

***Challenger***  
***MT425B-445B-455B-465B***  
***Agricultural tractors***



---

## CONTENTS

*Chapter 1*

### **TRACTOR IDENTIFICATION**

1

*Chapter 2*

### **INTRODUCTION - SAFETY INSTRUCTIONS AND WARRANTY**

2

*Chapter 3*

### **INSTRUMENTS AND CONTROLS**

3

*Chapter 4*

### **OPERATION**

4

*Chapter 5*

### **SERVICING AND ADJUSTMENTS**

5

*Chapter 6*

### **SPECIFICATIONS**

6

*Chapter 7*

### **ACCESSORIES AND OPTIONS**

7

*Chapter 8*

### **TROUBLESHOOTING**

8

*Appendix*

### **CONVERSION TABLES**



*Chapter 1*  
**TRACTOR IDENTIFICATION**



**CONTENTS**

1.1 - SERIAL NUMBER ..... 1.5

# ***1 . TRACTOR IDENTIFICATION***

---



## 1.1 - SERIAL NUMBER

**IMPORTANT: PLEASE QUOTE THE SERIAL NUMBER OF YOUR TRACTOR IN ALL CORRESPONDENCE WITH YOUR DEALER OR AGENT.**

Name plate with serial number (according to country)



Cab serial number



Platform serial number



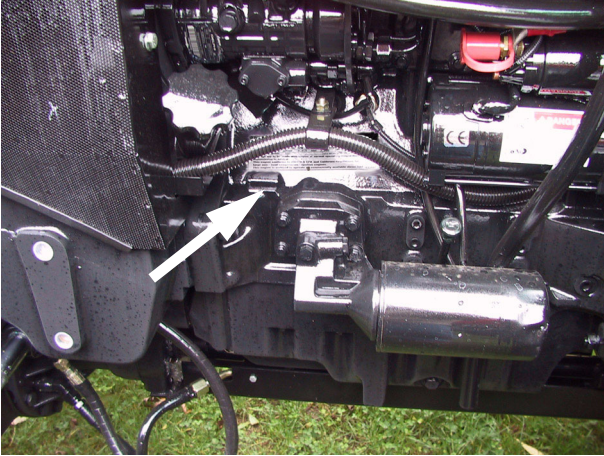
Homologation plate (according to country)



Fig. 4

# 1 . TRACTOR IDENTIFICATION

"CAT" engine serial number



Z2-321-10-03

Fig. 5

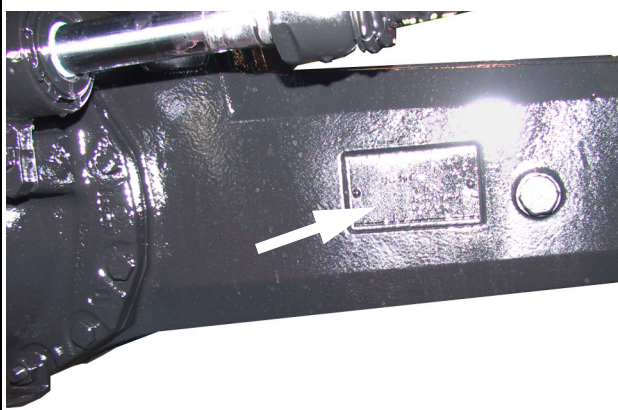
Serial number



X3B-024-08-05

Fig. 6

Front axle serial number



X3A-2052-10-05

Fig. 7

MODEL:.....

SERIAL NUMBER:.....

ENGINE SERIAL NUMBER:.....

OWNER NAME AND ADDRESS (if applicable):

DEALER:.....

STREET:.....

TOWN:.....

COUNTY:.....

ZIP CODE: .....

DEALER CODE: .....

TRACTOR RECEIVED FROM:  
(check one of the following)

..... FACTORY

..... OTHER DEALER (transfer):

*Chapter 2*

**INTRODUCTION - SAFETY INSTRUCTIONS AND  
WARRANTY**



### CONTENTS

2.1 - INTRODUCTION .....	2.5
2.1.1 Pre-delivery inspection, commissioning on the user's premises and warranty .....	2.5
2.1.2 Warranty procedure .....	2.6
2.1.3 Using the tractor in another region .....	2.6
2.1.4 Servicing after expiry of the warranty period .....	2.6
2.2 - SAFETY – SYMBOLS AND TERMS .....	2.7
2.3 - TRACTOR AND IMPLEMENTS .....	2.7
2.4 - MAXIMUM TRAVEL SPEEDS .....	2.7
2.5 - NOTE TO THE OPERATOR .....	2.8
2.6 - DANGER, WARNING AND CAUTION .....	2.8
2.7 - DECALS .....	2.8
2.8 - SAFETY PROCEDURE .....	2.8
2.8.1 Ensuring proper operation .....	2.8
2.8.2 Observe the following instructions .....	2.9
2.9 - PROTECTION .....	2.9
2.9.1 Cab .....	2.9
2.9.2 Damage to the ROPS .....	2.9
2.10 - PREPARING FOR SAFE OPERATION .....	2.9
2.10.1 Know your equipment .....	2.9
2.10.2 Protect yourself .....	2.10
2.10.3 Use all available protective and safety devices .....	2.10
2.10.4 Equipment check .....	2.11
2.10.5 Clean the tractor .....	2.11
2.10.6 Protect the environment .....	2.11
2.11 - SERVICING THE TRACTOR .....	2.12
2.12 - STARTING UP .....	2.12
2.12.1 Warn personnel before starting up .....	2.12
2.12.2 Mount and dismount the tractor safely .....	2.12
2.12.3 Start up safely .....	2.12
2.12.4 Follow recommended start-up procedures .....	2.13
2.12.5 Test the controls .....	2.13
2.12.6 Starter fluid .....	2.13
2.13 - WORKING SAFELY .....	2.13
2.13.1 Make the right moves .....	2.13
2.13.2 Safe operating practices .....	2.13
2.13.3 Safety of bystanders .....	2.14
2.13.4 Risk of overturning .....	2.14
2.13.5 To avoid overturns .....	2.15
2.13.6 Preventing rear overturns .....	2.15
2.13.7 Other risks .....	2.16
2.13.8 Implements and attachments .....	2.17
2.13.9 Safety measures when towing .....	2.17
2.13.10 Tractor towing .....	2.18
2.13.11 Road use .....	2.18
2.13.12 Highway code .....	2.18
2.14 - SAFETY – AFTER OPERATION .....	2.19
2.15 - DESCRIPTION OF DECALS .....	2.20

***2 . INTRODUCTION - SAFETY INSTRUCTIONS AND WARRANTY***

---

### 2.1 - INTRODUCTION

The Safety chapter in the Operator Instruction Book highlights certain basic safety-related situations which may be encountered during the operation and normal servicing of the tractor and provides the information needed to handle these situations. This chapter SUPPLEMENTS any safety instructions given in other chapters of this book.

It may be necessary to take additional precautions, depending on the attachments used and the working conditions on-site or in the servicing area. AGCO 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.

**NOTE: This book is published and distributed worldwide and the availability of the attachments indicated, whether on the basic tractor or as accessories, may vary according to the country in which the tractor is used. To find out which attachments are available in a given region, contact an AGCO dealer.**

The purpose of this book is to allow the owner and the operator to run the tractor safely. Providing they follow the instructions carefully, the tractor will give many years of service in the AGCO tradition.

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

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 AGCO parts. AGCO 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 to purchase their spare parts only from an approved AGCO dealer.

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 AGCO dealer to obtain special instructions to prevent the warranty from becoming void.

These tractors are designed only for usual farming activities (intended use).

Use for any other activity is considered to be contrary to the intended use. AGCO disclaims all liability in the event of material damage or physical injury resulting from improper use, the consequences of which shall be borne by the user alone.

Compliance with and strict adherence to the operating, servicing and repair requirements specified by AGCO are also essential elements of the intended use.

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

Customers are strongly advised to contact an AGCO dealer in the event of after-sale problems and for any adjustments which may be necessary.

#### 2.1.1 - Pre-delivery inspection, commissioning on the user's premises and warranty

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 AGCO 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.

The dealer is required to carry out certain activities when supplying a new AGCO 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.

**NOTE: AGCO 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 . INTRODUCTION - SAFETY INSTRUCTIONS AND WARRANTY**

---

### **2.1.2 - 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.

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

### **Warning concerning spare parts**

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

### **2.1.3 - Using the tractor in another region**

Only the AGCO 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 AGCO 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.

### **2.1.4 - Servicing after expiry of the warranty period**

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

To obtain best results from an AGCO tractor, it is important to continue regular servicing and periodic inspection after the warranty has expired. All major overhaul work on the tractor must be carried out by a local AGCO dealer; an experienced technician will detect any problems which may arise between one overhaul and the next.

Engineers regularly follow training courses to update their knowledge of the product and servicing and repair techniques, and the use of special tools and modern diagnostic equipment. They receive regular Service Bulletins and have access to all the workshop manuals and technical publications required to carry out repairs or servicing in accordance with the quality standards required by AGCO.



### 2.2 - SAFETY — SYMBOLS AND TERMS

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

### 2.3 - TRACTOR AND IMPLEMENTS

The tractor is a source of mechanical and hydraulic power.

- On its own, the tractor is of little practical value. Only when used in conjunction with an implement or other attachment does it become a working unit.
- This operator instruction book has been compiled to explain the safe working practices that are associated with basic tractor operation under normal conditions.
- It does not cover all operation and safety instructions relevant to the implements and attachments that may be fitted at the time of tractor delivery or later.
- It is essential that operators use and understand the operator instruction books relating to these implements and attachments.

### 2.4 - MAXIMUM TRAVEL SPEEDS



***DANGER: Road use of agricultural tractors is subject to speed restrictions depending on the bulkiness of the equipment and weight of the transported load. Consult the regulations in force in the relevant countries.***

## 2 . INTRODUCTION - SAFETY INSTRUCTIONS AND WARRANTY

### 2.5 - NOTE TO THE OPERATOR

It is your responsibility to read and understand the Safety chapter in this book before starting your tractor. Follow these safety instructions step by step throughout your working day.

When reading this chapter, you will notice that illustrations have been used to highlight certain situations. Each illustration is numbered and the same number appears in the text, in parentheses. The number is placed at the end of the written text that refers to the illustration.

Remember that you alone are responsible for safety. Good safety practices protect not only you, but also bystanders. Study the features in this book with care and make them an integral part of your safety procedure. Keep in mind that this Safety chapter concerns only the type of machine you have just purchased. Also note all the usual protective measures which should be taken when working and, above all -

**REMEMBER THAT SAFETY DEPENDS ON YOU. YOU CAN PREVENT ACCIDENTS WHICH COULD CAUSE SERIOUS INJURY OR DEATH.**



**WARNING:** *In some illustrations in this book, safety guards and protective panels have been removed for the sake of clarity. Never use the tractor if these parts are not in place.*

*If safety guards and protective panels have been removed for repair purposes, they MUST be refitted before use.*

### 2.6 - DANGER, WARNING AND CAUTION

Whenever you see the words and symbols shown below used in this book or on decals, you MUST apply their instructions as they concern personal safety.



**DANGER:** *This symbol, accompanied by the word DANGER, indicates an imminent danger, which, if not prevented, may result in DEATH OR VERY SERIOUS INJURY.*



**WARNING:** *This symbol, accompanied by the word WARNING, indicates a potential danger, which, if not prevented, may result in DEATH OR SERIOUS INJURY.*



**CAUTION:** *This symbol, accompanied by the word CAUTION, indicates a potential risk, which, if not avoided, may result in MINOR INJURY.*

**IMPORTANT:** *The word IMPORTANT is used to identify special instructions or procedures which, if not strictly observed, may cause damage to, or destruction of the machine, the procedure being undertaken or the surroundings.*

**NOTE:** *The word NOTE is used to highlight particularly interesting information that might enable more efficient or convenient operation or repair.*

### 2.7 - DECALS



**WARNING: DO NOT REMOVE OR OBSCURE decals indicating Danger, Warning, Caution or Instruction.**

Replace any Danger, Warning, Caution or Instruction decals which are illegible or missing. Replacement decals are available from your Dealer in the event of loss or damage. The actual location of these safety decals is illustrated at the end of this chapter.

If a second-hand tractor has been purchased, refer to the illustrations at the end of this book to ensure that all the safety decals are in the correct position and are legible.

### 2.8 - SAFETY PROCEDURE

#### 2.8.1 - Ensuring proper operation

To operate an agricultural tractor properly, you must be a qualified and approved operator. To be qualified, you must understand the written instructions supplied in this operator instruction book, have training in how to operate the tractor and know the safety rules and regulations applicable to the job.

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 regulations include, but are not limited to, the following instructions for safe tractor operation.



**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.*

### 2.8.2 - Observe the following instructions

- **DO NOT ALLOW** children or unqualified persons to operate the tractor. Move unauthorized persons away from the work area.
- Always wear your seat belt securely fastened.
- Where possible, avoid operating the tractor near ditches, embankments and holes. Reduce speed when negotiating turns and slopes and on rough, slippery or muddy surfaces.
- Stay off slopes that are too steep for safe operation.
- Watch where you are going, especially at row ends, on roads and around trees.
- The instructor seat is only intended for short periods of use.
- Do not allow children to use the instructor seat.
- **DO NOT PERMIT** others to ride on the tractor or the implement unless an approved instructor seat is fitted.
- Only hitch attachments to the drawbar and recommended hitch points and never above the center line of the rear axle.
- Operate the tractor smoothly — avoid jerky turns, starts or stops. When the tractor is stopped, apply the hand brake securely. Lower the implement and remove the ignition key.
- **DO NOT MODIFY OR REMOVE** any part of the equipment and **DO NOT USE** attachments unless they are properly adapted to suit your tractor.

## 2.9 - PROTECTION

### 2.9.1 - Cab

The ROPS (Roll Over Protective Structure) has been designed for this tractor series and meets all legal safety and sound requirements.

The ROPS conforms to the various international safety standards. The ROPS must **NEVER** be drilled or modified to enable installation of accessories or implements. Welding components is **NOT PERMITTED. DO NOT ATTACH** chains or ropes to the main frame of the ROPS for pulling purposes.

If additional controls or displays must be added to the operator's area, contact your AGCO dealer for information.

The ROPS and the seat belt are effective in reducing injuries during overturn accidents. Wearing the seat belt is an important part of this protection.

- Always wear your seat belt and ensure it is correctly adjusted.
- Check the seat belt for damage. A damaged seat belt must be replaced (Fig. 1).



Fig. 1

### 2.9.2 - Damage to the ROPS

If there has been an accident with the tractor or if the tractor has overturned, the ROPS must be replaced, **NOT** repaired.

**DO NOT USE** the tractor if the ROPS has been damaged.

## 2.10 - PREPARING FOR SAFE OPERATION

### 2.10.1 - Know your equipment

It is important to know the tractor and how to operate all its accessories, implements and attachments. It is also important to know how to use all the controls, gauges and dials, and to know the rated load capacity, speed range, braking and steering specifications, turning radius and operating clearances.

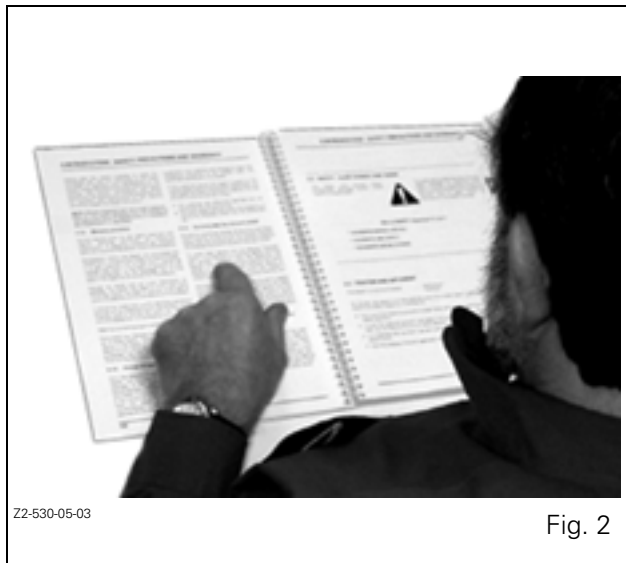
Remember that rain, snow, ice, loose gravel or soft ground can change the performance of the tractor.

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

Study the **DANGER, WARNING** and **CAUTION** safety symbols on the tractor and all the information signs.

## 2 . INTRODUCTION - SAFETY INSTRUCTIONS AND WARRANTY

**READ THIS OPERATOR INSTRUCTION BOOK CAREFULLY BEFORE STARTING THE ENGINE. CONSULT THE BOOK BEFORE YOU START WORK (Fig. 2).**



IF THERE IS SOMETHING IN THE BOOK YOU DO NOT UNDERSTAND, ASK SOMEONE (for example your dealer) TO EXPLAIN IT TO YOU.

This book covers general safety instructions for agricultural tractors. It must always be kept with the tractor. For extra copies, contact your AGCO dealer.

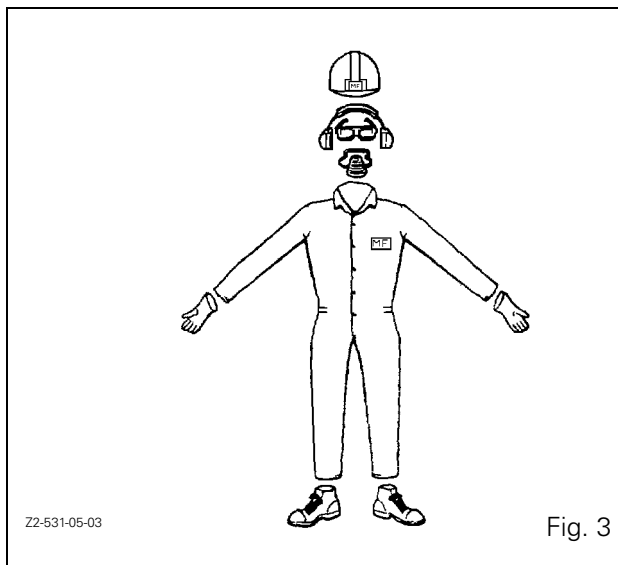
### 2.10.2 - Protect yourself

Wear all the protective clothing and equipment with which you are provided or which is appropriate for certain working conditions. Do not take any risks (Fig. 3).

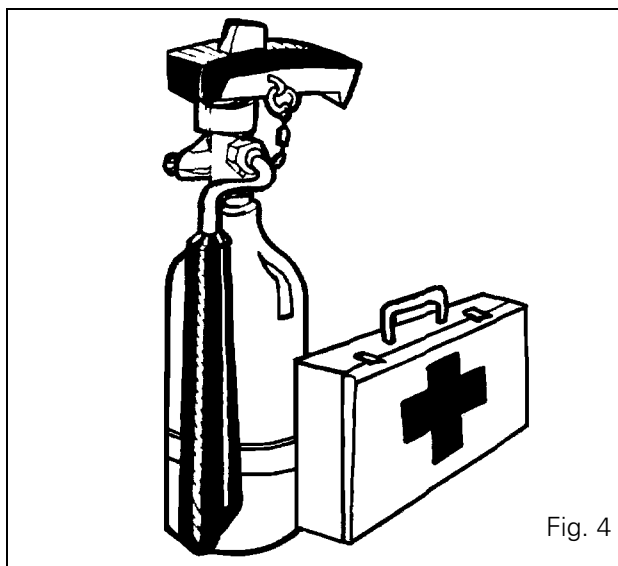
For example, you may need:

- A safety helmet.
- Goggles or a face shield.
- Ear protection.
- A respirator or filter mask.
- Inclement weather clothing.
- Reflective clothing.
- Heavy gloves (neoprene for chemicals, leather for rough work).
- Safety footwear.

**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.



Learn where fire extinguishers and first aid or emergency equipment is kept and where to get help in a hurry. Ensure that you know how to use this equipment (Fig. 4).



### 2.10.3 - Use all available protective and safety devices

Ensure that all protective devices, guards and safety signs are fitted as required and are in good condition.

For your own safety and that of those around you, the tractor should be fitted with the following:

- ROPS and seat belt
- Power take-off guard (PTO)
- Rear-view mirror
- SMV warning triangle
- Additional lights and decals

Depending on the work to be carried out, the following accessories may also be required:

- Fire extinguisher
- Backup alarm
- Any other appropriate safety devices

## 2 . INTRODUCTION - SAFETY INSTRUCTIONS AND WARRANTY

Make sure all required equipment is in place and in good working order. **DO NOT** remove or disconnect any safety devices.

### 2.10.4 - Equipment check

Before you begin your working day, take the time to check the tractor and ensure that all systems are in good operational condition.

- **DO NOT SMOKE** while refueling the tractor. Keep away from naked flames (Fig. 5).
- Stop the engine and wait for it to cool before refueling.



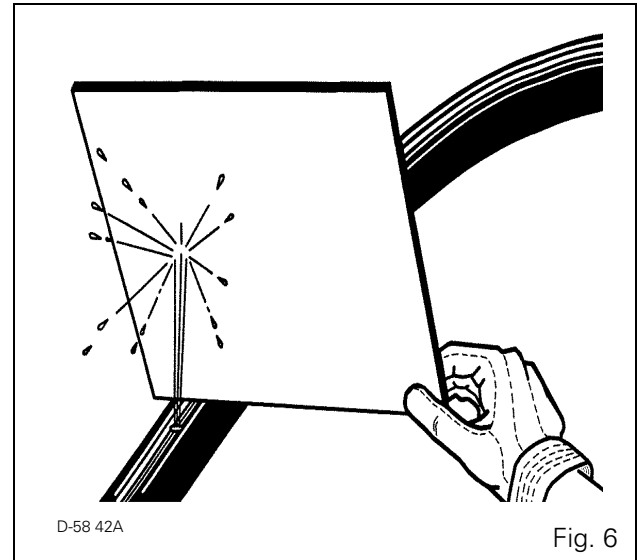
- Check for loose, broken, missing or damaged parts. Ensure that everything has been properly repaired. Ensure that all safety devices are in place.
- Check that the seat belt is in good condition. A damaged seat belt must be replaced.
- Ensure that implements and attachments are properly installed and that the tractor and implement PTO ratios (rpm) are correct.
- Check the condition and pressure of tires (absence of cuts and bulges). Replace worn or damaged tires. Check that the hand and foot brakes are operating correctly. Adjust if necessary.
- Check the oil level. Add some oil if necessary.
- Comply with all servicing procedures outlined in the Servicing and Adjustments chapter in this book.
- Check that all PTO shaft locking devices are engaged.
- Check that the tractor PTO guard and the shaft guards are in place and operating correctly.
- Check the tractor and implement hydraulic system. Ensure that any damaged or leaking parts are repaired or replaced.



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

**Leaks of pressurized fluid may not be visible. Use a piece of cardboard or wood to detect leaks. DO NOT USE YOUR BARE HANDS. Wear safety goggles for**

**eye protection. If any fluid penetrates the skin, seek medical advice within a few hours from a doctor familiar with this type of injury, as surgery will be necessary (Fig. 6).**



Before applying pressure to the fuel or hydraulic system, ensure that all unions are tight and that lines, pipes and hoses are free from damage. Relieve the pressure before disconnecting the fuel or hydraulic systems.

Ensure that all hydraulic systems are correctly installed and not crossed.



**WARNING: Liquid cooling systems build up pressure as the engine temperature increases. Stop the engine and let the system cool before removing the radiator cap.**

- Check the engine cooling system and add coolant if required.

### 2.10.5 - Clean the tractor

- Keep work surfaces and engine compartments clean.
- Before cleaning the machine, always lower implements to the ground, place transmission in neutral, engage the hand brake, stop the engine and remove the ignition key.
- 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.
- Remove or put away implements, buckets, chains and hooks.

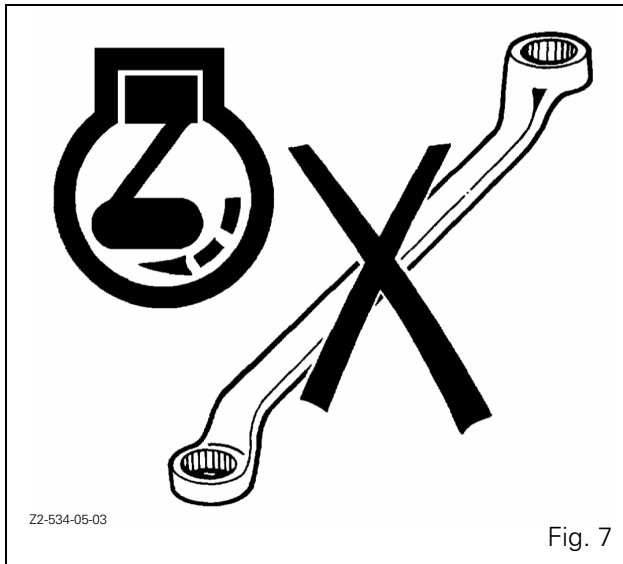
### 2.10.6 - Protect the environment

- It is illegal to pollute drains, water courses or soil. Use authorized waste disposal facilities, dumps or garages providing facilities for the disposal of used oil. In doubt, contact your local authorities for advice.

## 2 . INTRODUCTION - SAFETY INSTRUCTIONS AND WARRANTY

### 2.11 - SERVICING THE TRACTOR

- **DO NOT SERVICE** the tractor while the engine is running or hot or if the tractor is in motion (Fig. 7).



- Before making adjustments to or servicing the electrical circuit, disconnect the battery cables, negative terminal [-] first.
- To prevent fire or explosion, keep the battery or cold weather starting aids away from naked flames. To prevent sparks which could cause explosions, use jumper cables according to instructions.
- Consult your AGCO Dealer when making 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, **NOT** a hydraulic jack.
- Check all nuts and bolts periodically for tightness, especially wheel hub and rim nuts. Tighten to the torque values stipulated.

### 2.12 - STARTING UP

#### 2.12.1 - Warn personnel before starting up

Before starting up, walk all the way around the tractor and any attached equipment. Ensure that no one is under it, on it or close to it. Tell other workers or people nearby that the tractor is about to start. Do not start the tractor while there are people near the tractor, implements or trailed attachment.

Ensure that all bystanders, particularly children, are an adequate distance away before starting the engine.

#### 2.12.2 - Mount and dismount the tractor safely

Always use three-point contact with the machine and face the machine when you get on it. (Three-point contact means that both hands and one foot or one hand and both feet are in contact with the machine at all times when getting on and off).

Clean your shoes and wipe your hands before getting on the tractor. Use handrails, grab handles, ladders or steps (if fitted) when getting on and off.

**DO NOT** use control levers as a handhold and never step on pedals when getting on and off.

**NEVER** attempt to get on or off a moving tractor. **NEVER JUMP** off a tractor when it is running except in an emergency.

#### 2.12.3 - Start up safely



**WARNING:** Before starting the engine, ensure there is plenty of ventilation. **DO NOT operate the engine in an enclosed space. The exhaust fumes may cause asphyxiation.**

Always start the engine from the operator's seat, with **transmission levers** and the PTO lever in neutral.

Make sure that the tractor brake pedals are locked together at all times unless you are making turns in the field which require independent use of the brakes. Ensure that the brakes are properly adjusted so that both brakes engage at the same time.

Adjust the seat, fasten the seat belt (as specified in the book), apply the hand brake and put all controls in neutral before starting the engine.



**DANGER:** Start the engine with the ignition key, from the operator's seat only. **DO NOT ATTEMPT to start the engine by short-circuiting the starter terminals. The machine will start in gear if the neutral start-up circuit is bypassed. This could cause serious injury or death to anyone in the vicinity of the tractor (Fig. 8).**

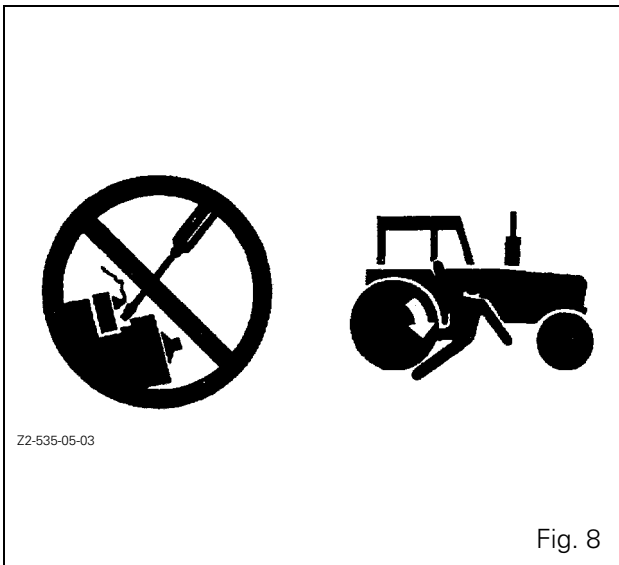


Fig. 8

### 2.12.4 - Follow recommended start-up procedures

Follow the start-up procedures recommended in the Operation chapter of this Operator Instruction Book. This chapter includes normal starting, cold starting and the use of starter fluids.

### 2.12.5 - Test the controls

After starting, check all gauges and lights once again. Ensure that everything is functioning correctly. If the tractor does not respond correctly to one of the controls, **DO NOT USE** the machine until the fault is rectified.

Ensure that the starter solenoid cover plate is still in position.

### 2.12.6 - Starter fluid



**WARNING: It is very important that you read the instructions on the label before using starter fluid. DO NOT use aerosol cans to start the tractor when the thermostart is connected to the electrical circuit. Ether combined with the thermostart may cause an explosion, which could result in damage to the engine, physical injury or both.**

Handle starter fluid carefully. Starter fluid must only be used in conjunction with an ether-start aid fitted as original equipment by the manufacturer or installed by the Dealer as an accessory. If the tractor is fitted with a glow plug or a thermostart, these must be removed prior to the installation of an ether-start aid (Fig. 9).

If aerosol cans of starter fluid are to be used, the thermostart must be disconnected. Remove the wire from the thermostart located on the manifold. Apply adhesive tape to the end of the wire to prevent an electrical short circuit.

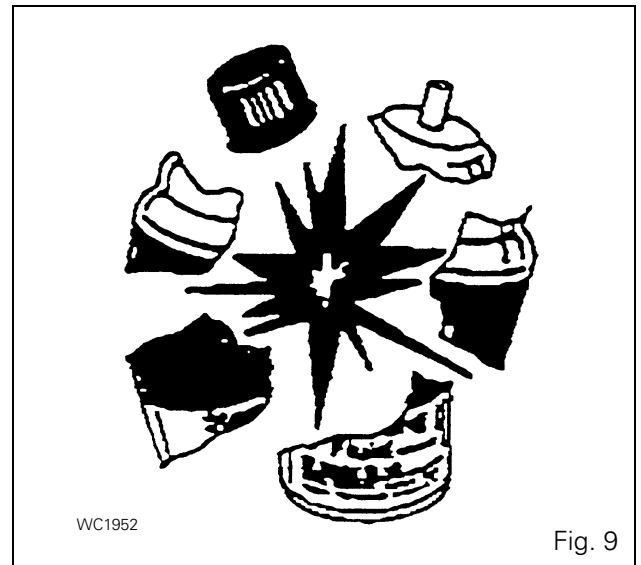


Fig. 9

## 2.13 - WORKING SAFELY



**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; instead reduce the load. Keep all parts of your body inside the operator cab while operating the tractor.**

### 2.13.1 - Make the right moves

Ensure that the tractor is ready for the work to be carried out. Ensure you know the tractor nominal load capacities and never exceed them. Ensure that any implements or attachments you intend to use **DO NOT EXCEED** the load rating of the tractor. Ensure that the ratio between the PTO speed of the tractor and that of the implement is correct. Keep in mind that tractors are designed to operate on uneven, unpaved, bumpy or sloping surfaces. Operating conditions can reduce the amount of weight you should carry or pull.

### 2.13.2 - Safe operating practices

- Operate the controls smoothly — do not jerk the steering wheel or other controls.
- **NEVER** get on or off a moving tractor. Keep a firm grip on the steering wheel at all times, with your thumbs clear of the spokes when driving the tractor.
- Ensure you have adequate clearance in all directions for the tractor and the implement.
- **DO NOT** play with a tractor or attachment. Use only for the intended purpose.
- **ALWAYS OPERATE** the controls from the operator's seat.
- Before getting off, always disengage the PTO, lower all attachments and implements to the ground, place the tractor in neutral, activate the ParkLock, stop the engine and remove the ignition key.

## 2 . INTRODUCTION - SAFETY INSTRUCTIONS AND WARRANTY

**NOTE:** DO NOT TOUCH, lean on or reach through any implement mechanism or permit others to do so.

**Stay alert!** If a part breaks, loosens or does not operate correctly, stop work, turn off the engine, check the machine and carry out any necessary adjustments or repairs before resuming work.

### 2.13.3 - Safety of bystanders

Watch out for others. **DO NOT** allow inexperienced or unqualified people to operate the tractor. They may cause injury to themselves or to others.



**WARNING:** A tractor is a personal piece of machinery. **DO NOT** allow others to drive the tractor or use the implement (Fig. 10). **DO NOT ALLOW** anyone to get on the implements or any other attachments, including trailers, except in the case of harvesters specially designed for this purpose (for the harvest itself and not for transport purposes). Space should be provided on such attachments so that this type of transport can be carried out in complete safety. **DO NOT ALLOW** children on the tractor.



Z2-536-05-03

Fig. 10

- **Be certain that you can control both the speed and the steering of the tractor before moving off.** Move slowly until you are sure that everything is operating correctly. After starting, check the steering wheel by turning it to the right and to the left. Be certain that you have full control of the steering and brakes. If the differential lock is engaged, **DO NOT** increase the speed of the tractor or turn the tractor until the differential lock is disengaged.
- **DO NOT LIFT** a load over anyone.
- Keep others away from the working area. **DO NOT ALLOW** others to stand beside or walk beneath a raised implement (Fig. 11).

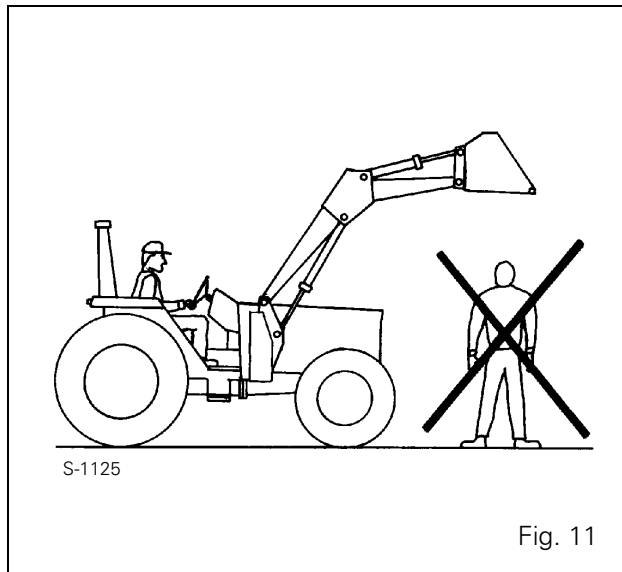


Fig. 11

- **DO NOT** lift objects that do not fit safely into the bucket. Obtain the correct attachment.
- When using a loader, avoid sudden stops, starts, turns or changes in direction. Keep loads close to the ground when transporting.
- **DO NOT** stand (or allow anyone else to stand) in front of, under or behind a loaded or loading attachment. **DO NOT DRIVE** a tractor up to someone standing in front of a fixed object.
- Keep others away from the moving parts of hitches, drawbars, lift arms, PTO shafts, rams, belts, pulleys and other moving parts. Keep all shields and guards in place.



**WARNING:** **DO NOT STAND**, or allow anyone else to stand, between the tractor and implement unless the engine is turned off, the hand brake is engaged, the transmission control lever is in neutral and all attachments or implements are lowered to the ground.

### 2.13.4 - Risk of overturning

In the event that a tractor fitted with a cab overturns, hold the steering wheel firmly and do not attempt to leave the seat until the tractor has come to a complete stop (Fig. 12). If the doors of the cab are obstructed, leave through the rear window or roof hatch.



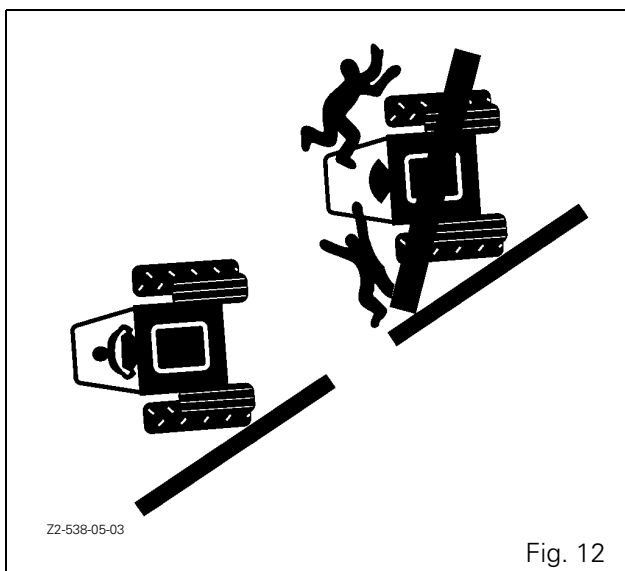


Fig. 12

Fig. 13: Do not work near the edge of ditches or banks. The distance from the edge should always be equal to or greater than the height of the bank, to prevent it from collapsing.

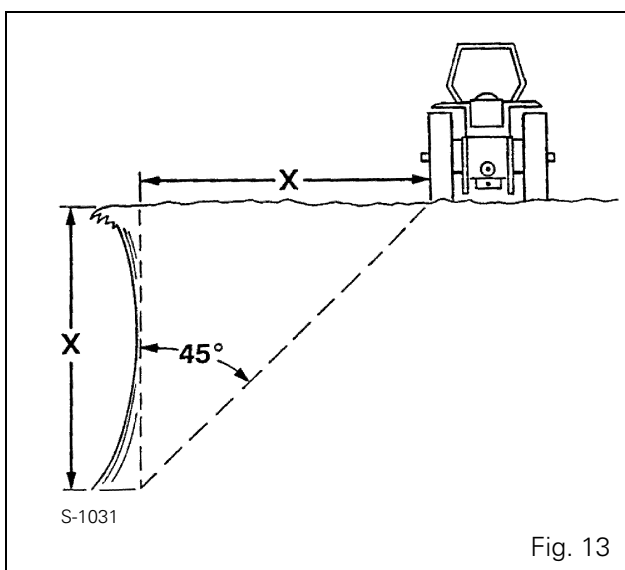


Fig. 13

### 2.13.5 - To avoid overturns

- Set the wheel track to the most appropriate width for the work being carried out.
  - Lock the brake pedals together before driving at transport speed.
  - Reduce speed according to the operating conditions. 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 let the tractor bounce. You may lose steering control.
  - Do not pull a load that is too heavy for the tractor. It could run down the slope or the tractor could jack-knife around a trailed load.
  - Do not brake suddenly. Apply brakes smoothly and gradually.
- When driving down a slope, use the throttle control to slow the tractor engine and choose the same gear ratio as used when climbing a slope. Shift into gear before you start downhill.
  - Engage four-wheel drive (if fitted) to enable four-wheel braking.



**WARNING: DO NOT disengage the clutch or attempt to shift gear after you have started downhill.**

- The tractor is less likely to overturn if you drive up or down a steep slope rather than driving across it.
- Avoid steep slopes whenever possible. If this is not possible, avoid holes and dips when driving downhill. Avoid stumps, stones, bumps and raised areas when driving uphill. Keep the tractor behind the shear line when working close to ditches or embankments (Fig. 13). Avoid ditches, embankments and river banks which might give way.
- If you must drive on a steep slope, avoid turning at the top of the slope. Slow down and turn in a wide turning circle. Drive straight on uphill or downhill slopes and never drive across them. Keep the heavier end of the tractor facing towards the top of the slope when driving up and down it.
- If a tractor fitted with side-mounted implements is used on a steep slope, the implement must always face up the slope. Do not raise the implements. Keep them as low to the ground as possible when crossing a slope.
- When towing a load at transport speed, lock the drawbar in the center position and use a safety chain.
- DO NOT use the tractor to round up farm animals.

