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# Challenger MT525B-535B-545B-555B-565B-575B Series Agricultural Tractors

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# *OPERATOR INSTRUCTION BOOK*

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*Chapter 1*

# TRACTOR IDENTIFICATION

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## 1.1 - SERIAL NUMBERS

*IMPORTANT: WHEN CONTACTING YOUR DEALER OR AGENT, ALWAYS INDICATE YOUR TRACTOR SERIAL NUMBER.*

Registration plate (according to country)

CE-013-01-05

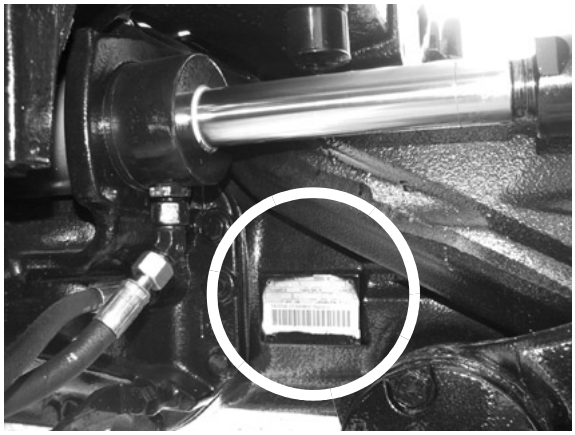
Fig. 1

Name plate with serial number (according to country).

CE-014-01-05

Fig. 2

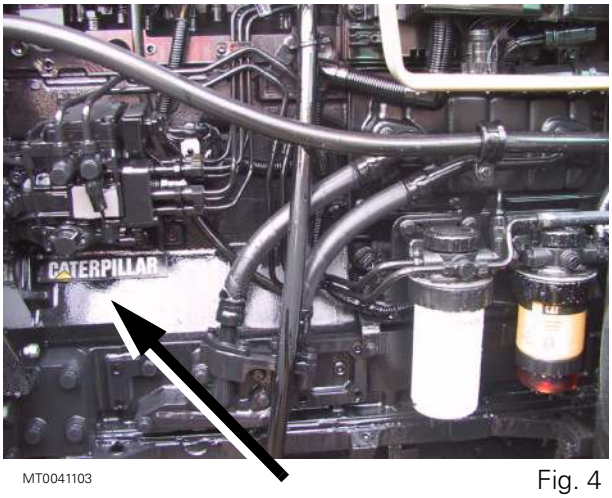
Front axle Serial number



Z2-095

Fig. 3

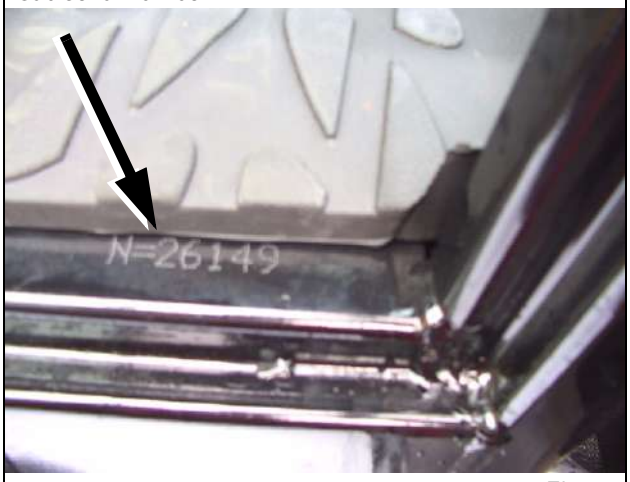
"CAT" engine serial number




MT0041103

Fig. 4

Cab serial number




CE-012-01-05

Fig. 5

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# 1 . TRACTOR IDENTIFICATION

MODEL: .....
.....

SERIAL NUMBER: .....
.....

ENGINE SERIAL NUMBER: .....
.....

OWNER NAME AND ADDRESS (if applicable):
.....
.....
.....
.....

DEALER: .....
.....
.....

STREET: .....

TOWN: .....

STATE: .....

ZIP CODE: .....

DEALER CODE: .....
.....

TRACTOR RECEIVED FROM:
(tick one of the following)

..... FACTORY

..... OTHER DEALER (transfer)

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*Chapter 2*

# *INTRODUCTION - SAFETY INSTRUCTIONS AND WARRANTY*

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## 2.1 - NOTE TO THE USER

The purpose of the contents of the present Book (text and illustrations) is to help the user to better master tractor operation and maintenance.

Every vehicle part must be maintained to a certain level in order to remain in perfect operating condition. The utmost has been done to include all settings and adjustments for use in all possible operating conditions. However, special attention is required in certain cases.

Please read this Operator Instruction Book very carefully in order to familiarise yourself with all the operating settings, adjustments and procedures before using the tractor. Always remember that this machine has been designed and tested to work effectively in most operating conditions and that its operation depends on the maintenance it receives.

Ask the dealer if certain cases require special attention. His Spare Parts and Service team will be pleased to help and to answer any questions relating to the operation and maintenance of the machine.

## 2.2 - THIS BOOK MUST ALWAYS BE KEPT WITH THE TRACTOR

The present book includes all information available about the product at the time of publication. The manufacturer reserves the right to modify it at any time.

## 2.3 - WARRANTY

The warranty that applies to this tractor can be found on the purchase order and warranty conditions card given by the dealer at the time of purchase.

As set out by the terms and conditions listed on the purchase order form signed by the buyer and dealer, the vehicle buyer is responsible for all inspections and for transporting the vehicle to and from the dealer.

## 2.4 - SAFETY

Driver safety is one of the major concerns taken into account when designing and tuning the new tractor. The designers have included as many safety systems as possible. In spite of these precautions, each year a number of accidents happen which could have been avoided by a few seconds consideration and greater care when using agricultural machines and implements.

For this reason you are strongly advised to carefully read and strictly apply the safety instructions set out in this Book.

***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 elements are not in place. If safety guards and protective panels have been removed for repair purposes, they MUST be refitted before use.***

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## 2.5 - SAFETY - ALERT SYMBOLS AND TERMS

This Safety Alert Symbol means CAUTION! BE ALERT! YOUR SAFETY DEPENDS ON IT!

The safety alert symbol identifies important safety messages on machines, safety signs, in manuals, or elsewhere. When you see this symbol, be alert to the risk of personal injury or death. Follow the instructions in the safety message.

**SAFETY is essential! Why?**

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

## 2.6 - TRACTOR AND IMPLEMENTS

The tractor is a source of power - Mechanical - Hydraulic

- 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 is compiled to cover the safe working practices when the tractor runs under normal conditions.
- It does not cover all operation and safety instructions relevant to all known implements and attachments that may be fitted at the time of tractor delivery or later.
- It is essential that operators use and understand the relevant instruction books of such implements and attachments.

## 2.7 - 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 regulatory texts in force in the relevant countries.***

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## 2.8 - INTRODUCTION

The present Safety chapter sets out certain typical situations that may be encountered during normal tractor operation and maintenance, and suggests solutions to remedy them. This chapter DOES NOT replace the other safety instructions in the other chapters of this book.

Other precautions must be taken depending on the equipment used and the working conditions on the site or in the maintenance area. The manufacturer is unable to directly control the use, operation, checking, lubrication and maintenance of the tractor. The DRIVER is therefore responsible for applying the safety measures relevant to all these operations.

*NOTE: This Book is intended for distribution in North America; it is possible that some default equipment or attachments mentioned are not available in the country where the tractor is used. Please consult your dealer for further information on this subject.*

**Only use approved attachments and equipment.**

## 2.9 - NOTE TO THE OPERATOR

It is YOUR responsibility to read and understand the Safety chapter in this book before starting your tractor. You must follow these safety instructions that take you step by step through your working day.

In reading this section, you will note that illustrations have been used to highlight certain situations. Each item illustrated is numbered and the same number appears in the text, in parentheses. This number is placed at the end of the written text that refers to the item illustrated.

Remember that YOU are the key to safety. Good safety practices not only protect you, but also bystanders. Study the features in this book with care and make them a working part of your safety program.

Keep in mind that this safety section is written only for this type of machine. Also study the usual protective measures taken when working and in particular -

**REMEMBER THAT SAFETY DEPENDS ON YOU. YOU CAN PREVENT SERIOUS INJURY OR DEATH.**

## 2.10 - DANGER, WARNING AND CAUTION

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

***DANGER: This signal, displayed with the word DANGER, indicates an imminently hazardous situation that, if not avoided, may result in DEATH OR VERY SERIOUS INJURY.***

***WARNING: This signal, displayed with the word WARNING, indicates a potentially hazardous situation that, if not avoided, may result in DEATH OR SERIOUS INJURY.***

***CAUTION: This signal, displayed with the word CAUTION, indicates a potentially hazardous situation that, if not avoided, may result in MINOR INJURY.***

*IMPORTANT: Indicates a special instruction or procedure that, if not strictly observed may cause damage to, or destruction of the machine, the process, or the surroundings.*

*NOTE: The word NOTE indicates additional information about a subject or procedure for more efficient or convenient operation or repair.*

## 2.11 - DECALS

***WARNING: DO NOT remove or obscure DANGER, WARNING, CAUTION or Instruction Decals.***

Replace any Danger, Warning, Caution or Instruction Decals that are not readable or are missing. Replacement decals are available from your Dealer in the event of loss or damage. The actual location of these Safety Signs is illustrated at the end of this chapter.

If a used tractor has been purchased, refer to the illustrations at the end of this book to ensure that all the safety signs are in the correct position and are readable.

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## 2.12 - SAFETY PROCEDURE TO FOLLOW

### 2.12.1 - For proper operation

For proper operation of an agricultural tractor, you must be a qualified and approved operator. To be qualified you must understand the written instructions supplied in this manual, have training, and know the safety rules and regulations for the job.

Some regulations specify that no one under the age of 16 years, for example, may operate power machinery. This includes tractors. It is your responsibility to know what these regulations are, and respect them, in the operating area or situation.

These will 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 coordination. If taking medication, whether prescribed or not, the operator must seek medical advice as regards his ability to safely operate machinery.***

### 2.12.2 - Observe the following instructions

- **DO NOT ALLOW** children or unqualified persons to operate your tractor. Keep others away from the working area.
- Always wear your seat belt securely fastened.
- Where possible, avoid operating the tractor near ditches, embankments and holes. Reduce speed when turning, crossing slopes, and on rough, slippery, or muddy surfaces.
- Stay off slopes too steep for safe operation.
- Watch where you are going, especially at row ends, on roads, and around trees.
- Passenger seat is only intended for short periods of use
- Do not allow children in the passenger seat.
- **DO NOT PERMIT** others to ride on the tractor or the implement unless an approved passenger seat is fitted.
- Only hitch attachments and implements to the drawbar and hitch points recommended, and never above the centre line of the rear axle.
- Operate the tractor smoothly - no jerky turns, starts or stops. When the tractor is stopped, apply the parking 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 matched to your tractor.

## 2.13 - PROTECTION

### 2.13.1 - Cab

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

The ROPS cab conforms to the various international safety standards. The ROPS cab must **NEVER** be drilled or modified to install attachments or implements. Welding on cab components **IS NOT PERMITTED. DO NOT** attach chains or ropes to the main frame of the cab for pulling purposes.

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

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

- Always wear your seat belt adjusted snugly.
- Check the seat belt for damage. A damaged seat belt must be replaced (Fig. 1).

MT-0011103

Fig. 1

### 2.13.2 - Damage to the ROPS cab

If the ROPS cab has been damaged as a result of tractor rollover or incident, it must be replaced, NOT repaired.

DO NOT use the tractor with a damaged ROPS cab.

## 2.14 - PREPARING FOR SAFE OPERATION

### 2.14.1 - Know your equipment

It is important to know the tractor and operation of all its accessories, implements and additional equipment. It is also important to know how to use all the controls, gauges and dials, as well as the rated load capacity, speed range, braking and steering characteristics, turning radius, and operating clearances.

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

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

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

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

Z2-530-05-03 Fig. 2

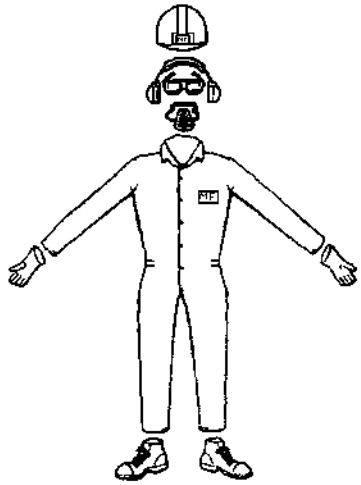
IF THERE IS SOMETHING IN THE BOOK YOU DON'T UNDERSTAND, ASK SOMEONE (for example your equipment dealer) TO EXPLAIN IT TO YOU.
This book covers general safety practice for agricultural tractors. It must always be kept with the tractor. For extra copies contact your Dealer.

### 2.14.2 - Protect yourself

Wear all protective clothing and equipment 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.
- Hearing protection.
- Respirator or filter mask.
- Inclement weather clothing.
- Reflective clothing.
- Heavy gloves (neoprene for chemicals, leather for rough work).
- Safety shoes.

**DO NOT** wear loose clothing, jewellery or other items and tie up long hair which could catch on controls or other parts of the equipment.



Z2-531-05-03 Fig. 3

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

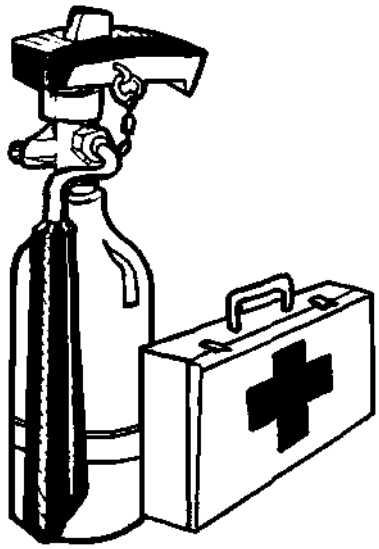


Fig. 4

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

Ensure that all protective devices, guards and safety signals are fitted as required and are in a good condition.
To help keep you and others around you safe, your tractor should be equipped with:

- ROPS cab and safety belt
- PTO guard
- Back 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:

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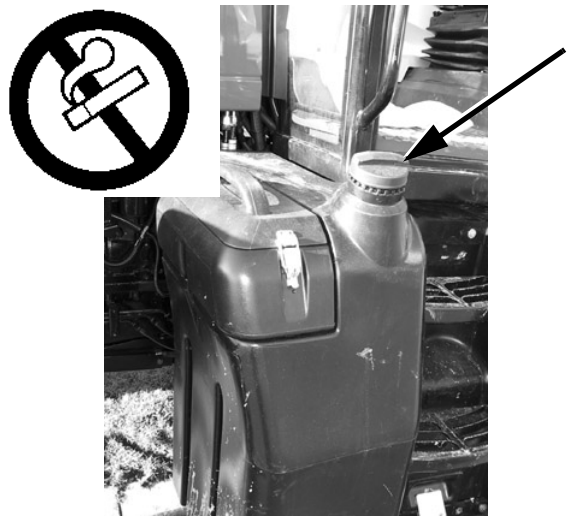
- Fire extinguisher
- Backup alarm
- Any other suitable protective devices

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

### 2.14.4 - Equipment check

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

- **DO NOT SMOKE** while refuelling the tractor. Keep any type of naked flame away (Fig. 5).
- Stop the engine and wait for it to cool before refuelling.

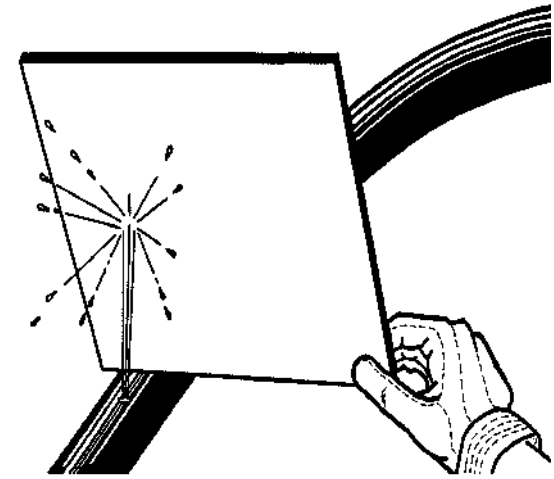


Z2-532-05-03 Fig. 5

- Check for loose, broken, missing, or damaged parts. Have everything put into good repair. Make certain all safety devices are in place.
- Check the seat belt for damage. A damaged seat belt must be replaced.
- Check that all implements and equipment are correctly fitted and that the tractor and implement PTO ratios (rpm) are respected.
- Check the condition and pressure of tyres (absence of cuts and bulges). Replace worn or damaged tyres. Check the hand and foot brake operation. Adjust if necessary.
- Check the oil level. Add some oil if necessary.
- Perform all servicing procedures outlined in the Maintenance and Adjustments chapter in this book.
- Check that the PTO shaft locking devices are latched.
- Check that the tractor PTO shield and shaft guards are in place and operating properly.
- Check the tractor and implement hydraulic system. Have any leaks or damaged parts repaired or replaced.

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

***Fluid leaks, under pressure, 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 is injected into the skin, it MUST be surgically removed within a few hours by a doctor familiar with this type of injury (Fig. 6).***



D-58 42A Fig. 6

Before applying pressure to the fuel or hydraulic system, be sure all connections are tight and that lines, pipes, and hoses are not damaged. Before disconnecting fuel or hydraulic lines, be sure to relieve all pressure.

Make sure that all hydraulic lines are correctly installed and not crossed.

***WARNING: Liquid cooling systems build up pressure as the engine gets hot. Before removing the radiator cap, stop the engine and let the system cool.***

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

### 2.14.5 - 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 parking brake, stop the engine and remove the ignition key.
- Clean footsteps, pedals and floor. Remove grease or oil. Brush away dust or mud. In winter, scrape away snow and ice. Remember - slippery surfaces are hazardous.
- Remove or put away implements, buckets, chains and hooks.

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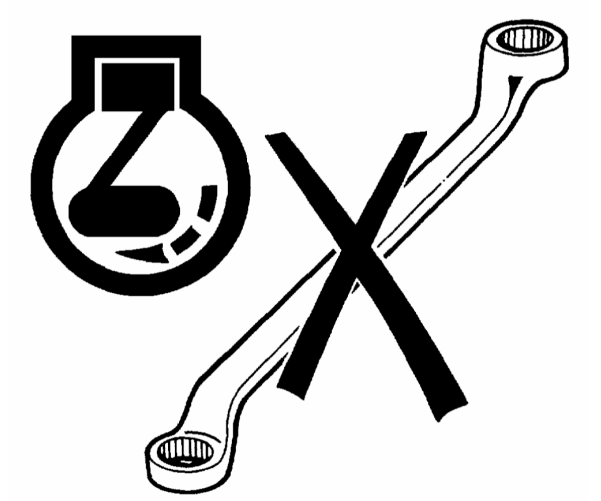
#### 2.14.6 - Protect the environment

- It is illegal to pollute drains, water courses or soil. Use authorized waste disposal facilities, including civic amenity sites and garages providing facilities for disposal of used oil. If in doubt, contact your local authority for advice.

## 2.15 - SERVICING THE TRACTOR

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



Z2-534-05-03

Fig. 7

- Before making adjustments to or servicing the electrical system, disconnect the battery cables, negative (-) cable first.
- To prevent fires or explosions keep open flame away from the battery or cold weather starting aids. To prevent sparks which could cause explosions use jumper cables according to instructions.
- When making repairs or adjustments it is recommended that you consult your Dealer, 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 prescribed torque values.

## 2.16 - STARTING

#### 2.16.1 - Warn personnel before starting

Before starting, walk completely around the tractor and any attached equipment. Make sure 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, tools or trailed implements.

Ensure that all bystanders, particularly children, are a suitable distance away before starting the engine.

#### 2.16.2 - Get on and off the tractor safely

Always use "three point contact" with the machine, and face the machine when you get on it. (Three point contact means 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. Use handrails, grab handles, ladders or footsteps (as provided) when getting on and off.

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

**DO NOT** attempt to get on or off a moving tractor. **DO NOT** jump off a tractor other than in an emergency.

#### 2.16.3 - Safe start-up

***WARNING: Before starting the engine make sure there is plenty of ventilation. DO NOT operate the engine in a closed building. The exhaust fumes may cause asphyxiation.***

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

Make sure that the tractor dual brake pedals are locked together at all times unless you are making turns in the field which require independent use of the brakes. Make sure 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 handbrake and put all controls in neutral before starting up.

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

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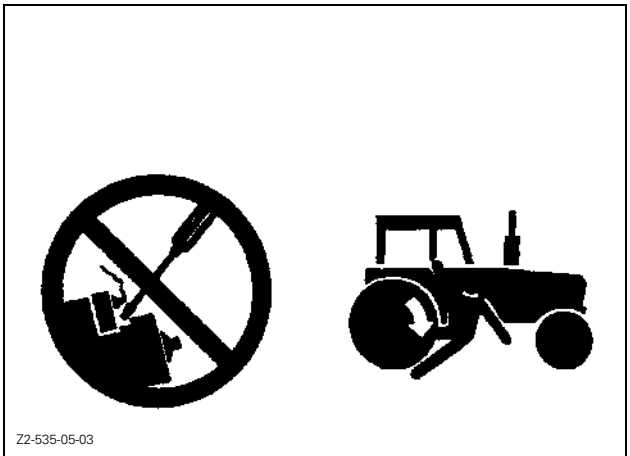


Fig. 8

Fig. 9

#### 2.16.4 - 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 starting fluids.

#### 2.16.5 - Controls test

After starting, check all gauges and lights again. Make sure everything is functioning correctly. If the tractor does not respond correctly when each control is operated, **DO NOT USE** the machine until the fault is remedied.

Ensure that the starter solenoid cover is always in position.

#### 2.16.6 - Starting fluid

***WARNING: It is very important that you read and follow the starter fluid instructions before using it. DO NOT use aerosol cans of starter fluid on tractors with the thermostat connected to the electrical system. Ether combined with thermostat can cause an explosion with damage to engine, personal injury, or both.***

Handle starting fluid correctly. Starting fluid must only be used in conjunction with an ether-start aid fitted as original equipment by the manufacturer or installed by a Dealer as an accessory. In cases of tractors being fitted with glow plugs or a thermostat, these must be removed prior to the installation of an ether-start aid (Fig. 9).

If aerosol cans of starting fluid are to be used the thermostat must be disconnected. Remove the wire from the thermostat which will be found on the manifold. Tape the end of the wire to prevent an electrical short circuit.

## 2.17 - WORKING SAFELY

***WARNING: An unbalanced tractor could overturn and cause injury or death.***

***Make sure front frame counterweights, wheel weights and wheel ballast are used as recommended by the manufacturer. DO NOT add extra counterweights to compensate for an overloaded tractor; it is recommended to reduce the load. Keep all parts of your body inside the cab while operating the tractor.***

#### 2.17.1 - Make the right moves

Ensure that the tractor is ready for the work to be carried out. Make sure you know the tractor nominal load capacities and never exceed them. Be certain that any attachments or implements you intend to use **DO NOT EXCEED** the load rating of your tractor. Be sure the tractor and implement PTO speed match.

Keep in mind that tractors normally operate on uneven, unpaved, and often bumpy or sloping surfaces. Operating conditions can reduce the amount of weight you should carry or pull.

#### 2.17.2 - Safety instructions to be observed

- Operate the controls smoothly - don't 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 the thumbs clear of the spokes when driving the tractor.
- Make sure you have adequate clearance in all directions for the tractor and implement.
- **DO NOT** play with a tractor or equipment. Use only for intended purpose.
- **DO NOT** attempt to work the controls except from the driver's seat.

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- Before getting off, always disengage the PTO, lower all attachments and implements to the ground, set the tractor to neutral, activate the Park Lock, stop the engine and remove the ignition key.

*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, switch off the engine, check the machine and carry out any necessary adjustments or repairs before resuming work.

### 2.17.3 - 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 to use the implement (Fig. 10). DO NOT ALLOW another person to get on the implements or any other equipment, 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 equipment so that this type of transport can be carried out in complete safety. DO NOT ALLOW children on the tractor.***

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Fig. 10

- **Be certain you can control both speed and steering before moving**. Move slowly until you are sure that everything is operating properly. After starting, recheck the steering, right and left. Be certain you have full steering and brake control. If differential is locked, **DO NOT** operate at high speed 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).

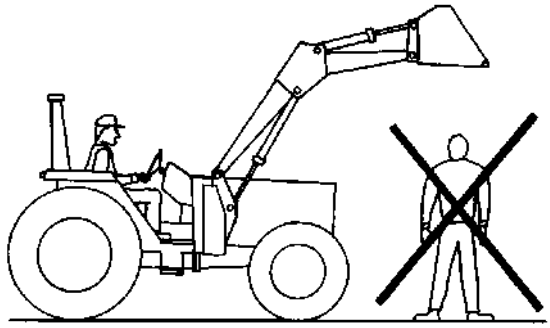

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Fig. 11

- **DO NOT** lift objects that do not fit safely into the bucket. Obtain the correct equipment.
- When using a loader, avoid sudden stops, starts, turns, or change of direction. Keep loads close to the ground when transporting.
- **DO NOT** stand (or allow anyone else to stand) in front of, under, or behind loaded or loading equipment. **DO NOT DRIVE** a tractor up to someone standing in front of a fixed object.
- Keep others away from universal joints, hitches, drawbars, lift arms, PTO shafts, cylinders, 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 and the parking brake is engaged, the transmission control lever is in neutral, and all attachments or implements are lowered to the ground.***

### 2.17.4 - Risk of overturning

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

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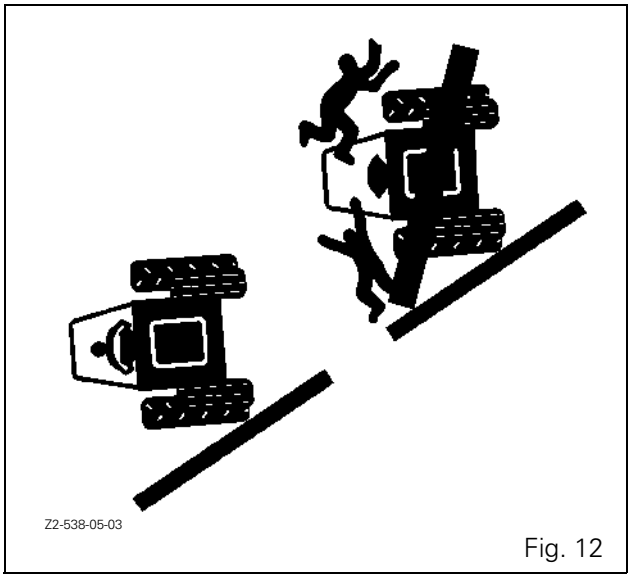


Fig. 12

Fig. 13: Do not operate 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.

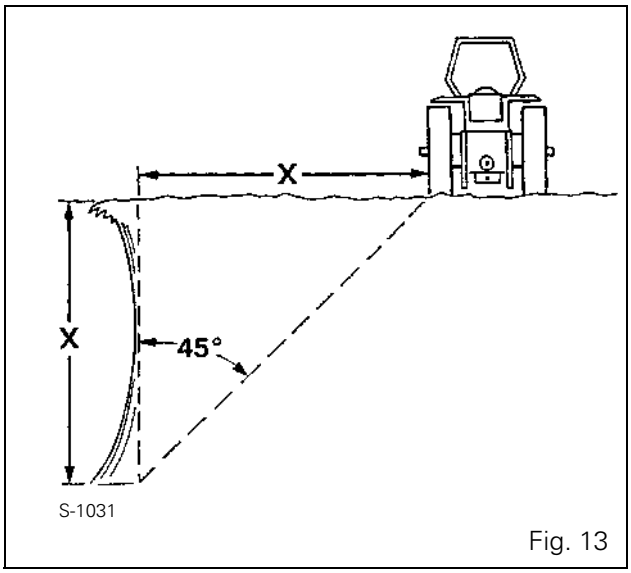


Fig. 13

**2.17.5 - To avoid side overturns**

- Set the wheel track at the widest setting suitable for the work being done.
- Lock the brake pedals together before driving at transport speeds.
- Reduce speed to match operating conditions. If the tractor is equipped with a front-end loader, carry the bucket and load as low as possible.
- Make wide slow turns at reduced speed. Don't let your tractor bounce. You may lose steering control.
- Don't pull a load too heavy for your tractor. It could run down the slope or the tractor could jackknife around a towed load.
- Don't brake suddenly. Apply brakes smoothly and gradually.
- When driving down a slope, use the gas 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), this will give 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 turn over 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 banks. (Fig. 13). Avoid ditches, banks and riversides which might give way.
- When 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 lateral implements is used on a steep slope, the implement must always face up the slope. Do not raise 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 centre position and use a safety chain.
- DO NOT use your tractor to round up farm animals.

**2.17.6 - To avoid 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 on the rear axle or above. Always use a manufacturer approved drawbar, and only use a drawbar pin of the correct size and that can be locked in place.
- High hitching can cause rear overturn, which may cause serious injury or death. Hitch loads to the drawbar only.
- Only use a three-point linkage drawbar when stays are fitted to keep it in the down position.
- Use front counterweights to increase tractor stability when towing a heavy load or to counterbalance a heavy rear mounted implement.
- Start forward slowly and gradually increase your speed. **DO NOT** reverse or release the clutch. If the tractor is attached to a heavy load or immovable object, improper clutching may cause rear overturn.
- If the front end of the tractor starts to lift, reduce your speed and, if necessary, disengage the clutch.

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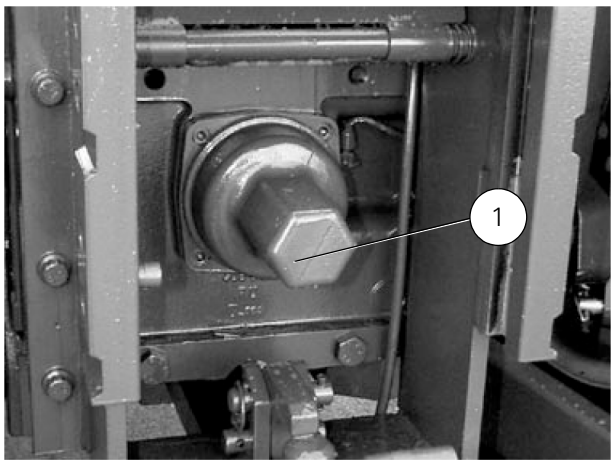
- If your tractor is bogged down in mud or frozen to the ground, **DO NOT** attempt to drive forward. The tractor can rotate around its rear wheels and overturn. Lift any attached implement and attempt to **BACK OUT**. If this is not possible, tow it out with another vehicle.
- If you get stuck in a ditch, **BACK OUT**, if possible. If you must go forward, do so slowly and carefully.
- A bare tractor or tractor with rear mounted attachments should be backed up the slope in reverse and travel forward downhill.
- A tractor with a loaded front-end bucket should be backed down the slope and travel forward uphill. Keep the loader bucket as low as possible.
- Always keep the tractor in gear when going downhill. **DO NOT PERMIT** the tractor to coast with clutch disengaged or transmission in neutral.

### 2.17.7 - Other risks

- Ensure that the PTO shield (1) is in place when the PTO driveline is not in use (Fig. 14).




Z2-540-05-03 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 transmission shaft guards and shields are in place and check the presence of all safety decals (Fig. 15).

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Fig. 15

- Be sure everyone is clear of your machine before engaging the PTO. For stationary PTO operation, always place transmission control lever in neutral, engage parking brake, and chock both tractor and implement wheels.
- When operating mobile PTO driven equipment, **DO NOT** leave the tractor seat until the PTO drive is disengaged, the transmission is in neutral, the parking brake is engaged, the engine shut off and the ignition key removed.
- **DO NOT** use PTO adapters, reducers or extensions as they extend the PTO coupler and universal joint out beyond the protection offered by the PTO shield.
- The deployment 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 drive in operation. To do so may result in serious injury or death.***

- When using chemicals, carefully follow the chemical manufacturer's instructions for use, storage and disposal. Also follow the chemical application equipment manufacturer's instructions.
- When operating under poor visibility conditions, or in the dark, use your tractor work headlights and reduce your ground speed (**DO NOT** use your work headlights when travelling on a roadway because rear pointed white lights are illegal except when reversing and may confuse following drivers).
- Operate your tractor with tyres of suitable width, consistent with the particular task you are performing. To adjust tyre width, see chapter Maintenance and Adjustments.
- Reduce your speed when operating over rough or slippery ground and when foliage restricts your view of hazards.
- **DO NOT** make sharp turns at high speed.

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### 2.17.8 - Implements and attachments

***WARNING: A front-end loader (bucket or forks) must be equipped 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 driver's compartment and crushing the driver when the loader is raised. Inadequately secured objects could also fall and injure bystanders.***

- Three-point hitch and side mounted implements make a much larger arc when turning than towed equipment-. Make certain to maintain sufficient clearance for turning. Use only manufacturer approved equipment.
- 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 its safety instructions. Use only manufacturer approved attachments and implements.
- **DO NOT** overload a towed attachment or equipment. Use proper counterweights to maintain tractor stability. Hitch loads to the drawbar only.
- A transport chain (1) will help control drawn equipment should it be accidentally separated from the drawbar while transporting. Using the appropriate adapter parts, attach the chain to the tractor's safety chain anchor or any other specified anchor point. Provide only enough slack in the chain to permit turning. Contact your dealer for a chain of equal or greater strength than the weight of the trailed implement (Fig. 16).
- Ensure that all trailed implements are fitted with a safety chain linking the tractor to the implement, if required by law (Fig. 16).

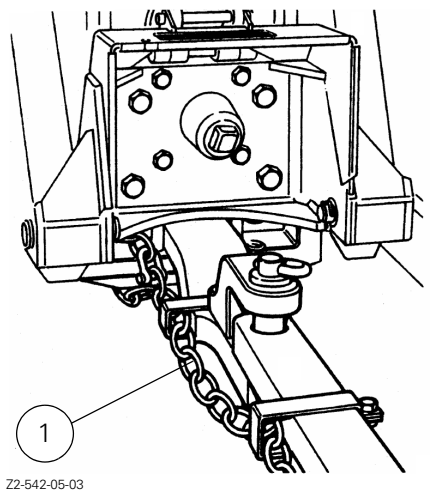


Fig. 16

- Pull only from the approved drawbars. Towing or attaching to other locations may cause the tractor to overturn (Fig. 17).

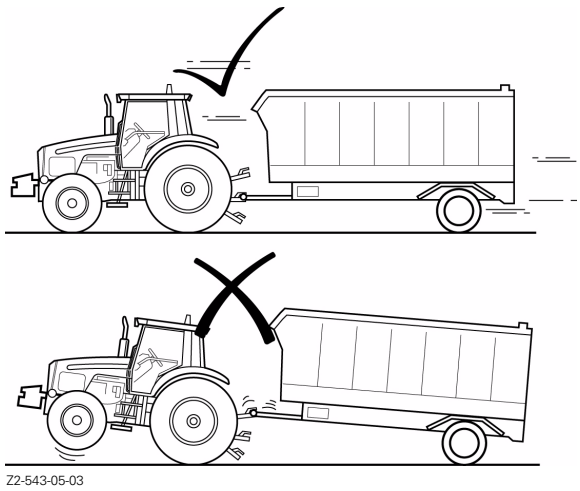


Fig. 17

#### 2.17.8.1 - Safety measures when towing

- For towed equipment **WITHOUT** brakes, **DO NOT** tow equipment:
  - at speeds over 32 kph (20 mph), or
  - when, fully loaded, its weight exceeds 1t5 (3,300 lb) and is 1.5 times heavier than the tractor.
- For towed equipment WITH BRAKES, DO NOT tow equipment:
  - at speeds over 40 kph (25 mph), or
  - when, fully loaded, its weight exceeds 4.5 times the weight of the tractor.

*NOTE: The tractor requires correct trailer braking system installed and connected to the equipment.*

Stopping distance increases with speed and weight of towed loads, and on hills and slopes. Towed loads with or without brakes that are too heavy for the tractor or are towed too fast can cause loss of control. Consider the total weight of the equipment and its load.

### 2.17.9 - Tractor Towing

***WARNING: Towing: the following instructions must be followed when towing:***

**If the engine is not running:**

- Maximum towing speed: 10 kph.
- Maximum towing distance: 8 km.

**If the engine is running:**

- Towing speed is identical to that of a trailer without brakes at the speed authorised by legislation in force in the country concerned.

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### 2.17.10 - Road use

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

- Respect national laws and local regulations in force relating to tractor use.
- Lock the brake pedals together.
- Place all implements in transport position and lock.
- Place all implements into their narrowest transport configuration.
- Disengage the PTO and differential lock.
- Make sure any required clearance flags or hazard warning lights are in place and in working order.
- Clean off all reflectors and road lights, front and rear, and be certain they are in working order.
- Ensure that the tractor and equipment are fitted with emergency warning triangles and other markings recommended to improve visibility when driving on roads, unless otherwise indicated (Fig. 18).

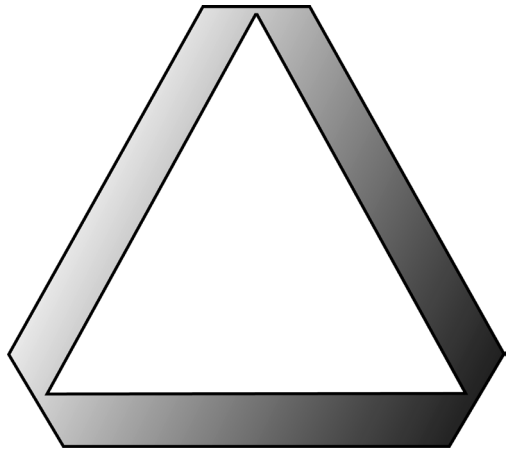

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Fig. 18

### 2.17.11 - Highway code

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

***WARNING: NEVER allow any persons to ride on the tractor or on the towed equipment.***

- Know the road you are going to travel.
- Turn on flashing warning lights when travelling on roads, day or night, unless prohibited by law.
- Take care when towing a load at transport speeds, especially if the towed equipment is NOT fitted with brakes.
- Observe all local or national regulations regarding the road speed of your tractor.
- Use extreme caution when transporting 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 pass 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 tractor in gear. Do not coast with the clutch disengaged or transmission in neutral.
- Stay out of the path of oncoming traffic.
- Drive in your correct lane keeping as near to the curb as possible.
- If traffic builds up behind you, pull off the road and let it go by.
- Drive carefully. Anticipate what other drivers might do.
- When towing a load, start braking sooner than normal and slow down gradually.
- Watch out for overhead obstructions.
- Make sure load does not obscure hazard warning or transport lights.

## 2.18 - SAFETY - AFTER OPERATION

Whenever stopping, bring the tractor to a complete halt, apply the parking brake, disengage the PTO, **place the PowerShuttle lever in neutral position**, lower the implement to the ground, stop the engine and remove the ignition key **BEFORE** leaving the seat.

***DANGER: PowerShuttle control: Before leaving the seat it is mandatory to move the PowerShuttle control to NEUTRAL position.***

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

*IMPORTANT: Electromechanic ParkLock control: Move lever to locked position (symbol: closed padlock) to engage ParkLock before stopping the engine.*

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## 2.19 - DESCRIPTION OF DECALS

**CAUTION**
High pressure steam and hot water.
Remove cap carefully.

DO NOT REMOVE OR OBSCURE DECAL
3596029 M1

Located on top of the bonnet (access to radiator cap)

**CAUTION**
Disconnect the negative cables from all batteries before starting work on the tractor.

**CAUTION**
Before removing a battery, disconnect the negative cables before the positive cables.

DO NOT REMOVE OR OBSCURE DECAL
3596045 M1

Located on the battery cover

**WARNING**
Keep all shields, covers and guards fastened in place while engine is running.

**CAUTION**
Beware hot parts.

DO NOT REMOVE OR OBSCURE DECAL
3596037 M1

Located on the right- and left-hand sides of the bonnet

**CAUTION**
Always disengage the PTO and stop the engine before attaching or detaching a PTO shaft or before working on an implement towed by the PTO. Always fit the PTO guard when the PTO is not in use.

**WARNING**
Do not stand between tractor and equipment when operating controls.
Tow only with MF approved tractor drawbar or hitch.

DO NOT REMOVE OR OBSCURE DECAL
3581564 M1

Located at the rear of the tractor

**CAUTION**

Before operating, read operators instruction book thoroughly.

Do not start engine untill everyone is a safe distance from tractor and equipment.

Keep all shields, covers and guards in place while engine is running

Keep hands, feet and clothing away from power driven or moving parts.

Always drive with due care and attention

If differential lock does not disengage automatically, depress clutch pedal brake pedals must always be coupled together when independant brakes are not being used.

Before leaving tractor, apply parking brake, lower equipment, stop engine and remove key from starter swith.

When attaching equipment check operator's instruction book for front and rear axle load limits.

Place transmission shift lever in neutral, apply parking brake before using external lift controls.

Ensure that all wheel and rim nuts are tightened as specified in operator's instruction book

On public roads, use SMV emblem and flashing warning lights where required by law.

DO NOT REMOVE OR OBSCURE DECAL

4275285 M1

Located on the RH inner column of the cab

4271915M1
Located to the left and right of the radiator

**CAUTION**
TO AVOID POSSIBLE TRACTOR OVERTURN, TOW ONLY FROM THE DRAWBAR OR LOWER LINKS OF THREE POINT HITCH.

539613 M1

Located on the fenders to the rear of the cab

3782489 M1

Located on the RH inner column of the cab

**DANGER**
Fill accumulator
with nitrogen only.
Other gas may explode
causing injury or death.

3777021 M2

Located on the accumulator

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**CAUTION**

Before working on the tractor or removing this cover, disconnect negative cables to all batteries.

**WARNING**

Do not short across starter terminals to start engine.
Only start the tractor when sat in the seat.
Start engine only with ignition key, ensuring that transmission and PTO are in neutral with handbrake applied.

DO NOT REMOVE OR OBSCURE DECAL
3596467 M1

Located on the starter motor

**WARNING**

If tractor is overturning, hold onto the steering wheel.
Do not leave seat.

DO NOT REMOVE OR OBSCURE DECAL
3580313 M1

Located at the rear of the passenger seat

IT IS IMPERATIVE TO USE THE TRANSMISSION OIL RECOMMENDED IN THE OPERATOR INSTRUCTION BOOK.

3713698 M1

Located on the fenders to the rear of the cab

TOWING INSTRUCTIONS

Put transmission in neutral !
Maximum towing speed : 10 km/h (6 mph).
Maximum towing distance 8 km (5 miles).

4 275 232 M1

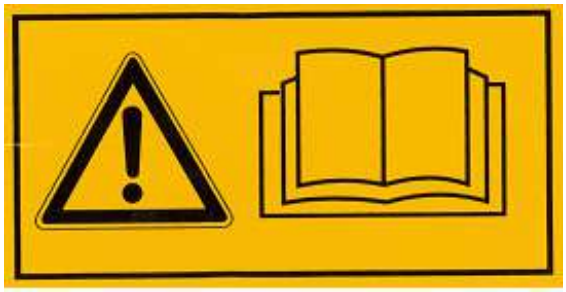
Located on the inner side of the right-hand door

Do not stop the engine while the tractor is running.

3783395M1

Located on the inner side of the right-hand door

**Front linkage decals and front PTO decals**



***WARNING: Read the Operator Instruction Book before starting work.***

***DANGER: Avoid being caught by moving parts***

***DANGER: Keep a safe distance from the rotating PTO.***

***DANGER: Keep a safe distance from moving parts.***

***DANGER:***

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*Chapter 3*

# *INSTRUMENTS AND CONTROLS*

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Fig. 1

## 3.1 - INSTRUMENT PANEL (FIG. 1)

1. Start switch (see details in Fig. 3).
2. Control unit (see details in Fig. 4).
   This assembly is comprised of the steering change, windscreen wiper, front and rear windscreen washer and horn indicator functions.
3. Steering wheel adjustment (see details in Fig. 23).
4. DOT MATRIX controls (see details in Fig. 10).
5. Parameter display selector (Ref. 21, Fig. 2).
6. Main light switch.
7. Hazard warning lights and control switch.
8. Direction of travel and PowerShuttle control lever.
9. Electromechanical brake control (ParkLock).

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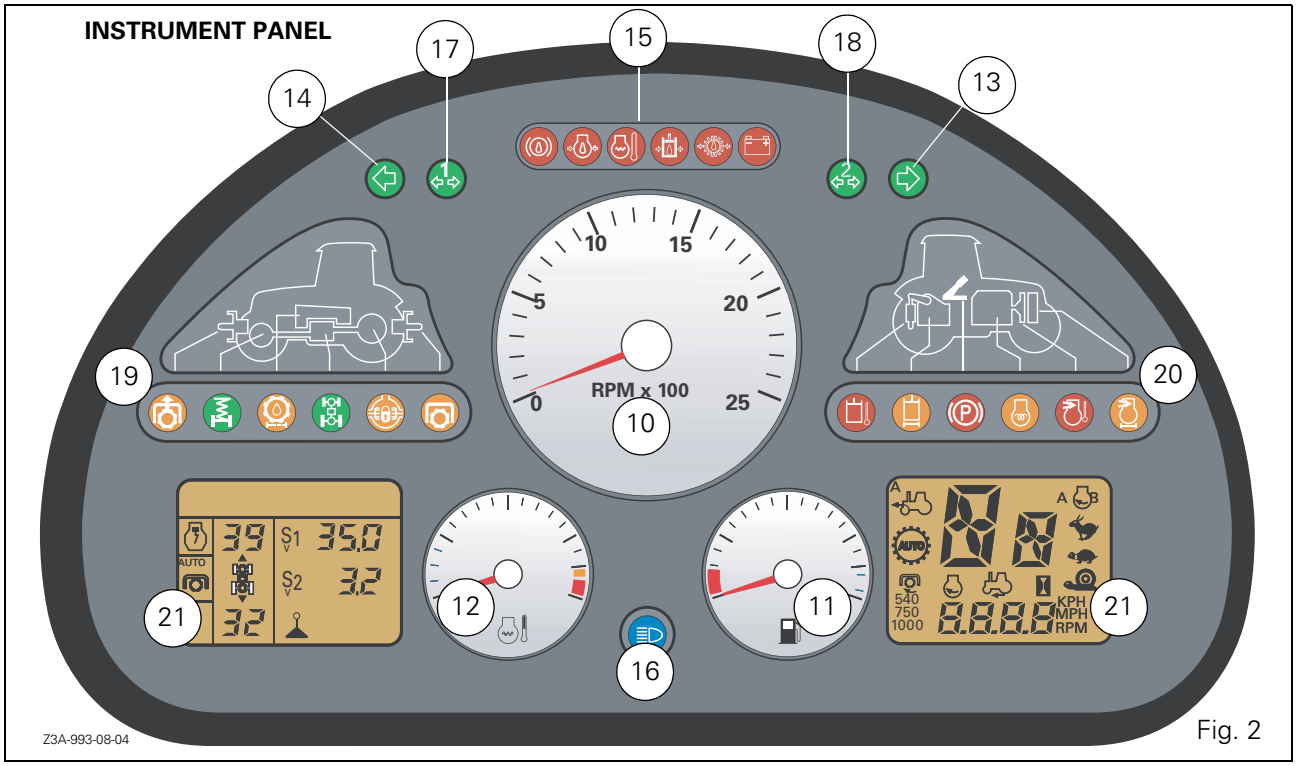


Fig. 2

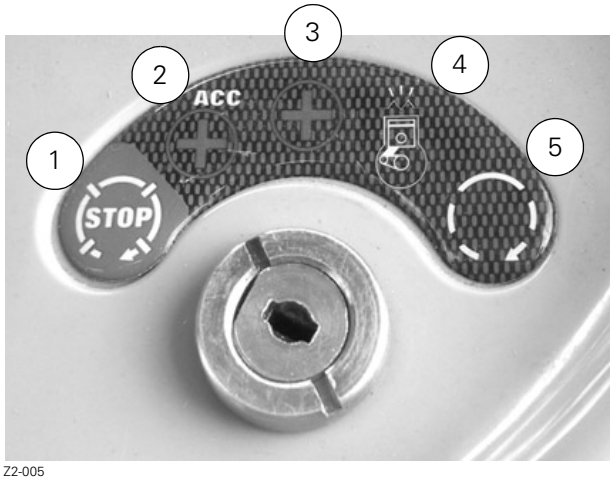


Fig. 3

**Start switch details (Fig. 3):**

1. Stop.
2. Contact position for electrical equipment to be used when the engine is not running.
3. Contact position for electrical equipment used when the engine is running.
4. Preheating (wait for instrument panel indicator lights to switch off)
5. Start.

*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).*

Legend:

1. Windscreen wiper
   - 0. Stop
   - J. Intermittent
   - I. Speed 1
   - II. Speed 2
2. Left-hand direction indicator
3. Right-hand direction indicator
4. Horn
5. Headlights flash
6. Headlights
7. Rear and front windscreen washer

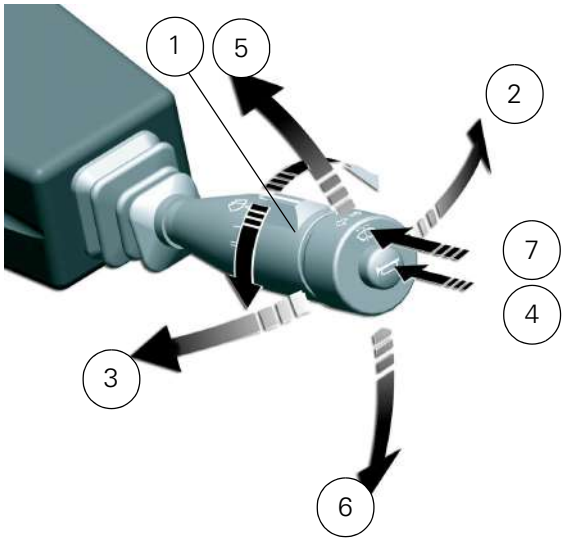


Fig. 4

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**Instrument panel (Fig. 2)**

10. Tachometer.
    The tachometer shows the engine speed in hundreds of revolutions per minute.
11. Fuel gauge.
12. Engine coolant temperature gauge.
    Stop the engine if the needle moves into the red zone.
13. Right-hand direction indicator light (green).
14. Left-hand direction indicator light (green).
15. Failure control indicator lights panel.
    See details (Fig. 7)
16. Headlight indicator light (blue).
17. Direction indicator light for the first trailer (green).
18. Direction indicator light for the second trailer (green).
19. Control indicator lights for functions in use (see details in Fig. 5).
20. Failure and parking brake control indicator lights (see details in Fig. 6).
    If one of the indicator lights remains lit after the engine has started or during normal use, stop the engine and investigate the cause of the problem.
21. Digital display
    Displays the speed engaged (forward / reverse), A/B memory (electronic injection engine), Hare / Tortoise range.
22. DOT MATRIX screen (see details in Fig. 10).

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## 3.2 - INDICATOR LIGHTS PANEL

### 3.2.1 - Control indicator lights for functions in use (Fig. 5)

Green and orange control indicator lights display and monitor the functioning of attachments and implements.

1. Front power take-off (yellow).
2. Not used
3. High pressure transmission oil filter clogging indicator light (yellow).
4. 4WD engaged indicator light (green).
5. Differential lock indicator light (yellow).
6. Power take-off engaged (yellow).

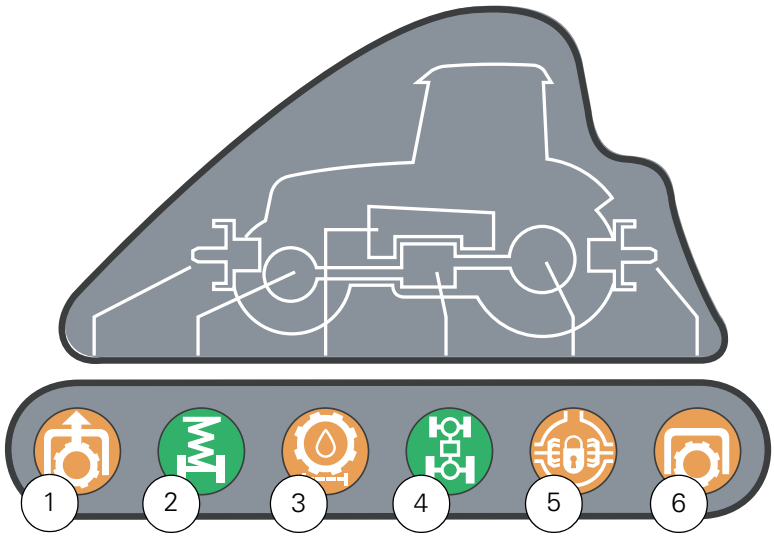


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Fig. 5

### 3.2.2 - Failure and parking brake control indicator lights (Fig. 6)

Red control indicator lights signal problems of varying importance. They light up when the ignition key is turned in the start switch and usually go out once the engine is running.

**If they light up when the engine is running normally, stop the engine at once** and investigate the cause of the problem.

7. Auxiliary hydraulics oil temperature indicator light (red).
8. 15 micron auxiliary hydraulics oil filter clogging indicator light (yellow).

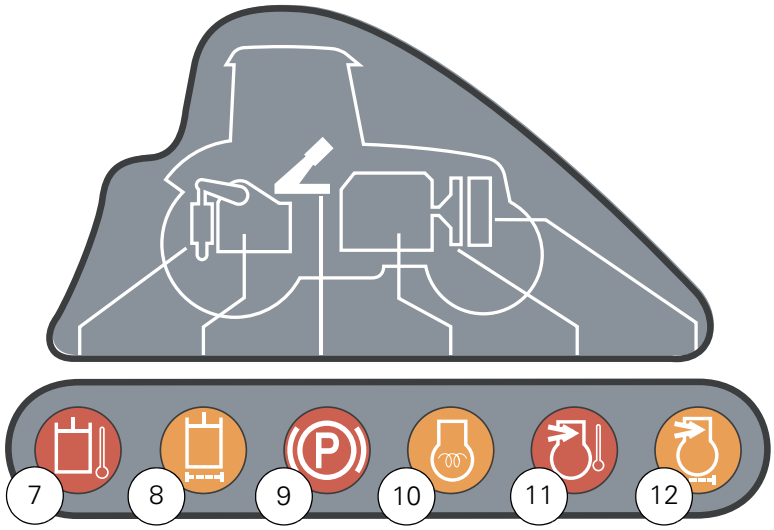


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Fig. 6

9. Parking brake indicator light (red)
10. Grid heater indicator light (red).
11. Inlet air temperature indicator light (red).
    This indicator light is switched on when the ignition key is in "auxiliary" position. It switches off when the engine starts running. If the indicator light comes on when the engine is running, stop the engine and investigate the cause of the problem immediately.
12. Air filter clogging indicator light (yellow).

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**Failure control indicator lights**

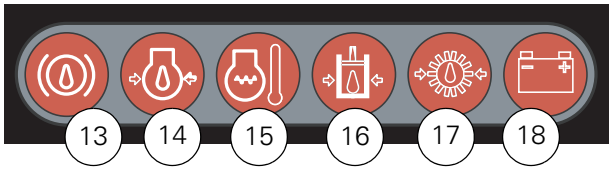


Fig. 7

13. Trailer air brake pressure indicator light (if fitted) (red).
14. Engine oil pressure indicator light (red).
    This indicator light is switched on when the ignition key is in "auxiliary" position. It switches off when the engine starts running. If the indicator light comes on when the engine is running, stop the engine and investigate the cause of the problem immediately.
    Check for low oil level or consult your dealer.
15. Coolant temperature indicator light (red).
16. Auxiliary hydraulics oil pressure indicator light (red).

If this indicator light comes on when the engine is running, check the **auxiliary hydraulics oil** level on the DOT MATRIX screen (see chapter 4 - Using the DOT MATRIX). If this indicator light stays on, consult your dealer.

17. Gearbox oil pressure indicator light (red).
    If this warning light illuminates during operation, consult your agent or dealer.
18. Alternator charge indicator light (red).

