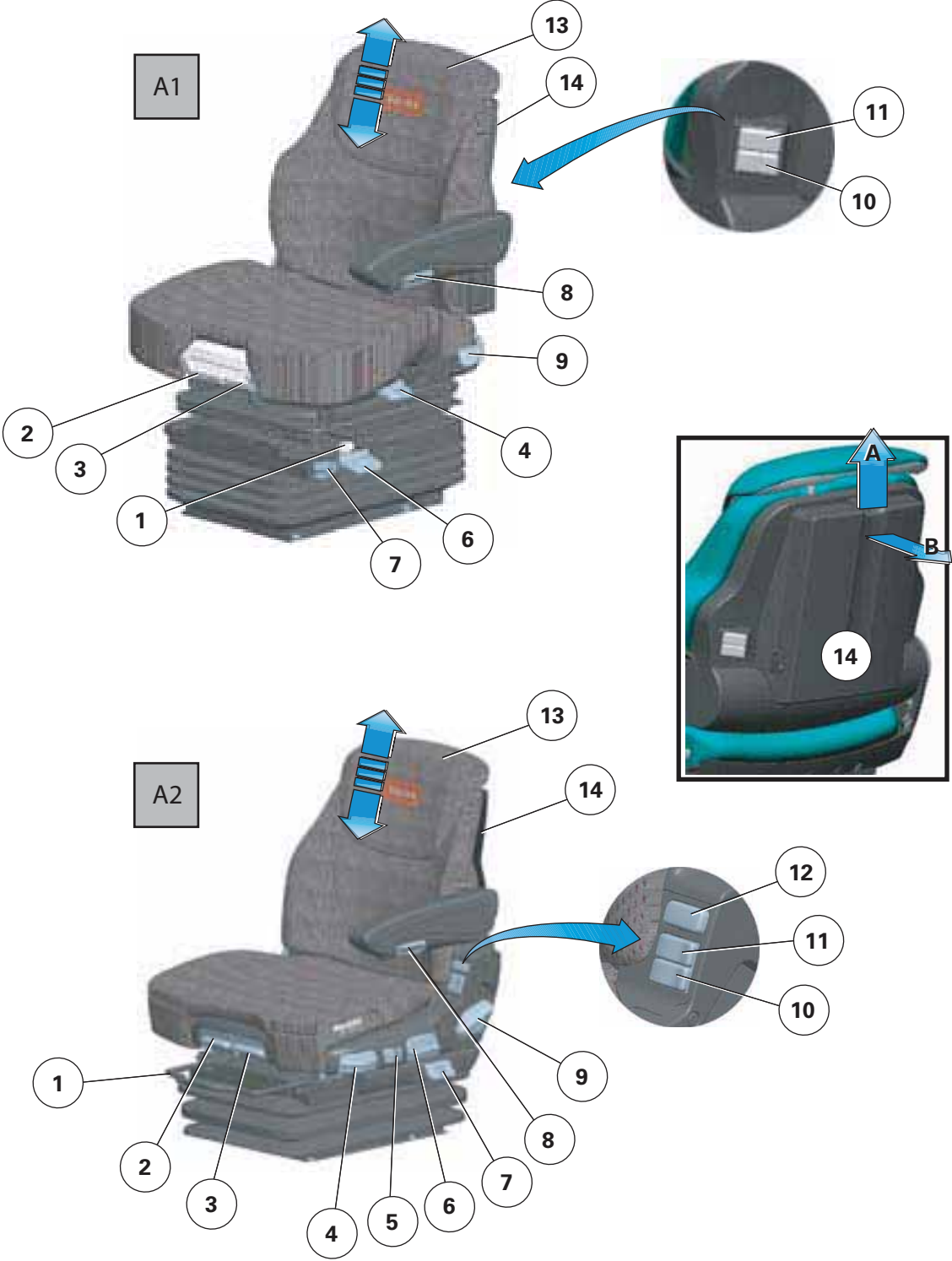


Fig. 15.

1004800

- | | |
|---|--|
| A1 standard seat with automatic adjustment pneumatic suspension | (7) Lateral shock absorber - Fore/aft shock absorber |
| A2 Valtra Evolution seat with automatic adjustment pneumatic suspension | (8) Armrest tilt |
| (1) Legroom adjustment | (9) Backrest tilt adjustment |
| (2) Seat depth adjustment | (10) Lumbar support adjustment |
| (3) Seat tilt adjustment | (11) Lumbar support adjustment |
| (4) Seat swivel adjustment | (12) Seat heater and air conditioning |
| (5) Vertical shock absorber | (13) Backrest extension |
| (6) Seat weight and height adjustment | (14) Storage space for books and user instructions |
| | (15) Seat belt |

Legroom adjustment (1)

Move the locking lever up to enable legroom adjustment. After the adjustment has been carried out, the locking lever should be engaged in the required position. It should not be possible to move the operator's seat into another position when it is locked.

IMPORTANT: Do not lift the locking lever with your leg or calf.

Seat depth adjustment (2)

To adjust the depth of the seat, pull the handle on the right upwards while moving the seat backwards or forwards to find the required position.

Seat tilt adjustment (3)

To adjust the tilt angle of the seat, pull the handle on the left upwards, while pressing on the seat or releasing pressure on the seat to find a comfortable position.

NOTE: There are two tilt angles, spaced 2.5° apart.

Seat swivel adjustment (4)

Pull the locking lever to enable the rotation mechanism and swivel the seat 20° to the right or left (the seat can be locked in position every 10°). After the adjustment has been carried out, the locking lever should be engaged in the required position. It should not be possible to move the operator's seat into another position when it is locked.

Vertical shock absorber (5)

The seat's vertical shock absorber can be adapted to the structure of the road or terrain.

Seat comfort is individually adjustable using the rotary switch:

1. Low shock absorption
2. Medium shock absorption
3. High shock absorption

In addition to these absorption levels, there are additional intermediate levels located between the reference marks.

Seat weight and height adjustment (6)

Seat with pneumatic adjustment suspension

The weight adjustment is carried out automatically when the operator sits on the seat. It is not necessary to operate the handle.

The height adjustment is continuously adaptable due to the pneumatic system: Raise or lower the seat by pulling or pressing on the weight adjustment handle. When the upper or lower height limit is reached, the height adjusts automatically, providing minimum shock absorption travel.

Release the handle at the required height or at the upper stop.

IMPORTANT: To avoid causing any damage, activate the compressor for a maximum of one minute when adjusting the seat height.

Seats with manual adjustment suspension

The weight adjustment is carried out by pulling or pushing the lever fully until a green mark appears on the indicator light (A) indicating the weight and height.

Lateral shock absorber (7)

Under certain conditions of use (driving with a trailer), it is advisable to use the lateral shock absorber; the operator's seat is then better protected against side-to-side jerks. The lateral shock absorber can be activated and deactivated using the locking lever:

- Position 0: Lateral shock absorber OFF
- Position 1: Lateral shock absorber ON

Fore/aft shock absorber (7)

The fore/aft shock absorber allows the operator's seat to be better protected against jerks in the direction of travel.

This suspension is permanently activated and cannot be deactivated by a control component.

Armrest tilt (8)

The tilt angle of the armrests can be adjusted by turning the thumb wheel by hand. If the thumb wheel is turned towards the outside of the seat (+), the front of the armrest will be raised. Turning the thumb wheel towards the inside of the seat (-) will lower the front of the armrest.

The armrests can be tilted backwards and their height can be adjusted as necessary. Remove the protective cover on the left-hand side of the seat (arrow) by unscrewing the hexagonal nut located behind.

Adjust the armrests to the required height (5 notches) and retighten the hexagonal nut. Then, refit the protective cover.

Backrest tilt adjustment (9)

The seat backrest adjustment mechanism can be enabled by moving the locking lever upwards. After the adjustment has been carried out, the locking lever should be engaged in the required position. It should not be possible to move the backrest into another position when it is locked. The backrest tilt angle (positions spaced 2° apart) can be adjusted between -10° and +30°.

Lumbar support adjustment (10) (11)

By operating the upper switch ((11)) or the lower switch ((10)), the lumbar support can be individually adjusted in the upper or lower section of the backrest. This adjustment increases seat comfort and operator freedom of movement.

- Electrical adjustment version: The curvature of the lumbar adjustment is adjusted by pressing "+" or "-" on the relevant switch. Stop pressing "+" and release the switch when maximum backrest curvature is reached. If you continue to press the switch, the seat could drop.

NOTE: To prevent the loss of air, stop pressing the "+" symbol on the switches as soon as the air chambers are completely filled.

- Manual adjustment version: Turn the adjustment thumb wheel in either direction to stiffen or soften the adjustment.

Seat heater and air conditioning (12)

The seat active air conditioning ensures the seat remains dry. Moisture from the body is removed when it comes into contact with the seat. This air conditioning system ensures a more comfortable seat. Press the switch to activate/deactivate the seat heater or air conditioning.

- Position 0: Seat heater and air conditioning OFF
- Position 1: Seat heater ON (air conditioning OFF)
- Position (2): Seat air conditioning ON (heater OFF)

Backrest extension (13)

The height of the backrest extension can be adjusted by pulling it up to the upper stop. To remove the backrest extension, pull firmly upwards past the end stop.

Storage space for books and user instructions (14)

The storage compartment or storage pocket (depending on model) is located on the back of the seat. To open the compartment, first pull the tab ((A)) upwards and then pull the cover backwards ((B)).

Seat belt (15)

Wearing the seat belt plays an essential role in protecting the operator.

**WARNING:**

Always wear the seat belt adjusted correctly.

3.1.8 Right-hand console

T001279

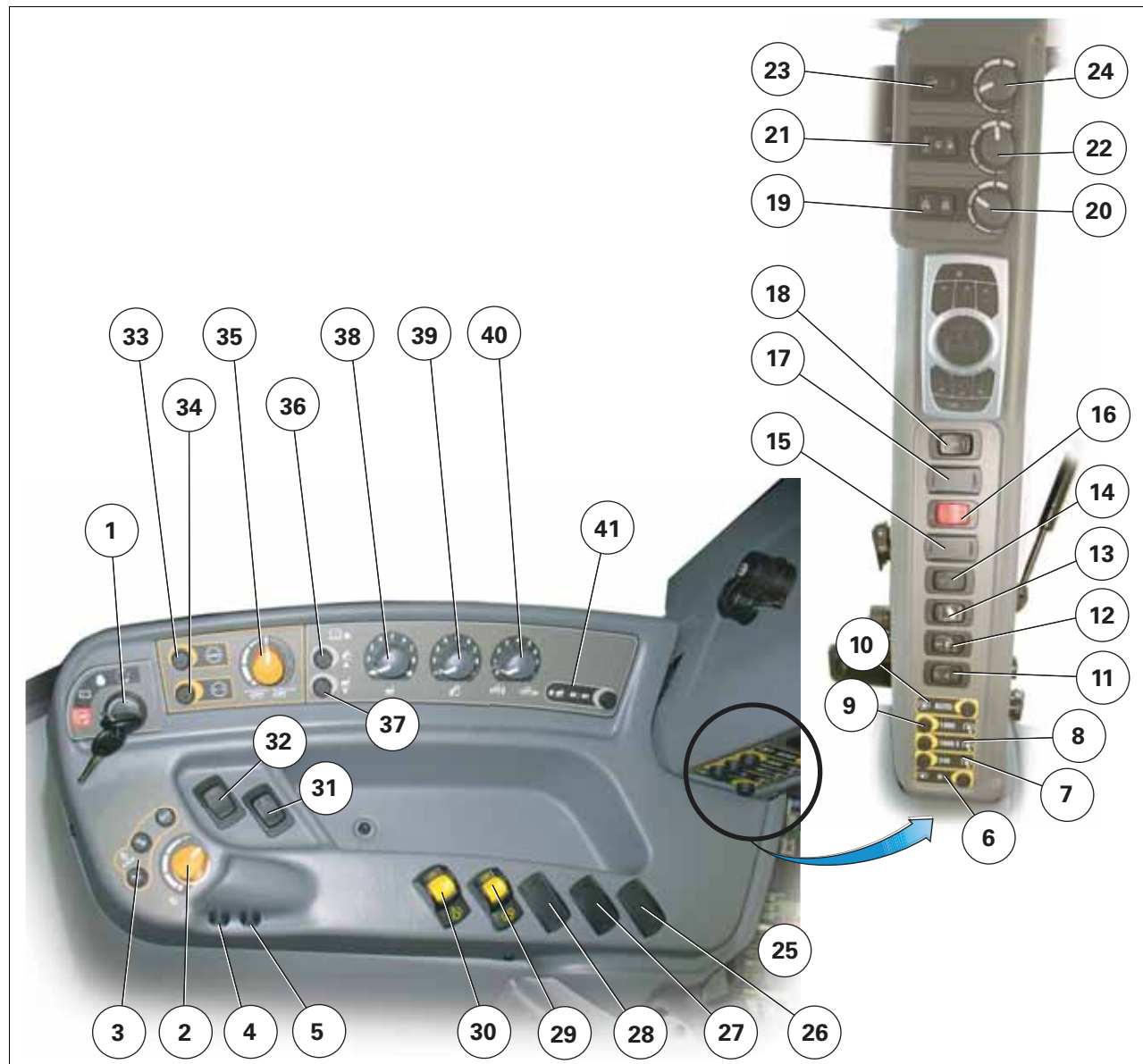


Fig. 16.

I007163

- | | |
|---|---|
| (1) Start switch | (18) Main lighting, sidelight/dipped light activation switch |
| (2) Hand throttle (engine speed) | (19) Front axle suspension switch. |
| (3) Selection of pre-set engine speeds 1/2/OFF | (20) Front axle suspension setting potentiometer |
| (4) Engine speed control (+) | (21) AutoComfort cab suspension switch |
| (5) Engine speed control (-) | (22) AutoComfort cab suspension setting potentiometer |
| (6) Power take-off neutral position (N) selector switch | (23) Quick steering switch (Quick Steering) |
| (7) 540 rpm rear power take-off selector switch | (24) Quick steering setting potentiometer (Quick Steering) |
| (8) Economy rear power take-off selector switch | (25) Access panel to fuse compartment |
| (9) 1000 rpm rear power take-off selector switch | (26) Right and left-hand rear-view mirror electrical adjustment control |
| (10) Rear power take-off automatic mode selector switch | (27) Auto-hitch extension and retraction switch |
| (11) Auto-Guide steering switch | (28) Not used |
| (12) Headland mode switch (headland function) | (29) Rear power take-off switch |
| (13) Front linkage single/double acting switch. | (30) Front power take-off switch. |
| (14) Power socket switch on rear pillar | (31) Front axle engagement switch |
| (15) External rear-view mirror defroster switch | (32) Differential lock switch |
| (16) Hazard warning lights indicator light and switch | (33) Auto/semi-auto transmission mode switch |
| (17) Not used | |

- (34) Hare/Tortoise range mode switch
- (35) Forward and reverse speed control potentiometer (speed balance)
- (36) Linkage lifting switch (in parallel with the switch on the fenders)
- (37) Linkage lowering switch (in parallel with the switch on the fenders)
- (38) Linkage lowering speed control knob
- (39) Linkage height control knob
- (40) Draft control knob
- (41) Rear linkage active transport control system control switch

3.1.9 Multifunction armrest

T001520

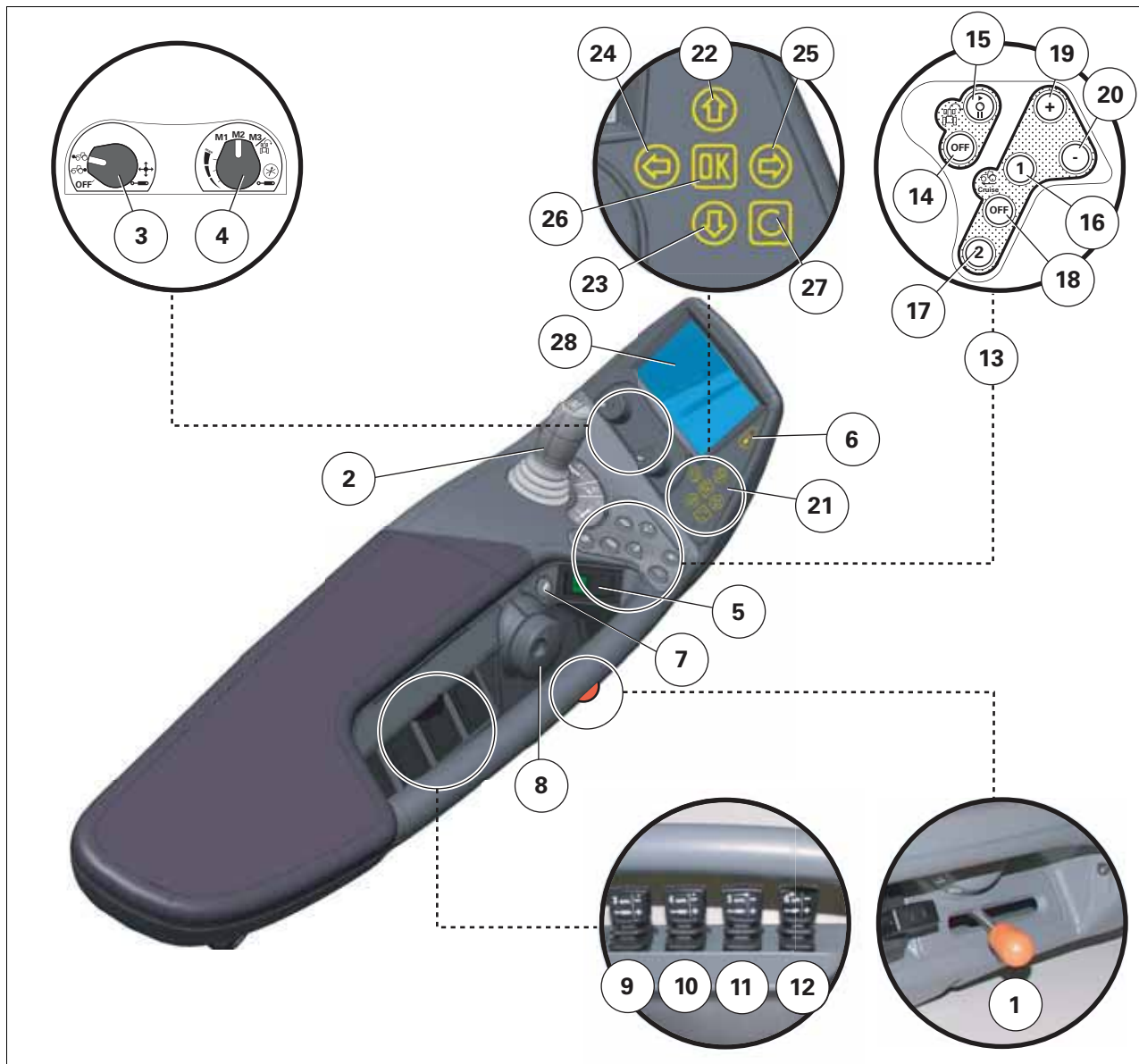


Fig. 17.

I007062

- (1) Transmission control
- (2) 4-function control joystick and additional controls
- (3) Front/rear switch; works with the control joystick ((2))
- (4) Stored spool valve flow rates selector switch: 10%, 50% or 100%
- (5) Three-position switch (lift/stop/lower)
- (6) Auxiliary hydraulics activation switch
- (7) Quick soil engagement switch
- (8) Rear linkage height/depth adjustment thumb wheel
- (9) 3rd spool valve control
- (10) 4th spool valve control
- (11) 5th spool valve control
- (12) 6th spool valve control
- (13) U-Pilot and speed adjustment/control plate
- (14) Activation switch for half-turn mode at the end of a field (U-Pilot)
- (15) Half-turn mode stop switch (U-Pilot)
- (16) Stored speed 1 selector switch
- (17) Stored speed 2 selector switch
- (18) Stored speeds 1 and 2 OFF switch
- (19) Switch (+) to increase selected speed 1 or 2

- | | |
|--|-----------------------------------|
| (20) Switch (-) to decrease selected speed 1 or 2 | (24) Left-hand navigation button |
| (21) Onboard computer menu navigation control
(see references (22) to (27)) | (25) Right-hand navigation button |
| (22) Upper navigation button | (26) Confirmation key |
| (23) Lower navigation button | (27) Cancel key |
| | (28) Onboard computer |

3.1.10 Work lights module

T001516

Controlling the headlights

A keyboard on the right-hand pillar of the cab is used to control the various tractor headlights and rotary beacon.

- (1) Switch and indicator light for main beams on hand rails (available as an option, depending on the country).
- (2) Switch and indicator light for work lights on grille.
- (3) Switch and indicator light for front work lights on hand rails.
- (4) Switch and indicator light for rear work lights on fenders.
- (5) Switch and indicator light for work lights at rear of roof.
- (6) Switch and indicator light for work lights at rear of roof (exterior).
- (7) Switch and indicator light for work lights at front of roof.
- (8) Switch and indicator light for rotary beacon. The rotary beacon may be activated automatically at 30 km/h (19 mile/h (mph)).

To set the automatic activation, the switch must be pressed until the indicator light goes out (approximately 30 seconds). The rotary beacon comes on as soon as the speed exceeds 30 km/h (19 mile/h (mph)), but does not switch off if the speed drops.

To deactivate the automatic activation, the switch must be pressed until the indicator light comes on (approximately 30 seconds).

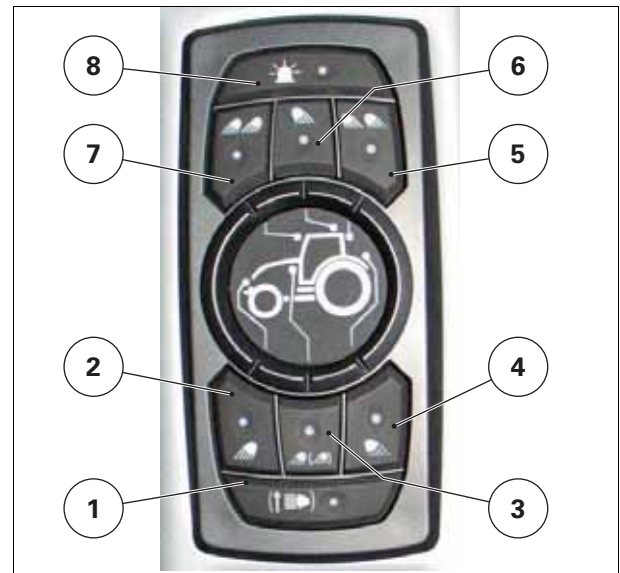


Fig. 18.

I004838

Operation of the lights

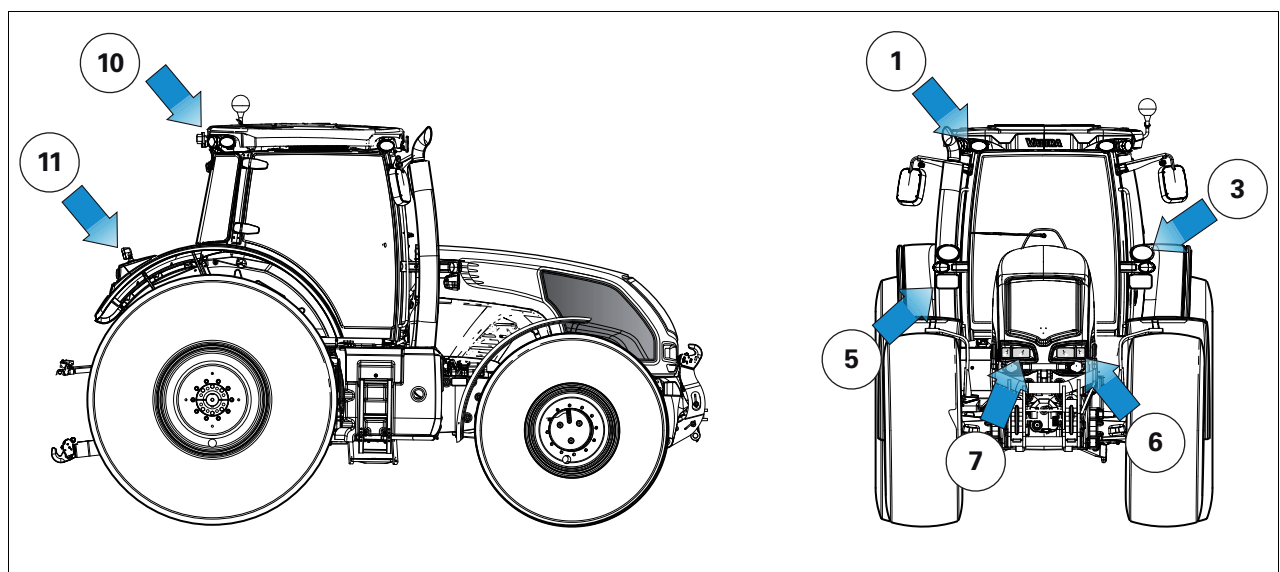


Fig. 19.

I016019

- Work lights (ref. 1, 5, 10 and 11): These only operate after the side lights have been activated. Their status is saved when + ignition on is switched off or when the side lights are switched off.
- Work lights in grille (6): When the work lights in the grille are activated, the dipped lights and main beams (7) in the grille are switched off and the dipped lights and main beams on the hand rails are activated (if this option is fitted).
- Dipped lights and main beams on grille (7): In the dipped beam position, two exterior lights are on. In main beam position, all four lights are on.
- Dipped lights and main beams on hand rails (3) (Optional): Activating the dipped lights and main beams on the hand rail switches off the dipped lights and main beams in the grille.
- Brake lights: These operate when the brakes are applied and when the tractor decelerates quickly.

3.1.11 Left-hand console

T001280

- (1) Main storage tray
- (2) Instructor seat
- (3) Can/bottle stand



Fig. 20.

I007936

3.1.12 Emergency hand brake

T001556

If the brakes fail and in an emergency situation, use the emergency hand brake located to the left of the operator [fig. 6](#).



WARNING:

Never use this emergency brake as a parking brake. For tractors equipped with a ParkLock, it is this function that acts as a parking brake: its control is located on the steering wheel.

IMPORTANT: If the brakes fail, contact your dealer to resolve the problem.

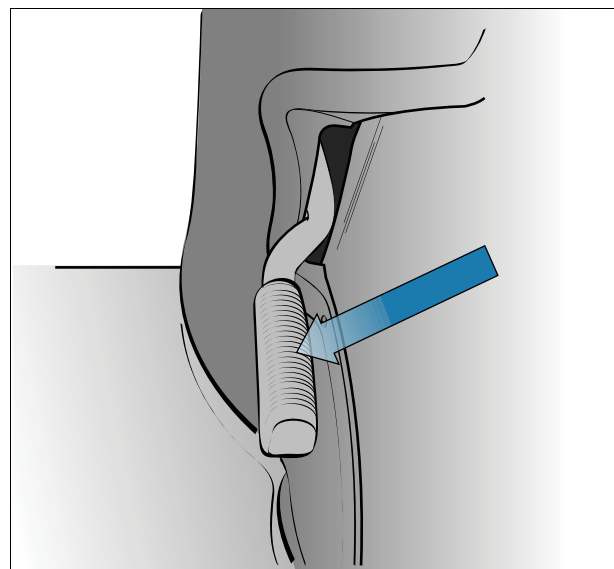


Fig. 21.

I004991

3.1.13 Upper console

T001282

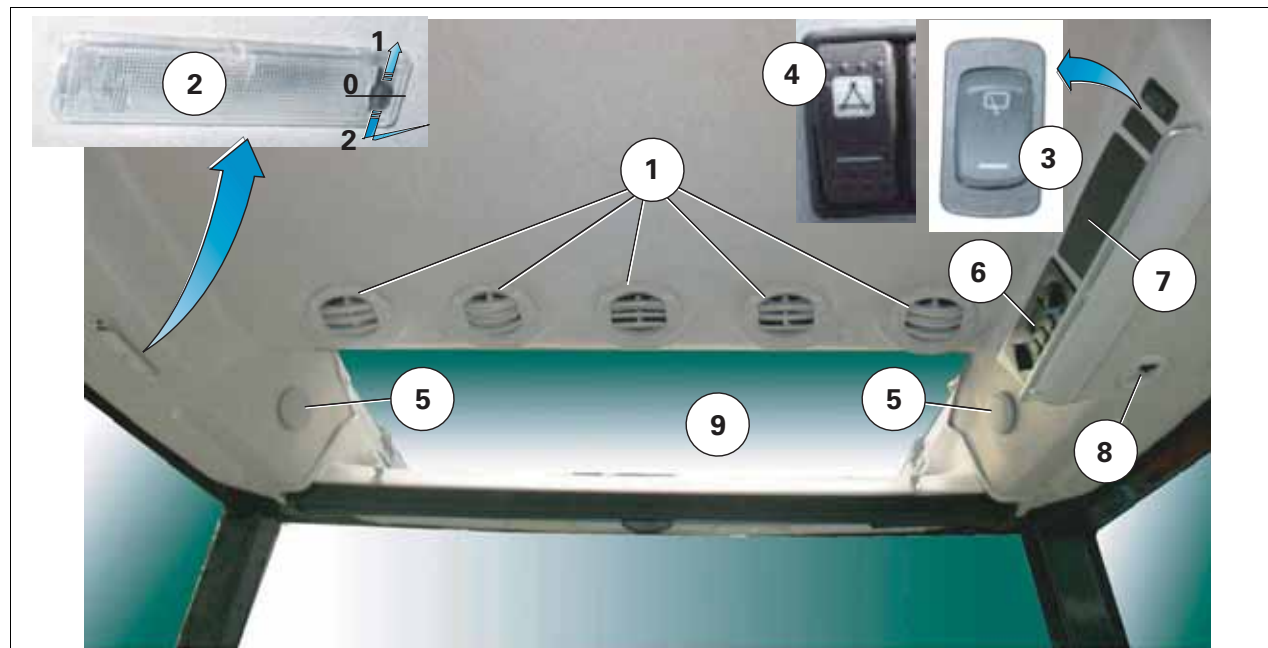


Fig. 22.

I004553

- | | |
|---|---|
| (1) Adjustable air circulation vents. | (7) Radio slot. |
| (2) Interior light (<i>see "Interior light", page 75</i>) | (8) Console lighting bulb |
| (3) Rear windscreen wiper control switch | (9) Opening roof hatch (depending on model) |
| (4) Triflash panel switch on roof (optional) | (10) Rear right-hand and left-hand air recycling grilles <i>fig. 24</i> |
| (5) Loudspeakers for radio | |
| (6) Air conditioning control module | |

Interior light

- 0 Off
 1 Light comes on when opening the left-hand door
 2 Permanently on

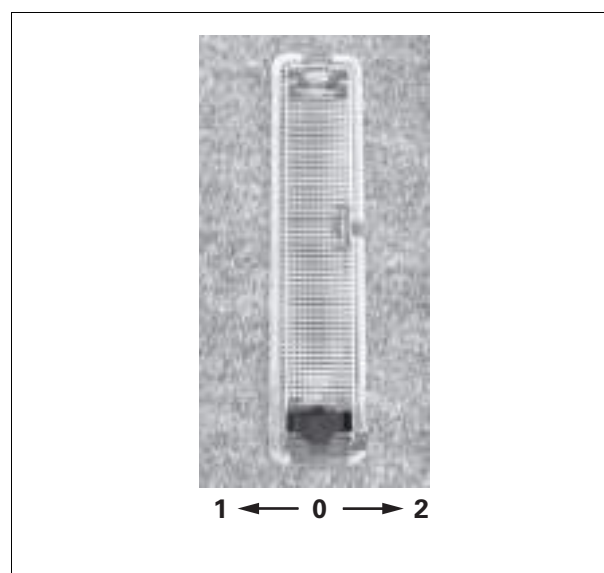


Fig. 23.

I003302

Rear right-hand and left-hand air recycling grilles

With manual air conditioning:

- A Outside air enters via the cab filters
- B Recirculation
- 10 Rear right-hand and left-hand air recycling grilles [fig. 24](#)

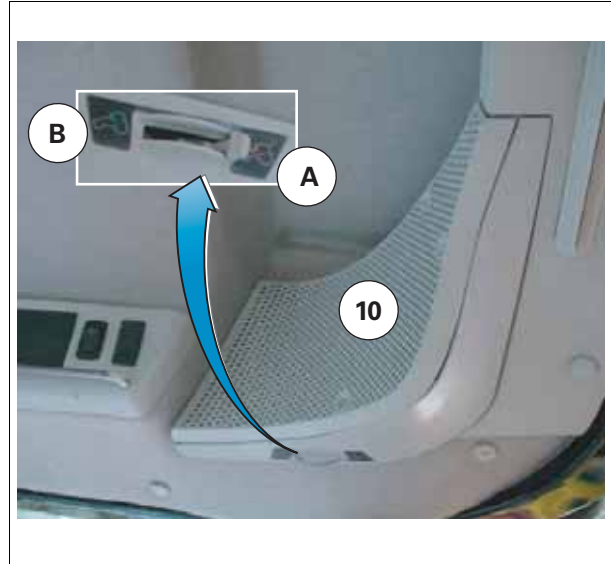


Fig. 24.

I004552

NOTE: With automatic air conditioning, the recirculation shutters are controlled directly via the air conditioning module (see "Automatic air conditioning", page 77).

3.1.14 Air conditioning

T001281

Air conditioning system air flow

(A) Main fan air flow

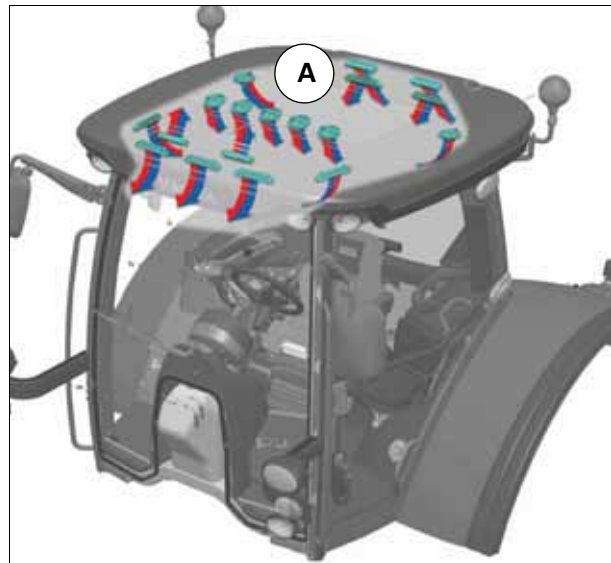


Fig. 25.

I007083

When the air conditioning system is in use, the cab doors and windows must be closed. Switch off the system before starting up the engine.

IMPORTANT: To prevent seizure of the compressor and keep the cooling system in good condition, the air conditioning must be operated for a few minutes at least once a week, even in winter.



WARNING:

Do not attempt to disassemble any part of the air conditioning system.

NOTE: System charge - have the charge of refrigerant gas checked by your dealer once a year. Ensure that the cab air filter is clean.

Standard air conditioning

- (1) Main fan/left-hand side fan control knob
- (2) Thermostat (minimum/maximum) control knob
- (3) Heating (minimum/maximum) control knob

Using the main fan

- The fan control knob ((1)) is used to adjust the fan speed (from 0 to 4) *fig. 26*.
- The thermostat control knob ((2)) is used to adjust the air conditioning temperature *fig. 26*.
- The heating control knob ((3)) is used to adjust the heating temperature *fig. 26*.

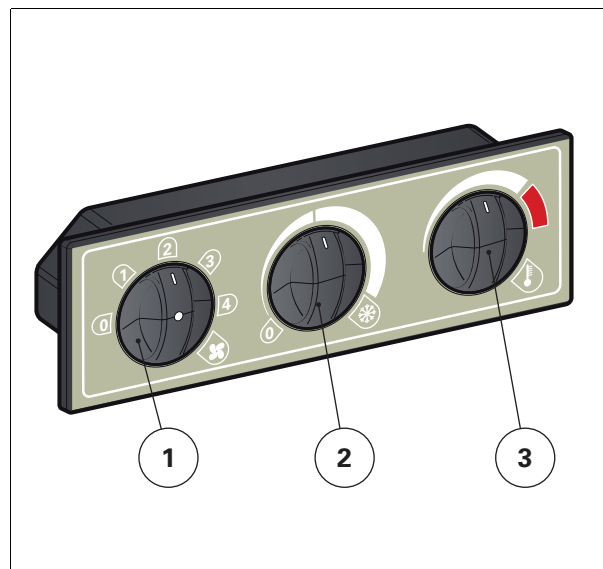


Fig. 26.

I015053

Automatic air conditioning

- (1) Manual/automatic fan control
- (2) Digital display (LCD)
- (3) Compressor ON/OFF button
- (4) Defroster button
- (5) Recirculation button
- (6) Temperature control knob

Using the main fan

The temperature inside the cab is controlled automatically by the air conditioning system, which controls the air temperature at the air vents, fan speed, recirculation and compressor operation.

The "HI" and "LO" displays and tractor icon indicate the recirculation status.

Operation when the engine is stopped

When the tractor is started, all manual actions carried out before stopping the vehicle are stored and are suggested at successive start-ups; except for the defrosting function.

Pre-selecting the cab temperature

Preselect the required temperature using knob (6). The preselected value is shown on the LCD display (2).

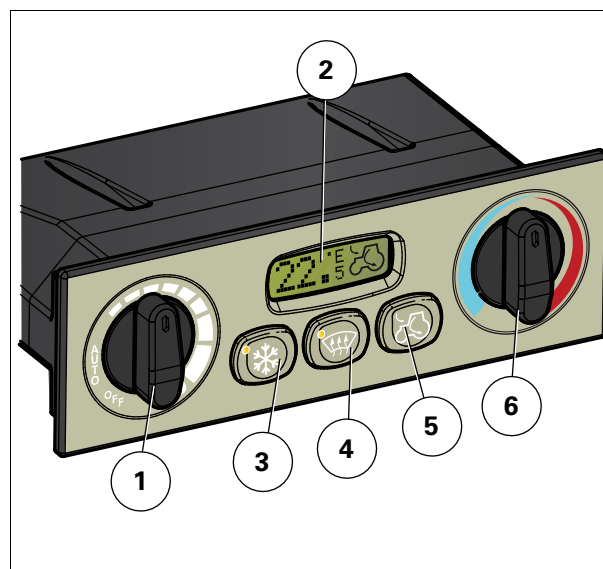


Fig. 27.

I007092

Changing the display from Celsius to Fahrenheit

1. Switch off the engine ignition
2. Move fan switch (1) to OFF position.
3. Move temperature knob (6) to maximum heat position (red)
4. Switch on ignition and, within 5 seconds, press defroster button (4) and recirculation button (5) simultaneously.
5. The temperature symbol (°C or °F) will appear on the LCD screen.
When there is a problem or error, an "E" symbol is displayed to warn the user (contact your dealer to determine the cause of the problem).
6. Turn the fan control knob (1) to the AUTO position.
7. Turn the knob ((6)) to adjust the temperature and confirm the unit of measurement.

NOTE: When there is a problem or error, an "E" symbol is displayed to warn the user (contact your dealer to determine the cause of the problem).

Maximum temperature

To reach maximum temperature, adjust the cab temperature to over 28 °C.

- Air conditioning is in ON position (A/C LED is lit)
- "HI" is displayed on the LCD screen.

Minimum temperature

To reach minimum temperature, adjust the cab temperature to below 18 °C.

- activation of the compressor (A/C LED lit up)
- "LO" is displayed on the LCD screen.

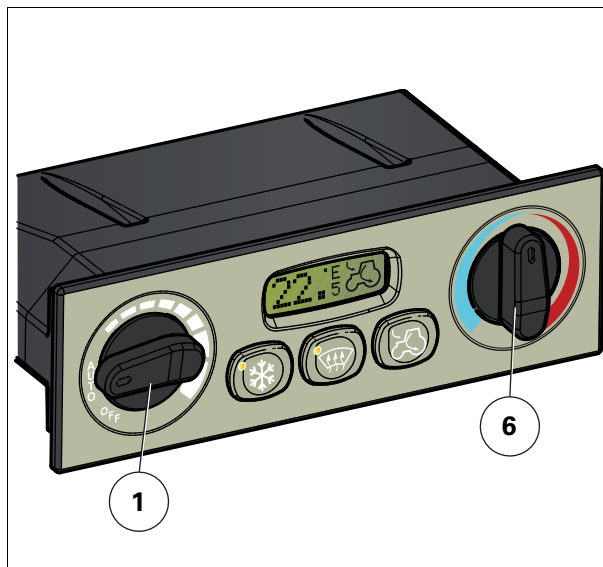


Fig. 28.

I013596

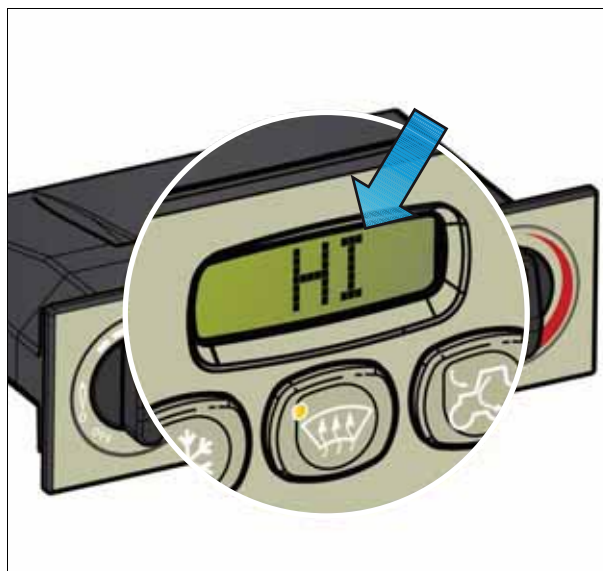


Fig. 29.

I011869

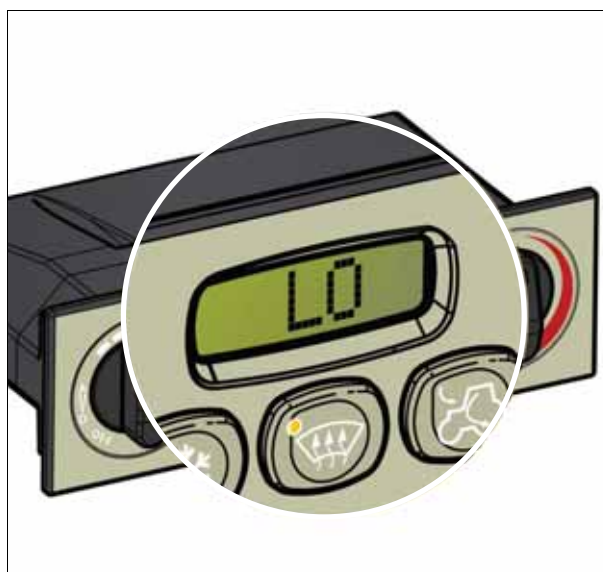


Fig. 30.

I011871

Defrosting function

NOTE: All the adjustable air vents on the ceiling must be closed to ensure the windscreen and side windows are fully defrosted [see §3.1.13, page 75](#)

The defrosting function is activated by pressing the defroster button ((4)). The relevant indicator lights up. The compressor is activated (A/C LED is lit) "HI" is displayed on the LCD screen.

To switch off the defroster and return to the previous state, press the defroster button again (the LED ((4)) is switched off); otherwise it will switch off once the 3 minutes have passed.

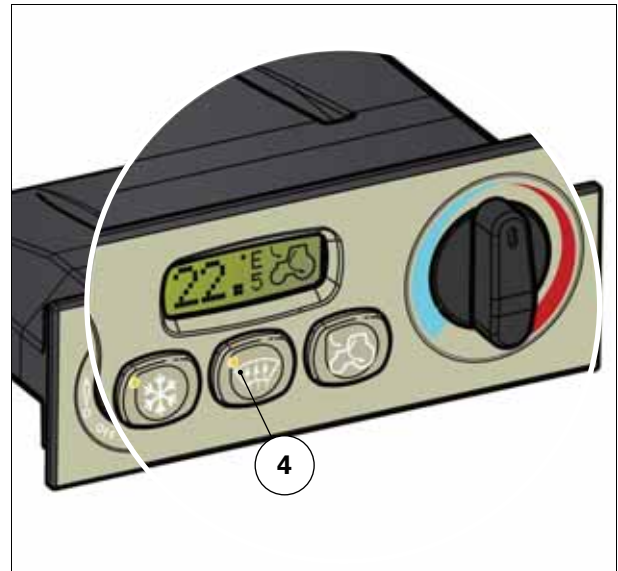


Fig. 31.

I011873

Changing the air flow

When the fan control knob (1) is in auto position (A), air flow is selected automatically. Air flow changes are gradual.

It is possible to manually select a different airflow to that selected automatically by turning the knob to a different position. The air flow changes immediately.

Depending on the level of solar radiation, the air flow adjusts automatically if the required temperature is lower than the outside temperature, and the LCD temperature display flashes.

Air flow can be adjusted to maintain the temperature inside the cab at pre-selected levels.

Stopping the automatic function

Move fan button 1 to the OFF position ((B)).

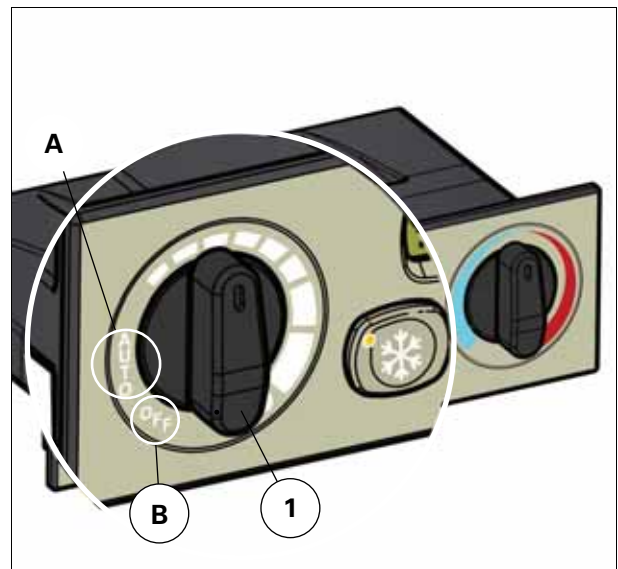


Fig. 32.

I011875

Air conditioning button

The tractor icon indicates the recirculation function on the LCD screen after the button ((3)) is pressed. The corresponding indicator light comes on when the compressor is activated.

When recirculation is in ON position, the air conditioning unit is normally on; it can be switched off by pressing the button ((3)).

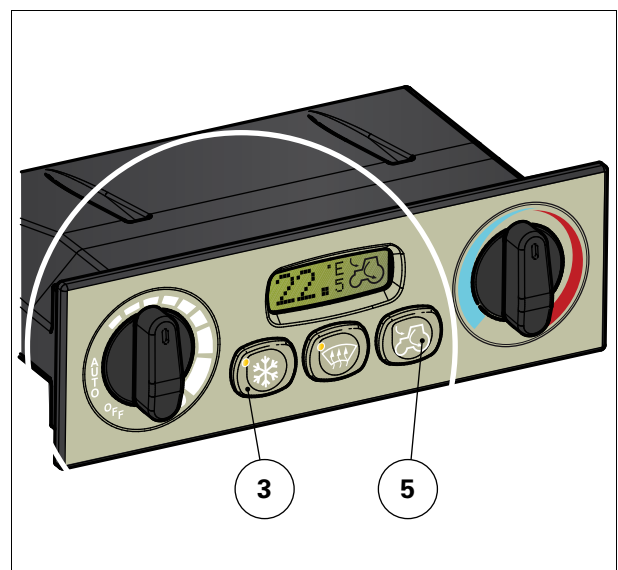


Fig. 33.

I011876

Recirculation

The regulation in automatic mode varies according to the outside temperature.

- If the recirculation button ((5)) is pressed once (ON position), an arrow is displayed inside the tractor icon on the LCD screen.

- If the recirculation button ((5)) is pressed a second time (OFF position), an arrow is displayed outside the tractor icon on the LCD screen.
- If the recirculation button ((5)) is pressed a third time, automatic control is restored and the letter (A) (automatic) appears in the tractor icon.
- Each time the unit is activated, if the external temperature is higher than a pre-determined level, wait 2 minutes to change the air inside the cab before overriding the recirculation function.

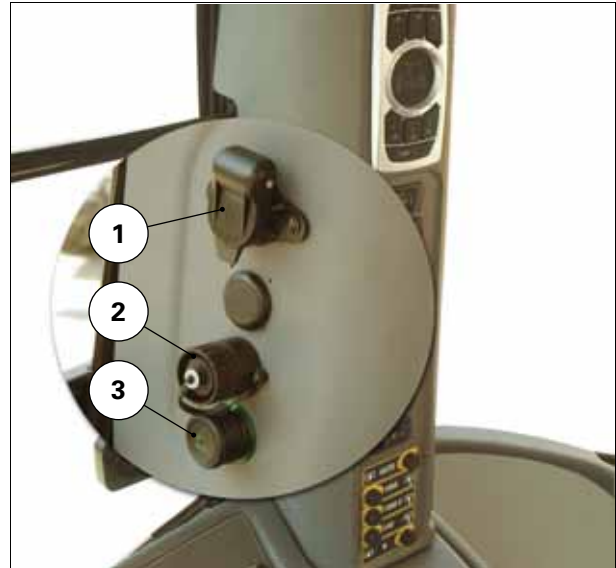
NOTE: If external temperatures are high, it is advisable to work with the system in recirculation mode, with control knob (1) in automatic position [fig. 32](#).

3.1.15 Accessories sockets

T001739

Rear right-hand pillar sockets.

- (1) 12 volt electrical connector for connecting monitoring screens, control units and other accessories.
- (2) Tractor signal transmittal socket as per ISO 11786 standard.
Used to transmit signals such as: engine speed, theoretical and actual forward speed and PTO speed.
- (3) Cigarette lighter socket.
- (4) Power socket in accordance with DIN 4165 standard.
- (5) 12 volt electrical connector for connecting monitoring screens, control units and other accessories. The connector is controlled by switch (14)



I007075



Fig. 34.

I007079

Identifying the connectors

Pillar socket, terminal no.:

- (1) (15/30) +12 V permanent or controlled by switch (3) [fig. 34](#) protected by fuse F52 (30 A)
- (2) (82) +12 V Ignition On protected by fuse F66 (10 A)
- (3) (31) - Earth

Rear pillar socket

- (1) (15/30) +12 V permanent protected by fuse F54 (30 A)
- (2) (82) +12 V Ignition On protected by fuse F66 (10 A)
- (3) (31) - Earth

NOTE: A male plug (G 205900900020) which connects to the power socket ((1)) is available from your dealer.



Fig. 35.

I006196

3.1.16 Sun visor

T001283

Sun visor for front windscreen

The front sun visor is adjustable by notches.

To change its position, pull the visor ((1)) downwards until the required position is reached [fig. 36](#). To raise the sun visor, pull the cord ((2)).

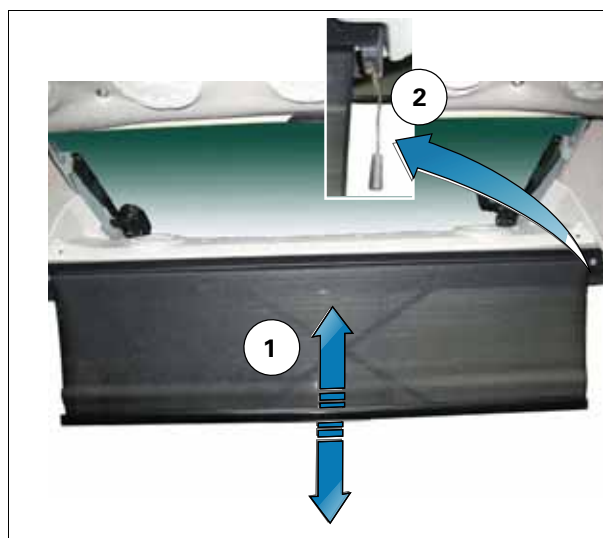


Fig. 36.

I004525

3.2 Reverse station (optional)

3.2.1 Positioning the reverse station

T008541

IMPORTANT: The engine must be started before positioning the reverse station



DANGER:

Before starting the engine, check that the Valtra Shuttle lever is in ParkLock position.

Steering wheel position

1. Lift up the main steering wheel to the maximum to allow the seat to swivel fully

NOTE: Position the reverse station steering column to the right or left to facilitate seat swivel.

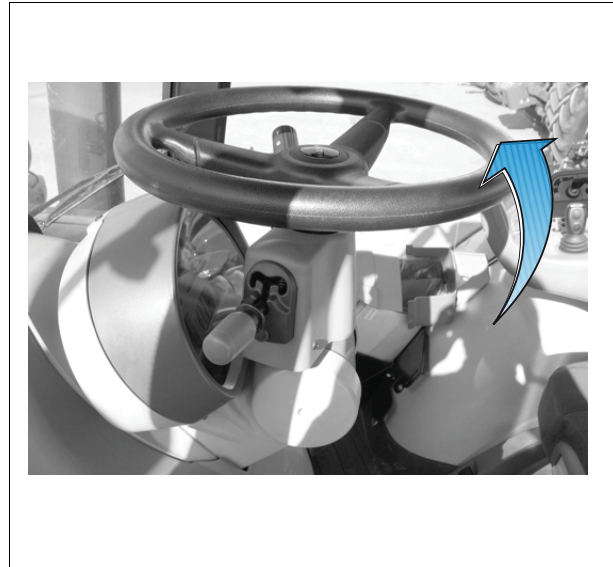


Fig. 1.

I021318

Armrest

2. With the operator in the normal operator's seat: Move the handle (1) located on the right-hand side of the armrest to release the lock, then move the armrest towards you as far as possible (2).

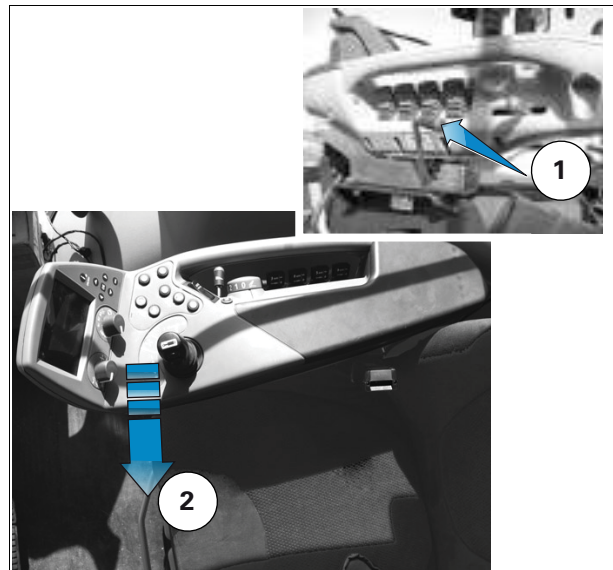


Fig. 2.

I025727

Seat

3. Move the seat back as far as possible.
4. Lift the handle (1) and turn the seat 180° as shown by ref. (2) so it is positioned facing the reverse station.

IMPORTANT: When the operator's seat is turned, a safety switch is engaged, which allows the reverse station controls to be connected. It must be carried out with the engine running.

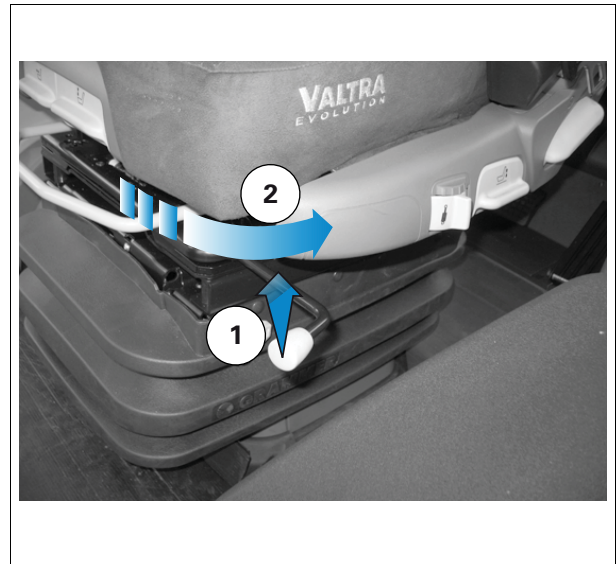


Fig. 3.

I021320

3.2.2 Reverse station adjustments

T008586

Adjusting the steering column

The reverse station steering column can be tilted towards the operator and also moved left or right.

1. Lift up the handle as shown by ref. (1) to unlock the steering column and tilt it to the desired position.
2. Lower the handle as shown by ref. (2) to lock the steering column into place.
3. Moving the steering column: Loosen the thumb wheel under the steering column and move the assembly to the left or right as desired.

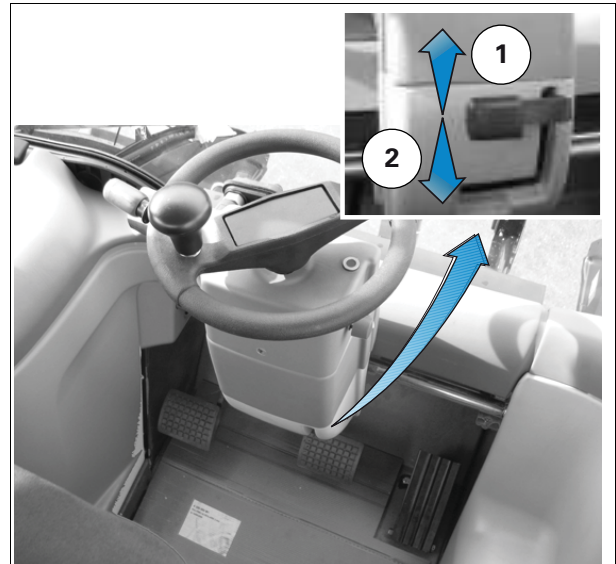


Fig. 4.

I021336

3.2.3 Valtra Shuttle controller

T008584

Valtra Shuttle and ParkLock

These functions are used in the same way as those used under normal driving conditions.

1. When sitting in the seat, disengage the Park-Lock (1) to activate the Valtra Shuttle (2), [see §3.8.4, page 134](#).
2. Shifting to manual — mode 2 mode, switch (3): This mode is used exactly as described in the relevant chapter [see §3.8.6, page 137](#).

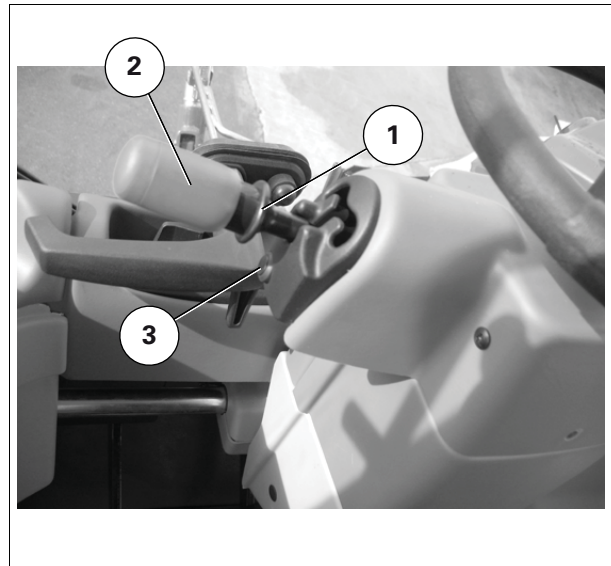


Fig. 5.

I022095

3.2.4 Reverse station driving

T008562

- ⚠ DANGER:**
It is forbidden to drive in reverse station position on roads open to normal traffic. When driving in reverse station position, travel speed is limited to 25 km/h in both directions.
- ⚠ CAUTION:**
The operator must remain seated on the seat to be able to use the reverse station functions. Operation of the pedals and Valtra Shuttle lever is the same as in the normal driving position without reverse station.
- ⚠ WARNING:**
The seat belt must be worn and correctly adjusted at all times and the rear window must remain closed.
Check that the steering and brakes are working properly whenever the operator's seat position is changed.

Operation

NOTE: The normal operator's seat is no longer operational when the operator switches to reverse station and vice versa.

1. Engage the Valtra Shuttle lever in the desired direction of travel and the displays (1) and (2) appear on the Dash Control Center.
2. The indicator light (1) [fig. 7](#) is lit.

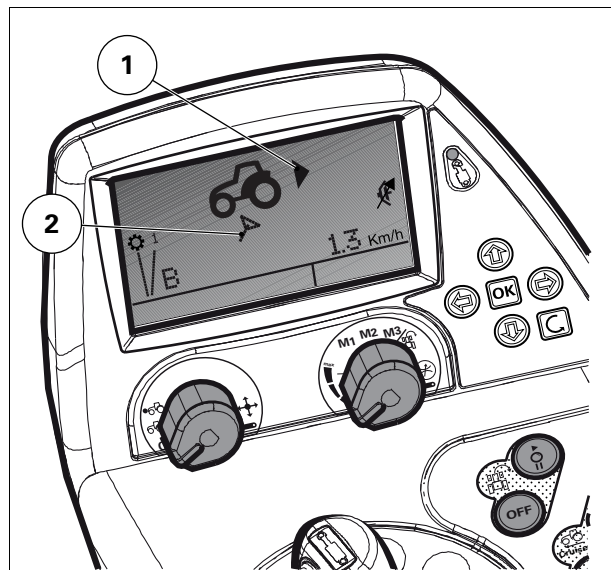


Fig. 6.

I021546

Adjusting the steering

1. Steering progressivity can be adjusted using the button (2).
2. Turn it towards (+) to obtain faster steering (about two turns of the steering wheel).
3. Turn it towards (-) to obtain slower steering (about five turns of the steering wheel).

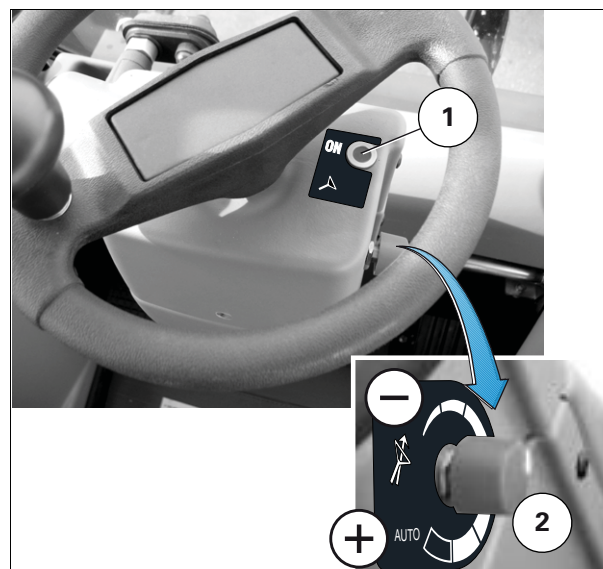


Fig. 7.

I021353

3.2.5 Leaving the reverse station

T008565

Procedure**CAUTION:**

Before leaving the reverse station, ensure that the Valtra Shuttle lever (1) is in ParkLock position.

1. Put the steering column (2) back in the vertical position
2. Move the steering column to the right or left to facilitate seat swivel
3. Lift up the armrest and turn the seat so it is back in its normal driving position
4. Lower the armrest by engaging the lock and put the main steering wheel back in its normal driving position.

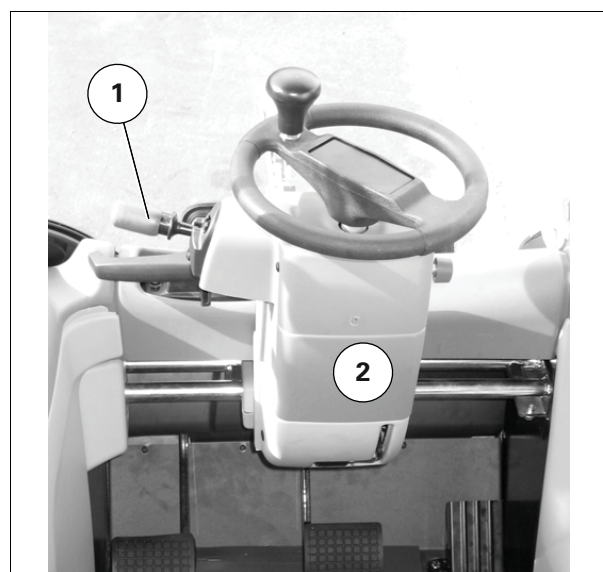


Fig. 8.


I021601

3.3 Dash Control Center control screens on the instrument panel

3.3.1 Using the instrument panel control screen

T001536

- (1) Dash Control Center control screen
- (2) Dash Control Center controls

The instrument panel screen initialises when the tractor is started. To access the various menus, simply press the left or right keys on the control keypad  and follow the instructions described in the table below [see §3.3.2, page 86](#).

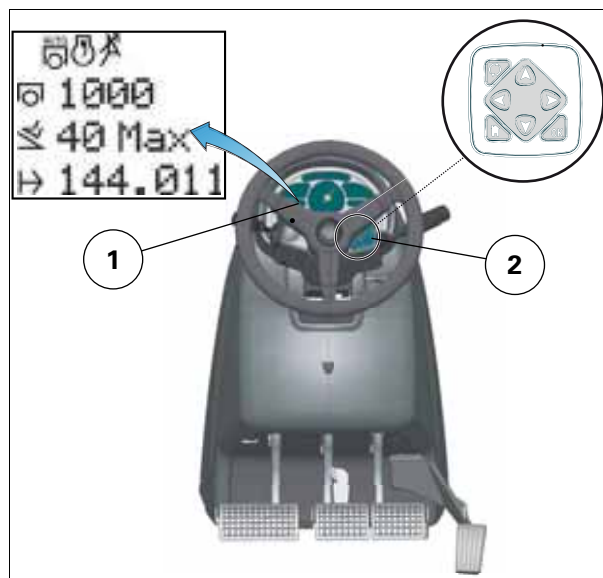
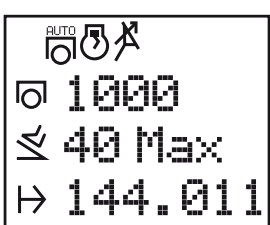
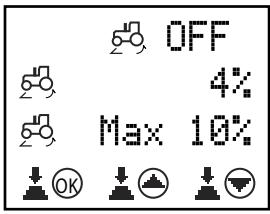


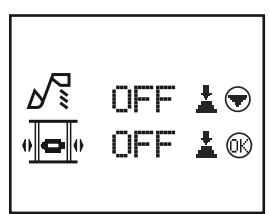


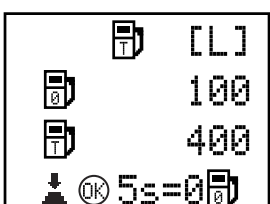





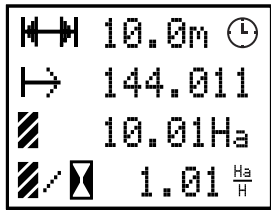


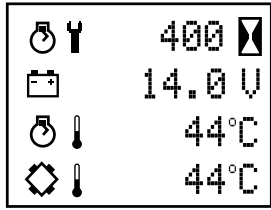




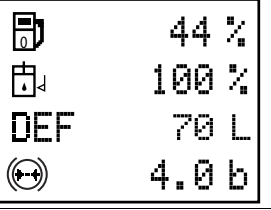



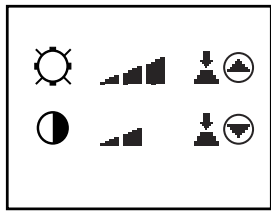



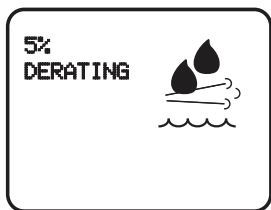
Fig. 1.

