Operator's Manual

MASSEY FERGUSON

# MF 6700 S - Maintenance

MF 6713 S
MF 6714 S
MF 6715 S
MF 6716 S
MF 6718 S


Dyna-VT

Beauvais
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Beauvais - France - RC B562 104 539

Original Operator's Manual

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English

# Foreword

We would like to welcome you to the ever-growing number of people who own a Massey Ferguson 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's Manual 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.

This Operator's Manual contains the specifications for your new equipment. Please ensure that all operators read the instructions and follow them carefully. This will allow you to benefit from a long service life with complete safety and peace of mind. The pages that follow contain vital information about your new equipment; please read them carefully.

Your Massey Ferguson 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.

Your Massey Ferguson dealer will guarantee you all the assistance you need.

Please leave this Operator's Manual in the tractor if resold. The subsequent owner will need the information it contains.

All information and specifications in this manual 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 manual 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.

This Operator's Manual complies with Directive 2010/52 EC.

**Massey Ferguson**

# MF 6700 S - Maintenance

# 1. Tractor identification

# 1.1 Locating serial numbers

## 1.1.1 Locating serial numbers

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

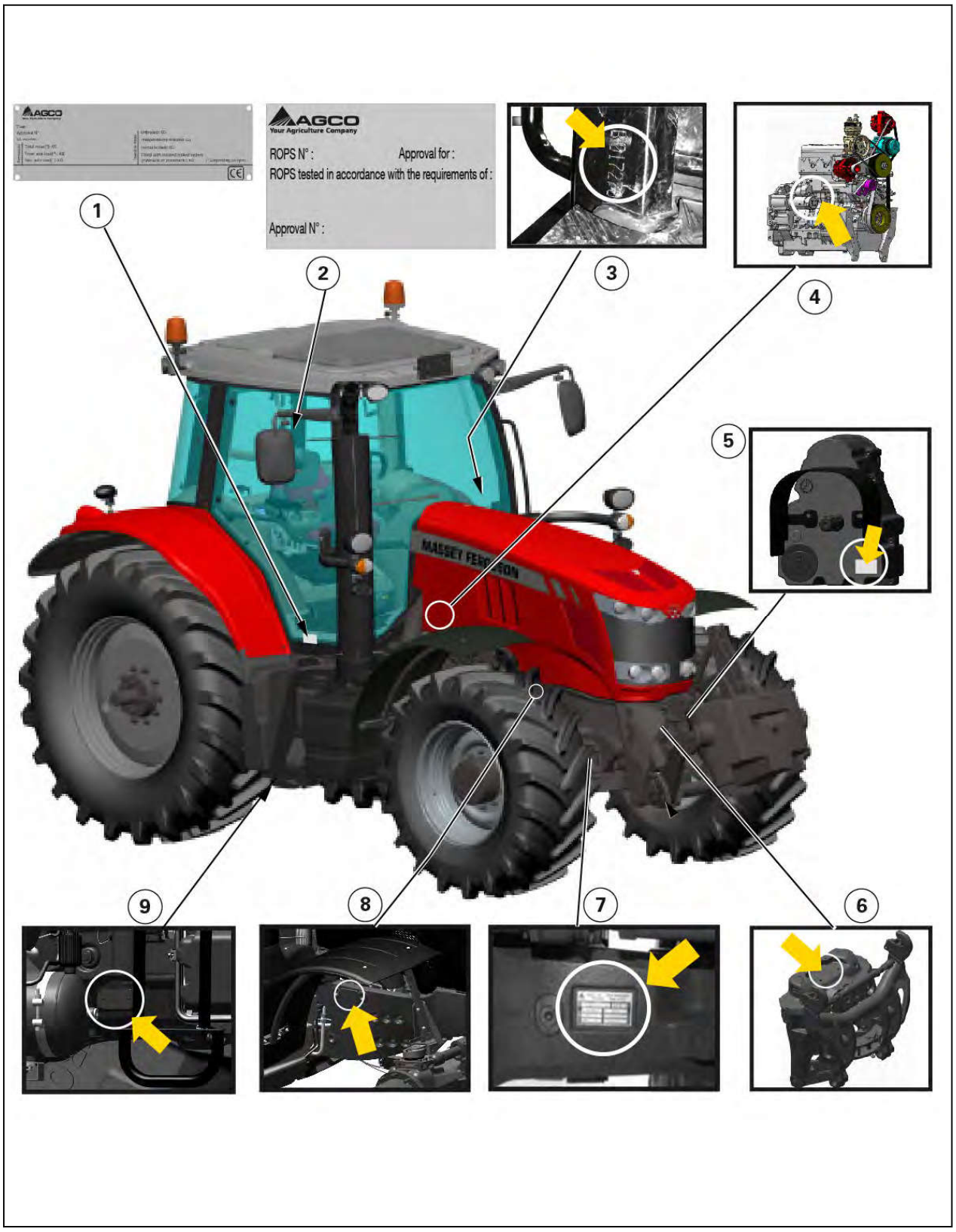



*Fig. 1*

(1) Name plate with serial number
(2) Homologation plate (according to country)
(3) Cab serial number
(4) Engine serial number AGCO Power
(5) Front PTO serial number
(6) Front linkage serial number
(7) Front axle serial number
(8) Chassis number
(9) Dyna-VT transmission serial number

# 1.2 Your tractor identification details

## 1.2.1 Your tractor identification details

**Model:** _____

Serial number: _____

Engine serial number: _____

**Owner's name:** _____

Street: _____

Postcode: _____

Town: _____

County: _____

Country: _____

**Dealer code:** _____

Tractor received from (tick one of the following):

☐ Factory ☐ Other dealer (transfer)

**Notes:** _____

# 2. Safety instructions and safety points - Warranty

# 2.1 Introduction

## 2.1.1 Introduction - Safety instructions

### Operator's Manual

**NOTE:** *This Operator's Manual 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 Massey Ferguson dealer.*

The purpose of this manual 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 Massey Ferguson tradition.

Use for any other activity (particularly forestry work) is considered to be contrary to the intended use.

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

This manual 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's Manuals relating to these implements and accessories.

**IMPORTANT:** *This manual must always be kept with the tractor. For extra copies, contact your Massey Ferguson dealer.*

This chapter in the Operator's Manual highlights certain basic safety-related situations that 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 manual.

It may be necessary to take additional precautions, depending on the implements and accessories used and the working conditions on-site or in the service area. Massey Ferguson 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 Massey Ferguson parts. Massey Ferguson 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 Massey Ferguson 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 Massey Ferguson 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 (particularly forestry work) is considered to be contrary to the intended use.

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

**IMPORTANT:** *Massey Ferguson 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 its specific features and who are aware of the applicable safety measures (prevention of accidents).

Customers are strongly advised to contact a Massey Ferguson 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

**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 recognize 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

**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 safety and instruction decals are correct, legible and in the correct location: To do this, refer to the section on the presentation and location of decals.

## 2.3.2 Presentation and location of the safety decals and instructions

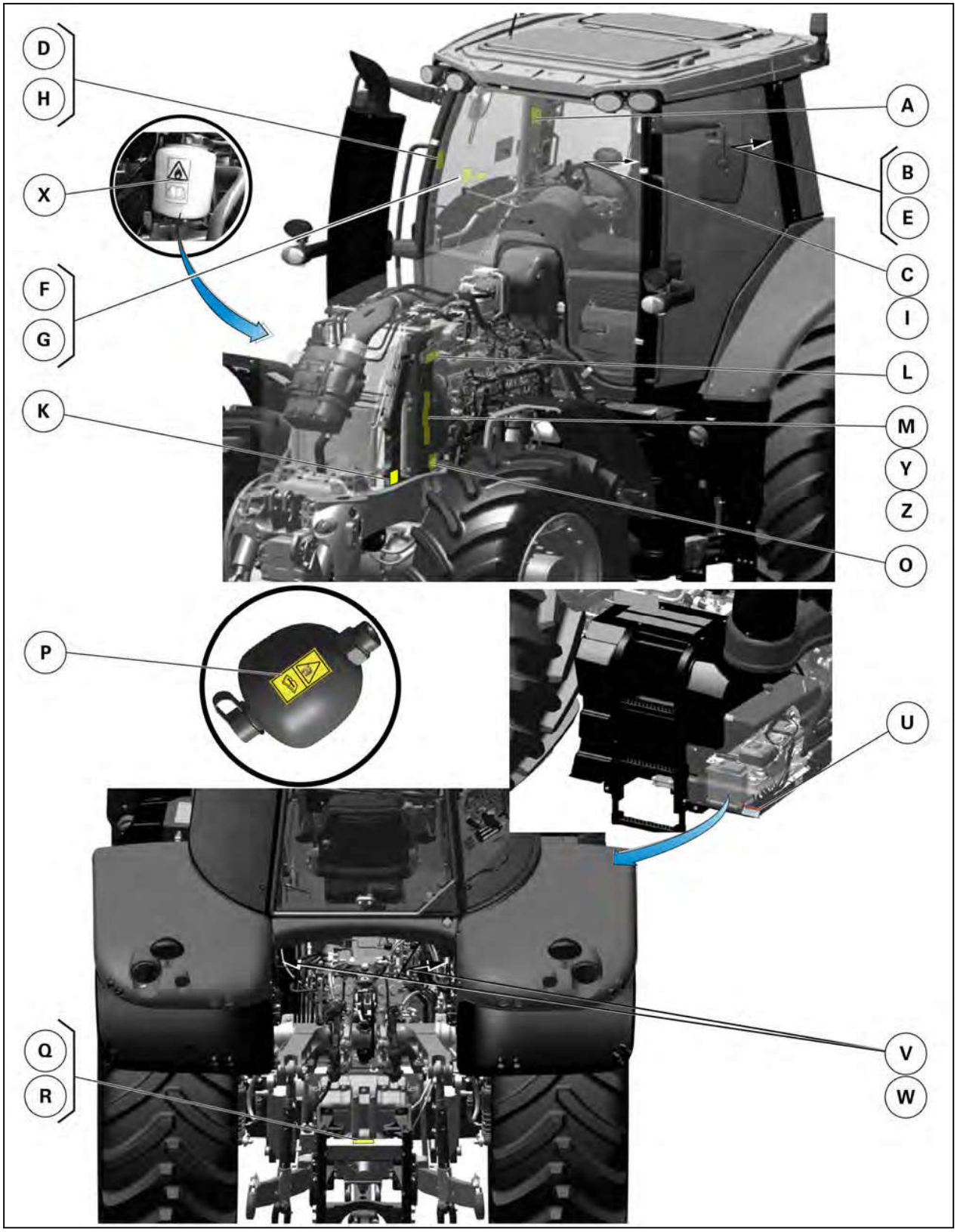
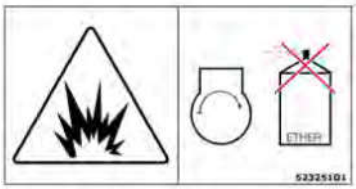
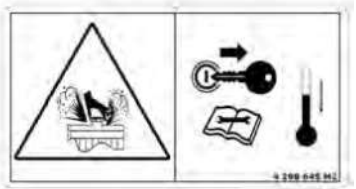
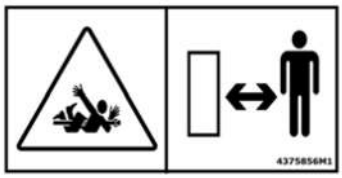



*Fig. 1*

| | |
|---|---|
|  | • **4296950M1** ((A) )<br>• **DANGER:** General safety<br>Read the servicing manual and the safety advice before start-up and observe their contents during operation. |
|  | • **4296958M1** ((B) )<br>• **WARNING:** Overturning of the tractor - Roll Over Protective Structure (ROPS)<br>Fasten your seat belt once you are in the seat (operator and instructor) and before the tractor moves. |
|  | • **4296946M1** ((C) )<br>• **WARNING:** Risk of being crushed or run over by the tractor.<br>Stop the engine and remove the key before you commence any maintenance or repair operation. |
|  | • **4297924M1** ((D) )<br>• **DANGER:** Risk of the front loader coming into contact with overhead power lines. Risk of extremely serious or fatal injuries.<br>Tractors fitted with a front loader: Exercise extreme caution to avoid coming into contact with power lines.<br>• Keep a safe distance from the overhead power lines whenever you use the front loader. Refer to any current national regulations concerning safe distances from power lines. |
|  | • **4356345M1** ((E) )<br>• **WARNING:** Possible inhalation of dangerous substances.<br>• Read the instructions in the Operator's Manual and refer to the safety instructions provided by the product manufacturer. Wear personal protective equipment where necessary. |
|  | • **4349217M1** ((F) )<br>• **WARNING:** Towing<br>• Carefully read the specific instructions from the Operator's Manual before towing the tractor. |

| | |
|---|---|
|  | • **4352953M2** ((H) ) for Efficient/Exclusive versions only<br>• **DANGER:** Road safety.<br>• Road traffic: Deactivate the automatic guidance system and the SpeedSteer system. |
|  | • **523251D1** or **ACW0232290** ((K) )<br>• **DANGER:** Risk of engine explosion.<br>• Never spray ether toward the engine air intake. |
|  | • **4298645M2** ((L) )<br>• **WARNING:** High-temperature liquid in the reserve. Risk of skin burns.<br>Stop the engine, remove the key and wait for the assembly to cool before commencing any maintenance or repair operation. |
|  | • **4296967M1** ((M) )<br>• **WARNING:** Burn hazard – hot surfaces.<br>Keep away from hot engine components when engine has been running.<br>Shut off engine, remove key and wait for system to cool before performing maintenance or repair work. |
|  | • **4296985M1** ((O) )<br>• **DANGER:** Crushing of fingers or hands.<br>• Never work in an area where there is a risk of crushing while parts could move. |
|  | • **ACW0018280** ((P) )<br>• **DANGER:** Explosion hazard. The hydraulic accumulator contains pressurised gas and oil.<br>• The hydraulic accumulator contains pressurised gas and oil. Refer to the instructions in the technical manual when removing and reconditioning. |

| | |
|---|---|
|  | • **4375856M1** ((Q) )<br>• **DANGER:** Entanglement hazard in a PTO shaft connected to an instrument.<br>• Do not mount the moving part of the PTO. |
|  | • **4297148M1** ((R) )<br>• **WARNING:** Falling hazard<br>Maintain a safe distance in relation to the tractor. |
|  | • **4392020M1** ((V) )<br>• **WARNING**: Danger of torso being crushed: force directed sideways.<br>• Remain out of the vertical movement area while the swivel arm is moving. |
|  | • **4354351M1** ((X) )<br>• **WARNING:** Risk of fire<br>Read the safety instructions in the Operator's Manual. |
|  | • **4296944M1** ((Y) )<br>• **WARNING:** Entanglement hazard in belt drives<br>Keep hands clear of rotating parts and belts while engine is running.<br>Switch off the ignition and remove the key before working on the tractor. |
|  | • **4296971M1** ((Z) )<br>• **WARNING:** Shearing hazard – engine fan.<br>Keep your hands away from the fan and the belts when the engine is running.<br>Shut off engine and remove key before performing maintenance or repair work. |

## 2.4 General safety instructions

### 2.4.1 Awareness of the safety instructions and symbols

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 that 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

**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.**

*Fig. 2*

- 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 — to always consult the dealer as soon as there is any doubt or lack of understanding
  - 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.

**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

**WARNING:**

- **Always switch off the engine before filling up.**
- **Do not smoke while refueling the tractor. Keep away from naked flames .**
- **Proceed with care to prevent any splashes.**

*Fig. 3*

**Filling with DEF or AdBlue™**

**WARNING:**
**Avoid all contact with the eyes, skin and clothing.**

- **Proceed with care to prevent any splashes.**
- **If large quantities of the product are ingested, seek immediate medical attention. 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 DEF or AdBlue™ from coming into contact with other chemical products.**
- **Urea spillages must not be discharged into the drains.**

*Fig. 4*

## 2.4.4 Mounting and dismounting the operator's seat

- Always use three-point contact with the tractor and face the tractor when mounting and dismounting the operator's seat. (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 in 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

Before getting out of the operator's seat, whether during the course of or at the end of the working day, always:

**Procedure**

1. Immobilize the tractor by applying the parking brake or engaging ParkLock in the locked position (closed padlock symbol) (depending on option).

   **DANGER:**
   **Position the shuttle lever or depending on option, the PowerShuttle lever, in neutral position.**

2. Disengage the front and rear PTO.
3. Lower the implements to the ground.
4. Switch off the engine (see the Operation chapter of the Operator's Manual). Make sure that the engine is not running at idling speed and that it has stopped.
5. Remove the ignition key.

# 2.5 Special instructions

## 2.5.1 Specific recommendations for agricultural and forestry tractors

### Hot surfaces

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

### 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 1365 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.

### Dangerous substances for tractors with ROPS

**NOTE:**
*A mark indicating the ROPS' level of protection against hazardous substances is located on the ROPS.*

**IMPORTANT:**
*Always wear personal protective equipment when handling the filters.*

- Tractor without cab: Protection against hazardous substances (agricultural chemicals etc.) in the form of dust, aerosols and fumes is not provided. These tractors are not intended for spraying pesticides without additional protection. Personal protective equipment must be used according to the chemical manufacturer's recommendations.

### Dangerous substances for tractors with a cab

**NOTE:**
*A mark indicating the cab's level of protection against hazardous substances is located on the front left-hand pillar inside the cab. For platform tractors, this mark is displayed on the arch.*

**IMPORTANT:**
*Always wear personal protective equipment when handling the filters.*

- Alternative 1 (less cab or cab under category 1): Protection against hazardous substances (agricultural chemicals etc.) in the form of dust, aerosols and fumes is not provided. In particular, tractors fitted with these cabs are not to be used for spraying pesticides without any additional protection. 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.) in the form of aerosols and fumes is not provided. In particular, tractors fitted with these cabs are not to be used for spraying pesticides without any additional protection. Personal protective equipment must be used according to the chemical manufacturer's recommendations.

  Protection against dust (category 2 of standard EN15695-1:2009) 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). When replacing the filter, only a filter certified for at least category 2 cabs is permitted. Activated carbon filters do not improve the cab's level of protection. Always refer to the user instructions provided with the filter.
- Alternative 3 (cab under category 4): The cab is equipped with protection against hazardous substances (agricultural chemicals etc.) in the form of dust, aerosols and fumes. For pesticide spraying, tractors fitted with these cabs must also have a specially designed filter for category 4 cabs.

  This protection (category 4 of standard EN 15695-1:2009) 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).

  Given the risk associated with contaminants entering the cab when opening the door to enter or exit the vehicle, this protection is designed to supplement, but not necessarily replace, the use of personal protective equipment when working in an environment with aerosols and/or fumes, such as pesticides. The chemical manufacturer's instructions concerning the use of personal protective equipment must be followed.

  When replacing the filter, only a filter certified for at least category 4 cabs is permitted.

  Always refer to the user instructions provided with the filter. Once spraying operations are complete, it is important to return the special filter to its case and replace it with a standard anti-dust filter.

**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.
- This seat may only be used to transport a passenger when driving on public roads.
- Always use the seat belt correctly adjusted.

# 2.6 Special safety instructions for preparing the tractor for use

## 2.6.1 Protective clothing

Wear all the protective clothing and equipment with which you are provided or which is appropriate for certain working conditions.

For example, you may need:

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

*Fig. 5*

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

## 2.6.2 Activated carbon filter information

**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 vapors, 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 vapors 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-born 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 contaminates 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 work-place hazards. This includes but is not limited to exposure assessment, audits of varies programs such 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 contaminates from the cab interior air space. When a vehicle is operated in an environment where air-born 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

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
- Signaling lights
- Safety signs
- Fire extinguisher
- First aid kit

**WARNING:**
**Also make sure you know the emergency numbers.**

*Fig. 6*

**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

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.
- 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.
- Check to ensure that the tractor is correctly balanced.

**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 the condition and pressure of tires (absence of cuts and bulges). Replace worn or damaged tires.
- Check the correct operation of the brake pedals and the parking brake. Adjust if necessary.
- 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.

**WARNING:**

**Leaks of pressurized fluid may not be visible. Diesel fuel or hydraulic fluid under pressure can penetrate the skin or eyes and cause serious physical injury, blindness or death. 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.**

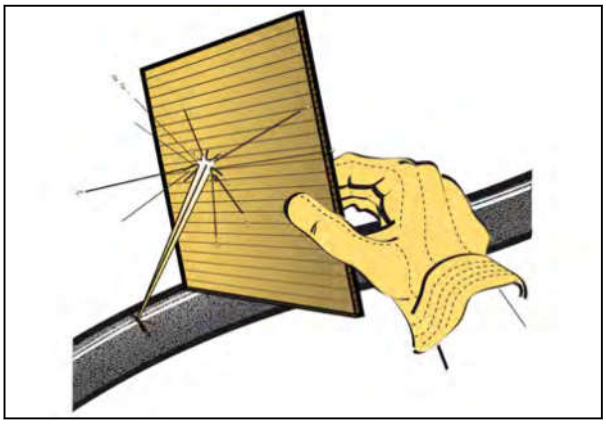


*Fig. 7*

**WARNING:**

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

- Have any leakages or damaged parts repaired or replaced. Do this before each working day
- Check the engine cooling system and add coolant if required.

**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.**

- 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.

# 2.7 Specific safety instructions for starting the tractor

## 2.7.1 Protection of persons other than the operator

**Procedure**

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 anyone 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

**General instructions**

**WARNING:**

**Before starting the engine, ensure there is plenty of ventilation in the area. The exhaust fumes may cause asphyxiation. Do not operate the engine in an enclosed space.**

**IMPORTANT:**

*For tractors equipped with an electromechanically controlled brake on the steering column (ParkLock) For safety reasons, when the engine is stopped, the ParkLock engages automatically regardless of the position of the control. After the engine is started, it is necessary to initialise the ParkLock control in order to deactivate it. If this is not carried out, when a gear is shifted, a beep will sound and the padlock symbol on the instrument panel indicates that the ParkLock remains engaged.*

- Always start the engine from the operator's seat.
- Adjust the seat before using the tractor to ensure it is correctly positioned in relation to the controls and to minimize vibration (see description of 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.
- For tractors with a PowerShuttle, position the PowerShuttle lever in neutral.
- For tractors with mechanical reverse shuttle, position the reverse shuttle lever and the gear shift lever in neutral.
- Deactivate the power take-off (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 can cause serious injury or death to anyone in the vicinity.

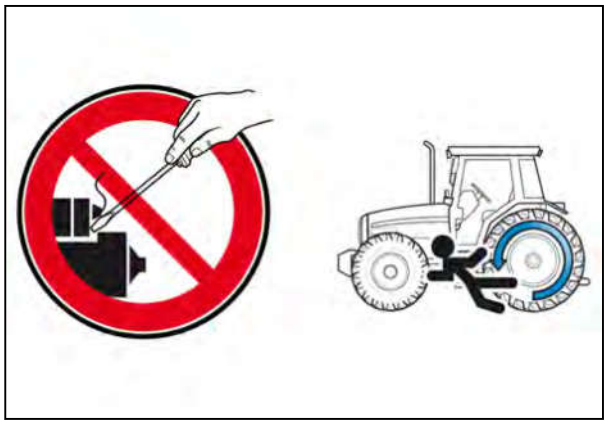


*Fig. 8*

**Starting assistance**

**WARNING:**
**Never use any starter fluid or aerosol sprays.**

This could cause an explosion and very serious injuries.

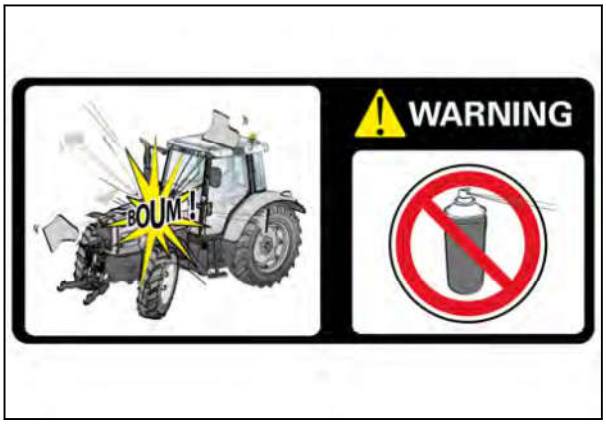



*Fig. 9*

## 2.7.3 Starting the tractor with jump start cables

**IMPORTANT:**

- *Do not attempt to boost a damaged battery.*
- *Do not touch the connectors on the jump start cables.*
- *Do not allow your body to touch the vehicle (chassis frame) when making the connections.*
- *Do not use a damaged battery or a damaged booster.*
- *Only use a battery or a booster with a similar voltage.*
- *To avoid accidental hazards when working near the battery, remove all jewellery or metal accessories, such as rings or bracelets.*
- *Do not disconnect the damaged battery — this can damage the vehicle's electrical system.*

**Procedure**

1. The ignition key must be in the OFF position.

   **ATTENTION:**
   *The tractor engine must not start up or move accidentally.*

2. Connect the clamp of the red cable to the positive terminal (+) of the flat battery.
3. Connect the other clamp of the red cable to the positive terminal (+) of the battery in good condition or to the positive terminal (+) of a recovery vehicle.
4. Connect the clamp of the black cable to the negative terminal (-) of the battery in good condition.
5. Finally, connect the other black clamp to any part of the engine block or chassis frame (metal part).

   **ATTENTION:**
   *To avoid the risk of a spark and potential explosion due to hydrogen from the battery, never make this final connection to the negative terminal (-) of the damaged battery.*

6. Leave the flat battery to recharge for a few minutes, or even longer if possible, before attempting to start.
7. Start the engine of the vehicle. Once started, leave the engine running for a few minutes.
8. Without turning off the engine you have helped to start, disconnect the jump start cables from the battery or the booster in reverse order.

   **ATTENTION:** *At the end of the operation, make sure that the red and black cables do not touch each other when they are still connected to a battery.*

   **IMPORTANT:** *Corroded battery terminals may interfere with, or even prevent the tractor from starting.*

## 2.7.4 Checks to be carried out after start-up

### 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

- Tractors and implements are not toys. Always comply with the conditions of use defined by the manufacturers.
- Never bring a heat source close to the tractor.
- Never exceed the tractor total permissible weight.
- When using the tractor, always consider the fact that the centre of gravity of the tractor/implement assembly changes according to the load being transported or towed.
- Check that the emergency exits open correctly.
- Check to ensure that the tractor is correctly balanced.

**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 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 ROPS arch 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 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.
- Never remain, or allow anyone else to remain, between the tractor and the towed or trailed vehicle when the tractor is in use.
- Ensure that 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**
- **Immobilise the tractor using the park brake or ParkLock**
- **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 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 traveling on the road. In all cases, never allow a child to ride on the tractor or implements.**

*Fig. 10*

- 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.

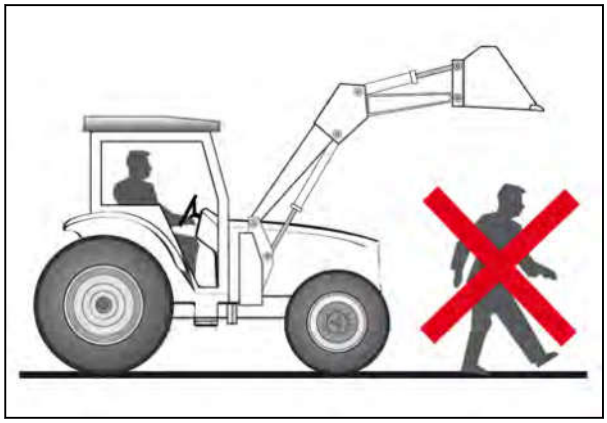


*Fig. 11*

- Do not allow anyone to stand between the tractor and the implement.
- Keep other people away from the working area.
- Beware of the load and implement falling in the event of unexpected lowering of the loader.

## 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 in the rear axle.*
*The recommendation is to add 15 liters of oil when working on maximum-gradient slopes.*

| Models | Speed | Maximum angle: Roll/pitch/combined |
|---|---|---|
| All models | - | 25°/25°/17° |

**WARNING:**
**The following list is not exhaustive.**
**Do not use the tractor beyond its ground gradient and stability limits, as indicated later in this manual. Exceeding these limits may cause overturning or tipping of the tractor. Follow the recommendations provided in this Manual when driving down slopes with the tractor loaded.**

- **Do not use the tractor near or on the edges of channels or streams or on banks and borders dug by rodents. The tractor may overturn and tip**
- **Do not use the tractor on unstable footbridges and fragile platforms. These structures may collapse and cause the tractor to overturn. Always examine the condition and the permissible load of bridges and ramps before crossing.**
- **Do not use the tractor without a safety belt system during operations that involve a risk of tilting or overturning.**
- **Do not use the tractor beyond its dynamic stability limits. High speed, abrupt maneuvers and sudden, tight turns increase the risk of overturning.**
- **Do not use the tractor for towing if you do not know whether the load will yield, for example for transporting stumps. The tractor is at risk of tipping backward if the stumps are impossible to tow.**
- **Exercise extreme caution when working with the tractor on forage silos without concrete walls.**
- **Do not forget that the tractor center of gravity may increase when loads on the front loader or the three-point hitch are lifted. In these conditions, the tractor may overturn earlier than expected**

### Procedure to follow if the tractor overturns

If the tractor should overturn, keep the safety belt fastened, hold the steering wheel firmly and do not attempt to leave the seat until the tractor has come to a complete stop.

For tractors fitted with a cab, if the doors are obstructed, leave through the rear window or roof hatch.

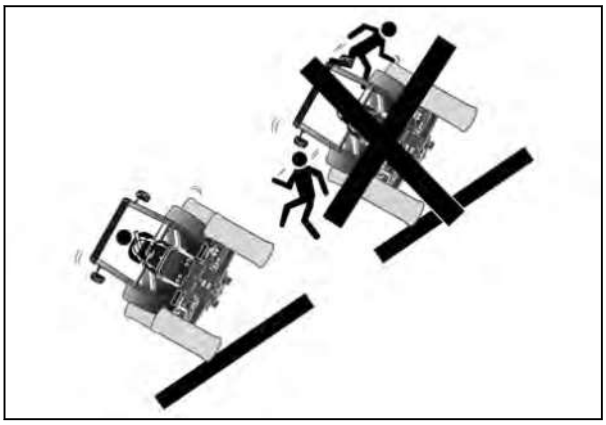


*Fig. 12*

### 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 for the implement in use.
- 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:**

  **Risk of overturning. 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 .

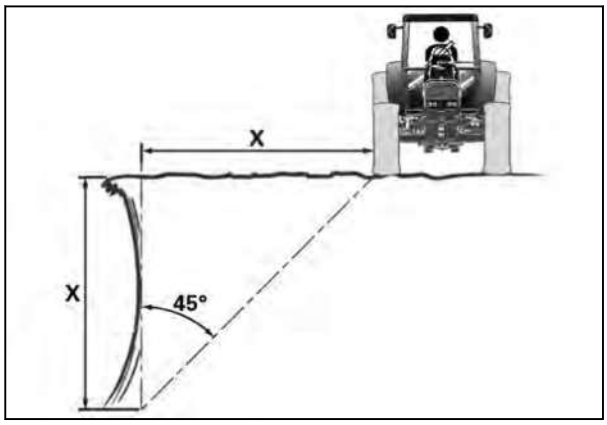



*Fig. 13*

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 toward the top of the slope; always slow down and take a wide turn
- keep the heavier end of the tractor facing toward 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 toward the top of the slope
- never be raised,
- be left as close as possible to the ground

When towing a load at road speed, lock the drawbar in the center position and use a safety chain.

Do not use the tractor to round up livestock.

**Preventing a rear overturn**

- **WARNING:**

  **Risk of overturning. 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 center line of the rear axle. Always use a Massey Ferguson-approved drawbar and only use a lockable drawbar pin.
- When using a drawbar for a three-point hitch, use the stabilizers 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.
- When parking on a slope, turn the wheels in the opposite direction to the slope.

## 2.8.4 Tractor towing

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

## 2.8.5 Regulatory data on maximum permitted trailed weights

**Drawbars and towing equipment**

**IMPORTANT:**
*Before attaching a trailed implement, read the following carefully.*

**Maximum permitted towed weight**

The equipment identification number plate provides important information on tractor and towed equipment weight combinations. The figures represent the maximum weights authorized for the vehicle and towed equipment which should not be exceeded so as not to affect tractor safety.


*Fig. 14*

Before transporting towed equipment, read the equipment's Operator's Manual. Check that the equipment is properly installed, find out how to safely transport it, and determine the maximum permitted transport speed. Check that the tractor/towed equipment combination is in compliance with local and national legislation.

Never transport at speeds higher than the equipment's maximum transport speed. By exceeding the maximum transport speed of the equipment, there is a risk of reducing the braking performance and/or losing control of the tractor and its towed equipment.

Unless otherwise specified by the equipment manufacturer or the legislation, observe the following rules when towing.

**For towed equipment:**

Do not tow equipment:

- Without brakes and which, when fully loaded, weighs over 3000 kg
- With independent brake and which, when fully loaded weighs over 6000 kg
- With overrun brake and which, when fully loaded weighs over 16000 kg
- With assisted braking (hydraulic or pneumatic) and which, when fully loaded, exceeds 32000 kg

**Total permitted weight of tractor-implement combination**

| | Weight technically permissible for the tractor/ trailer assembly |
|---|---|
| | MF 6713 S/MF 6714 S/MF 6715 S/MF 6716 S/MF 6718 S |
| With trailer without brakes | 14500 kg |
| With trailer equipped with independent brake | 17500 kg |
| With trailer equipped with overrun brake | 27500 kg |
| With trailer with hydraulic braking | 43500 kg |

*Total permitted weight of tractor-implement combination (maximum forward speed 40 kph or 50 kph)*

**Load and ballast distribution per axle**

Axle load distribution

| MF 6713 S/MF 6714 S/MF 6715 S/MF 6716 S/MF 6718 S (maximum forward speed of 40 kph or 50 kph) | | 4-wheel drive | |
|---|---|---|---|
| Weights of unladen vehicle based on optional equipment | | min. | max. |
| | | 5900 kg | 8000 kg |
| Total weight distribution | Front axle | 2400 kg | 3600 kg |
| | Rear axle | 3500 kg | 5200 kg |

**Ballast distribution per axle**

| MF 6715 S/MF 6716 S/MF 6718 S (maximum forward speed of 40 kph or 50 kph) | | 4-wheel drive |
|---|---|---|
| Maximum technically permissible loaded weights of the vehicle | | 11500 kg |
| Maximum technically permissible loaded weights per axle | Front axle | 5400 kg |
| | Rear axle | 9200 kg |
| Minimum percentage of maximum permissible distribution of weight between axles | Front axle | 58% |
| | Rear axle | 86% |

## 2.8.6 Road use

**WARNING:**
**Never allow any passengers to ride on the tractor and implements.**

**WARNING:**
**Do not use the work lights when traveling on a road because rear white lights are illegal except when reversing and may confuse following drivers.**

**WARNING:**
**When using a towed vehicle ensure you are always outside of the area lying between the tractor and the towed vehicle.**

- 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 visible and 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).

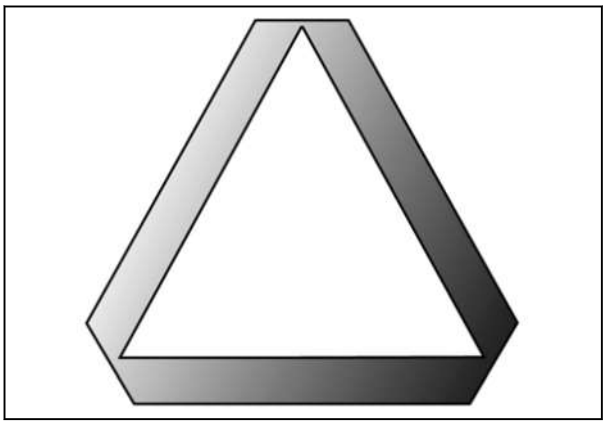


*Fig. 15*

- Place all implements in the transport position (as specified in the national road traffic regulations) 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.
- Familiarize yourself with the road you will be traveling 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 traveling 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.

## 2.8.7 Parking brake

If the brakes fail and in an emergency situation, use the park brake located to the left of the operator.

**NOTE:**
*For tractors equipped with a ParkLock, this function 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.*

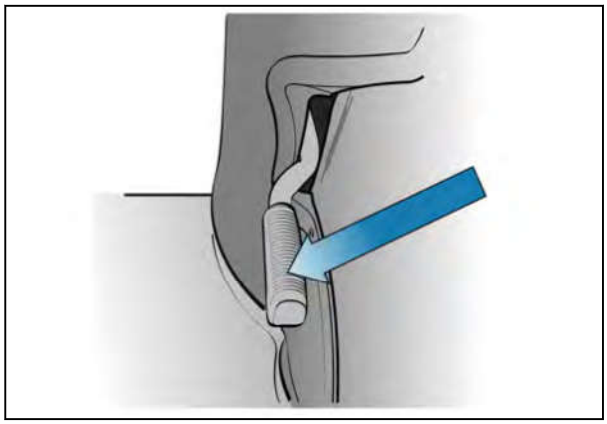


*Fig. 16*

## 2.8.8 Emergency hand brake (on models fitted with the ParkLock option)

If the brakes fail, and in an emergency situation, use the emergency hand brake located to the left of the operator .

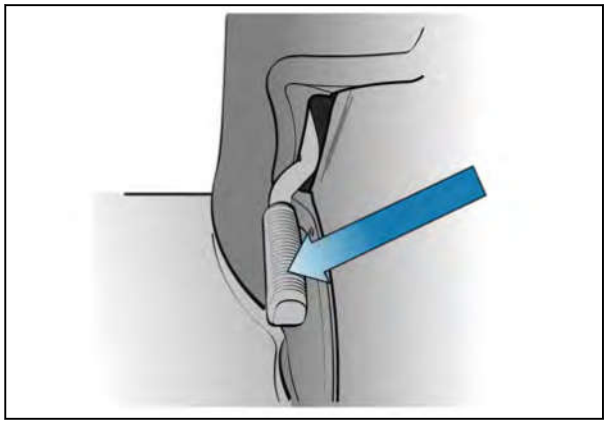


*Fig. 17*

**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.*

## 2.8.9 Power take-off

**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. To avoid any accidents, do not stand on the implement or between the implement and the tractor when external linkage or PTO controls are being used.**

- Ensure that all the PTO shaft guards are in place and check the presence of all safety decals .

*Fig. 18*

- Ensure that the PTO cap (1) is fitted when the PTO shaft is not in use .
- Before hitching, unhitching, cleaning or adjusting the implements driven by the PTO, follow the "mandatory procedure before dismounting the tractor" .
- 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.

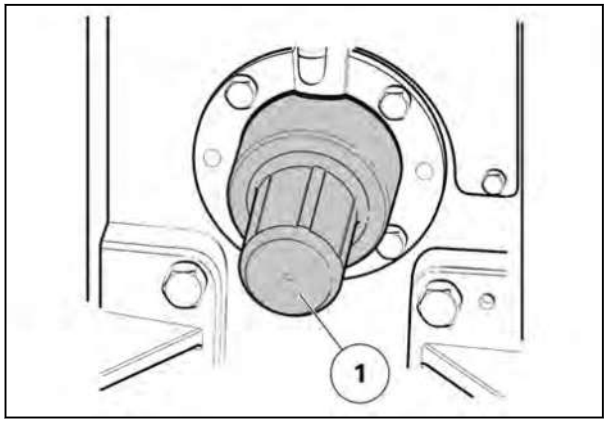



*Fig. 19*

(1) Correct assembly
(2) Incorrect assembly

**IMPORTANT:**
*To prevent any rotation problems or damage to the PTO guard, observe the correct fitting position of the transmission shaft.*
*Make sure that the shaft does not collide with the surrounding area when the implement hitched to the tractor moves (this is a particular risk for short type 3 PTO shafts with a shield measuring 290 mm wide, as this limits the space available for the assembly).*

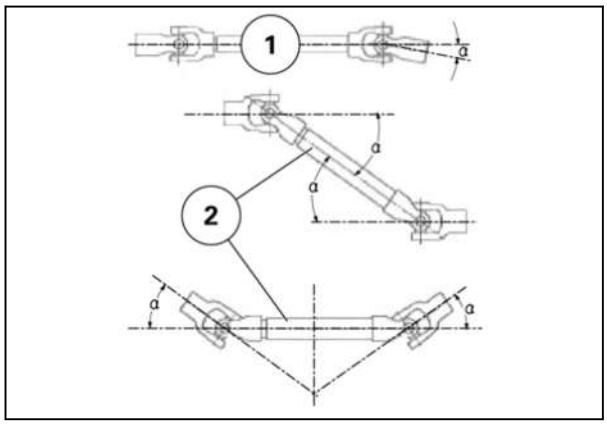



*Fig. 20 Transmission shaft*

## 2.8.10 Implements

**WARNING:**
**The special implements are not supplied with the tractor.**

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 maneuver in complete safety.
- Always use implements suitably adapted to the desired conditions of use (load to transport, speed, slope etc.) to ensure that work is carried out in complete safety.
- Always read the implement instruction books fully for implements to be used with the tractor and comply with the safety instructions they contain. If these instructions cannot be observed in full, do not use the tractor fitted with the machine or trailer.
- 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 immobilized in accordance with the mandatory procedure before dismounting the tractor, 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.

  (See the information on the name plate and the chapter about the hitch.)
- 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) .

  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 maneuvering.