## 3.3 - CONTROL DISPLAY

Fig. 8 - This control screen allows the different parameter displays to be monitored:

1. Forward / neutral / reverse liquid crystal display.
2. Reverse shuttle sensitivity indicator.
3. Selected symbol display: rear PTO/engine speed/forward ground speed:
   All parameters that can be displayed in the lower part of the screen can be selected by pressing button 5 (Fig. 9) located on the instrument panel.
4. Digital display: rear PTO speed, engine speed, ground speed, hours worked.

*NOTE: To reinitialise hours worked, select the relevant parameter and hold the switch 5 (Fig. 8) down for approximately 5 seconds to reset the display.*

5. Power take-off automation.
6. Front axle automatic control.
7. A/B speed (engine with electronic fuel injection) memorisation status.
8. Hare / Tortoise range engagement indicator lights.

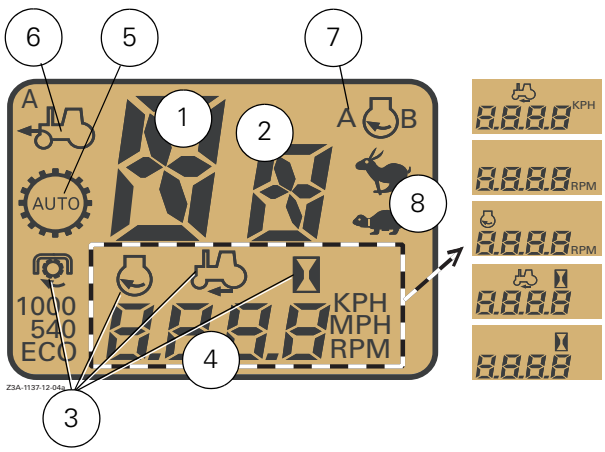


Fig. 8

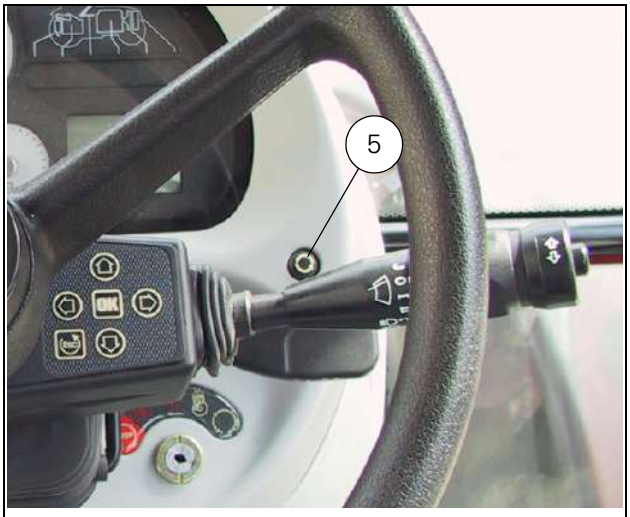


Fig. 9

3

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## 3.4 - DOT MATRIX SCREEN

Fig. 10 - This control screen allows the different parameter displays to be monitored:

1. Programmed engine speed A
2. Programmed engine speed B
3. Programmed engine speed indicator
4. Engine underspeed supervisor
5. Forward shuttle speed value display
6. Reverse shuttle speed value display
7. Mode display (pedal, lever, etc.)
8. Selected mode speed display
9. SV1 speed regulator display
10. SV2 speed regulator display
11. Control unit to access DOT MATRIX menus
12. Up scrolling key
13. Down scrolling key
14. Left-hand adjustment key
15. Right-hand adjustment key
16. Validation key
17. Cancel key

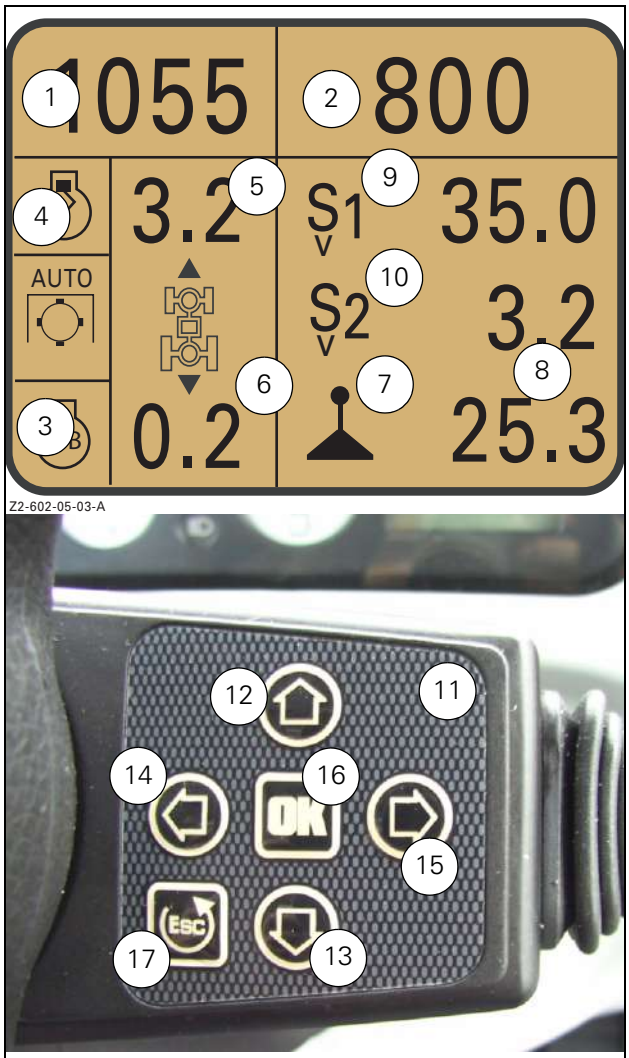


Fig. 10

## 3.5 - PEDALS

(Fig. 11)

1. Clutch pedal.
   This is fitted with a safety start switch. Fully depress the clutch pedal before operating the ignition key.

*NOTE: Do not keep the clutch pedal pressed fully or half down.*

2. Brake pedals.
   The two brake pedals can either be used separately or locked together using latch 3.
3. Brake pedals locking latch.
4. Foot throttle.
   Use of the foot throttle enables a momentary increase in the engine speed set by the hand throttle lever.

***CAUTION: When travelling on the road only the foot throttle should be used, and the hand throttle lever should be brought to the idle position so that engine braking can be operational.***

***Check that A/B memorised speed is not activated.***

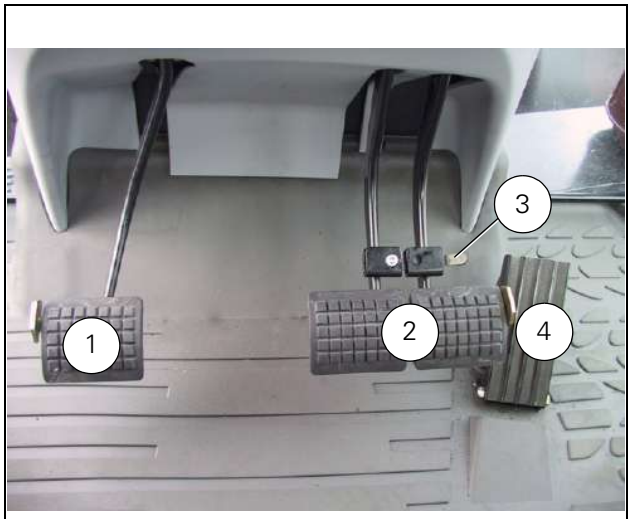


Fig. 11

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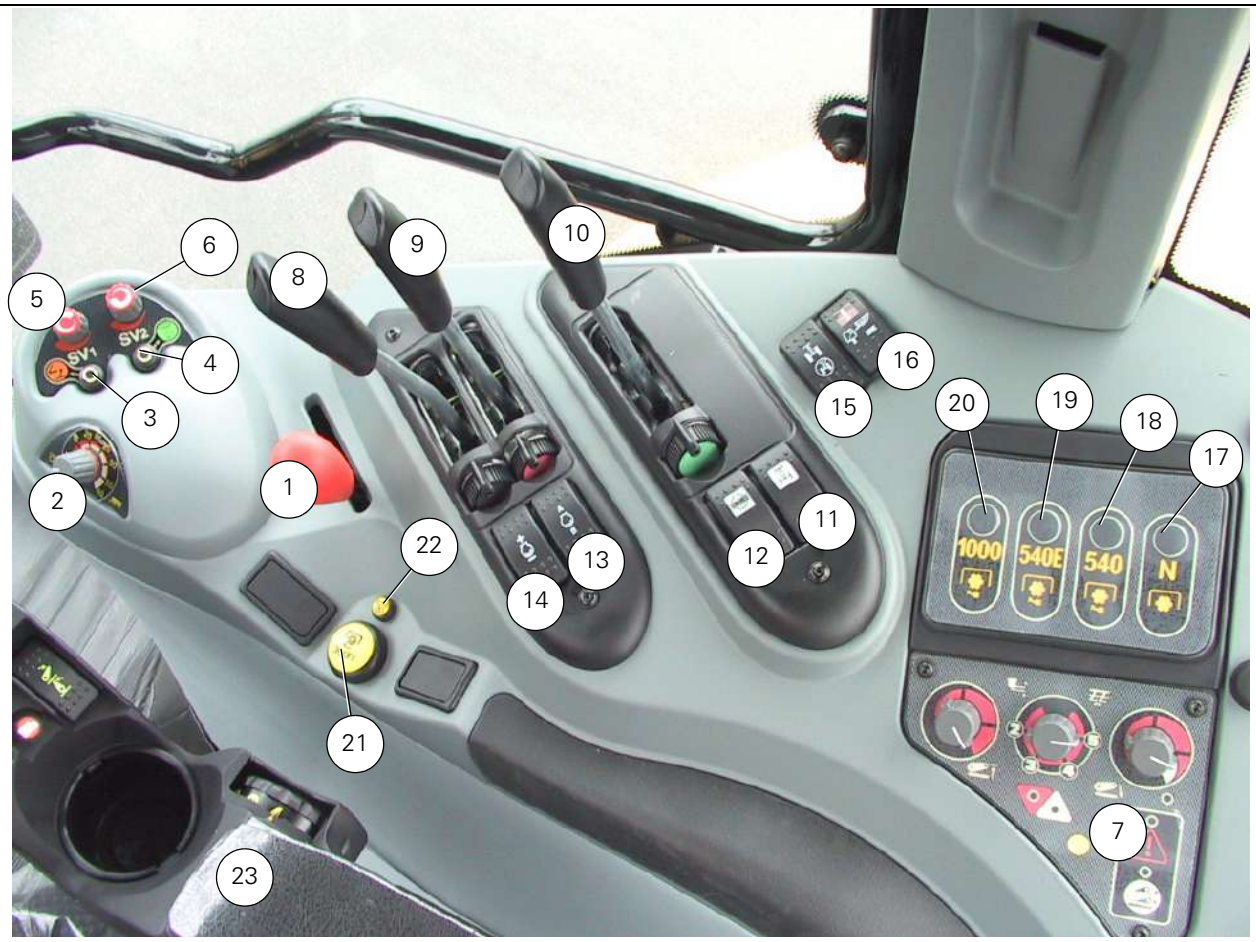


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Z2-478-05-03

Fig. 12

## 3.6 - RIGHT-HAND CONSOLE

1. Hand throttle lever
2. Engine underspeed supervisor
3. Lever or pedal mode button
4. Hare / Tortoise range button
5. SV1 speed regulator display knob
6. SV2 speed regulator display knob
7. Electronic linkage controls
8. First Auxiliary Spool valve lever
9. Second Auxiliary Spool valve lever
10. Third Auxiliary Spool valve lever
11. 4WD switch
12. Differential lock switch
13. A/B speed switch
14. +/- engine speed switch after selecting A/B speed
15. Suspended front axle switch
16. Cab suspension switch
17. Neutral PTO switch
18. 540 rpm PTO control button
19. 540E (Economy) PTO control switch.
20. 1000 rpm PTO control switch
21. 540/540E Economy or 1000 rpm rear PTO ON/OFF switch
22. Rear power take-off selector switch in automatic mode
23. Multi-function armrest
24. Hydraulic spool valve control Joystick (optional)
25. Height / depth setting knob
26. Lift / Lower selector switch with “neutral” position
27. SV1 speed regulator control knob
28. SV2 speed regulator control knob
29. Spool valve hydraulic flow rate memory or cancel button.

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30. Spool valve control ON/OFF button.
31. Quick soil engagement button
32. Datatronic 2 onboard computer.

Z2-614-07-03 Fig. 13

33. Datatronic 3 onboard computer.

Z3A-772-07-04 Fig. 14

34. Work headlights / digital clock / temperature sensor control and indicator lights

Work headlights: Press the key(s) 1 to 6 (Fig. 15) to operate de desired function(s). The corresponding indicator light will come on:

1. Front work headlights
2. Work headlights on footsteps and handrails
3. Work headlights on fenders
4. Work headlights on front of roof
5. Flashing beacon (optional).
6. Work headlights at rear of roof
7. Digital clock and temperature sensor:
   Press button A to select and change the time or temperature display.

Adjusting the clock: to change the time press buttons B or C to select the information (hr or min.) to be changed.

Temperature control: Press button A to select the outside temperature display. To change from °Celsius to °Fahrenheit press button A for approximately 5 seconds.

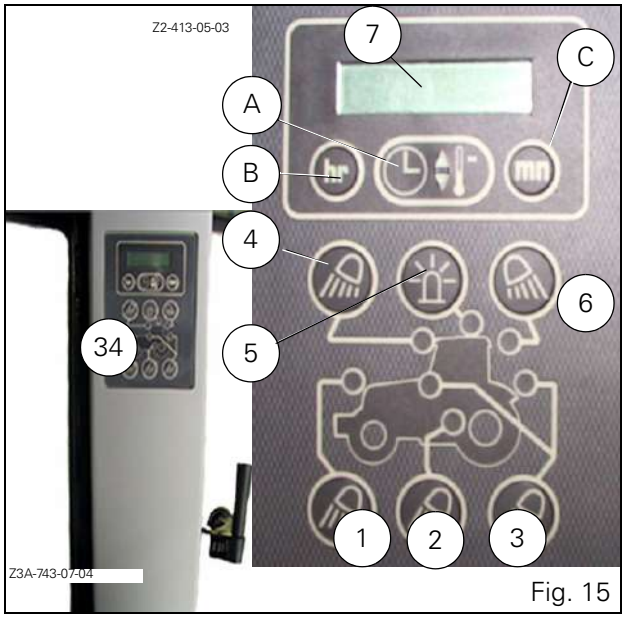


Fig. 15

35. Power socket for connection of accessories (Fig. 16).

Maximum available power 12 volts

15/30 - + Permanently live (25 A).

82 - + Only live with ignition key ON (5 A).

31 "-" negative.

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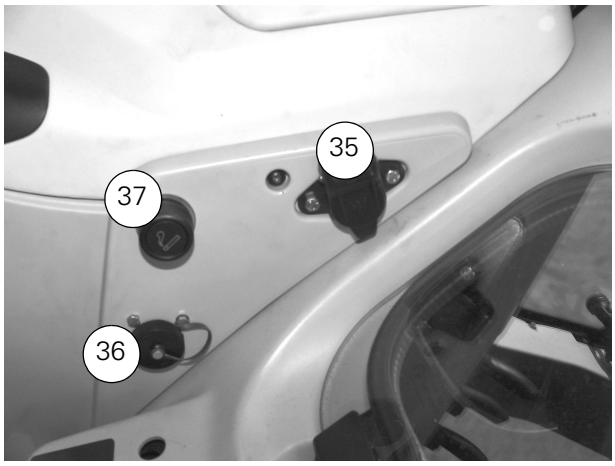



Z2-415-05-03

Fig. 16

36. Diagnostics connector.
37. Cigar lighter.

## 3.7 - LEFT-HAND CONSOLE

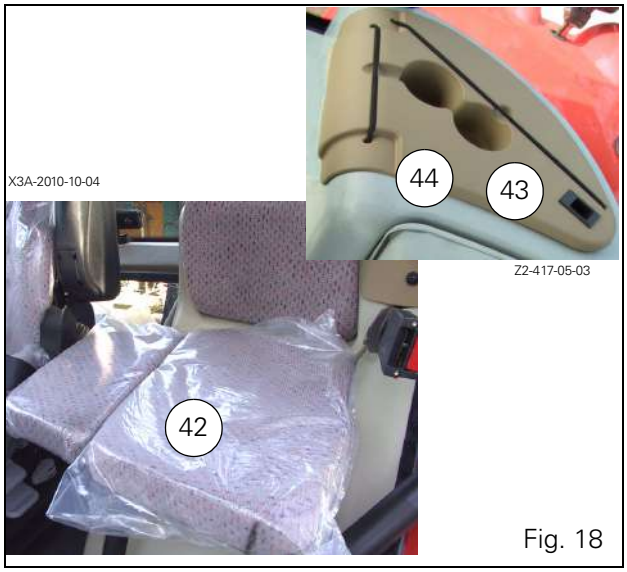
(Fig. 17, Fig. 18)

38. Cigarette lighter type connector.
39. Electrical control for external rear-view mirrors (optional).
40. Rear windscreen wiper.
41. Rear view mirror defrosting control (optional).

Z2-613-05-03

Fig. 17

42. Passenger seat (optional).
43. Storage compartment.
44. Can carrier.




Z2-417-05-03

Fig. 18

## 3.8 - SEAT

Fig. 19

### 3.8.1 - Description (Fig. 19)

1. Weight adjustment
2. Height adjustment
3. Fore / aft adjustment
4. Backrest angle adjustment
5. Swivel adjustment
6. Adjustable backrest extension
7. Lumbar support adjustment
8. Fore / aft isolator control
9. Armrest angle adjustment
10. Seat pan angle adjustment
11. Seat depth adjustment

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**3.8.2 - Operation:**

***WARNING: Never adjust seat when tractor is moving.***

1.Weight adjustment:

Automatic pneumatic seat

The seat is adjusted for the driver's weight by briefly pulling the weight and seat height automatic actuator lever (1) while the driver is sitting on the seat.

Semi-automatic pneumatic seat

The seat should be adjusted for the driver's weight with the driver sitting on the seat. The adjustment is made by pulling out or pushing in the actuator lever (1) until the green mark is visible in the weight-and-height indicator (10).

Manual adjustment seat

The seat should be adjusted when the driver is not seated by turning the actuator lever (or adjustment thumb wheel) provided for this purpose. The indicator displays the weight which has been set

*NOTE: To prevent damage to the health, the setting for the driver's weight must be checked and adjusted as necessary before the vehicle is driven.*

2. Height adjustment:

Automatic pneumatic seat

The seat height can be set automatically and continuously.

The seat height can be altered by either pulling out or pushing in the actuator lever of the automatic weight and height actuator lever (ref. 2). If the adjustment reaches the top or bottom endstop, the height is adjusted automatically in order to guarantee a minimum spring travel.

*NOTE: In order to avoid damage, do not operate compressor for more than 1 minute.*

Manual adjustment seat

The seat height can be set automatically and is adjustable in several steps. The seat can be raised as required until it clicks into position. If the seat is raised higher than the last notch (end of travel), it returns to its lowest position.

3. Fore / aft adjustment:

The locking lever must latch into the desired position. It should not be possible to move the driver seat into another position when it is locked.

4. Backrest angle adjustment.
5. Swivel 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°.

If you pull more strongly to overcome the resistance the swivel is unlocked and you can turn freely. For locking push back lever again.

The locking lever must latch audibly into place. The swivel should be in the central position for driving.

6. Backrest extension.
7. Lumbar support adjustment.
8. Fore/aft isolator:

Under certain driving conditions (for example with a trailer attached), it is useful to activate the fore / aft isolator. This means that shock impacts in the driving direction can be better absorbed by the driver seat:

- Position 1 = fore / aft isolator on
- Position 2 = fore / aft isolator off.

9. Armrest angle adjustment:

The armrests can be folded up if required and the height individually adjusted.

To adjust the armrest height (arrows) the plastic cover must be removed by pressing together the inner clips and pulling off the cover at the same time.

The cover is refitted in the same way in reverse order.

Fig. 20

Luxury pneumatic seat with automatic adjustment

10. Seat pan angle adjustment:

The angle of the seat pan can be individually adjusted.

Pull on the knob ref. 10 while pressing on or releasing the pressure on the seat to find a comfortable position.

11. Seat depth adjustment:

The depth of the seat pan can be individually adjusted.

Pull on the knob ref. 11 and move the seat forwards or backwards to find the desired position.

12. Lumbar support adjustment:

Manual adjustment: turn the handle to the left or right to move the lumbar support vertically or horizontally.

Electrical adjustment: there are two available adjustments, each of which can be obtained by the switches (+ or -) ref. 12.

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13. Seat heater:
    The seat heater is turned on by pressing the switch.

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

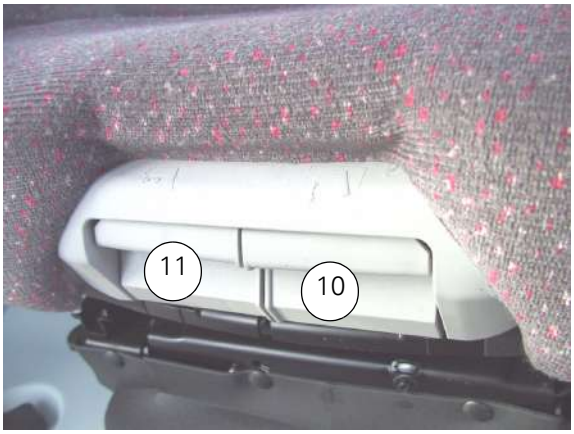


Fig. 21

Z2-197

Z2-199

Fig. 22

## 3.9 - STEERING WHEEL

(Fig. 23)

The steering wheel angle and height can be adjusted (except platform versions). Both adjustments are made by a single lever.

1. Height adjustment
2. Angle adjustment

***DANGER: Adjustments of the steering wheel must be done with the tractor stopped.***

Z3A-744-07-04

Fig. 23

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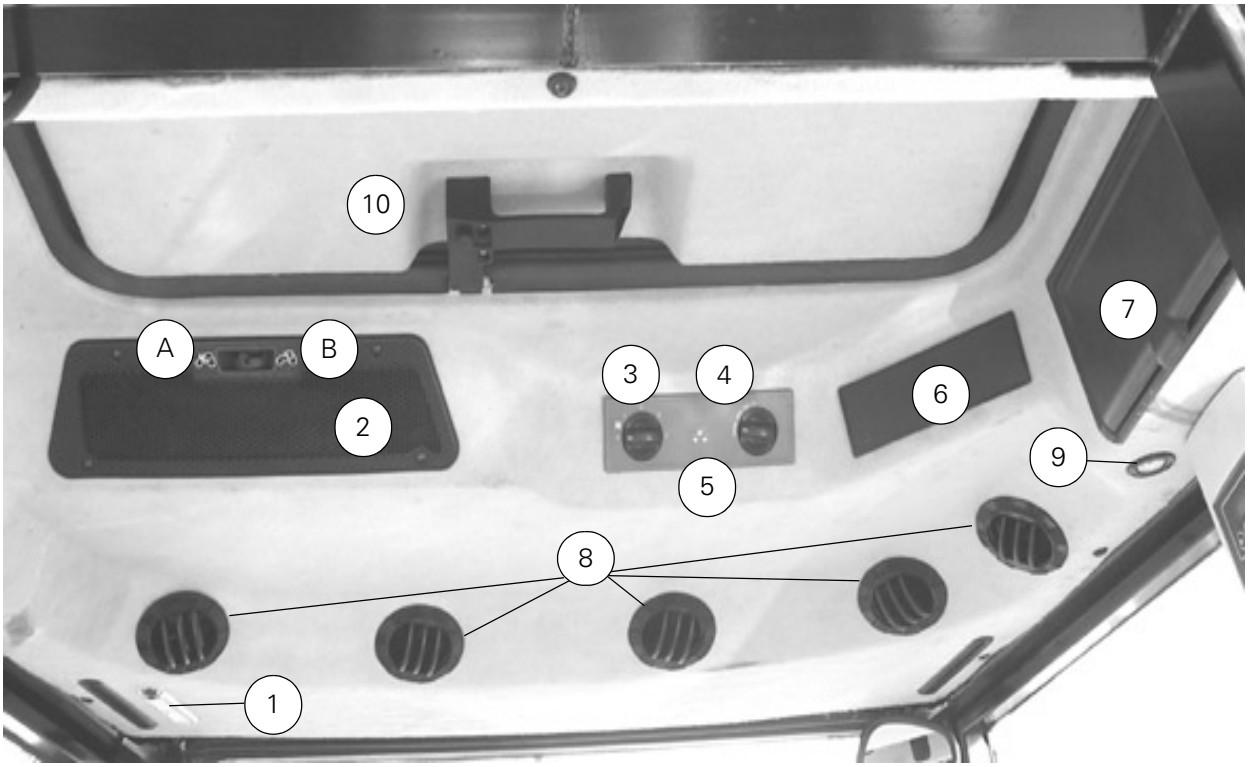


Fig. 24

## 3.10 - UPPER CONSOLE

(Fig. 24)

1. Interior light (Fig. 25).
   By rotating the 3-position switch:
   0 - off position.
   1 - light comes on when opening the left-hand door.
   2 - permanently on.
2. Adjustable ventilation grille (depending on model).
   A: Outside air intake
   B: Recycling
3. 4-speed ventilator/heater fan control (if fitted).
4. Heater controls:
   Blue = cold
   Red = warm
5. Automatic air conditioning system control (optional).
6. Radio (if fitted).
7. Drink storage compartment, which is cooled when the tractor is equipped with air conditioning.
8. Adjustable air circulation vents.
9. Lighting of console.
10. Roof hatch.

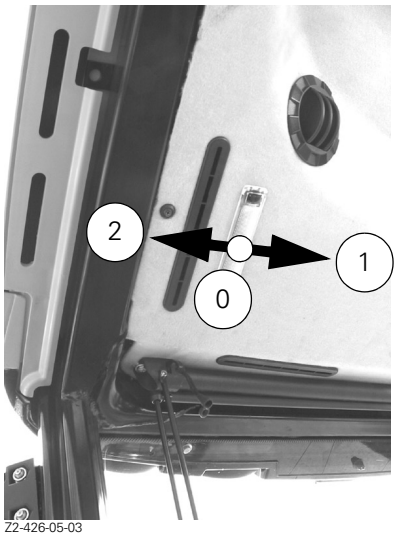


Fig. 25

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### 3.10.1 - Air conditioning system

*IMPORTANT: When the air conditioning system is in use, the cab doors and windows should be closed. Do not use the air conditioning system when the temperature falls below 20° C (68° F). Switch off the system before starting up the engine. Ensure the cab air filter is clean (see chapter 5).*

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

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

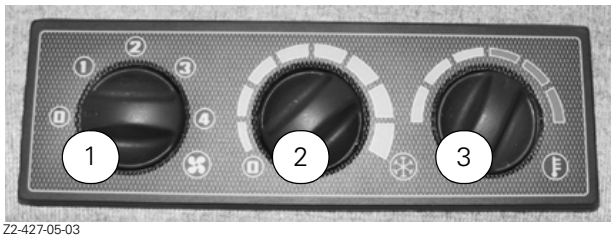
***ONCE A YEAR HAVE THE CIRCUIT CHECKED BY YOUR DEALER.***

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

### 3.10.2 - Manual air conditioning system

#### 3.10.2.1 - Description

1. Manual ventilation control knob
2. Thermostat (minimum / maximum) control knob
3. Heating (minimum / maximum) control knob



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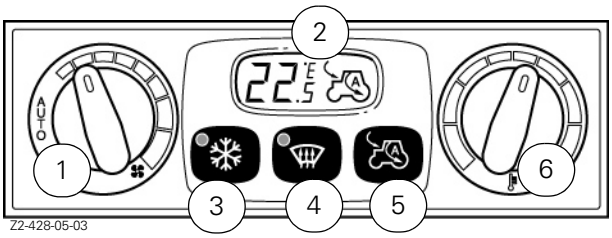
#### 3.10.2.2 - Operation

1. When the engine is running, turn knob 3 to the left (cold) and move knob 2 to minimum position.
2. Position the fan 1 knob in fast position (fan symbol side).
3. When the required cab temperature is obtained, adjust the heating knob and rotate knob 2 if required to maintain a comfortable temperature.
4. Reduce the speed of fan 1 with the knob 3 to obtain a comfortable temperature.

Air conditioning stop: reset the fan knob 1 and temperature switch knob 2 to zero to stop the air conditioning

*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.*

### 3.10.3 - Automatic air conditioning system (optional)



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#### 3.10.3.1 - Description

1. Manual/automatic fan control knob
2. Digital display (LCD)
3. Compressor ON/OFF button
4. Defrosting button
5. Recycling button
6. Temperature control knob

#### 3.10.3.2 - General characteristics

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

The required temperature can vary by 0.5°C (1°F) between 20-24°C (68-76°F) and by 1°C (2°F) outside this temperature range.

Scale of Celcius and Farenheit temperatures:

°C - LO/18/19/20/20.5/21/21.5/22/22.5/23 23.5/24/25/26/27/28/HI

°F - LO/64/66/68/69/70/71/72/73/74/75/76/78/80/82/84/HI

The HI and LO displays and tractor icon indicate the recycling function status.

#### 3.10.3.3 - Operation when the engine is stopped

When the tractor is started, all manual interventions carried out before stopping the vehicle are stored and are suggested at successive startings, except for the defrosting function.

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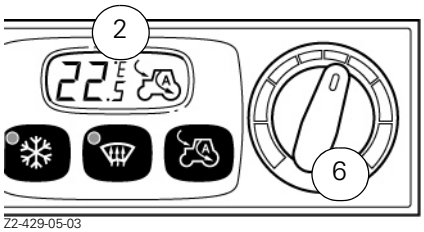
### 3.10.3.4 - Pre-selecting the cab temperature

Preselect the required temperature with knob 6. The preselected value is displayed on the LCD screen (2).

To change the display from Celsius to Fahrenheit:

- Switch off the ignition key
- Move the fan switch 1 to OFF position
- Move temperature knob 6 to maximum heat position (red)
- Switch on ignition key and within 5 seconds press the defrosting button 4 and air recycling button 5 simultaneously.
- The temperature symbol (°C ou °F) will appear on the LCD screen.

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



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### 3.10.3.5 - Maximum temperature

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

Air conditioning is ON (A/C LED is lit)

- HI is displayed on the LCD screen.

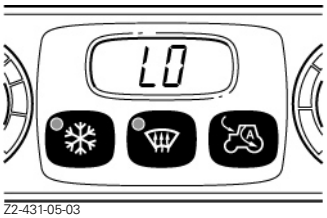
Z2-430-05-03

### 3.10.3.6 - Minimum temperature

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

Activating the compressor (A/C LED is lit)

- LO is displayed on the LCD screen.



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### 3.10.3.7 - Defrosting function

This function is activated by pressing button 4 (approximate time: 3 minutes).

The relevant indicator light comes on.

To switch off the defrost option and return to the previous condition, press the defrost switch again (the LED 4 is switched off), or once the 3 minutes have passed.

Z2-432-05-03

The compressor is activated (A/C LED is lit)

- HI is displayed on the LCD screen.

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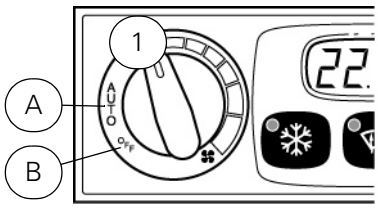
### 3.10.3.8 - Air flow adjustment

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

It is possible to manually select an air flow different to the air flow selected automatically. When the knob position is changed, air flow change is instantaneous.

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

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



Z2-434-05-03

Stopping the automatic function

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

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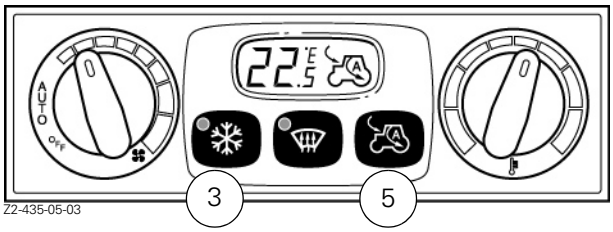
#### 3.10.3.9 - Air conditioning button

The tractor icon on the LCD screen indicates the recycling function selected by the button 3 and the corresponding indicator light comes on when the compressor is used.

When recycling is in ON position, the air conditioning unit is normally on, and can be switched off by pressing the button 3.

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#### 3.10.3.10 - Air recycling (ref. 5)

Recycling is in automatic mode and varies depending on the external temperature.

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

If the Recycling button 5 is pressed twice (OFF position) an arrow is displayed outside the tractor icon on the LCD screen.

If the Recycling button 5 is pressed a third time, automatic control is restored and the letter A (automatic) appears in the tractor icon.

Each time the unit is activated, if the external temperature is higher than a pre-determined level, before overriding the recycling function wait 2 minutes to change the air inside the cab.

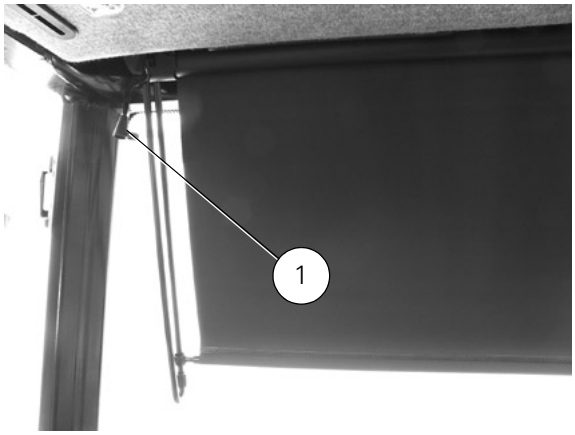
*NOTE: If external temperatures are high, it is advisable to work with the system in Recycling mode, with control knob 1 in automatic position.*

## 3.11 - SUN VISOR

(Fig. 26)

To adjust the visor pull vertically down to desired position.

To raise visor pull cord (1).




Z2-436-05-03.

Fig. 26

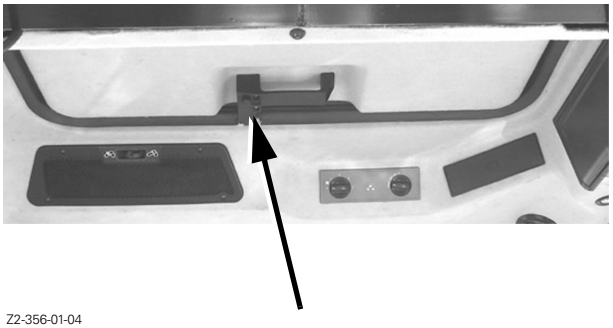
## 3.12 - ROOF HATCH

(Fig. 27)

This hatch is normally used to ventilate the cab.

The hatch is opened by pressing the button located on the handle and pushing the hatch upwards.

To fully open the hatch (emegency exit), push hard on the handle to force the gas cylinders from their holders. To close the hatch, pull it downwards to engage the ends of the gas cylinder rods in the supports, and continue pulling the hatch downwards until it clicks into locked position.



Z2-356-01-04

Fig. 27

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## 3.13 - BODY

Opening of side panels: turn the locking knobs approximately one quarter turn in an anticlockwise direction, then lift the bonnet side panel.

To close the bonnet: repeat the operation in reverse order, refitting the locking knobs in their original holes and turning clockwise to ensure they hold in place correctly.

*NOTE: Use the special wrench provided in the tool box for the locking / unlocking operation.*

MT-0131103

Fig. 28

MT-0141103

Fig. 29

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Chapter 4

# OPERATION

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## 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 at almost full load of the engine. 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 relatively high during the running in period. During running in therefore, check the engine oil level twice a day during the first 50 hours of operation to avoid the risk of lubrication failure.
4. During running in, frequently check the tightness of all nuts, bolts and screws. The wheel nuts must be retightened daily until their torque has stabilised (see chapter 6).

## 4.2 - START-UP

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

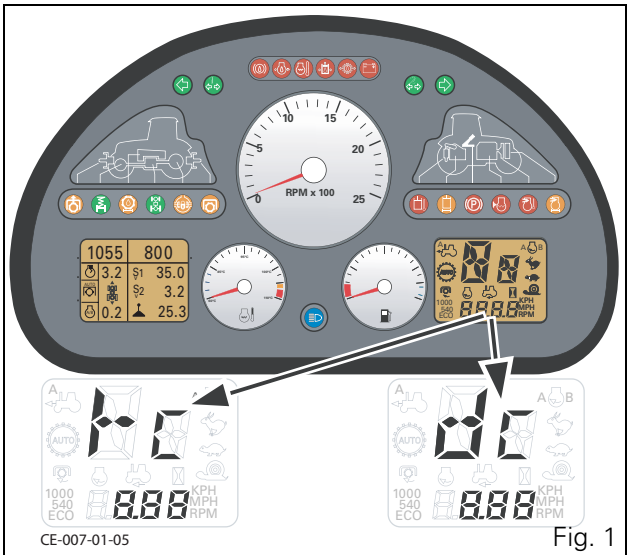
*IMPORTANT: Before starting, never run the engine in a closed space. Never run the engine unless you are sat at the steering wheel of the tractor.*

***CAUTION: After a long standstill, to ensure lubrication of the turbocharger bearings run the engine on the starter for about ten seconds.***

### 4.2.1 - Starting the engine

1. Turn on the ignition key, the TC and DC symbols flash on the right-hand screen of the instrument panel (Fig. 1).

*NOTE: The numbers under T.C. and D.C., required for the service engineer, correspond to the software version.*




CE-007-01-05 Fig. 1

2. Fully press down the clutch pedal (Fig. 2).

Z2-410-05-03-A Fig. 2

4

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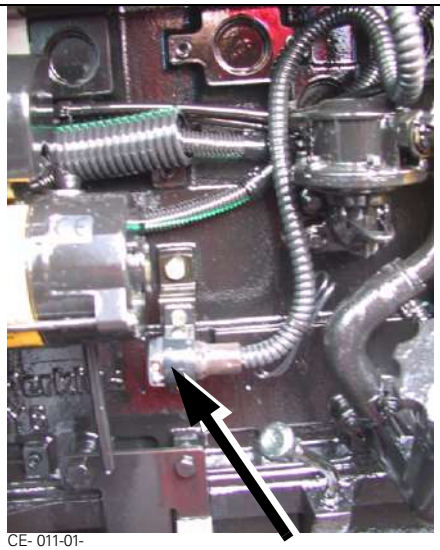
3. The left-hand lever (PowerShuttle) must be in neutral position (Fig. 3). Start the engine and release the clutch pedal.

Z2-078 Fig. 3

#### 4.2.2 - Cold weather starting

**Fig. 4:** A 1000 W heater and connection cable are fitted to help cold weather starting. The heater operates with 110 or 220V (depending on option) and in general heats the engine coolant in two hours. In extreme cold, it may be required to operate all night.

***WARNING: DO NOT plug in heating element for testing unless immersed in coolant. It is dangerous to switch on a heating element in the open air, as the heat released can cause injury and the element can explode.***



CE- 011-01- Fig. 4

## 4.3 - STOPPING THE ENGINE

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

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

***Move the PTO knob to neutral position before starting the tractor.***

## 4.4 - DRIVING THE TRACTOR

#### 4.4.1 - Foot throttle

The use of the foot throttle makes it possible to exceed the engine speed set by the hand throttle. When the foot throttle pedal is released, the engine speed 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 maintain it at mid-travel.***

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

***When turning on headlands with heavy, mounted implements, reduce engine speeds. If the engine is not running steering is not power assisted.***

#### 4.4.2 - Selecting the correct gear ratio

Fig. 6. Select the ratio which gives the optimum fuel consumption without overloading the engine and the transmission. Bear in mind at the same time that soil conditions can vary within a matter of 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 - Preselecting A / B memorised engine speeds

Fig. 5 - This function allows the operator to continuously choose between two engine speeds stabilised according to the adjustments selected.

**Memorising engine speeds**

1. Select the required speed using the foot or hand throttle:

   Keep the memory button (A or B) (13) pressed down for 1 to 2 seconds. The speed is memorised and activated. The operation is the same for both memories (A and B), and the speed remains memorised even if the ignition is switched off.
2. No speed must be selected:

   Keep the memory button (A or B) pressed down, do not release it, and the speed increases gradually; release the button when the selected speed is reached and the speed is memorised and activated.

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Press button A / B to select or deselect the engine speed predefined by button (14).

Each time button (14) is pressed, engine speed is increased/decreased by 10 rpm. A continuously applied pressure allows to rapidly increase or decrease the engine speed to be memorised.

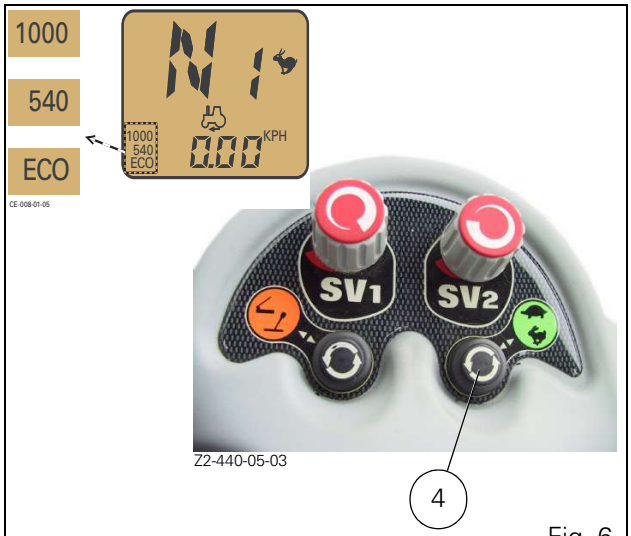
*NOTE: When driving at a preselected accelerated engine speed, press once on the key A/B or on the brake pedals, or quickly press the throttle pedal (kick down) to automatically drop to idle speed.*

Z2-437-05-03

Fig. 5

#### 4.4.3.1 - Range shifting

To shift from "Hare" range or from "Tortoise" range (button on console) engage the required range by keeping the gear shift switch (4) pressed until the ratio is fully engaged (the corresponding indicator light will light up on the instrument panel).




Z2-440-05-03

Fig. 6

*NOTE: Do not rush when carrying out this manœuvre. The "Hare to Tortoise" synchronised range change is only possible when the tractor is stationary and the clutch pedal is pressed down. The "Tortoise to Hare" change is only possible at speeds above 5 kph.*

***DANGER: Before leaving the seat it is mandatory to move the PowerShuttle control to NEUTRAL position and engage the ParkLock.***

*NOTE: If the tractor is working in conditions where water comes higher than the wheel hubs, corrosion damage can occur to some of the components. Consult your dealer or agent for sealing precautions. Failure to do so can invalidate the warranty.*

#### 4.4.4 - PowerShuttle control

Control located to the left of the steering wheel (Fig. 7)

The PowerShuttle control is used to quickly change direction of travel (forward or reverse), and to change the speed.

**Use:**

- PowerShuttle: Move the PowerShuttle control (1) in the required direction of travel, and the corresponding icon will be displayed on the instrument panel right-hand screen. When the tractor is travelling, each change to the direction is with the control (1) without declutching.

Z2-078

Fig. 7

*NOTE: It is recommended to use the clutch pedal for all precise manoeuvring (attachment of implements, etc.).*

## 4.5 - "TECHSTAR CVT" TRANSMISSION

#### 4.5.1 - General

Models fitted with "TECHstar CVT" transmission have continuous variable transmission in the forward and reverse positions. Power is transmitted hydrostatically or mechanically, OR hydrostatically and mechanically. In simple terms, we can state:

- Slow forward travel = Power transmission is hydrostatic primary / mechanical secondary
- Fast forward travel = Power transmission is hydrostatic secondary / mechanical primary

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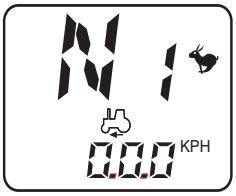
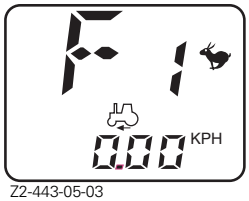
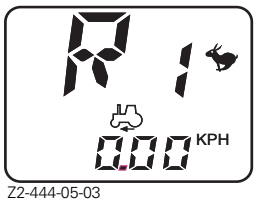
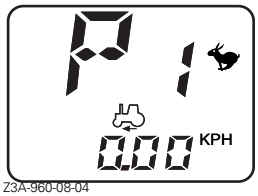
### 4.5.2 - Use

There are no mechanical speeds like on a standard tractor.

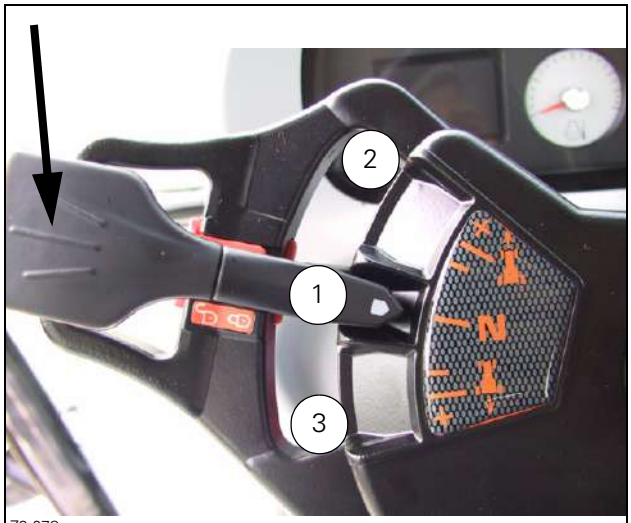
#### 4.5.2.1 - Selecting direction of travel

The "TECHstar CVT" transmission possesses a user interface and a specific display screen. The PowerShuttle lever (Fig. 8) controls direction of travel, and speed increase and decrease.

Move the left-hand lever in the required direction of travel. The corresponding symbol is displayed on the instrument panel right-hand screen, as shown in the following table:

| Position | Corresponding screen |
|---|---|
| 1. Neutral |   Z2-442-05-03 |
| 2. Forward |   Z2-443-05-03 |
| 3. Reverse |   Z2-444-05-03 |
| 4. "ParkLock" engaged |   Z3A-960-08-04 |

When the tractor is operating, the direction is always changed with the left-hand lever (Fig. 8). To start the tractor moving (forward or reverse travel), the correct transmission ratio must be selected.




Z2-078

Fig. 8

#### 4.5.2.2 - Fast Shifting

When changing the direction of travel, the tractor decreases to a halt, then accelerates in the opposite direction. Shifting is inhibited but not blocked when the following functions are active:

- the underspeed supervisor
- the turbo clutch function

Z2-445-05-03

Fig. 9

During tractor movement, if the clutch pedal is activated, the transmission ratio is decreased until speed is zero.

The armrest lever (1 Fig. 9) also controls speed increases and decreases depending on the direction of travel.

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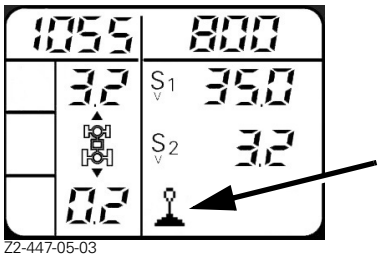
### 4.5.3 - Different control modes

*NOTE: At start-up, the tractor is in lever mode, transmission control is performed with the lever only.*

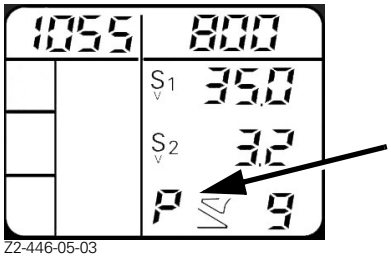
#### 4.5.3.1 - Lever mode




Z2-447-05-03

The speed depends on the position of the armrest lever (1 Fig. 9).

#### 4.5.3.2 - Pedal mode




Z2-446-05-03

When the tractor is started, the throttle pedal must be released and button (3 Fig. 10) pressed.

Transmission is controlled exclusively by the pedal. To adjust the ground speed operate the SV2 potentiometer (6 Fig. 10) (max. 16 kph, min. 3 kph); the value is displayed to the right of the "pedal" icon on the DOT MATRIX screen. Engine speed is electronically adjusted depending on transmission speed. There are two possible settings in pedal mode:

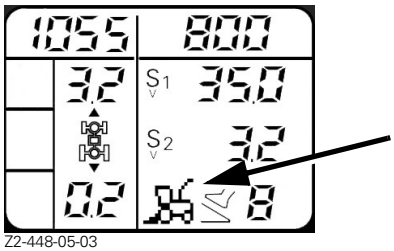
- Power mode: (P is displayed)

  This is the max. speed at the max. engine speed (no programmed max. engine speed).
- Economy mode: (E is displayed)

  In this case, maximum speed at 1,800 rpm engine speed (1,800 is the maximum engine speed in this mode).

***NOTE: In pedal mode, each time the button (3 Fig. 10) is pressed, the setting changes between power mode and economy mode. If the lever is pressed for 2 seconds when in pedal mode, the tractor exits pedal mode.***

#### 4.5.3.3 - Self-propelled mode




Z2-448-05-03

Access to self-propelled mode is possible only if engine speed A or B is selected. In this mode, the user sets the engine speeds with memories A and B, and ground speed is controlled by the throttle pedal and hand throttle (1 Fig. 11).

Z2-440-05-03

Fig. 10

Z2-628-08-03

Fig. 11

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### 4.5.4 - Setting ground speed

To increase or decrease speed, both levers can be used. The left-hand lever (Fig. 12) adjusts the speed by increments of 0.1 to 2 kph, depending on the length of time the lever is activated.

Z2-078

Fig. 12

The right-hand lever (Fig. 13) allows to adjust the transmission ratio more easily due to its progressivity. When decreasing the ratio, the tractor stops at 0 kph (dynamic stop).

Z2-445-05-03

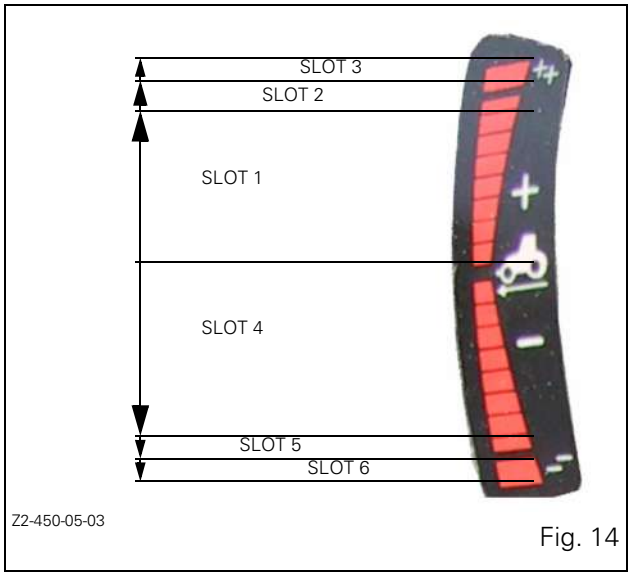
Fig. 13

The right-hand lever travels at varying increments depending on its position. It has 3 increment types (Fig. 14):

- Increments of 0.03 to 0.5 kph in brackets 1 and 4.
- Increments of 1 kph in brackets 2 and 5.
- Increments of 2 kph in brackets 3 and 6.

There is a mechanical stop when shifting to bracket 2 or bracket 3.

*NOTE: If speed regulation is active, pressing the lever automatically deactivates it.*




Z2-450-05-03

Fig. 14

### 4.5.5 - Selecting Hare or Tortoise range

The "TECHstar CVT" transmission possesses 2 gear ranges. Each range is limited, as shown by the following table:

| | Gear range (in kph) | |
|---|---|---|
| | tortoise | hare |
| **Forward** | 0 to 32 | 0 to 40 |
| **Reverse** | 0 to 20 | 0 to 40 |

A button 4 on the right-hand console (Fig. 15) is used for shifting Hare/Tortoise range. Shifting is possible while the tractor is moving, but only from Tortoise to Hare range. When shifting from Hare to Tortoise, the left-hand lever (Fig. 12) must be in neutral position, or the clutch pedal must be pressed down. The range is displayed on the instrument panel right-hand screen.

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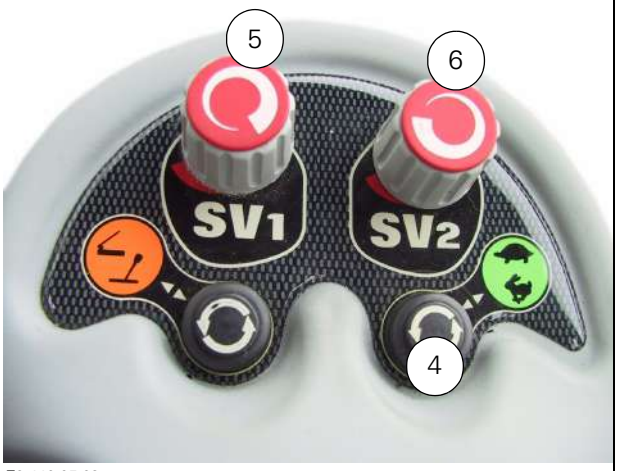



Z2-440-05-03

Fig. 15

Z2-445-05-03

Fig. 16

### 4.5.6 - Speed regulator SV1 and SV2

**The ground speed is held constant.**

The speed regulator function allows the user to easily store and recall a ground speed.

Two separate memory buttons (SV1 and SV2) are available (Fig. 16). This allows to store two ground speeds, e.g. working speed and transport speed).

The memorised speeds are displayed to the right of the DOT MATRIX screen (1 and 2 Fig. 17). When the speed regulator is used, the corresponding memory is highlighted on the screen. In Fig. 17, stored speed SV1 is activated.

#### 4.5.6.1 - Presetting SV1 and SV2 speeds

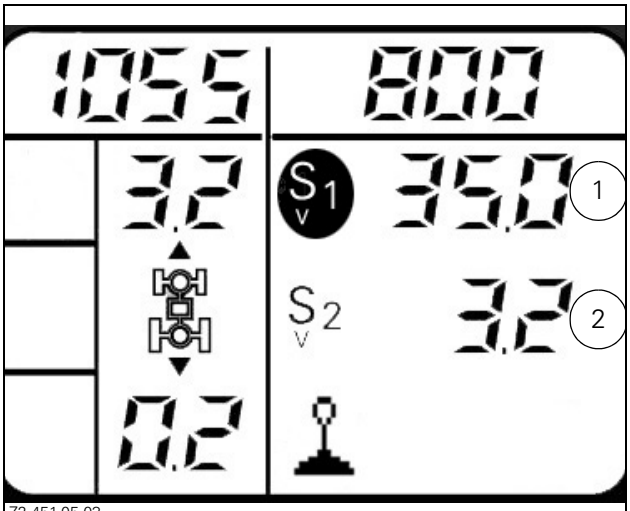
The ground speed value can be adjusted using SV1 and SV2 potentiometers (5 and 6 Fig. 15). The adjusted values are automatically stored and remain in memory even after the tractor engine is stopped.

*NOTE: It is also possible to change the stored speed when the tractor is driving with an activated "regulated" speed.*

To shift between stored speeds, press once on the SV1 or SV2 button (Fig. 16). Press for more than 3 seconds on button SV1 or SV2 (Fig. 16) to store the actual tractor speed and replace the previous stored speed.

**The speed regulator can only be activated if the following conditions are respected:**

- Clutch pedal not activated
- The tractor is running and has reached restart speed
- The engine speed is higher than 1100 rpm




Z2-451-05-03

Fig. 17

If these conditions are not met the "speed regulator" function is deactivated and the instantaneous transmission ratio is maintained, with no subsequent control. Start-up with the "speed regulator" function is not possible. Stored speeds can be activated in both directions of movement.

**The “speed regulator” mode is deactivated when:**

- The drive lever is used
- The brake pedal or engine brake is activated
- Engine speed drops below 1100 rpm
- The neutral switch is activated
- The range is changed (Hare or Tortoise).