### 2.13.6 - Preventing rear overturns



**WARNING: Hitching to the rear axle or any other point above the swinging drawbar can cause a rear overturn.**

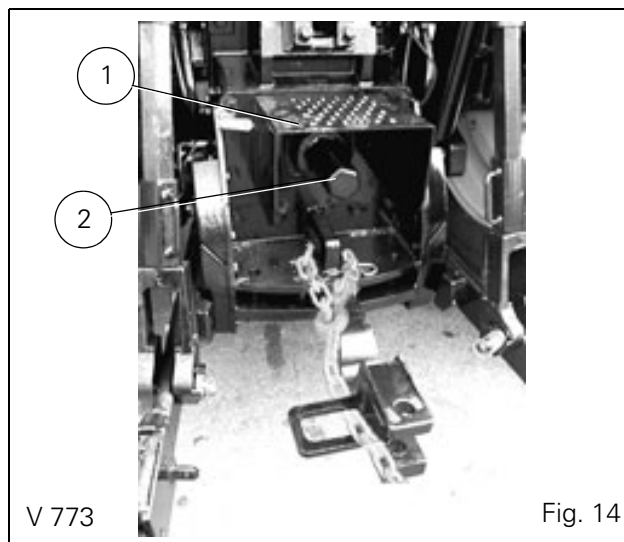
- **DO NOT PULL** anything using the top link connection or from any point above the center line of the rear axle. Always use an AGCO-approved drawbar and only use a lockable drawbar pin.
- High hitching can cause rear overturn, which may cause serious injury or death. Only hitch loads to the drawbar.
- Only use a three-point linkage drawbar when stays are fitted to keep the drawbar in the down position.
- Use front counterweights to increase tractor stability when towing heavy loads or to counterbalance the weight of a heavy rear-mounted implement.
- Start forward slowly and gradually increase your speed. **DO NOT** reverse or release the clutch. If a heavy load or immovable object is attached to the tractor, the wrong gear ratio may cause the tractor to overturn.
- If the front end of the tractor starts to lift, reduce your speed and, if necessary, disengage the clutch.

## 2 . INTRODUCTION - SAFETY INSTRUCTIONS AND WARRANTY

- If the tractor is bogged down in mud or frozen to the ground, **DO NOT ATTEMPT** to drive forward. The tractor could 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 you get stuck in a ditch, **REVERSE**, if possible. If you must go forward, do so slowly and carefully.
- A bare tractor or a tractor with rear-mounted attachments should turn around and travel forward downhill.
- A tractor with a loaded front-end bucket should reverse downhill. Keep the loader bucket as low as possible.
- Always keep the tractor in gear when going downhill. **DO NOT ALLOW** the tractor to coast with the clutch disengaged or the transmission in neutral.

### 2.13.7 - Other risks


- Ensure that the PTO guard (1) and PTO cap (2) are fitted when the PTO shaft is not in use (Fig. 14).



- Before attaching, detaching, cleaning or adjusting PTO-driven implements, disengage the PTO, stop the engine, remove the ignition key and make sure that the PTO transmission shaft has stopped.
- Ensure that all the PTO shaft guards are in place and check the presence of all safety decals (Fig. 15).



- Ensure that everyone is clear of the machine before engaging the PTO. For stationary PTO operation, place the transmission lever in neutral, engage the hand brake and chock the wheels of the tractor and the implement.
- When operating mobile PTO-driven attachments, **DO NOT** leave the tractor seat until the PTO is disengaged, the transmission is in neutral, the hand brake is engaged, the engine is off and the ignition key is removed.
- **DO NOT** use PTO adaptors, reducers or extensions as they extend the PTO coupler and universal joint out beyond the protection offered by the guard.
- The use of drawbars and lift rods must not allow the threads to show.

 **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.**

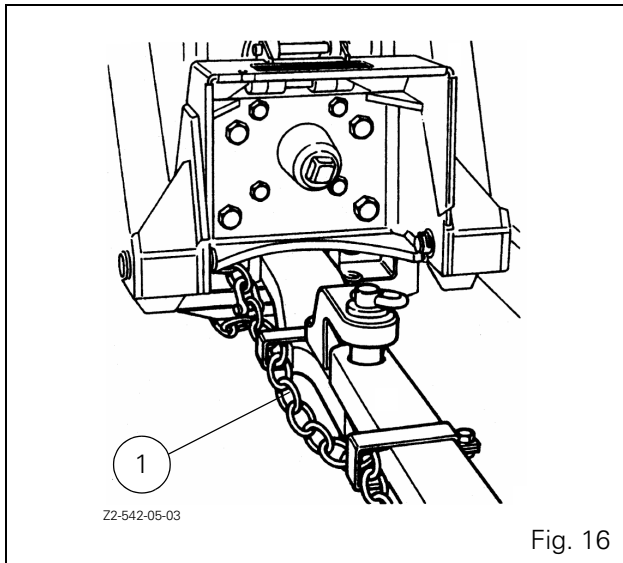
- When using chemicals, follow the chemical manufacturer's instructions for use, storage and disposal carefully. Also follow the manufacturer's instructions with regard to the application of chemicals on attachments.
- When operating in poor visibility conditions or at night, use the tractor work lights and reduce your forward speed (**DO NOT** use the work lights when travelling on a road because rear white lights are illegal except when reversing and may confuse following drivers).
- Operate the tractor using tires that are of a suitable width for the particular task you are performing. To adjust tire width, see the Servicing and Adjustments chapter.
- Reduce your speed when operating over rough or slippery ground and when foliage restricts your view.
- **DO NOT** make sharp turns at high speed.

### 2.13.8 - Implements and attachments

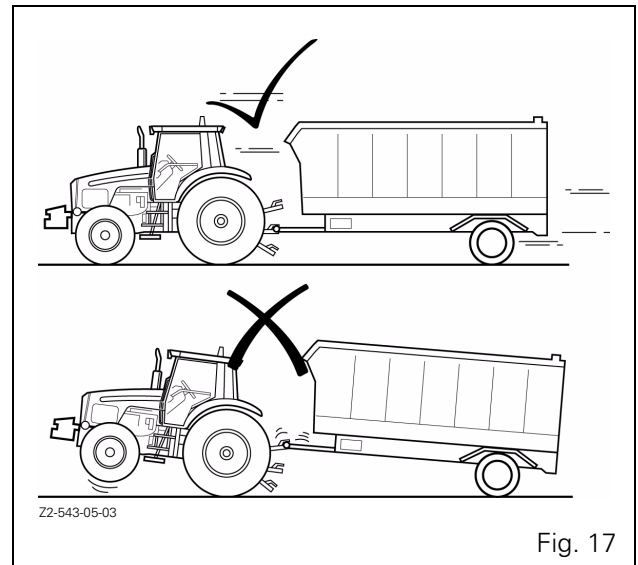


**WARNING:** A front-end loader (bucket or fork) must be fitted with a suitable holding device to prevent the load (bales, fence posts, rolls of fence, wire, etc.) from rolling down the lift arms into the operator cab and crushing the operator when the loader is raised. Inadequately secured objects could also fall and injure bystanders.

- Implements fitted to the three-point hitch or to the side of the machine make a much larger arc when turning than trailed attachments. Ensure there is sufficient clearance for turning. Use only AGCO-approved attachments.
- When using attachments or implements with the tractor, be sure to read and understand the instructions in the operator instruction book for that attachment or implement and follow the safety instructions. Use only AGCO-approved attachments and implements.
- **DO NOT** overload accessories or trailed attachments. Use appropriate counterweights to maintain tractor stability. Only hitch loads to the drawbar.
- A safety chain (1) will help control a trailed attachment should it be accidentally separated from the drawbar during transportation. Using the appropriate adaptor parts, attach the chain to the tractor's drawbar anchor or any other specified anchor point. Leave only enough slack in the chain to permit turning. Contact your AGCO Dealer to obtain a chain of equal or greater strength than the weight of the trailed machine (Fig. 16).



- Ensure that all trailed implements are fitted with a safety chain linking the tractor and the implement, if required by law (Fig. 16).
- Pull only from drawbars suitable for traction. Towing or attaching to other locations may cause the tractor to overturn (Fig. 17).



### 2.13.9 - Safety measures when towing

- For trailed attachments **WITHOUT** brakes, **DO NOT** tow these attachments:
  - at a speed over 32 kph (20 mph), or
  - if, when fully loaded, they weigh more than 1.5 t (3300 lb) and are more than 1.5 times heavier than the tractor.
- For trailed attachments **WITH BRAKES**, **DO NOT** tow these attachments:
  - at a speed over 40 kph (25 mph), or
  - if, when fully loaded, they are more than 4.5 times heavier than the tractor.

**NOTE:** The tractor must be fitted with a suitable trailer brake system which is connected to the attachment.

Stopping distance increases with the speed and weight of trailed attachments and on hills and slopes. Trailed loads, with or without a brake system, which are too heavy for the tractor or which are towed too fast can cause loss of control. Keep in mind the total weight of the attachment and its load.

## 2 . INTRODUCTION - SAFETY INSTRUCTIONS AND WARRANTY

### 2.13.10 - Tractor towing

#### IMPORTANT:

1- Creeper gear must be disengaged and the gearbox in neutral.

2- Engine shut down or out of hydraulic fluid: Transport by trailer is recommended. As the gearbox is no longer lubricated when the engine is stopped, tow the tractor no further than 50 m (160 ft) and **DO NOT EXCEED A SPEED OF 5 kph (3.11 mph)**.

3- Engine running: Stop the engine. Wait 10 minutes for the low pressure to drop. Start the engine and do not touch any gearbox controls to keep transmission lubricated. The tractor can be towed over a short distance, less than one kilometer (0.6 miles). **DO NOT EXCEED A SPEED OF 5 kph (3.11 mph)**.

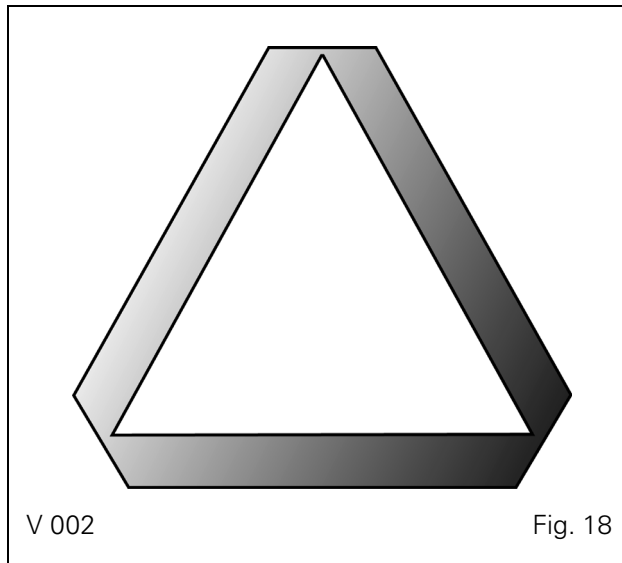
If the gearbox oil pressure indicator light comes on, only tow the tractor on a trailer.

### 2.13.11 - Road use

Take the following precautions before using the tractor on a public road.

- Observe current national laws and local regulations relating to tractor use.
- Lock the brake pedals together.
- Place all implements in transport position and lock into place.
- Place all implements in their narrowest transport configuration.
- Disengage the PTO and differential lock.
- Ensure that any abnormal load flags or hazard warning lights are in place and in working order.
- Clean all reflectors and main beams, front and rear, and ensure they are in working order.

Ensure that the tractor and attachment are fitted with emergency warning triangles and other markings recommended to improve visibility when driving on roads, unless otherwise indicated (Fig. 18).



### 2.13.12 - Highway code

When operating the tractor on a public road, the following precautions must be taken.



**WARNING: NEVER allow any passengers to ride on the tractor or trailed attachment.**

- Familiarize yourself with the road you will be travelling on.
- Turn on hazard warning lights when travelling on roads, day or night, unless prohibited by law.
- Take care when towing a load at transport speed, especially if the trailed attachment is NOT fitted with brakes.
- Observe all current local and national regulations regarding the permitted road speed for a tractor.
- Exercise extreme 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, gentle turns.
- Signal your intent to slow, stop or turn.
- Shift to a lower gear before going up or down hills.
- Keep the tractor in gear at all times. Do not coast with the clutch disengaged or the transmission in neutral.
- Stay out of the path of oncoming traffic.
- Drive in the correct lane, keeping as close to the curb as possible.
- If traffic builds up behind you, pull off the road and let it pass.
- Drive carefully. Anticipate what other drivers might do.
- When towing a load, start braking sooner than usual and slow down gradually.
- Watch out for overhead obstructions.

- Ensure that the load does not obscure hazard warning lights or other lights.

### 2.14 - SAFETY — AFTER OPERATION

Whenever stopping, bring the tractor to a complete halt, apply the hand brake and disengage the PTO.

**Dyna-4 transmission: Move the reverse shuttle lever into neutral,**

lower the implement to the ground, stop the engine and remove the ignition key **BEFORE** leaving the operator's seat.

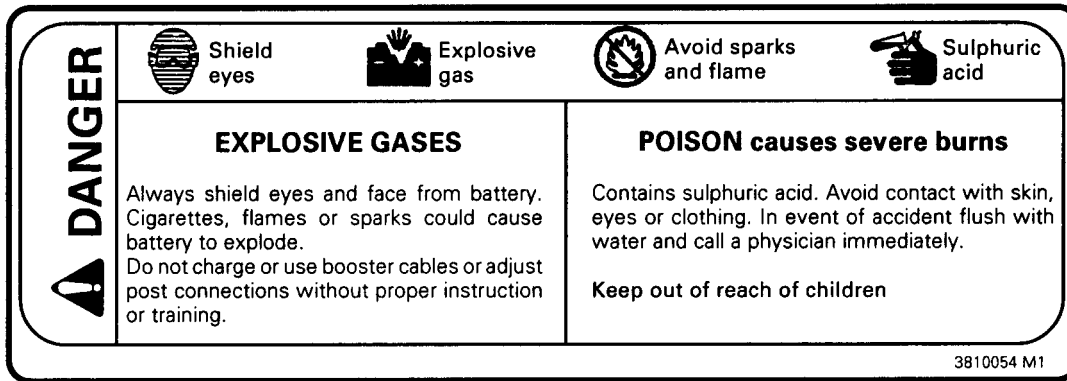


***DANGER: Power Shuttle Always place the gearbox in neutral before leaving the operator's seat.***

***Remove the ignition key if the tractor is to be left unattended.***

## 2 . INTRODUCTION - SAFETY INSTRUCTIONS AND WARRANTY

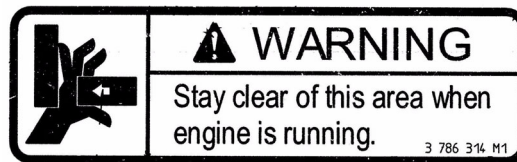
### 2.15 - DESCRIPTION OF DECALS



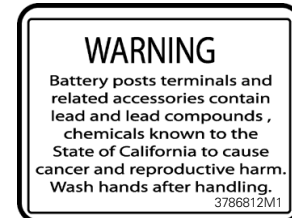
Located on the batteries.



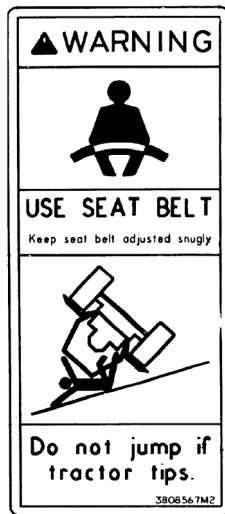
Located on the right-hand inner pillar of the cab.



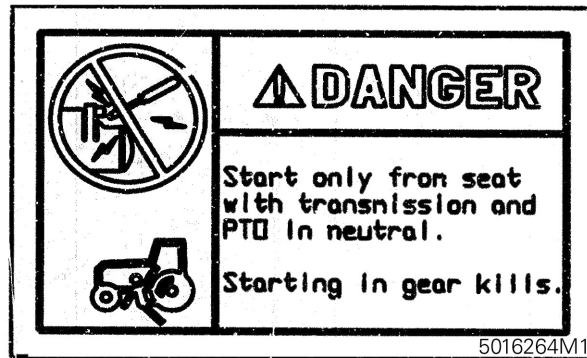
Located at the bottom right and left of the hood panels.



Located on the batteries.



Located on the left-hand inner pillar of the cab.



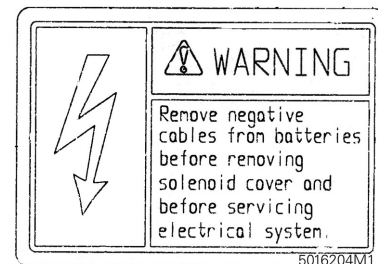
Located on the batteries.



Located on the accumulator.

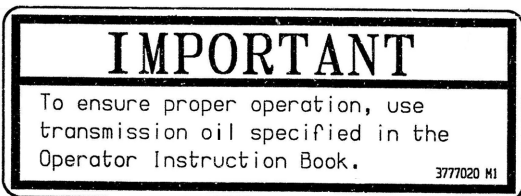


Located on the left-hand inner pillar of the cab.



Located on the battery box and the cab window.

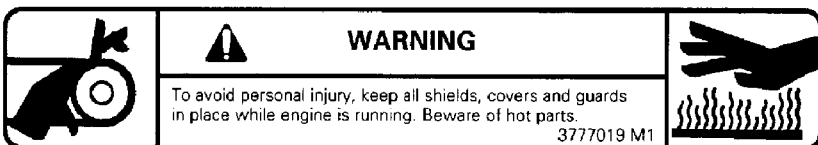
## 2. INTRODUCTION - SAFETY INSTRUCTIONS AND WARRANTY



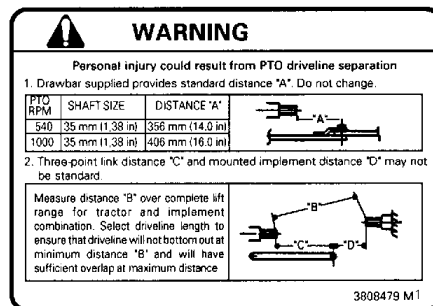
Located on the fenders at the rear of the tractor.



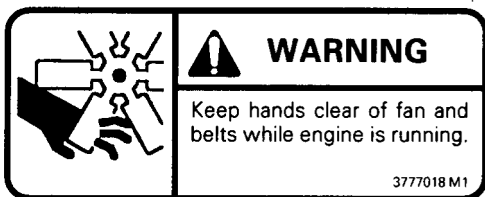
Located on top of the hood (access to radiator cap).



Located on either side of the radiator.



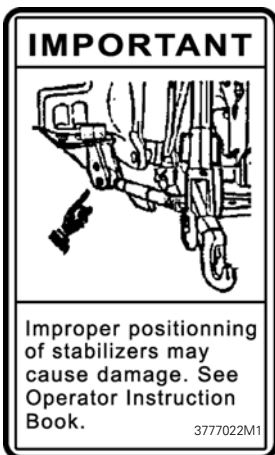
Located on the fenders at the rear of the tractor.



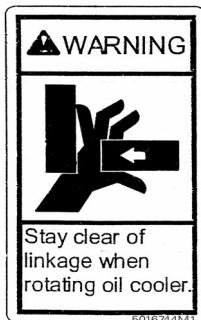
Located on either side of the radiator.



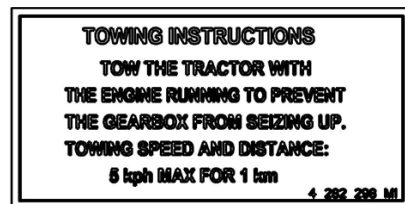
Located on the fenders at the rear of the tractor.



Located on the stabilizers.



Located on either side of the radiator.



Located on the inside window of the cab.





*Chapter 3*  
***INSTRUMENTS AND CONTROLS***



**CONTENTS**

3.1 - INSTRUMENT PANEL ..... 3.5

3.2 - INDICATOR LIGHT PANEL..... 3.6

3.3 - PEDALS ..... 3.7

3.4 - STEERING WHEEL ..... 3.7

3.5 - SEAT ..... 3.9

3.6 - RIGHT-HAND CONSOLE ..... 3.11

3.7 - LEFT-HAND CONSOLE..... 3.11

3.8 - UPPER CONSOLE ..... 3.13

    3.8.1 Air-conditioning system ..... 3.14

3.9 - SUN VISOR ..... 3.15

3.10 - ROOF HATCH ..... 3.15



### 3 . INSTRUMENTS AND CONTROLS

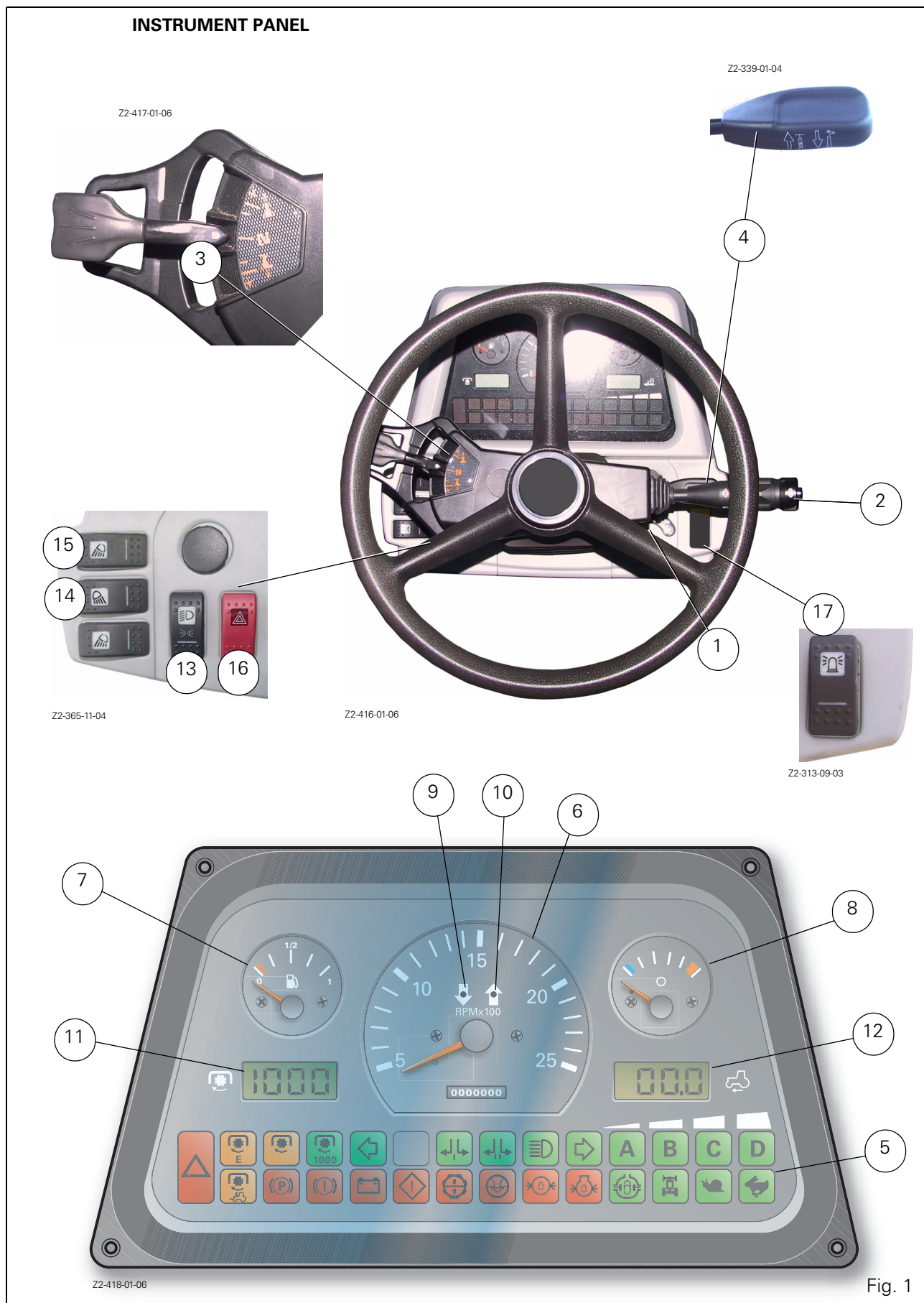


Fig. 1

#### 3.1 - INSTRUMENT PANEL

(Fig. 1)

1. Start switch (see detail in Fig. 2).
  1. Stop.
  2. Contact position to be used for electrical equipment when the engine is not running.
  3. Contact position to be used for electrical equipment when the engine is running.
  4. Preheater.
  5. Start-up.

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

2. Control unit (see detail in Fig. 3).
 

This assembly comprises the direction indicator, windshield wiper, front and rear windshield washer and horn.
3. Power Shuttle control.
4. Steering wheel adjustment (see detail in Fig. 6).
5. Indicator light panel.
 

See detail (Fig. 4).
6. Tachometer.
 

The tachometer shows the engine speed in hundreds of revolutions per minute. The time counter shows the actual work time.
7. Fuel gauge.
8. Engine coolant temperature gauge.
 

The green zone shows the normal operating temperature range. Stop the engine if the needle moves into the red zone.
9. Shuttle reverse indicator light.
10. Shuttle forward indicator light.
11. Power take-off speed digital display.
12. Forward speed digital display.
13. Side lights and low beams.
14. Rear work lights (operational when sidelights are switched on).
15. Front work lights (operational when sidelights are switched on).
16. Hazard warning lights and control switch.
 

When this button is pressed, the front and rear flashing lights come on together with the corresponding indicator lights on the instrument panel.
17. Rotary beacon switch (platform version only).

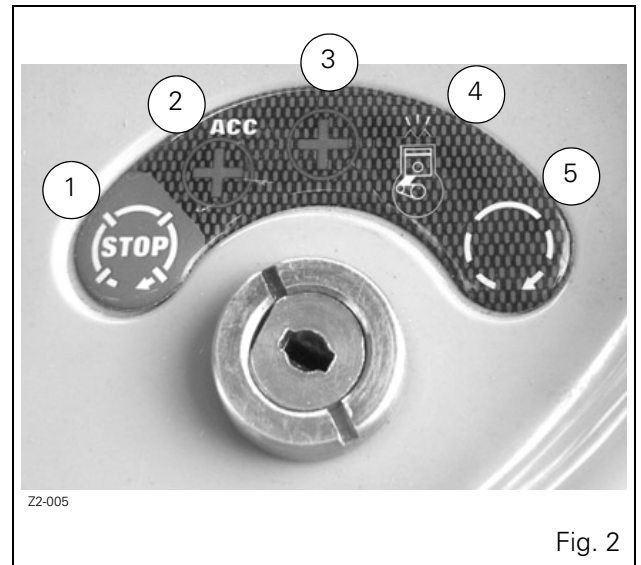


Fig. 2

Legend:

1. Windshield wiper
  - J. Intermittent
  - 0. Stop
  - I. First speed
  - II. Second speed
2. Left-hand indicator
3. Right-hand indicator
4. Horn
5. Headlights flash
6. Headlights
7. Rear and front windshield washer

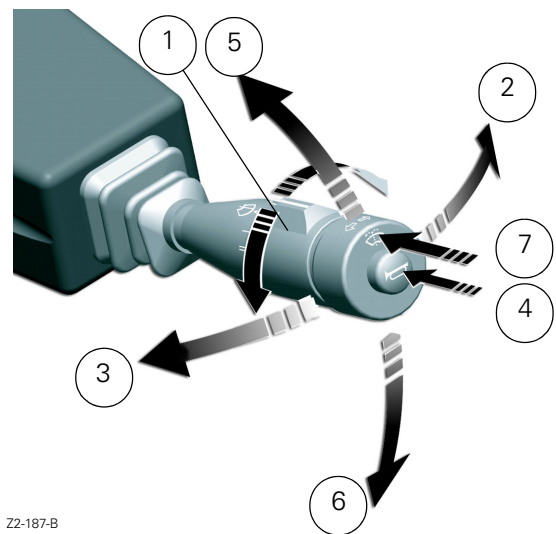


Fig. 3

## 3 . INSTRUMENTS AND CONTROLS

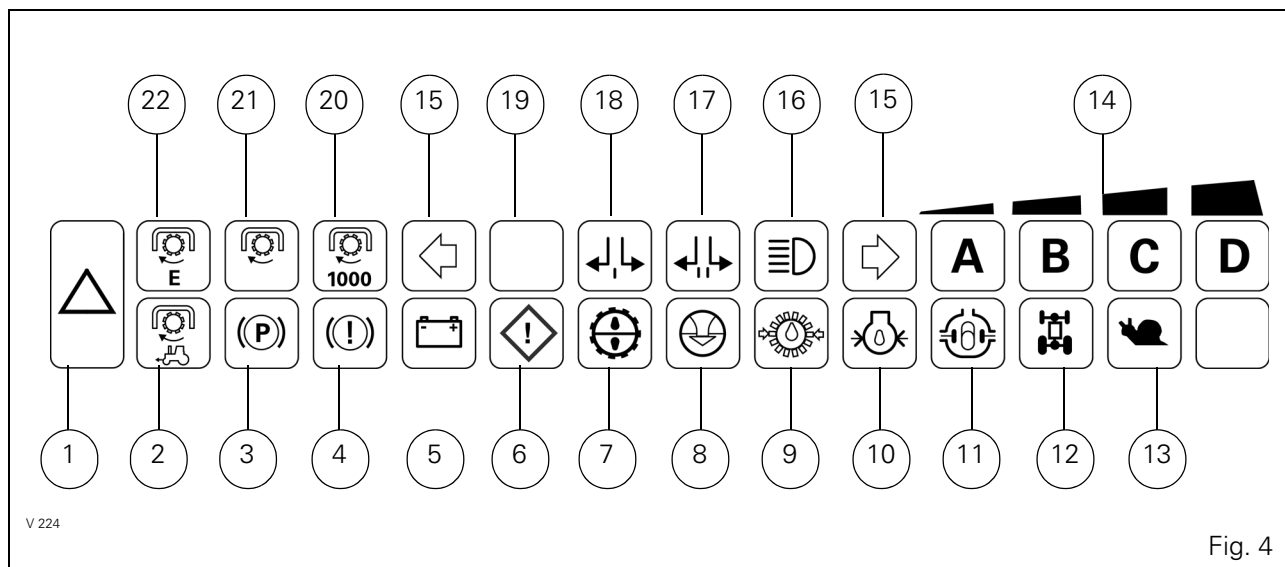


Fig. 4

### 3.2 - INDICATOR LIGHT PANEL

(Fig. 4)

#### 1. Failure warning light (red).

This lights up at the same time as the warning lights (red). If it comes on, stop the tractor immediately and determine the cause of the failure.

#### 2. Proportional power take-off engaged indicator light (yellow).

#### 3. Hand brake indicator light (red).

#### 4. Not used.

#### 5. Alternator charge light (red).

This charge indicator light comes on when the ignition key is in the **contact** position, but the engine is not running. It should switch off when the engine is running and the ignition key has returned to the **contact** position. If the indicator light comes on when the engine is running, stop the engine and determine the cause of the failure or consult your dealer.

#### 6. Failure warning light.

#### 7. 15-micron transmission oil filter blockage indicator light or 150-micron strainer blockage indicator light (red).

If this indicator light stays on after starting the engine, **immediately stop** the engine and check the lubrication filter and lubrication system. If the problem persists after replacing the filter, consult your dealer.

#### 8. Air filter blockage indicator light (red).

#### 9. 17 bar low-pressure oil pressure indicator light (red).

If this indicator light comes on during operation, consult your dealer.

#### 10. Engine oil pressure light (red).

This indicator light comes on when the ignition key is in the **contact** position, but should switch off when the engine is started and is running. If the indicator light stays on when the engine is running, stop the engine and determine the cause of the low pressure or consult your dealer.

#### 11. Differential lock indicator light (yellow).

#### 12. Four-wheel drive indicator light (green).

#### 13. Creeper gear operating indicator light (green) (if fitted).

#### 14. Speed ratio indicator lights (green).

#### 15. Direction indicator lights (green).

#### 16. Main beam indicator light (blue).

#### 17. Direction indicator light for the second trailer (green).

#### 18. Direction indicator light for the first trailer (green).

#### 19. Not used.

#### 20. 1000 rpm power take-off engaged indicator light (yellow).

#### 21. 540 rpm power take-off engaged indicator light (yellow).

#### 22. Economy power take-off engaged indicator light (yellow) (if fitted).

### 3.3 - PEDALS

(Fig. 5)

1. Clutch pedal.

This is fitted with a safety start switch. The clutch pedal must be depressed fully before operating the starter switch.

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

2. Brake pedals.

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

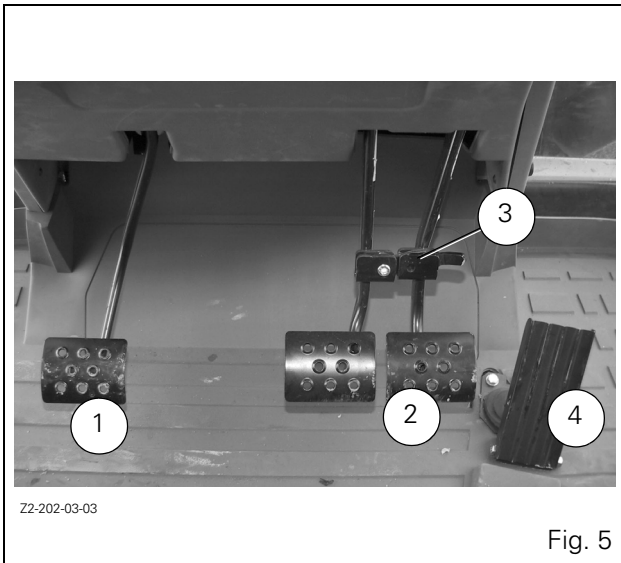
3. Brake pedal locking latch.

4. Throttle pedal.

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



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

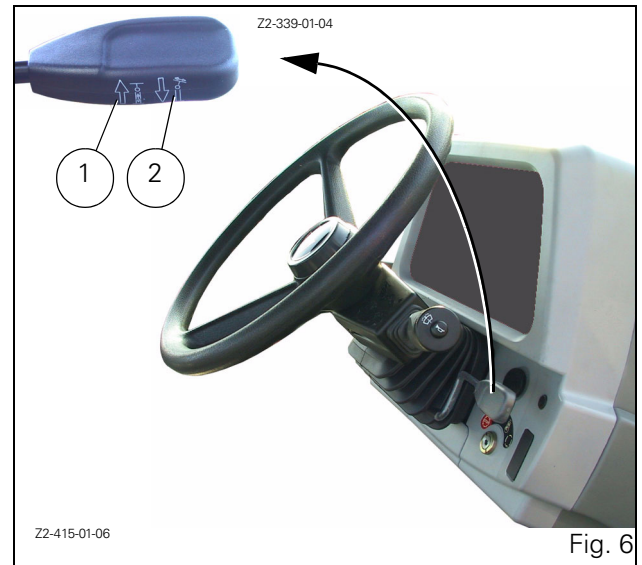


### 3.4 - STEERING WHEEL

(Fig. 6)

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

- Height adjustment: Pull the lever upwards to adjust the height (1 Fig. 6).
- Tilt adjustment: Push the lever to adjust the tilt (2 Fig. 6).



### 3 . INSTRUMENTS AND CONTROLS

**Mechanical sus-  
pension seat**



**Pneumatic suspen-  
sion seat**



**Mechanical suspen-  
sion seat, suspen-  
sion platform**

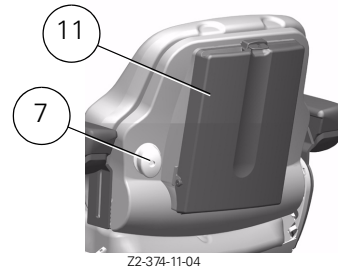
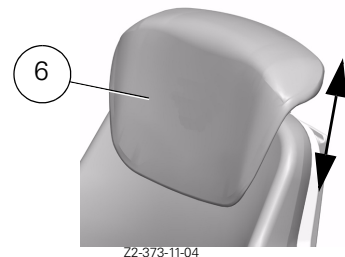
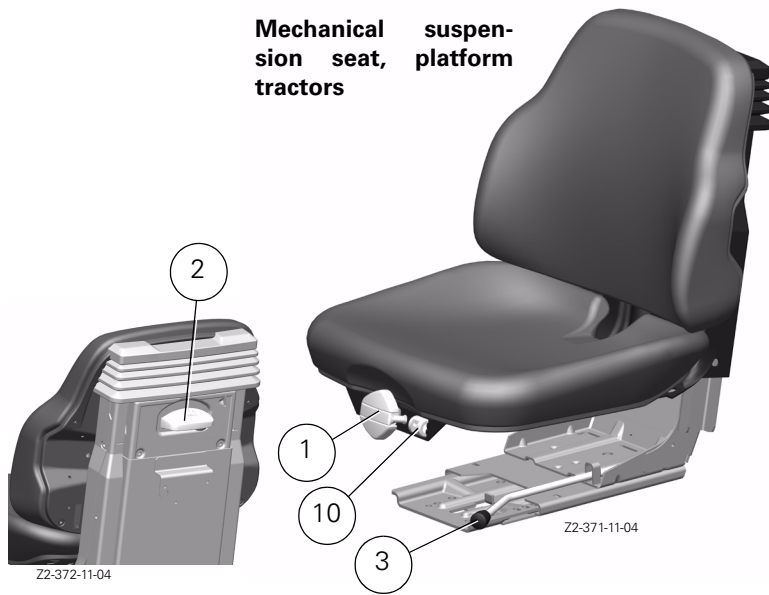


Fig. 7



### 3.5 - SEAT

Several seat models (Fig. 7) may be fitted, depending on the options and type of cab.



**WARNING:** *Never adjust the seat when the tractor is in motion.*

#### 1. Weight adjustment:

Your seat should be adjusted to suit your weight. Weight is indicated by the reference mark (10).

##### - Pneumatic suspension seat:

Press or pull the adjustment handle to increase or decrease the weight. Adjustment should be made with the operator in the seat.

**NOTE:** *To avoid damage, do not operate the compressor for more than 1 minute.*

##### - Mechanical suspension seat:

Turn the lever to increase or decrease the weight. Adjustment should be made without the operator in the seat.

**NOTE:** *It is advisable to check the operator's weight setting and adjust it as necessary before starting the engine.*

#### 2. Seat height adjustment:

Once the weight has been set, adjust the seat height.

##### - Pneumatic suspension seat:

Press or pull the adjustment handle to increase or decrease the height.

##### - Mechanical suspension seat:

Turn the lever to increase or decrease the height.

#### 3. Legroom adjustment:

Raise the lever, adjust the legroom position then release the lever.

#### 4. Backrest angle adjustment:

Pull the lever, adjust the backrest angle then release the lever.

#### 5. Seat rotation adjustment:

Pull the lever until you feel resistance which allows you to turn the seat 20° to the left and 10° to the right. Lockable every 10°.

There will be a click when the lever locks into place. The swivel should be in the central position for driving.

#### 6. Headrest:

Adjust the headrest extension height by raising or lowering it until it stops (it audibly clicks into its adjustment notches).

The headrest extension can be removed by pulling it upwards past the stop.

#### 7. Lumbar support adjustment:

Adjust the lumbar support by turning the handle to either the left or the right.

#### 8. Fore/aft shock absorber:

In certain conditions (driving with a trailer attached), it is advisable to activate the fore/aft shock absorber. This means that shock impacts in the direction of travel can be better absorbed by the seat.

#### 9. Armrest angle adjustment:

The armrests can be tilted backwards and their height can be adjusted as necessary by turning the thumb wheels underneath them.

#### 10. Height/weight adjustment indicator light

#### 11. Storage space for books and user instructions

### 3 . INSTRUMENTS AND CONTROLS



Fig. 8

#### 3.6 - RIGHT-HAND CONSOLE

(Fig. 8)

1. Hand throttle.
2. Transmission lever.
3. Electronic linkage control.
4. External hydraulic spool valve control levers.
5. 4WD and differential lock switch.
6. 540/1000 rpm rear power take-off switch.
7. Power socket for connection of accessories.

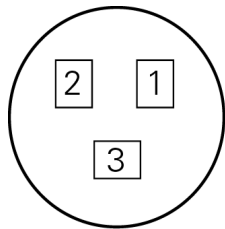
Maximum available power:

Terminal 1 = 30 A

Terminal 2 = 5 A switched if lit

Terminal 3 = Earth

**NOTE:** A female plug (P/N 1714005) which connects to this power socket is available from your dealer.



8. Diagnostics connector.
9. DIN attachment points for additional control unit and storage tray.
10. Economy power take-off control lever (if fitted).
11. Creeper gear lever (if fitted).
12. Cigarette lighter.
13. Rotary beacon switch.
14. Rear windshield wiper switch (if fitted).
15. Auto-hitch control switch (if fitted).
16. Auto-hitch release lever.
17. Speedshift control switch.
18. High/low speed control switch.
19. Range changeover button.
20. Reverse shuttle control knob.
21. Power take-off speed display selector switch (540/1000).
22. Hydraulic pump coupling switch (if fitted).
23. Range selection display.