I011352

3.3.2 Dash Control Center screens

T002973

Screen		Function
		Main mode screen Displays the PTO speed, maximum set speed, distance travelled, whether or not the rear PTO is in automatic mode, whether ASR is engaged or not, variable steering.
	 	Wheel slip control screen This screen is used to activate/deactivate wheel slip control, to set the maximum permissible wheel slip and to display the actual amount of wheel slip Activates/deactivates wheel slip control Increases or decreases the maximum permissible wheel slip (from 0 to 100 %)
	 	Front-end loader screen Displays the loader suspension and shows whether the accessory installed is locked/unlocked "ON": function activated "OFF": function deactivated To activate/deactivate the front-end loader suspension. To lock/unlock the accessory installed.
	 	Fuel counter screen Daily counter, quantity of fuel consumed since the last zero reset Total counter, total quantity of fuel consumed The daily counter can only be reset to zero by pressing key  for 5 seconds.

Screen		Function
	 	Area worked counter screen This screen displays the distance covered, the area worked and the area worked per hour. Adjusts the working width of the implement. Selects the event activation for counting; Never/All the time. Only the distance travelled can be reset to zero; this is done by pressing the button for 5 seconds.
	   	Diagnostics screen 1 Number of hours until next draining procedure Battery voltage Engine temperature Transmission temperature
	  DEF 	Diagnostics screen 2 Diesel fuel tank level Auxiliary hydraulic oil tank level Tank level for a E3 engine with AdBlue/DEF technology (urea) Pneumatic brake pressure
	 	Brightness/contrast adjustment screen This screen is used to adjust the brightness and contrast of the instrument panel. Adjusts the instrument panel brightness level. Adjusts the instrument panel contrast level.
		Error code screen This screen appears as soon as a tractor-related error is active.
		Screen showing the different modes of E3 engine with AdBlue/DEF technology <i>see §3.76, page 127</i>

3.3.3 Dash Control Center on tractor terminal

T003596

Description

The tractor terminal screen ((1)) and its keypad are located on the right-hand armrest.

The tractor terminal screen can be used to:

- Select the functions required for a variety of working conditions.
- Monitor fuel consumption, hours worked, the distance travelled and the area covered.
- Access one of the three factory settings for the auxiliary hydraulic system, or save user settings (maximum 3 settings).
- Provide servicing information, mainly for the requirements of the approved servicing agents.







Fig. 2.

I010368

Functions of the Dash Control Center keys

- (1) Tractor terminal screen
- (2) OK key
- (3) Navigation keys
- (4) ESC key

The keys on the tractor terminal keypad allow the operator to navigate through different fields on the screen, modify values and activate the auxiliary hydraulic system controls.

Key	Function
	<ul style="list-style-type: none"> • When pressed once, navigates away from the present field in the required direction. • When held down, rapidly navigates in the required direction.
	<ul style="list-style-type: none"> • When pressed once, activates the required field in order to modify the data. When the OK key is pressed again, the value is saved in the field and the field is deactivated. • When held down, the next screen is opened.
	<ul style="list-style-type: none"> • When pressed once, the activated value increases by one unit. • When held down, the value is increased, for example in increments of 10 (depending on the field selected). • When held down continuously, the value increases up to the maximum limit.
	<ul style="list-style-type: none"> • When pressed once, the activated value decreases by one unit. • When held down, the value is decreased, for example in increments of 10 (depending on the field selected). • When held down continuously, the value decreases down to the minimum limit.
ESC	<ul style="list-style-type: none"> • When a field is activated, the ESC key can be pressed once to reset the original value and deactivate the field. • When pressed once, the previous screen is displayed. • When held down, the most recently selected driving view is displayed.

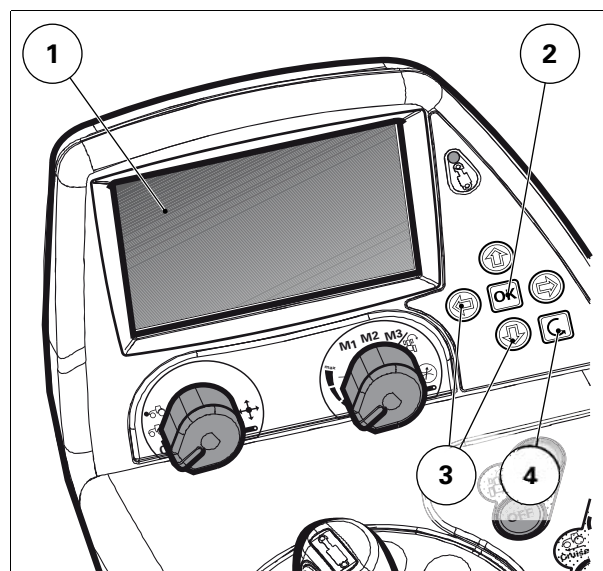


Fig. 3.

I010098

3.4 Tractor terminal

3.4.1 Accessing the menus

T003600

Several information and settings displays can be accessed from the main menu. The ignition must be switched on in order to access the menus.

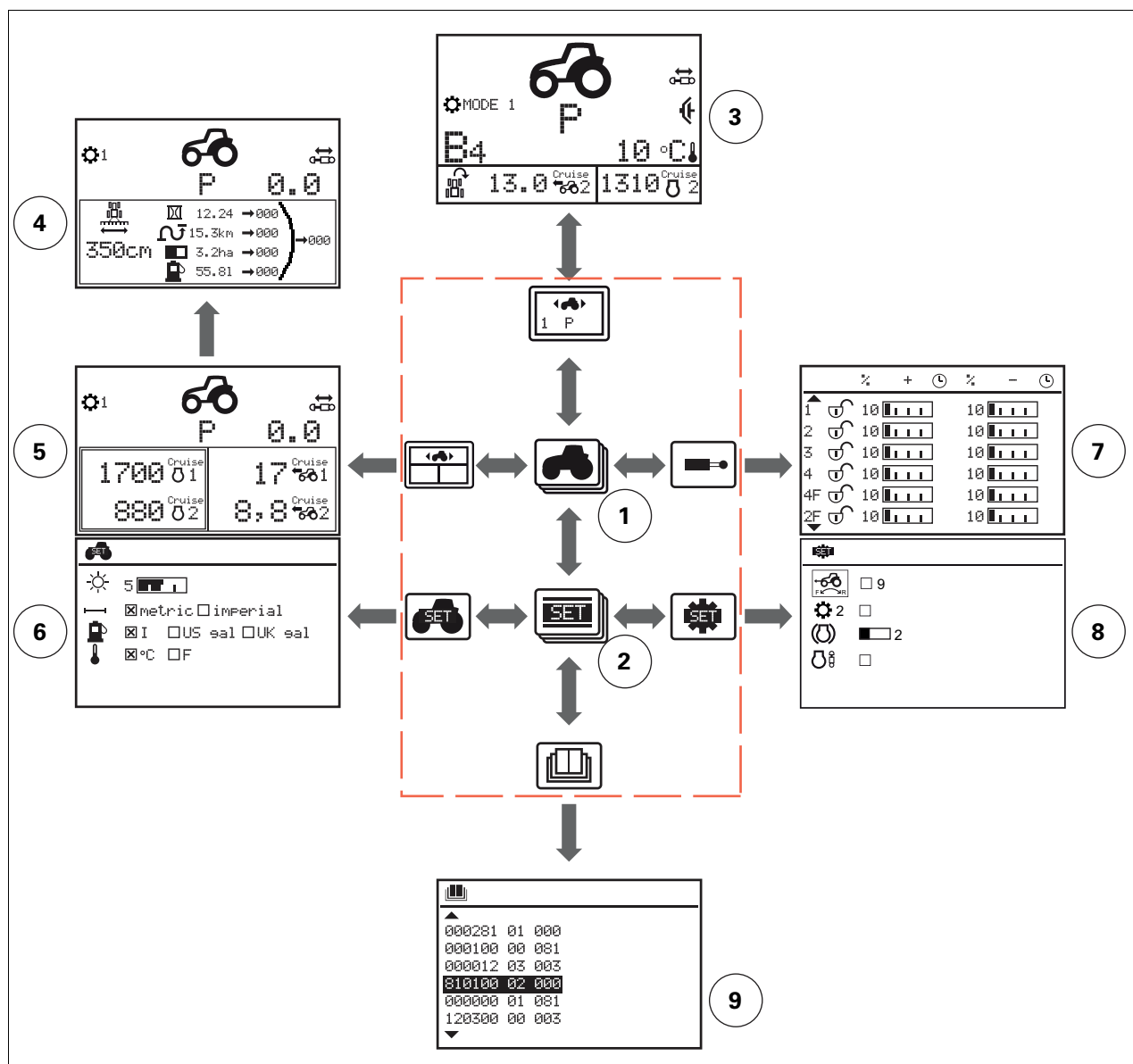


Fig. 1.

I010106

- | | |
|---|---|
| (1) Main menu | (6) View for modifying the units of measurement and adjusting screen brightness |
| (2) Settings menu | (7) Hydraulic system settings view |
| (3) Large driving view | (8) Transmission settings view |
| (4) Implement width and counters resetting view | (9) Maintenance function codes view |
| (5) Split driving view | |

1. If the main menu is not displayed, press ESC as many times as necessary until it appears.
2. If the main menu is displayed, press the appropriate arrow key to move through the menu in the required direction.
3. Press an arrow key again to access the various views.

3.4.2 Accessing the large driving view

T003601

The large driving view can be accessed from the main menu [fig. 2](#).

1. If the main menu is not displayed, press ESC as many times as necessary to make it appear.

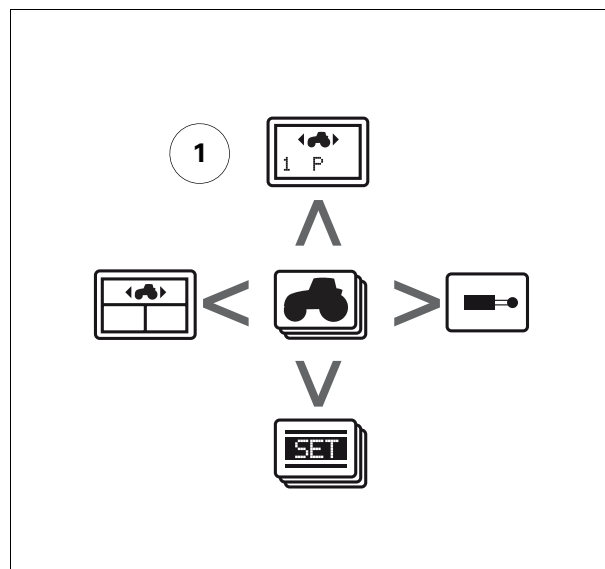


Fig. 2.

I010110

2. If the main menu is displayed, press the up arrow key. The large driving view is displayed.

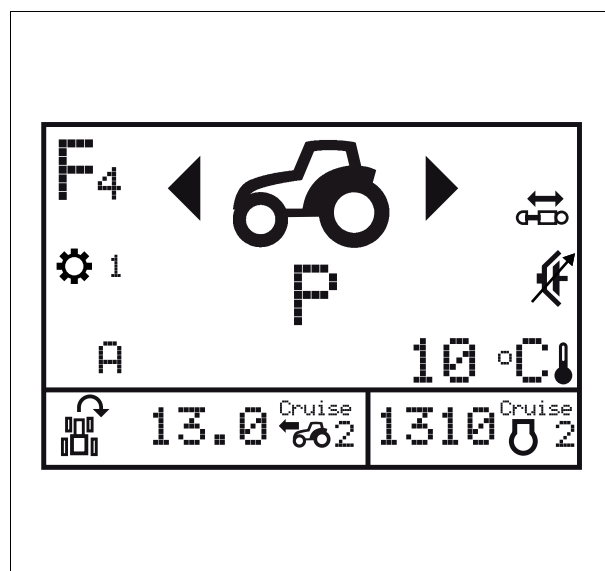


Fig. 3.

I010112

3.4.3 Symbols in the large driving view

T003602

The large driving view uses symbols to convey useful information on the working and driving conditions.

Symbols relevant to the reverse shuttle

3

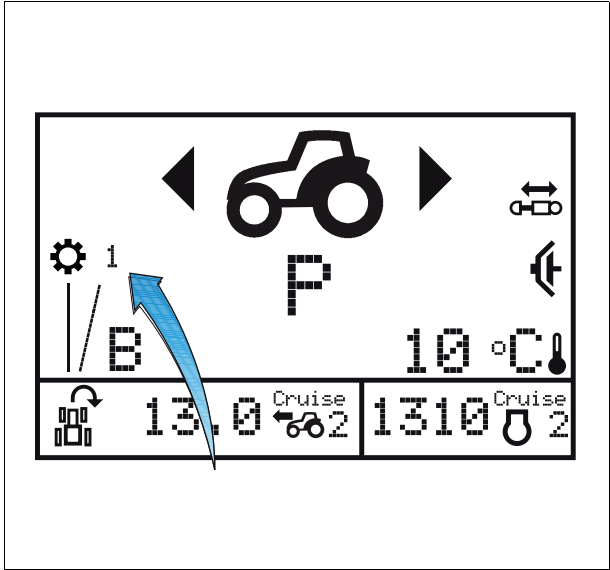


Fig. 4. I010111

Key		Function
1-	◀	The arrow pointing forwards is displayed when forward travel is engaged. The arrow flashes when the direction has been selected, but the transmission has been switched off.
2	▶	The arrow pointing backwards is displayed when reverse travel is engaged. The arrow flashes when the direction has been selected, but the transmission has been switched off.
3	P	When the parking brake is activated, the symbol (P) is displayed. If the parking brake is activated while the tractor is moving, the symbol (P) will flash until the forward speed drops below the activation speed limit (factory set to 2 km/h).
	N	The symbol (N) is displayed when the reverse shuttle lever is in the central position (N). The symbol (N) flashes at the same time as the forwards arrow if the reverse shuttle lever is neither in the central position (N) nor the parked position (P).

Symbols relevant to the transmission

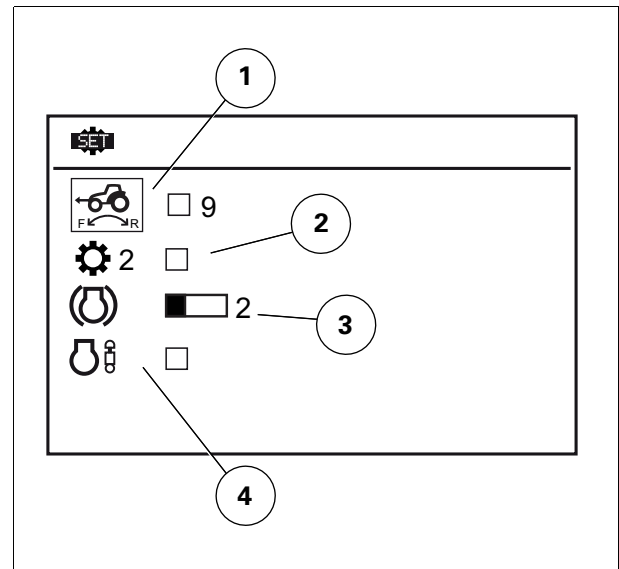






Fig. 5.

I011353

1-		<p>Automatic engagement of four-wheel drive front axle as soon as the tractor starts moving and when there is a change of direction.</p> <p>When the operator selects or changes direction or starts moving, the four-wheel drive front axle is engaged for the period of time selected. It then reverts to the initial status.</p> <p>This function is active if the box is ticked.</p> <p>It is deactivated if the box is not ticked.</p> <p>The time the four-wheel drive front axle is engaged can be set between 1 and 10 seconds.</p>
2		<p>Manual transmission mode</p> <p>Manual mode (Mode 2) is selected from the Dash Control Center menu.</p> <p>This function is active if the box is ticked.</p> <p>It is deactivated if the box is not ticked.</p> <p>To activate manual mode:</p> <ul style="list-style-type: none"> - Engage the ParkLock by shifting the Valtra Shuttle lever to ParkLock position - The transmission control lever must be in rear position <p>NOTE: Manual mode will be deactivated if automatic or semi-automatic mode is activated.</p>
3		<p>Aggressiveness of deceleration</p> <p>This function affects deceleration behaviour.</p> <p>Can be set from 1 (least abrupt) to 4 (most abrupt).</p> <p>NOTE: This function is only available in automatic mode</p>
4		<p>Auxiliary hydraulics assistance</p> <p>When demand for hydraulic oil is greater than the current engine speed can supply, the engine speed automatically increases.</p> <p>This function is active if the box is ticked.</p> <p>It is deactivated if the box is not ticked.</p> <p>NOTE: This function is only available in automatic mode</p>

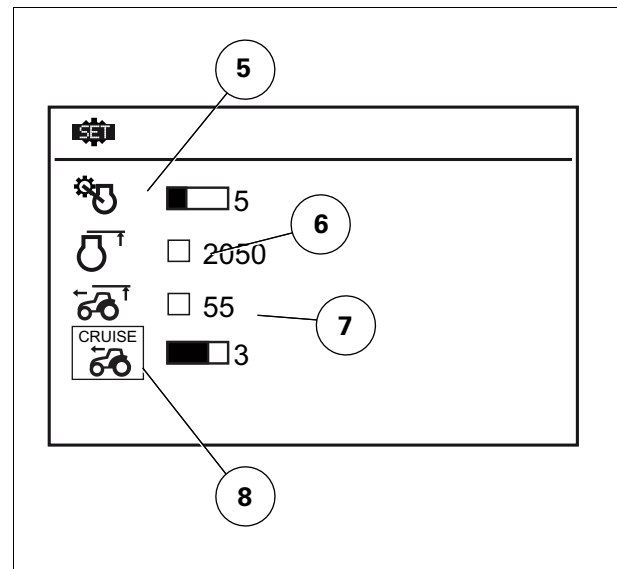






Fig. 6.

I011354

5		<p>Drop in transmission speed</p> <p>Allows you to adjust the drop in engine speed that is to be tolerated before a drop in transmission speed occurs.</p> <p>This can be set from 1 to 10 (0 to 30% drop in engine speed)</p> <p>(1) maintains the speed, (10) allows the engine speed to drop.</p> <p>NOTE: Can only be selected in automatic mode</p>
6		<p>Maximum engine speed</p> <p>Sets the maximum engine speed</p> <p>In automatic mode, engine speed is maintained below the selected value.</p> <p>Engine speed is also limited when using the hand throttle and the stored engine speed (engine Cruise).</p> <p>NOTE: The engine speed limit does not work when the foot throttle is used in semi-automatic and manual modes</p>
7		<p>Forward speed limit</p> <p>Setting the forward speed limit in all modes.</p> <p>This setting can be used when driving on slippery roads or to prevent unintentional excess speed.</p> <p>It can be set from 5 km/h to 50 Km/h (depending on the legislation in force in the country) at intervals of 5 km/h</p> <p>NOTE: In automatic mode, for example, the maximum speed limit is set using the transmission control lever.</p>
8		<p>Aggressiveness of Cruise kph</p> <p>Allows you to set the aggressiveness of the Cruise kph curve when engaged.</p> <p>Can be set from 1 (least abrupt) to 4 (most abrupt).</p>

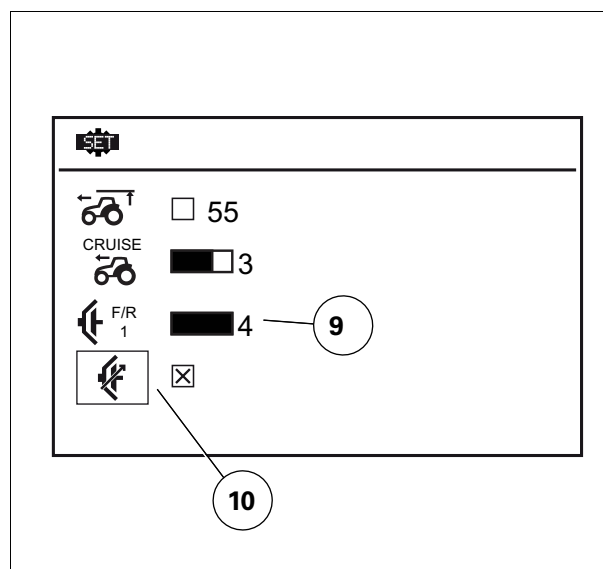




Fig. 7.

I011355

9		Allows you to set progressivity of the clutch and of direction changes. Allows you to set the start-up cycle. This function also affects the progressivity curve in semi-automatic and manual modes. Can be set from 1 (least abrupt) to 4 (most abrupt).
10		Hydraulic coupling When activated, this function automatically adjusts traction in a similar way to a conventional hydraulic coupling. This function is active if the box is ticked. It is deactivated if the box is not ticked.

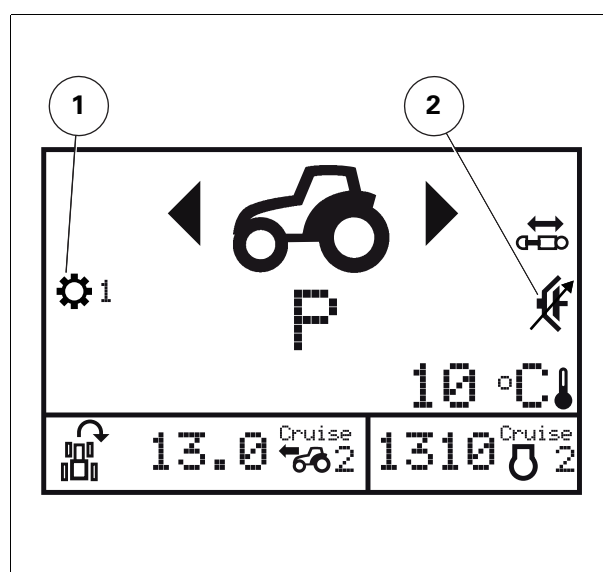





Fig. 8.

I010120

1-		The symbol that corresponds to mode 1 lights up when semi-active mode is active.
		The symbol that corresponds to mode 2 lights up when manual mode is active.
		The field is empty in automatic mode.
2		The hydraulic coupler function symbol is lit when the control is activated or operating.

General information symbols

3

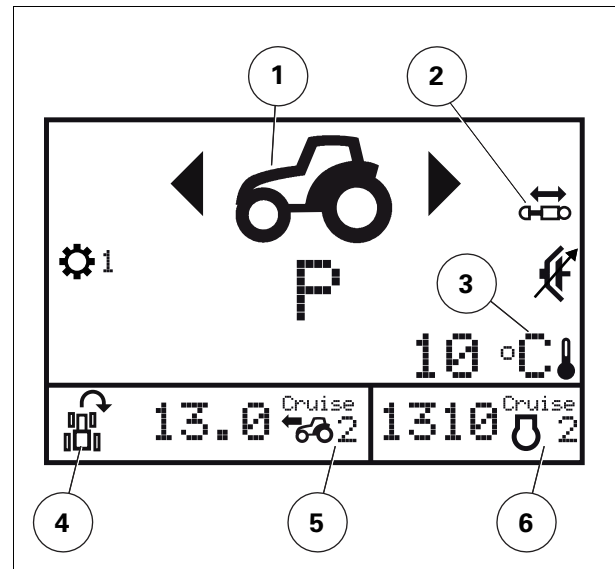













Fig. 9.

I010148

1-		When the current is on, the tractor symbol is permanently displayed.
		When the system detects a fault in its own operation, the book symbol flashes over the tractor symbol.
2		The hydraulic cylinder flashes on the screen when at least one spool valve has reached the required pressure.
		The floating position symbol flashes on the screen when at least one spool valve is in the floating position.
		The symbols will flash alternately if at least one spool valve is in the floating position and at least one spool valve has reached the required pressure.
3		Under normal conditions, with the ignition switched on and the tractor stationary, the thermometer and outside temperature are displayed. The temperature display is accurate to within approximately one degree. The outside temperature sensor is located at the front of the tractor. Heat from the engine can increase the temperature reading.
	kph or mph	The accuracy of the forward speed display is: <ul style="list-style-type: none"> • 0-10: 0.1 • 10-15: 0.2 • > 15: 1-
4		The U-Pilot (headland) symbol is displayed when this function is active.

5		The forward speed regulator symbol for the memory 1 location and the forward speed programmed are displayed on the screen. The displayed icon indicates that the speed regulator mode is active.
		The forward speed regulator symbol for the memory 2 location and the forward speed programmed are displayed on the screen. The displayed icon indicates that the speed regulator mode is active.
6		The engine speed regulator symbol for the memory 1 location and the engine speed programmed are displayed on the screen. The displayed icon indicates that the speed regulator mode is active.
		The engine speed regulator symbol for the memory 2 location and the engine speed programmed are displayed on the screen. The displayed icon indicates that the speed regulator mode is active.

3.4.4 Split driving view

T003627

The split driving view is divided into three fields -.

The top part of the small driving view shows the same functions as the large driving view, with the exception of the following functions:

- Outside temperature
- Speed regulator

The functions displayed in the two lower fields can be selected.

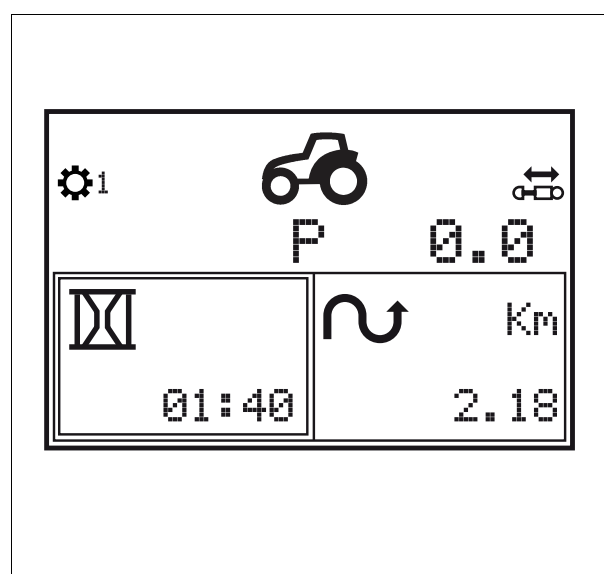


Fig. 10.

I010170

3.4.5 Accessing the split driving view

T003653

The split driving view can be accessed from the main menu [fig. 11](#).

1. If the main menu is not displayed on the screen, press ESC as many times as necessary.

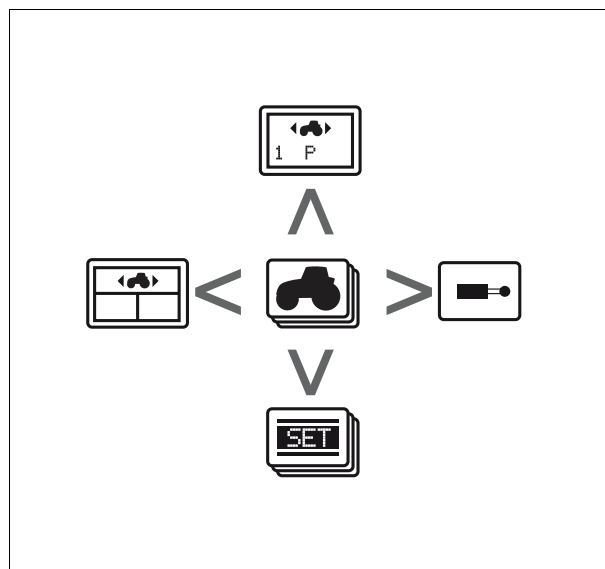


Fig. 11.

I010182

2. If the main menu is displayed, press the left arrow key.
The split driving view is displayed.

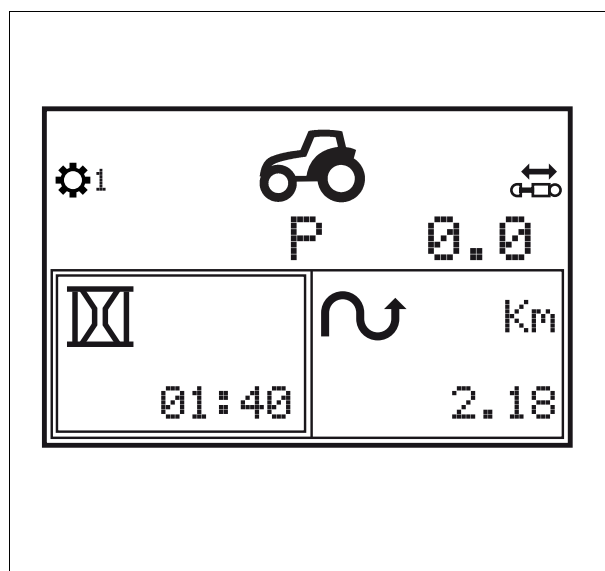


Fig. 12.

I010170

3.4.6 Modifying the lower field displays

T003655

It is possible to select the views shown in the lower fields of the split driving view. It is not possible to show the same view in both fields at the same time.

To change the views in the lower fields, the split driving view must be selected [fig. 13](#).

1. Press OK.
The left-hand lower field is activated, and is surrounded by a rectangle.
2. Activate the left or right-hand field using the left and right arrow keys.
3. Select the required view in the field using the up and down arrow keys.
4. Press OK.
The selected field remains on the screen.

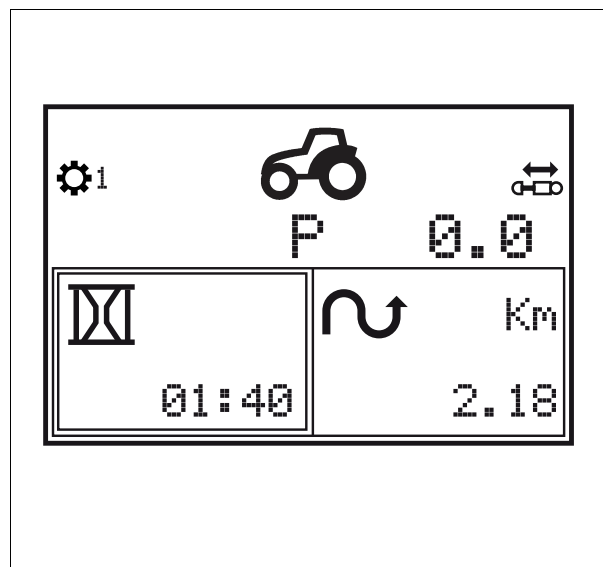


Fig. 13.

I010170

3.4.7 Lower field displays: Overview

T003658

Several views can be shown in the lower fields of the split driving view.
The functions selected for the lower fields are displayed in the following order:

- Front PTO speed
- Rear PTO speed
- Engine speed
- Rear hydraulic spool valve settings
- Front hydraulic spool valve settings
- Gearbox temperature
- Hydraulics temperature
- Position of the front and rear lower links
- Wheel slip
- Hours worked
- Distance covered
- Surface area
- Fuel consumption
- Average fuel consumption in one hour
- Instant fuel consumption in one hour
- Average fuel consumption on the area worked
- Instant fuel consumption on the area worked
- Speed regulator
- Engine and coolant temperature

3.4.8 Lower field displays: PTO speed

T003671

The PTO rotational speed can be shown in the lower fields of the split driving view. The PTO rotational speed displayed is accurate to within 10 rpm.

– Front PTO speed

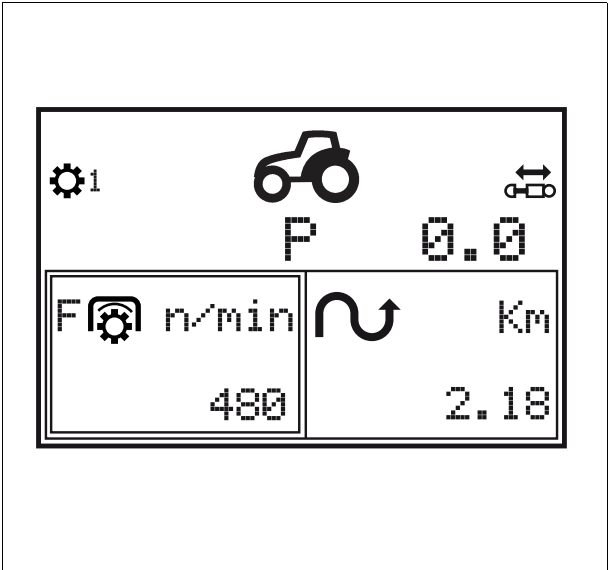


Fig. 14.

I010193

– Rear PTO speed

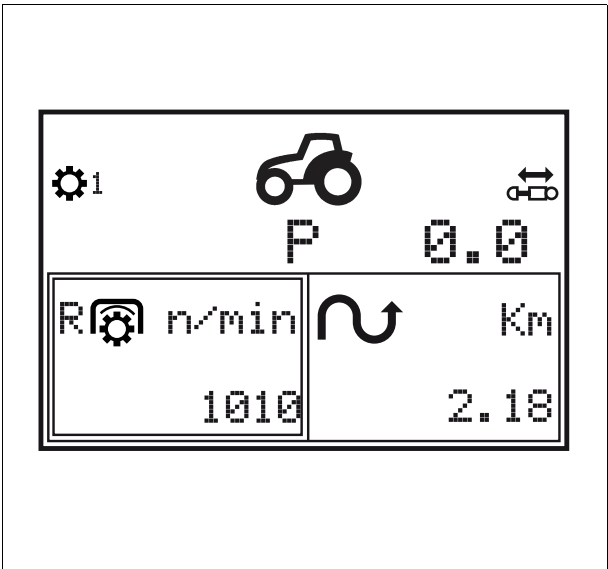


Fig. 15.

I010189

3.4.9 Lower field displays: Engine speed

T003672

The engine speed can be shown in the lower field of the split driving view.
The display shows the engine speed and is accurate to within 10 rpm.

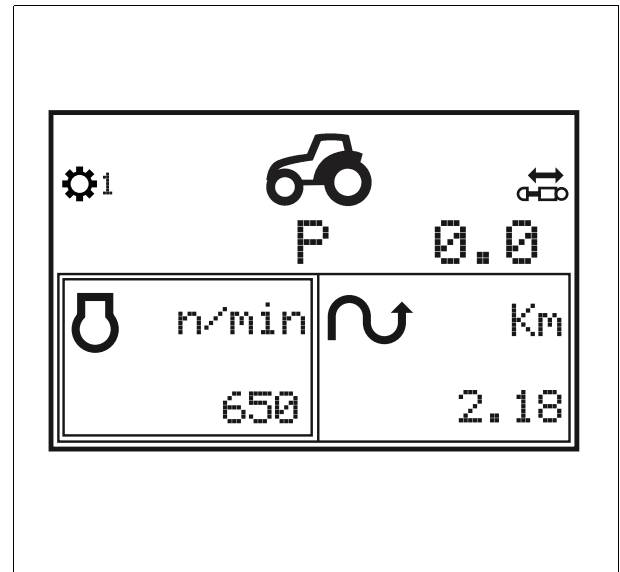


Fig. 16.

I010197

3.4.10 Lower field displays: Hydraulic spool valve settings

T003673

The settings of the rear hydraulic spool valves can be shown in the lower field of the split driving view.

The hydraulic settings of the memory location (M1, M2 or M3) being used are displayed. If one of the factory settings is being used, the settings of memory location M1 are displayed. If the tractor is fitted with five rear spool valves, the fifth spool valve is shown in the display with the front hydraulic spool valve settings, on the left.

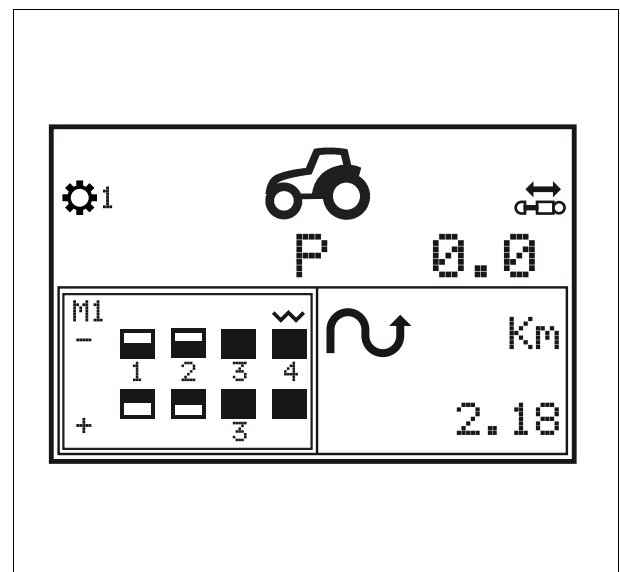


Fig. 17.

I010198

3.4.11 Lower field displays: Hydraulic spool valve settings

The settings of the front hydraulics can be shown in the lower field of the split driving view.

This display is available on tractors fitted with front hydraulic spool valves. The hydraulic settings of the memory location (M1, M2 or M3) being used are displayed on the screen. If one of the factory settings is being used, the settings of memory location M1 are displayed on the screen. If the tractor is fitted with five rear spool valves, the fifth spool valve is displayed on the left.

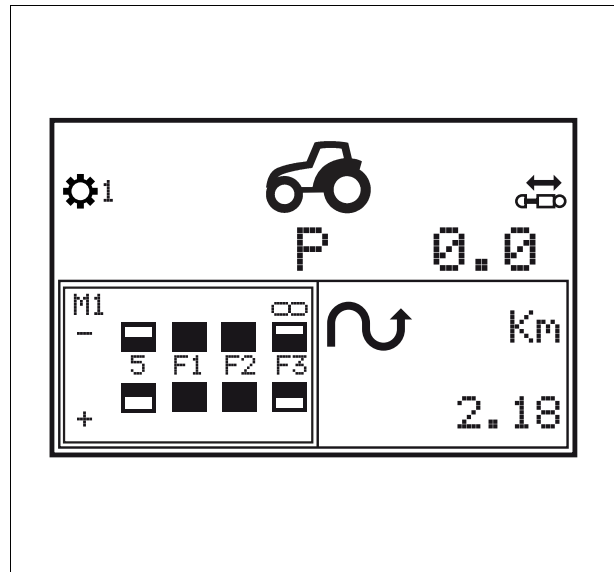


Fig. 18.

I010200

3.4.12 Lower field displays: Gearbox temperature

The gearbox temperature can be shown in the lower fields of the split driving view.

The gearbox temperature is displayed as follows:

- For temperatures lower than +40 °C, the message "lo" is displayed.
- For temperatures higher than +40 °C, the actual temperature is displayed.
- For temperatures higher than +119 °C, the message "high" is displayed.

IMPORTANT: If the gearbox temperature is permanently higher than +90 °C, clean the radiator and check the oil level.

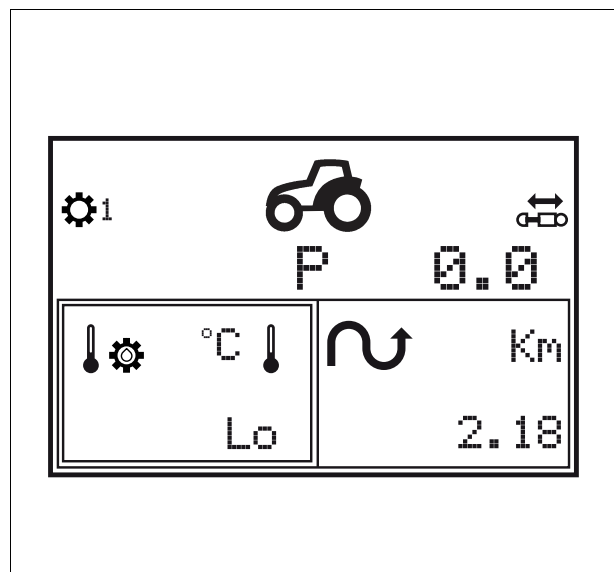


Fig. 19.

I010206

3.4.13 Lower field displays: Working hydraulic oil temperature

T003676

The working hydraulic oil temperature can be shown in the lower fields of the split driving view.

The hydraulic oil temperature is displayed as follows:

- For temperatures lower than +40 °C, the message "lo" is displayed.
- For temperatures higher than +40 °C, the actual temperature is displayed.
- For temperatures higher than +119 °C, the message "high" is displayed.

IMPORTANT: If the hydraulic oil temperature is permanently higher than +90 °C, clean the radiator and check the oil level.

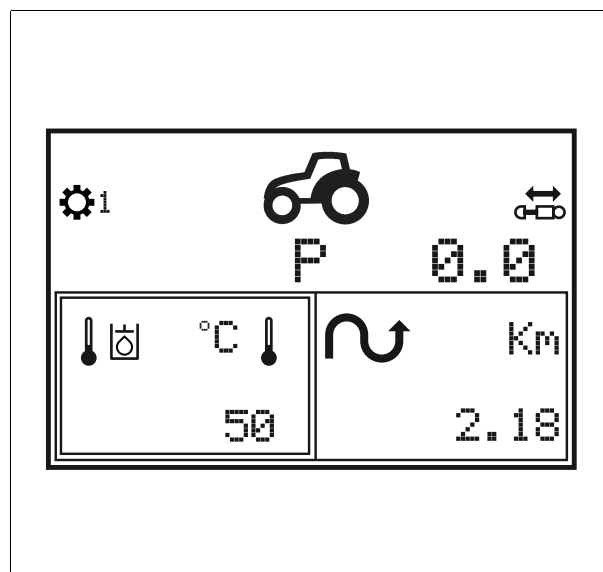


Fig. 20.

I010204

3.4.14 Lower field displays: Linkage

T003688

The position of the rear lower links can be shown in the lower field of the split driving view.

The symbol AC_R is displayed on the screen, with the position of the rear lower links displayed as a percentage between 0 and 100.

- 0 = The lower links are in low position.
- 50 = The lower links are in central position.
- 100 = The lower links are in high position.

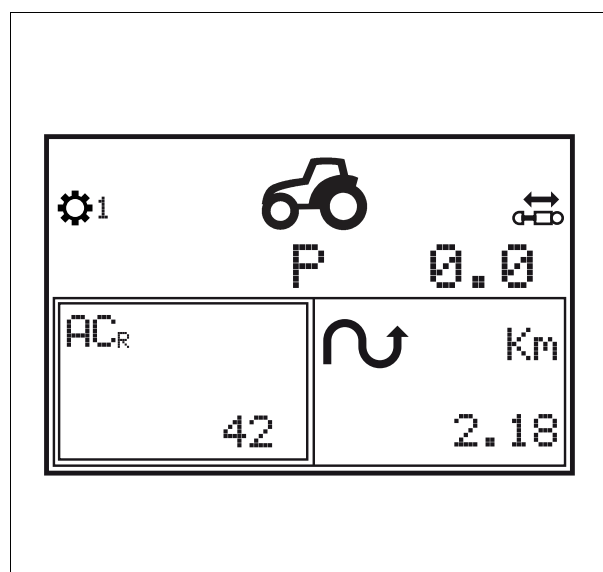


Fig. 21.

I010225

T003691

3.4.15 Lower field displays: Wheel slip

The wheel slip percentage can be shown in the lower fields of the split driving view.

The wheel slip percentage is obtained by comparing the actual speed provided by the radar against the theoretical wheel-rotation speed.

The radar starts to operate at a speed of 0,3 km/h. For speeds below 0,3 km/h, the value displayed is zero.

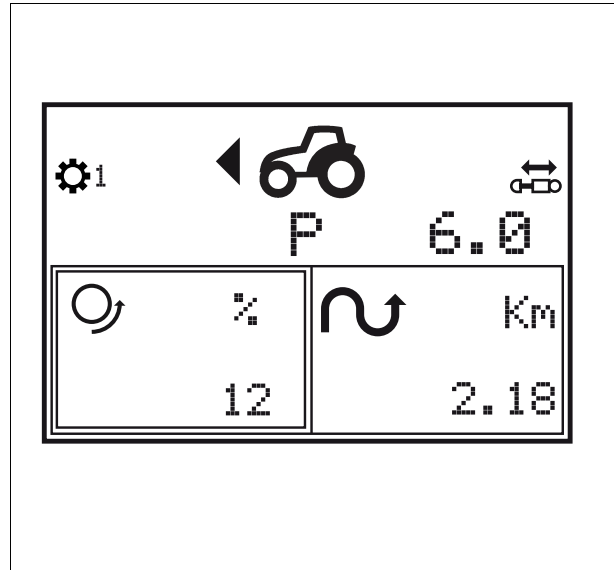


Fig. 22.

I010237

3.4.16 Lower field displays: Hours worked

T003693

The hours worked can be shown in the lower fields of the split driving view. The hours worked can, for example, be the time spent ploughing a certain area.

The hours worked are stored in the memory until the electrical supply is switched off. The driver can reset the counter to 0.

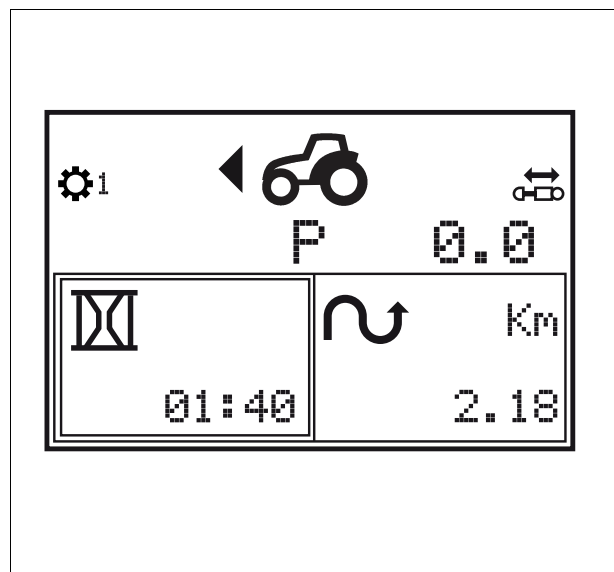


Fig. 23.

I010203

3.4.17 Lower field displays: Distance covered

T003694

The distance covered can be shown in the lower fields of the split driving view.

The unit of distance covered (km, miles) can be modified by changing the unit of length.

The distance reading can also be reset.

The distance covered is displayed as follows:

- For distances lower than 1 km, the distance indicated is accurate to within ± 1 m
- For distances greater than 1 km, but less than or equal to 100 km, the symbol on the screen changes to km (miles) and the distance indicated is accurate to within ± 2 decimal places
- Distances greater than 100 km are displayed with an accuracy of ± 1 decimal place
- The maximum distance reading is 999,9 km.

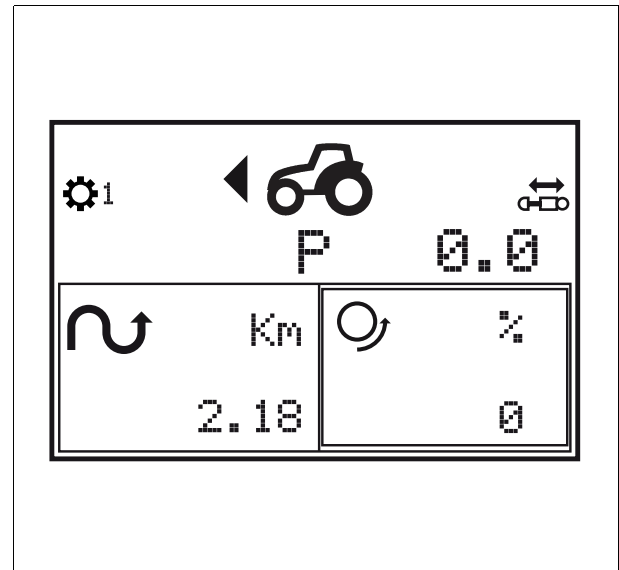


Fig. 24.

I010244

3.4.18 Lower field displays: Surface area

T003695

The surface area can be shown in the lower fields of the split driving view.

The unit of area (ha, acres) can be modified by changing the unit of length.

The surface area reading can also be reset.

The surface area display shows the surface area covered.

The surface area reading only increases when the implement is used to work the soil (the linkage is not in transport position).

The surface area worked is saved when the current is switched off on the tractor.

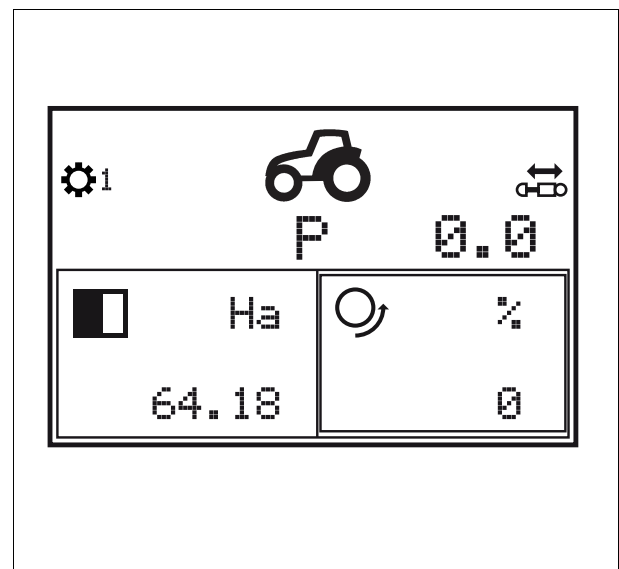


Fig. 25.

I010248

3.4.19 Lower field displays: Fuel consumption

T003696

Five different fuel consumption settings can be shown in the lower fields of the split driving view.

The unit of volume can be selected from litres, UK gallons or US gallons.

The fuel consumption information can be reset.

Total fuel consumption

3

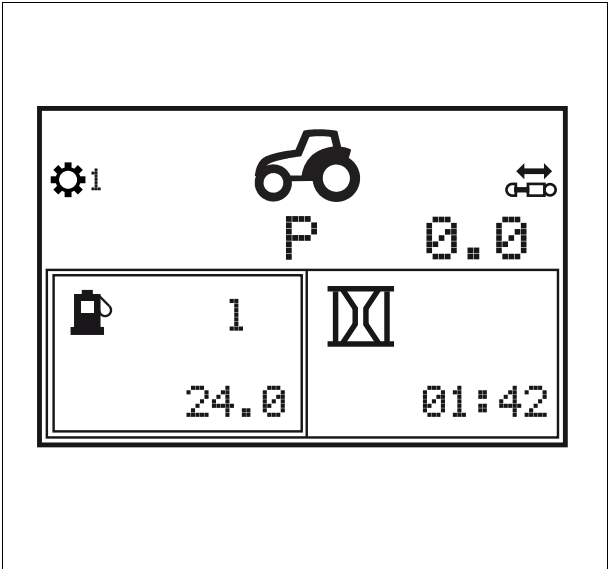


Fig. 26. I010251

Average fuel consumption per hour

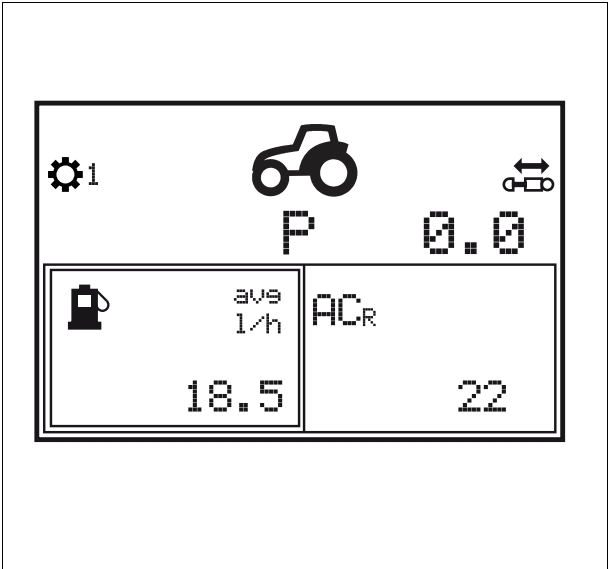


Fig. 27. I010252

Instant fuel consumption per hour

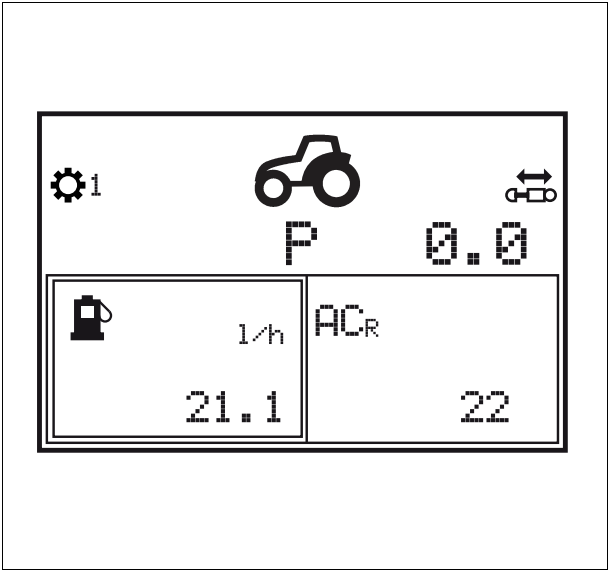


Fig. 28. I010254

Average fuel consumption on the area worked

The unit of area (ha, acres) can be modified by changing the unit of length.

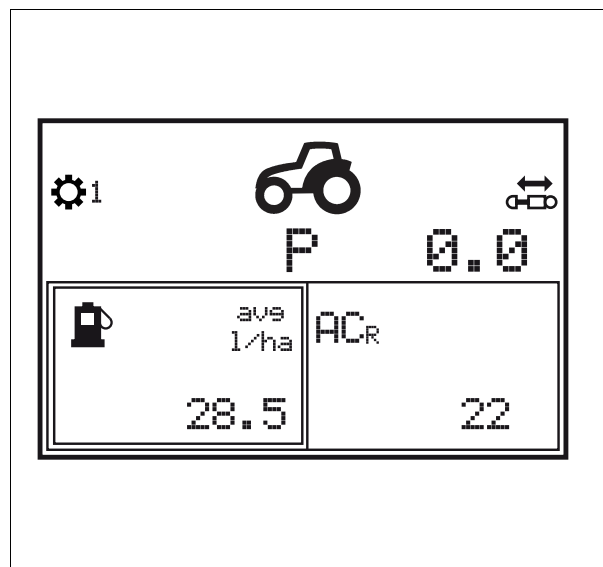


Fig. 29.

I010256

Instant fuel consumption on the area worked

The unit of area (ha, acres) can be modified by changing the unit of length.

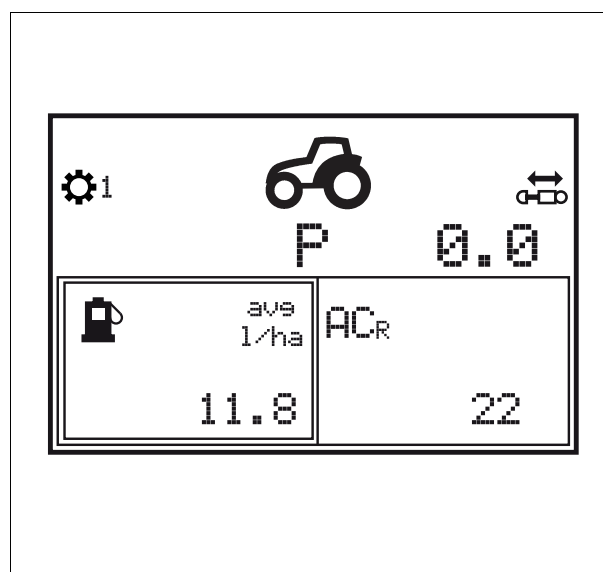


Fig. 30.

I010257

3.4.20 Lower field displays: Speed regulator

T003699

The speed regulator can be shown in the lower field of the split driving view.

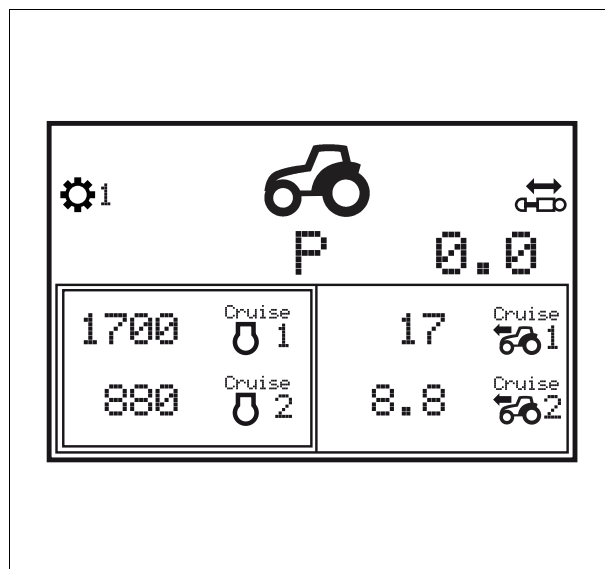


Fig. 31.

I010260

Two memory locations are available for constant engine speed and constant forward speed. The Cruise status indicators are given in the table below:

	Constant engine speed 1 ⁽¹⁾
	Constant engine speed 2 ⁽¹⁾
	Constant forward speed 1 ⁽¹⁾
	Constant forward speed 2 ⁽¹⁾

1. The numerical value in front of the symbol is the value of the programmed constant engine speed or programmed constant forward speed.

3.4.21 Accessing the hydraulic system settings view

T003700

The hydraulic system settings view can be accessed from the main menu.

- If the main menu is not displayed, press ESC as many times as necessary to make it appear.

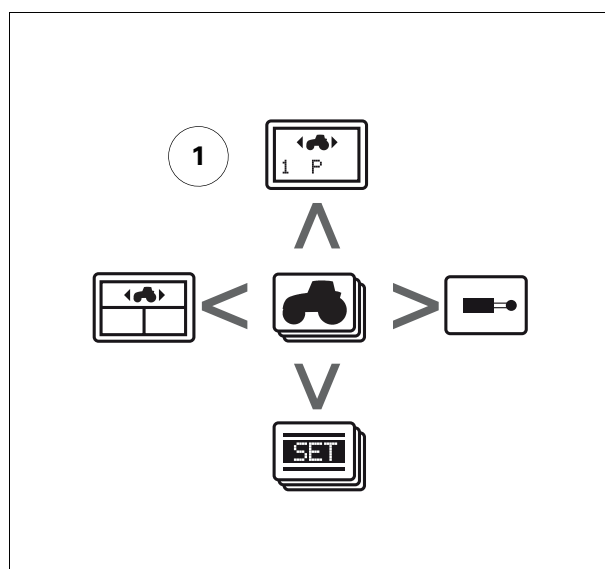


Fig. 32.

I010110

2. If the main menu is displayed, press the navigation key to the right.
The auxiliary hydraulic system settings are displayed.

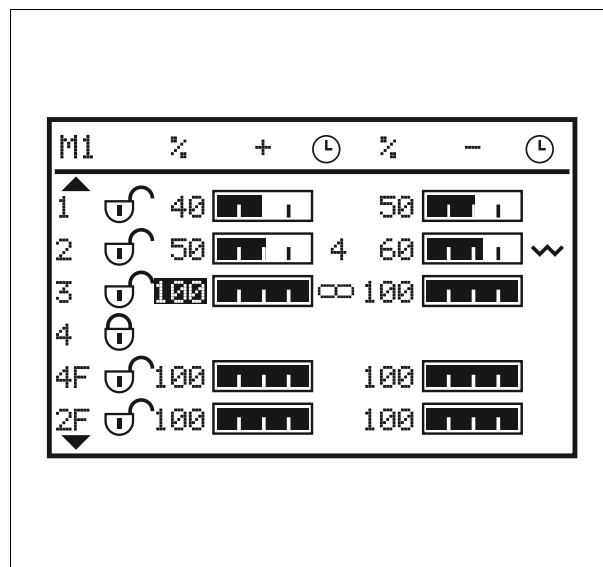


Fig. 33.

I010261

3.4.22 Hydraulic system display symbols

T003701

- (1) Spool valve number
- (2) Spool valve status
- (3) Flow rate defined by spool valve outlet as a percentage of the maximum flow rate
- (4) + port: Time counter, auto function
- (5) - port: Time counter, floating position

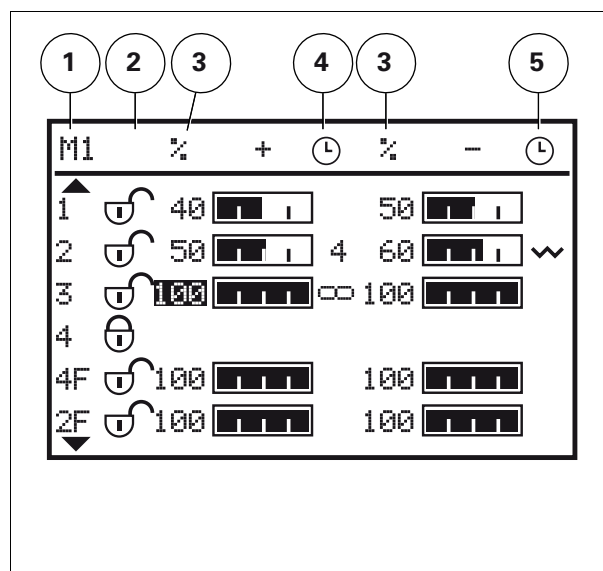





Fig. 34.

I010262

Spool valve number

- The front spool valves are indicated by an "F" after the number.
- A small arrow in the top or bottom corner indicates there are more than six spool valves. If there are more than six spool valves, it is possible to scroll through the display by pressing the navigation key upwards or downwards in order to view the spool valves that are off the screen.
- Memory location M1, M2 or M3 is selected using the selector switch, with the position of the selector switch displayed in the top corner.

Spool valve status

-  = active (unlocked), the spool valve settings are displayed
-  = inactive (locked)
-  = not in use, error

Flow rate defined as a percentage of the maximum flow rate

- The corresponding flow rate is displayed as a bar alongside the percentage.
- The spool valve can be used in single-acting mode when the implement is only connected to a single quick coupling.

+ outlet

- Duration for which position locking is maintained, from 0 to 60 seconds
- ☐ = permanent position locking activated
- empty = no position active

- outlet

- Duration for which position locking is maintained, from 0 to 60 seconds
- ☐ = permanent position locking activated
- ~ = floating position
- empty = no position active

3.4.23 Adjusting screen brightness

T003703

1. In the main menu, press the down arrow key.
2. Press the navigation key downwards.
The view for adjusting the screen brightness and modifying the units of measurement is shown.
3. Select the screen contrast setting using the arrow keys.
4. Press OK. The screen brightness value is activated and the line under the value starts to flash. The brightness setting is 1.
5. Adjust the brightness using the up and down arrow keys.
6. Activate the new value or restore the old value:
 - To deactivate the field and save the new brightness value, press OK.
 - To deactivate the field and restore the old brightness value, press ESC.

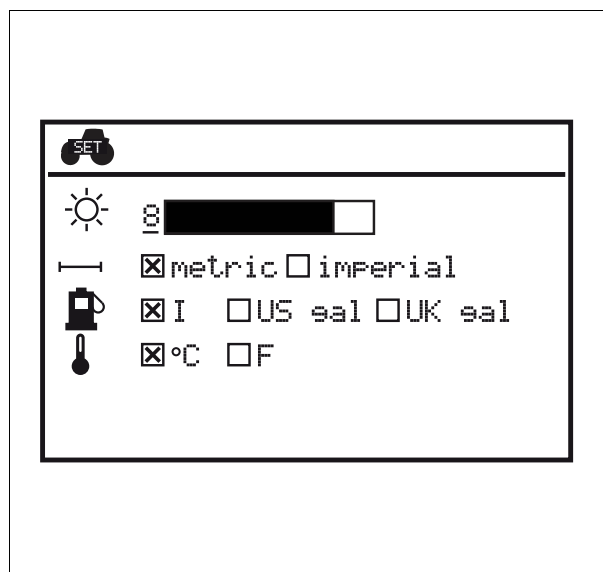


Fig. 35.

I010268

3.4.24 Modifying the units of measurement

T003704

The units used on the screen can be modified.

IMPORTANT: The units for the tractor terminal screen must be modified separately.

1. In the main menu, press the down arrow key.
2. Press the navigation key downwards.
The view for adjusting the screen brightness and modifying the units of measurement is shown.
3. Select the required unit with the arrow keys.
4. Click OK to activate the unit.
When a metric/imperial unit of length is changed, the following units are also modified:

Unit	Metric	Imperial
Forward speed	kph	mph
Distance	km, m	miles, yards
Surface area	ha	acre
Implement width	cm	inch

3.4.25 Adjusting the implement width and resetting the counters

T003705

Adjusting the implement width

The implement width can be adjusted on the split driving view.

1. Select the split driving view on the screen.
2. Press OK until the implement width and counter resetting view is shown.
3. Select the implement width with the arrow keys.
4. Press OK.
The implement width value is activated and the line under the value starts to flash.
5. Adjust the value with the arrow keys:
 - To increase the value, press the up arrow key.
 - To decrease the value, press the down arrow key.
6. Confirm or cancel the setting:
 - To deactivate the field and save the new value, press OK.
 - To deactivate the field and restore the old value, press ESC.

Resetting the counters

The counters can be reset on the split driving view.

1. Select the split driving view.
2. Press OK until the implement width and counter resetting view is shown.
3. Select the counter to be reset using the arrow keys.
One or all of the counters can be reset.
4. To reset the counter(s), press OK until "000" is displayed.

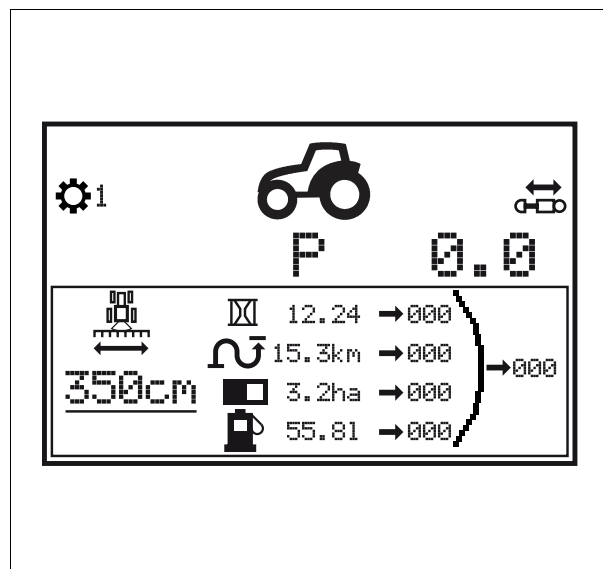


Fig. 36.

I010270

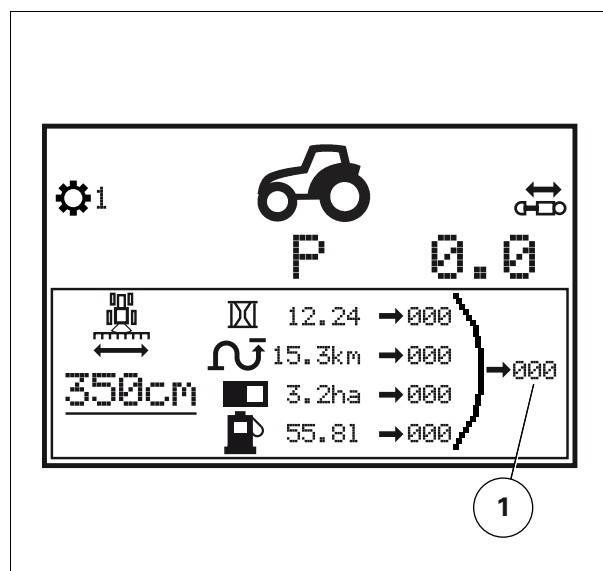


Fig. 37.