***CAUTION: Any use of the brakes automatically deactivates the speed regulator (SV1 or SV2) as well as the stored engine speed (A or B).***

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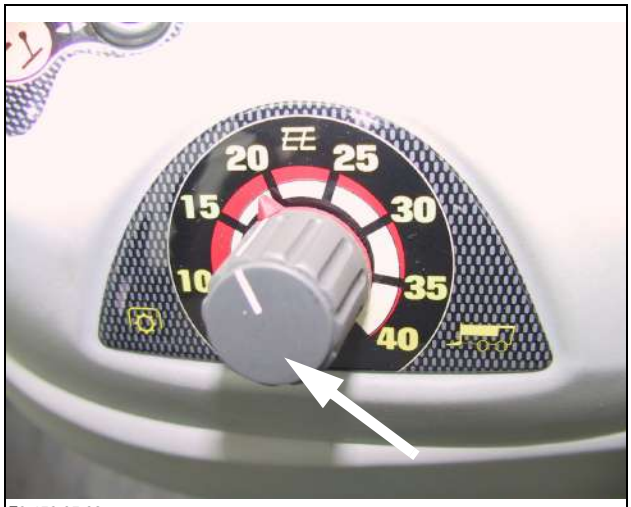
#### 4.5.7 - Engine underspeed supervisor

The underspeed supervisor is automatically activated when the engine speed drops in case of stress. The tractor speed is then decreased automatically by the gearbox control to prevent the engine speed from dropping further.

**Supervisor operation**

The underspeed supervisor is automatically activated when the engine speed drops below 180 rpm under load. The supervisor value is set by a potentiometer located on the right-hand console (Fig. 18). Changes take effect immediately. It is therefore possible, during use, to set tractor operation to the corresponding values. When the engine underspeed supervisor is activated, an icon is displayed on the left-hand screen (Fig. 19).




Z2-452-05-03

Fig. 18

**Potentiometer set to 10:**

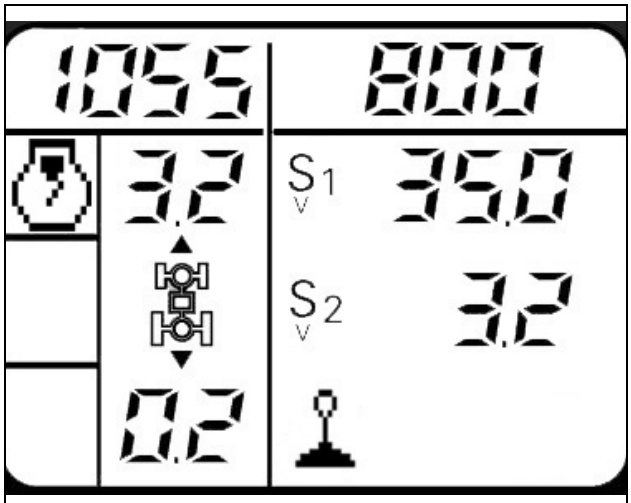
The ground speed decreases to maintain a constant engine speed.

**Potentiometer set to 40:**

The engine speed increases to maintain a constant ground speed.

**Potentiometer set between 10 and 40:**

Combination of the two previous explanations.




Z2-453-05-03

Fig. 19

#### 4.5.8 - Clutch-coupler function

##### 4.5.8.1 - Clutch function

Although the "TECHstar CVT" transmission has neither feed clutch nor coupler, the tractor possesses a clutch pedal.

This pedal allows to control the traction effort (as with standard clutch slip). When an obstacle appears suddenly, the tractor can be rapidly stopped, just like a conventional tractor, by pressing the clutch and brake pedals.

##### 4.5.8.2 - Coupler function

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

In connection with engine speed, the coupler function is achieved by modulating the pressure in the hydrostatic circuit. Thus, the coupler function replaces the measured action of a clutch pedal.

##### 4.5.8.3 - Coupler function under traction

The coupler function is activated when the engine speed drops below 1400 rpm, as the pressure in the hydrostatic loop decreases in proportion to the drop in engine speed.

Just like a coupler, the function limits engine overload and avoids stalling.

The coupler can be validated or not from the DOT MATRIX.

*NOTE: To activate (Fig. 20) or deactivate (Fig. 21) the coupler function, move the PowerShuttle lever to neutral, fully press down the clutch pedal and press the OK button for 5 seconds.*

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***WARNING: The coupler function is "ON" by default at start-up whatever the status when the tractor engine is stopped.***

Z2-454-05-03

Fig. 20

Z2-455-05-03

Fig. 21

### 4.5.9 - Setting restart speeds for shifting

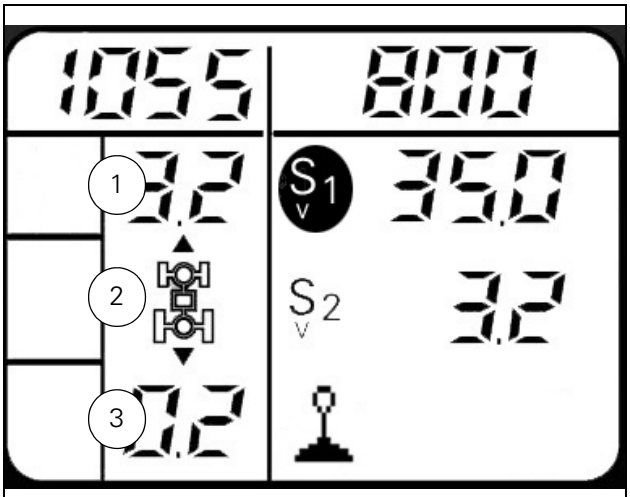
To activate the preset values, press the clutch pedal, the tractor icon (2 Fig. 22) flashes. The required value can be set using the PowerShuttle lever (Fig. 23).

To set value (1 Fig. 22):
Depress the clutch pedal, put the PowerShuttle lever in position (5 Fig. 23), then move the PowerShuttle lever to + or – to adjust to the required value.

To set value (3 Fig. 22):
Depress the clutch pedal, put the PowerShuttle lever in position (6 Fig. 23), then move the PowerShuttle lever to + or – to adjust to the required value.

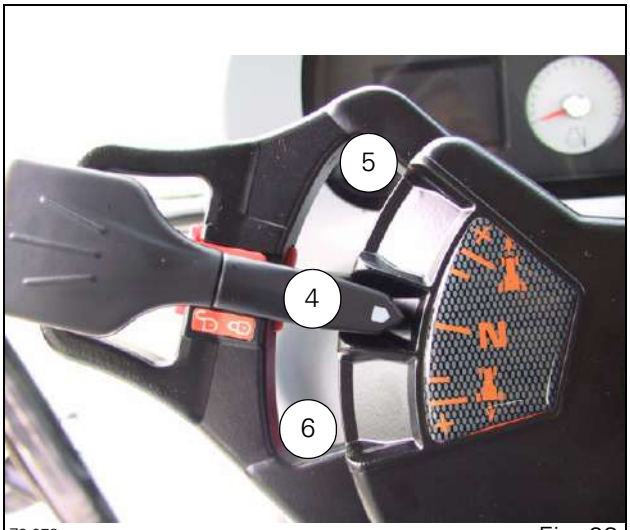
Presettings are different in the Hare and Tortoise ranges. They are stored when the engine is stopped. The displayed value corresponds to the speed in kph obtained when the engine speed is 1800 rpm. If the preset values are set to 0.2, reversal will occur at the same forward and reverse speeds.

*NOTE: In all cases, the dynamic stop can be activated by moving the left-hand "forward to neutral" or "reverse to neutral" lever.*




Z2-451-05-03

Fig. 22




Z2-078

Fig. 23

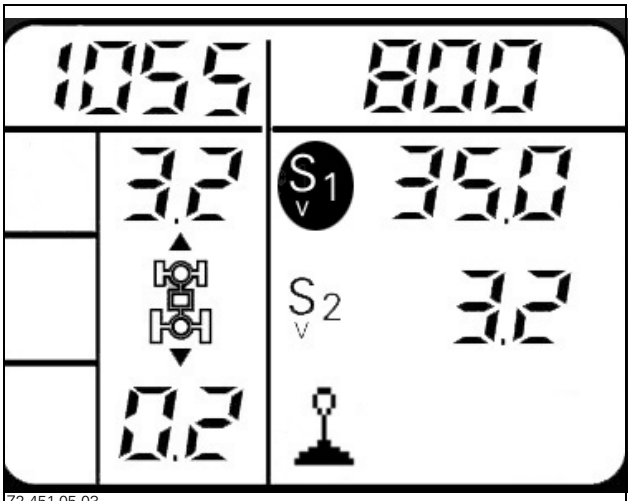
https://truckmanualshub.com/



### 4.5.10 - Using the DOT MATRIX screen

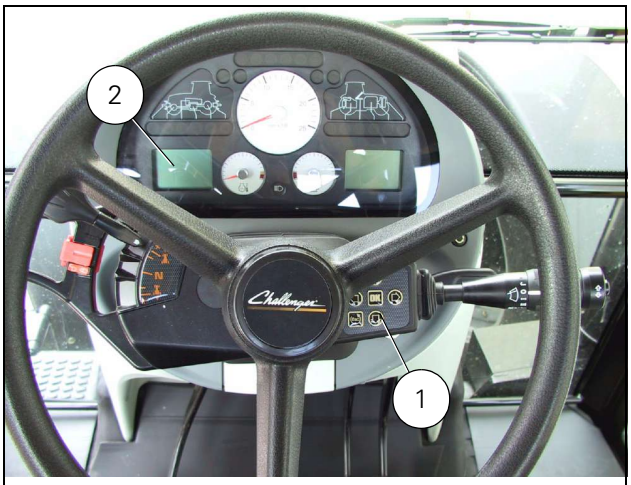
The DOT MATRIX screen is initialised when starting the tractor (Fig. 24). To access the different menus, press the DOT MATRIX control buttons (26) and follow the instructions given in the table on the next page.

(Fig. 25)
1. DOT MATRIX control
2. DOT MATRIX screen




Z2-451-05-03

Fig. 24




Z3A-1500-11-04

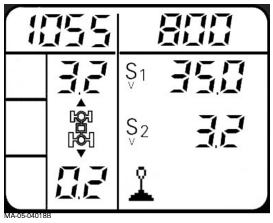
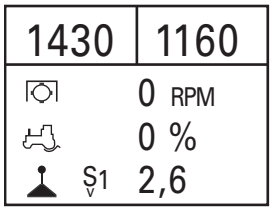
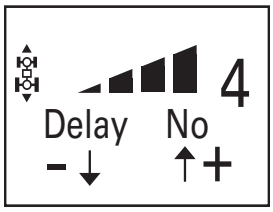
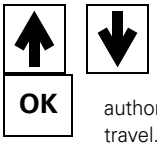
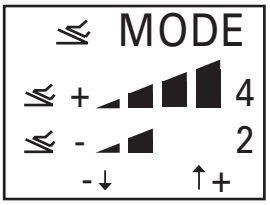
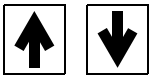
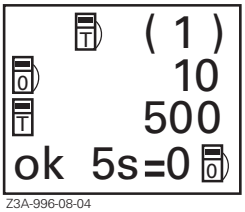
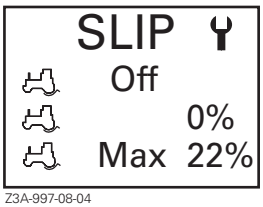
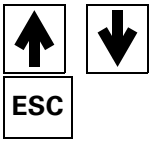
Fig. 25

Z3A-1202-10-04

Fig. 26

https://truckmanualshub.com/



| Screens | Access | Function |
|---|---|---|
|  | Starting the tractor | **Start-up screen**<br>Displays the restart speeds, the SV1 and SV2 speeds, engine supervisor, PTO, pedal mode, eco mode or lever mode. |
|  <br>Z3A-985-08-04 | <br>To display from the start-up screen. | **Work screen**<br>Displays memorised engine speeds, PTO speed, actual wheel slip rate,lever mode, pedal mode (power or eco), self-propelled mode and SV1 and SV2 speeds. |
|  <br>Z3A-1307-11-04 | <br>To display from the previous screen<br>  <br>To increase or decrease the value<br>OK<br>Allows a delay (1.5 seconds) to be authorised or not when reversing direction of travel. | **Reverse shuttle sensitivity**<br>Allows to adjust the response time when shifting direction of travel<br>The delay starts once the reverse shuttle lever is activated If the delay is authorised, declutching takes place 1.5 seconds after the lever is activated. If not authorised, declutching takes place as soon as the lever is activated. |
|  <br>Z3A-987-08-04 | <br>To display from the previous screen<br>  <br>To increase or decrease the value | **Pedal mode sensitivity screen**<br>Used to adjust acceleration (+) and deceleration (-) sensitivity in pedal mode operation. |
|  <br>Z3A-996-08-04 | <br>To display from the previous screen<br>OK<br>Press 5 seconds to reset | **Fuel used screen**<br>Indicates fuel consumed:<br>0: Quantity of fuel consumed since last reset.<br>T: total fuel consumed. This value cannot be modified or reset |
|  <br>Z3A-997-08-04 | <br>To display from the previous screen<br>OK<br>Press to enter the settings menu. The symbol appears.<br>  <br>To set the required wheel slip percentage value<br>ESC<br>Allows to exit the settings screen | **Wheel slip screen (optional)**<br>Enables the max. allowable slip to be defined and displays the current slip setting. |

4

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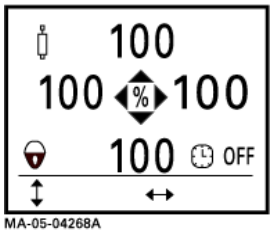
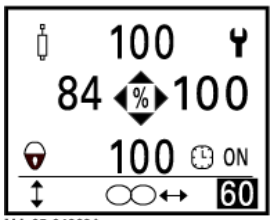
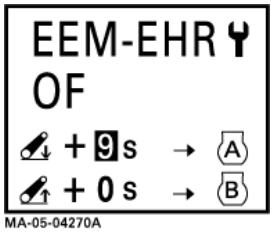
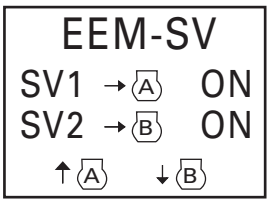
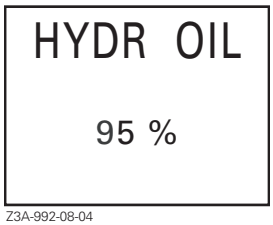
| Screens | Access | Function |
|---|---|---|
|  <br>MA-05-04268A | To display from the previous screen<br>OK Press to enter the menus<br>To select one of the displayed flow rate values or timing<br>To modify displayed flow rate values | **"SMS" controls setting menu (1/2) (if Datatronic 3 not installed)**<br>This menu allows to adjust the flow rate values of each spool valve controlled by the "SMS" controls. If the "SMS" controls are locked (padlock displayed on screen) press the blue armrest ON/OFF button near the PTO control. |
|  <br>MA-05-04269A | When timing is selected, it is possible to display the type of timing (value or infinite)<br>To adjust the timing value<br>ESC Allows to exit the settings screen and validate settings. | **"SMS" controls setting menu (2/2) (if Datatronic 3 not installed)**<br>This menu allows to activate or deactivate timing, and can be adjusted from 0 to 60 seconds or to infinite mode. |
|  <br>MA-05-04270A | OK Allows to activate the mode or validate the values<br>Used to shift from one line to another<br>Allows to set the seconds value of the displayed time | **Headland 2 screen (if Datatronic 3 not installed)**<br>This menu allows to adjust the engine speed when changing linkage status (work or transport). The operating conditions are:<br>- ON mode,<br>- PowerShuttle lever out of neutral,<br>- tractor moving,<br>- When the linkage transport mode is selected, engine speed B is activated after the preset time.<br>- When the linkage working mode is selected, engine speed A is activated after the preset time. |
|  <br>Z3A-986-08-04 | To display from the previous screen<br>To activate or deactivate one of the two functions | **Headland 1 screen**<br>This menu is used to vary the engine speed during activation of SV1 and SV2 memorised ground speeds. |
| <br>Z3A-998-08-04 | To display from the previous screen<br>OK Press 5 seconds to switch from ON to OFF | **Clutch coupler screen**<br>Displays whether the clutch coupler fonction is ON or OFF. |
|  <br>Z3A-992-08-04 | To display from the previous screen | **Auxiliary oil level screen**<br>Displays the filling level of the auxiliary oil tank (0-100%):<br>- 100%: tank full.<br>- 50%: warning threshold.<br>When the auxiliary oil tank level drops to < 50%, it is automatically displayed every 4 minutes (press ESC to return to the main screen).<br>If sensor problem, ERROR is displayed instead of the filling level. |

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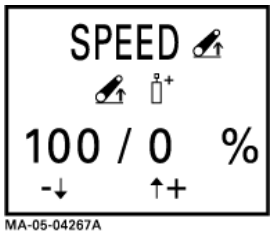
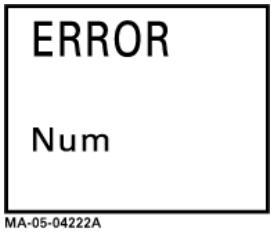
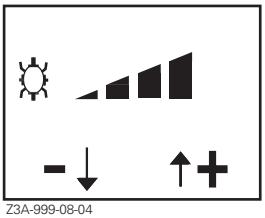
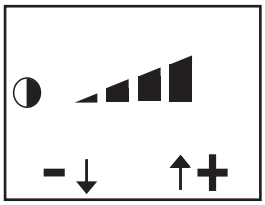
| Screens | Access | Function |
|---|---|---|
|  <br>MA-05-04267A | To display from the previous screen<br>To modify displayed linkage and spool valve flow rate values | **Linkage and EHS valves menu**<br>This menu allows to give priority to the auxiliary spool valves over the linkage, and vice versa.<br>Maximum linkage value: 100<br>Minimum spool valve value 0<br>Minimum linkage value: 20<br>Maximum spool valve value: 80 |
|  <br>MA-05-04222A | To display from the previous screen | **Error code screen**<br>Displays all tractor error codes. Each error code is displayed for 4 seconds in a loop. |
|  <br>Z3A-999-08-04 | To display from the previous screen<br>To increase or decrease the value | **Brightness screen**<br>Setting screen brightness |
|  <br>Z3A-1000-08-04 | To display from the previous screen<br>To increase or decrease the value | **Contrast screen**<br>Setting screen contrast |

*IMPORTANT: When stopping the engine, all DOT MATRIX functions except the coupler function (CLUTCH) shift to OFF position.*

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#### 4.5.11 - "ParkLock" electrohydraulic brake

A Fig. 27: A control located to the left of the steering wheel allows the operator in the driver's seat to control the "activated" and "deactivated" ParkLock positions.

*IMPORTANT: If the tractor must be towed, refer to the specific procedure in section 4.18.*

**Activating the "ParLock":**

- the PowerShuttle lever must be in neutral position,
- the control (A) pushed towards the steering wheel (closed padlock symbol).

The "ParkLock" is engaged.

*NOTE: The electronic control ensures that the "ParkLock " is engaged as soon as the ground speed drops below 1 kph. The indicator light on the instrument panel comes on and the "P" symbol appears on the digital display.*

**Deactivating the "ParkLock":**

- The control (A) must be pulled outwards (open padlock symbol).

*IMPORTANT: For the "ParkLock" to disengage after engine start-up, the electronic control must record a switch of the control (A) from the closed padlock position to the open padlock position. If not, the "ParkLock" remains engaged, even if the control is in the open padlock position.*

***DANGER: Engage the control into locked position (closed padlock symbol) before leaving the driver's seat with the engine running.***

Z2-138

Fig. 27

## 4.6 - TRACTOR TOWING

*IMPORTANT: Before towing the tractor refer to the towing instructions section 4.18.*

## 4.7 - BRAKES

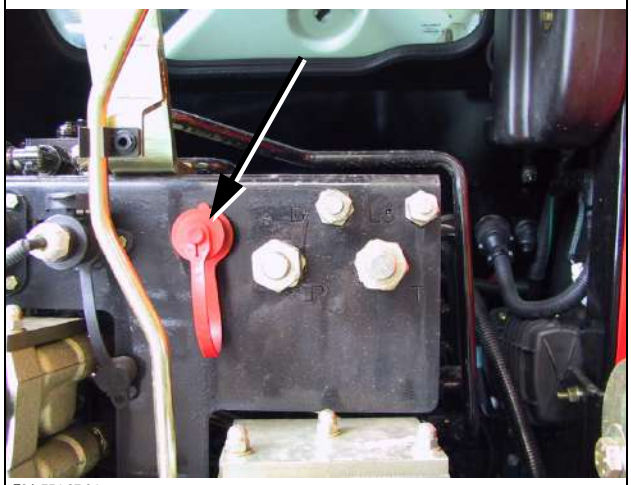
Z2-410-05-03-A

Fig. 28

***DANGER: When driving at speed or on the road, the two brake pedals must be locked together (Fig. 28). Only the foot throttle should be used, and the throttle lever must be in neutral position.***

***Check that A/B memorised speed is not activated.***

***WARNING: Trailer brakes (Fig. 29). To activate the trailer brakes, connect the trailer hose to the union at the back of the tractor and lock the brake pedals together.***



Z3A-754-07-04

Fig. 29

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## 4.8 - FRONT AXLE ENGAGEMENT (4WD)

When 4WD is engaged, the front wheels are driven. This function is strongly advised for field work to keep wheel slip to a minimum.

There are two modes of 4WD operation:

- automatic mode,
- manual mode.

*IMPORTANT: To avoid damaging the front axle, it must be disengaged for road use.*

• Automatic mode:

At tractor start-up, 4WD in automatic mode.

To engage 4WD, press the engagement switch (1 Fig. 30). The corresponding instrument panel engaged indicator light comes on (2 Fig. 30) and the 4WD automatic mode symbol appears on the digital display (3 Fig. 30).

When this mode is activated, 4WD is automatically disengaged at speeds exceeding 14 kph. When the speed drops below 10 kph, 4WD is automatically re-engaged.

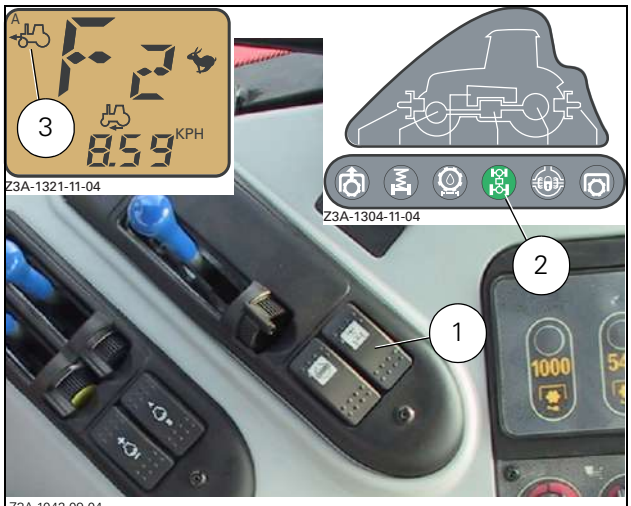


Fig. 30

• Manual mode:

To activate manual mode:

To exit the automatic mode and enter the manual mode, press and hold the 4WD switch for at least 2 seconds.

When in the manual mode, the 4WD is engaged at all times, independent of ground speed.

A single press of the 4WD switch will disengage 4WD. Pressing the 4WD switch again will re-engage 4WD.

The following 4WD conditions are normal operation:

A. If both brake pedals are depressed 4WD will engage to provide 4-wheel braking, regardless of ground speed. When the brake pedals are released, 4WD is automatically disengaged.

B. The 4WD will engage whenever the differential lock is engaged.

## 4.9 - DIFFERENTIAL LOCK

The rear axle differential lock is used to prevent the rear wheels from slipping in relation to one another and thus limits tractor wheel slip during field work.

*IMPORTANT: During field manoeuvres, turning is difficult with the differentials locked engaged. For this reason it must be disengaged to carry out manoeuvres.*

Fig. 31: To engage the differential lock, press the engagement switch (1). When the switch is pressed, 4WD is simultaneously engaged, and the differential lock and 4WD instrument panel indicator lights (2 and 3 respectivaly) come on.

To disengage the differential lock, press the switch (1) again.

*IMPORTANT: Disengaging the differential lock does not disengage the front axle.*

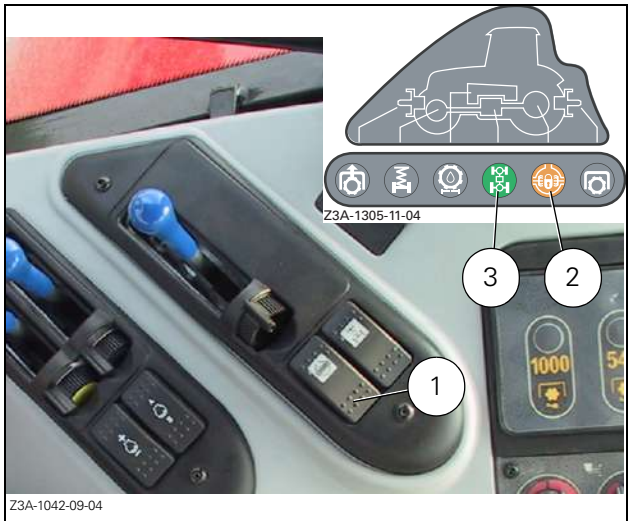


Fig. 31

• Automatic engagement and disengagement of the differential lock:

This function is permanently on and ensures engagement and disengagement of the differential lock when the linkage control is activated (e.g.: when turning at headlands). Thus when the linkage lifting control is activated, the differential lock is disengaged. Then when the linkage lowering control is reactivated, the differential lock is engaged automatically.

*IMPORTANT: For mechanical reasons do no engage the differential lock when a wheel is slipping.*

*NOTE: Any use of the brakes cancels the differential lock. Press the switch (1 Fig. 31) again to re-engage the differential locks. If the tractor is fitted with radar, tractor wheel slip can be controlled (see paragraph 4.5.10 "Using the DOT MATRIX screen").*

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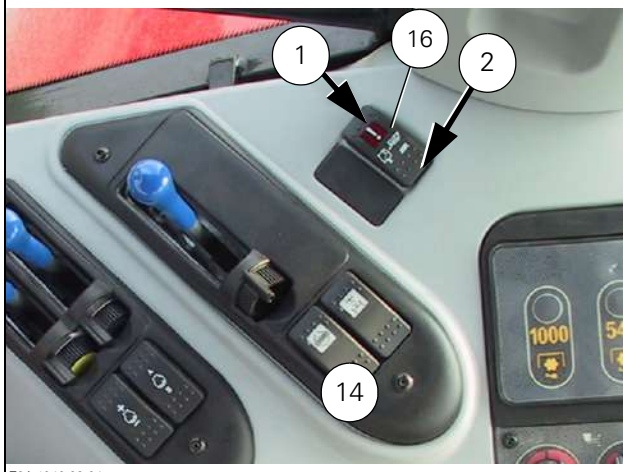
## 4.10 - SUSPENDED CAB

Cab suspension flexibility can be adjusted depending on different comfort requirements (road or field work).

**Adjustment Fig. 32:**

- Road position (trailer symbol on the switch):
  - Put the switch (16) in position (1) to make the suspension stiffer.
- Field position (plough symbol on the switch):
  - Put the switch (16) in position (2) to make the suspension smoother.

Maintenance: see paragraph 5.16.2.




Z3A-1042-09-04

Fig. 32

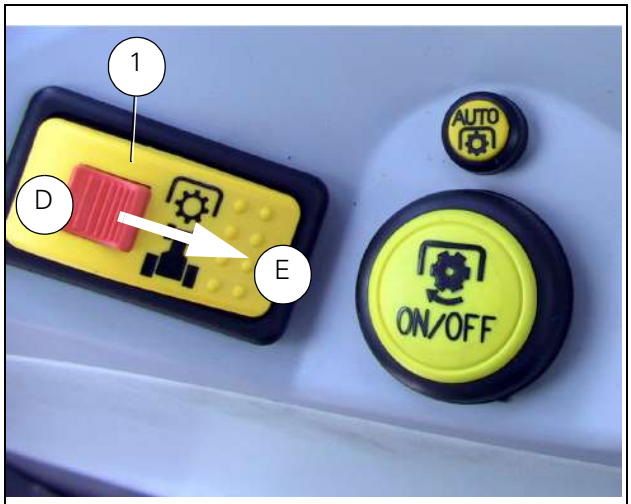
## 4.11 - FRONT PTO

### 4.11.1 - Front power take-off

The front PTO is controlled by the switch Ref.1 - Fig. 33

To engage PTO, slide the red safety slider in the direction indicated by the arrow, while pressing the switch (ref. D) in order to unlock it.

Push as shown by Ref. E to stop the PTO.




Z2-039

Fig. 33

## 4.12 - REAR PTO

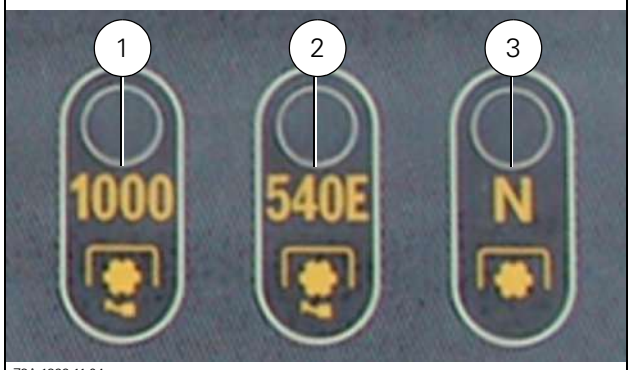
### 4.12.1 - Selecting PTO speed

The PTO can be engaged and disengaged independently of the transmission.

To engage PTO, a PTO speed must be selected first. Therefore, 540 rpm, 540E rpm or 1000 rpm speeds (depending on option) can be obtained by selecting the suitable speed with the corresponding key (Fig. 34).

| PTO speed selected | Maximum engine speed |
|---|---|
| 540 rpm | 2037 rpm |
| 540E rpm | 1598 rpm |
| 1000 rpm | 2031 rpm |

*IMPORTANT: To avoid damaging implements driven by the PTO, the engine speeds on the above table must be complied with.*




Z3A-1322-11-04

Fig. 34

https://truckmanualshub.com/



**Description (Fig. 34):**

1. PTO speed 1000 rpm
2. PTO speed 540 rpm or 540E rpm (depending on option)
3. PTO in neutral position

*IMPORTANT: When the PTO is not in use, set it to neutral position by pressing the button (3 Fig. 34).*

When a speed is selected, the corresponding figure appears on the digital display (Fig. 35) and the PTO engaged indicator light flashes on the instrument panel (4 Fig. 35).

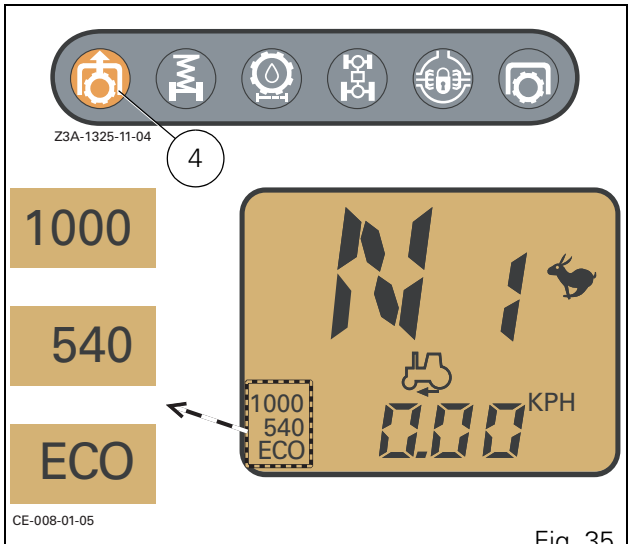
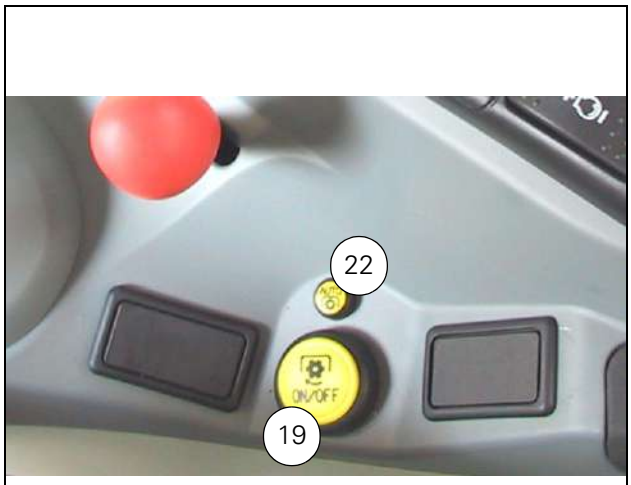



Fig. 35

*NOTE: If 540E rpm is selected (optional), the ECO appears on the digital display.*

### 4.12.2 - Engaging the power take-off

To engage PTO, a PTO speed must be selected first (see preceding paragraph).




Z3A-1520-12-04

Fig. 36

**Engaging PTO in manual mode:**

To engage PTO, press the control "ON (active) or OFF" (deactivated) button (19 Fig. 36). The PTO engaged indicator light (6 Fig. 37) stops flashing and stays on continuously. At the same time, a PTO engaged symbol appears on the digital display (7 Fig. 37).

*NOTE: The PTO clutch automatically adapts to the conditions required to start the implement.*

To stop the PTO, press the PTO control button (19 Fig. 36) again.

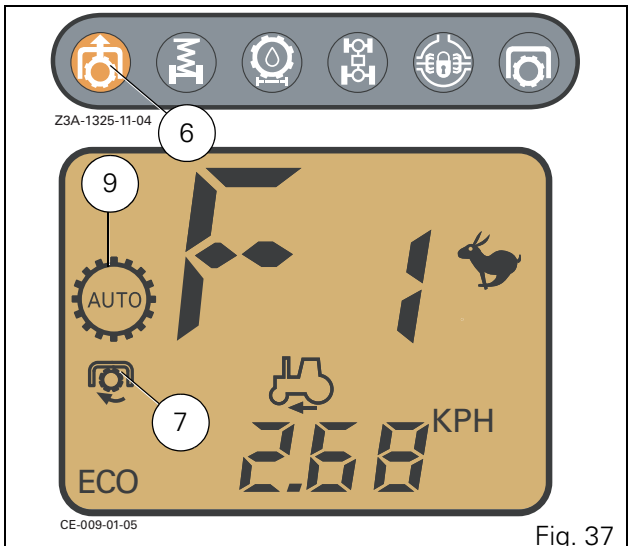



Fig. 37

**Engaging PTO in automatic mode:**

This function allows the PTO to be automatically stopped temporarily when the linkage control is in Lift position (e.g.: operation at headlands).

For this, press the PTO control button to engage automatic mode (22 Fig. 36). The PTO engaged indicator light (6 Fig. 37) stops flashing and stays on continuously. The PTO engaged symbol (7 Fig. 37) and AUTO symbol (9 Fig. 37) appear on the digital display.

When the linkage control is activated in Lift position, the PTO stops turning. In this case, the indicator light (7 Fig. 37) disappears, and the indicator lights (6 and 9 Fig. 37) flash. When the linkage control is activated in Lower position, the PTO is switched back on.

*NOTE: If the Lower control is not activated within 90 seconds or the ground speed increases to over 25 kph, the PTO is switched off permanently.*

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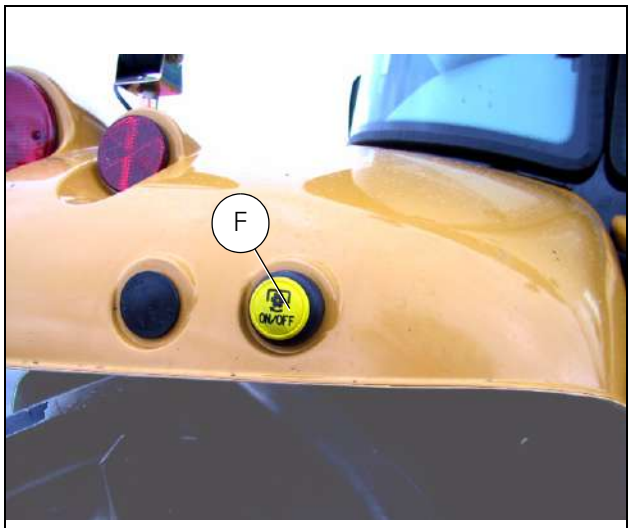
**PTO control button on fender (Fig. 38).**

The button (F) located on the left-hand fender allows a rear PTO safety stop or restart, and will make the instrument panel indicator light flash.
To restart the PTO, press the external control button ref. F for at least 6 seconds.




CE-005-01-05 Fig. 38

***WARNING: Always disengage the PTO before attaching or detaching an implement or making adjustments to it.***

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

***Always stop the PTO using the button (19 Fig. 36).***

***DANGER: Power take-off***

***Never step across any shaftline.***

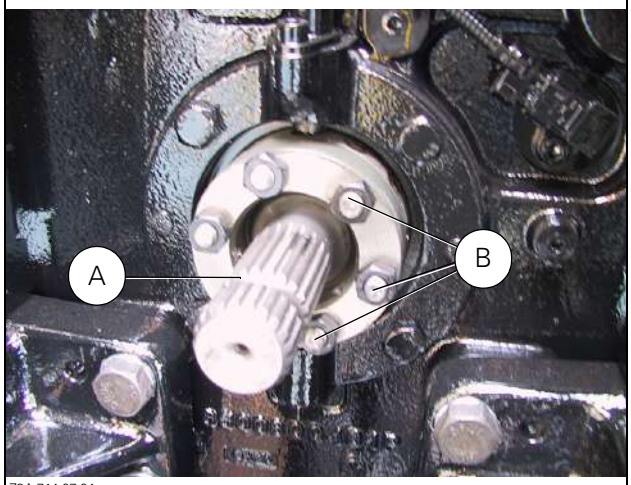
***Do not use the tractor or implement drawbars as a step.***

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

***Never wear loose fitting clothes.***

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

**4.12.3 - Flange shaft**




Z3A-714-07-04 Fig. 39

21 spline 1 3/8" flange
6 spline 1 3/8" flange
20 spline 1 3/4" flange

*IMPORTANT: When changing the shaft (A), the allen screws (B) must be tightened to a torque of 69 Nm.*

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Fig. 40

## 4.13 - ELECTRONIC LINKAGE

(Fig. 40)

A. Height / depth setting knob
B. Function selector knob: Position / Intermix / Draft
C. Maximum lift height setting knob
D. Manual or automatic lowering speed setting knob
E. Lift / Lower selector switch with "neutral" position.
F. Active transport control system knob
G. Linkage lowering indicator light
H. Linkage lifting indicator light
I. Console locking and malfunction self-diagnostic indicator light.
J. Active transport control system indicator light
K. Lowering speed automatic control indicator light
L. Quick soil engagement
M. Active wheel slip control
N. Linkage console locking indicator light (Data 3 option, Fig. 41)

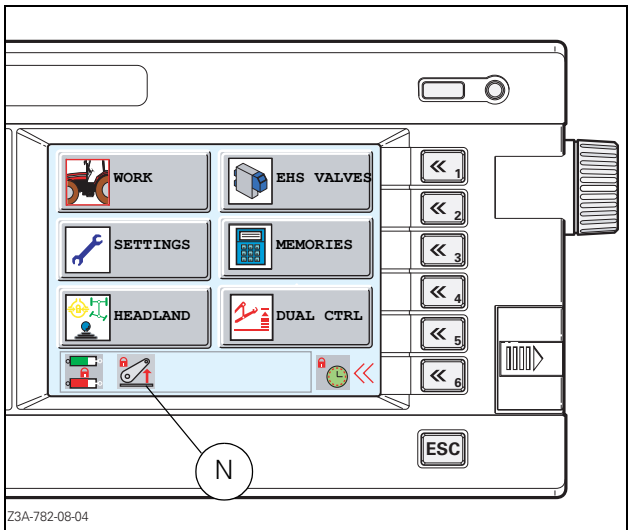


Fig. 41

https://truckmanualshub.com/



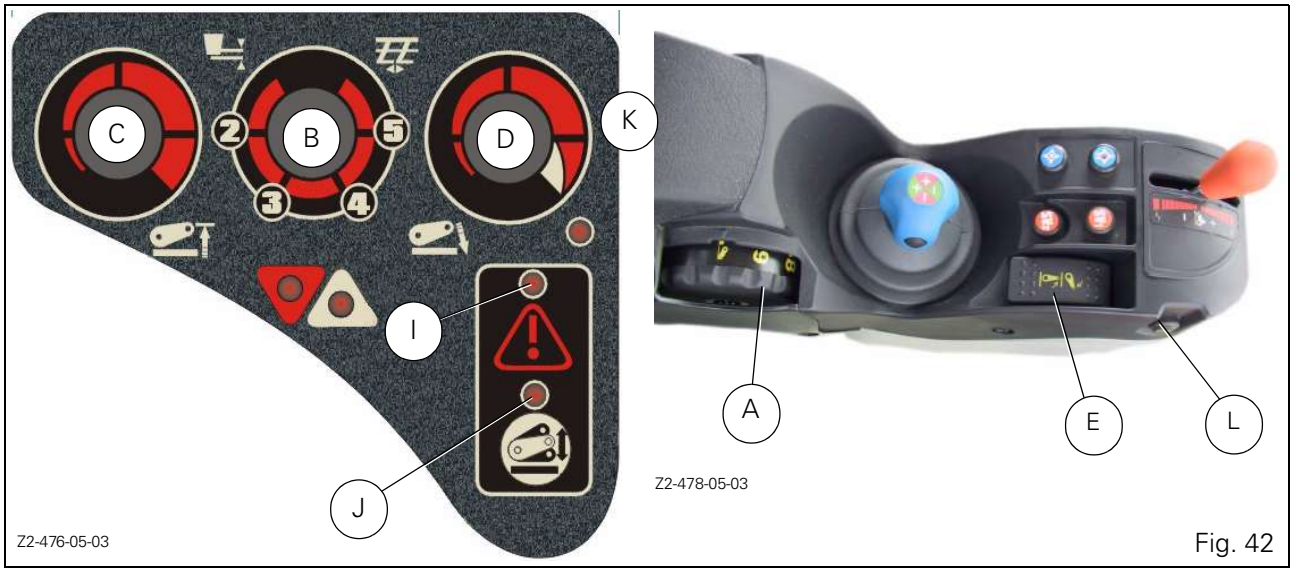


Fig. 42

### 4.13.1 - Attaching an implement from the driver's seat

Start the engine. Indicator lights (I), (J) and (K) come on.

- ((K) and (J) light up for 0.5 second approximately.
- ((I) stays on until the console is activated.
- Adjust the control knobs.
- Move the function selector knob (B Fig. 42) clockwise to minimum control position.
- Move the Lift / Lower selector switch (E) to the lift position.
- Adjust the linkage height in turning the control knob (A).
- The Lift indicator light (H) comes on.

### 4.13.2 - Lowering

To lower the linkage, turn knob (A) clockwise. The lowering indicator light (G) will come on.

In automatic mode, lowering speed is governed by two parameters: the weight of the implement and ground speed. The indicator light (K) comes on when this mode is selected.

Legend Fig. 43:

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

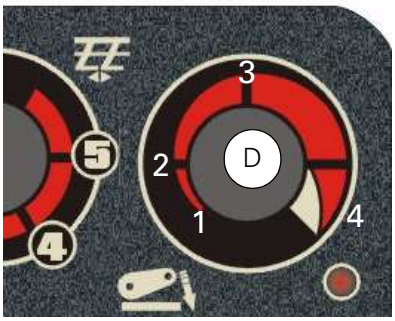


Fig. 43

### 4.13.3 - Lifting

To lift the linkage turn the knob (A) anti-clockwise.

The Lift indicator light (H) comes on.

### 4.13.4 - Depth control

Knob (A) in position 1 (min.) to 7 (max.) determines the depth of work.

In position 8 and 9 the linkage is in floating mode.

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### 4.13.5 - Attaching an implement using external controls

To use the external controls (Fig. 44) the Lift / Lower selector switch (E) must be in Neutral or Lower position.

***DANGER: Always place gear shift lever and PowerShuttle control lever in NEUTRAL before leaving driver's seat.***

***Activate the "ParkLock" brake control.***

When selector switch (E) is in the Neutral or Down position, pressing the external control buttons will cause the linkage to be raised or lowered.

*NOTE: The movement of the lift arms stops as soon as the button is released.*

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

For safety, when the external buttons are operated, the cab control console is automatically switched off.

To switch the cab console controls back on, press on the selector switch E (Fig. 45).

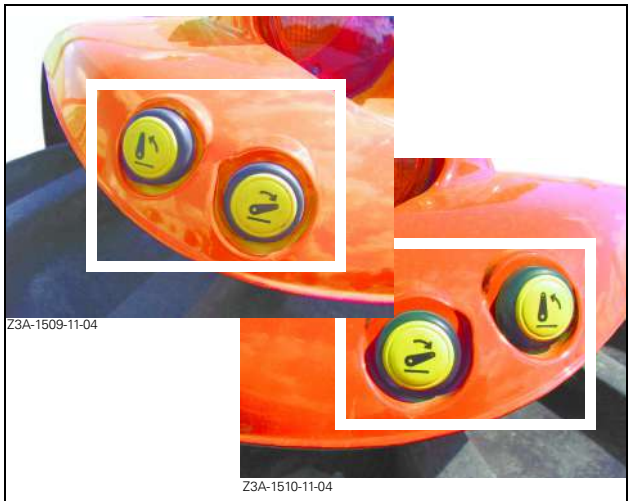



Fig. 44

Fig. 45

https://truckmanualshub.com/



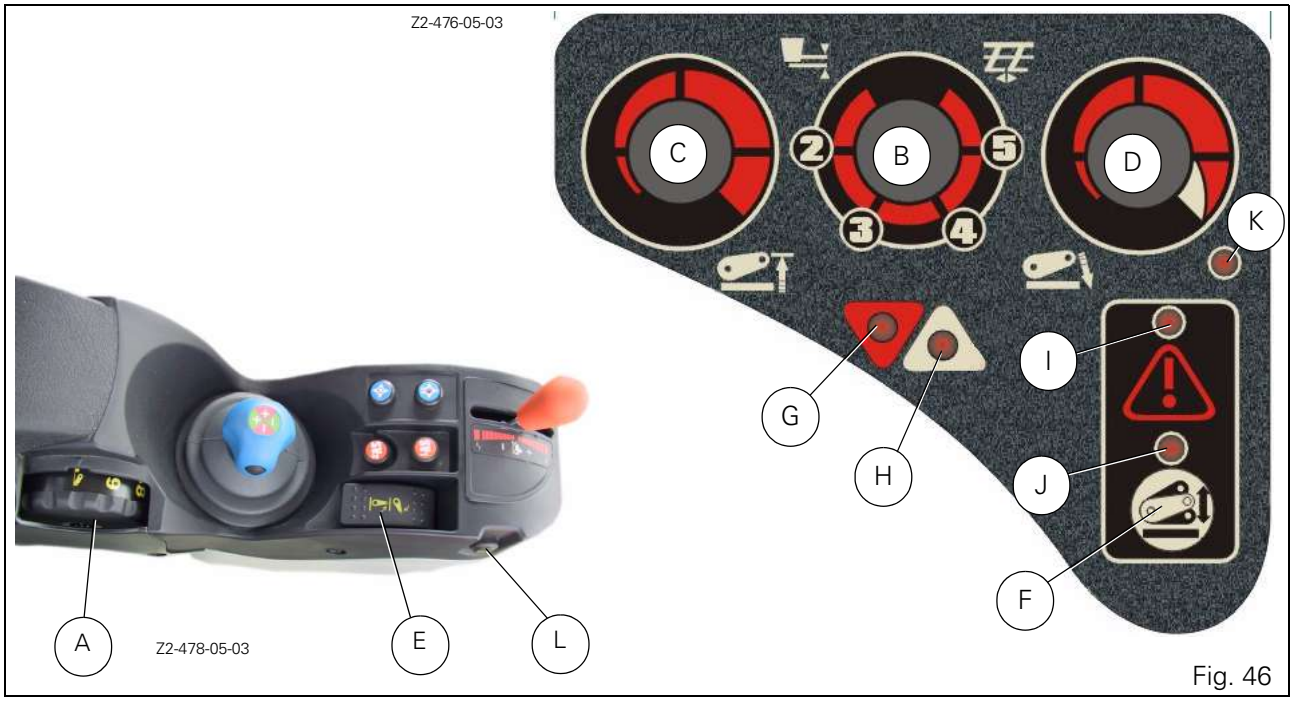


Fig. 46

### 4.13.6 - Transport

- Select the minimum position with the knob (B, Fig. 46).
- Adjust the maximum linkage height according to the transport implement using the height setting knob (C). Start from minimum position.
  Move the knob (D) to position 1 (padlock).

### 4.13.7 - Activate transport control system

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

### 4.13.8 - Quick soil engagement

- Move the selector switch (E) to Lowering position, press and hold button (L) to trigger quick soil engagement.
- Release as soon as the plough is engaged into the soil.

### 4.13.9 - Use when working

- Adjust the maximum high position using knob (C).
- Using knob (D), adjust a maximum linkage lowering speed.
- Choose the implement control mode (Draft, Position or Intermix Control), according to the implement, the ground conditions and the type of work, by activating the control selector knob (B).
- Adjust the working depth using knob (A).
- The Lift and Lower indicator lights (H) and (G) allow to display the work being carried out.

### 4.13.10 - Operation at headlands

Put the Lift / Lower selector switch (E) into the Lift position. The linkage will rise to the preselected maximum lift position (C).

In order to resume work, put the Lift/Lower selector switch (E) into "Lower". The depth settings previously made will be repeated.

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

The object of this device is to avoid any accidental movement of the linkage if settings on the console have been altered, while the tractor is stationary.

To reactivate the linkage, move the switch (E) to the intermediate position, then to the lift position. Linkage is then brought back into operation and the padlock (N Fig. 47) in the DATATRONIC 3 window disappears, if this latter has been installed.

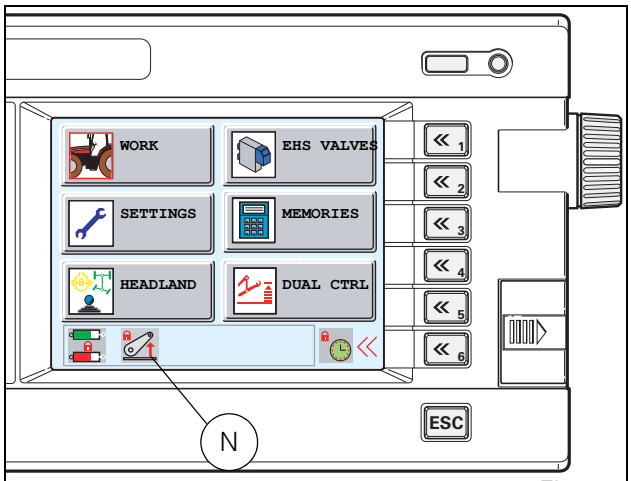


Fig. 47

https://truckmanualshub.com/



Before reactivating the ELC calculator, ensure that settings (A) (depth) and (C) (selection) cannot cause any dangerous movements of the drawbars.

## 4.14 - STEERING

***CAUTION: the steering type is set to hydrostatic power steering When the engine stops, the booster pump no longer supplies the system. Hydrostatic steering then passes automatically to manual operation mode which requires greater effort when turning the steering wheel. This mechanism therefore ensures safe operation in all conditions of use.***

*IMPORTANT: However, it should be remembered that hydraulic systems can only operate effectively if maintained in perfect condition, the recommended fluids are used and the tightening of the various unions and sump oil level are checked regularly.*

## 4.15 - AUXILIARY HYDRAULICS SYSTEM

**General**

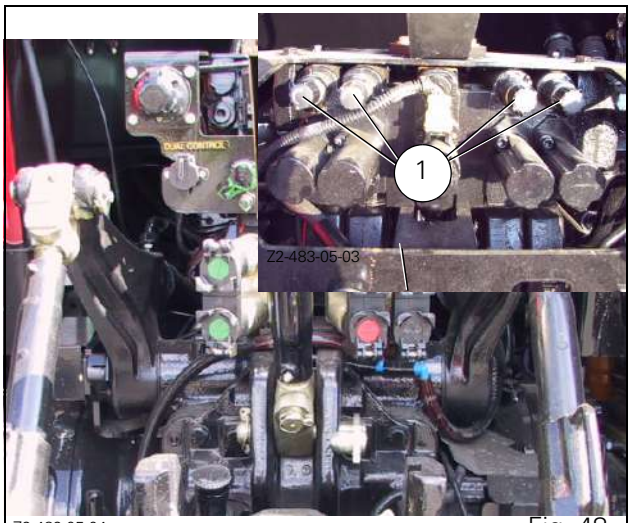
Tractors are designed to be fitted with up to 5 spool valves.

**4.15.1 - Flow Control Valve**

The oil flow from the spool valve can be modified depending on implement requirements, including when maximum flow is not required, for example for a specific application or when the speed of the hydraulic motors needs adjusting (using the spool valve specific to the motor concerned.

It is also useful for keeping available a flow of oil for the simultaneous use of the linkage and of the auxiliary hydraulics.

To regulate the flow of oil, turn the knob 1 of the relevant spool valve (Fig. 48).




Z2-482-05-04 Fig. 48

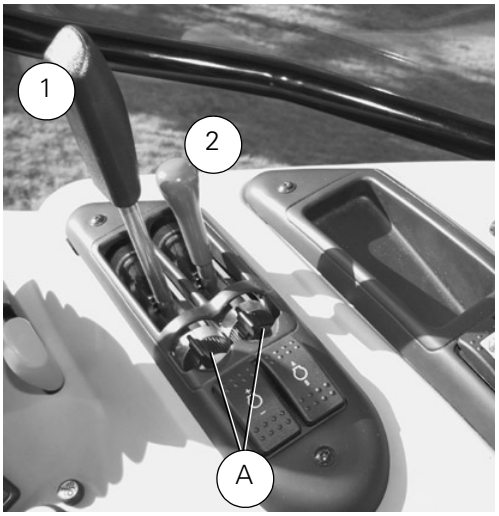
**Zero leak option**

All spool valves have a small internal leakage, which may result in small changes in the implement settings. This spool valve avoids this problem.

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

**4.15.2 - Type of controls available (Fig. 49):**

1. Control for mechanical spool valve.
2. Control for electric spool valve.




Z2-104 Fig. 49

**4.15.3 - Hose connection**

A colour (A) on the cover indicates the auxiliary spool valve to connect.

*IMPORTANT: The two hoses of one ram must be connected on the same auxiliary spool valve.*

*Ensure male and female couplers are kept clean at all times.*

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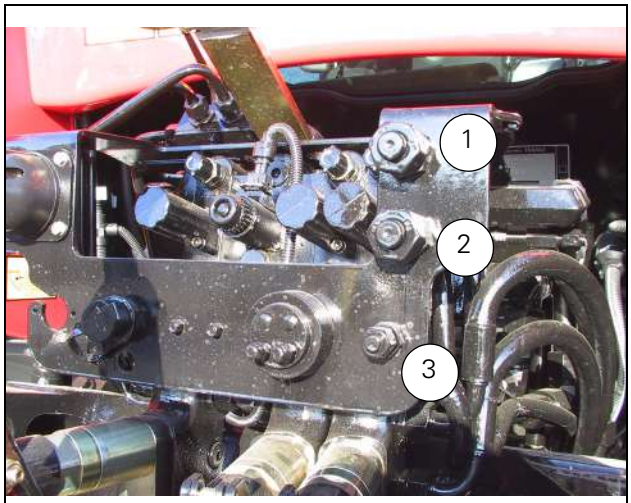
#### 4.15.4 - Additional spool valve outlets:

Fig. 50: Three additional sockets are provided for cases where the hitched implement needs to use other spool valves:

1. Direct outlet pressure
2. Rear axle return
3. XLS line




Z2-320-09-03

Fig. 50

#### 4.15.5 - "Joystick" controls:

Tractors fitted with the Bosch SB23 electrohydraulic spool valves option controlled by a control lever inside the cab or by a Joystick located on the armrest to control the spool valves.