#### 3.7 - LEFT-HAND CONSOLE

(Fig. 9)

24. Hand brake.
25. Instructor seat (optional).
26. Storage tray.
27. Cup/can stand.
28. Bottle stand.

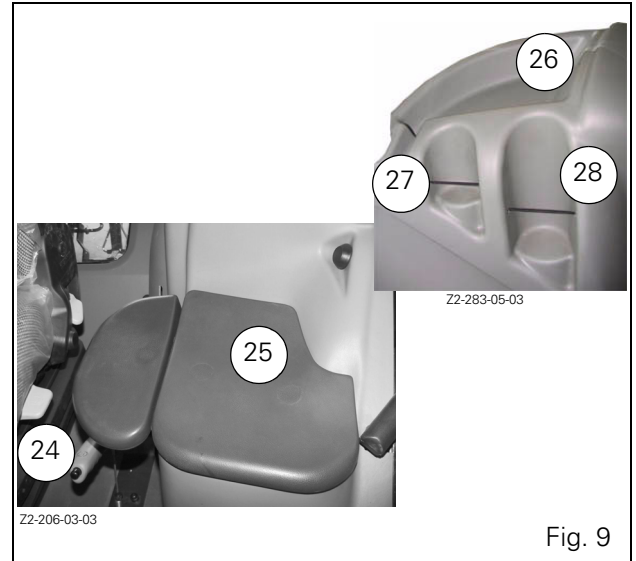
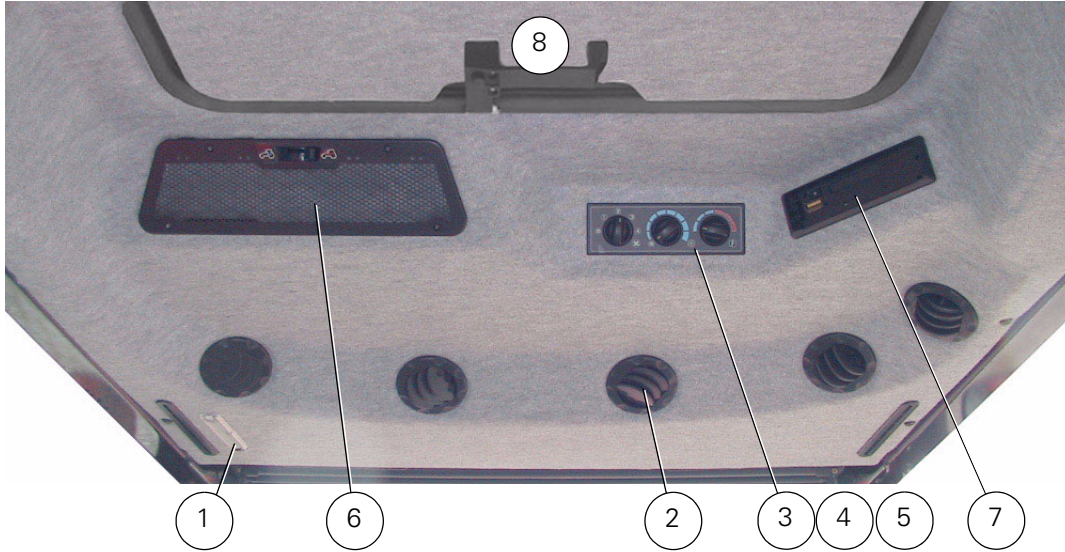


Fig. 9

### 3 . INSTRUMENTS AND CONTROLS

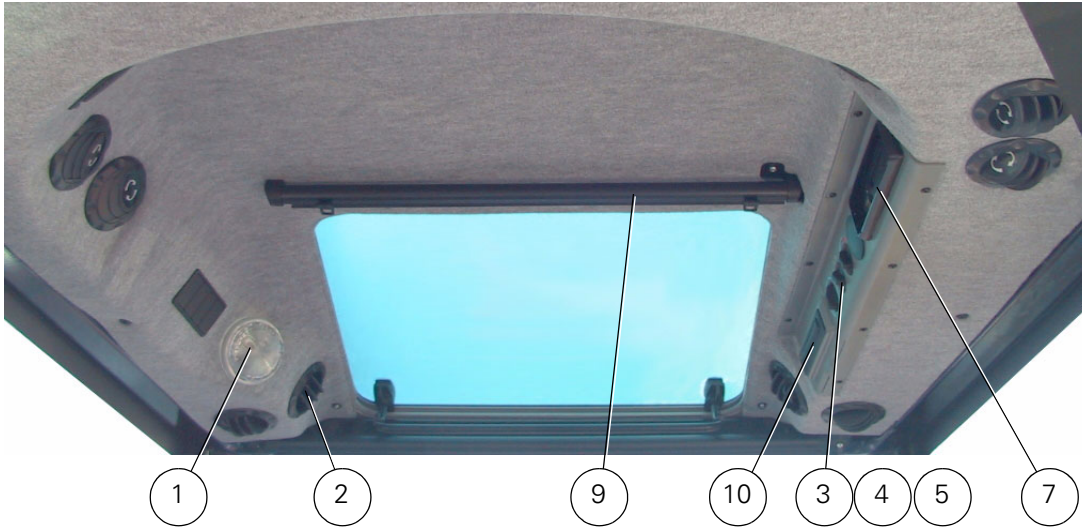
Z2-361-10-04

**Standard roof**

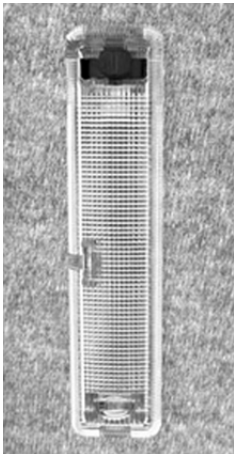


Z2-396-12-04

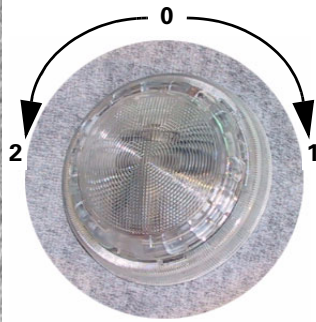
**High-visibility roof**



2 ← 0 → 1



Z2-216-11-04



Z2-376-11-04



Z2-217-03-03



Z2-218-03-03

Fig. 10

#### 3.8 - UPPER CONSOLE

1. Interior light.  
By activating the 3-position switch or rotating the 3-position knob (high-visibility roof) (Fig. 10):  
0 - off position  
1 - light comes on when opening the left-hand door  
2 - permanently on
2. Adjustable air circulation vents.
3. Air-conditioning control knob (see detail in Fig. 13).
4. Heater controls (see detail in Fig. 13):  
blue = cold  
red = warm
5. Ventilator/heater fan control (3 or 4 speeds) (see detail in Fig. 13).
6. Adjustable ventilation grille (see detail in Fig. 11).  
**A:** Outside air intake  
**B:** Recirculation
7. Radio slot.
8. Roof hatch (see detail in Fig. 10).
9. Roof sun visor (high-visibility roof only).
10. Chiller (high-visibility roof only, see detail in Fig. 12).  
**A:** Chiller  
**B:** Adjustable ventilation grille

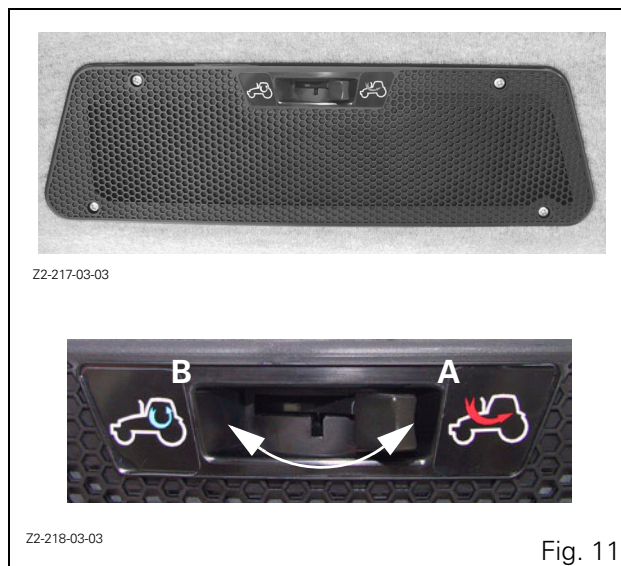


Fig. 11



Fig. 12

## 3 . INSTRUMENTS AND CONTROLS

### 3.8.1 - Air-conditioning system

**IMPORTANT:** When the air-conditioning system is in use, the cab doors and windows must be closed. Do not use the air-conditioning system when the temperature falls below 20°C. Turn off the system before starting up the engine.

#### Operation:

Ensure that the cab air filter is clean (see chapter 5).

- With the engine running, turn knob 3 to cold (turn in clockwise direction until the knob reaches its stop limit).
- Move fan switch 5 to fast position.
- When the required cab temperature is reached, adjust the temperature control knob to maintain a comfortable temperature.
- Reduce the fan speed to obtain a comfortable temperature.

**NOTE:** If a low fan speed and a low temperature are used for long periods, the evaporator may start to ice up. If icing occurs, adjust the temperature control knob to raise the temperature and, if the icing continues, increase the fan speed.

**NOTE:** If the air-conditioning system has not been used for some time, unlock the compressor before starting the engine by rotating the pulley nut with a wrench.

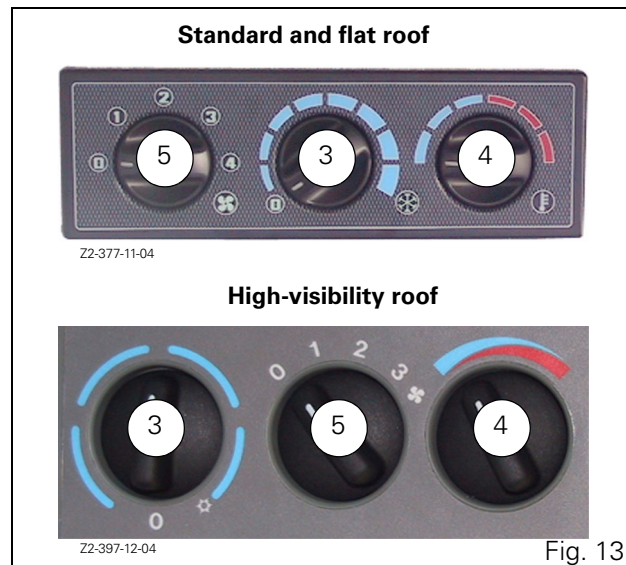


**CAUTION:** To prevent seizure of the compressor and keep the cooling system in good condition, the air conditioning must be operated for a few minutes at least once a week, even in winter.

**ENSURE THAT THE FREON LEVEL IN THE SYSTEM IS CHECKED ONCE A YEAR BY YOUR DEALER.**



**WARNING:** Do not attempt to disassemble any part of the air-conditioning system.

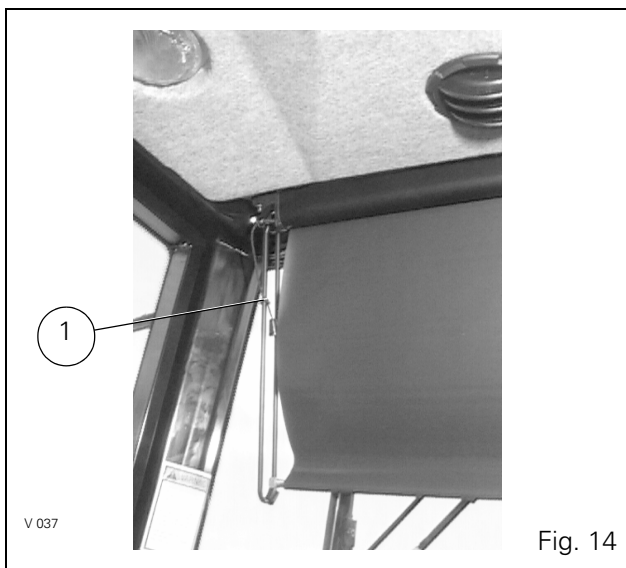


#### 3.9 - SUN VISOR

(Fig. 14)

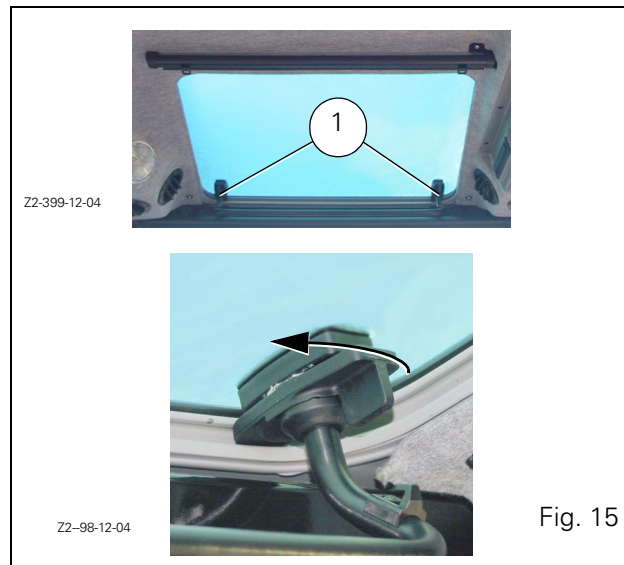
To adjust the sun visor, pull down vertically to desired position.

To raise the sun visor, pull the cord (1).



#### 3.10 - ROOF HATCH

The sunroof hatch is used to ventilate the cab. It is opened at the front by turning the two locks (1) located at either side of the sunroof.







*Chapter 4*  
**OPERATION**

**4**



## CONTENTS

<b>4.1 - RUNNING-IN</b> .....	<b>4.5</b>
4.1.1 The following precautions should be taken during the running-in period.....	4.5
<b>4.2 - STARTING UP</b> .....	<b>4.5</b>
4.2.1 Starting the engine.....	4.5
<b>4.3 - STOPPING THE ENGINE</b> .....	<b>4.6</b>
<b>4.4 - DRIVING THE TRACTOR</b> .....	<b>4.6</b>
4.4.1 Foot throttle.....	4.6
4.4.2 Choosing the correct gear ratio.....	4.6
4.4.3 Tractor towing.....	4.6
<b>4.5 - TRANSMISSION</b> .....	<b>4.7</b>
4.5.1 Engaging the transmission.....	4.7
4.5.2 Transmission control.....	4.7
4.5.3 Selecting the ratio at start-up.....	4.8
4.5.4 Hand brake.....	4.8
4.5.5 Power Shuttle.....	4.8
4.5.6 Creeper gearbox.....	4.9
<b>4.6 - BRAKES</b> .....	<b>4.10</b>
<b>4.7 - DIFFERENTIAL LOCK</b> .....	<b>4.10</b>
<b>4.8 - POWER TAKE-OFF (PTO)</b> .....	<b>4.11</b>
4.8.1 Interchangeable 540 and 1000 rpm PTO achieved by changing the shaft.....	4.11
4.8.2 Shiftable PTO 540 and 1000 rpm.....	4.11
4.8.3 Proportional PTO.....	4.12
4.8.4 Economy PTO.....	4.13
<b>4.9 - STEERING</b> .....	<b>4.13</b>
<b>4.10 - ELECTRONIC LINKAGE</b> .....	<b>4.14</b>
4.10.1 Attaching an implement from the operator's seat.....	4.15
4.10.2 Lowering.....	4.15
4.10.3 Lifting.....	4.15
4.10.4 Depth control.....	4.15
4.10.5 Attaching an implement using external controls.....	4.16
4.10.6 Transport.....	4.17
4.10.7 Active transport control system.....	4.17
4.10.8 Operation when working.....	4.18
4.10.9 Operation at headlands.....	4.18
<b>4.11 - AUXILIARY HYDRAULICS</b> .....	<b>4.19</b>
4.11.1 Types of spool valve or equipment.....	4.19
4.11.2 Hydraulic spool valve control.....	4.19
4.11.3 100 l/min (26.4 gal/min) open center.....	4.21
<b>4.12 - THREE-POINT LINKAGE</b> .....	<b>4.22</b>
4.12.1 Lower links.....	4.22
4.12.2 Top link.....	4.22
4.12.3 Lift rods.....	4.23
4.12.4 Stabilizers.....	4.24
4.12.5 Adjustment procedure.....	4.25
<b>4.13 - DRAWBARS AND HITCHES</b> .....	<b>4.26</b>
4.13.1 Multi-hole drawbar.....	4.26
4.13.2 Swinging drawbar.....	4.26
4.13.3 Stud for semi-mounted trailer.....	4.26
4.13.4 Roller type swinging drawbar.....	4.27

## **4 . OPERATION**

---

4.13.5	4-wheel trailer clevis hitch . . . . .	4.27
4.13.6	"Dromone" auto-hitch . . . . .	4.28
<b>4.14 -</b>	<b>TRANSMISSION CONTROL . . . . .</b>	<b>4.29</b>
4.14.1	Differential lock control . . . . .	4.29
4.14.2	Four-wheel drive front axle . . . . .	4.29
4.14.3	Power take-off control . . . . .	4.29
4.14.4	Speed limitation . . . . .	4.29
4.14.5	Cold temperature conditions . . . . .	4.29
4.14.6	Super creeper gears . . . . .	4.29
4.14.7	Hydraulic pressure (low pressure) . . . . .	4.29

## 4.1 - RUNNING-IN

### 4.1.1 - The following precautions should be taken during the running-in period

1. Experience has shown that the first 50 hours of tractor operation have a significant effect on the performance and life of the engine.
2. From the first operation, the tractor must run with the engine at almost full load. The engine should always be allowed to reach a temperature of 60°C (140°F) before being subjected to full load.
3. It is quite normal for oil consumption to be on the high side during the running-in period. Therefore, during running-in, the engine oil level must be checked twice a day during the first 50 hours of operation to avoid the risk of lubrication failure.
4. During running-in, check the tightness of all nuts, bolts and screws frequently. The wheel nuts must be retightened daily until their torque has stabilized (see chapter 5).

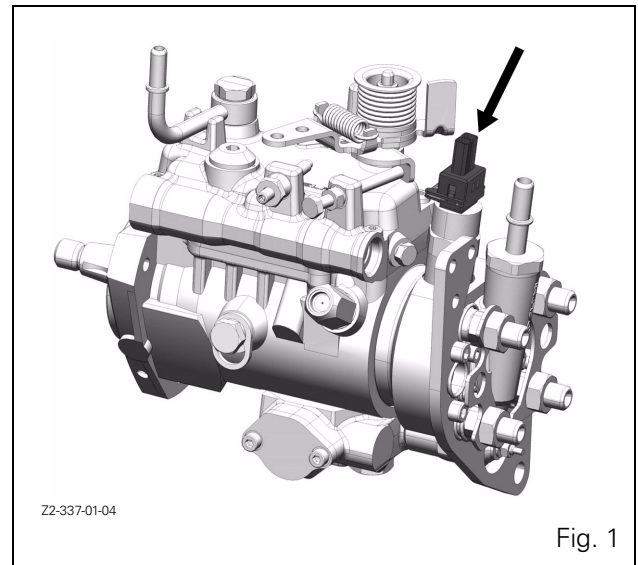


Fig. 1

## 4.2 - STARTING UP

**IMPORTANT:** Before starting the tractor, refer to the Service Guide, chapter 5.



**DANGER:** Never run the engine in an enclosed space. Never run the engine unless you are sitting at the steering wheel of the tractor.



**CAUTION:** After a long period of no use, run the engine on the starter for about ten seconds to lubricate the turbocharger bearings. To prevent the engine from being started up, disconnect the wire (Fig. 1)

### 4.2.1 - Starting the engine

**WARNING:** Check that the reverse shuttle lever is in neutral and that the hand brake is on.

1. Turn the ignition key to position 2. All indicator lights should come on. If a lamp has blown, replace it before starting the tractor.
2. Keep your foot down on the clutch. Start the engine and release the clutch.

## 4 . OPERATION

---

### 4.3 - STOPPING THE ENGINE

Reduce the engine rpm to idling for a few seconds, then turn the ignition key to the "Stop" position.



**CAUTION:** *Do not stop the turbocharger engine suddenly when the engine is running at a high speed, because the turbine will continue turning on its own but will no longer be lubricated. Slow the engine before stopping it.*

*After turning off the engine, the wet clutch is in the disengaged position. Make absolutely certain that the hand brake is on before leaving the seat.*

### 4.4 - DRIVING THE TRACTOR

#### 4.4.1 - Foot throttle

Use of the foot throttle enables you to exceed the engine speed set by the hand throttle. When the foot throttle pedal is released, the engine rpm returns to that set by the hand throttle.



**CAUTION:** *When using the foot throttle, the hand throttle should be placed in the idle position.*

*Do not keep your foot on the clutch pedal or keep it halfway engaged.*

*Always descend slopes with the tractor in gear and the clutch disengaged.*

*When turning on headlands with heavy mounted implements, reduce the engine rpm.*

*Steering is not power assisted when the engine is not running.*

#### 4.4.2 - Choosing the correct gear ratio

Select the ratio which gives the optimum fuel consumption without overloading the engine and the transmission. Bear in mind that soil conditions can vary within a few yards in the same field. Select a ratio which allows the engine to operate comfortably at about 75% of its maximum power.

#### 4.4.3 - Tractor towing

*1- Creeper gear must be disengaged and the gearbox in neutral.*

*2- Engine shut down or out of hydraulic fluid: Transport by trailer is recommended. As the gearbox is no longer lubricated when the engine is stopped, tow the tractor no further than 50 m (160 ft) and DO NOT EXCEED A SPEED OF 5 kph (3.11 mph).*

*3- Engine running: Stop the engine. Wait 10 minutes for the low pressure to drop. Start the engine and do not touch any gearbox controls to keep transmission in neutral. Allow the engine to run to keep the transmission lubricated. The tractor can be towed over a short distance, less than one kilometer (0.6 miles). DO NOT EXCEED A SPEED OF 5 kph (3.11 mph).*

*If the gearbox oil pressure indicator light comes on, only tow the tractor on a trailer.*

## 4.5 - TRANSMISSION

The Dyna-4 transmission has 16 gear ratios. It has four ranges and four Powershift ratios. All these ratios may be selected without touching the clutch pedal.

### 4.5.1 - Engaging the transmission

When the tractor is started up, the transmission is disengaged (gearbox in neutral). Before selecting a transmission ratio, the gearbox must be engaged:

- either by pressing button D Fig. 2 until display B Fig. 2 appears
- or by lifting lever E Fig. 3 until display B Fig. 2 appears.

### 4.5.2 - Transmission control

Transmission lever A Fig. 2 controls all the ratios. The selected range (1, 2, 3 or 4) is displayed on screen B Fig. 2. The selected Powershift ratio (A, B, C or D) is displayed on the instrument panel (see chapter 3).

*NOTE: Reverse shuttle lever E Fig. 3 may also be used to change the Powershift ratios (see § Power Shuttle).*

#### 4.5.2.1 - Range shifting

To shift range, operate lever A Fig. 2 while holding down button D Fig. 2.

#### Moving forward

While holding down button D Fig. 2, push lever A Fig. 2 forward to shift to the higher range, pull back on lever A Fig. 2 to shift to the lower range.

#### Moving backward

While holding down button D Fig. 2, pull back on lever A Fig. 2 to shift to the higher range, push lever A Fig. 2 forward to shift to the lower range.

*NOTE: It is not possible to shift more than one range at a time. Ranges must be shifted one by one, holding down button D Fig. 2 for each shift.*

#### Speedmatching function

When shifting range, the electronic controller automatically selects the appropriate Powershift ratio based on the tractor speed. This function prevents underspeed and overspeed.

#### 4.5.2.2 - Shifting Powershift ratios

The Powershift ratio is changed by operating lever A Fig. 2 or the reverse shuttle lever (see § Power Shuttle). Shifting can be carried out in pulses or by holding the lever in position and changing ratios one after the other.

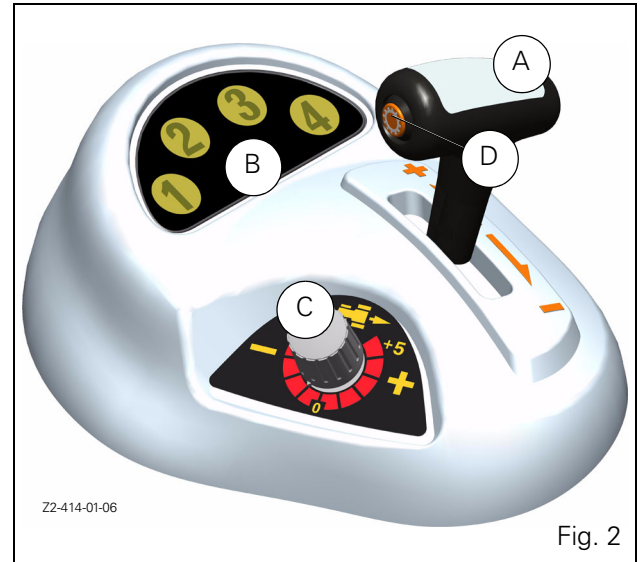
#### Moving forward

Push lever A Fig. 2 forward to shift to the higher ratio, pull back on lever A Fig. 2 to shift to the lower ratio.

#### Moving backward

Pull back on lever A Fig. 2 to shift to the higher ratio, push lever A Fig. 2 forward to shift to the lower ratio.

*NOTE: An warning signal is sounded if the user operates the lever again after reaching the last Powershift ratio (A or D) in a range. The audible signal notifies the user that he must select the higher or lower range (depending on the situation).*



## 4 . OPERATION

---

### 4.5.2.3 - Placing in neutral

It may be necessary to place the gearbox in neutral (disengage the transmission), so that, for example, the tractor can be towed.

Press button D Fig. 2 until display B Fig. 2 goes out (to re-engage the transmission, see § Engaging the transmission).

### 4.5.3 - Selecting the ratio at start-up

Depending on the option the tractor has, the gear ratio engaged when the tractor is started can be preselected. Any ratio from 1A to 4A can be chosen.



**DANGER: Carry out the following steps on a level surface, with the hand brake applied.**

#### 4.5.3.1 - No preselection

At start-up and after the transmission has been engaged, the gearbox is automatically engaged in the last ratio used before the tractor was stopped. Every time the tractor is stopped, the current ratio is stored in the controller's memory, and this ratio is used when the tractor is started up again (either forward or reverse travel).

If the ratio at start-up is not the one that is required, it can be changed while the tractor is stationary with the engine running. There are two possible methods:

#### Using the transmission lever

- Check that the transmission is engaged and reverse shuttle lever E Fig. 3 is in neutral.
- Press down on the clutch pedal.
- Move transmission lever A Fig. 2 to select the desired Powershift ratio, and also press button D Fig. 2 to shift to a higher or lower range.
- Release the clutch pedal.

#### Using the reverse shuttle lever

- Check that the transmission is engaged.
- Press down on the clutch pedal.
- Place reverse shuttle lever E Fig. 3 in forward or reverse travel.
- Move reverse shuttle lever E Fig. 3 to select the desired Powershift ratio, and also press button D Fig. 2 to shift to a higher or lower range.
- Move reverse shuttle lever E Fig. 3 back to neutral.
- Release the clutch pedal.

#### 4.5.3.2 - With preselection

At start-up and after the transmission has been engaged, the gearbox is automatically placed in the ratio stored in the memory.

The preselected ratio is stored in the controller's memory and this ratio is used whenever the engine is started up (in forward or reverse travel) until the preselection is changed.

The ratio at start-up can be preselected while the engine is running and the tractor is traveling slower than 5 kph (3 mph). There are two possible methods:

#### Using the transmission lever

- Check that the transmission is engaged and reverse shuttle lever E Fig. 3 is in neutral.
- Press down on the clutch pedal.
- Keep button D Fig. 2 pressed down.
- Move transmission lever A Fig. 2 to select the range and the desired Powershift ratio.
- Release button D Fig. 2 and the clutch pedal.

#### Using the reverse shuttle lever

- Check that the transmission is engaged.
- Press down on the clutch pedal.
- Place reverse shuttle lever E Fig. 3 in forward or reverse travel.
- Keep button D Fig. 2 pressed down.
- Move reverse shuttle lever E Fig. 3 to select the range and the desired Powershift ratio.
- Release button D Fig. 2.
- Move reverse shuttle lever E Fig. 3 back to neutral.
- Release the clutch pedal.

**NOTE: When the tractor is standing still, the transmission automatically moves to the preselected ratio after two seconds.**

#### 4.5.4 - Hand brake

When the hand brake is applied at a speed below 2 kph (1.2 mph), the transmission is automatically placed in neutral.

An audible signal is sounded when the reverse shuttle is placed in forward or reverse travel while the hand brake is on.

#### 4.5.5 - Power Shuttle

Control located to the left of the steering wheel (Fig. 3).

The reverse shuttle control E Fig. 3 is used for rapid selection of forward or reverse travel; it is also used to change the Powershift ratios quickly or to control the tractor clutch. The reverse shuttle tempo may be adjusted according to user preference.



### Operation:

- Reverse shuttle: Place reverse shuttle control E Fig. 3 in the desired direction of travel; the corresponding indicator light on the instrument panel will come on. When the tractor is in motion, each change to the direction is made using the control ref. 1, without disengaging the clutch.
- Shifting Powershift ratios: When the lever is positioned in forward or reverse travel, push or pull the lever in pulses to increase or reduce the Powershift ratio according to the + and - symbols on the lever. Shifting can be carried out in pulses or by holding the lever in position and changing ratios one after the other.
- Clutch: Pull the lever upward to disengage the clutch; release the lever to engage it. The clutch control is proportional to the reverse shuttle lever.
- Reverse shuttle tempo: Use rotary knob C Fig. 2 to adjust the reverse shuttle tempo. The adjustment range is from +5 to -5.

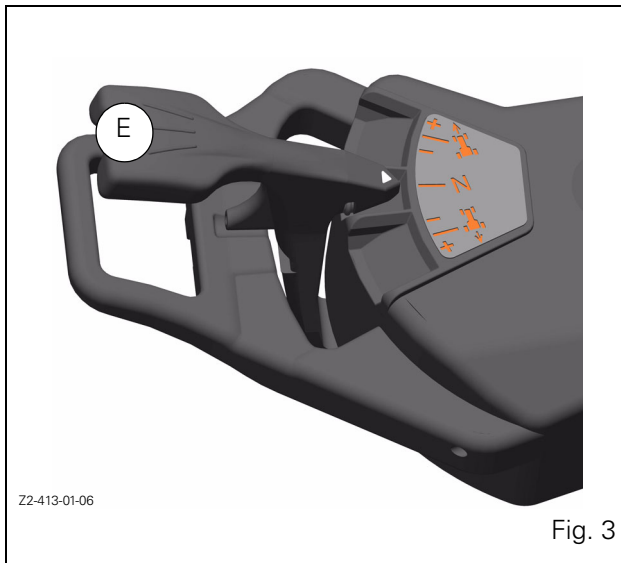


Fig. 3

**NOTE:** It is advisable to use the clutch pedal when the tractor is loaded and for all precise maneuvering (coupling of implements, etc.).



**DANGER:** Before leaving the seat, you must move reverse shuttle control E Fig. 3 to NEUTRAL position. Apply the hand brake.

### 4.5.6 - Creeper gearbox

If the tractor is fitted with a creeper gearbox, normal speeds are obtained when the lever is placed in "Hare/Tortoise" position and reduced speeds (4:1 or 14:1) when the lever is moved to "Snail" position.

**IMPORTANT:** 4:1 creeper gears should only be used in ranges 1 and 2. The transmission could be damaged if 4:1 creeper gears are used in ranges 3 or 4.

The 14:1 super creeper gears may be used in all ranges.

Only move the creeper gear lever when the tractor is completely stationary. Do not use weights or water ballast when in creeper mode.

Under no circumstances should the creeper gears be used to obtain a tractive power greater than that available in the normal range.

Move the lever at least once a month to prevent the system from seizing.

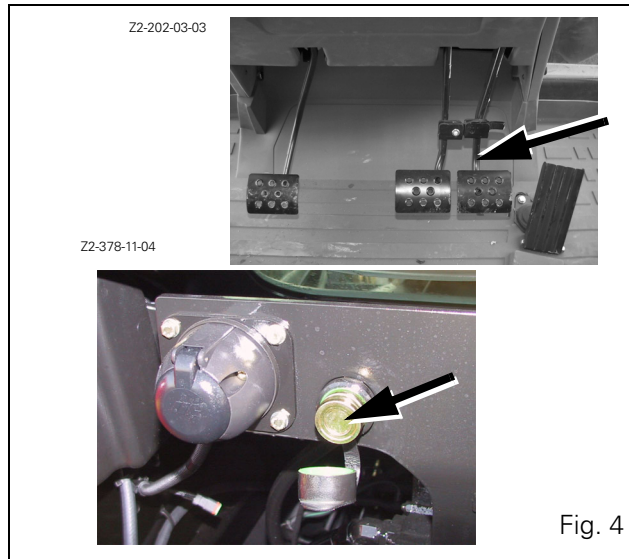


**DANGER:** Always place the transmission lever in neutral and reverse shuttle control lever E Fig. 3 in NEUTRAL position before leaving the operator's seat. Apply the hand brake.

**NOTE:** If the tractor is being used in conditions where water comes up as high as the wheel hubs, corrosion damage may occur on some of the components. Consult your dealer or agent with regard to sealing precautions. Failure to do so may invalidate the warranty.

## 4 . OPERATION

### 4.6 - BRAKES

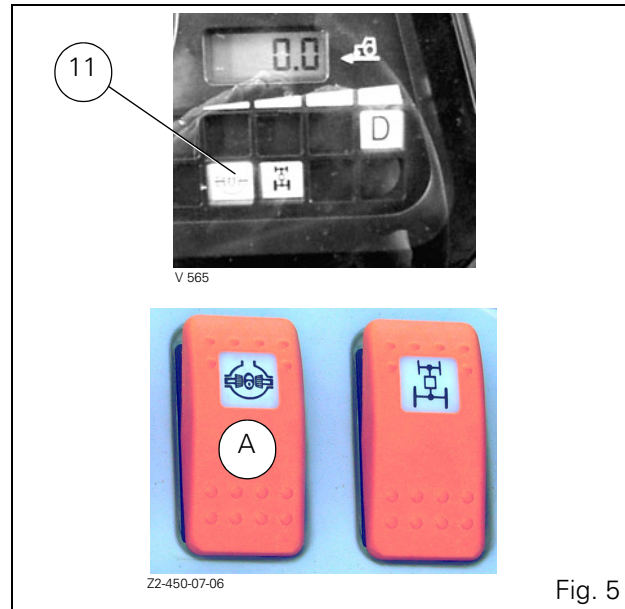


**DANGER:** When driving on the road, the two brake pedals must be locked together (Fig. 4). Only the foot throttle should be used, and the hand throttle lever must be in neutral.



**WARNING:** Trailer brakes (Fig. 4). To activate the trailer brakes, connect the trailer hose to the union at the rear of the tractor and lock the brake pedals together.

### 4.7 - DIFFERENTIAL LOCK



If wheel slip is anticipated, press on differential lock switch A. The differential lock and front axle indicator lights come on. In this case, the differential is locked and the front axle is engaged.

Automatic functions of the differential:

- When tractor speed exceeds 14 kph (8.70 mph) is reached, the differential lock disengages automatically. It is not automatically re-engaged when the speed drops below 14 kph (8.70 mph).
- When the linkage is placed in the raised or transport position, the differential lock disengages automatically, and is re-engaged when the linkage is in working position.
- The differential lock is permanently disengaged by pressing down on at least one brake pedal (uncoupled or not).

**DO NOT** engage the differential lock if a wheel is already spinning.

## 4.8 - POWER TAKE-OFF (PTO)



The power take-off (PTO) can be engaged and disengaged independently of the transmission. 540 rpm or 1000 rpm speeds can be obtained by selecting the appropriate ratio, which switches on the corresponding indicator light.

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

To engage the PTO, press knob 3 and turn it in a clockwise direction (Fig. 6).

Press or tap the knob to return it to neutral position. Always place the PTO in "PTO brake" position when not in use.



**WARNING:** Always disengage the PTO before attaching, detaching or adjusting an implement.

**Take all necessary safety precautions in any operation involving implements driven by the PTO.**

**When the power take-off is not in use, move the switch to PTO brake position.**

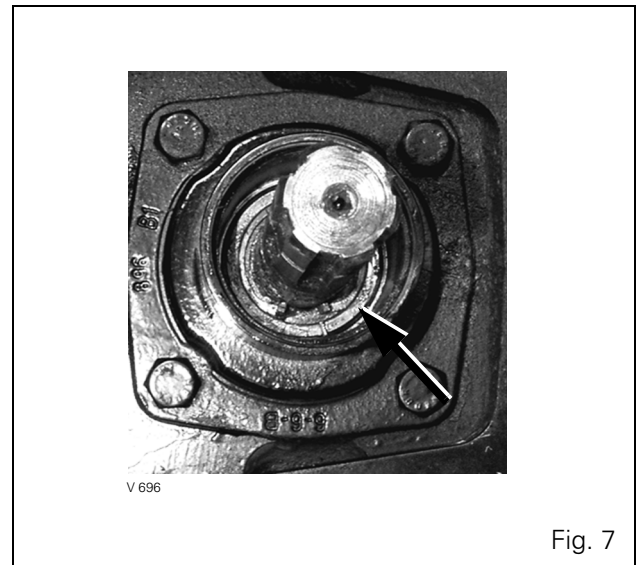
### 4.8.1 - Interchangeable 540 and 1000 rpm PTO achieved by changing the shaft

Shaft diameter 35 mm (1" 3/8) - 6 splines/540 rpm or 21 splines/1000 rpm at engine speed of 2000 rpm.

To change the shaft, raise the rear of the tractor to prevent oil from pouring out during the procedure. Remove the snap ring (Fig. 7) using pliers. Pull out the shaft and fit the other shaft, engaging the splines fully. Refit the snap ring.

**NOTE:** If possible, raise the rear of the tractor to carry out this operation to prevent oil from pouring out of the PTO hole.

**NOTE:** Ensure that the snap ring is correctly positioned. Replace it if it is damaged. Never use the tractor without a PTO shaft being fitted.



### 4.8.2 - Shiftable PTO 540 and 1000 rpm

This type of PTO is suitable for implements requiring different drive speeds for loading and unloading, for example self-loading trailers.

- Fixed shaft: A 6-spline single shaft with a diameter of 35 mm (1" 3/8) maintaining a speed of 540 rpm or 1000 rpm on the PTO shaft at 2000 rpm engine speed.
- Interchangeable shaft end 6 or 21-spline, 540 rpm or 1000 rpm at 2000 rpm engine speed (Fig. 8).

To change the shaft (Fig. 8):

- Position a pin or a crosshead screwdriver in the space provided, ref. A.
- Take out the 6 screws, ref. B.
- Fit the new shaft.
- Tighten to a torque between 72 Nm (53 lbf/ft) (minimum) and 96 Nm (71 lbf/ft) (maximum).

Either of the PTO speeds is selected using a lever (Fig. 10) located on the outside on the rear left side of the center housing or using the lever in the cab (Fig. 9).

## 4 . OPERATION

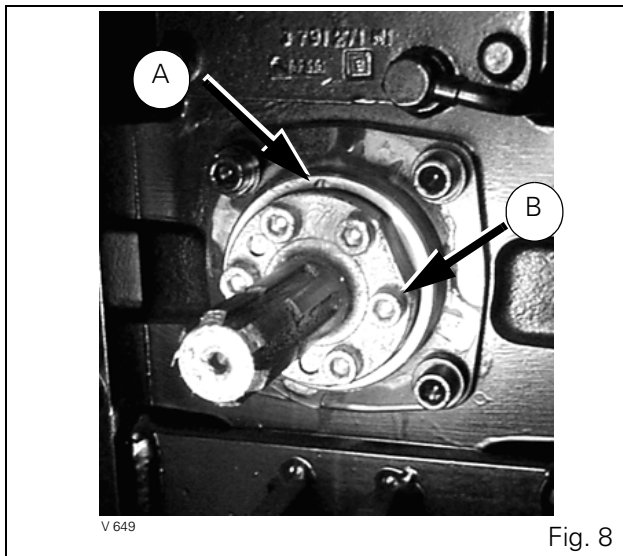


Fig. 8



Fig. 9



**CAUTION:** Place the synchro switch Fig. 10 in the correct position (540 or 1000 rpm). The PTO must be disengaged during the procedure.