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

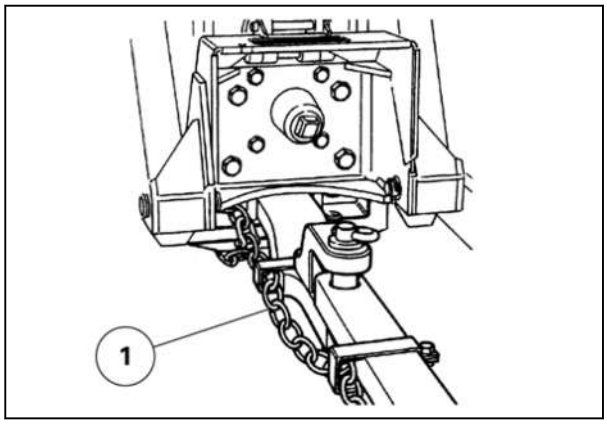


*Fig. 21*

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

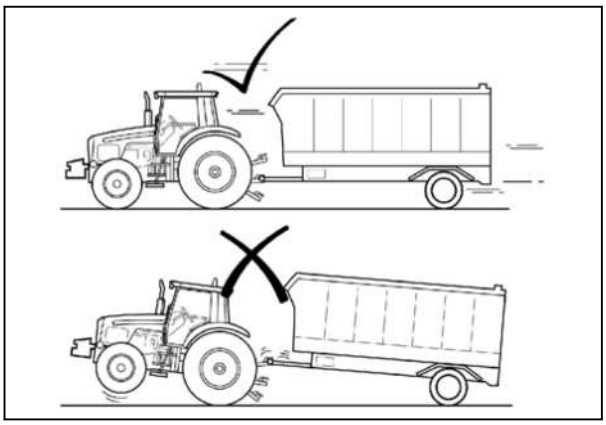


*Fig. 22*

**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).**

The maximum permitted trailed weights are indicated on the name plate. In particular, comply with the following loads:

- Trailed weight without brakes: 3000 kg
- Trailed weight with independent brake system: 6000 kg
- Inertia braked trailed weight: 16000 kg
- Trailed weight with braking assistance (hydraulic or pneumatic): 32000 kg

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 weight that is greater than 1.5 t 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.

## 2.8.11 Front-end loader

**WARNING:**
**The tractor must be fitted with a FOPS (Falling Object Protection Structure) roof if using a loader.**
**The programmable functions of the joystick or any other control MUST NOT be used to operate a loader. In order to prevent involuntary loader movement, the loader joystick controller must be of the self-cancelling 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.**
**Always read the implement instruction books fully for implements to be used with the tractor and comply with the safety instructions they contain.**
**For the attachment points, refer to the specifications chapter.**

**DANGER:**
**The use of front-end loaders involves the risk of falling objects; if used for forestry work there is a risk of objects penetrating into the passenger compartment.**
**This tractor is not designed for forestry applications; its use is prohibited unless a FORESTRY KIT is installed.**
**Contact the dealer to find out if a forestry kit is available for this tractor model.**
**Only a specific forestry kit can provide the necessary protection against falling trees and the penetration of objects.**

**Protection offered by the FOPS roof of the tractor**

**WARNING:**

**The use of sprayers fitted on the tractor or towed involves the risk of exposure to hazardous substances. The FOPS roof does not guarantee protection against dust, aerosols and fumes. In the event of application of crop protection products (e.g. pesticides, fungicides, herbicides etc.), see the chemical manufacturer's instructions as well as those supplied by the sprayer manufacturer. Personal protective equipment should be used if it is recommended by these instructions for tractors without a cab.**

# 2.9 Specific safety instructions for servicing the tractor

## 2.9.1 Pollution warning to observe when servicing the tractor

**IMPORTANT:**
*It is illegal to pollute drains, water courses or soil.*
*Use authorized waste disposal facilities for the collection and treatment of waste; public refuse tips or garages providing facilities for the disposal of used oil.*
*If in doubt, ask local authorities for advice.*

## 2.9.2 General instructions

- Never bring a heat source close to the tractor
- Never service the tractor while the engine is running or hot or if the tractor is in motion .

  The operator must ensure that potentially hot parts have cooled down before carrying out any work

*Fig. 23*

- 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 Massey Ferguson 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, see the relevant chapter (installation points of the axle stands).

  The blocks and supports must be adapted to the load carried and must be sufficiently stable to prevent tilting.

  The blocks and supports must be approved and regularly checked by the appropriate authorities.

  Place the blocks and supports on solid ground that can support the load.
- 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 pressurized.

  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 Massey Ferguson dealer regarding any maintenance.

## 2.9.3 Handling instructions

The implement and/or tractor must be supported on suitable blocks or stands and not on a hydraulic jack.

The blocks and supports must be adapted to the load carried and must be sufficiently stable to prevent tilting.

Place the blocks and supports on solid ground that can support the load.

The blocks and supports must be approved and regularly checked by the appropriate authorities.

**Positioning axle stands at the front of the tractor**

Depending on the requirements of the removal procedure, the axle stands must be placed under one of the following locations:

- (1) Under the low point of the front linkage
- (2) Under the front axle final drives
- (3) Under the engine oil sump (if the front axle is to be removed)
- (4) and (5) Under the front axle beam

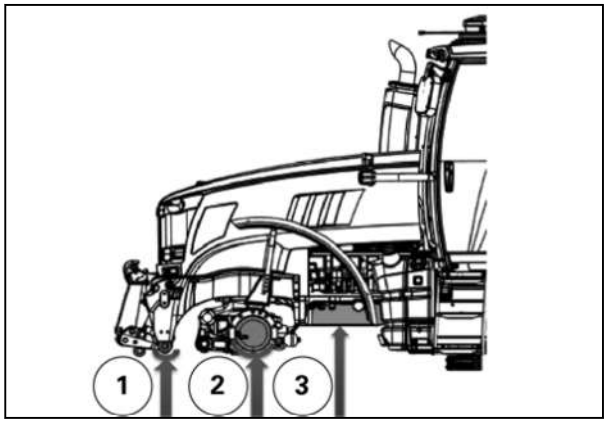



*Fig. 24*

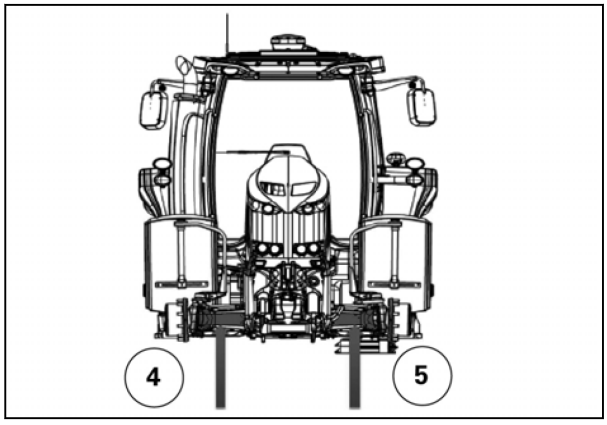



*Fig. 24*

**Positioning axle stands at the rear of the tractor**

- (6) and (7) Under the rear axle beams

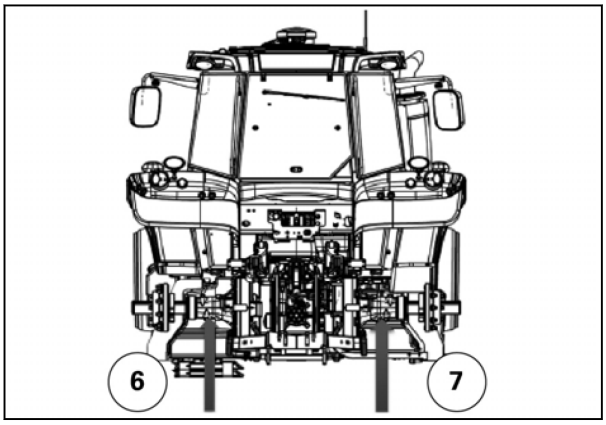



*Fig. 25*

**Front sling points**

- (8) On the side fixing holes of the front linkage
- (9) On the weight support hole

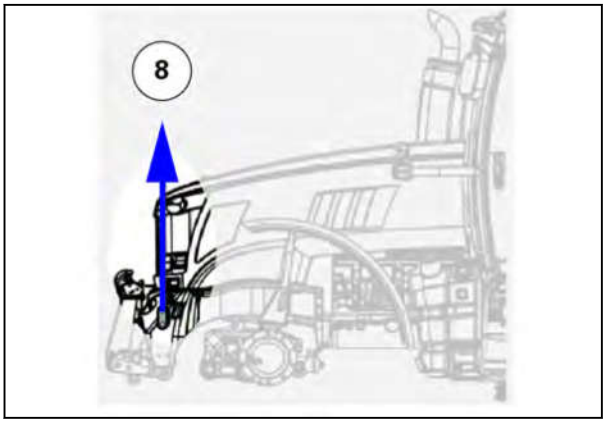



*Fig. 26*

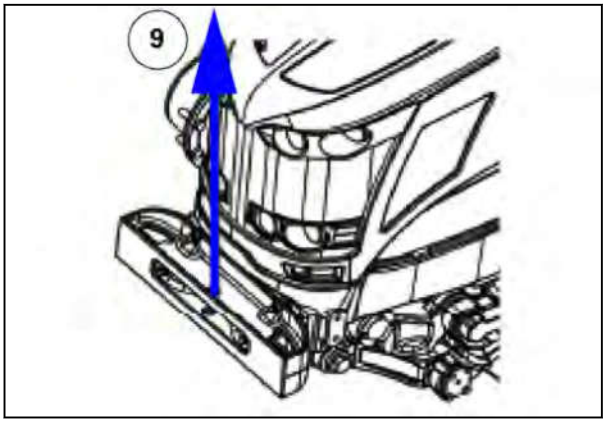



*Fig. 26*

**Cab sling points**

*Fig. 27*

## 2.9.4 Special instructions for cleaning the tractor

- Before cleaning the tractor, always:
  - Follow the mandatory procedure before dismounting the tractor
  - 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

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

They comply with all the regulations in force for agricultural tractors.

## 2.10.2 Cab

- The cab has been designed to be suitable for this tractor series and meet all the legal requirements in terms of safety
- Never weld parts onto the cab
- Never bend or straighten the cab
- Never drill or modify the cab to fit accessories or implements.

  If other controls or displays have to be fitted in the operator's area of maneuver, contact your dealer to find out what to do
- Do not attach chains or ropes to the cab in order to pull or tow anything
- If the cab has been removed, refit it and tighten the fixings to the specified torque before using the tractor again

**WARNING:**
**A cab damaged as a result of an accident, overturning or other incident must be replaced before using the tractor again.**

## 2.10.3 Seat belt

- 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. The seat belt approval number is visible after the seat belt has been completely unraveled.**

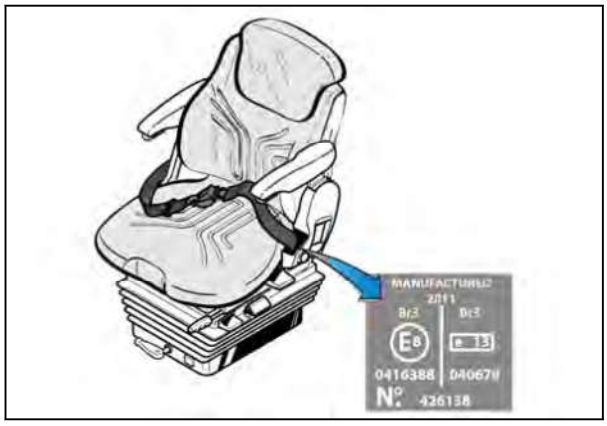


*Fig. 28*

## 2.10.4 Instructor seat

- 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.

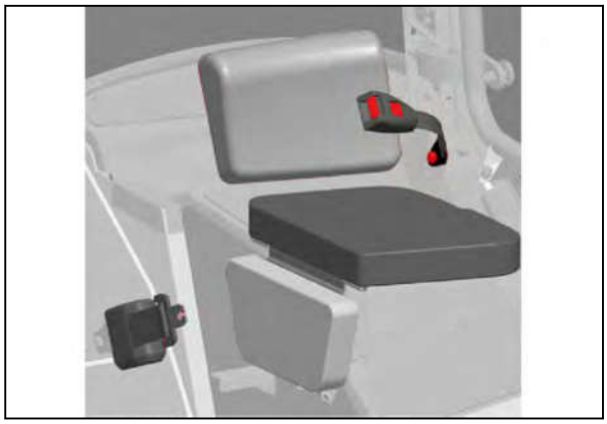


*Fig. 29*

# 2.11 Warranty

## 2.11.1 General

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 Massey Ferguson 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

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:**
*Massey Ferguson disclaims all liability in the event of any claim resulting from the fitting of non-approved parts, accessories, implements or attachments or unauthorized modifications or alterations.*

## 2.11.3 Warranty procedure

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 service operations not covered by the warranty

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

### Warning concerning spare parts

Parts other than Massey Ferguson parts are likely to be of lower quality. Massey Ferguson 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

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

During the warranty period, all service 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 Massey Ferguson tractor, it is important to continue regular servicing and periodic inspections after the warranty has expired. All major service work on the tractor must be carried out by a local dealer; an experienced technician will detect any problems which may arise between one service and the next. Technicians regularly follow training courses to update their knowledge of the product and service 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 services in accordance with the quality standards required by Massey Ferguson.

# 3. Maintenance

# 3.1 Service Guide

## 3.1.1 Service Guide

**Interpretation of the table**

Initial service marked °°: this maintenance instruction is to be carried out by your dealer as part of the 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 600 hours etc.).

Intervals marked *: For intervals marked *, refer to the relevant chapter in this manual.

| Frequency | 50 hrs | 600 hrs[1] | 1200 hrs[1] | 1800 hrs[2] | 2400 hrs[2] | Every day |
|---|---|---|---|---|---|---|
| **General** | | | | | | |
| Lubricate all points with grease or oil as specified in the Operator's Manual. | °° | ° | | | | |
| 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. | °° | ° | | | | |
| **Operator environment** | | | | | | |
| Check and top up the windscreen washer bottle. | °° | ° | | | | |
| Clean the cab air filter element. | Every week or every day in difficult working conditions | | | | | |
| Change the cab air filter element. | | | ° | | | |
| Check the air conditioning system for correct operation. | °° | ° | | | | |
| Check the cab tightening torque. | °° | ° | | | | |
| Replace the front rubber mountings | 4800 hrs | | | | | |
| Replace the cab shock absorbers (mechanical suspension option). | 4800 hrs | | | | | |
| **Engine** | | | | | | |
| Check the engine oil level. | | | | | | ° |
| Change the engine oil. | | ° | | | | |
| Change the engine oil filter. | °° | ° | | | | |
| Bleed the water from the fuel prefilter. | ° | | | | | |

| Frequency | 50 hrs | 600 hrs[1] | 1200 hrs[1] | 1800 hrs[2] | 2400 hrs[2] | Every day |
|---|---|---|---|---|---|---|
| Change the fuel prefilter. | °° | | ° | | | |
| Change the fuel filter. | °° | | ° | | | |
| Bleed the water from the fuel/water separator. | ° | | | | | |
| Change the water/fuel separator. | °° | ° | | | | |
| Drain any water from the fuel tank. | | ° | | | | |
| Check/adjust the valve clearance, replace the cover seal | | °3 | | | ° | |
| Check the operation of the injectors. | | | | | ° | |
| Change the main DEF or AdBlue™ filter. | | | ° | | | |
| Check/clean the dry air filter elements. | If the indicator light comes on | | | | | |
| Change the dry air main filter element. | After the fifth time the indicator light has lit up or once a year | | | | | |
| Change the dry air safety filter element. | Every other time the main filter is replaced | | | | | |
| Check the radiator coolant level. | | | | | | ° |
| Drain, flush and refill the radiator with coolant. | | | °1 | | | |
| Check/clean the radiator/cooler fins. | | 100 hrs[4] | | | | |
| Check/clean the air conditioning condenser. | | 100 hrs[4] | | | | |
| Check the tension and condition of the alternator/fan/air conditioning compressor belts. | °° | ° | | | | |
| Change the alternator/fan/air conditioning compressor belts. | | | °5 | | | |
| **Transmission and auxiliary hydraulics** | | | | | | |
| Check the transmission oil level. | | | | | | ° |
| Change the transmission oil. | | | | °6 | | |
| Change the transmission suction strainer. | | | | °6 | | |
| Change the transmission high-pressure filter. | °° | | ° | | | |
| Check/clean the transmission oil cooler. | | 100 hrs[4] | | | | |
| Check the oil in the rear final drive units. | | ° | | | | |
| Change the oil in the rear final drive units. | °° | | | ° | | |
| Check the auxiliary hydraulic oil level. | | | | | | ° |
| Change the auxiliary hydraulic system oil. | | | | ° | | |
| Change the auxiliary hydraulic system return filter. | °° | ° | | | | |
| Change the auxiliary hydraulic system breather. | | ° | | | | |
| **Brakes** | | | | | | |
| Check the clutch pedal and transmission for correct operation. | °° | ° | | | | |

| Frequency | 50 hrs | 600 hrs[1] | 1200 hrs[1] | 1800 hrs[2] | 2400 hrs[2] | Every day |
|---|---|---|---|---|---|---|
| Check the condition and the brake pipes/ compressed air tank. | °° | | | ° | | |
| Bleed the brakes. | | | | ° | | |
| Check the operation of the parking brake. | °° | ° | | | | |
| Check the trailer brake valve for correct operation. | °° | | ° | | | |
| Check the regulator filter (pneumatic trailer braking option) | | ° | | | | |
| Check the level of WABCOTHYL fluid in the compressed air system. | | | | | | ° |
| Bleed the air from the pneumatic accumulators of the trailer brake system (if fitted). | | | | | | ° |
| **Front axle and steering** | | | | | | |
| Check the oil level in the front axle and the front axle final drives. | °° | 200 hrs | | | | |
| Change the oil in the front axle and final drives. | °° | | ° | | | |
| Check the front wheel hubs/steering pivots. | | ° | | | | |
| Lubricate the non-suspended front axle. | °[7] | 200 hrs | | | | |
| Lubricate the front axle drive shaft. | ° | | | | | |
| Check the steering and wheel alignment (including tire wear and damage). | | | | ° | | |
| Calibrate the suspended front axle. | | | | ° | | |
| **Power take-off** | | | | | | |
| Check the PTO for correct operation. | °° | ° | | | | |
| Change the ZUIDBERG front PTO oil. | °° | °[4] | | | | |
| Clean the "ZUIDBERG" front PTO strainer. | °° | °[4] | | | | |
| Check/clean the front PTO cooler. | | 100 hrs[4] | | | | |
| **Hitch/linkage** | | | | | | |
| Check the auto-hitch for correct operation (if fitted). | °° | | | ° | | |
| Check/lubricate the auto-hitch (if fitted). | Once a week | | | | | |
| Lubricate the front and rear linkages/hitches. | Once a week | | | | | |
| Lubricate the linkage shaft. | °° | ° | | | | |
| **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. | °° | ° | | | | |

| Frequency | 50 hrs | 600 hrs[1] | 1200 hrs[1] | 1800 hrs[2] | 2400 hrs[2] | Every day |
|---|---|---|---|---|---|---|
| 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. | °° | ° | | | | |
| Check that the battery circuit breaker is working correctly. | °° | ° | | | | |
| Reset the service parameters on the Setup and Information Screen. | °° | ° | | | | |
| **Wheels and tires** | | | | | | |
| Check the torque of all wheel and rim nuts and bolts. | Every day until the tightening torque stabilizes, then every 50 hours | | | | | |

1. Or every year
2. Or every two years.
3. The first time only
4. Depending on the working conditions.
5. Every 600 hours in difficult working conditions.
6. NA market: When AGCO Permatran 821XL 10W30 oil is used, the intervals must be reduced to 1000 hours.
7. Every 50 hours in difficult working conditions

# 3.2 Operator environment

## 3.2.1 Air conditioning system: condenser

**Frequency**

Check the condenser regularly and, if necessary, clean using compressed air.

**Procedure**

Clean the condenser grilles carefully.

**NOTE:**
*Take care not to damage the various radiator grilles.*

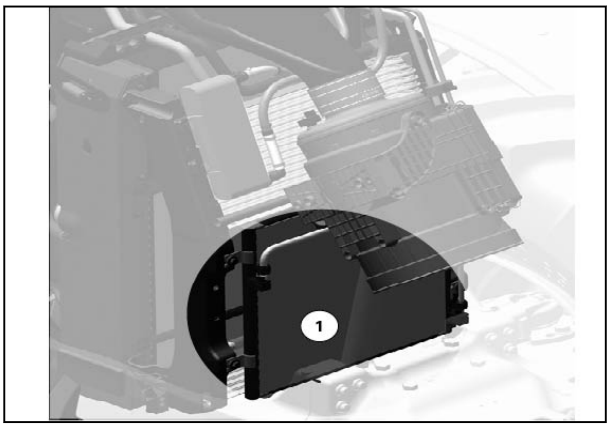



*Fig. 1*

## 3.2.2 Air-conditioning system: Checking the air conditioning system

**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.**

**Procedure**

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).

## 3.2.3 Cab air filter

**Frequency**

Clean the cab air filter every week, or more frequently, if necessary.

In dusty conditions, clean the cab air filter every day.

Replace the cab air filter(s) every 1200 hours, or once a year, whichever occurs first.

### 3.2.3.1 Standard-roof air filter: Procedure

**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**

1. To gain access to the cab air filter, open the hatch on the left-hand side of the cab roof.
2. Turn the handle and lift out the filter element.
3. Clean the filter by blowing it with compressed air.
4. Before refitting the filter, wipe out the compartment with a damp cloth to remove dust.

*Fig. 2*

### 3.2.3.2 High-visibility-roof air filter: Procedure

**Procedure**

1. To gain access to the cab air filter, turn the locks to open the hatch at the rear of the cab roof.
2. Loosen the two nuts and extract the filter element.
3. Clean the filter by blowing it with compressed air.
4. Before refitting the filter, wipe out the compartment with a damp cloth to remove dust.

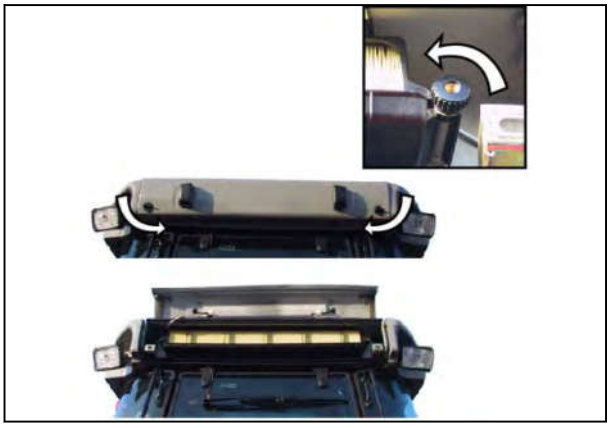


*Fig. 3*

## 3.2.4 Cab attachment

**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 600 hours. Replace the rubber mountings for the suspended cab every 4800 hours.

*Fig. 4*

**ATTENTION:** *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 of the above operations 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.*

## 3.2.5 Windscreen washer

The windscreen washer bottle is located between the tractor rear fenders.

*Fig. 5*

**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.*

# 3.3 Engine

## 3.3.1 Recommended products

**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: ACEA E9 (EAME) or API CJ4 (NA)

### Recommended SAE viscosity grades (SAE J300d)

Viscosity grades depending on ambient temperature conditions

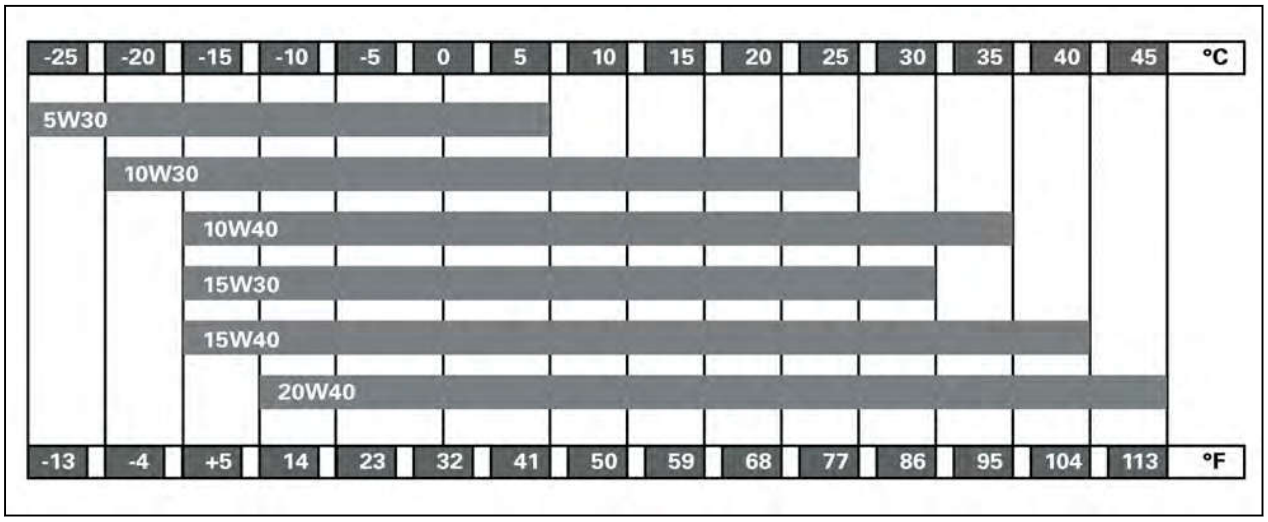



*Fig. 6*

### Coolant

Antifreeze: Permanent, ethylene/glycol, complying with standard ASTM D6210 type III-FF.

When topping up the coolant or after draining the cooling system, use a product that complies with standard ASTM D6210 type III-FF.

| Coolant specification: | | |
|---|---|---|
| Criteria | Dilution of coolant by mass (% water / % coolant) | |
| | 50/50 | 60/40 |
| Specific heat at 20 °C | < or = 3.45 J/g.°C | N/A |
| Density at 20 °C | /m³ | /m³ |
| pH at 20 °C | 8.6 < pH < 9.5 | 8.4 < pH < 9.5 |
| Boiling point at 2 bar (relative) | > 141 °C | > 139 °C |
| Precautions against freezing | < or = -35 °C | < or = -25 °C |

- Coolant with OAT (Organic Acid Technology) corrosion inhibitor.
- Coolant must be manufactured using a mixture of demineralised water and ethylene/glycol.
- pH stability: after 500 hours at 40 °C (coolant only - coolant with aluminum - coolant with steel - coolant with steel + cataphoresis): difference in pH < 0.45.
- Color: orange or blue.

## 3.3.2 Fuel

### 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 diesel 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.**

### Compulsory fuel for Tier 4F/Stage IV SCR Technology engine engines

The diesel used must comply with standard EN 590:2009 or ASTM D 975-09b 1-D or 2-D.

To obtain the correct power and optimum engine performance, use only good quality fuel.

**IMPORTANT:**
*If the type of diesel is not observed, the engine and depollution system will be subject to damage that will not be covered by the warranty.*

### Fuel recommended for other engines

In addition to fuels for Tier 4F/Stage IV SCR Technology engine engines, the diesel used must comply with standard EN 14214:2008 or ASTM D6751.

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. The shelf life of the fuel is approximately six months.
- 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 meter toward the rear (drain plug side).

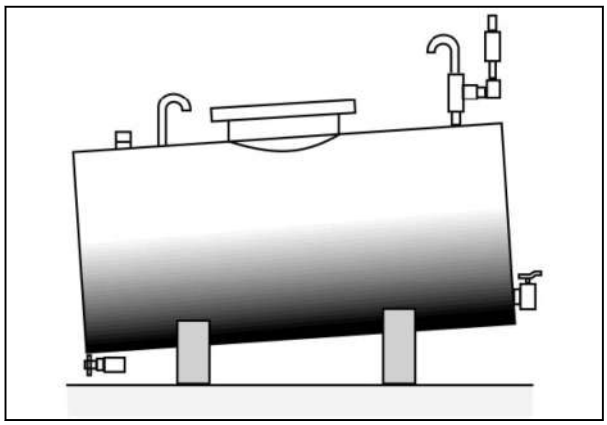


*Fig. 7*

- 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; refueling 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 liters 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.

## 3.3.3 Biodiesel fuel

**Recommended fuel specification**

**1st generation biodiesel fuels**

1st generation biodiesel fuel is permitted for AGCO Power engines. It must comply with the EN 14214:2008 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.

EN 590:2009 diesel fuels (or superior) can contain up to 10% FAAE/FAME type biodiesel corresponding to standard EN 14214:2008. ASTM D975-10b diesel fuels (or superior) can contain up to 10% FAAE/FAME type biodiesel corresponding to standard ASTM D6751-08. Please contact your dealer for more information.

**IMPORTANT:** *Using diesel fuels containing 10 to 20% biodiesel is allowed; the following service intervals and frequencies for changing consumables are then divided by 2:*

- *Draining the engine oil and replacing the engine oil filters*
- *Replacing the fuel filters and the fuel prefilters*

**IMPORTANT:** *Using diesel fuels containing 10 to 20% FAAE/FAME type biodiesel is allowed; the following equipment is then essential:*

- *Addition of an extra fuel prefilter*
- *Addition of a water separator between the tank and the engine; the water separator must be maintained on a regular basis and must meet AGCO Power specifications.*

**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.*

### 2nd generation biodiesel fuels

2nd generation biodiesel fuel is permitted for AGCO Power engines without restriction. It must comply with the EN 15940 specifications.

**IMPORTANT:**
*The use of 2nd generation biodiesel fuel (synthetic diesel) does not change the normal service intervals for AGCO Power engines that are listed in this manual.*

### Fuel storage

The biodiesel 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, biodiesel 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.

### 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 at start-up temperatures down to approximately -16°C.
- If the tractor needs to remain immobilized 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.

**Possible consequences of using diesel fuels containing 10 to 20% FAAE/FAME type biodiesel**

To protect the engine and the fuel system, the tractor must be serviced at the recommended shorter intervals.

- Loss of power and reduced performance
- Fuel leaks from the seals and hoses
- Corrosion of the biodiesel injection equipment
- Reduced lubrication of the injection pump
- Carbonisation/obstruction of the injectors, leading to diminished biodiesel 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.

## 3.3.4 AdBlue™ or DEF

**Recommendation**

DEF or AdBlue™ is a urea-based fluid sold under the brand name DEF or AdBlue™ .

DEF or AdBlue™ must comply with standard ISO 22241-1 or DIN 70070.

DEF or AdBlue™ is not a hazardous product, but it must be handled with care. In the event of spillage of DEF or AdBlue™ on the vehicle, rinse off with water and wipe with paper or a cloth.

**Low temperatures:** DEF or AdBlue™ 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 |
| Above 35°C | - [2] |

**NOTE:**
*The main factors taken into account to define the limits in this table are the ambient temperature and initial alkalinity of the DEF or AdBlue™ . The evaporation difference between storage in a ventilated container and an unventilated container is an additional factor.*
*For quick and accurate measurement of the concentration of DEF or AdBlue™ , use a refractometer for DEF or AdBlue™ .*
*For further information regarding storage and handling conditions, refer to standard ISO 22241.*

1. To prevent decomposition of DEF or AdBlue™ , avoid prolonged storage or transport at a temperature of approximately -25 °C.
2. Check that the product is homogeneous before each use.

**IMPORTANT:** *If the DEF or AdBlue™ is modified or replaced by another fluid, which does not comply with standards ISO 22241-1 or DIN 70070, there is a risk that it will not provide the intended result and it may damage the SCR Technology.*

**Fuel storage**

**WARNING:**
**DEF or AdBlue™ fluid must be stored at a temperature below 30°C and away from direct sunlight.**

## 3.3.5 4-cylinder AGCO POWER engine

(1) Engine oil filter
(2) Oil filler plug
(3) Engine oil dipstick
(4) Fuel prefilter
(5) Fuel filter
(6) Prefilter for water separator
(7) Engine oil drain plug

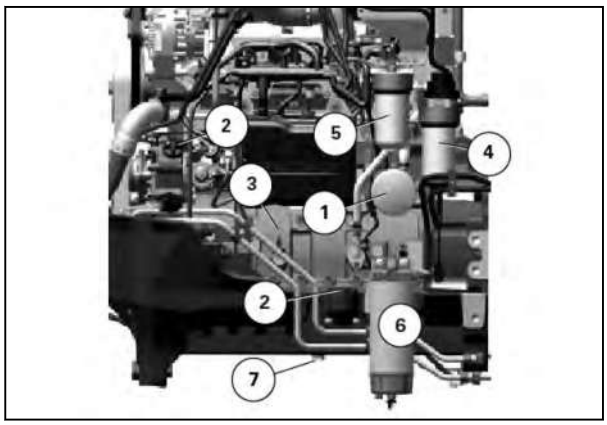



*Fig. 8*

## 3.3.6 Engine oil level check

**Frequency**

Check the engine oil level daily.

**AGCO Power engine dipstick**
(1) Minimum
(2) Maximum

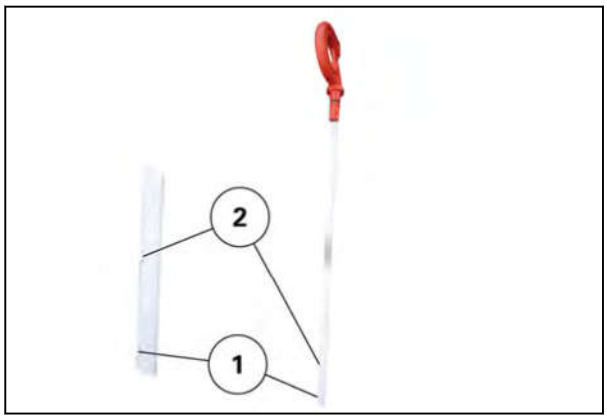



*Fig. 9*

### 3.3.6.1 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 mark on the dipstick.*

**Procedure**

1. Stand the tractor on level ground, with the front axle suspension disengaged. Stop the engine.
2. Check the oil level using the dipstick. (A)

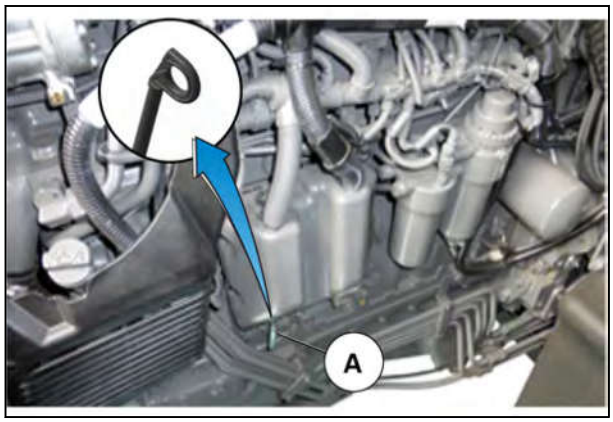



*Fig. 10*

3. Top up with oil if necessary.

## 3.3.7 Draining the engine oil

**Frequency**

Drain the engine oil at least every 600 hours.

In difficult working conditions, the oil may need changing more frequently (every 300 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 organizations.*

   Collect the used oil in a container of sufficient size.
5. Refit and tighten the drain plugs to a torque of 35 Nm.
6. Refill with a recommended oil to the "max" mark.

   **NOTE:** *Allow time for the oil to settle in the sump before checking the level.*
7. Start the engine and check that there are no leaks from the drain plug(s).

## 3.3.8 Replacing the engine oil filter

**Frequency**

Change the engine oil filter every 600 hours.

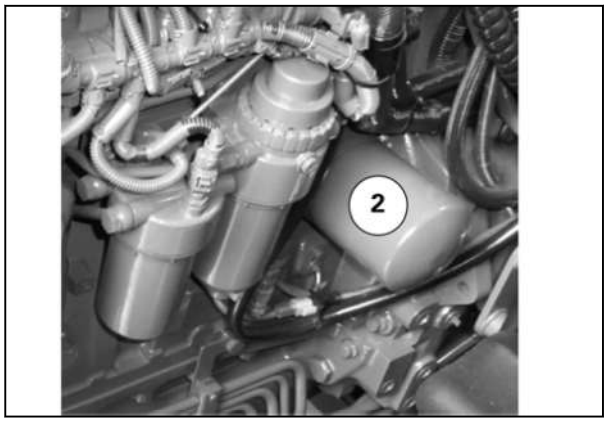



*Fig. 11*

**Procedure**

1. With the engine switched off, drain the engine oil before replacing the oil filter.
2. Unscrew and discard the complete filter and 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 the filter a further half-turn by hand only (do not overtighten).
6. **IMPORTANT:**
   *When starting the engine after changing the oil and filter, avoid depressing the throttle pedal and let the engine run at idle speed for several minutes with no load until oil pressure is obtained. Wait for the indicator light to go out.*

   Recheck the oil level and top up if necessary.
7. Restart the engine and check that there are no leaks.

## 3.3.9 Draining the DEF or AdBlue™ tank

### 3.3.9.1 Procedure

If the DEF or AdBlue™ tank is contaminated, it is necessary to drain the tank.

**Procedure**

1. Stand the tractor on level ground, with the front axle deactivated. Stop the engine.
2. Loosen and remove the plug (1) from the DEF or AdBlue™ tank.
3. **IMPORTANT:**
   *Do not dispose of DEF or AdBlue™ in the environment. Always store DEF or AdBlue™ in suitable containers so that it can be collected and processed by specialist organizations.*

   Collect the used DEF or AdBlue™ in a container of sufficient size.

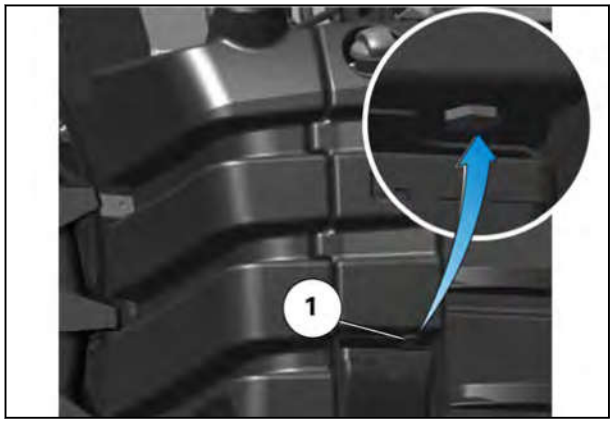



*Fig. 12*

4. Refit and tighten the drain plug (tightening torque 8 Nm).
5. Refill with a recommended DEF or AdBlue™ to the "max" mark.
6. Start the engine and check that there are no leaks from the drain plugs.

## 3.3.10 Replacing the DEF or AdBlue™ filter

**Frequency**

Replace the DEF or AdBlue™ filter every 1200 hours.

### 3.3.10.1 Procedure

**CAUTION:**
**As this fluid may be corrosive, wear protective gloves and safety goggles when carrying out these operations.**

**Procedure**

1. Remove the two mounting screws (2) and remove the dosing control unit cover (1).

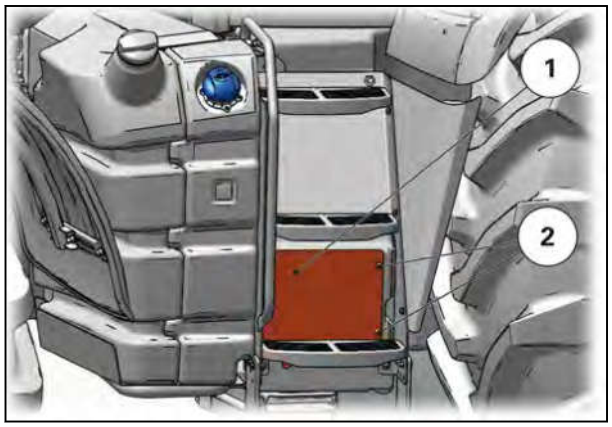



*Fig. 13*

**2.** Unlock the connector (3), then disconnect the dosing control unit.

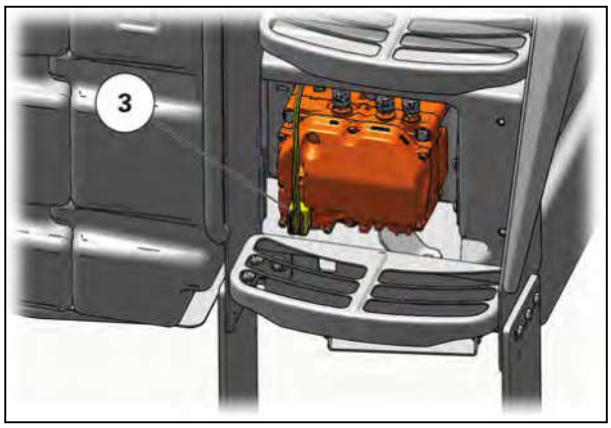



*Fig. 14*

**3.** Remove the three screws (4) located at the front of the dosing control unit.

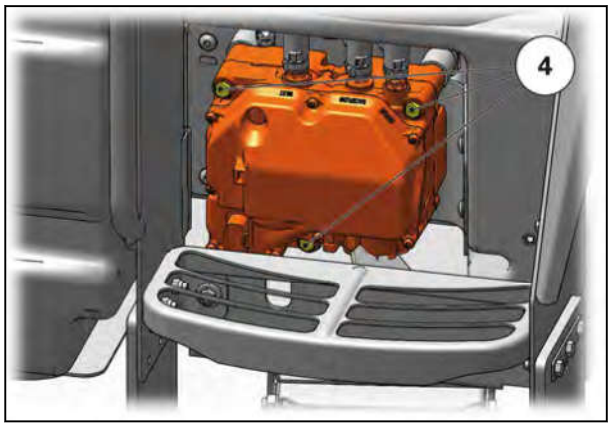



*Fig. 15*

**4.** Carefully raise the dosing control unit to gain access to the DEF or AdBlue™ suction line (5), the DEF or AdBlue™ supply line (7) and the DEF or AdBlue™ return line (6).