**Description (Fig. 51)**

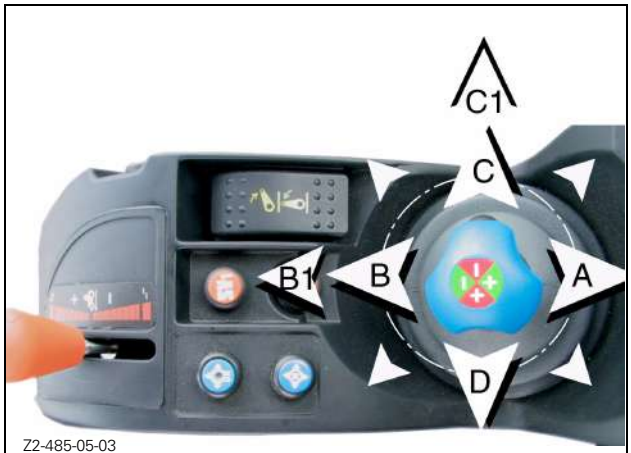
1. 4-function control Joystick (separate or combined) (Fig. 52).

A. Lifting
B. Lowering
C. Filling (bucket)
D. Emptying (bucket)

Z2-478-05-03

Fig. 51

2. Extra function control button, e.g.: bucket (open / close jaws).
3. Store flow rate (after setting Datatronic parameters) and reset to zero indicator light for stored flowrate
4. On/Off switch.




Z2-485-05-03

Fig. 52

#### 4.15.5.1 - Operating without Datatronic

- For versions without Datatronic, with the Joystick in neutral position:
  the floating position cannot be used, the hydraulic flow is at its maximum.
- Joystick in any other position:
  move the Joystick in the desired direction(s) and briefly press button 3, (Fig. 60) to record and set the flow.

If a stored flow rate must be changed or cancelled, operate the Joystick then press the Memory key (3) for 5 seconds to restore the maximum flow rate.

#### 4.15.5.2 - Operating with Datatronic 2 (Fig. 52)

When starting the engine, the Joystick is not operational and the red indicator light is lit.

When the Datatronic 2 has been installed, the corresponding settings in the active window are locked (padlock icon displayed on half screens Fig. 53).

1. Press button 4 (Fig. 51) to make the Joystick operational. The red indicator light goes out, the padlock disappears from the half screens and values can be set on the Datatronic.
2. Move and hold the Joystick in the desired direction to obtain the desired flow, the flow stops as soon as the joystick is released.
3. By moving the Joystick to its limit of travel beyond its locked B1 / C1 floating position, and releasing immediately, the flow is automated, and when in OFF position the "~ " icon is displayed on the lower screen.

*NOTE: The speed and duration of the flow depend on the parameters previously recorded in the Datatronic. To cancel the values, press button 3 (Fig. 51) for approximately 5 seconds (default value 100%).*

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**Setting Joystick parameters with Datatronic 2**
For a correct use of Datatronic 2, refer to chapter 7.
Description of the display (Fig. 53):
Ref. 5. Selection keys for the 2 half-screens.
Ref. 6. Selecting functions
Ref. 7. Stored data modification key.
Ref. 8. Time delay
Ref. 9. Floating position.

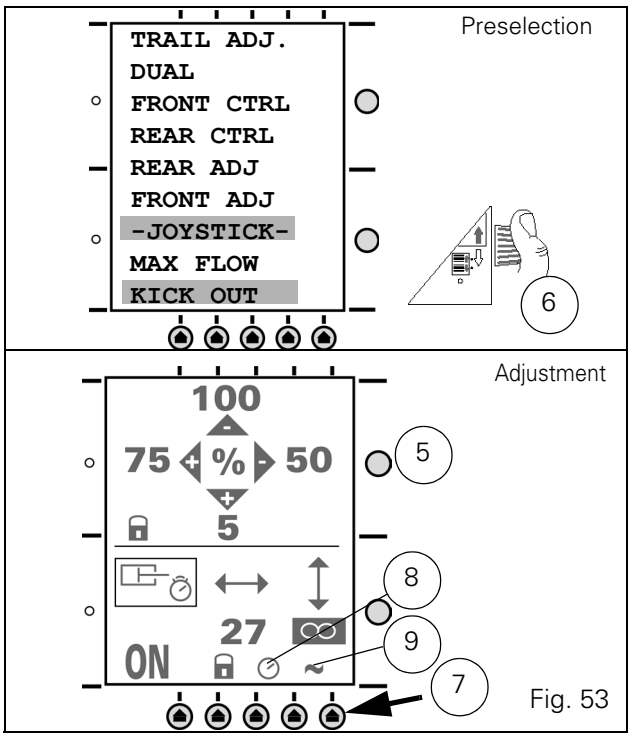
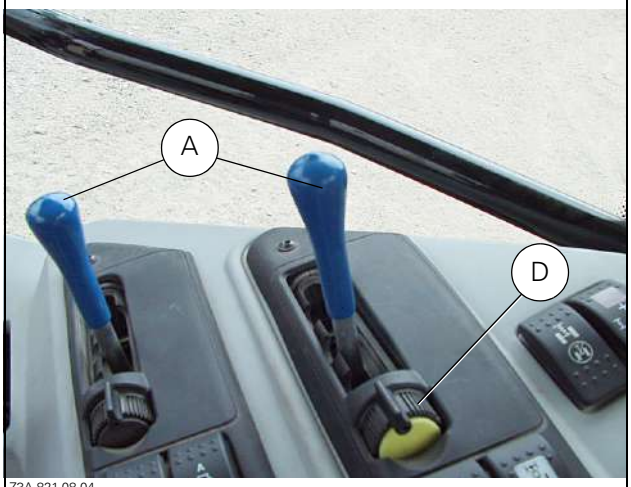


Fig. 53

**4.15.6 - Using the control levers (Fig. 54)**
Each spool valve controlled by a lever (A), can be blocked in various positions by actuating the lock (D):
- Neutral position (Fig. 54)



Z3A-821-08-04
Fig. 54

- Ram rod extraction position (for example) (Fig. 55)

Z3A-822-08-04
Fig. 55

- Ram rod retraction position (for example) (Fig. 56)

Z3A-823-08-04
Fig. 56

- Floating position (Fig. 57)

To activate the floating position, push the lever to its maximum position (E), then release it. The lever returns to its initial position, while the spool valve is in floating position.
To deactivate the floating position, move the lever to any position. The spool valve switches to neutral position.

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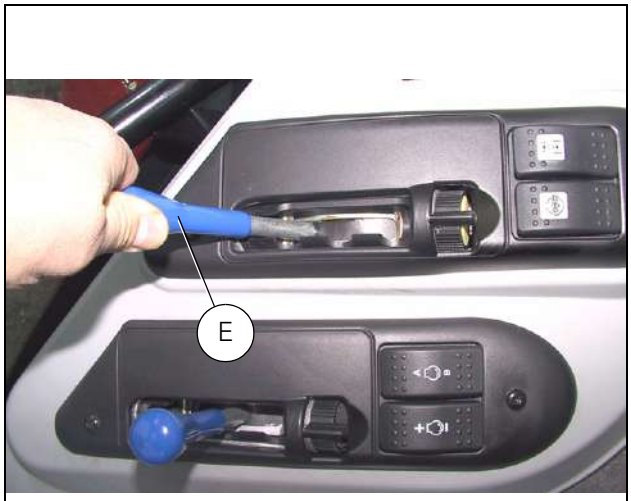
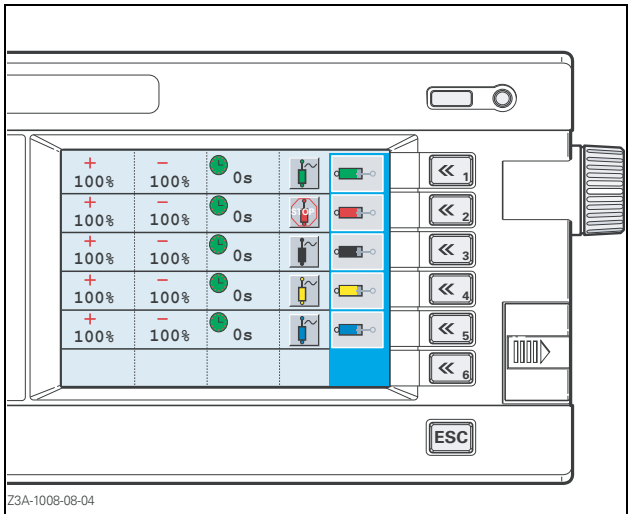



Z3A-1522-12-04

Fig. 57

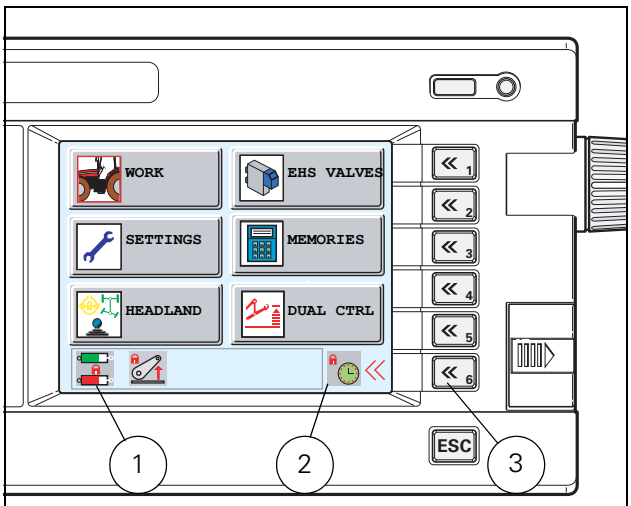



Z3A-1008-08-04

Fig. 59

### 4.15.6.1 - Operating with Datatronic 3

When the tractor is started, the spool valve controls cannot be used. For this reason two padlocks are displayed on the first Datatronic 3 screen.




Z3A-782-08-04

Fig. 58

1. Locking the hydraulic spool valve controls To unlock, press the button (4 Fig. 51) (the padlock disappears and the button indicator light goes out).
2. Locking the spool valve activation times. To unlock, press the key «$_6$ (3) (the padlock disappears).

*NOTE: Ensure that the "Floating" position of each spool valve is available (Fig. 59). To activate this function, see chapter 7.*

Floating position unavailable

Floating position available

Z2-478-05-03

Fig. 60

### 4.15.6.2 - Memorising a flow rate

*NOTE: See the HYDRAULIC SPOOL VALVES application in chapter 7 for storing flow rates and the activation times of each spool valve.*

When the engine is started, the spool valve controls are unavailable and the button red indicator light (4) is lit.

When the Datatronic 3 has been installed, the corresponding settings in the active window are locked (lock icon displayed).

1. Press button (4 Fig. 60) to make the EHS controls operational, the red indicator light goes out, (on the optional Datatronic 3 fitted the lock icons disappear

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from the screen), adjustment of the Datatronic is now possible.

2. Move and hold an EHS control in the desired direction to obtain the desired flow, the flow stops as soon as the Joystick is released.
3. Move the "Joystick" control to position B1/C1 and release it immediately to obtain floating position, and the flow rate is automated (the icon is displayed on the Datatronic 3 screen).

4. Still holding the control in the required position, press the memory key 4 for one second. The flow rate is memorised.

*NOTE: When using a control and whatever the position used, the flow rate generated shall be that which was previously memorised. To cancel the values, press button (4 Fig. 51) for approximately 5 seconds (default value 100%).*

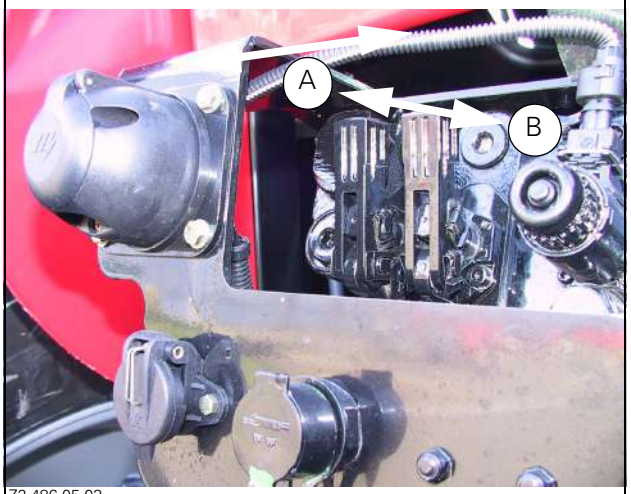
#### 4.15.7 - Emergency manual control of the spool valves

In case of malfunction of the "SMS" or the spool valves controls, the emergency hand controls are available to lift or lower the installed implements.

Button 4 (ON / OFF Fig. 51) flashes and the relevant error code is displayed on the tractor onboard computer (if installed).

**Operation:** Move one of the levers on the spool valves by pressing as shown (A) to lower or by pulling as shown (B) to lift.

Stop the engine, then restart it in order to reactivate the "SMS" controls.




Z2-486-05-03

Fig. 61

## 4.16 - THREE-POINT LINKAGE

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

#### 4.16.1 - Linkage

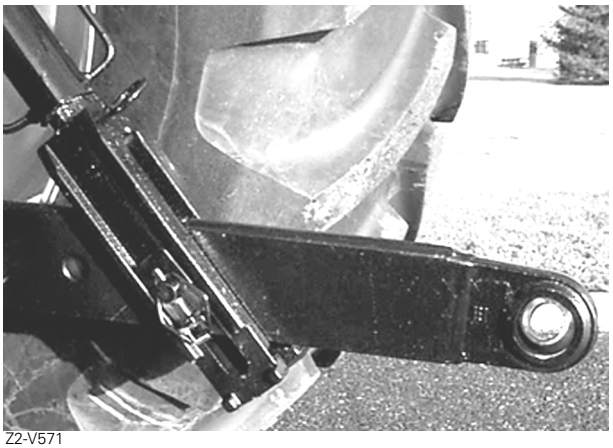
The tractor is supplied with Category 3 ball joint linkage or with optional category 3 fast linkage hitches.

#### 4.16.2 - Lower links

- Fixed ball end type (Fig. 62)
- Hook and ball type (Fig. 63)

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).



Z2-V571

Fig. 62

4

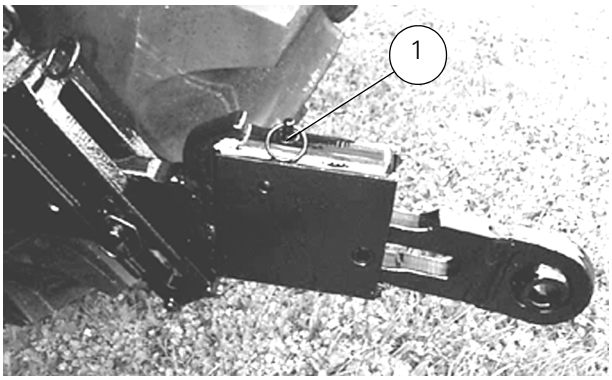
https://truckmanualshub.com/

Z2-V538

Fig. 63

### 4.16.3 - Telescopic lower links

Telescopic lower links (Fig. 64) (depending on country). To hook up implements unlock pin 1. Lock after hitching.




V539

Fig. 64

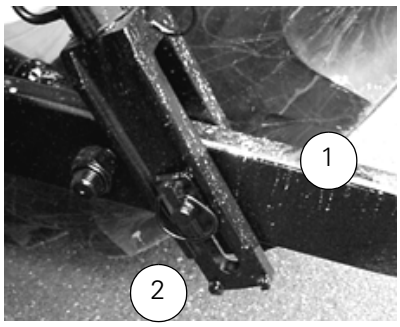
### 4.16.4 - Lift rods

(Fig. 65)

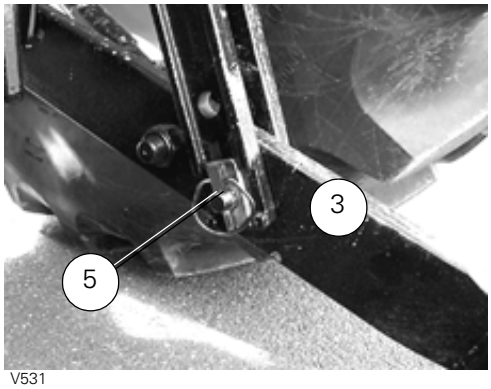
The lift rods have one hole 1 for the high position and a slot 2 for the floating position when the pin 5 is in position 3 (for wide implements or implements with depth wheel).

A fixed low position 4 can be obtained by moving the pin 5.

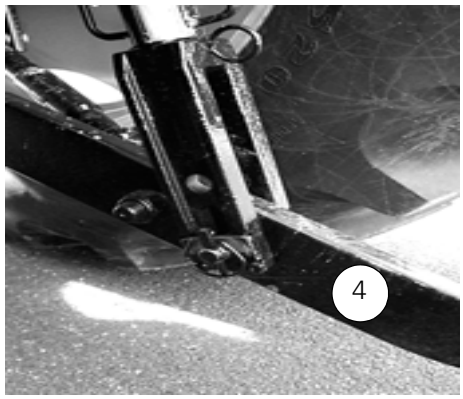
For rods without hole 1, only the floating position 3 and the fixed low position 4 can be obtained.




V529




V531




V530

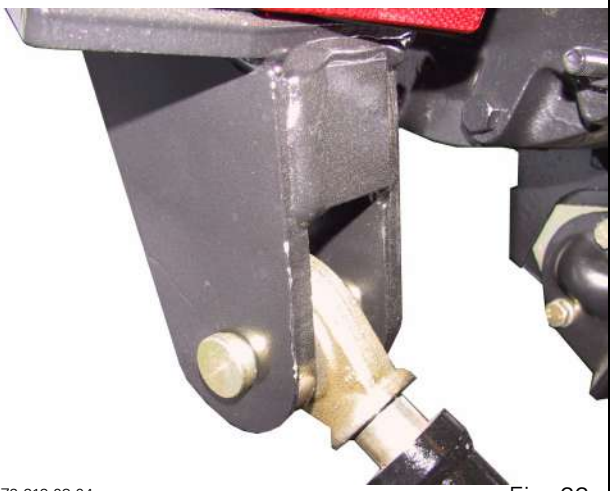
Fig. 65

https://truckmanualshub.com/



### 4.16.5 - Stabilisers

Stabilisers are used to limit the lateral movement of the lower links.
The front stabiliser support has only one possible position (Fig. 66).



Z2-619-03-04 Fig. 66

### 4.16.6 - Adjustment procedures

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

- Pos. 1: Screw or unscrew centre members to obtain desired left-hand side/right-hand side sway.
- Pos. 2: Automatic no-sway at transport position.

*NOTE: The side sway is to be adjusted with drawbars in transport position.*

A. Install Cat. 2 linkage drawbars.
B. Set lift rods length as required.
C. Set lower link travel as required Fig. 67.
D. Fully screw in stabilisers.
E. Start the engine.

V579 Fig. 67

F. According to models:

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

- Set the control panel hitch "Lift/Lower" switch to "Lift" then to "Neutral".
- Press "Lift" button until lower links reach highest position.
- Stop the engine.
- Unscrew stabilisers (Fig. 68) until drawbars have no lateral oscillation and are centralised.
- Screw both stabilisers in 1 turn.

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

- Set the control panel hitch "lift/lower" switch to "neutral" then to "lift".
- Stop the engine.
- Unscrew stabilisers (Fig. 68) until drawbars have no lateral oscillation and are centralised.
- Screw both stabilisers in 1 turn.

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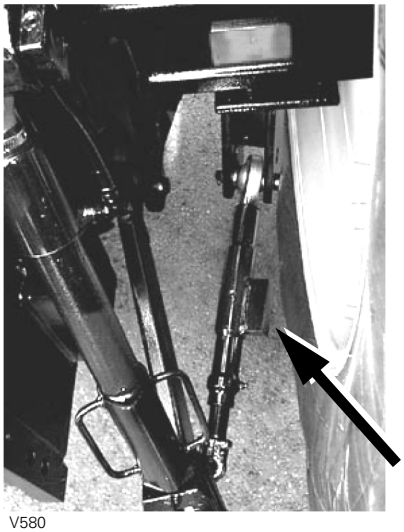
***CAUTION: Increasing transport height, modifying lift rods length or fixing position of lift rods on drawbars once the above adjustments are completed will result in stabiliser damage.***



V580

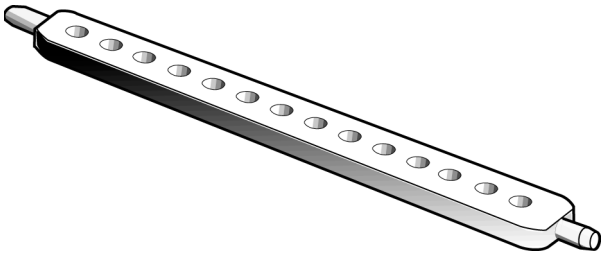
Fig. 68

## 4.17 - DRAWBARS AND HITCHES

Available as options, according to countries.

### 4.17.1 - Perforated bar

This is fitted to the lower links and is suitable for light loads (Fig. 69).

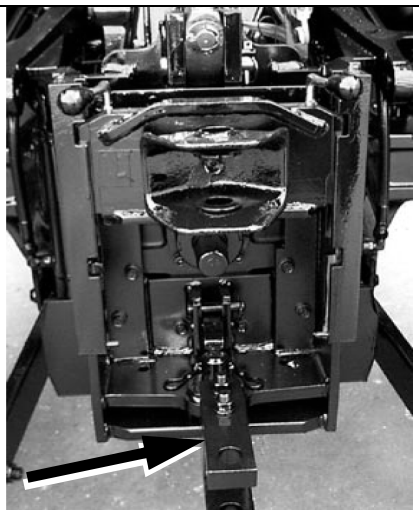


V582

Fig. 69

### 4.17.2 - Swinging drawbar

(Suitable for trailed implements only) (Fig. 70).



V537

Fig. 70

Adjustments:

- Height: a clevis is bolted either above or below the bar, thereby giving two height positions.
- Offset: remove the "R" clips and take out the clevis pins.

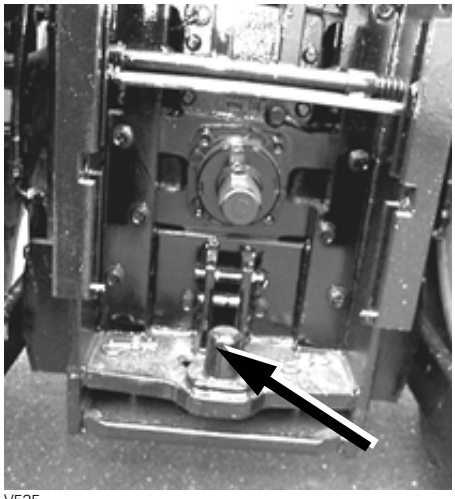
Position the drawbar as required. Refit the clevis pins and secure them with the clips to hold the drawbar in the required position.

Maximum tractable weight: 13,000 kg.

Maximum vertical load at hitch: 1,700 kg

### 4.17.3 - Stud for semi-mounted trailer

Suitable for heavy trailers which transfer heavy load to the tractor (Fig. 71).



V535

Fig. 71

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It is welded to the frame of the swinging drawbar and has a safety retaining latch.
Maximum vertical load: 3,000 kg

### 4.17.4 - Roller type swinging drawbar

This drawbar is used with very heavy trailed implements. It makes sharp turns at the headland easier, by allowing the drawbar to swing with the implement.

### 4.17.5 - 4-wheel trailer clevis hitch - Easy adjustment type

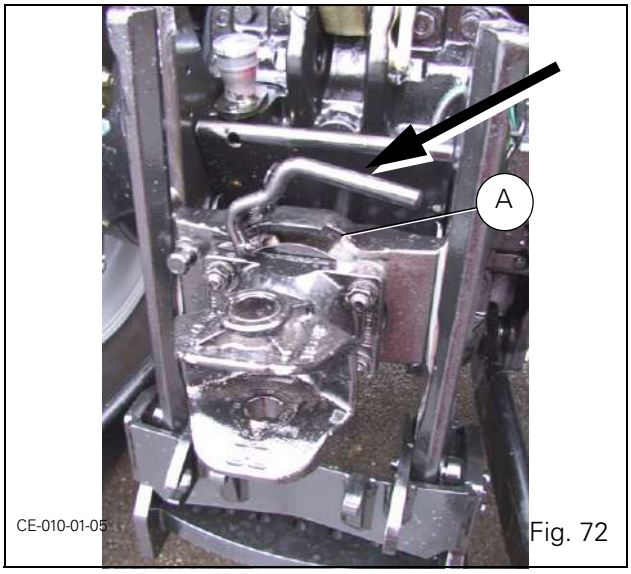

Fig. 72

Fig. 72: To modify the clevis height, turn the handle to the left and raise or lower the clevis between the notches.
To lock the clevis, reposition the handle until the safety mechanism engages in notch A.
Maximum vertical load at hitch: 2,000 Kg

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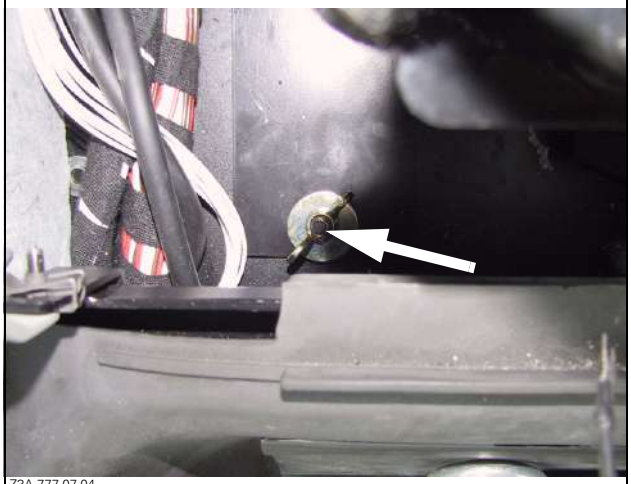
## 4.18 - TOWING PROCEDURES AND INSTRUCTIONS

- Open the cover located on the cab floor (right-hand side) (Fig. 73).

Z2-597-05-03

Fig. 73

- Remove the protective shield (Fig. 74 and Fig. 75).



Z3A-777-07-04

Fig. 74

Z2-599-05-03

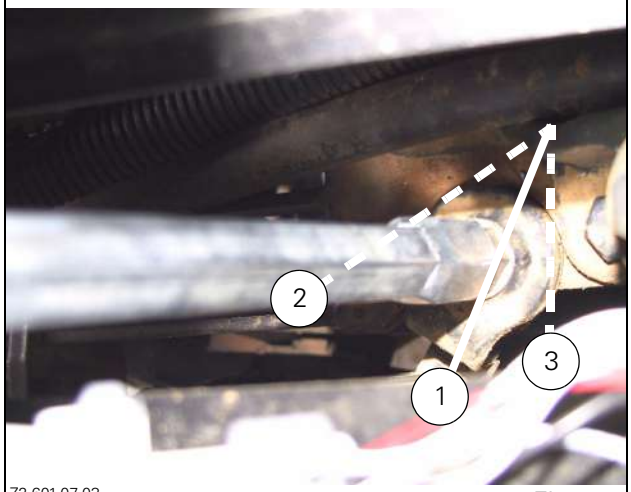
Fig. 75

- Position the emergency lever on the control unit (C) (Fig. 76).

Z3A-741-07-04

Fig. 76

- Move the "TECHstar CVT" transmission to neutral position (middle position Ref. 1 Fig. 77).




Z2-601-07-03

Fig. 77

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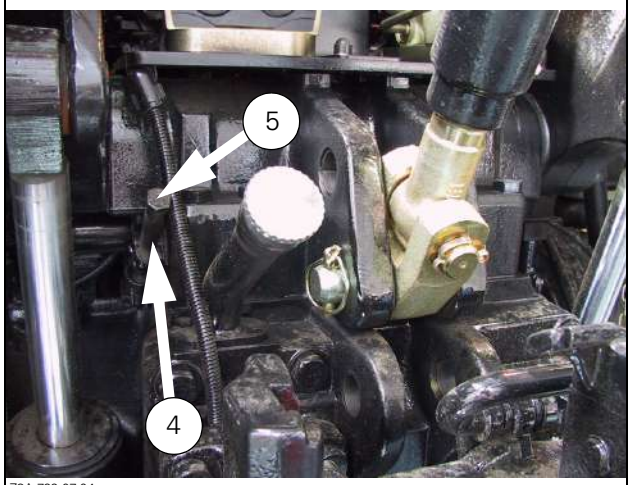
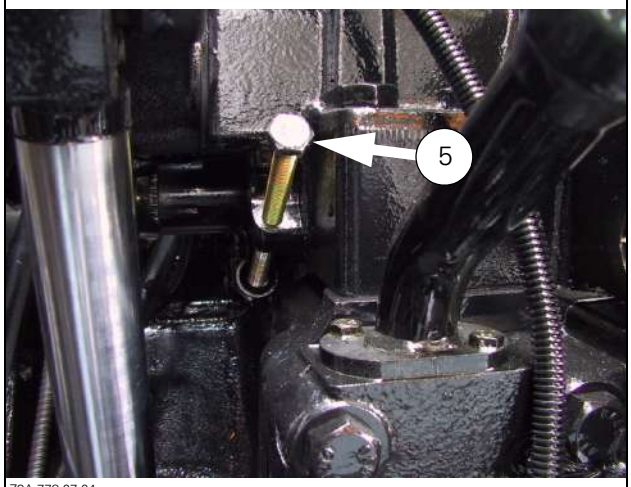
- Release the "Park Lock" parking brake. For this purpose:
  - take off the spacer (Ref. 4 Fig. 78) after removing the screw ref. 5,
  - refit and tighten the screw Ref. 5 (Fig. 79).




Z3A-762-07-04

Fig. 78




Z3A-778-07-04

Fig. 79

### 4.18.1 - Limp home mode

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

***CAUTION: Once the tractor is started, the transmission is driven totally by meshing if a gear range (hare or tortoise) is engaged. Press down the clutch pedal, because any transmission ratio can be selected.***

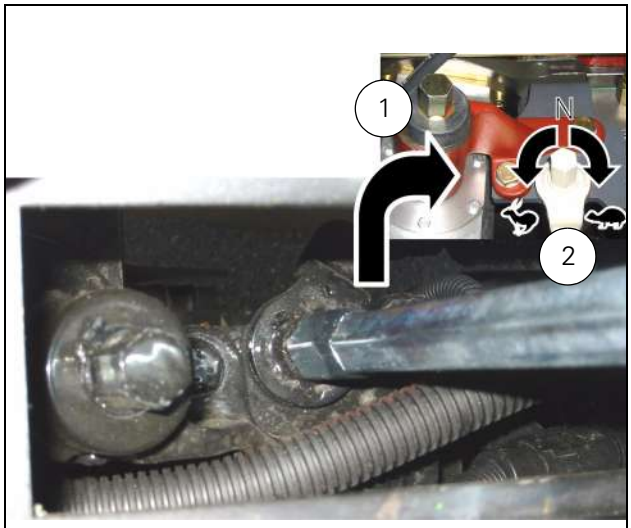
If the transmission ratio control is not possible due to a breakdown, the tractor can be driven mechanically using a limp home lever.

Maximum speed in the "Hare" range is 34 kph in forward position and 25 kph in reverse position. For the "Tortoise" range, maximum speed is 15 kph in forward position and 11 kph in reverse position.

- Stop the engine if it is running.
- Open the cover located on the cab floor (right-hand side) (Fig. 73).
- Remove the protective shield (Fig. 74 and Fig. 75).
- Position the limp home lever on the range control (Ref. 2 Fig. 80) and select the limp home range:
  - clockwise direction, tortoise range,
  - anti-clockwise direction, hare range.

*NOTE: The maximum speed when shifting range is 2 kph.*

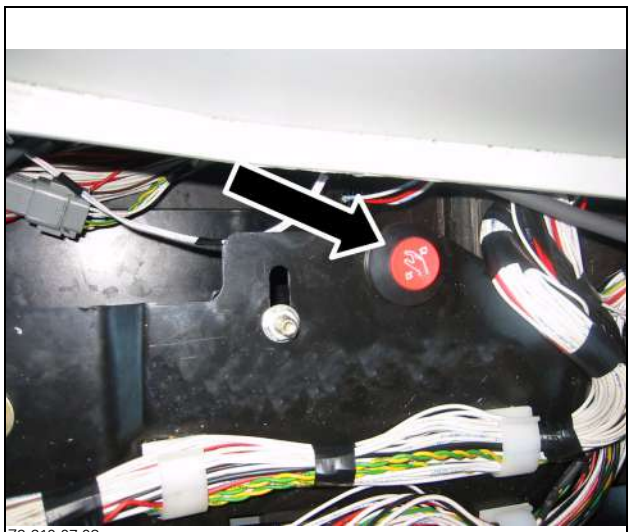
*IMPORTANT: When changing range, only use the supplied limp home lever, because the coupling mechanism in the control unit could be damaged (maximum allowed torque 10 Nm).*




Z2-609-07-03

Fig. 80

- Start the tractor while pressing down the red button (limp home button) (Fig. 81).



Z2-610-07-03

Fig. 81

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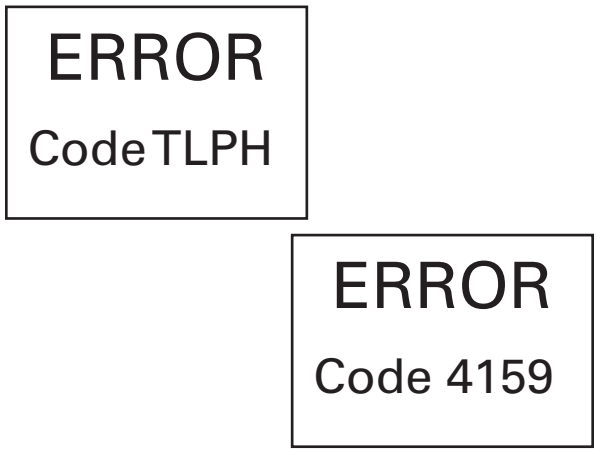
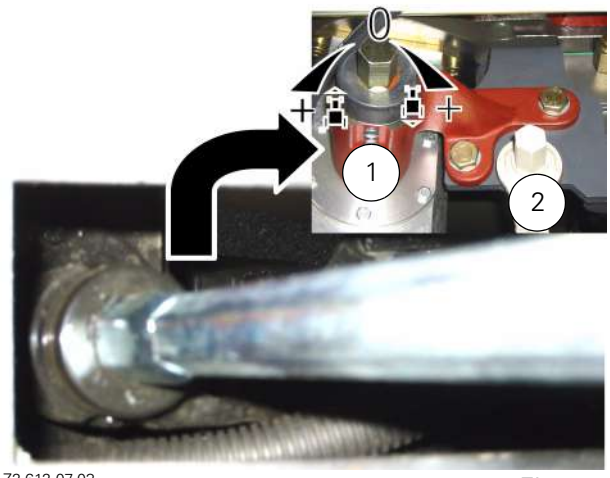
- One of the two error codes is displayed on the left-hand screen (DOT MATRIX) (Fig. 82).




Z2-611-07-03 Fig. 82

- Position the limp home lever on the control (Ref. 1) (Fig. 83).




Z2-612-07-03 Fig. 83

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

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

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

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Chapter 5

# MAINTENANCE AND ADJUSTMENTS

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## 5.1 - INITIAL 50 HOUR SERVICE INSPECTION

Consult your tractor Service Record Book.
The following operations are to be carried out, as applicable, by the **Service Engineer**. A charge will be made for any service items as filter elements, lubricants, seals etc.

### 5.1.1 - Engine, fuel and cooling systems

1. Change fuel filter element(s).
2. Change fuel pre filter element.
3. Check tension and condition of air conditioning compressor belt.
4. Check/Clean dry air filter element(s).
5. Check radiator coolant level.
6. Check tension and condition of alternator/fan belt(s).

### 5.1.2 - Electrical system and instruments

7. Check battery condition and electrolyte level.
8. Check tightness of battery connections and battery safety.
9. Check all safety start switches for correct operation.
10. Check all indicator lights, sound alarms and instruments for correct operation.
11. Check correct operation and adjustment of all lights.
12. Check all other electrically powered devices (e.g. cab heater / fans, radio, wipers, etc…) for correct operation.
13. Check all electronically controlled systems for correct operation.
14. Reset the Maintenance parameters on the Datatronic.

### 5.1.3 - Front axle and steering

15. Change oil in front axle and epicyclic drive units (4WD).
16. Grease drive shaft / front axle universal joints (4WD).
17. Lubricate the steering pivots / suspended front axle.

### 5.1.4 - Transmission and hydraulics

18. Check transmission / auxiliary hydraulic oil level.
19. Change oil level in the rear final drive units (according to model).
20. Change the transmission oil 10 micron high pressure filter element
21. Change the 15 micron return filter (auxiliary hydraulics).
22. Lubricate the linkage shaft and top up only if not properly sealed.

### 5.1.5 - Clutches and brakes

23. Check operation of the clutch pedal.
24. Check the clutch liquid level.
25. Check brake pipes condition.
26. Check parking brake adjustment.
27. Check trailer brake valve for correct operation.
28. Check PTO engagement function.

### 5.1.6 - General

29. Top up cab windscreen washers.
30. Check the air conditioning system operation.
31. Check torque of ROPS cab / frame mounting bolts.
32. Check torque of all wheel and rim nuts and bolts.
33. Lubricate all points with grease or oil as specified in the Operator Instruction Book.
34. Check all safety guards are in place with readable stuck decals.
35. Road test the tractor to check all transmission controls for correct operation.
36. Road test the tractor to check the steering and brakes for correct operation.
37. Activate all PTO and hydraulic systems to check correct operation.
38. After road test, check for any leaks of oil, fuel or coolant.
39. Enquire if the operator has any operational difficulties and correct or demonstrate solution as necessary.
40. Complete the owner's Service Record Book.

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## 5.2 - SERVICE GUIDE

| SERVICE GUIDE | Visits according to Service Record Book | | | | |
|---|---|---|---|---|---|
| | 50h | 400h | 800h | 1200h | 2000h |
| **Engine, fuel and cooling systems** | | | | | |
| 1. Change engine oil and filter(s). | | ● | ● | ● | ● |
| 2. Change fuel filter element(s). | ● | ● | ● | ● | ● |
| 3. Change fuel pre filter element. | ● | ● | ● | ● | ● |
| 4. Check idle speed and fuel cut off mechanism. | | ● | ● | ● | ● |
| 5. Check tension and condition of alternator/fan belt(s). | ● | ● | ● | ● | ● |
| 6. Clean fuel lift pump strainer (CAT). | | ● | ● | ● | ● |
| 7. Check/Clean dry air filter element(s). | ● | ● | ● | | ● |
| 8. Change air filter elements. | | | | ● | |
| 9. Check radiator coolant level. | ● | ● | ● | | ● |
| 10. Drain, flush and refill radiator with coolant. | | | | ● | |
| 11. Clean main radiator and all other cooler element fins. | | ● | ● | ● | ● |
| 12. Clean air conditioning condenser. | | ● | ● | ● | ● |
| 13. Change air conditioning receiver drier. | | | | ● | |
| 14. Check tension and condition of air conditioning compressor belt. | ● | ● | ● | ● | ● |
| 15. Observe level of smoke emission from exhaust. | | ● | ● | ● | ● |
| **Electrical system and instruments** | | | | | |
| 16. Check battery condition and electrolyte level. | ● | ● | ● | ● | ● |
| 17. Check tightness of battery connections and battery safety. | ● | ● | ● | ● | ● |
| 18. Check all safety start switches for correct operation. | ● | ● | ● | ● | ● |
| 19. Check all indicator lights, sound alarms and instruments for correct operation. | ● | ● | ● | ● | ● |
| 20. Check correct operation and adjustment of all lights. | ● | ● | ● | ● | ● |
| 21. Check all other electrically powered devices (e.g. cab heater / fans, radio, wipers, etc…) for correct operation. | ● | ● | ● | ● | ● |
| 22. Check all electronically controlled systems for correct operation. | ● | ● | ● | ● | ● |
| 23. Reset the Maintenance parameters on the Datatronic. | ● | ● | ● | ● | ● |
| 24. Check multi-pin "Deutsch" connectors for moisture and repack with SGB grease if necessary. | | ● | ● | ● | ● |
| **Front axle and steering** | | | | | |
| 25. Check oil level in front axle and epicyclic drive units (4WD). | | ● | | ● | |
| 26. Change oil in front axle and epicyclic drive units (4WD). | ● | | ● | | |
| 27. Check front wheel hub / steering pivots / suspension clearance. | | ● | ● | ● | ● |
| 28. Grease drive shaft / front axle universal joints (4WD). | ● | ● | ● | ● | ● |
| 29. Lubricate the steering pivots / suspended front axle. | ● | ● | ● | ● | ● |
| 30. Check steering for correct operation (with & without engine running). | | ● | ● | ● | ● |
| 31. Check steering and toe-in adjustment (including tyre wear and damage). | | | | ● | |
| 32. Calibrate suspended front axle. | | | | ● | |
| **Transmission and hydraulics** | | | | | |
| 33. Check transmission / auxiliary hydraulic oil level. | | | Every day | | |
| 34. Change transmission oil. | | | | | ● |
| 35. Change transmission suction strainer. | | | | | ● |
| 36. Check oil level in the rear final drive units. | | ● | ● | ● | |
| 37. Change the oil in the rear final drive units. | ● | | | | ● |
| 38. Change the 15 micron filter (Dyna VT auxiliary hydraulics). | ● | ● | ● | ● | ● |
| 39. Change the transmission oil 10 micron high pressure filter element | ● | ● | - | ● | ● |
| 40. Change the oil in the auxiliary hydraulics circuit. | | | | ● | |
| 41. Change the 40 micron high pressure steering filter. | | | | | ● |
| 42. Change 10 micron breather (Dyna VT auxiliary hydraulics). | | ● | ● | ● | ● |
| 43. Lubricate the linkage shaft and top up only if not properly sealed. | ● | | | | ● |
| 44. Check automatic pick-up hitch for correct operation. | ● | | | ● | |
| **Clutches and Brakes** | | | | | |
| 45. Check operation of the clutch pedal and transmission. | ● | ● | ● | ● | ● |
| 46. Check the clutch liquid level. | ● | ● | ● | ● | |
| 47. Change the clutch liquid / bleed the circuit. | | | | | ● |

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| SERVICE GUIDE | Visits according to Service Record Book | | | | |
|---|---|---|---|---|---|
| | 50h | 400h | 800h | 1200h | 2000h |
| 48. Check brake pipes condition. | ● | | | ● | |
| 49. Bleed brake circuit. | | | | | ● |
| 50. Check parking brake adjustment. | ● | ● | ● | ● | ● |
| 51. Check trailer brake valve for correct operation. | ● | | | ● | |
| 52. Check PTO engagement function. | ● | ● | ● | ● | ● |
| **General** | | | | | |
| 53. Top up cab windscreen washers. | ● | ● | ● | ● | ● |
| 54. Clean cab air filter element. | | ● | ● | | ● |
| 55. Change cab air filter element. | | | | ● | |
| 56. Check the air conditioning system operation. | ● | ● | ● | ● | ● |
| 57. Bleed compressed air circuit water from suspended cab. | | | Fortnightly | | |
| 58. Change cab dampers. | | | 4800H | | |
| 59. Check torque of cab / safety frame mounting bolts. | ● | ● | ● | ● | ● |
| 60. Check torque of all wheel and rim nuts and bolts. | ● | ● | ● | ● | ● |
| 61. Lubricate all points with grease or oil as specified in the Operator Instruction Book. | ● | ● | ● | ● | ● |
| 62. Check all safety guards are in place with readable stuck decals. | ● | ● | ● | ● | ● |
| 63. Road test the tractor to check all transmission controls for correct operation. | ● | ● | ● | ● | ● |
| 64. Road test the tractor to check the steering and brakes for correct operation. | ● | ● | ● | ● | ● |
| 65. Operate all PTO and hydraulic services to ensure correct operation. | ● | ● | ● | ● | ● |
| 66. After road test, check for any leaks of oil, fuel or coolant. | ● | ● | ● | ● | ● |
| 67. Enquire if the operator has any operational difficulties and correct or demonstrate solution as necessary. | ● | ● | ● | ● | ● |
| 68. Complete the owner's Service Record Book. | ● | ● | ● | ● | ● |

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## 5.3 - USER GUIDE

### 5.3.1 - Engine, fuel and cooling systems

1. Check / Clean dry air filter element(s) (section 5.9).
2. Check radiator coolant level (section 5.10).
3. Clean main radiator and all other cooler element fins (section 5.10).
4. Observe level of smoke emission from exhaust.

### 5.3.2 - Electrical system and instruments

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

### 5.3.3 - Front axle and steering

7. Check oil level in front axle and epicyclic drive units (4WD).
8. Grease drive shaft/front axle universal joints (4WD) (section 5.6).
9. Lubricate the steering pivots / suspended front axle.
10. Check steering and toe-in adjustment (including tyre wear and damage).

### 5.3.4 - Transmission and hydraulics

11. Check transmission / auxiliary hydraulic oil level.
12. Check oil level in the rear final drive units (according to model).

### 5.3.5 - Clutch

13. Check the clutch liquid level.

### 5.3.6 - General

14. Top up cab windscreen washers (section 5.7).
15. Lubricate all points with grease or oil as specified in the Operator Instruction Book (section 5.6).

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## 5.4 - LUBRICATION

AGCO recommends the following lubricants:

### 5.4.1 - All year round

| | |
|---|---|
| • Engine | Terrac Motor 15W-40. |
| • Cooling system | Napgel C2230 in conformity with BS 6580-1992 (Europe/UK). |
| • Transmission* and auxiliary hydraulics | Terrac Extra or Terrac Tractran 9/Fluid 9. |
| • Front axle, front final drive units | Terrac Trans - 85 W/140. |
| • Clutch control | Pentosin CHF 11S liquid |
| • General greasing | Terrac Charge |

** It is essential to use BP Terrac extra oil or another oil product approved by MF according to CMS M1143 or CMS M1144 standard.*

These products are manufactured and distributed by:

**BP France**

bâtiment Newton 1 - Parc St Christophe
10 rue de l' Entreprise - CERGY
95866 CERGY PONTOISE CEDEX

Technical information: 0800 476 840 (freephone).

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

Engine: API CH4 / CCMC D4 or D5.
Transmission: refer to MF specifications CMS M1143 or CMS M1144.
Front axle: API GL5.

## 5.5 - INSTRUCTIONS FOR PRESSURE WASHING

When pressure washing, protect and do not direct the jet on the following components:

- Alternator
- Starter motor
- Cooler
- 4WD axle stub pivot pins
- Inspection cover
- Radar
- Electrical harnesses and connections
- Safety decals

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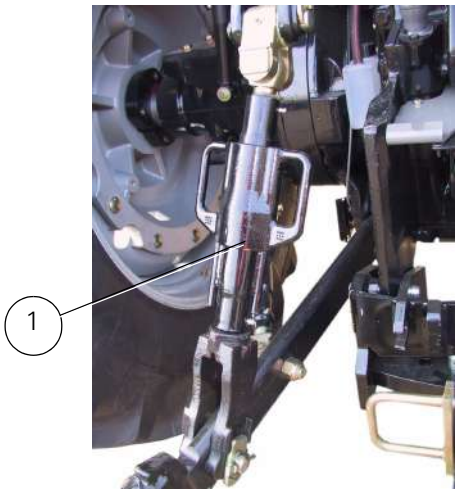
***CAUTION: All the maintenance operations must be carried out with the engine stopped, unless otherwise specified.***

## 5.6 - LUBRICATION

### 5.6.1 - Lubrication points

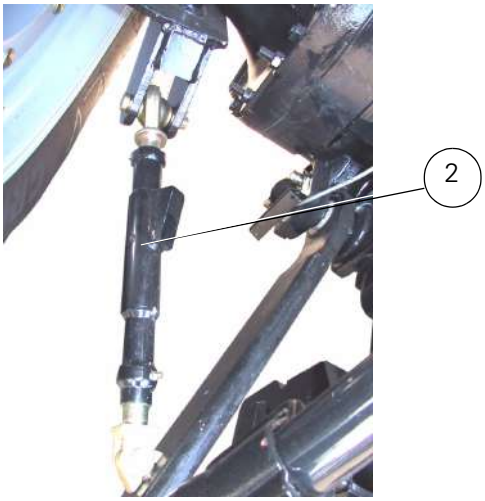
**Servicing schedule according to the Service Guide:**

1. Lift rods Ref. 1 (Fig. 1) (6 grease nipples)
2. Stabilisers Ref. 2 (Fig. 2) (2 grease nipples)




Z2-493-05-03

Fig. 1




Z2-492-05-03

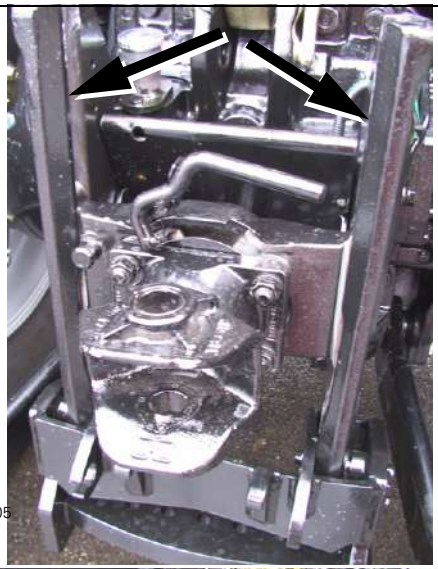
Fig. 2

3. 3rd point top link (2 grease nipples)

Z2-491-05-03

Fig. 3

4. Clevis hitch (1 grease nipple)
   Also lubricate the inside of the vertical sliderails with molybdenum grease (Mo S2) as indicated by M1225 specifications.



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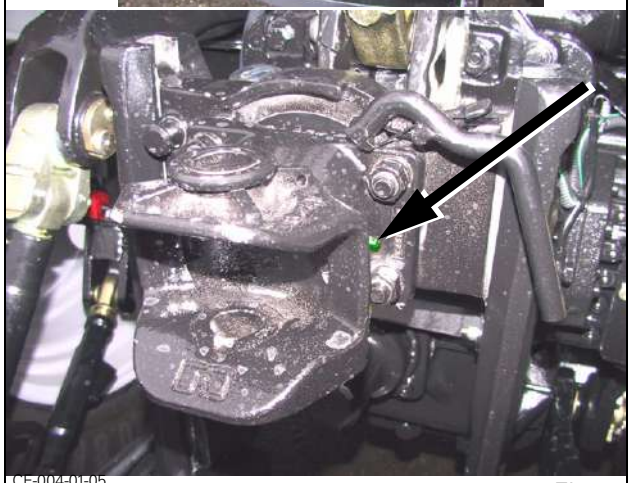

CE-004-01-05

Fig. 4

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5. 4WD front and rear bearings (2 grease nipples)

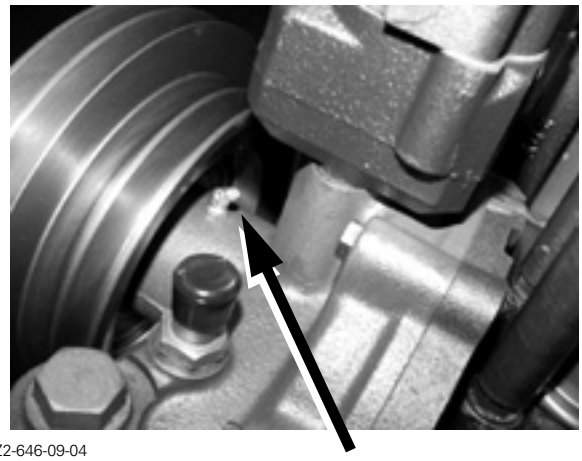
*NOTE: Lift the tractor before greasing.*

MT-0251103

MT-0181103

Fig. 5

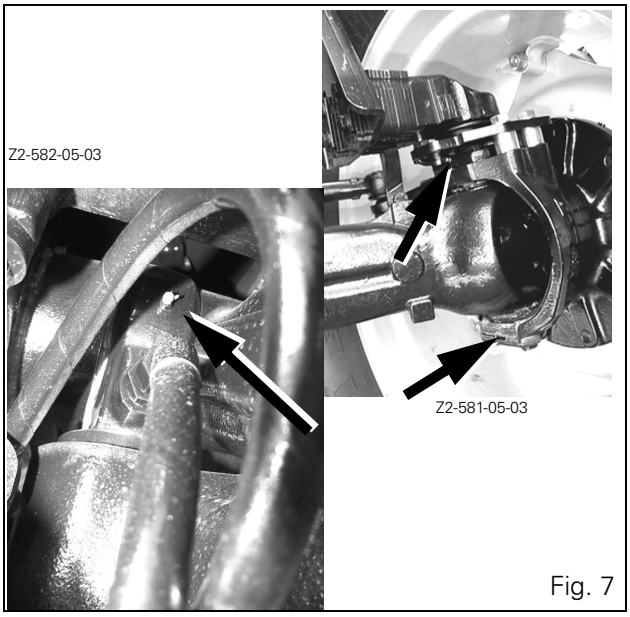
6. Sisu engines: Grease engine water pump (1 grease nipple)



Z2-646-09-04

Fig. 6

7. Front stub pivot pins (4WD) (4 grease nipples)
8. Suspended front axle ram pivot pins (1 grease nipple)



Z2-582-05-03

Z2-581-05-03

Fig. 7

9. 4WD drive shaft (rear) (1 grease nipple)

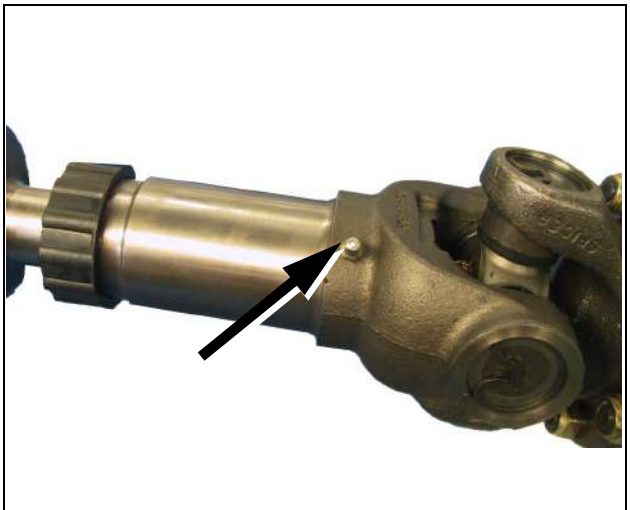


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Fig. 8

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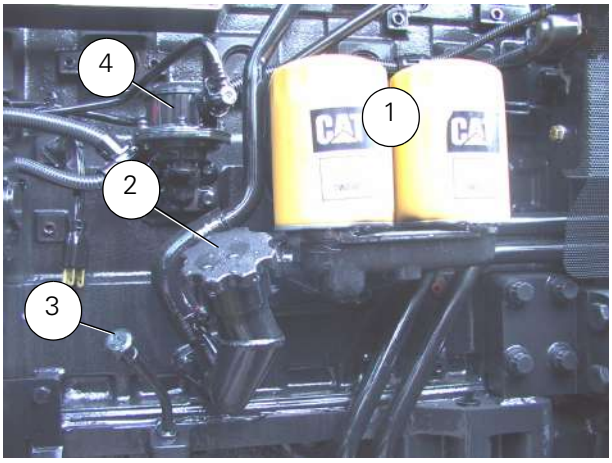
## 5.7 - ENGINE

### 5.7.1 - 6-cylinder engine

Fig. 9 to Fig. 12.