I010271

3.5 Automatic U-pilot

3.5.1 Presentation

T003721

The purpose of the U-Pilot system is to automate a group of functions that are used on a regular basis. Making half-turns at headlands is a typical example.

The idea behind the system is for the user to perform the whole operating cycle while pressing the required switches. The cycle is recorded in the system memory. The operating cycle can then be started by pressing a single switch.

The system also has an online/programmable PAUSE function, which is activated by the activation switch on the armrest. Pressing the activation switch suspends operation; pressing the switch again resumes operation.

The functions carried out by pressing the switches and the distance travelled between the functions are recorded in the memory. Although the programmed and actual forward speeds may differ, the distances remain the same and the time intervals are changed.



DANGER:

By using U-Pilot, the functions of an operating cycle start automatically. Ensure that no one is in the surrounding danger area.



CAUTION:

The switches on the side panel do not indicate the status of equipment when the U-Pilot program is in use.

IMPORTANT: Check that the correct program is selected for the work in question and that all the switches and controls are in the same position they were in when the program was recorded.

3.5.2 Operating conditions

T003722

Certain conditions must be met in order for U-Pilot to operate correctly.

- The forward speed must be between 0,5 km/h and 20 km/h.
- The maximum number of operations for an operational cycle is 30.
- The maximum distance for an operational cycle is 100 m without a pause.
- The maximum distance between the starting points of two consecutive functions is 63,5 m.
- Distance is measured to the nearest 0,5 m. The minimum distance between different functions is 0,5 m, even if the function switches are pressed in closer together than this.
- The maximum duration of a pause is 5 minutes.

3.5.3 U-Pilot switch operating conditions

T003724

- (1) U-Pilot activate/record switch
- (2) U-Pilot engage/pause switch
- (3) U-Pilot stop switch

The U-Pilot activate/record switch has three positions (OFF/ON/REC):

- U-Pilot activate/record switch position (OFF): U-Pilot is not in use.
- Middle position (ON): U-Pilot is in standby mode.
- Symbol position of the switch is pressed down (REC): U-Pilot starts recording or saving.

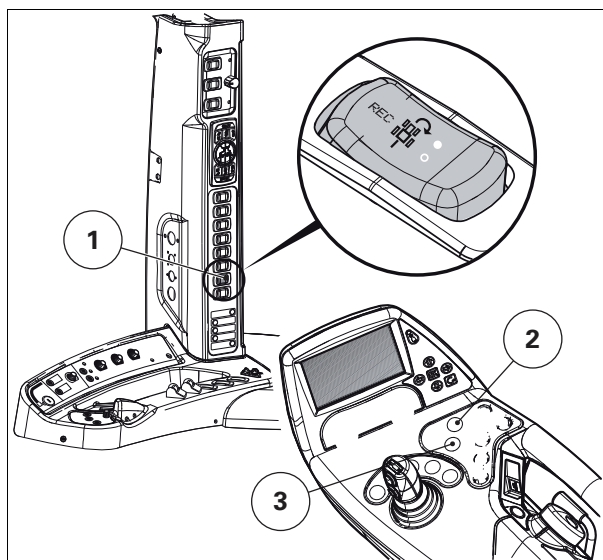


Fig. 1.

I010294

When the U-Pilot engage/pause switch is pressed, the recorded program starts. When the switch is pressed during operation, the program is paused. When in Pause mode, the recorded program is resumed by pressing the switch. While recording, the program is paused if the switch is pressed.

If the U-Pilot stop switch is pressed, the recorded program is interrupted. U-Pilot then needs to be re-activated by pressing the U-Pilot activate/record switch, first switching it to OFF and to then ON again.

3.5.4 U-Pilot display

T003728

The U-Pilot system display is shown on the tractor terminal screen.

- (1) Operation number
- (2) Total number of operations
- (3) Distance before the next operation
- (4) Symbol of next/current operation
- (5) Symbols of recorded operations

The operation number/total number of operations and the distance before the next operation are displayed on the central line of the tractor terminal screen.

The lower line displays the symbols of the recorded operations (up to 5 symbols can be displayed).

The symbol of the next/current operation is displayed on a dark background.

The U-Pilot display automatically appears on the tractor terminal screen when the activate/record switch is moved to the central or recording position. Press ESC to return from the U-Pilot display to the previous operating display. The U-Pilot symbol is displayed at the bottom left of the diagnostics section in the general display on the tractor terminal screen. This display can be changed for another.

To reactivate the U-Pilot display, move the U-Pilot activation switch to the OFF position and then to ON again.

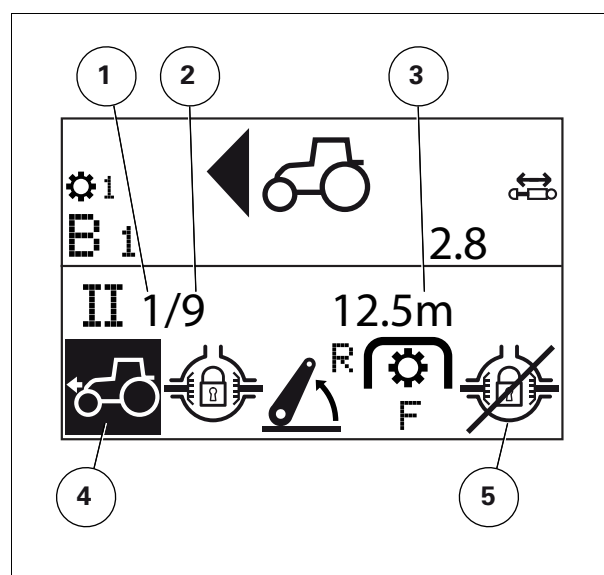


Fig. 2.











I010295

3.5.5 U-Pilot display symbols

T003730

Symbol	Operation	Switch positions	Limit
	Rear linkage upwards	Rear hitch, stop or lower	1). 2)
	Rear linkage downwards	Rear hitch, stop or lower	1). 2)
	Rear linkage, floating position activated	Rear hitch, stop or lower	
	Rear linkage, floating position deactivated	Rear hitch, stop or lower	
	1R + hydraulic spool valve	Hydr. ON, joystick pulled back, M3	1). 2)
	1R - hydraulic spool valve	Hydr. ON, joystick pulled back, M3	1). 2)

Symbol	Operation	Switch positions	Limit
	2R + hydraulic spool valve	Hydr. ON, joystick pulled back, M3	1). 2)
	2R - hydraulic spool valve	Hydr. ON, joystick pulled back, M3	1). 2)
	3R + hydraulic spool valve	Hydr. ON, M3	1). 2)
	3R - hydraulic spool valve	Hydr. ON, M3	1). 2)
	4R + hydraulic spool valve	Hydr. ON, M3	1). 2)
	4R - hydraulic spool valve	Hydr. ON, M3	1). 2)
	5R + hydraulic unit	Hydr. ON, M3	1). 2)
	5R - hydraulic unit	Hydr. ON, M3	1). 2)
	6R + hydraulic unit	Hydr. ON, M3	1). 2)
	6R - hydraulic unit	Hydr. ON, M3	1). 2)
	1F + hydraulic spool valve	Hydr. ON, joystick pulled forward, M3	1). 2)
	1F - hydraulic spool valve	Hydr. ON, joystick pulled forward, M3	1). 2)
	2F + hydraulic spool valve	Hydr. ON, joystick pulled forward, M3	1). 2)
	2F - hydraulic spool valve	Hydr. ON, joystick pulled forward, M3	1). 2)
	LF + hydraulic spool valve	Hydr. ON, joystick pulled forward, M3	1). 2)
	LF - hydraulic spool valve	Hydr. ON, joystick pulled forward, M3	1). 2)
	Front PTO activated	ON position	
	Front PTO deactivated	ON position	
	Rear PTO activated	ON position	1)
	Rear PTO deactivated	ON position	1)
	Speed regulator (constant forward speed) activated		2)
	Speed regulator (constant forward speed) activated		2)
	Speed regulator (constant engine speed) activated		2)

Symbol	Operation	Switch positions	Limit
	Speed regulator (constant engine speed) activated		2)
	Speed regulator deactivated		2)
	Front axle (4WD) engaged		3)
	Front axle disengaged		3)
	Differential lock on		3)
	Differential lock disengaged		3)
	Power socket connected		1)
	Power socket disconnected		1)
	Program pause recorded		
	End of recorded program		

1. The system checks these switches are correctly positioned before recording and operation. If the positioning is incorrect, the symbol of the operation flashes on the screen.
2. The system does not check the equipment settings, which must be checked and set by the driver.
3. If these operations are in AUTO mode when recording, the operation is not recorded. If the operation is recorded and the switch is moved to AUTO position prior to use, the switch position overrides the recorded position. In this case, the operations recorded for this switch are not carried out.
The PTO is an exception to this rule: When it is in AUTO mode, a stop is also recorded when the PTO has been stopped by raising the rear linkage. When used in AUTO mode, the rear PTO is stopped either by the program or by raising the rear linkage, depending on which happens first.

3.5.6 Programming the U-Pilot

Description

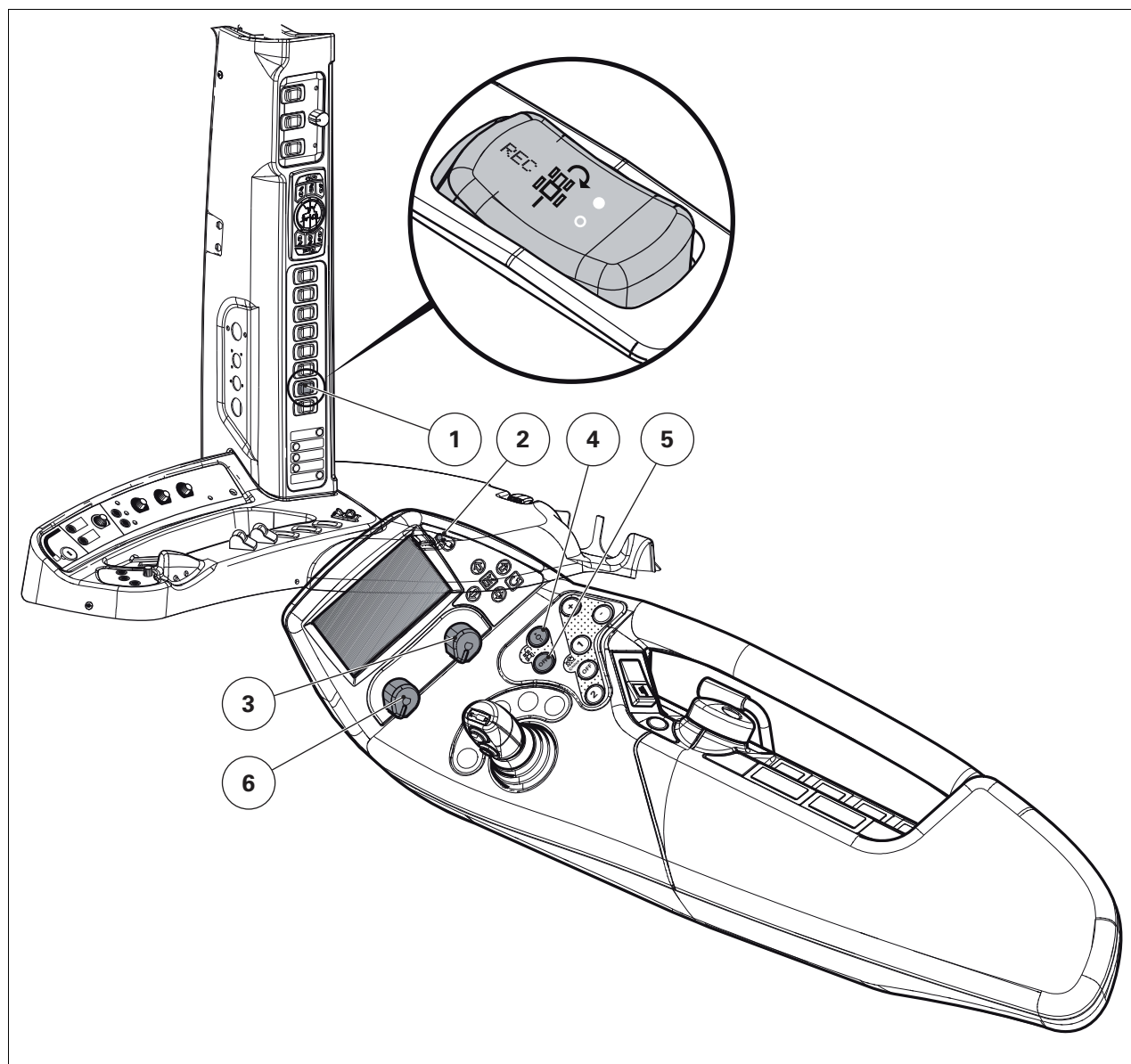




Fig. 3.

1010360

- | | |
|--|---------------------------------|
| (1) U-Pilot activate/record switch on pillar | (4) U-Pilot engage/pause switch |
| (2) Auxiliary hydraulic system ON/OFF switch | (5) U-Pilot stop switch |
| (3) Spool valve settings selector | (6) Joystick functions selector |

Programming

1. Activate the U-Pilot by toggling the U-Pilot activate/record switch on the side panel to the central position. The switch indicator light comes on.
2. When saving the auxiliary hydraulic system settings, check that the switches are in the correct position.
 - The hydraulic system switch is in the ON position (indicator light on).
 - The valves setting selector is in position M3. One of the valve functions must be selected. If no function is selected, the setting cannot be recorded.
 - When rear valves 1 and 2 are used, the joystick function selector is in the  position.
 - When front linkage valves 1F and 2F are used, the joystick function selector is in the  position. If the tractor is fitted only with a front-end loader and has no front linkage, the functions of valves 1F and 2F cannot be recorded.
 - If the tractor is fitted with both a front linkage and a front-end loader, only the front linkage functions can be recorded in the U-Pilot. The symbol side of the 6/2 switch must be pressed in.












3. Start recording by pressing the U-Pilot activate/record switch (REC) for less than 2 seconds.
The text "RECORD" is displayed on the central line of the tractor terminal screen.
 4. Carry out the operations in the required order.
 5. Press the U-Pilot engage/pause switch to insert a pause when all the operations before the turn have been recorded.
 6. Save the operating cycle.
When all the operations have been recorded, press the symbol side of the U-Pilot activate/record switch for more than 2 seconds to save.
The text "SAVED" is displayed on the central line of the screen.
The indicator lights of the U-Pilot engage/pause and stop switches come on. The symbols of the saved operations scroll across the screen.
The program is memorised, and it will remain in the memory until a new program is saved in its place.
- NOTE:** The memory can be emptied by starting to record and then saving a program that has no operations.

3.5.7 U-Pilot programming examples



T003744

U-Pilot is mainly used to program a series of operations when a reversible plough is being used, or to move an operation from a switch on the side panel to the armrest.

Example: Using a reversible plough

	Plough raised
	Front axle (4WD) disengaged
	Differential lock disengaged
	AVT speed setting 1
	Plough reversed
	Program pause recorded
	Plough lowered
	Front axle (4WD) engaged
	Differential lock on
	AVT speed range 2
	End of recorded program

Example: Moving an operation from a switch on the side panel to the armrest

	Rear PTO engaged
	End of recorded program








3.5.8 U-Pilot: Using the program

IMPORTANT: Check the positions and settings of the other switches before starting the recorded program. Check that it is the correct program for the work in question. Also check that the settings of the auxiliary hydraulic system in memory location M3 are compatible with the U-Pilot program in question.

- Press the U-Pilot activate/record switch into the ON position to activate the U-Pilot.

The symbols of the recorded program scroll across the lower line of the tractor terminal screen. The operation number/total number of operations and the distance before the next operation scroll across the central line. The indicator lights of the U-Pilot activate/record switch and the U-Pilot stop switch come on.

NOTE: The U-Pilot program checks the position of the auxiliary hydraulic system, the linkage, the rear power take-off (PTO) and the upper connector switches. If a switch in the program is in the wrong position, its symbol flashes on the screen.

Flashing symbol	Switch settings
	Hydraulic system ON
	Rear joystick
	Front joystick
	Spool valve settings selector
	Rear linkage in stop or raised position
	Rear PTO in ON position
	Front PTO in activated position

- The symbol disappears when the switch is in the correct position.
- Press the U-Pilot engage/pause switch to start the recorded program.
The program start and continues until there is a pause or the end of the recorded program is reached.
- To pause the program, press the U-Pilot engage/pause switch at any point during the program.
- To end a pause, press the U-Pilot engage/pause switch again.
- **IMPORTANT:** When carrying out a high-risk operation included in the recorded program manually (linkage, PTO, hydraulic system), the program running stops immediately and will not restart unless it is re-activated.

To stop the recorded program immediately, press the U-Pilot stop switch.

The text "STOP" is displayed on the tractor terminal screen.

It is not possible to resume work with the recorded program.

When the recorded program is interrupted, the following actions are triggered:

- The hydraulic operations controlled by the recorded program are cancelled.
- Any movement of the linkages is stopped.
- The PTOs are disengaged if they are included in the recorded program.
- The power socket is disconnected.
- The differential lock is disengaged.
- The Cruise function is disengaged.
- The front axle (4WD) status is not changed.
- The word "U-Pilot" is displayed on the screen, along with the error code.
- To cancel the error code, press the ESC button of the tractor terminal. After this interruption, the U-Pilot must be reactivated.

- To resume the recorded program after stopping, reactivate the system by switching the U-Pilot activate/record switch to the OFF position and then to the ON position.
- To start the recorded program from the beginning, press the U-Pilot engage/pause switch again.

3.5.9 Error codes

T003751

The U-Pilot error codes indicate operating errors in the U-Pilot.

Code	Reason for the error
U-Pilot 01	Recording function or operation cancelled. Forward speed greater than 20 km/h.
U-Pilot 02	The recorded program will not start. Forward speed greater than 20 km/h or lower than 0,5 km/h.
U-Pilot 03	Recording function temporarily cancelled. Forward speed lower than 0,5 km/h.
U-Pilot 04	Not used.
U-Pilot 05	Recording function cancelled. 30-second time limit for forward speed lower than 0,5 km/h exceeded.
U-Pilot 06	Recording function cancelled. 60-second time limit to complete the first operation exceeded.
U-Pilot 07	Recording function cancelled. 60-second time limit to start a new operation exceeded.
U-Pilot 08	Recording function cancelled. The driver has left the seat for more than 5 seconds.
U-Pilot 09	Recording function cancelled. Distance between consecutive operations greater than 63,5 m.
U-Pilot 10	Recording function cancelled. The length of the program journey exceeds 100 m without a pause.
U-Pilot 11	Recording function cancelled. The program has more than 30 operations.
U-Pilot 12	Recorded program cancelled. The driver has left the seat for more than 5 seconds.
U-Pilot 13	Recorded program cancelled. 10-second time limit for forward speed lower than 0,5 km/h exceeded.
U-Pilot 14	Recorded program cancelled. 300-second time limit for a pause exceeded.
U-Pilot 15	Save operation failed or program deleted.
U-Pilot 16	Faulty operation of the auxiliary hydraulic system spool valve.

3.6 Body

3.6.1 Opening the bonnet

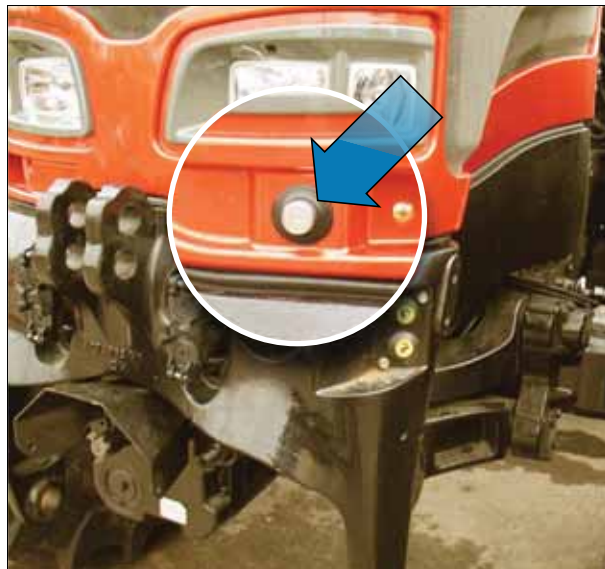
T001486

NOTE: If the tractor has a front-end loader, before opening the bonnet, see the following paragraph on the roll-over protective structure for the bonnet.

The bonnet is fitted with two rams for easy opening to provide free access to the engine.

To open it, press the lock button [fig. 1](#) and lift the bonnet; a retaining strap restricts the movement.

To lift the bonnet fully, release the retaining strap.



I007074



Fig. 1.

I007081

Tractors with a front-end loader

Before opening the bonnet, the front ROPS (1) must be fully folded back.

To fold back the ROPS, release the lock (2) to position (3) *fig. 2* and pull on the ROPS.

NOTE: Put the ROPS back in position once the bonnet has been closed and locked.

To put the ROPS back in position, push it towards the bonnet and put the lock 2 back into position. Check that the lock is in the correct position.

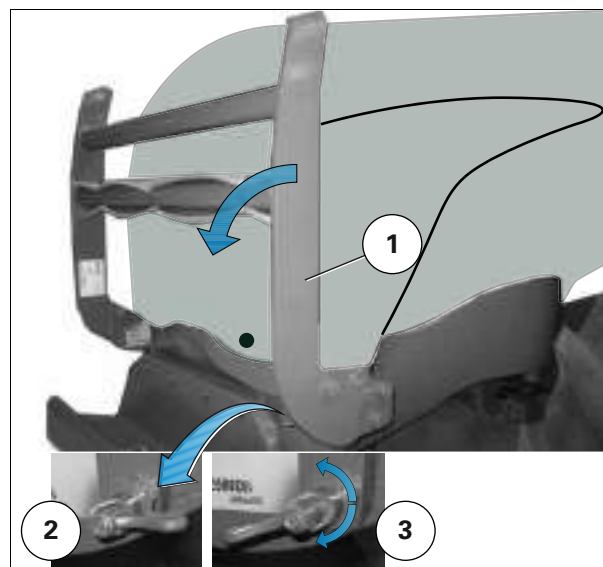


Fig. 2.

I021984

3.6.2 Adjusting the external rear-view mirrors

T008759

Positioning the arms

1. The arms supporting the rear-view mirrors are hinged and must be positioned correctly for routine use of the tractor.
2. Move the hinged arm until it lines up with the two marks.

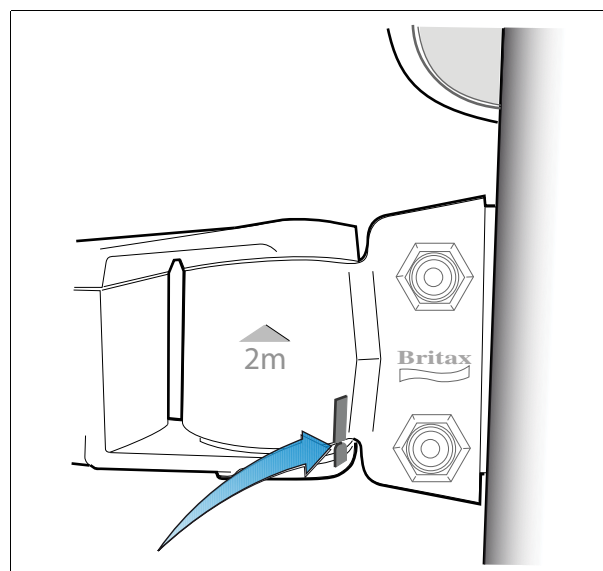


Fig. 3.

I022271

Adjusting the arm extensions (depending on model)

1. The length of the rear-view mirror arms can be adjusted to improve rear visibility according to the size of the implements hitched to the tractor.
2. Loosen the notched thumb wheel (2) and move the extension in the direction required.
3. Retighten the notched thumb wheel to lock the arm extension in place.

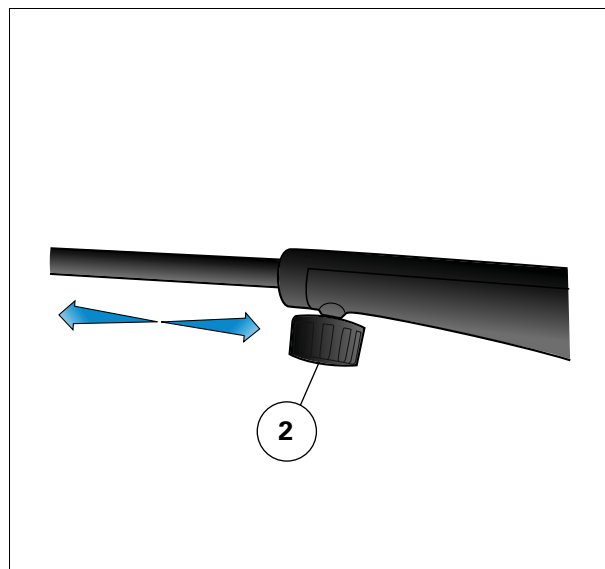


Fig. 4.

I022675

Adjusting the rear-view mirrors (depending on model)

1. Manual rear-view mirror adjustment Loosen the notched thumb wheel (1) or the screws (3) in order to move the rear-view mirror.
2. Retighten the notched thumb wheel or the screws to lock the rear-view mirror in place.
3. The rear-view mirror can be manually adjusted on mirrors not fitted with an electric control: Use both hands, diagonally opposed, to turn the rear-view mirror in the direction required.

NOTE: Depending on the model, it may be necessary to loosen the notched thumb wheel (1) or the screws (3) to make the adjustment.

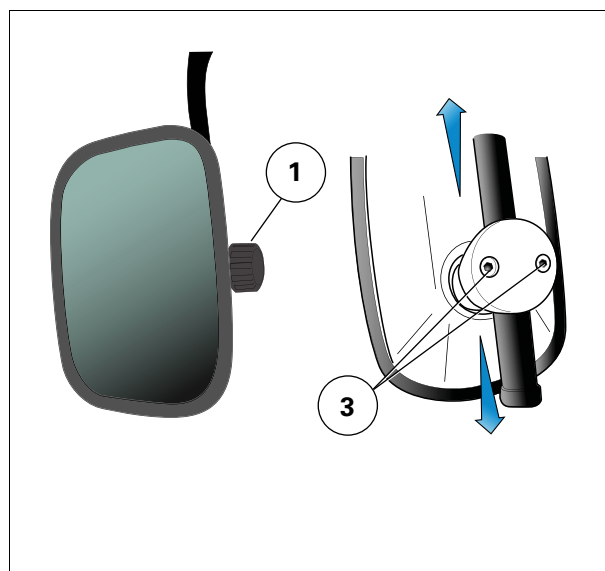


Fig. 5.

I022693

Manual adjustment of the rear-view mirror with an electric control

1. If the mirror electrical adjustment is insufficient, it may be necessary to manually adjust the mounting to obtain the required level of adjustment:
Loosen the four screws to remove the rear casing of the rear-view mirror
2. Slightly loosen the screws (1) of the mirror support in order to rotate the mirror
3. Make the required horizontal or vertical adjustment
4. Retighten the four screws.
5. Refit the rear-view mirror casing.

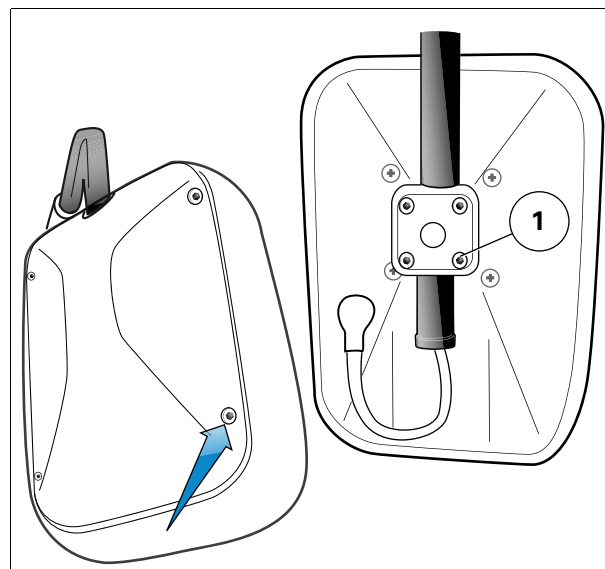


Fig. 6.

1027438

3.7 Engine

3.7.1 Running-in

T000953

- Experience has shown that the first 50 hours of tractor operation have a significant effect on the performance and life of the engine.
- From the first operation, the tractor must run with the engine at full load. The engine should be allowed to reach a temperature of 60 °C before being subjected to full load.
- It is quite normal for oil consumption to be relatively high during the running-in period. Therefore, during running-in, the engine oil level must be checked twice a day during the first 50 hours of operation to avoid the risk of lubrication failure.
- During running-in, check the tightness of all nuts, bolts and screws frequently. The wheel nuts must be retightened daily until their torque has stabilised (see chapter 5).

3.7.2 Filling with fuel

T001741

Before filling, ensure that the fuel and additives being used are in compliance with applicable regulations, see §4.3.2, page 212 and see §4.3.4, page 215.

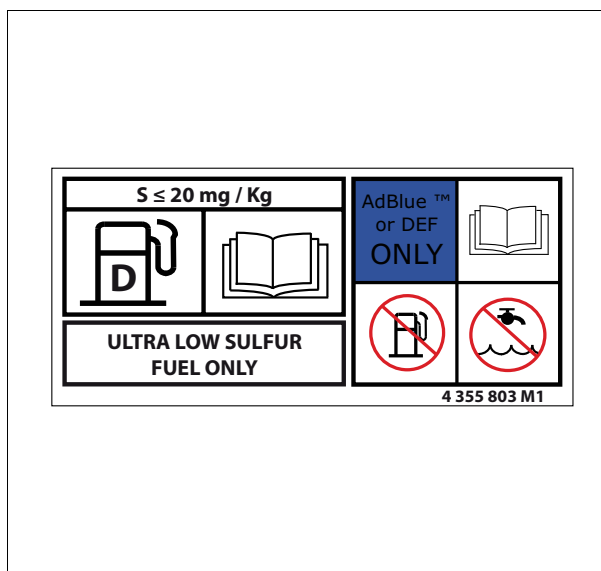


Fig. 1.

I027033



WARNING:

**Always switch off the engine before filling up.
Do not smoke while refuelling the tractor.
Keep away from naked flames .
Wear suitable gloves when filling up.**

Diesel fuel

The filler port is located on the left-hand side of the tractor.

The tank is filled after removing the BLACK plug ((1)).

Fuel quality:.. [see §4.3.2, page 212](#)

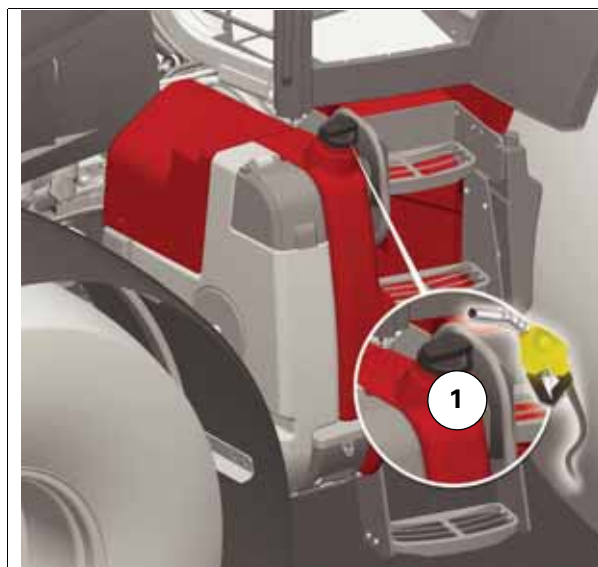


Fig. 2.

1005725

Biodiesel

Compatibility with biodiesel, [see §4.3.3, page 214](#)

AdBlue/DEF additive (only for E3 engine with AdBlue/DEF technology)

The filler port located on the left-hand side of the tractor has a blue plug.

Lift the protective cover to access the BLUE filler plug ((2)).

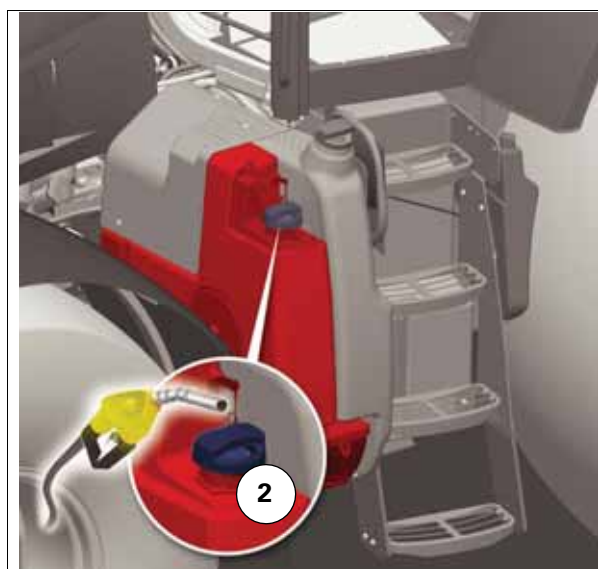


Fig. 3.

1005726

IMPORTANT: Protective measures to be taken in the event of spillage

- As this fluid is very corrosive, if the tractor is splashed with fluid, wipe off and rinse with water.
- If an electrical connector is splashed with fluid, it must be replaced.
- Crystals of AdBlue/DEF additive may appear on the vehicle in the event of spillage. Rinse immediately with water to remove these crystals.

IMPORTANT: Never put AdBlue/DEF in the fuel tank, as the engine and fuel system may become damaged.

IMPORTANT: If the AdBlue/DEF additive is modified or replaced by another fluid, which does not comply with standard DIN 70070, there is a risk that it will not provide the intended result, and it may damage the E3 engine with AdBlue/DEF technology.

Level of AdBlue/DEF additive

When the AdBlue/DEF level reaches the minimum mark on the tank (it must remain at a minimum of 7 l for the system to operate correctly), several warnings will appear:

- The gauge level bars flash on the instrument panel

- A beep sounds and warning messages appear
- Degraded mode (2) is engaged, enabling only 40% of the engine power and limiting the maximum speed to 1500 rpm.

The error codes are displayed and the engine indicator light comes on.

Self-sufficiency control for the AdBlue/DEF additive

Each time the engine is started, the self-sufficiency of the remaining AdBlue/DEF additive is compared to the fuel self-sufficiency.

If the self-sufficiency of the AdBlue/DEF additive is lower than that of the fuel, a beep sounds and a warning message appears on the instrument panel.

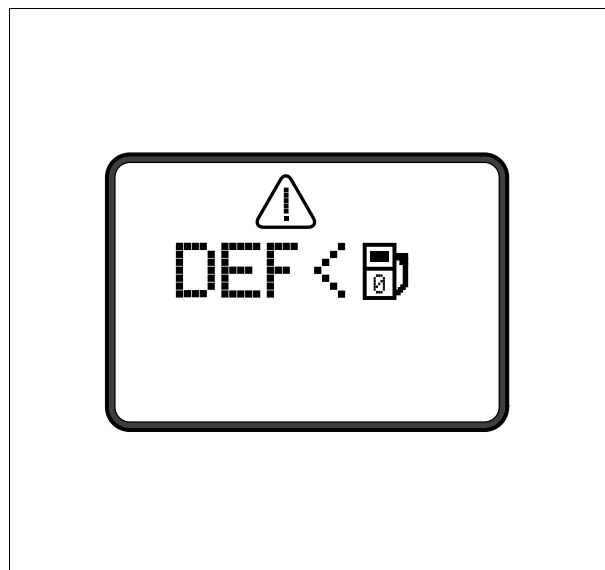


Fig. 4.

I021649

Quality of AdBlue/DEF additive

The use of an additive other than the one recommended (conforming to ISO 22241-1 or DIN 70070) has been detected and an error code is displayed on the instrument panel.

The use of an additive other than the one recommended (conforming to ISO 22241-1 or DIN 70070) has been detected and an error code is displayed on the instrument panel.

Degraded mode (2) is engaged, enabling only 40% of the engine power and limiting the maximum speed to 1500 rpm.



Fig. 5.

I011615

3.7.3 Start-up

T001286



DANGER:

Never run the tractor in an enclosed space unless the exhaust can be ventilated to the outside air. Never run the engine unless you are sitting at the steering wheel of the tractor.



WARNING:

**Check that the "ParkLock" Valtra Shuttle lever is engaged.
Deactivate the power take-off (PTO) controls.**

NOTE: Also refer to the instructions in the startup sheet.

Procedure

1. Turn the ignition key to the **ON** position. The indicator lights on the instrument panel should light up.
NOTE: When the ignition is turned on, the TC and DC symbols display alternately on the instrument screen. The numbers underneath TC and DC correspond to the program versions installed and are for your dealer's reference.
2. Depress and hold down the clutch pedal.
3. Turn the key to the preheating position and hold there for 2 seconds.
4. Start the engine and release the key.
5. Release the clutch pedal.

3.7.4 Start-up sheet

T001285

Fig. 6.

I010441

3.7.5 Cold weather starting

T001463

Engine block preheating

A 1000 W preheater and connection cable are provided to assist cold weather starting. The preheater operates with a mains power supply of 110 or 220 V (depending on option) and in general heats the engine coolant in two hours.

In extreme cold, it may be required to operate all night.

**WARNING:**

DO NOT test the heating element unless it is immersed in coolant. It is dangerous to connect a heating element in the open air, as the heat released can cause injury and the element could explode.

NOTE: An identical system is available as an option for preheating the transmission oil.

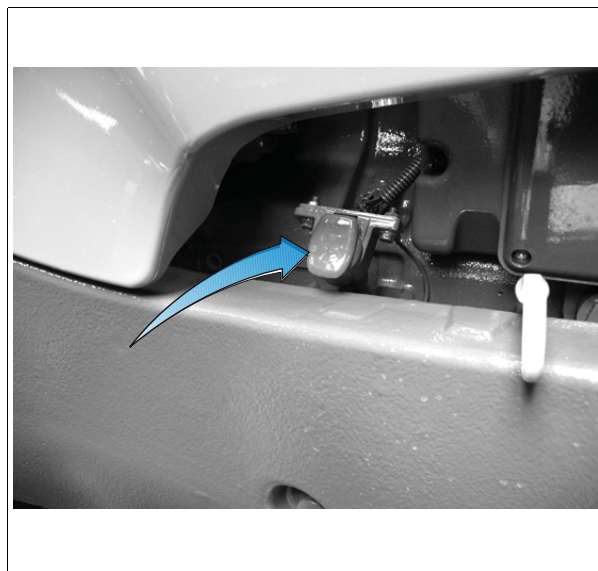


Fig. 7.

I022096

AdBlue/DEF additive preheating mode

The AdBlue/DEF additive is preheated by the tractor cooling system.

When the tractor is started in cold conditions and the AdBlue/DEF additive is frozen in the tank, the tractor's electronics switch the system to AdBlue/DEF preheating mode.

Preheating mode remains engaged until the AdBlue/DEF additive is available for injection.

- The engine idle speed is automatically set to 1200 rpm.
- A message appears on the instrument panel indicating AdBlue/DEF with the thermometer icon, and a beep sounds. This message reappears at regular intervals (approx. every seven minutes).
- Degraded mode (1) is engaged, enabling only 70% of the engine power and limiting the maximum speed to 1700 rpm.

NOTE: AdBlue/DEF additive freezing point: -11 °C

3.7.6 Information on the different modes of the E3 engine with AdBlue/DEF technology

T009027

Normal mode

No display.

Degraded mode 1

When degraded mode 1 is activated, engine power is limited.

In this case, only 70% of the engine torque is available and the engine speed is limited to 1700 rpm.

Degraded mode 1 is activated if:

- The AdBlue/DEF additive has reached its freezing point of -11 °C
- During the defrosting phase, the temperature of the exhaust fumes exceeds the predefined limit

This mode protects the AdBlue/DEF injection system.

But it also warns the operator so that he can use anti-freeze methods in extremely cold weather conditions.

Consult your dealer for advice on these procedures.

Degraded mode 1 is deactivated when the AdBlue/DEF injection system has defrosted and the system has returned to normal operation.

Degraded mode 2

When degraded mode 2 is activated, engine power is limited.

In this case, only 40% of the engine torque is available and the engine speed is limited to 1500 rpm.

Degraded mode 2 is activated if:

- The level of AdBlue/DEF has reached its minimum

NOTE: The shift from normal mode to degraded mode 2 takes about 1 hour. The reduction in the engine torque and speed is 1%/min.

- A fault appears on the AdBlue/DEF injection system

NOTE: The shift from normal mode to degraded mode 2 takes about 2 minutes.

Degraded mode 2 is deactivated when the AdBlue/DEF tank is filled to more than 30% or when the fault is corrected.

Final degraded mode

Final degraded mode limits the engine speed to 800 rpm.

This mode only appears if the tractor has continued to operate in degraded mode 2 for 4 hours.

These hours may or may not be consecutive.

Final degraded mode is deactivated when the AdBlue/DEF tank is filled to more than 30%.

Operator information

The operator is informed of the operating condition of the system on the instrument panel.

- Display of the AdBlue/DEF level
- Display of a warning message on the Dash Control Center for the level being too low -
- Display of a warning message on the Dash Control Center for the temperature being too low [see §3.7.5, page 127](#)
- Display of fault codes on the Dash Control Center

Display on the Dash Control Center for the level being too low

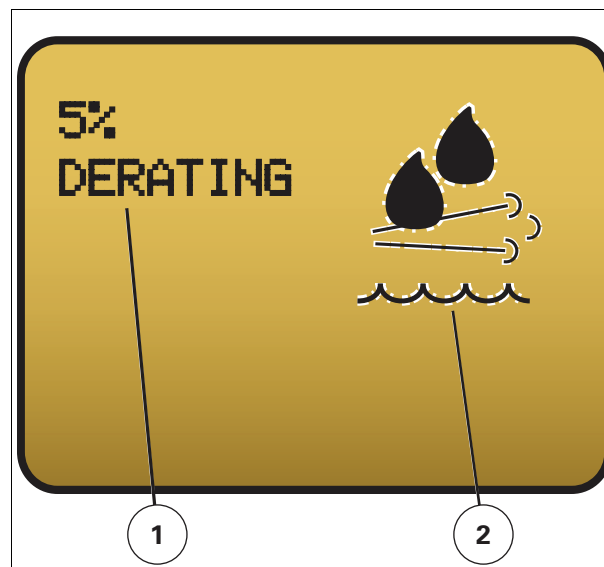


Fig. 8.

I022706

AdBlue/DEF tank level	20%	15%	10%	>0%	0%
Hourmeter	No	No	0:00	1 hour	5 hours
Audible warning	No	1 beep	2 beeps	3 beeps	3 beeps
Level display	2 bars	1 bar	1 bar (flashing)	No bar	No bar
Display of symbol (2) on the Dash Control Center	Yes	Yes	Yes (flashing)	Yes (flashing)	Yes (flashing)
Message (1) on the Dash Control Center screen	"15%"	"10%"	"5% DERATING" (flashing)	"0% DERATED" (flashing)	"0% LOW IDLE" (flashing)
Erase the message on the Dash Control Center	Yes, but reappears after 15 minutes	No	No	No	No
Engine indicator light	No	No	Yes if fault code	Yes if fault code	Yes if fault code
Fault code	No	No	Yes	Yes	Yes
Degraded mode	No	No	Degraded 2	Degraded 2	Final degraded
Injection of AdBlue/DEF	Yes	Yes	Yes	No	No

3.7.7 Stopping the engine

T000956

1. After stopping the tractor, allow the engine speed to return to idle.
2. Leave the engine running for several seconds at idle speed. It is necessary to allow the turbocharger to reduce speed.
3. **IMPORTANT:** Do not stop the engine suddenly when the engine is running at a high speed, because the turbocharger will continue running under its own momentum, but will no longer be lubricated. Slow the engine before stopping it.

Return the ignition key to the "Stop" position.

3.7.8 Engine speed

Hand throttle

Using the hand throttle allows you to vary the engine speed and to maintain a constant speed. To do this, simply turn the button towards **(+)** or **(-)** to select a speed. The button remains in this position to maintain the selected speed.



Fig. 9.

I007069

Foot throttle

The foot throttle is used to control the engine speed as well as the forward speed. When the pedal is released, the engine rpm returns to that preset by the hand throttle.

Choosing the correct gear ratio

Select the ratio which gives the optimum fuel consumption without overloading the engine and the transmission. Bear in mind that soil conditions can vary within a matter of a few yards in the same field. In automatic mode, the system selects the ratio.

Storing engine speeds

This function allows the operator to have permanent access to two stabilised engine speeds. This means he can activate stored engine speed Cruise 1 σ_1 when working (e.g. 2160 rpm) and he can activate stored engine speed Cruise 2 σ_2 when carrying out manoeuvres (e.g. 1350 rpm).



Fig. 10.

I010003

Preselecting the speeds *fig. 10*

- Select the required engine speeds using the foot or hand throttle.
- Keep memory switch Cruise 1 σ_1 or Cruise 2 σ_2 pressed down for 1 to 2 seconds. The speed is stored and activated, and is highlighted on the Dash Control Center screen on the armrest (the symbol flashes on the screen when it is ready to be stored). The speeds can then be adjusted until the switch is released.
- Once speed Cruise 1 σ_1 or Cruise 2 σ_2 has been selected, you can adjust the value using the **(+)** and **(-)** buttons *fig. 9*

- To deactivate a stored engine speed, press switches Cruise 1 or 2, or press OFF.
- To reactivate the function, press the switch for 0.2 seconds to 1 second.

NOTE: When driving with a stored speed active (Cruise 1 or Cruise 2), pressing the brake pedals deactivates the stored speed if manual mode is active and if the forward speed is above 20 km/h.

3.7.9 Forward speed calibration

T002597

General

This calibration allows improved precision of forward speed depending on:

- the different tyre sizes available
- radar (if fitted)

Procedure

1. Mark out a 100 m (depending on the unit of measurement selected) on a firm surface.
2. Start up the tractor, and then press and hold the display selector switch (A) for 15 seconds.

NOTE: The daily hourmeter resets to 0 after 5 seconds.

3. "CAL" should appear on the screen [fig. 11](#).
4. Drive the tractor forwards at normal working speed.
NOTE: The tractor must always be moving before starting out on the measured course; otherwise calibration will be incorrect.
5. Press the display selector switch when crossing the starting line of the 100 m course.

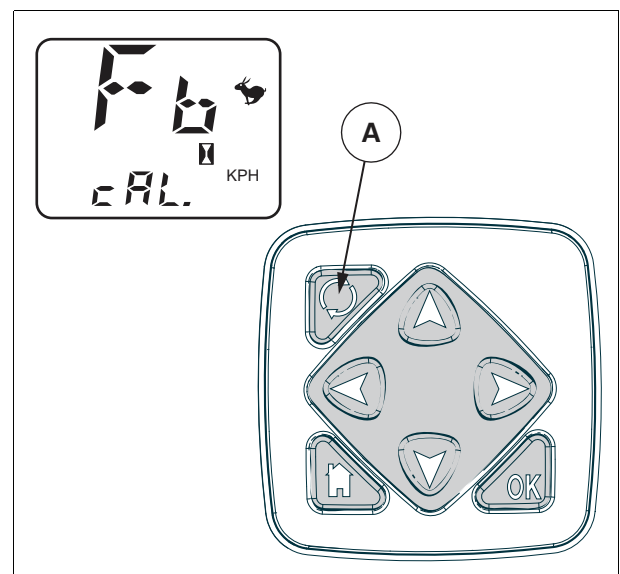


Fig. 11.

I007510

6. "run" should appear on the screen [fig. 12](#).
7. Press the display selector switch when crossing the finish line of the course.
8. Press the display selector switch; the constant forward speed (theoretical) measured during calibration is displayed.
9. Press the display selector switch again; the actual constant forward speed (radar) measured during calibration is displayed on tractors fitted with radar.
10. Press the display selector switch a final time to return the instrument panel to normal operating mode.

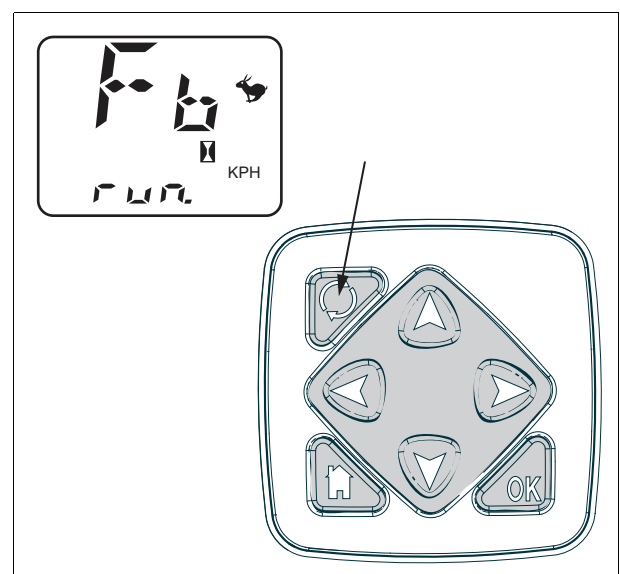


Fig. 12.

I007511

3.8 Transmission

3.8.1 General

T001287

The AVT transmission is first of all a forward and reverse continuous transmission.

The transmission electronic control system offers different driving modes:

- Manual mode
- Semi-automatic mode
- Automatic mode

Power is transmitted hydrostatically or mechanically, or hydrostatically and mechanically.

Slow forward travel = Power transmission is mainly hydrostatic/partially mechanical.

Fast forward travel = Power transmission is partially hydrostatic/mainly mechanical.

3.8.2 Coupler clutch function

T001288

Clutch function

Although the transmission has no forward clutch or coupler, the tractor does have a clutch pedal. This pedal allows traction effort to be controlled (as with standard clutch slip). When an obstacle appears suddenly, the tractor can be stopped rapidly by pressing the clutch and brake pedals, just like a standard tractor.

Coupler function

Traction power is limited at low engine speed thanks to a proportional solenoid valve located on the transmission hydrostatic loop.

In connection with engine speed, the coupler function is activated by modulating the pressure in the hydrostatic system. The coupler function thus replaces the measured action of a clutch pedal.

Coupler function under traction

The coupler function is activated when the engine speed drops below 1250 rpm; the pressure in the hydrostatic loop decreases in proportion to the drop in engine speed. Like a coupler, the function limits engine overload and avoids stalling. The coupler function can be activated or deactivated from the Dash Control Center screen on the armrest [see §3.3.3, page 88](#).

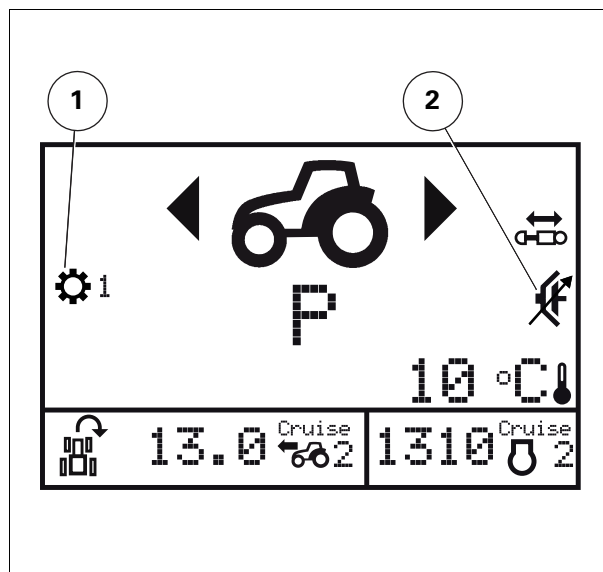


Fig. 1.

I010120

NOTE: The coupler function is "ON" by default at start-up, whatever the status when the tractor stops.

3.8.3 Range shifting

T001289

The speed ranges can be selected according to the driving mode.

There are two ranges :

- Slow speed/tortoise range (A) for field use.
- High speed/hare range (B) for road use.

IMPORTANT: Always change to a slow range when working in the field to avoid overheating the transmission.

	Slow/Tor- toise	Fast/Hare
Forward	0 km/h to 30 km/h	0 km/h to 50 km/h ¹
Reverse	0 km/h to 16 km/h	0 km/h to 38 km/h

1. Depending on the maximum permitted speed in the different countries.

Range shifting

Changes between slow and fast range are made when the tractor is moving, via the switch located on the right-hand console [fig. 3](#).

Speed limit to be observed

- Low-speed range to high-speed range: No restriction
- High-speed range to low-speed range: The forward speed must be less than 25 km/h.

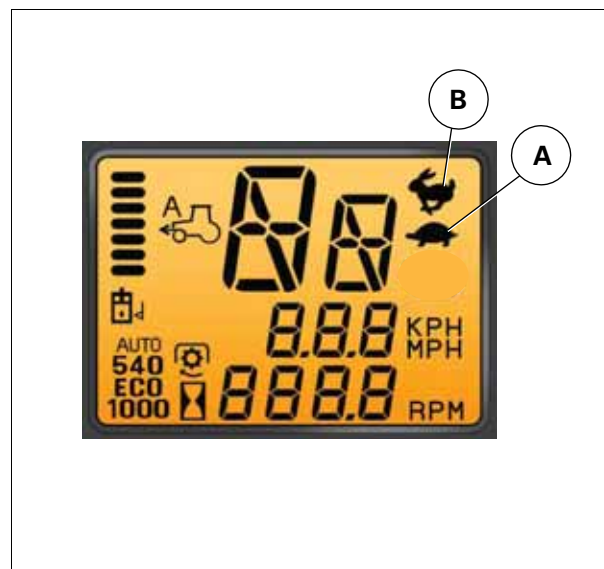


Fig. 2.

I009973



Fig. 3.

I010013

3.8.4 Power Shuttle

T001291

Principle of the Valtra Shuttle lever

Control located to the left of the steering wheel
The Valtra Shuttle lever is used to change direction of travel (forward or reverse) without disengaging the clutch.

**DANGER:**

Use the clutch pedal for all manoeuvring (hitching implements etc.).

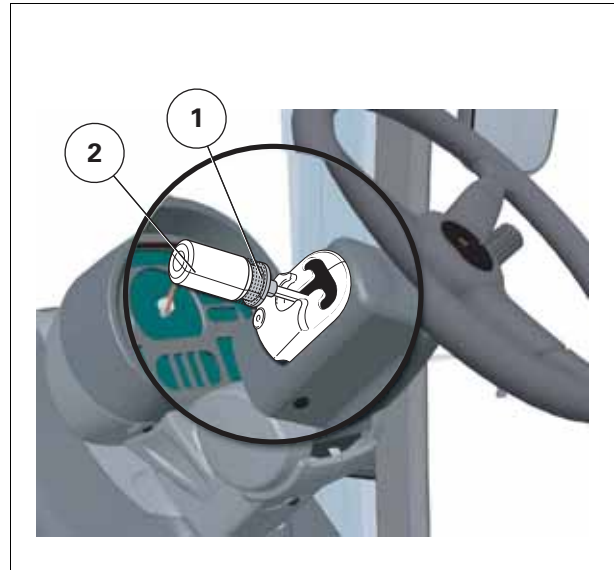


Fig. 4.

I010010

Using the Valtra Shuttle lever

- (1) Electro-mechanical brake (ParkLock): The ParkLock is engaged when the lever is locked in the low position
- (2) Unlocking the electro-mechanical brake (ParkLock): Move the lever lock to the left and lift the lever into the neutral position
- (3) Neutral: In this position, the transmission is in the neutral position and the ParkLock is disengaged
- (4) Lift the lever lock and move it to the position for the required direction of travel.
- (5) Forward travel: Move the lever to the **forwards** position.
Reverse travel: Move the lever to the **reverse** position.

NOTE: When the tractor is in motion, each change to the direction is made using this control without disengaging the clutch.



DANGER:

Before leaving the seat, it is essential to engage the parking brake (ParkLock).

Lever position	Corresponding instrument panel screen
Neutral	
Forward	
Reverse	
ParkLock engaged	

Fast shifting

When changing the direction of travel, the tractor slows to a halt, then accelerates in the opposite direction.

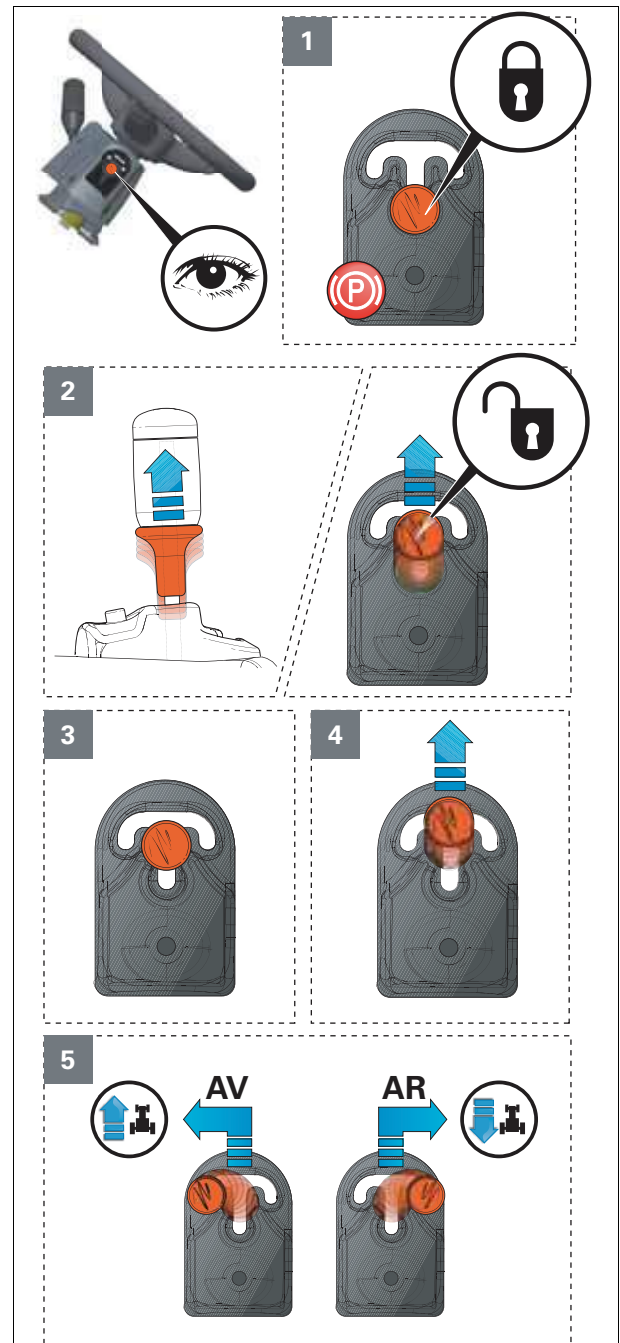




Fig. 5.

1007070

3.8.5 Setting speeds

It is possible to store two forward speeds (Cruise 1  and Cruise 2 ) in the manual, semi-auto and auto modes for both directions of travel and to recall these speeds with ease.

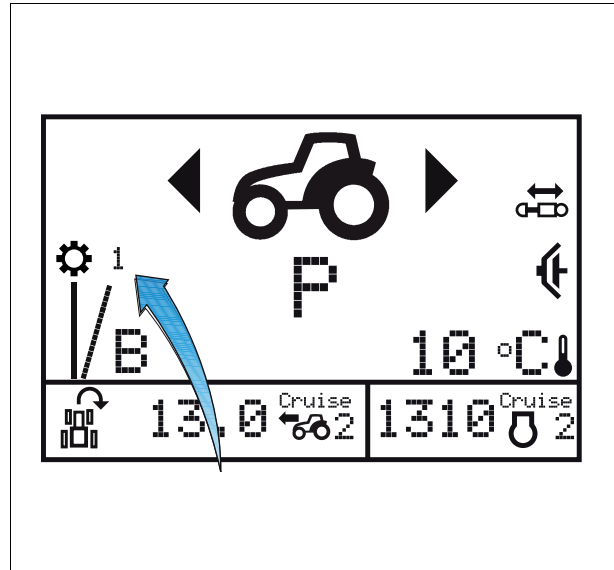


Fig. 6.

I010826





It is possible to set speeds Cruise 1  and Cruise 2  using switches (1) and (2) respectively. The recorded speeds remain stored in the memory after the engine is switched off. Stored speeds Cruise 1  and Cruise 2  can be deactivated by pressing buttons Cruise 1 and 2 again, or by pressing the OFF button.



Fig. 7.

I007911

Conditions to be met for activation.

- Clutch pedal not activated
- Forward speed >0,03 km/h .

Deactivation conditions.

- Press the OFF switch
- Press the switch corresponding to the speed engaged
- Move the armrest lever or reverse shuttle
- Brakes activated
- Forward speed 0,03 km/h

3.8.6 manual — mode 2 mode

T001788

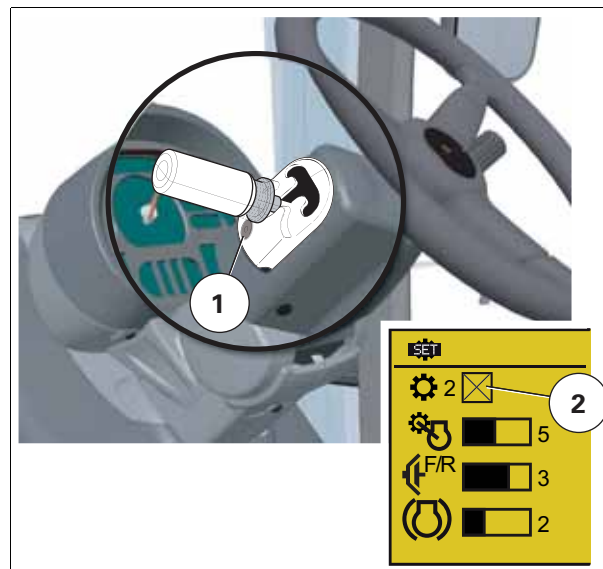
This mode can be accessed via the screen on the armrest.

To activate manual — mode 2 mode, place the shuttle control in ParkLock position and the transmission lever in minimum position, then press button (1) under the shuttle control to open the menu. Tick box (2) and press button (1) again to return to the driving screen.

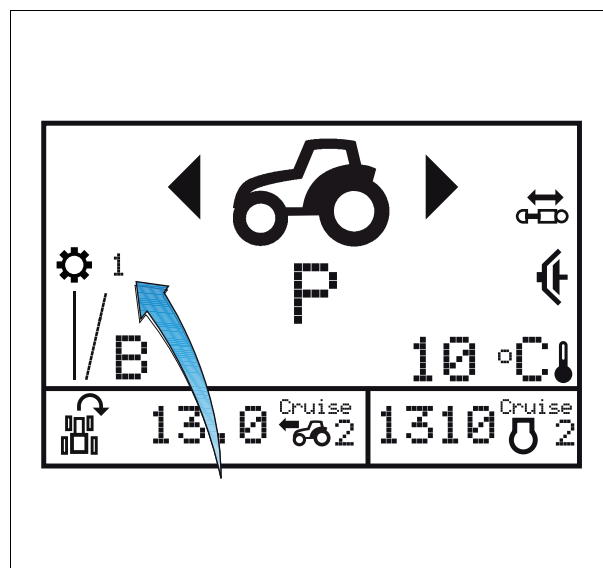
The tractor forward speed depends on the position of the armrest lever.

The engine speed depends on the position of the throttle pedal/hand throttle or the stored speeds Cruise 1 $\frac{1}{100}$ and Cruise 2 $\frac{1}{100}$.

NOTE: Automatic mode is still the default mode at engine start-up.



I014755





I010111



Fig. 8.

I010003

3.8.7 semi-automatic - mode 1 mode

When the tractor is started, press the Cruise 1  or Cruise 2  driving mode switch on the armrest. semi-automatic - mode 1 mode is displayed on the armrest screen. Display (1) appears.



I007911

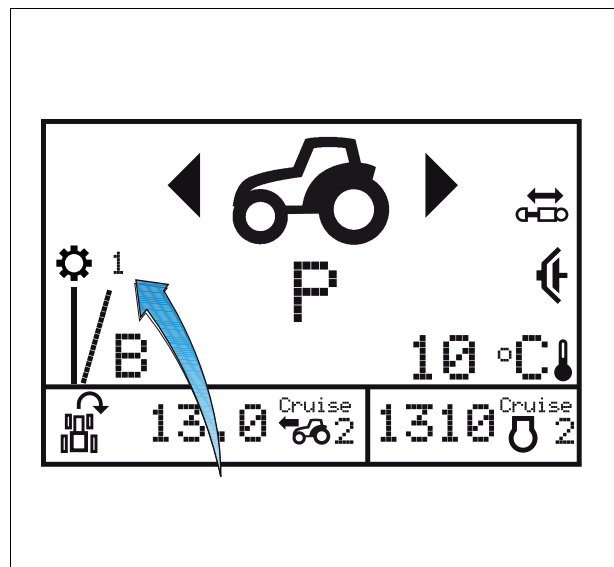


Fig. 9.

I010826

The maximum forward speed setting is set using the armrest lever [fig. 10](#).

- 0 km/h to 50 km/h ¹ in high speed range (B, hare).
- 0 km/h to 30 km/h in slow speed range (A, tortoise).

1. maximum permissible speed according to the legislation in force in the different countries

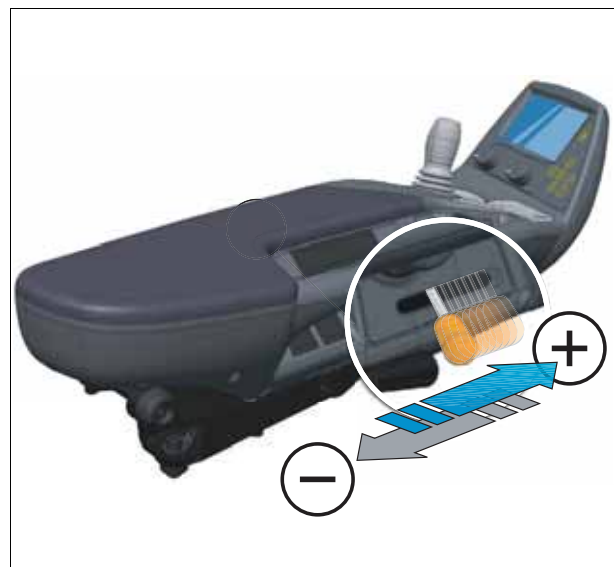


Fig. 10.

I010009

NOTE: When you are in semi-automatic - mode 1 mode, the status of the transmission lever position is displayed in zone A and the status of the pedal is displayed in zone B.

Optimum drive is achieved when the two graphical zones are at the same level.

If this is not possible, move the transmission lever to approach the optimum state.

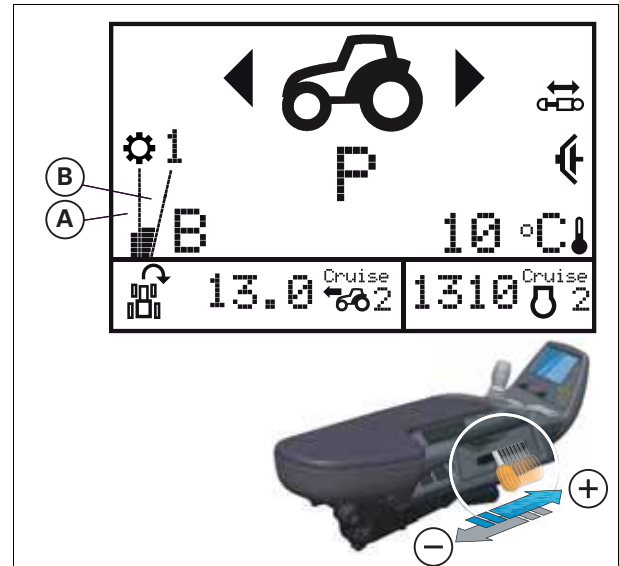


Fig. 11.