**5.** Disconnect the DEF or AdBlue™ pipes.

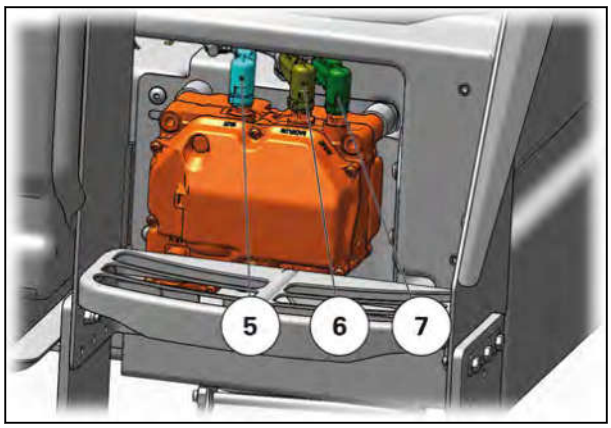



*Fig. 16*

**6.** Take the dosing control unit out of its housing.

**NOTE:**
*Ensure that the ends of the pipes are well blocked to prevent dirt or debris from entering.*

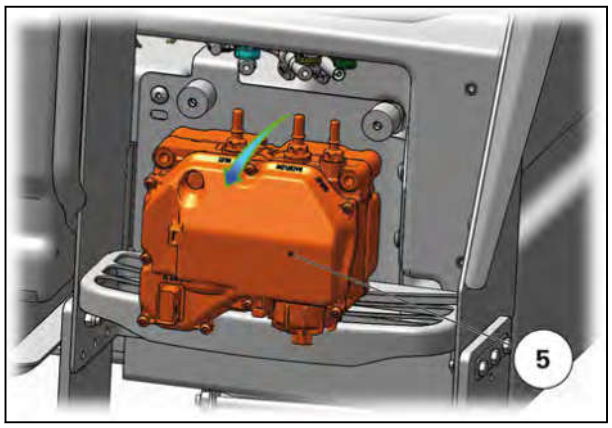



*Fig. 17*

**7.** Remove the metering module.

**8.** Remove the cover plate (4)

**9.** Extract and discard the part (3)

**10.** Extract and discard the filter (2)

**11.** **IMPORTANT:**
*Before refitting, the contact surfaces of the different elements must be clean and undamaged. Do not reuse worn or wet elements. Do not use mineral oil, silicone or grease when fitting filter seals as the seals are Teflon-coated to facilitate assembly.*

Fit a new filter (2)

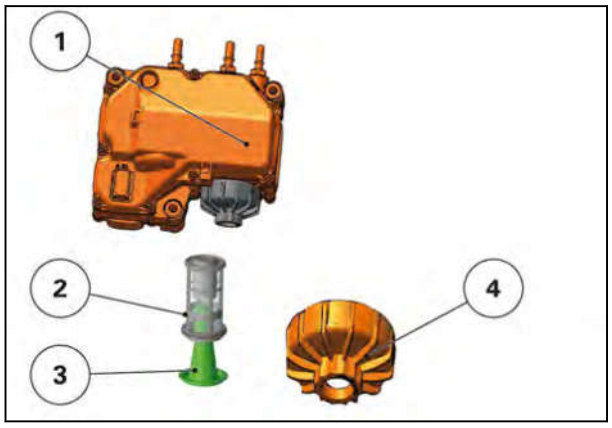



*Fig. 18*

**12.** Fit a new part (3)

**13.** Refit the cover plate (4) and tighten it to a torque of 20 Nm to 25 Nm

**14.** Refit the dosing control unit .

**15.** **IMPORTANT:**
*If any DEF or AdBlue™ has crystallized on the pipe fittings, ensure that the DEF or AdBlue™ pipes are cleaned prior to installation.*

Fit the dosing control unit into its housing. Raise the front of the dosing control unit and install the DEF or AdBlue™ pipes (5), (6) and ( 7).

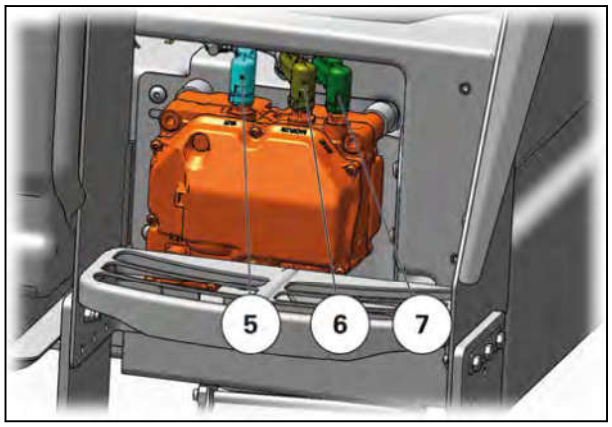



*Fig. 19*

**16.** Fit and tighten the three mounting screws (4) for the dosing control unit and tighten to a torque of 15 Nm to 22 Nm.

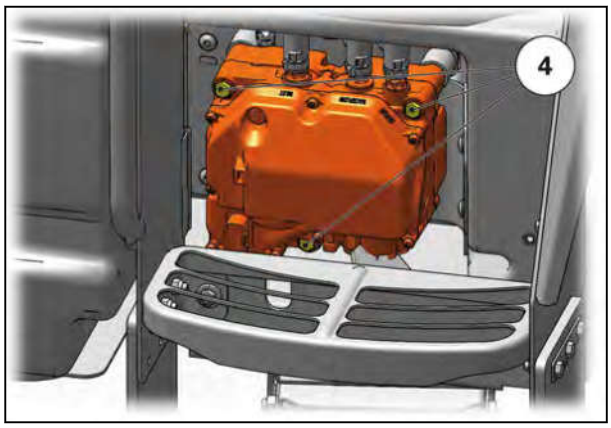



*Fig. 20*

**17.** Connect the connector (3) and close the lock.

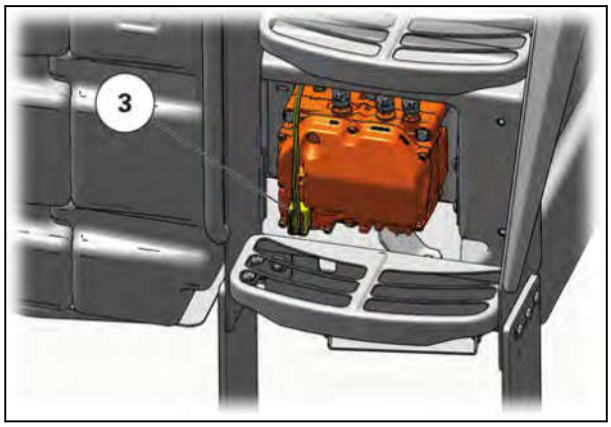



*Fig. 21*

**18.** Fit the cover of the dosing control unit (1), and fit and tighten the two mounting screws (2).

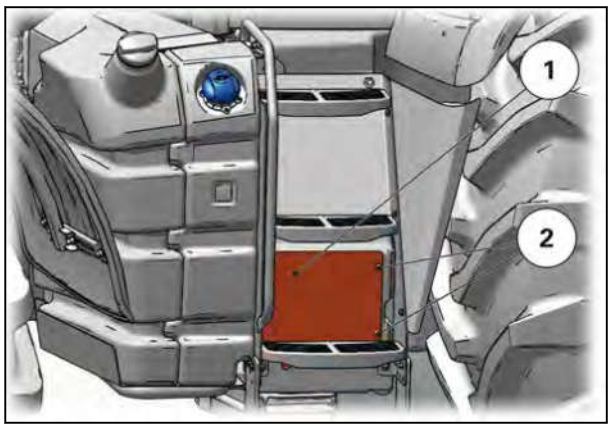



*Fig. 22*

## 3.3.11 Fuel system: Fuel prefilter

**Draining the water: Frequency**

Every 50 hours or once a week.

**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.*

#### 3.3.11.1 Draining the water: Procedure

**Procedure**

1. Place a container underneath the fuel prefilter.
2. 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.
3. Re-close the valve and then bleed the system .

#### 3.3.11.2 Replacing the filter element: Frequency

Replace the filter element every 1200 hours.

#### 3.3.11.3 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.*

**Procedure**

1. Disconnect the connection under the prefilter 1
2. Drain the prefilter 2

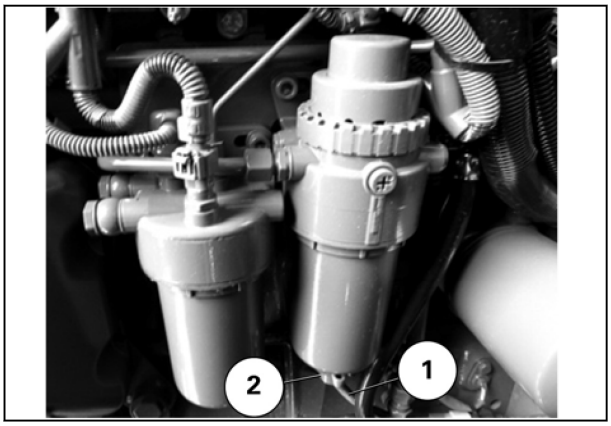


*Fig. 23*

3. Remove and discard the filter element
4. Fill the new filter element with fuel and refit it (also lubricate the seal with fuel)
5. Reconnect the connection under the prefilter
6. Bleed the system .

## 3.3.12 Fuel system: fuel filter

**Frequency**

Replace the filter element every 1200 hours

**Procedure**

1. Place a container underneath the filter
2. Drain the filter
3. Remove the filter element (1) and discard it in accordance with current environmental legislation.
4. Fill the new filter element with clean fuel and refit it (also lubricate the seal with fuel)

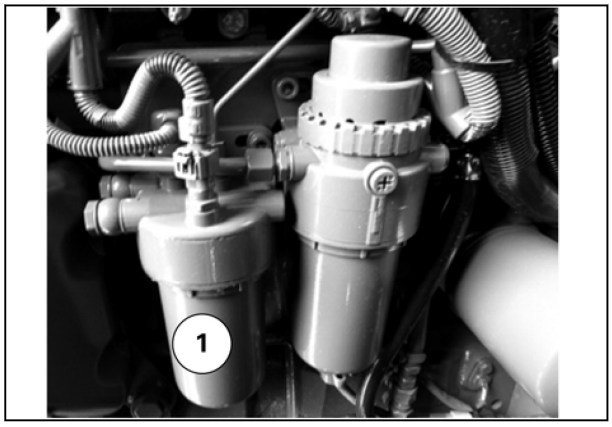



*Fig. 24*

5. Bleed the system .

## 3.3.13 Checking and cleaning the fuel cooler

**Frequency**

Check the cooler every day and, if necessary, clean using compressed air.

**Procedure**

**IMPORTANT:**
*Take care not to damage the various radiator grilles.*

**Procedure**

Clean the fuel cooler (1) with compressed air.

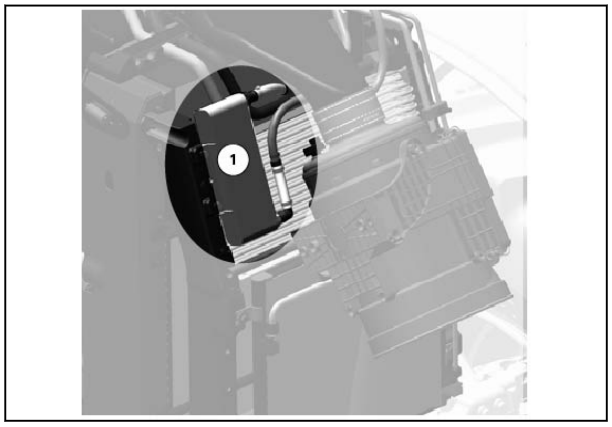



*Fig. 25*

## 3.3.14 Fuel system: Water separator prefilter

**Draining the water: Frequency**

Every 50 hours:

**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.*

### 3.3.14.1 Procedure for draining the water

**Procedure**

1. Place a container underneath the fuel prefilter
2. Drain the water by opening the valve (1) at the base of the prefilter Collect the water and dispose of properly in accordance with directives on environmental protection.
3. Close the valve again.

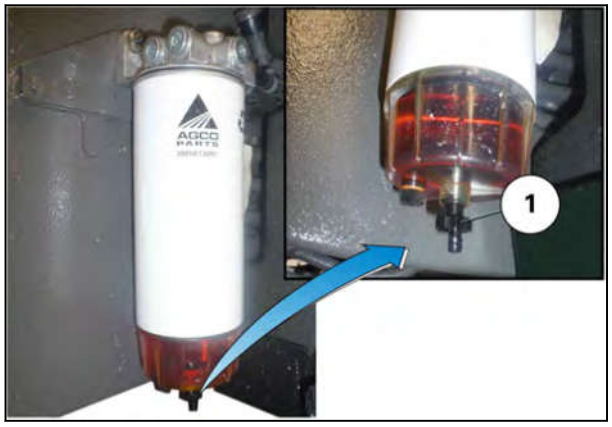



*Fig. 26*

4. Bleed the system.

### 3.3.14.2 Replacing the filter element: Frequency

Replace the filter element every 600 hours.

### 3.3.14.3 Replacing the filter element: Procedure

**Procedure**

1. Drain the prefilter by opening the screw of the filter bowl (1).
2. Remove the bowl (2).
3. Unscrew the filter element (3) and discard it.
4. Refit a new element (lubricate the seal with fuel).
5. Refit the bowl (lubricate the seal with fuel).
6. Bleed the system .

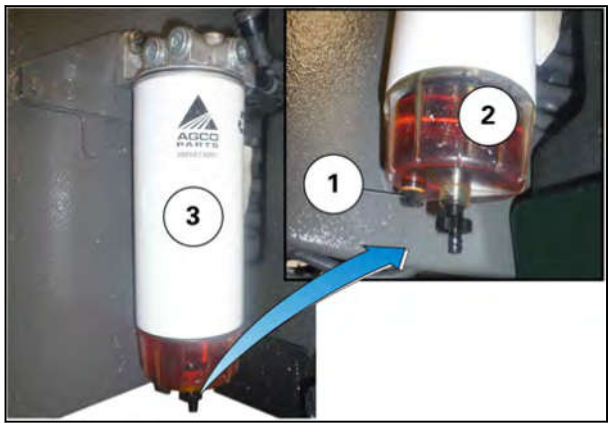



*Fig. 27*

## 3.3.15 Fuel system: bleeding

**Procedure**

To ensure correct operation of the engine, the fuel system must be in perfect condition and free of air.

**Procedure**

1. Place a container under the prefilter to collect the fuel
2. Undo the bleed screw (1) and fit a transparent pipe onto the port
3. Operate the pump (2) until the liquid flows through the bleed screw without any air
4. Retighten the bleed screw
5. Start the engine and allow it to run at idle for several minutes to completely bleed the system

   **NOTE:**
   *Never activate the starter for more than 30 seconds in one go to avoid overheating the starter and discharging the battery.*
6. Check that there are no leaks
7. Repeat the operation if required.

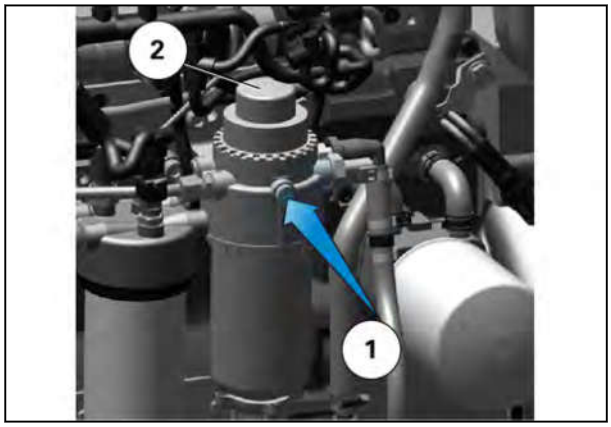


*Fig. 28*

## 3.3.16 Fuel system: Injector pump, regulator and injectors

The injection pump, regulator and injectors must be checked and adjusted by the dealer or agent (in accordance with the service guide).

## 3.3.17 Fuel system: 3rd generation T4F SCR engine injection

The injection system must be checked and adjusted by the dealer or agent (in accordance with the service guide).

## 3.3.18 Fuel system: fuel tank

Drain the water from the fuel tank via the plug located at the rear of the left-hand tank. When refitting, tighten the plug to a torque of 5 Nm.

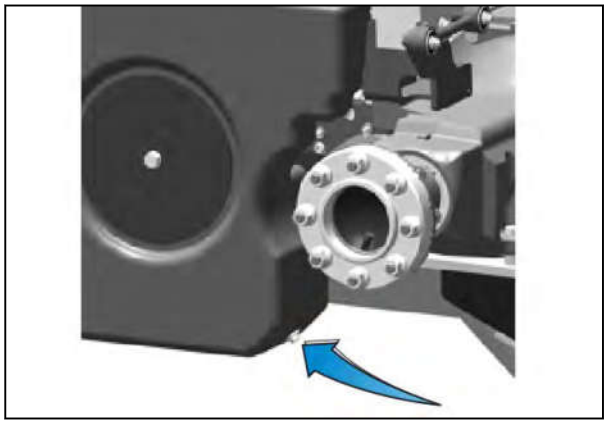


*Fig. 29*

## 3.3.19 Air filter

**Cleaning and replacement: Frequency**

Main filter

- Only clean the main filter if the blockage indicator light comes on
- Replace the main filter (2) after the blockage indicator light has lit up five times, or once a year.

Secondary filter:

- Only clean the secondary filter if the blockage indicator light comes on
- Replace the secondary filter (3) once for every two main filter changes, or every two years.

**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.**

### 3.3.19.1 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.*

**Procedure**

1. Lift the engine cover.
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 the top of the filter with compressed air at a maximum pressure of 5 bar while keeping the filter at a suitable distance away from the nozzle (0.50 m minimum).
   - 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.

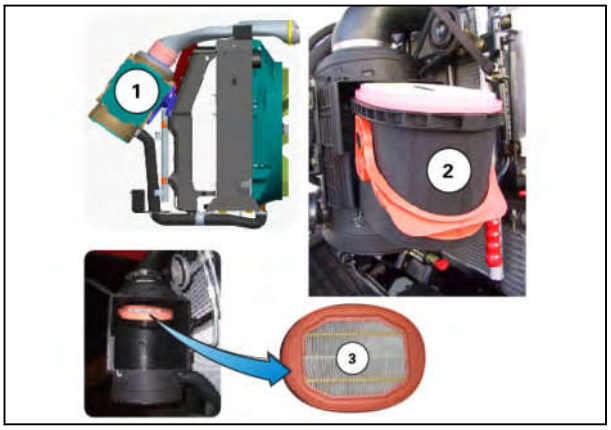


*Fig. 30*

### 3.3.19.2 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.**

**Procedure**

1. Remove the main filter to access the secondary filter.
2. Remove the secondary filter (3) and carry out the cleaning.

3. **IMPORTANT:**
   *To clean the secondary filter, do not tap it against a hard surface.*

4. Carry out the operations in reverse order to refit.

## 3.3.20 Cooling system

**Coolant quality**

- The coolant quality can have a great effect on the efficiency and life of the cooling system
- **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 adding pure water to the system, as this will dilute the mixture.

### 3.3.20.1 Checking the level and quality of the coolant

**Procedure**

1. **Cold engine**, visually check the coolant level daily.
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.

### 3.3.20.2 Filling to top up the coolant level

**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.*

**Procedure**

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 valve 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.

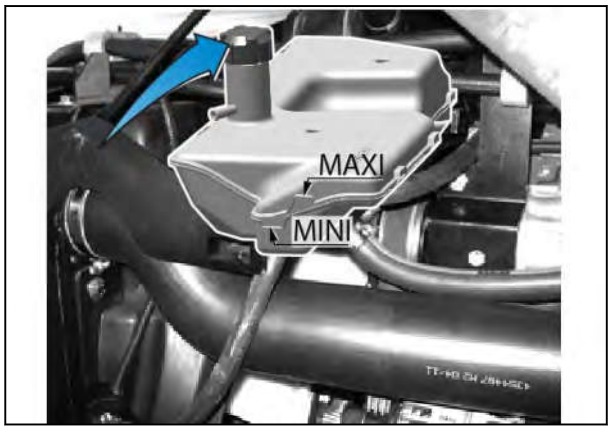



*Fig. 31*

### 3.3.20.3 Draining the cooling system

Drain the system every 1200 hours according to the following procedure.

**CAUTION:**
**Wait until the system has completely cooled before draining.**

**Procedure**

1. Lift the bonnet to access the expansion tank.
2. Open the expansion tank plug.
3. Place a drip pan underneath the pipe (1) of the radiator.
4. Open the drain valve (2) of the radiator and allow the fluid to drain out completely.
5. Close the drain valve (2) of the radiator 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.

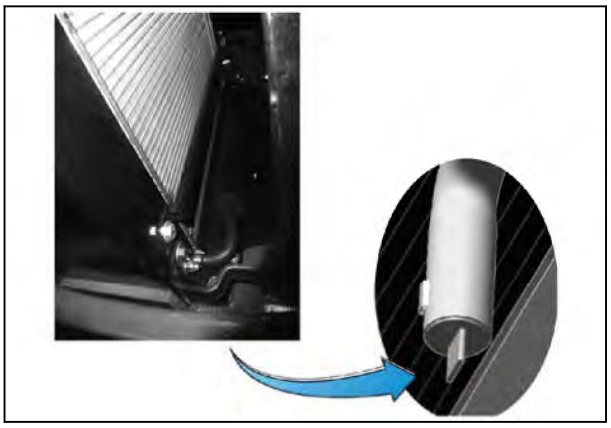


*Fig. 32*

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.

### 3.3.20.4 Cleaning the radiator: Frequency

Clean the radiator fins using compressed air every 100 hours. Clean the radiator fins using compressed air every day in dusty conditions.

### 3.3.20.5 Procedure for cleaning the radiator

**IMPORTANT:**
*Take care not to damage the various radiator grilles.*

**Procedure**

1. For better accessibility to the coolers, turn the thumb wheel and open the panel as follows:

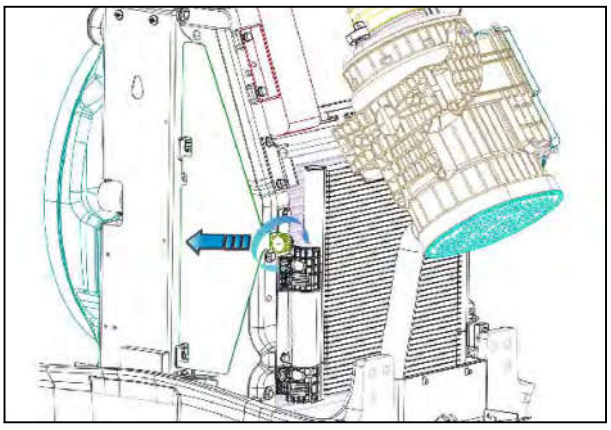


*Fig. 33*

2. Clean the engine cooler (1) with compressed air.
3. Clean the engine air intake cooler (2) with compressed air.

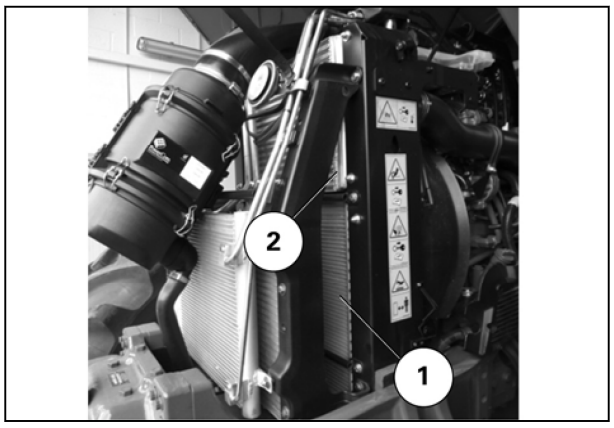



*Fig. 34*

4. Close the right-hand side panel and tighten the thumb wheel.

## 3.3.21 Check and replace the main fan/alternator Poly-V belt

**Frequency**

Check the belt tension every 600 hours.

Replace the belt at the first signs of wear or every 1200 hours (600 hours in dusty conditions).

**Appearance**

- Examine the appearance of the belt (on a daily basis or whenever refueling).
  - 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.

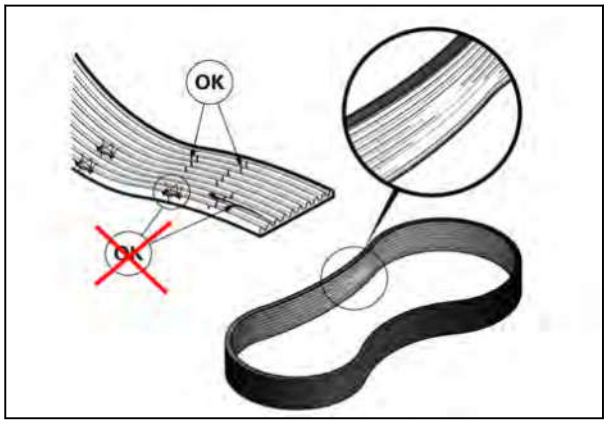



*Fig. 35*

### 3.3.21.1 Tension of the Poly-V main belt

**NOTE:**
*A new belt will have a tendency to slacken after approximately half an hour of operation.*

**Procedure**

Belt tension (A) is automatic and requires no adjustment.

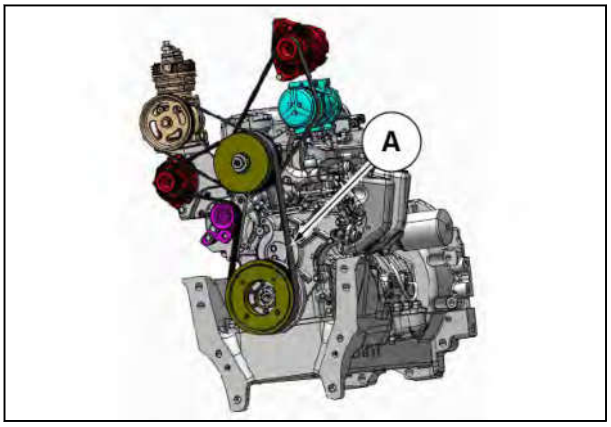



*Fig. 36*

### 3.3.21.2 Replacing the Poly-V main belt

**NOTE:**
*A new belt will have a tendency to slacken after approximately half an hour of operation.*

**Procedure**

Contact your dealer to replace main belt (A).

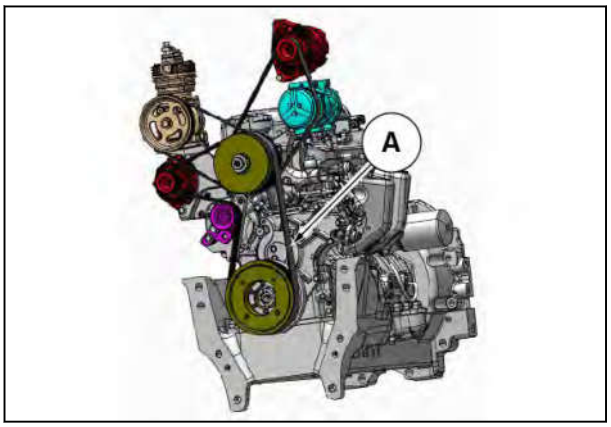



*Fig. 37*

## 3.3.22 Check and replace the air conditioning/alternator Poly-V accessories belt

**Frequency**

Check the belt tension every 600 hours.

Replace the belt as soon as it shows signs of wear or every 1200 hours (every 600 hours in difficult conditions).

### Appearance

- Examine the appearance of the belt (on a daily basis or whenever refueling).
  - 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.

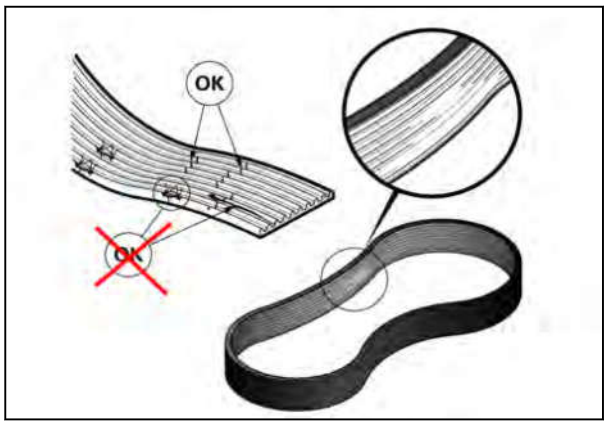



*Fig. 38*

### 3.3.22.1 Tension of the Poly-V accessories belt

### Procedure

The tension of the belt (B) is automatic and requires no adjustment.

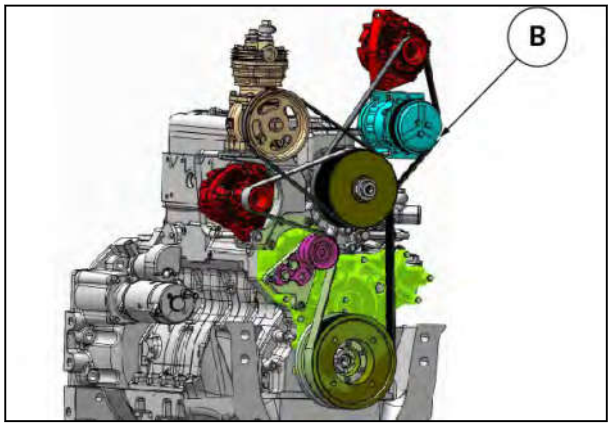



*Fig. 39*

### 3.3.22.2 Replacing the Poly-V accessory belt

### Procedure

1. With the engine switched off, manually press on the accessories belt (B) to check the tension.
2. If the accessory belt is worn or loose, contact your AGCO dealer to replace it.

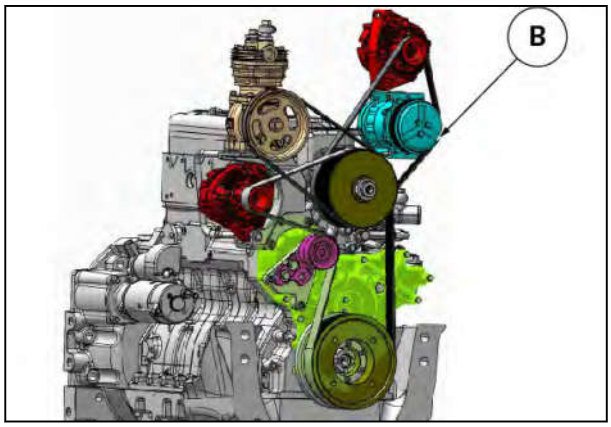



*Fig. 40*

## 3.3.23 Check and replace the air compressor (pneumatic braking) Poly-V accessories belt

**Frequency**

Check the belt tension every 600 hours.

Replace the belt as soon as it shows signs of wear or every 1200 hours (every 600 hours in difficult conditions).

**Appearance**

- Examine the appearance of the belt (on a daily basis or whenever refueling).
  - 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.

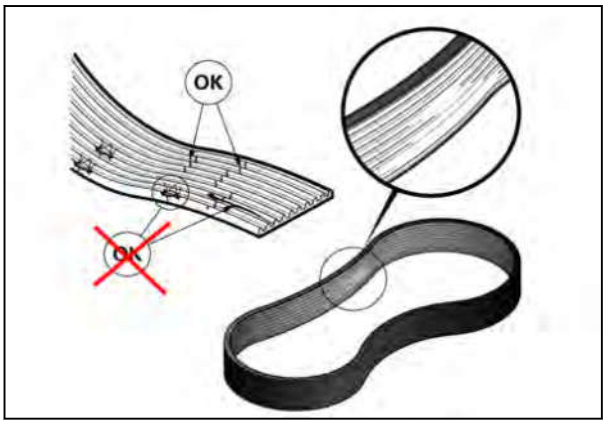



*Fig. 41*

### 3.3.23.1 Tension of the Poly-V accessories belt

**Procedure**

The tension of the belt (C) is automatic and requires no adjustment.

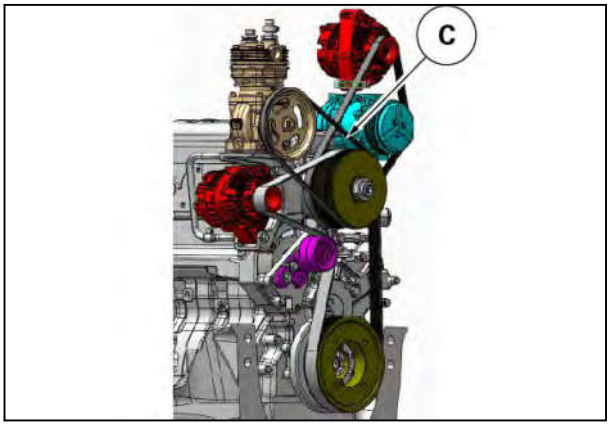



*Fig. 42*

### 3.3.23.2 Replacing the Poly-V accessory belt

**Procedure**

1. With the engine switched off, manually press on the accessories belt (C) to check the tension.
2. If the accessory belt is worn or loose, contact your AGCO dealer to replace it.

   **NOTE:**
   *A specific tool for removing and fitting the belt is required in order to replace the belt.*

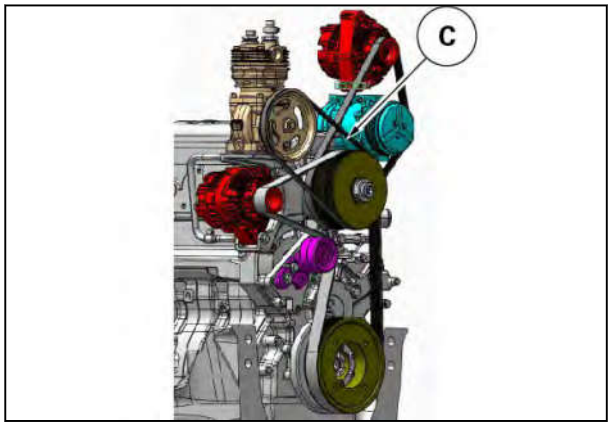



*Fig. 43*

# 3.4 Transmission

## 3.4.1 Recommended products

**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 API GL4 oil complying with MF specifications CMS M1145 or oil found on the OH_3378884M1 list

**Rear final drives**

All models: SAE 85W140 API GL5.

## 3.4.2 Checking the transmission oil level

**Frequency**

Check the transmission oil level every day.

## 3.4.3 Draining the transmission oil

**Frequency**

Drain and replace the transmission oil every 1800 hours.

### 3.4.3.1 Procedure

**NOTE:**
*Do not drain until the transmission oil is hot.*

**Procedure**

1. Stand the tractor on level ground, with the front axle suspension disengaged.
2. Place the bottom links in the lowest position. Stop the engine.
3. Remove the drain plugs (1) and the filler plug (A). Wait until the oil has drained out completely.
4. Refit the drain plugs (1), then refill the transmission with a 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.*

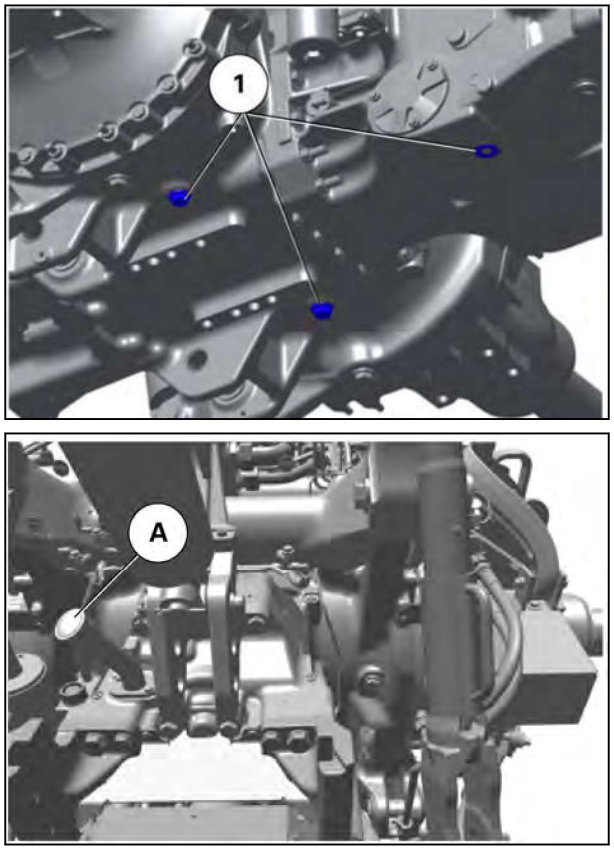



*Fig. 44*

## 3.4.4 Filtering the transmission hydraulic system

**Replacing the filter strainer: Frequency**

Replace the transmission filter strainer every 1800 hours.

### 3.4.4.1 Procedure for replacing the filter strainer

**Procedure**

1. Unscrew the 3 screws on the retaining plate (1), remove the strainer and discard it.
2. Fit the new strainer in its place.
3. Fit the retaining plate (1) and tighten the 3 fixing screws.

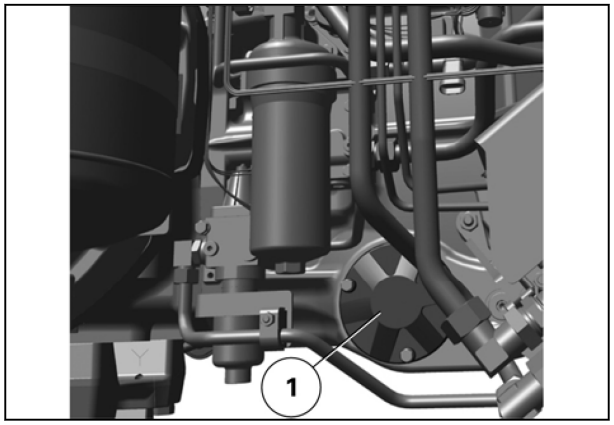



*Fig. 45*

### 3.4.4.2 Replacing the high-pressure filter: Frequency

Replace the high-pressure filter every 1200 hours.

#### 3.4.4.3 Procedure for replacing the high-pressure filter

**Procedure**

1. Unscrew the filter bowl (2).
2. Remove the filter element, allow it to drain fully and discard it.
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.

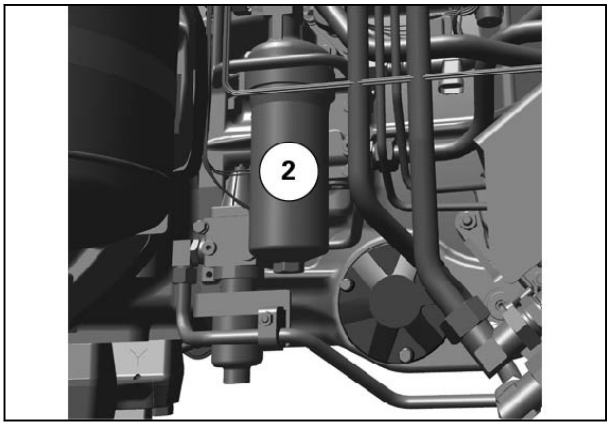



*Fig. 46*

## 3.4.5 Checking the level of the rear final drive units

**Frequency**

Check the oil level in the rear final drive units every 600 hours.

#### 3.4.5.1 Procedure

**NOTE:**
*To access the plug, it may be necessary to remove the oil recovery unit.*

**Procedure**

1. Unscrew the plug (1); the oil level should be level with the filler plug.
2. Top up if necessary.

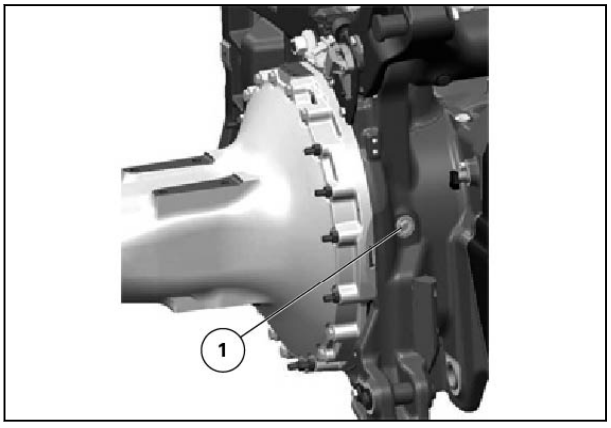



*Fig. 47*

## 3.4.6 Draining the rear final drives

**Frequency**

Drain and replace the oil in the final drives every 1800 hours.

#### 3.4.6.1 Procedure

**Procedure**

1. Remove the drain plug (1) and the level plug for filling.
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 rechecking the level.*

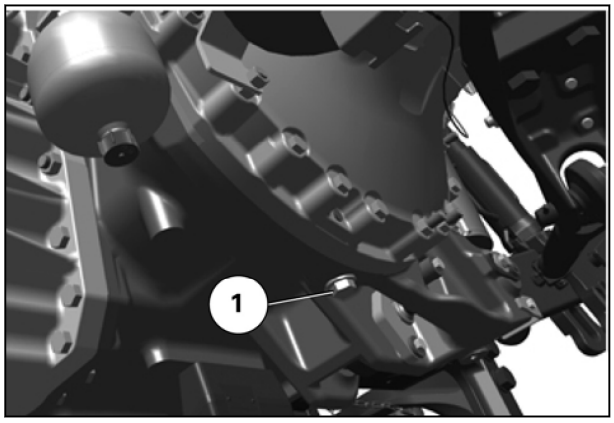



*Fig. 48*

## 3.4.7 Checking and cleaning the transmission oil cooler

**Frequency**

Check the cooler every day and, if necessary, clean using compressed air.

**Procedure**

**IMPORTANT:**
*Take care not to damage the various radiator grilles.*

**Procedure**

Clean the transmission oil cooler (2) with compressed air.

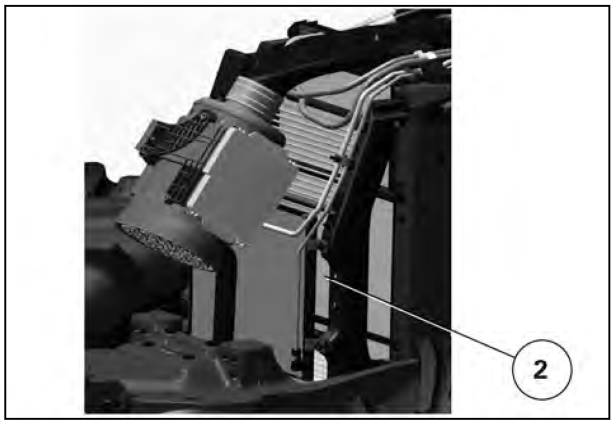



*Fig. 49*

## 3.4.8 Lubricating the rear PTO shaft

**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.

# 3.5 Auxiliary hydraulics

## 3.5.1 Recommended products

**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**

SAE 10W40 or 15W40/API GL4 oil complying with MF specifications CMS M1145.

## 3.5.2 Checking the auxiliary hydraulic system oil level

**Frequency**

Check the auxiliary hydraulic system oil level every day.