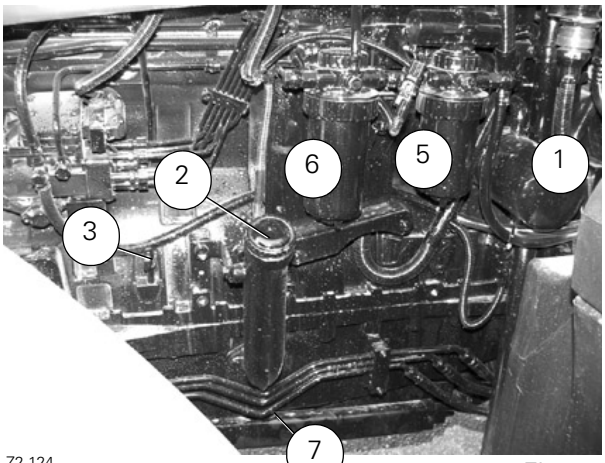
1. Oil filters
2. Oil filler cap
3. Engine oil dipstick
4. Fuel lift pump (depending on model)
5. Fuel pre-filter
6. Fuel filter
7. Engine oil drain plug (2 sides)
8. Windscreen washer tank

MT525B/535B/545B




MT-0081103 Fig. 9

MT555B/565B/575B



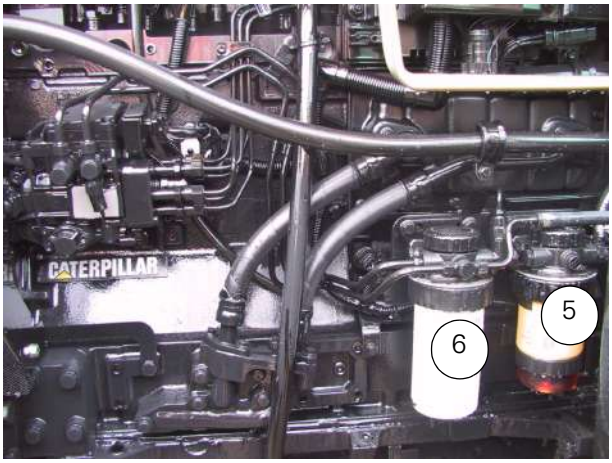

Z2-124 Fig. 10

### 5.7.2 - Oil level

With tractor on a level surface: check the engine oil level every ten hours or daily (this interval is flexible).

To avoid a 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.
  Top up if necessary.



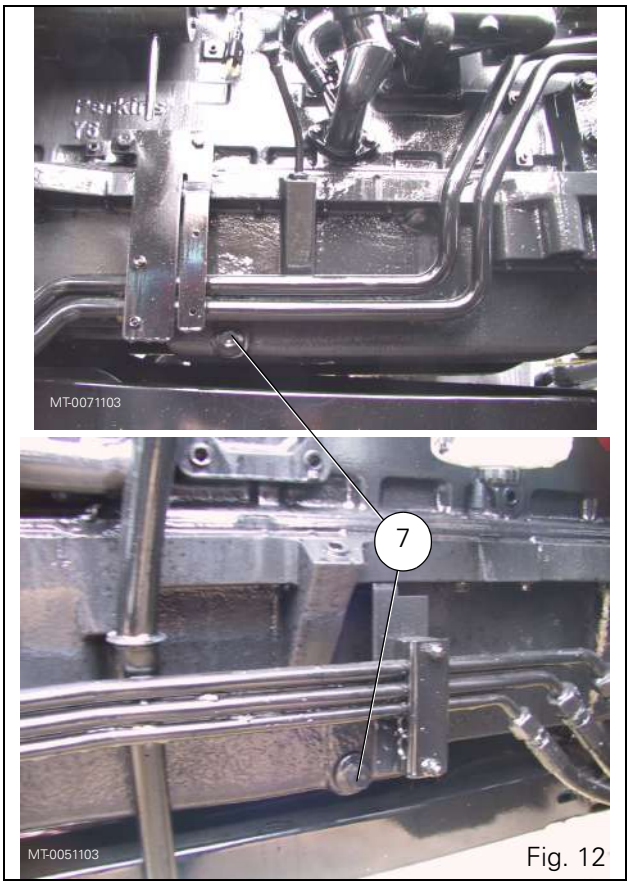

MT-0041103 Fig. 11

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

Drain the oil when the engine is warm, remove the plug 1 (Fig. 9) from the engine sump with the tractor standing on level ground. Refit and tighten the drain plug to a torque of 3.5 daNm. Refill with an approved oil to the **MAX** mark on the dipstick.

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

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




MT-0071103

MT-0051103 Fig. 12

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### 5.7.4 - Change the engine oil filter(s) every 400 hours

To change the filter 1 (Fig. 12)

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 sealing ring, then place it on top of the new filter.
4. Screw the filter onto the filter head until the sealing ring just contacts the filter head, then tighten it further half turn by hand only (do not overtighten).
5. Ensure that there is lubricating oil in the sump.

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

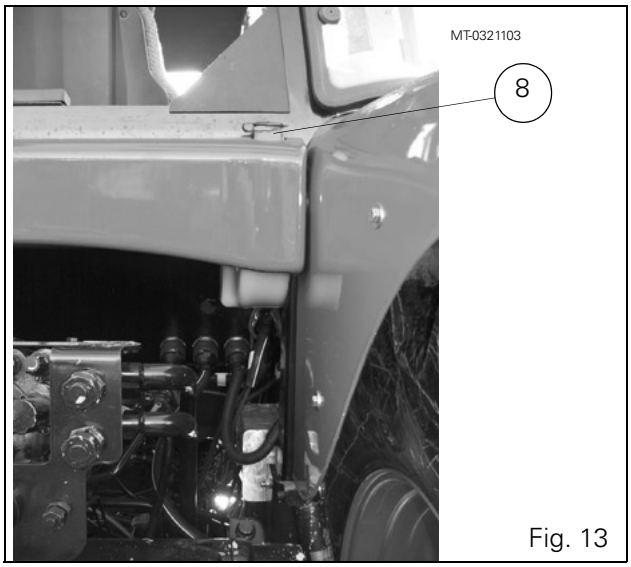


Fig. 13

### 5.7.5 - Closed circuit breather

Depending on the model: Check hoses periodically for leakage, abrasion or other damage (A Fig. 14).

- Ensure regularly that the bleeding hole B is not obstructed.

***WARNING:***

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

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

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

***DO NOT allow any of the hoses to be twisted or crushed or at risk from twisting.***

***DO NOT interfere with or alter the design or settings of any of the closed circuit breather parts. This could lead to serious engine damage.***

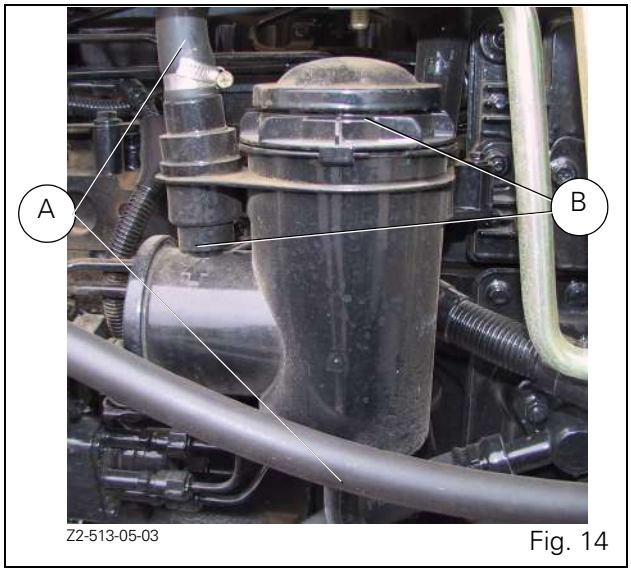


Fig. 14

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## 5.8 - FUEL SYSTEM

### 5.8.1 - Fuel prefilter and filter

Check the prefilter bowl for water at regular intervals and drain as necessary (5. Fig. 15).

Change 150 micron prefilter element every 400 hours.

**Drain the water from the prefilter sediment bowl every 100 hours.**

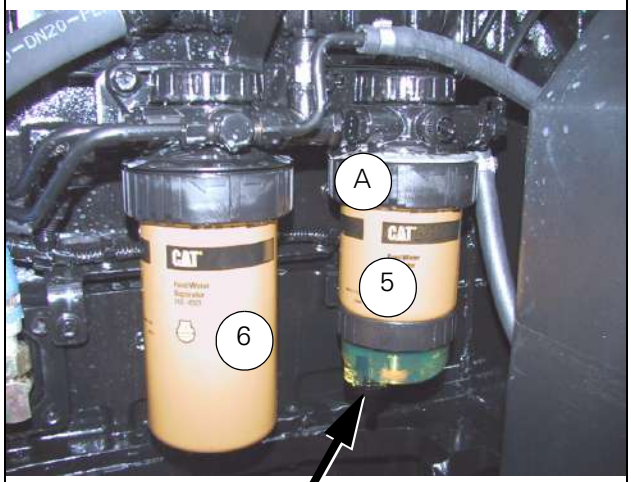
Place a receptacle beneath the element (5), then open the tap in the lower section to allow water and sediment to run out, close the taps, then operate the fuel lift pump.

**Replace the filter element(s) every 400 hours** (6 Fig. 15).

Discard old filter elements as required by environmental protection regulations.

1. Clean the filter and surrounding area.
2. Open fast fitting ring A and remove the filter element.
3. Fill and assemble the new filter element.
4. Turn the fast fitting ring until it clicks into the ON position.
5. Activate the supply pump to fill the filters (MT525B to MT545B).
6. Switch on the ignition and allow the electric fuel lift pump to operate for 30 seconds. Start the engine and check the fuel filter for tightness.
7. Bleed the fuel system.

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




CE-003-01-05 Fig. 15

### 5.8.2 - Bleeding the fuel system

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

The bleeding of the fuel supply system is automatic. However, to avoid activating the starter motor for too long, it is recommended to trigger the circuit with the supply pump manual lever (MT525B to MT545B).

Do not disconnect any unions or pipes.

*NOTE: The pump lever must be moved to its limit of travel. If the pump does not operate and no resistance is felt when the lever reaches its limit of travel, activate the starter to change the pump control cam position.*

*IMPORTANT: Only activate the starter motor once in a 30 second interval to avoid overheating.*

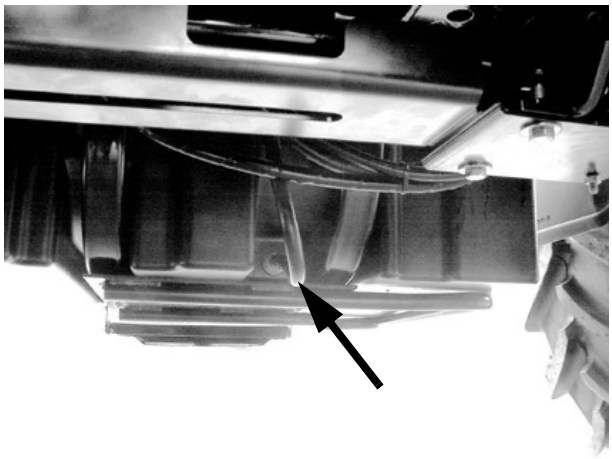
**Clean fuel lift pump strainer every 400 hours.**

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

The injection pump and injectors must be adjusted and checked by your dealer or agent.

### 5.8.4 - Fuel tank

Drain the fuel tank every 1200 hours with the hose located under the tank (Fig. 16).



Z2-517-05-03 Fig. 16

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## 5.9 - AIR FILTER

Stop the engine before changing the main element.

### 5.9.1 - Prefilter and main filter

(Fig. 17)

**Main filter A**

- Clean the main filter if the clogging indicator light comes on.
- Replace the filter after cleaning five times or every 1200 hours.

**Replacing the prefilter B**

- Replace the prefilter after five changes, or cleanings, of the main filter, or once a year or every 1200 hours.

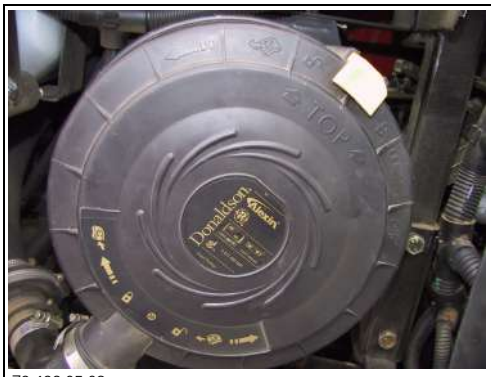
Check that the filter body is not damaged and ensure that all collars and hoses are tight.

1. Lift the left-hand bonnet panel.
2. Remove the prefilter and filter A and B.
3. Clean the main element as outlined below, depending on its condition:
   - blow a jet of compressed air onto the filter, from the inside outwards, at a maximum pressure of 5 bar (75psi), keeping the filter sufficiently far from the nozzle.

   After cleaning, ensure the prefilter is not damaged by illuminating the inside to check that there are no holes, 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 clogging indicator light comes on after a short period of work, the element must be replaced. However, if the lamp 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 with the engine exhaust gases. Never apply oil to a dry element. Never use petrol (gasoline), paraffin or cleaning solvents to clean an element.***

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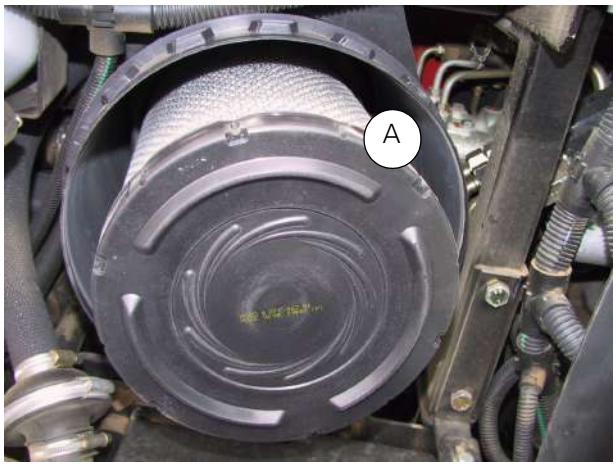


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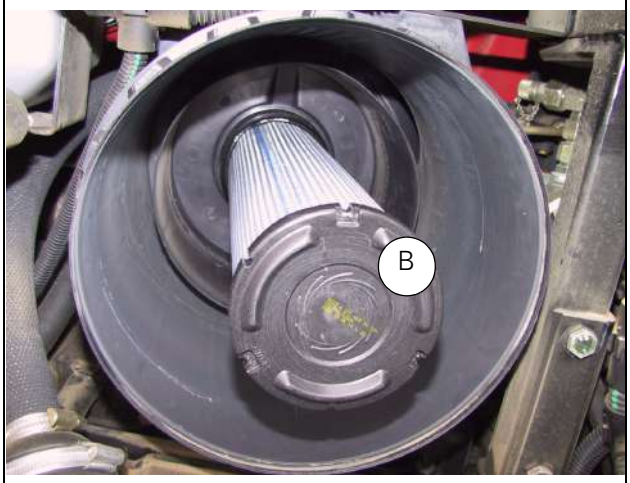


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Fig. 17

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## 5.10 - COOLING SYSTEM

**Check the coolant level** every ten hours (this interval is flexible).

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

The antifreeze mixture must always be between 40 - 50% antifreeze for 60 - 50% water.

Even the "non cold" regions must respect the minimum 40/60 mixture, in order to raise the boiling point, and protect the system against corrosion.

The water used should be a clean, soft and non acid.

Use a permanent type Ethylene/glycol mix according to the following specifications:

**Coolant specifications**

Use the coolant recommended by your dealer. The coolant must meet the following standards:

CAT engines: ASTM D3306 (USA), BS 6580:1992 (Europe/UK), AS2108:1977 (Australia).

Sisu engines: ASTM D3306-74 (USA), BS 6580:1992 (Europe/UK)

Check the quality and level of mixture regularly, at least once a year, and avoid the addition of pure water in the system that 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.*

**Change the coolant every 1200 hours**

**Clean the radiator fins** every 400 hours (this interval is flexible) using compressed air.

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

**Expansion tank** (Fig. 18)

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 achieved.

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

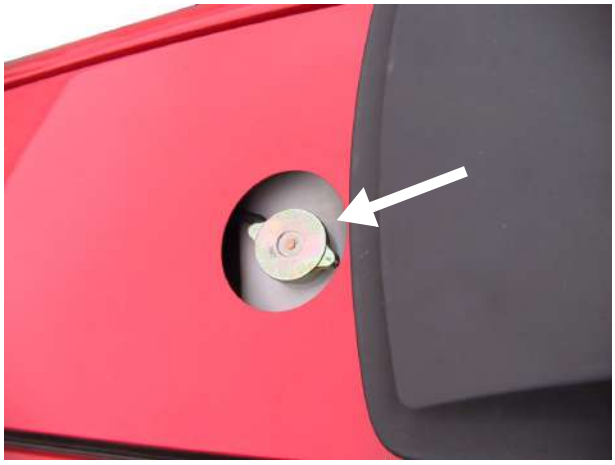
*IMPORTANT: After filling, clean traces of liquid from the filling port.*

***WARNING: If the engine is very hot, loosen the plug at the first clevis and remove 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 and, if necessary, top up the expansion tank with coolant (ref. 1). Refit the plug.

***CAUTION: Precautions against frost: Check the degree of protection of the coolant before each cold season.***



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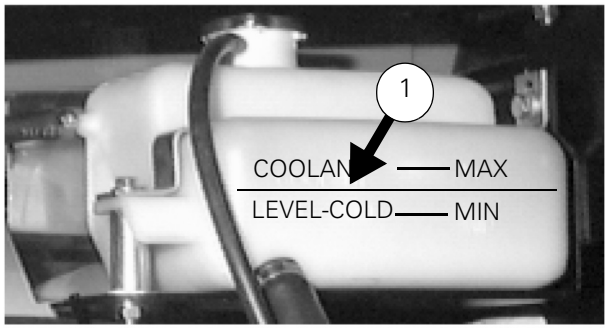


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Fig. 18

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## 5.11 - STEERING, TRANSMISSION AND AUXILIAIRY FUNCTIONS

Two circuits carry out the functions. One circuit carries out transmission functions, the other carries out steering and auxiliary functions.

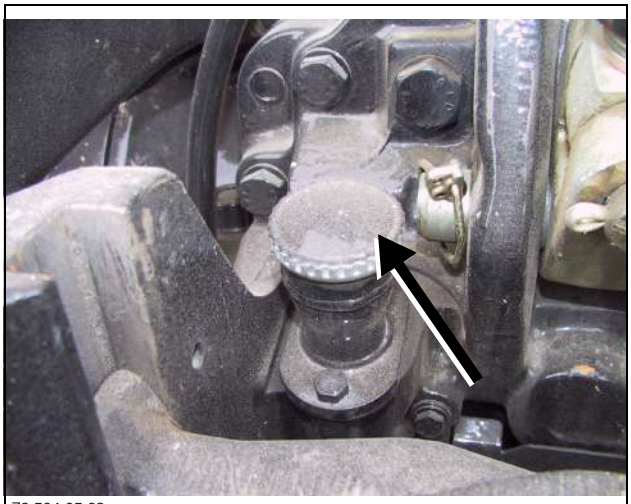
### 5.11.1 - Change the transmission oil every 2000 hours

1. Do not drain until the transmission oil is hot.
2. Remove the drain plugs (Fig. 19) and the filler cap (Fig. 20).
3. Refit the drain plugs, then refill the transmission to the correct level with an approved oil.

*NOTE: Allow time for the oil to settle in the rear axle and transmission before rechecking the level.*

Z2-503-05-03

Fig. 19



Z2-504-05-03

Fig. 20

#### 5.11.1.1 - Change the 150 micron suction strainer (Fig. 21) every 2000 hours

Release the three screws from the retainer plate, and extract and discard the strainer.

Fit the new strainer in its place. Fit the retainer plate and tighten the three attachment screws.

Z2-585-05-03

Fig. 21

#### 5.11.1.2 - High pressure 10 micron filtering

**400 hours the first time, then every 800 hours**, replace the high pressure filter element located on the right-hand side of the housing (ref. 1, Fig. 22).

- Unscrew the filter body, pull out the filter element, allow to drain fully, and discard it.
- Every 800 hours, or as necessary, replace the seal.
- Slide the new filter element onto the filter head.

  To avoid contamination by foreign material (swarf, sludge, etc.), do not completely remove the protective plastic until the filter element is in place.
- Replace the filter body and screw hand tight until it locks.

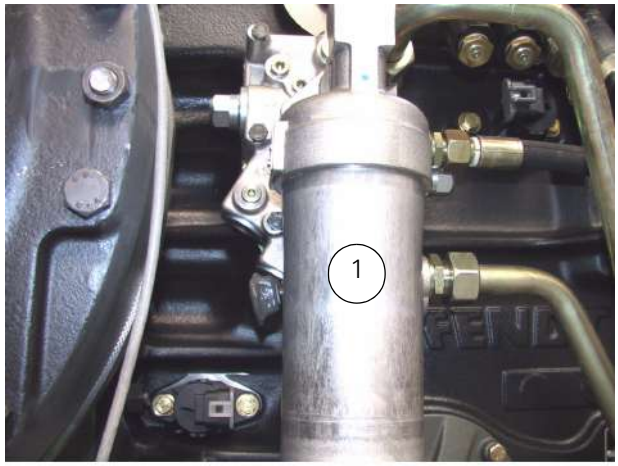



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Fig. 22

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**5.11.1.3 - Draining the oil from the final drive units**

**Every 2000 hours**

- Unscrew the drain plug (Ref. 1, Fig. 23).

Z2-606-05-03

Fig. 23

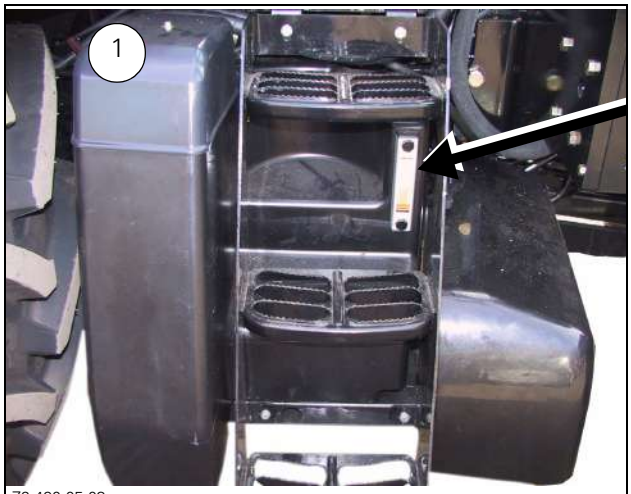
- Refit the drain plug.
- Top up the level through the filler cap (Ref. 1, Fig. 24). The oil level should be 55 mm below the filler cap.

Z2-607-05-03

Fig. 24

**5.11.2 - Auxiliary hydraulics**

**Check the oil level** every day using the dipstick (Fig. 25).




Z2-490-05-03

Fig. 25

*NOTE: When using hydraulic implements taking a large quantity of oil out of the transmission (hydraulic motors, large capacity cylinders) top up oil to the maximum level. When you change transmission oil, you MUST bleed the hydraulic and braking circuits. If necessary, ask your nearest dealer for assistance.*

**5.11.2.1 - Draining the auxiliary hydraulics**

**Every 1200 hours**

To carry out the draining, the oil must be hot and linkage must be in lowered position with all rams retracted.

- Unscrew the drain plug (Ref. 1, Fig. 26).

Z2-605-05-03

Fig. 26

- Fill the tank via the breather plug (Ref. 1, Fig. 28).
- If the hydraulic system is polluted, change the 300 micron steering suction strainer (2. Fig. 27) and the 300 micron LS pump suction strainer (1. Fig. 27).

*NOTE: the tank must be disassembled for this latter operation (see your dealer or agent).*

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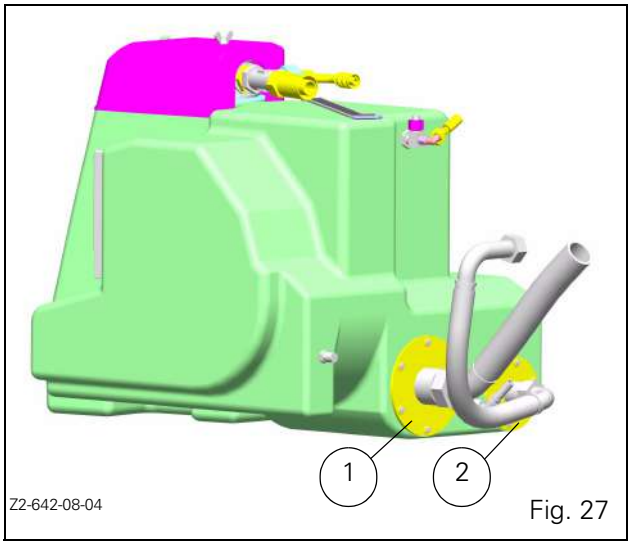

Fig. 27

Change the breather located inside the plug (3 Fig. 28) every 400 hours.

**5.11.2.2 - 15 micron return filter**

Every 400 hours, replace the return filter 2 (Fig. 28) located on the auxiliary hydraulics tank.

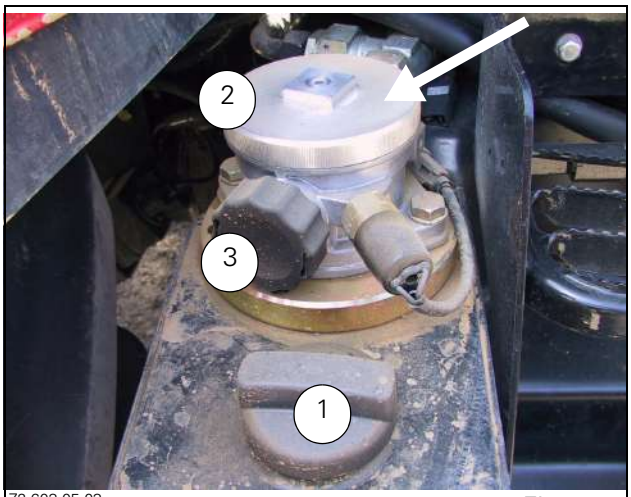

Fig. 28

- Unscrew the cap (Fig. 28).
- Remove the filter element, allow to drain fully, and discard it (Ref. 1, Fig. 29).

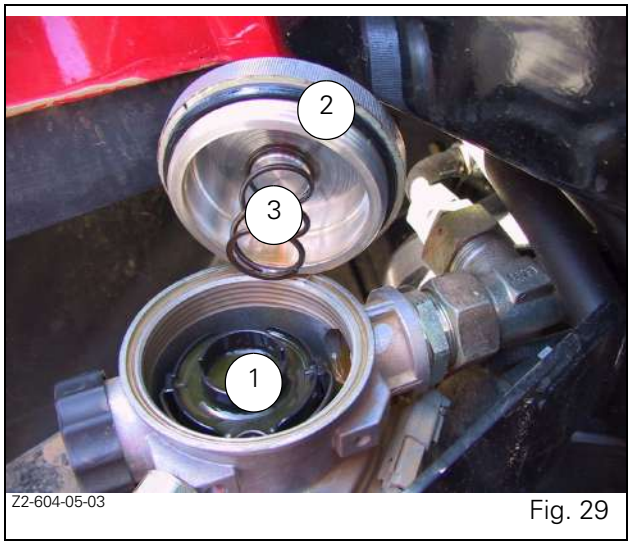

Fig. 29

- Slide the new filter element into the body (Ref. 1, Fig. 29).
- Retighten the cap (Ref. 2, Fig. 29), fitted with its seal (replace if necessary).

***CAUTION: Check for the presence of the spring (Ref. 3, Fig. 29).***

**5.11.2.3 - Steering filter**

Every 2000 hours, replace the steering filter element (Ref. 1, Fig. 30), located on the distribution block at the rear of the tractor.

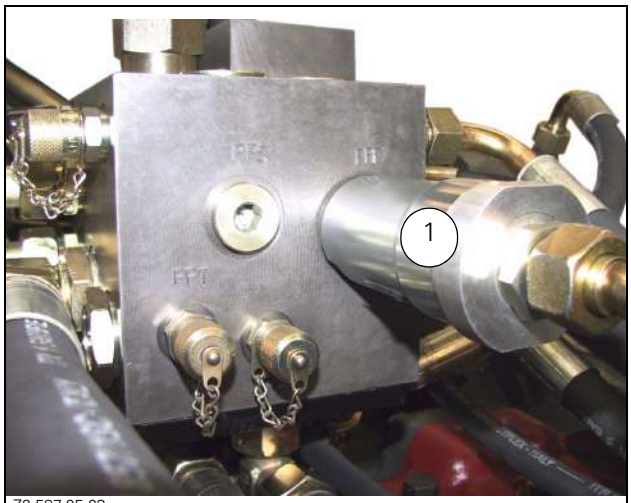

Fig. 30

**5.11.3 - Transmission oil cooler (depending on version)**

**Clean the transmission cooler fins** every 400 hours (this interval is flexible).

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## 5.12 - FRONT AXLE - 4-WHEEL DRIVE

### 5.12.1 - Final drive units

**Check the oil level in the front axle final reduction units** every 400 hours (Fig. 31).
The oil should be level with the filler cap when the cap is in the horizontal position.

Fig. 31

**Drain the oil from the final drive units** every 800 hours or every 400 hours when working in muddy, wet or humid conditions.
Turn the wheel of the tractor to bring the drain, filler and level plug to its required position.

### 5.12.2 - Front axle

**Check the front axle oil level** every 400 hours. The oil should be level with the level plug (Fig. 32).
**Drain the oil from the front axle** every 800 hours via the drain plug.

Fig. 32

### 5.12.3 - Suspended front axle

***CAUTION: All maintenance operations must be carried out with the engine stopped.***

***WARNING: The hydraulic system of the front axle is pressurised. It is essential to consult your dealer before attempting to carry out any maintenance on it.***

*NOTE: The front axle suspension must be deactivated before checking the level of the rear axle / transmission assembly.*

## 5.13 - CLUTCH AND BRAKES

### 5.13.1 - Clutch liquid level

Check the clutch liquid level (Fig. 33) at each overhaul. Drain the clutch circuit every 2000 hours.

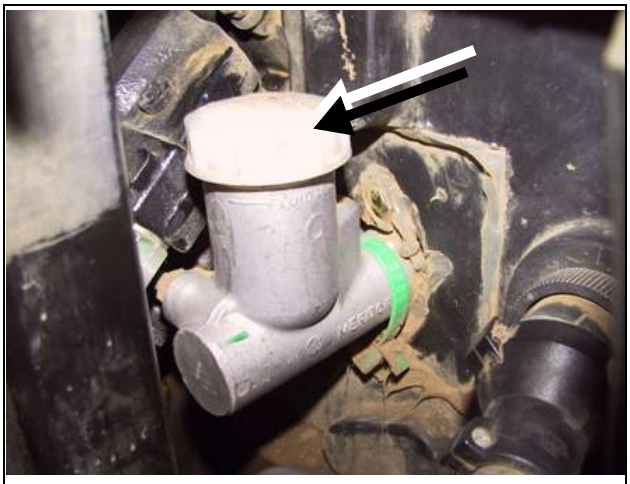

Fig. 33

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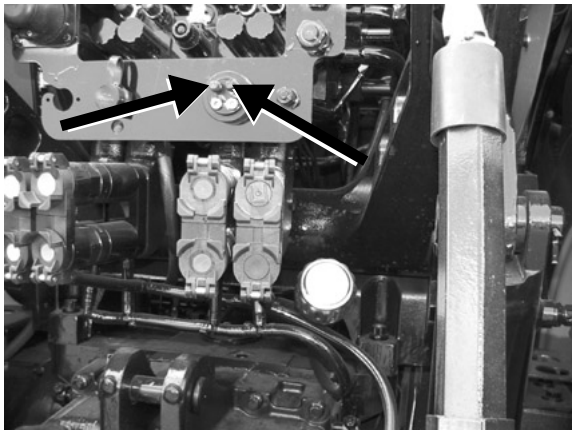
### 5.13.2 - Adjustments

The clutch and brakes are operated hydraulically and require no adjustment. If necessary, consult your dealer or agent.
Bleed the brake / piston circuit every 1200 hours and after every servicing operation.



Z2-589-05-03

Fig. 34

## 5.14 - AIR CONDITIONING SYSTEM

### 5.14.1 - Condenser

(Fig. 35)
Clean the condenser using compressed air.

*NOTE: The condenser and the oil cooler can be moved sidewards to make the cleaning of the radiator area easier.*

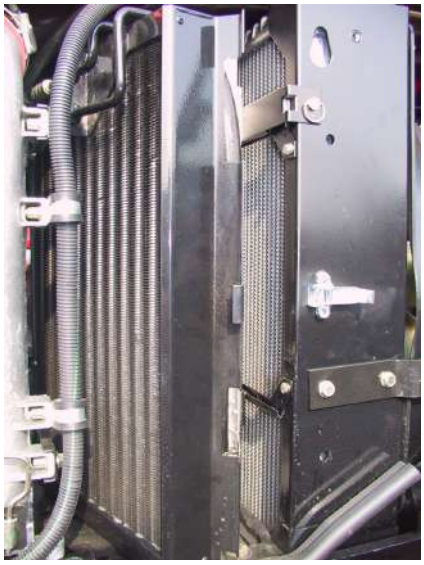


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Fig. 35

MT-0361103

Fig. 36

### 5.14.2 - Air conditioning receiver drier

Replace the air conditioning receiver drier every 1200 hours (consult your dealer).

MT-0031103

Fig. 37

### 5.14.3 - Checking the air conditioning system

Run the engine and operate the air conditioning system for a few moments.
Have your dealer or agent check the system once a year at the start of the summer.

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

***DANGER: In the event of a leakage, wear safety goggles. Escaping refrigerant gas or liquid can cause severe injuries to eyes. In contact with a flame, R134a refrigerant gives a toxic gas.***

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***WARNING: Do not disconnect any part of the cooling circuit from the air conditioning system. Consult your dealer or agent if a fault occurs.***

## 5.15 - CHECKING FAN BELT CONDITION AND TENSION

(Fig. 38)

Examine the "Poly V" fan belt (on a daily basis or whenever refuelling).

Cross cracks (running across the breadth of the belt) are allowed.

Longitudinal cracks (running along the length of the belt) which intersect cross cracks **are not allowed**.

Replace the belt if it is cracked in an unacceptable way, frayed or if pieces have come off.

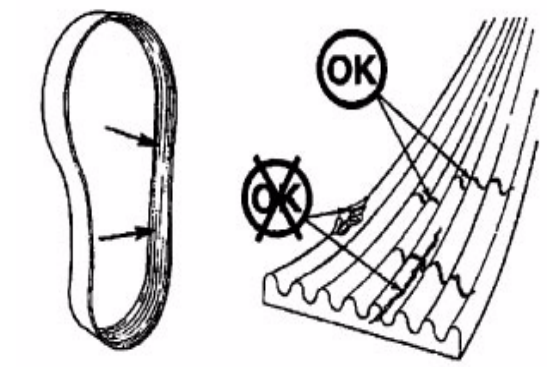


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Fig. 38

### 5.15.1 - Check belt tension every 400 hours

CAT engines: Adjusting the alternator belts.

The correct deflectionvalue is 10 to 15 mm when pressing the hand on the belt midway 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 clamp bolts in order to adjust the tension.

Firmly retighten the bolts.

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

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

#### 5.15.1.1 - Replacing

- Trapezoid belts: Loosen the alternator attachment screws, remove the fan belts, fit the new belts and tighten while manipulating the alternator. Retighten the alternator. Check the tension of the belts and adjust if necessary.
- "Poly V" belt: Fig. 39: Loosen the tensioner to release the belt. After replacing it, retighten the tensioner.

  Checking the tension: Swivel the belt on itself without draft after taking it at its longest point between the thumb and index finger. It should not be possible to swivel it more than half a turn.

MT-0391103

Fig. 39

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## 5.16 - CAB

### 5.16.1 - Cab air filter

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

1. To gain access to the cab air filter, open the hatch on the left-hand side of the cab roof (Fig. 40).
2. Turn the handle and lift out the filter element.
3. Clean the filter by blowing it with compressed air.
4. Before refitting the filter, wipe out the compartment with a damp cloth to remove dust.
5. Change the cab filter every 1200 hours.

***WARNING: Air filter element does not protect from chemical products. Please ask your dealer for information concerning the availability of the specific particle filter.***

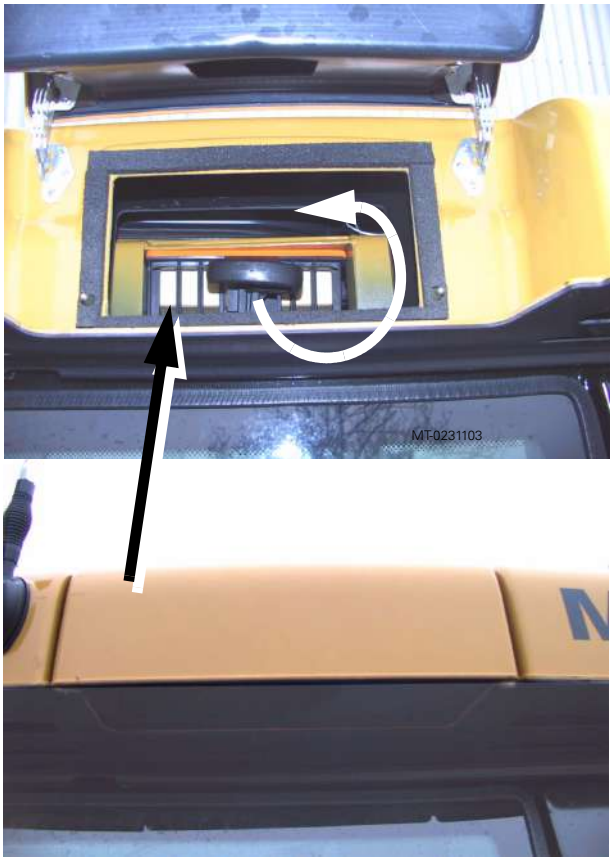


Fig. 40

### 5.16.2 - Cab suspension

Regularly (once a fortnight) drain the water from the air circuit of the pneumatic cab shock absorbers by pressing the valve (Fig. 41) located beneath the arch at the rear left of the cab.

Replace the condenser filters and compressor filters located beneath the cab every 4,800 hours (consult your dealer for further advice).

Replace mechanical shock absorbers every 4,800 hours (consult your dealer).

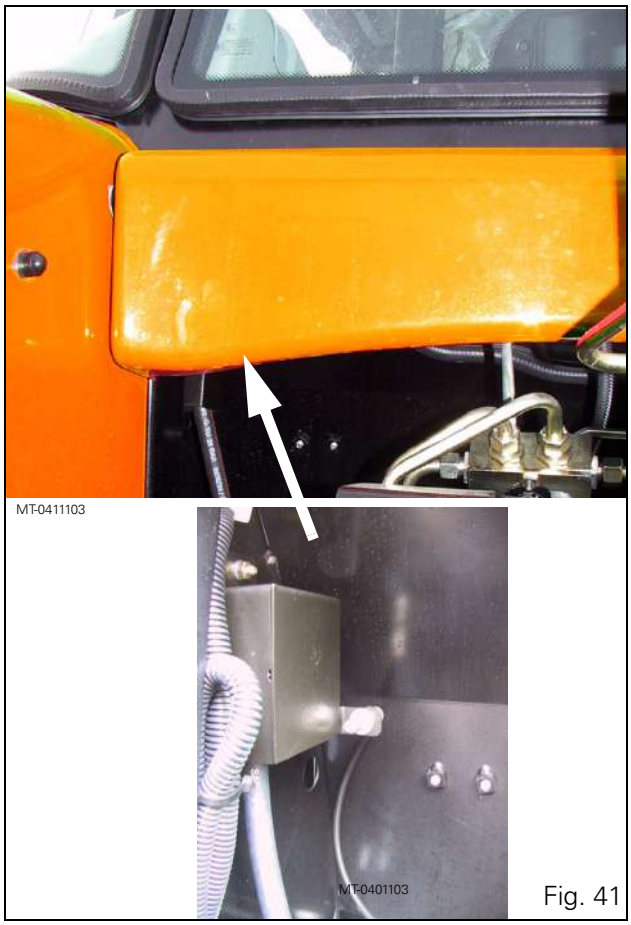


Fig. 41

### 5.16.3 - ROPS cab or frame

**Have the tightness of the cab or frame mounting bolts** checked by your dealer or agent every 400 hours.

***CAUTION: The ROPS cab or frame complies with all international safety standards. It must never be drilled or modified to install 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 ROPS standards. The only components which can be fitted are genuine components, which must be fitted by your dealer or agent.***

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## 5.17 - TYRES

### 5.17.1 - Dual rear wheels

In general, dual rear wheels should be used for soil bearing capacity work (surface treatment and work) The correct dual rear wheels should be chosen according to the four following criteria:

1. Soil bearing capacity
2. Tractive effort (narrow wheels)
3. Overall dimensions (2m50 for road gauge)
4. Type of tyre

***CAUTION: The wrong choice of dual wheels has a direct influence on the mechanical components and the wheel discs of the tractor. The use of dual wheels should be avoided when making strong tractive efforts, even momentarily (tree-stump extraction, pulling out a bogged-down tractor, etc.).***

### 5.17.2 - Use

Set the tractor to minimum track (Fig. 42).

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

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

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

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

The minimum distance allowed between the tyres is 100 mm (A Fig. 42).

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

13.6-28 - Distance 130 mm

16.9-38 - Distance 160 mm

20.8-42 - Distance 200 mm

### 5.17.3 - Wheel bolts

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

**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 Dealer.

- Tyres with tubes:

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

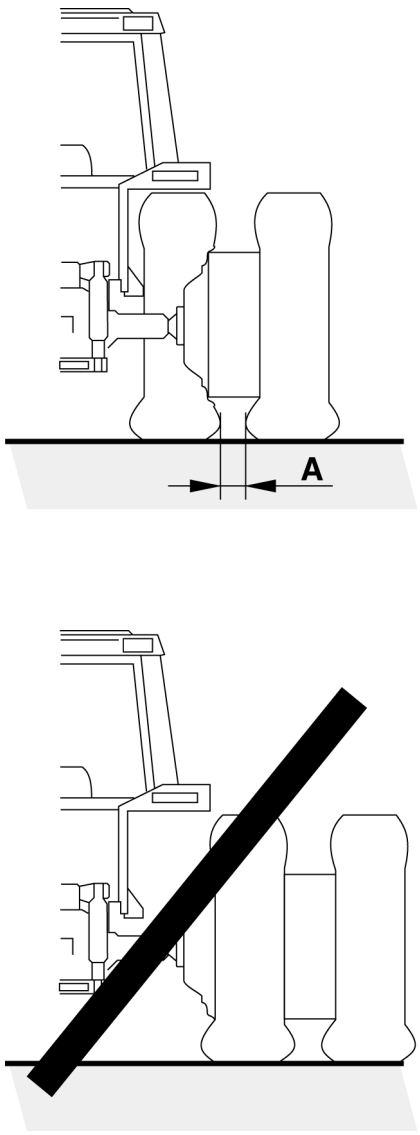


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Fig. 42

- Tubeless tyres
  Use a glycol based liquid containing corrosion inhibiting agents other than nitrites (Na $No_2$). Example: Agrilest, Castrol, Lestagel, Igol, etc.

### 5.17.4 - Inflation pressure

0.2 bar less on the outer tyres.

### 5.17.5 - Pressure under load (bar) (psi)

**Check the tyre pressures** every 100 hours. Tyre pressures vary according to make type, load and speed as well as to the type of work to carry out.

Refer to the inflation tables issued by the tyre manufacturers.

*The relationship between the sizes of the front and rear on 4-wheel drive tractors is most important and only compatible sizes must be used. The compatibilities are given in chapter 6.*

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### 5.17.6 - Ballasting the tractor

Fig. 43: Under certain conditions the tractor may need ballasting to increase the traction power of the drawbar and reduce excessive wheel slip. This additional weight can be obtained by adding a calcium chloride solution to the tyres, fitting cast iron counter-weights to the wheels or a removable front ballasting weight. The weight required depends on the condition of the ground and the work to be undertaken.

The optimum load is generally set at 60 kg/ PTO hp, but the total tractor weight can be increased to the maximum of 72.5 kg/PTO hp. Your dealer will inform you of the ballasting specifications of your tractor in order to optimise performance. If the ballasting is excessive, the tyres will leave visible tread marks (1). If the ballasting is insufficient, the tyres will leave blurred marks (3) due to wheel slip. Tractors with 4WD operate most effectively when wheel slip is between 8% and 12%.

Ensure the tractor ballasting does not exceed the level required for adequate traction. The total load on each wheel must not exceed the load levels advised by tyre manufacturers and indicated on the tyres.

It is also recommended to take off additional weights for work requiring less traction, for example tilling, planting etc. Extra weights increase soil compression, uses more fuel and decreases the life span of tyres, bearings, gearings, etc.

When a weight is added to the rear wheels, the tractive draft increases and tends to reduce the weight of the front wheels.

***WARNING: Ensure that the tractor always has sufficient weight to remain stable and keep control of the steering.***

The ideal distribution of ballast on 4WD tractors is as follows: 40% at the front and 60% at the rear.

If there is a power / wheel hop deviation on 4WD tractors, use the following procedure, carrying out a field test after each stage:

1. Distribute the ballast as required (40% to front, 60% to rear).
2. Adjust the total tractor weight, maintaining the 40/60 distribution, until the wheels leave marks similar to those in diagram 2 of Fig. 43.
3. Gradually reduce the rear tyre inflation pressure by increments of 2 psi.
4. Gradually reduce the front tyre inflation pressure by increments of 2 psi.
5. Redistribute the ballast (35% to front and 65% to rear) by removing the tractor front weight.

*NOTE: Ballast should not be added to the rear axle when redistributing the weight unless all additional weights have been removed from the front axle.*

6. Check the tyre drag percentage in this paragraph.
7. Consult your Dealer.

### 5.17.7 - Using the front loader

Comply with the following instructions in using a front loader.

1. Take the front weight off 4WD tractors, including the liquid ballast in the front tyres.
2. Set the front wheel track to the widest dimension allowed by the width of the bucket.

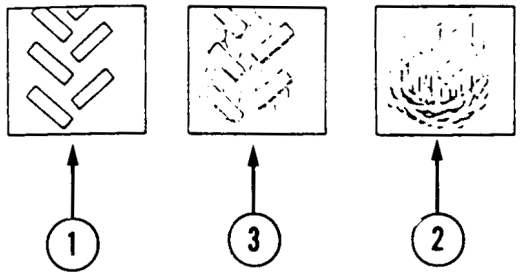


Fig. 43

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### 5.17.8 - Table of radial loads and standard inflation pressures

| Maximum loads for tyres at various cold weather inflation pressures | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Tyre dimension** | **psi<br>KPa** | **12<br>80** | **14<br>100** | **16<br>110** | **18<br>120** | **20<br>140** | **22<br>150** | **23<br>160** | **26<br>180** | **28<br>190** | **30<br>210** |
| | **PR symbol** | | | | ***** | | | ****** | | | ******* |
| 14.9R28 | lbs<br>Kg | 2630<br>1195 | 2880<br>1305 | 3120<br>1415 | 3300<br>1500 | 3560<br>1615 | 3760<br>1705 | 3960<br>1800 | 4140<br>1880 | 4320<br>1960 | 4540<br>2060 |
| 14.9R30 | lbs<br>Kg | 2720<br>1235 | 2970<br>1345 | 3220<br>1460 | 3420<br>1550 | 3660<br>1660 | 3880<br>1760 | 4080<br>1850 | 4280<br>1940 | 4460<br>2025 | 4680<br>2120 |
| 14.9R46 | lbs<br>Kg | 3420<br>1150 | 3740<br>1700 | 3960<br>1800 | 4300<br>1950 | 4540<br>2060 | 4800<br>2180 | 5080<br>2300 | 5360<br>2430 | 5580<br>2500 | 584<br>2650 |
| 16.9R28 | lbs<br>Kg | 3200<br>1450 | 3500<br>1590 | 3780<br>1715 | 4080<br>1850 | 4320<br>1960 | 4560<br>2070 | 4940<br>2240 | 5020<br>2275 | 5240<br>2375 | 5520<br>2500 |
| 18.4R38 | lbs<br>Kg | 4440<br>2015 | 4860<br>2205 | 5260<br>2385 | 5680<br>2575 | 5980<br>2715 | 6350<br>2880 | 6600<br>3000 | 7000<br>3175 | 7300<br>3310 | 7600<br>3450 |
| 18.4R42 | lbs<br>Kg | 4680<br>2125 | 5120<br>2320 | 5540<br>2515 | 6000<br>2725 | 6300<br>2860 | 6650<br>3015 | 6950<br>3150 | 7350<br>3335 | 7700<br>3495 | 8050<br>3650 |

** Consult the tyre manufacturer for loads under 12 psi (80 kPa) pressure.*

*NOTE:*

1. The bold figures represent the maximum load for the symbol indicated (*, **, ***).
2. For transporting purposes, the tyre inflation pressure can be increased by 30 psi (210 KPa) (consult the tyre manufacturer for this minimum transport pressure). This increased inflation pressure must be decreased to the nominal value before the tractor is removed from the transport vehicle.
3. For dual wheels, the loads to the tyres must be reduced. Multiply the figures in the above table by 88.
4. For the above tyres, which are intended for a cyclic load without long periods of use at high torque or at speeds exceeding 8 kph, the above values can be increased by 70% (inflation pressure is increased by 40 KPa (6psi).
5. For FIELD WORK at high torque (ploughing for example), the basic loads can be increased by 7% PROVIDED THAT THE TRACTOR TRANSPORT SPEED IS LESS THAN 32 kph.
6. For transport purposes and during operations that do not require long periods of high torque, the following load limits at variable speeds must be applied without modifying the inflation pressure.

*IMPORTANT: Because the size relationship between the front and rear tyres is very important on 4WD tractors, only compatible sizes should be used - see section 6.14 - TYRES.*

| MAXIMUM SPEED | % DIFFERENCE IN RELATION TO ABOVE VALUES |
|---|---|
| 10MPH | +34% |
| 15MPH | +11% |
| 20MPH | +7% |
| 25MPH | NONE |

| CODE | TYRE TYPE |
|---|---|
| R-1 | Drive wheel, standard type tyre tread |
| R-2 | Plantations (Sugar cane and rice), drive wheel, deep tyre tread. |
| R-3 | Drive wheel, shallow tyre tread. |
| R-4 | Industrial type tractor, drive wheel, intermediate tyre tread. |

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## 5.18 - WHEELS

**Check the tightness of wheel nuts** every day. Torque all wheel nuts until torque is held according to the values (dry nuts) (see Specifications).

## 5.19 - TRACK ADJUSTMENTS

### 5.19.1 - Front wheel track

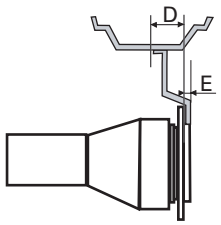
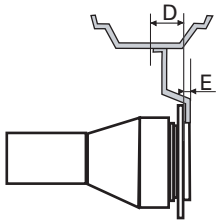
#### 5.19.1.1 - 4-wheel drive

The track widths available depend on the type of axle and tyre 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).

**TABLE OF FRONT WHEEL VALUES (in mm)**

| Transmission type | | |  |  |
|---|---|---|---|---|
| | | **D** = wheel offset (30 mm) - **E** = wheel disc thickness (12 mm). | | |
| | | **Inter-flange** | **disc facing inwards** | **disc facing outwards** |
| **MT525B** | HA110/HA130 20.19 | 1800 | 1740 | 1884 |
| **MT535B** | HA110/HA130 20.22 | 1800 | 1740 | 1884 |
| **MT545B** | HA130 20.29 | 1900 | 1840 | 1984 |
| **MT555B** | HA160 20.29 | 1900 | 1840 | 1984 |
| **MT565B/ 575B** | HA160 20.29 | 1900 | 1840 | 1984 |

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

To prevent this, the hubs are fitted with threaded stops (Fig. 44) which can be adjusted to limit the turning lock. Set maximum front axle oscillation by changing stop 1 itself (Fig. 45). If you change stop, use securing bolt provided in the tool box.

*NOTE: The axle is factory set for tractor transport.*

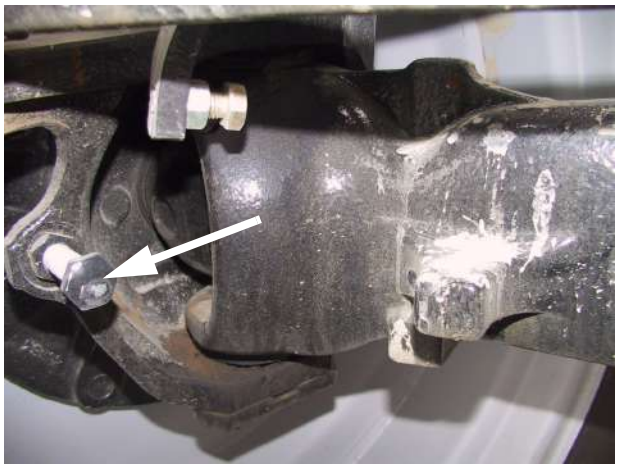

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Fig. 44

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Fig. 45

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### 5.19.2 - Rear wheel track (mm)

**Wheels with steel flange**

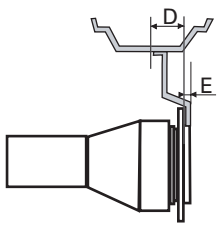
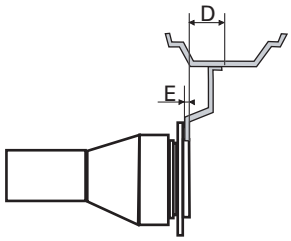
The various track settings are obtained by changing the position of the rim in relation to the disc or by reversing the wheels.

*NOTE: Ensure a sufficient gap remains between the tyres and the inside of the fenders.*

*If the wheels are reversed, transfer them to opposite sides of the tractor.*

On refitting, tighten the nuts progressively according to the tightening torque table (chapter 6).

**TABLE OF REAR WHEEL VALUES (in mm)**

| Transmission type | | |  |  |
|---|---|---|---|---|
| | | **D** = wheel offset (75 mm) - **E** = wheel disc thickness (15 mm). | | |
| | | **Inter-flange** | **disc facing inwards** | **disc facing outwards** |
| **MT525B** | HA110 (flange) | 1716 | 1566 | 1896 |
| **MT535B** | HA130 (flange) | 1716 | 1566 | 1896 |
| **MT545B** | HA130 (short and plain) | 2469 | 1718 | 2516 |
| **MT555B** | HA130 (long and plain) | 2999 | 1718 | 3046 |
| **MT565B/ 575B** | HA160 (flange) | 1840 | 1690 | 2020 |

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## 5.20 - ELECTRICAL EQUIPMENT

**The 12 volts circuit is a negative ground system.**

### 5.20.1 - Batteries

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

***WARNING: Batteries generate explosive gases. Sparks, flames, lit cigarettes or any flammable source must be kept away. Wear appropriate safety goggles when working near batteries.***

### 5.20.2 - Alternator

Check the fan and alternator belts tension every 400 hours. Retighten the nuts.

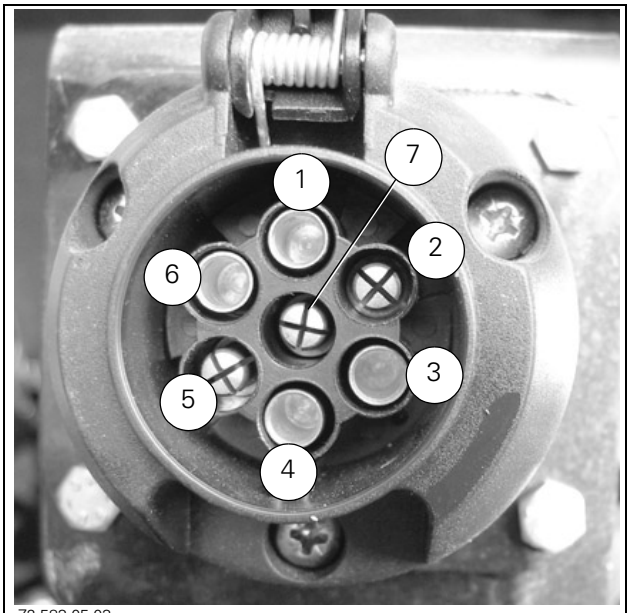
Get your dealer or agent to check the alternator every 1,200 hours or once a year.