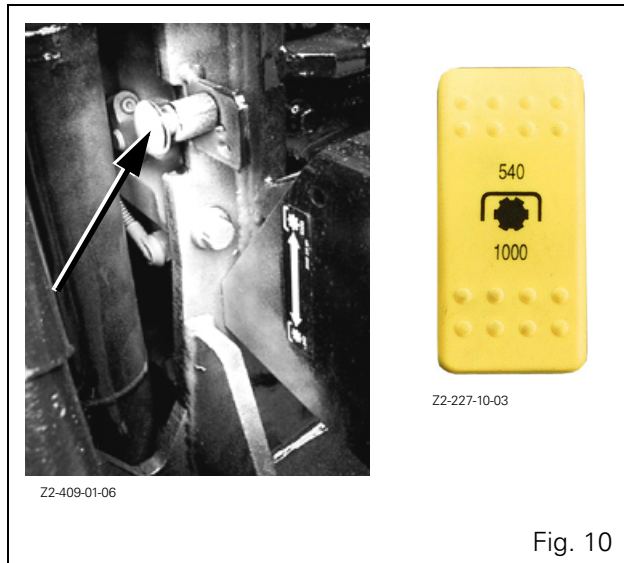


Fig. 10

### 4.8.3 - Proportional PTO

MT400B series tractors can be fitted with a proportional PTO as an optional extra.

**IMPORTANT:** The tractor speed should not exceed 20 kph when using the proportional PTO. Otherwise the transmission could be severely damaged.

Number of possible PTO turns for one turn of the wheel, by model:

Position	
540 RPM	7.78
1000 RPM	14.44

The PTO is engaged using the lever in the cab.  
The PTO must be disengaged during the procedure.

#### 4.8.4 - Economy PTO

Speeds of 540 rpm and 1000 rpm can be obtained at an engine speed of 2000 rpm (direct drive) or 1550 rpm (transporting light implements not requiring high engine power).



**NOTE:** Move the lever at least once a month to prevent the system from seizing.



**DANGER: Power take-off**

**Never go beyond the universal joint shaft.**

**Do not use the tractor or trailer drawbars as a step.**

**Never use the universal joint shaft as a step.**

**Never wear loose-fitting clothes.**

**Remain at a safe distance from the universal joint shaft.**

#### 4.9 - STEERING



**CAUTION:** The steering is hydrostatic. When the engine stops, the booster pump no longer feeds the system. Hydrostatic steering therefore shifts automatically to manual operation mode, which requires greater effort when turning the steering wheel. This mechanism ensures safe operation in all conditions of use. However, no hydraulic system can operate efficiently unless:

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

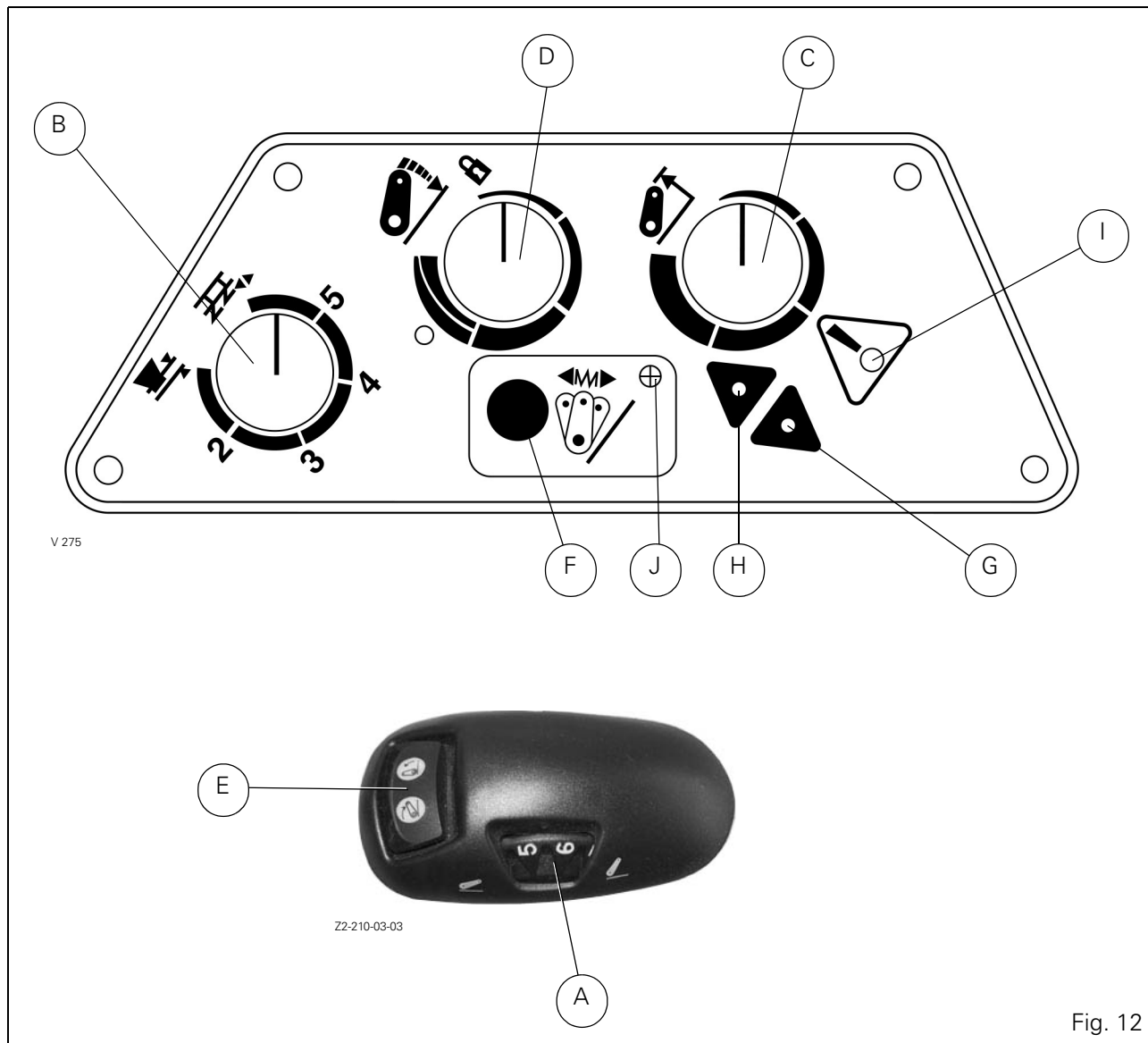


Fig. 12

### 4.10 - ELECTRONIC LINKAGE

(Fig. 12)

- A. Height/depth control knob.
- B. Function selector; position/intermix/draft.
- C. Maximum linkage height adjustment control.
- D. Manual or automatic adjustment of lowering speed.
- E. Lift/Lower selector switch with "neutral" position.
- F. Active transport control system button.
- G. Linkage lowering indicator light.
- H. Linkage lifting indicator light.
- I. Console locking and operating failure self-diagnostic indicator light.
- J. Active transport control system indicator light.

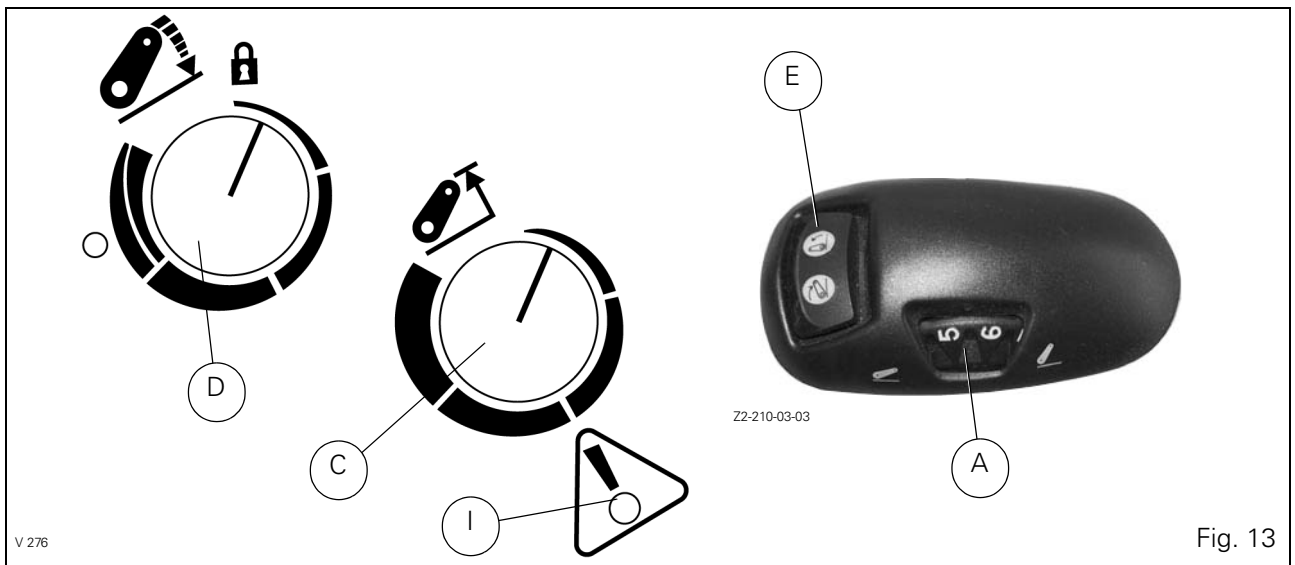


Fig. 13

**4.10.1 - Attaching an implement from the operator's seat**

Start the engine. Indicators I and J light up.

- J comes on for about 0.5 seconds.
- I stays on until the console is activated.
- Adjust the control knobs.
- Move the function selector knob (B Fig. 12) clockwise to the lowest control position.
- Move Lift/Lower selector switch E to the Lift position.
- Adjust the position of the arms using control knob A.
- Lifting indicator light H comes on.

**4.10.2 - Lowering**

To lower the drawbar, turn knob A counterclockwise. The lowering indicator light (G) comes on.

In automatic mode, the lowering speed is governed by two parameters: the weight of the implement and the forward speed.

Legend Fig. 14:

1. Lowering lock position.
2. Lowering speed slow.
3. Lowering speed fast.
4. Automatic mode.

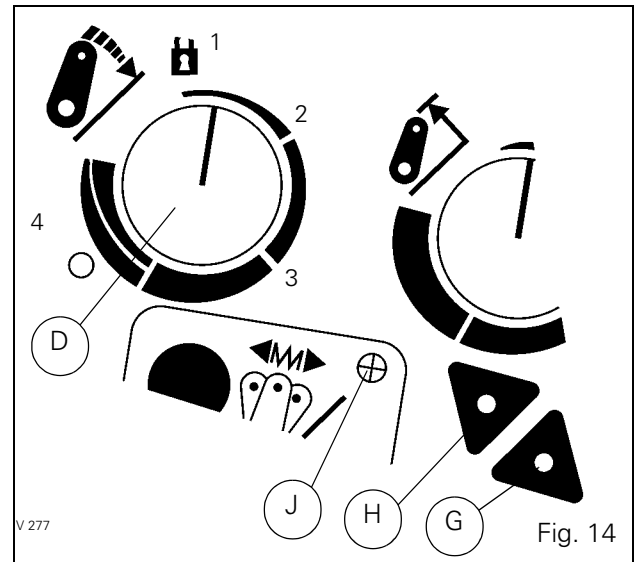


Fig. 14

**4.10.3 - Lifting**

To lift the drawbar, turn knob A clockwise. Lifting indicator light H comes on.

**4.10.4 - Depth control**

Positions 1 (min.) to 7 (max.) on knob A determine the working depth.

Between positions 8 and 9, the linkage is floating.

## 4 . OPERATION

### 4.10.5 - Attaching an implement using external controls

To use the external controls (Fig. 15), Lift/Lower selector switch E must be in the Neutral or Lower position.



**DANGER: Always place the transmission lever and reverse shuttle control lever in NEUTRAL before leaving the driver's seat.**

**Apply the hand brake.**

When selector switch E is in the Neutral or Lower position, pressing the external control buttons will cause the linkage to be lifted or lowered.

**NOTE: The arms stop moving as soon as the button is released.**

**When the external control is used, the lowering speed is 70% of the maximum speed (speed control D (Fig. 14) does not operate).**

For safety reasons, the linkage controls in the cab are automatically switched off when the external buttons are being used.

To switch the cab console controls back on, press selector switch E (Fig. 16).



Fig. 15



Fig. 16



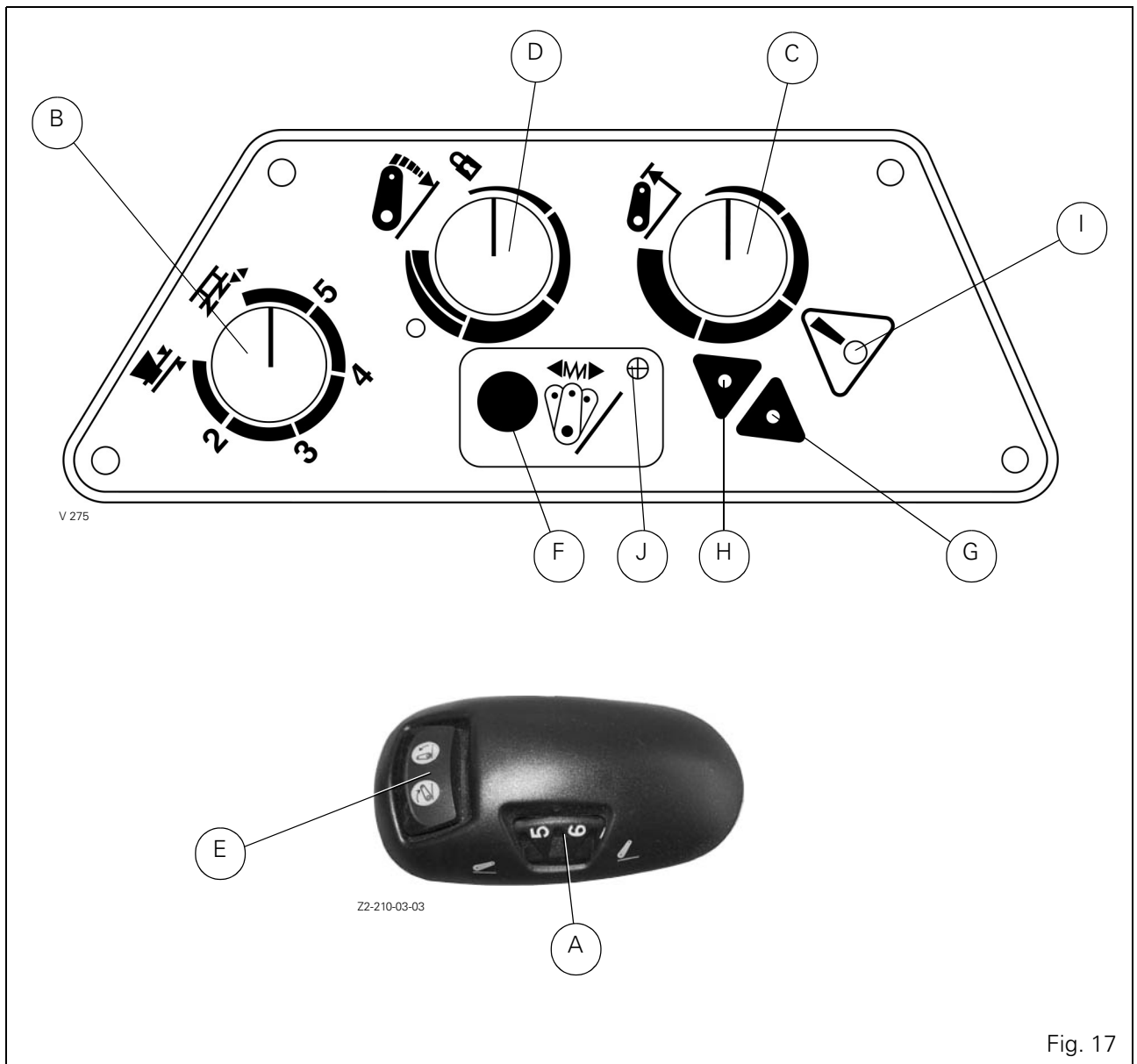


Fig. 17

#### 4.10.6 - Transport

- Select the lowest position with knob B, Fig. 17.
- Adjust the maximum linkage height according to the transport implement using height control knob C. Start from the lowest position.
- Move knob D to position 1 (padlock).

#### 4.10.7 - Active transport control system

- The system operates automatically when button F is pressed; indicator light J comes on.
- To deactivate this function, press button F.

**NOTE:** The transport control system is active at each start-up.

## 4 . OPERATION

### 4.10.8 - Operation when working

- Adjust the maximum lifting position using knob C.
- Using knob D, adjust the linkage lowering speed.
- Choose the appropriate control method (draft, position or intermix control), depending on the implement, the ground conditions and the type of work, using selector knob B (Fig. 18).
- Adjust the working depth using knob A.
- Lift and Lower indicator lights H and G indicate which operation is being carried out.

Subsoiling: positions 3 or 4.

Plowing: positions 3, 4 or 5.

Chisel: positions 2 or 3.

Shallow plowing: positions 3 or 4.

Position control, when the implement must be kept at a constant height - lowest position.

### 4.10.9 - Operation at headlands

(Fig. 19)

Move Lift/Lower switch E to the Lift position. The drawbar will rise to preselected maximum height C.

To resume work, move Lift/Lower selector switch E to "Lower". The settings previously made will be repeated.

**NOTE: A safety system, similar to a circuit breaker, puts the linkage system out of operation when the ignition is switched off, the engine is stopped (ignition switched off), or external controls are used.**

The purpose of this device is to avoid any accidental and dangerous movement of the arms if someone alters the settings on the console while the tractor is stationary.

To reactivate the linkage system, move switch E to the intermediate position, then to the lift position. The linkage is then operational.

Before reactivating the electronic linkage control (ELC), ensure that selection C and depth A knob settings cannot cause any dangerous movement of the lower links.

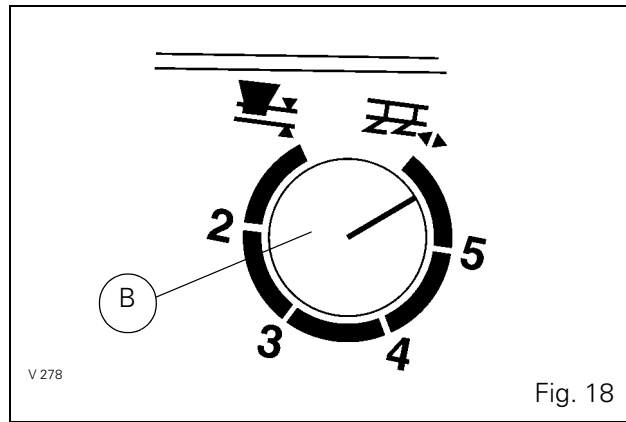


Fig. 18

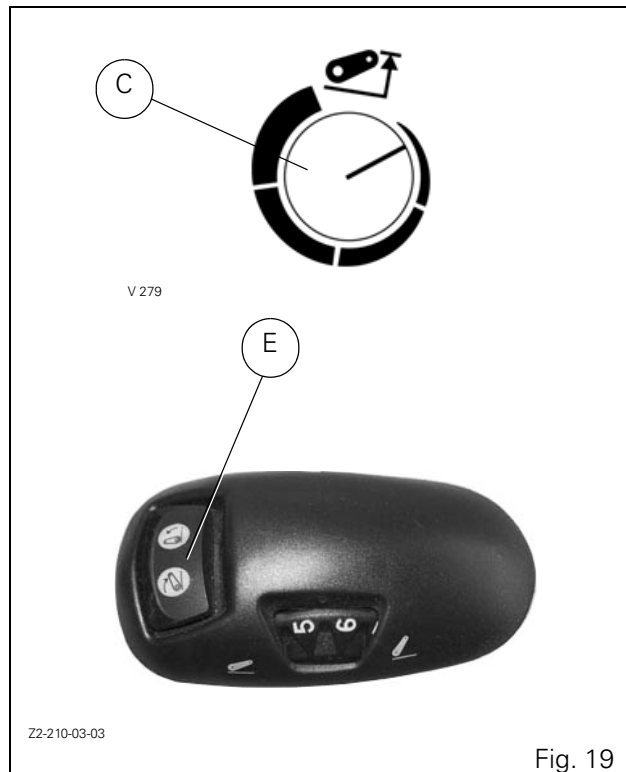


Fig. 19

## 4.11 - AUXILIARY HYDRAULICS

### 4.11.1 - Types of spool valve or equipment

Tractors are designed to be fitted with up to 4 spool valves.

#### Return to neutral. Convertible single/double acting.

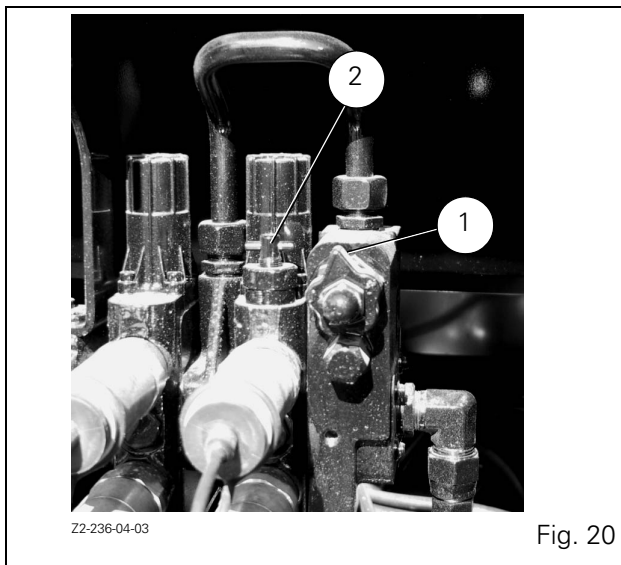
This is the standard type of spool valve. The lever returns to neutral when released.

#### Flow rate adjustment.

This is used to control the flow of oil to this spool valve.

This is recommended for implements requiring low quantities of oil, to ensure a precise flow rate, or to adjust the speed of hydraulic motors. It also maintains an adequate flow of oil so that the linkage and the external circuit may be used simultaneously.

To adjust the oil flow, turn knob 1 of the relevant spool valve (Fig. 20).



#### Zero leakage.

All spool valves have small internal leaks, which may cause small changes in the height settings. This spool valve avoids this problem.

#### "Floating" position. Double acting.

For spool valves fitted with this function, the floating position is obtained by pushing the lever forward beyond the automatic return to neutral position. The oil can then circulate freely and the implement follows the contours of the land.

#### Kick-out.

To switch from double to single acting, fully unscrew valve 2 (Fig. 20).

When the spool valve is activated, flow is continuous. The spool valve remains open until the pressure increases in the system. When the pressure increases, the spool valve automatically returns to neutral and the flow is stopped. The two feed and return hoses must be fitted vertically.

Other spool valves not available from the company can be obtained through your dealer from the supplier. However, in such cases, the company disclaims all responsibility for possible consequences.

*NOTE: Keep male and female couplers clean at all times.*

*NOTE: When using hydraulic implements taking a large quantity of oil out of the transmission (hydraulic motors, large capacity cylinders), top off the oil to the maximum level.*

### 4.11.2 - Hydraulic spool valve control

The spool valves are controlled by a lever fitted as standard or an optional mechanical joystick.

#### 4.11.2.1 - Standard spool valve lever (Fig. 21)

The control levers are located on the right-hand console.



## 4 . OPERATION

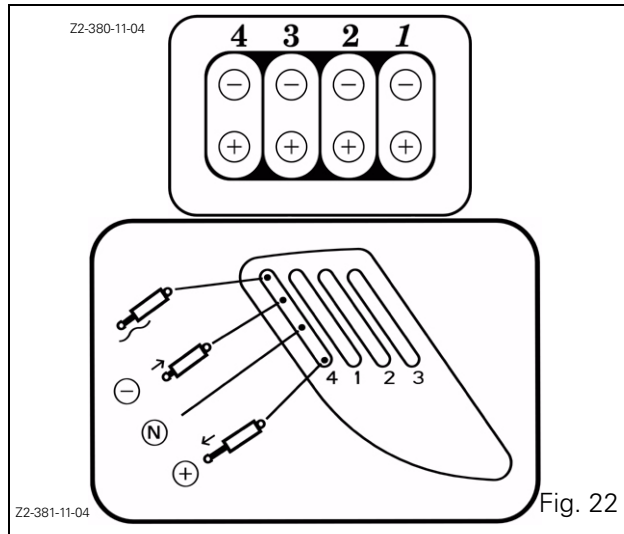
### Spool valve control:

The lever has four positions (Fig. 22):

- neutral position "N".
- "+" position: Pull the lever. Flow is directed to the corresponding "+" coupler.
- "-" position: Push the lever. Flow is directed to the corresponding "-" coupler.
- Floating position: Depress the lever fully.

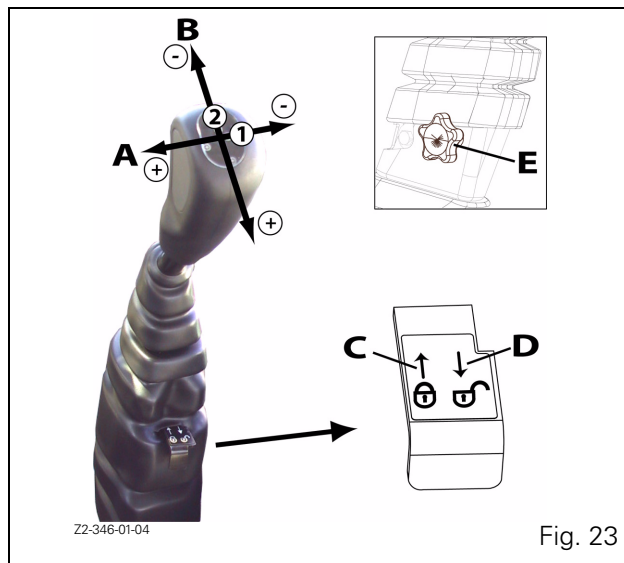
The levers are numbered 1 to 4 (depending on options). The lever/coupler identification is displayed by the decals on the right-hand door of the tractor and on the top of the couplers at the rear of the tractor.

- B. Second spool valve control. Move the lever backward or forward to control the implement connected to the second spool valve.
- C. Push the pin to lock the joystick lever. The lever is then locked in neutral and the spool valves cannot be activated. Lock the lever when driving on the road to avoid any unexpected movement.
- D. Pull on the pin to unlock and use the lever.
- E. Joystick angle adjustment. Loosen the thumb wheel to unlock the lever. Adjust the joystick angle, then retighten the thumb wheel.



### 4.11.2.2 - Mechanical joystick (Fig. 23)

This controls two spool valves. It allows two hydraulic functions to be operated simultaneously using the same lever.



- A. First spool valve control. Move the lever to the right or left to control the implement connected to the first spool valve.

## 4.11.3 - 100 l/min (26.4 gal/min) open center

The 100 l/min (26.4 gal/min) open center system uses two hydraulic pumps. Usually, one pump is used for the linkage, the other for the auxiliary hydraulics. The flow rates of the two pumps can be coupled to use the hydraulic spool valves.

Coupling is carried out using a button located in the cab on the right-hand console (1) (Fig. 24).

**IMPORTANT:** When the pumps are coupled, the linkage is locked in position and it cannot be used. Only the external controls on the fenders can be used.

**NOTE:** The pumps are automatically uncoupled when the tractor speed exceeds 25 kph.

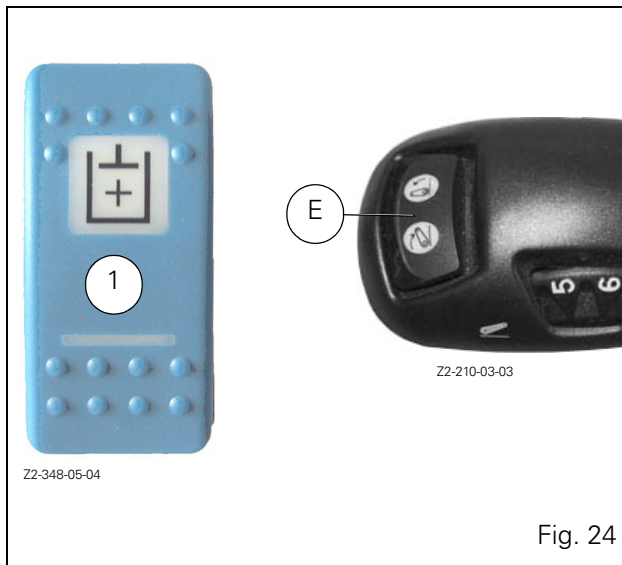


Fig. 24

### Pump coupling

1. Start the engine.
2. Unlock the linkage with the Lift/Lower switch (E) (Fig. 24).
3. Press the pump coupling switch (1). The indicator light on the switch (1) comes on. The linkage is locked in position and the linkage locking indicator light (I) comes on (Fig. 25).

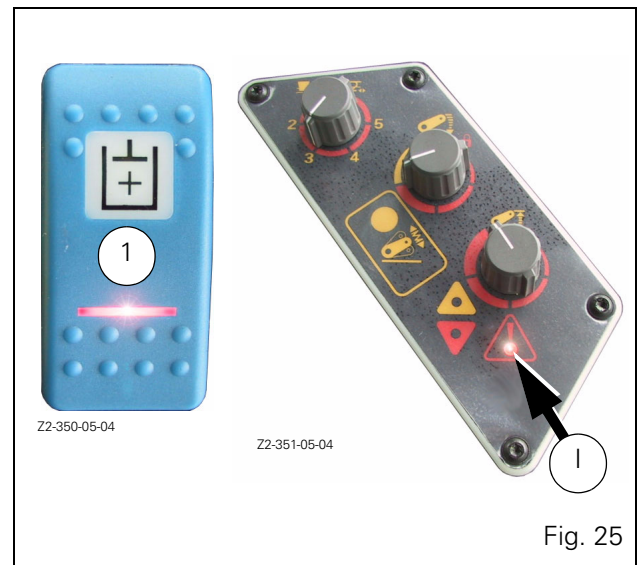


Fig. 25

### Pump uncoupling

1. Press the pump coupling switch (1). The corresponding indicator light goes out (Fig. 25). The pumps are no longer coupled.
2. To use the linkage, unlock it using the Lift/Lower switch (E) (Fig. 24). The indicator light (I) goes out.

## 4 . OPERATION

### 4.12 - THREE-POINT LINKAGE

**IMPORTANT:** To prevent linkage damage when operating trailed attachments, care should be taken when turning to prevent the drawbar from fouling the linkage.

The tractor is supplied with either category 2 or 3 ball joint linkage or optional category 2 or 3 fast linkage hitches, depending on the country.

#### 4.12.1 - Lower links

- Fixed ball end type (1, Fig. 26)
- Hook and ball type (2, Fig. 26)

The hooks engage automatically in the ball joints which are fitted to the hitch pins. The normal balls are used for clevis-end linkage; the balls with guide cones are used for single pin linkage. Ensure the linkage is properly locked.

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

- Telescopic lower links (3, Fig. 26) (only available in certain countries).

Unlock pin A to adjust the telescopic end. Remember to lock it when hitched.

#### 4.12.2 - Top link

The top link (Fig. 27) is fitted on ball joints. It should be adjusted according to the type of implement to be hitched.

To adjust the length of the top link, pull and turn the handle (arrow Fig. 27).

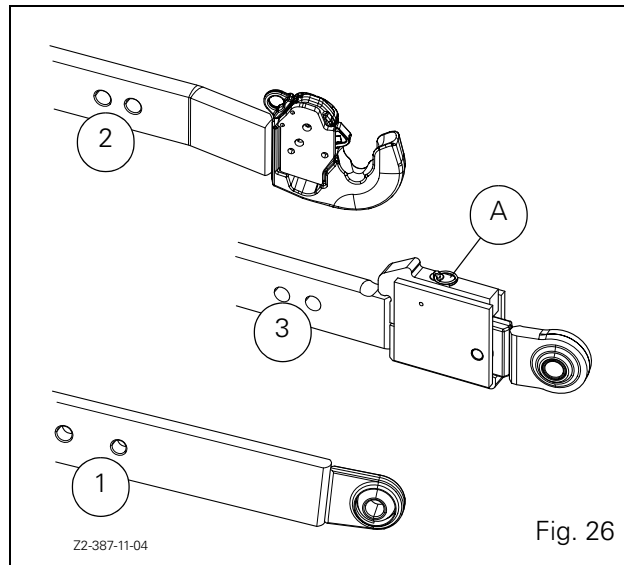


Fig. 26

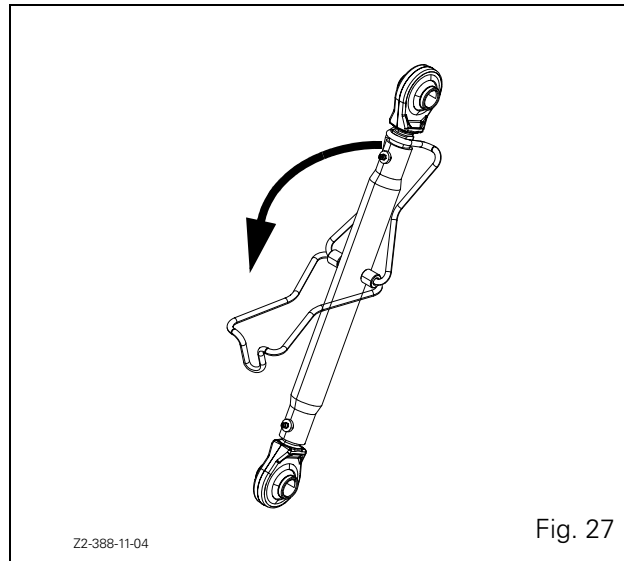


Fig. 27

4.12.3 - Lift rods

- Adjusting the rod length (Fig. 28): Pull the handles upward then turn them to increase or reduce the length of the lift rods.
- Adjusting the lift rod/lower link: Three positions can be obtained by changing the position of the pin (1 Fig. 28).
  - fixed high position (A Fig. 29)
  - fixed low position (B Fig. 29)
  - floating position (C Fig. 29) for wide implements or implements with a depth wheel

On lift rods without a fixed high position hole (A), only the fixed low position (B) and floating position (C) can be obtained.

**CAUTION: Take care to always refit the pins correctly.**

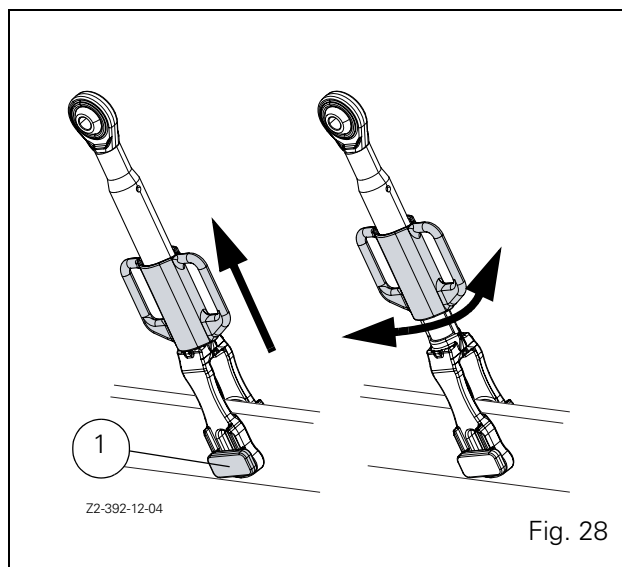


Fig. 28

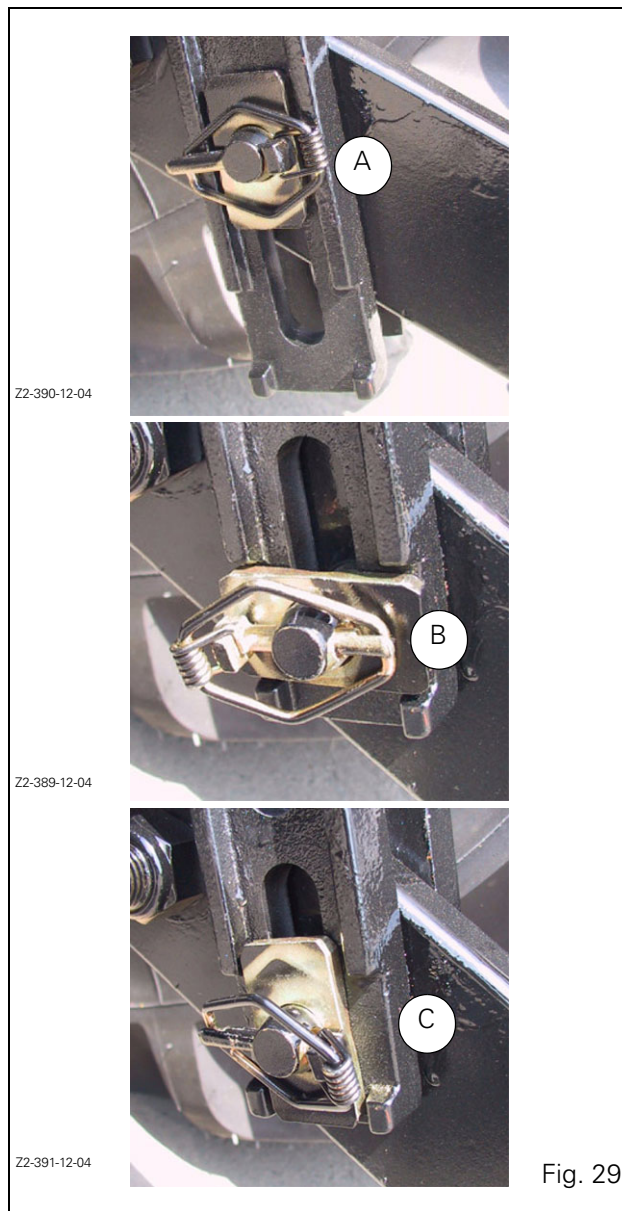


Fig. 29

## 4 . OPERATION

### 4.12.4 - Stabilizers

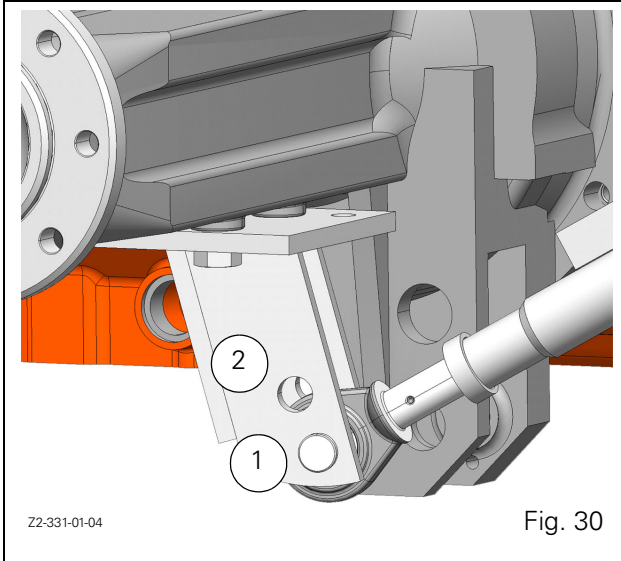
Stabilizers are used to restrict the lateral movement of the lower links.

The front end support on stabilizers has 2 adjustment positions (Fig. 30).

- Pos. 1: For constant adjustment of side sway over the entire vertical stroke of the lower links.
- Pos. 2: For pronounced lower link side sway in "Low" position and automatic side sway lock in "High" position.



**CAUTION: Improper use of this position may result in stabilizer damage.**



Example of correct position depending on implement used:

Implement 1	1	2
Plow		•
Chisel		•
Rotavator	•	
Sprayer	•	
Seeder	•	
Subsoiler		•
Beetroot harvester	•	



## 4.12.5 - Adjustment procedure

Once the correct position has been determined according to the implements used and the required travel, adjustment of stabilizers should be carried out as follows:

### Oscillation possible in transport position:

1. Position the stabilizers as indicated in position (1) (Fig. 30).
2. Screw or unscrew the stabilizers to obtain the required side sway.