I014788

3.8.8 automatic mode

T001793

In this mode, the electronic system manages the engine speed automatically to maintain the required forward speed in order to obtain the best level of fuel consumption and improved comfort for the user.

However, if the user wishes, he can interrupt the engine speed using the throttle pedal/hand throttle or stored speeds Cruise 1 and Cruise 2.

automatic mode is available in manual — mode 2 and semi-automatic - mode 1 mode.

To access DTM mode, press the corresponding switch [fig. 12](#).



Fig. 12.

I007911

When automatic mode is engaged, display (1) disappears from the armrest screen and nothing is displayed [fig. 13](#).

By default, automatic mode manages the engine speed between 800 and 2260 rpm.

However, it is possible to impose an engine work range, depending on the applications.

NOTE: Auto mode is the default mode on start-up.

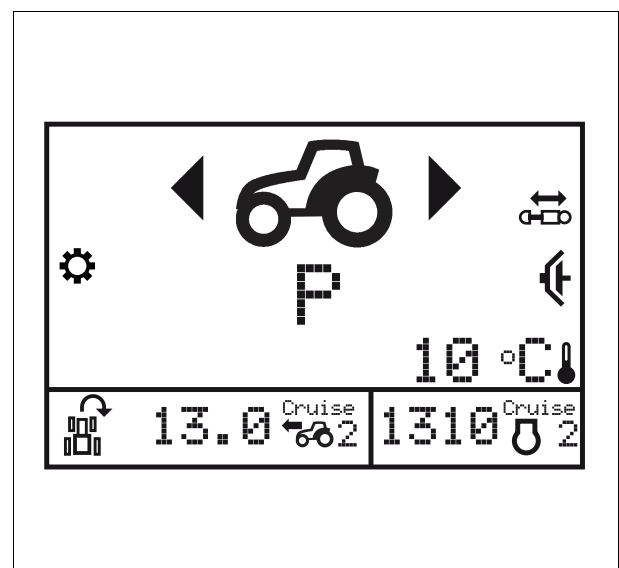


Fig. 13.

I011590

- (A) Engine speed upper limit (selected with encoder SV1)
 (B) Engine speed lower limit (selected with encoder SV2)
 (C) Events to which limits will be applied (selected by pressing OK); see ref. (1) to (7)
- (1) Always
 - (2) PTO active
 - (3) Linkage in working position
 - (4) Spool valve activated
 - (5) PTO active and linkage in working position
 - (6) PTO active and spool valve activated
 - (7) Linkage in working position and spool valve activated.

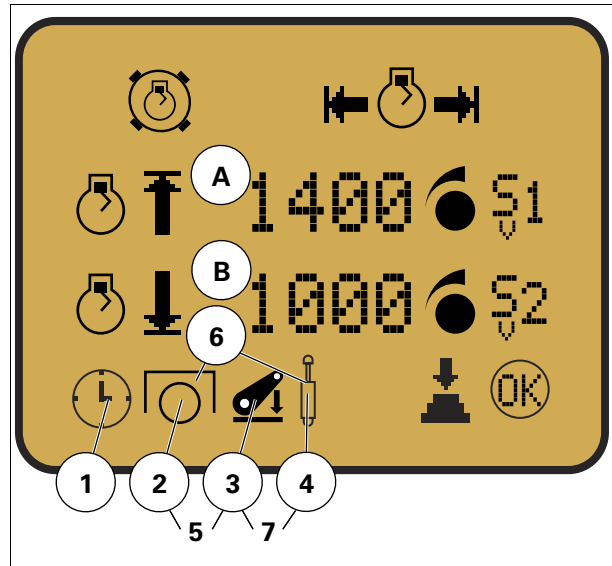


Fig. 14.

I005769

3.8.9 Tractor towing

T001295

Towing instructions



WARNING:

The following instructions must be adhered to when towing the tractor:

If the engine is running:

- *Position the high/low speed range in neutral*
- *Maximum towing speed 10 km/h (6 mile/h)*
- *Max. towing distance. 8 km (5.0 mile)*

If the engine is shut down or out of hydraulic fluid:

- *Position the high/low speed range in neutral*
- *As the gearbox is no longer lubricated when the engine is stopped, transport by trailer is recommended*
- *Tow the tractor no further than 50 m (164 ft)*
- *DO NOT EXCEED A SPEED OF 5 km/h (3 mile/h)*



CAUTION:

When towing by hitching onto the front linkage, the pulling force must not exceed 18 t (20 US ton).

Towing procedure:

1. Open the cover plate located on the cab floor (right-hand side).
2. Remove the protective plate.

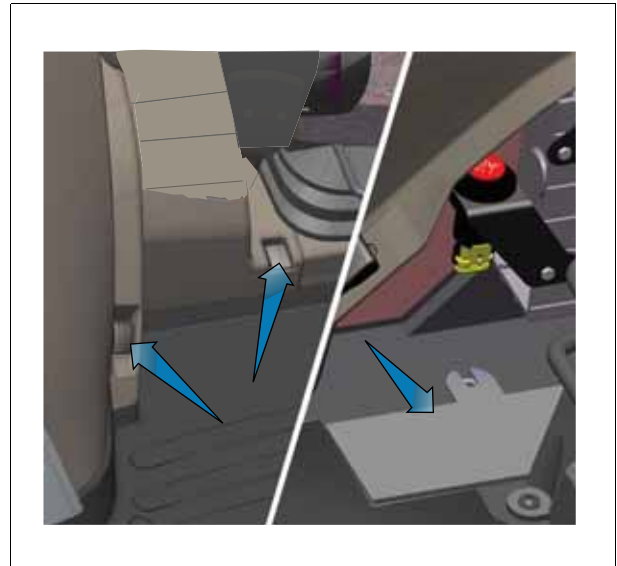


Fig. 15.

I007376

3. Place the limp home lever on the control unit.



Fig. 16.

I007379

4. Place the transmission in neutral (middle position (N))

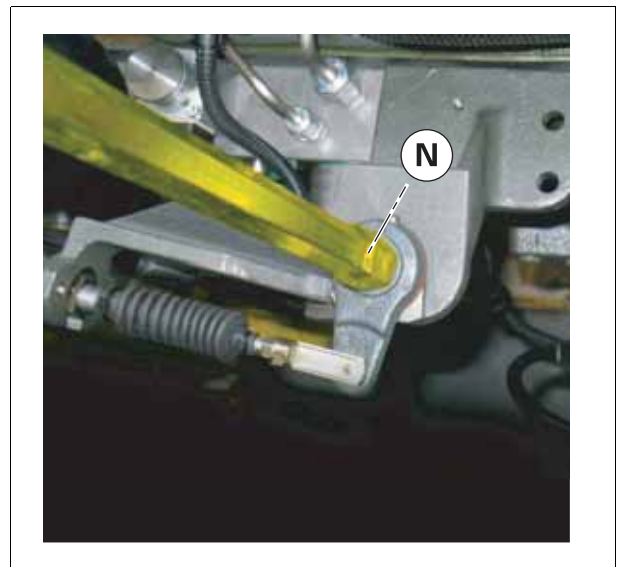


Fig. 17.

I007384

5. Release the ParkLock brake. *see "Releasing the ParkLock", page 144*

Limp home mode

If the transmission ratio control is not possible due to a breakdown, the tractor can be driven mechanically using a limp home lever.

Maximum speed in the high speed range is 34 km/h in forward travel and 25 km/h in reverse travel.

Maximum speed in the low speed range is 15 km/h in forward travel and 11 km/h in reverse travel.

IMPORTANT: When the tractor is stopped, the speed range must be in neutral position (middle position) and the brake must be engaged.



CAUTION:

Once the engine has been started, the transmission is in full working order once a range (high or low) is engaged!

The clutch pedal must be engaged with care because any transmission ratio can be preselected.

1. Stop the engine if it is running.
2. Release the ParkLock brake. *see "Releasing the ParkLock", page 144*
3. Open the cover plate located on the cab floor (right-hand side).
4. Remove the protective plate.
5. **IMPORTANT:** When shifting range, only use the limp home lever supplied with the tractor because the coupling mechanism in the control unit may be damaged (max. permissible torque: 10 Nm).

Place the limp home lever on the range control and select the limp home range :

- clockwise direction, low speed range (tortoise)
- anti-clockwise direction, high speed range (hare)

NOTE: It is important not to change range when travelling in limp home mode

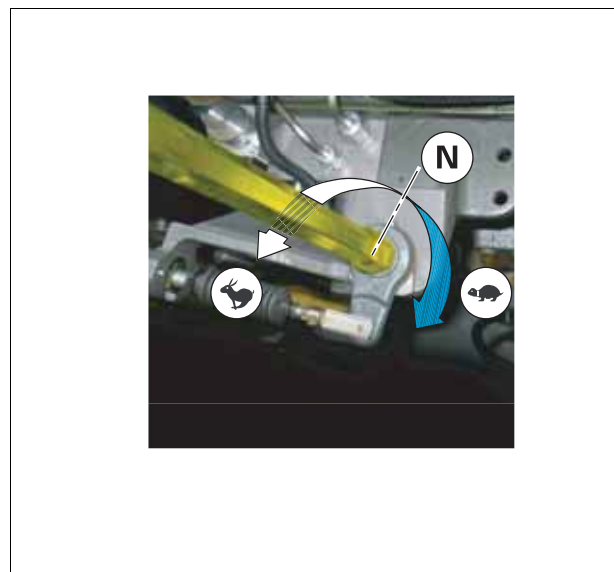


Fig. 18.

I007380

6. Declutch and start the tractor while holding down the red button (limp home button).



Fig. 19.

I007385

7. One of the two error codes is displayed on the left-hand screen (Dash Control Center).

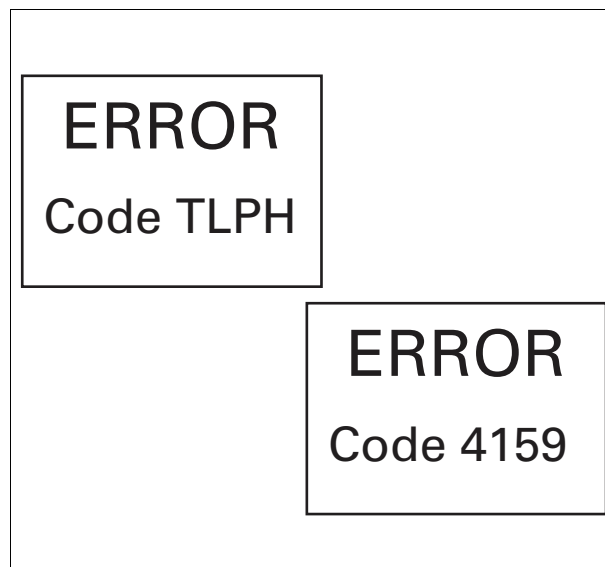


Fig. 20.

I007386

8. **IMPORTANT:** Keep the clutch pedal depressed.
Release the red button.
9. Place the limp home lever on the control ((1)).

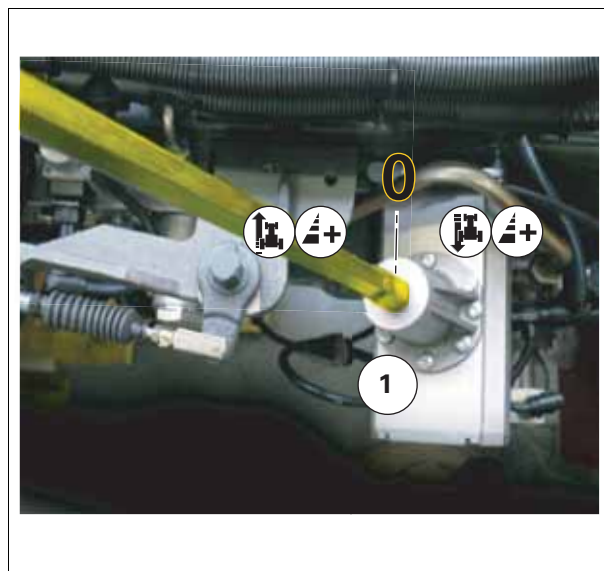


Fig. 21.


I007387

10. Turn the lever in the required direction of travel:
 - anti-clockwise direction, forward travel
 - clockwise, reverse travel

NOTE: Travel speed depends on the rotational value of the lever.

11. Carefully release the clutch pedal. The tractor moves in the previously set direction of travel and reaches the selected ratio manually.
To deactivate limp home mode, stop the tractor and switch off the ignition.

Releasing the ParkLock

1.  **DANGER:**
*The ParkLock parking brake will not operate once its screws have been loosened.
Before loosening, chock the tractor to prevent the wheels from drifting.*

Release the ParkLock parking brake by loosening the right and left-hand brake pots (1) located on the top of the rear axle until the hard point is felt (approximately 9 turns).

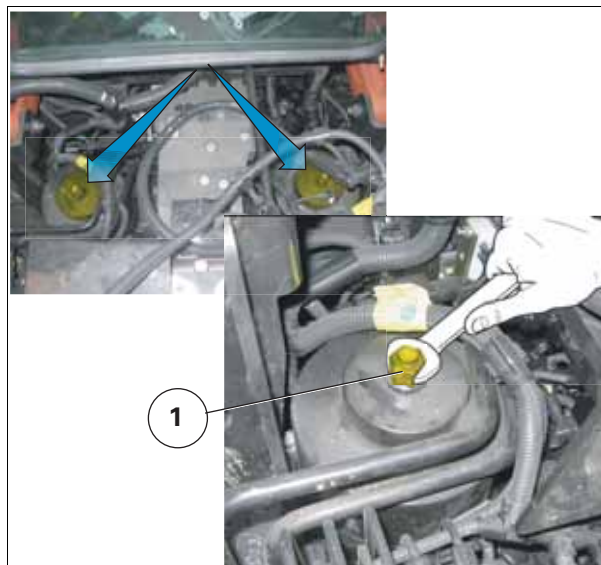


Fig. 22.

I007381

3.9 Brakes

3.9.1 Brake pedals

T001388


WARNING:

When driving on the road, the two brake pedals must be locked together. Only the foot throttle should be used, and the hand throttle lever must be in the engine idle position. Check that the memorised A/B speed is not activated.

- Use the brake pedals locked together when travelling on the road.
The brake acts on the two rear wheels, the front axle (4-wheel drive only) and on the trailer brake.
- To lock the brake pedals together, push the locking lever down.
- Use the brake pedals separately to apply the brake to just one wheel at a time.
Raise the locking lever. Use the brake pedal corresponding to the side the brake is to be applied.



Fig. 1.

I004269

3.9.2 Hydraulic trailer brake

T001296


WARNING:

When using the trailer brake, it is recommended that the brake pedals are locked together see §3.9.1, page 145.

Trailer brake system available as an option.

If a trailer equipped with a hydraulic brake system is hitched to the tractor and connected, the trailer brakes are activated as soon as the operator presses the tractor brake pedals.

Connection: Remove the plastic cover and connect the trailer hose to the union located at the rear of the tractor *fig. 2*.

After disconnecting, refit the cover to prevent any possible clogging and damage to the contact faces.

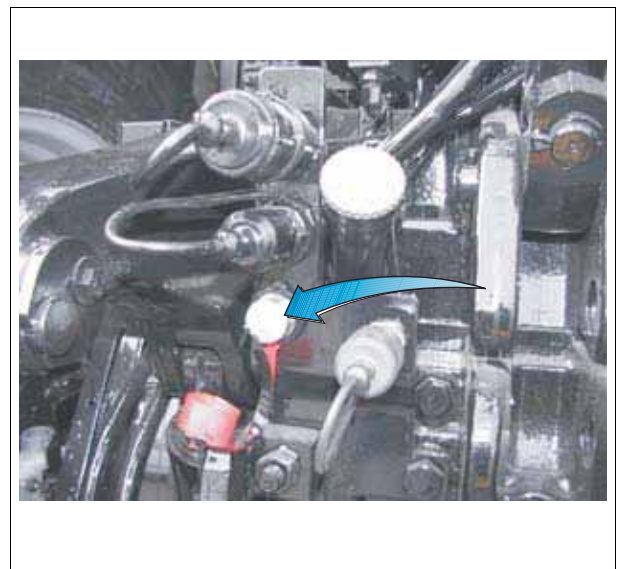


Fig. 2.

I004844

3.9.3 Pneumatic trailer brake

T001390


WARNING:

Before activating the trailer brake, lock the brake pedals together see §3.9.1, page 145.

Identification of coupling heads:

Black	5 bar to 0 bar, used in a single brake line (as used on older trailers).
Red	7 bar, brake assistance line, used for dual braking (as used on new trailers).
Yellow	0 bar to 7 bar, used in a double brake line (as used on new trailers).

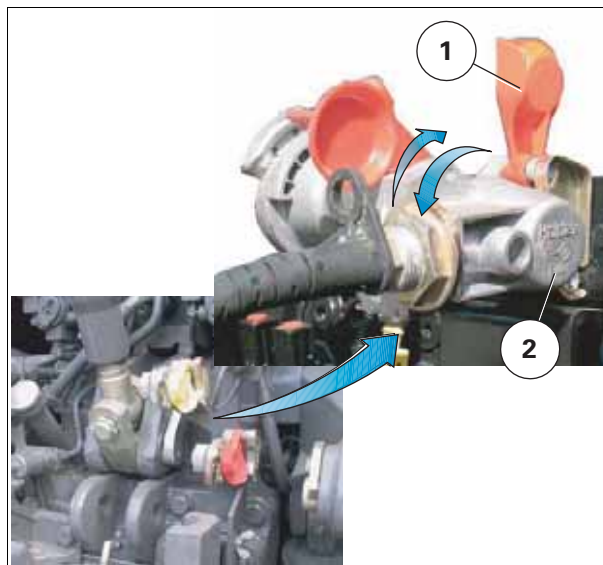


Fig. 3.

I004829

Pressure available depending on type of braking

Brake pedals/hand brake not used	Full braking with brake pedal or hand brake lever	Colour of coupling heads
5 bar	0	Black
7 bar	7 bar	Red
0	7 bar	Yellow

Coupling the trailer to the tractor:

Remove the cover ref. (1) and connect the head of the trailer connection hose ref. (2), turning it downwards until it engages correctly.

IMPORTANT: Connect the yellow coupling head before the red one in order to avoid an excess of pressure in the system.

Uncoupling the trailer:

Carry out the operation in reverse, turning the coupling head upwards and refitting the cover ref. (1) to prevent any possible clogging and damage to the contact faces.

IMPORTANT: Disconnect the red coupling head before the yellow one in order to avoid an excess of pressure in the system.

Driving the tractor/trailer assembly

When driving, it is advisable to activate the corresponding display on the Dash Control Center screen [fig. 4](#) to monitor the display of pressure in the system (in bar) [see §3.1.2, page 60](#), monitoring display panel.

**WARNING:**

When starting, wait for the brake control indicator light to switch off before starting to move. If the pressure drops below 4 bar, trailer braking is no longer operational, and the brake indicator light will light up on the instrument panel [fig. 4](#). Stop the tractor carefully and consult your dealer.

IMPORTANT: The system must be protected by antifreeze at the start of each cold season (temperatures below +5 °C).

See the chapter on maintenance.

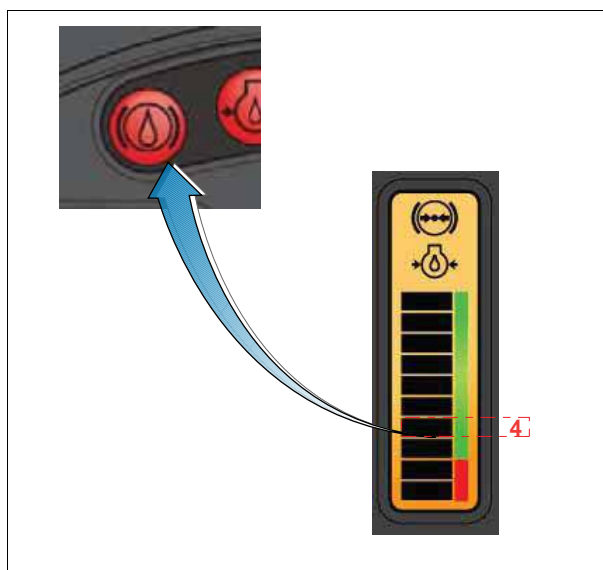


Fig. 4.

I005781

3.9.4 Emergency hand brake

T001297

If required, it is possible to use the emergency hand brake to slow down or immobilise the tractor.

Operation:

1. If forward speed is above 2 km/h and the clutch pedal is not pressed:
Action on the emergency lever will slow the tractor down.
2. If forward speed is above 2 km/h and the clutch pedal is pressed:
Action on the emergency lever will stop the tractor.
3. If forward speed is below 2 km/h :
Action on the emergency lever will stop the tractor and place the transmission in neutral.

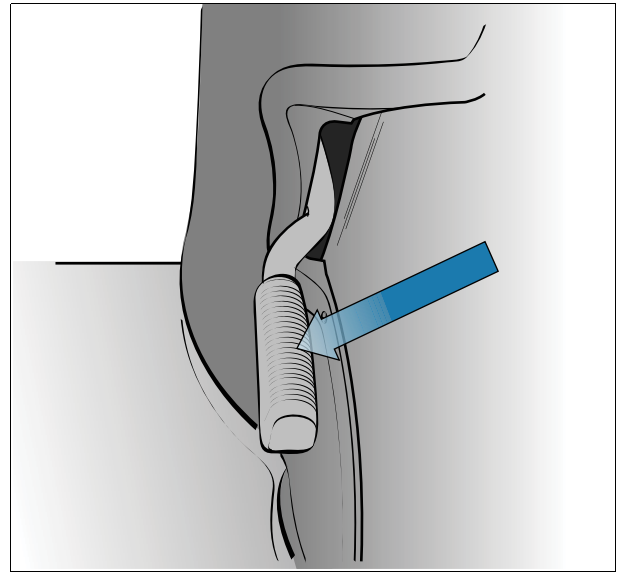


Fig. 5.

I004991

3.9.5 Electromechanically controlled brake on the steering column (ParkLock)

T001489

General

A control located on the left of the steering column is used to engage and disengage the parking brake (ParkLock). ((1)) = engaged position; ((2)) = unlocking; ((3)) = disengaged position.



WARNING:

To compensate for gravity and to prevent the tractor from moving when starting on an ascent or descent, the brake pedals must be applied before releasing the Park-Lock.



WARNING:

Position the ParkLock control in the engaged position (closed padlock symbol) before leaving the operator's seat and switching off the engine.

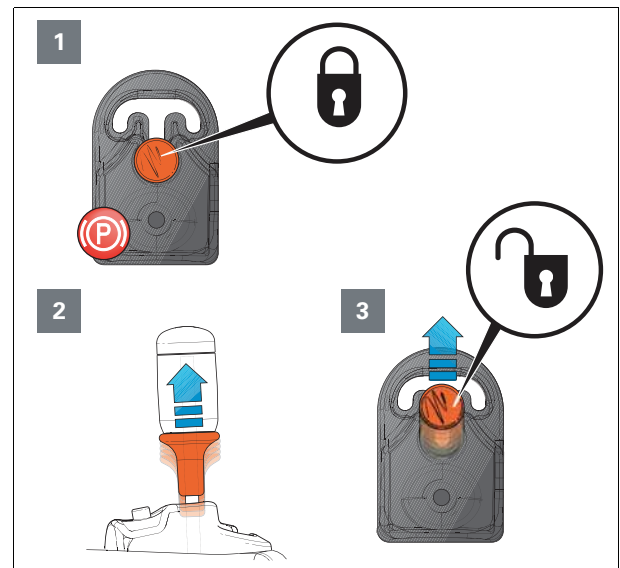


Fig. 6.

I010004

Engaging the brake:

1. Pull the lock and **push** the lever downwards (closed padlock symbol). The brake is then engaged.

NOTE: The indicator light ((P)) illuminates on the instrument panel and the digital display indicates the symbol ((P)), representing the parking position.

2. The ParkLock engages automatically when the engine is stopped.

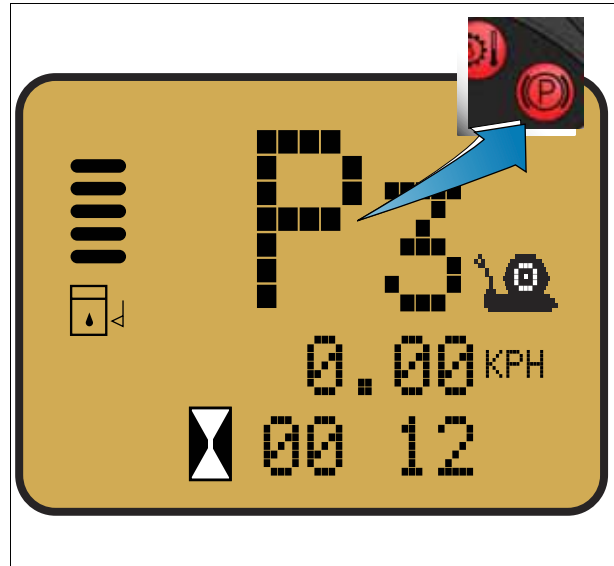


Fig. 7.

I004849

Disengaging the brake:

IMPORTANT: For the ParkLock to disengage after engine start-up, the electronic control must record a switch of the control from the engaged position to the disengaged position (closed padlock to the open padlock position) *fig. 6*.

If this condition is not met, the ParkLock will remain engaged, even if the control is in the disengaged position.

1. Pull the lever lock.
2. Lift the lever to shift it to disengaged position.

Manually releasing the ParkLock

In the event of an electronic fault with the ParkLock, it is possible to manually release it in order to move the tractor.

**WARNING:**

Please contact your dealer after manually releasing the ParkLock.

1.

**DANGER:**

The ParkLock parking brake will not operate once its screws have been loosened.

Before loosening, chock the tractor to prevent the wheels from drifting.

Release the ParkLock parking brake by loosening the right and left-hand brake pots (1) located on the top of the rear axle until the hard point is felt (approximately 9 turns).

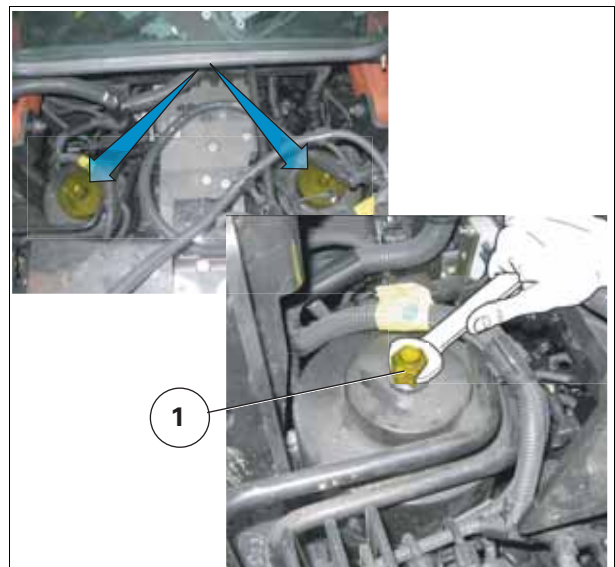


Fig. 8.

I007381

3.10 Steering

3.10.1 Steering

T001896

General

The steering is hydrostatic, which means there is no mechanical connection between the steering wheel and the wheels.

The tractor may be fitted with two types of steering: standard and automatic.

1. Standard steering
This type of steering comprises a hydraulic steering pump. It is only the action of the steering wheel on this that controls the flow of oil to activate the steering ram.
2. Electronic power-assisted steering
This type of steering comprises a pump and an electrohydraulic steering valve. This type of valve offers two further options: quick steering (Quick Steering) and automatic steering (Auto-Guide).

**CAUTION:**

When the engine stops, the booster pump no longer feeds the system.

If the tractor is stopped, the hydrostatic steering cannot be manoeuvred.

If the tractor is in motion, steering is enabled via a pump driven mechanically by the wheels of the tractor.

However, no hydraulic system can operate efficiently unless:

- ***it is correctly maintained and recommended fluids are used***
- ***the tightness of all unions, and the oil level, are regularly checked***

**WARNING:**

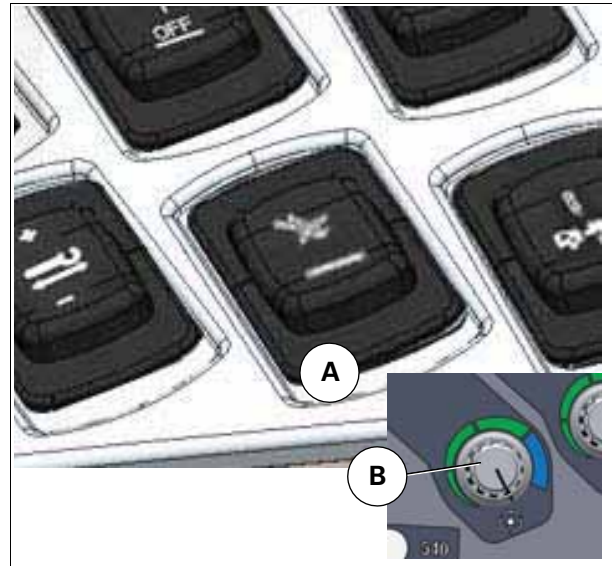
Do not use quick steering (Quick Steering) or Auto-Guide under normal driving conditions on the open road.

Quick Steering accelerated steering

This system enables the operator to reduce the number of steering wheel turns to operate the steering quicker. It disengages automatically above 20 Km/h.

Switch (A) is used to activate Quick Steering accelerated steering. An instrument panel display indicates that the function is engaged and also displays the steering reaction level (1 to 4 levels).

The number of steering wheel turns is adjustable by operating the Quick Steering potentiometer (B.)



I006109



Fig. 1.

I010005

Auto-Guide

The system electronically guides the tractor. The operator no longer has to make corrections to the steering while the system is engaged. For more information, please consult the Auto-GuideOperator Instruction Book.


WARNING:

Under no circumstances should the Auto-Guide power-assisted steering system be used to compensate for the operator's lack of concentration.


CAUTION:

When the system is engaged, the operator must remain seated in the operator seat at all times. He must remain vigilant and be ready to take back the controls of his tractor at any time as required.

The system disengages automatically above 30 Km/h



Fig. 2.

I007091

3.11 Front axle

3.11.1 Four-wheel drive front axle

T001298

When the front axle is engaged, the front wheels are driven. This function is strongly advised for field work to keep wheel slip to a minimum.

The front axle may be used in accordance with the following operating modes:

1. Manual mode
2. Automatic mode
3. US-specific mode

IMPORTANT: So as not to damage the tractor, it is essential to disengage the front axle prior to use on the open road.

NOTE: At tractor start-up, the front axle is in automatic mode.

Special conditions

- The front axle is engaged whenever the tractor is stationary and the front axle indicator light is "OFF".
- If both brake pedals are depressed, the front axle engages to provide 4-wheel braking, regardless of forward speed.
- The front axle will engage whenever the differential lock is engaged.
- The front axle engages when the emergency hand brake is applied.
- To move from automatic to manual mode, press the switch for 2 seconds.

Operation

1. Manual mode:

To activate manual mode, press the switch (1) once and then press it again for 3 seconds.

In manual mode, the 4-wheel drive front axle is permanently engaged, irrespective of the forward speed.

In low/tortoise range, the front axle engages when the wheel slip ratio is higher than 20%. When the wheel slip percentage drops back below 20%, the front axle remains engaged.

2. Automatic mode:

To engage the front axle, press the switch (1) briefly. The corresponding indicator (2) lights up on the instrument panel and the front axle in automatic mode symbol (A) appears on the digital display (3).

Once a speed of 18 km/h is reached, the 4-wheel drive front axle is disengaged automatically.

As soon as the speed drops below 17 km/h, it is automatically re-engaged.

In low/tortoise range, the front axle engages when the wheel slip ratio is higher than 20%. When the wheel slip percentage drops back below 20%, the front axle remains engaged.



I007080

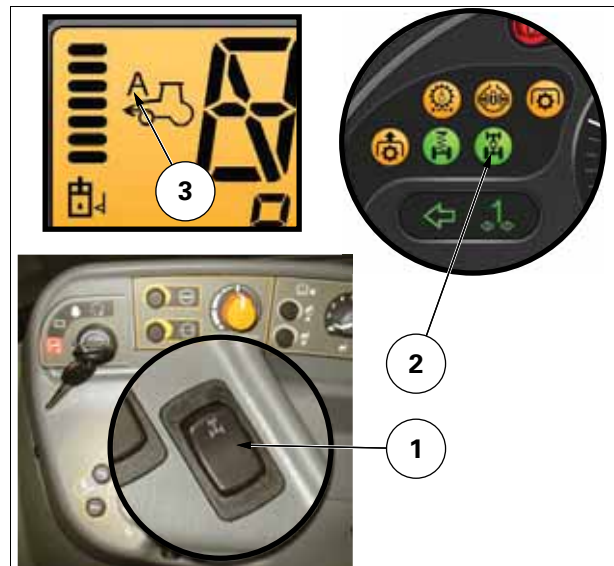


Fig. 1.

I007082

3.11.2 Suspended front axle

T001495

The suspended front axle (optional) is designed to improve the operator's comfort by enabling better shock absorption during road use and also to increase the vehicle's stability at high speeds by improving contact with the road surface.

The axle suspension can be activated and deactivated by the switch ((4)) located on the right-hand console inside the cab [fig. 2](#).

Operation

- On starting the engine, the axle suspension remains in the position (activated or deactivated) that it was in when the engine was stopped.
- The suspension is activated by pressing the switch (4); the indicator light (5) lights up on the instrument panel and the front axle is raised a few seconds later.
- To deactivate the suspension, press the switch (4); the indicator light (5) goes out.
- The front axle suspension is activated automatically when the speed exceeds 30 km/h.

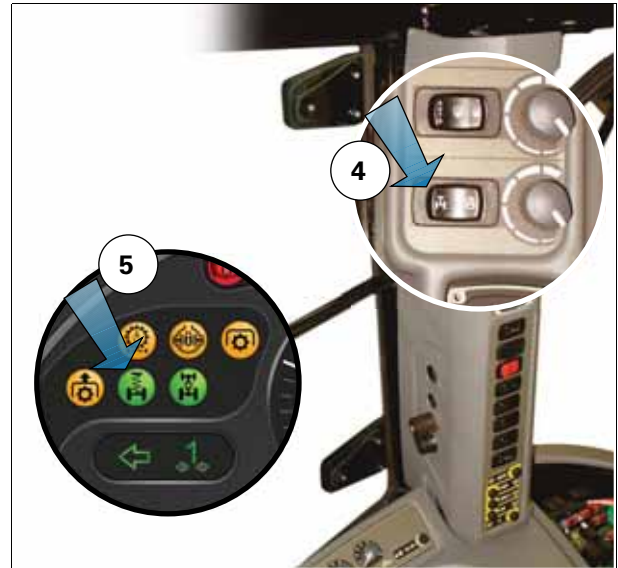


Fig. 2.

I007085

Locking in position

The suspended front axle can be locked in middle or low position. To do this:

- Deactivate the front axle suspension
- Press the switch (4) five times *fig. 2* to switch from low position to middle position.
- Press the switch (4) five times *fig. 2* to switch from middle position to low position.

3.11.3 Permissible load on the front axle

T001368



CAUTION:

Version 40 km/h

When the prescribed tyre types are observed, the maximum loaded weight of the tractor during road travel is:

- **18000 kg**

The maximum distribution (the total load on the front + rear must not exceed 18000 kg) of this load between the axles may be:

- **8000 kg for the front axle**
- **11500 kg for the rear axle**



CAUTION:

Version 50 km/h

When the prescribed tyre types are observed, the maximum loaded weight of the tractor during road travel is:

- **15000 kg**

The maximum distribution (the total load on the front + rear must not exceed 15000 kg) of this load between the axles may be:

- **7000 kg for the front axle**
- **10500 kg for the rear axle**



CAUTION:

The tyre size for dual front wheels must never exceed 600/70R28 or have a radius of less than 699 mm under load.

The tractor track width ((V)) is measured from the centre of one wheel to the centre of the other for single wheels.

For dual wheels, it is measured from the centre of the right wheel assembly to the centre of the left wheel assembly.

3

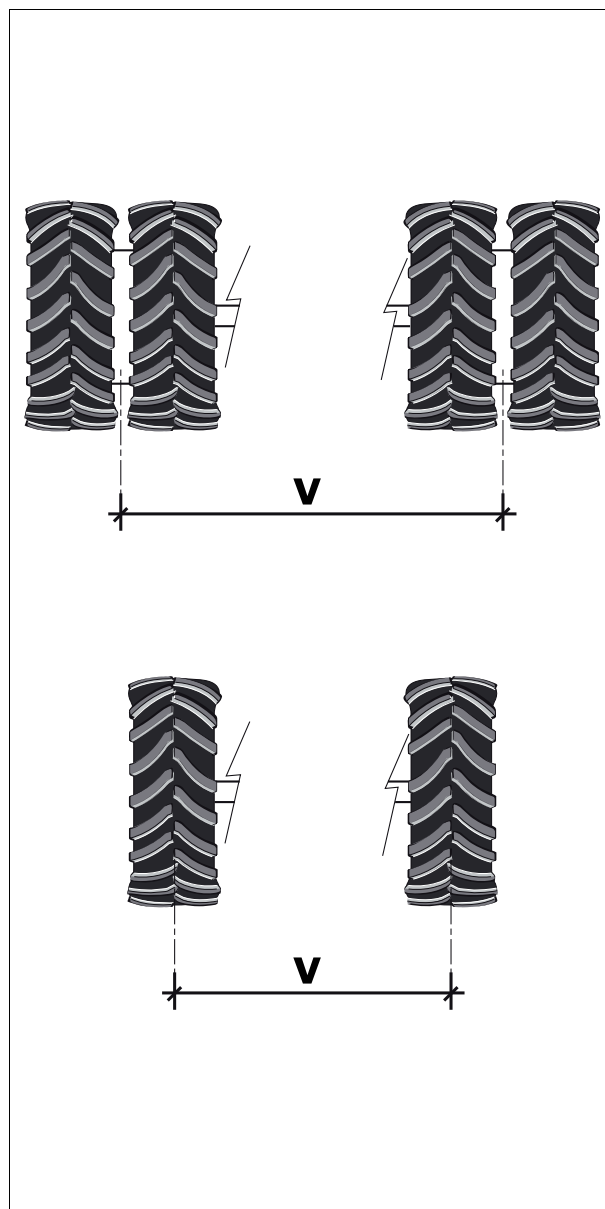


Fig. 3.

I011588

The load allowed on the front axle varies with the forward speed, track width adjustment and depends on whether dual front wheels are used.

The graph below shows the different adjustment options.

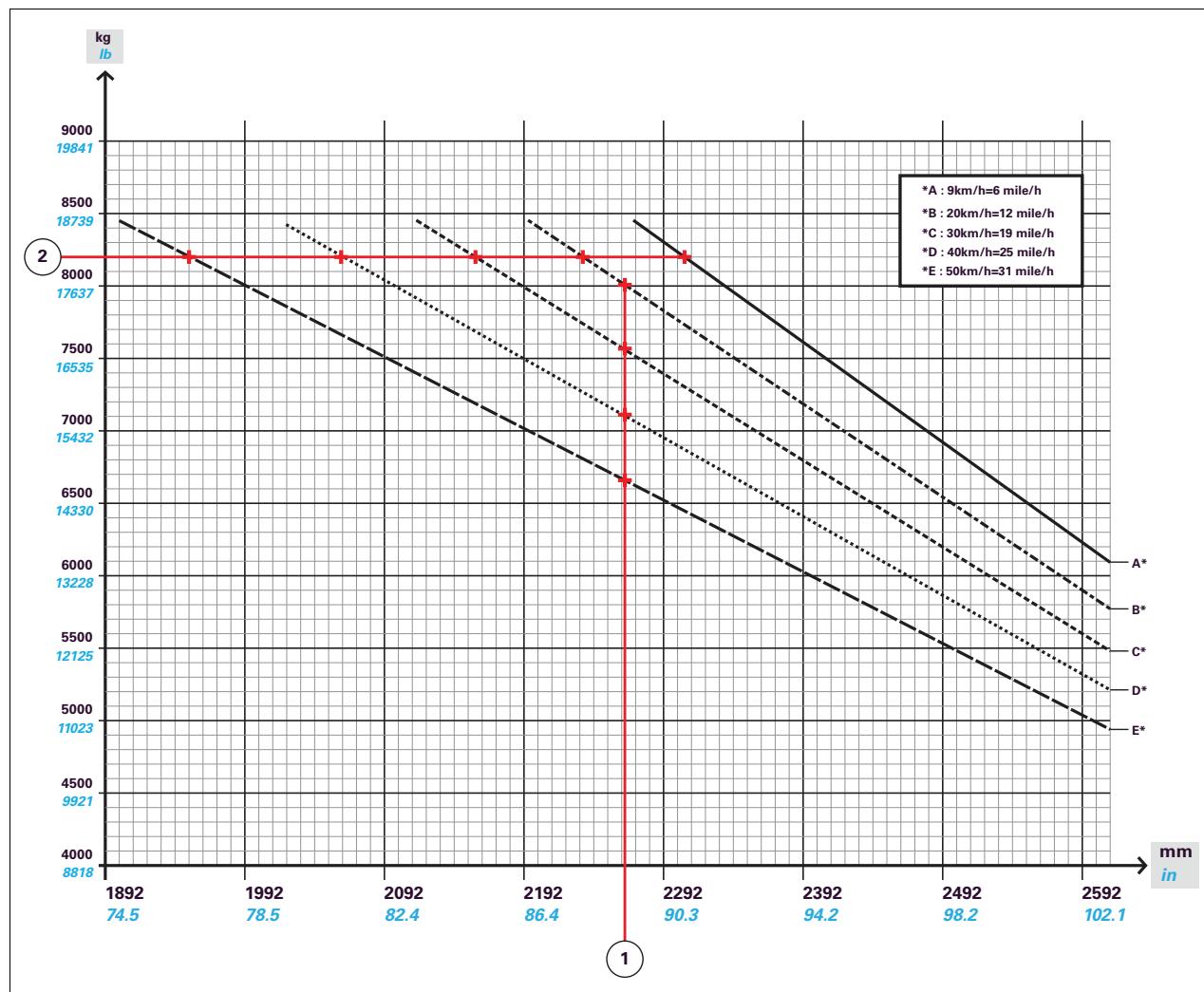
Loaded weight/front track width of tractor/maximum speed


Fig. 4.

I011589

Example 1

The front track width of the tractor is set to 2264 mm

Maximum forward speed	Maximum loaded weight on the front
50 km/h	6500 kg
40 km/h	7000 kg
30 km/h	7500 kg
20 km/h	8000 kg
9 km/h	8500 kg

Example 2

The loaded weight on the front of the tractor is 8000 kg

Maximum forward speed	Adjusting the front wheel track width
50 km/h	between the minimum and 1952 mm
40 km/h	between 1952 mm and 2062 mm
30 km/h	between 2062 mm and 2155 mm
20 km/h	between 2155 mm and 2232 mm
9 km/h	between 2232 mm and 2305 mm
lower than 9 km/h	greater than 2305 mm

3.11.4 Using a scraper

T003916

**CAUTION:*****Specific precautions to take when using a scraper:***

- ***Limit the size of the rear tyres to 650/85R38 or equivalent that are approved for scraper applications.***
- ***Do not overload the tyres (liquid ballast is not permitted).***
- ***Do not lock the front or rear wheels together.***
- ***If possible, the tractor used with the scraper should have a fixed front axle or a suspended front axle fixed in low position.***
- ***Scrapers are only authorised for use on S232/S262/S292/S322 models.***

3.12 Differential lock

3.12.1 Differential lock

T001292

**DANGER:****Not to be used on the road or when turning.****Maximum speed 18 km/h****IMPORTANT:** Do not engage the differential lock if a wheel is already spinning.

If wheel slip is anticipated, press the differential lock switch.

The differential lock indicator light ((1)) and the front axle indicator light ((2)) come on.

The rear and front differentials are locked.

The front axle is engaged if it was not already engaged beforehand.



Fig. 1.

I007086

Automatic functions of the differential lock:

- Disengaging the differential lock does not disengage the front axle.
- When the tractor speed exceeds 18 km/h, the differential lock disengages automatically. It is not automatically re-engaged when the speed drops below 18 km/h.
- When the linkage is placed in the raised position or in transport position, the differential lock is automatically disengaged. It is then re-engaged when the linkage is in working position.
- Pressing one of the brake pedals (whether coupled or not) permanently disengages the differential lock unless it is temporarily disengaged by the linkage.

3.13 Power take-off

3.13.1 Front power take-off

T001301

This PTO is driven by the engine.


WARNING:

Always disengage the PTO before attaching, detaching or adjusting an implement. Take all necessary safety precautions for any operation involving implements that are driven by the PTO.


DANGER:

*Never go beyond the universal joint shaft.
Never use the universal joint shaft as a step.
Never wear loose-fitting clothes.
Remain at a safe distance from the universal joint shaft.*

Table of specifications

Front power take-off specifications	
Number of selections possible for front PTO	1000 rpm
Maximum permissible power	Clockwise: 105 kW
	Anti-clockwise: 158 kW
Maximum permissible torque	Clockwise: 507 Nm
	Anti-clockwise: 762 Nm
Rotational direction	1 clockwise or 1 anti-clockwise (viewed from the front of the tractor)
Engine speed for 1000 rpm PTO	2040 rpm
Ratio	2.04
Clutch type	Hydraulics
Splined shaft type	Fixed shaft with 6 splines, diameter 35 mm
	Fixed shaft with 21 splines, diameter 35 mm

Engaging the power take-off

Press the selector switch as shown by (A).
The PTO engaged indicator light ((C)) comes on and an engaged symbol appears on the digital display.

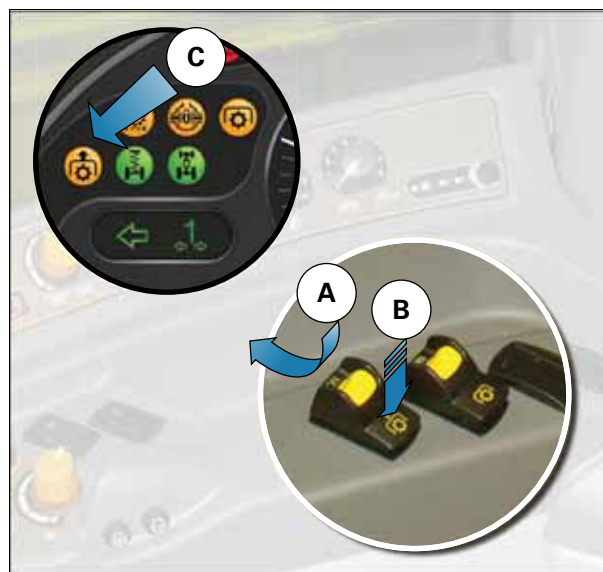


Fig. 1.

I007087

Disengaging the PTO

To stop the PTO, press the selector switch as shown by (B) .fig. 1

3.13.2 Rear power take-off (PTO)

T001299

General

The PTO can be engaged and disengaged independently of the transmission. The 540 rpm, ECO or 1000 rpm speeds can be obtained by selecting the appropriate speed on the control plate located on the right-hand console, which illuminates the corresponding indicator light on the instrument panel.

IMPORTANT: Engage the PTO at low engine speed to protect the clutch and transmission.



WARNING:

Always disengage the PTO before attaching, detaching or adjusting an implement. Take all necessary safety precautions for any operation involving implements that are driven by the PTO.



DANGER:

**Never go beyond the universal joint shaft.
Do not use the tractor or trailer drawbars as a step.
Never use the universal joint shaft as a step.
Never wear loose-fitting clothes.
Remain at a safe distance from the universal joint shaft.**

Selecting the power take-off speed

- To be able to engage the PTO, it is first necessary to select the 540 rpm, ECO or 1000 rpm speed using the corresponding buttons (1). The indicator light illuminates on the instrument panel and the display appears on the right-hand digital display. The button (N) disengages the PTO if it is activated.

IMPORTANT: To avoid damaging implements driven by the PTO, the engine speeds in the table below must be complied with.

Selected PTO speed	Display	Maximum engine speed
540 E rpm	ECO	1600 rpm
1000 rpm	1000 rpm	2030 rpm
1000 E rpm	ECO	1600 rpm



Fig. 2.

I010011

Engaging PTO in manual mode:

1. Press the selector switch (A). The PTO indicator light (C) comes on and an engaged symbol appears on the digital display.
If no speed is pre-selected before pressing the PTO switch, the PTO will not operate.
2. To stop the PTO, press the selector switch ((B)).

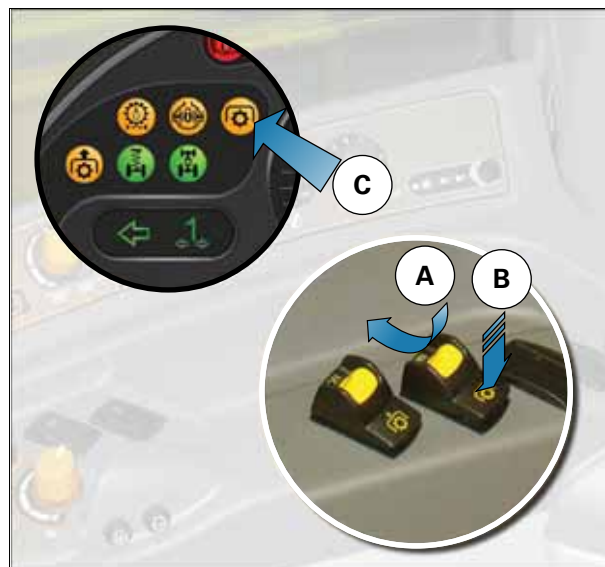


Fig. 3.

1007088

Engaging PTO in automatic mode:

This function stops the PTO temporarily and automatically when the linkage control is in Lift position (e.g. operation at headlands).

1. Press the PTO engagement control button ((A)) once a PTO speed has been selected. The PTO engaged indicator light ((C)) is illuminated.
2. Move the linkage Lift/Lower switch to Lower position.
3. Press the automatic mode engage button (B). The AUTO symbol appears on the armrest screen. As soon as the linkage is in Lift position, the PTO stops automatically and the indicator light ((C)) flashes.
As soon as the linkage returns to Lower position, the PTO is automatically activated and the indicator light ((C)) stays on.
The PTO stops operating permanently:
 - if the lowering control is not re-activated within 90 seconds,
 - or if the forward speed increases to over 25 km/h ,
 - or if the tractor is stopped (engine stopped).

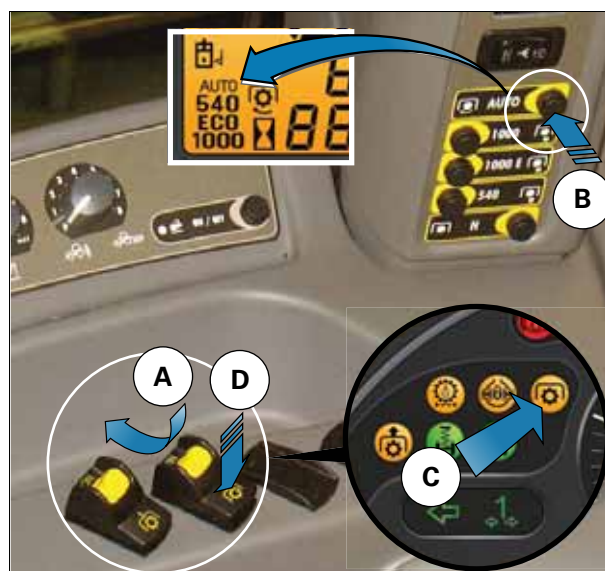


Fig. 4.

1007089

NOTE: In automatic mode, if the tractor speed is 0 km/h, the PTO will remain stopped regardless of the position of the linkage control.

3.13.3 Interchangeable 540 et1000 rpm PTO (flanged shaft)

T001300

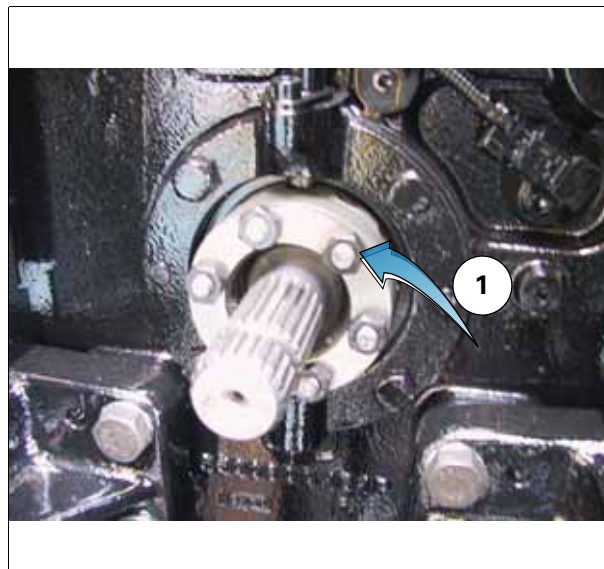
End-fittings that can be fitted:

- 35 mm (1" 3/8) shaft with 21 splines
- 35 mm (1" 3/8) shaft with 6 splines
- 45 mm (1" 3/4) shaft with 20 splines

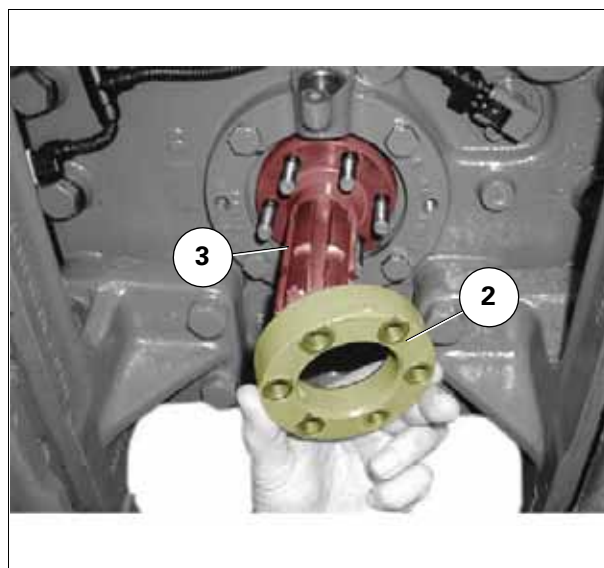
Changing the shaft

IMPORTANT: When changing the spacer (2), the hexagon nuts (1) must be retightened to a torque of 69 Nm.

1. Stop the shaft end fitting ((3)) from rotating using a M16X45 screw ((4)) fitted in the lower section.
2. Unscrew the nuts ((1)), remove the spacer ((2)) and remove the shaft end fitting ((3)).
3. Fit the new shaft end fitting in place and refit the spacer.
4. Refit the nuts in place.
5. Retighten the nuts to a torque of 69 Nm.
6. Remove the screw ((4)) to allow the shaft to rotate.



I004724



I004725

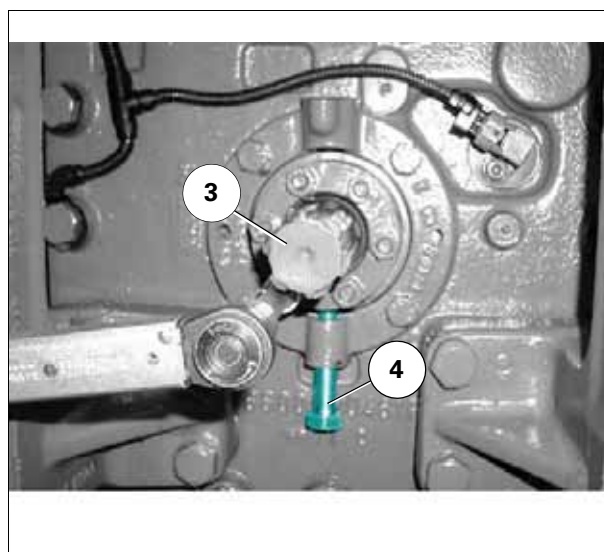


Fig. 5.

I004726

3.13.4 Economy PTO

The economy PTO is designed to drive lightweight implements that do not require a large amount of engine power.

The 1000E rpm speed can be obtained at 1600 rpm engine speed; operating the engine at this lower speed saves fuel.

To engage the economy PTO, press the 1000E button. The indicator light illuminates on the instrument panel and the display appears on the right-hand digital display.



Fig. 6.

I007090

3.13.5 PTO external controls

**DANGER:**

Keep at a safe distance from the PTO drive shaft when operating the external controls.

**WARNING:**

The cab PTO must be engaged before it is possible to use the external controls [see §3.13.2, page 159](#).

The external PTO controls are located on the fenders.

They are used to stop the rotation and to restart.

- (1) Stopping rotation
The PTO indicator light on the instrument panel flashes.
- (2) Restarting
To re-engage the PTO, press the cab PTO control selector ([see §3.13.2, page 159](#)) then the ON/OFF switch on the fender (2) for a minimum of 6 seconds.



Fig. 7.

I004751

3.13.6 Power take-off electronic controls

T001402

NOTE: *The PTO electronic controls are designed to protect the tractor and the implement.*

- If the main PTO selector switch is on when starting the engine, the PTO is disengaged and the PTO indicator light on the instrument panel flashes. No error will be transmitted or displayed. To start the PTO, the PTO selector switch must be moved to the OFF position and then to the ON position.
- Protection against engine stalling: if PTO engagement causes the engine speed to drop more than 50% below the initial speed, the transmission control will turn off the solenoid valve and transmit an error message via the CAN bus and cause the PTO indicator light on the instrument panel to flash.

3.14 Linkage

3.14.1 Electronic controls for front and rear linkage

T001304

The tractor may be fitted with two linkage systems:

- A rear linkage, which is fully incorporated into the rear axle.
- A front linkage built into the front of the tractor.

The two linkages are electronically controlled and are equipped with their own hydraulic spool valve.



Fig. 1.

1010022

- | | |
|---|--|
| (A) Linkage lowering speed control knob | (G) Not used |
| (B) Linkage height control knob | (H) Suspended front axle switch |
| (C) Draft control knob | (I) Front linkage single/double acting switch. |
| (D) Rear linkage active transport control system control switch | (J) Hydraulics locking control |
| (E) Linkage raised position switch (in parallel with the switch on the fenders) | (K) Rear linkage height/depth adjustment thumb wheel |
| (F) Linkage lowering position switch (in parallel with the switch on the fenders) | (L) Work/stop/transport switch |
| | (M) Quick soil engagement switch |

3.14.2 Rear linkage operation

T001890

Lifting/lowering in the cab

The rear linkage is controlled by work/stop/transport switch (L) located on the armrest.

When the tractor engine is started, the rear linkage is locked.

Use of the rear linkage requires deactivation of the safety device. This is done by first toggling the lifting/lowering switch to the lowering position and then toggling the switch to the lifting position.



Fig. 2.

I010034

Active suspension

The rear linkage has an active suspension function when the linkage is in the transport position.

To engage this function, simply press the switch located on the linkage console ((D)).

A red LED lights up in the centre of the switch to confirm activation of the active suspension.



Fig. 3.

I010104

Adjusting the depth

Using the potentiometer ((J)) located on the right-hand side of the armrest, it is possible to adjust the depth of the rear linkage for particularly accurate work conditions.

Two separate ranges are available


- Adjustment range from min. 0 to max. 10
- Range in floating position: 



Fig. 4.

I007071

Adjusting the upper stop

On the linkage console, the potentiometer ((B)) is used to adjust the linkage raised position.

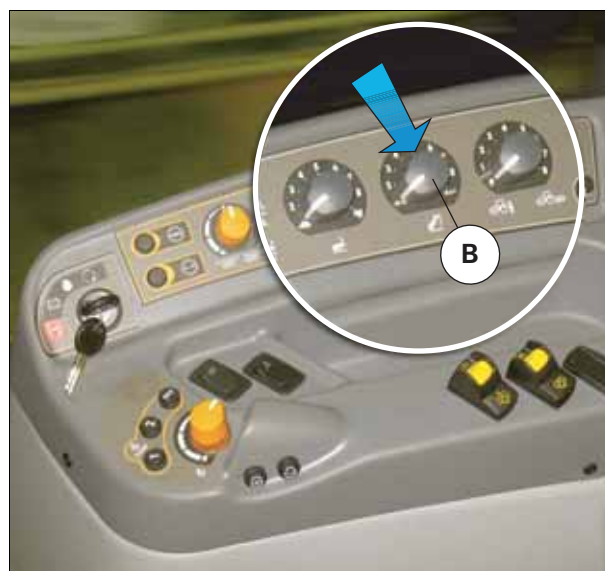


Fig. 5.

I010039

Adjusting the lowering speed

The potentiometer ((A)) is used to adjust the rear linkage lowering speed.

It is used to select two separate modes:

- Manual mode: Position of potentiometer, 1 to 8
- Automatic mode: Position of potentiometer, Auto

In automatic mode, lowering speed is governed by two parameters: the implement load on the linkage and the tractor forward speed.

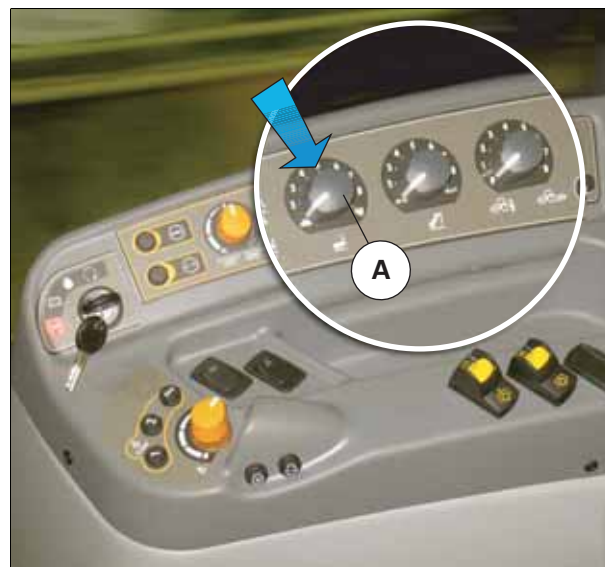


Fig. 6.

I010038

Adjusting the intermix (draft/position control regulation)

On the linkage console, the potentiometer ((C)) is used to adjust the regulation between the draft control and the linkage position control.

This function gives priority to the draft control over the position control and vice versa, or combines the two, depending on the hitched implement and the type of work to be carried out.



Fig. 7.

I010037

3.14.3 Rear linkage controls on the fenders

The linkage lifting controls (1) and lowering controls (2) located on the rear left-hand and rear right-hand fenders are used to activate the linkage.

NOTE: Use of the external controls requires activation of the hydraulics using the switch (H) .fig. 2 However, as soon as the external controls are used, the cab controls are locked.

Use of the external controls requires activation of the hydraulics using the switch (L) .fig. 2 However, as soon as the external controls are used, the cab controls are locked.



Fig. 8.

I006189

3.14.4 Front linkage

When the front linkage is used, the auxiliary hydraulics must be activated by pressing the switch (H, indicator light off).



WARNING:

When the front linkage is not in use, it is essential to lock the hydraulic functions to deactivate them by pressing the switch (H). The indicator light comes on.

For driving on roads, raise the tools to the required height and lock the tractor's hydraulic functions.

IMPORTANT: If one of the spool valve controls remains in the locked floating position before the engine is started, the hydraulic valve will not operate until this control is returned to neutral position.



Fig. 9.

I010054

Lifting/lowering in the cab

The front linkage is controlled via the joystick (2) located on the armrest.


In order to activate it, the armrest knob (1) must be positioned on the corresponding symbol .



Fig. 10.

I010067

Single or double acting control

It is possible to use the front linkage in single or double acting mode via the switch (E).

- Red LED lit: linkage in single acting mode.
- Red LED not lit: linkage in double acting mode.



Fig. 11.

I010086

Setting flow rates

To adjust the flow rates in the lifting and lowering phases, refer to the appropriate section [see §3.16.1, page 182](#).

External controls

External controls (3) located on the front linkage allow manoeuvring in order to hitch or unhitch implements

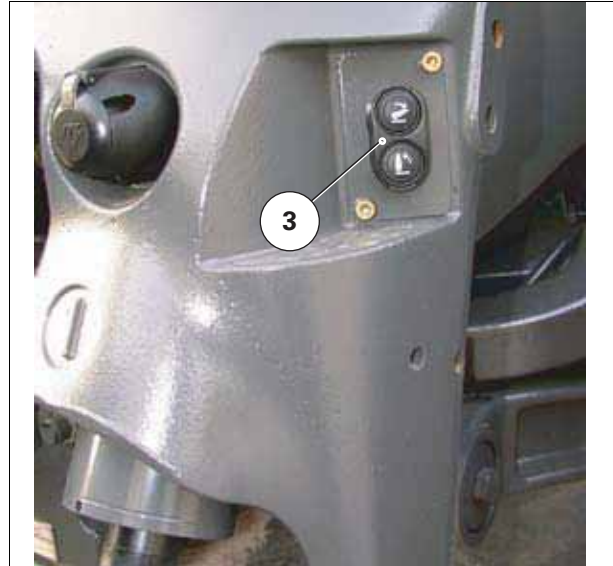


Fig. 12.

1008374

NOTE: They can be unlocked from outside by pressing the lowering control button then the lifting control button.

NOTE: Use of the external controls requires activation of the linkage using the switch (H, indicator light off) [fig. 9](#)

Transport position

The front linkage arms can be folded into transport position to minimise the space they take up [fig. 14](#).

IMPORTANT: The front linkage arms must be free of implements and equipment in order for them to be folded into transport position.

Operation

1. With the front linkage in working position. Raise the linkage to maximum high position using the external controls.
2. Remove the pins/cotter pins from the holes in the arms and spacers (1) on the right- and left-hand side.

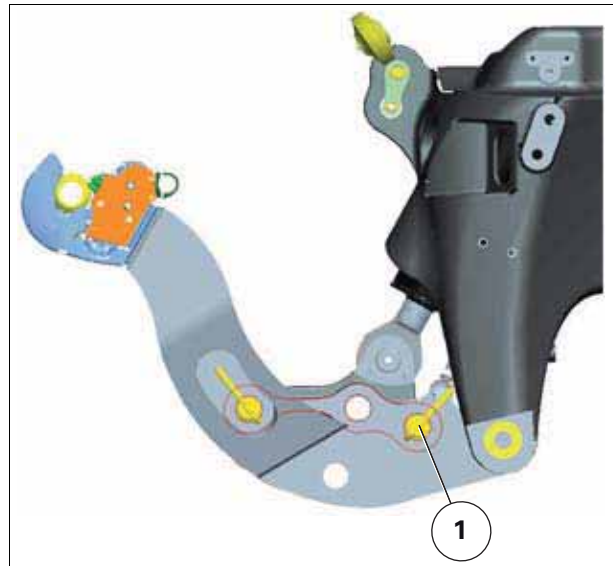


Fig. 13.

1008736

3. Using the external controls, raise the linkage to maximum high position once more and fit the pins/cotter pins in the holes (2) of the arms and spacers.



Fig. 14.

I008737

4. The linkage in transport position.
Remove the pins/cotter pins from the holes (2) in the arms and spacers on the right- and left-hand side.



Fig. 15.