*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 system.*

### 5.20.3 - Trailer socket (ISO)

**Connection (Fig. 46).**

1. Left-hand direction indicator
2. Reversing light
3. Ground
4. Right-hand direction indicator
5. RH side light
6. Stop
7. LH side light

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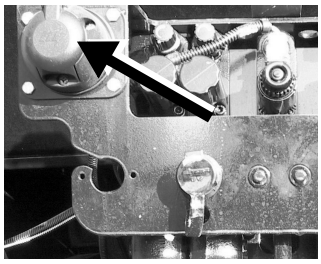

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Fig. 46

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### 5.20.4 - Headlight adjustment

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

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

Legend (Fig. 47)

A. Distance between the headlights and a wall or a screen.
B. Height from the centre of the headlights to the ground.
C. Headlights centre to centre distance.
D. Height after adjustment.

#### 5.20.4.1 - Headlight adjustment procedure

1. Position the tractor facing a wall or a screen 7.5m away and on a level surface;
2. Draw a horizontal line, 1, on wall equal to height, B;
3. Draw two vertical lines on wall equal to width, C;
4. Draw a horizontal line, 2, according to D = (B x 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.

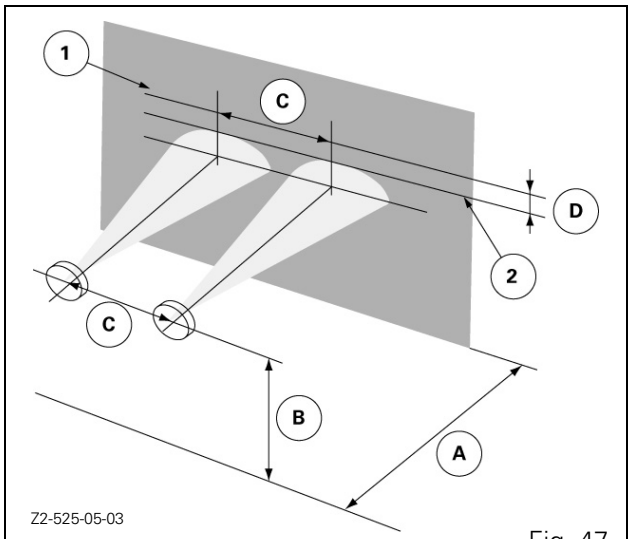


Fig. 47

### 5.20.5 - Xenon work headlights (optional)

Certain precautions must be taken when replacing bulbs on models equipped with this option.

***WARNING: The electrical connection between headlight and light ballast is under HIGH VOLTAGE and must not be disconnected. Before replacing the xenon bulb, always switch headlights off and disconnect from the power supply.***

***Never insert foreign objects or fingers into the bulb holder.***

***- The light ballast is to be attached next to the headlight. Install the headlight and light ballast in a way that excludes a negative effect on the engine cooling system.***

***- Make sure not to twist the power supply cable between headlight and light ballast by more than 90° and/or bend it by radius smaller than 20 mm.***

#### 5.20.5.1 - Adjusting work headlights

The work headlights are adjusted by screwing the 2 screws in or out as required.

Fig. 48

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## 5.21 - REPLACING FUSES

(Europe Dyna VT version with CAT engine)

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

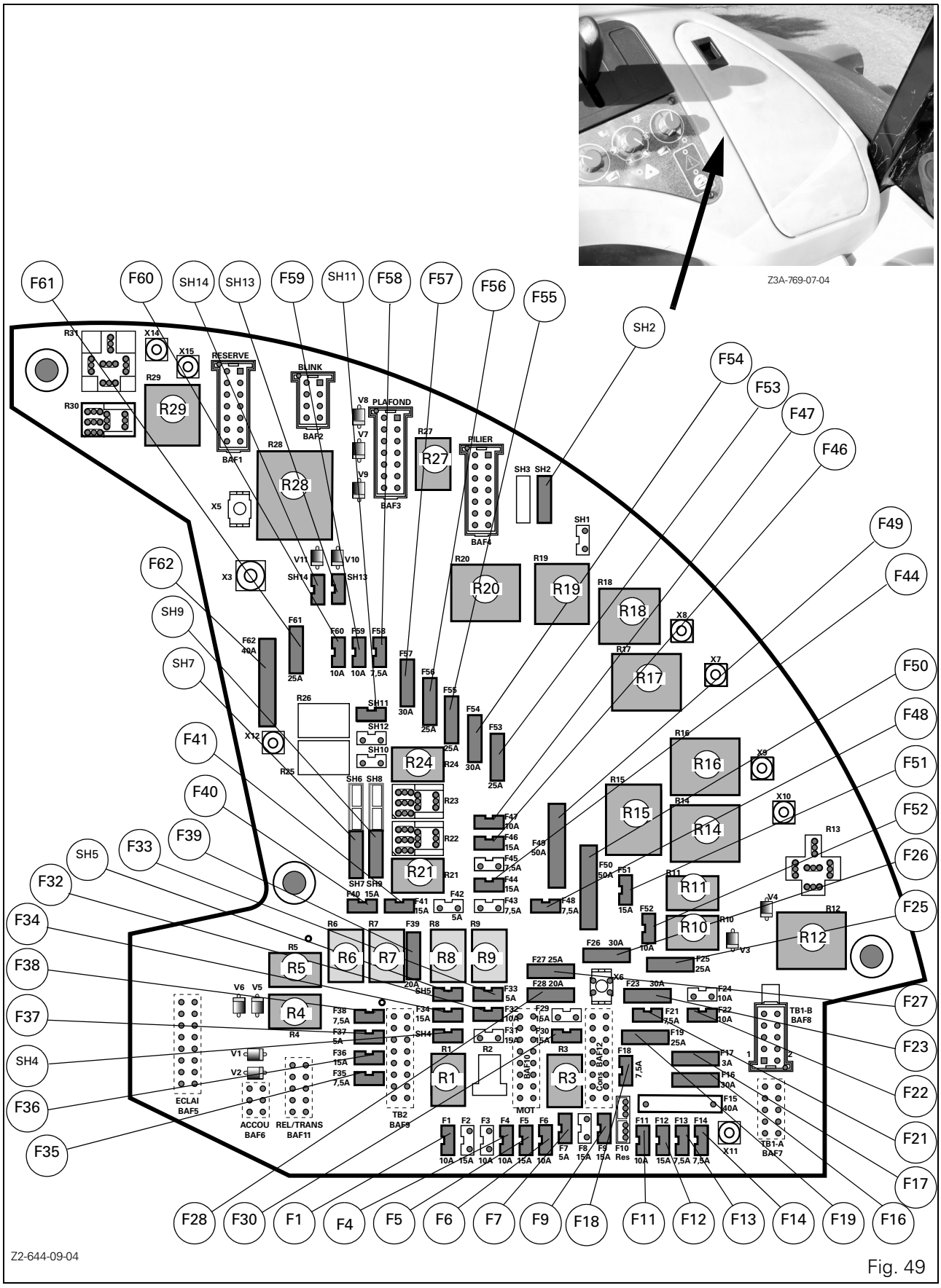


Fig. 49

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| Num. | Amp | Use |
|---|---|---|
| F1 | 10 | Front right and rear left side light, back lighting switches/console/cigarette lighter |
| F4 | 10 | Instrument panel, gearbox/differential/4WD/cab PTO/creeper neutral switches |
| F5 | 15 | Stop lights |
| F6 | 10 | Dyna VT actuator |
| F7 | 5 | Electronic injection control module (ECM), reversing light relay |
| F9 | 15 | Suspended front axle (Optional)/front PTO (optional) |
| F11 | 10 | Air conditioning compressor |
| F12 | 15 | Auto IV Calculator |
| F13 | 7,5 | Work headlights module |
| F14 | 7,5 | Electric rear-view mirror (optional) |
| F16 | 30 | Fuel injection pump solenoid valve (EEM) |
| F17 | 3 | Brake switches |
| F18 | 7,5 | Linkage / Diagnostics |
| F19 | 25 | Pneumatic seat, fuel heater |
| F21 | 7,5 | Linkage |
| F22 | 10 | Start switch, Boc/Toc switches, Dynashift control lever on steering wheel, throttle pedal sensor, PTO switch back lighting, armrest |
| F23 | 30 | Cigarette lighter |
| F25 | 25 | Hazard warning light switch, permanent 12 volts |
| F26 | 30 | Power socket |
| F27 | 25 | Electronic injection control module (ECM) |
| F28 | 20 | Electronic injection control module (ECM) |
| F30 | 15 | Electronic injection control module (ECM), ther-mostart |
| F32 | 10 | Electronic injection control module (ECM) |
| F33 | 5 | Electronic injection control module (ECM) |
| F34 | 15 | Dipped lights |
| F35 | 7,5 | Horn |
| F36 | 15 | Road lights |
| F37 | 5 | Clutch safety switch |
| F38 | 7,5 | Front left and rear right side light, instrument panel back lighting |
| F39 | 20 | Handrail side / road lights switch |
| F40 | 15 | Left-hand direction indicator |
| F41 | 15 | Control buttons on Joystick (optional) |
| F44 | 15 | Right-hand direction indicator |
| F46 | 15 | Rear windscreen wiper |
| F47 | 10 | Radio |
| F48 | 7,5 | Suspended front axle (optional) |
| F49 | 50 | Cab suspension (optional) |
| F50 | 50 | Air conditioning, radio |
| F51 | 15 | Instrument panel |
| F52 | 10 | Power socket |
| F53 | 25 | Front windscreen wiper |
| F54 | 30 | Front work headlights |
| F55 | 25 | Rear work headlights |
| F56 | 25 | Work headlights on handrails and/or rear fenders |
| F57 | 30 | Work headlights on handrails and/or footstep |
| F58 | 7,5 | Work headlights module |
| F59 | 10 | Flashing beacon (optional) |
| F60 | 10 | + ignition on relay control |
| F61 | 25 | Hazard warning lights |
| F62 | 40 | Auto IV Calculator |
| SH2 | 30 | Handrail work headlights |

| Num. | Amp | Use |
|---|---|---|
| SH4 | 15 | Without handrail road lights |
| SH5 | 15 | Without handrail road lights |
| SH7 | 15 | Direction indicators |
| SH9 | 15 | Direction indicators |
| SH11 | 15 | Direction indicators |
| SH13 | 15 | Direction indicators |
| SH14 | 15 | Direction indicators |
| R1 | | Handrail road lights |
| R3 | | Electronic injection control module (ECM) |
| R4 | | Reversing lights (optional) |
| R5 | | Stop lights |
| R6 | | Control buttons on Joystick (optional) |
| R7 | | Control buttons on Joystick (optional) |
| R8 | | Handrail road lights |
| R9 | | Electronic injection control module (ECM) |
| R10 | | Power socket |
| R11 | | Dyna VT actuator |
| R12 | | Wiper timer |
| R14 | | Air conditioning, radio |
| R15 | | + ignition on |
| R16 | | Cab suspension (optional) |
| R17 | | Front work headlights |
| R18 | | Rear work headlights |
| R19 | | Work headlights on handrails and/or rear fenders |
| R20 | | Footstep work headlights |
| R21 | | Left-hand direction indicator |
| R24 | | Right-hand direction indicator |
| R27 | | Flashing beacon (optional) |
| R28 | | Central direction indicator unit |
| R29 | | Manual air conditioning |

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

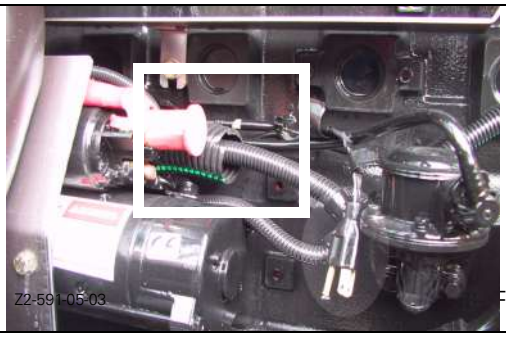

Fig. 50

**A 150A fuse, located near the batteries, protects the general cab power supply.**
**Battery main switch option: A 3A fuse, located near the battery main switch, supplies the headlight module and radio.**

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## 5.22 - FUEL HANDLING, STORAGE AND SPECIFICATION

### 5.22.1 - Gas-oil

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

Under no circumstance should gasoline, 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 they are more explosive than pure gasoline. DO NOT use these blends. Additionally, dieselhol is not approved due to possible inadequate lubrication of the fuel injection system. Clean the filler cap area. Fill the tank at the end of each day to reduce overnight condensation.

- Never take the cap off or refuel with the engine running or hot.
- When filling the tank, keep control of the nozzle.
- DO NOT smoke.
- Don't fill the tank to its full capacity. Allow room for expansion and wipe up spilt fuel immediately.
- If the original cap is lost, replace it with an AGCO cap and tighten securely. A cap made by a different manufacturer may not be suitable.
- Keep equipment properly maintained.

***CAUTION: Diesel fuel is very inflammable. Handle fuel with care. Keep away from naked flames. Do not smoke when filling the tank or when filling the engine. Do not leave the engine when filling the tank. Clean up any fuel which may have been split. Any material which comes into contact with the fuel must be moved to a safe place.***

***If high pressure fuel comes into contact with the skin, immediately wash with clean water and obtain medical assistance.***

#### 5.22.1.1 - Recommended fuel specification

The diesel fuel used must meet DIN EN 590 standard. To get the correct power and performance from your engine, use good quality fuel. The recommended fuel specification for engines is indicated below:

- Cetane No. 45 minimum.
- Viscosity 2.0… 4.5 mm2/s at 40°C.
- Density 0.820/0.860 kg/litre at 15°C.
- Sulphur 0.20% of mass, maximum.
- Distillation 85% at 350°C.
- Water content maximum 200 mg/Kg.

**Cetane Number**

Cetane number indicates ignition performance. A fuel with a low cetane number can cause cold start problems and affect combustion.

**Viscosity**

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

**Density**

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

**Sulphur**

A high amount of sulphur can cause engine wear.

**Distillation**

Distillation is an indication of the mixture of different hydrocarbons in the fuel. A high ratio of light-weight hydrocarbons can affect the combustion characteristics.

**Low Temperature Fuel**

Special winter fuels may be available for engine operation at temperatures below 0°C. These fuels have a lower viscosity and also limit the wax formation in the fuel at low temperatures. If wax formation occurs, this could stop the fuel flow through the filter. If you need advice on engine setting or lubricating oil change periodicity due to the quality of the available fuel, consult your nearest Dealer.

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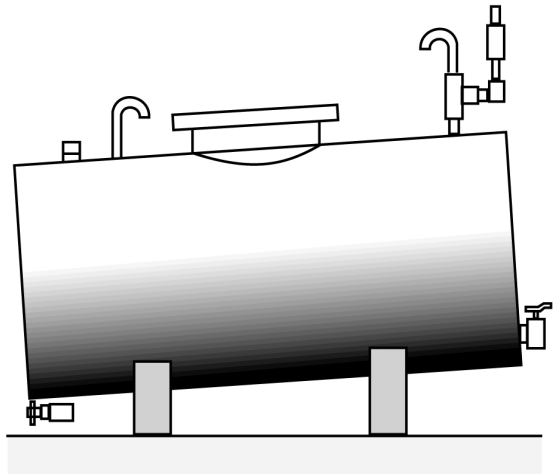
### 5.22.2 - Fuel storage conditions

(Fig. 51)

The utmost care must be taken to keep fuel clean.

1. Never clean the inside of containers of other fuel system components with a fluffy cloth.
2. Bulk storage tanks should not be too large: approximately 10,000 litres.
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 tap 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 have a fall of about 4 cm per metre towards the rear (drain plug side).
4. Let the fuel settle in the storage tank for 24 hours before use after any maintenance or refilling the tank.
5. Clean out the storage tanks regularly; in general every five years, and more frequently in cold climates.
6. Bleed the tank 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. Do not wait for fuel stocks to be used up before getting in new supplies; refuelling from the bottom of the tank leads to a risk of damage to the fuel system.



V123 Fig. 51

**Advice on the use of fuel in cold weather**

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

*IMPORTANT: Protection of the environment - local regulations in force relating to underground storage must be complied with.*

   If this is not possible, place the storage tank or drum in a location which is protected from the cold, wind or damp.
3. After filling the storage tank, drain the first 5 litres into a drum before filling the fuel tank. After refuelling the tractor, 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. Stock "winter" quality fuel during the cold weather season.

Frequently clean the fuel filter sediment bowl.

Do not puncture the fuel filter.

Ensure a spare filter is always available. If a stoppage occurs, due to fuel waxing, in most cases changing the fuel filter will make restarting possible.

## 5.23 - STORING THE 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.

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*Chapter 6*

# SPECIFICATIONS

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## 6.1 - ENGINE

| Specifications | MT525B | MT535B | MT545B | MT555B | MT565B | MT575B |
|---|---|---|---|---|---|---|
| Engine | CAT 3056 | CAT 3056 | CAT 3056 | 66ETA | 66ETA | 66ETA |
| Number of cylinders | 6 | 6 | 6 | 6 | 6 | 6 |
| Turbocharger | yes | yes | yes | yes | yes | yes |
| Bore (mm) | 100 | 100 | 100 | 108 | 108 | 108 |
| Stroke (mm) | 127 | 127 | 127 | 120 | 120 | 120 |
| Cubic capacity (l) | 6 | 6 | 6 | 6.6 | 6.6 | 6.6 |
| Nominal power (ISO Kw) | 87 | 98.5 | 106 | 113 | 125 | 137 |
| At engine speed in rpm | 2200 | 2200 | 2200 | 2200 | 2200 | 2200 |
| Nominal power (ISO Kw)<br>At engine speed in rpm | 94<br>2200 | 106<br>2200 | 114<br>2200 | 120<br>2200 | 132.5<br>2200 | 143<br>2200 |
| Maximum torque (ISO Nm)<br>Engine speed at maximum torque | 500<br>1400 | 565<br>1400 | 590<br>1400 | 650<br>1400 | 720<br>1400 | 780<br>1400 |
| Idle speed<br>Maximum rated speed (rpm)<br>(Idle speed high) | 950<br>2354 | 950<br>2354 | 950<br>2354 | 950<br>2354 | 950<br>2354 | 950<br>2354 |
| Lubrication | Gear type pump - strainer on suction side and external replaceable cartridge type filter(s). | | | | | |
| Valves | Overhead, push-rod operated | | | | | |
| Valves clearance (Cold)<br>Inlet (mm)<br>Exhaust (mm) | <br>0.20<br>0.45 | <br>0.20<br>0.45 | <br>0.20<br>0.45 | <br>0.35<br>0.35 | <br>0.35<br>0.35 | <br>0.35<br>0.35 |
| Engine oil cooler | yes | yes | yes | yes | yes | yes |

### 6.1.1 - Fuel system and air filter

| | MT525B / MT535B / MT545B | MT525B / MT535B / MT545B |
|---|---|---|
| Fuel filter with sediment bowl | yes | |
| Number of elements | 1 | |
| Injection pump | Bosh VP30 | |
| Injectors and nozzle holders | Bosh | |
| Cold weather starting | Thermostart | Grid heater |
| Air cleaner: two-stage, dry element with clogging indicator. | | |

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## 6.2 - GROUND SPEEDS

### 6.2.1 - Ground speed with "TECHstar CVT" continuous transmission

| Range | | Forward | Reverse |
|---|---|---|---|
| Tortoise Field speeds | kph | 0 - 32 | 0 - 20 |
| | mph | 0 - 20 | 0 - 12.4 |
| Hare Road speeds | kph | 0 - 40 | 0 - 40 |
| | mph | 0 - 25 | 0 - 25 |

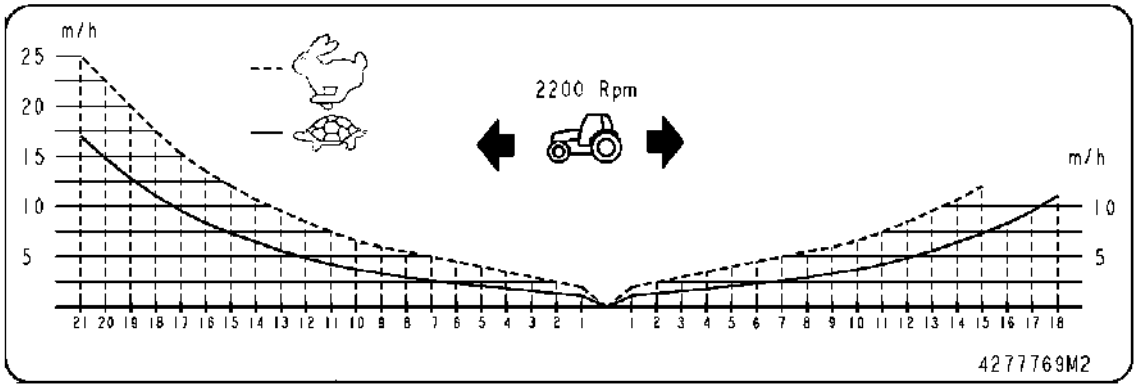


Fig. 1

*NOTE: Speeds are limited as required by legislation in force in the relevant countries. Speed is limited electronically.*

## 6.3 - ELECTRICAL SYSTEM

| | |
|---|---|
| Voltage: | 12 volts negative ground |
| Batteries: | 2 maintenance free batteries |
| Alternator: | 150 A |
| Safe start-up: | Operated by the clutch pedal |
| Headlights: | European code 40/45 W |
| Sidelights: | 5 W |
| Direction indicators: | 21 W |
| Number plate light: | 10 W |
| Work headlights: | 55 W - H3<br>35 W (bulbs Xenon optional) |
| Instrument panel lighting and indicator lights: | 3 W - 2 W - 1.2 W |
| Roof light: | 10 W |

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## 6.4 - COOLING

| | |
|---|---|
| Operating mode: | Centrifugal pump and pressurised radiator. Thermostat regulation. Opening temperature: 82°C. Thermostat control. |
| Fan: | Viscostatic clutch fan<br>Gear driven water pump. |
| Belt: | Viscostatic or vistronic disengagement according to models.<br>Fan driven water pump. |
| Belt deflection | Trapezoid belt: 10 to 15mm on longest span |

## 6.5 - TRANSMISSION

| | |
|---|---|
| Gearbox: | continuous hydrostatic and mechanical variation:<br>- slow forward travel: transmission mainly hydrostatic.<br>- fast forward travel: transmission mainly mechanical. |
| • With DynaVT: | - continuous speed variation from 0.03 to 50 kph in forward position (maximum speed limited to 30, 35, 40 or 50 kph depending on country).<br>- continuous speed variation from 0.03 to 38 kph in reverse position. |
| • Filtration: | 150 micron suction strainer, located to the right of the centre housing.<br>External main high-pressure 15 micron filter, to the right of the centre housing. |
| • Bevel gear / differential reduction ratios: | 4.182 for all models. |

## 6.6 - FINAL DRIVE UNITS

| | |
|---|---|
| Drive units: | Epicyclic, located in the rear axle housings. |
| Reduction ratios: | MT525B/535B normal assembly (HA 110): 7.000<br>MT525B/535B reinforced assembly, MT545B (HA 130): 8.200<br>MT555B/565B/MT575B (HA 160): 8.600 |

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## 6.7 - REAR PTO

| | |
|---|---|
| Flanged shaft: | 540 or 1000 rpm at engine 2000 rpm, (Ø35 mm (1"3/8 in) 6 or 21 splines).<br>540/540E/1000 rpm at engine 2000 rpm, (Ø35 mm (1"3/8 in) 6, 20 or 21 splines). |
| Control: | By switches located in the cab, with PTO brake.<br>With or without PTO stop button on rear fenders. |

## 6.8 - FOUR-WHEEL DRIVE FRONT AXLE

| | |
|---|---|
| Clutch mechanism: | Electrohydraulic, electrically actuated by push-button in the cab. |
| Differential lock: | Multidisc differential lock with electrohydraulic control. |
| Gear ratios: | 20.19 (11.625), 20.22 (11.625), 20.29 (13.846), 20.43 (13.846). |

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## 6.9 - HYDRAULICS (ACCORDING TO MODEL OR COUNTRY)

### 6.9.1 - Closed centre hydraulic system with flow and pressure control

- **Primary circuit:** (flow 90 l/mn at 2200 rpm) supplies:
  steering, cooling system, and master cylinder booster.
- **High-pressure system:** (Max. flow 110 l/mn at 2200 rpm) max. pressure 200 bar supplies:
  trailer brake, auxiliary hydraulic and hydraulic lift system.

Filtration: 150 micron suction strainer, located inside the hydraulic tank.
Main external 15 micron filter on the hydraulic tank filler cap.

## 6.10 - LINKAGE

### 6.10.1 - Rear

Type: 3-point, Cat. 2 or 3, with fixed or telescopic drawbars, hook or ball end type.
Type 2 - Lifting force (kg) (lbs) (see tables).

| CAPACITY | MT525B | MT535B | MT545B | MT555B | MT565B | MT575B |
|---|---|---|---|---|---|---|
| Rams | 2 x Ø90 / 1xØ100 + 1xØ90 | 2 x Ø90 / 1xØ100 + 1xØ90 | 2 x Ø90 / 1xØ100 + 1xØ90 | 2 x Ø100 | 2 x Ø100 | 2 x Ø100 |
| At ball ends* | 6910 / 7990 | 6830 / 7990 | 7990 | 8770 | 8770 | 8620 |

Type 3 - Lifting force (kg) (lbs) (see tables).

| CAPACITY | MT525B | MT535B | MT545B | MT555B | MT565B | MT575B |
|---|---|---|---|---|---|---|
| Rams | 2 x Ø90 / 1xØ100 + 1xØ90 | 2 x Ø90 / 1xØ100 + 1xØ90 | 2 x Ø90 / 1xØ100 + 1xØ90 | 2 x Ø100 | 2 x Ø100 | 2 x Ø100 |
| At ball ends* | 6990 / 7990 | 6900 / 7990 | 7990 | 8870 | 8770) | 8710) |

* Maximum capacity according to lift rod position and linkage model.

### 6.10.2 - Front

Type: 3rd point with or without nitrogen balls.
Rams: number 2 - Lifting force (kg) (lbs) (see tables).

| CAPACITY | depending on models |
|---|---|
| At ball ends* | 2500 (5512Lb) |

Rams: number 2 - Lifting force (kg) (lbs) (see tables).

| CAPACITY | depending on models |
|---|---|
| At ball ends* | 2500 (5512Lb) |

## 6.11 - BRAKES

Type: multidisc, diameter 210 mm, hydraulic control.
Number of discs per side: MT525B/535B/545B: 5 discs; MT555B/MT565B/MT575B: 4 discs.
Parking brake: Operates on the rear axle bevel gear.
Trailer brake: According to model by a hydraulic spool valve.

## 6.12 - DIFFERENTIAL LOCK - REAR AXLE

Type: Discs
Control: Hydraulic, with electrical control

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## 6.13 - STEERING

Type: Hydrostatic, fixed or tiltable telescopic steering column, one double acting central ram.

| Specified turning radius | MT525B-MT535B-MT545B-MT555B-MT565B/MT575B | |
|---|---|---|
| Front tyre dimensions | 14.9R28 | 16.9R28 |
| Track adjustments<br>Inner angle | 2.05<br>55° | 2.17<br>55° |
| Outer tyre radius *<br>Without braking (m) | 4.97 | |

* with front axle disengaged

## 6.14 - WHEELS

| | |
|---|---|
| FRONT | 4-wheel drive pressed steel |
| REAR | Manual adjustment steel<br>Cast iron with automatic or manual adjustment |

## 6.15 - TYRES

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

| Front | Rear | Front | Rear |
|---|---|---|---|
| 13.6R38<br>16.9R34<br>350-85R38<br>400-75R38 | 13.6R24<br>340-85R24<br>400-70R24<br>380-70R24 | 16.9R38<br>18.4R38<br>460-85R38<br>520-70R38 | 14.9R28<br>380-85R28<br>420-75R28 |
| 18.4R42<br>20.8R38<br>14.9R46<br>520-85R38<br>620-70R38 | 16.9R28<br>14.9R30<br>420-85R28<br>480-70R28<br>380-85R30<br>420-70R30 | 20.8R42<br>18.4R46<br>520-85R42<br>580-70R42 | 16.9R30<br>14.9R34<br>420-85R30<br>480-75R30 |

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

## 6.16 - INFLATION PRESSURE

See chapter 5.

## 6.17 - TRACK WIDTH ADJUSTMENTS

See chapter 5.

## 6.18 - NOISE LEVELS (dBA) AT OPERATOR EARS

Measured according to: directive 77/311 CEE Annex II (A).

| Type | CEE 77/311 - Annex II | |
|---|---|---|
| | Windows closed | Windows open |
| MT525B | 71 | 77 |
| MT535B | 71 | 77 |
| MT545B | 70 | 75 |
| MT555B | 71 | 79 |
| MT565B | 71 | 79 |

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## 6.19 - CAPACITIES

| Type | Model | Capacity |
|---|---|---|
| Fuel tank | MT535B / MT545B | 270 l |
| | MT555B / MT565B / MT575B | 380 l |
| Cooling system | | 28.5 l |
| Engine sump | MT525B / MT535B / MT545B | 14.5 l |
| | MT555B / MT565B / MT575B | 20 l |
| Auxiliary hydraulics | | 100 l |
| Transmission hydraulics | MT525B / MT535B / MT545B | 56 l |
| | MT555B / MT565B / MT575B | 58 l |
| Rear final drive units (per side) | MT525B / MT535B ND | 5 l |
| | MT525B HD* / MT535B HD / MT545B | 10 l |
| | MT555B / MT565B / MT575B | 13 l |
| Fixed front axle / Final drive units (per side) | MT525B / MT535B ND* | 6 l / 0.7 l |
| | MT525B HD / MT535B HD / MT545B / MT555B / MT565B / MT575B | 6 l / 1.5 l |
| Suspended front axle / Final drive units (per side) | MT525B ND | 8.5 l / 0.6 l |
| | MT535B ND | 8.5 l / 0.7 l |
| | MT525B HD / MT535B HD / MT545B / MT555B / MT565B | 8.5 l / 1.3 l |
| | MT575B | 8.5 l / 1.6 l |
| ND: “Normal Duty” normal assembly / HD: “Heavy Duty” reinforced assembly | | |

## 6.20 - TIGHTENING TORQUES

### 6.20.1 - Wheels

| DISC ON HUB | | RIM ON DISC | | |
|---|---|---|---|---|
| | | Power front axle wheels | Fixed cast iron wheels | Steel wheels |
| Front axle | | | | |
| 2 WD | 200 to 260 Nm | - | - | - |
| 4 WD | (M18) 400 to 450 Nm<br>(M22) 640 to 680 Nm | - | - | 200 to 260 Nm |
| Rear axle | | | | - |
| Flanged shaft | 350 to 460 Nm | 180 to 250 Nm | | - |
| Straight shaft | 350 to 460 Nm | 180 to 250 Nm | | - |

### 6.20.2 - Miscellaneous

Power take-off shaft: 69 Nm

Engine oil drain plug: 35 Nm

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## 6.21 - DIMENSIONS AND WEIGHTS

| SPECIFICATIONS | MT525B | MT535B | MT545B | MT555B | MT565B | MT575B |
|---|---|---|---|---|---|---|
| **A.** Wheel base | 2780 | | | 3007 | | |
| **B.** Overall length with lower links without front weights, max.-min. | 4650 - 4500 | | | 4986 - 4951 | | |
| **C.** Height to roof (with cab), max. - min. | 3042 - 2705 | | | 3267 - 2819 | | |
| **D.** Max. overall width | 2550 | | | | | |
| **E.** Max. - min. ground clearance (under swinging drawbar support) | 373 - 606 | | | 357 - 682 | | |
| Min. weight (with full tank, without counterweight steel wheels) | 6154 | 6266 | 6302 | 6772 | 6772 | 6930 |
| **C. and E.:** Dimensions vary according to tyre assembly. | | | | | | |

| | Rear axle | | Front axle | | | |
|---|---|---|---|---|---|---|
| | ML 130 | ML 160 | 20.19 | 20.22 | 20.29 | 20.43 |
| **F.** Distance between flanges:<br>Shaft Ø 95: | -<br>1716 | -<br>1840 | 1800 | | 1900 | |
| **G.** Stud distance: | 275 | | 275 | | 335 | |
| **H.** Centring diameter: | 220.2 | | 220.8 | | 280 | |
| **I.** Stud length:<br>Wheel with steel hub:<br>Wheel with cast iron hub: | 41 (1.61)<br>66 | | 36*<br>- | 40<br>- | 40<br>- | |
| **J.** Stud or screw diameter: | M22x1.5 | | M18x1.5 | | M22x1.5 | |
| **K.** Number of studs or screws: | 8 | | 8 | | 10 | |
| *Front axle not suspended | | | | | | |

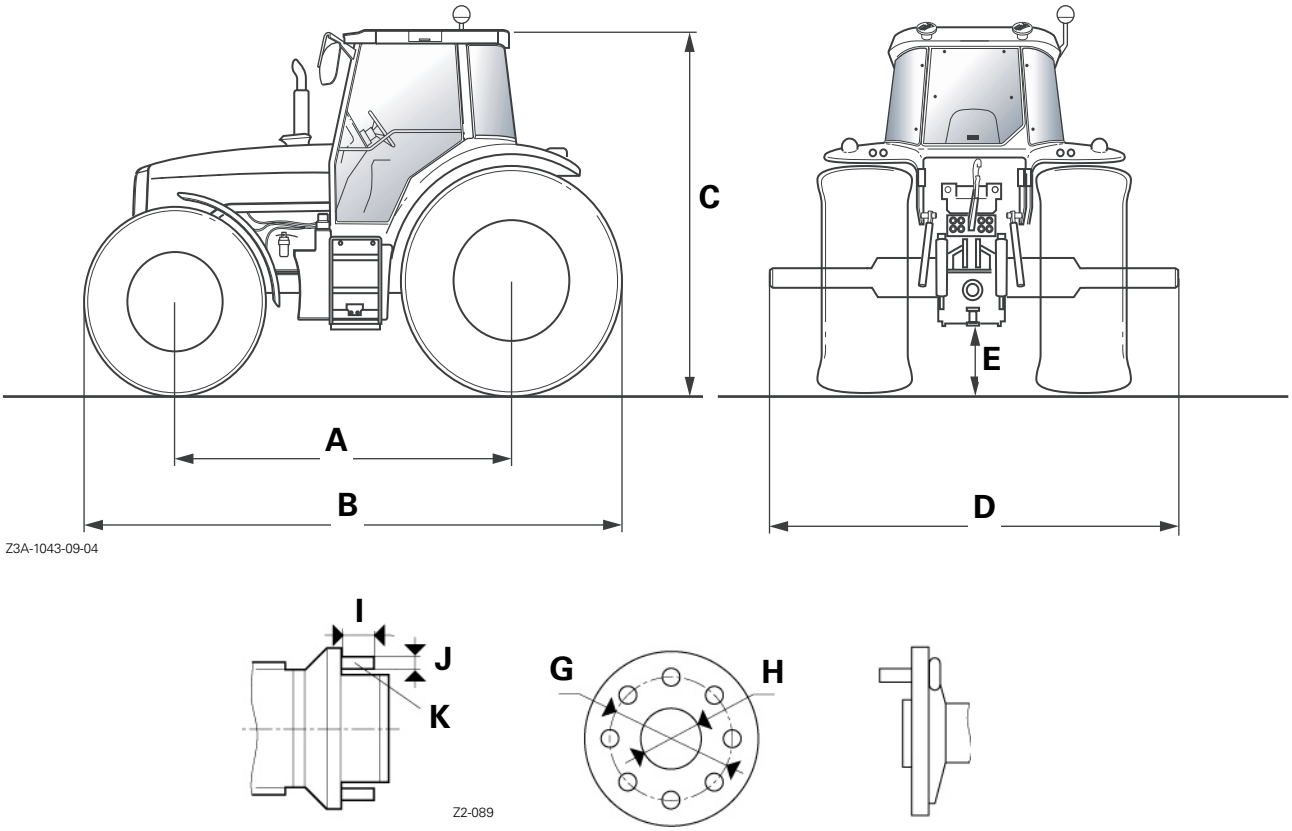


Fig. 2

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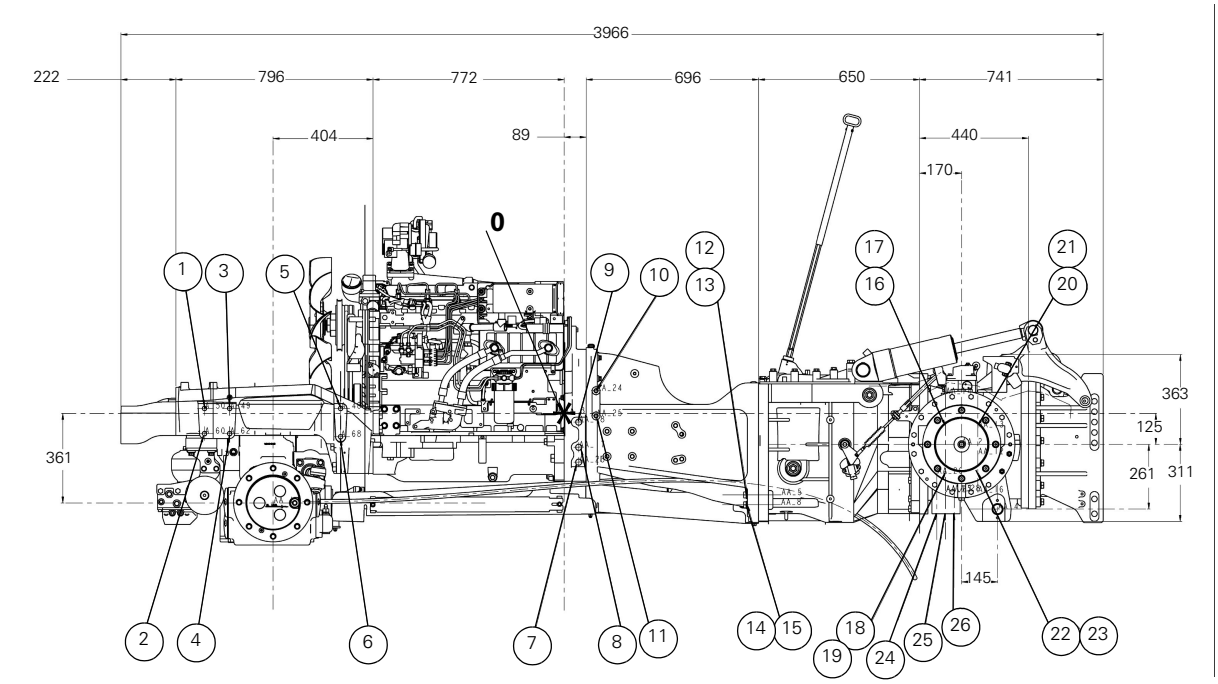
## 6.22 - DIMENSIONS AND ATTACHMENT POINTS

### 6.22.1 - Specifications for MT525B / MT535B / MT545B series tractors

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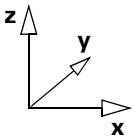


Dimensions in relation to point **0**

| REFERENCE 0= Engine axis | | DIMENSIONS (mm) x | y | z |
|---|---|---|---|---|
| | | | | |
| 1 | M 20 | -1452.1 | +/-280 | -20 |
| 2 | M 20 | -1452.1 | +/-280 | 81.6 |
| 3 | M 20 | -1350.5 | +/-280 | -20 |
| 4 | M 20 | -1350.5 | +/-280 | 81.6 |
| 5 | M 20 | -902.5 | +/-275 | 20 |
| 6 | M 20 | -902.5 | +/-275 | -94 |
| 7 | M 20 | 59 | +/-274 | -196.6 |
| 8 | M 20 | 59 | +/-274 | -136.6 |
| 9 | M 20 | 59 | +/-274 | -35 |
| 10 | M16 | 128.85 | +/-274 | 91.7 |
| 11 | M16 | 128.85 | +/-274 | -9.9 |
| 12 | M16 | 740 | +/-252 | -329 |
| 13 | M16 | 740 | +/-252 | -329 |
| 14 | M16 | 740 | +/-252 | -369 |

| REFERENCE 0= Engine axis | | DIMENSIONS (mm) x | y | z |
|---|---|---|---|---|
| 15 | M16 | 740 | +/-252 | -369 |
| 16 | M16 ∅ 17X11 | 1540 | +/-585 | -20 |
| 17 | M16 ∅ 17X11 | 1540 | +/-705 | -20 |
| 18 | M16 ∅ 17X36 | 1540 | +/-595 | -225 |
| 19 | M16 ∅ 17X36 | 1540 | +/-675 | -225 |
| 20 | M16 ∅ 17X11 | 1670 | +/-585 | -20 |
| 21 | M16 ∅ 17X11 | 1670 | +/-705 | -20 |
| 22 | M16 ∅ 17X36 | 1670 | +/-595 | -225 |
| 23 | M16 ∅ 17X36 | 1670 | +/-675 | -225 |
| 24 | M20 ∅ 20X1.5 | 1505 | +/-150 | -405 |
| 25 | ∅ 20 | 1540 | +/-150 | -405 |
| 26 | M20 ∅ 20X1.5 | 1575 | +/-150 | -405 |

Fig. 3

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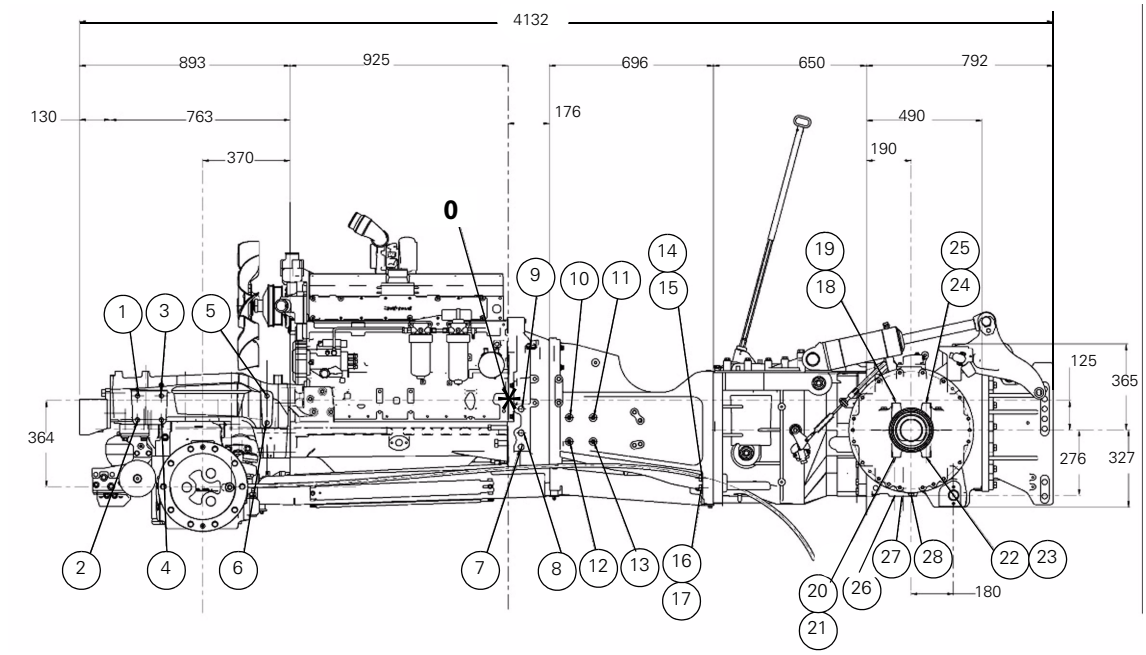
## 6.23 - DIMENSIONS AND ATTACHMENT POINTS

### 6.23.1 - Specifications for MT555B / MT565B / MT575B series tractors




Dimensions in relation to point **0**

| REFERENCE 0= Engine axis | | DIMENSIONS (mm) x | y | z |
|---|---|---|---|---|
| | | | | |
| 1 | M 20 | -1572.3 | +/-280 | -20 |
| 2 | M 20 | -1572.3 | +/-280 | 81.3 |
| 3 | M 20 | -1470.7 | +/-280 | -20 |
| 4 | M 20 | -1470.7 | +/-280 | 81.3 |
| 5 | M 20 | -1022.7 | +/-275 | 20.3 |
| 6 | M 20 | -1022.7 | +/-275 | -93.7 |
| 7 | M 20 | 56.5 | +/-274 | -206.3 |
| 8 | M 20 | 56.5 | +/-274 | -146.3 |
| 9 | M 20 | 56.5 | +/-274 | -44.7 |
| 10 | M16 | 260 | +/-240 | -71.7 |
| 11 | M16 | 361.8 | +/-240 | -71.7 |
| 12 | M16 | 260.2 | +/-220 | -173.3 |
| 13 | M16 | 361.8 | +/-220 | -173.3 |
| 14 | M20 | 834 | +/-177 | -328.7 |

| REFERENCE 0= Engine axis | | DIMENSIONS (mm) x | y | z |
|---|---|---|---|---|
| 15 | M16 | 834 | +/-252 | -328.7 |
| 16 | M16 | 834 | +/-162 | -368.7 |
| 17 | M16 | 834 | +/-252 | -368.7 |
| 18 | M16 ∅ 17X11 | 1646.8 | +/-585 | -9.7 |
| 19 | M16 ∅ 17X11 | 1646.8 | +/-705 | -9.7 |
| 20 | M16 ∅ 17X36 | 1646.8 | +/-595 | -239.7 |
| 21 | M16 ∅ 17X36 | 1646.8 | +/-675 | -239.7 |
| 22 | M16 ∅ 17X36 | 1776.8 | +/-595 | -239.7 |
| 23 | M16 ∅ 17X36 | 1646.8 | +/-675 | -239.7 |
| 24 | M16 ∅ 17X11 | 1776.8 | +/-585 | -9.7 |
| 25 | M16 ∅ 17X11 | 1776.8 | +/-705 | -9.7 |
| 26 | M20 ∅ 21X1.5 | 1641.8 | +/-150 | -280 |
| 27 | ∅ 20 | 1676.8 | +/-150 | -280 |
| 28 | M20 ∅ 21X1.5 | 1711.8 | +/-150 | -280 |

Fig. 4

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*Chapter 7*

# *ACCESSORIES AND OPTIONS*

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## 7.1 - ACCESSORIES AND OPTIONS

- Rear wheel weights: 1 to 4 external wheel weights
- Front mounted weights: 8/10/12 or 14x55 kg.
- Centre weight : 800 kg

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

- Rear linkage (section 4.16).
- Front linkage (section 7.15).
- Rear screen wiper and washer.
- Passenger seat.
- Front fenders.
- PTO - different types (section 4.11).
- Fittings for radio (loudspeakers, aerial and wiring).
- Radio.
- Batteries main switch.
- "Datatronic 2" onboard computer (section 7.2.).
- "Datatronic 2" Front Dual control (section 7.5).
- "Datatronic 2" Trailed Implement Control (TIC, section 7.6).
- "Datatronic 3" onboard computer section 7.7.
- "Datatronic 3" Front Dual control (section 7.7).
- "Datatronic 3" Trailed Implement Control (TIC, section 7.14).

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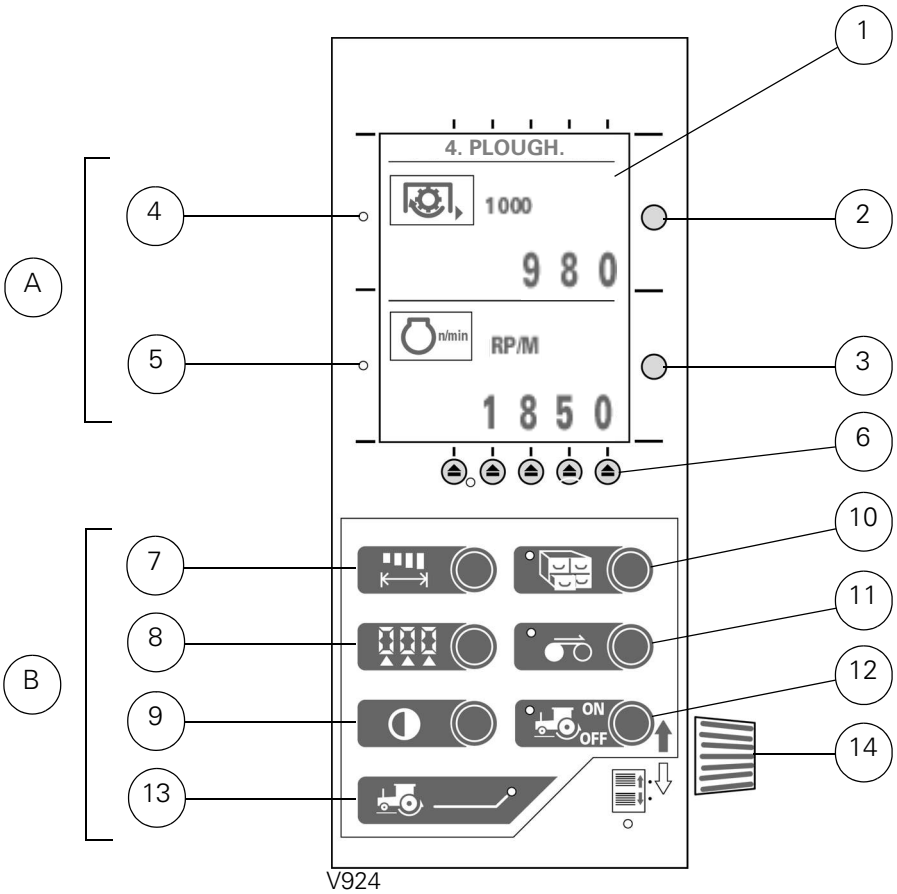


Fig. 1

## 7.2 - "DATATRONIC" ONBOARD COMPUTER

### 7.2.1 - General

The onboard computer is a measuring instrument providing information that helps to make optimum use of the tractor. It is located on the cab right-hand pillar (Fig. 1).

This information is stored and can be printed directly from the cab (see "printing of the memory").

### 7.2.2 - Description

A. Reading data
   1 - Screen divided into two parts.
   2-3 - Selection keys for upper and lower display.
   4-5 - Red led indicating the display selected.

B. Selection of functions
   6 – Stored data modification keys.
   7 - Working width
   8 - Reset of cumulated values
   9 - Screen contrast
   10 - Memory on/off
   11 - Working position
   12 - Wheel slip control
   13 - Slip control indicator
   14 - Selection of the 22 functions of the menu or changing of the characters after selection of one of the keys 2 or 3.

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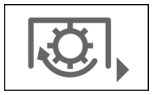
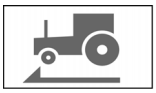
### 7.2.3 - Symbols

**ENGINE SPEED:** Instant engine speed in rpm.



**PTO 540/1000 RPM:** PTO speed in rpm.



**FORWARD SPEED:** This is the actual forward speed of the tractor in relation to the ground in kph.

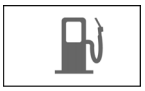
**WHEEL SLIP:** This is the actual rate of wheel slip as a percentage.

**WHEEL SLIP LIMIT:** Maximum % slip value accepted by operator or maximum limit. Over this limit, the wheel slip control comes into action. This percentage varies unit by unit.

**AREA/HOUR:** Instant area worked per hour (hectares, acres).

**FUEL/HOUR:** Instant consumption per hour (litre, gallon).

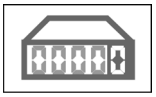
**FUEL/AREA:** Instant consumption per worked unit of area.



**FUEL USED:**Total fuel used (litre, US/Imperial gallon).

**AREA WORKED:** This is the total area in acres or hectare worked but only when the implement is working.

**HOURS WORKED:** The time accumulated with engine running (in tenths of hour)..



**COUNTER:** Can be used to count and memorise a number of work units for the hitched implement (e.g. round baller).

**COST/AREA:** Instant cost per area unit worked (in local currency).

**SERVICE:** Displays the number of hours before the next servicing.

**DISTANCE:** Total distance covered (in metres, miles)..

**TIME:** Clock (see additional functions section).

**DATE:** Current date (see additional functions section).

**COST/L:** Information about the local fuel cost (must be stored).

**COST/AREA:** Information about the hourly cost of work (must be stored).

**UNITS:** Must be selected by user (Metric, US, UK).

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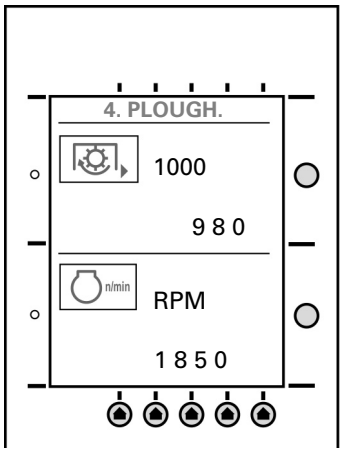
### 7.2.4 - Use

**Active mode**

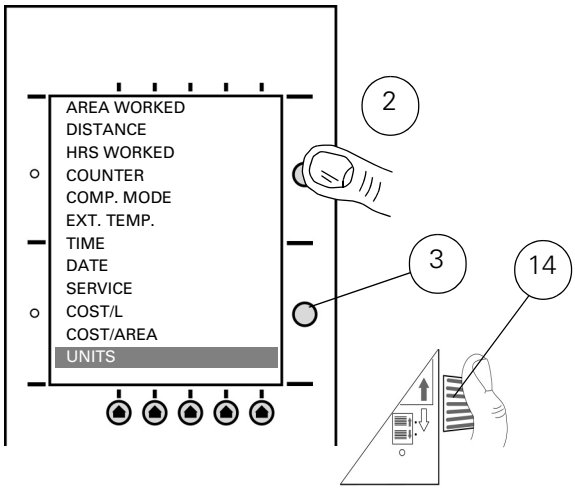
When the start switch key is in ON position, the last data stored appears (Fig. 2).




V913 Fig. 2

1. Press the key 2 or 3 to access the available functions (Fig. 3).
2. Turn the knob 14 to select the required function.
3. Press key 2 or 3 again to display the selection on the lower or upper part of the screen: e.g.:
   - Upper display: PTO speed,
   - Lower display: Engine speed,

   2 different functions can be displayed at the same time.

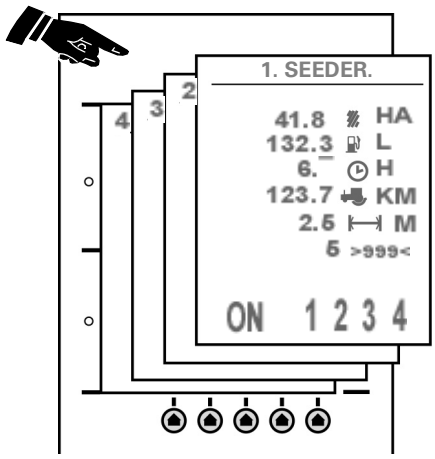



V923 Fig. 3

*NOTE: If the units of data displayed (Metric, UK Imper, US Imper) do not correspond, return to the menu, select **UNITS** and press key 2 or 3.*

**Memory mode (Fig. 4)**

The Datatronic features 4 independent memories identified by a number (1 to 4) located to the left-hand side of the screen, followed by digits or signs which can be introduced by the operator. It is possible to record the total work done with 4 different implements or to record the work done by four different operators. e.g.: "1. SEEDER (minimum 10 characters).




V920 Fig. 4

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### 7.2.5 - Use of the memory

(Fig. 5 and Fig. 6)

- Select the memory mode by pressing the key 10.
- To modify the characters in the title, press the key ref. 2, and the selection appears, e.g.: **-4. PLOUGH-**.
- Turn the knob 14 to obtain the correct figure.
- Press the key 2 again, selection changes; turn the knob 14 to obtain the required display.
- Same method for the rest of the title.
- To move the selection from right to left, press the key 3.
- To change memory selected, press one of the keys ref. 6.
- To reset the stored value other than the fixed data, press twice on the key 8.

**ON/OFF Position**: If you do not want to record the next work, press key ref. C to go to the "OFF" position, the bottom of the screen displays "MEMORY OFF".

To return automatically to the "ON" position, press the memory key 10 or key ref. C.