### 3.5.2.1 Procedure

**IMPORTANT:**
*If this indicator light comes on during operation, consult your Distributor or Dealer.*

**Procedure**

1. Check the auxiliary hydraulic oil level regularly.

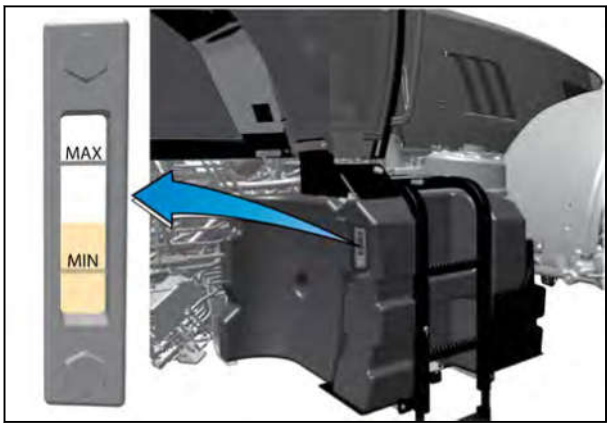



*Fig. 50*

2. Remove the protective cover plate (2) to access the filler plug.

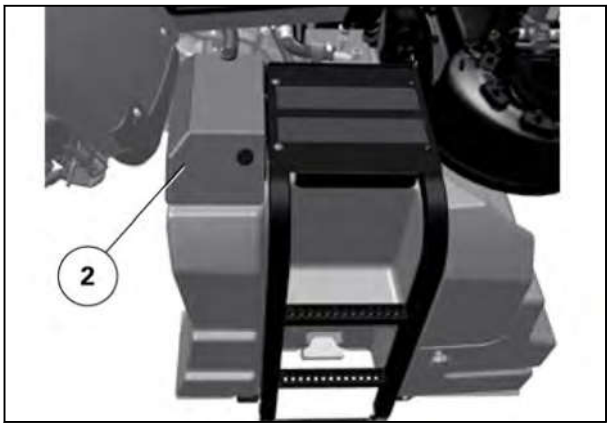



*Fig. 51*

3. **IMPORTANT:**
*Before opening the filler plug* (3)*, ensure the fender of the tractor and the area around the plug* (3) *are cleaned thoroughly to prevent impurities entering the auxiliary hydraulic oil tank.*

4. Remove the filler plug (3).

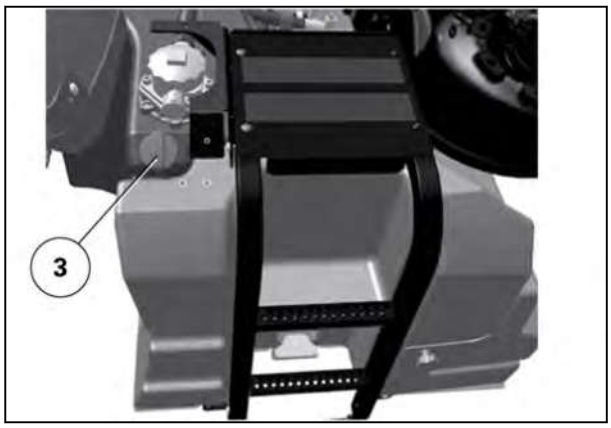



*Fig. 52*

5. **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.*

If necessary, top up with the recommended oil through the filler plug (3).

**NOTE:**
*If the oil is taken from a large capacity storage tank, use a prefilter when filling.*

## 3.5.3 Draining the auxiliary hydraulic system

**Frequency**

Drain and replace the oil in the auxiliary hydraulic system every 1800 hours.

### 3.5.3.1 Procedure

**NOTE:**
*Do not drain until the oil is hot.*

**Procedure**

1. Remove the drain plug (1).

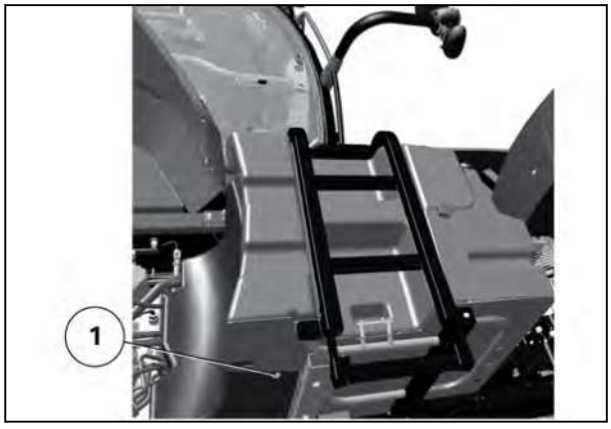



*Fig. 53*

**2.** Remove the protective cover plate (2) to access the filler plug.

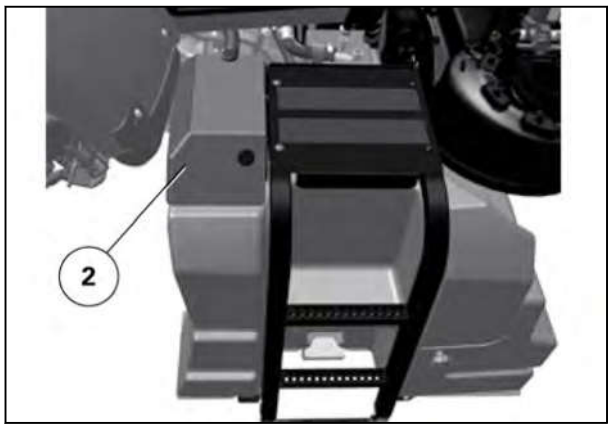



*Fig. 54*

**3.** **IMPORTANT:**
*Before opening the filler plug* (3)*, ensure the fender of the tractor and the area around the plug* (3) *are cleaned thoroughly to prevent impurities entering the auxiliary hydraulic oil tank.*

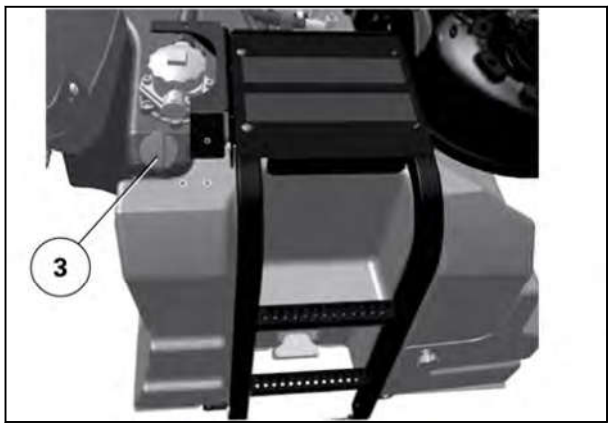



*Fig. 55*

**4.** Remove the filler plug (3).

**5.** Wait until the oil has drained out completely.

**6.** Refit the drain plug (1).

**7.** **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 (3) with the recommended oil.

**NOTE:**
*If the oil is taken from a large capacity storage tank, use a prefilter when filling.*

## 3.5.4 Filtering the auxiliary hydraulic system

### 3.5.4.1 Replacing the 15-micron return filter: Frequency

Replace the 15-micron return filter every 600 hours.

### 3.5.4.2 Replacing the 15-micron return filter: Procedure

**NOTE:**
*It is not necessary to drain the auxiliary oil tank.*

**Procedure**

1. Loosen the cover plate (2).
2. Remove the filter element (1). Allow it to drain fully and discard it.
3. Change the cover plate seal if necessary.
4. Fit a new filter element

   **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 (2) and tighten until locked in place.

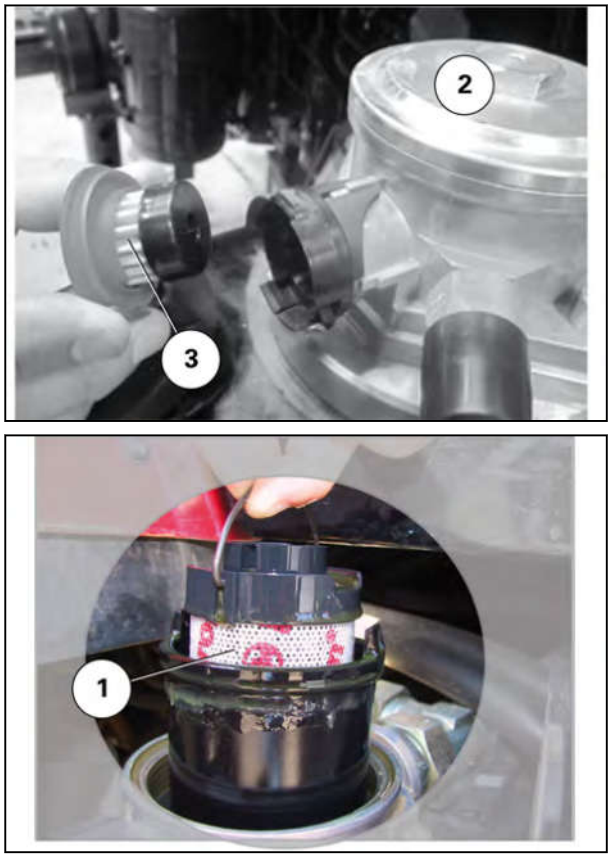



*Fig. 56*

### 3.5.4.3 Replacing the breather: Frequency

Replace the breather located behind the protective cover every 600 hours.

### 3.5.4.4 Replacing the breather: Procedure

**Procedure**

1. Pull to release the breather filter (3).
2. Replace the breather filter (3).

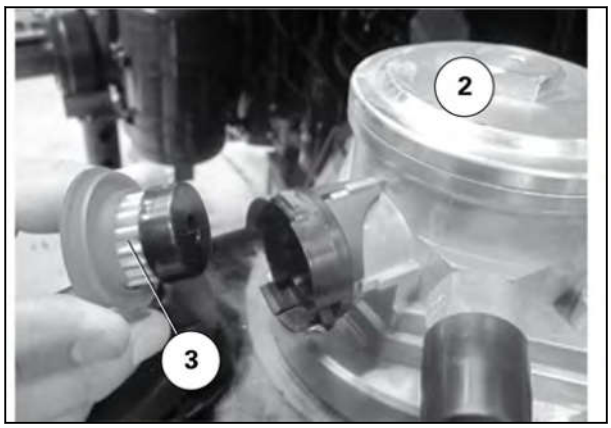



*Fig. 57*

# 3.6 Brakes

## 3.6.1 Recommended products

**IMPORTANT:**
*The warranty remains valid only as long as the products used comply with the following classifications and no other products are used.*

**Pneumatic brake**

For the winter period, use **Wabcothyl** anti-freeze

## 3.6.2 Checking the regulator filter

**Frequency**

Check the regulator filter every 600 hours.

Replace the regulator filter if necessary (e.g. if it is heavily blocked).

**Procedure**

1. Remove the screw (2) from the filter access
2. Extract the filter (1) and clean it. Blow through with compressed air before refitting the assembly

   **NOTE:**
   *Bleed the hydraulic system after carrying out any maintenance on the brake system (see the chapter: Bleeding the brake system).*

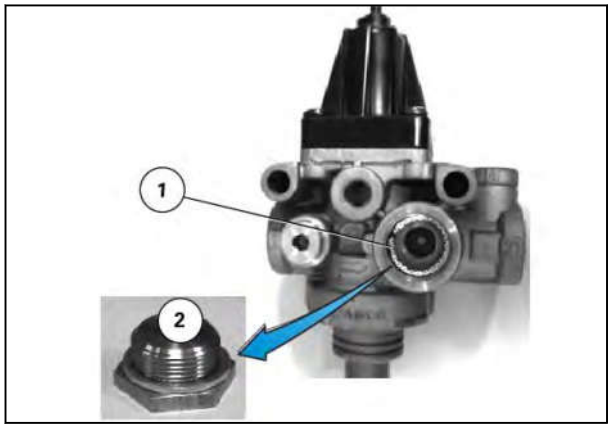



*Fig. 58*

## 3.6.3 Bleeding the brake system

**Frequency**

Bleed the brake/piston system every 1800 hours and after every service operation.

### Bleed screw locations

(1) Left-hand brake bleed
(2) Right-hand brake bleed
(3) Trailer hydraulic brake bleed (if option fitted)
(4) Universal joint brake bleed

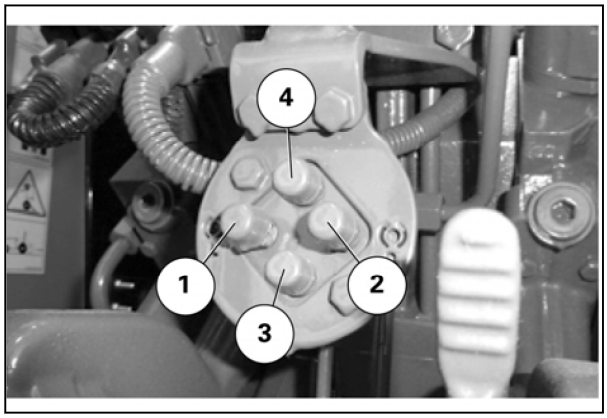



*Fig. 59*

### Pneumatic trailer brake bleed

**NOTE:**
*If work is carried out on the pneumatic brake system, bleed the trailer brake hydraulic system*

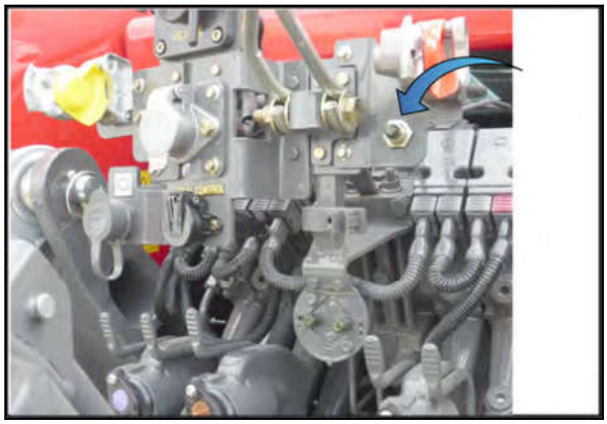


*Fig. 60*

**NOTE:**
*Each day, bleed the air from the pneumatic accumulators of the trailer brake system by pulling on the cables located at the rear, on the right and left-hand sides of the center housing.*

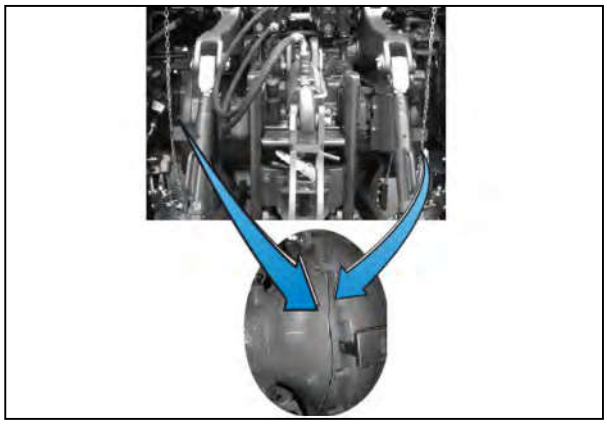


*Fig. 61*

## 3.6.4 Compressed air system protection

### Frequency

If there is a risk of freezing, protect the system by filling the tank with anti-freeze.

**Procedure**

1. Open the cap of the anti-freeze tank
2. Open the system by placing the pump lever (1) in position (I)
3. Fill the tank (2) with the recommended anti-freeze
4. Replace the cap of the anti-freeze tank
5. After the winter, close the system by placing the pump lever in position (O).

   **NOTE:**
   *Regularly check for anti-freeze in the tank throughout the winter.*

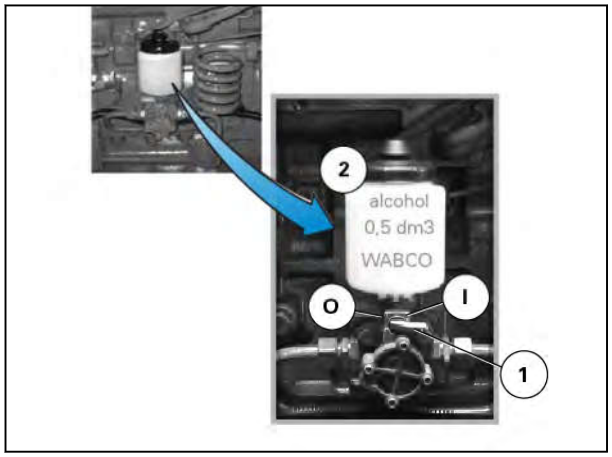



*Fig. 62*

# 3.7 Front power take-off

## 3.7.1 Recommended products

**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.

## 3.7.2 Checking and cleaning the oil cooler of the front PTO

**Frequency**

Check the cooler every 100 hours and, if necessary, clean using compressed air.

Check the cooler every day and, if necessary, clean using compressed air in dusty conditions.

**Procedure**

**IMPORTANT:**
*Take care not to damage the various radiator grilles.*

**Procedure**

Clean the PTO oil cooler (1) with compressed air.

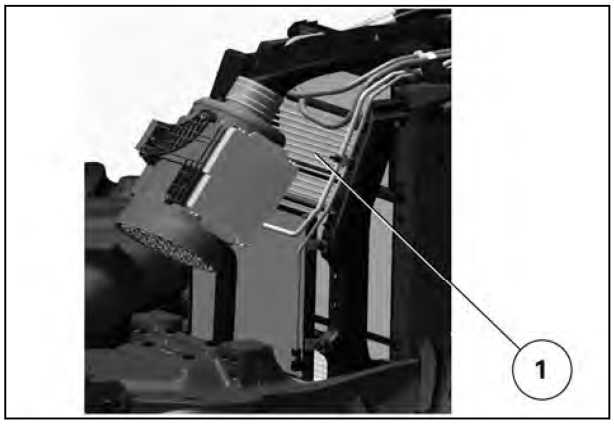



*Fig. 63*

## 3.7.3 Draining oil

**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 600 hours or every six months.

### 3.7.3.1 Procedure

**Procedure**

1. Remove the two drain plugs (1).

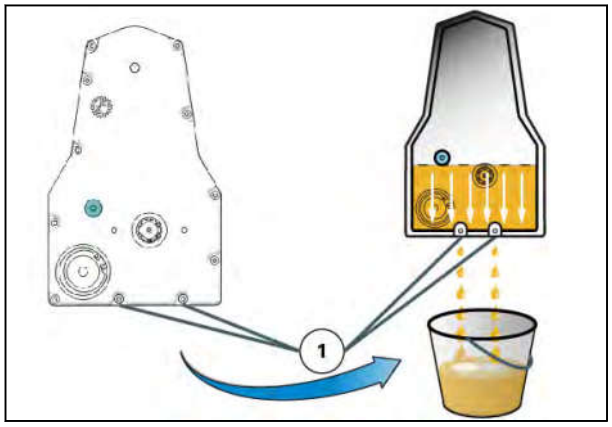



*Fig. 64*

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.

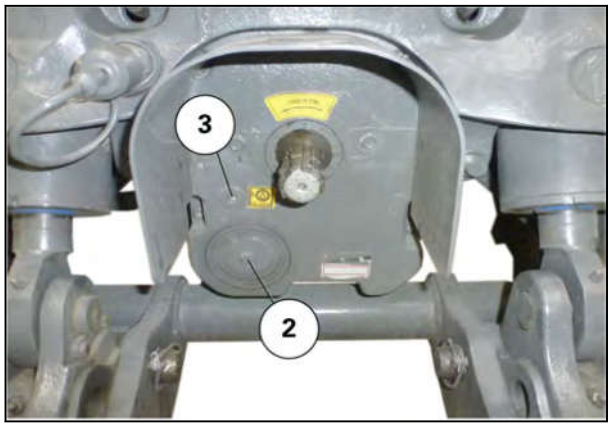



*Fig. 65*

4. To fill with oil, pour the oil via the port (3). The oil level is filled level with the filler cap threadlock, as shown:
5. In the event of a leak, check the oil level after unscrewing the plug (3). Top up and consult your dealer.

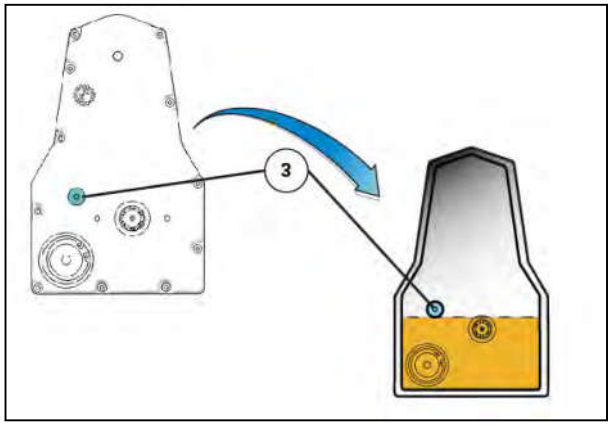



*Fig. 66*

## 3.7.4 Lubricating the front PTO shaft

**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.

# 3.8 Live PTO

## 3.8.1 Lubricating the rear PTO shaft

**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.

# 3.9 Front axle and steering

## 3.9.1 Recommended products

**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 center housing: 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. No. 1: Temperature often below 7°C
- N.L.G.I. No. 2: Temperatures consistently between 7°C and 27°C
- N.L.G.I. No. 3: Temperature often exceeds 27°C

## 3.9.2 4-wheel drive front axle: Checking the front axle beam oil level

**Frequency**

Check the front axle beam oil level every 200 hours.

### 3.9.2.1 Procedure

**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.

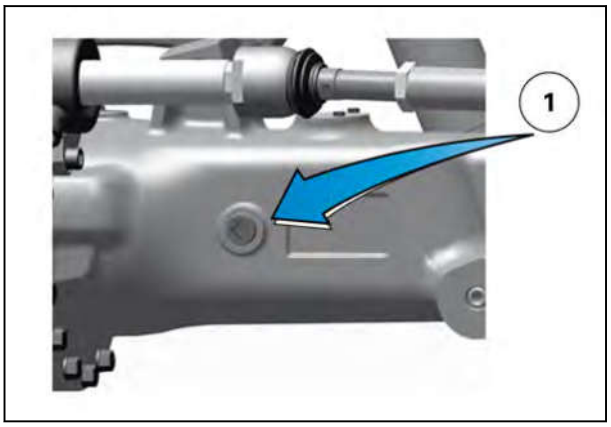



*Fig. 67*

## 3.9.3 4-wheel drive front axle: Draining the front axle beam oil

**Frequency**

Change the front axle beam oil every 1200 hours.

### 3.9.3.1 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 organizations.*

**NOTE:**
*Do not drain until the front axle beam oil is hot.*

**Procedure**

1. Stand the tractor on level ground.
2. Unscrew the drain plug (2) and the filler plug (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

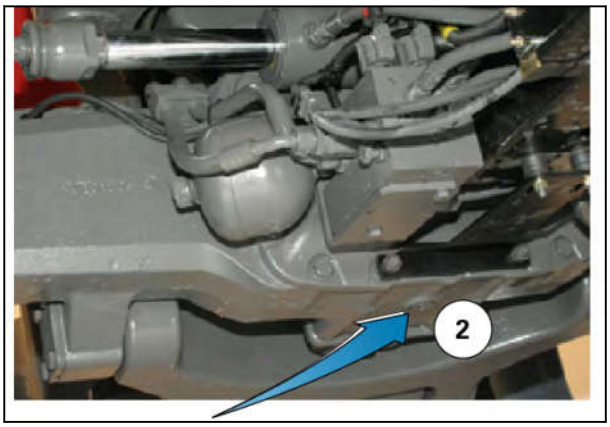



*Fig. 68*

## 3.9.4 4-wheel drive front axle: Checking the oil level in the final drives

**Frequency**

Check the oil level in the front final drives every 200 hours.

### 3.9.4.1 Procedure

**Procedure**

1. Turn the wheel until the plug (1) is horizontally aligned with the center of the hub.
2. Remove the plug and check that the oil level is flush with the plug port.

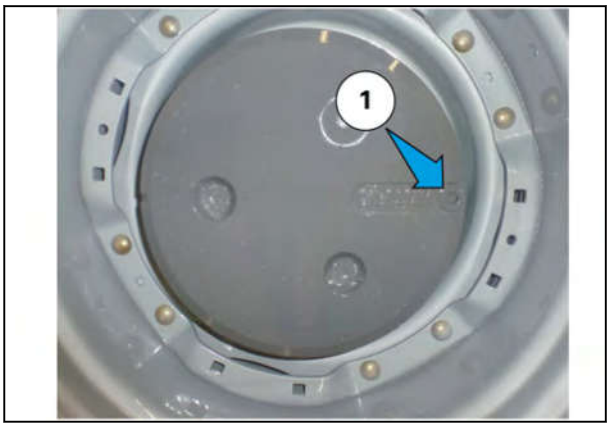



*Fig. 69*

## 3.9.5 Draining the oil from the final drives of the 4-wheel drive front axle

**Frequency**

Drain the oil from the front final drives every 1200 hours.

### 3.9.5.1 Procedure

**Procedure**

1. Turn the wheel until the plug is located at the bottom of the hub (A).
2. Remove the plug (1) to drain the oil.

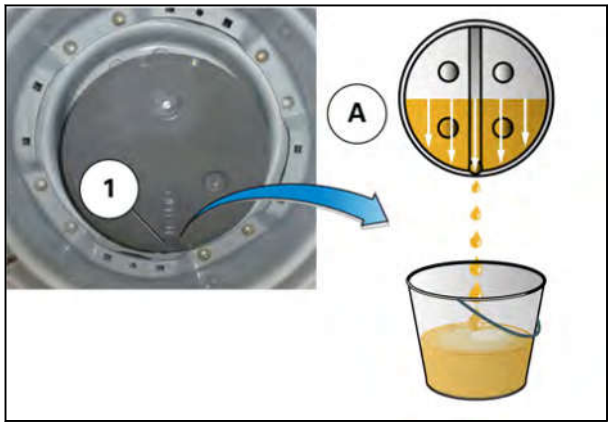



*Fig. 70*

3. Horizontally align the plug with the centreline of the hub (B) and then fill to the correct level.
4. Refit the plug (1) and tighten to a torque of 90 Nm.

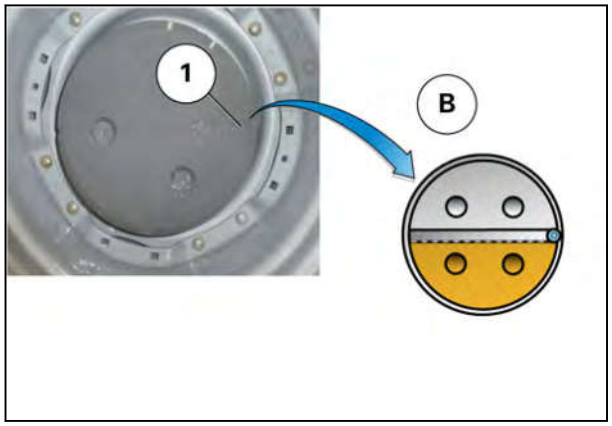



*Fig. 71*

## 3.9.6 Lubrication of the 4-wheel drive front axle

**Frequency**

Check/lubricate the front axle every 200 hours.

**IMPORTANT:** *In difficult working conditions, the front axle must be re-lubricated every 50 hours.*

**Lubrication points**

(1) Non-suspended front axle bearing

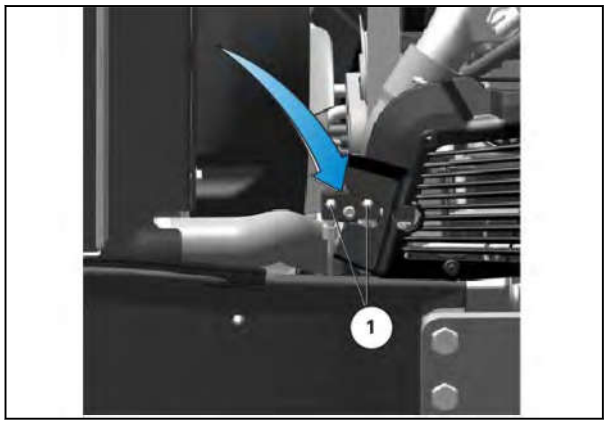



*Fig. 72*

(2) Front axle drive shaft

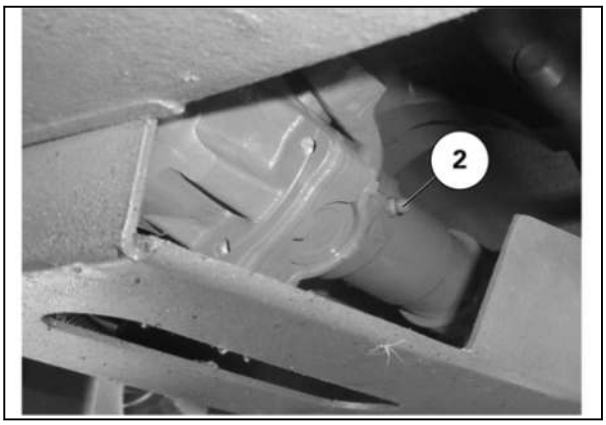



*Fig. 73*

# 3.10 Linkage

## 3.10.1 Recommended products

**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 below 7°C
- N.L.G.I. number 2: Temperatures consistently between 7°C and 27°C
- N.L.G.I. number 3: Temperature often exceeds 27°C

## 3.10.2 Lubricating the linkage shaft

**Frequency**

Lubricate the rear power lift shaft every 600 hours.

### 3.10.2.1 Procedure

**Procedure**

Lubricate the rear linkage shaft ((1) grease nipple on each side of the shaft).

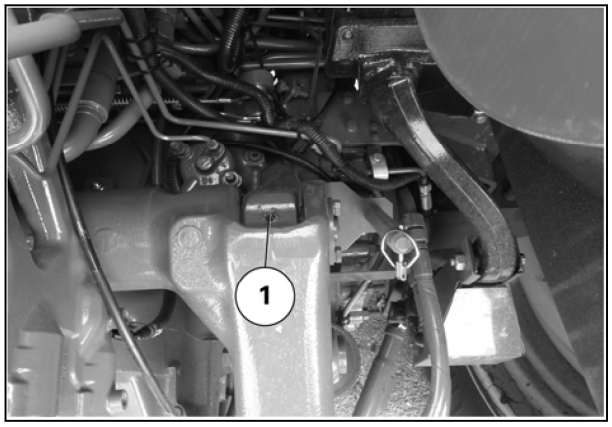



*Fig. 74*

## 3.10.3 Lubricating the three-point linkage

**Frequency**

Check/lubricate the linkage mechanism once a week.

**Grease points**

**IMPORTANT:**
*The threaded parts and hitch pins must be correctly protected with grease.*

(1) Lift rams

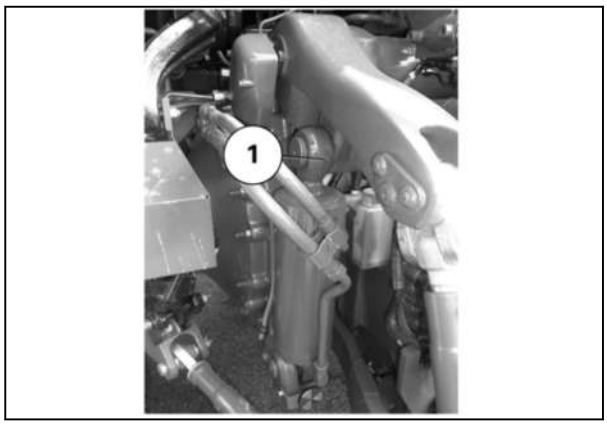



*Fig. 75*

(2) Lift rods

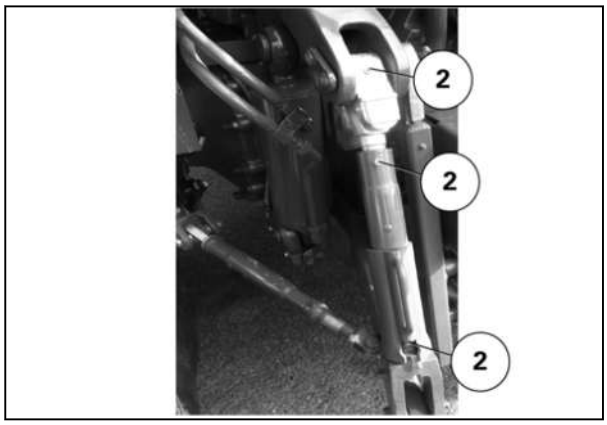



*Fig. 76*

(3) Top link

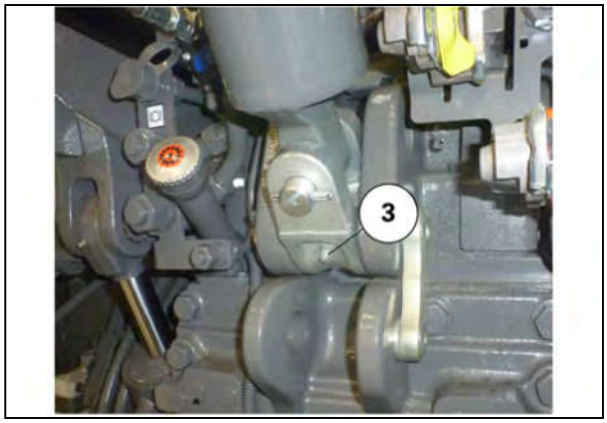



*Fig. 77*

(4) Top link

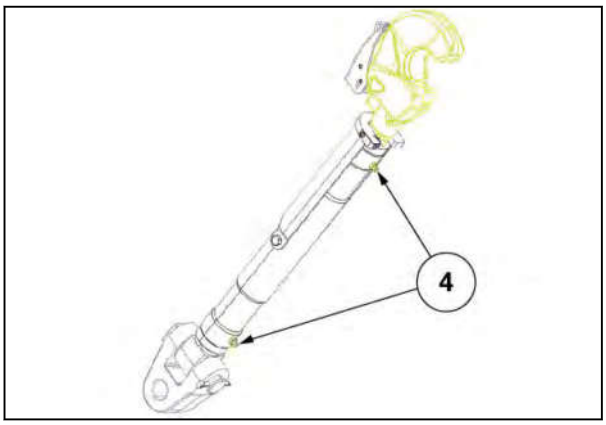



*Fig. 78*

(5) Stabilizer

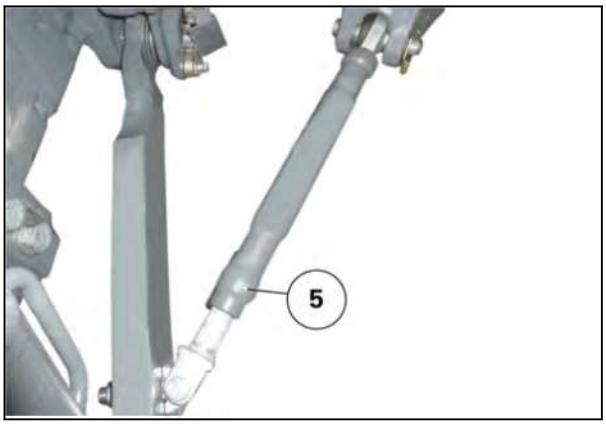



*Fig. 79*

# 3.11 Front linkage

## 3.11.1 Recommended products

**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 below 7°C
- N.L.G.I. number 2: Temperatures consistently between 7°C and 27°C
- N.L.G.I. number 3: Temperature often exceeds 27°C

## 3.11.2 Lubricating the front linkage

### Frequency

Check/lubricate the front linkage joints once a week.

**IMPORTANT:**
*During extended storage, ram rods 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

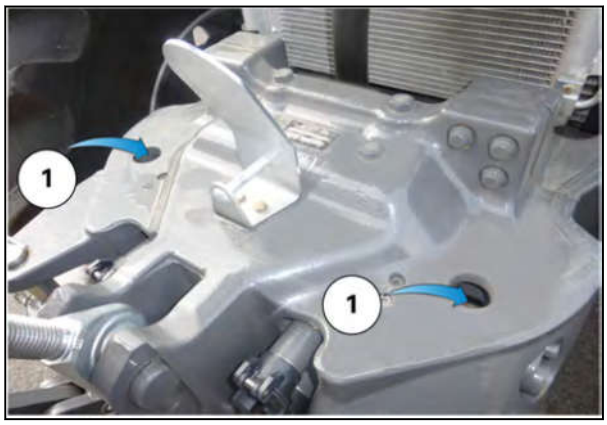



*Fig. 80*

(2) Ram lower joints

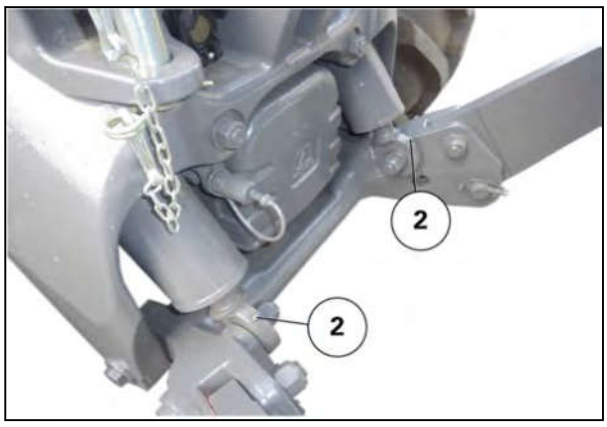



*Fig. 81*

(3) Linkage arm pin

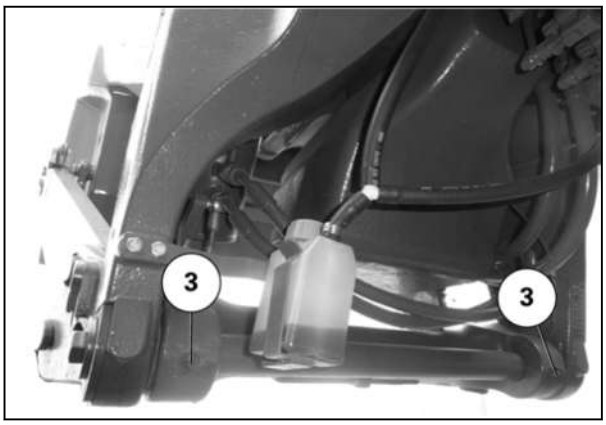



*Fig. 82*

# 3.12 Towing equipment

## 3.12.1 Recommended products

**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 below 7°C
- N.L.G.I. number 2: Temperatures consistently between 7°C and 27°C
- N.L.G.I. number 3: Temperature often exceeds 27°C

## 3.12.2 Ball hitch: lubrication

### 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

**NOTE:**
*Do not forget to refit the grease nipple protection.*

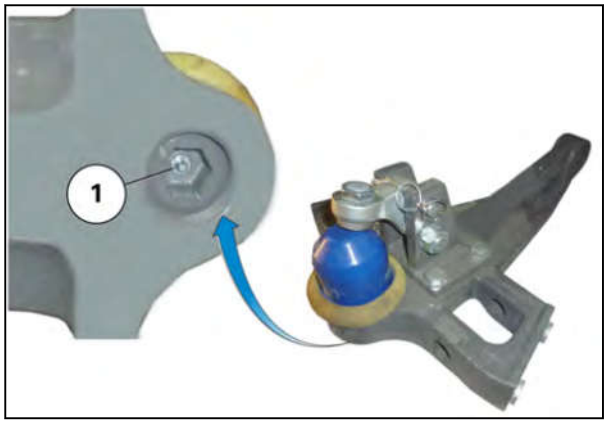



*Fig. 83*

## 3.12.3 4-wheel trailer clevis hitch: lubrication

### Frequency

Check/lubricate the trailer clevis hitches once a week.

**WARNING:**
**Stop the PTO before lubricating.**

### Automatic clevis hitch: Lubrication points

(1) Movement handle
(2) Clevis rotation

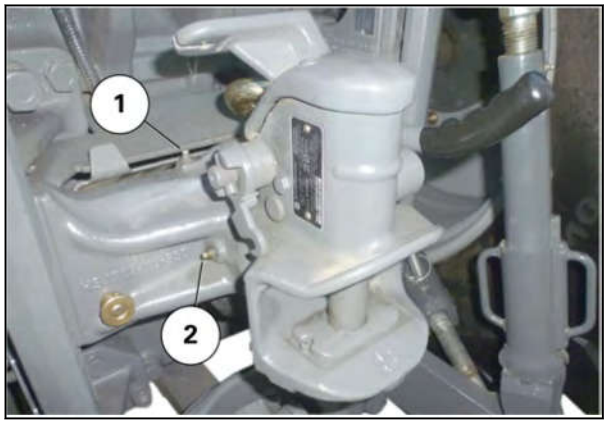



*Fig. 84*

(3) Locking pin
(4) Vertical movement pin

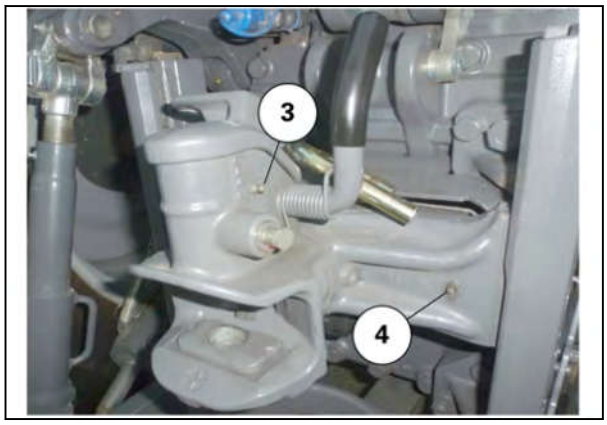



*Fig. 85*

### Manual clevis hitch: Lubrication points

(1) Movement handle
(2) Clevis rotation

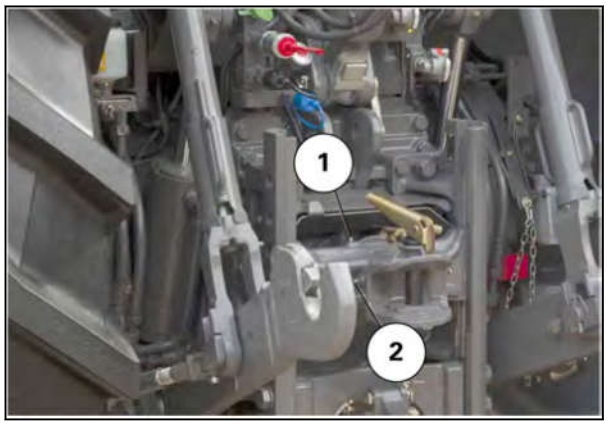



*Fig. 86*

(3) Vertical movement pin

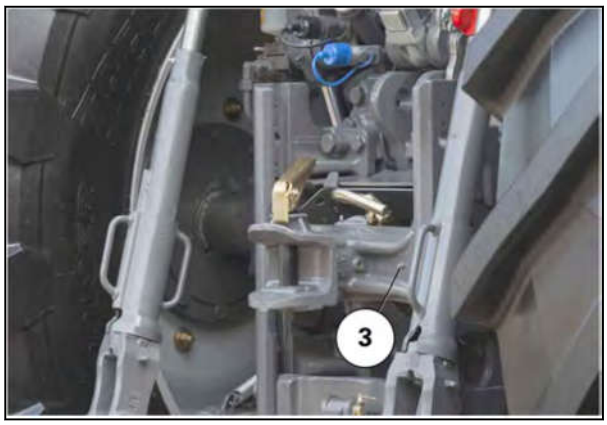



*Fig. 87*

## 3.12.4 Auto-hitch: lubrication

### 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

(1) Guides


*Fig. 88*

(2) Tie rods

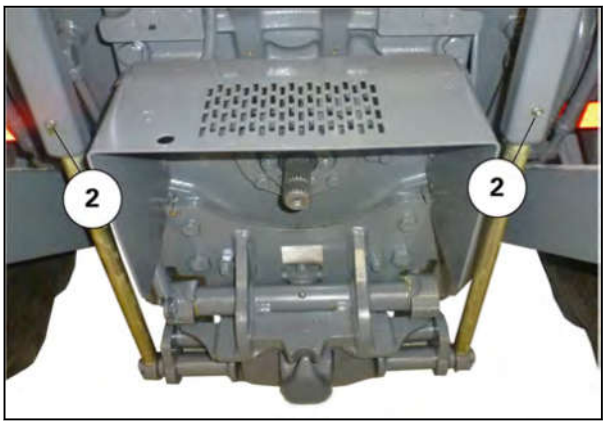



*Fig. 89*

(3) Rear joints

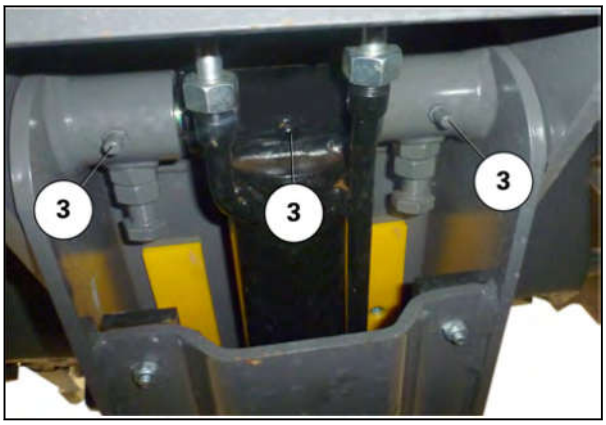



*Fig. 90*

# 3.13 Electrical equipment

## 3.13.1 Batteries

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 600 hours.