### Oscillation not possible in transport position:

1. Position the stabilizers as indicated in position (2) (Fig. 30).
2. Fully screw in the stabilizers (Fig. 31).
3. Start the engine.
4. Depending on model:

#### Tractors with "Lift/Lower" push buttons

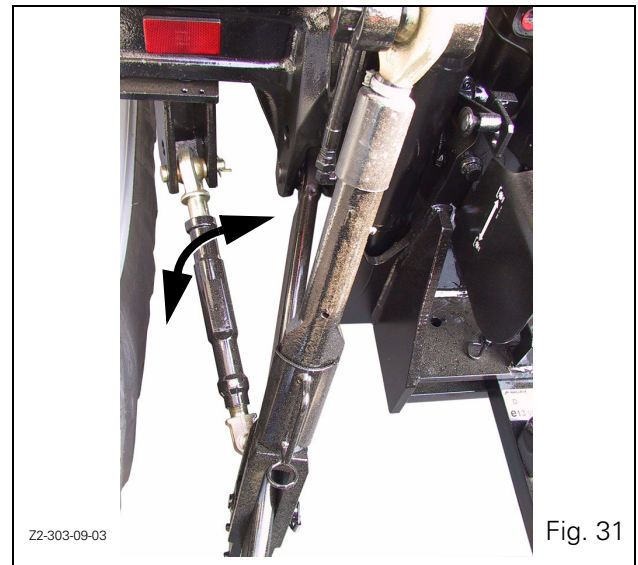
- Set the control panel "Lift/Lower" switch to "Lift" then to "Neutral".
- Press the "Lift" button until the lower links reach the highest position.
- Stop the engine.
- Unscrew the stabilizers (Fig. 31) until the lower links no longer have side sway and are centralized.
- Screw both stabilizers in 1 turn.

#### Tractors without "Lift/Lower" push buttons

- Set the control panel "Lift/Lower" switch to "Neutral" then to "Lift".
- Stop the engine.
- Unscrew the stabilizers (Fig. 31) until the lower links no longer have side sway and are centralized.
- Screw both stabilizers in 1 turn.



**CAUTION: To prevent stabilizer damage, do not shorten the lift rods or use the high travel drawbar position once the above adjustments have been made.**

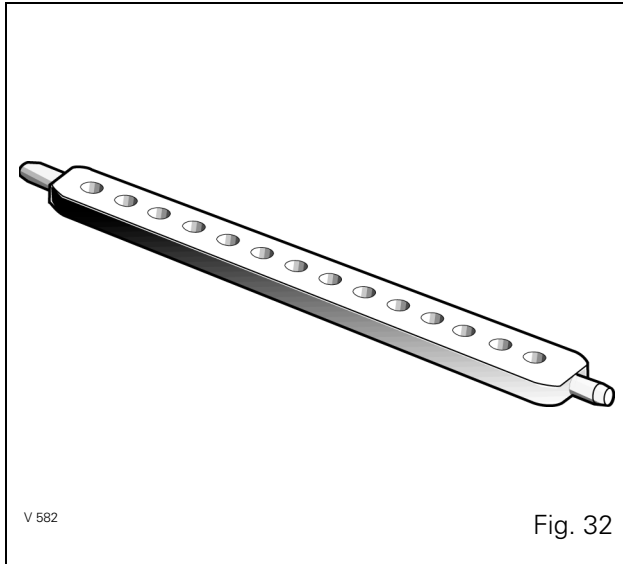


## 4 . OPERATION

### 4.13 - DRAWBARS AND HITCHES

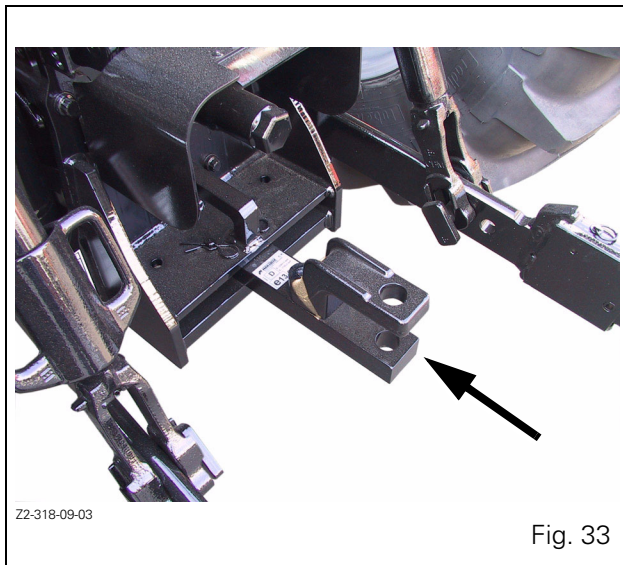
#### 4.13.1 - Multi-hole drawbar

This is fitted to the lower links and is suitable for light loads (Fig. 32).



#### 4.13.2 - Swinging drawbar

(Only suitable for trailed implements) (Fig. 33).



Settings:

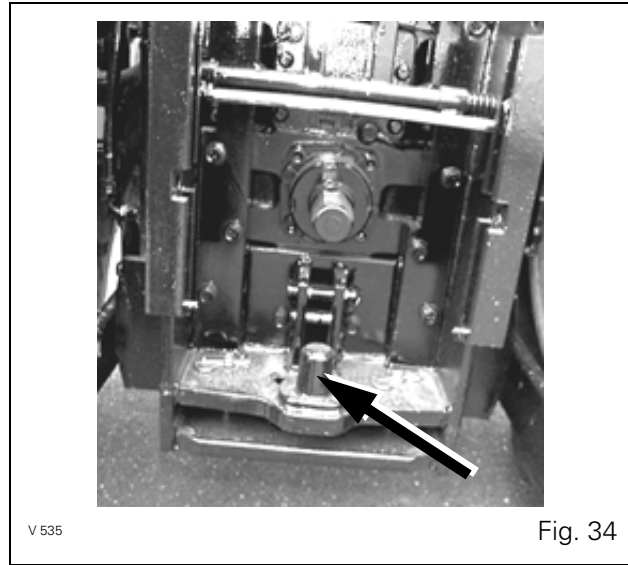
- Height: A clevis is bolted either above or below the bar, thereby giving two height positions.
- Offset: Remove the clips and take out the clevis pins. Position the drawbar as required. Refit the clevis pins and secure them with clips to hold the drawbar in the required position.

Maximum trailer weight: 13000 kg

Maximum vertical load at hitch point: 1700 kg

#### 4.13.3 - Stud for semi-mounted trailer

Suitable for heavy trailers which transfer heavy loads to the tractor (Fig. 34).



It is welded to the frame of the swinging drawbar and has a safety retaining latch to prevent the trailer ring from rising up.

Maximum vertical load: 3000 kg

**4.13.4 - Roller type swinging drawbar**

This drawbar is used with very heavy trailed implements. It moves on a track by means of rollers, which enables it to swing with the implement, thereby facilitating sharp turns at headlands.

**4.13.5 - 4-wheel trailer clevis hitch**

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

The clevis height can be adjusted using a pin-adjusting scale (A) or an easy adjustment scale (B) (Fig. 35).

Maximum trailer weight: 25,100 kg

Maximum vertical load at hitch point: 1800 kg

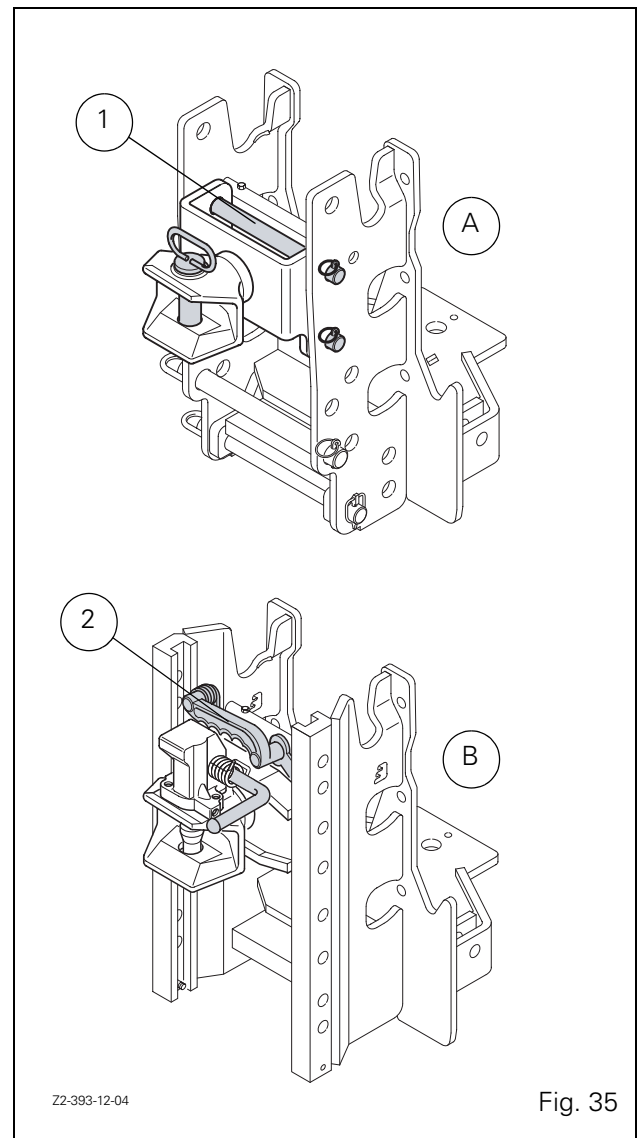
**4.13.5.1 - Standard clevis, pin-adjusting type**

To adjust the clevis height, remove the two pins (1), position the clevis at the required height and refit the pins and their lock pins.

*NOTE: Always hold the clevis in position before removing the pins.*

**4.13.5.2 - Automatic clevis, easy adjustment type**

To adjust the clevis height, pull the handle (2) upward, then raise or lower the clevis to the required height and release the handle.



## 4 . OPERATION

### 4.13.6 - "Dromone" auto-hitch

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

This hitch type can be fitted with a standard hook or a clevis. If a clevis is fitted, space is provided at the rear right side of the tractor to store the end fitting when not in use (Fig. 38).

Maximum vertical static load: 3000 kg

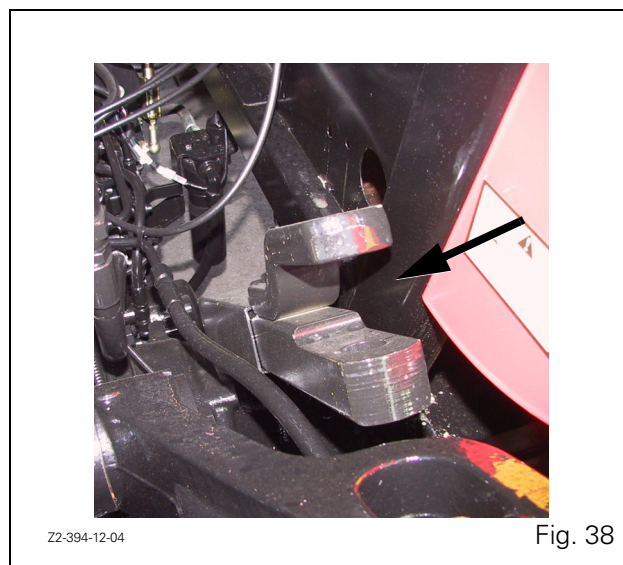
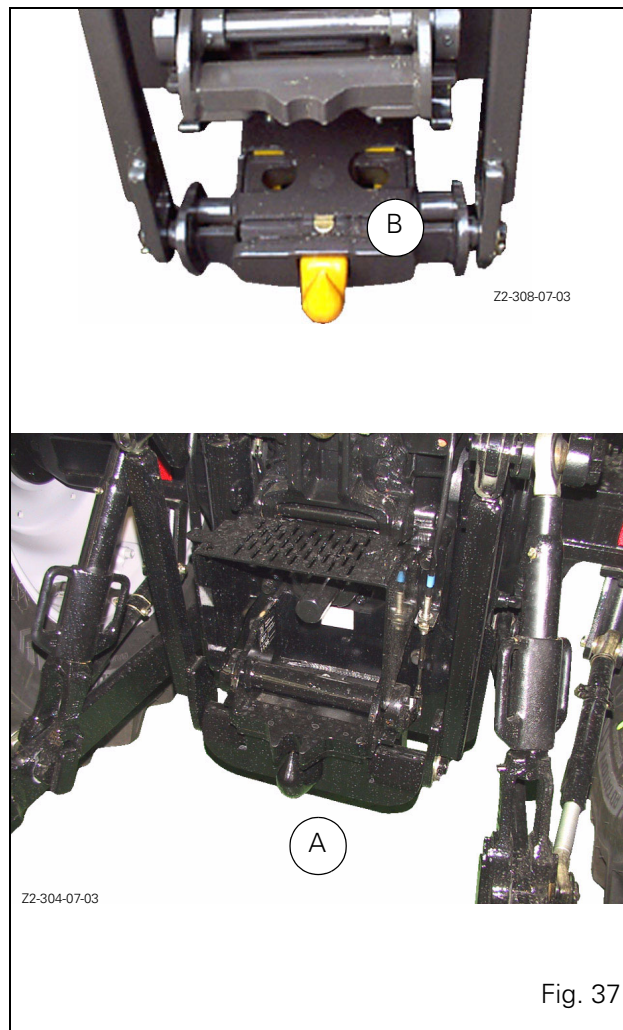
- A. Hitch closed position
- B. Hitch open position

#### Lowering

1. Activate the electronic linkage by pressing selector switch E (Fig. 36), then raise the linkage to its maximum with button 2, which unlocks the hook.
2. Move the locking lever 1 to release the hook, then press lowering button 3 to lower the hook to the ground.

#### Lifting

1. Reverse towards the trailer and align the hook with the trailer drawbar.
2. Press auto-hitch linkage control button 2 (Fig. 36) until the hook locks automatically.
3. Lower the hook slightly until the weight of the trailer is supported by the hook.



## 4.14 - TRANSMISSION CONTROL

### 4.14.1 - Differential lock control

When the engine is started, the differential lock is off. Press once on the differential lock switch to engage the differential lock; press the switch a second time to disengage it.

Special cases:

- The differential lock will disengage when the 3-point linkage lifts and will re-engage when the linkage is lowered.
- Once a speed of 14 kph (8.70 mph) is reached, the differential lock disengages automatically, and is not re-engaged when the speed drops below that level.
- Pressing one of the brake pedals (whether coupled or not) permanently disengages the differential unless it is temporarily disengaged by the linkage.

### 4.14.2 - Four-wheel drive front axle

Press the 4WD switch to engage the four-wheel drive front axle. Press again to disengage the four-wheel drive front axle.

Once a speed of 14 kph (8.70 mph) is reached, the four-wheel drive front axle is disengaged automatically.

Special cases:

- When pressing the switch for more than two seconds, the four-wheel drive front axle is not disengaged for speeds above 14 kph (8.70 mph).
- When pressing the switch while the tractor is travelling at speeds above 14 kph (8.70 mph), the four-wheel drive front axle will remain engaged regardless of the tractor's speed.
- When applying the hand brake while the vehicle is travelling above 2 kph (1.24 mph), the four-wheel drive front axle is engaged automatically.
- If both brake pedals are depressed, the four-wheel drive front axle will engage to provide 4-wheel braking, regardless of forward speed.

### 4.14.3 - Power take-off control

Safety features to protect the tractor and the implement include the following:

- If the main PTO switch is on when starting the engine, the PTO disengages and the PTO indicator light on the instrument panel flashes. No error will be transmitted or displayed. To start the PTO, the PTO selector switch must first be placed in the Off position and then moved to On.
- Protection against engine stalling:  
If the PTO engagement causes the engine speed to drop more than 50% below the initial speed, the transmission control will turn off the solenoid valve and transmit an error message via the CAN bus and cause the PTO indicator light to flash on the instrument panel.
- When the Economy PTO is engaged and if the engine speed exceeds 1800 rpm, the PTO is disengaged and its indicator light on the instrument panel will flash.

### 4.14.4 - Speed limitation

On versions that are limited to speeds not exceeding 30 kph (18.64 mph), the speed is limited by electronic transmission control.

- When the tractor reaches a travel speed of 28 kph (17.40 mph), the indicator light for the engaged Powershift ratio (C or D) starts flashing.
- When the tractor reaches a travel speed of 30 kph (18.64 mph), all the Powershift ratio indicator lights start flashing.
- When the tractor reaches a travel speed of 33 kph (20.50 mph), the electronic transmission control automatically shifts to the lower ratio (from D to C, from C to B) to limit the speed.

### 4.14.5 - Cold temperature conditions

If the ambient temperature is below -10°C (14°F), the transmission is locked on Powershift ratio C and the indicator lights for Powershift ratios A and D flash on the instrument panel.

### 4.14.6 - Super creeper gears

If you engage the super creeper gears while the tractor is in range 3 or 4, the electronic transmission control automatically shifts to range 2 without changing the Powershift ratio.

### 4.14.7 - Hydraulic pressure (low pressure)

- The electronic control unit prevents the hydraulic oil pressure indicator light from illuminating at low speed.
- The indicator light comes on for a few seconds when the engine is started. If it comes on after that, there is a problem.
- When the indicator light comes on for more than two seconds, the electronic control unit disengages the functions involved to prevent damage.

### Troubleshooting

In the event of a malfunction, the system shifts to D and the low-pressure indicator light (17 bar) comes on.

Depending on the temperature, it is not unusual for the indicator lights to remain on for a few minutes after the ignition is switched off.

### Maintenance

Check the accumulator pressure once a year.

### Legend:

TC: Transmission controller

PTO: Power take-off



*Chapter 5*

**SERVICING AND ADJUSTMENTS**





## CONTENTS

<b>5.1 - EMISSIONS WARRANTY</b> .....	<b>5.5</b>
5.1.1 Products warranted: .....	5.5
<b>5.2 - INITIAL 50 HOUR SERVICE INSPECTION</b> .....	<b>5.6</b>
5.2.1 Engine, fuel and cooling systems .....	5.6
5.2.2 Electrical circuit and instruments .....	5.6
5.2.3 Front axle and steering. ....	5.6
5.2.4 Transmission and hydraulics .....	5.6
5.2.5 Clutches and brakes. ....	5.6
5.2.6 General .....	5.6
<b>5.3 - SERVICE GUIDE</b> .....	<b>5.7</b>
<b>5.4 - OPERATOR SERVICE GUIDE</b> .....	<b>5.9</b>
5.4.1 Engine, fuel and cooling systems .....	5.9
5.4.2 Electrical circuit and instruments .....	5.9
5.4.3 Front axle and steering. ....	5.9
5.4.4 Transmission and hydraulics .....	5.9
5.4.5 General .....	5.9
<b>5.5 - RECOMMENDED LUBRICANTS</b> .....	<b>5.10</b>
<b>5.6 - INSTRUCTIONS FOR PRESSURE WASHING</b> .....	<b>5.10</b>
<b>5.7 - LUBRICATION</b> .....	<b>5.11</b>
<b>5.8 - ENGINE</b> .....	<b>5.14</b>
5.8.1 4-cylinder CAT engine (Fig. 8) .....	5.14
5.8.2 Oil level .....	5.14
5.8.3 Drain the engine oil every 400 hours .....	5.14
5.8.4 Replace the engine oil filter(s) every 400 hours .....	5.14
5.8.5 Breather system. ....	5.15
<b>5.9 - FUEL SYSTEM</b> .....	<b>5.15</b>
5.9.1 Fuel filter .....	5.15
5.9.2 Bleeding the fuel system .....	5.16
5.9.3 Fuel injection pump, regulator and injectors .....	5.16
5.9.4 Fuel tank. ....	5.16
<b>5.10 - AIR FILTER</b> .....	<b>5.17</b>
5.10.1 Prefilter and main filter .....	5.17
<b>5.11 - COOLING SYSTEM</b> .....	<b>5.18</b>
<b>5.12 - STEERING, TRANSMISSION AND HYDRAULIC SYSTEM</b> .....	<b>5.19</b>
5.12.1 Checking and draining the hydraulic system .....	5.19
5.12.2 Filtering the auxiliary hydraulic system .....	5.20
5.12.3 Filtering the transmission hydraulic system .....	5.21
5.12.4 Transmission oil cooler (according to version) .....	5.21
<b>5.13 - FRONT AXLE — 2-WHEEL DRIVE</b> .....	<b>5.22</b>
<b>5.14 - FRONT AXLE — 4-WHEEL DRIVE</b> .....	<b>5.22</b>
5.14.1 Final drives .....	5.22
5.14.2 Front axle .....	5.22
<b>5.15 - AIR-CONDITIONING SYSTEM</b> .....	<b>5.24</b>
5.15.1 Condenser .....	5.24
5.15.2 Checking the air-conditioning system .....	5.24

## **5 . SERVICING AND ADJUSTMENTS**

---

5.16 - CHECKING THE CONDITION OF THE FAN BELT .....	5.24
5.16.1 Check the belt tension every 400 hours .....	5.24
5.17 - WINDSHIELD WASHER .....	5.24
5.18 - CAB .....	5.25
5.18.1 Cab air filter .....	5.25
5.18.2 Safety cab or frame .....	5.26
5.19 - TIRES .....	5.26
5.19.1 Dual rear wheels .....	5.26
5.19.2 Operation .....	5.26
5.19.3 Wheel studs .....	5.27
5.19.4 Liquid ballasting .....	5.27
5.19.5 Tire pressure .....	5.27
5.19.6 Pressure under load (bar) .....	5.27
5.20 - WHEELS .....	5.30
5.21 - TRACK WIDTH ADJUSTMENTS .....	5.30
5.21.1 Front track width .....	5.30
5.21.2 Rear track (mm) .....	5.33
5.22 - ELECTRICAL EQUIPMENT .....	5.34
5.22.1 Batteries .....	5.34
5.22.2 Alternator .....	5.34
5.22.3 Socket ASAE .....	5.34
5.22.4 Adjusting the headlights .....	5.35
5.23 - REPLACING FUSES .....	5.36
5.24 - LOCATION OF RELAYS .....	5.37
5.25 - FUEL HANDLING, STORAGE AND SPECIFICATIONS .....	5.38
5.25.1 Diesel .....	5.38
5.25.2 Fuel storage .....	5.39
5.26 - STORING YOUR TRACTOR .....	5.39

### 5.1 - EMISSIONS WARRANTY

The following statement applies to engines used in AGCO products and compatible with Tiers II emission levels. It applies to suppliers of the following AGCO engines:

- CAT

#### 5.1.1 - Products warranted:

This emissions warranty applies to new engines fitted in AGCO products and used in the United States for off-road applications.

The warranties issued by the various AGCO engine suppliers cover the initial owner and subsequent owners of a certified off-road diesel engine. They ensure:

1. at the time of sale, conformity with all applicable regulations adopted by the United States Environmental Protection Agency.
2. the absence of any manufacturing or material defects that could jeopardize its compliance with regulations within the longer of the following periods: (A) five years or 3000 hours in service, whichever occurs first, with effect from the date of delivery of the engine to the ultimate purchaser, or (B) the initial engine warranty period granted by each supplier.

During the above warranty period, AGCO will repair or replace any warranted parts at no charge to the owner of the vehicle through its own distribution networks or via the cited engine supplier distribution networks.

**AGCO and its engine suppliers are not responsible for damage to gas emission parts resulting from:**

- incorrect application or installation of the product used
- equipment, accessories or parts not sold or approved by AGCO and its suppliers
- poor maintenance, repair or use
- use of fuel that is unclean or contaminated with water, impurities or any other source of fuel contamination
- use of parts not approved by AGCO or its engine suppliers.

#### Maintenance

The following chart shows the servicing intervals for parts covered by this emissions warranty and requiring scheduled maintenance:

	<b>CAT</b>
Fuel injectors	No maintenance
Turbocharger	2000
ECU engine and its sensors	500
Inlet/exhaust valves	1000

## 5 . SERVICING AND ADJUSTMENTS

---

### 5.2 - INITIAL 50 HOUR SERVICE INSPECTION

Consult your service record book.

The following operations must be carried out, as applicable, by the **Service Engineer**. A charge will be made for service items such as filter elements, lubricants, seals, etc.

#### 5.2.1 - Engine, fuel and cooling systems

1. Change the fuel filter(s).
2. Change the fuel prefilter(s) (150 microns).
3. Check/clean the dry air filter elements.
4. Check the radiator coolant level.
5. Check the tension and condition of the alternator/fan belt(s).
6. Check the tension and condition of the air-conditioning compressor belt, if applicable.

#### 5.2.2 - Electrical circuit and instruments

7. Check the condition of the battery and the electrolyte level.
8. Check the tightness of the battery connections and battery safety.
9. Check all the safety start switches for correct operation.
10. Check all the instruments, indicator lights and acoustic alarms for correct operation.
11. Check all the lights and indicator lights for correct operation and adjustment.
12. Check all electrically powered devices (heater/fan, radio, windshield wipers, etc.) for correct operation.
13. Check all electronically controlled systems for correct operation.

#### 5.2.3 - Front axle and steering

14. Change the oil in the front axle and final drives (4WD).
15. Lubricate the drive shaft/universal joints (4WD).
16. Lubricate the steering pivots/front axle.

#### 5.2.4 - Transmission and hydraulics

17. Check the transmission/auxiliary hydraulics oil level.
18. Change the transmission high-pressure filter(s).
19. Change the control filter element (60 microns) on the gearbox.
20. Check the auto-hitch for correct operation (optional).

#### 5.2.5 - Clutches and brakes

21. Check the clutch pedal and gearbox ratio engagement for correct operation.
22. Check the condition of the brake pipes.
23. Check the trailer brake valve for correct operation.
24. Check the PTO for correct operation.
25. Check the hand brake adjustment.
26. Check the accumulator pressure once a year.

#### 5.2.6 - General

27. Check and fill up the windshield washer bottle.
28. Check the air-conditioning system for correct operation.
29. Check the torque of the cab/safety frame mounting bolts.
30. Check the torque of all wheel and rim nuts and bolts.
31. Lubricate all points with grease or oil as specified in the Operator Instruction Book.
32. Check that all safety guards are in place and that decals are secure and legible.
33. Road test the tractor to check all instruments and systems for correct operation.
34. Road test the tractor to check the steering and brakes for correct operation.
35. Check all PTO and hydraulic systems for correct operation.
36. After the road test, check for any leaks of oil, fuel or coolant.
37. Enquire if the operator has any operational difficulties and correct or demonstrate the solution as necessary.
38. Complete the owner's Service Record Book.

## 5.3 - SERVICE GUIDE

SERVICE GUIDE	Inspections according to Service Record Book			
	50 hrs	400 hrs	800 hrs	1200 hrs
<b>Engine, fuel and cooling systems</b>				
1. Change the engine oil and/or the filters.		●	●	●
2. Change the fuel filter(s).	●	●	●	●
3. Check the valve clearance, replace the cover seal.				●
4. Check the idle speed and fuel cut-off mechanism.		●	●	●
5. Check the tension and condition of the alternator/fan belt(s).	●	●	●	●
6. Clean the fuel pump strainer.		●	●	●
7. Check/clean the dry air filter elements.	●	●	●	
8. Change the dry air filter elements.				●
9. Check the radiator coolant level.	●	●	●	
10. Drain, flush and refill the radiator with coolant.				●
11. Clean the main radiator and all other cooler element fins.		●	●	●
12. Clean the air-conditioning condenser.		●	●	●
13. Change the air-conditioning dryer.				●
14. Check the tension and condition of the air-conditioning compressor belt, if applicable.	●	●	●	●
15. Check the level of smoke emission from the exhaust.		●	●	●
<b>Electrical circuit and instruments</b>				
16. Check the condition of the battery and the electrolyte level.	●	●	●	●
17. Check the tightness of the battery connections and battery safety.	●	●	●	●
18. Check all the safety start switches for correct operation.	●	●	●	●
19. Check all the instruments, indicator lights and acoustic alarms for correct operation.	●	●	●	●
20. Check all the lights and indicator lights for correct operation and adjustment.	●	●	●	●
21. Check all electrically powered devices (heater/fan, radio, windshield wipers, etc.) for correct operation.	●	●	●	●
22. Check all electronically controlled systems for correct operation.	●	●	●	●
23. Check that there is sufficient contact grease on the external Deutsch connectors/add if necessary.		●	●	●
<b>Front axle and steering</b>				
24. Check the oil level in the front axle and final drives (4WD).		●		●
25. Change the oil in the front axle and final drives (4WD).	●		●	
26. Check the front wheel hubs/steering pivots.		●	●	●
27. Lubricate the drive shaft/universal joints (4WD).	●	●	●	●
28. Lubricate the steering pivots.	●	●	●	●
29. Check the steering for correct operation (with and without the engine running).		●	●	●
30. Check the steering and wheel alignment (including tire wear and damage). Recalibrate the suspended front axle.				●
<b>Transmission and hydraulics</b>				
31. Check the transmission/auxiliary hydraulics oil level.				Every day
32. Change the transmission/hydraulics oil (recalibrate the clutch if necessary).				●
33. Change the transmission high-pressure filter(s).	●	●	●	●
34. Change the 60-micron Power Shuttle filter element.	●			●
35. Clean/change the 250-micron Power Shuttle suction strainer.				●
36. Lubricate the trumpet housing bearings.		●	●	●
37. Check the auto-hitch for correct operation.	●			●
<b>Clutches and brakes</b>				
38. Check the clutch pedal and gearbox ratio engagement for correct operation.	●	●	●	●
39. Check the condition of the brake pipes.	●			●
40. Bleed the brakes.				●
41. Check the hand brake adjustment.	●	●	●	●
42. Check the trailer brake valve for correct operation.	●			●
43. Check the PTO for correct operation.	●	●	●	●

## 5 . SERVICING AND ADJUSTMENTS

SERVICE GUIDE	Inspections according to Service Record Book			
	50 hrs	400 hrs	800 hrs	1200 hrs
<b>General</b>				
44. Check and fill up the windshield washer bottle.	•	•	•	•
45. Clean the cab air filter element.		•	•	
46. Change the cab air filter.				•
47. Check the air-conditioning system for correct operation.	•	•	•	
48. Check the torque of the cab/safety frame mounting bolts.	•	•	•	•
49. Check the torque of all wheel and rim nuts and bolts.	•	•	•	•
50. Lubricate all points with grease or oil as specified in the Operator Instruction Book.	•	•	•	•
51. Lubricate the door locks.	•	•	•	•
52. Check that all safety guards are in place and that decals are secure and legible.	•	•	•	•
53. Road test the tractor to check all instruments and systems for correct operation.	•	•	•	•
54. Road test the tractor to check the steering and brakes for correct operation.	•	•	•	•
55. Check all PTO and hydraulic systems for correct operation.	•	•	•	•
56. After the road test, check for any leaks of oil, fuel or coolant.	•	•	•	•
57. Enquire if the operator has any operational difficulties and correct or demonstrate the solution as necessary.	•	•	•	•
58. Complete the owner's Service Record Book.	•	•	•	•

### 5.4 - OPERATOR SERVICE GUIDE

#### 5.4.1 - Engine, fuel and cooling systems

1. Check/clean the dry air filter elements.
2. Check the radiator coolant level.
3. Clean the main radiator and all other cooler element fins.
4. Check the level of smoke emission from the exhaust.

#### 5.4.2 - Electrical circuit and instruments

5. Check the condition of the battery and the electrolyte level.
6. Check the tightness of the battery connections and battery safety.

#### 5.4.3 - Front axle and steering

7. Check the oil level in the front axle and final drives (4WD).
8. Lubricate the drive shaft/universal joints (4WD).
9. Lubricate the steering pivots.
10. Check the steering and wheel alignment (including tire wear and damage).

#### 5.4.4 - Transmission and hydraulics

11. Check the transmission/hydraulics oil level.
12. Lubricate the trumpet housing bearings.

#### 5.4.5 - General

13. Check and fill up the windshield washer bottle.
14. Lubricate all points with grease or oil as specified in the Operator Instruction Book.
15. Lubricate the door locks.

## 5 . SERVICING AND ADJUSTMENTS

### 5.5 - RECOMMENDED LUBRICANTS

Engine oil	Oil weight	Temperature range
All year round	15W40	-10°C and above
Winter conditions	10W30	-30°C to 20°C
Extreme cold weather conditions	5W30	20°C and below

Transmission/transaxle/hydraulics: AGCO Power Fluid 821 XL complying with MF specifications CMS1145.

Front axle (4WD only): AGCO Gear Lub 715.

Rear axle drive units (according to model): 85W140 EP-A.P.I. GL5.

Lubrication accessories: Super Lithium AGCO No.2.

### RECOMMENDATIONS

	Quantities				
	0.94 l (1/4 gal)	9.45 l (2.5 gal)	18.9 l (5 gal)	113.4 l (30 gal)	207.9 l (55 gal)
	Reference				
AGCO 5W30 starter fluid	7901 5705	7901 5703	N/A	N/A	N/A
AGCO 10W30 starter fluid	7901 4694	7901 4695	7901 4696	7901 4697	7901 4698
AGCO 15W30 starter fluid	7901 4678	7901 4680	7901 4681	7901 4682	7901 4683
AGCO 821XL starter fluid	7901 4711	7901 4712	7901 4713	7901 4714	7901 4715
AGCO 715 gear lubricating oil	7901 4721	7901 4722	N/A	N/A	7901 4723
Super Lithium AGCO No.2	410 g tube - ref. 7901 4728				

### 5.6 - INSTRUCTIONS FOR 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
- Safety decals





**CAUTION:** All servicing operations must be carried out with the engine switched off, unless stated otherwise.

## 5.7 - LUBRICATION

### 5.7.1 - Greasing points

#### 5.7.1.1 - Regularly

Lubricate the cab door hinges and the door and window locks with liquid paraffin.

#### 5.7.1.2 - Every 50 hours

1. Front axle pivots (4WD) (Fig. 1)

**Ref. 1:** Swivel pins

**Ref. 2:** Front axle bearings

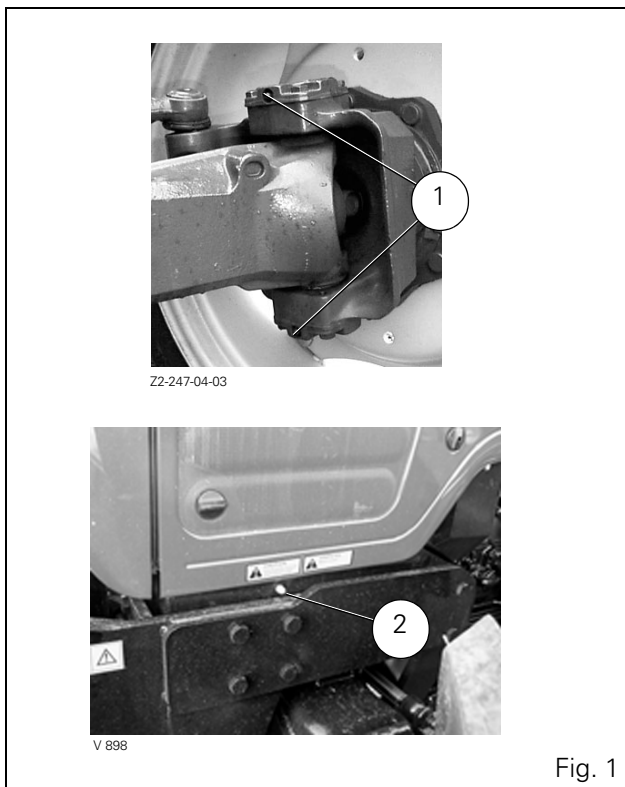


Fig. 1

2. Front axle pivots (2WD) (Fig. 2)

**Ref. 1:** Swivel pins

**Ref. 2:** Front axle front bearing

**Ref. 3:** Front axle rear bearing and cylinder pivot pin

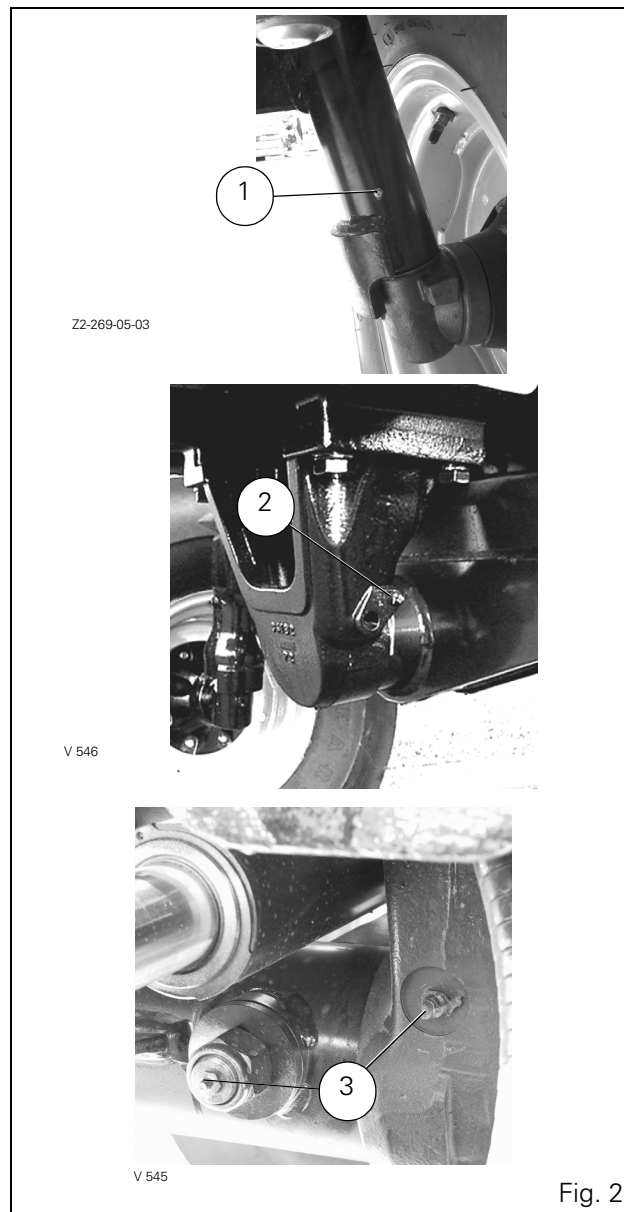


Fig. 2

## 5 . SERVICING AND ADJUSTMENTS

### 3. 4WD drive shaft (front and rear) (Fig. 3)

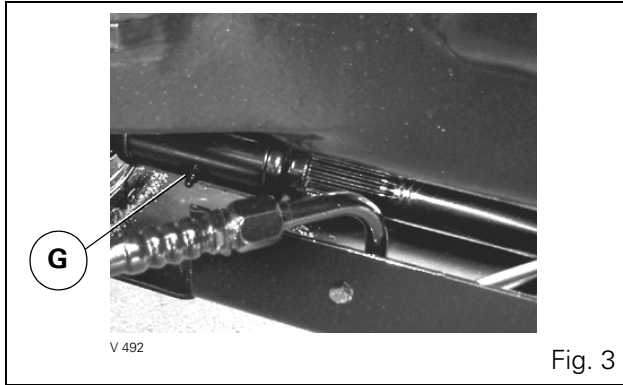


Fig. 3

### 4. Top link (Fig. 4)

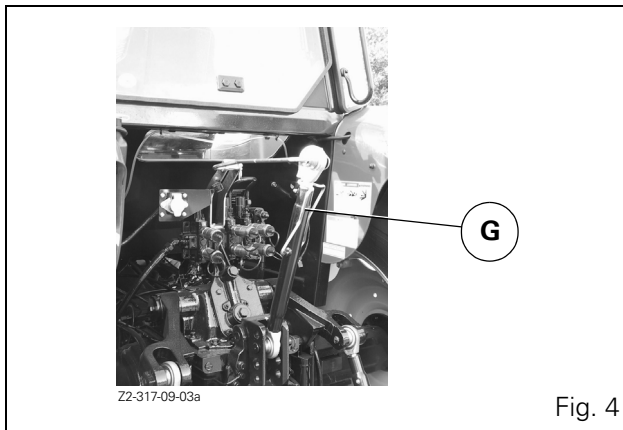


Fig. 4

### 5. Three-point hitch (Fig. 5)

**Ref. 1:** lift rods

**Ref. 2:** stabilizers

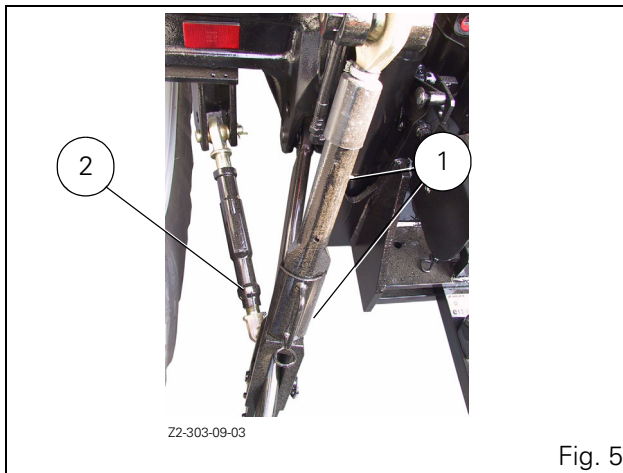


Fig. 5

### 5.7.1.3 - Every 400 hours

#### 6. Cab

Lubricate the door and window locks with liquid paraffin.