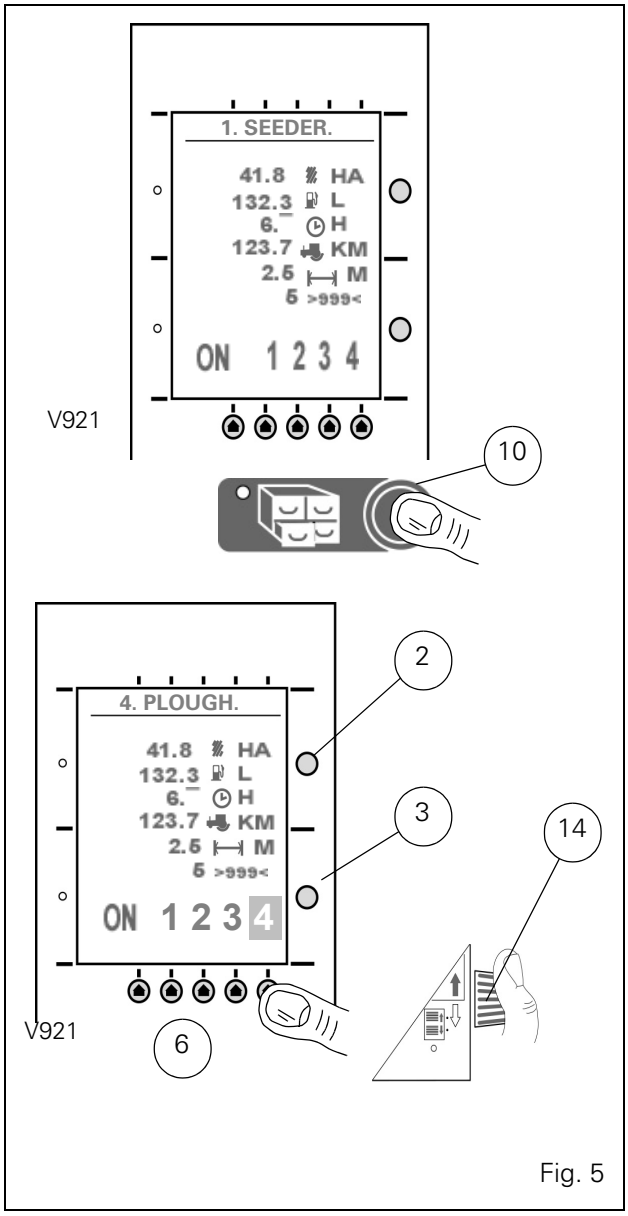


Fig. 5

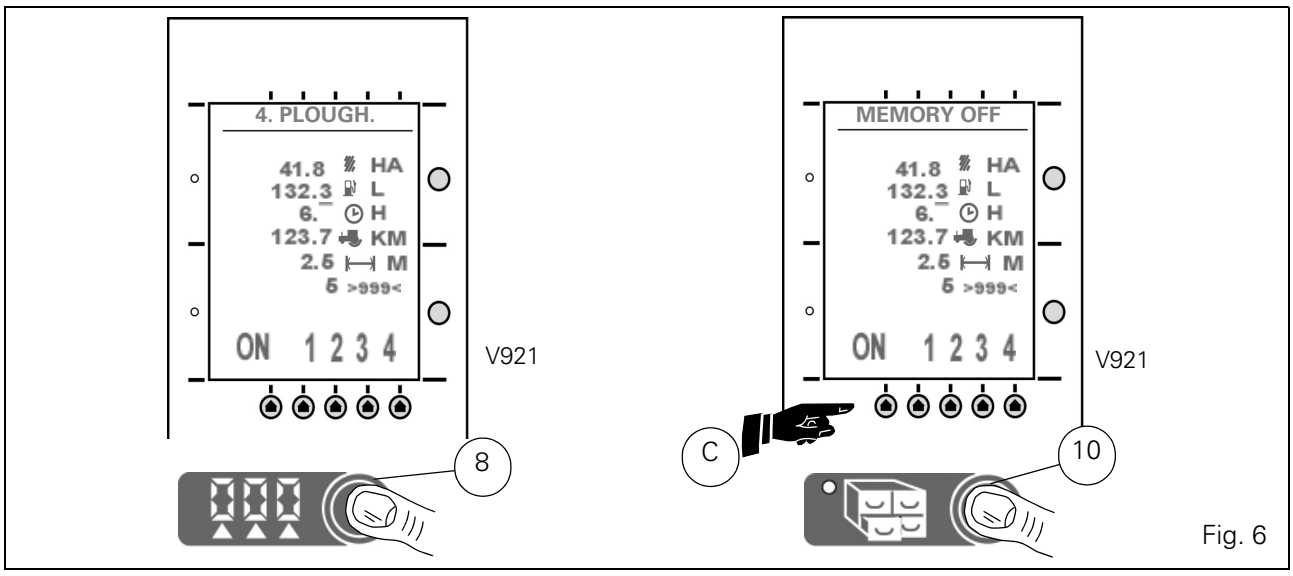


Fig. 6

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### 7.2.6 - Use when working

- Before starting your work, select the required memory (1 to 4); refer to paragraph 7.2.4 "MEMORY MODE".
- Press the memory key ref.10 (Fig. 7), then press one of the keys ref. 6 corresponding to the required memory; the selection is displayed in grey.
- Press key ref.10 again: the pre-recorded data (name, implement, etc.) is displayed at the top of the screen,

  The half-screens display the last selections stored when quitting, before selecting "MEMORY MODE".

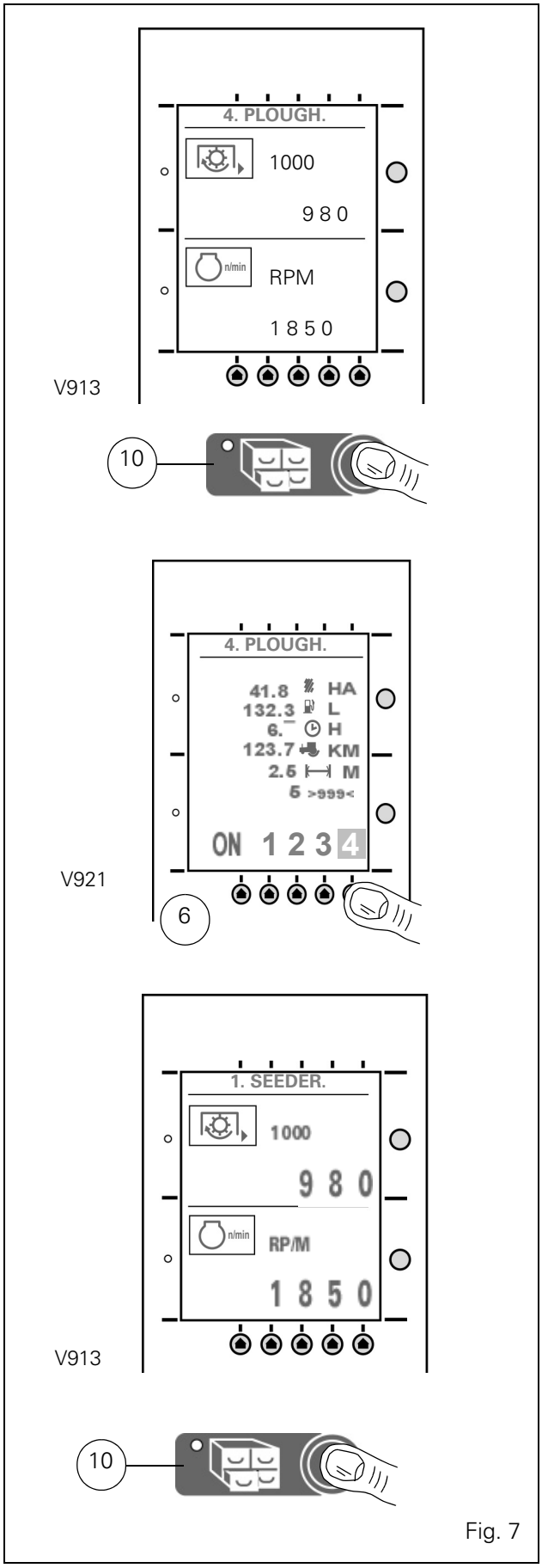


Fig. 7

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**Working position**

This operating mode takes three parameters into account:

1. The PTO speed in ON/OFF position,
2. The linkage (low position) ON/OFF,
3. The towed implement (through the auxiliary socket located in the cab).

Application:

Select the working width of the implement to be used by pressing the key ref. 7 (Fig. 8), modify the digits by pressing the corresponding keys ref. 6, then turn the knob 14 to display the new values, and press the key ref. 7 again to return to the previous screen.

*NOTE: The display of the work function has priority whenever the key is pressed.*

- Select the work function ref. 11; when the display appears, work can start.

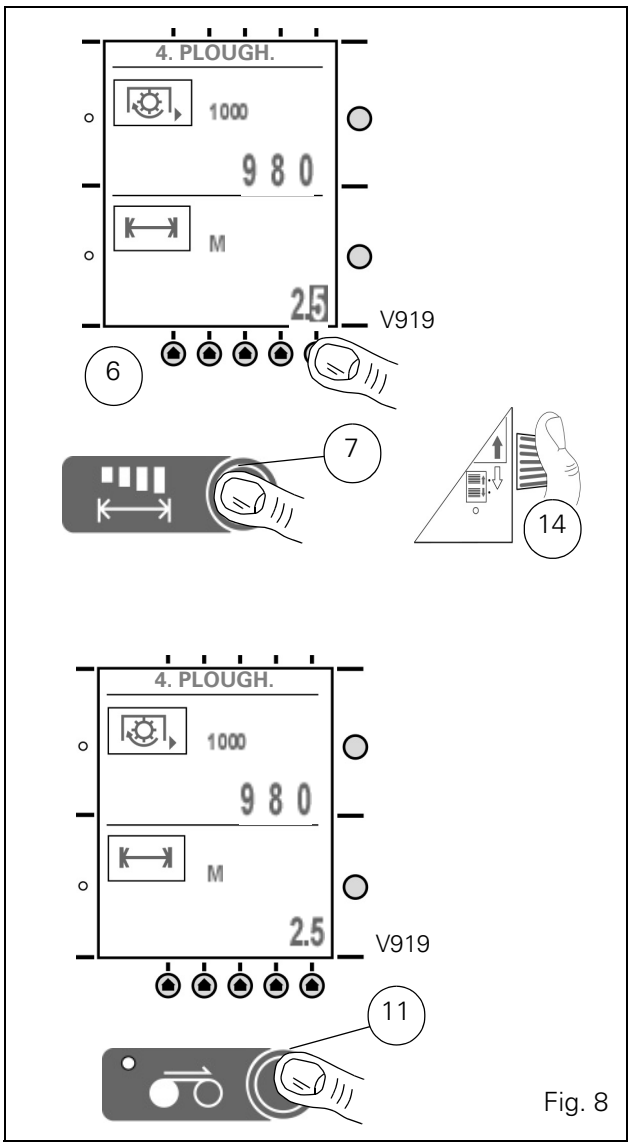


Fig. 8

**7.2.7 - Wheel slip control**

(Fig. 9)

Setting the maximum slip limit

- Select **-WHEEL SLIP LIMIT-** in the function menu. Press keys ref. 6 to enter the value.
- When the wheel slip control ref. 12 is on, the system continuously compares the real wheel slip rate with the limit set by the operator.

  As long as wheel slip is lower than the set limit, normal operation is possible. If the level exceeds the previously set limit, the system lifts the implement until wheel slip returns to an allowable level, and the control indicator light ref.13 comes on. The system also responds in this manner when the operator adjusts height / depth on the linkage console.

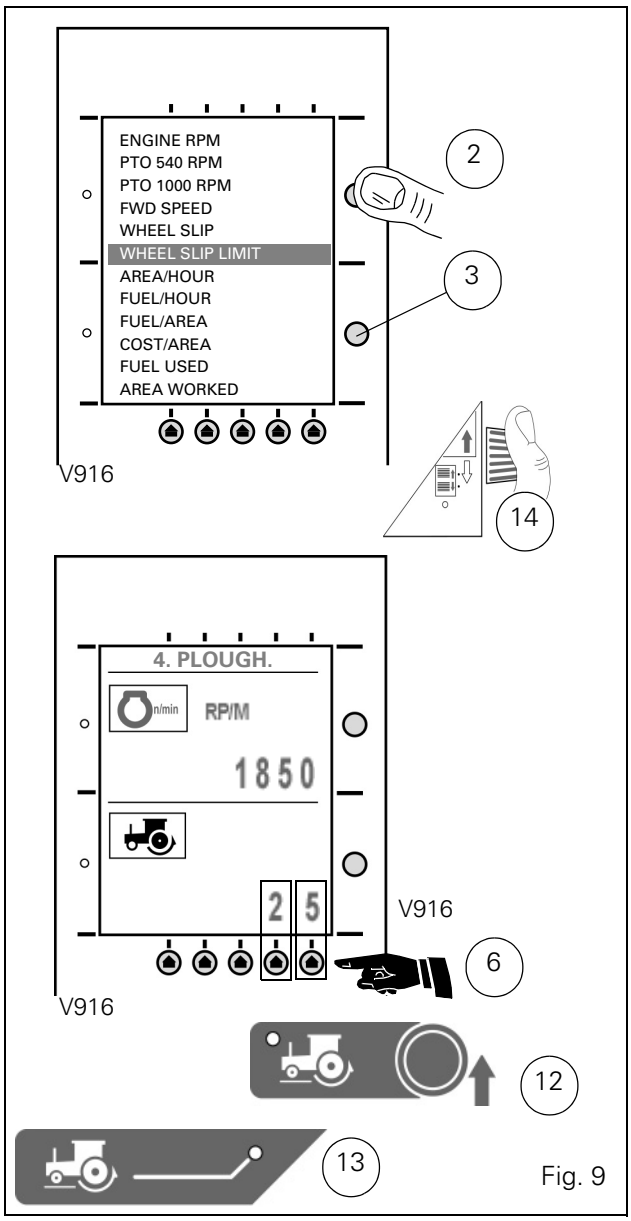


Fig. 9

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### 7.2.8 - Comparative mode

(Fig. 10)

- Select **-COMP. MODE-** in the function menu: a second menu appears.
- Turn the knob 14 to select, for example, the **-ENGINE RPM-** line, and press key 2 or 3. The Datatronic displays the same function on both half-screens. The upper part displays the stored data, the lower part displays the real working data, and the LED flashes.
- When the required working conditions are entered, press the memory key ref.10; the new data is stored in the upper window.
- Other data can also be stored (engine speed, forward speed, etc.) by carrying out this operation.

  The value is stored in memory until a new value is recorded.
- To quit the comparative mode, press key 2 or 3 to return to the menu.
- Select **-END-** by turning the knob 14 (Fig. 11). Press 2 or 3 again to display the active mode data.

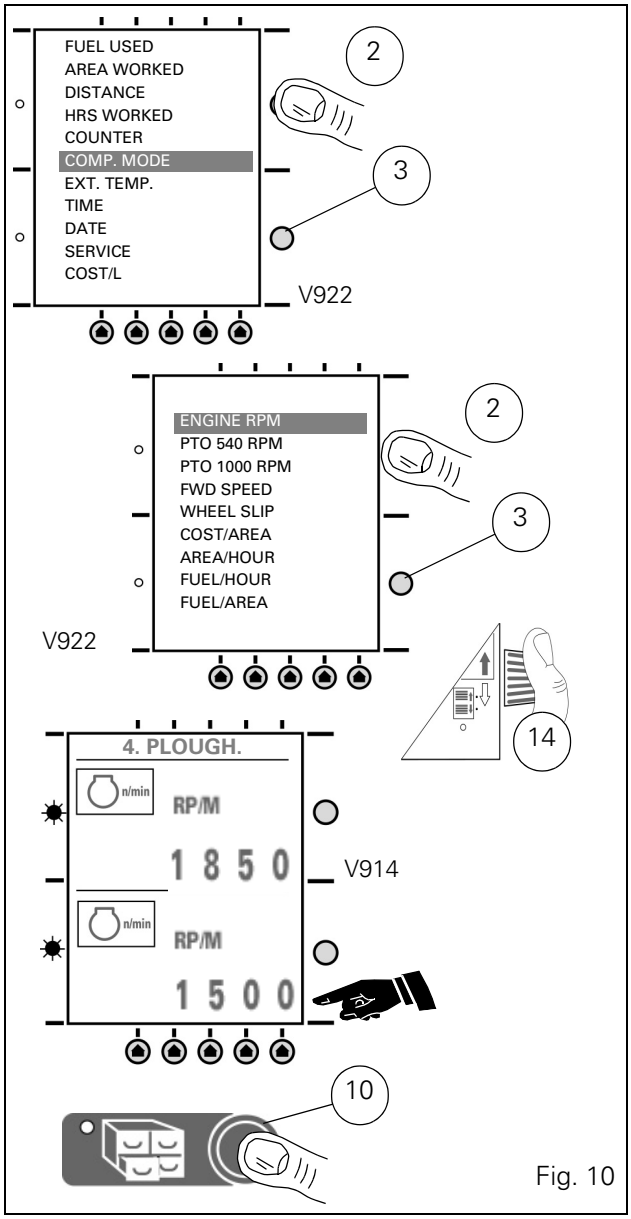

Fig. 10

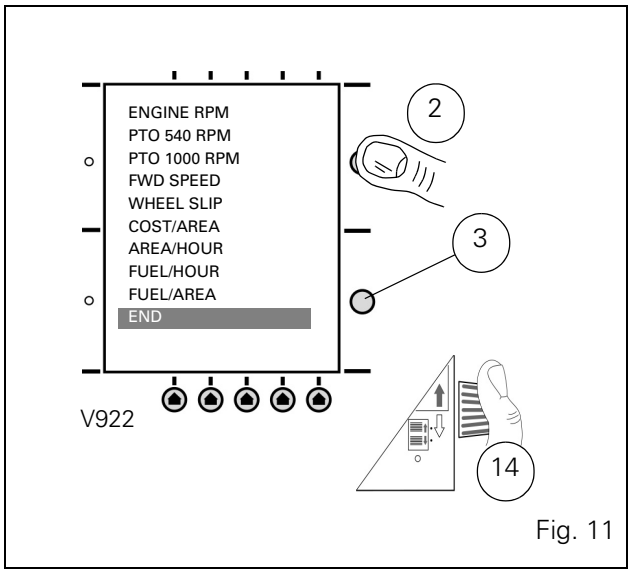

Fig. 11

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### 7.2.9 - Auxiliary functions

- Clock setting (hours, minutes, seconds) (Fig. 12):
- Press the key 2 or 3 to display the list of functions.
- Select **-TIME-** then press 2 or 3 again; the display appears in the selected window and LED 4 or 5 is lit.
- Press on one of the keys ref. 6 corresponding to the figures to modify, then turn the knob 14 to modify these digits one by one.
- Proceed in the same way to update the Date, Month and Year parameters and to store Cost/L. and Cost/Area. Units. Screen contrast (Fig. 13).

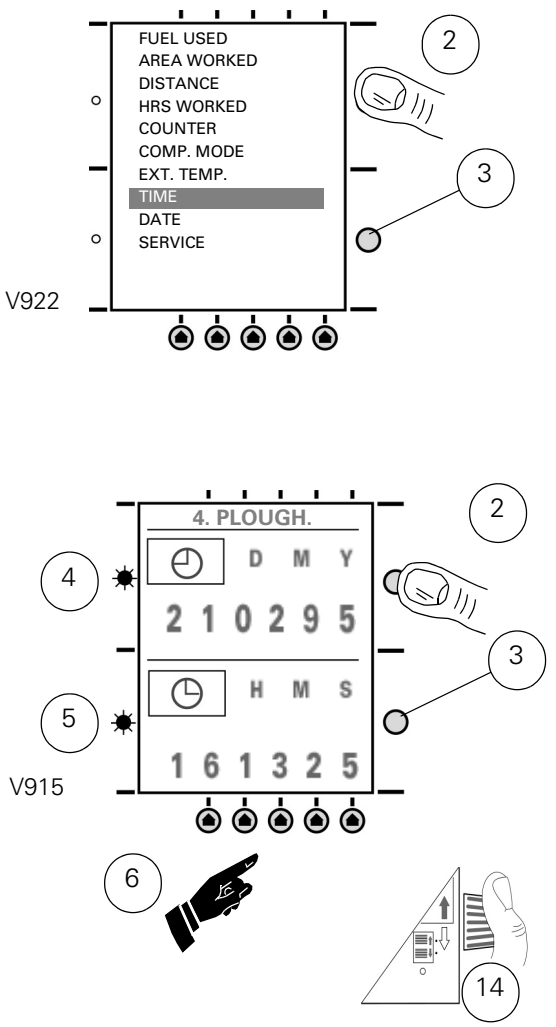


Fig. 12

### 7.2.10 - Screen contrast

(Fig. 13)

Screen contrast can be modified at any time as follows:

- Press the key 9 until both indicator lights 4 and 5 come on; turn knob 14 to lighten or darken the screen.
- Press key 9 again or any other key to return to normal operation.

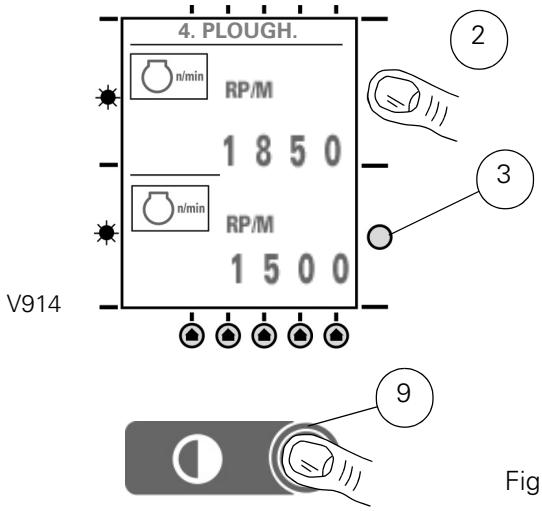


Fig. 13

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## 7.3 - REAR DUAL CONTROL

### 7.3.1 - General

The "DUAL CONTROL" is a digital control monitoring system for automatic operation of a semi-mounted plough at furrow starts and ends.

It automatically reports the linkage position changes to the depth wheel position in order to obtain a simultaneous horizontal movement of all the shares.

The information necessary for the correct operation of the system is acquired by sensors, processed by the "DATA 2" onboard computer and the electronic linkage calculator which control the operation of an electrohydraulic spool valve.

This system is currently available on tractors fitted with "LOAD SENSING" hydraulics.

Two additional functions, **-REAR CTRL-** and **-REAR ADJ-** are available from the screen of the "DATA 2" onboard computer..

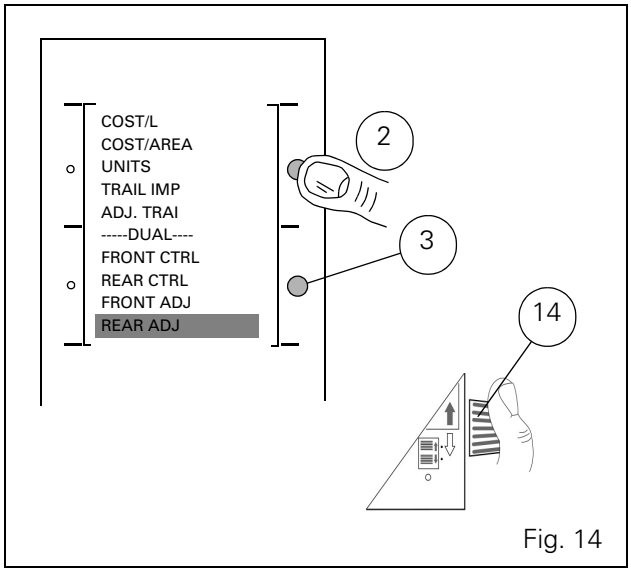


Fig. 14

### 7.3.2 - Description of the adjustment screen

(See section 7.4)

Press key 2 or 3, (Fig. 14), drop-down menu appears. Select,**-REAR ADJ-**; four new symbols are displayed (Fig. 15).

- **Ref. A to H:** this information is used to adapt the implement to the tractor hydraulic linkage.
- **Ref. I to P:** this information is used to operate the system at automatic furrow starts and ends.

To select one of the display windows, use keys 6-1 and 6-2 (Fig. 15).

A B: High linkage position.

C D: High depth wheel position.

E F: Low linkage position.

G H: Low depth wheel position.

I J: Plough length in “furrow start" phase.

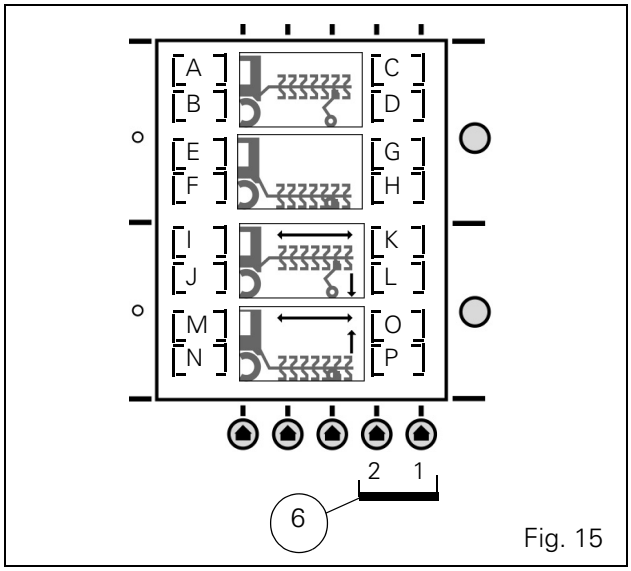
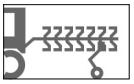


Fig. 15


V 901

**HIGH HORIZONTAL SETTING:** Used to store the high position of the linkage and of the plough depth wheel.

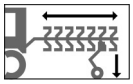
V 902

**LOW HORIZONTAL SETTING:** Allows to store the low position of the linkage and of the plough depth wheel.

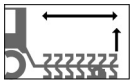
K L: Partial lowering of depth wheel in “furrow start” phase.

M N: Plough length in “furrow end" phase.

OP: Partial raising of depth wheel in “furrow end” phase.


V 903

**PLOUGH LENGTH AND PARTIAL LOWERING SETTING:** Controls the depth of penetration into the soil of the last share of the plough.


V 904

**PLOUGH LENGTH AND PARTIAL LIFTING SETTING:** Allows to store the low position of the linkage and of the plough depth wheel.

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### 7.3.3 - Adjustments

(Fig. 16), e.g.: example given for a 6-furrow single-wheel plough.

**A to D: Horizontality in HIGH position of the tractor linkage and of the plough depth wheel:**

Set the plough horizontal in the high position using the following controls:

- Lowering selector Q, and high position limiter.
- Manual control of the spool valve for the depth wheel part. Store the values by pressing key 10 for each of the windows concerned (B and D):

A. LINKAGE in high position (display stored).
B. Setting the required value of the LINKAGE high position.
C. PLOUGH DEPTH WHEEL in high position (display stored).
D. Setting the required value of the PLOUGH DEPTH WHEEL high position.

**E to H: Horizontality in LOW position of the tractor linkage and of the plough depth wheel:**

Set the plough horizontal in the low position, if possible with the plough depth wheel ram at the mechanical stop position, using the following controls:

- Lowering selector Q, height/depth setting knob R.
- Manual control of the spool valve for the depth wheel part.

Store the values by pressing key 10 for each of the windows concerned (F and H):

E. LINKAGE in stored low position.
F. Setting the required value of the LINKAGE low position.
G. PLOUGH DEPTH WHEEL in stored low position.
H. Setting the required value of the PLOUGH DEPTH WHEEL low position.

**I to L: Plough length and furrow partial lowering settings:**

To obtain the correct setting, proceed in stages until the optimum setting is reached, selecting the functions one after another using the keys ref. 6-1 and 6-2 and knob 14, then store using key 10.

I. DISPLAY of the plough LENGTH value at furrow start (after setting and storage of ref. J).
J. SETTING of the plough LENGTH at furrow start (set and store).
K. DISPLAY of the furrow start PARTIAL LOWERING value (after setting and storage of ref. L).
L. SETTING of the furrow PARTIAL LOWERING value (set and store).

**M to P: Plough length and furrow END partial lifting settings:**

To obtain the correct setting, proceed in the same way as above (I to L).

M. DISPLAY of the plough LENGTH value at furrow end (after setting and storage of ref. N).
N. SETTING of the plough LENGTH at furrow end (set and store).
O. DISPLAY of the furrow end PARTIAL LIFTING value (after setting and storage of ref. P).
P. SETTING of the furrow end PARTIAL LIFTING value (set and store).

*NOTE: Setting steps I to P are very important and determine the performance of the system.*

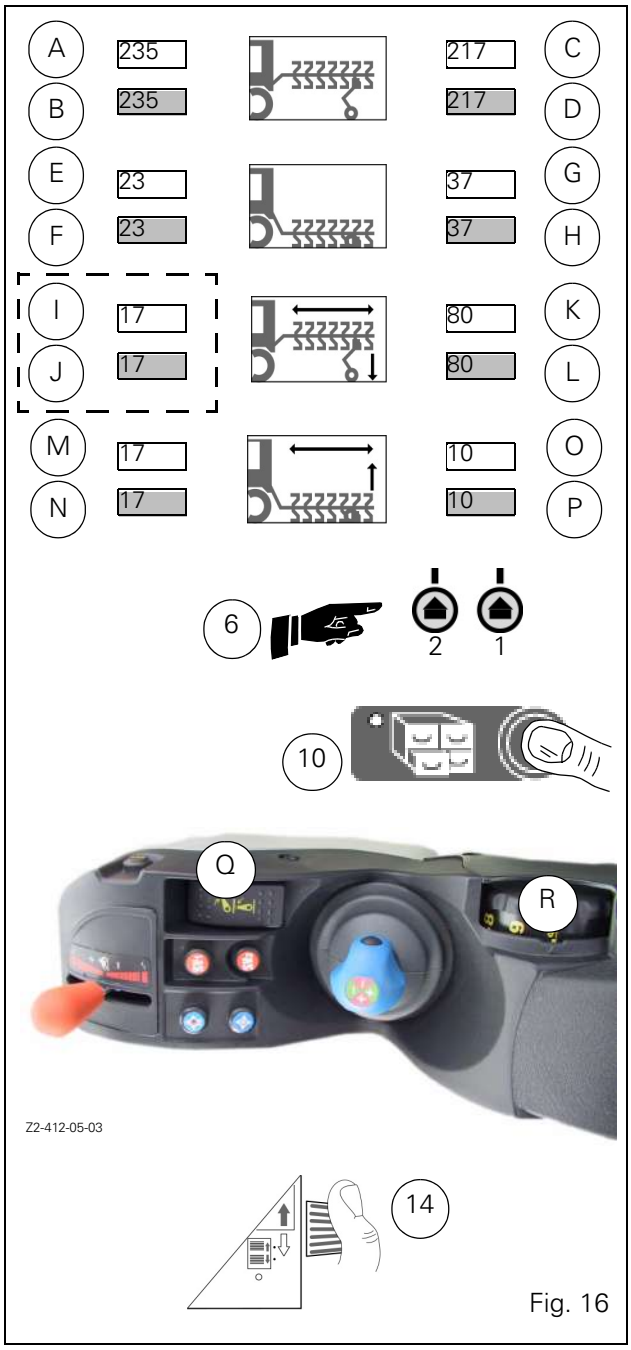


Fig. 16

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**7.3.4 - Use**

(Fig. 17, Fig. 18)

Select **-REAR CTRL-** in the drop-down menu, a new display appears in the lower half-screen:

- **Ref.15:** Plough depth wheel position (0 to 99).
- **Ref.16 - 17:** Plough length correction according to type of headland furrow (perpendicular or point).
- **Ref.18:** Automatic work phase control indicator.
- **Ref.18 A:** Time delay (plough length).
- **Ref.19:** ON/OFF function (ON/OFF).

*NOTE: As a safety precaution, the spool valve control and the DUAL function are deactivated when the tractor starts up (ref. 19 is in the OFF position).*

If the "DUAL CONTROL" is not in use, reset the console to activate the control of the separate spool valve by pressing the Lift/Lower selector switch.

Press key 6 (Fig. 17) (ON) to enable the DUAL function.

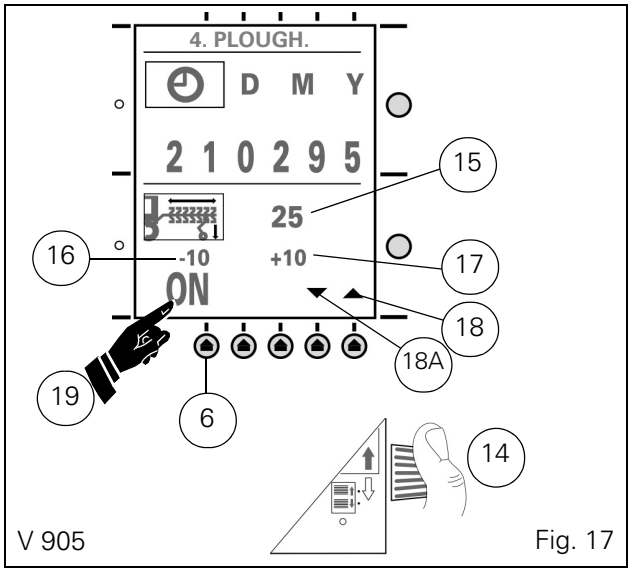
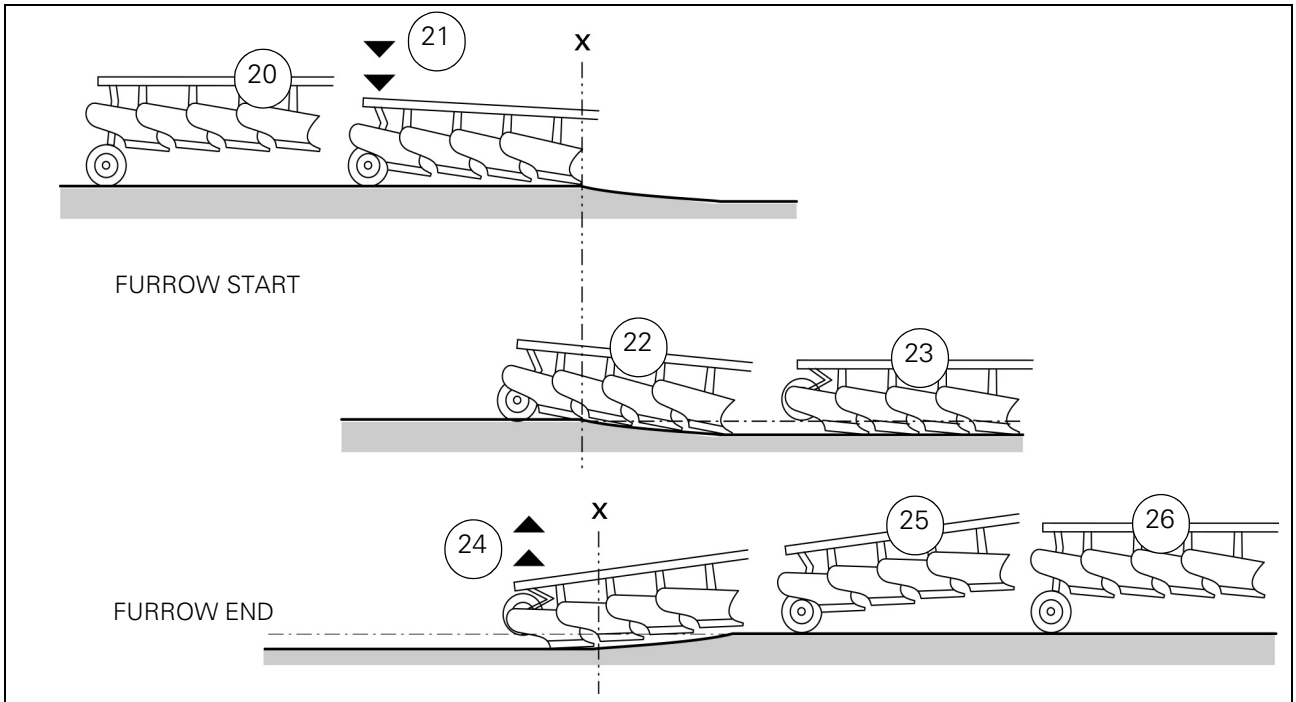



Fig. 17




LEGEND:

20 - HIGH horizontal position
21 - Partial lowering of depth wheel
22 - Furrow start
23 - WORKING position
24 - Partial lifting of depth wheel
25 - Furrow end
26 - Return to HIGH horizontal position
X - Furrow end or start line

Fig. 18

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### 7.3.5 - Working operation

(Fig. 18, Fig. 19)

In the ***"furrow start"*** phase, the front plough share penetrates into the earth and the rear depth wheel initiates a partial lowering (ref. K, set to L, Fig. 16).

When the last share reaches the ground, the rear depth wheel is lowered to its ***working position*** ref. 23.

Windows 16 and 17 (Fig. 19) indicate the plough length correction applicable to the next furrow starts or ends.

To change the values, select the window using keys 6-1 or 6-2 and adjust knob 14.

E.g.: Field start correction (- 0) (straight headland furrow).

Field end correction (+ 15) (point headland furrow).

The (+/-) values are inverted at each end of the field after the plough is lifted (on the headland furrow).

In the working position, windows 16 and 17 are displayed automatically at the end of the field.

*NOTE: If the field is rectangular, the correction values in windows 16 and 17 must be set to "0".*

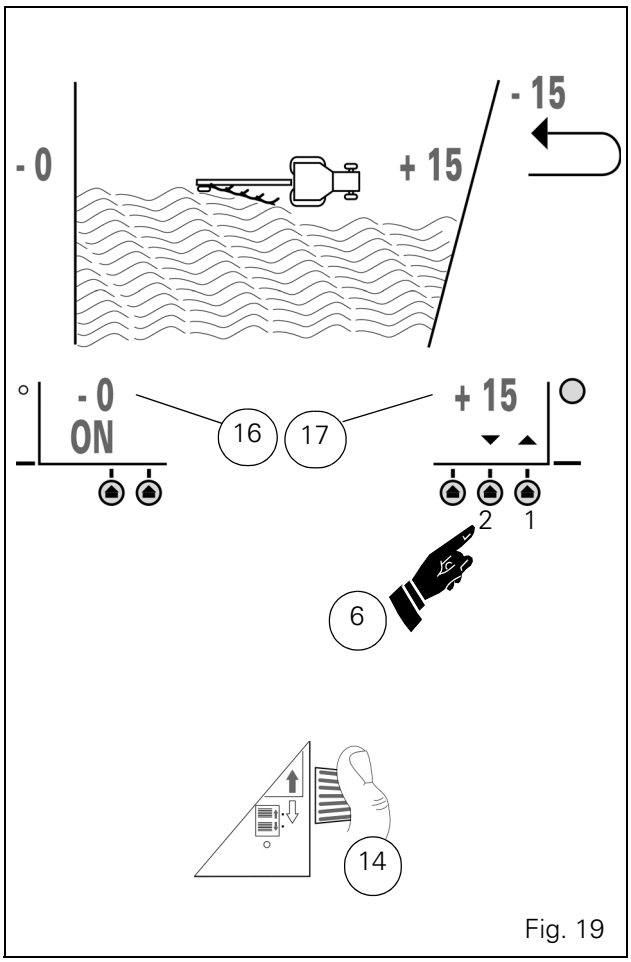


Fig. 19

## 7.4 - GLOSSARY

**Working mode:**

When the "Dual Control" is switched to this mode, the plough depth wheel repeats the lifting movements, complying with the amplitude and the phase of the lifting movements.

The depth wheel position can be corrected by operating the manual control of the spool valve.

**Furrow start mode:**

When a transport/work transition is made, the system switches to partial lowering mode.

The following steps are carried out: Lowering of the linkage and **partial lowering** of the plough depth wheel to the stored partial lowering setting value.

The lowering of the linkage continues; the plough depth wheel height does not change as long as the equivalent distance covered by the tractor (first to last share) is less than the set and stored value called **Furrow start plough length**.

**Furrow end mode:**

When a work/transport transition is made, the system switches to partial lifting mode.

The following steps are carried out: Lifting of the linkage and **partial lifting** of the plough depth wheel to the stored partial lifting setting value.

The lifting of the linkage continues; the plough depth wheel height does not change as long as the equivalent distance covered by the tractor (first to last share) is less than the set and stored value called **"Furrow end plough length"**.

**Headland furrow mode:**

The linkage is raised to maximum high position. (value determined by the high position potentiometer) and the plough **depth wheel** is in **the stored high position**.

**Plough length:**

This is representative of a "distance value" from the tractor rear wheel axle to the plough depth wheel axle.

This setting determines the partial lowering and lifting timing for the plough depth wheel.

**Optimum setting:**

Setting obtained from the plough length values which provide best penetration into the earth of first and last share on a same furrow start line (X. Fig. 18).

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## 7.5 - FRONT DUAL CONTROL

### 7.5.1 - General

The "Front Dual Control" is identical to the "Rear Dual Control", controlling the front implement (e.g.: plough, cultivator, roller) at soil entry and exit, and automatically transmits position and applied draft changes to the rear implement in order to obtain simultaneous horizontal movement.

The information necessary for operation of the system is transmitted to the "DATA 2" onboard computer via the sensors and the electronic linkage calculator.

This system is currently available on tractors fitted with "LOAD SENSING" hydraulics.

*NOTE: Tractors fitted with 'Front Dual Control' are automatically fitted with "Rear Dual Control", however the two systems cannot be used together.*

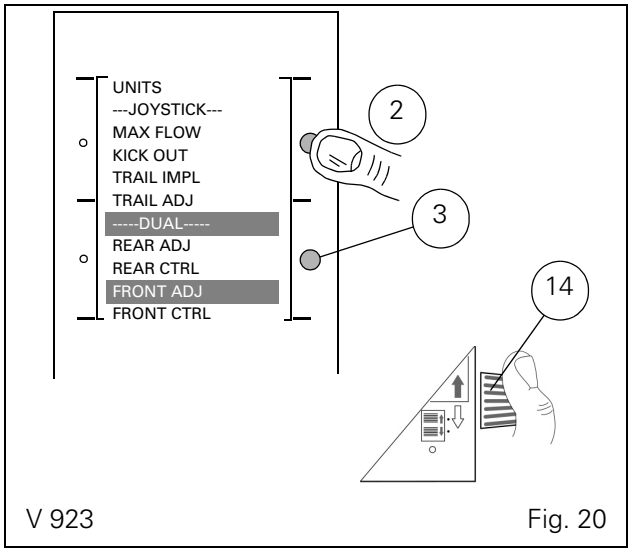

Fig. 20

### 7.5.2 - Description of the adjustment screen

(See section 7.4)

Fig. 20: Press key 2 or 3, the drop-down menu appears. Select **-FRONT ADJ-** in **-DUAL-**. Four new symbols are displayed (Fig. 21):

- **Ref. A to H:** this information is used to set the height and depth of the front and rear implements
- **Ref. I to P:** this information is used to operate the system at automatic furrow starts and ends.

To select one of the display windows, use keys 6-1 and 6-2.

A B: Front linkage position high.

C D: Rear linkage position high.

E F: Front linkage position low.

G H: Rear linkage position low.

I J: Front-to-rear implement length in 'FURROW START" phase.

M N: Front-to-rear implement length in 'FURROW END' phase.

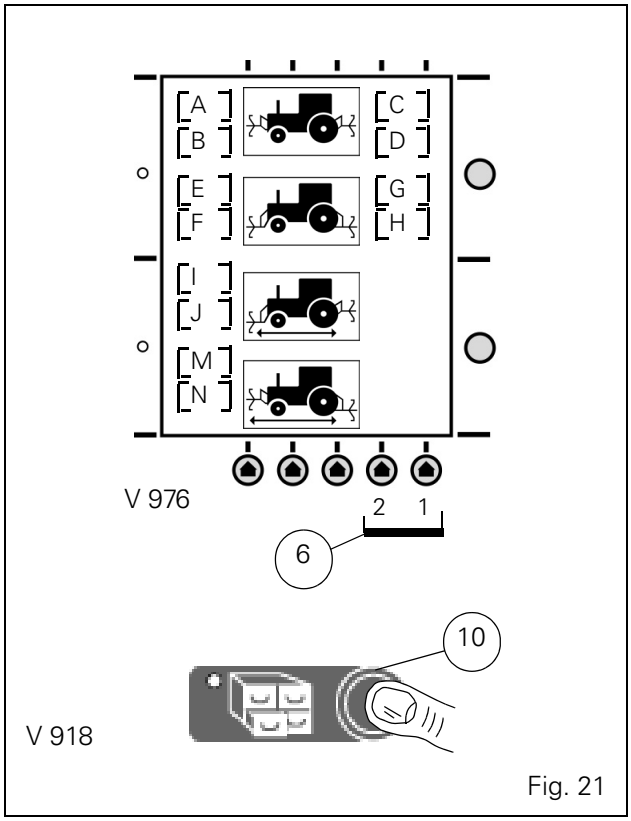

Fig. 21

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### 7.5.3 - Adjustments

(Fig. 22: Example of a front and rear plough).

*It is necessary to place the Dual in the **-OFF-** position before carrying out the following operations (see Use section).*

**A to D: Front and rear linkage in high position (value in %):**

Lift the front plough to the desired height using the manual spool valve lever (S), then using the linkage selector switch (Q) raise the rear plough to the desired height. Store the values by pressing key 10 for each of the windows concerned (B and D):

- **A:** FRONT LINKAGE in high position (display stored).
- **B:** Setting the desired value of rear high linkage position.
- **C:** REAR LINKAGE in high position (display value stored).
- **D:** Setting the required value of rear high linkage position

**E to H: Front and rear Linkage in low position (value in %):**

1. Place the plough in working position using manual control of the spool valve lever (S), set selector switch (Q) in the lowering position and the depth adjust potentiometer (R).
2. Store the values by pressing key 10 for each of the windows concerned (F and H):

- **E:** Front linkage in stored low position
- **F:** Setting the required value of front low linkage position
- **G:** REAR LINKAGE in stored low position.
- **H:** Setting the required value of rear low linkage position.

**I and J: Length in "furrow start" phase (1 point = 25 cm).**

Distance between the last front implement and the first rear implement. To obtain the correct setting, proceed in successive steps until optimal setting is obtained, by selecting the functions one after the other using the keys ref.6-1 and 6-2 and knob 14, then store the setting using key 10.

- **I:** Stored plough length (front and rear) in FURROW START phase.
- **J:** Setting the desired length value in FURROW START phase.

**K and L: Length in "furrow end" phase (1 point = 25 cm).**

Distance between the last front implement and the first rear implement.

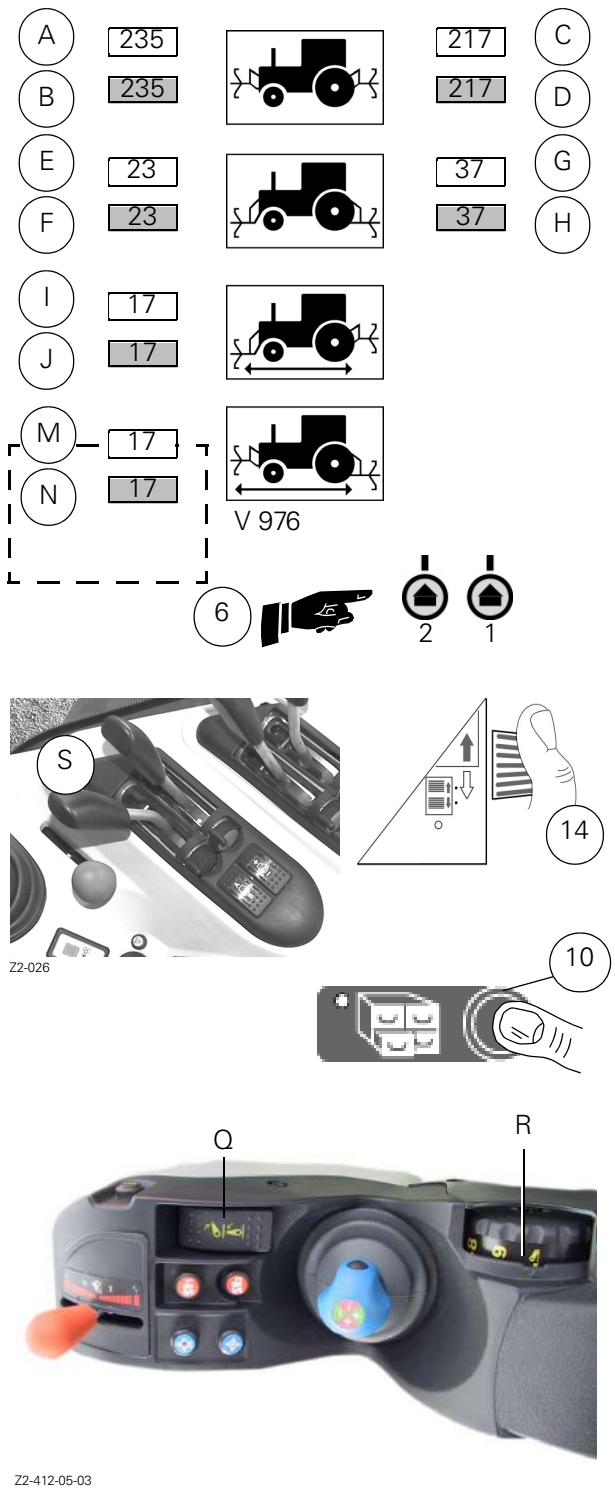


Fig. 22

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#### 7.5.4 - Use

In the drop-down menu select **-DUAL-** and **-FRONT CTRL-**; a new display appears in the lower half of the screen :

- **Ref.15:** Position of the rear linkage control in %
- **Ref. 16:** Lifting / lowering indicator light for rear implement
- **Ref.17:** ELC status (Locked / Unlocked)
- **Ref.18:** Front Dual Control status **-ON-** (activated) / **-OFF-** (deactivated).
- **Ref.19:** Front implement lifting / lowering indicator light.
- **Ref.20:** Front linkage position in %.

To use the DUAL once the data has been stored and on each start up, it is necessary to unlock the console, the joystick (if fitted) and to place the Datatronic in the **-ON-** position, ref. 18, using the corresponding key.

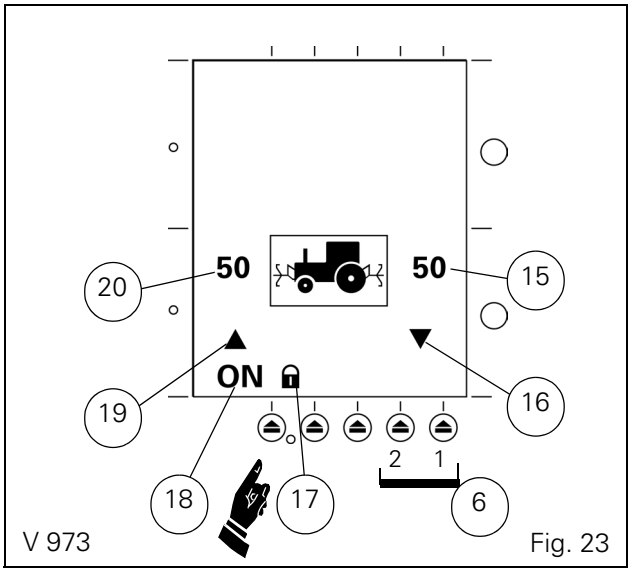

Fig. 23

*NOTE: If the value is incorrect (e.g.: front-to-rear implement length is too high), or if you trigger the furrow start or end phase but halt before this phase is entirely completed, the rear plough that is still in the high position will change to the low position after eight seconds.*

In static mode, if the Dual is active, you can place the implements on the ground (front and rear) in two different ways:

1. Place the front implement on the ground by using its spool valve lever and the rear implement using selector switch (Q).
2. Place selector switch (Q) in the lowering position: the front lift control lowers then 8 seconds afterwards the rear lift control lowers.

To activate the **road transport mode or adjust** the use positions, it **is necessary to deactivate the DUAL function (OFF position)**.

*NOTE: For the best use of FRONT DUAL it is recommended that the suspended front axle function be deactivated.*

## 7.6 - TRAILED IMPLEMENT CONTROL (TIC)

#### 7.6.1 - General

TIC is a system that controls the trailed rear implement on the swinging drawbar. In working mode, the wheel slip, implement depth and force applied to the swinging drawbar are analysed by the calculator that varies the height of the implement. However, in versions without draft control, only the wheel slip and depth button act upon the height of the implement. The information required for the system is acquired by 3 sensors:

1. swinging drawbar draft sensor (optional),
2. position sensor on the trailed implement,
3. ground speed radar.

The information is then processed by the DATA 2 onboard computer and the electronic linkage control calculator that controls an electrohydraulic spool valve.

The TIC is at presently available only on tractors equipped with LOAD SENSING hydraulics.

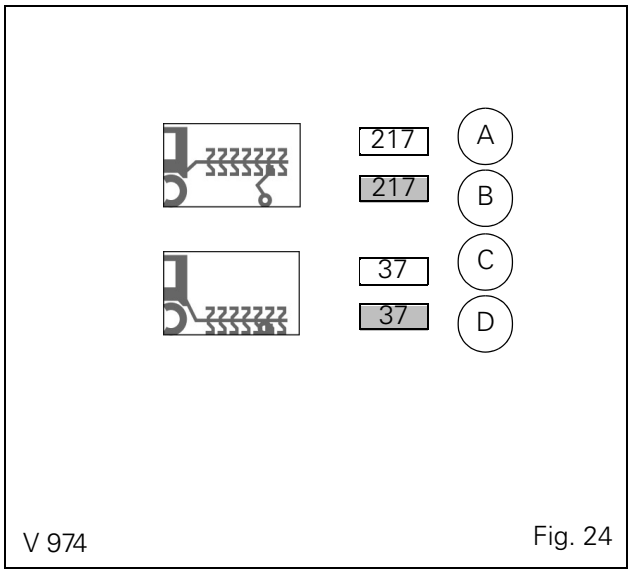

Fig. 24

#### 7.6.2 - Description of the adjustment screen

(See section 7.4)

Press key 2 or 3 (Fig. 20), the drop-down menu appears. Select **-TRAIL ADJ-** above **-DUAL-**. Two new symbols are displayed (Fig. 24):

- **Ref. A to B:** This information is used to adapt the height of the implement to the "headland furrow" mode.
- **Ref. C to D:** This information is used to adapt the depth of the rear implement to "working" mode. To select one of the display windows, use keys 6-1 and 6-2 (Fig. 23).

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### 7.6.3 - Settings (Fig. 22)

For all settings of the TIC, first display the **-OFF-** position in the Data window.

**A to B: high lift position of the rear implement in "headland furrow" mode (value in %):**
Lift the rear implement to the desired height using the manual spool valve lever (S), and then store the value by pressing key 10 for window (B):

- **A:** Rear implement in high position (display value stored)
- **B:** Setting the desired value of the rear implement high position

**C to D: Depth of the rear implement in "working" mode (value in %):**
Lower the rear implement to the desired height using the manual spool valve lever (S), and then store the value by pressing key 10 for window (D):

- **C:** Depth of the rear implement (display value stored)
- **D:** Setting the depth of the rear implement in working mode.

### 7.6.4 - Use (Fig. 25)

From the drop-down menu select **-TRAIL IMPL-**; a new display appears in the lower half of the screen:

- **Ref.15:** Position of the rear implement in %.
- **Ref. 16:** Rear implement lifting and lowering indicator lights
- **Ref. 17:** Linkage control status (Locked / Unlocked)
- **Ref. 18:** TIC status **-ON-** (activated)/ **-OFF-** (deactivated).
- **Ref. 19:** Icon showing "working" mode or "headland furrow" mode.

To use the TIC when data is stored and at each start up, unlock the linkage control by placing selector switch (Q) in lift or lower position, button 4 of the joystick (if fitted) to "ON" position and the Datatronic in the **-ON-** position (ref. 18, Fig. 25).

*NOTE: To be able to activate the road transportation mode or adjust the use positions it is necessary to deactivate the TIC function (ON/OFF position).*

The use of the suspended front axle does not interfere with the proper functioning of the TIC.
When TIC is activated, the linkage is deactivated and locked in position. Set the TOC function and Datatronic in **-ON-** position to control the linkage again.