**WARNING:**
**Batteries produce explosive gasses.**
**Sparks, flames, lit cigarettes or any flammable source must be kept at a distance.**
**Wear suitable safety goggles when working near batteries.**

**WARNING:**
**Repair: If connecting to another battery or a remote start aid, respect the battery voltage.**


*Fig. 91*

## 3.13.2 Alternator

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.*

## 3.13.3 Power socket (ISO)

**Rear power socket (ISO)**

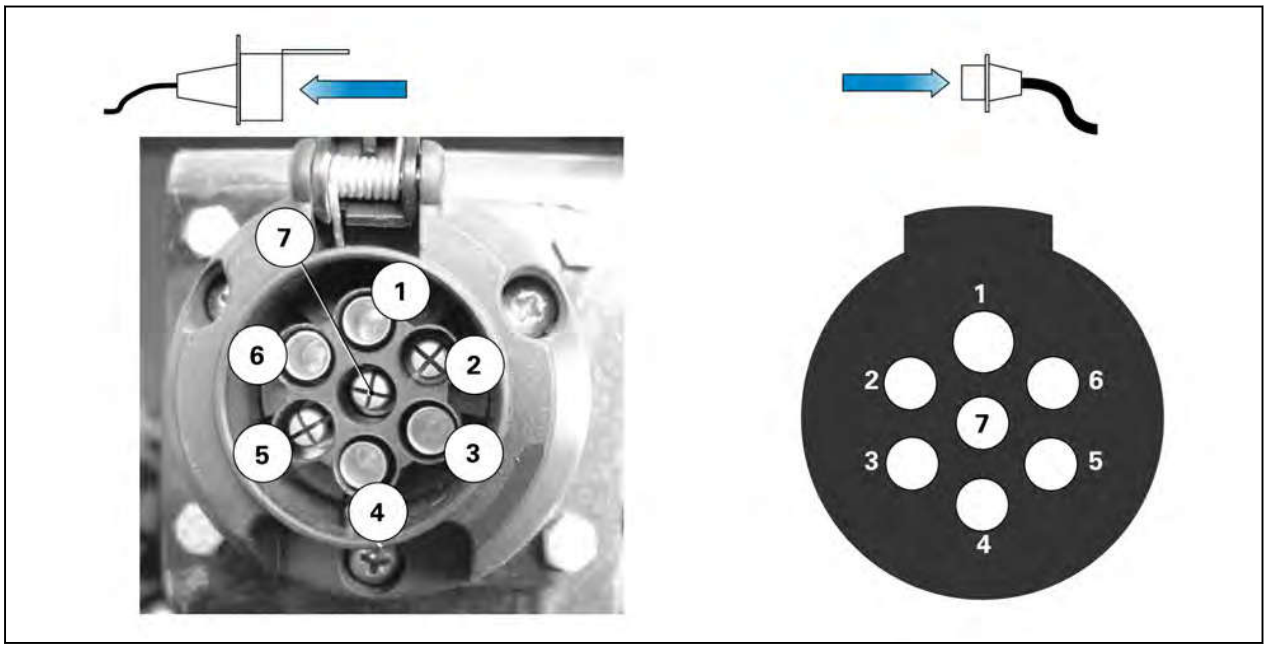



*Fig. 92*

| Reference | ISO circuit | Maximum electrical charge | Fuses |
|---|---|---|---|
| (1) | Left direction indicator and hazard warning light | 4x 21 W | F15 |
| (2) | Reversing light | 5 A | F62 |
| (3) | Earth | - | - |
| (4) | Right direction indicator and hazard warning light | 4x 21 W | F15 |
| (5) | Right-hand side lights and number plate lights | 4x 6 W | F36 |
| (6) | Stop lights | 15 A | F46 |
| (7) | Left-hand side lights | 20 A | F37 |

### ASAE/ISO front power socket

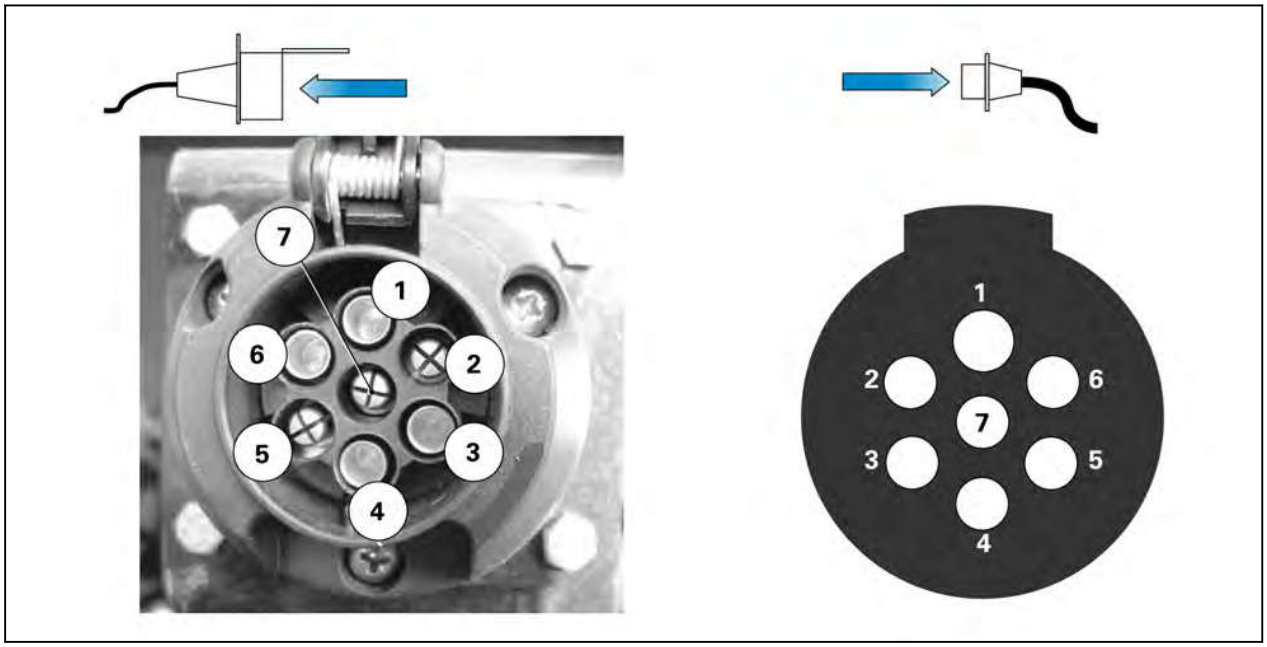



*Fig. 93*

| Reference | Circuit | Maximum electrical charge | Fuses |
|---|---|---|---|
| (1) | + Battery[1] | 25 A | F50 |
| (2) | Work lights | 25 A | F16 |
| (3) | Earth | - | - |
| (4) | +12 V APC[2] | 10 A | F64 |
| (5) | Side lights | 7.5 A | F36 |
| (6) | Rotary beacon | 20 A | F18 |
| (7) | Side lights | 7.5 A | F36 |

[1] + BAT = + 12 V battery
[2] + APC = + 12 V accessories

## 3.13.4 Adjusting the headlights

### Adjustment diagram

(A) Distance between the headlights and a wall or a screen
(B) Height from the center of the headlights to the ground
(C) Center-to-center distance between headlights
(D) Vertical offset

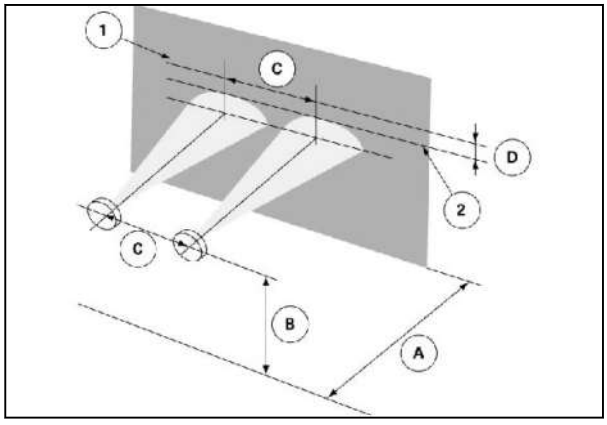



*Fig. 94*

**Procedure**

1. **NOTE:** *Do not let your fingers come into direct contact with the iodine bulbs.*

   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) = 0.1x(B).
5. Adjust each headlight individually by masking the opposite light. Align the upper edge of the lit zone with line (2). Align the center of the lit zone with the corresponding vertical line traced during this step.

## 3.13.5 Description of the main fuse box

Description of the main fuse box

**Functions of the fuse box elements**

| | |
|---|---|
| F | Fuse |
| SH | Shunt (shunts are fuses) |
| K | Relay |
| X | Connector |

**Fuse power and size**

| Amperage | Size | Color |
|---|---|---|
| 3 | Small | |
| 5 | Small | |
| 7.5 | Small | |
| 10 | Small | |
| 15 | Small | |
| 15 | Average | |
| 20 | Average | |
| 25 | Average | |
| 30 | Average | |
| 50 | Large | |
| 60 | Large | |

## Main fuse box

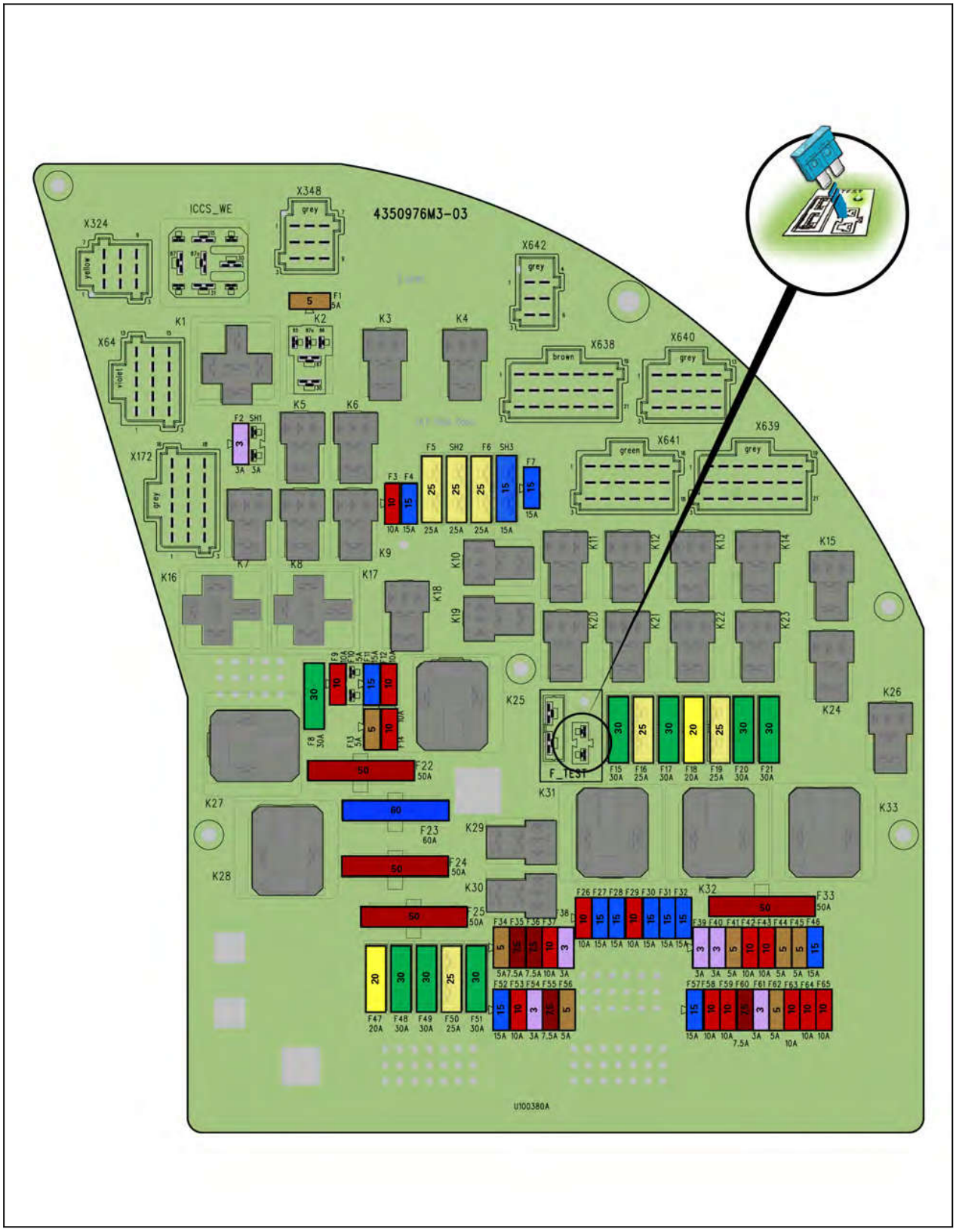



*Fig. 95*

## For Dyna-VT transmission

| Number | Amperage | Size | Protected function |
|---|---|---|---|
| F1 | 5A | Small | Fuse board earth |
| F2 | 3 A | Small | Functions<br>• K6 relay control circuit supplying the +ACC for the tractor |
| F3 | 10 A | Small | +ACC **X395** - Radio supply |
| F4 | 15 A | Small | + ACC<br>• **X403** - Rear windscreen wiper motor<br>• **X411** - Rear windscreen wiper switch<br>• **X453** - Extreme cold weather pump motor |
| F5 | 25 A | Average | +ACC<br>• **X58** - Windscreen wiper and direction indicator control unit<br>• **X65** - Front windscreen wiper motor |
| F6 | 25 A | Average | High beam lamps on grille and hand rail |
| F7 | 15 A | Small | Low beam lamps on grille and hand rail |
| F8 | 30 A | Average | +BAT **X250** - Power socket in cab (on the right-hand console) |
| F9 | 10 A | Small | Not used |
| F10 | 15 A | Small | +BAT<br>• **X336** - Battery isolator<br>• **X646** - Battery isolator switch |
| F11 | 15 A | Small | K7 and K8 relay power circuit supplying +BAT to functions 3 and 4 of the **ENG109** - External connector for front-loader supply |
| F12 | 10 A | Small | Functions<br>• K6 relay power circuit supplying the +ACC for the tractor |
| F13 | 5 A | Small | Auto-Guide™ antenna +BAT |
| F14 | 10 A | Small | + APC<br>• **X250** - Power socket in cab(on the right-hand console)<br>• **X250** - Power socket in cab(on the front right-hand fender arch) |
| F15 | 30 A | Average | +BAT **X652** - Hazard warning light unit |
| F16 | 25 A | Average | • **X275** - Front accessories connection socket (work light)<br>• **X365** - Hand-rail work light |

| Number | Amperage | Size | Protected function |
|---|---|---|---|
| F17 | 30 A | Average | • **X78** - Work light on rear right-hand fender<br>• **X93** - Work light on rear left-hand fender<br>• Work light on rear power socket (NA) |
| F18 | 20 A | Average | • **X270** - Front accessories connection socket (rotary beacon)<br>• **X409** - Left-hand rotary beacon<br>• **X410** - Right-hand rotary beacon |
| F19 | 25 A | Average | • **X385** - Rear left-hand work light on roof<br>• **X386** - Rear right-hand work light on roof<br>• **X387** - Rear left-hand work light on roof<br>• **X388** - Rear right-hand work light on roof |
| F20 | 30 A | Average | • **X379** - Front left-hand work light on roof<br>• **X380** - Front right-hand work light on roof<br>• **X381** - Front left-hand work light on roof<br>• **X382** - Front right-hand work light on roof |
| F21 | 30 A | Average | • **X351** - Front right-hand grille work light<br>• **X352** - Front right-hand grille work light<br>• **X353** - Front left-hand grille work light<br>• **X354** - Front left-hand grille work light |
| F22 | 50 A | Large | • Roof ventilation supply<br>• K27 relay power circuit |
| F23 | 60 A | Large | K28 relay power circuit supplying the + BAT to the Isobus connectors |
| F24 | 50 A | Large | +BAT **X218** - External Isobus implement connector |
| F25 | 50 A | Large | +BAT<br>• **X466** - Suspended-cab controller<br>• **X598** - EXT Lite transmission controller (58-pin) |
| F26 | 10 A | Small | + APC<br>• K29 relay power circuit<br>• **X66** - Left-hand brake pedal sensor<br>• **X67** - Right-hand brake pedal sensor<br>• **X68** - Clutch pedal sensor<br>• Direction indicator control unit |
| F27 | 15 A | Small | + APC<br>• **X104** - TECU controller<br>• **X105** - Datatronic CCD<br>• **X174** - EXT Lite transmission controller (96-pin)<br>• **X650** - Hydraulics flow rate change/memory switch<br>• **X704** - Auxiliary hydraulics locking switch |

| Number | Amperage | Size | Protected function |
|---|---|---|---|
| F28 | 15 A | Small | +APC<br>• **X87** - Linkage lifting switch on right-hand fender<br>• **X97** - Linkage lifting switch on left-hand fender<br>• **X111** - Dyna-TM dynamic transmission mode switch<br>• **X124** - Pedal/Lever mode switch<br>• **X127** - Rear PTO engagement switch<br>• **X128** - Rear PTO engagement switch<br>• **X166** - Suspended front axle position sensor<br>• **X235** - Front axle steering sensor (WAS sensor)<br>• **X277** - Front linkage lifting switch<br>• **X618** - Parking brake sensor<br>• **X658** - Front linkage lowering switch<br>• **X664** - Linkage lowering switch on right-hand fender<br>• **X665** - Linkage lowering switch on left-hand fender<br>• **X884** - Hydraulic spool valve controls change-over switch |
| F29 | 10 A | Small | +APC<br>• Transmission control module |
| F30 | 15 A | Small | + APC **X191** - Fuel preheater |
| F31 | 15 A | Small | + APC **X513** - Additional heater |
| F32 | 15 A | Small | + APC **X739** - Sensor detecting presence of operator in seat |
| F33 | 50 A | Large | Tractor +APC |
| F34 | 5 A | Small | +BAT **X55** - Instrument panel |
| F35 | 7.5 A | Small | +BAT<br>• **X104** - TECU controller<br>• **X105** - Datatronic CCD<br>• **X594** - AgCommand™ unit |
| F36 | 7.5 A | Small | + BAT<br>• **X77** - Rear right-hand side light, brake light and direction indicator<br>• **X215** - Trailer connection (right-hand side light)<br>• **X257** - Side light and direction indicator on hand rail (right and left)<br>• **X273** - Front accessories connection socket (side light)<br>• **X414-A** - Left-hand number plate lighting supply<br>• **X415-A** - Right-hand number plate lighting supply<br>• **X643** - Right-hand marker lights |

| Number | Amperage | Size | Protected function |
|---|---|---|---|
| | | | • Instrument panel lighting |
| F37 | 10 A | Small | + BAT<br>• **X92** - Rear left-hand side light, brake light and direction indicator<br>• **X220** - Trailer connection (left-hand side light)<br>• **X257** - Side light and direction indicator on hand rail (right and left)<br>• **X644** - Left-hand marker lights<br>• **X712** - Number plate lights |
| F38 | 3 A | Small | K33 relay control circuit + APC |
| F39 | 3 A | Small | K32 relay control circuit + APC |
| F40 | 3 A | Small | Not used |
| F41 | 5 A | Small | + APC<br>• **X135** - Braking pressure sensor<br>• **X185** - Engine controller AGCO Power |
| F42 | 10 A | Small | + APC<br>• **X58** - Windscreen wiper and direction indicator control unit<br>• **X74** - Audible alarm supply (+12 V APC) |
| F43 | 10 A | Small | + APC<br>• **X55** - Instrument panel<br>• **X717** - Linkage and PTO keypad on pillar |
| F44 | 5 A | Small | + APC<br>• **X345** - Supply for additional terminal (Mitron unit)<br>• Aerial Auto-Guide™ |
| F45 | 5 A | Small | Not used |
| F46 | 15 A | Small | K24 relay power circuit supplying the + APC to the brake lights |
| F47 | 20 A | Average | Not used |
| F48 | 30 A | Average | + BAT<br>• **X58** - Windscreen wiper and direction indicator control unit<br>• **X250** - Power socket in cab(on the front right-hand wheel arch) |
| F49 | 30 A | Average | Trailer connector (NA) + BAT |
| F50 | 25 A | Average | +BAT **X271** - Front accessories connection socket (+12 V battery) |

| Number | Amperage | Size | Protected function |
|---|---|---|---|
| F51 | 30 A | Average | + BAT<br>• **X157** - Left-hand side power socket (power)<br>• **X395** - Radio supply<br>• **X407** - Interior light<br>• **X439** - Air conditioning control module (blue connector) |
| F52 | 15 A | Small | + BAT<br>• **X138** - Hazard warning lights indicator light and switch<br>• **X155** - Cigarette lighter plug (power)<br>• **X169** - Power-socket control switch(on the right-hand console)<br>• **X687** - Auto-Guide™ screen harness/pillar harness connection<br>• **X717** - Linkage and PTO keypad on pillar<br>• K16 relay control circuit |
| F53 | 10 A | Small | + BAT<br>• **X218** - External Isobus implement connector<br>• **X344** - Isobus connector in cab |
| F54 | 3 A | Small | + APC **X12** - Coupler function solenoid valve |
| F55 | 7.5 A | Small | **X255** - Horn |
| F56 | 5 A | Small | **X68** - Clutch pedal sensor (start switch) |
| F57 | 15 A | Small | + APC **X598** - EXT Lite transmission controller (58-pin) |
| F58 | 10 A | Small | + APC **X153** - Non-Isobus implement connector |
| F59 | 10 A | Small | +APC **X466** - Suspended-cab controller |
| F60 | 7.5 A | Small | + APC<br>• **X2** - Auxiliary hydraulic filter blockage sensor<br>• **X22** - Radar<br>• **X23** - Steering pressure sensor<br>• **X33** - Connector for the electrohydraulic spool-valves supply<br>• **X35** - ParkLock hydraulic pressure sensor<br>• **X168** - Pneumatic brake system pressure sensor<br>• **X177** - Linkage controller<br>• **X183** - Diagnostics connector<br>• **X184** - Diagnostics connector<br>• **X594** - AgCommand™ unit<br>• **X683** - Braking pressure sensor |
| F61 | 3 A | Small | + APC<br>• **X194** - D + alternator 1 |

| Number | Amperage | Size | Protected function |
|---|---|---|---|
| | | | • **X195** - D + alternator 2 |
| F62 | 5 A | Small | K15 relay power circuit supplying +APC to the reversing lights and reversing alarm and trailer connector |
| F63 | 10 A | Small | K26 relay power circuit supplying +APC to the air conditioning compressor |
| F64 | 10 A | Small | + APC **X272** - Front accessories connection socket (+12 V APC) |
| F65 | 10 A | Small | + APC<br>• **X248** - Right- and left-hand electric rear-view mirror adjustment switch<br>• **X249** - External rear-view mirror defroster switch |
| SH2 | 25 A | Average | High beam lamps on grille (present only without the high beam lamps/low beam lamps on hand rails option) |
| SH3 | 15 A | Average | Low beam lamps on grille (present only without the high beam lamps/low beam lamps on hand rails option) |
| K1 | | | Relay for front windscreen wiper control unit and front windscreen wiper motor |
| K2 | | | Not used |
| K3 | | | Relay for high beam lamps on hand rail or grille (present only with the high beam lamps/low beam lamps on hand rails option) |
| K4 | | | Relay for low beam lamps on hand rail or grille (present only with the high beam lamps/low beam lamps on hand rails option) |
| K5 | | | Coupler function solenoid valve relay |
| K6 | | | Relay supplying the +ACC for the tractor |
| K7 | | | Relay for function 4 switch on Multi Function Joystick |
| K8 | | | Relay for function 3 switch on Multi Function Joystick |
| K9 | | | Auto-Guide™ antenna +BAT relay |
| K10 | | | High beam lamps relay |
| K11 | | | Not used |
| K12 | | | Relay for work lights on fenders and the rear power socket |
| K13 | | | Rear roof work lights relay |
| K14 | | | Relay for the lighting module for the work lights on the grille |

| Number | Amperage | Size | Protected function |
|---|---|---|---|
| K15 | | | Relay for reversing lights and reversing alarm |
| K16 | | | Power supply relay in +BAT of the right-hand console power socket |
| K17 | | | Not used |
| K18 | | | Power supply relay in +APC of the right-hand console power socket and the front right-hand fender arch power socket |
| K19 | | | Low beam lamps relay |
| K20 | | | Not used |
| K21 | | | Relay for the hand rail work lights and the front implement accessories connector work light |
| K22 | | | Relay for roof rotary beacon, front implement accessories connector rotary beacon |
| K23 | | | Front roof work lights relay |
| K24 | | | Brake lights relay |
| K25 | | | Supply relay for fuse F3, fuse F4, fuse F5 and K27 relay control circuit |
| K26 | | | Air conditioning compressor supply relay |
| K27 | | | Supply relay for roof ventilation |
| K28 | | | Isobus connectors +BAT relay |
| K29 | | | Supply relay for fuse F54 |
| K30 | | | Supply relay for fuse F36 and fuse F37 |
| K31 | | | Supply relay for fuse F26, fuse F27, fuse F28 and fuse F29 |
| K32 | | | Supply relay for fuse F30, fuse F31 and fuse F32 |
| K33 | | | Tractor relay +APC |

1. + ACC = + 12 V accessory
2. + APC = + 12 V ignition on
3. + BAT = + 12 V batteries

**Rear view of fuse box**

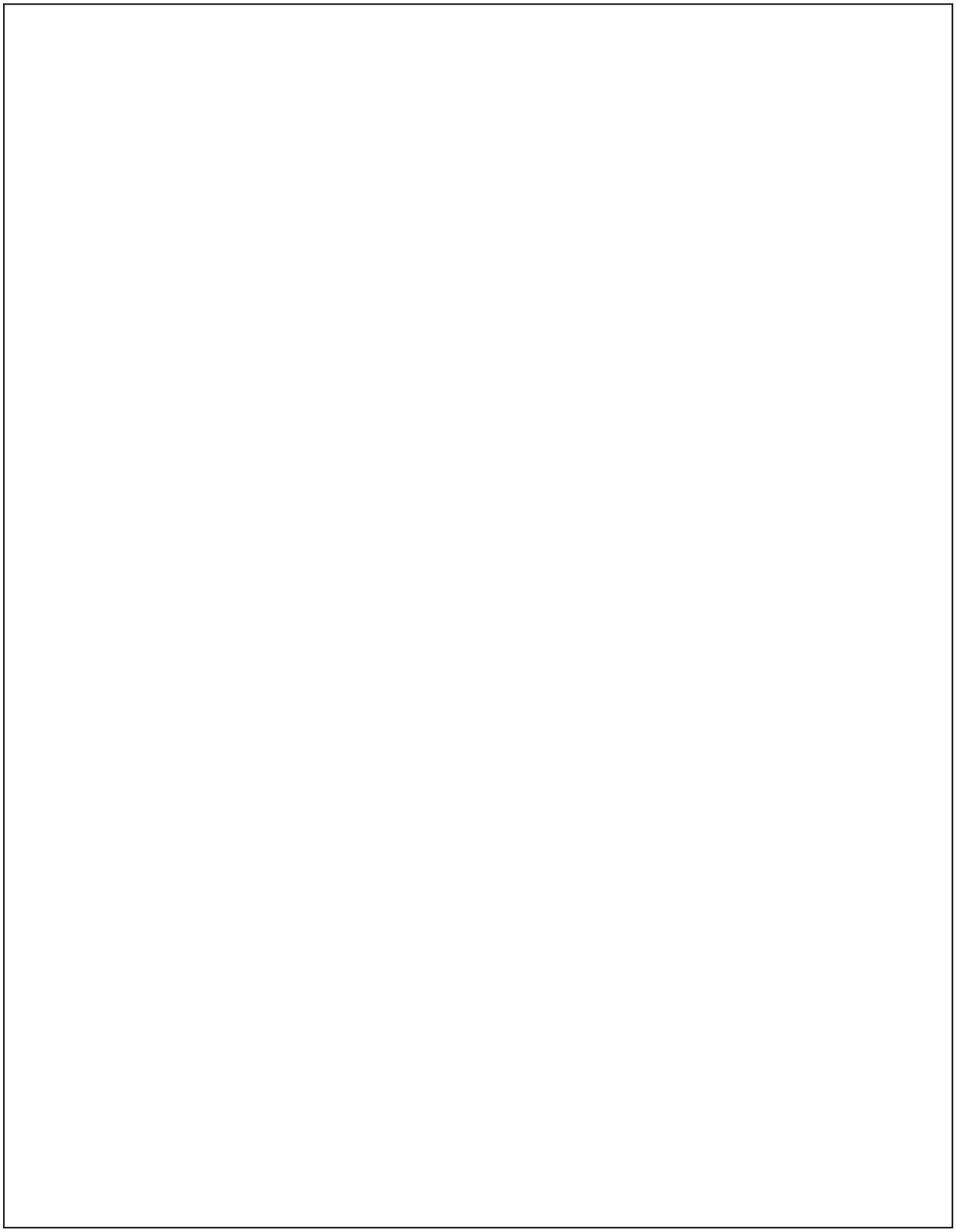


*Fig. 96*

## 3.13.6 Description of the secondary fuse box (depending on model)

Description of the secondary fuse box (depending on model)

### Functions of the fuse box elements

| | |
|---|---|
| F | Fuse |
| SH | Shunt (shunts are fuses) |
| K | Relay |
| X | Connector |

### Fuse power and size

| Amperage | Size | Color |
|---|---|---|
| 3 | Small | |
| 5 | Small | |
| 7.5 | Small | |
| 10 | Small | |
| 15 | Small | |
| 15 | Average | |
| 20 | Average | |
| 25 | Average | |
| 30 | Average | |
| 50 | Large | |
| 60 | Large | |

### Secondary fuse box

A second fuse box is located above the batteries.

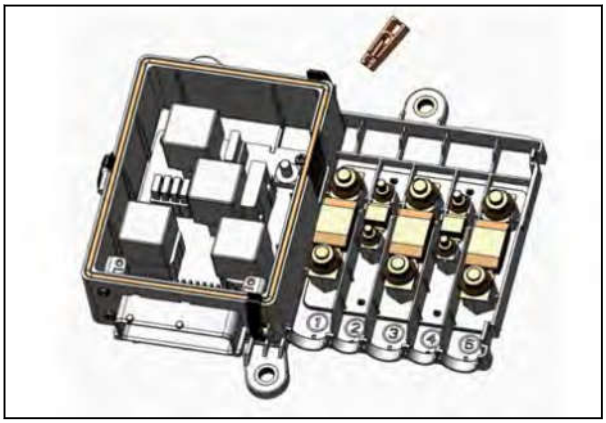


*Fig. 97*


*Fig. 98*

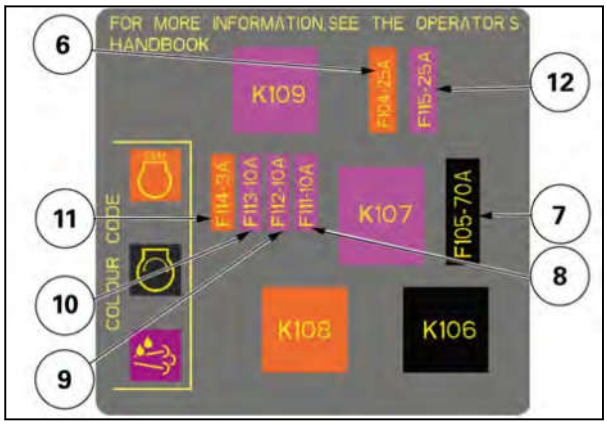



*Fig. 99*

| Number | Amperage | Size | Protected function |
|---|---|---|---|
| 1 - F110 | 225 A | Specific | +BAT **X241** - AGCO Power engine preheating supply (Grid Heater) |
| 2 - F107 | 175 A | Specific | +BAT **X192** - B + alternator 1 |
| 3 - F106 | 200 A | Specific | Cab power supply + BAT |
| 4 - F109 | 175 A | Specific | +BAT **X193** - B + alternator 2 |
| 5 | | Specific | BUSBAR +BAT or not used |
| 6 - F104 | 25 A | Average | **X185** - Engine controller +BAT |
| 7 - F105 | 70 A | Large | K106 relay power circuit |
| 8 - F111 | 10 A | Average | EGR valve supply |
| 9 - F112 | 10 A | Average | Turbocharger wastegate power supply |
| 10 - F113 | 10 A | Average | NOx sensors power supply |
| 11 - F114 | 3 A | Average | **X185** - Engine controller earth protection |
| 12 - F115 | 25 A | Average | K107 relay power circuit |
| K106 | | | Starter relay |

| Number | Amperage | Size | Protected function |
|---|---|---|---|
| K107 | | | Supply relay<br>• **X289** - Denoxtronic supply module<br>• **X577** - DEF or AdBlue™ pressure lines heater |
| K108 | | | **X185** - Engine controller earth relay |
| K109 | | | Supply relay for fuses F111, F112 and F113 |

**Additional fuses/relays**

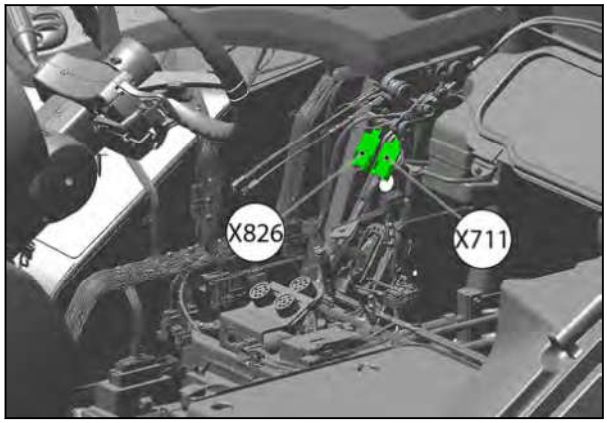



*Fig. 100*

| Number | Protected function |
|---|---|
| X826 | **X336** - Battery isolator supply relay |
| X711 | **X646** - Battery isolator switch relay supplying **X336** - Battery isolator |

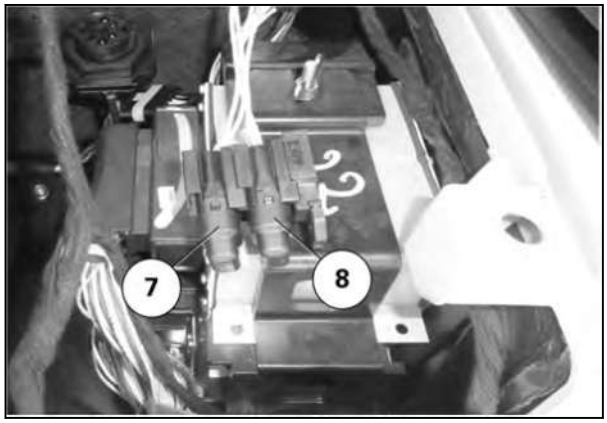



*Fig. 101*

| Number | Amperage | Size | Protected function |
|---|---|---|---|
| 7 - X828 | 5 A | Specific | Power circuit for relay X826 and X711 supplying **X336** - Battery isolator |
| 8 - X869 | 3 A | Specific | Control circuit for relay X826 supplying **X336** - Battery isolator |


*Fig. 102*

| Number | Amperage | Size | Protected function |
|---|---|---|---|
| 9 - X955 | 5 A | Specific | +BAT of the **X466** - Suspended-cab controller |

1. + BAT = + 12 V batteries

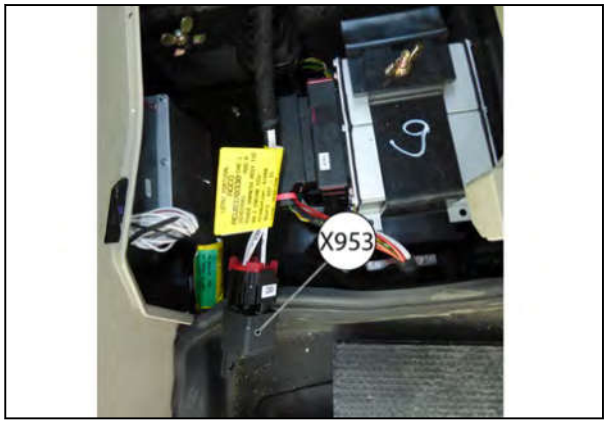



*Fig. 103*

| Number | Protected function |
|---|---|
| X953 | +APC relay for **X185** - Engine controller AGCO Power |

## 3.13.7 Battery isolator

Battery isolator

A device isolates the battery/batteries (depending on assembly) from all the other electrical equipment on the tractor.

This isolator is programmed for automatic cut-off after a delay of 60 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.

The isolator timer control can vary according to the tractor configuration.

The temporary control conditions for the closed isolator are as follows:

1. the time required to drain the DEF or AdBlue™ system
2. the Datatronic CCD standby time
3. power supply maintained on an ISOBUS or Auto-Guide™ implement

Whatever the status of the above conditions, the isolator will always open after a maximum period of 60 minutes after the ignition key has been set to the OFF position.

The permanent control condition for the closed isolator is as follows:

1. Activation of the hazard warning lights

   **NOTE:**
   *The battery isolator will open once the hazard warning lights have been deactivated.*

**IMPORTANT:**
*In the event of electrical faults on the tractor or the implement, emergency cut-off of the isolator is possible via a switch located under the controllers housing cover plate in the cab, but only if the ignition key is in the OFF position. The DEF or AdBlue™ system is drained even after pressing the switch for the emergency cut-off of the battery isolator.*

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


*Fig. 104*

1. Press the switch (B) to execute an emergency cut-off of the battery isolator.

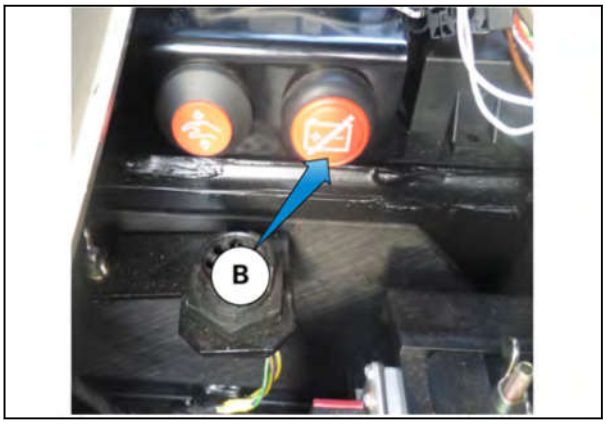



*Fig. 105*

# 3.14 Pressure washing

## 3.14.1 Pressure washing

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.
- **IMPORTANT:** *Exhaust outlet: When washing, it is strictly prohibited to allow water into the exhaust outlet.*

# 3.15 Storing your tractor

## 3.15.1 Storing your tractor

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's Manual (oil changes, filters etc.)
8. Lubricate all the points as indicated in the Operator's Manual.
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).

## 3.15.2 Storing the DEF or AdBlue™

1. In order to guarantee the stability of the DEF or AdBlue™ (as per DIN 70070 standard), the following storage recommendations should be followed:
   a. Use the original container for storage.
   b. Keep the container properly closed and in a cool, well-ventilated area.
   c. Keep away from heat and direct sunlight. If DEF or AdBlue™ is stored at high temperatures, the solution may crystallize and release an ammonia odor. When the tractor is in storage for a long period, the DEF or AdBlue™ tank vent must be plugged.

**NOTE:**
*Freezing temperature: -11 °C*

# 3.16 Faults and solutions

## 3.16.1 General table of faults

The table below gives a brief list of the various checks that can be carried out by the operator 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.*

| **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. |
| DEF or AdBlue™ problem | Refer to the relevant chapter (see information on the operating mode of Tier 4F/Stage IV SCR Technology engine in the Operation section of the Operator's Manual). |
| Other | Contact the dealer. |

| The tractor does not move forward | |
|---|---|
| **Cause** | **Solution** |
| Control unit not working. | Manual limp home mode. |
| No range engaged. | Engage field mode (tortoise) or road mode (hare), using the limp home lever if necessary. |
| 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 effort required in road mode (hare). | Change to field mode (tortoise). |
| Coupler activated for too long. | Couple completely. |
| 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 faulty 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 liquid refrigerant R134a in the system. | Contact the dealer. |
| 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 liquid refrigerant R134a in the system. | Contact the dealer. |
| Other | Contact the dealer. |

## 3.16.2 Indicator light panel

**Front PTO engaged indicator light**

Activating condition(s)

- Indicator light permanently on = front PTO engaged
- Indicator light flashing = front power take-off in safety mode

**Suspended front axle engagement switch 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 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 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. |
| Braking pressure sensor faulty | Contact the dealer. |

**Engine oil pressure warning light**

Activating condition(s)

| |
|---|
| • Indicator light flashing slowly = engine oil pressure low - warning<br>• Indicator light permanently on = insufficient engine oil pressure (< 1 bar) - STOP alert<br>• 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.<br>To switch off this indicator light, display the start-up screen, then press the OK key of the display selector switch on the Setup and Information Screen keypad for 6 seconds. The service schedule counter is set back to the number of hours indicated in the Service Guide Chart. 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. |

**Steering supply pressure indicator light**

Activating condition(s)

- Indicator light flashing = auxiliary hydraulic oil level below 55 l
- Indicator light permanently on = auxiliary hydraulic oil pressure lower than 25 bar or oil level below 35 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 warning 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<br>• 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)<br>• Indicator light permanently on = Grid Heater activated: Preheating when the ignition key is in the preheating position, then post-heating for 40 seconds after the engine has started. | |

|  | **Engine air filter blockage indicator light** |
|---|---|
| Activating condition(s)<br>• 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. |

## 3.16.3 Indication of faults

Alarm and faults are indicated via the instrument panel.