I008737

5. Using the external controls, start lowering the linkage.
Lock the linkage in the working position by inserting the pins/cotter pins in the holes (1) in the arms and spacers on the right- and left-hand side.

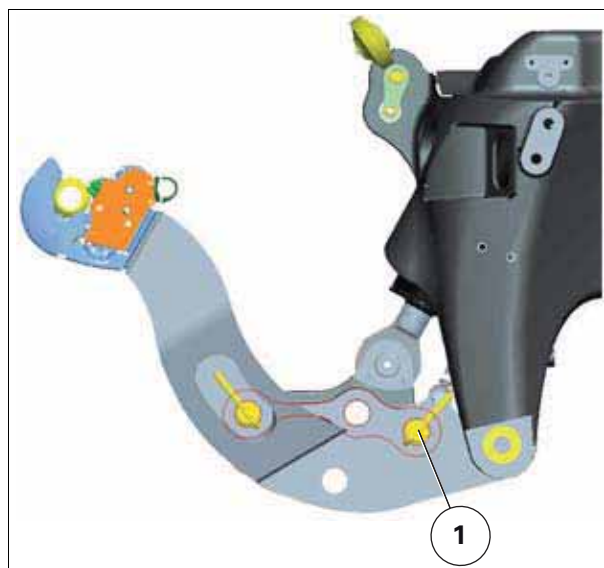


Fig. 16.

I008736

3.15 Linkage

3.15.1 Three-point linkage

T001306

The tractor is supplied either with lower links fitted with category 3 ball joints or with optional category 3 or category 4 quick linkage hitches, depending on the country.

IMPORTANT: To prevent linkage damage when operating trailed attachments, care should be taken when turning to prevent interference between the drawbar and the linkage.

3.15.2 Three-point linkage: Top link

T001308

- (1) Link with category 3 hook
- (2) Link with category 4 hook
- (3) Link with category 3 ball joint
- (4) Hydraulic link with category 3 hook

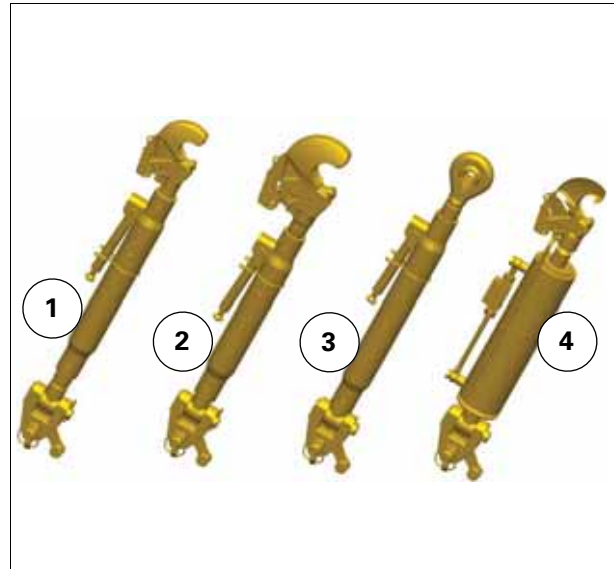


Fig. 1.

I006076

The top link is fitted on ball joints.

It should be adjusted according to the type of implement to be hitched.

To adjust the length of the top link, turn the handle.

Connecting the hydraulic top link

The two hoses of this link must be connected to a spool valve ((+) and (-) connectors).

To adjust the length of the ram, operate the relevant spool valve using the control in the cab or on the fender.

3.15.3 Three-point linkage: lower links

T001307

- (5) Links with category 3 hook:
- (6) Links with category 4 hook:
- (7) Link with removable category 3 ball joint

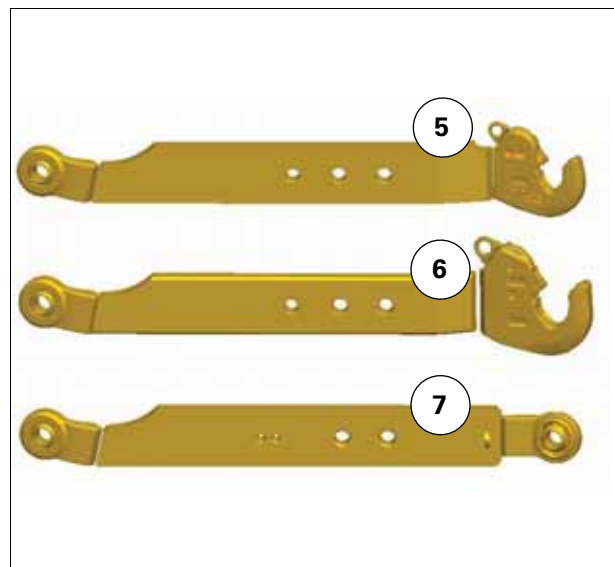


Fig. 2.

I006077

Links with category 3 hook (5)

The hooks engage automatically in the ball joints which are fitted to the hitch pins.

The normal balls are used for clevis-end hitches.

The balls with guide cones are used for single pin linkages.

In all cases, ensure that the hooks are correctly locked in place.

The hooks can be unlocked for uncoupling from the cab, using specific cables (supplied as an accessory).

Links with category 4 hook (6)

The hooks engage automatically in the ball joints which are fitted to the hitch pins.

The normal balls are used for clevis-end hitches.

The balls with guide cones are used for single pin linkages.

In all cases, ensure that the hooks are correctly locked in place.

The hooks can be unlocked for uncoupling from the cab, using specific cables (supplied as an accessory).

3

3.15.4 Three-point linkage: lift rods

T001309

- (1) Floating position oblong hole
- (2) Pin
- (3) Plate in floating position
- (4) Plate in locked position

Adjustments

1. Lift rod length:
pull upwards then turn the handles to reduce or increase the length of the lift rods.
2. Lift rod/lower link floating position:
Remove the pin and insert the plate vertically (3) in the oblong hole. This position allows vertical oscillation of the lift rod.
3. Lift rod/lower link fixed position:
Remove the pin and insert the plate in the bottom of the slot sideways (4). This position prevents vertical oscillation of the lift rod.

IMPORTANT: Take care to always refit the pins correctly.

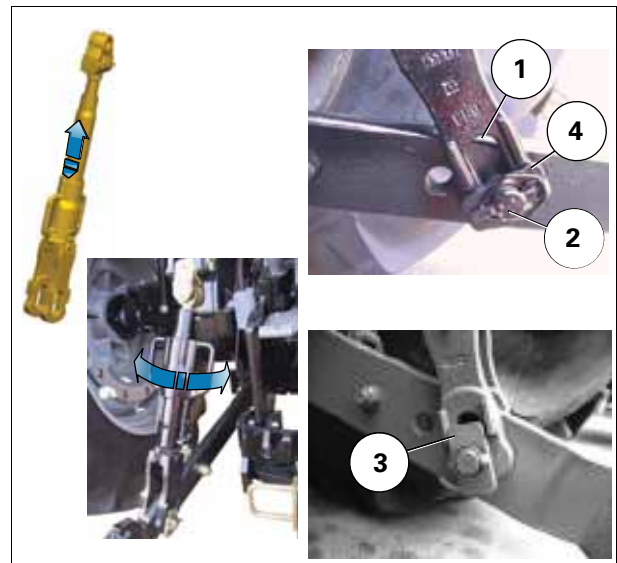


Fig. 3.

I006079

3.15.5 Three-point linkage: stabilisers

T001310

Description

Stabilisers are used to restrict the lateral movement of the lower links.

There are three models:

- (1) Automatic stabiliser:
- (2) Stabiliser with manual telescopic adjustment.
- (3) Stabiliser with shoes:

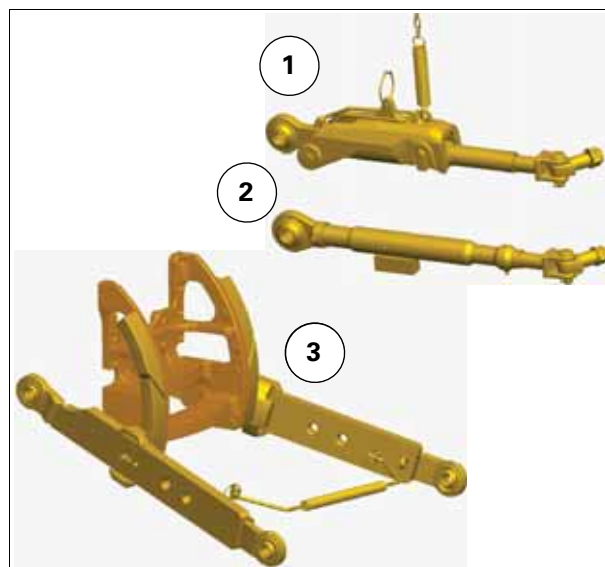


Fig. 4.

I006080

Automatic stabiliser adjustment procedure

1. No adjustment required.

Adjustment procedure for stabilisers with manual telescopic adjustment

IMPORTANT: Do not shorten the lift rods or use the high travel drawbar position once the stabilisers have been adjusted to prevent them from being damaged.

1. Screw or unscrew the stabilisers to obtain the required side sway.
2. Start the engine.
3. Set the control panel "Lift/Lower" switch to "Lift" then to "Neutral". Press the selector switch in the "Lift" position until the lower links reach the highest position.
4. Turn off engine.
5. Unscrew the stabilisers until the lower links no longer have any side sway and are centralised.
6. Screw both stabilisers in 1 turn.

Adjustment procedure for stabilisers with shoes

1. No adjustment is possible.

3.15.6 Multi-hole drawbar

T001003

This is fitted to the lower links and is suitable for light loads.

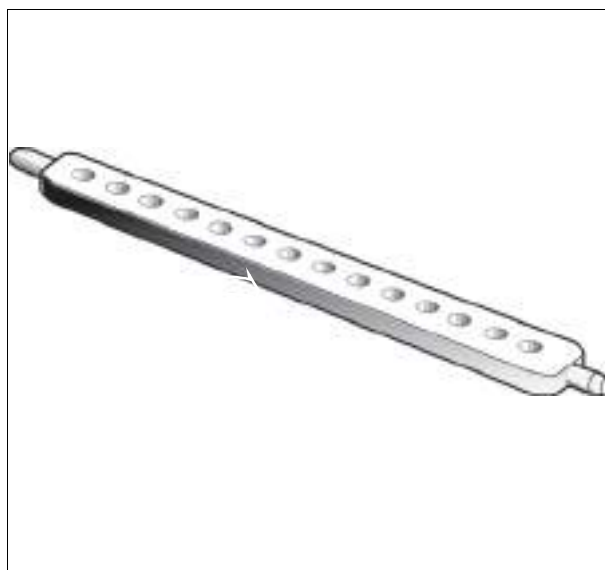


Fig. 5.

I003491

3.15.7 Swinging drawbar

T001311

ISO standard

Model available:	Trailed weight:
Category 3 drawbar	25000 kg



I026890



Fig. 6.

I006086

Category 2 drawbar



CAUTION:

40 km/h maximum speed authorised (in compliance with local regulations).

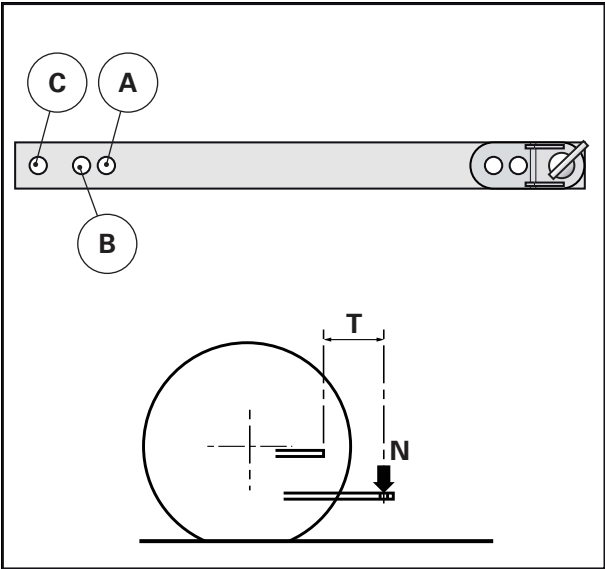


Fig. 7.

I016329

Category 2 drawbar	Length T	Position -	PTO speed (rpm)	Number of splines	Vertical static load N
Min.	350 mm ± 10 mm	A	540 or 1000	6 or 21	2300 kg
Standard	400 mm ± 10 mm	B	540 or 1000	6 or 21	2000 kg
Max.	500 mm ± 10 mm	C	540 or 1000	6 or 21	1600 kg
Ø of pin	30 mm				
Width of drawbar	80 mm				
Thickness of drawbar	50 mm				

Drawbar category 3

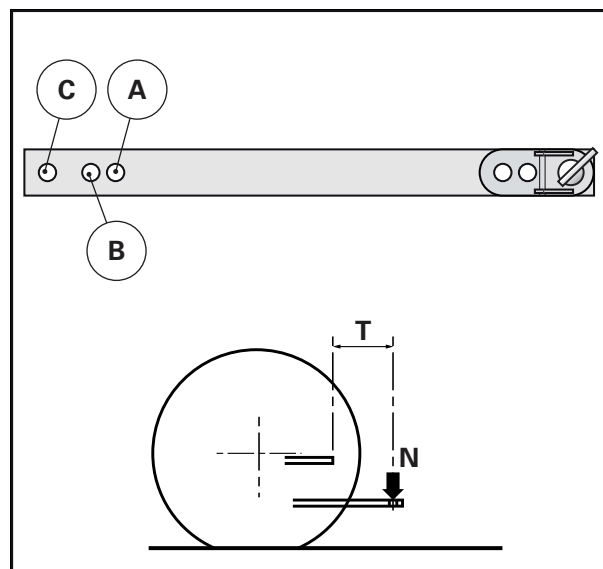


Fig. 8.


I016329

Drawbar category 3	Length T	Position -	PTO speed (rpm)	Number of splines	Vertical static load N
Min.	400 mm \pm 10 mm	A	540 or 1000	6 or 21	2500 kg
Standard	500 mm \pm 10 mm	B	540 or 1000	6 or 21	2000 kg
Max.	Not available	C			
Ø of pin	40 mm				
Width of drawbar	80 mm				
Thickness of drawbar	60 mm				

Swinging drawbar adjustment

Bar with mechanically adjustable retaining pin

1. Pull the locking/unlocking handle to release the retaining pin from the bar.
2. Move the bar to extract or engage it and release the handle.
3. Continue to move the bar until the retaining pin automatically engages in the hole.

4. **WARNING:**
 **Ensure that the pin is correctly engaged before hitching an attachment to the bar.**

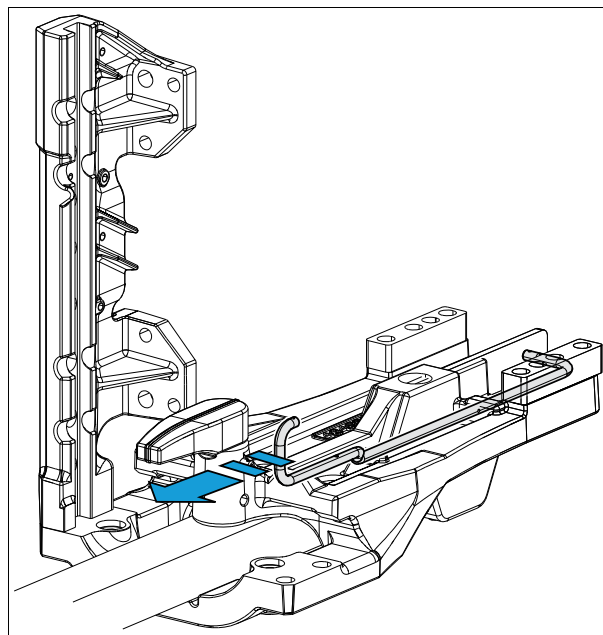


Fig. 9.

I019220

3.15.8 Stud or ball for a semi-mounted trailer

T001921

This hitch is suitable for trailers transferring a heavy load to the tractor.

Stud or ball on swinging drawbar

NOTE: The illustrations provided feature a stud hitch. The operating principle for a ball hitch is identical.

This hitch hook is provided to accommodate two types of interchangeable bar:

Swinging drawbar with stud: Maximum vertical load: 3000 kg

Swinging drawbar with ball: Maximum vertical load: 3700 kg

1. The stud (A) is fixed to the swinging drawbar. The locking latch (C) must be lowered and locked using the pin and its retaining pin (B) when a trailer is hitched.

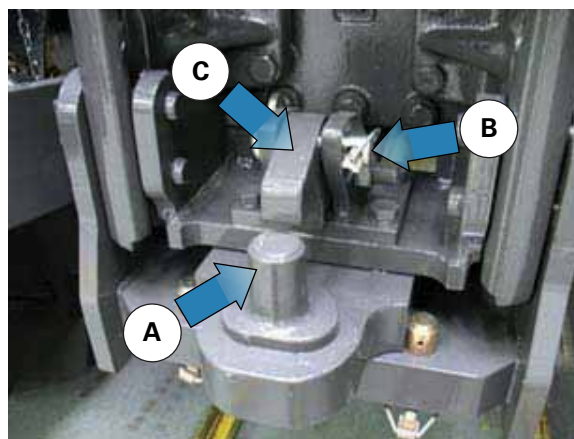


Fig. 10.

I006099

2. To release the trailer, take out the pin and its retaining pin ((B)) and lift up the latch ((C)).

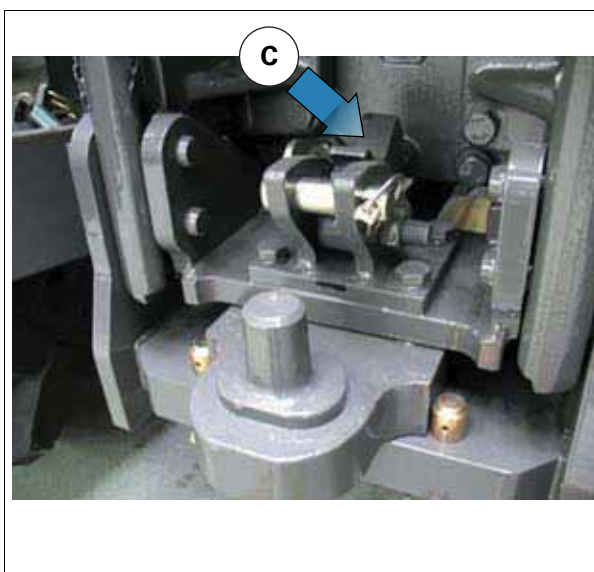


Fig. 11.

I006100

Stud or ball on interchangeable clevis

NOTE: The illustrations provided feature a stud hitch. The operating principle for a ball hitch is identical.

This hitch hook is provided to accommodate two types of interchangeable clevis:

A clevis fitted with a hitch stud, maximum vertical load: 3000 kg

A clevis fitted with a hitch ball, maximum vertical load: 3700 kg

Fitting

1. Remove the retaining pin and retaining clip from the pivot pin (A).
2. Pivot the pin to free up the space required to install the clevis hitch.
3. Position the clevis by tilting it upwards and placing it correctly in the right and left positioning guides.
4. To remove the clevis, lift by tilting it upwards to release it from the guides and then pull towards you.

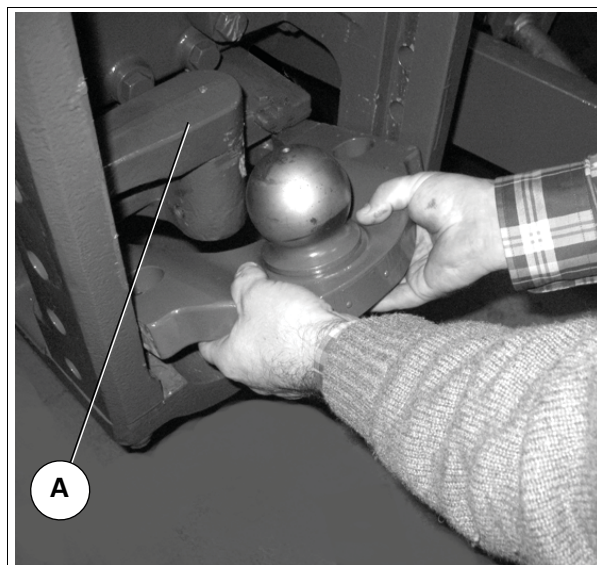


Fig. 12.

I018810

Linkage

5. After hitching the equipment to be pulled, reposition the pin.
6. Refit the retaining pin and retaining clip in the upper hole of the pivot pin.

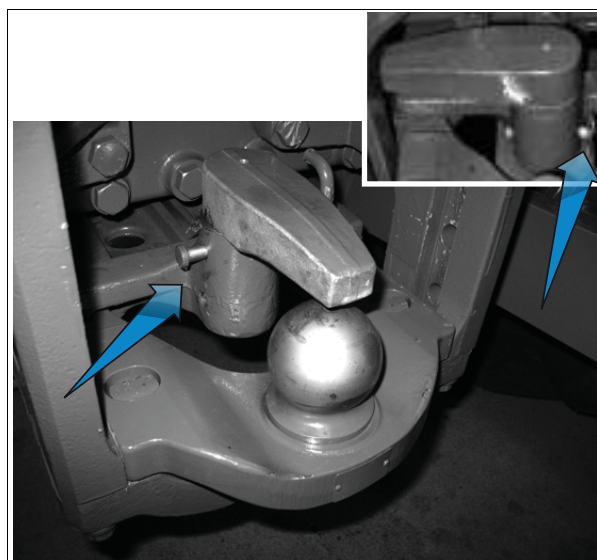


Fig. 13.

I018811

Storage space

7. After using or changing the clevis, store the part not being used in the location provided.

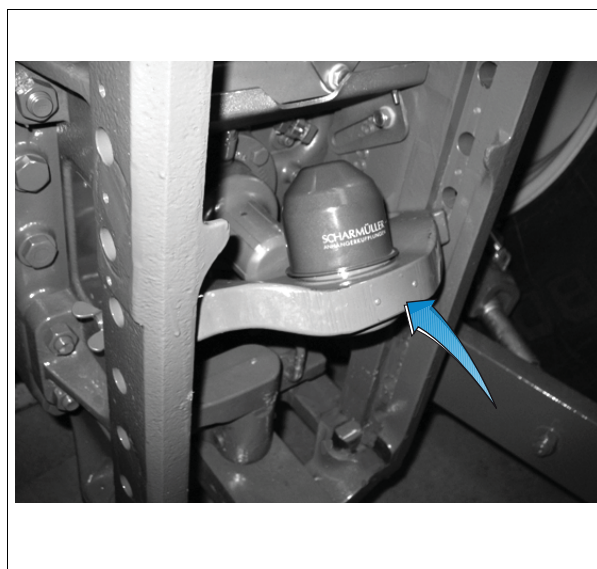


Fig. 14.

I018813

3.15.9 4-wheel trailer clevis hitch

T001923

Automatic clevis, easy adjustment type

This clevis is intended to hitch trailers with four wheels, which transfer little or no load onto the hitch.

The clevis moves along a pin-adjusting scale to adjust the height setting.

To adjust the clevis height, pull the handle ((A)) upwards, then raise or lower the clevis to the required height and release the handle.

Lift the lever ((B)) to hitch the trailer.

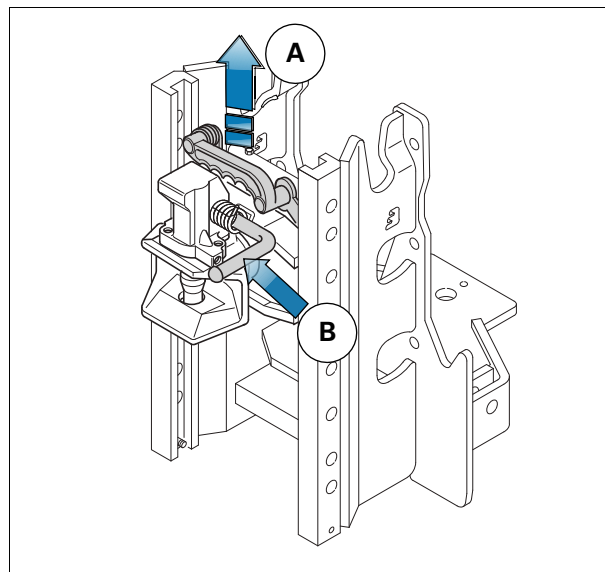


Fig. 15.

I006101

3.15.10 Pick-up hitch

T001312

General

Designed to pull trailers which weigh heavily on the tractor and require frequent hitching and unhitching.

Maximum vertical static load: 3000 kg

Maximum trailed weight: 25200 kg

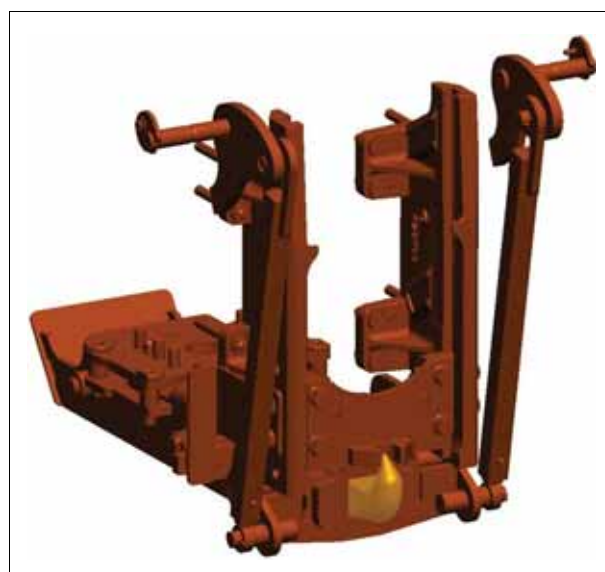


Fig. 16.

I006102

Lowering the hook

1. Operate the electronic linkage by pressing the selector switch ((1)).



Fig. 17.

1008033

2. Raise the linkage to its maximum with the button ((A)), which unlocks the hook.
3. Pull the locking lever (3) *fig. 18* to release the hook, then press the lowering switch (B) to lower the hook to the ground.
4. Press the switch (2) *fig. 17* in the cab to retract the hook ram as far as possible.

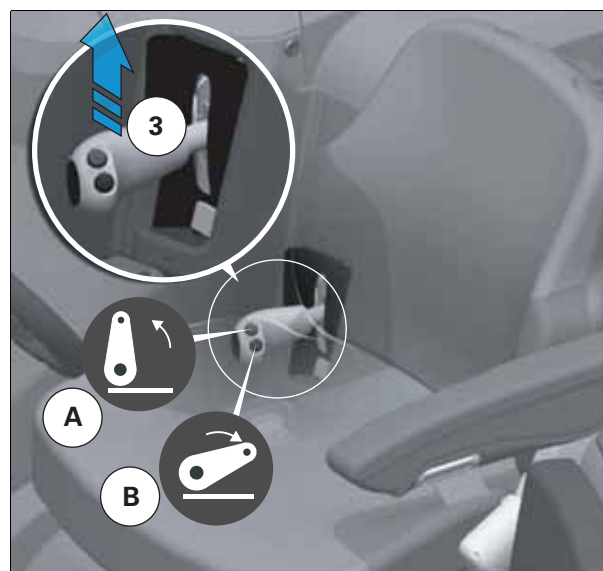


Fig. 18.

1006260

Lifting the hook

1. The electronic linkage must be in operation.
2. Press the linkage lifting button (A) *fig. 18* on the hitch control until the hook automatically locks in place.
3. Press the switch (2) *fig. 17* in the cab to retract the hook ram, keeping the tractor stationary until the safety lock engagement has been heard.
4. Lower the hook slightly until the weight of the trailer is supported by the hook.

3.16 Auxiliary hydraulics

3.16.1 General

T001314

3

VALTRA_S tractor series / VALTRA_S3 tractor series are available with the 200 l/min, 200 bar hydraulic system

The tractor may be fitted with a maximum of 9 spool valves, each delivering 100 l/min. It may be fitted with up to:

- 6 spool valves at the rear
- 2 spool valves at the front
- 1 spool valve for the front linkage

In this case, the spool valve 1 and 2 controls are used for the rear couplers or the respective front couplers 1 and 2, via the front/rear valve selection function.

The spool valve controls are grouped together on the armrest.

IMPORTANT: Do not operate the hydraulics unless the oil is warm. If necessary, allow the engine to run for several minutes before use.

In the event of the hydraulics overheating, stop the tractor immediately.

3.16.2 Description and use of the couplers

T001945

Depending on the configuration of the tractor, the tractor is fitted with rear couplers and front couplers.

These couplers provide a fast and sealed connection of the hoses for the implement being connected.

NOTE: Before connecting an implement to the tractor, check to ensure that the connections are clean. Also check that the oil inside the implement system is not contaminated to ensure that it does not contaminate the tractor hydraulic functions.

Description of the rear couplers

The rear couplers are fitted with oil recovery units, which are located on the rear right-hand and rear left-hand trumpet housings. It is recommended that these recovery units are checked and drained at regular intervals and under conditions that respect the environment.

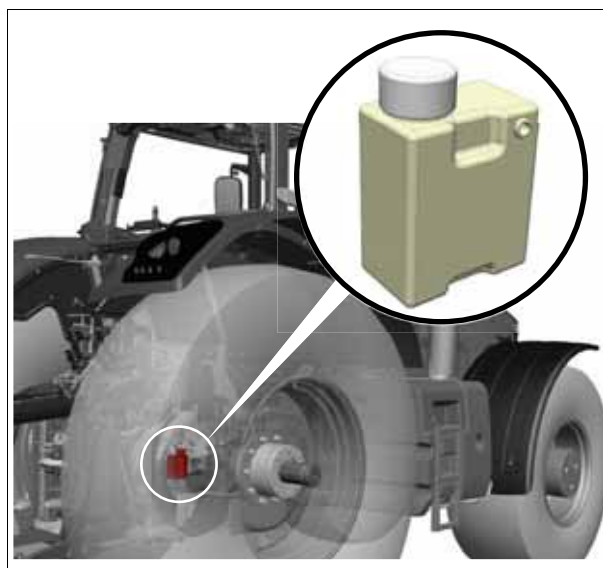


Fig. 1.

I006124

A decompression control is fitted to all of the hydraulic couplers, allowing them to be easily removed from the hoses of the connected implement.

To decompress the couplers, turn the lever in the direction shown in *fig. 2*.

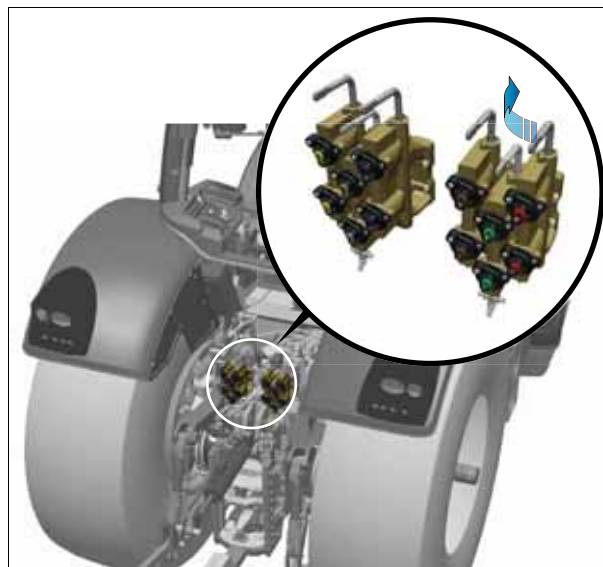


Fig. 2.

I006127

Depending on the configuration of the tractor, there may be 4 to 6 pairs of couplers at the rear.

- (1) First pair
- (2) Second pair
- (3) Third pair
- (4) Fourth pair
- (5) Fifth pair
- (6) Sixth pair

NOTE: Each spool valve controls one pair of couplers.

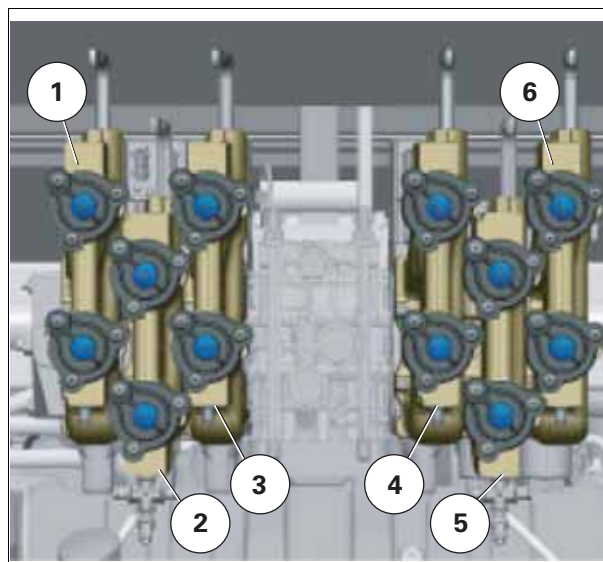


Fig. 3.

I006129

Description of the front couplers

The tractor may be fitted with 2 pairs of front couplers.

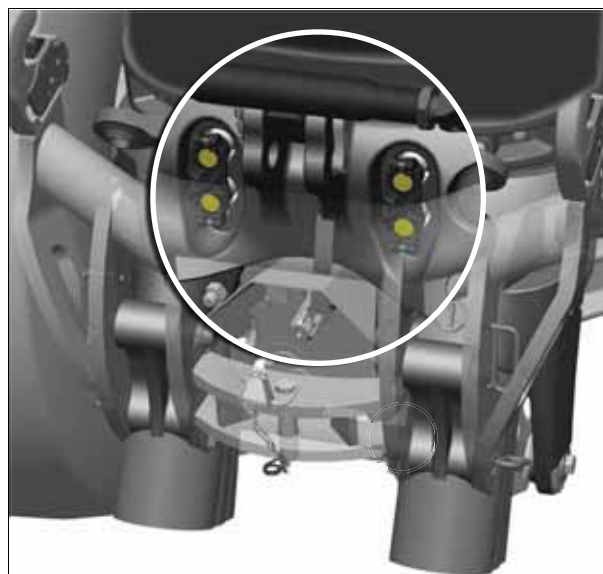


Fig. 4.

I006126

The front couplers are fitted with an oil recovery unit located behind the tractor front linkage. It is recommended that this recovery unit is checked and drained at regular intervals and under conditions that respect the environment.

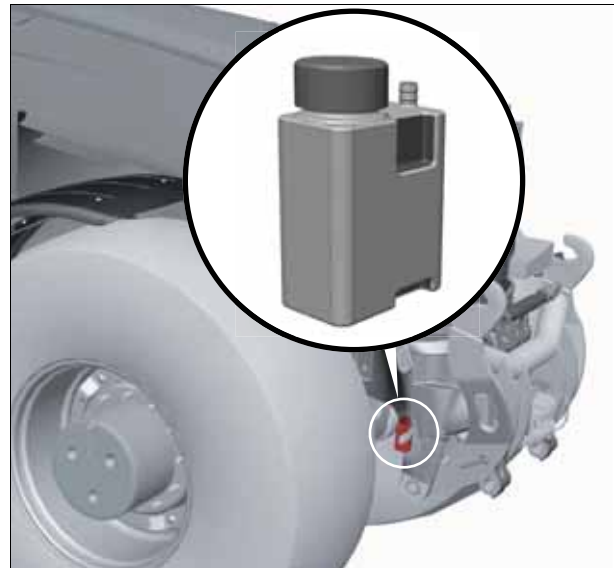


Fig. 5.

I006125

Description of the additional hydraulic unions

Tractors are fitted with additional hydraulic unions for connecting accessories hitched to the tractor.

- (1) Direct outlet pressure ((P))
- (2) Tank return ((T))
- (3) LS line (Load Sensing) ((LS))
- (4) Drain return (D)

The drain return (4) allows an implement to be connected requiring no loss of load and no return resistance.

The drain return (4) is connected directly to the auxiliary hydraulic oil tank. It is used to receive low flow rates.

The LS line allows you to have a load sensor on an external circuit. It is therefore possible to supply this directly via the variable displacement pump without passing through the spool valves.

Thanks to the LS line connection (3), a potato harvester-loader implement or a self-loading trailer, for example, will have a flow rate adapted to demand and that can reach the maximum level supplied by the pump.

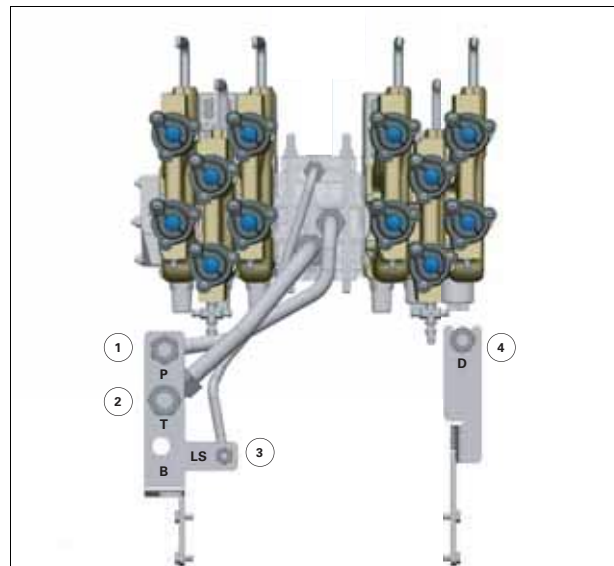


Fig. 6.

I006149

Using the couplers and additional unions

There are different connecting methods, depending on the implement to be connected to the tractor (see examples below).

Implements fitted with two hydraulic rams and a hydraulic motor at the rear of the tractor

- (1) Ram 1
- (2) Ram 2
- (3) Hydraulic motor
- (4) Tank return

NOTE: A spool valve can supply a flow rate of up to 100 l/min. If necessary, a hydraulic motor may be supplied by two spool valves (total of the two combined flow rates) as shown in the diagram. In the above example, the hydraulic motor is provided with a direct tank return.

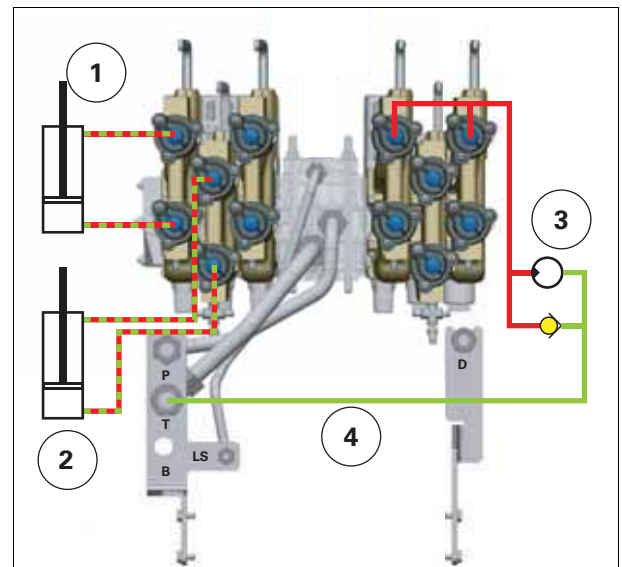


Fig. 7.

I006225

Implements fitted with two hydraulic rams and a hydraulic motor with leakage return from the motor

- (1) Ram 1
- (2) Ram 2
- (3) Hydraulic motor
- (4) Tank return
- (5) Drain return

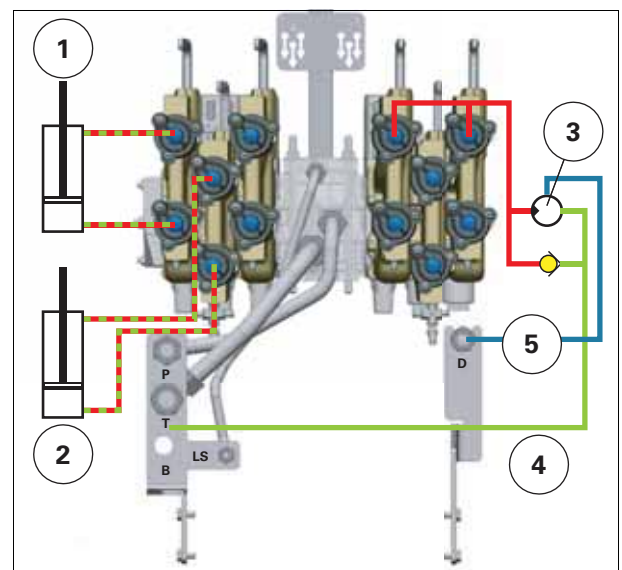


Fig. 8.

I006150

Implement fitted with the load sensor

- (1) Direct outlet pressure
- (2) Tank return
- (3) Connection to the LS load signal
- (4) Control unit on the implement (solenoid valves)

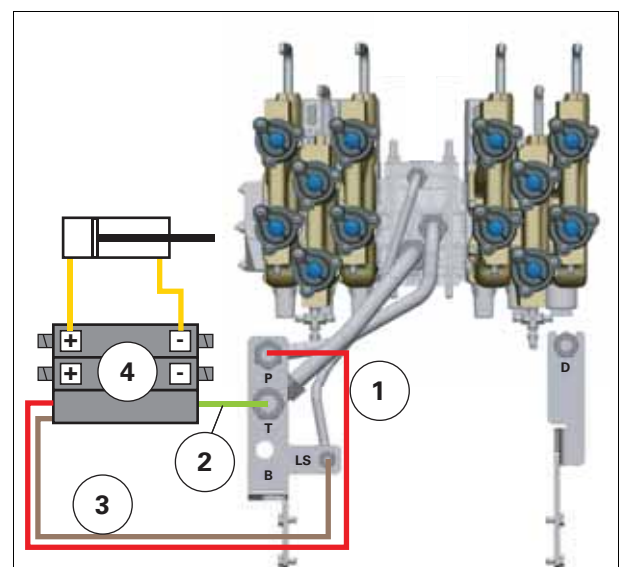


Fig. 9.

I006153

Hydraulic motor and flow regulator

- (1) Direct outlet pressure
- (2) Tank return
- (3) Connection to the LS load signal
- (4) Valve and flow rate control valve

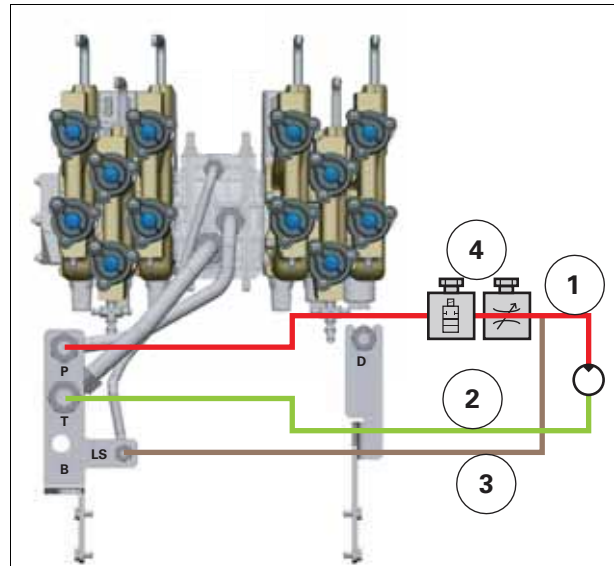


Fig. 10.

I006156

Implements fitted with two hydraulic rams at the front of the tractor

- (1) Ram 1
- (2) Ram 2

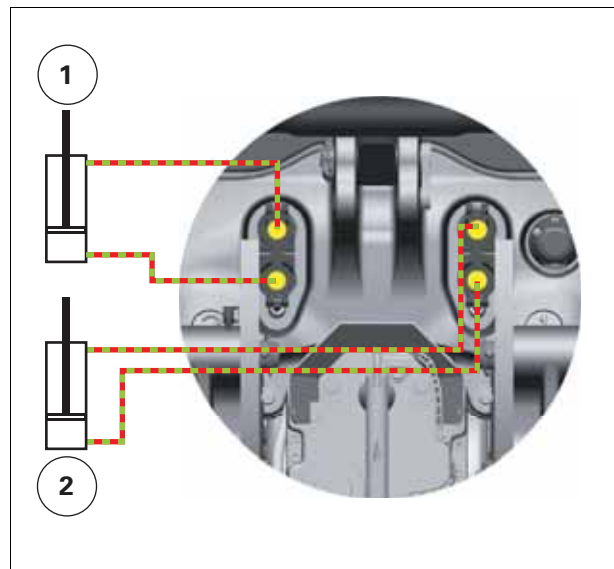


Fig. 11.

I006173

3.16.3 Auxiliary hydraulic system controls

T003754

- (1) ON/OFF switch
- (2) Factory/recorded settings selector switch
- (3) Joystick functions selector
- (4) Joystick (rear spool valves 1 and 2, front spool valves 1 and 2 and front linkage)
- (5) Control levers for spool valves 3, 4, 5 and 6



Fig. 12.

I010388

The properties of the spool valves for the auxiliary hydraulic system can be adjusted on the armrest screen. Adjustment features for the spool valve functions

- Position locking: The operation of a spool valve can be locked in the ON position.
- Position locking timer control (programmer setting): The operation of a spool valve can be programmed to stop after a given time. Setting between 0 and 60 seconds.
- Floating position, depending on the port: The spool valve allows an implement to move freely, for example to follow the contours of the earth.
- Flow rate function: Spool valve flow rate setting.

3.16.4 Activating and deactivating the auxiliary hydraulic system

T003756

The auxiliary hydraulic system can be activated and deactivated.

(1) ON/OFF switch



WARNING:

When the hydraulic functions are not in use, they must be locked by pressing the switch. The indicator light comes on. To unlock the hydraulic functions, press the switch. The indicator light goes out.



WARNING:

For driving on roads, raise the implements to the required height and lock the tractor's hydraulic functions by pressing the switch. The indicator light comes on. To unlock the hydraulic functions, press the switch. The indicator light goes out.



Fig. 13.

I010389

Activation

To activate the auxiliary hydraulic system, press the ON/OFF switch. The indicator light on the switch comes on.

NOTE: Only keep the auxiliary hydraulic system activated when necessary.

Deactivation

To deactivate the auxiliary hydraulic system, press the ON/OFF switch again. The indicator light goes out.

IMPORTANT: The OFF function can be used to stop the auxiliary hydraulic system in an emergency.



DANGER:

Always keep the auxiliary hydraulic system switched off under normal driving conditions to prevent unwanted movements in the hydraulic steering.

3.16.5 Selecting the joystick functions

T003757

Three different auxiliary hydraulic functions can be selected for the joystick: OFF, rear spool valves or front spool valves and front linkage.

(1) Joystick functions selector



- Select OFF to deactivate the joystick.
- Select the  icon to control rear spool valves 1R and 2R.
- Select the  icon to control front spool valves 1F and 2F (optional).



Fig. 14.

I010390

3.16.6 Using the joystick

T003758

The rear spool valves (1R and 2R) or front spool valves (LF, 1F and 2F) can be controlled with the joystick. The function selector on the armrest is used to choose this option.

Rear spool valve 1R or front spool valve LF can be controlled by moving the joystick forwards or backwards. By moving it sideways, rear spool valve 2R or front spool valve 2F can be controlled.

NOTE: To use front spool valve 1F, press the upper button on the joystick (fig. 15).

**WARNING:**

Avoid unnecessarily activating the position-locking settings programmed for the spool valves used by the joystick. There is a risk of position locking being activated.

IMPORTANT: Do not turn the joystick around its vertical axis, as this can cause damage to it and snap the cables.

1. To activate position locking or the floating position, push the joystick in the required direction, then to its limit position for less than one second.
2. Release the joystick.
If the joystick is held in its limit position for more than one second, the flow rate will start to follow the movements of the joystick.



Fig. 15.

I015216

3.16.7 Using the control levers for the rear spool valves

T003759

Rear spool valves 3, 4, 5 and 6 can be controlled using the control levers.

- Rear spool valves 3, 4, 5 and 6 are always active when the hydraulic system is activated via the on/off switch.
- To use the lifting function (+), pull the lever towards you.

- To use the lowering function (-), push the lever away from you.
- To activate position locking or the floating position:
 - Push the joystick in the required direction, then to the limit position.
Push the joystick harder to move it beyond the maximum flow rate position and lock it in the limit position. The lever will stay in the limit position even if the programmer is not operating.
 - Move the lever back to the central position manually.

3.16.8 Using predefined settings

T003760

User settings or one of the three factory settings can be selected.

- (1) Selector switch for factory settings or re-recorded settings
- (2) Limit positions of factory settings
- (3) Memory locations



Fig. 16.

I010391

Selecting the settings

- Selecting one of the three factory settings using the selector switch
Turn the switch to one of the three positions set in the factory.
- Selecting one of the three settings defined by the user with the selector switch
Turn the switch to position M1, M2 or M3.

3.16.9 Description and use of the external controls

T001948

- (1) Lifting control
"+" outlet on the spool valve
- (2) Lowering control
"- " outlet on the spool valve

Spool valve no. 1 can be controlled via the external controls located on the fenders by default.
To allocate a different spool valve to the external controls, refer to the manual

Before it is possible to use the external controls, unlock the spool valve controls in the cab.

The spool valve control is active when the button is pressed.

Using the external controls locks the spool valve controls in the cab.

The external controls are inactive as soon as the forward speed exceeds 2 km/h. They are reactivated as soon as the speed drops below 2 km/h.



Fig. 17.

I006241

3.16.10 Factory settings for the auxiliary hydraulic system

The factory settings are displayed on the screen when the auxiliary hydraulic system settings have been selected and one of the factory settings has been chosen with the selector switch.

In the factory settings, the maximum flow rate of all the ports is limited to a fixed value. The driver cannot modify any of the values in the factory settings.

Low flow rate

- (1) Selector switch in low flow rate position

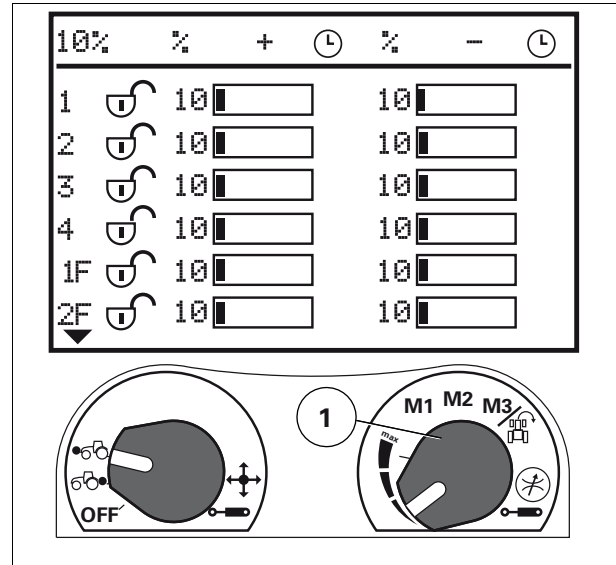


Fig. 18.

I010395

Medium flow rate

- (1) Selector switch in medium flow rate position

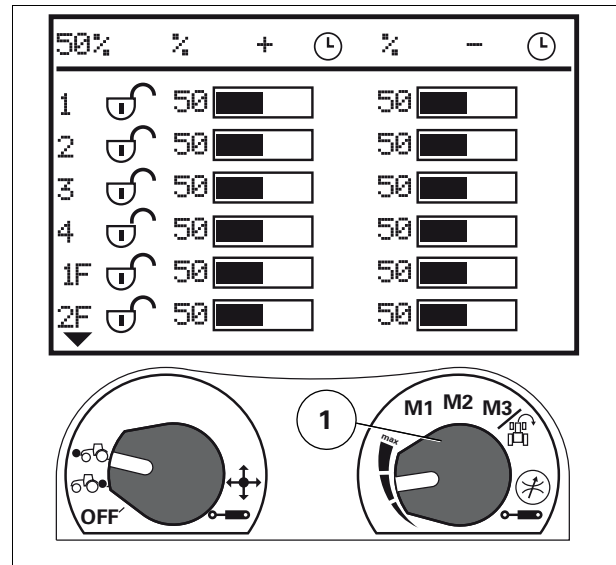


Fig. 19.

I010397

Maximum flow rate

- (1) Selector switch in maximum flow rate position

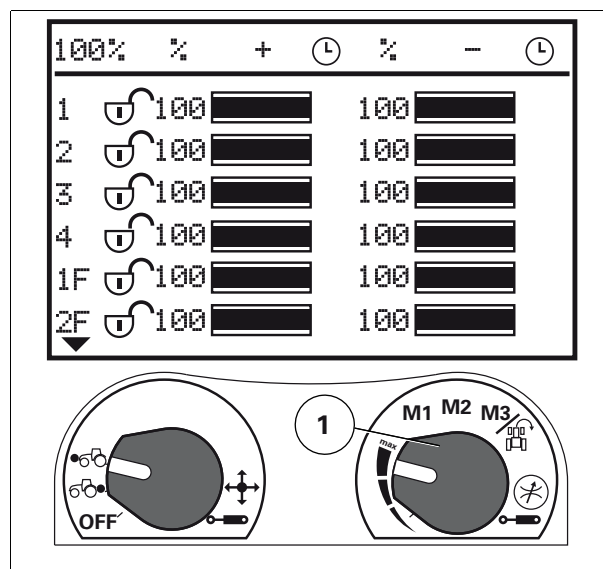


Fig. 20.

I010398

3.16.11 Auxiliary hydraulic system settings

T003762

One of the three factory settings can be selected, or you can apply your own user settings for the auxiliary hydraulic system.

1. Press ESC as many times as necessary to display the main menu on the screen.
2. Press the navigation key to the right.
The auxiliary hydraulic system settings are displayed on the screen.

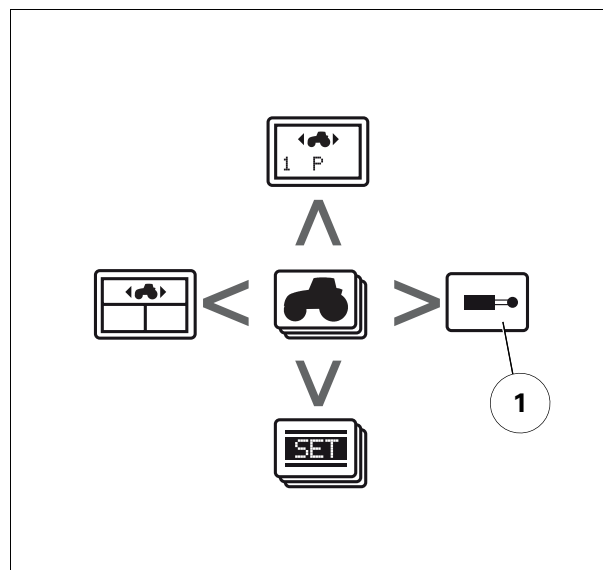


Fig. 21.

I010405

3. **IMPORTANT:** When the spool valves for the auxiliary hydraulic system are used with the U-Pilot program, this program follows the settings of memory location M3.

Select memory location M1, M2 or M3 with the selector switch.

The settings are added in the selected memory location.

NOTE: The selected memory location is displayed in the top left-hand corner of the screen.

4. Select the number of the spool valve to be adjusted with the arrow keys.

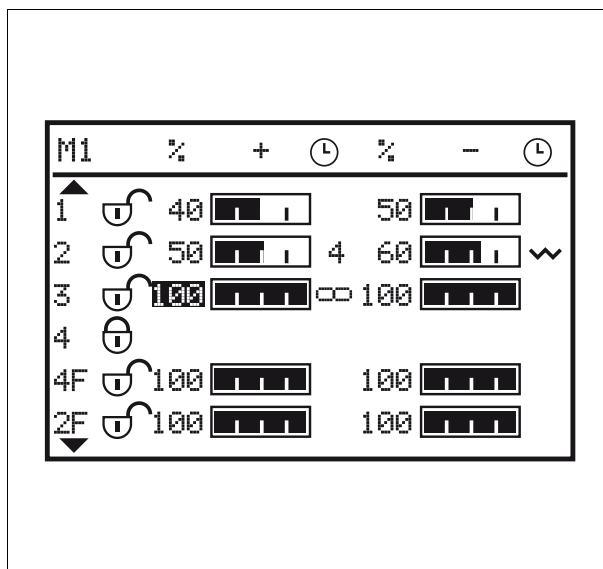


Fig. 22.

I010406

5. Press OK to activate the spool valve.
A line starts to flash underneath it.

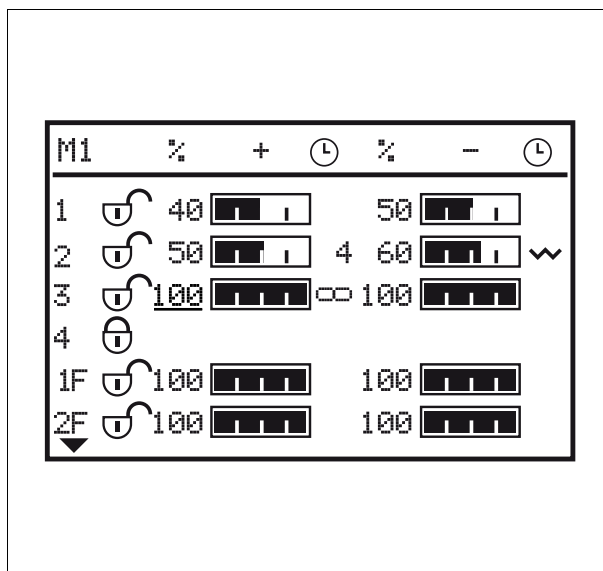




Fig. 23.

I010407

6. Adjust the value using the arrow keys.
- To increase the value, press the up arrow key.
 - To decrease the value, press the down arrow key.

By pressing an arrow key, the following functions are displayed in succession:

- Position locking time: 1 to 60 seconds
- Floating position  (not in the + port)
-  No active function = empty

NOTE: For safety reasons, position locking cannot be activated on spool valves 1F and 2F when using the front-end loader. If the tractor is fitted with a change-over switch for the front hitch/front-end loader, the position-locking settings of the spool valves in question are deactivated when the change-over switch is turned towards the front-end loader position.

7. Confirm or cancel the setting:
- Press ESC to deactivate the active field and restore the previous value.
 - Press OK to deactivate the active field and save the new value.

3.16.12 Spool valve functions

T003763

All standard and additional spool valves fulfil the same functions, except the on/off spool valves on the side panel, which are controlled by rocker switches.

The following spool valve functions can be adjusted from the tractor terminal:

- Four positions (extended-held-retracted-floating)
- Flow rate adjustment (three factory settings are available for selection)
- Delay adjustment (1 to 60 seconds or continuous = position locking)
- The spool valves operate in single-acting mode when only one machine is connected to another coupling.

3.16.13 Activating and deactivating position locking

T003764

3

General

Position locking can be activated or deactivated. When position locking is activated, oil flows continuously through the spool valve (out/in). Position locking is mainly used to operate a hydraulic motor.

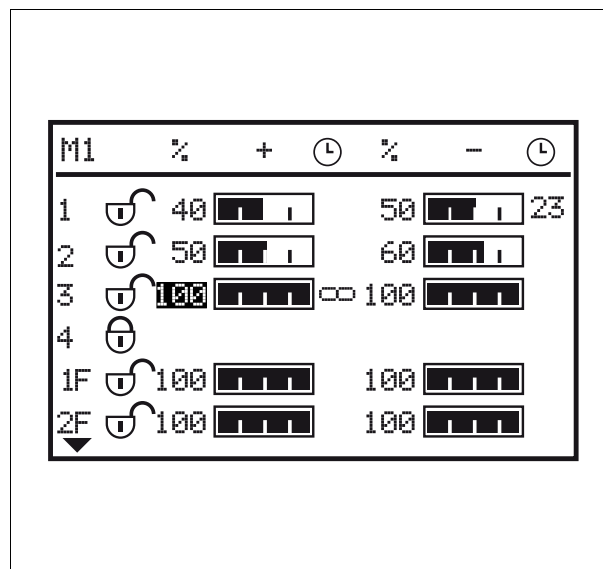


Fig. 24.

I010411

Activating and deactivating



WARNING:

To prevent serious injury or death due to a load being dropped through the loader lifting or lowering unexpectedly, do not connect the hydraulic system of the loader to a tractor auxiliary spool valve whose detents cannot be locked or removed, except for the floating function in the loader lowering system. If the tractor is fitted with a spool valve of this kind, a dedicated loader spool valve with the correct configurations must be installed.

- On the tractor terminal, adjust the duration of position locking (1-60 seconds) or select the continuous symbol.
fig. 24 shows that the third rear spool valve position is permanently locked and the first rear spool valve is locked in position for 23 seconds.
- Activating position locking
 - If using the joystick, push it quickly to the upper position in question.
 - If using the linear lever, turn it to the upper position in question.
The lever stays in the upper position.
- To deactivate position locking before the timer has run its course:
 - If using the joystick, move the lever.
 - If using the linear lever, move it to the central position or press the on/off switch.
All the hydraulic work functions are stopped.

3.16.14 Activating and deactivating the floating position

T003765

General

The floating position can be activated and deactivated.

In floating position, the oil can flow freely and the implement follows the contours of the earth.

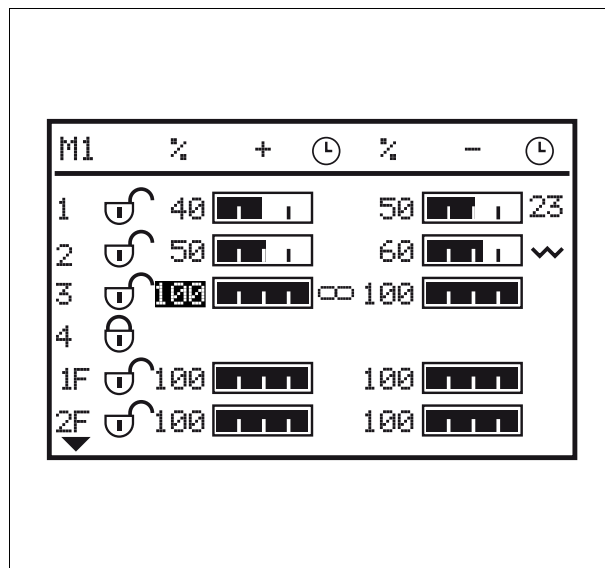


Fig. 25.

I010408

Activating and deactivating

1. Set the required port and the floating position using the tractor terminal.
In [fig. 25](#), the second rear valve is in floating position.
2. Activating floating position
 - If using the joystick, push it quickly to the upper position in question.
 - If using the linear lever, turn it to the upper position in question.
The lever stays in the upper position.
3. To deactivate the floating position before the timer has run its course:
 - If using the joystick, move the lever.
 - If using the linear lever, move it to the central position or press the on/off switch.
All the hydraulic work functions are stopped.

3.17 Wheels and tyres

3.17.1 Wheel studs

T001011


WARNING:

Always tighten the wheel screws and nuts to the correct tightening torque.

Check the tightness of the wheels every day, until there is no longer a variation in the torque provided. After refitting a wheel, check the tightness of the wheel after the first two hours of operation and then every day.

3

3.17.2 Adjusting the front wheel track width

T001317

4-wheel drive

The track widths available depend on the type of wheel rim and the tyre dimensions.

- Fixed steel rims
2 track widths can be obtained by reversing the rims:
Minimum 1862 mm with a narrow tyre, e.g. 16.9.30 (420/85 R30).
Maximum 1952 mm.
- Adjustable steel rims
Eight track widths can be obtained by changing the position of the rim in relation to the disc or by reversing the wheels.

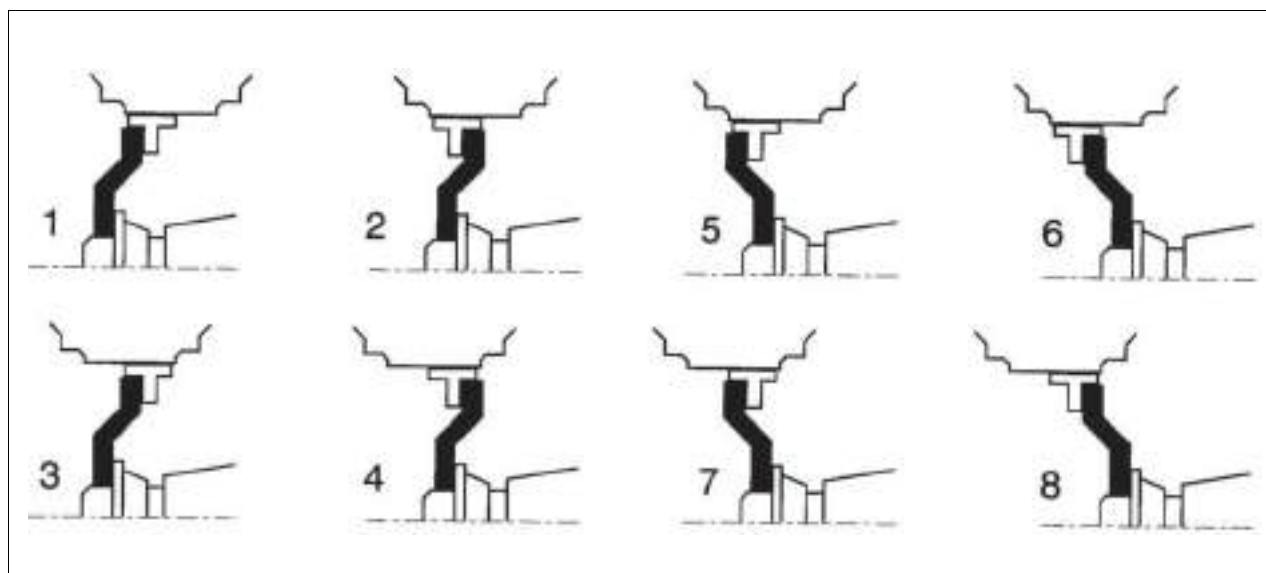


Fig. 1.

I003509

Position	Rims with cast iron disc	24"
Wheel disc facing inwards	(1-)	1543 mm
	(2)	1661 mm
	(3)	1747 mm
	(4)	1865 mm
Wheel disc facing outwards	(5)	1953 mm
	(6)	2060 mm
	(7)	2147 mm
	(8)	2264 mm

When refitting, tighten the nuts progressively to the correct torques, following the recommendations in the table of tightening torques ([see §5.11.3, page 299](#)).

NOTE: With narrow track widths and with certain tyre fittings, the wheels may touch the bonnet when turning at maximum lock. To prevent this, the hubs are fitted with threaded stops (1) [fig. 2](#), which can be adjusted to limit the steering angle.

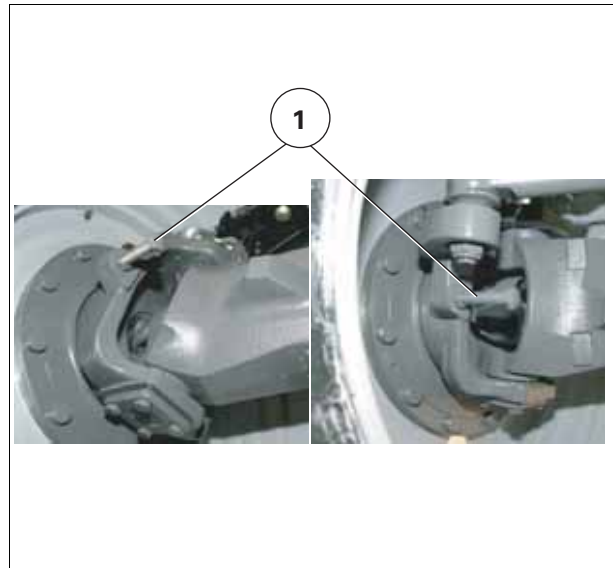


Fig. 2.

I006121

NOTE: The adjustment made in the factory complies with the modification requirements for tractor transport (see [§3.17.3](#), [page 196](#)).