#### 7. Lubricating the rear wheel bearings (Fig. 6)

Remove the plugs and fit grease nipples, lubricate, operating the grease gun two or three times, then replace the plugs.

**NOTE:** Too much grease will damage the gasket.

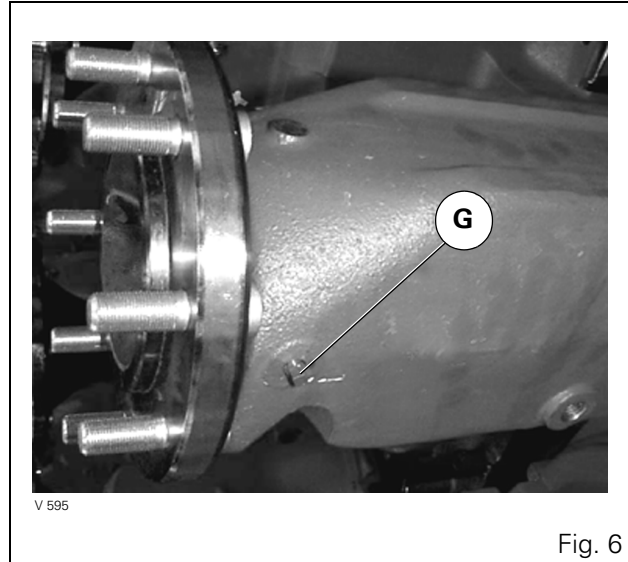


Fig. 6

### 5.7.1.4 - Twice weekly

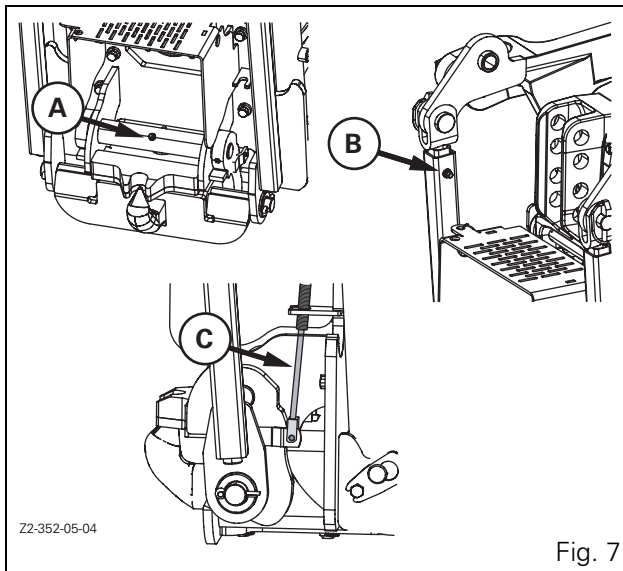
8. Auto-hitch (Fig. 7) 2 grease nipples (A), (B).  
Lubricate and clean the control cable (C) on a regular basis.



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



**CAUTION:** The cable adjustment is fine-tuned in our workshops; if work is required on the hook and/or cable, consult your dealer or agent to avoid any damage.

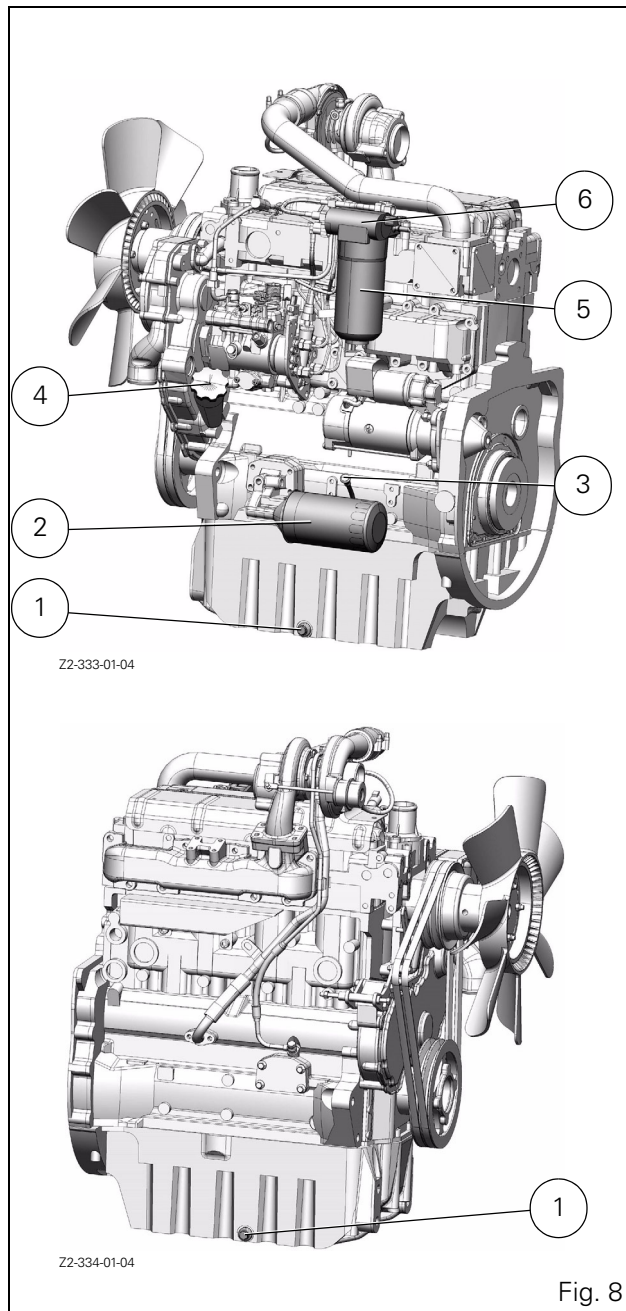


## 5 . SERVICING AND ADJUSTMENTS

### 5.8 - ENGINE

#### 5.8.1 - 4-cylinder CAT engine (Fig. 8)

1. Engine oil drain plug
2. Oil filter
3. Engine oil dipstick
4. Oil filler plug
5. Fuel filter
6. Fuel pump
7. Prefilter



#### 5.8.2 - Oil level

With the tractor on level ground: Check the engine oil level every 10 hours or daily (variable frequency).

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.
- Fill up if necessary.

#### 5.8.3 - Drain the engine oil every 400 hours

Drain the oil when the engine is warm; remove the plug 1 (Fig. 8) from the engine sump with the tractor standing on level ground. Refit and tighten the drain plug(s) to a torque of 35 Nm (25 lbf/ft). Refill with a recommended oil to the **MAX** mark on the dipstick.

*NOTE: Allow time for the oil to settle in the sump before rechecking the level.*

*NOTE: An interval of 400 hours is the maximum. In difficult working conditions, the oil may need changing more frequently (every 200 hours for example).*

#### 5.8.4 - Replace the engine oil filter(s) every 400 hours

To change the filter 2 (Fig. 8)

1. Unscrew and discard the filter assembly.
2. Fill the new filter slowly with clean oil.
3. Smear a few drops of clean engine oil on the new seal ring, then place the ring in the new housing on top of the new filter.
4. Screw the filter onto the filter head until the seal ring touches the filter head, then tighten it a further half-turn by hand only (do not overtighten).
5. Ensure that there is oil in the sump.



**CAUTION: After changing the oil and the filter, ensure that the engine will not start and operate the starter motor until oil pressure is obtained. Wait for the 5 bar oil pressure light to go out. To ensure that the engine will not start, disconnect the electrical stop control from the fuel injection pump. Run the engine and check for leaks, then recheck the oil level and fill up if necessary. The valve clearance should be checked by your dealer or agent every 1200 hours.**

### 5.8.5 - Breather system

Check the hoses periodically for wear, leaks or other damage. Regularly check that the bleed hole is not blocked.



**WARNING:**

***DO NOT overfill the engine with oil as this could lead to engine overspeed.***

***DO NOT run the engine with any of the hoses disconnected, as this could cause dust damage to the engine.***

***DO NOT operate the engine with a blocked air filter.***

***DO NOT allow any of the hoses to be twisted or crushed.***

***DO NOT interfere with or alter the settings of any of the breather system hoses. This could cause serious engine damage.***

## 5.9 - FUEL SYSTEM

### 5.9.1 - Fuel filter

**Drain the water every 100 hours.**

To do this, place a receptacle under each element and open the lower valve section to allow water and deposits to flow out. Close the valves and bleed the system.

**Replace the filter element(s) every 400 hours**

Proceed as follows:

1. Drain by opening the valve.
2. Remove and discard the filter elements.
3. Refit new filter elements.
4. Bleed the fuel system.

**NOTE:** *To avoid water condensation in the fuel tank, refill with fuel at the end of the working day.*

## 5 . SERVICING AND ADJUSTMENTS

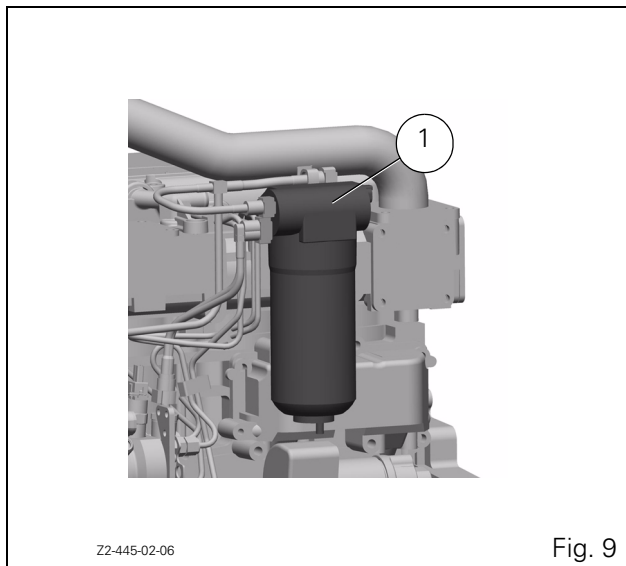
---

### 5.9.2 - Bleeding the fuel system

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

Bleeding is automatic. Engines have an electric fuel lift pump (1). Switch on the ignition and wait for the fuel to fill the system before starting the engine. Repeat the operation if required.

*NOTE: Never activate the starter for more than 30 seconds in one go to avoid overheating.*



### 5.9.3 - Fuel injection pump, regulator and injectors

Adjustment and checks on the fuel injection pump, regulator and injectors must be carried out by your dealer or agent (in accordance with the service guide).

### 5.9.4 - Fuel tank

Drain the fuel tank every 1200 hours with the hose located under the tank.

## 5.10 - AIR FILTER

Stop the engine before changing the main element.

**NOTE:** Although the model shown may not correspond to your model, the procedure is identical.

### 5.10.1 - Prefilter and main filter

(Fig. 10)

#### Main filter A

- Clean the main filter if the blockage indicator light comes on.
- Replace the filter after it has been cleaned five times or every 1200 hours.

#### Replacing prefilter B

- Replace the prefilter after the main filter has been changed or cleaned five times, or once a year or every 1200 hours.

Check that the filter body is not damaged and ensure that all clips and hoses are tight.

1. Lift the left-hand hood panel.
2. Remove prefilter A and filter B. To open the filter, pull the locking mechanism (1) and turn the cover plate counterclockwise (2).
3. Clean the main element as outlined below, depending on its condition:
  - Blow a jet of compressed air onto the filter, from the inside outward, at a maximum pressure of 5 bar (75 psi), keeping the filter sufficiently far from the nozzle.

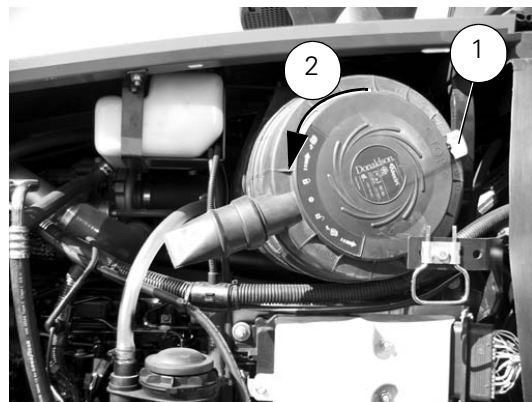
After cleaning, make sure the prefilter is not damaged. Check that there are no holes by illuminating the inside, and check the condition of the seals.

4. Before refitting the element, wipe the filter body with a damp cloth to remove any dust.
5. If the blockage indicator light comes on after a short period of work, the element is unusable and must be replaced. However, if the light stays on after the external element has been replaced, the internal element must also be changed.

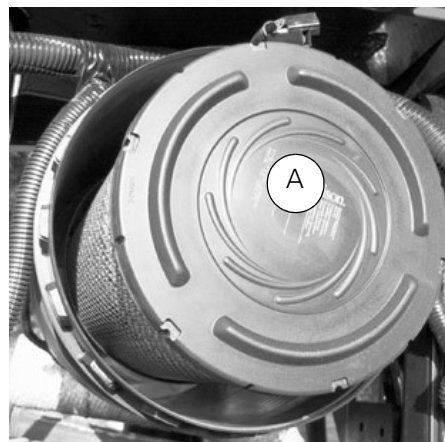
DO NOT TAP IT AGAINST A HARD SURFACE TO CLEAN IT.



**CAUTION:** Do not attempt to blow the main element clean using the engine exhaust fumes. Never apply oil to a dry element. Never use petrol, paraffin or solvents to clean an element.



Z2-241-04-03



Z2-256-04-03



Z2-257-04-03

Fig. 10

## 5 . SERVICING AND ADJUSTMENTS

### 5.11 - COOLING SYSTEM

**Check the coolant level** every 10 hours (variable frequency).

The coolant quality can have a great effect on the efficiency and life of the cooling system.

The antifreeze/water ratio must always be 40-50% antifreeze to 60-50% water.

The minimum 40/60 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.

#### Coolant specifications

Use the coolant recommended by AGCO. The liquid must meet the following standards:

SISU engines: ATSM D3306 (USA), BS 6580:1992 (Europe/UK) - AS 2108-1977 (Australia).

Check the quality and level of the mixture regularly and avoid the addition of pure water in the system, as this will dilute the mixture.

*NOTE: Never use pure water as a coolant.*

*IMPORTANT: If the correct procedures are not used, AGCO cannot be held responsible for damage caused.*

**Clean the radiator fins** every 400 hours (variable frequency) using compressed air.

**Check the fan belt tension** every 100 hours.

#### Expansion tank (Fig. 11)

Periodically check the level of coolant in the expansion tank; the red indicator light comes on as soon as the minimum level of coolant is reached.

*NOTE: When filling, do not exceed the mid-way point on the tank.*

**Drain the system** every 1200 hours.



**WARNING: If the engine is very hot, loosen the plug to the first notch before removing it to lower the expansion tank pressure.**

After filling:

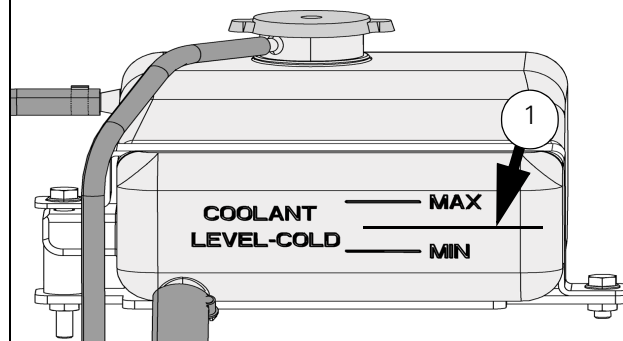
1. Open the heater tap fully and run the engine at 1000 rpm for several minutes.
2. Then stop the engine, recheck the level and, if necessary, fill up the expansion tank with coolant (Ref. 1). Refit the plug.



**CAUTION: Precautions against freezing: Check the protection level of the mix before the cold season.**



Z2-383-11-04



Z2-332-01-04

Fig. 11



## 5.12 - STEERING, TRANSMISSION AND HYDRAULIC SYSTEM

### 5.12.1 - Checking and draining the hydraulic system

Check the transmission oil level every 100 hours using the dipstick (Fig. 12).

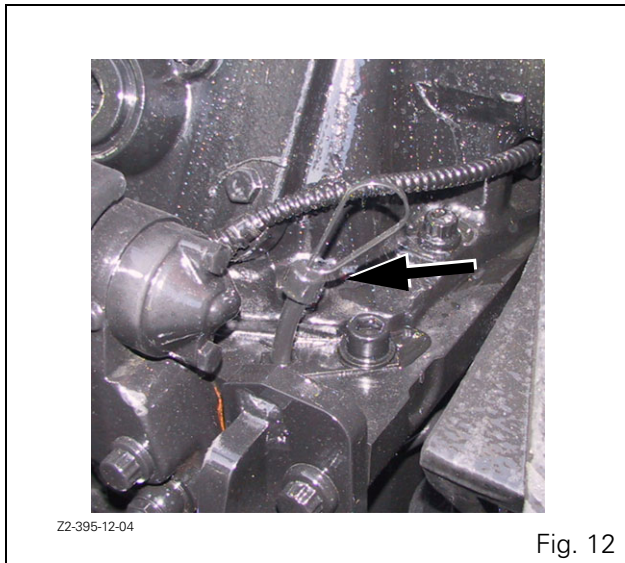


Fig. 12

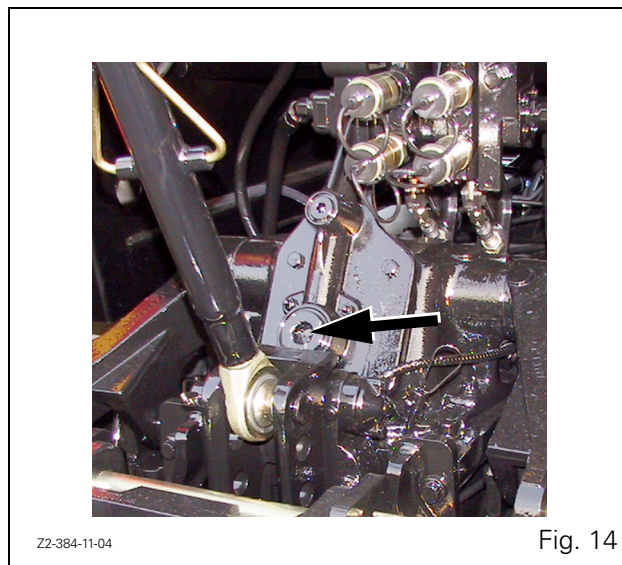


Fig. 14

**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 AGCO Dealer.

Change the transmission oil every 1200 hours.

1. Move the linkage control buttons to the lowest position.
2. Remove the drain plug (Fig. 13) and the filler plug (Fig. 14).
3. Refit the drain plug, then refill the transmission with a recommended oil, to the correct level.

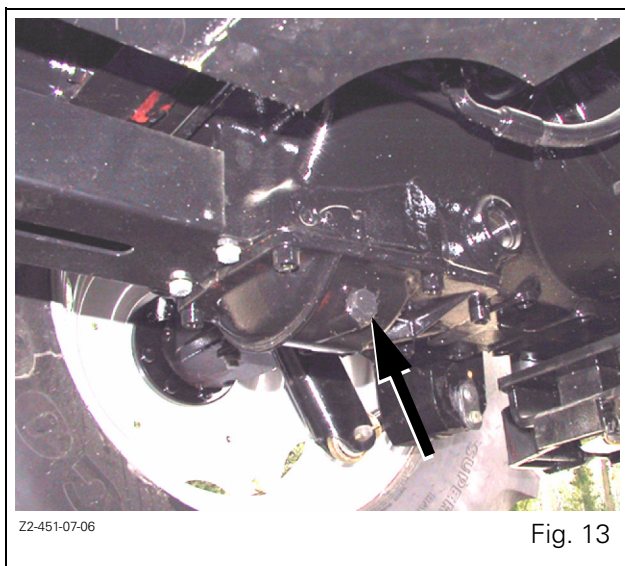


Fig. 13

## 5 . SERVICING AND ADJUSTMENTS

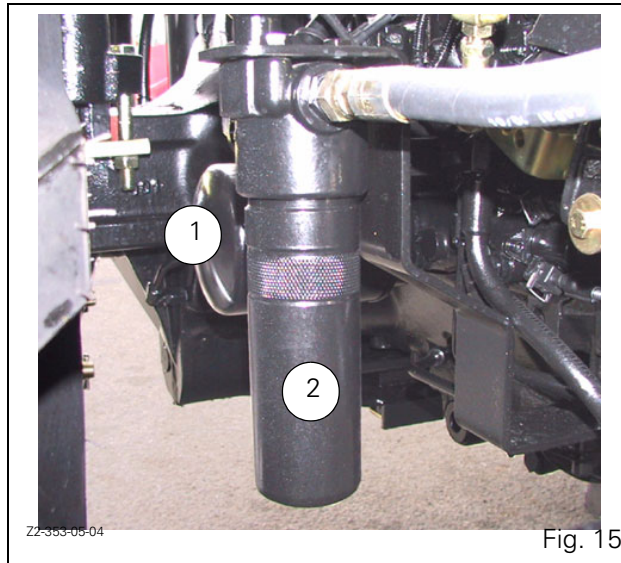
### 5.12.2 - Filtering the auxiliary hydraulic system

- Change the 150-micron suction strainer (1) every 1200 hours (Fig. 15, open center) .
  - Unscrew the strainer and discard it.
  - Lightly oil the rubber seal.
  - Screw on the new strainer until the seal touches it. Tighten a further half-turn. Do not overtighten.
- Change the 15-micron filter (2) every 400 hours. Replace the high-pressure filter element located on the right-hand side of the housing (Fig. 15, open center) .
  - Unscrew the filter bowl pull out the filter element, allow to drain fully, and discard it.
  - Replace the seal every 800 hours, or as necessary.
  - Slide the new filter element into the filter head.

**NOTE:** To avoid contamination by foreign material (mud, etc.), do not completely remove the protective plastic until the filter element is in place.

- Replace the filter bowl and screw hand-tight until it locks.

**NOTE:** When using hydraulic implements taking a large quantity of oil out of the transmission (hydraulic motors, large capacity cylinders), top off the oil to the maximum level.

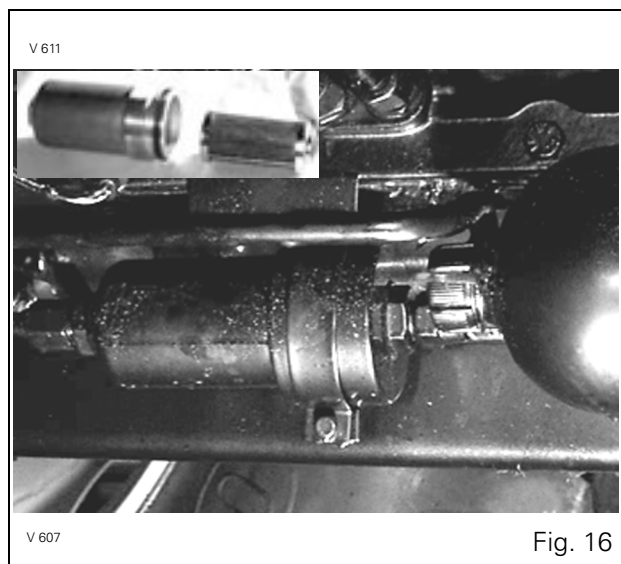


### 5.12.3 - Filtering the transmission hydraulic system

- Change the 60-micron filter strainer on the gearbox (Fig. 16) every 1200 hours.

### 5.12.4 - Transmission oil cooler (according to version)

Clean the transmission cooler fins every 400 hours (variable frequency).



## 5 . SERVICING AND ADJUSTMENTS

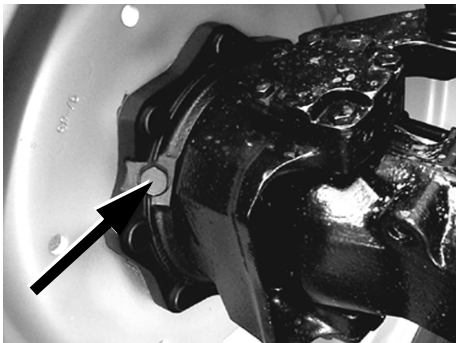
### 5.13 - FRONT AXLE — 2-WHEEL DRIVE

Check the front axle screws, nuts, counter-nuts and bearings for tightness from time to time.

### 5.14 - FRONT AXLE — 4-WHEEL DRIVE

#### 5.14.1 - Final drives

- Check the oil level in the front final drives every 400 hours (Fig. 17).  
The oil should be level with the filler plug when the plug is in horizontal position.
- Drain the oil from the final drives every 800 hours or every 400 hours when working in muddy or exceptionally humid conditions.  
Turn the wheel to bring the plug to its lowest position.

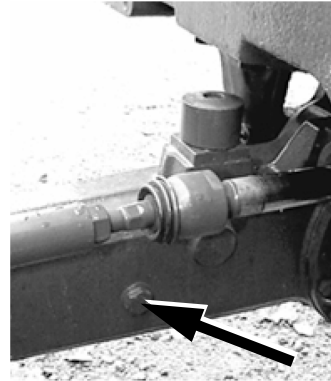


V 598

Fig. 17

#### 5.14.2 - Front axle

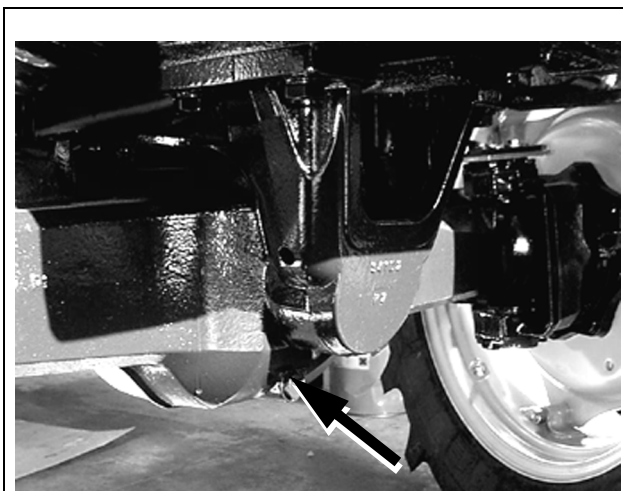
Check the front axle oil level every 400 hours. The oil should be level with the level plug (Fig. 18).



V 599

Fig. 18

Drain the oil from the front axle every 800 hours via the drain plug (Fig. 19).



V 587

Fig. 19

## 5 . SERVICING AND ADJUSTMENTS

### 5.15 - AIR-CONDITIONING SYSTEM

#### 5.15.1 - Condenser

(Fig. 20)

Clean with compressed air every 400 hours, taking care not to damage the fins. To assist cleaning, the condenser can be released by unlocking the latch (A Fig. 20).



Fig. 20

#### 5.15.2 - Checking the air-conditioning system

Run the engine and operate the air-conditioning system for a few moments.

It is advisable to have your dealer or agent add charge to the system once a year at the start of the summer.

**NOTE:** To keep the system in good condition, it is advisable to operate the system for several minutes each week to lubricate all the seals.

**NOTE:** The condenser assembly slides to assist engine cleaning operations (according to model).



**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 refrigeration system from the air-conditioning system. Consult your dealer or agent if a fault occurs.

### 5.16 - CHECKING THE CONDITION OF THE FAN BELT

#### 5.16.1 - Check the belt tension every 400 hours

Adjust the alternator belt.

The correct deflection value is 13 to 16 mm (0.51 to 0.60 in) when manually pressing the belt halfway between the fan pulley and crankshaft pulley.

A new belt may loosen after operating for approximately half an hour or an hour. Loosen the alternator mounting bolts to adjust the tension.

Retighten the bolts firmly.

The alternator should be checked by the dealer or agent every 1200 hours or once a year.

**NOTE:** A belt tension gauge can be used.

### 5.17 - WINDSHIELD WASHER

The windshield washer bottle is located between the tractor rear fenders (Fig. 21).



Fig. 21

## 5.18 - CAB

### 5.18.1 - Cab air filter

Clean the cab air filter every 400 hours, or more frequently if necessary.

Replace the cab air filter every 1200 hours, or once a year.

#### Accessing the filter(s):

Standard roof:

1. To gain access to the cab air filter, open the hatch on the left-hand side of the cab roof (Fig. 22).
2. Turn the handle 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.

High-visibility roof:

1. To gain access to the cab air filter, turn locks 1 (Fig. 23) to open the hatch at the rear of the cab roof.
2. Loosen the two nuts 2 (Fig. 23) 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.



**WARNING: The air filter element does not provide protection from chemical products. Please ask your AGCO dealer for information concerning the availability of the specific particle filter.**

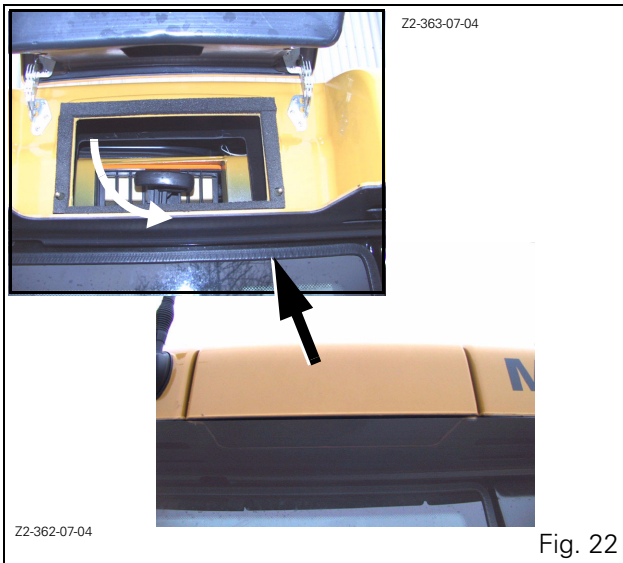


Fig. 22

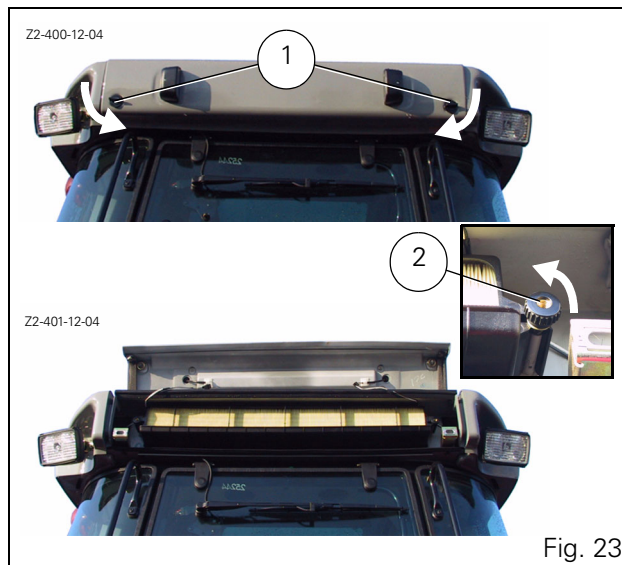


Fig. 23

## 5 . SERVICING AND ADJUSTMENTS

### 5.18.2 - Safety cab or frame

Ask your dealer or agent to check the tightness of the safety cab or frame mounting bolts every 400 hours.



**CAUTION:** The safety cab or frame complies with all international safety standards. It must never be drilled or modified to enable installation of accessories or implements. Welding any item to the cab or frame or repairing the cab or frame is not permitted. If any such operation is carried out, the cab or frame may no longer comply with safety standards. The only parts which may be fitted are genuine AGCO parts, which must be fitted by your dealer or agent.

### 5.19 - TIRES

#### 5.19.1 - Dual rear wheels

In general, dual rear wheels should be used only for reducing soil compaction (surface treatment work). The correct dual rear wheels should be chosen according to the following four criteria:

1. Soil conditions
2. Traction (narrow wheels)
3. Overall dimensions (2.5 m (8.20 ft) for road use)
4. Type of tire



**CAUTION:** The wrong choice of dual wheels has a direct influence on the mechanical components and the wheel rims of the tractor. Avoid using dual wheels for intensive pulling, even for short periods (hauling out a tractor stuck in the mud, etc.).

#### 5.19.2 - Operation

Set the inner wheels to minimum track (Fig. 24).

The use of very wide tires on dual wheels is not recommended.

The most efficient dual wheels arrangement uses two tires of the same specifications.

1. When fitting dual wheels with tires of different widths, the wider wheel must be fitted inside.  
When fitting dual wheels with tires of the same width, the tire which is more worn must be fitted on the outside.
2. It is preferable to use wide tires or low-pressure tires instead of dual wheels.

**NOTE:** Dual wheels do not double the load capacity of the tractor.

The minimum distance allowed between the tires is 100 mm (4 in) (A Fig. 24).

In clay soil, this distance should be increased in proportion to the tire size. Example:

- 13.6-28 - Distance 130 mm (5.12 in)
- 16.9-38 - Distance 160 mm (6.30 in)

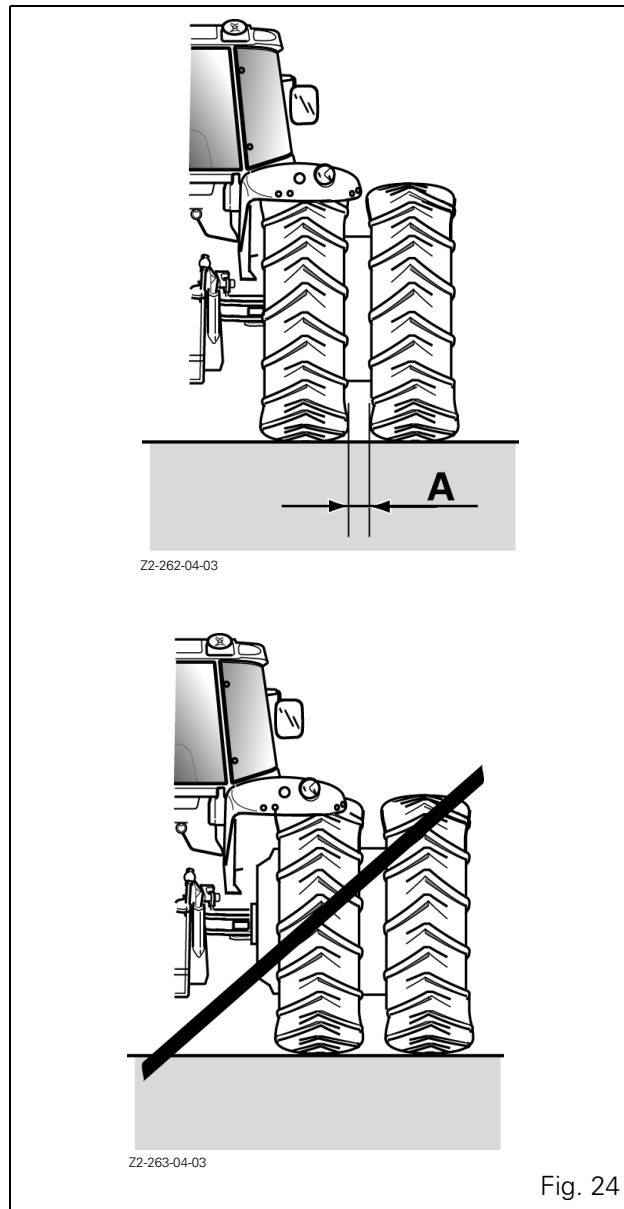


Fig. 24



## 5.19.3 - Wheel studs

Check the tightening torque after the first two hours of use following fitting and every day thereafter.

## 5.19.4 - Liquid ballasting

Steering and braking performance can be considerably affected by attaching implements. To maintain the required ground contact pressure, ensure that the tractor is ballasted correctly. Advice is available from your local AGCO Dealer.

- Tires with inner tube:



**CAUTION:** When preparing a calcium chloride solution for ballasting the tractor tires with water, NEVER pour the water onto the calcium chloride as this may produce chlorine, which is a toxic and explosive gas. This can be avoided by slowly adding calcium chloride flakes to the water and stirring until they are dissolved.

- Tires without inner tubes (tubeless):

Use a monoethylene glycol-based liquid containing corrosion inhibiting agents other than nitrites (Na No<sub>2</sub>). Example: Agrilest, Castrol, Lestagel, Igol, etc.

## 5.19.5 - Tire pressure

0.2 bar (2.9 lbf/in<sup>2</sup>) less on the outer tires.

## 5.19.6 - Pressure under load (bar)

**Check the tire pressures** every 100 hours. Tire pressures vary according to make, load and speed as well as to the type of work being carried out.

Refer to the inflation tables issued by the tire manufacturers.

**IMPORTANT:** The relationship between the sizes of the front and rear tires on 4-wheel drive tractors must be maintained. Compatible options are given in chapter 6.

**IMPORTANT:** The following tables display the maximum applicable loads for certain tire models depending on their inflation pressure. These values must be followed. For further details, consult the tables of the relevant manufacturers.