Depending on the fault or the alarm recognized by the electronic systems, there may be different types of signal:

- Error code available in the screen list of the Setup and Information Screen
- Indicator light(s)
- Audible alarm
- A combination of the three types of signals mentioned above.

## Indicator lights


*Fig. 106*

The electronic instrument panel comprises several indicator lights (see description in the Operation section of the Operator's Manual).

## Error codes

In the event of a problem, all of the error codes can be seen in the screen list of the Setup and Information Screen on the instrument panel.

When a problem is detected by the electronic systems, an error code appears on the screen.

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).

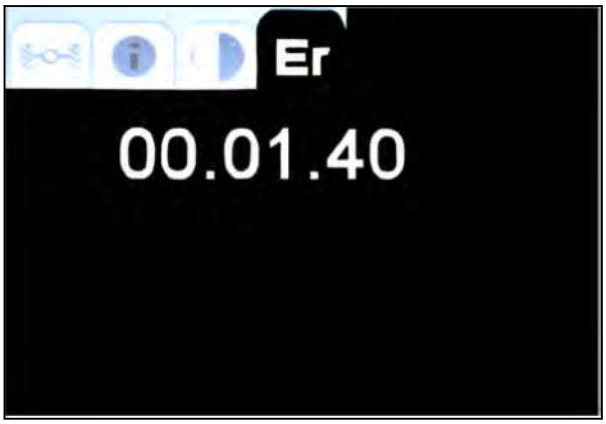



*Fig. 107*

**NOTE:**
*Only error codes relating to the automatic air conditioning system are not displayed on the Setup and Information Screen. These error codes are only displayed on the air conditioning control module.*

### Failure of the Tier 4F/Stage IV SCR Technology engine system

When the system fails, an engine error code corresponding to this error appears on the instrument panel.

Final degraded mode is activated progressively, enabling only 50% of the engine power and limiting the engine to idle speed.

### Reading the error code number

The code is represented by 3 sections of characters separated by dots.

Example: 8.1.22:

- **8**: Rear power lift function
- **1**: Severity level
- **22**: error code number

| Type of function concerned | Display of error number on the Setup and Information Screen |
|---|---|
| Instrument panel | No. 0 |
| Engine/Tier 4F/Stage IV SCR Technology engine | |
| Transmission | No. 4 |
| 4WD / differential lock / suspended front axle | No. 5 |
| Rear power take-off (PTO) | No. 6 |
| ParkLock | No. 13 |
| Rear linkage | No. 8 |
| Front linkage | No. 9 |
| Hydraulic valves | No. A.Y |
| Suspended cab | No. 15 |
| Command Control Armrest | No. 3 |
| Air conditioning | No. 10 |
| Right-hand pillar keypad | No. 1B |

## 3.16.4 Description of error code format

### Reading the error code

The error code is composed of three parts separated by dots: the function, severity and fault code.

For example: 5.YX.31

- **5** corresponds to the function on the tractor that is faulty
- **YX** corresponds to the severity
  - **X** corresponds to the severity level of the error code
  - **Y** corresponds to the number of the hydraulic spool valve affected by the error code.

    If the error code does not relate to a hydraulic spool valve, the number displayed is 0

- **31** corresponds to the fault code

**IMPORTANT:**
*When describing error codes, the number corresponding to the severity is replaced by the letter **"X"** to cover a change in severity of the error code in the software.*

### Function

A number is assigned to each of the tractor functions:

| Function number | Function |
|---|---|
| 0 | Instrument panel |
| 3 | Armrest |
| 4 | Transmission |
| 5 | Front axle and differential lock |
| 6 | Rear power take-off (PTO) |
| 7 | Front power take-off |
| 8 | Rear linkage |
| 9 | Front linkage |
| A | Hydraulic spool valve |
| 10 | Automatic air conditioning |
| 13 | ParkLock (depending on model) |
| 1B | Keypad in the pillar |

### Severity

3 severity levels change the way the alert is raised in the cab.

| Severity | Alert in cab |
|---|---|
| 0 | Display on the instrument panel and audible alert |
| 1 | Display on the instrument panel |
| 2 | No display (but display possible via the Setup and Information Screen) |

*Severity level*

**IMPORTANT:**
*When an error code for a hydraulic spool valve is displayed, the severity level is preceded by a number. This figure corresponds to the number of the hydraulic spool valve that is faulty.*

### Fault code

The fault code indicates the fault and the faulty component.

## 3.16.5 Instrument panel error codes Dyna-VT

| No. | Components concerned | Causes |
|---|---|---|
| 0.X.30 | | Alternator regulator voltage too high or too low (filtered battery signal). |
| 0.X.31 | **X197** - Diesel fuel gage | Electrical signal too high or too low. |
| 0.X.32 | | Battery voltage too high or too low (non-filtered battery signal) |
| 0.X.33 | **X68** - Clutch pedal sensor | Absence of calibration |
| 0.X.34 | **X71** - Throttle pedal sensor | Electrical signal too high or too low. |
| 0.X.35 | **X56** - PowerShuttle lever | Electrical signal too high or too low. |
| 0.X.36 | **X106** - T-handle | Electrical signal too high or too low. |
| 0.X.37 | **X68** - Clutch pedal sensor | Electrical signal too high or too low. |
| 0.X.38 | **X25** - Engine speed sensor | Engine speed signal too high |
| 0.X.39 | **X68** - Clutch pedal sensor | Short circuit to +12 V |
| 0.X.3A | | Short circuit to +12 V |
| 0.X.3B | **X56** - PowerShuttle lever | Electrical signal too high |
| 0.X.3C | | Electrical signal too low |
| 0.X.3D | | Electrical signal too high |
| 0.X.3E | | Electrical signal too low |
| 0.X.3F | | CAN network deactivated (CAN bus off) |
| 0.X.40 | | CAN message lost |
| 0.X.41 | | Tractor speed too high |
| 0.X.42 | **X55** - Instrument panel | Hourmeter error for engine maintenance |
| 0.X.43 | | Configuration error |
| 0.X.44 | | CAN communications from transmission controller to the instrument panel are faulty |
| 0.X.45 | **X55** - Instrument panel | Incorrect tractor code selected |
| 0.X.46 | **X68** - Clutch pedal sensor | TOC stuck open |
| 0.X.47 | **X56** - PowerShuttle lever | Switch error when in neutral position |
| 0.X.48 | | Switch error when not in neutral position |
| 0.X.49 | | Failure of CAN communications from EEM to the instrument panel |
| 0.X.4A | | Loss of CAN messages between the instrument panel and the engine controller |
| 0.X.4B | Hand throttle | Open circuit |
| 0.X.4C | **X358** - Outside temperature sensor / **X541** - Temperature info shunt for automatic air conditioning | Outside temperature sensor connected to the instrument panel |
| 0.X.4E | **X236** - Electrohydraulic Orbitrol (gray connector) | Error on the steering unit |

| No. | Components concerned | Causes |
|---|---|---|
| 0.X.4F | **X55** - Instrument panel | Power output error |
| 0.X.54 | **X168** - Pneumatic brake system pressure sensor | Electrical signal too high or too low |
| 0.X.5E | **X235** - Front axle steering sensor (WAS sensor) | Electrical signal too high or too low |
| 0.X.5F | **X57** - Setup and Information Screen keypad | Electrical signal too high or too low |
| 0.X.61 | **X55** - Instrument panel | The 9.5 V output is too low or too high |
| 0.X.63 | **X55** - Instrument panel | Internal temperature electrical signal is too high or too low |
| 0.X.64 | **X1** - Auxiliary hydraulic oil temperature sensor | Electrical signal too high or too low |

## 3.16.6 AGCO Power Tier 3/Stage IIIA engine and Tier 4F/Stage IV SCR Technology engine error codes

### Description of the protection modes

In order to protect the engine, the electronic system activates a protection mode when certain error codes appear.

Standard protection modes for all engines:

- **FIm** mode: fuel limited
- Mode 1: 75% of the engine power is available.
- Mode 2: 50% of the engine power is available and the engine speed is limited to 1800 rpm
- Mode 3: 50% of the engine power is available and the engine speed is limited to 1500 rpm

Additional protection modes specific to engines with SCR Technology systems:

- Degraded mode 1: The engine torque is limited to 75%.
- Final degraded mode: Once the maximum time delay for degraded mode 1 has been reached, the engine torque is limited to 50% and the engine speed is limited to idle speed.

For more information, refer to the following chapter: "Information about the various operating modes of the SCR Technology engine".

| No. | FMI | Components concerned | Causes | Standard modes | modes |
|---|---|---|---|---|---|
| 27 | 6 | EGR valve | Overload of the EGR valve | | |
| 27 | 7 | EGR valve | Difference between the current position and the commanded position | | |
| 27 | 11 | EGR valve | The control is limited to avoid overheating | | |
| 27 | 12 | EGR valve | Short circuit | | |
| 27 | 13 | EGR valve | Mechanical error | | X |
| 29 | 3 | Throttle sensor | Sensor above normal or in open circuit | | |
| 29 | 4 | Throttle sensor | Sensor below normal | | |

| No. | FMI | Components concerned | Causes | Standard modes | modes |
|---|---|---|---|---|---|
| 51 | 3 | Air dosing unit | Voltage above normal | 1 | |
| 51 | 4 | Air dosing unit | Voltage below normal | 1 | |
| 51 | 13 | Air dosing unit | Calibration error | 1 | |
| 91. | 3 | Throttle sensor | Throttle sensor 1 (IDLE) above normal or in open circuit | | |
| 91. | 4 | Throttle sensor | Throttle sensor 1 (IDLE) below normal | | |
| 94 | 3 | Fuel filter pressure sensor | Fuel filter pressure sensor voltage above normal or open circuit | 1 | |
| 94 | 4 | Fuel filter pressure sensor | Fuel filter pressure sensor voltage below normal | 1 | |
| 94 | 16 | Fuel filter pressure sensor | Fuel filter pressure ABOVE NORMAL | 1 | |
| 94 | 18 | Fuel filter pressure sensor | Fuel filter pressure BELOW NORMAL | 1 | |
| 94 | 31 | Fuel filter pressure sensor | Pressure value outside the range, ALARM | 3 | |
| 97 | 31 | Water sensor | Water in fuel | 2 | |
| 100 | 1 | Oil pressure sensor | Oil pressure LOW, ALARM | | |
| 100 | 3 | Oil pressure sensor | Oil pressure sensor voltage above normal or open circuit | 1 | |
| 100 | 4 | Oil pressure sensor | Oil pressure sensor voltage below normal | 1 | |
| 100 | 16 | Oil pressure sensor | Oil pressure ABOVE NORMAL (9,5 bar/30 °C) | 2 | |
| 100 | 18 | Oil pressure sensor | Oil pressure LOW | | |
| 102 | 0 | Boost pressure sensor | Boost pressure high | 2 | |
| 102 | 2 | Boost pressure sensor | Communication error | 3 | |
| 102 | 11 | Boost pressure sensor | Measured pressure too high | 1 | |
| 102 | 12 | Boost pressure sensor | Boost pressure inconsistent | 2 | |
| 102 | 14 | Boost pressure sensor | Boost pressure inconsistent | 2 | |
| 102 | (17) | Boost pressure sensor | Pressure too high at start-up | | |
| 102 | 18 | Boost pressure sensor | Boost pressure LOW | 2 | |
| 102 | 31 | Boost pressure sensor | Inlet manifold pressure drop too HIGH at start-up | | |
| 105 | 16 | Inlet manifold temperature sensor | Inlet manifold temperature ABOVE NORMAL (>90°C) | 1 | |
| 107 | 18 | Air filter pressure sensor | Air filter pressure BELOW NORMAL | | |
| 107 | 31 | Air filter pressure sensor | Air filter pressure sensor activated at initial status | | |

| No. | FMI | Components concerned | Causes | Standard modes | modes |
|---|---|---|---|---|---|
| 108 | 3 | Ambient pressure sensor | Sensor voltage above normal or open circuit | | |
| 108 | 4 | Ambient pressure sensor | Sensor voltage below normal | | |
| 109 | 3 | Coolant pressure sensor | Sensor voltage above normal or open circuit | | |
| 109 | 4 | Coolant pressure sensor | Sensor voltage below normal | | |
| 110 | 0 | Coolant T° sensor | Coolant temperature HIGH, ALARM (>113 °C) | **Flm** | |
| 110 | 3 | Coolant T° sensor | Coolant temperature sensor voltage above normal or open circuit | 1 | |
| 110 | 4 | Coolant T° sensor | Coolant temperature sensor voltage below normal | 1 | |
| 110 | 16 | Coolant T° sensor | Coolant temperature HIGH, (>106 °C) | **Flm** | |
| 132 | 2 | Air flow sensor | Inconsistent signal | | X |
| 132 | 13 | Air flow sensor | Calibration of point 0 failed | | |
| 132 | 19 | Air flow sensor | CAN communication error | | X |
| 157 | 0 | Rail pressure sensor | Rail pressure above normal | 3 | |
| 157 | 2 | Rail pressure sensor | Intermittent rail pressure | 3 | |
| 157 | 3 | Rail pressure sensor | Rail pressure sensor voltage above normal or open circuit | 3 | |
| 157 | 4 | Rail pressure sensor | Rail pressure sensor voltage below normal | 3 | |
| 157 | 15 | Rail pressure sensor | Positive pressure difference in common rail | 3 | |
| 157 | 16 | Rail pressure sensor | Rail pressure ABOVE NORMAL | 3 | |
| 157 | (17) | Rail pressure sensor | Negative pressure difference in common rail | 3 | |
| 157 | 20 | Rail pressure sensor | The rail pressure value has exceeded the tolerance threshold when starting or after stopping the engine | | |
| 157 | 21 | Rail pressure sensor | The rail pressure value is below the tolerance threshold when starting or after stopping the engine | | |
| 168 | 0 | Battery voltage | Battery voltage VERY HIGH (>17 V) | | |
| 168 | 1 | Battery voltage | Battery voltage VERY LOW (<7.8 V) | | |
| 171 | 3 | Ambient temperature sensor | Temperature sensor voltage above normal or open circuit | | |

| No. | FMI | Components concerned | Causes | Standard modes | modes |
|---|---|---|---|---|---|
| 171 | 4 | Ambient temperature sensor | Temperature sensor voltage below normal | | |
| 171 | 10 | Ambient temperature sensor | Temperature sensor voltage inconsistent | | |
| 171 | 19 | Ambient temperature sensor | Loss of ambient temperature CAN signal | | |
| 174 | 0 | Fuel temperature sensor | Fuel inlet temperature high, ALARM (> 85 °C) | **Flm** | |
| 174 | 3 | Fuel temperature sensor | Fuel temperature sensor voltage above normal or open circuit | 1 | |
| 174 | 4 | Fuel temperature sensor | Fuel temperature sensor voltage below normal | 1 | |
| 190 | 16 | Engine protection | Engine speed above normal | | |
| 626 | 3 | Grid Heater | Inlet air heater control, voltage above normal or short-circuited to +12 V | | |
| 626 | 5 | Grid Heater | Inlet air heater control, voltage below normal or open circuit | | |
| 626 | 6 | Grid Heater | Inlet air heater control, voltage above normal or short-circuited to earth (-) | | |
| 639 | 19 | CAN bus | Vehicle CAN bus fault (250K) | | |
| 651 | 5 | Injector no. 1 | Current below normal: open circuit | 3 | |
| 651 | 13 | Injector no. 1 | Injector not calibrated | 3 | |
| 651 | 14 | Injector no. 1 | Short circuit | 3 | |
| 652 | 5 | Injector no. 2 | Current below normal: open circuit | 3 | |
| 652 | 13 | Injector no. 2 | Injector not calibrated | 3 | |
| 652 | 14 | Injector no. 2 | Short circuit | 3 | |
| 653 | 5 | Injector no. 3 | Current below normal: open circuit | 3 | |
| 653 | 13 | Injector no. 3 | Injector not calibrated | 3 | |
| 653 | 14 | Injector no. 3 | Short circuit | 3 | |
| 654 | 5 | Injector no. 4 | Current below normal: open circuit | 3 | |
| 654 | 13 | Injector no. 4 | Injector not calibrated | 3 | |
| 654 | 14 | Injector no. 4 | Short circuit | 3 | |
| 655 | 5 | Injector no. 5 | Current below normal: open circuit | 3 | |
| 655 | 13 | Injector no. 5 | Injector not calibrated | 3 | |
| 655 | 14 | Injector no. 5 | Short circuit | 3 | |

| No. | FMI | Components concerned | Causes | Standard modes | modes |
|---|---|---|---|---|---|
| 656 | 5 | Injector no. 6 | Current below normal: open circuit | 3 | |
| 656 | 13 | Injector no. 6 | Injector not calibrated | 3 | |
| 656 | 14 | Injector no. 6 | Short circuit | 3 | |
| 677 | 3 | Starter relay | Low voltage side above normal or short-circuited to +12 V | | |
| 677 | 5 | Starter relay | Voltage below normal or open circuit | | |
| 677 | 6 | Starter relay | Low voltage side above normal | | |
| 723 | 2 | Camshaft speed sensor | Number and/or position of pulses unlikely | 2 | |
| 723 | 8 | Camshaft speed sensor | Deviation of the signal between the camshaft sensor and crankshaft sensor | 2 | |
| 723 | 31 | Camshaft speed sensor | No signal | 2 | |
| 729 | 3 | Grid Heater | Voltage above normal | | |
| 729 | 4 | Grid Heater | Voltage below normal | | |
| 898 | 8 | CAN bus | Fan control time is exceeded | | |
| 974 | 3 | Throttle sensor | Sensor above normal or in open circuit | | |
| 974 | 4 | Throttle sensor | Sensor below normal | | |
| 977 | 3 | Fan control | Output in short circuit | | |
| 977 | 5 | Fan control | Output in open circuit | | |
| 977 | 6 | Fan control | Current above normal | | |
| 1043 | 3 | EEM4 controller | 12 V internal voltage above normal | | |
| 1043 | 4 | EEM4 controller | 12 V internal voltage below normal | | |
| 1076 | 3 | MPROP control | Upper level, short circuit to +12 V | | |
| 1076 | 4 | MPROP control | Lower level, short circuit to earth (-) | | |
| 1076 | 5 | MPROP control | Lower level, short circuit to +12 V | | |
| 1076 | 6 | MPROP control | Upper level, short circuit to earth (-) | | |
| 1076 | 14 | MPROP control | Open circuit | | |
| 1077 | 31 | MPROP control | Temperature exceeded | | |
| 1083 | 3 | Analog input 1 | Voltage above normal or open circuit | | |
| 1083 | 4 | Analog input 1 | Voltage below normal | | |
| 1084 | 3 | Analog input 2 | Voltage above normal or open circuit | | |

| No. | FMI | Components concerned | Causes | Standard modes | modes |
|---|---|---|---|---|---|
| 1084 | 4 | Analog input 2 | Voltage below normal | | |
| 1132 | 3 | Inlet temperature sensor on the manifold | Signal voltage above normal or open circuit | 1 | |
| 1132 | 4 | Inlet temperature sensor on the manifold | Signal voltage below normal | 1 | |
| 1136 | 0 | EEM4 controller | Temperature too high: ALARM | | |
| 1136 | 3 | EEM4 controller | Temperature sensor voltage above normal or open circuit | | |
| 1136 | 4 | EEM4 controller | Temperature sensor voltage below normal | | |
| 1188 | 2 | Wastegate actuator | Position deviation (error 3) | | |
| 1188 | 7 | Wastegate actuator | Actuator fault (error 5) | 2 | |
| 1188 | 11 | Wastegate actuator | Maximum torque reached (error 22) | | |
| 1188 | 13 | Wastegate actuator | Calibration error (error 4) | 2 | |
| 1239 | 14 | Rail pressure sensor | Leak detected at idle speed | 3 | |
| 1240 | 14 | Rail pressure sensor | Leak detected at high engine speed | 3 | |
| 1321 | 3 | Starter relay | High voltage side above normal | | |
| 1321 | 6 | Starter relay | High voltage side above normal | | |
| 1378 | 31 | Engine protection | Oil change interval excessive | | |
| 1381 | 3 | Pressure sensor of the fuel suction pump | Signal voltage above normal or open circuit | 1 | |
| 1381 | 4 | Pressure sensor of the fuel suction pump | Signal voltage below normal | 1 | |
| 1381 | 16 | Pressure sensor of the fuel suction pump | Pressure above normal | 1 | |
| 1381 | 18 | Pressure sensor of the fuel suction pump | Pressure below normal | 1 | |
| 1485 | 31 | Starter relay | Advanced opening at previous starting | | |
| 1639 | 19 | Vistronic fan | Fan speed request CAN signal absent | | |
| 1761 | 1 | Tank gauge | Tank empty | | X |
| 1761 | 3 | Tank gauge | Voltage above normal or open circuit | | X |
| 1761 | 4 | Tank gauge | Voltage below normal | | X |
| 1761 | 11 | Tank gauge | General error | | |
| 1761 | 15 | tank gage | Level error | | |
| 1761 | (17) | tank gage | Level error | | |
| 1761 | 18 | tank gage | Low level | | X |

| No. | FMI | Components concerned | Causes | Standard modes | modes |
|---|---|---|---|---|---|
| 1761 | 31 | tank gage | CAN message lost | | |
| 2659 | 1 | EGR valve | Quantity of exhaust gas below the normal level | 1 | |
| 2791 | 0 | EGR valve | Temperature alarm | | |
| 2791 | 9 | EGR valve | Communication error | 2 | |
| 2791 | 10 | EGR valve | Torque limit | 2 | |
| 2791 | 31 | EGR valve | Absent | 2 | |
| 2882 | 8 | CAN bus | CAN message lost | | |
| 3031 | 2 | DEF or AdBlue™ tank temperature sensor | Abnormal temperature change | | X |
| 3031 | 3 | DEF or AdBlue™ tank temperature sensor | Voltage above normal or open circuit | | X |
| 3031 | 4 | DEF or AdBlue™ tank temperature sensor | Voltage below normal | | X |
| 3031 | 10 | DEF or AdBlue™ tank temperature sensor | Abnormal rate change during heating cycle | | |
| 3031 | 11 | DEF or AdBlue™ tank temperature sensor | General error | | |
| 3031 | 14 | DEF or AdBlue™ tank temperature sensor | Deicing time exceeded | | X |
| 3031 | 15 | DEF or AdBlue™ tank temperature sensor | Temperature error | | |
| 3031 | 16 | DEF or AdBlue™ tank temperature sensor | Temperature above normal | | |
| 3031 | (17) | DEF or AdBlue™ tank temperature sensor | Temperature error | | |
| 3216 | 19 | NOx sensor before DOC | Sensor not present | | X |
| 3218 | 14 | NOx sensor before DOC | Supply voltage outside of tolerances | | X |
| 3219 | 2 | NOx sensor before DOC | Heating time exceeded | | X |
| 3220 | 2 | NOx sensor before DOC | Inconsistent value | | X |
| 3220 | 12 | NOx sensor before DOC | Time required to stabilize the measurement has elapsed | | X |
| 3222 | 3 | NOx sensor before DOC | Short circuit of the heating line | | |
| 3222 | 5 | NOx sensor before DOC | Open circuit of the heating line | | |
| 3224 | 3 | NOx sensor before DOC | Short circuit of signal line for NOx measurement | | |
| 3224 | 5 | NOx sensor before DOC | Signal line for NOx measurement in open circuit | | |
| 3225 | 3 | NOx sensor before DOC | Short circuit of signal line for O2 measurement | | |

| No. | FMI | Components concerned | Causes | Standard modes | modes |
|---|---|---|---|---|---|
| 3225 | 5 | NOx sensor before DOC | Signal line for O2 measurement in open circuit | | |
| 3226 | 19 | Exhaust outlet NOx sensor | Sensor not present | | X |
| 3228 | 14 | Exhaust outlet NOx sensor | Supply voltage outside of tolerances | | X |
| 3229 | 2 | Exhaust outlet NOx sensor | Heating time exceeded | | X |
| 3230 | 2 | Exhaust outlet NOx sensor | Inconsistent value | | X |
| 3230 | 12 | Exhaust outlet NOx sensor | Time required to stabilize the measurement has elapsed | | X |
| 3232 | 3 | Exhaust outlet NOx sensor | Short circuit of the heating line | | |
| 3232 | 5 | Exhaust outlet NOx sensor | Open circuit of the heating line | | |
| 3234 | 3 | Exhaust outlet NOx sensor | Short circuit of signal line for NOx measurement | | |
| 3234 | 5 | Exhaust outlet NOx sensor | Signal line for NOx measurement in open circuit | | |
| 3235 | 3 | Exhaust outlet NOx sensor | Short circuit of signal line for O2 measurement | | |
| 3235 | 5 | Exhaust outlet NOx sensor | Signal line for O2 measurement in open circuit | | |
| 3349 | 8 | CAN bus | Torque and speed control delay has been exceeded | | |
| 3361 | 3 | metering module | Low side short-circuited to +12 V | | X |
| 3361 | 4 | DEF or AdBlue™ metering module | High side short-circuited | | X |
| 3361 | 5 | DEF or AdBlue™ metering module | High side short-circuited to +12 V or open circuit | | X |
| 3361 | 6 | DEF or AdBlue™ metering module | Low side short-circuited to earth (-) or open circuit | | X |
| 3361 | 7 | DEF or AdBlue™ metering module | Blocked | | X |
| 3361 | 14 | DEF or AdBlue™ metering module | Abnormal operation | | X |
| 3361 | 31 | DEF or AdBlue™ metering module | Operating temperature too high | | X |
| 3363 | 3 | DEF or AdBlue™ tank preheating liquid control valve | Short circuit to +12 V of the control section | | |
| 3363 | 4 | DEF or AdBlue™ tank preheating liquid control valve | Short circuit to earth of the power section | | |
| 3363 | 5 | DEF or AdBlue™ tank preheating liquid control valve | Open circuit of the control section | | |
| 3363 | 6 | DEF or AdBlue™ tank preheating liquid control valve | Short circuit to earth of the control section | | |
| 3363 | 14 | DEF or AdBlue™ tank preheating liquid control valve | Short circuit to +12 V of the power section | | |
| 3363 | 31 | DEF or AdBlue™ tank preheating liquid control valve | Excessive temperature | | |

| No. | FMI | Components concerned | Causes | Standard modes | modes |
|---|---|---|---|---|---|
| 3509 | 31 | EEM4 controller | 5 V DC supply 1 out of range | | |
| 3510 | 31 | EEM4 controller | 5 V DC supply 2 out of range | | |
| 3511 | 31 | EEM4 controller | 5 V DC supply 3 out of range | | |
| 3512 | 3 | EEM4 controller | 12 V supply 1 above normal | | |
| 3512 | 4 | EEM4 controller | 12 V supply 1 below normal | | |
| 3515 | 3 | DEF or AdBlue™ tank temperature sensor | Open circuit | | |
| 3515 | 4 | DEF or AdBlue™ tank temperature sensor | Short circuit | | |
| 3515 | 11 | DEF or AdBlue™ tank temperature sensor | General error | | |
| 3515 | 15 | DEF or AdBlue™ tank temperature sensor | Error | | |
| 3515 | (17) | DEF or AdBlue™ tank temperature sensor | Error | | |
| 3516 | 2 | quality sensor | DEF or AdBlue™ concentration error | | |
| 3516 | 11 | quality sensor | General error | | |
| 3516 | 15 | quality sensor | Incorrect concentration | | |
| 3516 | (17) | quality sensor | Incorrect concentration | | |
| 3516 | 19 | quality sensor | Loss of the CAN message from the quality sensor | | |
| 3519 | 3 | DEF or AdBlue™ tank temperature sensor | Sensor in open circuit | | |
| 3519 | 4 | DEF or AdBlue™ tank temperature sensor | Sensor short-circuited | | |
| 3521 | 14 | quality sensor | Unknown liquid | | |
| 3521 | 16 | quality sensor | Concentration of DEF or AdBlue™ too high | | |
| 3521 | 18 | quality sensor | Concentration of DEF or AdBlue™ too low | | |
| 3521 | 31 | quality sensor | Presence of fuel in the DEF or AdBlue™ tank | | |
| 3532 | 3 | tank gage | Open circuit | | |
| 3532 | 4 | tank gage | Short circuit | | |
| 3562 | 14 | Boost pressure sensor 2 | Boost pressure inconsistent | 2 | |
| 3562 | 31 | Boost pressure sensor 2 | Boost pressure inconsistent | 2 | |
| 3573 | 3 | Air dosing unit 2 | Voltage above normal | 1 | |
| 3573 | 4 | Air dosing unit 2 | Voltage below normal | 1 | |
| 3573 | 13 | Air dosing unit 2 | Calibration error | 1 | |

| No. | FMI | Components concerned | Causes | Standard modes | modes |
|---|---|---|---|---|---|
| 4090 | 31 | system | NOx limit exceeded, unknown reason | | |
| 4095 | 31 | system | NOx limit exceeded due to stoppage of the DEF or AdBlue™ dosing module | | X |
| 4201 | 2 | Crankshaft speed sensor | Irregular signal | 2 | |
| 4201 | 31 | Crankshaft speed sensor | No signal | 2 | |
| 4332 | 0 | system | Excess pressure detected | | X |
| 4332 | 11 | system | Metering pump fault | | X |
| 4332 | 14 | system | Pressure test fault | | X |
| 4332 | 16 | system | Metering module pressure above normal | | X |
| 4332 | 18 | system | Metering module pressure below normal | | X |
| 4332 | 31 | system | Draining interrupted at previous stop | | |
| 4334 | 3 | DEF or AdBlue™ pressure sensor | Voltage above normal or open circuit | | X |
| 4334 | 4 | DEF or AdBlue™ pressure sensor | Voltage below normal | | X |
| 4340 | 3 | DEF or AdBlue™ preheating suction line | Short circuit to +12 V | | |
| 4340 | 4 | DEF or AdBlue™ preheating suction line | Short circuit to earth (-) | | |
| 4340 | 5 | DEF or AdBlue™ preheating suction line | Open circuit | | |
| 4340 | 31 | DEF or AdBlue™ preheating suction line | Excessive temperature | | |
| 4342 | 3 | DEF or AdBlue™ preheating return line | Short circuit to +12 V | | |
| 4342 | 4 | DEF or AdBlue™ preheating return line | Short circuit to earth (-) | | |
| 4342 | 5 | DEF or AdBlue™ preheating return line | Open circuit | | |
| 4342 | 31 | DEF or AdBlue™ preheating return line | Excessive temperature | | |
| 4344 | 2 | DEF or AdBlue™ heating module | Invalid temperature signal | | X |
| 4344 | 3 | DEF or AdBlue™ heating module | Short circuit to +12 V | | |
| 4344 | 4 | DEF or AdBlue™ heating module | Short circuit to earth (-) | | |
| 4344 | 5 | DEF or AdBlue™ heating module | Open circuit | | |
| 4344 | 8 | DEF or AdBlue™ heating module | Fault with temperature range signal | | X |

| No. | FMI | Components concerned | Causes | Standard modes | modes |
|---|---|---|---|---|---|
| 4344 | 12 | DEF or AdBlue™ heating module | No response from the temperature measurement | | |
| 4344 | 31 | DEF or AdBlue™ heating module | Excessive temperature | | |
| 4346 | 3 | DEF or AdBlue™ preheater pressure line | Short circuit to +12 V | | |
| 4346 | 4 | DEF or AdBlue™ preheater pressure line | Short circuit to earth (-) | | |
| 4346 | 5 | DEF or AdBlue™ preheater pressure line | Open circuit | | |
| 4346 | 31 | DEF or AdBlue™ preheater pressure line | Excessive temperature | | |
| 4356 | 5 | DEF or AdBlue™ module relay | Open circuit | | |
| 4360 | 2 | DOC inlet temperature sensor | Incorrect temperature value | | X |
| 4360 | 3 | DOC inlet temperature sensor | Voltage above normal or open circuit | | X |
| 4360 | 4 | DOC inlet temperature sensor | Voltage below normal | | X |
| 4360 | 10 | DOC inlet temperature sensor | Temperature value inconsistent | | |
| 4363 | 2 | Exhaust outlet temperature sensor | Incorrect temperature value | | X |
| 4363 | 3 | Exhaust outlet temperature sensor | Voltage above normal or open circuit | | X |
| 4363 | 4 | Exhaust outlet temperature sensor | Voltage below normal | | X |
| 4363 | 10 | Exhaust outlet temperature sensor | Temperature value inconsistent | | |
| 4374 | 8 | DEF or AdBlue™ pump motor | Speed fault | | X |
| 4374 | 14 | DEF or AdBlue™ pump motor | Permanent speed fault | | X |
| 4374 | 31 | DEF or AdBlue™ pump motor | Not available | | X |
| 4375 | 3 | DEF or AdBlue™ pump motor | Short circuit to +12 V | | X |
| 4375 | 4 | DEF or AdBlue™ pump motor | Short circuit to earth (-) | | X |
| 4375 | 5 | DEF or AdBlue™ pump motor | Current below normal or open circuit | | X |
| 4375 | 31 | DEF or AdBlue™ pump motor | Excessive temperature | | X |
| 4376 | 3 | Lower side pump control valve | Short circuit to +12 V | | X |
| 4376 | 4 | Lower side pump control valve | Shortcut to Ground | | X |
| 4376 | 5 | Lower side pump control valve | Current below normal or open circuit | | X |
| 4376 | 31 | Lower side pump control valve | Excessive temperature | | X |
| 4753 | 3 | DOC outlet temperature sensor | Voltage above normal or open circuit | | |
| 4753 | 4 | DOC outlet temperature sensor | Voltage below normal | | |

| No. | FMI | Components concerned | Causes | Standard modes | modes |
|---|---|---|---|---|---|
| 4753 | 10 | DOC outlet temperature sensor | Temperature value inconsistent | | |
| 4792 | 14 | system | The catalytic converter temperature sensors are inverted | | |
| 5025 | 31 | NOx sensor before DOC | Calibration value outside of the measurement range | | X |
| 5026 | 2 | NOx sensor before DOC | Point 0 calibration error | | X |
| 5028 | 13 | NOx sensor before DOC | Calibration value unavailable or incompatible with the sensor | | X |
| 5028 | 31 | NOx sensor before DOC | Calibration value outside of the measurement range | | X |
| 5032 | 31 | Exhaust outlet NOx sensor | Calibration value outside of the measurement range | | X |
| 5033 | 2 | Exhaust outlet NOx sensor | Point 0 calibration error | | X |
| 5035 | 13 | Exhaust outlet NOx sensor | Calibration value unavailable or incompatible with the sensor | | X |
| 5035 | 31 | Exhaust outlet NOx sensor | Calibration value outside of the measurement range | | X |
| 5370 | 19 | Wastegate actuator | Communication error (error 7) | 2 | |
| 5372 | 0 | Wastegate actuator | Excessive temperature (error 1) | | |
| 5372 | 16 | Wastegate actuator | Excessive temperature (error 2) | | |
| 5451 | 4 | Wastegate actuator | Short circuit (error 21) | 2 | |
| 5451 | 14 | Wastegate actuator | Initialisation error (error 6) | 2 | |
| 5451 | 31 | Wastegate actuator | Not present | 2 | |
| 520200 | 16 | Batteries | Voltage too high | | |
| 520200 | 18 | Batteries | Voltage too low | | |
| 520201 | 19 | CAN bus | CAN bus engine OFF (1M) | | |
| 520202 | 3 | Main relay 1 | Short circuit to +12 V | | X |
| 520202 | 4 | Main relay 1 | Short circuit to earth (-) | | X |
| 520203 | 3 | Main relay 2 | Short circuit to +12 V | | |
| 520203 | 4 | Main relay 2 | Short circuit to earth (-) | | |
| 520204 | 3 | Main relay 3 | Short circuit | | |
| 520205 | 31 | | Error in input torque measurement | | |
| 520206 | 31 | Engine controller | Controller internal error | | |
| 520207 | 31 | Rail pressure sensor | Pressure below normal | | |
| 520209 | 31 | Injectors | Injection time error | | |
| 520210 | 12 | Injectors | Error with start of opening angle | | |
| 520211 | 31 | CY33X | Component fault | | |
| 520212 | 31 | MOCSOP (redundant stop test) | Diagnostic error | | |

| No. | FMI | Components concerned | Causes | Standard modes | modes |
|---|---|---|---|---|---|
| 520213 | 31 | MOCSOP (redundant stop test) | Diagnostic error | | |
| 520214 | 31 | MOCSOP (redundant stop test) | Diagnostic error | | |
| 520215 | 31 | MOCSOP (redundant stop test) | Diagnostic error | | |
| 520216 | 31 | MOCSOP (redundant stop test) | Diagnostic error | | |
| 520217 | 31 | MOCSOP (redundant stop test) | Diagnostic error | | |
| 520218 | 31 | MOCSOP (redundant stop test) | Loss of message synchronization | | |
| 520219 | 31 | MOCSOP (redundant stop test) | Error appeared when storing torque limitation in memory | | |
| 520220 | 31 | MOCSOP (redundant stop test) | Incorrect response time | | |
| 520221 | 31 | MOCSOP (redundant stop test) | Too many errors during execution | | |
| 520222 | 31 | MOCSOP (redundant stop test) | Diagnostic error | | |
| 520223 | 31 | MOCSOP (redundant stop test) | Diagnostic error | | |
| 520224 | 31 | MOCSOP (redundant stop test) | Time exceeded | | |
| 520225 | 31 | MOCSOP (redundant stop test) | Diagnostic error | | |
| 520226 | 31 | MOCSOP (redundant stop test) | Diagnostic error | | |
| 520227 | 31 | MOCSOP (redundant stop test) | Diagnostic error | | |
| 520228 | 12 | CY320 | Module multiple supply error | | |
| 520229 | 13 | FADC | A/D fast converter calibration error | 3 | |
| 520229 | 31 | Rail pressure sensor | Negative deviation of the pressure | | |
| 520230 | 31 | Engine protection | Specification fault | | |
| 520231 | 31 | All applications | Power take-off input error | | |
| 520232 | 31 | All applications | Incorrect digital input configuration | | |
| 520233 | 31 | Rail pressure sensor | Pressure below normal | | |
| 520237 | 31 | User 1 error | Digital input | | |
| 520238 | 31 | User 2 error | Digital input | | |
| 520239 | 3 | DEF or AdBlue™ metering valve after cooler | Short circuit to +12 V | | |
| 520240 | 31 | Injectors | Harness 0 short-circuited | | |
| 520241 | 31 | Injectors | Harness 1 short-circuited | | |
| 520242 | 31 | Injectors | Harness 2 short-circuited | | |
| 520243 | 3 | Main relay of the light | Short circuit to +12 V | | |
| 520243 | 5 | Main relay of the light | Open circuit | | |
| 520243 | 6 | Main relay of the light | Short circuit to earth (-) | | |
| 520247 | 31 | Cy146 | SPI and COM error report on a Cy146 | | |

| No. | FMI | Components concerned | Causes | Standard modes | modes |
|---|---|---|---|---|---|
| 520248 | 31 | Engine controller | Controller internal error | | |
| 520249 | 31 | Engine controller | Controller internal error | | |
| 520250 | 31 | Engine controller | Controller internal error | | |
| 520251 | 31 | Engine controller | Controller internal error | | |
| 520260 | 31 | CY146 | Error 1 | | |
| 520261 | 31 | CY146 | Error 2 | | |
| 520262 | 31 | CY146 | Error 3 | | |
| 520263 | 31 | CY146 | Error 4 | | |
| 520264 | 31 | CY146 | Error 5 | | |
| 520293 | 31 | Difference in bypass specification | Time expired | 2 | |
| 520296 | 31 | Pressure regulating valve | The average pressure in the rail is outside the permitted tolerance | | |
| 520297 | 31 | CAN bus | Diagnostic error | | |
| 520298 | 31 | CAN bus | Diagnostic error | | |
| 520307 | 31 | Rail pressure sensor | Pressure above the pressure measurable by the sensor | | |
| 520309 | 31 | Rail pressure sensor | The maximum number of overpressure events in the common rail is reached | | |
| 520312 | 31 | Rail pressure sensor | Maximum time in over-pressure is exceeded | | |
| 520317 | 31 | Rail pressure sensor | Reduction of pressure in the common rail without the injectors opening | | |
| 520318 | 31 | Rail pressure sensor | Deviation of measured pressure in relation to engine speed | | |
| 520319 | 31 | Rail pressure sensor | Pressure outside of the measurement range | | |
| 520320 | 31 | Rail pressure sensor | Pressure above normal | | |
| 520327 | 31 | Rail pressure sensor | Pressure above normal | | |
| 520336 | 31 | Rail pressure sensor | Forced shutdown | | |
| 520337 | 31 | Rail pressure sensor | Torque limited due to an overpressure | | |
| 520354 | 3 | Pressure control valve | Short circuit of the command to +12 V | | |
| 520354 | 4 | Pressure control valve | Short circuit of the command to earth | | |
| 520356 | 3 | Pressure control valve | Short circuit of the power to +12 V | | |
| 520356 | 4 | Pressure control valve | Short circuit of the power to earth | | |
| 520358 | 31 | Pressure control valve | Excessive temperature | | |

| No. | FMI | Components concerned | Causes | Standard modes | modes |
|---|---|---|---|---|---|
| 520359 | 31 | Pressure control valve | Opening of the relief valve | | |
| 520382 | 2 | Air flow sensor | Voltage inconsistent | | X |
| 520382 | 14 | Air flow sensor | Absolute pressure faulty | | X |
| 520383 | 14 | Air flow sensor | Pressure difference is faulty | | X |
| 520384 | 14 | Air flow sensor | Temperature measurement faulty | | X |
| 520384 | 16 | Air flow sensor | Temperature exceeded | | X |
| 520388 | 31 | Rail pressure sensor | Overpressure detected: Protection mode activated | | |
| 520389 | 31 | Air flow sensor | Inconsistent value | | X |
| 520390 | 31 | Air flow sensor | Initialisation time exceeded | | X |
| 520391 | 31 | Air flow sensor | Value inconsistent top high | | X |
| 521000 | 2 | module temperature | Invalid pump temperature signal | | |
| 521000 | 8 | DEF or AdBlue™ module temperature | Fault with pump temperature signal | | |
| 521001 | 4 | DEF or AdBlue™ heating main relay | Shortcut to Ground | | |
| 521001 | 5 | DEF or AdBlue™ heating main relay | Open circuit | | |
| 521001 | 14 | DEF or AdBlue™ heating main relay | Short circuit to +12 V | | |
| 521001 | 31 | DEF or AdBlue™ heating main relay | Excessive temperature | | |
| 521002 | 31 | system | Tractor stopped due to an excessive temperature | | X |
| 521003 | 3 | DEF or AdBlue™ heating main relay | Control circuit short-circuited to +12 V | | |
| 521003 | 4 | DEF or AdBlue™ heating main relay | Control circuit short-circuited to earth (-) | | |
| 521007 | 10 | system | Return line blocked or impossible | | X |
| 521007 | 14 | system | Pressure line or injector blocked | | X |
| 521007 | 31 | system | Pressure stabilization fault | | X |
| 521008 | 0 | system | Pressure relief fault | | X |
| 521008 | 1 | system | Pressure fault | | |
| 521012 | 31 | Exhaust outlet NOx sensor | Error of measured maximum value | | X |
| 521013 | 31 | Exhaust outlet NOx sensor | No change in value | | X |
| 521016 | 31 | NOx sensor before DOC | Error of measured maximum value | | X |
| 521017 | 31 | NOx sensor before DOC | No change in value | | X |
| 521018 | 31 | system | Threshold 1 exceeded | | X |

| No. | FMI | Components concerned | Causes | Standard modes | modes |
|---|---|---|---|---|---|
| 521019 | 31 | system | Threshold 2 exceeded | | X |
| 521020 | 31 | system | Threshold 3 exceeded | | X |
| 521022 | 31 | system | Temperature sensor inverted or not connected | | |
| 521023 | 31 | system | NOx sensor inverted or faulty | | |
| 521024 | 31 | system | Error of O2 concentration between the NOx sensors | | |
| 521025 | 31 | system | System ineffective | | |
| 521026 | 31 | system | System ineffective after having filled the DEF or AdBlue™ tank | | |