3.17.3 Adjusting the 4WD front axle stops

T001942

General

Check and, if necessary, adjust the front axle stops each time the front track width is altered or following a wheel and/or tyre change.

Oscillation stop: These stops cannot be adjusted.



Fig. 3.

I011971

Steering angle adjustment screw.

- (1) Front adjustment screw
- (2) Rear adjustment screw

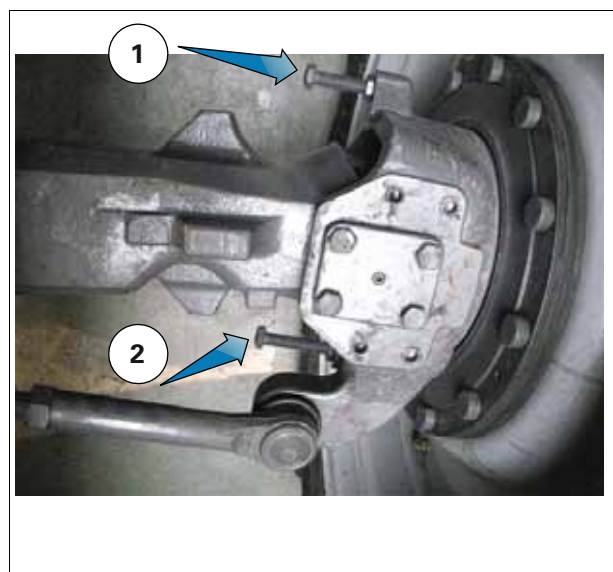


Fig. 4.

I011956

Steering angle adjustment procedure

NOTE: The front axles are intended for a maximum steering angle of 55°.

1. Place the front of the tractor on a support so that the front axle can swing freely over the entire length of its high and low travel.
2. Lock the wheels to the right and swing the front axle until it touches the right-hand oscillation stop -, move the axle over the entire length of its oscillation travel so that you can adjust the rear right-hand stop and obtain a minimum clearance of 40 mm between the tyre and nearest point of the immediate environment (e.g.: body/attachments).

NOTE: Screw the stop diagonally opposite (front left-hand) before adjusting the rear right-hand stop to avoid mechanical stress that could prevent the adjustment dimension from being obtained.

3. Bring the front-left hand stop into contact with the front axle and tighten the locknut.
4. Repeat steps 2 and 3 for the opposite side (rear left-hand and front right-hand).
5. Swing the axle right then left to check that no settings have moved, then definitively tighten the stops.

Toe-in check

The toe-in check requires specific tools; please consult your dealer if a problem occurs.

3.17.4 Adjusting the rear wheel track width

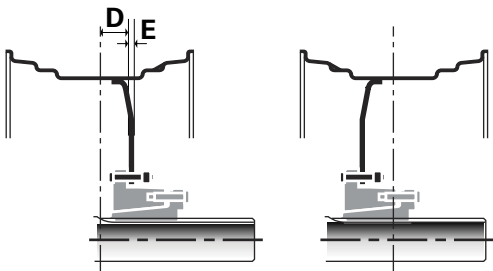
T001318

General

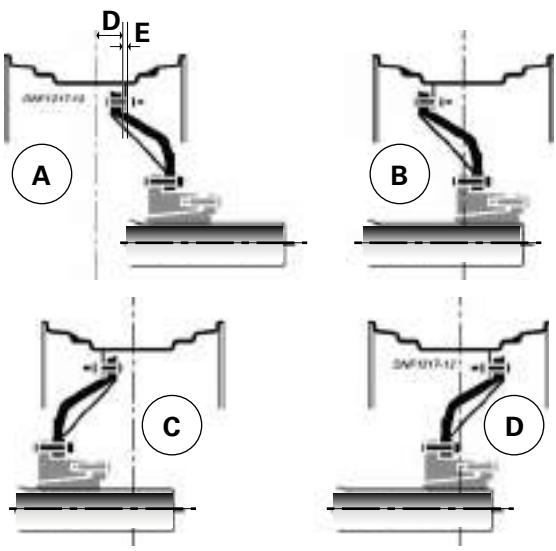
The various track widths are obtained by changing the position of the rim in relation to the disc or by reversing the wheels.

When refitting, tighten the nuts progressively to the correct torques, following the recommendations in the table of tightening torques ([see §5.11.3, page 299](#)).

NOTE: Ensure that a minimum gap of 40 mm remains between the tyres and the inside of the fenders. If the wheels are reversed they must be transferred to the opposite side of the tractor.

REAR TRACK WIDTH VALUES WITH STEEL RIM AND FIXED DISC		
Rear axle		
	D = Rim offset 75 mm, E = Rim disc thickness 15 mm	
	Disc facing inwards (min/max)	Disc facing outwards (min/max)
HA 260	1780 mm / 2112 mm	2106 mm / 2438 mm

REAR TRACK WIDTH VALUES WITH STEEL RIM AND CAST IRON DISC

Rear axle		
	D = Rim offset 75 mm, E = Rim disc thickness 15 mm	
	Disc facing inwards (min/max)	Disc facing outwards (min/max)
	A - 1566 mm / 1898 mm B - 1892 mm / 2224 mm	C - 2396 mm / 2728 mm D - 2070 mm / 2402 mm

Adjustment of wheel position on the right-hand shaft (half-tapered hubs)

1. Lift the rear of the tractor to lift the wheels off the ground and carefully chock the tractor.
2. Loosen the screws (1) of the half-tapered hubs by approximately three turns.
3. Remove the 4 screws (2) and fit into the holes (3).
4. Tighten them alternately until the half-tapered hubs are free of the fixed hub.
5. Adjust the position of the wheel on the shaft according to the required track width.
6. Refit the screws (3) in their original holes and then retighten the 6 screws, taking care to align the two half tapers.
7. Tighten the screws alternately to the correct torque on each half taper ([see §5.11.3, page 299](#)).

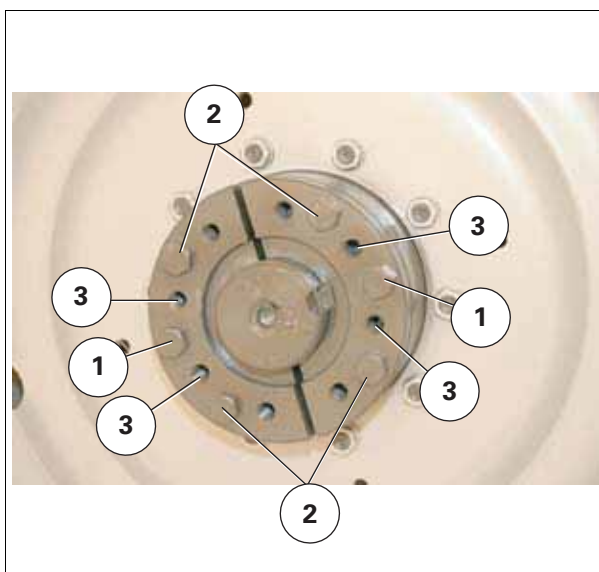


Fig. 5.

1006292

3.17.5 Tyres

T001305

Agricultural tyre markings

- (1) Flange size in inches or millimetres
- (2) Type of manufacture (e.g. radial)
- (3) Nominal rim diameter in inches
- (4) Side/flange size ratio
- (5) Load capacity index per tyre 121 = 1450 kg;
153 = 3650 kg
- (6) Speed symbol A8 = 40 km/h
- (7) Reference pressure: 1,6 bar
- (8) Tubeless: Without inner tube

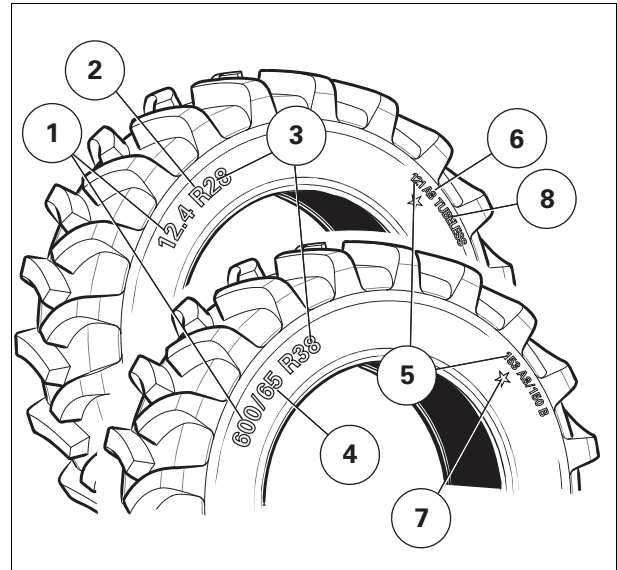


Fig. 6.

I008034

3.17.6 Dual wheels

T001014

In general, dual wheels should be used only for reducing soil compaction work (surface treatment work).

When selecting dual wheels that reuse the rims fitted as standard in the factory with a disc thickness less than 16 mm, you must obtain additional wheels with a thickness equal to or greater than 16 mm and fit them on the inside and then lock together with the standard rims on the outside.

IMPORTANT: Use a tube type dual wheel kit, which is fitted to the hubs and not to the rims (kit available from your dealer).

The following four criteria must be taken into account when selecting the correct dual rear wheels:

1. Soil conditions
2. Traction (narrow wheels)
3. Overall dimensions (2,50 m for road use)
4. Type of tyre

IMPORTANT: The wrong choice of dual wheels has a direct influence on the mechanical components and the wheel rims of the tractor. Avoid using dual wheels for intensive pulling, even for short periods (hauling out a tractor stuck in the mud etc.).

NOTE: It is preferable to use wide tyres or low-pressure tyres instead of dual wheels.

Use of dual wheels

- Set the inner wheels to minimum track width *fig. 7.*

NOTE: The use of very wide tyres on dual wheels is not recommended.

The most efficient dual wheels arrangement uses two tyres of the same specifications.

- When fitting dual wheels with tyres of different widths, the wider wheel must be fitted inside.
- When fitting dual wheels with tyres of the same width, the tyre which is more worn must be fitted on the outside.
- The tyre pressure of the outer tyres should be slightly reduced by approximately 0,2 bar.
- In clay soil, this distance should be increased in proportion to the tyre size.

IMPORTANT: Dual wheels do not double the load capacity of the tractor.

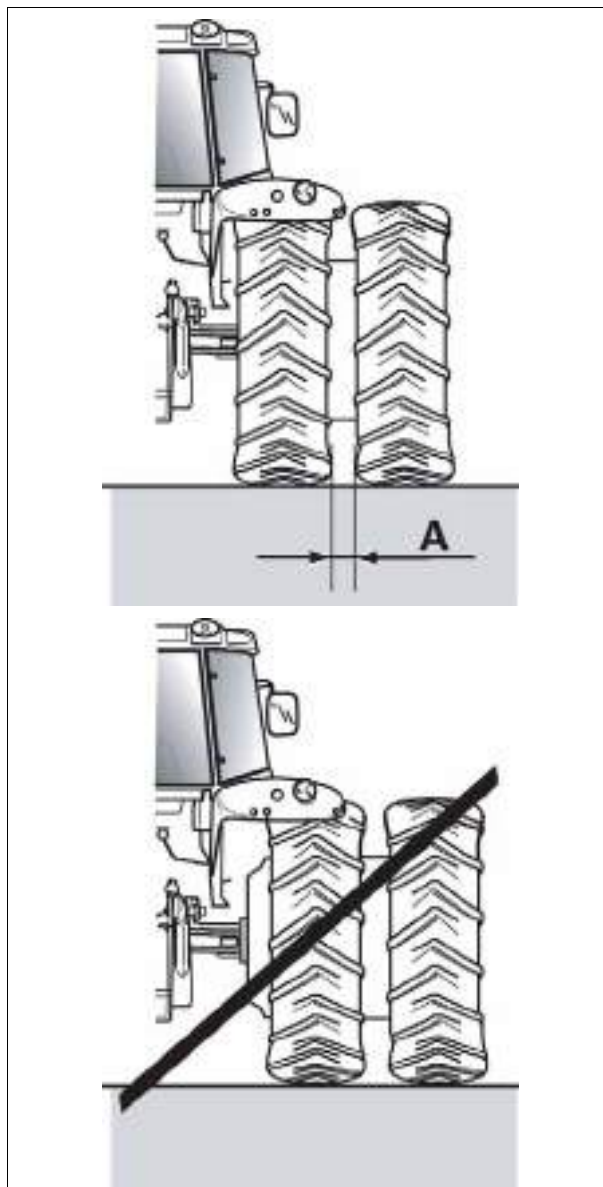


Fig. 7.

I003510

3.17.7 Tyre pressures

T001319

Pressure under load

Check the tyre pressures every 100 hours. Tyre pressures vary according to make, load and speed as well as to the type of work being carried out. Refer to the inflation tables issued by the tyre manufacturers.

3.17.8 Liquid ballasting

T001016

Steering and braking performance can be considerably affected by attaching implements. To maintain the required ground contact pressure, ensure that the tractor is ballasted correctly. Advice is available from your Dealer.

Tyres with inner tube

These tyres can be inflated with water mixed with calcium chloride. Refer to your dealer.

**WARNING:**

When preparing a calcium chloride solution for ballasting the tractor tyres with water, NEVER pour the water onto the calcium chloride as this may produce chlorine, which is a toxic and explosive gas. This can be avoided by slowly adding calcium chloride flakes to the water and stirring until they are dissolved.

Tyres without inner tubes (tubeless):

Use a monoethylene glycol-based liquid containing corrosion inhibiting agents other than nitrites (Na No2).
Example: Agrilest, Castrol, Lestagel, Igol, etc.

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4.1 Service guide

4.1.1 Maintenance

T001320

Interpretation of the table:

Initial 50-hour service marked °°: this maintenance instruction is to be carried out by your dealer as part of the 50-hour service defined in the Service Record Book.

Intervals marked °: regular service intervals marked ° are to be carried out at regular intervals (for example: every day, every 50 hours, every 400 hours etc.).

Intervals marked *: For variable intervals marked *, refer to the relevant chapter in this book.

Service guide	50 hrs	400 hrs	800 hrs	1200 hrs	2000 hrs	Every day
General						
Lubricate all points as specified in the Operator Instruction Book*.	°°	*				
Check the accumulator pressures.		Once a year				
Check that all guards are in place and that the safety decals are secure and legible.	°°	°				
Road test the tractor to check all instruments and systems for correct operation.	°°	°				
Road test the tractor to check the steering and brakes for correct operation.	°°	°				
After the road test, check for any leaks of oil, fuel or coolant.	°°	°				
Enquire if the operator has any operational difficulties and correct or demonstrate the solution as necessary.	°°	°				
Complete the owner's Service Record Book.	°°	°				
Cab						
Check and top up the windscreen washer bottle.						°
Clean the cab air filter element.	°°	°				
Change the cab filter elements.				°		
Check the air conditioning system for correct operation.	°°	°				
Check the cab tightening torque.	°°	°				
Replace the cab dampers.		4800 hours				
Engine						
Check the engine oil level.						°
Change the engine oil ⁽²⁾ .		°				
Change the engine oil filter ⁽²⁾ .		°				
Change the centrifugal oil filter (Internal EGR engines) ⁽²⁾ .		°				
Change the fuel prefilter ⁽²⁾ .	°°	°				
Change the fuel filter ⁽²⁾ .	°°	°				
Bleed the water from the fuel prefilter		*				
Change the filter element of the fuel/water separation centrifugal prefilter ⁽²⁾ .	°°	°				
Drain any water from the fuel tank		°				

Service guide	50 hrs	400 hrs	800 hrs	1200 hrs	2000 hrs	Every day
Adjust/set the valve clearances.		° (the 1st time)		°		
Check the operation of the injectors.					°	
Change the main urea filter (E3 engine with AdBlue/DEF technology).		4000 hours or every 2 years				
Change the urea inlet prefilter (E3 engine with AdBlue/DEF technology)		8000 hours or every 2 years				
Change the filter inside the metering module E3 engine with AdBlue/DEF technology		If blocked by impurities				
Check/clean the dry air filter elements.						°
Change the dry air filter elements.				°		
Check the radiator coolant level.						°
Drain, flush and refill the radiator with coolant.				°		
Check/clean the radiator/cooler fins.						°
Check/clean the air conditioning condenser.						°
Change the air conditioning dryer.				°		
Check the tension and condition of the alternator/fan/air conditioning compressor belts.	°°	°				
Change the alternator/fan/air conditioning compressor belts.				°		
Transmission and Auxiliary hydraulics						
Check the transmission oil level.						°
Check the auxiliary hydraulics oil level						°
Change the rear axle/transmission oil.					°(1)	
Change the transmission suction strainer.					°(1)	
Change the transmission high-pressure filter.	°°		°			
Check the oil in the rear final drive units.		°				
Change the oil in the rear final drive units.	°°				°	
Change the auxiliary hydraulic system return filter.	°°	°				
Change the auxiliary hydraulic system strainer.				°		
Change the auxiliary hydraulic system oil.				°		
Change the auxiliary hydraulic system breather.				°		
Check/lubricate the linkage shaft and only top up if not properly sealed.	°°				°	
Check all hydraulic systems for correct operation.	°°	°				
Check the clutch pedal and transmission for correct operation.	°°	°				
Check the clutch fluid level.	°°	°				
Change the clutch fluid, bleed the system.					°	
Brakes						
Check the condition of the brake pipes/compressed air tank.	°°			°		
Bleed the brakes.				°		
Replace the ParkLock brake pots.	After 9 to 10 manual releases of the ParkLock emergency release system					

Service guide	50 hrs	400 hrs	800 hrs	1200 hrs	2000 hrs	Every day
Check the trailer brake valve for correct operation.	∞			°		
Check the operation of the emergency hand brake.						°
Check the operation of the ParkLock.						°
Front axle and steering						
Check the oil level in the front axle and final drives (4WD).		°				
Change the oil in the front axle and final drives (4WD).	∞		°			
Check the front wheel hubs/steering pivots.	∞	Once a month				
Lubricate the steering pivots/suspended front axle.		Once a week				
Check the steering and wheel alignment (including tyre wear and damage).				°		
Calibrate the suspended front axle.				°		
Power take-off						
Check the PTO for correct operation.	∞	°				
Change the ZUIDBERG front PTO oil.	∞	°				
Clean the "ZUIDBERG" front PTO strainer.	∞	°				
Linkage						
Check the auto-hitch for correct operation.	∞			°		
Electrical equipment						
Check the condition of the battery and the electrolyte level.	∞	°				
Check the tightness of the battery connections and battery safety.	∞	°				
Check all the neutral start switches for correct operation.	∞	°				
Check all the indicator lights, instruments and acoustic alarms for correct operation.	∞	°				
Check all lights for correct operation and adjustment.	∞	°				
Check all electrically-powered devices (heater/fan, radio, windscreen wipers etc.) for correct operation.	∞	°				
Check all electronically controlled systems for correct operation.	∞	°				
Wheels and tyres						
Check the torque of all wheel and rim nuts and bolts.						°

1. NA market: When AGCO Permatran 821XL 10W30 oil is used, the intervals must be reduced to 1000 hours.
2. If more than 5% first-generation RME (Rapeseed Methyl Ester) biodiesel is used, the intervals must be halved (e.g. 400 / 2 = 200 hours). With BTL biodiesel, the intervals do not change.

4.1.2 Lubrication chart

T001332

For details of the lubrication frequency, refer to the details contained in the various chapters.

4

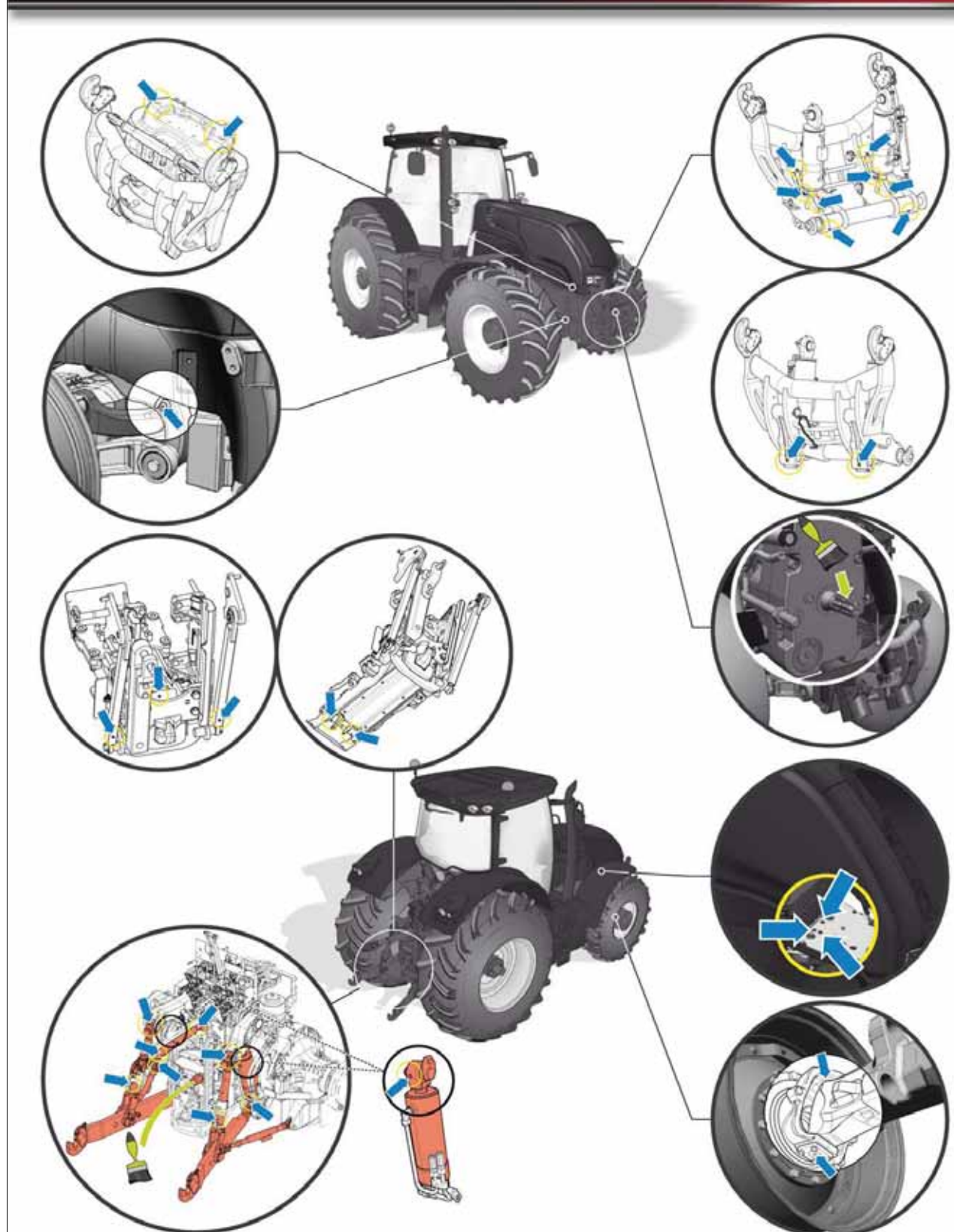


Fig. 1.

1010486

4.2 Cab

4.2.1 Air conditioning system: condenser

T001321

Frequency

Check the condenser every day and, if necessary, clean using compressed air.

Procedure

1. Remove the wing screws ((1)) located on each side of the condenser.
2. Hold the condenser to one side to facilitate cleaning.
3. After cleaning, refit the wing screws.

NOTE: Take care not to damage the various radiator grilles.

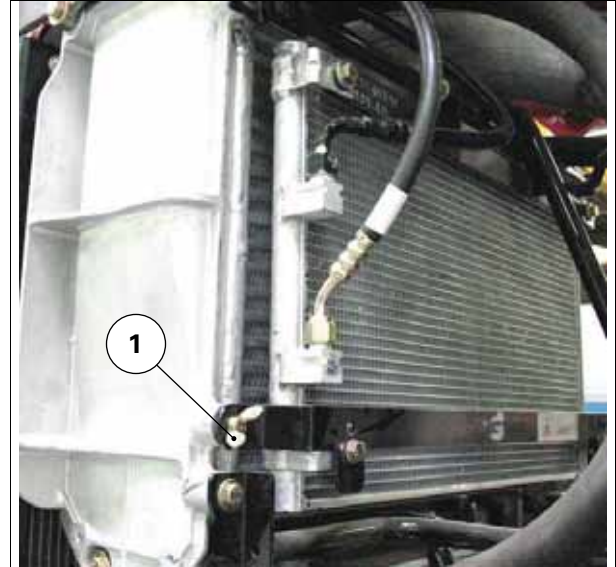


Fig. 1.

I004034

4.2.2 Air conditioning system: checking the air conditioning system

T001125

Frequency



DANGER:

In the event of a leak, wear safety goggles. Escaping refrigerant gas or liquid can cause severe injuries to the eyes. The R134a refrigerant used in the installation gives off a toxic gas if it comes into contact with a flame.



WARNING:

Do not disconnect any part of the air conditioning system. Consult your dealer or agent if a fault occurs.

1. Operate the air conditioning system for a few minutes every week to keep the whole system in good condition and to lubricate the seals.
2. Add charge to the air conditioning system every year at the start of summer (consult your dealer).

4.2.3 Air conditioning system: dryer

T001512

Frequency

Replace the dryer (3) every 1200 hours (consult your dealer).

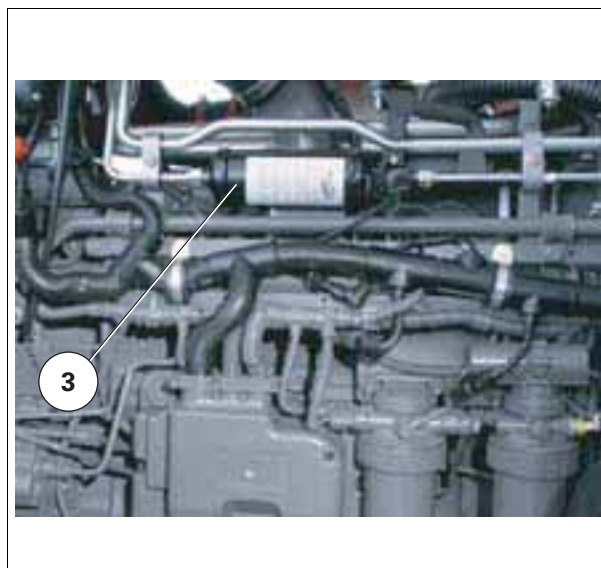


Fig. 2.

I006928

4.2.4 Cab air filters

T001322

Frequency

Clean the cab air filter(s) every 400 hours, or more frequently if necessary.

Replace the cab air filter(s) every 1200 hours, or once a year, whichever occurs first.



WARNING:

The air filter element does not provide protection from chemical products. Please ask your dealer for information concerning the availability of the specific particle filter.

Procedure for standard roof

1. To gain access to the cab air filters, turn the locking systems.
2. Open the hatches on each side of the cab roof and extract the filter elements (1).
3. Clean the filters by blowing them with compressed air.
4. Before refitting the filters, wipe out the compartments with a damp cloth to remove dust.



Fig. 3.

I004195

4.2.5 Cab attachment

T002911

Frequency

The cab is an integral part of the Roll Over Protection Structure (ROPS) and must be attached correctly for it to work effectively.

Ask your dealer or agent to check the tightness of the cab attachment screws/bolts every 400 hours.

**CAUTION:**

The cab conforms to the various international safety standards. The cab must never be drilled or modified to fit accessories or instruments. Welding any item to the cab or repairing the cab is not permitted. If any such operation is carried out, the cab may no longer comply with safety standards. Only genuine parts may be used, which must be fitted by your dealer or agent.

4

4.2.6 Windscreen washer

T001323

The windscreen washer bottle is located behind the left-hand step.



Fig. 4.

I004752

Frequency

Check there is fluid in the tank every day and top up if required.

IMPORTANT: Use a fluid suitable for the lowest temperatures encountered to avoid any damage from freezing.

4.3 Engine

4.3.1 Recommended products

T001420

IMPORTANT: The warranty remains valid only as long as the lubricants used comply with the following classifications, and no other products are used.

Engine oil

AGCO oil corresponding to standards: API CI4 or ACEA E7

Recommended SAE viscosity grades (SAE J300d)

fig. 1: Viscosity grades depending on ambient temperature conditions

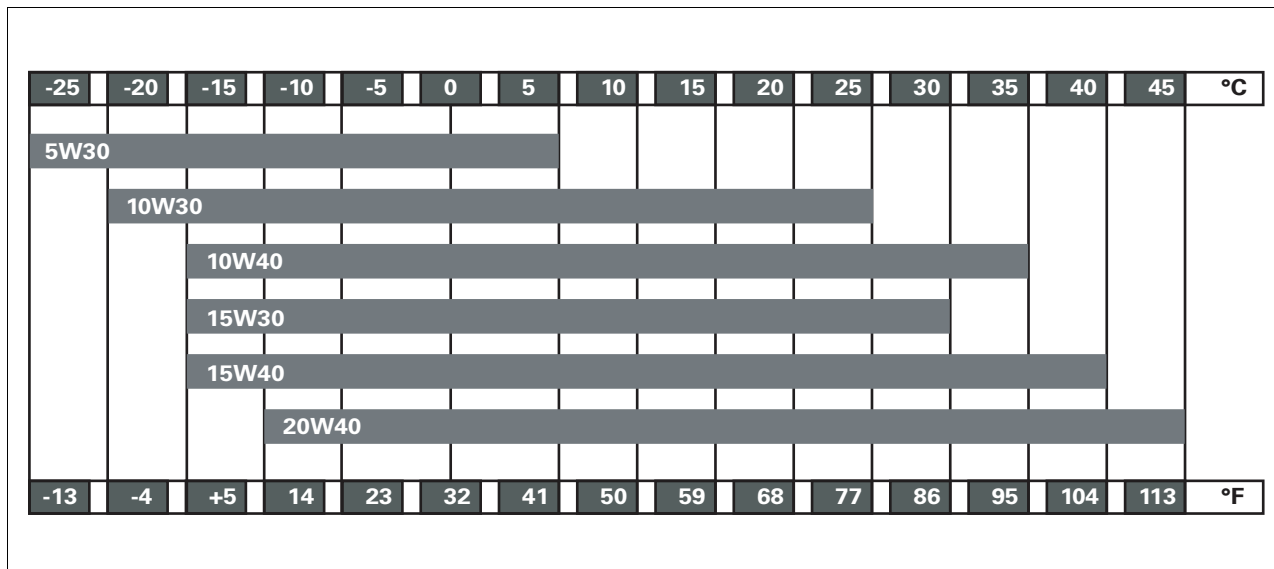


Fig. 1.

I003528

Coolant

Antifreeze: Permanent, ethylene/glycol, complying with standard specifications ASTM D3306 (USA) or BS 6580-1992 (Europe/UK) or AS 2108-1977 (Australia).

4.3.2 Fuel

T001051

Reminder of the safety instructions

Before handling fuel, filling the tank etc., observe the following:

- Under no circumstances should petrol, alcohol, paraffin, dieselhol (a mixture of diesel and alcohol) or any other substance be added to diesel fuel as there is an increased risk of fire or explosion.
In a closed container such as a fuel tank, these mixtures are more explosive than pure petrol. Do not use them. Additionally, dieselhol is not approved due to possible inadequate lubrication of the fuel injection system.
- Clean the filler plug area. Fill the fuel tank at the end of each working day to reduce overnight condensation.
- Never remove the plug or refuel when the engine is running.
- When filling the tank, keep control of the nozzle.
- Do not smoke.
- Do not fill the tank to its full capacity. Allow room for expansion and wipe up spilt fuel immediately.
- If the original plug is lost, replace it with an AGCO plug and tighten securely. A non-AGCO plug may not be guaranteed to seal.
- Ensure equipment is properly maintained.

**CAUTION:**

Diesel fuel is flammable. Handle fuel with care. Keep away from flammable sources. Do not smoke when filling the tank. Do not leave the tractor unattended when filling the tank. Clean up any spilt fuel after filling the tank. Any material which comes into contact with the fuel must be moved to a safe place.

If high-pressure fuel comes into contact with eyes, wash immediately with clean water and seek medical help.

Recommended fuel specification

The fuel used must conform to the standard DIN EN 590.

To obtain the correct power and optimum engine performance, use only good quality fuel.

Fuel storage

The utmost care must be taken to keep fuel clean.

- Never clean the inside of containers or other fuel system components with a fluffy cloth.
- The capacity of bulk storage tanks should not be too large: 10000 l approx.
- The storage tank should be under cover and supported on a cradle high enough for the tractor fuel tank to be filled by gravity. It should have a suitable manhole to provide access for cleaning. The outlet tap should be about 75 mm above the bottom of the tank to allow water and sludge to settle. It should have a removable screen. The storage tank should slope by about 4 cm per metre towards the rear (drain plug side).

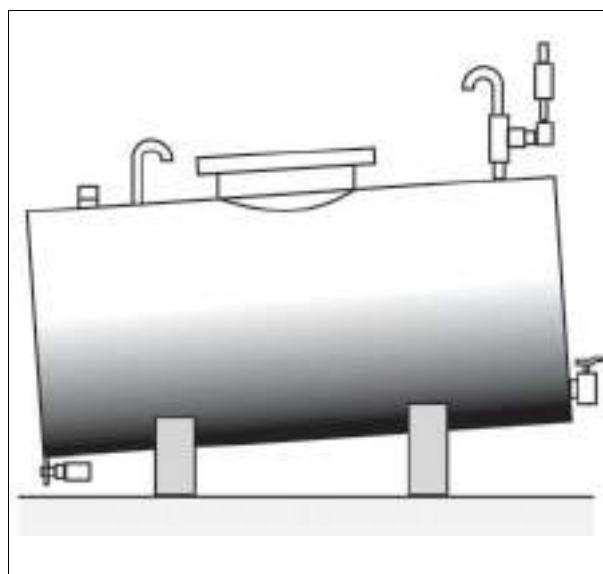


Fig. 2.

1003532

- Let the fuel settle in the storage tank for 24 hours before use after any servicing or refilling the tank.
- Clean out the storage tanks regularly; normally every five years, more frequently in cold climates.
- Bleed the tanks frequently to drain off any water formed by condensation.
- Rotate fuel stocks to prevent deterioration of old fuel and the accumulation of water or foreign matter.
- Bring in fresh supplies without waiting for stocks to run out; refuelling from the bottom of the tank may cause a blockage.

Advice on the use of fuel in cold weather

- In cold weather, diesel fuel increases in viscosity and wax particles form. This may lead to operating problems if precautions are not taken.
- **IMPORTANT:** *Environmental protection — you must comply with local regulations in force relating to underground storage.*

Underground storage is preferable.

If this is not possible, place the storage tank in a location which is protected from the cold, wind and damp.

- After filling the storage tank, drain the first 5 litres into a drum before filling the fuel tank. Then return the fuel in the drum to the storage tank.
- Insulate all exposed pipework. Ensure that any pipework is short in length and designed to be disassembled if necessary.
- Only stock "winter" quality fuel during the cold weather season.
- Frequently clean the fuel filter bowl.

- Do not puncture the fuel filter.
- Ensure a spare filter is always available. If a blockage occurs, due to fuel waxing, changing the fuel filter will enable restarting.

4.3.3 Biodiesel fuel

T009064

Recommended fuel specification

IMPORTANT: Use of EN 14214 or ASTM D6751 biodiesel fuels is not authorised for E3 engine with AdBlue/DEF technology.

The chemical composition of biodiesel can damage the system.

Biodiesel fuel is authorised for Tier 3 SisuDiesel engines, except for E3 engine with AdBlue/DEF technology. It must comply with the EN 14214 or ASTM D6751 standard.

Rape methyl esters (RME), vegetable oil methyl esters (VOME) and soy methyl esters, together known as fatty acid methyl esters (FAME) are all included in these standards.

NOTE: Unrefined, cold-pressed rapeseed oil, other unesterified vegetable oils or types of fuel such as ethyl alcohol and methanol **MUST NOT BE USED** in these products.

This fuel requires a different type of engine design, with precombustion chambers or a specific type of injection system. Moreover, "domestic fuel" must not be used as its quality has been reduced by the refineries. It can no longer provide sufficient lubrication and the amount of heavy polycyclic aromatic hydrocarbons has been increased to a critical level.

Fuel storage

The fuel must be stored in compliance with the recommended standards to avoid any water absorption or deterioration.

Fuel must never be stored for more than 12 months. Under certain conditions, fuel deterioration may lead to corrosion of the metal components and cause the seals to split prematurely.

Never store fuel in a tank with a painted inner surface, as biodiesel dissolves many types of paint.

When you fill up the tractor, make sure that the fuel does not run down the side of the filler neck. If there is any spillage, wipe up any traces of fuel immediately.

Avoid splashing the hoses with fuel and wipe off any spillage as quickly as possible.

Engine servicing required

Tier 0, 1, 2 and 3 SISU engines, except E3 engine with AdBlue/DEF technology, can function with a mixture of fuels containing up to 100% biodiesel.

When a biodiesel fuel is used in these engines, the replacement cycles for oil, oil filters and fuel filters must be halved.

An additional water separator must also be installed.

Consult your dealer to obtain this additional equipment.

IMPORTANT: The E3 engine with AdBlue/DEF technology cannot function with biodiesel fuel.

General information

- If the oil level exceeds the "Max" mark on the dipstick, the engine oil must be replaced.
- If a fuel leak (oil increase/dilution) suddenly worsens, the cause must be identified and corrected.
- Biodiesel can be used pure at start-up temperatures down to approximately -16 °C. Diesel must be used for temperatures below -16 °C.
- If the tractor needs to remain immobilised for at least 4 weeks, use pure diesel during the last hour of operation to avoid clogging various components and filters or damaging seals with a weaker resistance to biodiesel.
- As biodiesel is a very powerful solvent, any residue in the fuel system may become dislodged after using biodiesel. The fuel filters must therefore be replaced promptly after the first few times the tank is filled with biodiesel.
- The low combustion value of biodiesel may lead to a drop in performance of 5% or an increase in fuel consumption of approximately 10%.
- All older models must be carefully inspected by an approved dealer before using biodiesel. Low compression, a leak from the injectors and coolant temperatures that are too low may lead to dilution of the engine oil. All the hoses and pipes must be checked at least once a year by an approved dealer.

Potential consequences of using biodiesel

Using biodiesel at levels higher than those recommended can have adverse effects on the engine and the fuel system.

The higher the concentration of biodiesel, the more harm these effects will cause.

To protect the engine and the fuel system, the tractor must be serviced at the recommended intervals or at shorter intervals if recommended.

- Loss of power and reduced performance
- Fuel leaks from the seals and hoses
- Corrosion of the fuel injection equipment
- Reduced lubrication of the injection pump
- Carbonisation/obstruction of the injectors, leading to diminished fuel spraying
- Filter blockage
- Coating/seizing of the internal injection system components
- Build-up of mud and sediments
- Reduced operating life

Warranty application

The normal warranty for the machine remains the same on condition that the information and standards given above are complied with and the machine is serviced by an approved dealer according to the servicing schedule.

Warranty claims are not accepted for paint damage caused by biodiesel. All claims regarding exhaust fume emissions, increased fuel consumption or reduced performance due to the use of biodiesel are also excluded.

Faults caused by the use of any type of fuel are not considered to be manufacturing or materials faults and are not covered by the warranty.

4.3.4 AdBlue/DEF additive:

T001271

Recommended additive

The recommended additive is a urea-based fluid sold under the brand name AdBlue/DEF.

AdBlue/DEF must comply with standard ISO 222041-1 or DIN 70070.

AdBlue/DEF is not a hazardous product, but it must be handled with care. In the event of spillage of AdBlue/DEF on the vehicle, rinse off with water and wipe with paper or a cloth.

Low temperatures: AdBlue/DEF freezes at -11 °C.

Take the necessary storage precautions to avoid the product freezing and to ensure the vehicle can be topped up at all times.

Constant ambient temperature	Retention limit/months
Below or equal to 10 °C	36
Below or equal to 25 °C ⁽¹⁾	18
Below or equal to 30 °C	12
Below or equal to 35 °C	6
Greater than 35 °C	- ⁽²⁾
<p>NOTE: The main factors taken into account to define the limits in this table are the ambient temperature and initial alkalinity of the AdBlue/DEF. The evaporation difference between storage in a ventilated container and an unventilated container is an additional factor.</p> <p>For a fast and accurate measurement of the concentration of AdBlue/DEF, use a refractometer for AdBlue/DEF.</p> <p>For further information regarding storage and handling conditions, refer to standard ISO 22241.</p>	

1. To prevent decomposition of the AdBlue/DEF, avoid prolonged storage or transport at a temperature of approximately -25 °C

2. Check that the product is homogenous before each use.

IMPORTANT: If the AdBlue/DEF additive is modified or replaced by another fluid, which does not comply with standards ISO 222041-1 or DIN 70070, there is a risk that it will not provide the intended result and it may damage the E3 engine with AdBlue/DEF technology.

4.3.5 6-cylinder Sisu engine

T001422

- (1) Engine oil filter



Fig. 3.

1004099

- (2) Oil filler plug
- (3) Engine oil dipstick
- (4) Fuel prefilter
- (5) Fuel filter
- (6) Centrifugal oil prefilter (models not fitted with SCR)

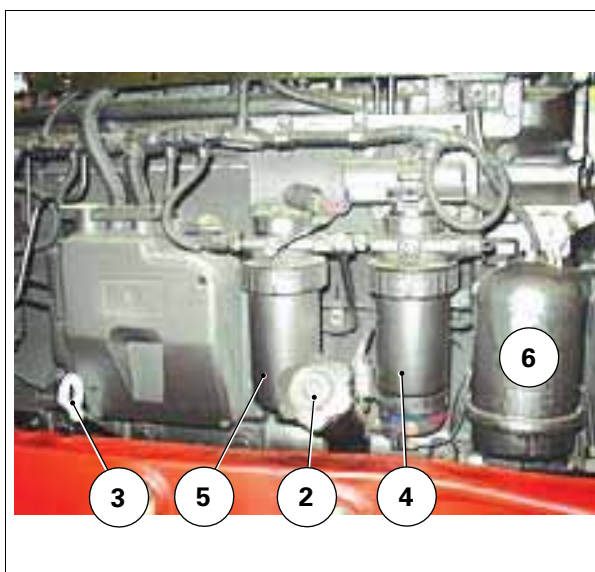


Fig. 4.

1004100

(7) Engine oil drain plugs

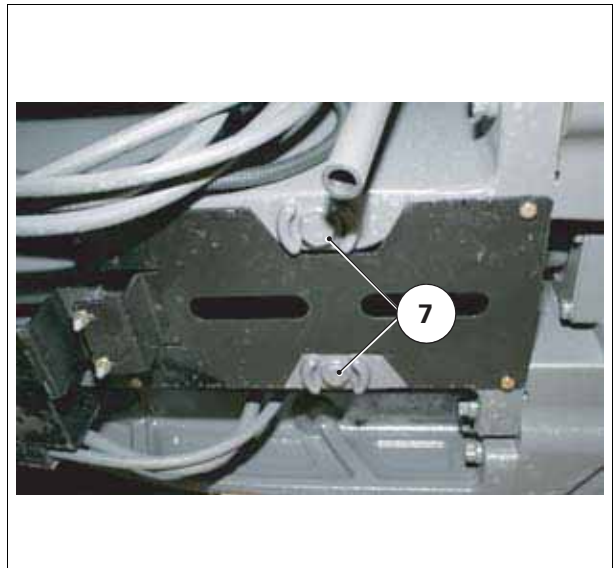


Fig. 5.

I004103

4.3.6 Engine oil level check

T001562

Frequency

Check the engine oil level daily.

Procedure

NOTE: This operation is to be carried out when the engine is cold.

NOTE:

To avoid unnecessarily heavy oil consumption:

- Do not exceed the MAX mark on the dipstick.
- Do not refill until the level reaches the MIN (green) mark on the dipstick.

1. Stand the tractor on level ground, with the front axle suspension disengaged. Stop the engine.
2. Check the oil level using the dipstick.
3. Top up with oil if necessary.

4.3.7 Draining the engine oil

T002010

Frequency

Drain the engine oil every 400 hours maximum.

In difficult working conditions, the oil may need changing more frequently (every 200 hours for example).

Procedure

1. Drain the oil when the engine is warm.
2. Stand the tractor on level ground, with the front axle deactivated. Stop the engine.
3. Undo and remove the plug(s) from the engine sump.

NOTE: If there are two drain plugs, it is recommended to undo them to achieve more efficient drainage as there is a separating panel that traps the oil on each side of the sump.

4. **IMPORTANT:** Do not dispose of the oil in the environment. Always store oil in suitable containers so that it can be collected and processed by specialist organisations.

Collect the used oil in a container of sufficient size.

5. Refit and tighten the drain plug(s) (torque: 35 Nm).
6. Refill with a recommended oil to the "max" mark.

NOTE: Allow time for the oil to settle in the sump before rechecking the level.

7. Start the engine and check that there are no leaks from the drain plug(s).

4.3.8 Replacing the engine oil filter

T001423

Frequency

Change the engine oil filter every 400 hours

Procedure

1. With the engine switched off, drain the engine oil before replacing the oil filter (*see §4.3.7, page 217*).
2. Unscrew and discard the complete filter and the worn seal.
3. Fill the new filter slowly with clean oil.
4. Smear a few drops of clean engine oil on the new seal ring, then place the ring in the housing on top of the new filter.
5. Screw on the filter until the seal ring touches the filter head, then tighten it a further half-turn by hand only (do not overtighten).
6. Refill with the recommended type of engine oil.
7. Recheck the oil level and top up if necessary.
8. Restart the engine and check that there are no leaks.

4.3.9 Replacing the centrifugal oil filter (models equipped with Internal EGR)

T002011

Frequency

Change the engine oil filter every 400 hours

Procedure

1. Stop the engine and wait several minutes to allow the oil from the centrifugal filter to drain back down into the engine.
2. Unscrew and discard the complete filter and the worn seal.
3. Fill the new filter slowly with clean oil.
4. Smear a few drops of clean engine oil on the new seal ring, then place the ring in the housing on top of the new filter.
5. Screw on the filter until the seal ring touches the filter head, then tighten it a further half-turn by hand only (do not overtighten).
6. Refill with engine oil, restart the engine and check that there are no leaks.

4.3.10 Replacing the urea filter (models equipped with E3 engine with AdBlue/DEF technology)

T001440

Frequency

Replace the urea filter every 4000 hours or every 2 years.

Procedure

**CAUTION:**

As this fluid may be corrosive, wear protective gloves when carrying out these operations.

1. Remove the urea module (A) located on the top of the tank on the left-hand side.

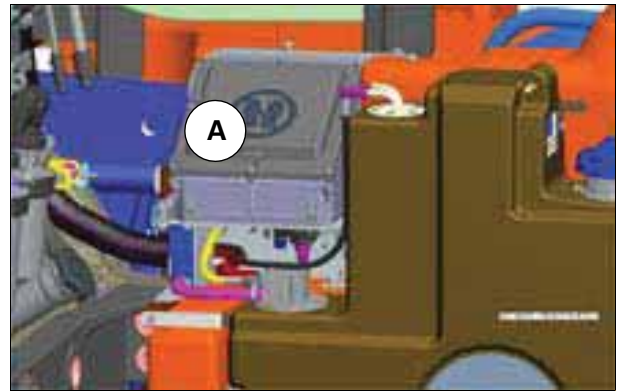


Fig. 6.

I004114

2. Unscrew the filter carrier (1).

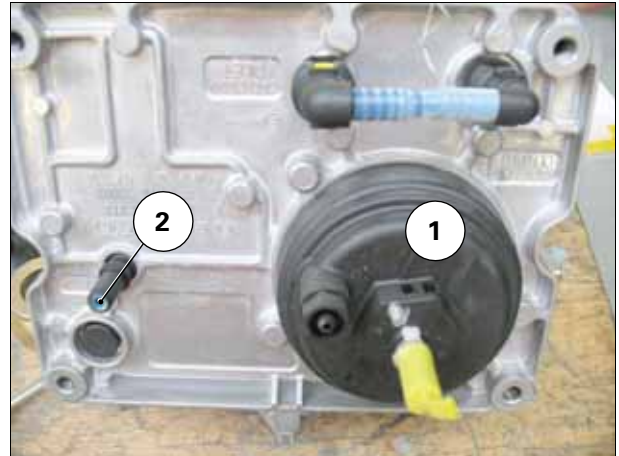


Fig. 7.

I004113

3. Unscrew the filter (3) and discard it.
NOTE: Always replace the "O" ring when replacing the filter.



Fig. 8.

I004111

- Fit a new filter on the support until they are in contact and tighten by 1/4 of a turn.

NOTE: Do not use mineral oil, silicone oil or grease to fit the seals. All seals are smeared with Teflon.

- Screw the assembly (1) back together and tighten to 20 Nm.
- When carrying out the second service operation on this module (8000 hours or every two years), replace the inlet filter (2). Use a screwdriver to turn and to extract the filter.
- Fit the new filter in the tube, positioning it at an internal distance of 0,2 mm to 0,4 mm from the outer edge of the tube.
- Refit the assembly onto the tank.
- In the event of a blockage, replace the filter (4) inside the metering module. Use a screwdriver to turn and extract the filter.
Fit the new filter in the tube, positioning it at an internal distance of 0,2 mm to 0,4 mm from the outer edge of the tube.

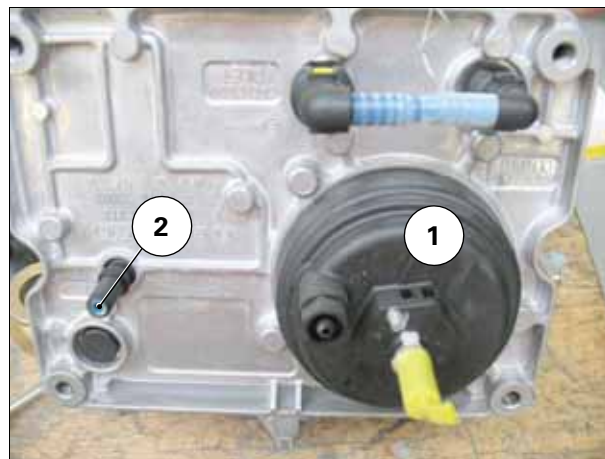


Fig. 9.

I004113

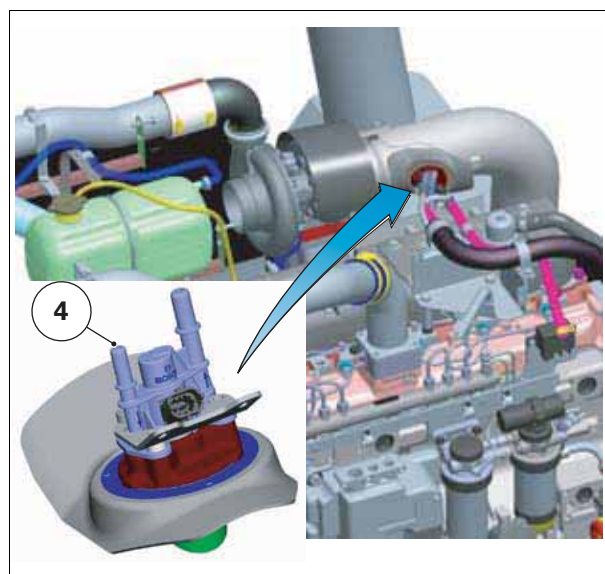


Fig. 10.

I004257

4.3.11 Fuel system: fuel prefilter

T001426

Draining the water: Frequency

Every 100 hours or once a week.

Draining the water: Procedure

- Place a container underneath the fuel prefilter.
- Drain the water by opening the valve at the base of the prefilter. Collect the water and dispose of properly in accordance with directives on environmental protection.
- Re-close the valve and then bleed the system ([see §4.3.14, page 223](#)).

Replacing the filter element: Frequency

Replace the filter element every 400 hours

Replacing the filter element: Procedure

IMPORTANT: Frequently clean the fuel prefilter bowl. Do not puncture the fuel prefilter.

NOTE: To avoid water condensation in the fuel tank, refill with fuel at the end of the working day. Ensure that a spare prefilter is always available. If a blockage occurs, due to fuel waxing, changing the fuel filter will enable restarting.

- Drain the prefilter.
- Remove and discard the filter element.
- Refit a new element.

4. Bleed the system.

4.3.12 Fuel system: fuel filter

T001425

Frequency

Replace the filter element every 400 hours

Procedure

1. Drain the filter.
2. Remove and discard the filter element.
3. Refit a new element.
4. Bleed the system ([see §4.3.14, page 223](#)).

4.3.13 Water filter

T001519

General

This filter prefilters the particles contained in the fuel and is fitted on the left-hand side of the engine.



Fig. 11.

I006528

Self-cleaning

Self-cleaning is necessary if you notice the internal paper element is starting to become blocked. The following symptoms indicate a blockage: Loss of engine power, black smoke from the exhaust, error code 97 displayed on the Dash Control Center screen.

1. Stop the engine

2. Open the bleed screw located on the top of the filter.



Fig. 12.

1006527

3. Open the drain valve on the transparent container ((1)):
 – atmospheric pressure enters the filter
 – particles and water droplets are detached from the paper element and the particles fall to the base of the container by gravity.
4. Close the drain valve by pushing and then turning to the left ((2)). The clean fuel above the cartridge rinses the element and carries the fine particles and droplets to the transparent container.
 drain the fuel to flush out the particles and water in the paper element and the transparent container
5. Close the air bleed screw and moderately tighten.
6. Start and run the engine. If the engine lacks power, carry out the self-clean operation again.
7. If error code 97 is displayed, replace the filter element



Fig. 13.

1006525

Replacing the filter element: Frequency

Replace the filter element every 400 hours.

Replacing the filter element: Procedure

1. Remove the 4 prefilter cover plate screws
2. Remove and discard the filter ((3)), retaining the pressure maintaining element ((4)).
3. Refit the new filter element
4. Refit the pressure maintaining element
5. Refit the cover plate and moderately tighten
6. Start and run the engine
7. Check that there are no leaks



Fig. 14.

I006526

4

4.3.14 Fuel system: bleeding

T001424

Procedure

To ensure correct operation of the engine, the fuel system must be in perfect condition and free of air.

1. Switch on the ignition. The electric pump automatically bleeds the system.
2. Start up and allow the engine to run at idle for several minutes.

NOTE: Never activate the starter for more than 30 seconds in one go to avoid overheating the starter and discharging the battery.

3. Check there are no leaks
4. Repeat the operation if required.

4.3.15 Fuel system: injection pump, regulator and injectors

T001047

The injection pump, regulator and injectors must be checked and adjusted by the dealer or agent (in accordance with the service guide).

4.3.16 Fuel system: Injection (E3 engine with AdBlue/DEF technology) (optional)

T001439

The injection system must be checked and adjusted by the dealer or agent (in accordance with the service guide).

4.3.17 Air filter

T001427

Cleaning and replacement: Frequency

Main filter

- Clean the main filter if the blockage indicator light comes on, or on a daily basis if using in dusty conditions.
- Replace the main filter ((2)) [fig. 15](#) after the blockage indicator light has lit up five times, once a year or every 1200 hours.

Secondary filter:

- Clean the secondary filter after the main filter has been cleaned five times.
- Replace the secondary filter (3) [fig. 15](#) after it has been cleaned five times, once a year or every 1200 hours.

Cleaning and replacement of the main filter: Procedure

IMPORTANT: Stop the engine before starting work on the filter system.

NOTE: Although the model shown may not fully correspond to your model, the procedure is identical.



CAUTION:

Do not use tractor exhaust fumes to blow the main filter or secondary filter out. Never put oil in the main filter or secondary filter. Never use petrol, paraffin or solvents to clean the main filter or secondary filter.

Before installing the main or secondary filter, visually check that there are no cuts, tears or damage on the surface of the seals; do not install the filter if such damage is visible.

4



Fig. 15.

1004091

1. Lift the bonnet panel.
2. Remove the main filter ((2)). To access the filter, unlock and remove the cover plate ((1)).
3. Clean the main filter, depending on its condition:
 - Gently tap the filter on a hard surface to knock out as much dust as possible, then blow through with compressed air at a maximum pressure of 5 bar while keeping the filter at a suitable distance away from the nozzle.
 - After cleaning, check to ensure that the secondary filter (3) is not damaged by illuminating the inside to check that there are no holes, and check the condition of the seals.
4. Carry out the operations in reverse order to refit.

Cleaning and replacement of the secondary filter: Procedure

IMPORTANT: Stop the engine before starting work on the filter system.

NOTE: Although the model shown may not fully correspond to your model, the procedure is identical.



CAUTION:

Do not use tractor exhaust fumes to blow the main filter or secondary filter out. Never put oil in the main filter or secondary filter. Never use petrol, paraffin or solvents to clean the main filter or secondary filter.

Before installing the main or secondary filter, visually check that there are no cuts, tears or damage on the surface of the seals; do not install the filter if such damage is visible.

1. Lift the bonnet panel.
2. **IMPORTANT:** To clean the secondary filter, do not tap it against a hard surface.
Remove the main filter (2) and the secondary filter (3). To access the filters, unlock and remove the cover plate (1) .fig. 15
3. Carry out the operations in reverse order to refit.

4.3.18 Cooling system

T001428

Coolant quality

- The coolant quality can have a great effect on the efficiency and life of the cooling system (*see §4.3.1, page 212*).

- **IMPORTANT:** *Never use pure water as a coolant.*

If an incorrect mixture is used, AGCO cannot be held responsible for damage caused.

Precautions against freezing: Check the protection level of the mix before the cold season.

The antifreeze/water ratio must always be 40-50% antifreeze to 60-50% water.

The minimum 40% antifreeze/60% coolant mixture must be used even in "non-cold" regions to raise the boiling point and protect the system against corrosion.

The water used should be clean, soft and non acidic.

Avoid the addition of pure water to the system, as this will dilute the mixture.

Checking the level and quality of the coolant

1. Visually check the coolant level every day.

2. **CAUTION:**

The quality of the coolant must be checked when the engine is cold.

Check the quality of the mixture regularly, especially before the cold season.

Filling to top up the coolant level

2. **CAUTION:**

If the engine is very hot, loosen the plug to the first notch before removing it to lower the expansion tank pressure.

IMPORTANT: *If the correct procedures are not used, AGCO cannot be held responsible for damage caused.*

1. Lift the bonnet to access the expansion tank.
2. Open the expansion tank plug.
3. Fill the expansion tank with coolant up to mid-way between the max/min witness marks .
4. After filling, open the heater tap fully and run the engine at 1000 rpm for several minutes.
5. Switch off the engine, check the level and top up if necessary, without exceeding the mid-way point on the tank.
Refit the plug.

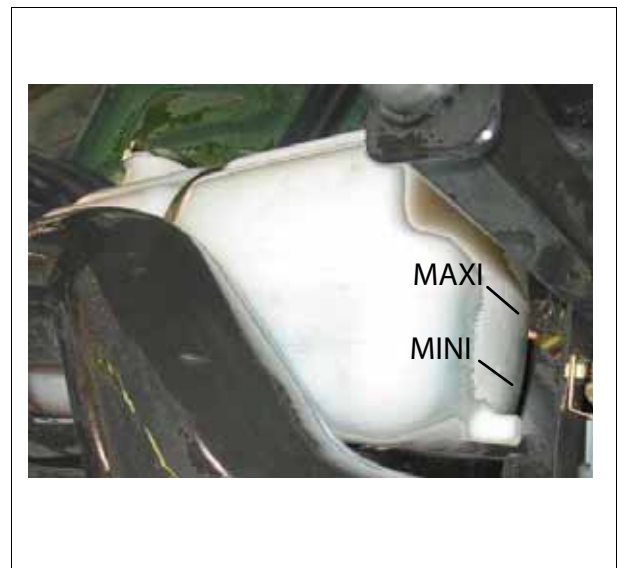


Fig. 16.

1004092

Draining the cooling system

Drain the system every 1200 hours according to the following procedure.

1. **CAUTION:**

Wait until the system has completely cooled before draining.

1. Lift the bonnet to access the expansion tank.
2. Open the expansion tank plug.
3. Place a drip pan underneath the radiator.
4. Remove the drain plug from the radiator and allow the fluid to drain out completely.
5. Refit the radiator drain plug and fill the system.
6. Fill the system via the expansion tank and then after filling, open the heater tap fully and run the engine at 1000 rpm for several minutes.
7. Switch off the engine, check the level and top up if necessary, without exceeding the mid-way point on the expansion tank.
Refit the plug.

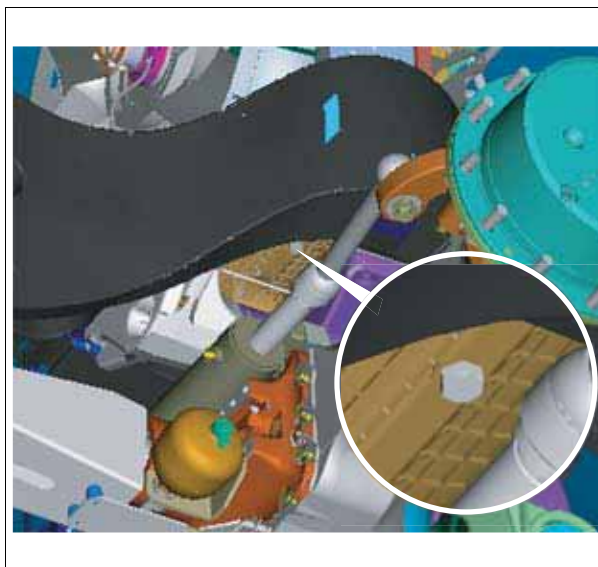


Fig. 17.

I006263

Cleaning the radiator

Clean the radiator fins with compressed air every day, depending on the work carried out.

4.3.19 Checking the fan/alternator/air conditioning Poly-V belt

T001499

Tension

Check the belt tension every 400 hours

Appearance

Examine the appearance of the belt (on a daily basis or whenever refuelling).

- Cross cracks (running across the breadth of the belt) are permissible.
- Longitudinal cracks (running along the length of the belt) that intersect cross cracks are not permissible.

Replace the belt if it is cracked in an unacceptable way, frayed or if pieces have come off (see §4.3.20, page 227).

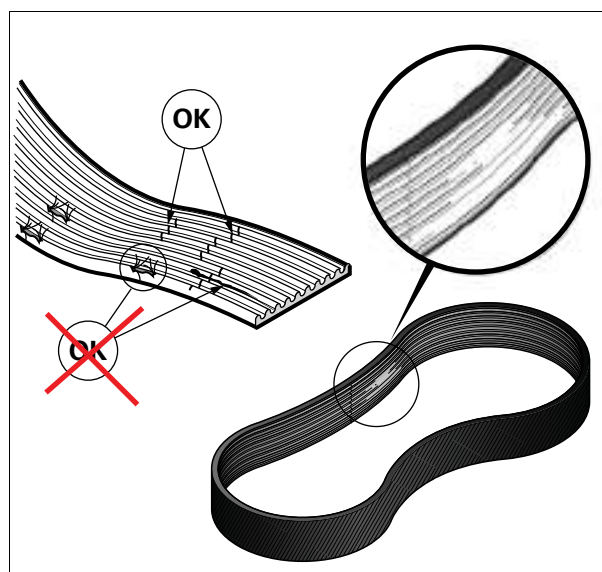


Fig. 18.

I004763

4.3.20 Replacing the fan/alternator/air conditioning belts

T001429

Frequency

Replace the belts as soon as they show signs of wear or every 1200 hours.

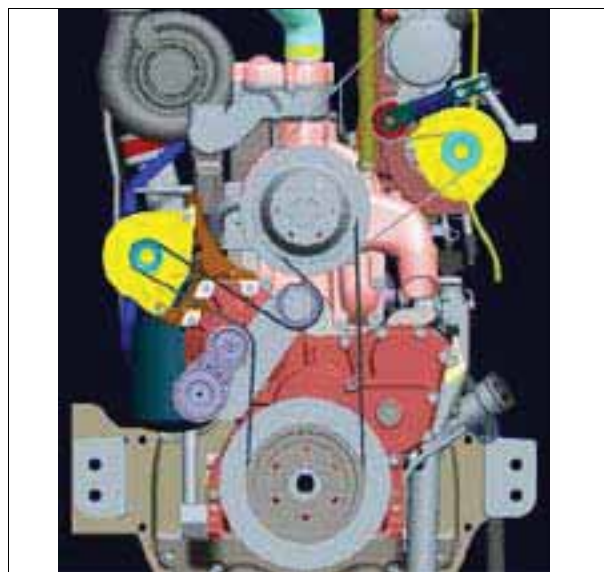


Fig. 19.

I005127

Procedure for a Poly-V belt and roller tensioner

1. Lift the tensioner to remove and refit the belt.
2. After replacement, check the belt tension and adjust if necessary.
3. After the tensioner has been slackened to remove/refit the belt, check the torque of the tensioner screw 43 Nm.
The belts are tensioned by the automatic tensioner.



Fig. 20.

I005132

Procedure for a Poly-V belt and spring tensioner

1. Pull the belt manually so as to engage the specific tension spring retaining tool (4315579M1) (1).



Fig. 21.

I004766

2. Loosen the tension spring support screws (2) to release the belt and replace it.
3. During refitting, push the end of the tension support (3) as far as it will go and retighten the screws (2) to a torque of 27 Nm to 37 Nm.
4. Remove the tool (1) to ensure belt tension. Nominal tension value: 73 Nm
The belts are tensioned by the automatic tensioner.

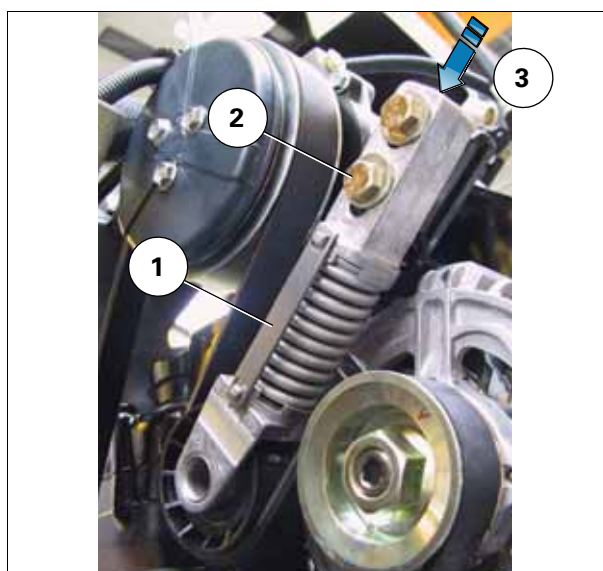


Fig. 22.

I004767

4.4 Transmission

4.4.1 Recommended products

T001563

IMPORTANT: The warranty remains valid only as long as the lubricants used comply with the following classifications, and no other products are used.

Transmission

SAE 15W40 oil complying with MF specifications CMS M1145.

Hydraulic clutch.

Pentosin CHS 11S oil.

Rear final drives

Models S232/S233/S262/S263: SAE 85W90

Models S292/S293/S322/S323/S352/S353: SAE 85W140

4.4.2 Checking the transmission oil level

T001409

Frequency

Check the transmission oil level every day.

Procedure

1. Stand the tractor on level ground, with the front axle suspension disengaged.
Stop the engine.
2. Check that the level is between the minimum and maximum marks on the dipstick.
3. Top up if necessary.