- 2-wheel drive front wheels (Fig. 25)
- Rear wheels (Fig. 26)
- 4-wheel drive front wheels (Fig. 27)

TYRE MAXIMUM LOAD (Pression maxi pneu)									
Roues avant 2 RM Front Wheels 2WD	Kleber			Michelin			Goodyear		
	20 mph 30km/h	Inflation pressure		25 mph 40 km/h	20 mph 30km/h	Inflation pressure		20 mph 30km/h	Inflation pressure
		bar / Psi				bar / Psi			
10.0-16	910	1,6 / 24	730	640	1,0 / 14	500	975	2,0 / 29	
	960	1,8 / 26	770	820	1,5 / 21	650	1065	2,3 / 33	
	1010	2,0 / 29	810	1000	2,0 / 29	800	1125	2,5 / 36	
	1110	2,4 / 35	890	1040	2,1 / 30	830	1215	2,8 / 41	
	1160	2,6 / 38	930	1070	2,2 / 32	860			
11.0-16	1220	2,8 / 41	980	1140	2,4 / 35	920			
	990	1,6 / 24	790	710	1,0 / 14	560	1150	2,0 / 29	
	1070	1,8 / 26	860	920	1,5 / 21	730	1250	2,3 / 33	
	1160	2,0 / 29	930	1120	2,0 / 29	890	1320	2,5 / 36	
	1320	2,4 / 35	1060	1160	2,1 / 30	930	1410	2,8 / 41	
				1200	2,2 / 32	960	1470	3,0 / 43	
			1280	2,4 / 35	1030				

Fig. 25

# 5. SERVICING AND ADJUSTMENTS

Roues arrière Rear Wheels	TYRE MAXIMUM LOAD (Pression maxi pneu)						Inflation pressure (Psi)	Inflation pressure (bar)	Inflation pressure (Psi)	Inflation pressure (bar)			
	Kleber			Michelin							Goodyear		
	20 mph 30km/h	25 mph 40 km/h	30km/h	20 mph 30km/h	25 mph 40 km/h	30km/h					20 mph 30km/h	25 mph 40 km/h	30km/h
420/85 R30							0,4	6					
16.9 R30							0,5	7					
	1740	1800	1380	1600	1500	1660	1550	1620	1450	1800			
	1890	1800	1770	1660	1820	1700	1700	1890	1770	1925			
	2050	1950	1940	1820	1980	1850	1850	2200	2050	2160			
	2260	2130	2120	1980	2140	2000	2000	2400	2250	2330			
	2470	2320	2290	2140	2335	2180	2180	2640	2470	2630			
	2680	2500	2460	2300	2460	2300	2300	2870	2680	2870			
460/85 R30							0,4	6					
18.4 R30							0,5	7					
	2020	1840	1720	1875	1750	1750	1750	1080	1080	1215			
	2200	2090	2040	1910	2085	1950	1950	1250	1170	1300			
	2370	2260	2240	2090	2270	2120	2120	1560	1480	1500			
	2620	2470	2440	2280	2460	2300	2300	1690	1610	1600			
	2860	2690	2640	2460	2675	2500	2500	1860	1760	1710			
	3100	2900	2840	2650	2835	2650	2650	2030	1910	1875			
420/85 R34							0,4	6					
16.9 R34							0,5	7					
	1840	1690	1580	1765	1650	1650	1650	1540	1540	1700			
	2010	1910	1870	1750	1925	1800	1800	1790	1670	1820			
	2170	2070	2050	1920	2085	1950	1950	2120	2020	2035			
	2390	2260	2240	2090	2270	2120	2120	2290	2180	2205			
	2610	2460	2420	2260	2460	2300	2300	2530	2370	2395			
	2840	2650	2600	2430	2600	2430	2430	2760	2590	2600			
460/85 R34							0,4	6					
18.4 R34							0,5	7					
	2140	1950	1820	1980	1850	1850	1850	1800	1800	2000			
	2330	2210	2160	2020	2205	2060	2060	2090	1950	2140			
	2520	2400	2370	2210	2395	2240	2240	2460	2340	2335			
	2770	2620	2580	2410	2600	2430	2430	2660	2540	2600			
	3030	2850	2790	2600	2835	2650	2650	2930	2770	2755			
	3290	3080	3000	2800	2995	2800	2800	3210	2990	2995			
480/70 R34							0,4	6					
	1360	1340	1250	1250	1250	1250	1250	1480	1430	1540			
	1940	1800	1605	1500	1925	1800	1800	2060	2010	2035			
	2130	1980	1875	1750	2140	2000	2000	2300	2180	2285			
	2330	2170	2140	2000	2355	2200	2200	2550	2380	2480			
	2720	2540	2675	2500	2780	2600	2600	2800	2610	2785			
	2920	2730	2915	2725	2915	2725	2725	3040	2840	3075			

Fig. 26

Roues avant Front Wheels	TYRE MAXIMUM LOAD (Pression maxi pneu)						Inflation pressure (bar)	Inflation pressure (Psi)			
	Kleber			Michelin					Goodyear		
	20 mph 30km/h	25 mph 40 km/h	30km/h	20 mph 30km/h	25 mph 40 km/h	30km/h			20 mph 30km/h	25 mph 40 km/h	30km/h
11.2 R24							0.4	6			
280/85 R24	850	820	770	830	775	800	0.5	7			
	920	870	850	965	900	825	0.6	9			
	990	950	1000	930	1045	975	1	14			
	110	1040	1090	1010	1135	1060	1.2	17			
	1200	1130	1170	1100	1165	1090	1.4	20			
	1300	1220	1260	1180	1265	1180	1.6	23			
13.6 R24							0.4	6			
340/85 R24	1040	870	1010	940	1015	950	0.5	7			
	1140	1080	1120	1040	1165	1090	0.8	12			
	1230	1170	1230	1150	1230	1150	1	14			
	1350	1280	1330	1250	1340	1250	1.2	17			
	1480	1390	1440	1350	1455	1360	1.4	20			
	1610	1500	1550	1450	1550	1450	1.6	23			
14.9 R24							0.4	6			
380/85 R24	1360	1020	1180	1110	1165	1090	0.5	7			
	1480	1400	1310	1220	1300	1215	0.8	12			
	1600	1520	1440	1340	1410	1320	1	14			
	1760	1660	1660	1560	1550	1450	1.2	17			
	1920	1810	1690	1580	1660	1550	1.4	20			
	2090	1950	1820	1700	1820	1700	1.6	23			
16.9 R24							0.4	6			
420/85 R24	1600	1270	1470	1380	1500	1400	0.5	7			
	1740	1660	1630	1530	1660	1550	0.8	12			
	1880	1790	1790	1670	1820	1700	1	14			
	2080	1960	1950	1820	1925	1800	1.2	17			
	2270	2130	2110	1970	2085	1950	1.4	20			
	2460	2300	2270	2120	2270	2120	1.6	23			
440/85 R24	870	840	1010	900	925	800	0.4	6			
	1200	1170	1100	1200	1120	1000	0.5	7			
	1200	1360	1270	1345	1295	1160	0.6	9			
	1490	1400	1550	1450	1485	1390	1	14			
	1640	1530	1740	1620	1635	1530	1.2	17			
	1780	1670	1930	1800	1780	1665	1.4	20			
	1930	1800	1925	1800	1925	1800	1.6	23			
480/85 R24	990	960	1150	1030	1030	900	0.4	6			
	1380	1340	1260	1375	1285	1150	0.5	7			
	1540	1560	1460	1540	1440	1300	0.6	9			
	1710	1600	1770	1660	1705	1595	1	14			
	1870	1750	1990	1860	1875	1750	1.2	17			
	2040	1910	2200	2060	2040	1905	1.4	20			
	2200	2060	2205	2060	2205	2060	1.6	23			

Roues avant Front Wheels	TYRE MAXIMUM LOAD (Pression maxi pneu)						Inflation pressure (bar)	Inflation pressure (Psi)			
	Kleber			Michelin					Goodyear		
	20 mph 30km/h	25 mph 40 km/h	30km/h	20 mph 30km/h	25 mph 40 km/h	30km/h			20 mph 30km/h	25 mph 40 km/h	30km/h
11.2 R28							0.4	6			
280/85 R28	920	870	810	885	825	850	0.5	7			
	1000	950	960	900	1015	950	0.8	12			
	1080	1030	1060	990	1100	1030	1	14			
	1190	1130	1150	1080	1200	1120	1.2	17			
	1300	1220	1240	1160	1300	1215	1.4	20			
	1410	1320	1340	1250	1340	1250	1.6	23			
13.6 R28							0.4	6			
340/85 R28	1220	930	1080	1010	1135	1060	0.5	7			
	1320	1260	1190	1120	1200	1120	0.8	12			
	1430	1370	1310	1220	1375	1285	1	14			
	1580	1490	1430	1330	1500	1400	1.2	17			
	1730	1620	1540	1440	1550	1450	1.4	20			
	1870	1750	1660	1550	1660	1550	1.6	23			
14.9 R28							0.4	6			
380/85 R28	1430	1080	1250	1170	1230	1150	0.5	7			
	1560	1480	1390	1300	1375	1285	0.8	12			
	1690	1610	1520	1420	1500	1400	1	14			
	1860	1760	1660	1560	1660	1550	1.2	17			
	2030	1910	1790	1670	1820	1700	1.4	20			
	2200	2060	1930	1800	1925	1800	1.6	23			
16.9 R28							0.4	6			
420/85 R28	1690	1340	1560	1460	1605	1500	0.5	7			
	1840	1750	1730	1610	1765	1650	0.8	12			
	1990	1900	1890	1770	1925	1800	1	14			
	2190	2070	2060	1930	2085	1950	1.2	17			
	2400	2250	2230	2080	2205	2060	1.4	20			
	2600	2430	2400	2240	2395	2240	1.6	23			
440/85 R28	940	910	1090	980	1000	870	0.4	6			
	1300	1270	1190	1300	1215	1080	0.5	7			
	1460	1380	1450	1360	1455	1360	0.8	12			
	1620	1510	1680	1570	1615	1510	1	14			
	1770	1660	1880	1760	1770	1655	1.2	17			
	1930	1800	2090	1950	1930	1805	1.4	20			
	2090	1950	2085	1950	2085	1950	1.6	23			
480/85 R28	1080	1050	1250	1120	1120	990	0.4	6			
	1500	1460	1370	1455	1360	1230	0.5	7			
	1680	1700	1580	1640	1535	1400	0.6	9			
	1860	1740	1930	1800	1830	1710	1	14			
	2040	1900	2160	2020	2020	1880	1.2	17			
	2220	2070	2400	2240	2210	2065	1.4	20			
	2400	2240	2395	2240	2395	2240	1.6	23			

Fig. 27

## 5 . SERVICING AND ADJUSTMENTS

### 5.20 - WHEELS

**Check the tightness of wheel nuts** every day. Tighten all wheel nuts until the torque (dry nuts) is the same as that specified (see Specifications).

### 5.21 - TRACK WIDTH ADJUSTMENTS

#### 5.21.1 - Front track width

##### 5.21.1.1 - 2-wheel drive

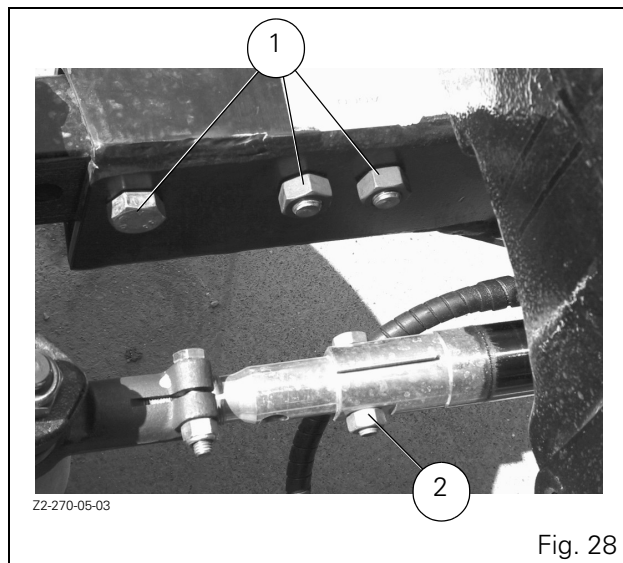
The front track is adjustable in increments of approximately 100 mm (4 in).

Wheel tracks (mm)	Standard axle beam	Wide axle beam
Minimum wheel track	1403 (55.24)	1970 (77.56)
Intermediate wheel track	1504 (59.21)	2072 (81.57)
	1606 (63.23)	2174 (85.59)
	1708 (67.24)	2275 (89.57)
	1809 (71.22)	
Maximum wheel track	1911 (75.24)	2377 (93.58)

To adjust, proceed as follows:

1. Raise the front of the tractor using a jack.
2. Take out the three bolts (1, Fig. 28) which fix each telescopic arm to the axle beam and remove the bolt locking the telescopic ram (2, Fig. 28).
3. Extend the telescopic arms to achieve the desired track width setting then refit the bolts and tighten to a torque of 340-450 Nm (250-332 lbf/ft).
4. Adjust the steering rams to correspond to the selected track width. Refit the screws and nuts (120-160 Nm) (88-118 lbf/ft).

**NOTE:** Limit the load on the front axle beam when using wide track widths.



### 5.21.1.2 - 4-wheel drive

The track widths available depend on the type of axle beam and the tire dimensions.

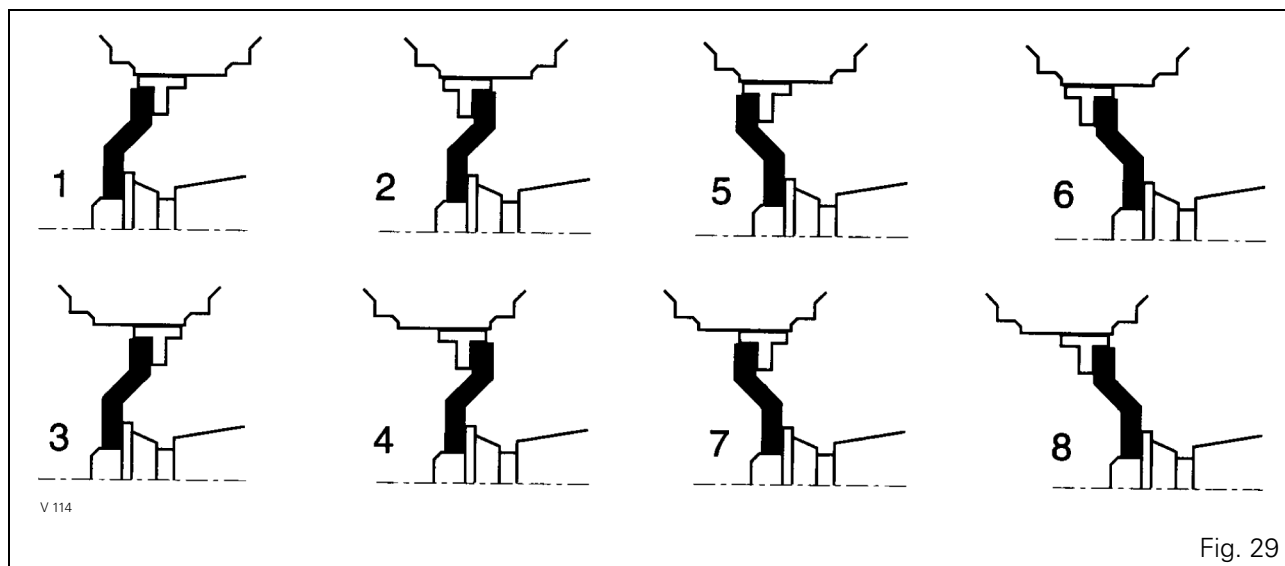
*NOTE: If the wheels are reversed they must be transferred to the opposite side of the tractor.*

When refitting, tighten the nuts progressively to the correct torques. See tightening torque table (chapter 6).

#### Adjustable steel wheels (Fig. 29)

Eight track widths can be obtained by changing the position of the rim in relation to the disc or by reversing the wheels.

Rim		24"	11x28"	9x28" 12x28" 14x28"	14x28"
<b>Position</b>					
<b>Wheel disk facing inward</b>	<b>1</b>	1568 (61.73)	1568 (61.73)	1566 (61.65)	1686 (66.38)
	<b>2</b>	1682 (66.22)	1681 (66.18)	1680 (66.14)	1800 (70.87)
	<b>3</b>	1770 (69.69)	1771 (69.72)	1772 (69.76)	1892 (74.49)
	<b>4</b>	1883 (74.13)	1884 (74.71)	1886 (74.25)	2060 (81.10)
<b>Wheel disk facing outward</b>	<b>5</b>	1737 (68.39)	1736 (68.35)	1734 (68.27)	1854 (72.99)
	<b>6</b>	1850 (72.83)	1849 (72.80)	1848 (72.76)	1972 (77.64)
	<b>7</b>	1938 (76.39)	1939 (76.34)	1940 (76.38)	2060 (81.10)
	<b>8</b>	2051 (80.75)	2052 (80.79)	2054 (80.87)	2174 (85.59)



## 5 . SERVICING AND ADJUSTMENTS

**NOTE:** With narrow track widths and with certain tire fittings, the wheels may touch the hood when turning at maximum lock.

To prevent this, the hubs are fitted with threaded stops (Fig. 30) which can be adjusted to limit the steering angle. It is advisable to increase the front axle movement allowance (oscillation) to its maximum level by removing shim 1 under the stop or by changing stop 2 (Fig. 31). In this case, use screw 3 supplied in the toolbox.

**NOTE:** The axle is fitted in the factory to be able to withstand tractor transport.

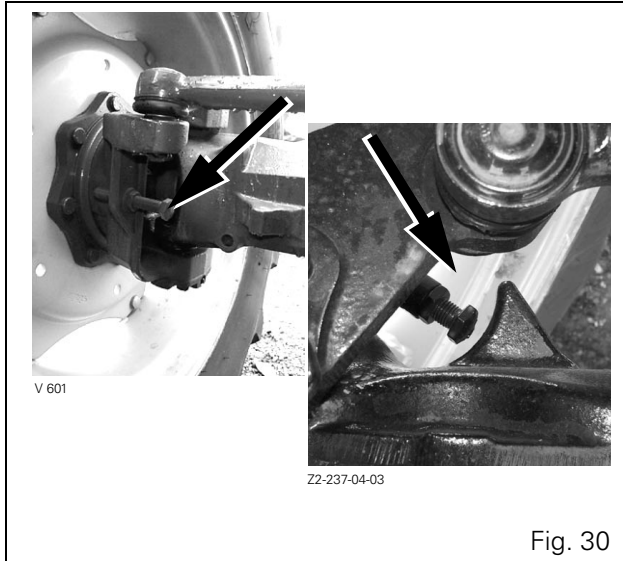


Fig. 30

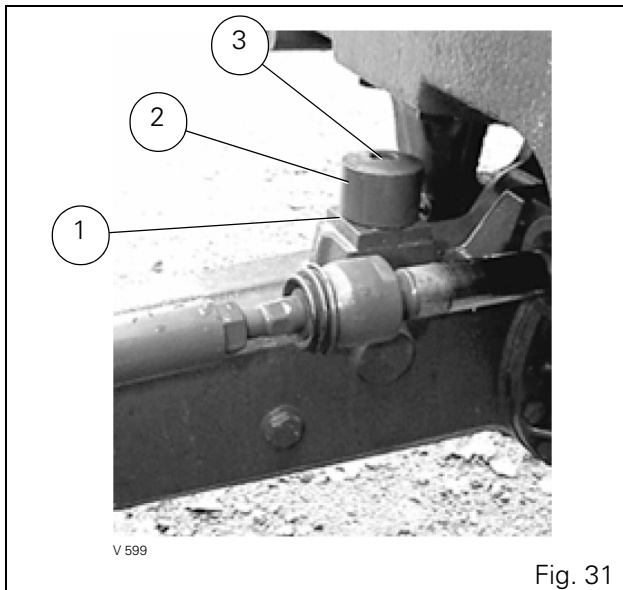


Fig. 31

## 5.21.2 - Rear track (mm)

### Wheels with steel flanges

The various track settings are obtained by changing the rim position in relation to the disk or by reversing the wheels (Fig. 32).

*NOTE: If the wheels are reversed they must be transferred to the opposite side of the tractor.*

When refitting, tighten the nuts progressively to the correct torques. See tightening torque table (chapter 6).

Tire		16.9R30	16.9R34 18.4R34 480.70R34	520.70R34	600.65R34	13.6R38 16.9R38 18.4R38 480.70R38	520.70R38 540.65R38 600.65R38
<b>Position</b>	<b>1</b>						
<b>Wheel disk facing inward</b>	<b>2</b>	1538 (60.55)				1636 (64.41)	
	<b>3</b>	1626 (64.02)	1626 (64.02)	●		1532 (60.31)	●
	<b>4</b>	1740 (68.50)	1744 (68.66)	●	●	1736 (68.35)	●
	<b>5</b>	1824 (71.81)	1824 (71.81)	●	●	1832 (72.13)	●
<b>Wheel disk facing outward</b>	<b>6</b>	1928 (75.91)	1942 (76.46)	●	●	2036 (76.06)	●
	<b>7</b>	2026 (79.76)	2026 (79.76)	●	●	1932 (80.16)	●
	<b>8</b>	2140 (84.25)	2144 (84.41)	●	●	2136 (84.09)	●

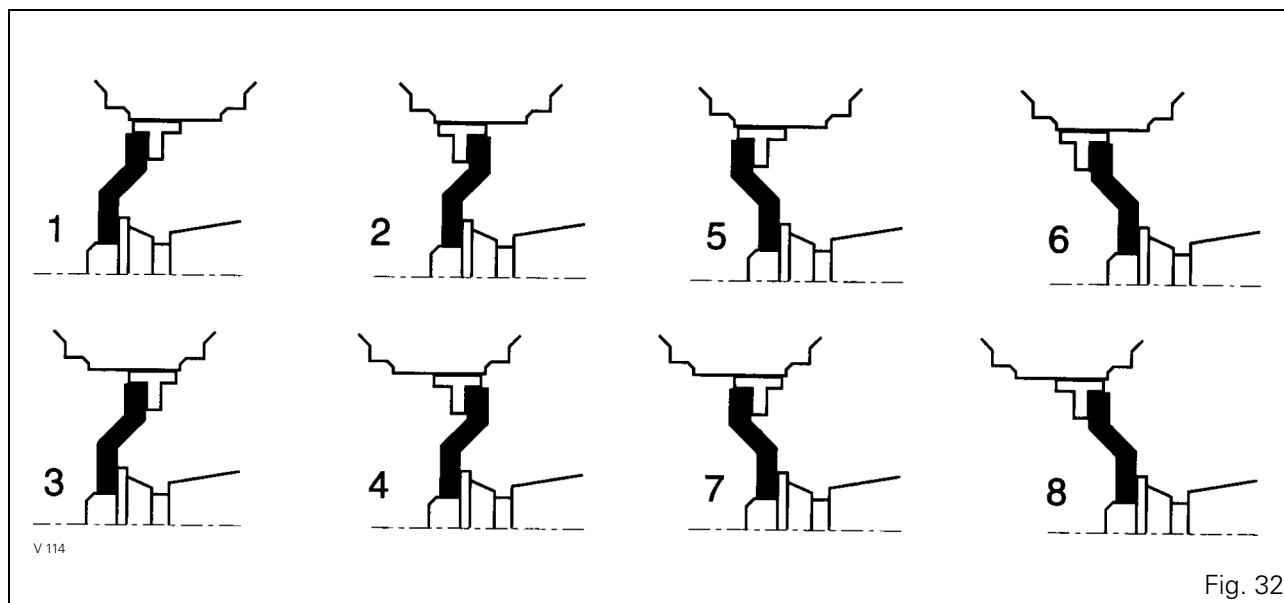


Fig. 32

## 5 . SERVICING AND ADJUSTMENTS

### 5.22 - ELECTRICAL EQUIPMENT

The 12-volt circuit is a negative earth system.

#### 5.22.1 - Batteries

Wipe the battery top and smear the terminals with liquid paraffin every 400 hours.

The battery is located at the front of the engine compartment.



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

#### 5.22.2 - Alternator

Check the tension of the fan and alternator belts every 400 hours.

Retighten the bolts.

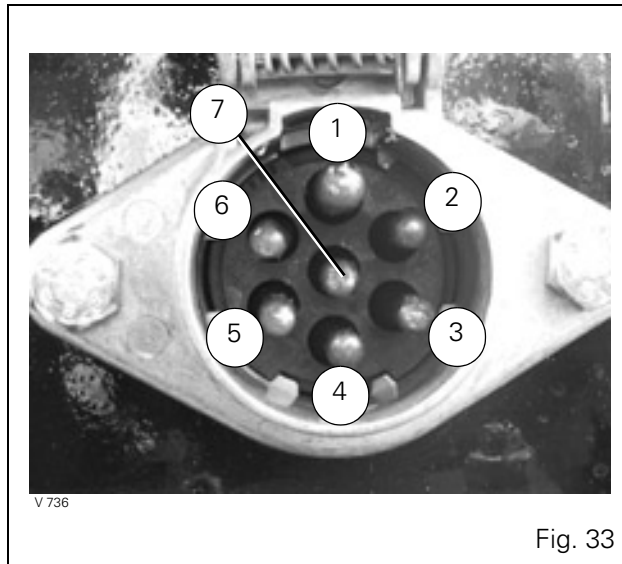
Ask your dealer or agent to check the alternator every 1200 hours or once a year.

**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.

#### 5.22.3 - Socket ASAE

Connection (Fig. 33).

1. Ground (white wire)
2. Rear work light (gray wire)
3. Left indicator and hazard warning light (yellow wire)
4. Open
5. Right indicator and hazard warning light (green wire)
6. Clearance lights, side lights and identification lights (brown wire)
7. 20 A fuse box, unswitched (red wire).





### 5.22.4 - Adjusting the headlights

The headlights are adjusted by tightening or loosening the 3 screws as required.

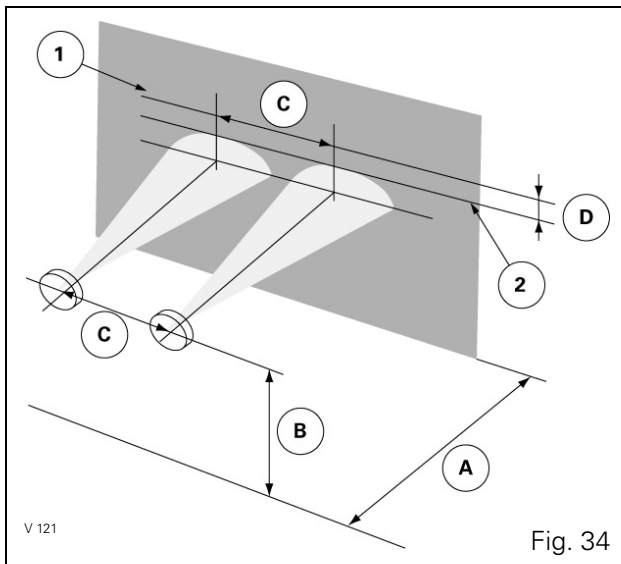
**NOTE:** Do not let your fingers come into direct contact with the iodine bulbs.

Legend (Fig. 34)

- 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. Height after adjustment

#### 5.22.4.1 - Headlight adjustment procedure

1. Position the tractor on a level surface, facing a wall or screen at a distance of 7.5 m (25 ft).
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. Draw a horizontal line on the wall (2) corresponding to  $D = (B \times 0.1)$ . Adjust each headlight individually by masking the opposite light and aligning the upper edge of the lighted zone with the top of line 2.



## 5 . SERVICING AND ADJUSTMENTS

### 5.23 - REPLACING FUSES

Always replace a fuse with another fuse of the same capacity.

No.	Amp	
F1	30	Accessories power socket
F2	15	Autotronic 5 linkage and transmission, diagnostics connector + ignition on
F3	10	Pneumatic seat
F4	3	Starter relay
F5	30	Diesel fuel lift pump
F6	15	+ APC (Ignition On) instrument panel, power take-off, creeper gears
F7	15	Front and rear, left and right indicators
F8	7.5	Front power take-off, reversing light
F9	3	Cab relay
F10	25	Windshield wiper timer
F11	10	Front and rear windshield wipers, radio
F12	3	Horn
F13	20	Front work lights
F14		
F15		
F16	20	Rear work lights
F17	3	Radio
F18		
F19		
F20	10	Reversing light, main beams and low beams on hand rails, power socket
F21	15	Hazard warning light unit
F22	3	Stop lights
F23	7.5	+ permanent Autotronic 5 linkage and transmission
F24	10	Autotronic 5
F25	7.5	Front right and rear left side lights, instrument panel backlighting, number plate
F26	7.5	Front left and rear right side lights
F27	15	Rotary beacon
F28	20	Warning
F29	20	Fender and hand rail work lights
F30	10	Front and rear, left and right indicators
F31	15	Main beams
F32	10	Low beams

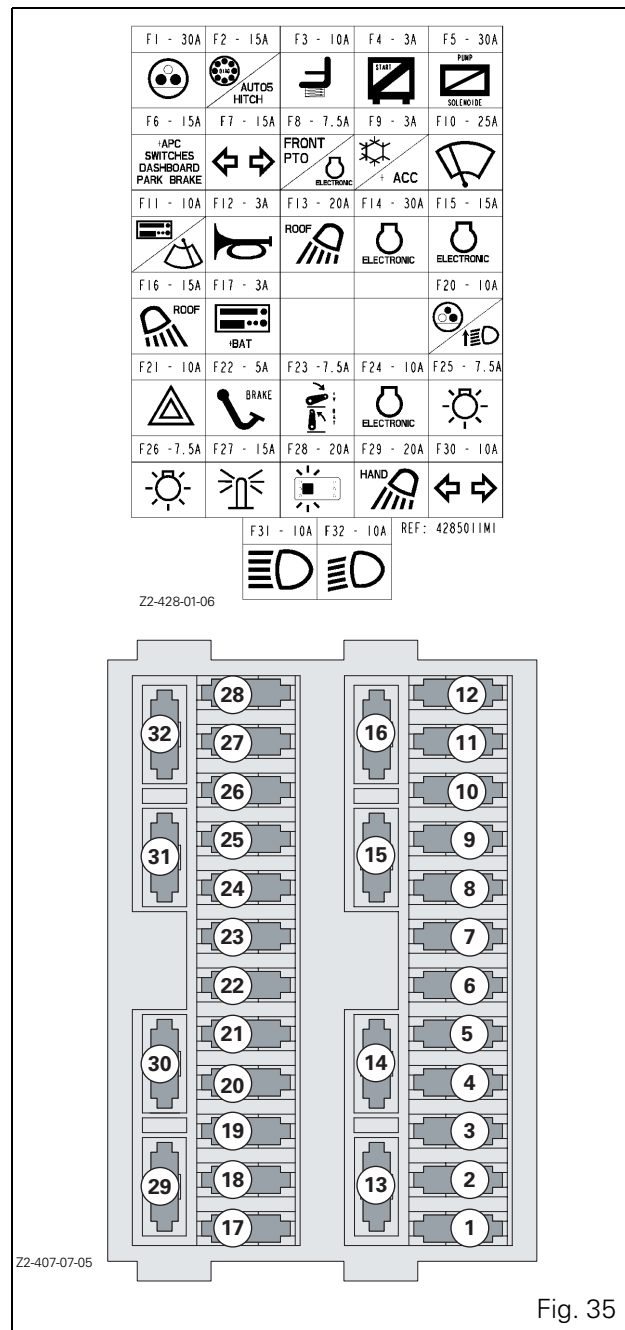


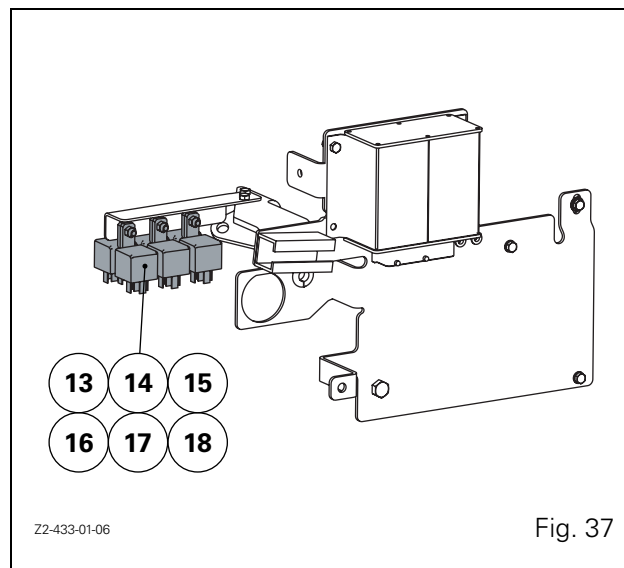
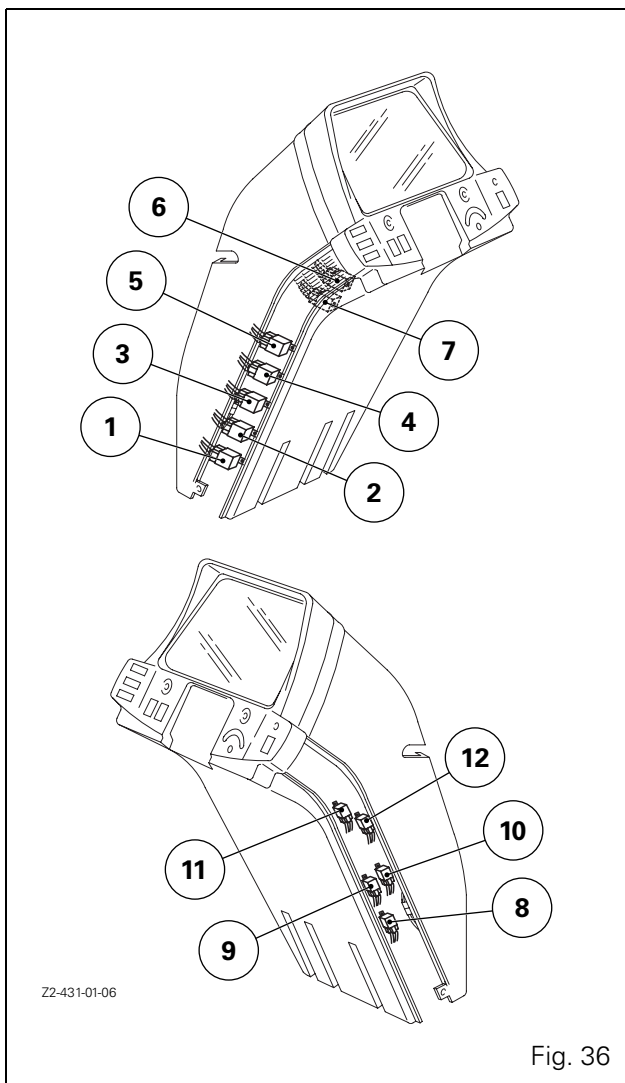
Fig. 35

A 175 A fuse, located near the starter, protects the general power supply.

A 50 A fuse located in the lower right-hand section of the instrument panel protects the ventilation and/or air-conditioning system.

5.24 - LOCATION OF RELAYS

Reference	Function	Location	
1	Ground authorization	Pedal support	Left leg
2	Front work lights		
3	Rear work lights		
4	Air-conditioning compressor		
5	Stop lights		
6	NA		
7	NA		
8	Air-conditioning, ventilation	Right leg	
9	Hazard warning light unit		
10	Accessories power supply	RH console	
11	Reversing light		
12	Windshield wiper timer		
13	Indicators		
14	Indicators		
15	Indicators		
16	Indicators		
17	Indicators		
18	Indicators		



## 5 . SERVICING AND ADJUSTMENTS

### 5.25 - FUEL HANDLING, STORAGE AND SPECIFICATIONS

#### 5.25.1 - Diesel

Before handling fuel, filling the tank, etc., observe the following:

Under no circumstances should petrol, alcohol, gasohol or dieselhol (a mixture of diesel fuel and alcohol) be added to diesel fuel because of increased fire or explosion risks. In a closed container such as a fuel tank, these mixtures are more explosive than pure petrol. DO NOT use these blends. 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 or hot.
- 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 guarantee safety.
- Ensure that the equipment is properly maintained.



**CAUTION: Diesel fuel is flammable. Handle fuel with care. Keep away from naked flames. Do not smoke when filling the bowl or tank. Do not leave the tractor unattended when filling the tank. Clean up any spilt fuel after filling the tank. Any material which comes into contact with the fuel must be moved to a safe place.**

**If high-pressure fuel comes into contact with eyes, wash immediately with clean water and seek medical help.**

#### 5.25.1.1 - Recommended fuel specification

The diesel fuel used must comply with the DIN EN 590 standard. To ensure the correct power and performance from your engine, only use good quality fuel. The recommended fuel specifications for engines are indicated below:

- Cetane index minimum 45
- Viscosity 2...4.5 mm<sup>2</sup>/s at 40°C
- Density 0.820/0.860 kg/liter at 15°C
- Sulfur 0.20% of mass, maximum
- Distillation 85% at 350°C
- Water content maximum 200 mg/kg

#### Cetane index

The cetane index indicates ignition performance. A fuel with a low cetane index can cause cold start-up problems and affect combustion.

#### Viscosity

Viscosity is fuel flow resistance; engine performance can be affected if it is outside the specified limits.

#### Density

A lower density reduces engine power, while a higher density increases engine power and exhaust smoke.

#### Sulfur

A high amount of sulfur can cause engine wear.

#### Distillation

Distillation is an indication of the mixture of different hydrocarbons in the fuel. A high ratio of lightweight hydrocarbons can affect combustion specifications.

#### Low temperature fuel

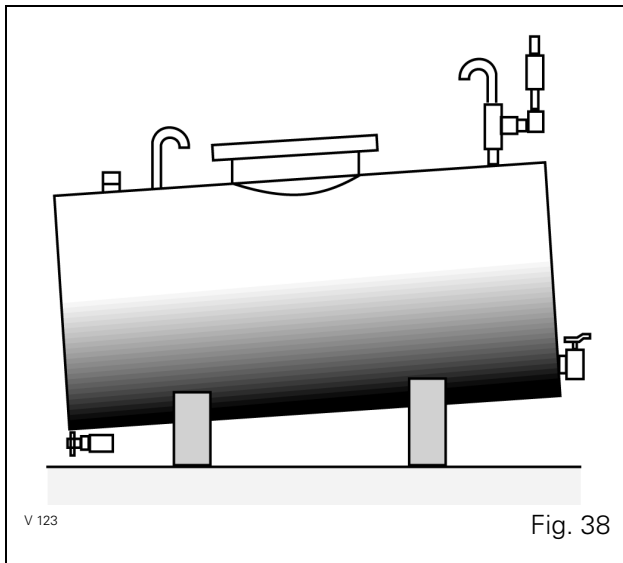
Special winter fuels are available which allow the engine to run at sub-zero temperatures. These fuels have the lowest viscosity and restrict the formation of wax (crystallization) in the fuel at very low temperatures. If wax formation occurs, this could stop fuel flow through the filter. If you need advice on engine adjustments or oil change frequency due to the quality of the available fuel, consult your nearest AGCO dealer.

### 5.25.2 - Fuel storage

(Fig. 38)

The utmost care must be taken to keep fuel clean.

1. Never clean the inside of containers or other fuel system components with a fluffy cloth.
2. Bulk storage tanks should not be overfilled: approximately 10,000 liters.
3. 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 faucet should be about 75 mm above the bottom of the tank to allow water and sludge to settle. It should have a removable strainer. The storage tank should slope by about 4 cm per meter towards the rear (drain plug side).
4. Let the fuel settle in the storage tank for 24 hours before use after any servicing or refilling the tank.
5. Clean out the storage tanks regularly; normally every five years, more frequently in cold climates.
6. Bleed the tanks frequently to drain off any water formed by condensation.
7. Rotate fuel stocks to prevent deterioration of old fuel and the accumulation of water or foreign matter.
8. 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

1. In cold weather, diesel fuel increases in viscosity and wax particles form. This may lead to operating problems if precautions are not taken.
2. Underground storage is preferable.

**IMPORTANT: Environmental protection — you must comply with local regulations in force relating to underground storage.**

- If this is not possible, place the storage tank in a location which is protected from the cold, wind and damp.
3. 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.
  4. Insulate all exposed pipework. Ensure that any pipework is short in length and designed to be disassembled if necessary.
  5. Only stock "winter" quality fuel during the cold weather season.

Frequently clean the fuel filter bowl.

Do not puncture the fuel filter.

Ensure that a spare filter is always available. If a blockage occurs, due to fuel waxing, changing the fuel filter will enable restarting.

### 5.26 - STORING YOUR TRACTOR

If a tractor is not going to be used for a long time, certain precautions must be taken to protect it. Consult your Dealer or Agent for further information.



*Chapter 6*  
**SPECIFICATIONS**





## CONTENTS

6.1 - ENGINE .....	6.5
6.1.1 Injection and air filter .....	6.5
6.2 - FORWARD SPEEDS .....	6.6
6.2.1 Road speed at 2200 rpm AutoPower IV and creeper and super creeper gears. 18.4R34 tires .....	6.6
6.3 - ELECTRICAL CIRCUIT .....	6.7
6.4 - COOLING .....	6.7
6.5 - TRANSMISSION .....	6.7
6.6 - FINAL DRIVES .....	6.7
6.7 - POWER TAKE-OFF (PTO) .....	6.8
6.8 - FOUR-WHEEL DRIVE FRONT AXLE .....	6.8
6.9 - HYDRAULIC SYSTEM (ACCORDING TO SPECIFICATION OR COUNTRY) .....	6.8
6.9.1 57 l/min (15 gal/min.) open center .....	6.8
6.9.2 100 l/min (26.4 gal/min.) open center (optional) .....	6.9
6.10 - LINKAGE .....	6.10
6.10.1 Rear .....	6.10
6.10.2 Front .....	6.10
6.11 - BRAKES .....	6.10
6.12 - REAR DIFFERENTIAL LOCK .....	6.10
6.13 - STEERING .....	6.11
6.14 - WHEELS .....	6.11
6.15 - TIRES .....	6.11
6.16 - TIRE PRESSURE .....	6.11
6.17 - TRACK WIDTHS .....	6.11
6.18 - CAPACITIES .....	6.12
6.19 - TIGHTENING TORQUES .....	6.12
6.19.1 Wheels .....	6.12
6.19.2 Miscellaneous .....	6.12
6.20 - DIMENSIONS AND WEIGHTS .....	6.13
6.21 - DIMENSIONS AND ATTACHMENT POINTS .....	6.15
6.21.1 Models MT425B, MT445B, MT455B .....	6.15
6.21.2 Model MT465B .....	6.16

**6 . SPECIFICATIONS**

---

**6.1 - ENGINE**

<b>Specifications</b>	<b>MT425B</b>	<b>MT445B</b>	<b>MT455B</b>	<b>MT465B</b>
CAT engine	1104C-44T	1104C-44T	1104C-44T	1104C-44TA
Number of cylinders	4	4	4	4
Turbocharging	yes	yes	yes	yes
Intercooler	no	no	no	air/air
Bore (mm (in))	105 (4.13)	105 (4.13)	105 (4.13)	105 (4.13)
Stroke (mm (in))	127 (5)	127 (5)	127 (5)	127 (5)
Cubic capacity (l (ci))	4.4 (268.5)	4.4 (268.5)	4.4 (268.5)	4.4 (268.5)
Nominal power (ISO kW)	60	67	74.5	83.5
At engine speed (rpm)	2200	2200	2200	2200
Maximum torque (SAE Nm (lbf ft))	345 (255)	380 (280)	415 (306)	471 (347)
Engine speed at maximum torque	1400	1400	1400	1400
Idle speed	950	950	950	950
Max. speed at no load (rpm) (± 30 rpm)	2380	2350	2350	2350
Lubrication	By gear pump - suction strainer and external filter(s) with replaceable cartridge(s)			
Valves	Overhead, operated by valve lifters			
Valve clearance (cold):				
Inlet - mm (in)	0.20 (0.008)	0.20 (0.008)	0.20 (0.008)	0.20 (0.008)
Exhaust - mm (in)	0.45 (0.018)	0.45 (0.018)	0.45 (0.018)	0.45 (0.018)
Engine oil cooling	yes	yes	yes	yes

**6.1.1 - Injection and air filter**

<b>Specifications</b>	<b>MT425B</b>	<b>MT445B</b>	<b>MT455B</b>	<b>MT465B</b>
Fuel filter with bowl	no	no	no	no
Number of elements	1	1	1	1
Injection pump	Bosch VE10	Lucas DP 210		
Injectors and injector port:				
Fuel injection type	mechanical			
Cold weather starting	glow plugs			
Air filter: two-stage, dry element with blockage indicator.				