## 3.16.7 Dyna-VT transmission error codes

| No. | Components concerned | Causes |
|---|---|---|
| 4.X.04 | **X68** - Clutch pedal sensor | Signal error |
| 4.X.05 | **X34** - Transmission oil high pressure sensor 2 | Signal error - Supply error |
| 4.X.06 | **X71** - Throttle pedal sensor | The Pedal Mode does not work |
| 4.X.07 | **X9** - Transmission oil high pressure sensor 1 | Signal error - Supply error |
| 4.X.08 | **X17** - High/low speed range (Hare/Tortoise) position sensor | Signal error - Supply error |
| 4.X.19 | **X71** - Throttle pedal sensor | Parameter loss |
| 4.X.20 | **X71** - Throttle pedal sensor | Parameter error or loss of calibration value |
| 4.X.22 | **X71** - Throttle pedal sensor | Signal error |
| 4.X.23 | **X111** - Dyna-TM dynamic transmission mode switch | Signal error |
| 4.X.28 | **X18** - Transmission control module | Signal error |
| 4.X.29 | Speed lever of **X214** - Multifunction armrest | Signal error |
| 4.X.2A | **X8** - Bevel gear theoretical speed sensor | Signal error |
| 4.X.2B | Field mode/road mode switch of **X214** - Multifunction armrest | Signal error |
| 4.X.2C | **X56** - PowerShuttle lever | Signal error when in neutral position |
| 4.X.2D | **X56** - PowerShuttle lever | Signal error when reversing |
| 4.X.2E | **X56** - PowerShuttle lever | Signal error when increasing speed |
| 4.X.2F | **X56** - PowerShuttle lever | Signal error when reducing speed |
| 4.X.31 | **X10** - Collector shaft speed sensor | Direction of rotation signal error |
| 4.X.33 | Speed lever of **X214** - Multifunction armrest | Signal error when increasing speed |
| 4.X.42 | **X10** - Collector shaft speed sensor | Rotation speed signal error |
| 4.X.44 | **X25** - Engine speed sensor | Signal error |

| No. | Components concerned | Causes |
|---|---|---|
| 4.X.45 | **X8** - Bevel gear theoretical speed sensor | Signal error |
| 4.X.46 | **X12** - Coupler function solenoid valve | The pressure is not reduced when the solenoid valve is supplied |
| 4.X.47 | **X13** - High speed range (Hare) solenoid valve **X14** - Low speed range (Tortoise) solenoid valve **X17** - High/low speed range (Hare/Tortoise) position sensor | Range shifting impossible |
| 4.X.48 | **X13** - High speed range (Hare) solenoid valve **X14** - Low speed range (Tortoise) solenoid valve **X17** - High/low speed range (Hare/Tortoise) position sensor | Mechanical shift to neutral impossible |
| 4.X.49 | **X20** - Transmission filter blockage sensor | Signal error (filter blocked when the engine is stopped) |
| 4.X.50 | **X20** - Transmission filter blockage sensor | Filter blocked |
| 4.X.53 | **X19** - Transmission hydraulic oil temperature sensor | Transmission oil temperature above 110 °C |
| 4.X.56 | **X20** - Transmission filter blockage sensor | Signal error |
| 4.X.58 | **X8** - Bevel gear theoretical speed sensor **X10** - Collector shaft speed sensor | The transmission output speed indicates more than 30% slippage in relation to the setpoint |
| 4.X.59 | **X175** - Emergency control switch | Manual engagement of limp home mode without reason |
| | | Limp home mode error |
| 4.X.61 | **X14** - Low speed range (Tortoise) solenoid valve | Control error when shifting from road mode (Hare) to field mode (Tortoise) |
| 4.X.62 | **X13** - High speed range (Hare) solenoid valve | Control error when shifting from field mode (Tortoise) to road mode (Hare) |
| 4.X.63 | **X11** - Solenoid valve limiting speed to 30 km/h | Control error |
| 4.X.64 | **X12** - Coupler function solenoid valve | PWM control error |
| 4.X.70 | C1 stored speed switch of **X214** - Multifunction armrest | Signal error |
| 4.X.71 | C2 stored speed switch of **X214** - Multifunction armrest | Signal error |
| 4.X.78 | **X739** - Sensor detecting presence of operator in seat | No signal |
| 4.X.82 | **X8** - Bevel gear theoretical speed sensor **X10** - Collector shaft speed sensor | Inconsistent speeds |
| 4.X.83 | **X8** - Bevel gear theoretical speed sensor **X10** - Collector shaft speed sensor | Inconsistent direction of rotation. |
| 4.X.84 | **X104** - TECU controller | CAN communication error |
| 4.X.85 | **X25** - Engine speed sensor | Inconsistent speed |
| 4.X.86 | **X9** - Transmission oil high pressure sensor 1 /**X34** - Transmission oil high pressure sensor 2 | Inconsistent values |

| No. | Components concerned | Causes |
|---|---|---|
| 4.X.89 | **X19** - Transmission hydraulic oil temperature sensor | Inconsistent values |
| 4.X.8A | **X68** - Clutch pedal sensor | Signal error |
| 4.X.8F | | The configured wheel circumference is too low |
| 4.X.94 | | The CAN communication between the different controllers is faulty |
| 4.X.A1 | **X18** - Transmission control module | Mechanical or hydraulic problem locking the rotation angle |
| 4.X.A2 | **X18** - Transmission control module | The CAN network control is interrupted |
| | **X174** - EXT Lite transmission controller (96-pin) **X598** - EXT Lite transmission controller (58-pin) | |
| 4.X.A3 | **X18** - Transmission control module | Increment sensor signal (internal actual position sensor) interrupted or illogical |
| 4.X.A4 | **X18** - Transmission control module | Transmission controller signal interrupted or illogical |
| 4.X.A5 | **X18** - Transmission control module | Reference output (Position "0") not found at start-up |
| 4.X.A6 | **X18** - Transmission control module | Reference point signal not found during operation |
| 4.X.B0 | **X18** - Transmission control module | Initialisation fault, CAN communication not valid at startup |
| 4.X.B1 | **X174** - EXT Lite transmission controller (96-pin) **X598** - EXT Lite transmission controller (58-pin) | Illogical range shift |
| 4.X.B2 | **X174** - EXT Lite transmission controller (96-pin) **X598** - EXT Lite transmission controller (58-pin) | Faulty programming |
| 4.X.B5 | **X174** - EXT Lite transmission controller (96-pin) **X598** - EXT Lite transmission controller (58-pin) | Faulty programming |
| 4.X.B7 | **X19** - Transmission hydraulic oil temperature sensor | Signal error |
| 4.X.E1 | **X174** - EXT Lite transmission controller (96-pin) **X598** - EXT Lite transmission controller (58-pin) | Faulty programming |
| 4.X.E2 | **X174** - EXT Lite transmission controller (96-pin) **X598** - EXT Lite transmission controller (58-pin) | Faulty programming |
| 4.X.E3 | **X174** - EXT Lite transmission controller (96-pin) **X598** - EXT Lite transmission controller (58-pin) | Faulty programming |
| 4.X.E4 | **X174** - EXT Lite transmission controller (96-pin) **X598** - EXT Lite transmission controller (58-pin) | Faulty programming |

| No. | Components concerned | Causes |
|---|---|---|
| 4.X.E5 | **X174** - EXT Lite transmission controller (96-pin) **X598** - EXT Lite transmission controller (58-pin) | Faulty programming |
| 4.X.E6 | **X174** - EXT Lite transmission controller (96-pin) **X598** - EXT Lite transmission controller (58-pin) | Faulty programming |
| 4.X.E7 | **X174** - EXT Lite transmission controller (96-pin) **X598** - EXT Lite transmission controller (58-pin) | Faulty programming |
| 4.X.E9 | **X174** - EXT Lite transmission controller (96-pin) **X598** - EXT Lite transmission controller (58-pin) | Faulty programming |
| 4.X.EA | **X174** - EXT Lite transmission controller (96-pin) **X598** - EXT Lite transmission controller (58-pin) | Faulty programming |
| 4.X.EB | **X17** - High/low speed range (Hare/Tortoise) position sensor | Calibration error or sensor value out of tolerance ranges |
| 4.X.EC | **X71** - Throttle pedal sensor | Absence of calibration |
| 4.X.ED | **X68** - Clutch pedal sensor | Absence of calibration |
| 4.X.EE | **X174** - EXT Lite transmission controller (96-pin) **X598** - EXT Lite transmission controller (58-pin) | Faulty programming |
| 4.X.EF | **X174** - EXT Lite transmission controller (96-pin) **X598** - EXT Lite transmission controller (58-pin) | Faulty programming |
| 4.X.F0 | | Transmission calibration fault |
| 4.X.F1 | | fault |
| 4.X.F2 | | Transmission ratio outside the authorized range |
| 4.X.F3 | | Transmission ratio limitation faulty |

## 3.16.8 Front axle error codes Dyna-VT

| No. | Components concerned | Causes |
|---|---|---|
| 5.X.31 | **X717** - Linkage and PTO keypad on pillar/ **X718** - Additional keypad | Control error of the manual 4-wheel drive switch |
| 5.X.32 | **X717** - Linkage and PTO keypad on pillar/ **X718** - Additional keypad | Control error of the automatic 4-wheel drive switch |
| 5.X.33 | **X5** - 4-wheel drive solenoid valve | Signal error |
| 5.X.51 | / **X718** - Additional keypad | Control error of the differential lock switch |
| 5.X.53 | **X6** - Differential lock solenoid valve | Signal error |
| 5.X.54 | **X66** - Left-hand brake pedal sensor | Signal error |
| 5.X.55 | **X67** - Right-hand brake pedal sensor | Signal error |
| 5.X.80 | **X104** - TECU controller | Absence of calibration |

| No. | Components concerned | Causes |
|---|---|---|
| 5.X.81 | **X166** - Suspended front axle position sensor | The signal is too high |
| 5.X.82 | **X166** - Suspended front axle position sensor | The signal is too low |
| 5.X.83 | **X166** - Suspended front axle position sensor | Incorrect values during calibration |
| 5.X.84 | **X166** - Suspended front axle position sensor | Values too high during calibration |

## 3.16.9 Rear power take-off error codes Dyna-VT

| No. | Components concerned | Causes |
|---|---|---|
| 6.X.01 | **X128** - Rear PTO engagement switch | Signal error |
| 6.X.02 | **X94** - Rear PTO external switch right | Signal error |
| 6.X.03 | **X94** - Rear PTO external switch left | Signal error |
| 6.X.04 | **X7** - Rear PTO solenoid valve | Short circuit +12 V |
| 6.X.05 | **X15** - PTO clutch speed sensor | Signal error |
| 6.X.10 | **X16** - PTO output shaft speed sensor | Signal error |
| 6.X.11 | **X118** - Automatic PTO switch | Signal error |
| 6.X.12 | Rear power take-off neutral switch of **X717** - Linkage and PTO keypad on pillar | Signal error |
| 6.X.13 | Rear power take-off 540 rpm switch of **X717** - Linkage and PTO keypad on pillar | Signal error |
| 6.X.17 | Rear power take-off 540 rpm ECO switch of **X717** - Linkage and PTO keypad on pillar | Signal error |
| 6.X.18 | Rear power take-off 1000 rpm switch of **X717** - Linkage and PTO keypad on pillar | Signal error |
| 6.X.19 | Rear power take-off 1000 rpm ECO switch of **X717** - Linkage and PTO keypad on pillar | Signal error |
| 6.X.1A | **X892** - Standard speed PTO solenoid valve | Control error |
| 6.X.1B | **X774** - Economy speed PTO solenoid valve | Control error |
| 6.X.1C | **X599** - PTO speed solenoid valve (540 rpm) | Control error |
| 6.X.1D | **X4** - 1000 rpm PTO speed solenoid valve | Control error |
| 6.X.41 | **X128** - Rear PTO engagement switch | Pressed down for over 30 seconds, mechanical or electrical error on switch |
| 6.X.43 | **X94** - Rear PTO external switch | Pressed down for over 30 seconds, mechanical or electrical error on switch |
| 6.X.45 | **X15** - PTO clutch speed sensor | Neutral speed selection, power take-off not activated, X15 displays a speed, the clutch disk does not separate, the power take-off brake does not engage selected speed, power take-off clutch 100% engaged, over 20% difference between power take-off |

| No. | Components concerned | Causes |
|---|---|---|
| | | clutch speed and engine speed. PTO clutch disk slips: Clutch slippage PTO clutch speed is lower than output shaft speed, X15 sensor supply voltage error. |
| 6.X.50 | **X16** - PTO output shaft speed sensor | The power take-off shaft speed is higher than 1300 rpm, signal error. The speed selected is less than the power take-off output shaft speed |
| 6.X.55 | Rear power take-off neutral switch of **X717** - Linkage and PTO keypad on pillar | Switch pressed for more than 30 seconds, mechanical or electrical error on switch |
| 6.X.56 | Rear power take-off 540 rpm switch of **X717** - Linkage and PTO keypad on pillar | Switch pressed for more than 30 seconds, mechanical or electrical error on switch |
| 6.X.57 | Rear power take-off 540 rpm ECO switch of **X717** - Linkage and PTO keypad on pillar | Switch pressed for more than 30 seconds, mechanical or electrical error on switch |
| 6.X.58 | Rear power take-off 1000 rpm switch of **X717** - Linkage and PTO keypad on pillar | Switch pressed for more than 30 seconds, mechanical or electrical error on switch |
| 6.X.59 | Rear power take-off 1000 rpm ECO switch of **X717** - Linkage and PTO keypad on pillar | Switch pressed for more than 30 seconds, mechanical or electrical error on switch |
| 6.X.60 | **X15** - PTO clutch speed sensor | Difference of at least 12% between the output shaft speed and power take-off clutch speed |
| | **X16** - PTO output shaft speed sensor | |
| 6.X.A1 | **X128** - Rear PTO engagement switch | Communication error |
| 6.X.B0 | **X128** - Rear PTO engagement switch | Communication error |
| 6.X.B5 | Rear power take-off neutral switch of **X717** - Linkage and PTO keypad on pillar | Communication error |
| 6.X.B6 | Rear power take-off 540 rpm switch of **X717** - Linkage and PTO keypad on pillar | Communication error |
| 6.X.B7 | Rear power take-off 540 rpm ECO switch of **X717** - Linkage and PTO keypad on pillar | Communication error |
| 6.X.B8 | Rear power take-off 1000 rpm switch of **X717** - Linkage and PTO keypad on pillar | Communication error |
| 6.X.B9 | Rear power take-off 1000 rpm ECO switch of **X717** - Linkage and PTO keypad on pillar | Communication error |
| 6.X.E0 | **X174** - EXT Lite transmission controller (96-pin) | Faulty programming |
| 6.X.E1 | **X174** - EXT Lite transmission controller (96-pin) | Faulty programming |
| 6.X.E2 | **X7** - Rear PTO solenoid valve | PWM signal control error |
| 6.X.E3 | **X7** - Rear PTO solenoid valve | PWM signal control error |
| 6.X.E4 | **X174** - EXT Lite transmission controller (96-pin) | Checksum error |
| 6.X.E5 | **X174** - EXT Lite transmission controller (96-pin) | Checksum error when engaging the rear power take-off clutch |

| No. | Components concerned | Causes |
|---|---|---|
| 6.X.E6 | **X174** - EXT Lite transmission controller (96-pin) | Checksum error for the number of pulses from the rear power take-off end-fitting |
| 6.X.E7 | **X174** - EXT Lite transmission controller (96-pin) | Checksum error for the operating temperatures and the clutch times of the rear power take-off |
| 6.X.E8 | **X174** - EXT Lite transmission controller (96-pin) | Checksum error for the operating temperatures and the clutch times of the rear power take-off |

## 3.16.10 Error codes for the high-pressure braking

| No. | Components concerned | Causes |
|---|---|---|
| 14.X.01 | **X135** - Braking pressure sensor | Pressure below 70 bar during initialisation. |
| 14.X.02 | **X135** - Braking pressure sensor | Pressure below 70 bar for more than 2 seconds |
| 14.X.03 | **X135** - Braking pressure sensor | Pressure too high |
| 14.X.04 | **X135** - Braking pressure sensor | Overfeeding of sensor |
| 14.X.05 | **X135** - Braking pressure sensor | Pressure outside of range during initialisation |
| 14.X.06 | **X135** - Braking pressure sensor | The high-pressure braking accumulator is filled too often |
| 14.X.07 | **X135** - Braking pressure sensor | Open circuit |
| 14.X.08 | **X135** - Braking pressure sensor | Pressure too low |
| 14.X.09 | **X135** - Braking pressure sensor | Operating pressure not reached within the specified time |
| 14.X.0A | **X135** - Braking pressure sensor | Short circuit to 12 V |
| 14.X.0B | **X135** - Braking pressure sensor | The pressure does not drop despite 100 presses on the brake pedals |

## 3.16.11 Rear linkage error codes

| No. | Components concerned | Causes |
|---|---|---|
| 8.X.10 | **X27** - Rear linkage lifting solenoid valve | Open circuit |
| 8.X.11 | **X28** - Rear linkage lowering solenoid valve | Short circuit to +12 V |
| 8.X.12 | **X27** - Rear linkage lifting solenoid valve | Short circuit to +12 V |

| No. | Components concerned | Causes |
|---|---|---|
| 8.X. 16 | **X177** - Linkage controller | Battery voltage <11 V or >16 V |
| 8.X. 18 | **X119** - Rear linkage lifting/lowering switch | Incorrect signal |
| 8.X. 1A | **X177** - Linkage controller | Engine speed too low |
| 8.X. 1B | **X87** - Linkage lifting switch on right-hand fender /**X97** - Linkage lifting switch on left-hand fender /**X664** - Linkage lowering switch on right-hand fender /**X665** - Linkage lowering switch on left-hand fender | Incorrect signal |
| 8.X. 1C | **X119** - Rear linkage lifting/lowering switch | Incorrect signal |
| 8.X. 22 | **X30** - Rear linkage position sensor | Incorrect signal |
| 8.X. 23 | **X121** - Rear linkage height/depth adjustment thumb wheel | Incorrect signal |
| 8.X. 27 | Setting potentiometer for high position of **X717** - Linkage and PTO keypad on pillar | Incorrect signal |
| 8.X. 28 | Intermix potentiometer of **X717** - Linkage and PTO keypad on pillar | Incorrect signal |
| 8.X. 29 | Lowering speed potentiometer of **X717** - Linkage and PTO keypad on pillar | Incorrect signal |
| 8.X. 2B | Active transport control switch of **X717** - Linkage and PTO keypad on pillar | Incorrect signal |
| 8.X. 31 | **X31** - Rear linkage right-hand draft sensor | Incorrect signal |
| 8.X. 32 | **X32** - Rear linkage left-hand draft sensor | Incorrect signal |
| 8.X. 50 | **X31** - Rear linkage right-hand draft sensor | Saturation |
| 8.X. 51 | **X32** - Rear linkage left-hand draft sensor | Saturation |
| 8.X. 60 | **X28** - Rear linkage lowering solenoid valve | Open circuit |
| 8.X. 61 | **X28** - Rear linkage lowering solenoid valve | Shortcut to Ground |
| 8.X. 62 | **X27** - Rear linkage lifting solenoid valve | Shortcut to Ground |
| 8.X.A 0 | **X177** - Linkage controller | Parameter loss |

| No. | Components concerned | Causes |
|---|---|---|
| 8.X.A 1 | **X177** - Linkage controller | Checksum error |
| 8.X.B 4 | **X177** - Linkage controller | No calibration |
| 8.X.B 5 | Dual Control sensor | Signal incorrect or incorrect calibration |

## 3.16.12 Front power lift error codes

| No. | Components concerned | Causes |
|---|---|---|
| 9.X. 02 | **X277** - Front linkage lifting switch/**X658** - Front linkage lowering switch | Incorrect signal |

## 3.16.13 Armrest error codes

| No. | Components concerned | Causes |
|---|---|---|
| 3.X. 1A | FingerTIPs | CAN message lost |
| 3.X. 19 | Joystick | CAN message lost |
| 3.X. 80 | **X104** - TECU controller | 10 V output fault |
| 3.X. 81 | **X104** - TECU controller | VIN Error - Vehicle electronic identification incorrect |
| 3.X. 83 | **X104** - TECU controller<br>**X717** - Linkage and PTO keypad on pillar | CAN message lost |
| 3.X. 84 | **X104** - TECU controller<br>**X214** - Multifunction armrest | CAN message lost |
| 3.X. 86 | **X587** - FingerTIP 3 | Shortcut to Ground |
| 3.X. 87 | **X587** - FingerTIP 3 | Short circuit to 12 V |
| 3.X. 89 | **X587** - FingerTIP 3 | Calibration not performed |
| 3.X. 8A | **X588** - FingerTIP 4 | Shortcut to Ground |
| 3.X. 8B | **X588** - FingerTIP 4 | Short circuit to 12 V |
| 3.X. 8C | **X588** - FingerTIP 4 | Calibration not performed |
| 3.X. 94 | **X110** - FingerTIP 6 | Shortcut to Ground |

| No. | Components concerned | Causes |
|---|---|---|
| 3.X.95 | **X110** - FingerTIP 6 | Short circuit to 12 V |
| 3.X.96 | **X110** - FingerTIP 6 | Calibration not performed |
| 3.X.97 | **X882** - FingerTIP 7 | Shortcut to Ground |
| 3.X.98 | **X882** - FingerTIP 7 | Short circuit to 12 V |
| 3.X.99 | **X882** - FingerTIP 7 | Calibration not performed |
| 3.X.9A | **X883** - FingerTIP 8 | Shortcut to Ground |
| 3.X.9B | **X883** - FingerTIP 8 | Short circuit to 12 V |
| 3.X.9C | **X883** - FingerTIP 8 | Calibration not performed |
| 3.X.9D | Hand throttle on armrest | Shortcut to Ground |
| 3.X.9E | Hand throttle on armrest | Short circuit to 12 V |
| 3.X.9F | Rear linkage height/depth adjustment thumb wheel | Shortcut to Ground |
| 3.X.A0 | Rear linkage height/depth adjustment thumb wheel | Short circuit to 12 V |
| 3.X.A1 | T-lever on armrest | Shortcut to Ground |
| 3.X.A2 | T-lever on armrest | Short circuit to 12 V |
| 3.X.A3 | **X104** - TECU controller | VIN Error - Vehicle electronic identification incorrect |

## 3.16.14 Hydraulic valve error codes

Reading the error code number on the instrument panel.

The code is represented by 3 sections of characters separated by dots.

EX: A.Y1.4B:

- **A**: hydraulic valve
- **YX**
  - **Y**: corresponds to the number of the affected valve.
  - **X**: error code severity
- **4B**: error code number

| Number | Components concerned | Causes |
|---|---|---|
| A.YX.11 | | RAM or EEPROM error |
| A.YX.12 | | Insufficient power |
| A.YX.13 | | Excessive power |
| A.YX.15 | | Excessive power |
| A.YX.18 | | The valve does not return to neutral position |
| A.YX.19 | | The valve is not in the neutral position at start-up |
| A.YX.1A | | The valve position is greater than the reference |
| A.YX.1B | | The valve does not reach floating position |
| A.YX.1E | | Valve internal error |
| A.YX.1F | | Communication error |
| A.YX.20 | | The position of the valve is the opposite of the specified value |
| A.YX.21 | | Checking error |
| A.YX.22 | | Validation error |
| A.YX.23 | | Validation error |
| A.YX.24 | | The valve flow rate is higher than 100% |
| A.YX.25 | | The position received from the valve is unknown |
| A.YX.26 | | Validation error |
| A.YX.27 | | Validation error |
| A.YX.28 | | Validation error |
| A.YX.29 | | Validation error |
| A.YX.2A | | The valve is not emitting a CAN message |
| A.X.36 | **X96** - Hydraulic spool valve switch on left-hand fender | Incorrect signal |

## 3.16.15 Air conditioning error codes

| No. | Component(s) concerned | Cause(s) |
|---|---|---|
| 10.X. 01 | **X441** - Ventilation temperature sensor (TT1) | Sensor in open circuit |
| 10.X. 02 | **X441** - Ventilation temperature sensor (TT1) | Sensor short-circuited |
| 10.X. 03 | **X442** - Ventilation temperature sensor (TT2) | Sensor in open circuit |
| 10.X. 04 | **X442** - Ventilation temperature sensor (TT2) | Sensor short-circuited |
| 10.X. 05 | **X69** - Cab interior temperature sensor | Sensor in open circuit |
| 10.X. 06 | **X69** - Cab interior temperature sensor | Sensor short-circuited |
| 10.X. 07 | **X358** - Outside temperature sensor | Sensor in open circuit |
| 10.X. 08 | **X358** - Outside temperature sensor | Sensor short-circuited |
| 10.X. 09 | **X443** - Evaporator temperature sensor | Sensor in open circuit |
| 10.X. 10 | **X443** - Evaporator temperature sensor | Sensor short-circuited |
| 10.X. 11 | **X70** - Solar radiation sensor | The signal from the solar sensor is outside its limits or is giving an impossible value |
| 10.X. 14 | **X449** - Motor for left-hand heating shutter | The signal from the potentiometer of the left-hand recirculation actuator is outside its operating range |
| 10.X. 15 | **X449** - Motor for left-hand heating shutter<br>**X450** - Motor for right-hand heating shutter | The potentiometer reference is short-circuited to earth |
| 10.X. 16 | **X439** - Air conditioning control module (blue connector)<br>**X440** - Air conditioning control module (yellow connector) | Error in temperature selected, the signal is out of range |
| 10.X. 17 | **X439** - Air conditioning control module (blue connector) | Error from the fan potentiometer |
| 10.X. 18 | **X69** - Cab interior temperature sensor | Ambient temperature sensor fan fault |
| 10.X. 19 | **X451** - Motor for heating mixer shutter | Stepper motor output error (water valve) |
| 10.X. 20 | **X449** - Motor for left-hand heating shutter<br>**X450** - Motor for right-hand heating shutter | Left-hand and right-hand recirculation actuator motor output error |
| 10.X. 21 | **X318** - Air conditioning compressor | Air conditioning compressor relay output error |

| No. | Component(s) concerned | Cause(s) |
|---|---|---|
| 10.X.22 | **X453** - Extreme cold weather pump motor | Water pump relay output error |
| 10.X.23 | **X436** - Left-hand side fan switch/**X437** - Relay for left-hand side fan | Fault with fan output |
| 10.X.24 | **X439** - Air conditioning control module (blue connector)<br>**X440** - Air conditioning control module (yellow connector) | Engine speed error |
| 10.X.25 | **X439** - Air conditioning control module (blue connector)<br>**X440** - Air conditioning control module (yellow connector) | Vehicle speed error |
| 10.X.26 | **X439** - Air conditioning control module (blue connector)<br>**X440** - Air conditioning control module (yellow connector) | Engine water temperature error |
| 10.X.27 | **X445** - Left-hand fan adapter module | Fan speed controller output error |
| 10.X.28 | **X439** - Air conditioning control module (blue connector)<br>**X440** - Air conditioning control module (yellow connector) | Overvoltage |
| 10.X.29 | **X439** - Air conditioning control module (blue connector)<br>**X440** - Air conditioning control module (yellow connector) | Undervoltage |
| 10.X.30 | **X444** - Right-hand fan adapter module (signal) | The signal is outside its operating range |
| 10.X.31 | **X445** - Left-hand fan adapter module | The return signal is outside its operating range |
| 10.X.32 | **X444** - Right-hand fan adapter module (signal) | The return signal is outside its operating range |
| 10.X.33 | **X450** - Motor for right-hand heating shutter | The input signal from the right-hand recirculation actuator is outside its operating range |

## 3.16.16 Error codes of the keypad in the pillar

| No. | Components concerned | Causes |
|---|---|---|
| 1B.X.01 | **X717** - Linkage and PTO keypad on pillar | Configuration error |
| 1B.X.02 | **X717** - Linkage and PTO keypad on pillar | Error while writing parameters in the memory |
| 1B.X.03 | **X717** - Linkage and PTO keypad on pillar | Configuration error |

| No. | Components concerned | Causes |
|---|---|---|
| 1B.X. 04 | **X717** - Linkage and PTO keypad on pillar **X718** - Additional keypad | Loss of the LIN communication |
| 1B.X. 05 | **X717** - Linkage and PTO keypad on pillar | CheckSum error |
| 1B.X. 06 | **X717** - Linkage and PTO keypad on pillar | CAN message lost |
| 1B.X. 07 | **X717** - Linkage and PTO keypad on pillar | Rear power lift intermix potentiometer error |
| 1B.X. 08 | **X717** - Linkage and PTO keypad on pillar | Error of the rear power lift high stop |
| 1B.X. 09 | **X717** - Linkage and PTO keypad on pillar | Error of the rear power lift lowering speed potentiometer |

## 3.16.17 Suspended cab error codes

| No. | Components concerned | Causes |
|---|---|---|
| 517000 | **X466** - Suspended-cab controller | Supply voltage too high |
| 517001 | **X466** - Suspended-cab controller | Supply voltage too low |
| 517002 | **X959** - Suspended-cab rear right sensor/**X979** - Suspended-cab rear left sensor | Supply voltage too low |
| 517003 | **X959** - Suspended-cab rear right sensor/**X979** - Suspended-cab rear left sensor | Supply voltage too high |
| 517004 | **X959** - Suspended-cab rear right sensor/**X979** - Suspended-cab rear left sensor | Incorrect signal |
| 517005 | **X979** - Suspended-cab rear left sensor | Signal voltage too low |
| 517006 | **X979** - Suspended-cab rear left sensor | Signal voltage too high |
| 517007 | **X979** - Suspended-cab rear left sensor | Signal in open circuit |
| 517008 | **X979** - Suspended-cab rear left sensor | Signal voltage is constant for 10 seconds with a forward speed greater than 10 kph |
| 517009 | **X959** - Suspended-cab rear right sensor | Signal voltage too low |
| 517010 | **X959** - Suspended-cab rear right sensor | Signal voltage too high |
| 517011 | **X959** - Suspended-cab rear right sensor | Signal in open circuit |
| 517012 | **X959** - Suspended-cab rear right sensor | Signal voltage is constant for 10 seconds with a forward speed greater than 10 kph |
| 517013 | **X466** - Suspended-cab controller | RAM failure |
| 517014 | **X466** - Suspended-cab controller | Program memory failure |
| 517015 | **X466** - Suspended-cab controller | Data programming failure |
| 517016 | **X466** - Suspended-cab controller | Monitoring failure |
| 517017 | **X466** - Suspended-cab controller | Absence of current calibration |
| 517018 | **X466** - Suspended-cab controller | Incorrect parameters |
| 517019 | **X466** - Suspended-cab controller | CAN interruption. |
| 517020 | **X466** - Suspended-cab controller | CAN interruption. |

| No. | Components concerned | Causes |
|---|---|---|
| 517021 | **X466** - Suspended-cab controller | CAN interruption. |
| 517022 | **X466** - Suspended-cab controller | CAN signal invalid |
| 517023 | **X466** - Suspended-cab controller | CAN signal invalid |
| 517024 | | CAN Bus Off |
| 517025 | **X690** - Suspended-cab rear left solenoid valve | Supply line in open circuit |
| 517026 | **X690** - Suspended-cab rear left solenoid valve | Supply line overvoltage |
| 517027 | **X689** - Suspended-cab rear right solenoid valve | Supply line in open circuit |
| 517028 | **X689** - Suspended-cab rear right solenoid valve | Supply line overvoltage |
| 517099 | Suspended cab | |

# 4. Technical specifications

# 4.1 General specifications

## 4.1.1 Model MF 6713 S Dyna-VT

| Engine | |
|---|---|
| Brand | AGCO Power |
| Type | 49 AWF-T4F |
| Number of cylinders | 4 |

| Transmission | |
|---|---|
| Gearbox type | Dyna-VT ML140 |
| Rear axle type | HA140 |
| Final drive type | HA140 |

| Power take-off | |
|---|---|
| PTO type | Flanged shaft |
| PTO speed (rpm) | 540/540 Eco/1000 |

| Front axle | |
|---|---|
| Front axle type | DANA 735-529 (fixed)<br>DANA 735-615 (suspended) |
| Synchronization ratio (value id displayed on the name plate) | 1.327 |

| Hydraulics | |
|---|---|
| Hydraulic type | 110 l/min Closed Center system<br>Optional 190 l/min Closed Center system |
| Number of spool valves | 4 max. |

| Electronic | |
|---|---|
| Transmission control | EXT Lite |
| Linkage control | Autotronic 5 |

| Cab | |
|---|---|
| Air conditioning | Standard or automatic |
| Windscreen | Standard |
| Roof | Standard<br>High-visibility (optional) |

### 4.1.2 Model MF 6714 S Dyna-VT

| Engine | |
|---|---|
| Brand | AGCO Power |
| Type | 49 AWF-T4F |
| Number of cylinders | 4 |

| Transmission | |
|---|---|
| Gearbox type | Dyna-VT ML140 |
| Rear axle type | HA140 |
| Final drive type | HA140 |

| Power take-off | |
|---|---|
| PTO type | Flanged shaft |
| PTO speed (rpm) | 540/540 Eco/1000 |

| Front axle | |
|---|---|
| Front axle type | DANA 735-529 (fixed)<br>DANA 735-615 (suspended) |
| Synchronization ratio (value id displayed on the name plate) | 1.327 |

| Hydraulics | |
|---|---|
| Hydraulic type | 110 l/min Closed Center system<br>Optional 190 l/min Closed Center system |
| Number of spool valves | 4 max. |

| Electronic | |
|---|---|
| Transmission control | EXT Lite |
| Linkage control | Autotronic 5 |

| Cab | |
|---|---|
| Air conditioning | Standard or automatic |
| Windscreen | Standard |
| Roof | Standard<br>High-visibility (optional) |

### 4.1.3 Model MF 6715 S Dyna-VT

| Engine | |
|---|---|
| Brand | AGCO Power |
| Type | 49 AWF-T4F |
| Number of cylinders | 4 |

| Transmission | |
|---|---|
| Gearbox type | Dyna-VT ML140 |
| Rear axle type | HA140 |
| Final drive type | HA140 |

| Power take-off | |
|---|---|
| PTO type | Flanged shaft |
| PTO speed (rpm) | 540/540 Eco/1000 |

| Front axle | |
|---|---|
| Front axle type | DANA 740-554 (fixed)<br>DANA 740-615 (suspended) |
| Synchronization ratio (value id displayed on the name plate) | 1.327 |

| Hydraulics | |
|---|---|
| Hydraulic type | 110 l/min Closed Center system |

| Hydraulics | |
|---|---|
| | Optional 190 l/min Closed Center system |
| Number of spool valves | 4 max. |

| Electronic | |
|---|---|
| Transmission control | EXT Lite |
| Linkage control | Autotronic 5 |

| Cab | |
|---|---|
| Air conditioning | Standard or automatic |
| Windscreen | Standard |
| Roof | Standard<br>High-visibility (optional) |

### 4.1.4 Model MF 6716 S Dyna-VT

| Engine | |
|---|---|
| Brand | AGCO Power |
| Type | 49 AWF-T4F |
| Number of cylinders | 4 |

| Transmission | |
|---|---|
| Gearbox type | Dyna-VT ML140 |
| Rear axle type | HA140 |
| Final drive type | HA140 |

| Power take-off | |
|---|---|
| PTO type | Flanged shaft |
| PTO speed (rpm) | 540/540 Eco/1000 |

| Front axle | |
|---|---|
| Front axle type | DANA 740-554 (fixed)<br>DANA 740-615 (suspended) |
| Synchronization ratio (value id displayed on the name plate) | 1.327 |

| Hydraulics | |
|---|---|
| Hydraulic type | 110 l/min Closed Center system<br>Optional 190 l/min Closed Center system |
| Number of spool valves | 4 max. |

| Electronic | |
|---|---|
| Transmission control | EXT Lite |
| Linkage control | Autotronic 5 |

| Cab | |
|---|---|
| Air conditioning | Standard or automatic |
| Windscreen | Standard |
| Roof | Standard<br>High-visibility (optional) |

### 4.1.5 Model MF 6718 S Dyna-VT

| Engine | |
|---|---|
| Brand | AGCO Power |
| Type | 49 AWF-T4F |
| Number of cylinders | 4 |

| Transmission | |
|---|---|
| Gearbox type | Dyna-VT ML140 |
| Rear axle type | HA140 |
| Final drive type | HA140 |

| Power take-off | |
|---|---|
| PTO type | Flanged shaft |
| PTO speed (rpm) | 540/540 Eco/1000 |

| Front axle | |
|---|---|
| Front axle type | DANA 740-554 (fixed)<br>DANA 740-615 (suspended) |
| Synchronization ratio (value id displayed on the name plate) | 1.327 |

| Hydraulics | |
|---|---|
| Hydraulic type | 110 l/min Closed Center system<br>Optional 190 l/min Closed Center system |
| Number of spool valves | 4 max. |

| Electronic | |
|---|---|
| Transmission control | EXT Lite |
| Linkage control | Autotronic 5 |

| Cab | |
|---|---|
| Air conditioning | Standard or automatic |
| Windscreen | Standard |
| Roof | Standard<br>High-visibility (optional) |

# 4.2 Operator environment

## 4.2.1 Noise levels (dB(A)) at operator's ears

| Noise levels (dB(A)) at operator's ears, in accordance with Directive 2009/76/EC Appendix II | | | Pass-by noise (dB(A)), in accordance with Appendix VI of Directive 2009/63/EC | |
|---|---|---|---|---|
| **Model** | **Windows closed** | **Windows open** | **40 km/h** | **50 km/h** |
| MF 6712 S / MF 6713 S/MF 6714 S/MF 6715 SDyna-4 | 70 | 78 | 82 | NA |
| MF 6713 S/MF 6714 S/MF 6715 S / MF 6716 S/ MF 6718 S Dyna-6 | 70 | 78 | 80 | 81 |
| MF 6713 S/MF 6714 S/MF 6715 S / MF 6716 S/ MF 6718 S Dyna-VT | 70 | 78 | 79 | 80 |

## 4.2.2 Level of vibration felt through the seat

| Seat model | Homologation no. | Class II (m/s²) | | | | Class III (m/s²) | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Light operator | | Heavy operator | | Light operator | | Heavy operator | |
| | | kg | (m/s²) | kg | (m/s²) | kg | (m/s²) | kg | (m/s²) |
| MSG85/731 | e1-0009 | 59±1 | 1.18 | 98±5 | 0.80 | 59±1 | 1.01 | 98±5 | 1.24 |
| MSG95G/731 | e1-0519 | 59±1 | - | 98±5 | - | 59±1 | 1.24 | 98±5 | 1.10 |
| MSG95AL/731 | e1-0013 | 59±1 | - | 98±5 | - | 59±1 | 0.85 | 98±5 | 0.70 |
| MSG95AL/741 | e1-0013 | 59±1 | 0.75 | 98±5 | 0.65 | 59±1 | 0.73 | 98±5 | 0.62 |

*Vibration measurement in accordance with Directive 78/764/EEC*

# 4.3 Engine

## 4.3.1 Engine specifications

| | MF 6713 S Dyna-VT | MF 6714 S Dyna-VT | MF 6715 S Dyna-VT | MF 6716 S Dyna-VT | MF 6718 S Dyna-VT |
|---|---|---|---|---|---|
| Type | AGCO Power 49 AWF-T4F | AGCO Power 49 AWF-T4F | AGCO Power 49 AWF-T4F | AGCO Power 49 AWF-T4F | AGCO Power 49 AWF-T4F |
| Nominal power hp ISO (kW) at an engine speed of 2100 rpm | 115 (85) | 130 (96) | 140 (103) | 150 (110) | 165 (121) |
| Maximum power hp ISO (kW) at an engine speed of 2000 rpm | 130 (96) | 140 (103) | 150 (110) | 160 (118) | 175 (129) |
| Maximum power hp ISO (kW) at an engine speed of 2000 rpm with EPM for Dyna-VT | 150 (110) | 160 (118) | 175 (129) | 185 (136) | 200 (147) |
| Maximum torque | 648 Nm | 691 Nm | 745 Nm | 790 Nm | 840 Nm |
| Number of cylinders | 4 | 4 | 4 | 4 | 4 |
| Turbocharging | yes | yes | yes | yes | yes |
| Intercooler | air/air | air/air | air/air | air/air | air/air |
| Stroke | 134 mm | 134 mm | 134 mm | 134 mm | 134 mm |
| Bore | 108 mm | 108 mm | 108 mm | 108 mm | 108 mm |
| Cubic capacity | 4900 | 4900 | 4900 | 4900 | 4900 |
| Displacement in liters | 4.9 | 4.9 | 4.9 | 4.9 | 4.9 |
| Idle speed | With hand brake on: 750 rpm<br>With hand brake off: 850 rpm | With hand brake on: 750 rpm<br>With hand brake off: 850 rpm | With hand brake on: 750 rpm<br>With hand brake off: 850 rpm | With hand brake on: 750 rpm<br>With hand brake off: 850 rpm | With hand brake on: 750 rpm<br>With hand brake off: 850 rpm |
| Nominal speed | 2100 rpm | 2100 rpm | 2100 rpm | 2100 rpm | 2100 rpm |
| Maximum speed at no load | 2130 rpm | 2130 rpm | 2130 rpm | 2130 rpm | 2130 rpm |
| 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 |

### 4.3.2 Fuel system and air filter

| | |
|---|---|
| Water separator | 1 water separator filter (fitted as an option) |
| Fuel filter | 1 filter |
| Fuel prefilter | 1 prefilter |
| Injection pump | Bosch |
| Fuel injection type | Common rail CP4.3 |
| Injector type | CRIN 3.20 / 8 holes |
| Cold weather starting | Grid heater with relay controlled by the ECU |
| Air filter | Two-stage, dry element with blockage indicator |

### 4.3.3 Cooling

| | |
|---|---|
| Type | Pressurized system |
| Regulation | One thermostat, opening at 83°C |
| Fan | Vistronic clutch fan for Dyna-VT |
| Belts | Poly-V ribbed belts |
| Water pump | Belt-driven centrifugal pump |

### 4.3.4 Tightening torques

| | |
|---|---|
| Engine drain plug | 80 Nm |
| Coolant filler plug | 5 Nm |

# 4.4 Transmission

## 4.4.1 Forward speed for all models with transmission in Dyna-VT mode

**50 kph version* tractors**

*depending on country legislation.