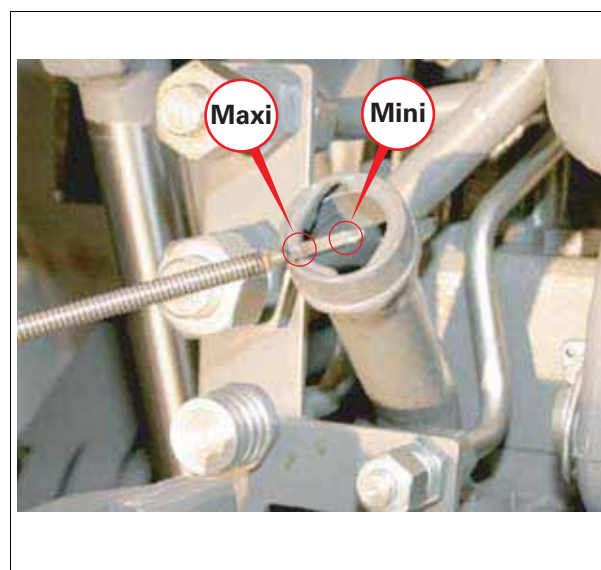


Fig. 1.

I004133

4.4.3 Draining the transmission oil

T001411

Frequency

Drain and replace the transmission oil every 2000 hours.

Procedure

NOTE: Do not drain until the transmission oil is hot.

1. Stand the tractor on level ground, with the front axle suspension disengaged.
2. Place the lower linkage arms in the lowest position.
Stop the engine.
3. Remove the drain plug (1) and the filler plug (A).
Wait until the oil has drained out completely.
4. Refit the drain plug (1), then refill the transmission with the recommended oil to the correct level.

NOTE: Allow time for the oil to settle in the transmission and the rear axle before rechecking the level. After changing the transmission oil, you **MUST** bleed the hydraulics and brake systems. If necessary, consult your nearest dealer.



Fig. 2.

I014629

4.4.4 Checking the level of the rear final drive units

T001413

Frequency

Check the oil level in the rear final drives units every 400 hours.

Procedure

NOTE: In order to access the plug, it may be necessary to remove the oil recovery bowl.

1. Unscrew the plug (1); the oil level should be 31 mm below the filler plug.
2. Top up if necessary.

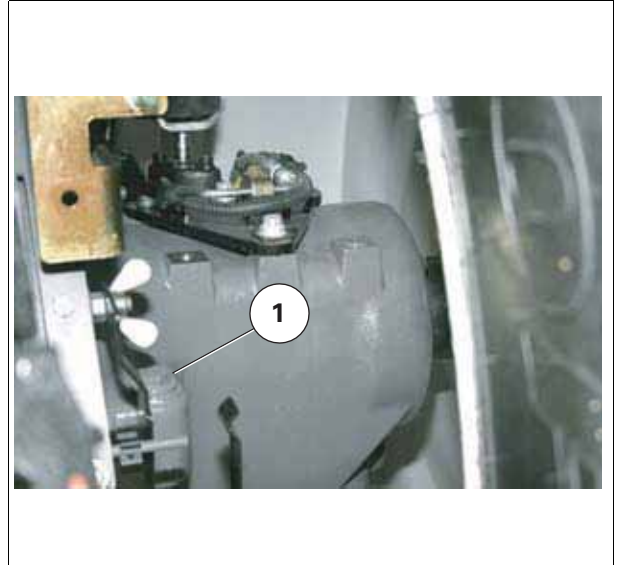


Fig. 3.

I004070

4.4.5 Draining the rear final drives

T001414

Frequency

Drain and replace the oil in the final drives every 2000 hours.

Procedure

1. Remove the drain plug ((1)) and the level plug for filling ([see §4.4.4, page 230](#)).
2. After completely draining the oil, refit the drain plug and then refill the rear final drives to the correct level with a recommended oil.

NOTE: Allow time for the oil to settle before re-checking the level.

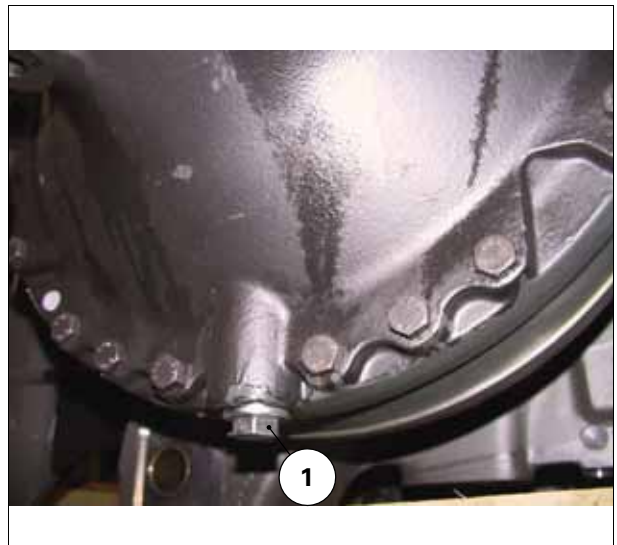


Fig. 4.

I004071

4.4.6 Filtering the transmission hydraulic system

T001412

Replacing the filter strainer: Frequency

Replace the transmission filter strainer ((1)) every 2000 hours.



Fig. 5.

I004065

Replacing the filter strainer: Procedure

1. Unscrew the 3 screws on the retainer plate, remove the strainer and discard it.

NOTE: If pneumatic braking is fitted, it is necessary to move the compressed air tank along the sliderail after having removed the upper and lower retaining screws ((A)).

2. Fit the new strainer in its place.
3. Fit the retainer plate and tighten the 3 screws.

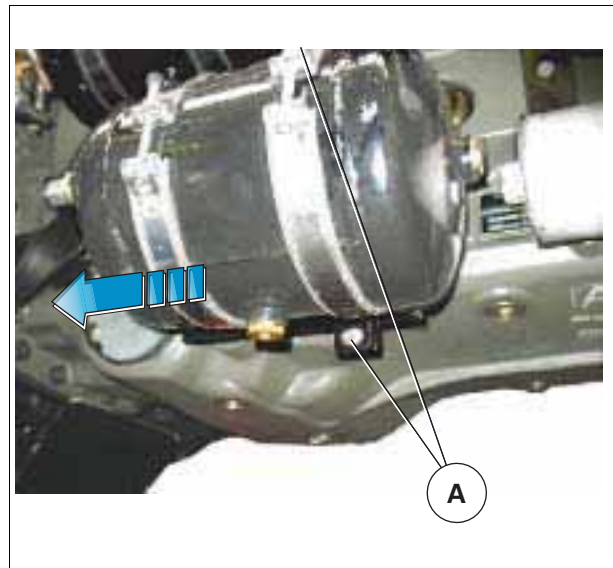


Fig. 6.

I005121

Replacing the high-pressure filter: Frequency

Replace the high-pressure filter ((2)) every 800 hours.

Replacing the high-pressure filter: Procedure

1. Unscrew the filter bowl.
Remove the filter element, allow it to drain fully and discard it.
2. Replace the seal every 800 hours, or as necessary.
3. Slide the new filter element into the filter head.
NOTE: To prevent contamination of the filter element due to foreign material (mud etc.), do not completely remove the protective plastic until it is fitted in place.
4. Refit the filter bowl and screw hand-tight until it locks.



Fig. 7.

I004066

4.4.7 Checking and cleaning the transmission oil cooler

T001408

Frequency

Check the cooler every day and, if necessary, clean using compressed air.

Procedure

IMPORTANT: Take care not to damage the various radiator grilles.

1. Pull the handle ((1)) downwards to unlock and release the radiator assembly.

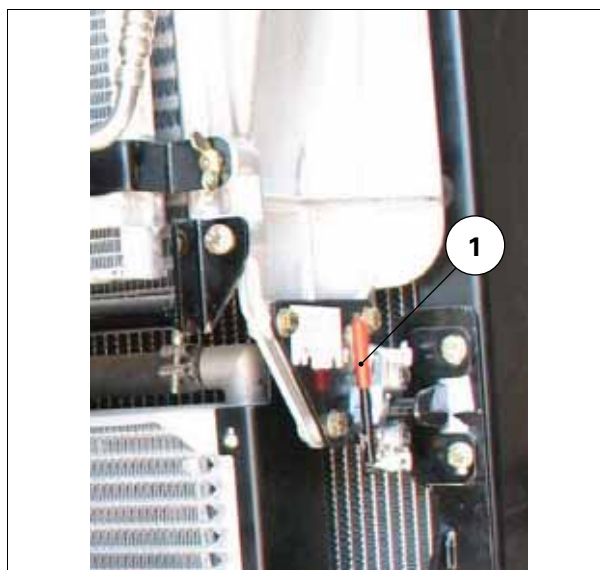


Fig. 8.

I004056

2. Clean the transmission oil cooler ((2)) with compressed air.

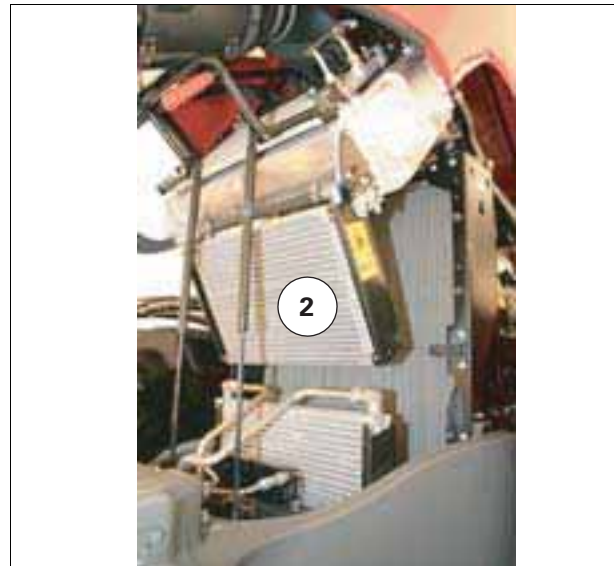


Fig. 9.

I004250

4.4.8 Lubricating the rear PTO shaft

T001330

⚠ DANGER:
Stop the engine before lubricating the rear PTO shaft.

Lubricate the rear PTO shaft every 50 hours.

This lubrication protects the rear PTO shaft from corrosion and assists implement hitching.

4.4.9 Clutch

T002980

Level

Check the clutch fluid level at each overhaul and after any work on the system. Remove the flexible protection to gain access to the filler bowl.



Fig. 10.

I011821

Draining

Drain the clutch system every 2000 hours.

IMPORTANT: Make sure to check the oil level and bleed the clutch system after performing any work on the system.

Consult your dealer if necessary.

4.5 Brakes

4.5.1 Bleeding the brake system

T001058

Frequency

Bleed the brake/piston system every 1200 hours and after every servicing operation.

Bleed screw locations

- (1) Trailer brake bleed (if option fitted)
- (2) Left-hand brake bleed
- (3) Right-hand brake bleed
- (4) Clutch bleed

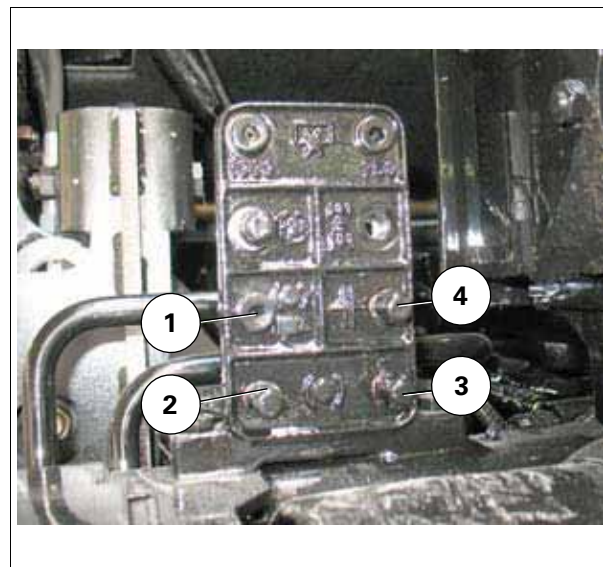


Fig. 1.

I006754

4.6 Front power take-off

4.6.1 Recommended products

T002983

IMPORTANT: The warranty remains valid only as long as the lubricants used comply with the following classifications, and no other products are used.

Front power take-off

You must use Autran DX III/Fluid 9 oil.

4.6.2 Draining oil

T002982

Frequency

NOTE: The front PTO functions hydraulically in a separate, independent system. The entire system is cooled by an oil cooler.

Drain the front PTO at 50 hours and then every 400 hours.

Procedure

1. Remove the two drain plugs ((1)).
2. Remove the circlip and loosen the screw holding the filter cover plate ((2)). Remove and clean the pump filter at each draining.
3. Refit the assembly with a new circlip.
4. In the event of a leak, check the oil level after unscrewing the plug ((3)). Top up and consult your dealer.

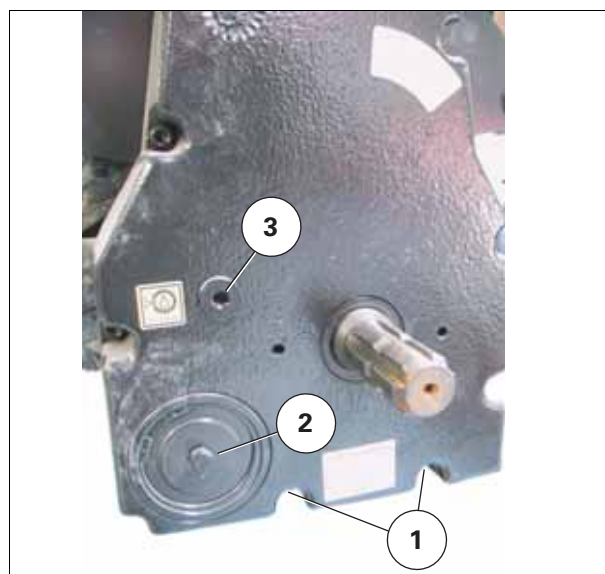


Fig. 1.

I007960

4.6.3 Lubricating the front PTO shaft

T001462



DANGER:

Stop the engine before lubricating the front PTO shaft.

Lubricate the front PTO shaft once a week.

This lubrication protects the front PTO shaft from corrosion and assists implement hitching.

4.7 Front axle and steering

4.7.1 Recommended products

T001448

IMPORTANT: The warranty remains valid only as long as the lubricants used comply with the following classifications, and no other products are used.

Front axle

Oil for DANA front axle: Final drives: API GL5; SAE 85W90

Assembled centre housing before tractor serial number **V123004**: Use an oil that complies with classification API GL4 and is approved in accordance with CMS M1145.

Assembled centre housing from tractor serial number **V123004**: API GL5; SAE 85W90

Grease

Grease: AGCO M.1105 or lithium multi-purpose grease in accordance with the N.L.G.I. indices:

- N.L.G.I. number 1: Temperature often drops below 7 °C
- N.L.G.I. number 2: Temperature often ranges from 7 °C to 27 °C
- N.L.G.I. number 3: Temperature often exceeds 27 °C

4.7.2 Four-wheel drive front axle: Checking the front axle beam oil level

T001294

Frequency

Check the front axle beam oil level every 400 hours.

Procedure

1. Stand the front axle on level ground.
2. Unscrew the plug (1) and check the level. The oil should be level with the lower rim of the filler plug port. Top up if necessary.



Fig. 1.

I008041

4.7.3 Four-wheel drive front axle: draining the oil from the front axle beam

T001313

Frequency

Change the front axle beam oil every 800 hours.

Procedure

IMPORTANT: Do not dispose of the oil in the environment. Always store oil in suitable containers so that it can be collected and processed by specialist organisations.

NOTE: Do not drain until the front axle beam oil is hot.

1. Stand the tractor on level ground.
2. Unscrew the drain plug (2) and the filler plug (1) *fig. 1*. Allow the oil to drain out.
3. Collect the used oil in a container of sufficient size.
4. Refit and retighten the drain plug.
5. Top up with the recommended oil type to the lower level of the filler port.
6. Refit and retighten the filler plug.
7. Check there are no leaks

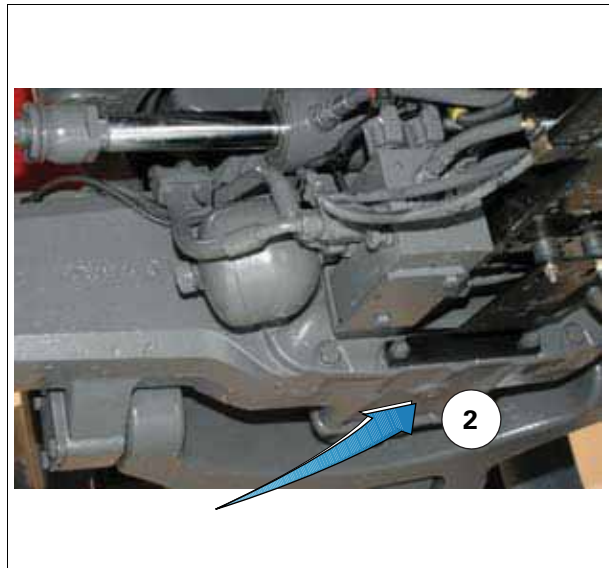


Fig. 2.

I008042

4.7.4 Four-wheel drive front axle: checking the oil level in the final drives

T001449

Frequency

Check the oil level in the front final drives every 400 hours.

Procedure

1. Turn the wheel until the plug is horizontally aligned with the centre of the hub (B) *fig. 3*.
2. Remove the plug and check that the oil level is flush with the plug port.

4.7.5 Four-wheel drive front axle: draining the oil in the final drives

T001450

Frequency

Drain the oil from the front final drives every 800 hours.

Procedure

1. Turn the wheel until the plug is located at the bottom of the hub ((A)).
2. Remove the plug to drain the oil.
3. Horizontally align the plug with the centreline of the hub ((B)) and then fill to the correct level.
4. Return the plug to its position and tighten to 90 Nm.

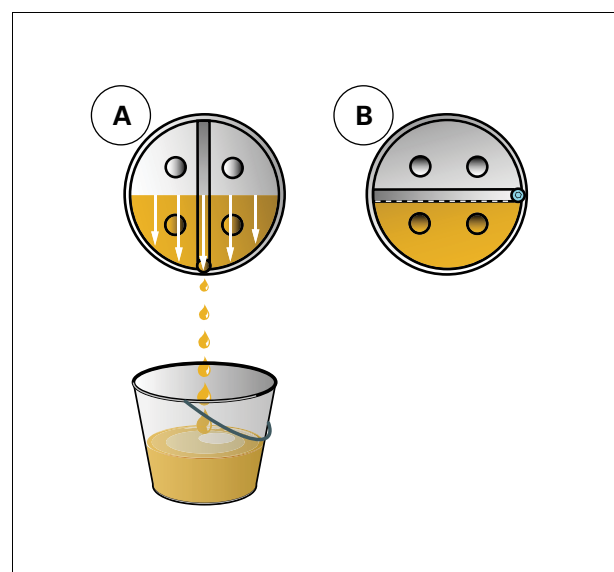


Fig. 3.

I004142

4.7.6 Four-wheel drive front axle: lubrication

T001451

Frequency

Check/lubricate the front axle pivots once a week.

Lubrication points

(1) (2) Pivot pins

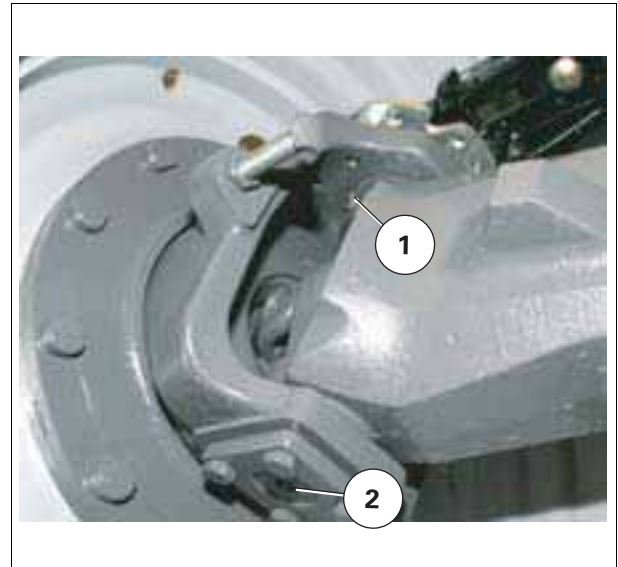


Fig. 4.

I004197

(3) Front axle bearings

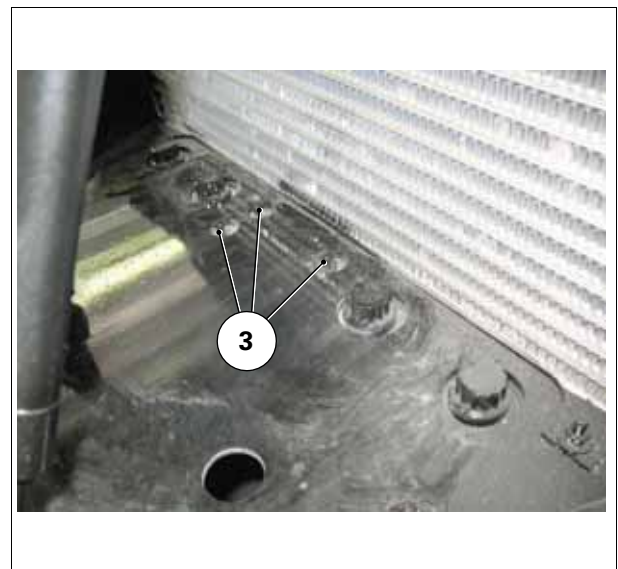


Fig. 5.

I004175

- (4) Suspended front axle support joint



Fig. 6.

I004176

4.8 Linkage

4.8.1 Recommended products

T002931

IMPORTANT: The warranty remains valid only as long as the lubricants used comply with the following classifications, and no other products are used.

Linkage shaft

SAE 10W40 or 15W40 oil.

4.8.2 Check the linkage shaft oil level

T001316

Frequency

Check the linkage shaft oil level every 2000 hours or every 2 years.

Procedure

1. Remove the plug located behind the protective plastic (1).
2. The oil should be level with the port.
3. Top up if necessary.

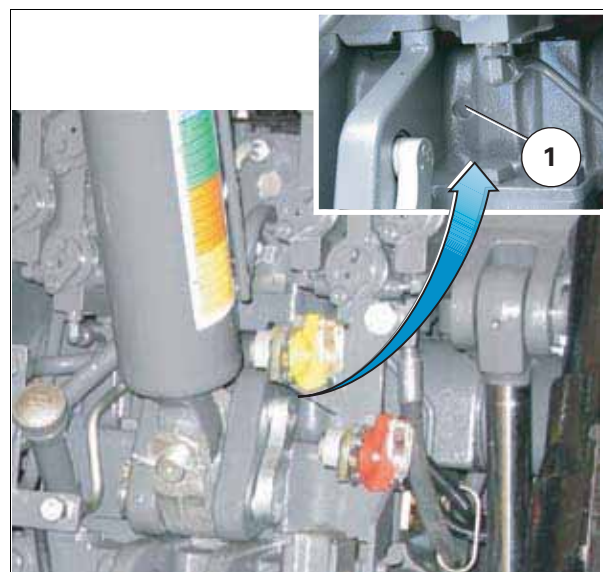


Fig. 1.

I007876

4.9 Linkage

4.9.1 Recommended products

T001063

IMPORTANT: The warranty remains valid only as long as the lubricants used comply with the following classifications, and no other products are used.

Grease: AGCO M.1105 or lithium multi-purpose grease in accordance with the N.L.G.I. indices:

- N.L.G.I. number 1: Temperature often drops below 7 °C
- N.L.G.I. number 2: Temperature often ranges from 7 °C to 27 °C
- N.L.G.I. number 3: Temperature often exceeds 27 °C

4.9.2 Three-point linkage: lubrication

T001441

Frequency

Check/lubricate the linkage mechanism once a week.

Lubrication points

IMPORTANT: The threaded parts and hitch pins must be correctly protected with grease.

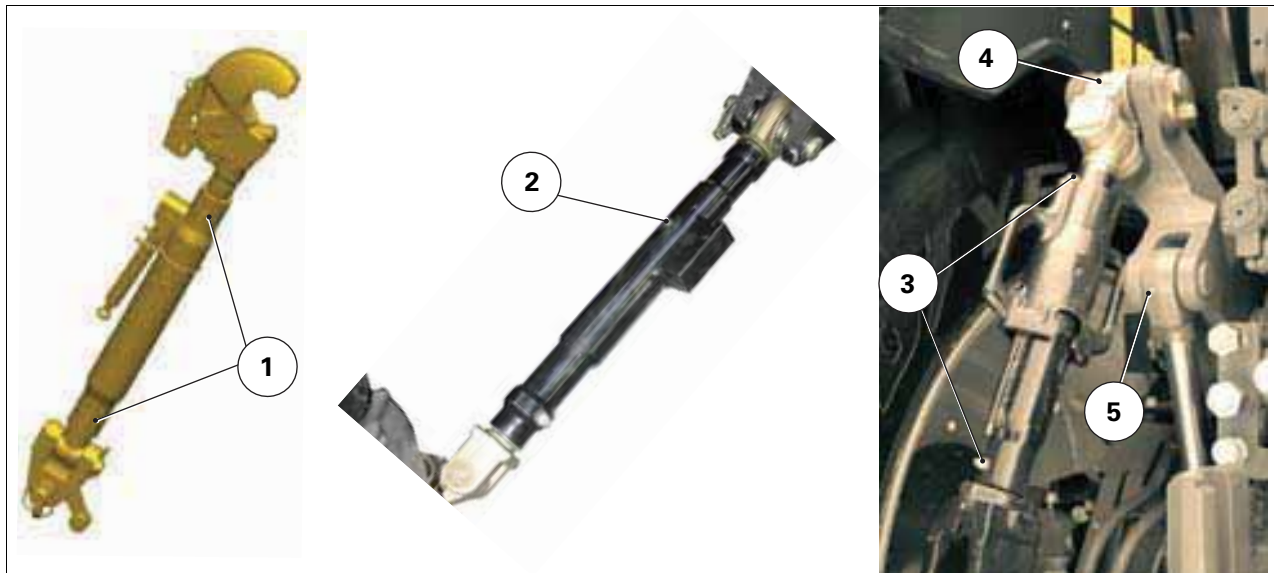


Fig. 1.

I004170

(1) Top link
(2) Stabilisers

(3) (4) Lift rods
(5) Lift rams

4.9.3 Auto-hitch: lubrication

T001442

Frequency

Check/grease the auto-hitch once a week.



WARNING:

Stop the engine before lubricating.



CAUTION:

The control cable is precision adjusted in our workshops. To avoid any operating problems when working on the hitch and/or the cable, consult your dealer or agent.

Lubrication points

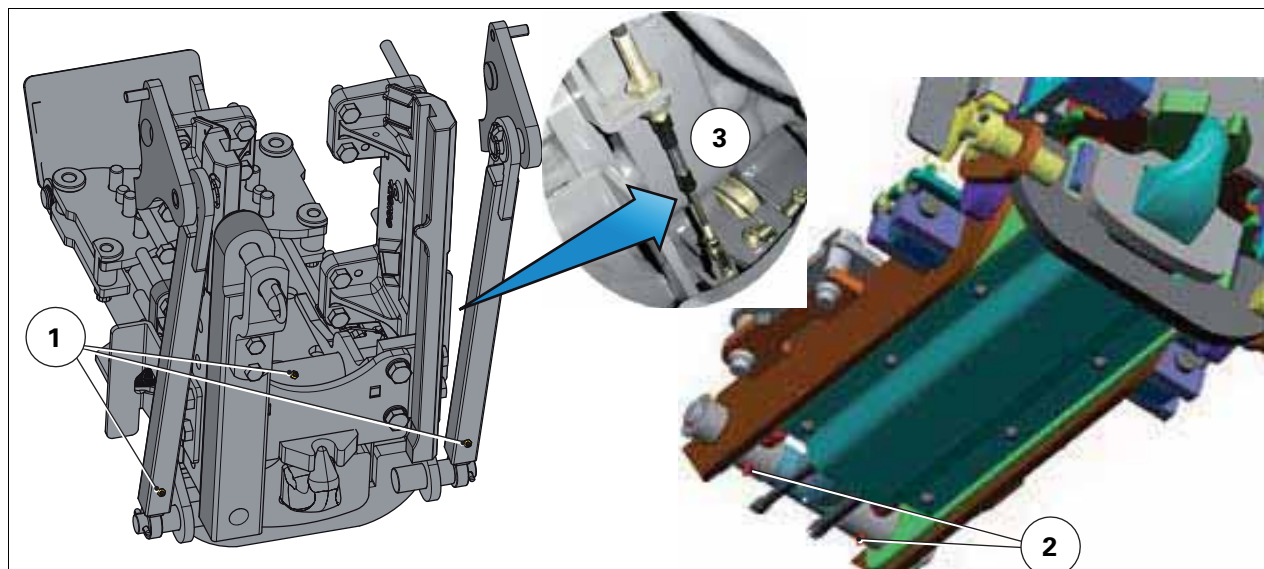


Fig. 2.

I014653

- (1) Guides
- (2) Rear joints

- (3) Control cable to be lubricated

4.9.4 Front linkage: lubrication

T001455

Frequency

Check/lubricate the front linkage joints once a week.

IMPORTANT: During extended periods of storage, ram rods (A) [fig. 4](#) should not come into contact with the air (risk of corrosion and subsequent leakage). Rams should be fully retracted or greased.

Lubrication points

- (1) Ram upper joints

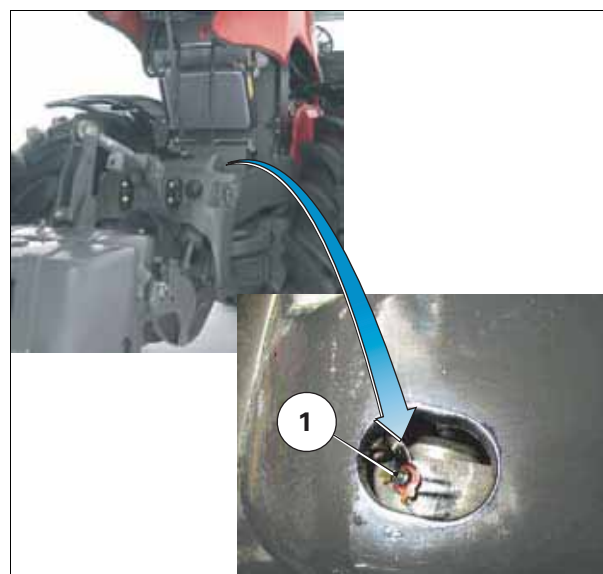


Fig. 3.

I004174

(2) Ram lower joints

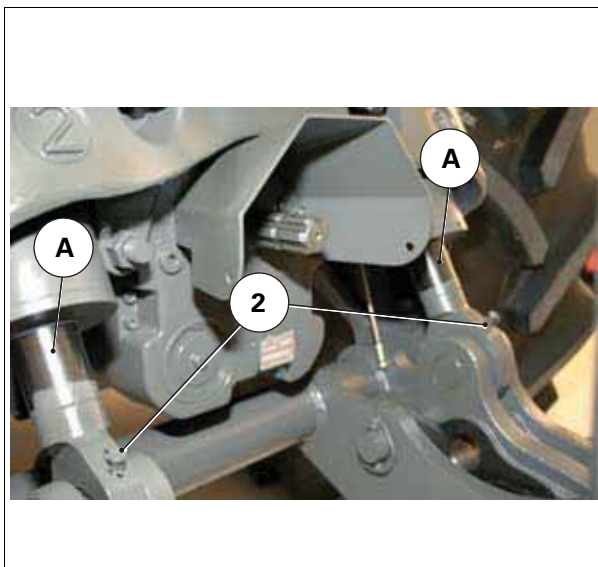


Fig. 4.

I004173

(3) Linkage arm pin

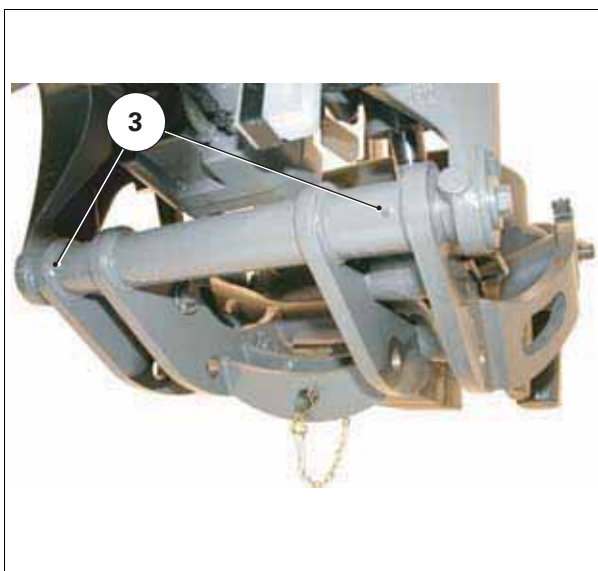


Fig. 5.

I004180

(4) (5) Linkage unit joints



Fig. 6.

I014654

4.9.5 Ball hitch: lubrication

T007346

Frequency

Check/lubricate the hitch ball once a week.



WARNING:

Stop the PTO before lubricating.

Lubrication points

- (1) The grease nipple of the hitch ball can be accessed from underneath

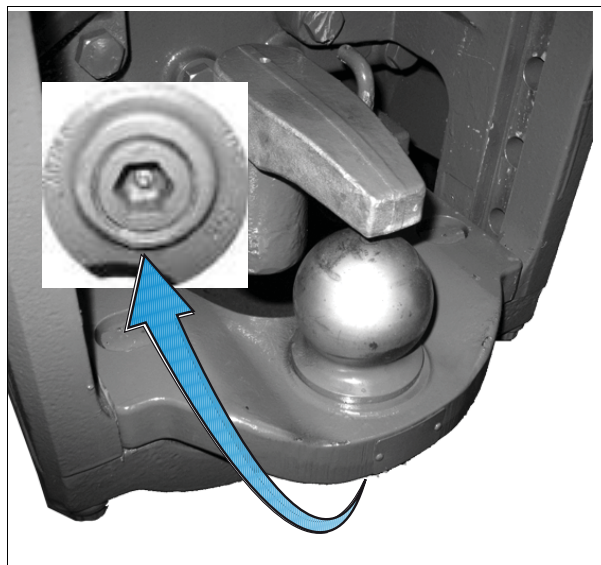


Fig. 7.

I018815

4.10 Auxiliary hydraulics

4.10.1 Recommended products

T001559

IMPORTANT: The warranty remains valid only as long as the lubricants used comply with the following classifications, and no other products are used.

Auxiliary hydraulic system

10W40 oil complying with MF specifications CMS M1145.

4.10.2 Checking the auxiliary hydraulic system oil level

T001416

Frequency

Check the auxiliary hydraulic system oil level every day.

Procedure

IMPORTANT: If this indicator light comes on during operation, consult your Distributor or Dealer.

1. Regularly check the auxiliary hydraulic oil level on the main display screen ((1)).



Fig. 1.

I011887

2. Top up if necessary via the plug (2) located next to the right-hand step.

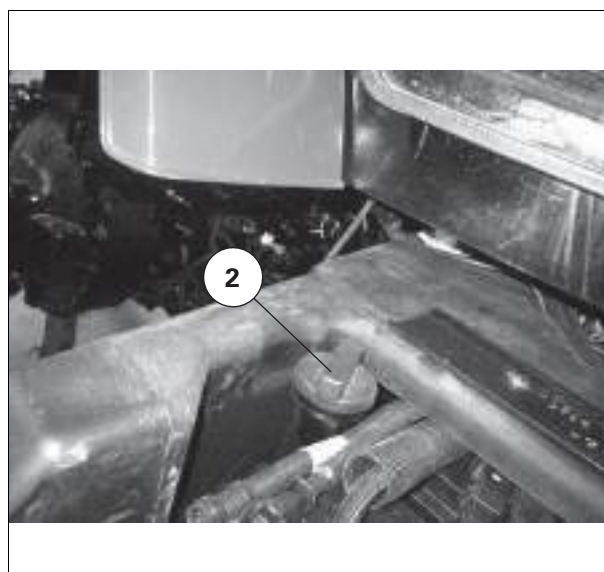


Fig. 2.

I004083

4.10.3 Draining the auxiliary hydraulic system

T001452

Frequency

Drain and replace the oil in the auxiliary hydraulic system every 1200 hours.

Procedure

NOTE: Do not drain until the oil is hot.

1. **IMPORTANT:** Before opening the filler plug (2), ensure the fender of the tractor and the area around the plug (2) are cleaned thoroughly to prevent impurities entering the auxiliary hydraulic oil tank.
2. Remove the drain plug (1) and the filler plug (2). Wait until the oil has drained out completely.
3. Refit the drain plug (1).
4. **IMPORTANT:** Ensure that clean oil from a clean tank is used and that a clean funnel is used for filling.
Oil cleanliness must comply with standard NAS 1638 class 10.

Fill the tank through the filler plug (2) with the recommended oil.

NOTE: If the oil is taken from a large capacity storage tank, use a prefilter when filling.

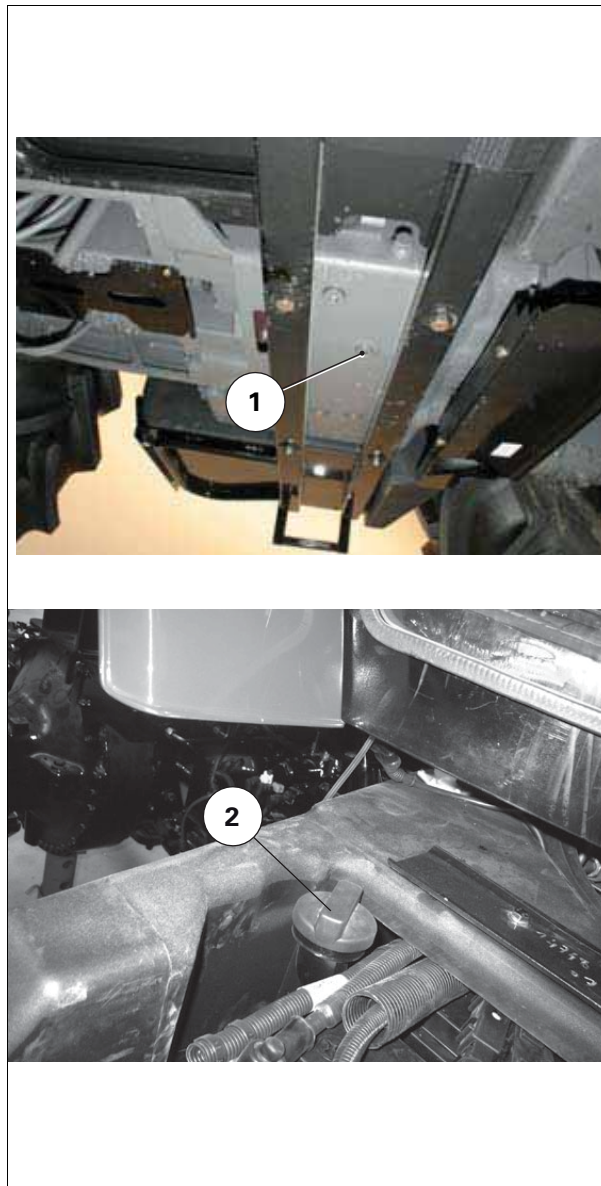


Fig. 3.

I014650

4.10.4 Filtering the auxiliary hydraulic system

T001417

Replacing the 10-micron return filter: Frequency

Replace the 10-micron return filter (2) every 400 hours.

Replacing the 10-micron return filter: Procedure

NOTE: It is not necessary to drain the auxiliary oil tank.

1. Place a container underneath the filter to collect the residual oil from the bottom of the filter bowl (approximately 1 l to 2 l).
2. Loosen the cover plate and rotate it by one quarter of a turn to remove it. Remove the filter element, allow it to drain fully and discard it.
3. Change the cover plate seals every 800 hours, or as necessary.
4. Fit a new filter element on the cover plate side and fit the assembly into its housing.

NOTE: To prevent contamination of the filter element due to foreign material (mud etc.), do not completely remove the protective plastic until it is fitted in place.

5. Refit the cover plate, ensuring that the interlock mechanism is correctly positioned and then re-tighten the cover plate until it is locked in place.
6. Refill with oil and check the level.



Fig. 4.

I004148

Replacing the breather: Frequency

Replace the breather located on the left-hand side on top of the housing every 1200 hours.

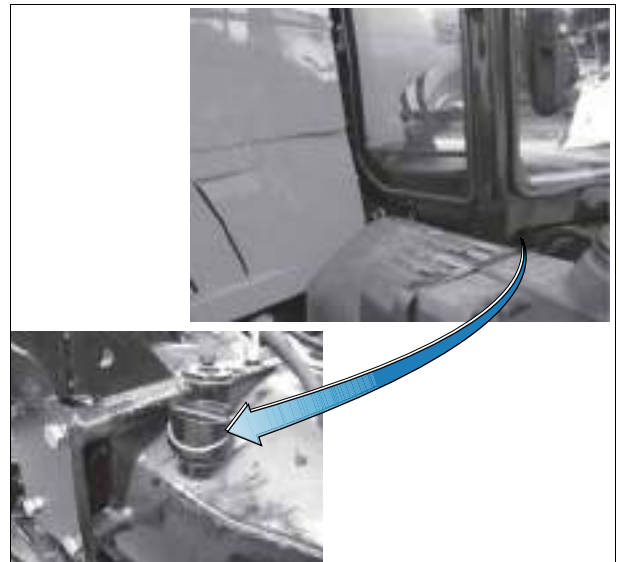


Fig. 5.

I008030

4.10.5 Checking and cleaning the auxiliary hydraulic system oil cooler

T001415

Frequency

Check the auxiliary hydraulic system cooler fins every day and clean them if necessary.

Procedure

IMPORTANT: Take care not to damage the various radiator grilles.

1. Clean the cooler (3) with compressed air.



Fig. 6.

I004249

4.11 Electrical equipment

4.11.1 Batteries

T001066

The tractor's electrical circuit operates on 12 V. The negative terminal is the earth.

Wipe the battery top and smear the terminals with liquid paraffin every 400 hours.



WARNING:

Batteries produce explosive gases. Sparks, flames, lit cigarettes or any flammable source must be kept at a distance. Wear suitable safety goggles when working near batteries.

4.11.2 Alternator

T001498

Ask your dealer or agent to check the alternator every 1200 hours or once a year.

IMPORTANT: The alternator wiring must be disconnected before any arc welding is carried out on the tractor or on an implement which is attached to it.

Do not disconnect or reconnect the battery cables when the engine is running.

Never operate the engine when the cable linking the alternator and battery is disconnected.

Do not attempt to connect any additional electrical equipment, as this may damage components of the existing electrical circuit.

4.11.3 Power socket (ISO)

T001447

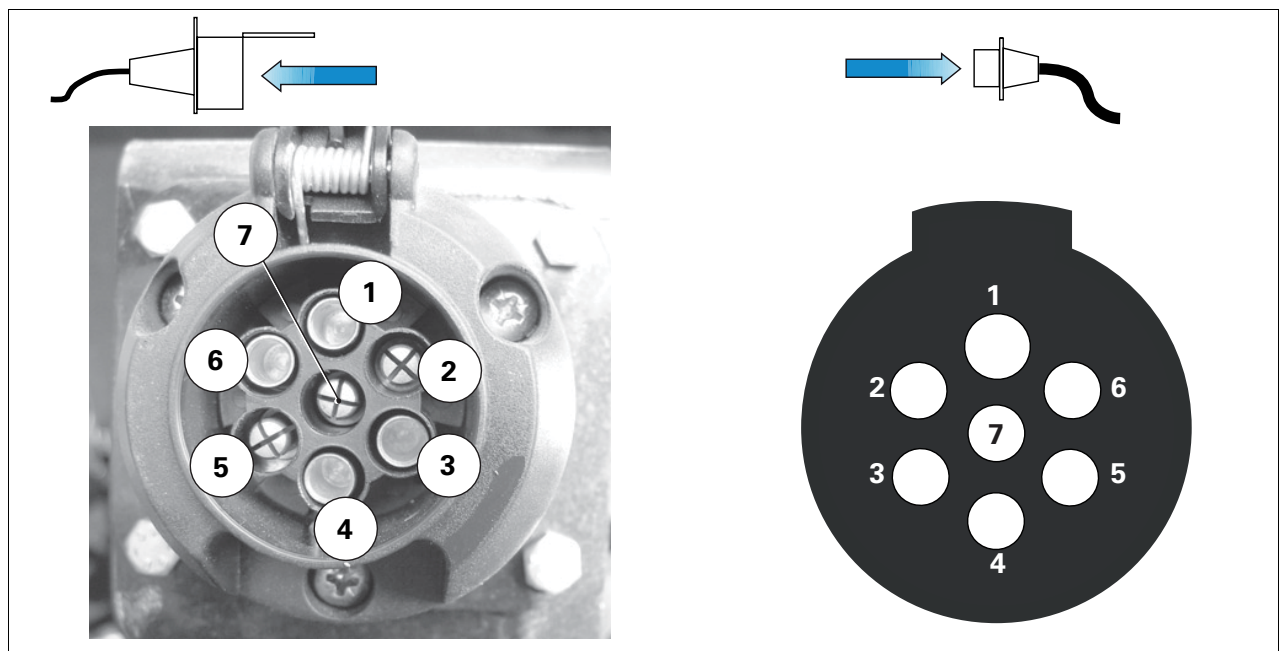


Fig. 1.

I004140

Reference	ISO circuit	Maximum electrical charge
(1-)	Left-hand indicator and hazard warning light	4x 21 W
(2)	Reversing light	Not known
(3)	Earth	-
(4)	Right-hand indicator and hazard warning light	4x 21 W
(5)	Right-hand side lights and number plate lights	4x 6 W
(6)	Stop lights	Not known
(7)	Left-hand side lights	20 A

4.11.4 Adjusting the headlights

T001070

Adjustment diagram

- (A) Distance between the headlights and a wall or a screen
 (B) Height from the centre of the headlights to the ground
 (C) Centre-to-centre distance between headlights
 (D) Vertical offset

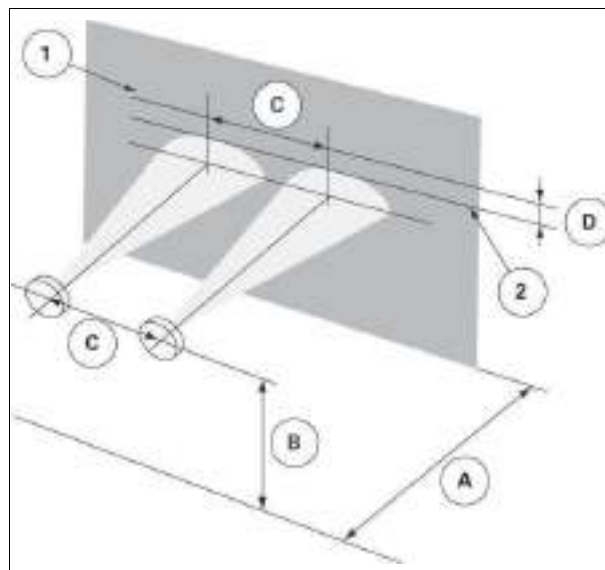


Fig. 2.

1003563

Procedure

NOTE: Do not let your fingers come into direct contact with the iodine bulbs.

1. Position the tractor on a level surface, facing a wall or screen at a distance of 7,5 m.
2. Trace a horizontal line (1) on the wall, corresponding to the height (B).
3. Trace two vertical lines on the wall corresponding to the width (C).
4. Trace a horizontal line (2) on the wall under line (1) at a distance of $(D) = 0.1 \times (B)$.
5. Adjust each headlight individually by masking the opposite light. Align the upper edge of the lit zone with line (2); align the centre of the lit zone with the corresponding vertical line traced in step 3.

4.11.5 Fuse box description





T002121

Functions of the fuse box elements

F	Fuse
SH	Shunt (shunts are fuses)
K	Relay
X	Connector

Fuse power and size

Amperage	Size	Colour
3	normal	
5	min.	
7.5	min.	
10	min.	
10	normal	
15	min.	
15	normal	
20	normal	
25	normal	
30	normal	

Amperage	Size	Colour
40	max.	
50	max.	
60	max.	
70	max.	

Fuse box

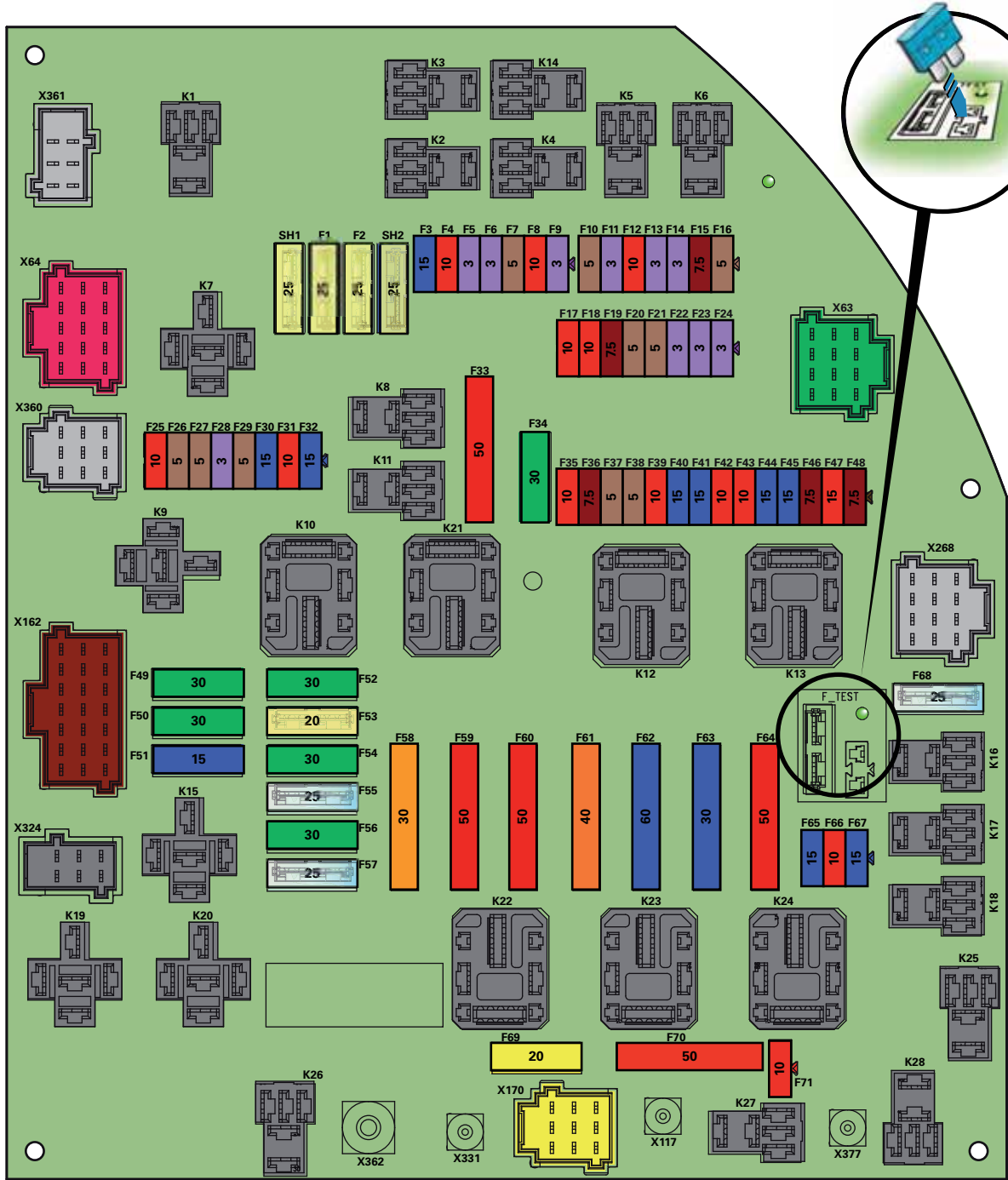


Fig. 3.

1006388

Num.	Amp	Size	Protected function
F1	25 A	STD	Windscreen wiper control unit
F2	25 A	STD	Main beams
F3	15 A	Min.	Dipped lights on grille
F4	10 A	Min.	Implement connector on right-hand pillar without Isobus
F5	3 A	Min.	Start switch + ACC ⁽¹⁾
F6	3 A	Min.	K19 relay control circuit
F7	5 A	Min.	Lighting module + APC ⁽²⁾
F8	10 A	Min.	Air conditioning compressor
F9	3 A	Min.	K21 relay control circuit
F10	5 A	Min.	instrument panel + APC ⁽²⁾
F11	3 A	Min.	Brake switch
F12	10 A	Min.	instrument panel + APC ⁽²⁾
F13	3 A	Min.	Not used
F14	3 A	Min.	Limp home mode switch
F15	7.5 A	Min.	Horn
F16	5 A	Min.	Fuse board earth
F17	10 A	Min.	Front connector + ACC ⁽¹⁾
F18	25 A	Min.	Not used
F19	7.5 A	Min.	Autotronic 5 linkage, Autotronic 4 and diagnostic connectors + APC ⁽²⁾
F20	5 A	Min.	Auto-Guide + APC ⁽²⁾
F21	5 A	Min.	Autotronic 4 + APC ⁽²⁾
F22	3 A	Min.	K13 relay control circuit
F23	3 A	Min.	K12 relay control circuit
F24	3 A	Min.	Alternator + APC ⁽²⁾
F25	10 A	Min.	Backlighting for console, cigarette lighter, lighting module, front right-hand and rear left-hand side lights
F26	5 A	Min.	Starter solenoid
F27	5 A	Min.	Electric battery isolator + APC ⁽²⁾
F28	3 A	Min.	K10 and K24 relay control circuit
F29	5 A	Min.	Lighting module + BAT ⁽³⁾
F30	15 A	Min.	Electric battery isolator + BAT ⁽³⁾
F31	10 A	Min.	Radio + BAT ⁽³⁾
F32	15 A	Min.	Rear windscreen wiper switch, rear windscreen wiper motor, extreme cold weather pump + BAT ⁽³⁾
F33	50 A	Max.	Fuse board + APC ⁽²⁾
F34	30 A	STD	Engine controller + BAT ⁽³⁾
F35	10 A	Min.	Fuse board + ACC ⁽¹⁾
F36	7.5 A	Min.	Autotronic 5 linkage and Autotronic 5 suspended front axle/ParkLock + BAT ⁽³⁾
F37	5 A	Min.	Auto-Guide + BAT ⁽³⁾
F38	5 A	Min.	instrument panel + BAT ⁽³⁾
F39	10 A	Min.	Transmission actuator + BAT ⁽³⁾
F40	15 A	Min.	Linkage + BAT ⁽³⁾

Num.	Amp	Size	Protected function
F41	15 A	Min.	Cab suspension, tractor terminal, ParkLock, + BAT ⁽³⁾
F42	10 A	Min.	Throttle pedal shuttle, PTO stop on fenders, ignition key, clutch pedal + BAT ⁽³⁾
F43	10 A	Min.	Electrohydraulic spool valves + BAT ⁽³⁾
F44	15 A	Min.	Fuel preheater + BAT ⁽³⁾
F45	15 A	Min.	Heating to feet + BAT ⁽³⁾
F46	7.5 A	Min.	Electric rear-view mirrors + BAT ⁽³⁾
F47	15 A	Min.	Pneumatic seat + BAT ⁽³⁾
F48	7.5 A	Min.	Backlighting for the instrument panel, left-hand front and right-hand rear side lights
F49	30 A	STD	Cigarette lighter, roof light, radio + BAT ⁽³⁾
F50	30 A	STD	Trailer connector + BAT ⁽³⁾
F51	15 A	STD	Dipped lights and side lights + BAT ⁽³⁾
F52	30 A	STD	Right-hand pillar power socket + BAT ⁽³⁾
F53	20 A	STD	+ BAT ⁽³⁾ to the lighting module for work lights in grille
F54	30 A	STD	Front right-hand fender power socket + BAT ⁽³⁾
F55	25 A	STD	Not used (K15 relay power circuit)
F56	30 A	STD	Engine controller + BAT ⁽³⁾
F57	25 A	STD	Front linkage power socket + BAT ⁽³⁾
F58	30 A	Max.	+ BAT ⁽³⁾ to the lighting module for the indicator lights and brake lights
F59	50 A	Max.	Autotronic 4 + BAT ⁽³⁾
F60	50 A	Max.	Ventilation and additional ventilation + BAT ⁽³⁾
F61	40 A	Max.	+ BAT ⁽³⁾ to the lighting module for the front/rear/step/hand rail work lights and reversing light
F62	60 A	Max.	Isobus connector + BAT ⁽³⁾
F63	30 A	Max.	+ BAT ⁽³⁾ to the lighting module for the work lights in the roof
F64	50 A	Max.	Not used
F65	15 A	Min.	Fuel lift pump + BAT ⁽³⁾
F66	10 A	Min.	Power socket + APC ⁽²⁾
F67	15 A	Min.	+ BAT ⁽³⁾ for power circuit of functions 3 and 4 on joystick with front-end loader option
F68	25 A	STD	Not used
F69	20 A	STD	Additional ventilation + BAT ⁽³⁾
F70	50 A	Max.	Isobus connector + BAT ⁽³⁾
F71	10 A	Min.	Isobus connector + BAT ⁽³⁾
SH1	25 A	STD	Not used NOTE: May only be fitted if the customer wishes to have the work lights and main beams in the grille switched on at the same time. Must be fitted with "SH2"
SH2	25 A	STD	Not used NOTE: May only be fitted if the customer wishes to have the work lights and main beams in the grille switched on at the same time. Must be fitted with "SH1"

Num.	Amp	Size	Protected function
K1			Main beam relay (hand rail and grille) NOTE: Must be Tyco model "V23074-A1001-A403"
K2			Dipped lights relay (hand rail and grille) NOTE: Must be Tyco model "V23074-A1001-A403"
K3			Air conditioning compressor relay
K4			Tractor accessories + ACC ⁽¹⁾ relay
K5			Electrohydraulic spool valve relay
K6			AVT coupler solenoid valve and limp home mode switch relay
K7			Front windscreen wiper relay (motor and control unit)
K8			Main beams relay
K9			Right-hand pillar power socket relay
K10			Windscreen wiper control unit, radio, extreme cold weather pump and rear windscreen wiper (motor and switch) relay
K11			Dipped lights control unit relay
K12			Relay for: <ul style="list-style-type: none"> – X166 - Suspended front axle position sensor – X141 - Suspended cab switch – X18 - Transmission control module – X68 - Clutch pedal sensor "BOC" – Valtra Shuttle lever – X71 - Throttle pedal sensor – X94 - PTO switch on left-hand fender – Safety start switch on X68 - Clutch pedal sensor
K13			Heating to feet, fuel preheater, pneumatic seat, electric rear-view mirrors relay
K14			Battery isolator + ACC ⁽¹⁾ relay
K15			Not used
K16			Not used
K17			Relay for 4th function on joystick for front-end loader
K18			Relay for 3rd function on joystick for front-end loader
K19			Engine controller relay
K20			Engine controller relay
K21			Fuse board + APC ⁽²⁾ relay
K22			Ventilation and additional ventilation relay
K23			Isobus connector relay
K24			Not used
K25			Fuel lift pump relay
K26			Not used
K27			Not used
K28			Power socket + APC ⁽²⁾ relay

1. + ACC = + 12 V accessories

2. + APC = + 12 V ignition on

3. + BAT = + 12 V batteries

Rear view of fuse box

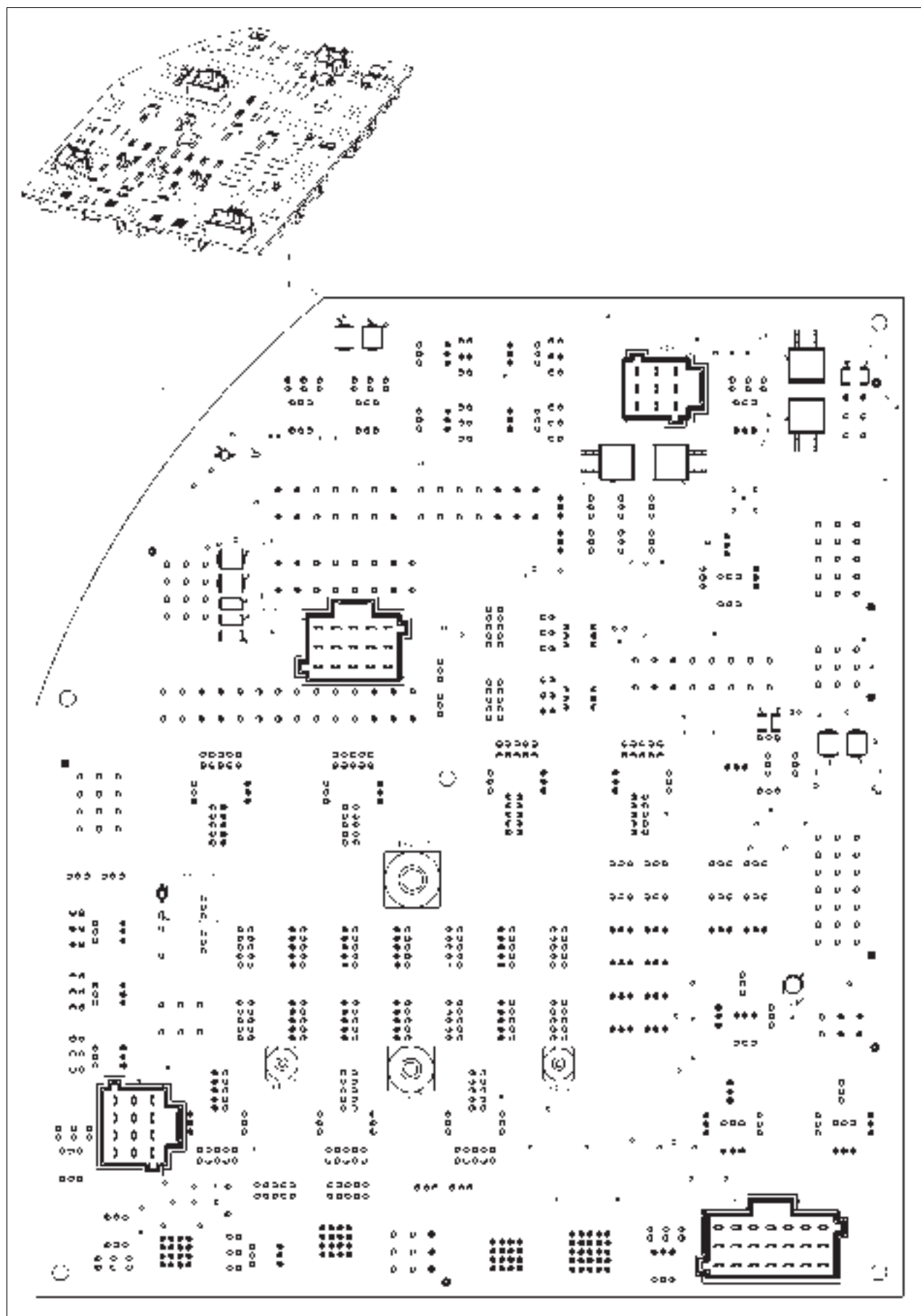


Fig. 4.

I010681

4.11.6 Alternator protection

T002038

General

Each alternator is protected by a 225 A fuse located in the battery box.

Replacing a fuse

IMPORTANT: Always replace the fuse with another fuse of the same capacity.

1. Remove the cover plate from the battery box to access the fuse



Fig. 5.

I007824

2. Remove the two protective rings from each side of the fuse (1) and then open the fuse holder box (2).

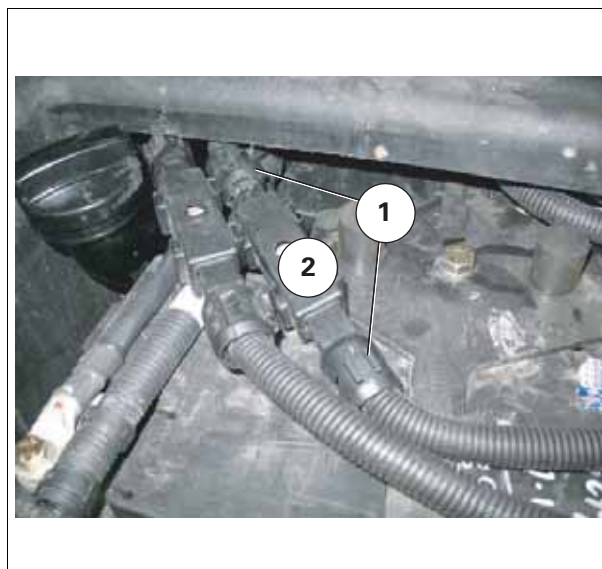


Fig. 6.

I007825

3. Remove the 2 nuts that hold the fuse in place (3).



Fig. 7.

I007826

4.11.7 Battery isolator

T001315

A device isolates the batteries from all the other electrical equipment on the tractor.

This device is located underneath the cab floor at the front right-hand side, above the battery box.

This isolator is programmed for automatic cut-off after a delay of 30 minutes after switching off the ignition. Therefore, the operator does not have to activate the device; this system is self-managed in terms of activation and cut-off, depending on the position of the ignition key.

4.12 Pressure washing

4.12.1 Pressure washing

T001076

When pressure washing, protect and do not direct the jet on the following components:

- Alternator
- Starter
- Radiator
- Front axle pivot pins
- Inspection cover
- Radar
- Harnesses and electrical connections
- Decals
- Cab door and window seals.

4.13 Storing your tractor

4.13.1 Storing your tractor

T001077

When the tractor is not used for several months, it is important to follow these precautions to provide proper protection:

1. If possible, it is preferable to protect the tractor from inclement weather by storing it under cover.
2. Each linkage must be fully lowered to avoid any pressure building up in the rams.
3. Fill the tank with fuel to prevent any water entering the fuel tank due to condensation.
4. Protect the air inlet and exhaust from humidity.
5. Remove the battery and store it in a dry location.
6. Clean the tractor.
7. Carry out the maintenance indicated in the Operator Instruction Book (oil changes, filters etc.)
8. Lubricate all the points as indicated in the Operator Instruction Book.
9. Use grease to protect metal parts that are not painted (ram rods).
10. If possible, slacken off the engine accessories belt tensioner.
11. Chock the tractor so that the wheels are no longer in contact with the ground.
12. Use cloth to protect the instrument panel and coverings from direct sunlight (only if the tractor is stored outside).
13. Use water-resistant products (e.g. wax) to protect the tractor from moisture (only if the tractor is stored outside).

4.13.2 Storing AdBlue/DEF additive

T002017

In order to guarantee the stability of AdBlue/DEF additive (as per DIN 70070 standard), the following storage recommendations should be followed:

1. Use the original container for storage.
2. Keep the container properly closed and in a cool, well-ventilated area.
3. Keep away from heat and direct sunlight.
If AdBlue/DEF additive is stored at high temperatures, the solution may crystallise and release an ammonia odour.
When the tractor is in storage for a long period, the AdBlue/DEF additive tank vent must be plugged.

NOTE: Freezing temperature: -11 °C

4.14 Faults and solutions

4.14.1 General table of faults

T002955

The table below gives a brief list of the various checks that can be carried out by the user in the event of a system fault, prior to contacting the dealer.

If the proposed solutions do not resolve the problem, it is recommended that you contact the dealer.