## 6 . SPECIFICATIONS

### 6.2 - FORWARD SPEEDS

6.2.1 - Road speed at 2200 rpm AutoPower IV and creeper and super creeper gears. 18.4R34 tires

DIRECTION	RANGE	FORWARD AND REVERSE		
		AutoPower IV	Creeper 1/4	Creeper 1/14
1	A	1.99 (1.24)	0.5 (0.31)	0.14 (0.09)
	B	2.44 (1.52)	0.61 (0.38)	0.17 (0.11)
	C	2.98 (1.85)	0.74 (0.46)	0.21 (0.13)
	D	3.67 (2.28)	0.92 (0.57)	0.26 (0.16)
2	A	4.71 (2.93)	1.18 (0.73)	0.33 (0.21)
	B	5.8 (3.60)	1.45 (0.90)	0.41 (0.25)
	C	7.07 (4.39)	1.77 (1.10)	0.5 (0.31)
	D	8.7 (5.41)	2.17 (1.35)	0.62 (0.39)
3	A	9.57 (5.95)		0.68 (0.42)
	B	11.77 (7.31)		0.84 (0.52)
	C	14.36 (8.92)		1.02 (0.63)
	D	17.66 (10.97)		1.25 (0.78)
4	A	22.08 (13.72)		1.57 (0.98)
	B	27.16 (16.88)		1.93 (1.20)
	C	33.12 (20.58)		2.35 (1.46)
	D	40.73 (25.31)		2.89 (1.80)

*NOTE: 1/4 creeper gears cannot be engaged with ranges 3 and 4.*

*Maximum speed is limited by the electronic transmission control.*

**6.3 - ELECTRICAL CIRCUIT**

Voltage:	12 volts. Negative earth
Batteries:	1 or 2 maintenance-free batteries
Alternator:	80/120 Amp. according to model
Safety start switch:	Operated by the clutch pedal
Headlights:	H4 60/55 W
Side lights:	5 W
Indicators:	21 W
Number plate light:	10 W
Work lights:	55 W - H3
Instrument panel lighting and indicator lights:	3 W - 2 W - 1.2 W
Roof light:	10 W

**6.4 - COOLING**

Type:	Centrifugal pump and pressurized radiator. Regulated and controlled by a thermostat. Opening temperature: 82°C (179.2°F).
Fan:	Viscodynamic clutch fan. Gear-driven water pump.
Belt deflection: (on longest run)	19 mm (0.75 in) (4 cylinders)

**6.5 - TRANSMISSION**

Gearbox:	- 16 gears.
• With Dyna-4:	- 16 forward gears. - 16 reverse gears. - Power Shuttle.
• Creeper gearbox ratio 4/1:	- 4/1: 8 creeper gears. - 14/1: 16 creeper gears.
• Clutch:	- Multidisc wet clutch with electronic control (Power Shuttle).
• Filtration:	One 150-micron suction strainer, located to the right (open center) or left (closed center) of the center housing. External main high-pressure 15-micron filter, to the right of the center housing.
• Power Shuttle	- Driven by clutch, 6 discs in forward, 6 discs in reverse.
• Shuttle filtration:	1 60-micron strainer.

**6.6 - FINAL DRIVES**

Drives:	Epicyclic, located in the rear axle housings.
Drive ratio:	MT425B/MT445B/MT455B: 4.714:1 MT465B: 5.077:1

## 6 . SPECIFICATIONS

---

### 6.7 - POWER TAKE-OFF (PTO)

Power take-off:	Proportional to engine speed. Hydraulic clutch.
Interchangeable shaft:	540 or 1000 rpm at 2000 rpm engine speed Shaft Ø35 mm (1 3/8 in.) with 6 or 21 splines.
Speed shifting:	By changing shafts
"Economy" PTO (option):	Assembles on standard PTO. Standard speeds of 540 and 1000 rpm can be obtained: - either as shown above (direct drive) - or at 1550 rpm engine speed (overdrive) - "economy" speed.
Proportional PTO (option):	540 rpm -7.78 turns of the PTO shaft for 1 turn of the wheels. 1000 rpm -14.44 turns of the PTO shaft for 1 turn of the wheels.
Control:	Lever in cab.

### 6.8 - FOUR-WHEEL DRIVE FRONT AXLE

Clutch mechanism:	Electro/hydraulic, button electric control.
Differential lock:	Coupler differential lock with electro/hydraulic control.
Gear ratios:	720/750 (AG85) and 730/540 (AG105B): 18.975

### 6.9 - HYDRAULIC SYSTEM (ACCORDING TO SPECIFICATION OR COUNTRY)

#### 6.9.1 - 57 l/min (15 gal/min.) open center

Two-stage gear pump, driven directly by the engine.

- **1st stage**

- A pump (flow rate 32.7 l/min (5.9 gal/min.) at maximum speed, pressure 17 bar (246.5 lbf/in<sup>2</sup>)) supplies:

The hydrostatic steering	The gear range control
The speed reducing unit	The differential lock
The PTO	The front PTO
The front axle	The brakes
The clutch	The lubrication of gearbox and PTO

- **2nd stage**

- A pump (flow rate 57 l/min (15 gal/min) at maximum speed, pressure 200 bar (2902 lbf/in<sup>2</sup>)) supplies the hydraulic linkage, the auxiliary hydraulics, and the trailer braking.

Filtration:	External 150-micron suction strainer. External 15-micron high-pressure filter.
-------------	-----------------------------------------------------------------------------------

### 6.9.2 - 100 l/min (26.4 gal/min.) open center (optional)

Three hydraulic pumps:

- **1st stage**

- A pump (flow rate 32.7 l/min (5.9 gal/min.) at maximum speed, pressure 17 bar (246.5 lbf/in<sup>2</sup>)) supplies:

The hydrostatic steering	The gear range control
The speed reducing unit	The differential lock
The PTO	The front PTO
The front axle	The brakes
The clutch	The lubrication of gearbox and PTO

- **2nd stage**

- A pump (40 l/min (10.6 gal/min.) at maximum speed, pressure 200 bar (2902 lbf/in<sup>2</sup>)) supplies the hydraulic linkage.
- A pump (56 l/min (14.8 gal/min.) at maximum speed, pressure 200 bar (2902 lbf/in<sup>2</sup>)) supplies the auxiliary hydraulics and the trailer braking.

The flow rates of the two pumps can be coupled (100 l/min) (26.4 gal/min.) to use the auxiliary hydraulics system only.

Filtration:

External 150-micron suction strainer.
External 15-micron high-pressure filter.

## 6 . SPECIFICATIONS

---

### 6.10 - LINKAGE

#### 6.10.1 - Rear

Type: 3-point, category 2, with fixed or telescopic lower links, hook or ball joint type.

Rams: Ø 66. Number 2 - Capacity (see table).

CAPACITY	According to model
At ball joints*	4450 kg (9810 lb)

Rams: Ø 75. Number 2 - Capacity (see table).

CAPACITY	According to model
At ball joints*	5616 kg (12381 lb)

#### 6.10.2 - Front

Type: TE 2200 with or without nitrogen accumulator.

CAPACITY	
At ball joints*	2500 kg (5511 lb)

\* Maximum capacity variable according to lift rod position and linkage type.

### 6.11 - BRAKES

Type: Oil-immersed, single disc per wheel, outside diameter 343 mm (13.50 in.).

Inside lining diameter: 296 mm (11.65 in.).

Operation: Hydraulic, from two master cylinders, automatic adjustment.

Hand brake: Operates on pinion shaft.

Trailer brake: According to version, via hydraulic spool valve.

### 6.12 - REAR DIFFERENTIAL LOCK

Type: Coupler

Control: Hydraulic, electrically controlled



**6.13 - STEERING**

Type: Hydrostatic, tiltable and telescopic steering column, double acting central cylinder.

<b>Turning radius theoretical</b>		
Front tire dimensions	14.9R28	16.9R28
2WD 4WD	● -	- ●
Wheel track (m) Interior angle	51.5°	1.75 55°
Outer tire radius* Without brake (m)	4.33 (170 in)	4.52 (178 in)

\*with front axle disengaged

**6.14 - WHEELS**

FRONT            2-wheel drive steel rims  
                      4-wheel drive steel rims  
 REAR            Manual adjustment steel rims  
                      Fixed steel rims

**6.15 - TIRES**

Compatibility of front/rear wheels (same make and model) on 4-wheel drive tractors.

Front	Rear	Front	Rear	Front	Rear
11.2R28	13.6R38 16.9R34 18.4R30	13.6R28	16.9R38 18.4R34	380-70R28 420-70R24 440-65R28	480-70R38 520-70R34 540-65R38
12.4R24	13.6R38 16.9R30 18.4R30	14.9R24 14.9R28	13.6R38 18.4R34 18.4R38	420-70R28 480-65R28	520-70R38 520-70R38 600-65R38
13.6R24	13.6R38 16.9R34	16.9R28 380-70R24	20.8R38 480-70R34	480-70R28 540-65R28	580-70R38 650-65R38

*NOTE: The data in this table is not exhaustive. Ask your dealer for further information on other possible choices.*

**6.16 - TIRE PRESSURE**

See chapter 5.

**6.17 - TRACK WIDTHS**

See chapter 5.

## 6 . SPECIFICATIONS

### 6.18 - CAPACITIES

Type	Model	Capacity
Fuel tank	all models	130 to 145 l (34 to 40 gal) depending on equipment fitted
Additional tank	all models	45 l (12 gal)
Cooling system	all models	16.6 l (4.4 gal)
Engine sump	all models	7.5 l (2 gal)
Transmission/rear axle (+/- 3 l) (+/- 0.8 gal)	all models	70 l (18.5 gal)
Front axle	MT425B/MT445B/MT455B	5.5 l (1.45 gal)
	MT465B	6.8 l (1.8 gal)
Front final drives (each)	MT425B/MT445B/MT455B	0.9 l (0.23 gal)
	MT465B	1.1 l (0.3 gal)
Windshield washer bottle	all models	3.5 l (0.92 gal)

### 6.19 - TIGHTENING TORQUES

#### 6.19.1 - Wheels

	Disc on hub	Rim on disc
<b>Front axle</b>		
2WD	160 to 210 Nm (118–155 lbf.ft)	-
4WD	400 to 450 Nm (295–332 lbf.ft)	200 to 260 Nm (148–192 lbf.ft)
<b>Rear axle</b>		
Flanged shaft	400 to 450 Nm (295–332 lbf.ft)	180 to 250 Nm (133–184 lbf.ft)

#### 6.19.2 - Miscellaneous

Power take-off shaft:	72-96 Nm (53-71 lbf/ft)
Extendable arms (2WD):	340-450 Nm (250-332 lbf/ft)
Steering rams:	120–160 Nm (88–118 lbf/ft)
Engine oil drain plug:	35 Nm (26 lbf/ft)

**6.20 - DIMENSIONS AND WEIGHTS**

SPECIFICATIONS	MT425B		MT445B		MT455B		MT465B	
	4WD	2WD	4WD	2WD	4WD	2WD	4WD	2WD
<b>A.</b> Wheel track mm (in)	2464 (97.01)						2553 (100.51)	
<b>B.</b> Overall length with drawbars without front weights (mm (in))	4210 (165.8)	4205 (165.6)	4210 (165.8)	4205 (165.6)	4210 (165.8)	4205 (165.6)	4299 (169.3)	4294 (169.1)
<b>C.</b> Height at roof minimum/maximum (tractor with standard cab) (mm (in))	2677 (105.4)/2802 (110.3)							
<b>D.</b> External width (1) (mm (in))	2550 (100.4)							
<b>E.</b> Ground clearance (under swinging drawbar support) (mm (in))	380 (14.96) to 580 (22.83)							
<b>F.</b> Height to steering wheel (platform model) mm (in)	2026 (79.76)/2151 (84.69)							
Min. weight (with full tank, without steel wheel weights) (kg (lb))	3865 8521	3550 7826	3900 8598	3605 7948	3900 8598	3605 7948	4020 8863	3730 8223

(1) Dimensions valid only for tractors with maximum wheel track adjustment.

	Rear axle	Front axle	
		720/520 (AG 85)	730/540 (AG105B)
<b>G.</b> Distance between flanges:	1774 mm (69.84 in)	1669 mm (65.7 in)	1800 mm (70.86 in)
<b>H.</b> Center-to-center distance between studs:	203.20 mm (8.00 in)	275 mm (10.8 in)	
<b>I.</b> Centering diameter	149.35 (5.88 in)	220.8 mm (8.7 in)	
<b>J.</b> Stud length	41 mm (1.61 in)	38 mm (1.5 in)	
<b>K.</b> Stud or screw diameter	M18X1.5		
<b>L.</b> Number of studs or screws	8		

## 6 . SPECIFICATIONS

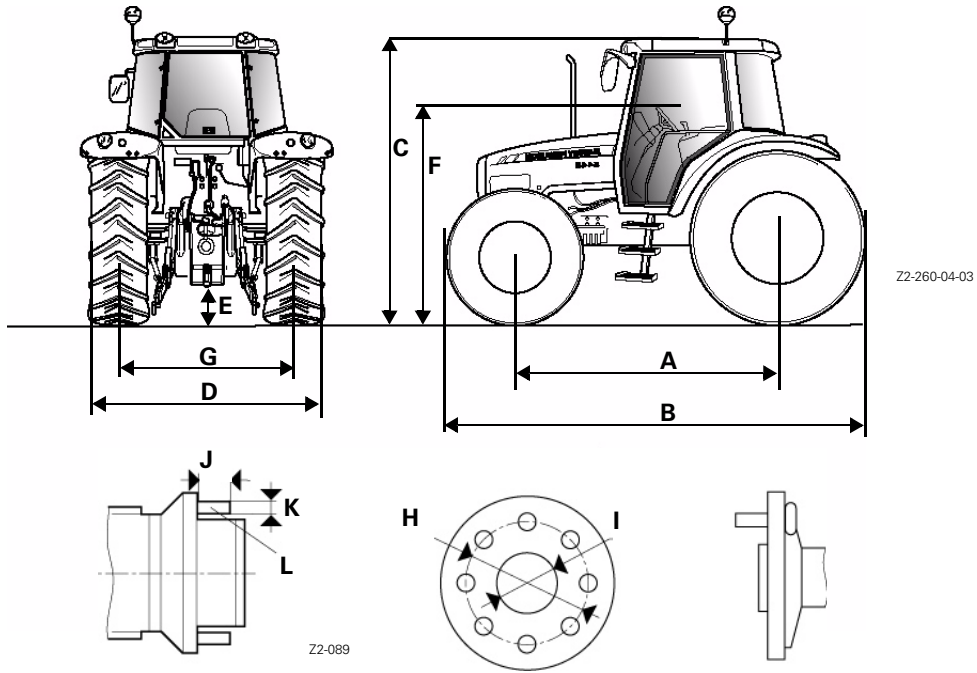
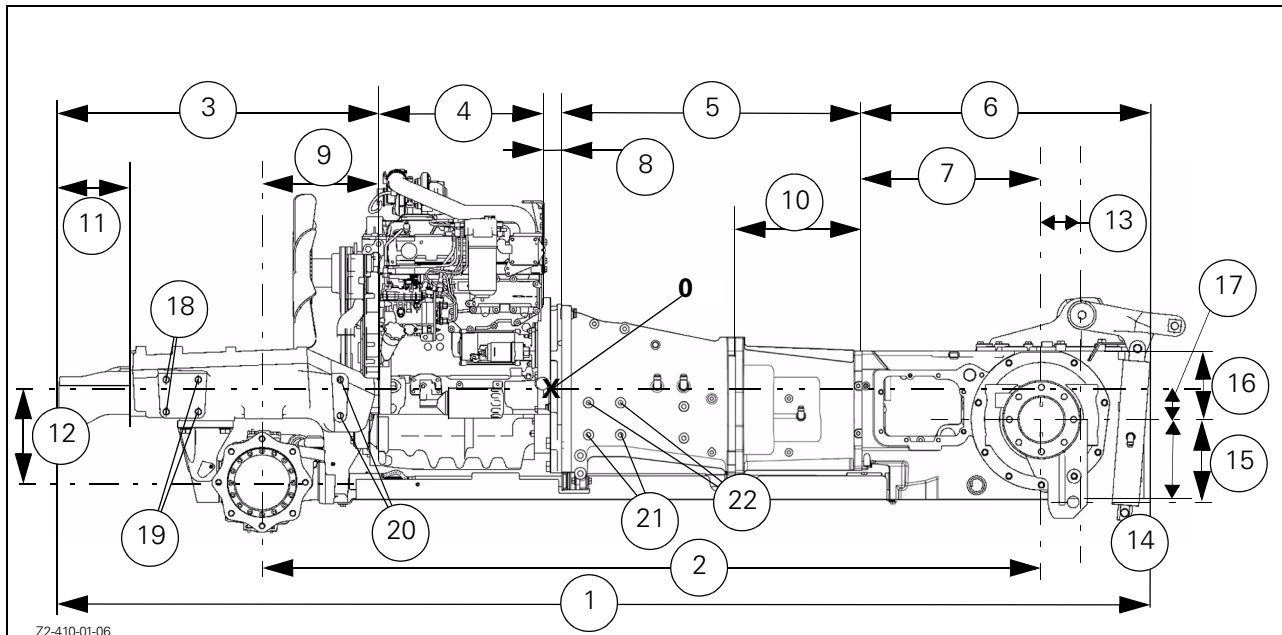


Fig. 1

6.21 - DIMENSIONS AND ATTACHMENT POINTS

6.21.1 - Models MT425B, MT445B, MT455B



REFERENCE		DIMENSIONS (mm)			REFERENCE		DIMENSIONS (mm)		
0= Engine axis		x	y	z	0= Engine axis		x	y	z
1	3427	-	-	-	12	306	-	-	-
2	2464	-	-	-	13	100	-	-	-
3	1012	-	-	-	14	249	-	-	-
4	540	-	-	-	15	260	-	-	-
5	896	-	-	-	16	216	-	-	-
6	890	-	-	-	17	106	-	-	-
7	567	-	-	-	18	2xM20	-1215	+/-280	20/-60
8	89	-	-	-	19	2xM20	-1113	+/-280	20/-60
9	372	-	-	-	20	2xM20	-665	+/-275	20/-94
10	400	-	-	-	21	2xM16	120/222	+/-183	-155
11	222	-	-	-	22	2xM16	120/222	+/-223	-53

Fig. 2

## 6 . SPECIFICATIONS

### 6.21.2 - Model MT465B

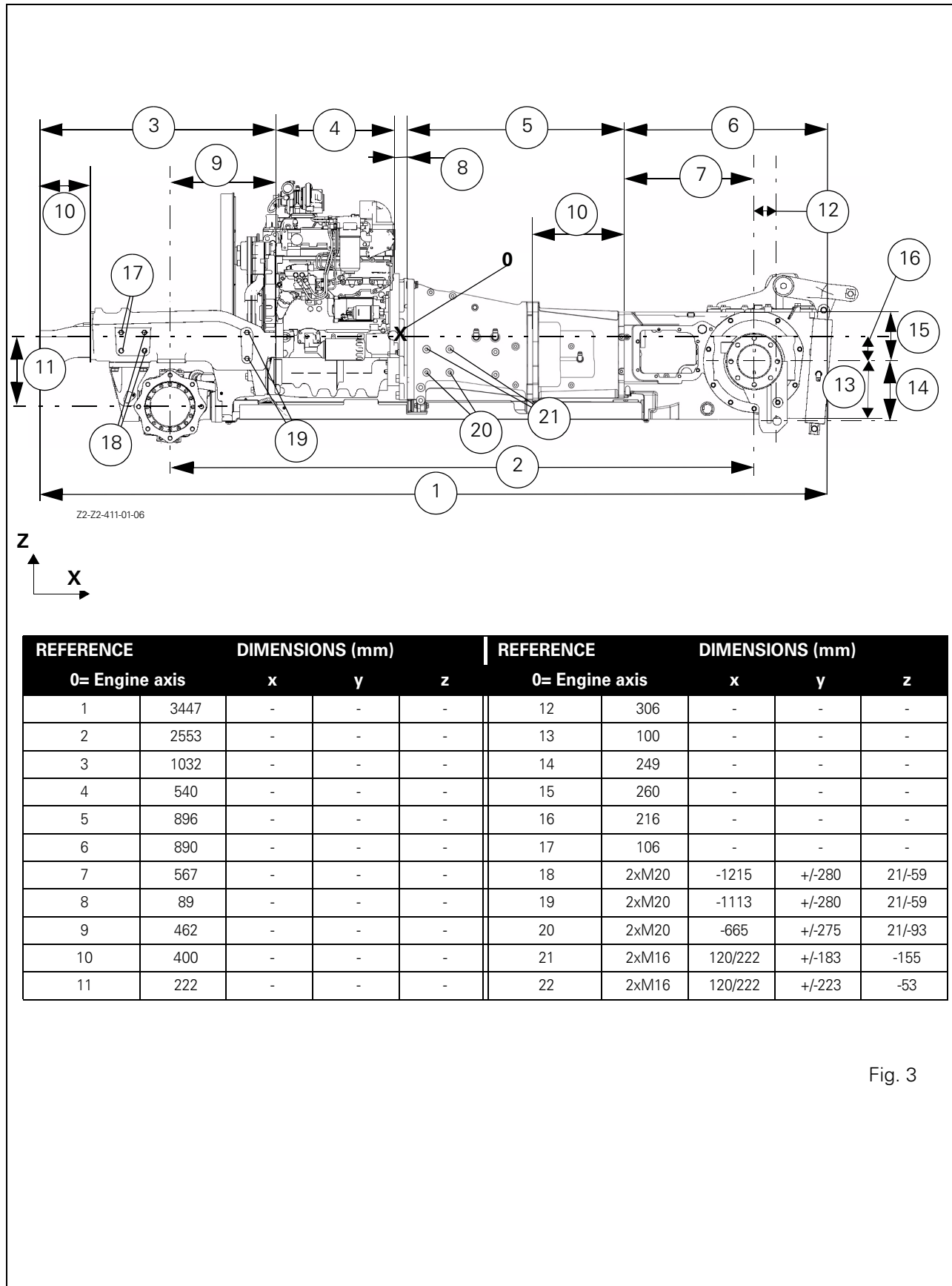


Fig. 3

*Chapter 7*

**ACCESSORIES AND OPTIONS**





**CONTENTS**

7.1 - AVAILABLE ACCESSORIES..... 7.5

## **7 . ACCESSORIES AND OPTIONS**

---

### 7.1 - AVAILABLE ACCESSORIES

- Wheel weights
- Front weights: 10/8/12 x 55 kg
- Center weight: 110 kg

**IMPORTANT:** *Removal is not easy and the weight must remain fitted.*

**NOTE:** *The center weight is not compatible with the front PTO.*

- Linkage (chapter 4).
- Auxiliary hydraulic spool valves (chapter 4).
- Rear windshield wiper and washer.
- Instructor seat.
- Front fenders.
- Creeper gearbox.
- PTO - different types (chapter 4).
- Radio fittings (loudspeakers, aerial and wiring).
- Radio.
- Seat belt.
- Battery circuit breaker.
- Engine block heater (220 V/110 V according to version).



*Chapter 8*  
**TROUBLESHOOTING**



**CONTENTS**

<b>8.1 - ENGINE TROUBLESHOOTING</b> .....	<b>8.5</b>
8.1.1 Engine will not run .....	8.5
8.1.2 Engine turns but will not start .....	8.5
8.1.3 Engine starts but will not run at full power .....	8.5
8.1.4 Engine overheating .....	8.5
8.1.5 Excessive fuel consumption .....	8.5
8.1.6 High oil consumption .....	8.6
8.1.7 Engine misfiring .....	8.6
8.1.8 Engine speed irregular .....	8.6
<b>8.2 - HYDRAULIC SYSTEM TROUBLESHOOTING</b> .....	<b>8.6</b>
8.2.1 Ram does not retract .....	8.6
8.2.2 Ram will not extend .....	8.6
8.2.3 Linkage arms do not lift .....	8.6
8.2.4 Pump does not supply sufficient pressure to lift normal load .....	8.6
8.2.5 Spool valve does not return to neutral position at end of ram travel .....	8.6
8.2.6 Spool valve returns to neutral position before end of ram travel .....	8.6
8.2.7 Oil foam forming at breather outlet .....	8.6
8.2.8 Oil leaks at accessories level .....	8.7
8.2.9 Spool valve union disconnects when under load .....	8.7
8.2.10 Linkage system ram faulty .....	8.7
8.2.11 Tank losing oil .....	8.7
8.2.12 Transmission/hydraulic system oil overheating .....	8.7
8.2.13 Spongy brakes .....	8.7





The following pages detail the most common problems relating to diagnostics procedures for engine and transmission faults. If it is not possible to solve problems concerning hydraulic and transmission parts by applying the lubrication, maintenance and adjustment procedures set out in this Book, the simplest solution is to consult your dealer.

### 8.1 - ENGINE TROUBLESHOOTING

#### 8.1.1 - Engine will not run

- Clutch not disengaged. Clutch must be disengaged to activate the safety start switch.
- Batteries flat or low in power. Recharge or replace them.
- Battery cables loose, broken or rusted through. Clean, tighten or replace cables.
- Engine or starter switch defective. Refer to your dealer.

#### 8.1.2 - Engine turns but will not start

- Injection pump solenoid cannot open injection pump.
- Fuel tanks empty. Check fuel level before trying to start engine.
- Pipes blocked. Remove and clean pipes.
- Fuel being used is too viscous. High-viscosity fuel thickens in cold weather. Use lower-viscosity fuel.
- Cetane index of fuel being used is too low. See fuel specifications.
- Air in the fuel pipes. See the bleeding section in chapter 5.
- Fuel filter is blocked. Replace elements.
- Start-up speed too low. Batteries must be in good condition to ensure engine start-up, especially in cold weather. Engine start-up may be faulty.
- Compression low. Refer to your dealer.

#### 8.1.3 - Engine starts but will not run at full power

- Connecting rod of throttle control misadjusted on injection pump.
- Proportional PTO too fast. Set transmission to a lower speed to avoid engine overload.
- Fuel tank vent blocked. Refer to your dealer.
- Fuel filter blocked. Replace the filter.
- Fuel type incorrect. See specifications.
- Fuel used is too viscous. In cold weather, high-viscosity fuel may not pass through the pipes.
- Air in the fuel pipes. Refer to your dealer.
- Exhaust silencer blocked. Replace it.
- Injection pump timing incorrect. Refer to your dealer.
- Air intake blocked. Clean it. Check the air filter.
- The air filter is dirty. Examine the filter.
- Engine runs but overheats. Refer to your dealer.
- Transmission clutch slips. Refer to your dealer.

#### 8.1.4 - Engine overheating

- Coolant level too low. See the expansion tank section in chapter 5.
- Radiator hose blocked or damaged. Replace hose.
- Temperature gauge defective. Refer to your dealer.
- Fan belt slack or frayed. See the fan belt section in chapter 5.
- Thermostat defective — replace thermostat. DO NOT RUN ENGINE WITHOUT WORKING THERMOSTAT.

- Engine oil level too low. Fill.
- Engine oil too thick. Use recommended oil type.
- Tractor overloaded. Shift to lower transmission speed.
- Fuel dirty. See fuel specifications.
- Injection pump timing incorrect. Refer to your dealer.
- Exhaust silencer blocked. Replace it.
- Water pump defective. Refer to your dealer.

#### 8.1.5 - Excessive fuel consumption

- Air intake is blocked or air filter is blocked. See servicing chapter.
- Fuel pipes leaking. Block leaks.
- Injection pump misadjusted. Refer to your dealer.
- Fuel type incorrect. See fuel specifications.
- Engine overloaded. To save fuel, engine load should not exceed nominal values.

## 8 . TROUBLESHOOTING

---

### 8.1.6 - High oil consumption

- Oil drain plug loose. Tighten it.
- Seal leaking. Replace seal.
- Oil specification incorrect. See chapter 5.
- Engine sump oil diluted. Refer to your dealer.
- Engine overheating. Find cause of overheating.
- Oil pressure too high. Refer to your dealer.
- Piston rings not in place or worn. Refer to your dealer.

### 8.1.7 - Engine misfiring

- Injector nozzles are dirty or misadjusted. Refer to your dealer.
- Valves burnt out or seized. Refer to your dealer.

### 8.1.8 - Engine speed irregular

- Transmission clutch slips. See clutch adjustment. Regulator slow. Refer to your dealer.

## 8.2 - HYDRAULIC SYSTEM TROUBLESHOOTING

### 8.2.1 - Ram does not retract

- Hoses not connected correctly or not suitable. Check hoses and tighten connections.
- Coupling lever in CLOSED position. Place lever in OPEN position.

### 8.2.2 - Ram will not extend

- Hoses not connected correctly or not paired up. Check connections.
- Coupling lever in CLOSED position. Place lever in OPEN position.
- Flow rate regulation control is closed on controlled ram.
- Ram overloaded.
- Implement design does not allow piston to complete its stroke or implement linkage is restricted. Check ram is correctly fitted to implement and ensure ram can complete its stroke.
- Implement linkage mechanism seized. Clean, lubricate or unblock linkage mechanism.
- Rams leaking internally. Refer to your dealer.

### 8.2.3 - Linkage arms do not lift

- Electronic linkage control not activated. Activate linkage as indicated in chapter 4.
- Electronic linkage control no longer calibrated. Refer to your dealer.
- Hitch hook overloaded. Load must not exceed limits indicated in chapter 4.

### 8.2.4 - Pump does not supply sufficient pressure to lift normal load

- Pump is defective. Refer to your dealer.

### 8.2.5 - Spool valve does not return to neutral position at end of ram travel

- The control valve notch adjustment screw is set incorrectly or operator has not moved the control lever enough to allow engagement in the notch. Move lever forwards or backwards through its full travel (drawbar adjustment may be necessary). With control valve in floating position, manually move ram control lever to neutral position. Refit control lever locknuts to work without floating position.

- Spool valve or selector valve seized. Move hydraulic control lever to LIFT and LOWER positions several times to try to eradicate seizure.
- Return mechanism leaking internally. Refer to your dealer.

### 8.2.6 - Spool valve returns to neutral position before end of ram travel

- Control valve notch adjustment screw set incorrectly.
- Driver has not moved control lever enough to allow engagement in the notch. Move lever forwards or backwards through its full travel (drawbar adjustment may be necessary).
- Notch springs broken or retaining grooves worn. Refer to your dealer.

### 8.2.7 - Oil foam forming at breather outlet

- Oil level too high. See transmission/hydraulic system oil instructions in chapter 5.
- Oil level too low. See transmission/hydraulic system oil instructions in chapter 5.
- Incorrect oil type in tank. See transmission/hydraulic system oil instructions in chapter 5.
- Pressure relief valve faulty. Refer to your dealer.
- Air in system. Refer to your dealer.

### 8.2.8 - Oil leaks at accessories level

- Connection loose. Check tightness.
- Threads damaged. Fit new pipework or accessories if required.

### 8.2.9 - Spool valve union disconnects when under load

- Male plug type incorrect.
- Hoses incorrectly fitted to trailed implements. Fit hoses to supports using straps to prevent them from hanging behind the hitch mechanism union.
- Tractor driving on very rough ground. Fit hoses to supports on trailed implements to prevent the slack from swinging between the hitch mechanism and support.

### 8.2.10 - Linkage system ram faulty

- Implement prevents piston from completing its stroke. Check and adjust the implement so ram rod can complete its stroke.
- Implement linkage mechanism seized up. Unblock and lubricate mechanism.

### 8.2.11 - Tank losing oil

- External leaks. Repair or replace hoses, accessories, pipes, seals etc. as required.

### 8.2.12 - Transmission/hydraulic system oil overheating

- Oil level too low. See transmission/hydraulic system oil instructions in chapter 5.
- Oil too thick or insufficient oil. See hydraulic system/transmission oil instructions in chapter 5.
- Oil contaminated. See hydraulic system/changing transmission oil instructions in chapter 5.
- Pressure relief valve adjustment incorrect. Refer to your dealer.
- Internal leaks at valve level. Refer to your dealer.
- Excessive linkage arm movement — adjust linkage to increase traction effort. See "Operation when working" in chapter 4.
- The oil cooler by-pass is locked in open position.

### 8.2.13 - Spongy brakes

- Air in circuits. Bleed brake system. See chapter 5.
- Brake valve operating incorrectly. Refer to your dealer.



*Appendix*

**CONVERSION TABLES**



# CONVERSION TABLES

LENGTH		
multiply by		
mm	x 0.0394	in
in	x 25.400	mm
m	x 3.2808	ft
ft	x 0.3048	m
km	x 0.6214	mile
mile	x 1.6093	km

POWER		
multiply by		
hp	x 0.9863	bhp (uk)
bhp (uk)	x 1.0139	hp
kW	x 1.3410	bhp (uk)
bhp (uk)	x 0.7457	kW
kW	x 1.36	hp
hp	x 0.736	kW

AREA		
multiply by		
mm <sup>2</sup>	x 0.0016	in <sup>2</sup>
in <sup>2</sup>	x 645.16	mm <sup>2</sup>
m <sup>2</sup>	x 10.764	ft <sup>2</sup>
ft <sup>2</sup>	x 0.0929	m <sup>2</sup>
ha	x 2.4711	acre
acre	x 0.4047	ha

TORQUE		
multiply by		
Nm	x 0.738	lbf ft
lbf ft	x 1.356	Nm
daNm	x 7.3756	lbf ft
lbf ft	x 0.1356	daNm

VOLUME		
multiply by		
cm <sup>3</sup>	x 0.06102	in <sup>3</sup>
in <sup>3</sup>	x 16.387	cm <sup>3</sup>
m <sup>3</sup>	x 35.315	ft <sup>3</sup>
ft <sup>3</sup>	x 0.0283	m <sup>3</sup>

PRESSURE		
multiply by		
bar	x 14.504	lbf/in <sup>2</sup>
lbf/in <sup>2</sup>	x 0.0690	bar

CAPACITY		
multiply by		
ml	x 0.0351	fl oz
fl oz	x 28.413	ml
l	x 0.2200	gal (uk)
gal (uk)	x 4.5640	l
l	x 0.2640	gal (us)
gal (us)	x 3.7850	l
gal (uk)	x 1.2010	gal (us)
gal (us)	x 0.8330	gal (uk)

FLOW		
multiply by		
l/min	x 0.264	gal/min (us)
l/min	x 0.22	gal/min(uk)
l/h	x 0.264	gal/h (us)
l/h	x 0.22	gal/h (uk)
l/ha	x 0.107	gal/acre (us)
l/ha	x 0.089	gal/acre (uk)
gal/min (us)	x 3.7850	l/min
gal/min(uk)	x 4.5640	l/min
gal/h (us)	x 3.7850	l/h
gal/h (uk)	x 4.5640	l/h
gal/acre (us)	x 9.354	l/ha
gal/acre (uk)	x 11.232	l/ha

SPEED		
multiply by		
km/h	x 0.6214	mph
mph	x 1.6093	km/h

## CONVERSION TABLES

---

WEIGHT		
multiply by		
g	x 0.0353	oz
oz	x 28.350	g
kg	x 2.2046	lb
lb	x 0.4536	kg
kg	x 0.00098	ton (uk)
ton (uk)	x 1016.1	kg
t	x 0.9842	ton (uk)
ton (uk)	x 1.016	t
t	x 1.1023	ton (us)
ton (us)	x 0.9072	t

TEMPERATURE		
°C	°C x 1.8 + 32	°F
°F	(°F - 32)/1.8	°C



**FACTORY RECOMMENDED  
PRE-DELIVERY INSPECTION CHECK LIST**

DEALER CODE       DEALER NAME \_\_\_\_\_ DATE \_\_\_\_\_  
ADDRESS \_\_\_\_\_ CITY \_\_\_\_\_  
STATE/PROV \_\_\_\_\_ ZIP CODE \_\_\_\_\_  
MODEL NO \_\_\_\_\_ SERIAL NO \_\_\_\_\_  
OWNER'S NAME & ADDRESS (If available) \_\_\_\_\_

**THIS PRE-DELIVERY INSPECTION CHECK LIST IS PROVIDED TO IDENTIFY THE ITEMS CHECKED AND  
IF NECESSARY ADJUSTED BY THE DEALER PRIOR TO DELIVERY**

Verify and record the serial numbers of the tractor, engine, cab and Power Front Axle (PFA).  
Assemble parts removed for transport.

**Check and Adjust the following:**

- |                                                        |                                                                                     |
|--------------------------------------------------------|-------------------------------------------------------------------------------------|
| <input type="checkbox"/> Cooling system                | <input type="checkbox"/> Windshield washer reservoir                                |
| <input type="checkbox"/> Fuel tank                     | <input type="checkbox"/> Lubricate all grease points                                |
| <input type="checkbox"/> Engine oil                    | <input type="checkbox"/> Lightly lubricate linkages, hinges, latches and door locks |
| <input type="checkbox"/> Transmission and rear axle    | <input type="checkbox"/> Tension of fan and air conditioner compressor belts        |
| <input type="checkbox"/> Power Front Axle (PFA)        | <input type="checkbox"/> Torque of all wheel and rim (nuts and bolts)               |
| <input type="checkbox"/> Battery                       | <input type="checkbox"/> Tire pressure                                              |
| <input type="checkbox"/> Torque Front and rear weights |                                                                                     |
| <input type="checkbox"/> Engine air cleaner elements   |                                                                                     |

**Turn switch to "Auxiliary" position and check:**

- All warning lights - ON
- Lights - head, side, indicator, work, interior and panel
- Hazard warning lights and horn
- Cab heater and fresh air blower

**Start the engine and check:**

- Safety start switches operation
- Air cleaner restriction indicator
- Fuel cut-off solenoid operation

**Restart, warm up the tractor, and check:**

- |                                                                  |                                                                  |
|------------------------------------------------------------------|------------------------------------------------------------------|
| <input type="checkbox"/> Balance and operation of brakes         | <input type="checkbox"/> Draft control (with weight attached)    |
| <input type="checkbox"/> Operation in all gears                  | <input type="checkbox"/> Position control (with weight attached) |
| <input type="checkbox"/> Differential lock function              | <input type="checkbox"/> Engine low idle speed                   |
| <input type="checkbox"/> Power Front Axle function               | <input type="checkbox"/> Engine high idle no load speed          |
| <input type="checkbox"/> Operation of cab heater and blower      | <input type="checkbox"/> External hydraulic controls             |
| <input type="checkbox"/> Operation of air conditioner            | <input type="checkbox"/> Electronic linkage control              |
| <input type="checkbox"/> Operation of all gauges and instruments | <input type="checkbox"/> Parklock effectiveness                  |
| <input type="checkbox"/> Parking brake effectiveness             |                                                                  |

**Stop engine and check:**

- |                                                                              |                                                                                            |
|------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|
| <input type="checkbox"/> Ensure that there are no oil, fuel or coolant leaks | <input type="checkbox"/> Ensure tool box contents and literature pack are to specification |
| <input type="checkbox"/> Clean off all preservatives and shipping labels     | <input type="checkbox"/> Explain operation and safety with the owner                       |
| <input type="checkbox"/> Clean the tractor                                   | <input type="checkbox"/> Ensure all safety decals are in place                             |

**White Copy - Leave in book  
Yellow Copy - Tear Out & Mail**

Comments:

---

---

---

---

---

---

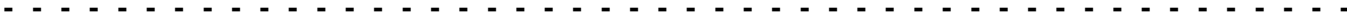
---

---

---

---

(Fold here first)



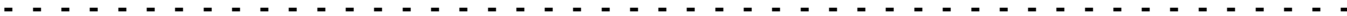
---

---

---

Place  
postage  
stamp  
here

**AGCO PRODUCT RELIABILITY**  
420 W. LINCOLN BLVD  
P.O. Box 4300  
HESSTON, KS. 67062-2002



(Fold)

Tape  
here