For the 40 kph version, the speed is electronically controlled.

| Continuous variation mode | | |
|---|---|---|
| | Forward | Reverse |
| Slow speed range (Tortoise) | 0.03 kph to 28 kph | 0.03 kph to 16 kph |
| High speed range (Hare) | 0.03 kph to 40 kph or 50 kph* | 0.03 kph to 38 kph |

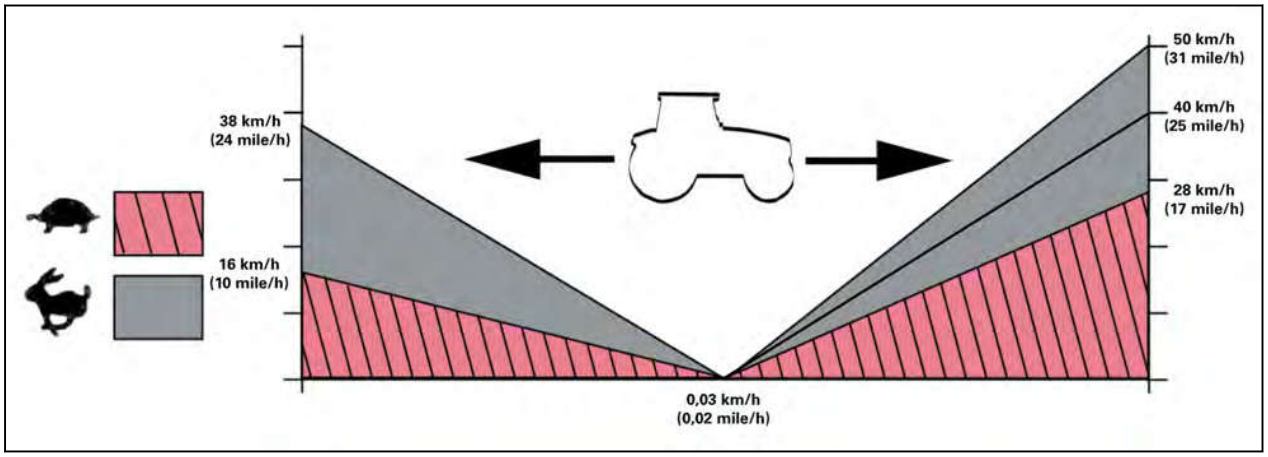



*Fig. 1*

## 4.4.2 Gearbox

| | |
|---|---|
| Dyna-VT transmission | Gearbox with continuous variation in forward and reverse position |
| Reverse shuttle | PowerShuttle |
| Filtration | 1 x 150-micron suction strainer 1 x 15-micron high-pressure filter |

## 4.4.3 Final drives

| | |
|---|---|
| Drives | Epicyclic, located in the rear axle housings |
| Reduction ratio: | • HA 140: 8.2:1 |

## 4.4.4 Rear differential lock

| | |
|---|---|
| Type | Wet multidisc |
| Control | Hydraulic, with electric control |

# 4.5 Auxiliary hydraulics

## 4.5.1 Hydraulic system

| | |
|---|---|
| Closed Center hydraulic system with flow and pressure control (Load Sensing) | 110 l Closed Center: Flow rate 100 l/min at an engine speed of 2160 rpm, maximum pressure 200 bar<br>Optional 190 l Closed Center: Flow rate 190 l/min at an engine speed of 2160 rpm, maximum pressure 200 bar |
| Temporary exportable volume, when tractor is on a flat surface or on a 25° slope | 52 l to fill up to 110 l |
| Continuous exportable volume, when tractor is on a flat surface or on a 25° slope | 42 l to fill up to 100 l |
| Maximum tank volume (extra max.) | 100 l + 10 l = 110 l |

| Available flow rate at 2160 rpm | Nominal |
|---|---|
| With a spool valve | 100 l/min |
| With two spool valves | 180 l/min |
| With the Power Beyond coupler (P) | 190 l/min |

*Hydraulic performance*

# 4.6 Linkage

## 4.6.1 Rear linkage

| | |
|---|---|
| Type | • 3-point<br>• Category 2 or 3 (depending on model)<br>• 100 mm/40 mm rams |

| Models | Rear axle type | Category | Lift rod position | Linkage capacity at the ball joints | | Linkage capacity 610 mm from the ball joints | |
|---|---|---|---|---|---|---|---|
| Dyna-VT | | | | Maximum linkage capacity at end of travel | Capacity over the entire length of travel of the linkage | Maximum linkage capacity at end of travel | Capacity over the entire length of travel of the linkage |
| MF 6713 S/ MF 6714 S/ MF 6715 S/ MF 6716 S/ MF 6718 S | HA 140 | Category 3 | T2 | 9600 kg | 7400 kg | 8200 kg | 7100 kg |

## 4.6.2 Front linkage

| | |
|---|---|
| Type | • 3-point<br>• Category 2 or 3 (depending on model)<br>• 80 mm/40 mm rams |

| Models | Linkage capacity at the ball joints | |
|---|---|---|
| | Maximum linkage capacity | Capacity over the entire length of travel of the linkage |
| MF 6713 S/MF 6714 S/ MF 6715 S / MF 6716 S / MF 6718 S | 3200 kg | 2800 kg |

*Front linkage: Capacity*

# 4.7 Brakes

## 4.7.1 Brake system technical specifications

| | |
|---|---|
| Type | Oil-immersed multidisks, diameter 222.25 mm (5 disks per wheel) |
| Operation | Hydraulic with automatic adjustment |
| Parking brake | Mechanical control acting directly on the brake disks |
| Trailer brake | Hydraulic braking controlled by hydraulic spool valve or pneumatic braking or hydraulic and pneumatic braking. |

## 4.7.2 Regulatory data on maximum permitted trailed weights

**Drawbars and towing equipment**

**IMPORTANT:**
*Before attaching a trailed implement, read the following carefully.*

**Maximum permitted towed weight**

The equipment identification number plate provides important information on tractor and towed equipment weight combinations. The figures represent the maximum weights authorized for the vehicle and towed equipment which should not be exceeded so as not to affect tractor safety.


*Fig. 2*

Before transporting towed equipment, read the equipment's Operator's Manual. Check that the equipment is properly installed, find out how to safely transport it, and determine the maximum permitted transport speed. Check that the tractor/towed equipment combination is in compliance with local and national legislation.

Never transport at speeds higher than the equipment's maximum transport speed. By exceeding the maximum transport speed of the equipment, there is a risk of reducing the braking performance and/or losing control of the tractor and its towed equipment.

Unless otherwise specified by the equipment manufacturer or the legislation, observe the following rules when towing.

**For towed equipment:**

Do not tow equipment:

- Without brakes and which, when fully loaded, weighs over 3000 kg
- With independent brake and which, when fully loaded weighs over 6000 kg
- With overrun brake and which, when fully loaded weighs over 16000 kg
- With assisted braking (hydraulic or pneumatic) and which, when fully loaded, exceeds 32000 kg

### Total permitted weight of tractor-implement combination

| | Weight technically permissible for the tractor/ trailer assembly |
|---|---|
| | MF 6713 S/MF 6714 S/MF 6715 S/MF 6716 S/MF 6718 S |
| With trailer without brakes | 14500 kg |
| With trailer equipped with independent brake | 17500 kg |
| With trailer equipped with overrun brake | 27500 kg |
| With trailer with hydraulic braking | 43500 kg |

*Total permitted weight of tractor-implement combination (maximum forward speed 40 kph or 50 kph)*

### Load and ballast distribution per axle

Axle load distribution

| MF 6713 S/MF 6714 S/MF 6715 S/MF 6716 S/MF 6718 S (maximum forward speed of 40 kph or 50 kph) | | 4-wheel drive | |
|---|---|---|---|
| Weights of unladen vehicle based on optional equipment | | min. | max. |
| | | 5900 kg | 8000 kg |
| Total weight distribution | Front axle | 2400 kg | 3600 kg |
| | Rear axle | 3500 kg | 5200 kg |

### Ballast distribution per axle

| MF 6715 S/MF 6716 S/MF 6718 S (maximum forward speed of 40 kph or 50 kph) | | 4-wheel drive |
|---|---|---|
| Maximum technically permissible loaded weights of the vehicle | | 11500 kg |
| Maximum technically permissible loaded weights per axle | Front axle | 5400 kg |
| | Rear axle | 9200 kg |
| Minimum percentage of maximum permissible distribution of weight between axles | Front axle | 58% |
| | Rear axle | 86% |

# 4.8 Front axle and steering

## 4.8.1 Four-wheel drive front axle

| | |
|---|---|
| Clutch mechanism | Multidisk, with electrohydraulic control, activated by a switch in the cab |
| Differential lock | Multidisk, with electrohydraulic control, activated by a switch in the cab |
| Gear reduction ratios | DANA<br>735-528/614: 15.5<br>735-529/615–740-554/615: 13.846<br>735-530/613–740-553/614: 17. |

## 4.8.2 Steering

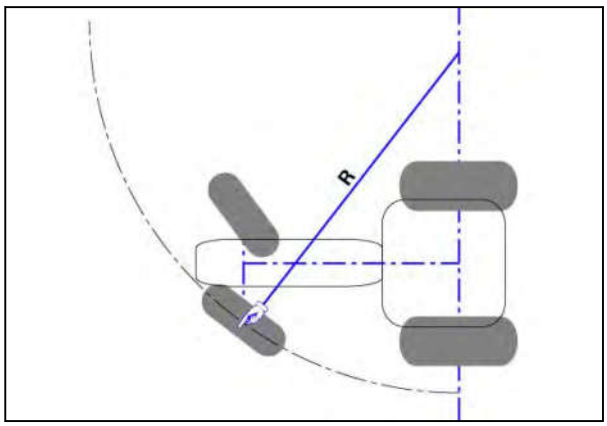



*Fig. 3*

| | | | |
|---|---|---|---|
| Steering type | Hydrostatic, controlled by a steering unit | | |
| Assistance | Hydraulics | | |
| Maximum inner/ outer steering angle | 55°/39° | | |
| Turning radius | Tire | Adjusting the front wheel track width | Turning radius R |
| | 14.9R28 | 1900 mm | 4755 mm |

# 4.9 Power take-off

## 4.9.1 Specifications

| Front power take-off specifications | |
|---|---|
| Number of selections possible for front PTO | 1000 rpm |
| Maximum permissible power, hp (kW) | Counterclockwise: 150 (86) |
| Maximum permissible input torque | Counterclockwise: 549 Nm |
| Maximum permissible output torque | Counterclockwise: 1054 Nm |
| Rotational direction | 1 counterclockwise (viewed from the front of the tractor) |
| Engine speed for 1000 rpm PTO | 1920 rpm |
| Ratio | 1.92 |
| Clutch type | Hydraulics |
| Splined shaft type | Fixed shaft with 6 or 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 | Dyna-VT: Flanged |
| Number of splines | • 6 or 21 splines: Shaft diameter 35 mm<br>• 20 splines: Shaft diameter 45 mm |
| Theoretical PTO speed | • 540 at 1867 engine rpm<br>• 540E at 1499 engine rpm<br>• 1000 at 1903 engine rpm<br>• 1000E at 1528 engine rpm |
| Economy PTO | 540E/1000E |
| Maximum permissible power, hp (kW) | • 540/540E version with 6 and 21-spline shaft: 100 (74)<br>• 540/540E version with 20-spline shaft: 145 (108)<br>• 1000/1000E version with 6 or 21-spline shaft: 145 (108)<br>• 1000/1000E version with 20-spline shaft: 145 (108) |

## 4.9.2 Tightening torques

| | |
|---|---|
| Rear PTO shaft retaining screw | 69 Nm |

# 4.10 Electrical equipment

## 4.10.1 Electrical equipment technical specifications

| | |
|---|---|
| Voltage | 12 volts. Negative earth |
| Batteries | 2 x 420 A maintenance-free batteries |
| Alternators | 2 x 120 A or 1 x 175 A |
| Indicators, side lights on hand rail | 10 W - 21 W |
| Stop lights, brake lights on fenders | 21 W - 5 W |
| High beams on lighting bar at front of engine cover | H4 - 60/55 W |
| Low beam lamps, side lights on lighting bar at front of engine cover | H7 - 55 W + T4 - 4 W |
| High beams on hand rail | H4 - 60/55 W |
| High beams on hand rail, low position | H3 - 55 W |
| Work lights on hand rail | H3 - 55 W |
| Work lights on roof | H3 - 55 W |
| Number plate lights on roof | H3 - 5 W |
| Reversing lights | 21 W |
| Rotary beacon | H1 - 55 W |
| Interior light | 2 x 5 W |

## 4.10.2 Layout of components

### Europe models

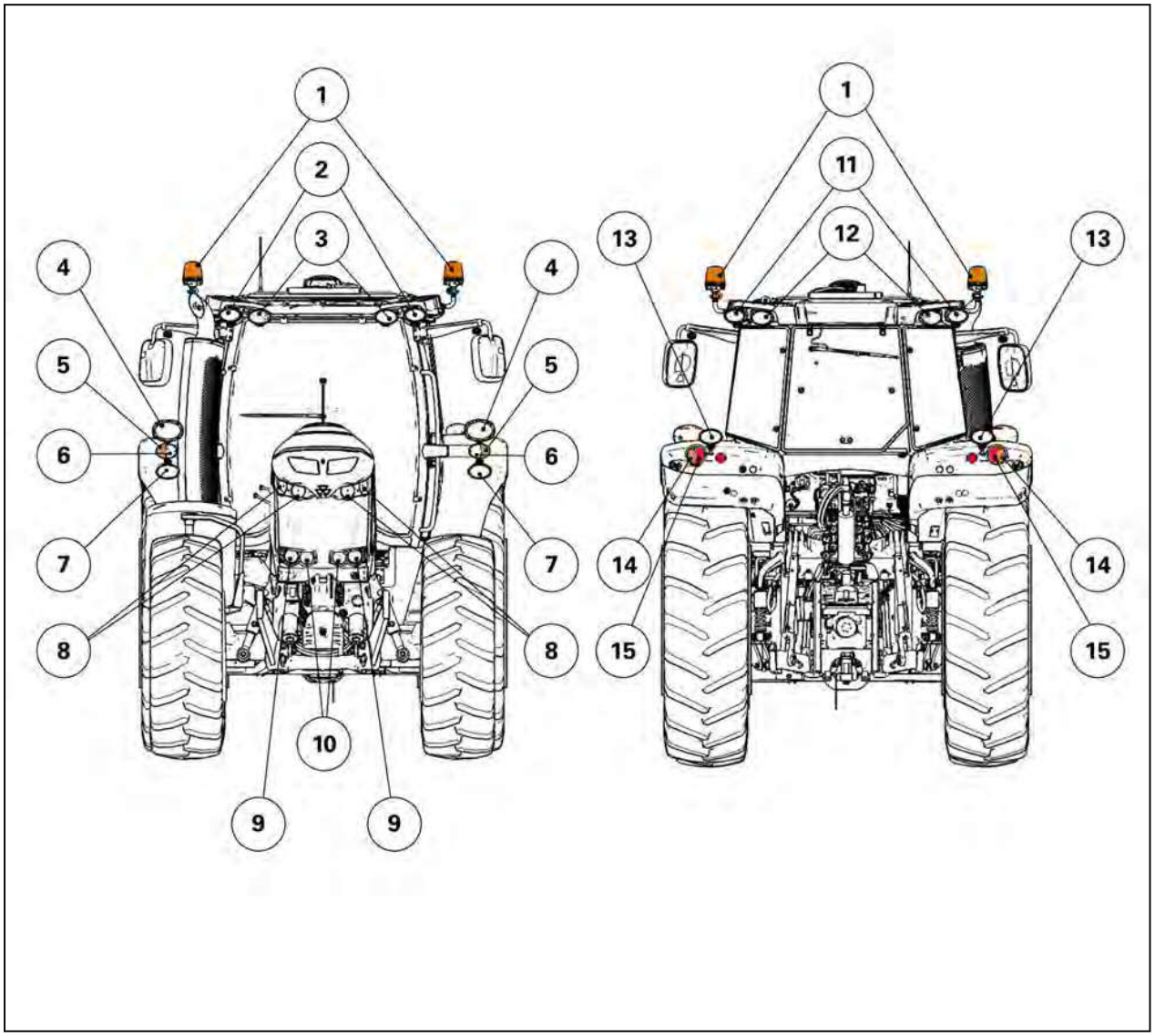



*Fig. 4*

(1) Rotary beacon: H1 55 W
(2) Front xenon work light: HID DIS 35 W
(3) Front work light: H3 55 W
(4) Hand rail lights: H4 60 W / 55 W
(5) Front indicators/warning lights: 21 W
(6) Front side lights: 10 W
(7) Front work light: H3 55 W
(8) Front work light: H9 65 W
(9) Low beam lamps: H1 55 W
(10) High beam lamps: H1 55 W
(11) Rear xenon work light: HID DIS 35 W
(12) Rear work light: H3 55 W
(13) Rear work light: H3 55 W
(14) Rear indicators/warning lights: 21 W
(15) Rear brake lights/side lights: 21 W / 5 W

# 4.11 Wheels and tires

## 4.11.1 Rims

| | |
|---|---|
| Four-wheel drive front axle | Welded steel rim/disk (2 settings depending on the position of the rim on the hub) Mobile steel rim/disk (8 settings depending on the position of the disk on the rim and on the hub) |
| Rear wheels | Welded steel rims/disk (setting depending on the position on the straight shaft) Steel rims/cast iron disk (setting of the disk position on the rim and depending on the position on the straight shaft) |

## 4.11.2 Tires

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 synchronization ratio K specifies the difference between the rotation of the front and rear wheels. For total compatibility between the front and rear tires, apply the synchronization ratio K (the value is displayed on the name plate).

The following formula is used to check that your choice of front/rear tire is correct. The result should be between 1 and 1.05. **Calculation formula:** 1<K x (rolling circumference of the front tire/rolling circumference of the rear tire)<1.05

## 4.11.3 Tightening torques

| | Disk on hub | Rim on disk with lugs | Rim on disk with slots |
|---|---|---|---|
| 4-wheel drive | • M18: 400 Nm to 450 Nm<br>• M22: 640 Nm to 680 Nm | 220 Nm to 250 Nm | 300 Nm to 320 Nm |

*Front axle*

| | Disk on hub | Rim on disk with lugs | Rim on disk with slots | Rim on disk, fixed cast iron |
|---|---|---|---|---|
| Flanged shaft | • M18: 400 Nm to 450 Nm<br>• M22: 640 Nm to 680 Nm | - | - | 250 Nm to 350 Nm |
| Straight shaft | M22: 640 Nm to 680 Nm | - | - | 250 Nm to 350 Nm |
| Cone/hub assembly, M20: 350 Nm to 460 Nm | | | | |

*Rear axle*

# 4.12 Capacities and dimensions

## 4.12.1 Capacities

**For Dyna-VT models**

| Type | Model | Capacity |
|---|---|---|
| Fuel tank | Tier 4F/Stage IV SCR Technology engine | 205 l |
| Additional tank | Tier 4F/Stage IV SCR Technology engine | 50 l |
| tank | Tier 4F/Stage IV SCR Technology engine | 30 l |
| Cooling system | All | 26 l |
| Engine sump | All | 18,5 l |
| Auxiliary hydraulics | All | 100 l |
| Transmission/rear axle | All | 48 l |
| Rear final drive (each) | All | 19 l |
| Front axle beam | All | 9 l |
| Front axle final drive (each) | All | 0,8 l |
| Refrigerant fluid R134A | Standard roof | 1200 g |
| | High-visibility roof | 1100 g |
| Front power take-off | All | 3,5 l |
| Windscreen washer bottle | All | 4 l |
| Pneumatic brake system antifreeze reservoir | All | 0,5 l |

## 4.12.2 Dimensions and weights

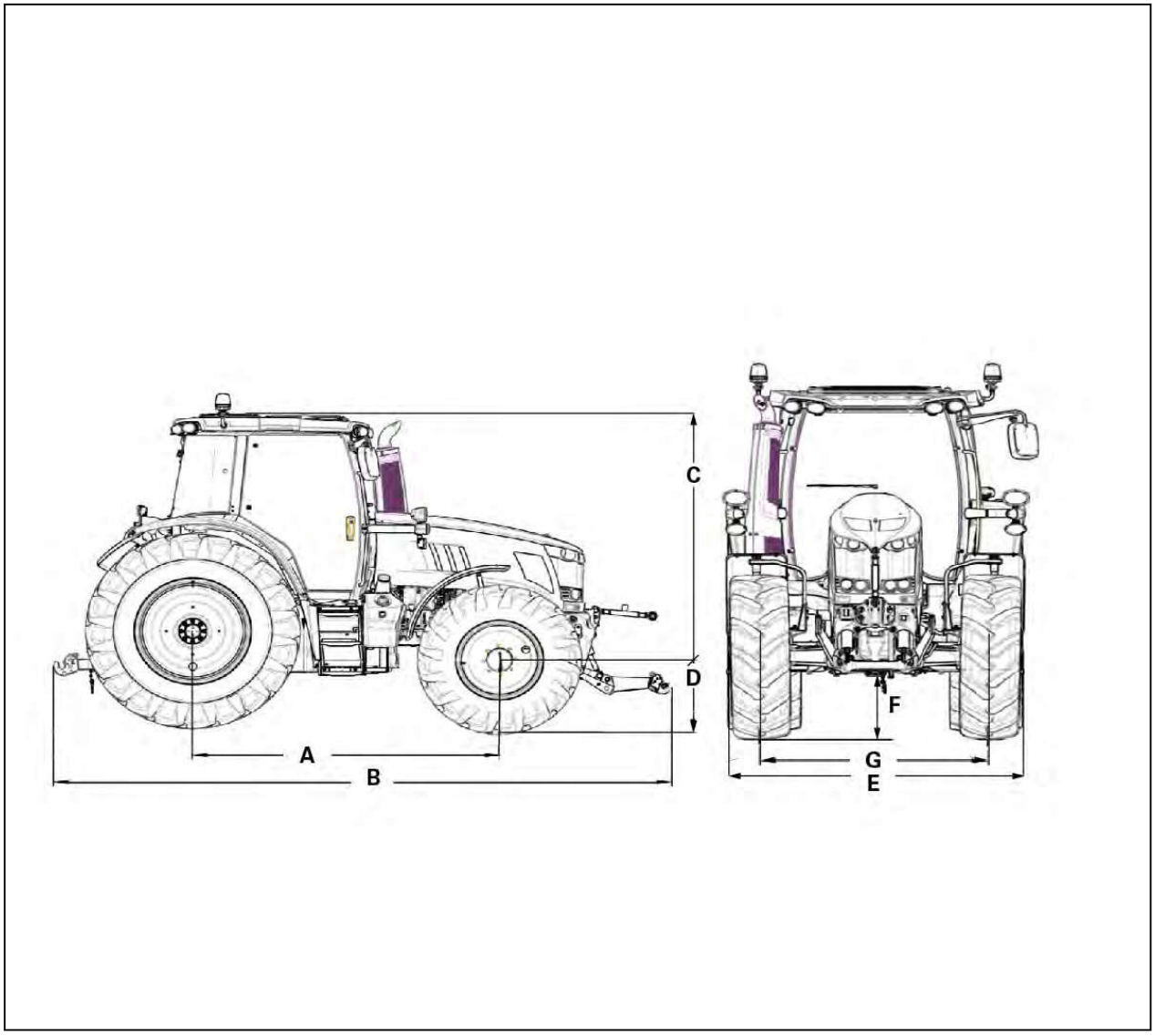



*Fig. 5*

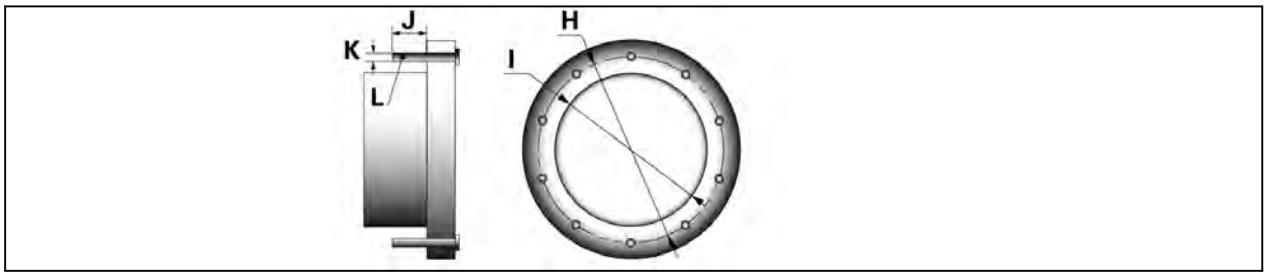



*Fig. 6*

**MF 6700 S Dyna-VT**

| Reference | Measured specification | Dimension/weight |
|---|---|---|
| (A) | Wheel base | 2670 mm |
| (B) | External length without front linkage without weights | 4710 mm |
| | External length without front linkage with weights | 5120 mm |
| | External length with front linkage | 5375 mm |
| (C) | Standard height to roof without Auto-Guide | 2125 mm |
| | High-visibility height to roof without Auto-Guide | 2145 mm |
| (D) | Height to ground<br>- rear with tires 650/65R38 | 750 mm to 875 mm |
| (E) | Maximum external width | 1830 mm to 2550 mm |
| (F) | Ground clearance | 325 mm to 450 mm |
| | Tractor weight | Refer to regulatory data specified in the chapter: Safety instructions and safety points. |

**MF 6700 S Dyna-VT**

| Reference | Measured specification | Dimension/weight | | |
|---|---|---|---|---|
| | | Rear Axle | Front axle | |
| | | | Dana 735 | Dana 740 |
| (G) | Distance between flanges: HA140<br>Short shaft Ø 95 mm<br>Long shaft Ø 95 mm | 1780 mm<br>1832 mm to 2277 mm<br>1832 mm to 2869 mm | 1800 mm | 1784 mm |
| (H) | Center-to-center distance between studs<br>- flanged shaft<br>- straight shaft | 275 mm<br>335 mm | 275 mm | 335 mm |
| (I) | Centring diameter<br>- flanged shaft<br>- straight shaft | 220,8 mm<br>220,8 mm | 220 mm | 280 mm |
| (J) | Stud length | 47 mm/69 mm/94 mm | 35 mm | 50 mm |
| (K) | Stud diameter | M22x1.5 | M18x1.5 | M22x1.5 |
| (L) | Number of studs (per side)<br>- flanged shaft<br>- straight shaft | 8<br>10 | 8 | 10 |

## 4.12.3 Attachment points: MF 6713 S / MF 6714 S / MF 6715 S / MF 6716 S / MF 6718 S Dyna-VT models without front linkage:

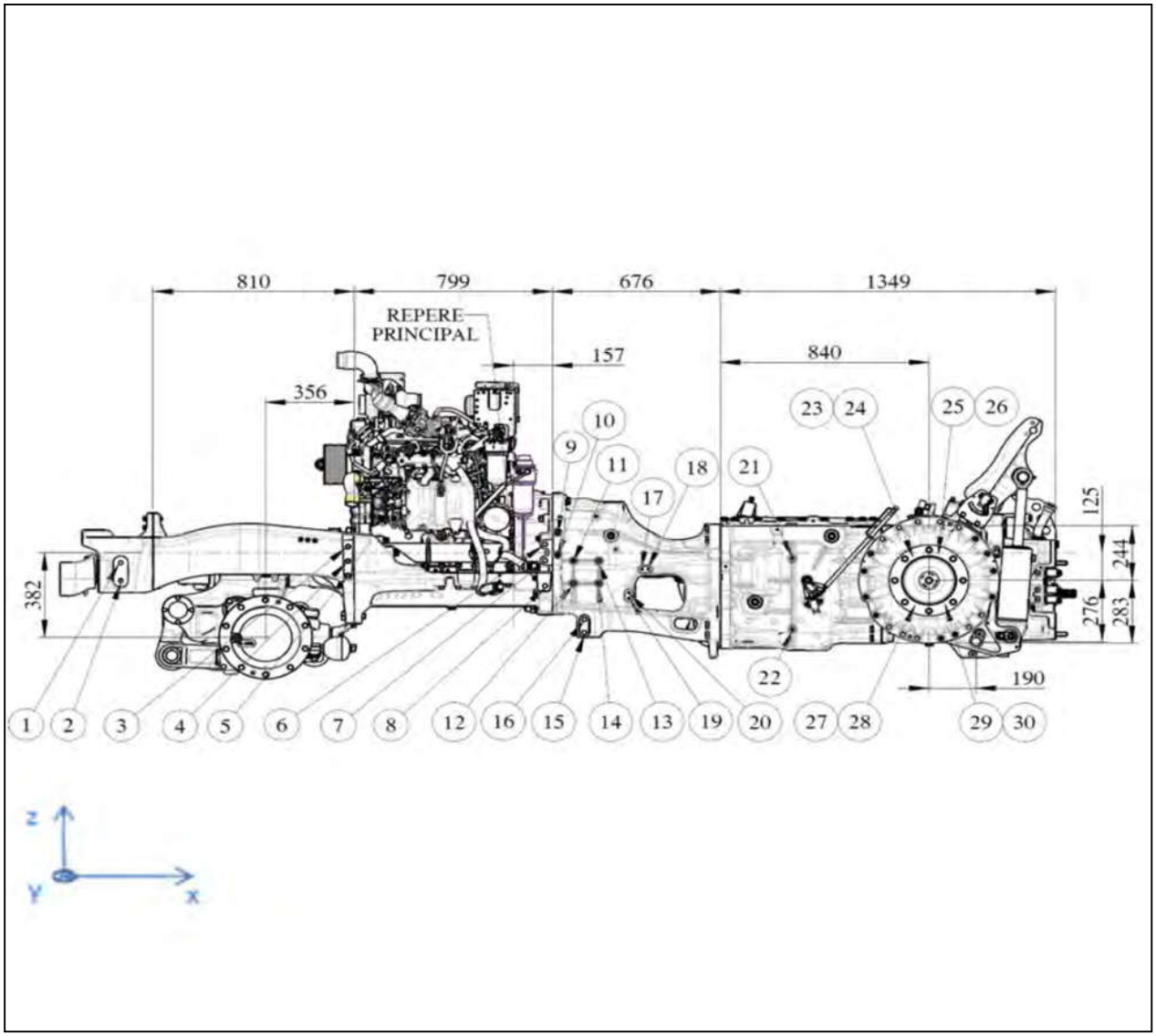



*Fig. 7*

**NOTE:**
*Values x, y and z represent reference point 0 of the tractor.*

| Reference | | X | Y | Z |
|---|---|---|---|---|
| 1[1] | M20 | -1582 mm | -315 mm | -45 mm |
| 2[1] | M20 | -1582 mm | -315 mm | -125 mm |
| 3[1] | M20 | -667 mm | -280 mm | 27,5 mm |
| 4[1] | M20 | -667 mm | -280 mm | -37,5 mm |
| 5 | M20 | -667 mm | -280 mm | -102,5 mm |
| 6[1] | M20 | 126,8 mm | -280 mm | 38 mm |

| Reference | | X | Y | Z |
|---|---|---|---|---|
| 7[1] | M20 | 126,8 mm | -280 mm | -35 mm |
| 8[1] | M20 | 126,8 mm | -280 mm | -149 mm |
| 9 | M16 | 177 mm | -274 mm | 92 mm |
| 10 | M16 | 177 mm | -274 mm | -10 mm |
| 11 | M16 | 241 mm | -220 mm | -36 mm |
| 12 | M16 | 241 mm | -220 mm | -137 mm |
| 13 | M16 | 342,8 mm | -240 mm | -36 mm |
| 14 | M16 | 342,8 mm | -240 mm | -137 mm |
| 15 | M16 | 285 mm | -160 mm | 360 mm |
| 16 | M16 | 285 mm | -160 mm | 300 mm |
| (17) | M10 | 517 mm | -245 mm | 75 mm |
| 18 | M10 | 542 mm | -245 mm | -189 mm |
| 19 | M10 | 464 mm | -245 mm | 205 mm |
| 20 | M10 | 464 mm | -245 mm | 180 mm |
| 21 | M10 | 1122 mm | 245 mm | 20 mm |
| 22 | M10 | 1122 mm | 245 mm | -345 mm |
| 23 | M16 | 1598 mm | 585 mm | -10 mm |
| 24 | M16 | 1598 mm | 705 mm | -10 mm |
| 25 | M16 | 1748 mm | 585 mm | -10 mm |
| 26 | M16 | 1748 mm | 705 mm | -10 mm |
| 27 | M16 | 1598 mm | 585 mm | -240 mm |
| 28 | M16 | 1598 mm | 705 mm | -240 mm |
| 29 | M16 | 1748 mm | 585 mm | -240 mm |
| 30 | M16 | 1748 mm | 705 mm | -240 mm |

1. Front-end loader attachment points

## 4.12.4 Attachment points: MF 6713 S / MF 6714 S / MF 6715 S / MF 6716 S / MF 6718 S Dyna-VT models with front linkage

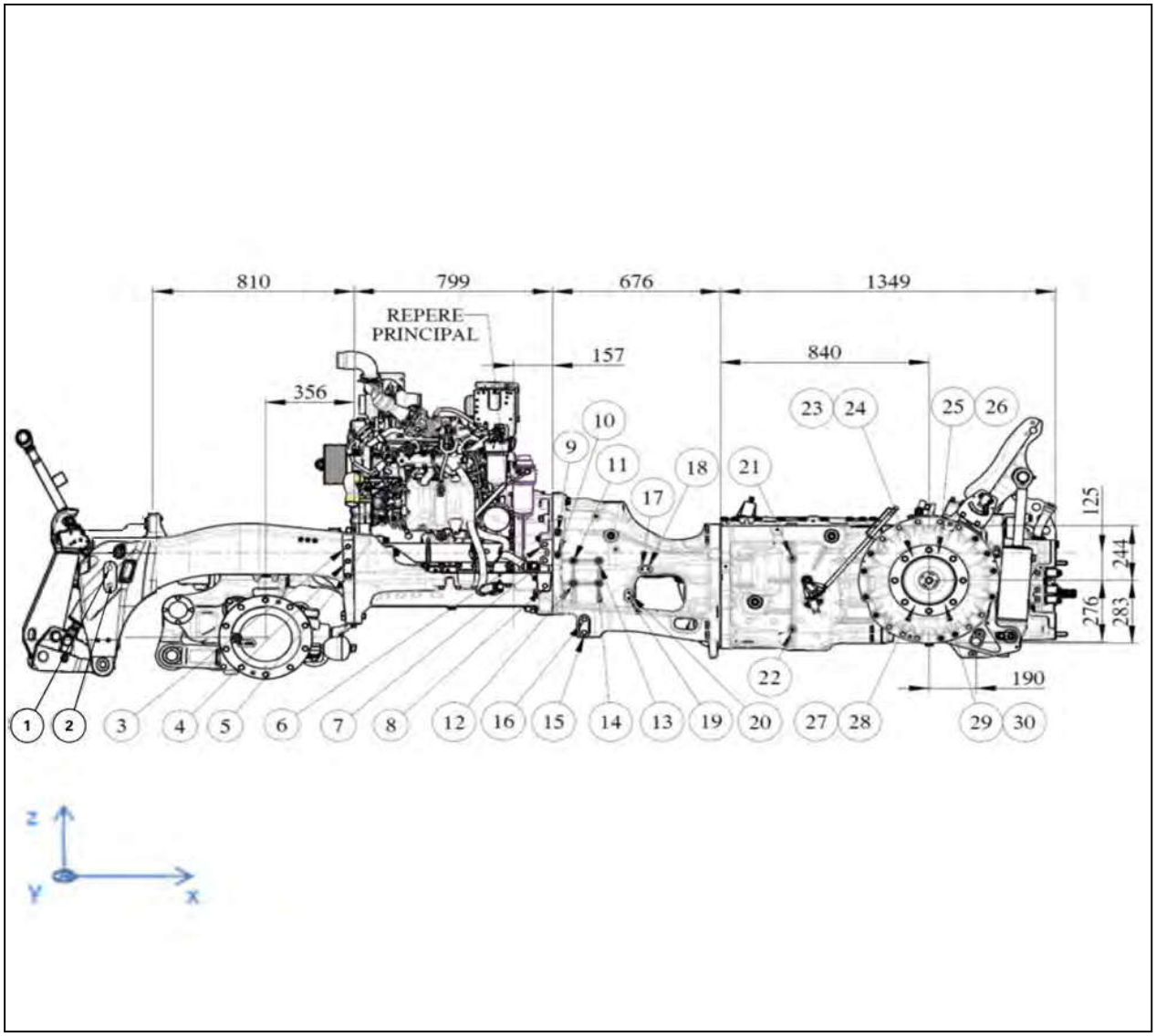



*Fig. 8*

**NOTE:**
*Values x, y and z represent reference point 0 of the tractor.*

| Reference | | X | Y | Z |
|---|---|---|---|---|
| 1[1] | M20 | -1682 mm | -343 mm | -66 mm |
| 2[1] | M20 | -1682 mm | -343 mm | -146 mm |
| 3[1] | M20 | -667 mm | -280 mm | 27,5 mm |
| 4[1] | M20 | -667 mm | -280 mm | -37,5 mm |
| 5 | M20 | -667 mm | -280 mm | -102,5 mm |
| 6[1] | M20 | 126,8 mm | -280 mm | 38 mm |

| Reference | | X | Y | Z |
|---|---|---|---|---|
| 7[1] | M20 | 126,8 mm | -280 mm | -35 mm |
| 8[1] | M20 | 126,8 mm | -280 mm | -149 mm |
| 9 | M16 | 177 mm | -274 mm | 92 mm |
| 10 | M16 | 177 mm | -274 mm | -10 mm |
| 11 | M16 | 241 mm | -220 mm | -36 mm |
| 12 | M16 | 241 mm | -220 mm | -137 mm |
| 13 | M16 | 342,8 mm | -240 mm | -36 mm |
| 14 | M16 | 342,8 mm | -240 mm | -137 mm |
| 15 | M16 | 285 mm | -160 mm | 360 mm |
| 16 | M16 | 285 mm | -160 mm | 300 mm |
| (17) | M10 | 517 mm | -245 mm | 75 mm |
| 18 | M10 | 542 mm | -245 mm | -189 mm |
| 19 | M10 | 464 mm | -245 mm | 205 mm |
| 20 | M10 | 464 mm | -245 mm | 180 mm |
| 21 | M10 | 1122 mm | 245 mm | 20 mm |
| 22 | M10 | 1122 mm | 245 mm | -345 mm |
| 23 | M16 | 1598 mm | 585 mm | -10 mm |
| 24 | M16 | 1598 mm | 705 mm | -10 mm |
| 25 | M16 | 1748 mm | 585 mm | -10 mm |
| 26 | M16 | 1748 mm | 705 mm | -10 mm |
| 27 | M16 | 1598 mm | 585 mm | -240 mm |
| 28 | M16 | 1598 mm | 705 mm | -240 mm |
| 29 | M16 | 1748 mm | 585 mm | -240 mm |
| 30 | M16 | 1748 mm | 705 mm | -240 mm |

1. Front-end loader attachment points

# 5. Accessories

# 5.1 Cab

## 5.1.1 Cab accessories

# 5.2 Engine

## 5.2.1 Engine accessories

- Engine block preheater (220 V or 110 V according to version)

## 5.3 Power take-off

### 5.3.1 Power take-off accessories

- Power take-off: Consult your dealer for the different types available

# 5.4 Linkage

## 5.4.1 Linkage accessories

- Rear linkage: Consult your dealer for the different types available
- Single-piece weight: 850 kg/1500 kg
- Front weights: 12 weights of 55 kg

# 5.5 Auxiliary hydraulics

## 5.5.1 Auxiliary hydraulics accessories

- Additional hydraulic spool valves
- Trailer brake

## 5.6 Wheels and tires

### 5.6.1 Wheels and tires accessories

- Rear wheel weights: 1 to 2 external wheel weights

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