IMPORTANT: For all problems related to an electrical/electronic function, check inside the fuse box to ensure that the fuse concerned is in good condition (see §4.11.5, page 252).

The engine will not start.	
Cause	Solution
There is air inside the fuel system.	Contact the dealer.
The fuel system is blocked by impurities.	Clean the filter inlet. If necessary, change the filter cartridge.
In very cold conditions: defective cold start device.	Ensure that the preheating system is good working order. Contact the dealer.
In winter, below -5 °C: fuel flow blocked by ice or fuel waxing.	Unblock the filter inlet and the diesel filter. Replace with winter fuel.
No starting contact/the starter is defective	Check the battery starter connection.
Electrical failure with no current.	Check the fuse and the connections.
Other	Contact the dealer.

The engine stops	
Cause	Solution
There is air inside the fuel system.	Contact the dealer.
The fuel system is blocked by impurities.	Clean the filter inlet. If necessary, replace the filter cartridge.
In winter, below -5 °C: fuel flow blocked by ice or fuel waxing.	Unblock the filter inlet and the diesel filter. Replace with winter fuel.
Other	Contact the dealer.

The engine lacks power.	
Cause	Solution
Fuel filter and fuel prefilter blocked.	Replace the cartridge.
Air hose too flexible.	Contact the dealer.
Air filter blocked.	Clean the filter.
Other	Contact the dealer.

The tractor does not move forward	
Cause	Solution
Control unit not working.	Manual limp home mode.
No range engaged.	Engage range I or II, if necessary using the limp home lever.
ParkLock not disengaging.	Disengage manually and contact the dealer.
Other	Contact the dealer.

Transmission oil too hot	
Cause	Solution
Radiator blocked.	Clean the radiator.
Too much force in range II.	Change to range I.
Coupler activated for too long.	Couple completely.
Turbo coupler function activated for too long.	Increase engine speed.
Other	Contact the dealer.

The tractor does not reach maximum speed	
Cause	Solution
Fuel filter blocked.	Replace the cartridge.
Charge pressure too low.	Check the intake air pressure and check the air filter for blockages.
Other	Contact the dealer.

Zero pressure and hydraulic flow	
Cause	Solution
Auxiliary tank empty	Top up with oil
Other	Contact the dealer.

Charge indicator light comes on	
Cause	Solution
Defective alternator.	Check the alternator. Contact the dealer.
Belt slack.	Check the belt tension.
Other	Contact the dealer.

No display on the digital display	
Cause	Solution
Electrical failure.	Check the fuses and connections. Replace the fuses.
Other	Contact the dealer.

Significant noise from the hydraulic system	
Cause	Solution
The hydraulic oil is still cold.	Operate the engine at average speed for several minutes before operating the hydraulics.
No oil inside the hydraulic system.	Top up in accordance with the specifications.
Other	Contact the dealer.


Heater air-blowing function not working	
Cause	Solution
The air is not delivered to the fan.	Check the condition of the cab air filters.
Other	Contact the dealer.


The air conditioning is not working	
Cause	Solution
The refrigeration compressor is not working: the magnetic clutch is not engaging and the belt is slack or split.	Check the fuses
No Freon in the system.	Check the drive belt. Contact the dealer.
Other	Contact the dealer.


Air conditioning system lacks efficiency	
Cause	Solution
Radiator blocked.	Clean the radiator.
Fresh air filter/ambient air filter blocked.	Shake the fresh air filter. Blow air through the ambient air filter and replace it if necessary.
No Freon in the system.	Contact the dealer.
Other	Contact the dealer.

4.14.2 Indicator light panel

T006410

	Front PTO engaged indicator light
	Activating condition(s) – Indicator light permanently on = front PTO engaged

	Suspended front axle engaged indicator light
	Activating condition(s) – Indicator light permanently on = front axle suspension active – Indicator light flashing = front axle suspension error
Cause(s)	Solution(s)
Front axle overloaded	Remove load from the front axle.
Calibration in progress or failed	Contact the dealer.
Error in one of the components	Contact the dealer.

	4WD front axle engaged indicator light
	Activating condition(s) – Indicator light permanently on = 4WD front axle engaged – Indicator light flashing = 4WD front axle error
Cause(s)	Solution(s)
Error in one of the components	Contact the dealer.

**High-pressure transmission oil filter blockage indicator light**

Activating condition(s)

- Indicator light permanently on = filter blocked, if transmission oil temperature is above 49 °C

Cause(s)	Solution(s)
Filter blocked	Change the filter element.
Transmission oil polluted	Check the quality of the oil.
High-pressure transmission oil filter blockage switch faulty (error code T4150)	Check the blockage switch.

**Differential lock indicator light**

Activating condition(s)

- Indicator light permanently on = differential lock engaged
- Indicator light flashing slowly = differential lock in automatic mode
- Indicator light flashing quickly = differential lock error

Cause(s)	Solution(s)
Error in one of the components	Contact the dealer.

**Rear PTO engaged indicator light**

Activating condition(s)

- Indicator light flashing slowly = rear PTO pre-engaged
- Indicator light permanently on = rear PTO engaged
- Indicator light flashing quickly = rear PTO error


Cause(s)	Solution(s)
Error in one of the components	Contact the dealer.


**Pressure light for brakes (ParkLock) and pneumatic brakes**


Activating condition(s)


- Indicator light permanently on = pressure in pneumatic or hydraulic brake system too low

Cause(s)	Solution(s)
Pressure in pneumatic brake system lower than 4 bar	Check the condition of the air connection couplers with the implement, the implement braking system and the pneumatic braking system.
Pressure in ParkLock brake system lower than 70 bar, the ParkLock will not disengage.	Check the hydraulic brake system, and disengage the ParkLock mechanically in order to move the tractor.
Braking pressure sensor faulty	Contact the dealer.

 Engine oil pressure indicator light	
Activating condition(s) – Indicator light flashing slowly = engine oil pressure low - warning – Indicator light permanently on = insufficient engine oil pressure (< 1 bar) - STOP warning – Indicator light flashing with general failure warning light = engine error	
Cause(s)	Solution(s)
Oil level too low	Stop the engine and check the oil level.
Problem in the lubrication system	Contact the dealer.
Engine error code	Contact the dealer.

 Service indicator light	
Activating condition(s) – Indicator light permanently on = service due	
Cause(s)	Solution(s)
Service due	Perform required service. To switch off this indicator light, press down the OK and display selector keys of the DOT Matrix keyboard for 6 seconds. The service schedule counter is set back to 400 hours. Otherwise contact the dealer.

 General failure warning light	
Activating condition(s) – Indicator light flashing with engine oil pressure indicator light = engine error - stop the engine – Indicator light permanently on = major error - stop the tractor	
Cause(s)	Solution(s)
Engine error	Contact the dealer.
Major error	Contact the dealer.

 Auxiliary hydraulic oil pressure indicator light	
Activating condition(s) – Indicator light flashing = auxiliary hydraulic oil level below 50 l – Indicator light permanently on = auxiliary hydraulic oil pressure lower than 25 bar or oil level below 30 l	
Cause(s)	Solution(s)
Oil level too low	Check the auxiliary hydraulic oil level.
Hydraulic system components faulty	Contact the dealer.

**Transmission oil pressure indicator light**

Activating condition(s)

- Indicator light flashing = transmission oil pressure greater than 510 bar
- Indicator light flashing = transmission oil pressure lower than 6 bar

Cause(s)	Solution(s)
Transmission oil level too low	Check the transmission oil level.
Incorrect use of the transmission	Check the transmission is in Tortoise range for field work.
Transmission module faulty	Contact the dealer.

**Alternator charge light**

Activating condition(s)

- Indicator light flashing and engine speed greater than 1000 rpm = one of the two alternators is not working
- Indicator light permanently on and engine speed greater than 1000 rpm = neither alternator is working

Cause(s)	Solution(s)
Connection problems in the load circuit	Check the connections in the alternator load circuit back to the battery.
Belt slack or damaged	Check the condition and tension of the belts.
Battery faulty	Check the condition of the batteries.
Alternator faulty	Check the condition of the alternators.

**Auxiliary hydraulic oil temperature indicator light**

Activating condition(s)

- Indicator light permanently on = temperature above 95 °C - stop the engine
- Indicator light flashing = temperature sensor disconnected or short-circuited

Cause(s)	Solution(s)
Radiators blocked	Clean the radiators.
Unusual use of the tractor auxiliary hydraulics	Check operation and connections with the implement.
Sensor disconnected or short-circuited	Contact the dealer.


**Auxiliary hydraulic oil filter blockage indicator light**


Activating condition(s)


- Indicator light permanently on = filter blocked and auxiliary hydraulic oil temperature above 30 °C


Cause(s)	Solution(s)
----------	-------------

Filter blocked	Change the filter element.
Auxiliary hydraulic oil polluted	Check the quality of the oil.
Faulty auxiliary hydraulic oil filter blockage sensor	Contact the dealer.

 Transmission oil temperature indicator light	
Activating condition(s) – Indicator light permanently on = temperature above 95 °C - stop the engine	
Cause(s)	Solution(s)
Incorrect use of the transmission	Use the transmission in Tortoise range for field work.
Radiators blocked	Clean the radiators.
Faulty transmission oil temperature sensor	Contact the dealer.

 Parking brake indicator light	
Activating condition(s) – Indicator light permanently on = parking brake engaged	

 Grid Heater indicator light	
Activating condition(s) – Indicator light permanently on = Grid Heater activated: Preheating when the ignition key is in the pre-heating position, then post-heating for 40 seconds after the engine has started.	

 Engine air filter blockage indicator light	
Activating condition(s) – Indicator light permanently on = engine air filter blocked	
Cause(s)	Solution(s)
Air filter blocked	Clean the air filter.
Air filter blockage switch faulty	Contact the dealer.

4.14.3 Indication of faults

T001384

Alarm and faults are indicated via the instrument panel.

Depending on the fault or the alarm recognised by the electronic systems, there may be different types of signal:

- Error code on the Dash Control Center display
- Indicator light(s)
- Audible alarm
- A combination of the three types of signals mentioned above.

Indicator lights

The electronic instrument panel comprises several indicator lights [see §3.1.2, page 60](#).



Fig. 1. 1007882

Error codes

In the event of a problem, all of the error codes can be seen on the Dash Control Center on the instrument panel.

When a problem is detected by the electronic systems, an error code appears on the screen in the form of an icon and a letter symbolising the component concerned.

Under certain conditions, in addition to the error code displayed, a corresponding indicator light flashes and an audible signal can be heard.

Depending on the error displayed, you are advised to check certain major service operations or to contact your dealer (see tables of error codes below).



NOTE: Only error codes relating to the automatic air conditioning system are not displayed on the Dash Control Center screen. These error codes are displayed on the air conditioning control module only.











Fig. 2. 1007880

Failure of the E3 engine with AdBlue/DEF technology system

When the system fails, an error code corresponding to this error appears on the instrument panel. Degraded mode is engaged, enabling only 60% of the engine power and limiting the maximum speed to 1500 rpm.

	ERROR CODES DISPLAYED ON THE INSTRUMENT PANEL			
	Display with Dash Control Center		Display without Dash Control Center	
instrument panel		+	Letter D (Dashboard)	Letter D (Dashboard)
Engine		+	Letter E (Engine)	Letter E (Engine)
E3 engine with AdBlue/DEF technology	no icon		Letter U (Urea)	Letter U (Urea)

ERROR CODES DISPLAYED ON THE INSTRUMENT PANEL				
	Display with Dash Control Center			Display without Dash Control Center
E3 engine with AdBlue/DEF technology		+	SPN 1761 FMI 18 (tank low), SPN 1761 FMI 1 (tank empty)	
Transmission/4WD/PTO		+	Letter T (Transmission)	Letter T (Transmission)
Lights module		+	Letter L (Light)	Letter L (Light)
ParkLock		+	Letter P (ParkLock)	Letter P (ParkLock)
Front axle		+	Letters FA (Front Axle)	Letters FA (Front Axle)
Linkage		+	Letters R (Linkage)	Letter R (Linkage)
Electrohydraulic		+	Letters H (Hydraulics)	Letter H (Hydraulics)
Hydraulic valves	no icon	+	Letter V (Valves)	Letter V (Valves)
Cab		+	Letters C (Cab)	Letter C (Cab)
Auto-Guide		+	Letter A (Auto-Guide)	Letter A (Auto-Guide)
tractor terminal		+	Letters AR (ARmrest)	Letter AR (ARmrest)

4.14.4 instrument panel error codes

T001351

Code	Description	Solutions
D101	Armrest connection not detected	Check the connection under the armrest
D121	Alternator regulator	Contact the dealer.
D122	Alternator regulator	Contact the dealer.
D127	Fuel gauge	Contact the dealer.
D128	Fuel gauge	Contact the dealer.
D129	Battery voltage too high	Contact the dealer.
D130	Battery voltage too low	Check that the battery terminals are properly tightened and clean. Contact the dealer.
D133	Throttle pedal potentiometer	Contact the dealer.
D134	Throttle pedal potentiometer	Contact the dealer.
D135	Valtra Shuttle controller	Contact the dealer.
D136	Valtra Shuttle controller	Contact the dealer.
D137	Armrest lever potentiometer	Contact the dealer.

Code	Description	Solutions
D138	Armrest lever potentiometer	Contact the dealer.
D139	Clutch pedal	Contact the dealer.
D140	Clutch pedal	Contact the dealer.
D141	Engine speed signal	Contact the dealer.
D142	Top-of-clutch switch	Contact the dealer.
D143	Bottom-of-clutch switch	Contact the dealer.
D144	Valtra Shuttle controller	Contact the dealer.
D145	Valtra Shuttle controller	Contact the dealer.
D146	Valtra Shuttle controller	Contact the dealer.
D147	Valtra Shuttle controller	Contact the dealer.
D148	instrument panel	Contact the dealer.
D149	CAN messages	Contact the dealer.
D150	CAN messages	Contact the dealer.
D151	Tractor speed too high	Contact the dealer.
D152	instrument panel	Contact the dealer.
D153	instrument panel	Contact the dealer.
D154	CAN communications from Autotronic 4 to the instrument panel	Contact the dealer.
D155	instrument panel	Contact the dealer.
D156	Top-of-clutch switch	Contact the dealer.
D157	Engine speed sensor	Contact the dealer.
D158	Armrest lever potentiometer	Contact the dealer.
D159	Valtra Shuttle controller	Contact the dealer.
D160	Valtra Shuttle controller	Contact the dealer.
D164	CAN communications from EEM to the instrument panel failed	Contact the dealer.
D170	Throttle lever	Contact the dealer.
D181	Auxiliary hydraulics lever	Contact the dealer.
D182	Auxiliary hydraulics lever	Contact the dealer.
D183	Steering angle sensor	Contact the dealer.
D184	Steering angle sensor	Contact the dealer.
D185	Keyboard	Contact the dealer.
D186	Keyboard	Contact the dealer.
D189	9.5 V output	Contact the dealer.
D190	9.5 V output	Contact the dealer.
D191	Air pressure sensor	Contact the dealer.
D192	Air pressure sensor	Contact the dealer.
D193	Rapid variable steering ratio potentiometer	Contact the dealer.
D194	Rapid variable steering ratio potentiometer	Contact the dealer.
D195	instrument panel internal temperature sensor	Contact the dealer.
D196	instrument panel internal temperature sensor	Contact the dealer.
D197	Auxiliary hydraulic oil temperature sensor	Contact the dealer.
D198	Auxiliary hydraulic oil temperature sensor	Contact the dealer.

4.14.5 Engine error codes

T001338

Code	Description	Solutions
E91	Throttle sensor fault	Contact the dealer.
E94	Fuel filter pressure	Check the tank level. Check whether a pipe is pinched. Check the condition of the filter (date of last service). Check the operation of the electric charge pump (fuse). Contact the dealer.
E97	Water in fuel	Check if there is water inside the fuel sediment bowl. Contact the dealer.
E100	Oil pressure	Check the oil level. Contact the dealer.
E102	Boost pressure	Check the condition of the air filter. Check the condition of the suction hoses. Contact the dealer.
E105	Inlet manifold temperature	Check the condition of the radiators. Check the condition of the ventilation grilles. Contact the dealer.
E107	Air filter pressure	Check the condition of the air filter. Contact the dealer.
E110	Coolant temperature	Check the coolant level. Check the condition of the ventilation grilles. Check the condition of the radiator. Contact the dealer.
E157	Rail pressure	Contact the dealer.
E168	Battery voltage	Check the condition of the battery connections. Contact the dealer.
E174	Fuel temperature	Contact the dealer
E175	Engine oil temperature	Check the coolant level. Check the condition of the radiator. Contact the dealer.
E190	Engine speed signal	Contact the dealer.
E626	Heater air intake control	Contact the dealer.
E629	EEPROM error	Contact the dealer.
E898	Required speed outside of range	Contact the dealer.
E1136	Fault with ECU temperature sensor	Contact the dealer.
E1378	Engine oil drain: delayed for too long	Contact the dealer.
E9006	Vehicle CAN off	Contact the dealer.
E9008	ID CAN module off	Contact the dealer.
E9010	Ambient pressure	Contact the dealer.
E9021	5 VDC supply fault	Contact the dealer.
E9022	5 VDC supply fault	Contact the dealer.
E9023	5 VDC supply fault	Contact the dealer.
E9024	Sensor detecting water in the fuel	Contact the dealer.

Code	Description	Solutions
E9025	Self-test cut-off paths	Contact the dealer.
E9026	Self-test cut-off paths	Contact the dealer.
E9027	Self-test cut-off paths	Contact the dealer.
E9030	Short circuit ECU main relay 1	Contact the dealer.
E9031	Short circuit ECU main relay 2	Contact the dealer.
E9032	Short circuit ECU main relay 3	Contact the dealer.
E9033	ECU cut-off does not work	Contact the dealer.
E9034	ECU cut-off did not work last time	Contact the dealer.
E9035	Normal recovery	Contact the dealer.
E9036	Total restart after 3 recoveries in 2 seconds	Contact the dealer.
E9070	Crankshaft speed signal	Contact the dealer.
E9071	Crankshaft speed signal	Contact the dealer.
E9072	Crankshaft speed sensor	Contact the dealer.
E9080	Cam speed sensor	Contact the dealer.
E9081	Cam speed sensor	Contact the dealer.
E9082	Cam speed sensor	Contact the dealer.
E9083	Cam speed sensor	Contact the dealer.
E9090	Engine speed signal evaluation error	Contact the dealer.
E9100	Protection upgrade fault	Contact the dealer.
E9107	Invalid ECU source address selection	Contact the dealer.
E9131	Injector no. 1 error	Contact the dealer.
E9132	Injector no. 2 error	Contact the dealer.
E9133	Injector no. 3 error	Contact the dealer.
E9134	Injector no. 4 error	Contact the dealer.
E9135	Injector no. 5 error	Contact the dealer.
E9136	Injector no. 6 error	Contact the dealer.
E9150	Rail pressure	Contact the dealer.
E9151	Rail pressure limiter	Contact the dealer.
E9152	Fuel filter pressure	Check tank level. Check whether a pipe is pinched. Contact the dealer.
E9153	Fuel filter pressure	Check tank level. Check whether a pipe is pinched. Contact the dealer.
E9170	Lift pump control (ECU)	Contact the dealer.
E9171	Preheater control	Contact the dealer.
E9172	Starter relay control	Contact the dealer.
E9173	Starter relay control	Contact the dealer.
E9174	MPROP pump control	Contact the dealer.
E9230	Engine specification mismatch	Contact the dealer.
E9231	Engine serial number mismatch	Contact the dealer.
E9233	ID module	Contact the dealer.
E9234	ID module	Contact the dealer.
E9235	ID module	Contact the dealer.
E9236	ID module	Contact the dealer.
E9237	ID module	Contact the dealer.

Code	Description	Solutions
E9238	ID module	Contact the dealer.
E9239	ID module	Contact the dealer.
E9240	ID module	Contact the dealer.
E9241	ID module	Contact the dealer.
E9242	Generated bypass time expired	Contact the dealer.
E9243	Maximum ECU bypass time expired	Contact the dealer.
E9244	ID module	Contact the dealer.
E9303	Cruise control fault	Contact the dealer.
E9304	Vehicle speed missing	Contact the dealer.
E9305	Incorrect digital input configuration	Contact the dealer.
E9306	PTO input error	Contact the dealer.
E9310	Fault with external digital input	Contact the dealer.
E9311	Fault with external digital input	Contact the dealer.
E9312	Torque control input	Contact the dealer.
E9317	DCU not present	Contact the dealer.

4.14.6 Error codes for E3 engine with AdBlue/DEF technology

T006417

Code	Description	Solutions
U 168	Battery voltage	Contact the dealer
U 441 - U 442 - U 697	Catalyser temperature	Contact the dealer
U 698	Discharge pipe heating supply	Contact the dealer
U 699	Inlet pipe heating supply	Contact the dealer
U 700	Pressure pipe heating supply	Contact the dealer
U 1079	Sensor 1 supply voltage	Contact the dealer
U 1080	Sensor 2 supply voltage	Contact the dealer
U 1387	Urea pressure	Contact the dealer
U 1388	Urea pressure sensor	Contact the dealer
U 1485	Main relay	Contact the dealer
U 1677	Modular heater	Contact the dealer
U 1761	Urea tank level sensor	Contact the dealer
U 2854 to U 2858	CAN receiver	Contact the dealer
U 2859	Urea/heater or condition of exhaust metering	Contact the dealer
U 2860 to U 2871	CAN message	Contact the dealer
U 2872	Heater ON or DCU error	Contact the dealer
U 3031	Urea tank temperature sensor	Contact the dealer
U 520201	Supply module temperature	Contact the dealer
U 520228	NOx emission control	Contact the dealer
U 520239	Heater supply	Contact the dealer
U 520243	Urea level	Contact the dealer
U 520257	Urea leak	Contact the dealer
U 520260	Urea pressure	Contact the dealer
U 520276	Supply voltage	Contact the dealer

Code	Description	Solutions
U 520296	NOx monitoring unit	Contact the dealer
U 520308	NOx sensor	Contact the dealer
U 520310	Urea tank temperature	Contact the dealer

4.14.7 Transmission error codes

T002950

Code	Description	Solutions
T4107	Fault with transmission oil high pressure sensor	Contact the dealer.
T4108	Fault with range position sensor	Contact the dealer.
T4124	Fault with parking brake switch	Contact the dealer.
T4128	Fault with transmission control module	Use limp home mode. Contact the dealer.
T412A	Fault with pinion theoretical speed sensor	Use limp home mode. Contact the dealer.
T412B	Fault with high/low speed (Hare/Tortoise) range selector switch	Contact the dealer
T4131	Fault with collecting shaft speed sensor	Use limp home mode. Contact the dealer.
T4142	Fault with collecting shaft speed sensor	Use limp home mode. Contact the dealer.
T4144	Fault with engine speed sensor	Use limp home mode. Contact the dealer.
T4145	Fault with pinion theoretical speed sensor	Use limp home mode. Contact the dealer.
T4150	Fault with transmission filter blockage switch	Contact the dealer.
T4153	Transmission oil temperature high	Do not continue to drive. Contact the dealer.
T4156	Fault with transmission filter blockage switch	Contact the dealer.
T4158	Fault with transmission slip monitor	Contact the dealer.
T4159	Fault with engagement of limp home mode or with limp home mode	Contact the dealer.
T4161	Fault with low-speed (Tortoise) range solenoid valve	Use limp home mode. Contact the dealer.
T4162	Fault with high-speed (Hare) range solenoid valve	Use limp home mode. Contact the dealer.
T4163	Fault with solenoid valve limiting speed to 30 km/h	Contact the dealer.
T4164	Fault with coupler function solenoid valve	Contact the dealer.
T4172	Fault with transmission filter blockage switch	Contact the dealer.
T4173	Fault with transmission oil temperature sensor	Contact the dealer.
T4174	Fault with parking brake switch	Contact the dealer.
T4182	Fault with pinion theoretical speed sensor Fault with collecting shaft speed sensor	Use limp home mode. Contact the dealer.
T4183	Fault with pinion theoretical speed sensor Fault with collecting shaft speed sensor	Use limp home mode. Contact the dealer.
T4192	Fault with right-hand brake switch	Contact the dealer.
T4193	Fault with left-hand brake switch	Contact the dealer.
T41A0	Fault with transmission control module	Contact the dealer.
T41A1	Fault with transmission control module	Contact the dealer.

Code	Description	Solutions
T41A2	Fault with transmission control module	Contact the dealer.
T41A3	Fault with transmission control module	Contact the dealer.
T41A4	Fault with transmission control module	Contact the dealer.
T41A5	Fault with transmission control module	Contact the dealer.
T41A6	Fault with transmission control module	Contact the dealer.
T41B0	Fault with CAN network	Contact the dealer.
T41B1	Fault with low-speed (Tortoise) range solenoid valve	Contact the dealer.
T41B2	Fault with high-speed (Hare) range solenoid valve	Contact the dealer.
T41C1	The engine has stalled due to transmission overload	Relieve the stress on the transmission and try again. Contact the dealer
T41D1	Calibration error	Contact the dealer.
T41D2	Calibration error	Contact the dealer.
T41D3	Calibration error	Contact the dealer.
T41D4	Calibration error	Contact the dealer.
T41D5	Calibration error	Contact the dealer.
T41D6	Calibration error	Contact the dealer.
T41D7	Calibration error	Contact the dealer.
T41D8	Calibration error	Contact the dealer.
T41D9	Calibration error	Contact the dealer.
T41DA	Calibration error	Contact the dealer.
T41DB	Calibration error	Contact the dealer.
T41DC	Calibration error	Contact the dealer.
T41DD	Calibration error	Contact the dealer.
T41DE	Calibration error	Contact the dealer.
T41DF	Calibration error	Contact the dealer.
T41 E0	Fault with coupler function solenoid valve	Contact the dealer.
T41EB	Fault with range position sensor	Use limp home mode. Contact the dealer.
T41EE	Transmission reference curve in program	Use limp home mode. Contact the dealer.
T41EF	Coupler reference curve in the program	Contact the dealer.
T41FF	Fault with Autotronic 4	Contact the dealer.

4.14.8 Four-wheel drive front axle error codes

T002952

Code	Description	Solutions
T5131	Fault with 4WD switch	Contact the dealer.
T5132	Fault with 4WD switch	Contact the dealer.
T5133	Fault with 4WD solenoid valve	Contact the dealer.
T5151	Fault with differential lock switch	Contact the dealer.
T5153	Fault with differential lock solenoid valve	Contact the dealer.
T5154	Fault with left-hand brake switch	Contact the dealer.
T5155	Fault with right-hand brake switch	Contact the dealer.
T51FF	Fault with Autotronic 4	Contact the dealer.

4.14.9 PTO error codes

T002953

Code	Description	Solutions
T6101	Fault with PTO ON/OFF switch	Contact the dealer.
T6102	Fault with PTO ON/OFF switch on fender	Contact the dealer.
T6104	Fault with PTO solenoid valve	Contact the dealer.
T6105	Fault with PTO clutch speed sensor	Contact the dealer.
T6110	Fault with PTO shaft speed sensor	Contact the dealer.
T6115	Fault with neutral switch on PTO control module	Contact the dealer.
T6116	Fault with 540 rpm speed switch on PTO control module	Contact the dealer.
T6117	Fault with ECO speed switch on PTO control module	Contact the dealer.
T6118	Fault with 1000 rpm speed switch on PTO control module	Contact the dealer.
T611A	Fault with 540 rpm PTO speed solenoid valve	Contact the dealer.
T611B	Fault with ECO PTO speed solenoid valve	Contact the dealer.
T611C	Fault with 1000 rpm PTO speed solenoid valve	Contact the dealer.
T6141	Fault with PTO ON/OFF switch	Contact the dealer.
T6143	Fault with PTO ON/OFF switch on fender	Contact the dealer.
T6145	Fault with PTO clutch speed sensor	Contact the dealer.
T6150	Fault with PTO shaft speed sensor	Contact the dealer.
T6155	Fault with neutral switch on PTO control module	Contact the dealer.
T6156	Fault with 540 rpm speed switch on PTO control module	Contact the dealer.
T6157	Fault with ECO speed switch on PTO control module	Contact the dealer.
T6158	Fault with 1000 rpm speed switch on PTO control module	Contact the dealer.
T6160	Fault with PTO shaft speed sensor Fault with PTO clutch speed sensor	Contact the dealer.
T61A1	Fault with PTO ON/OFF switch	Contact the dealer.
T61B5	Fault with neutral switch on PTO control module	Contact the dealer.
T61B6	Fault with 540 rpm speed switch on PTO control module	Contact the dealer.
T61B7	Fault with ECO speed switch on PTO control module	Contact the dealer.
T61B8	Fault with 1000 rpm speed switch on PTO control module	Contact the dealer.

4.14.10 Hydraulic valve error codes

T011493

Reading the error code number.

The code is represented by a letter followed by three digits.

E.g. V149:

- V = hydraulic valve
- 1 = No. of the valve concerned
- 49 = No. of the error code

Cod e	Description	Consequences	Solutions
V.43	Fault with the spool position sensor circuit	<ul style="list-style-type: none"> – A "beep" sounds when the error code appears. – Error code displayed on the Dash Control Center – All the valves are locked 	<ul style="list-style-type: none"> – Clear the error code on the Dash Control Center – Unlock the valves (the valve affected by the error code remains locked). – To reactivate the valve affected by the error code, stop and restart the engine. If the error code is still present, the valve affected by the error code remains locked. – Contact the dealer
V.49	The main spool valve does not return to neutral	<ul style="list-style-type: none"> – None – Error code displayed on the Dash Control Center 	<ul style="list-style-type: none"> – Clear the error code on the Dash Control Center – Contact the dealer
V.52	At start-up, the main spool valve is not in neutral	<ul style="list-style-type: none"> – None – Error code displayed on the Dash Control Center 	<ul style="list-style-type: none"> – Clear the error code on the Dash Control Center – Contact the dealer

Clearing an error code displayed on the Dash Control Center

To clear an error code displayed on the Dash Control Center, press key (16) on the control keypad.

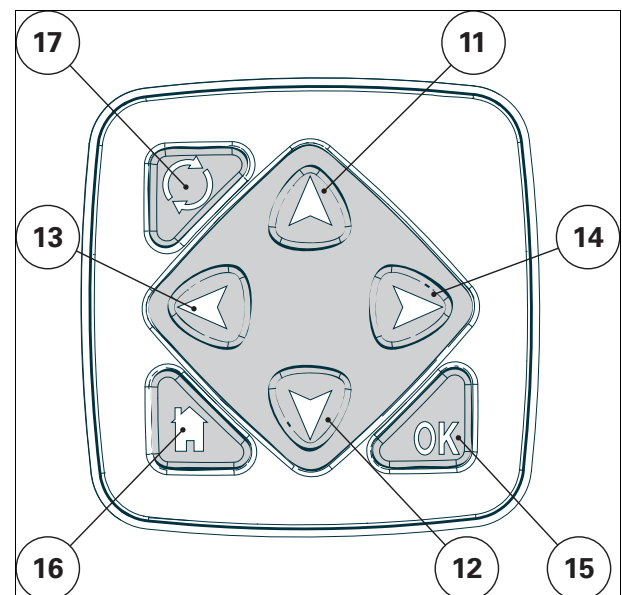


Fig. 3.

1004852

4.14.11 Multifunction armrest error codes

T002970

Code	Description	Solutions
01	10 V output fault. Armrest Autotronic 5.	Contact the dealer.
11	FingerTIP 1 - short circuit to 0 V.	Contact the dealer.
12	FingerTIP 1 - short circuit to 12 V.	Contact the dealer.

Code	Description	Solutions
21	FingerTIP 2 - short circuit to 0 V.	Contact the dealer.
22	FingerTIP 2 - short circuit to 12 V.	Contact the dealer.
31	FingerTIP 3 - short circuit to 0 V.	Contact the dealer.
32	FingerTIP 3 - short circuit to 12 V.	Contact the dealer.
41	FingerTIP 4 - short circuit to 0 V.	Contact the dealer.
42	FingerTIP 4 - short circuit to 12 V.	Contact the dealer.
51	FingerTIP 5 - short circuit to 0 V.	Contact the dealer.
52	FingerTIP 5 - short circuit to 12 V.	Contact the dealer.
61	FingerTIP 6 - short circuit to 0 V.	Contact the dealer.
62	FingerTIP 6 - short circuit to 12 V.	Contact the dealer.
71	Hand throttle - short circuit to 0 V.	Contact the dealer.
72	Hand throttle - short circuit to 12 V.	Contact the dealer.
81	Rear linkage depth thumb wheel - short circuit to 0 V.	Contact the dealer.
82	Rear linkage depth thumb wheel - short circuit to 12 V.	Contact the dealer.
91	Transmission lever - short circuit to 0 V.	Contact the dealer.
92	Transmission lever - short circuit to 12 V.	Contact the dealer.

4.14.12 Headlights module error codes

T001383

Code	Description	Solutions
6	One or more bulbs missing on the indicators	Identify and replace the missing bulbs
7	No connection with the keypad	Contact the dealer.
8	Checksum error	Contact the dealer.
9	CAN connection problem	Contact the dealer.
10	Short circuit on front roof lights	Contact the dealer.
11	Short circuit on rear roof lights	Contact the dealer.
12	Short circuit on brake lights	Contact the dealer.
13	Short circuit on reverse light	Contact the dealer.

5. Technical specifications

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5.1 General specifications

5.1.1 Model S232

T001358

Engine	
Brand	SisuDiesel
Type	84CTA
Number of cylinders	6

Transmission	
Gearbox type	AVT ML260
Rear axle type	HA260
Final drive type	HA260

Power take-off	
PTO type	Flanged shaft
Speeds	540 rpm - 1000 rpm Eco

Front axle	
Front axle type	DANA 770/504 (fixed) DANA 770/612 (suspended)
Synchronisation ratio (value id displayed on the name plate)	1.331

Hydraulics	
Hydraulic type	Closed centre: 175 l per min
Number of spool valves	6 maximum

Electronics	
Transmission control	Autotronic 4
Linkage control	Autotronic 5

Cab	
Air conditioning	Standard or automatic
Roof	Standard/High Visibility (optional)

5.1.2 Model S262

T001359

Engine	
Brand	SisuDiesel
Type	84CTA
Number of cylinders	6

Transmission	
Gearbox type	AVT ML260
Rear axle type	HA260
Final drive type	HA260

Power take-off	
PTO type	Flanged shaft
Speeds	540 rpm - 1000 rpm Eco

Front axle	
Front axle type	DANA 770/504 (fixed) DANA 770/612 (suspended)
Synchronisation ratio (value id displayed on the name plate)	1.331

Hydraulics	
Hydraulic type	Closed centre: 175 l per min
Number of spool valves	6 maximum

Electronics	
Transmission control	Autotronic 4
Linkage control	Autotronic 5

Cab	
Air conditioning	Standard or automatic
Roof	Standard/High Visibility (optional)

5.1.3 Model S292

T001360

Engine	
Brand	SisuDieselSisuDieselSisuDieselSISU
Type	84CTA
Number of cylinders	6

Transmission	
Gearbox type	AVT ML260
Rear axle type	HA260
Final drive type	HA260

Power take-off	
PTO type	Flanged shaft
Speeds	540 rpm - 1000 rpm Eco

Front axle	
Front axle type	DANA 770/504 (fixed) DANA 770/612 (suspended)
Synchronisation ratio (value id displayed on the name plate)	1.331

Hydraulics	
Hydraulic type	Closed centre: 175 l per min
Number of spool valves	6 maximum

Electronics	
Transmission control	Autotronic 4
Linkage control	Autotronic 5

Cab	
Air conditioning	Standard or automatic
Roof	Standard/High Visibility (optional)

5.1.4 Model S322

T001361

Engine	
Brand	SisuDiesel
Type	84CTA
Number of cylinders	6

Transmission	
Gearbox type	AVT ML260
Rear axle type	HA260
Final drive type	HA260

Power take-off	
PTO type	Flanged shaft
Speeds	540 rpm - 1000 rpm Eco

Front axle	
Front axle type	DANA 770/504 (fixed) DANA 770/612 (suspended)
Synchronisation ratio (value id displayed on the name plate)	1.331

Hydraulics	
Hydraulic type	Closed centre: 175 l per min
Number of spool valves	6 maximum

Electronics	
Transmission control	Autotronic 4
Linkage control	Autotronic 5

Cab	
Air conditioning	Standard or automatic
Roof	Standard/High Visibility (optional)

5.1.5 Model S352

T001362

Engine	
Brand	SisuDiesel
Type	84CTA
Number of cylinders	6

Transmission	
Gearbox type	AVT ML260
Rear axle type	HA260
Final drive type	HA260

Power take-off	
PTO type	Flanged shaft
Speeds	540 rpm - 1000 rpm Eco

Front axle	
Front axle type	DANA 770/504 (fixed) DANA 770/612 (suspended)
Synchronisation ratio (value id displayed on the name plate)	1.331

Hydraulics	
Hydraulic type	Closed centre: 175 l per min
Number of spool valves	6 maximum

Electronics	
Transmission control	Autotronic 4
Linkage control	Autotronic 5

Cab	
Air conditioning	Standard or automatic
Roof	Standard/High Visibility (optional)

5.2 Cab

5.2.1 Noise levels (dBA) at operator's ears

T001372

Noise levels (dBA) at operator's ears measured according to EEC Directive 77/311, Appendix 2

Model	Windows closed	Windows open
Models S232-S262-S292-S322-S352	71	81

5.3 Engine

5.3.1 Engine specifications

T001341

	S232	S262	S292	S322	S352
Type	SisuDiesel 84 CTA				
Nominal power ISO hp ⁽¹⁾ (kW) at an engine speed of 2200 rpm	240 (177)	265 (195)	290 (213)	320 (236)	340 (250)
Maximum power ISO hp ⁽¹⁾ (kW) at an engine speed of 2000 rpm	270 (199)	295 (217)	320 (236)	350 (258)	370 (272)
Maximum torque	1185 Nm	1295 Nm	1400 Nm	1492 Nm	1540 Nm
Number of cylinders	6	6	6	6	6
Turbocharging	yes	yes	yes	yes	yes
Intercooler	air/air	air/air	air/air	air/air	air/air
Stroke	145 mm	145 mm	145 mm	145 mm	145 mm
Bore	111 mm	111 mm	111 mm	111 mm	111 mm
Displacement in litres	8.4	8.4	8.4	8.4	8.4
Idle speed	800	800	800	800	800
Maximum speed at no load	2260	2260	2260	2260	2260
Lubrication	Gear pump at the bottom of the timing				
Valves	Controlled by camshaft, valve lifters and rocker arms				
Valve clearance - Cold or warm - Inlet	0,35 mm	0,35 mm	0,35 mm	0,35 mm	0,35 mm
Valve clearance - Cold or warm - Exhaust	0,35 mm	0,35 mm	0,35 mm	0,35 mm	0,35 mm

1. Metric unit

5.3.2 Fuel system and air filter

T001343

Water separator	1 water separator filter (fitted as an option)
Fuel filter	1 filter
Fuel prefilter	1 prefilter
Injection pump	Bosch CP4.2
Fuel injection type	Common Rail
Injector type	CRIN 3 / 8 holes
Cold weather starting	Grid heater with relay controlled by the ECU
Air filter	Two-stage, dry element with blockage indicator

5.3.3 Cooling

T001344

Type	Pressurised system
Regulation	Thermostat, 82 °C opening
Fan	Vistronic clutch fan
Belts	Poly-V ribbed belts
Water pump	Centrifugal, driven by gears

5.3.4 Tightening torques

T001345

Drain plug	35 Nm
------------	-------

5.4 Transmission

5.4.1 Forward speed for all models with transmission in AVT mode

T001377

Tractor version 50 km/h*

*depending on country legislation.

For the 40 km/h version, the speed is electronically controlled.

For the 40 km/h version, the tractor reaches maximum speed at 1600 rpm.

For the 50 km/h version, the tractor reaches maximum speed at 1900 rpm.

Continuous variation mode		
	Forward	Reverse
Slow speed range (Tortoise)	0,03 km/h to 28 km/h	0,03 km/h to 16 km/h
High speed range (Hare)	0,03 km/h to 40 km/h or 50 km/h depending on version.	0,03 km/h to 38 km/h

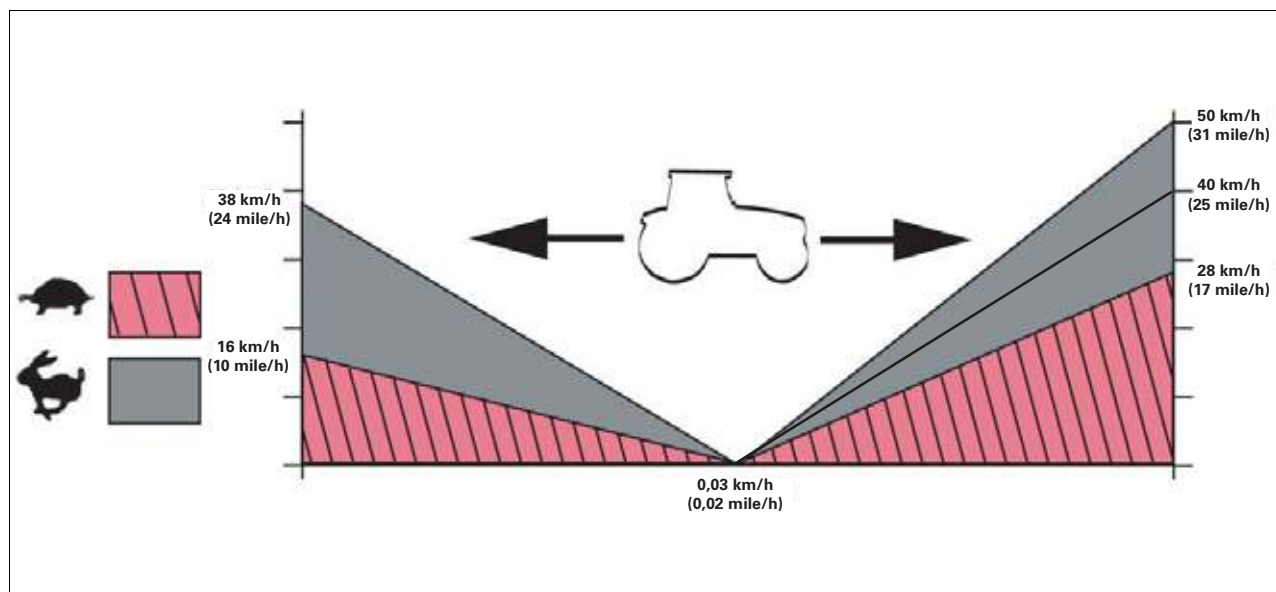


Fig. 1.

I006017

5.4.2 Gearbox

T001385

AVT	Gearbox with continuous variation in forward and reverse position
Reverse shuttle	Power Shuttle
Filtration	1 x 150-micron suction strainer, 1 x 15-micron high-pressure filter

5.4.3 Final drives

T001386

Drives	Epicyclic, located in the rear axle housings.
Reduction ratios	HA 260: 9.2 to 1

5.4.4 Rear differential lock

T001387

Type	Multidisc
Order	Hydraulic, with electric control

5.5 Brakes

5.5.1 Brake system technical specifications

T001391

Type	Oil-immersed multidiscs, diameter 254 mm (6 discs per wheel)
Operation	Hydraulic with automatic adjustment
Parking brake	Electrohydraulic control acting directly on the brake discs
Trailer brake	Two versions are available as options: <ul style="list-style-type: none"> – Hydraulic braking controlled by hydraulic spool valve – Pneumatic braking controlled by a hydropneumatic valve, system pressure 6,5 bar to 8 bar

5.6 Front axle and steering

5.6.1 Four-wheel drive front axle

T001373

Clutch mechanism	Electro/hydraulic, electric control via button in cab
Differential lock	Multidisc with electrohydraulic control
Gear reduction ratios	DANA 770: 16.862

5.6.2 Steering

T001374

Steering type	Hydrostatic, controlled by a steering unit		
Assistance	Hydraulics		
Track width	Slotted rim, 8 settings: <ul style="list-style-type: none"> – 1865 mm – 1747 mm – 1544 mm – 1954 mm – 2061 mm – 2147 mm – 2264 mm Welded rim, 2 settings: <ul style="list-style-type: none"> – 1862 mm – 1952 mm 		
Maximum inner steering angle	55°		
Turning radius <i>fig. 1</i>	Tyre	Adjusting the front wheel track width	Turning radius R
	380/85R30	1800	5010 mm
	480/70R30	1800	5280 mm
	540/65R30	1800	5530 mm
	600/65R28	1800	5750 mm
	600/60R30	1800	5910 mm
	600/70R28	1800	6000 mm
	620/75R30	1800	7210 mm
	600/60R30	2000	5110 mm
	380/85R30	2000	5110 mm
	540/65R30	2000	5110 mm
	600/65R28	2000	5110 mm
	480/70R30	2000	5110 mm
	600/70R28	2000	5380 mm
	620/75R30	2000	5940 mm
	380/85R34	2260	5850 mm
	380/85R34	2286	6290 mm

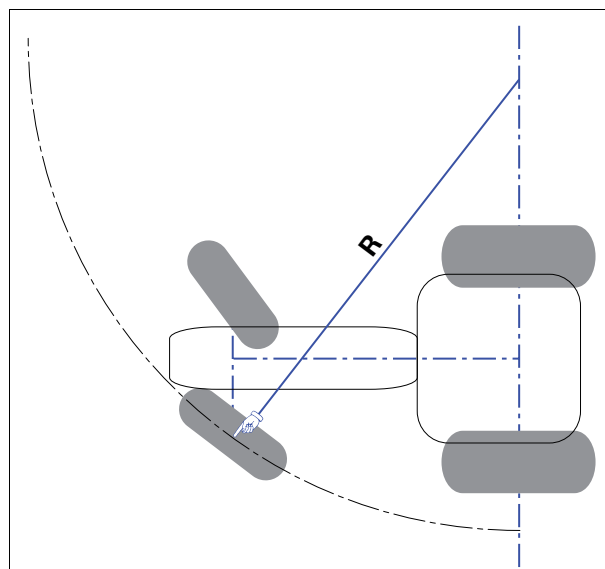


Fig. 1.

1008691

5.7 Power take-off

5.7.1 Specifications

T001349

Front power take-off specifications	
Number of selections possible for front PTO	1000 rpm
Maximum permissible power	Clockwise: 105 kW
	Anti-clockwise: 158 kW
Maximum permissible torque	Clockwise: 507 Nm
	Anti-clockwise: 762 Nm
Rotational direction	Clockwise or anti-clockwise (viewed from the front of the tractor)
Engine speed for 1000 rpm PTO	2040 rpm
Ratio	2.04
Clutch type	Hydraulics
Splined shaft type	Fixed shaft with 6 splines, diameter 35 mm (1" 3/8)
	Fixed shaft with 21 splines, diameter 35 mm (1" 3/8)

Rear power take-off (PTO)	
Power take-off	Proportional to engine speed.
Clutch	Electrohydraulic
Type of shaft	Flanged
Number of splines	<ul style="list-style-type: none"> – 6 or 21 splines: shaft diameter 35 mm – 20 splines: shaft diameter 45 mm
PTO speed	1000 rpm at 2030 engine rpm
Economy PTO	1000 rpm obtained at 1600 engine rpm
Maximum power available to the rear PTO output at authorised engine speed:	<ul style="list-style-type: none"> – 540/1000Eco version with 6 or 21-spline shaft: 74 kW – 540/1000Eco version with 20-spline shaft: 118 kW – 1000/1000 Eco rpm version with 6 or 21-spline shaft: 132 kW – 1000/1000 Eco rpm version with 20-spline shaft: S232 = 176 kW; S262 = 193 kW; S292 = 208 kW; S322, S352 = 221 kW

5.7.2 Tightening torques

T001394

Rear PTO shaft retaining screw	69 Nm
--------------------------------	-------

5.8 Linkage

5.8.1 Rear linkage

T001395

Type	<ul style="list-style-type: none"> – 3-point – Category 3 – Rams 105 mm
Capacity ¹⁾ at ball joints over the entire length of travel	9412 kg to 11196 kg
Maximum capacity ¹⁾ at ball joints	11142 kg to 12988 kg

1. Variable capacity according to lift rod position and linkage type.

5.9 Auxiliary hydraulics

5.9.1 Load Sensing system: 175 l/min

T001397

Closed centre hydraulic system with flow and pressure control	Flow rate 175 l/min at an engine speed of 2200 rpm, maximum pressure 200 bar.
Maximum volume of oil that can be used	64 l to fill the tank to 100 l 74 l to fill the tank to 116 l

5.10 Electrical equipment

5.10.1 Electrical equipment technical specifications

T001353

Voltage	12 volts. Negative earth
Batteries	2x 105 A maintenance-free batteries
Alternators	2 x 80 A or 2 x 120 A
Roof light	10 W
Indicators, side lights on hand rail:	10 W - 21 W
Main beams on lighting bar at front of bonnet	H4 - 55 W
Main beams on lighting bar at front of bonnet	H4 - 60/55 W
Dipped lights, side lights on lighting bar at front of bonnet	H7 - 55 W + T4 - 4 W
Main beams on hand rail	H4 - 60/55 W
Work lights on roof:	H3 - 55 W
Work lights on step	H3 - 55 W
Number plate lights on roof	5 W
Reversing lights:	21 W
Rotary beacon	H1 - 55 W

5.11 Wheels and tyres

5.11.1 Rim

T001347

Four-wheel drive front axle	Welded steel rim/disc (2 settings depending on the position of the rim on the hub). Mobile steel rim/disc (8 settings depending on the position of the disc on the rim and on the hub).
Rear wheels	Welded steel rims/disc (setting depending on the position on the straight shaft). Steel rims/cast iron disc (setting of the disc position on the rim and depending on the position on the straight shaft).

5.11.2 Tyres

T001348

On an unequal 4-wheel drive tractor, the front wheels are smaller than the rear wheels, so they have to turn slightly faster than the rear wheels.

The synchronisation ratio K specifies the difference between the rotation of the front and rear wheels.

For total compatibility between the front and rear tyres, apply the synchronisation ratio K (the value is displayed on the name plate).

The following formula is used to check that your choice of front/rear tyre is correct.

The result should be between 1 and 1.05.

Calculation formula:

$1 < K \times (\text{rolling circumference of the front tyre} / \text{rolling circumference of the rear tyre}) < 1.05$

5.11.3 Tightening torques

T001375

	Disc on hub	Rim on disc	Hub on axle shaft
Fixed steel rim	640 Nm to 680 Nm	350 Nm to 460 Nm	350 Nm to 460 Nm
Rim with cast iron disc	640 Nm to 680 Nm	250 Nm to 350 Nm	350 Nm to 460 Nm

5.12 Capacities and dimensions

5.12.1 Capacities

T001326

Type	Model	Displacement
Fuel tank	Internal EGR	460 l
Fuel tank	E3 engine with AdBlue/DEF technology	360 l
Additional tank	All	230 l
Urea reservoir	E3 engine with AdBlue/DEF technology	30 l
Cooling system	All	34 l
Engine sump	All	21 l
Auxiliary hydraulics	All	110 l
Transmission/rear axle	All	85 l
Rear final drive (each)	All	14 l
Linkage cover plate	All	0,5 l
Fixed front axle beam	770/504	15 l
Fixed front axle final drive (each)	770/504	7 l
Suspended front axle beam	770/612	14,5 l
Suspended front axle final drive (each)	770/612	7 l
Clutch fluid	All	0,6 l
Refrigerant fluid R134A	All	1000 g
Front power take-off	All	3,5 l
Windscreen washer bottle	All	4,5 l

5.12.2 Dimensions and weights

T001327

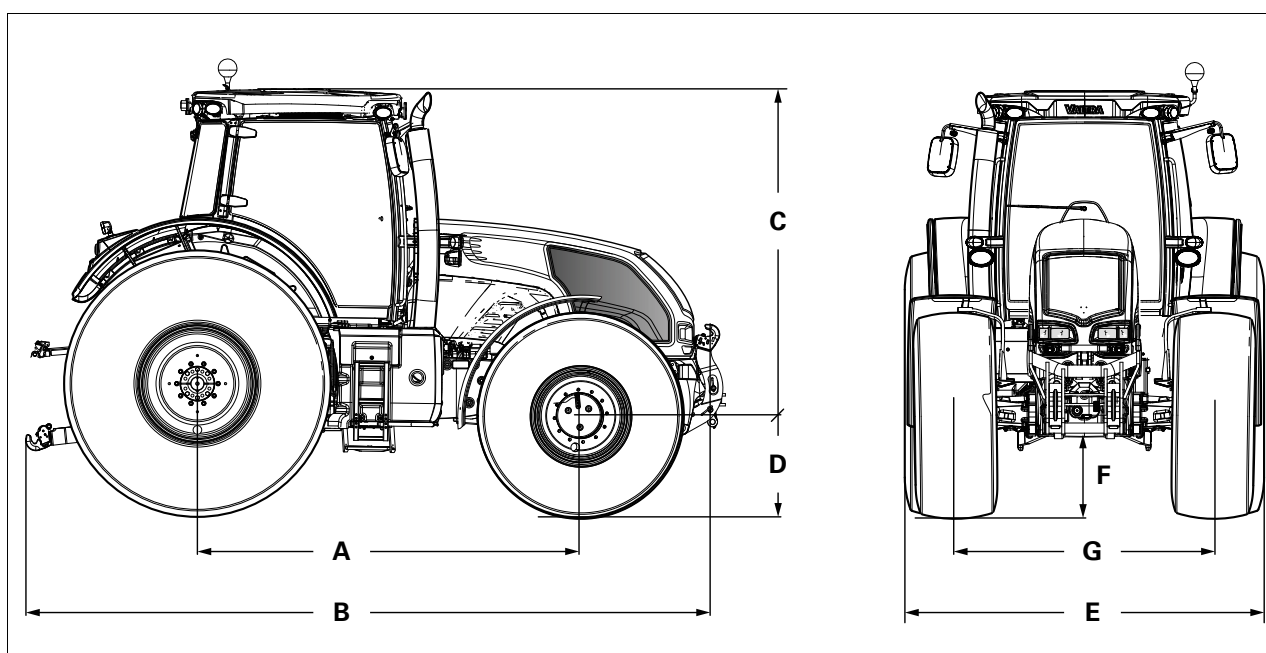


Fig. 1.

I006021

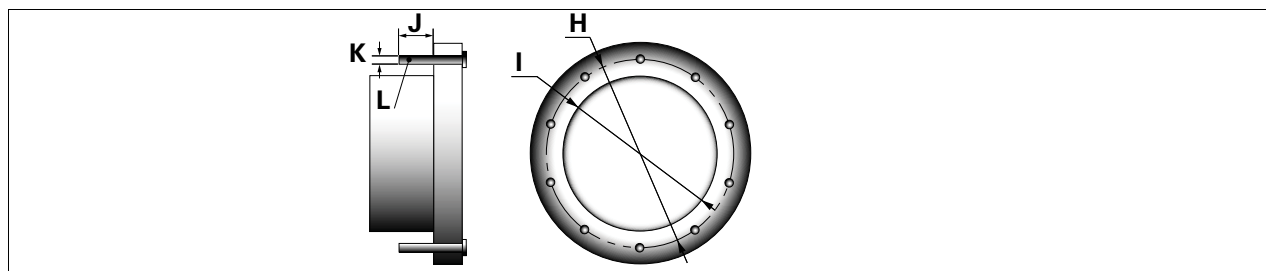


Fig. 2.

I004317

Reference	Measured specification	Dimension/weight
(A)	Wheel track	3105 mm
(B)	External length with front linkage	4868 mm
	External length without front linkage	4745 mm
(C)	Height to roof	2357 mm
	Height to roof with TopDock	2377 mm
(D)	Height to ground	– Rear: 1025 mm with 710/85R38 tyres
		– Rear : 800 mm with 620/75R30 tyres
(E)	Minimum external width	2550 mm
(F)	Ground clearance	472 mm
	Weight at no load (with full tank, without additional weights)	10300 kg to 11500 kg

Reference	Measured specification	Dimension/weight	
		Rear axle HA 260	Front axle DANA 770
(G)	Distance between flanges	– Short shaft: 2439 mm – Long shaft: 2999 mm	1892 mm
(H)	Centre-to-centre distance between studs	335 mm	370,8 mm
(I)	Centring diameter	280,8 mm	425 mm
(J)	Stud length	– Rim with steel disc: 41 mm – Rim with cast iron disc: 66 mm	47 mm
(K)	Stud diameter	M22	M22x1.5
(L)	Number of studs (per side)	10	12

5.12.3 Attachment points: All models with 5 t front linkage

T001328

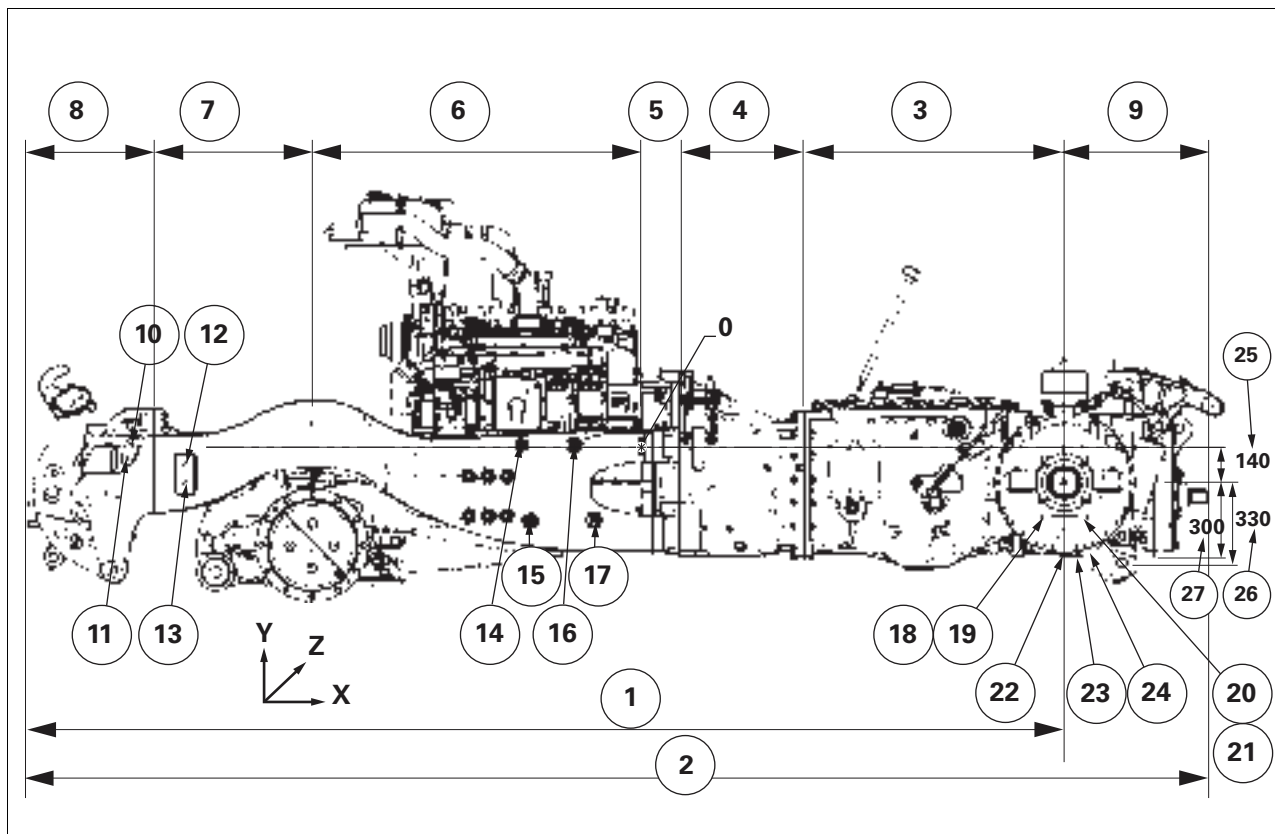


Fig. 3.

1003764

NOTE: Values x, y and z represent reference point 0 of the tractor.

Reference		X	Y	Z
1-	3105,1 mm			
2	4868,6 mm			
3	975 mm			
4	512 mm			
5	161,3 mm			
6	1356,8 mm			
7	652,2 mm			
8	518 mm			
9	592,5 mm			
10	M20	-2099 mm	±410 mm	15 mm
11	M20	-2119 mm	±410 mm	-41,5 mm
12	M20	-1879 mm	±225 mm	-64,9 mm
13	M20	-1879 mm	±225 mm	-144,9 mm
14	M20 tapered alignment screw	-494 mm	±294 mm	15 mm
15	M20 tapered alignment screw	-454 mm	±284 mm	-294,9 mm
16	M20 tapered alignment screw	-274 mm	±294 mm	15 mm

Reference		X	Y	Z
17	M20 tapered alignment screw	-194 mm	±284 mm	-294,9 mm
18	M20	1670,3 mm	±740 mm	-280 mm
19	M20	1670,3 mm	±645 mm	-280 mm
20	M20	1826,3 mm	±740 mm	-280 mm
21	M20	1826,3 mm	±645 mm	-280 mm
22	M20	1783,3 mm	±100 mm	-437,5 mm
23	M20	1804 mm	±100 mm	-440 mm
24	M20	1858,3 mm	±100 mm	-437,5 mm
25	140 mm			
26	330 mm			
27	300 mm			

5.12.4 Attachment points: all models without front linkage

T001329

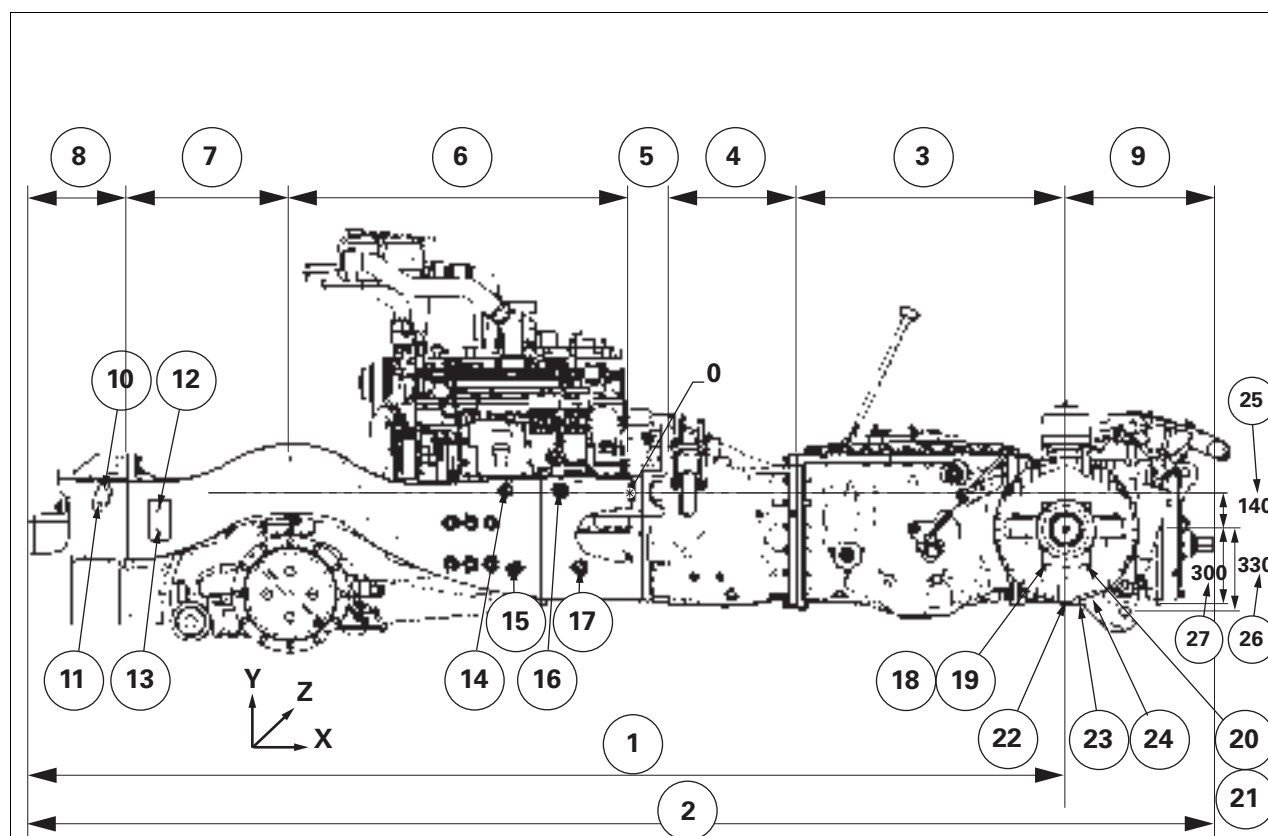


Fig. 4.

1003763

NOTE: Values x, y and z represent reference point 0 of the tractor.

Reference		X	Y	Z
1-	3105,1 mm			
2	4744,8 mm			
3	975 mm			
4	512 mm			
5	161,3 mm			
6	1356,8 mm			

Reference		X	Y	Z
7	652,2 mm			
8	395 mm			
9	592,5 mm			
10	M20	-2099 mm	±410 mm	15 mm
11	M20	-2119 mm	±410 mm	-41,5 mm
12	M20	-1879 mm	±225 mm	-64,9 mm
13	M20	-1879 mm	±225 mm	-144,9 mm
14	M20 tapered alignment screw	-494 mm	±294 mm	15 mm
15	M20 tapered alignment screw	-454 mm	±284 mm	-294,9 mm
16	M20 tapered alignment screw	-274 mm	±294 mm	15 mm
17	M20 tapered alignment screw	-194 mm	±284 mm	-294,9 mm
18	M20	1670,3 mm	±740 mm	-280 mm
19	M20	1670,3 mm	±645 mm	-280 mm
20	M20	1826,3 mm	±740 mm	-280 mm
21	M20	1826,3 mm	±645 mm	-280 mm
22	M20	1783,3 mm	±100 mm	-437,5 mm
23	M20	1804 mm	±100 mm	-440 mm
24	M20	1858,3 mm	±100 mm	-437,5 mm
25	140 mm			
26	330 mm			
27	300 mm			

6. Accessories

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6.1 Cab

6.1.1 Cab accessories

T001018

- Radio fittings (loudspeakers, aerial and wiring).
- Radio
- Top link for attachments (computer).
- Fender extensions.
- Rotary beacon
- Work lights on hand rails

6.2 Engine

6.2.1 Engine accessories

T001019

- Engine block preheater (220 V or 110 V according to version)

6.3 Front axle and steering

6.3.1 Front axle and steering accessories

T001021

- Front fenders.
 - Front weights, 55 kg: 18 hitch weights
 - Centre weight for tractors fitted with a front linkage: 345 kg
- NOTE:** The centre weight is not compatible with the front PTO.
- NOTE:** Removal is not easy and the weight must remain fitted.

6.4 Power take-off

6.4.1 Power take-off accessories

T001022

- Power take-off: Consult your dealer for the different types available

6.5 Linkage

6.5.1 Linkage accessories

T001023

- 5 t front linkage with automatic hooks
- Rear linkage: Consult your dealer for the different types available
- Weight for front or rear linkage: 1 weight of 900 kg or 1500 kg

6.6 Auxiliary hydraulics

6.6.1 Auxiliary hydraulics accessories

T001024

- Additional hydraulic spool valves
- Trailer brake

6.7 Wheels and tyres

6.7.1 Wheels and tyres accessories

T001026

- Wheel weights