When using the linkage external control buttons, the TIC function and linkage console are locked. Move the selector switch (Q) to Lift or Lower position to reuse the linkage and activate the TIC.

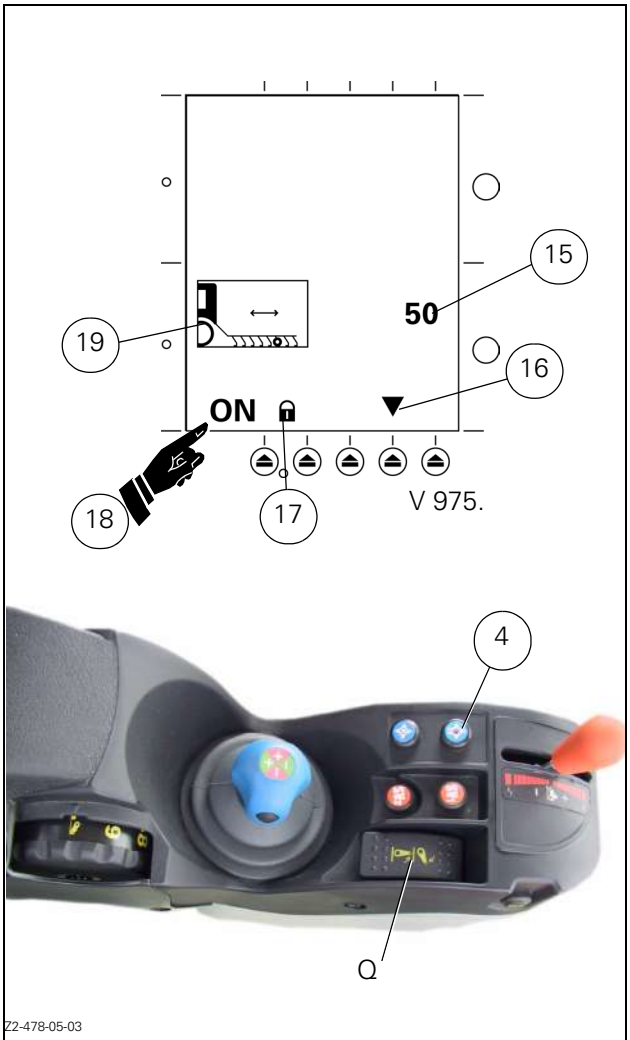


Fig. 25

https://truckmanualshub.com/



## 7.7 - "DATATRONIC 3" ONBOARD COMPUTER

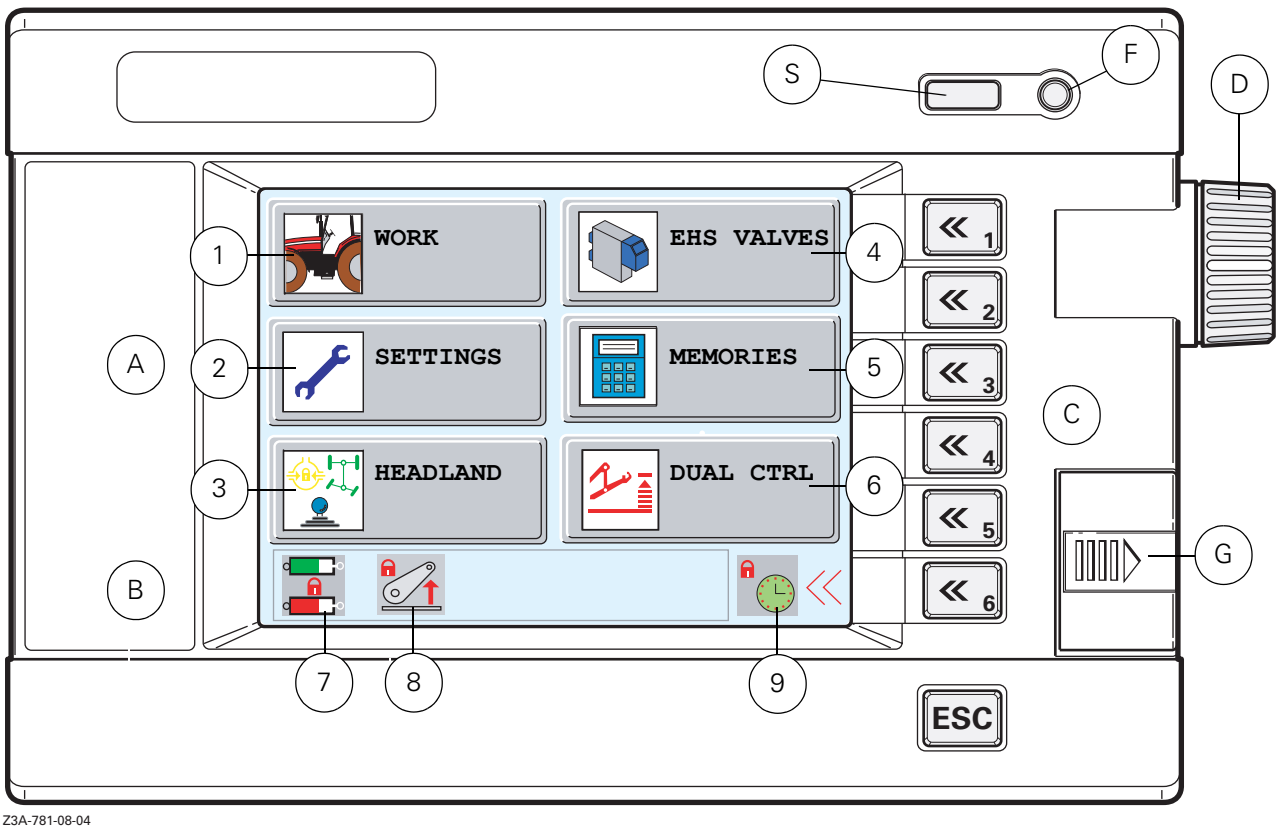


Fig. 1

### 7.7.1 - General

The onboard computer is a measuring and setting instrument providing information that helps to make optimum use of the tractor. It is located on the cab right-hand console (Fig. 1).

The Datatronic 3 is switched on automatically when the ignition gets on. The multi-colour diode (F Fig. 1) comes on in green. When the ignition is switched off, the Datatronic stores all the data. While the ignition gets off, the multi-colour diode (F Fig. 1) comes on in red while the parameters are being stored.

### 7.7.2 - Description

A. Main data display:
   1. **WORK** application,
   2. **SETTINGS** application,
   3. **HEADLAND** application,
   4. **EHS VALVES** application,
   5. **MEMORIES** application,
   6. **DUAL CONTROL** application (optional).

B. Data display for other functions:
   7. EHS valve locking (unlocking via the button on the console near the PTO control),
   8. Linkage status (unlocking via Lifting / Neutral action).
   9. Kick out mode (spool valve activation time). The key «$_6$ authorises this mode.

C. Access keys to the various applications:
   «$_1$ **WORK** application
   «$_2$ **SETTINGS** application
   «$_3$ **HEADLAND** application
   «$_4$ **EHS VALVES** application
   «$_5$ **MEMORIES** application
   «$_6$ used to authorise spool valve activation time
   **ESC** returns to the previous menu.

D. Encoder:
   - used to navigate and alter values in menus,
   - used to validate actions selected by the encoder.

E. Brightness sensor.

F. Multi-colour diode.

G. Memory card reader (MMC and SD-Card format).

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## 7.8 - MEMORIES APPLICATION

### 7.8.1 - General

This application is used to store the parameters of 6 different implements. Furthermore, it is possible to:

- assign a specific name to each of the 6 implements,
- record a HEADLAND sequence for each implement,
- control, measure and store parameters while an implement is in use.

To start the **MEMORIES** application (Fig. 2):

- Rotate the encoder (1) to the **MEMORIES** application and press the encoder once the active function is highlighted by red text and a red rectangle around the icon (on b/w screens the elements are highlighted in reverse video). Or press the key «$_5$ (2). The window (Fig. 3) is displayed.
- To exit an application, press the **ESC** key (3).

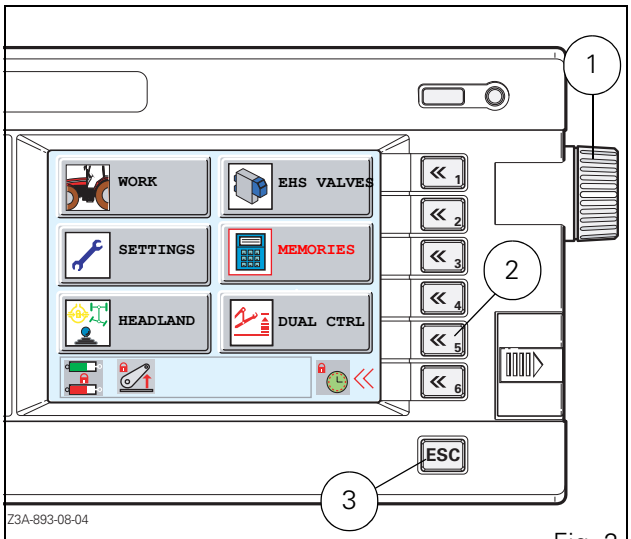


Fig. 2

### 7.8.2 - Description of a memory (Fig. 3)

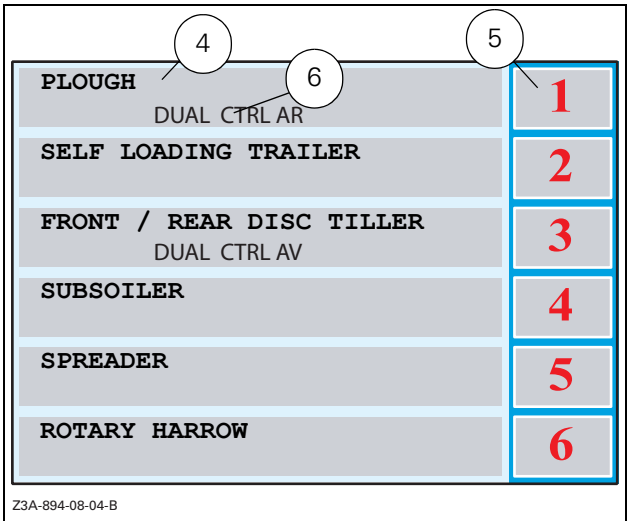


Fig. 3

4. Implement name.
5. FRONT DUAL, REAR DUAL or TIC calibration stored.
6. Memory number.

To open an implement window, press the corresponding key, from «$_1$ to «$_6$ (Example with the ROTARY HARROW Fig. 4).

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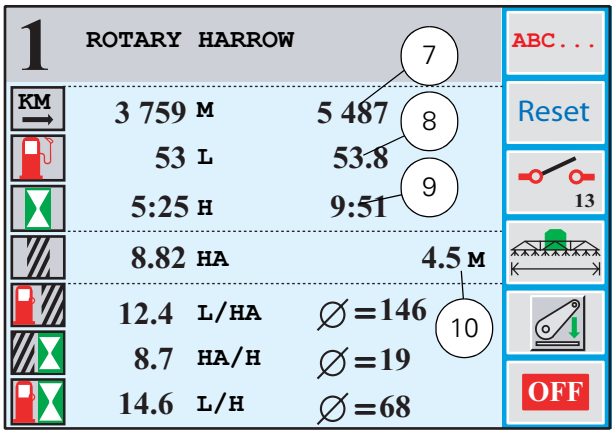



Z3A-895-08-04-B

Fig. 4

**Symbols in the left-hand part of the window:**

Total distance covered during work (kilometres)

Total fuel used during work (litres)

Hours worked

Total area worked (hectares)

Instant fuel consumption per unit of worked area (litres / hectare)

Instant area worked per hour (in hectares / hour)

Instant fuel consumption (litres / hour)

Average value

**Values in the central part of the window:**

7. Total distance covered by the tractor (kilometres)
8. Total fuel used (litres, US/Imperial gallon)
9. Total hours worked

*NOTE: These values are incremented when the tractor is started.*

**Symbols in the right-hand part of the window:**

Provides access to the memory naming menu

Resets the values

Used to measure work accomplished, either manually or automatically by means of a sensor (e.g.: the number of trailers)

Provides access to the implement width setting menu

Used to select the event based on which the different values should be measured. (e.g.: as soon as the linkage is lowered)

Activates or deactivates the memory

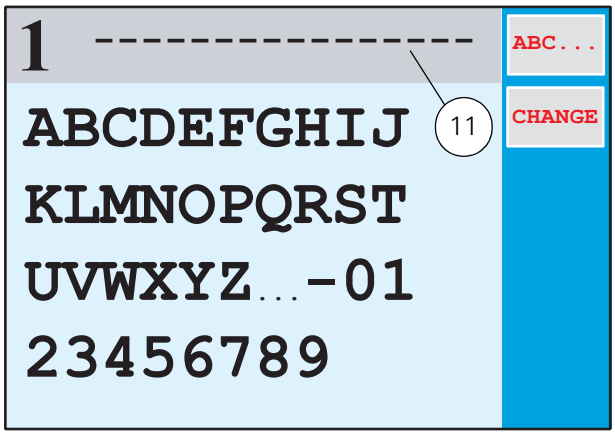
*NOTE: If a plough width has been stored previously, the sprayer icon will be replaced by a plough icon, as below.*

Provides access to the plough width setting menu

10. Implement width (metres)

### 7.8.3 - Saving an implement name to memory

When the window (Fig. 5) is open, press the key «$_1$ to display the first memory menu. The window (Fig. 6) is displayed.




Z3A-904-08-04-B

Fig. 5

*NOTE: If no implement name has been saved, a sequence of hyphens is displayed (11 Fig. 5).*

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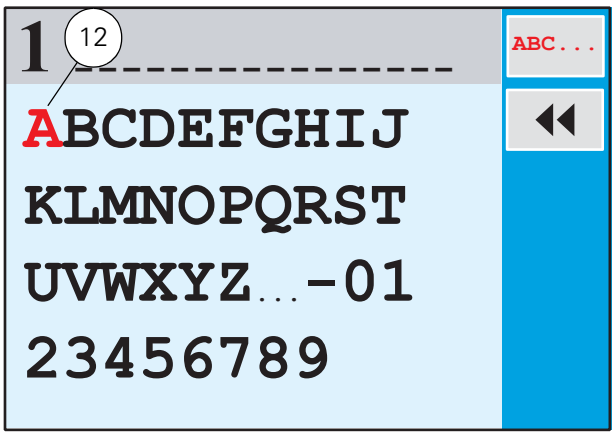
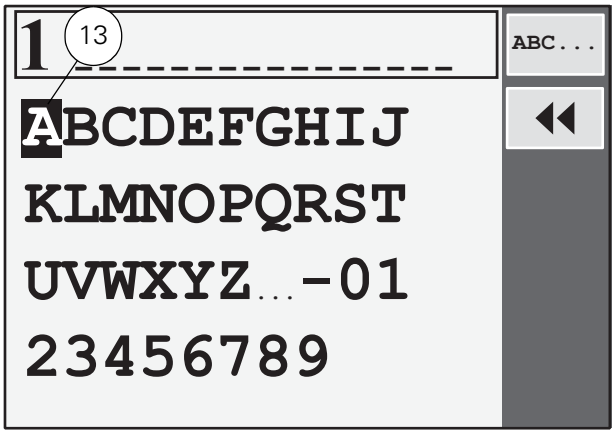
**To enter a new name:**

- Press the key «1. The displayed name is erased and the first letter of the alphabet is displayed in red (colour screens) (12 Fig. 6) or reverse video (b/w screens) (13 Fig. 7).




Z3A-905-08-04-B

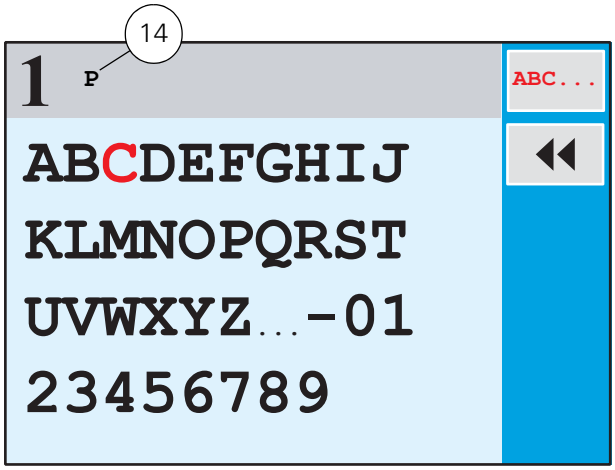
Fig. 6




Z3A-1330-12-04

Fig. 7

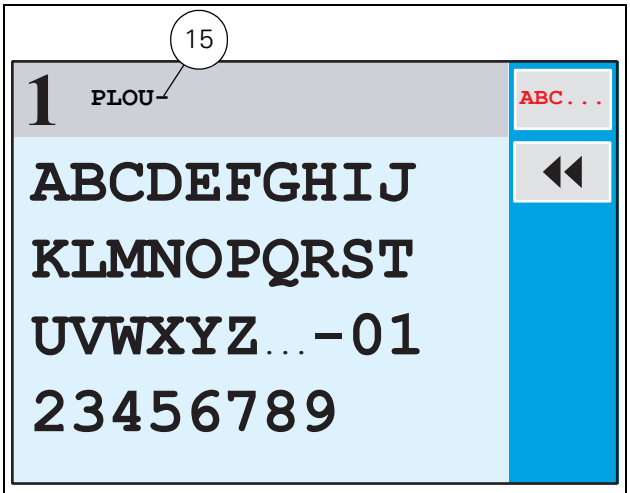
- Select the first letter to enter by rotating the encoder (e.g.: the P of PLOUGH).
- Validate the letter by pressing the encoder. The letter P is displayed in black (14 Fig. 8).




Z3A-906-08-04-B

Fig. 8

- Repeat this operation for the remaining letters.
- To change a letter, press the key «2. The letter to change is replaced by a hyphen (15 Fig. 9).




Z3A-913-08-04-B

Fig. 9

- Select the letter to enter by rotating the encoder and validate by pressing the latter. The hyphen is replaced by the new letter.
- To validate the implement name, press the **ESC** key.

The window (Fig. 10) is displayed.

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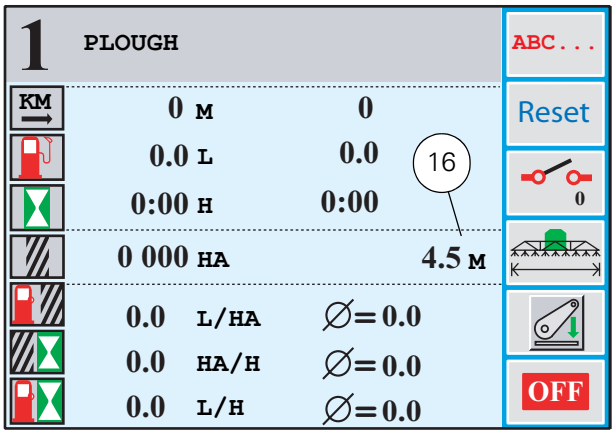


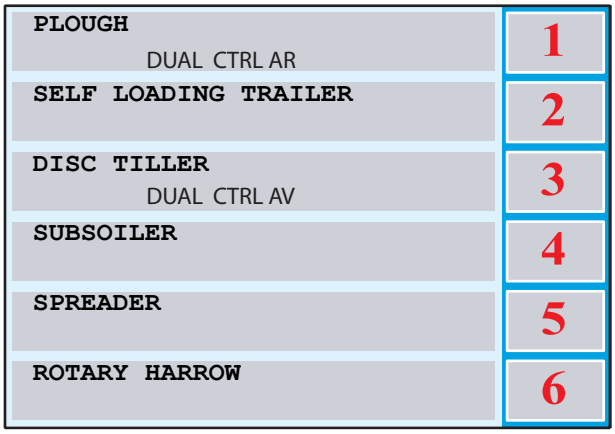

Z3A-907-08-04-B

Fig. 10

*NOTE: All values are set to 0, except the implement width (16) if the latter has been set previously.*

**To modify a name:**

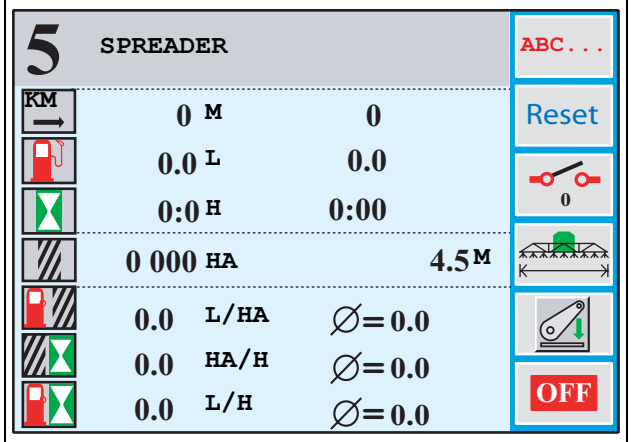
- When the window (Fig. 11) is open, select the name of the memory to modify by pressing the corresponding key.




Z3A-894-08-04-B

Fig. 11

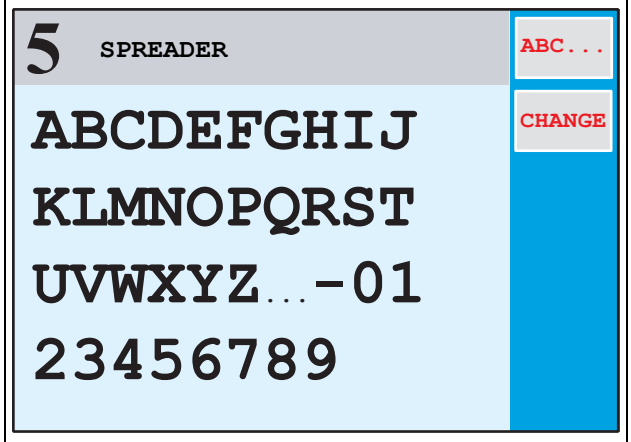
Example: press the key «$_5$ to modify the name SPREADER. The window (Fig. 12) is displayed.




Z3A-914-08-04-B

Fig. 12

- Press the key «$_1$ to display the memory naming menu. The window (Fig. 13) is displayed.




Z3A-915-08-04-B

Fig. 13

- Press the key «$_2$ (CHANGE) to modify the name. The first letter of the word "SPREADER" is displayed in a new window in red on colour screens (17 Fig. 14) or in reverse video on b/w screens (18 Fig. 15).

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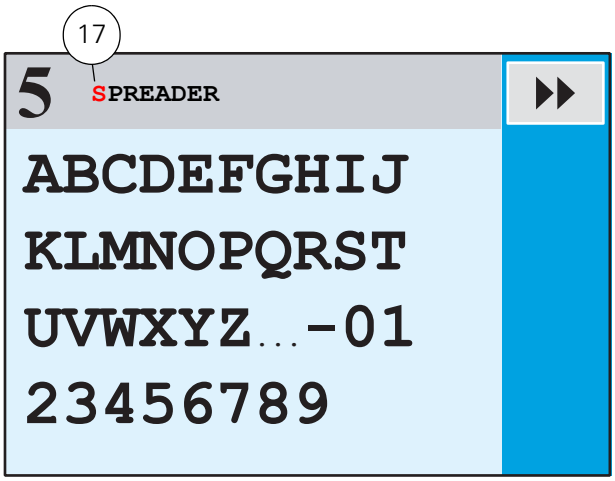
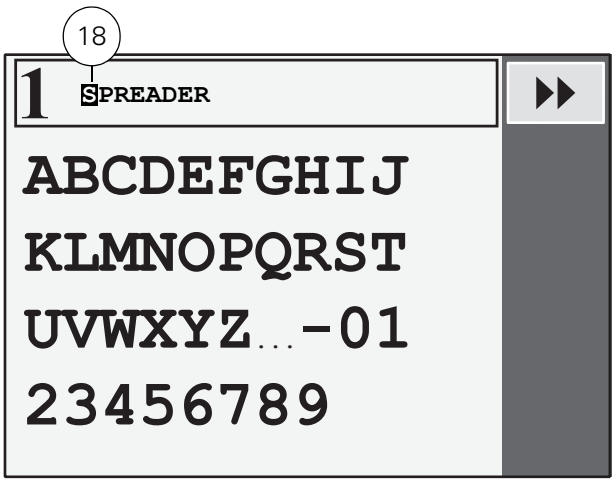



Z3A-921-08-04-B

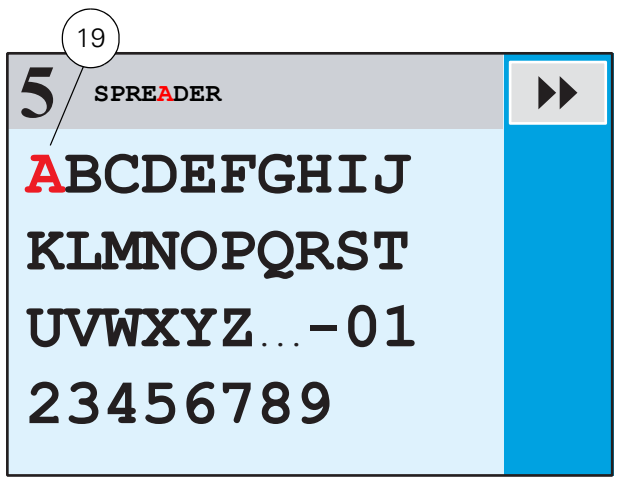
Fig. 14




Z3A-1331-12-04

Fig. 15

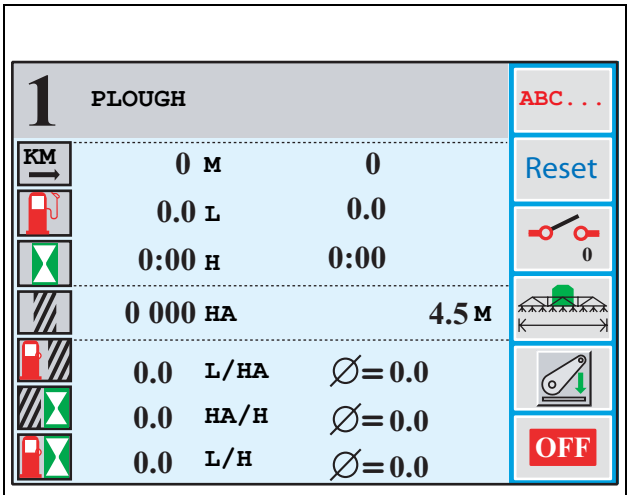
- Select a letter to change from the word "SPREADER" by pressing the key «$_1$.
- Press the encoder. The first letter of the alphabet is displayed in red (19 Fig. 16).




Z3A-922-08-04-B

Fig. 16

- Select a letter by rotating the encoder and validate by pressing the latter. The letter is replaced and displayed in black.
- Repeat this operation for the remaining letters to modify.
- Press the **ESC** key to validate the word. The window (Fig. 17) is displayed.




Z3A-907-08-04-B

Fig. 17

7

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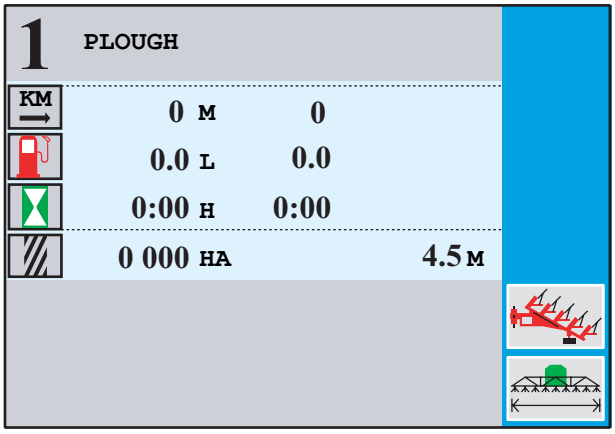
### 7.8.4 - Setting any implement width

- When the window (Fig. 17) is open, press the key «4. A new window is displayed (Fig. 18).



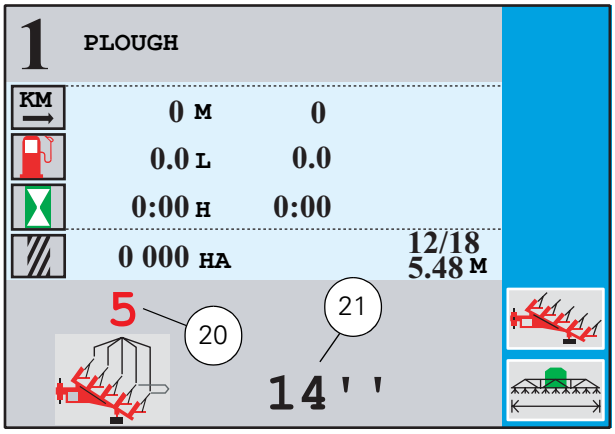

Z3A-908-08-04-B

Fig. 18

- If a plough is used, press the key «5. If any implement is used, press the key «6.

**Setting a plough width:**

- Press the key «5 when the window (Fig. 18) is open. The settings window (Fig. 19) is displayed.



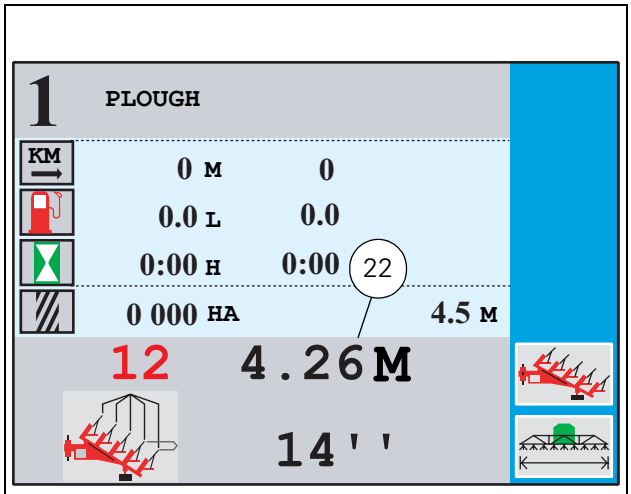

Z3A-909-08-04-B

Fig. 19

20. Number of plough bodies
21. Distance in inches between bodies

As soon as the window opens, the number of bodies is displayed in red on colour screens and in reverse video on b/w screens. This value can therefore be set.

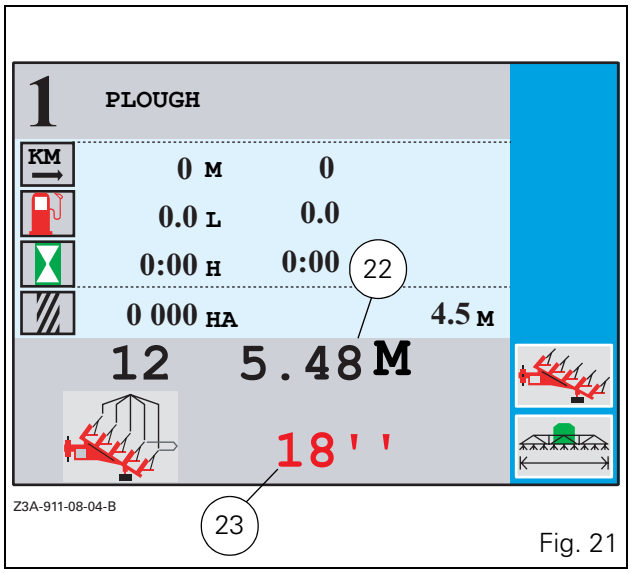
- Set the number of plough bodies (20) by rotating the encoder (1 to 22 bodies). As soon as the encoder is rotated, the working width is displayed according to the selected distance in inches between the bodies (22 Fig. 20).




Z3A-910-08-04-B

Fig. 20

- Validate this number by pressing the encoder. The number of bodies is now displayed in black and the width in inches is displayed in red on colour screens and in reverse video on b/w screens (23 Fig. 21).




Z3A-911-08-04-B

Fig. 21

- Set the width in inches by rotating the encoder (from 8 to 30 inches). The working width (22) varies according to the value displayed.
- Validate by pressing the encoder. The window (Fig. 22) is displayed.

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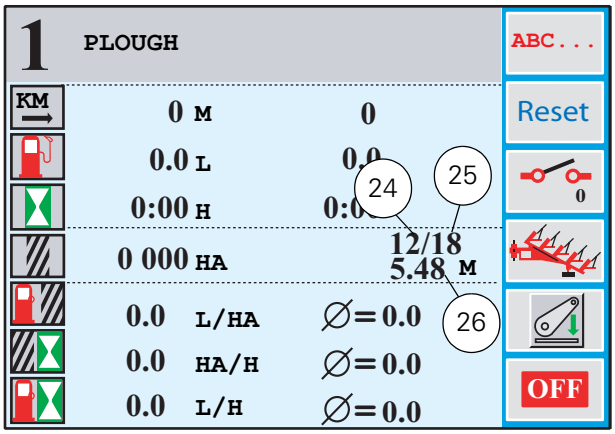



Z3A-912-08-04-B

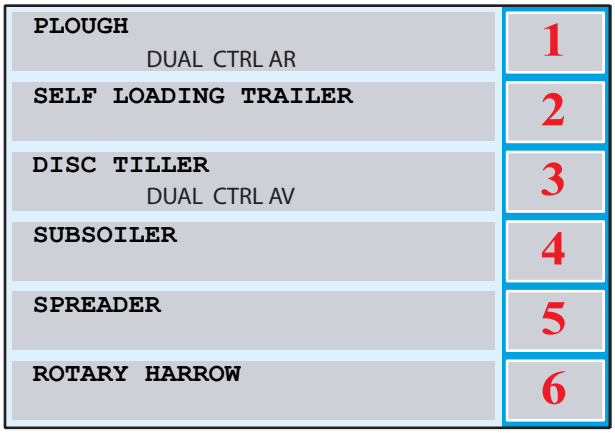
Fig. 22

24. Number of plough bodies
25. Distance between bodies
26. Working width

Icon representing the plough

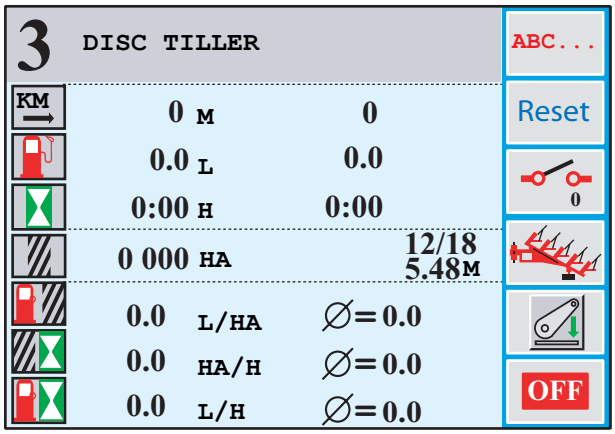
**Setting an implement width:**

- Select an implement to configure in the window (Fig. 23). Example: DISC TILLER by pressing the key «$_3$. This implement window (Fig. 24) is displayed.




Z3A-894-08-04-B

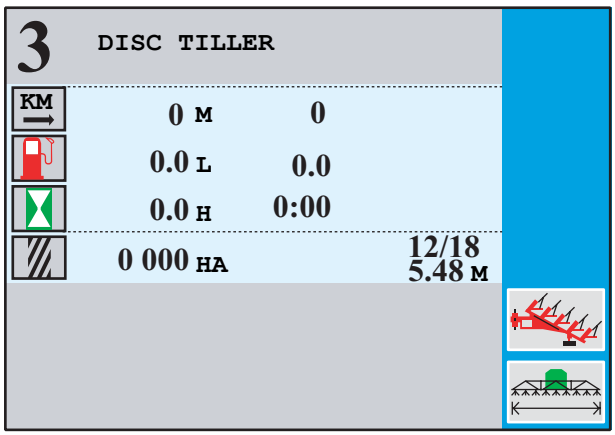
Fig. 23




Z3A-923-08-04-B

Fig. 24

- Press the key «$_4$, whatever the icon displayed facing this key (plough or sprayer). The settings window (Fig. 25) is displayed.




Z3A-924-08-04-B

Fig. 25

- Press the key «$_6$ to display the settings window (Fig. 26). The width is displayed in red on colour screens (27) or in reverse video on b/w screens.

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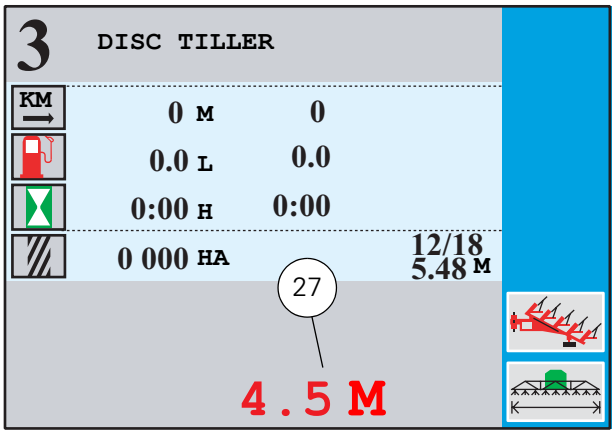
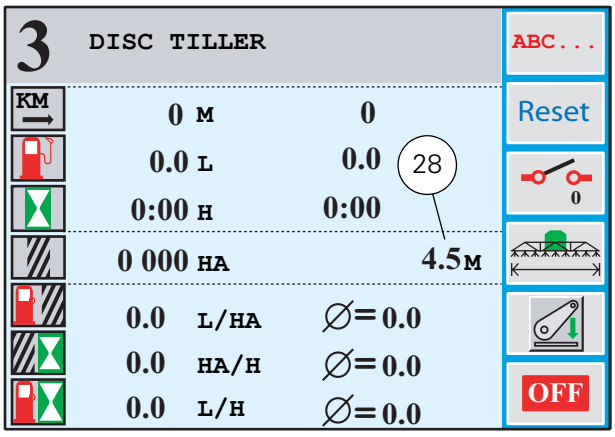



Z3A-925-08-04-B

Fig. 26

- Set the implement width by rotating the encoder.
- Validate the width by pressing the encoder. The window (Fig. 27) is displayed.




Z3A-926-08-04-B

Fig. 27

28. Implement width

Icon representing a sprayer width

### 7.8.5 - Counting function

**Manual counting:**

The MEMORIES application can be used to perform a manual count of, for example, the number of trailers carried during a working day. For this, press the key «$_3$ when the window (Fig. 29) is open. Each successive press increments the value by 1 point.

*NOTE: When the value increments by 1 point, the switch facing the key «$_3$ closes and opens automatically.*

**Automatic counting**

This count can be performed automatically by means of a sensor placed on the implement and connected to the diagnostics connector (29 Fig. 28).

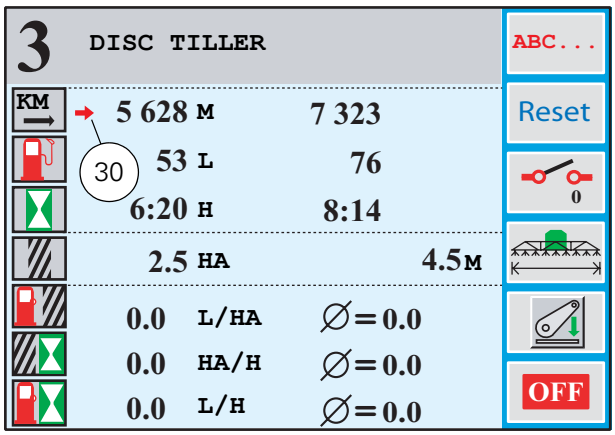
Z3A-928-08-04

Fig. 28

### 7.8.6 - Resetting values

One or several values can be reset. For this purpose:

- Press the key «$_2$ when the window (Fig. 27) is open. A mark facing the total fuel used is displayed (30 Fig. 29).




Z3A-929-08-04-B

Fig. 29

- Select the value to reset by rotating the encoder.
- Validate by pressing the encoder.
- To reset all the values, rotate the encoder in such a manner as to place a mark facing each value and validate by pressing the encoder (Fig. 30).

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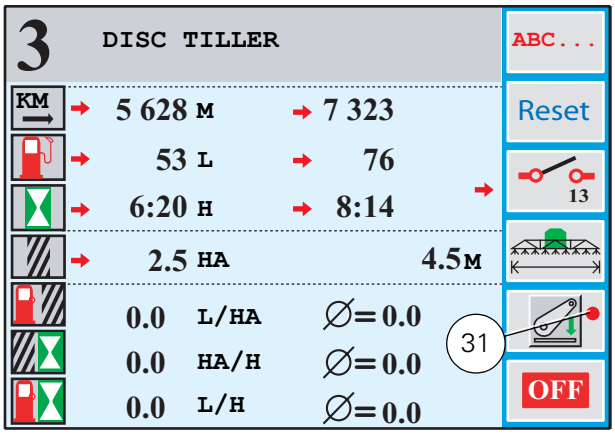


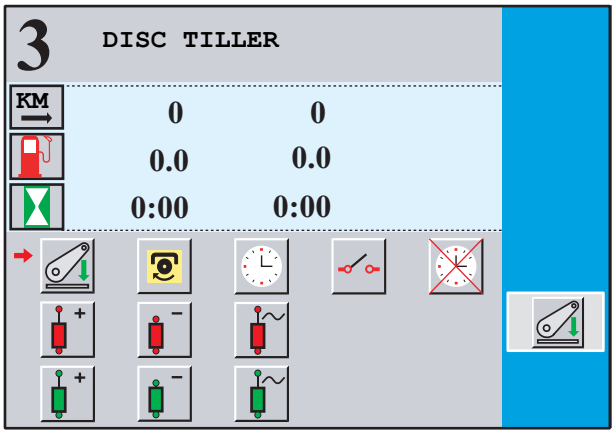

Z3A-930-08-04-B

Fig. 30

### 7.8.7 - Selecting an event for measuring parameters

An event can be selected from which the measurement should start.

To select this event, press the key «5 when the window (Fig. 30) is open. The window (Fig. 31) is displayed.




Z3A-1332-12-04

Fig. 31

Eleven events are available:

On activation of the linkage Lowering control

On activation of the PTO control

As soon as the tractor engine is started

As soon as the sensor placed on the implement sends data to the DATATRONIC or by holding key «3 pressed down

Never

For the two spool valves (red and green) controlled by the Joystick:

As soon as the Joystick control is moved to the "+"

As soon as the Joystick control is moved to the "-"

*IMPORTANT: To measure parameters with one of the two spool valves, a Kick out (spool valve activation time) must be activated. For this, see section 7.7. (EHS VALVES application).*

As soon as the Joystick control is moved to the floating position

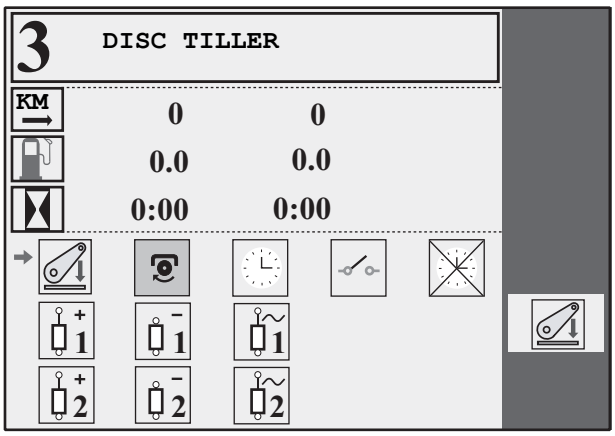
*IMPORTANT: To measure parameters when the spool valve control is in floating position, floating position must be made available. For this, see section 7.7. (EHS VALVES application).*

*NOTE: When parameter measuring is active, a red dot is displayed on the corresponding icon (e.g. 31 Fig. 30).*

https://truckmanualshub.com/



**On b/w screens:**
The principle is identical, except that the spool valve icons are identified by numbers (Fig. 32).




Z3A-1338-12-04

Fig. 32

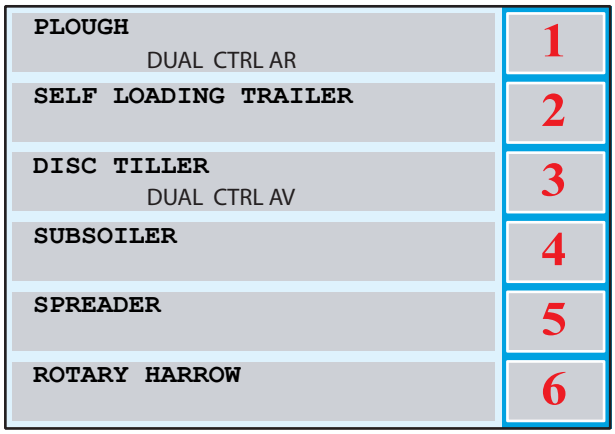
Icons with number 1 displayed correspond to the red spool valve (located on the Joystick)

Icons with number 2 displayed correspond to the green spool valve (located on the Joystick)

To select an event, turn the encoder to position the marker opposite the required icon. Then validate by pressing the encoder. The window (Fig. 30) is displayed again with the selected icon.

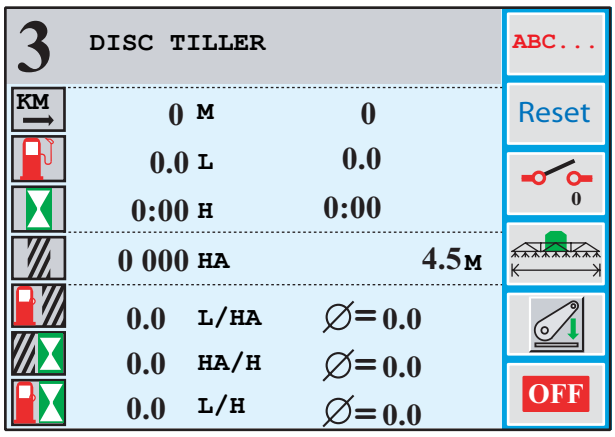
### 7.8.8 - Activating a memory

- When the window (Fig. 33) is open, select a memory by pressing the corresponding key. Example: the DISC TILLER memory by pressing the key «$_3$. This implement window (Fig. 34) is displayed.




Z3A-894-08-04-B

Fig. 33




Z3A-926-08-04-B

Fig. 34

- Press the key «$_6$ to activate or deactivate the memory:

OFF Inactive memory

ON Active memory

*NOTE: To return to the previous menu, press the **ESC** key.*

**When a memory is active, all parameters defined and measured shall be stored in this memory:**

- memory name
- event used to perform counting,
- total fuel consumption,
- area worked,
- hours worked,
- distance,
- implement width,
- headland sequence (see HEADLAND application),

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- spool valve parameters (see EHS VALVES application),
- DUAL parameters (see FRONT DUAL, REAR DUAL, TIC and POINTS applications).

*NOTE: When a memory is active, the ON icon is displayed in the window. Example (Fig. 35).*

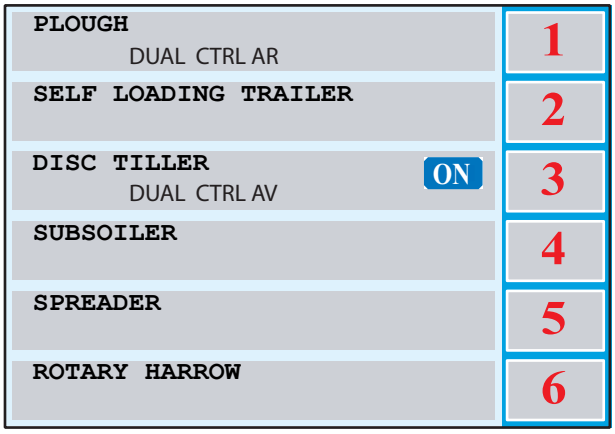


Fig. 35

*NOTE: If a memory is active, its name is displayed in the window (example 31 Fig. 36) when the MEMORIES application is selected.*

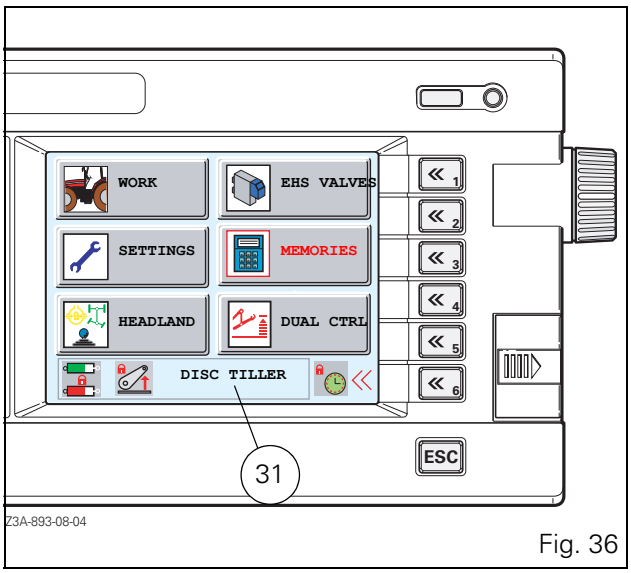


Fig. 36

## 7.9 - WORK APPLICATION

### 7.9.1 - General

This application is used to display various parameters stored for tractor use. A certain number of parameters are fixed (Fig. 38, upper part of the screen) while others can be selected by the user (right- and left-hand windows on screen).

To start the **WORK** application (Fig. 37):

- Rotate the encoder (1) to the **WORK** application and press the encoder once the active function is highlighted by red text and a red rectangle around the icon (on b/w screens the elements are highlighted in reverse video). Or press the key «$_1$ (2). The window (Fig. 38) is displayed.
- To exit an application, press the **ESC** key (3).

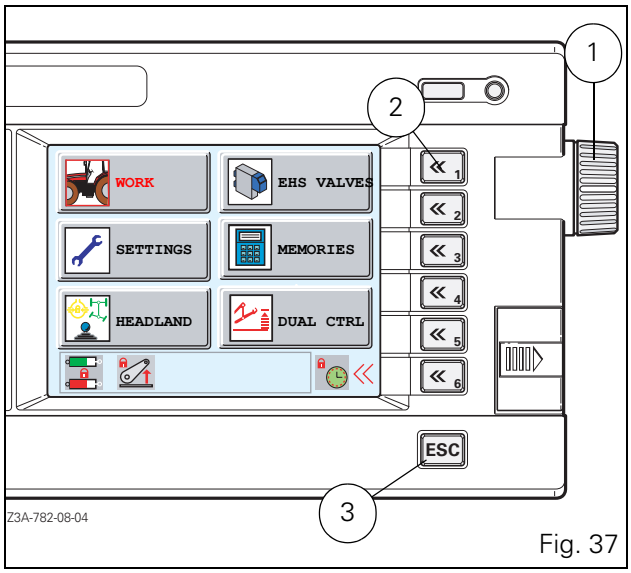


Fig. 37

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### 7.9.2 - Description (Fig. 38)

- Fixed upper section:

Memorised engine speed A (icon is green when the function is active)

Memorised engine speed B (icon is green when the function is active)

PTO speed (icon is yellow when the function is active)

Tractor wheel slip (maximum percentage (4) and actual percentage (5))

*NOTE: See chapter 4 (Using the DOT MATRIX screen) for setting wheel slip.*

- Left-hand window:
  - EHS VALVES 1-4,
  - GEARBOX SETTINGS,
  - ACTIVE MEMORY,
  - HEADLAND,
  - REAR DUAL CTRL,
  - FRONT DUAL CTRL,
  - TIC (Trailed Implement Control).

- Right-hand window:
  - EHS VALVES 1-4,
  - GEARBOX SETTINGS,
  - ACTIVE MEMORY,
  - HEADLAND,
  - POINTS,
  - EHS VALVES 5-6.

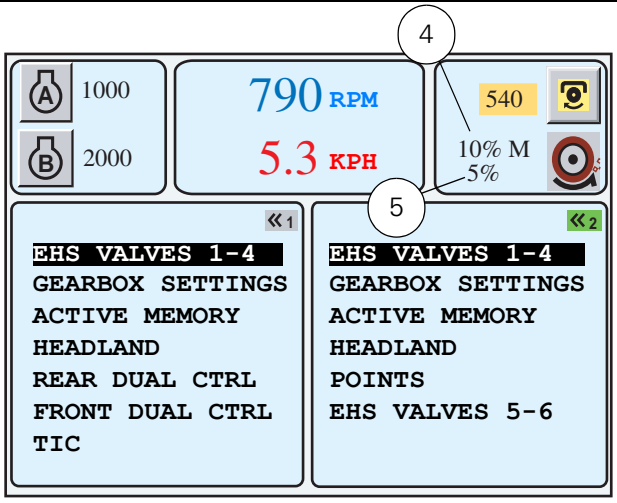


Fig. 38

*NOTE: When using this application, you can open the menu of your choice in the right- or left-hand part of the screen when displayed in both windows (EHS VALVES 1-4, GEARBOX SETTINGS, ACTIVE MEMORY and HEADLAND).*

*NOTE: Depending on equipment, tractors can be fitted with 0 to 5 EHS valves. The first four EHS valves, which are green, red, black and yellow respectively, can be viewed in the right- or left-hand window. However, the fifth EHS valve, which is blue, can only be viewed in the right-hand window.*

### 7.9.3 - EHS Valves menu

**EHS VALVES 1-4 menu displayed in the left-hand window only:**

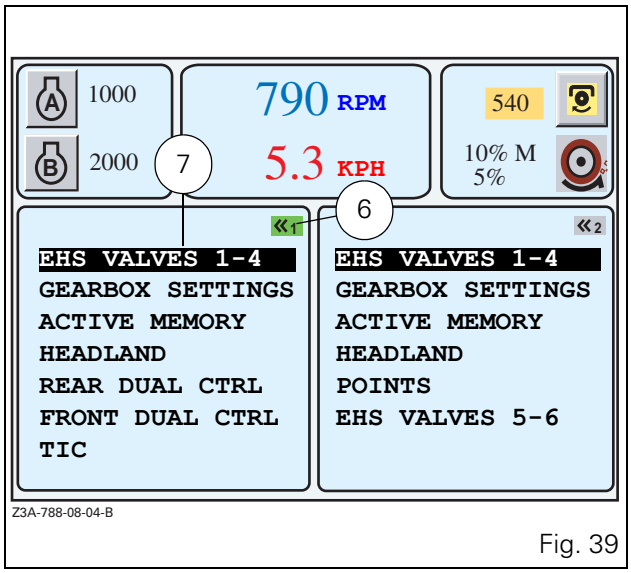


Fig. 39

- To display this menu, press key «1 twice. The first press selects the window and the second press displays the list if no application was activated previously. On colour screens, the active window is indicated by the green icon at the top right-hand of the window (6 Fig. 39), and on b/w screens the active window is indicated by the same icon in reverse video.
- To select the EHS VALVES 1-4 menu, select the application with the encoder. The selected application is displayed in a black frame (7 Fig. 39).
- Validate by pressing the encoder or the key «1. The window (Fig. 40) is displayed.

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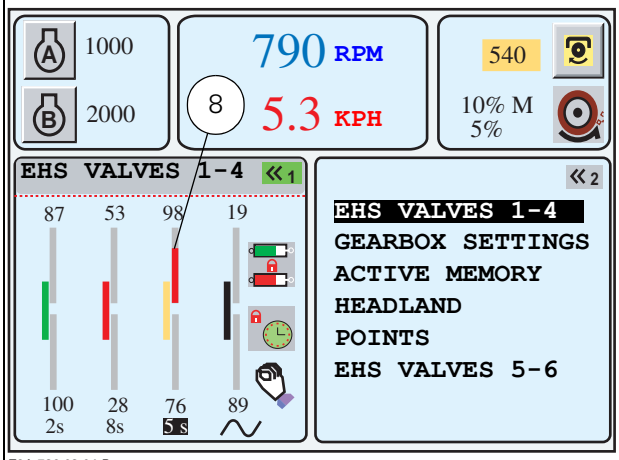


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Fig. 40

8. Real time display of EHS valve lever movement. This can be seen inside the progress bar (in red on colour screens and in black on b/w screens).

- To return to the previous menu, press the key «1 or «2 once, depending on the window currently open.

**Description (Fig. 40):**

Icon indicating that the spool valve controls are locked. To unlock, press the button near the PTO control (9 Fig. 42). The icon disappears.

Icon indicating that the Kick out (spool valve activation time) is locked. To unlock, press the key «5 when the window is active, or the key «6 when the window Fig. 37 is open.

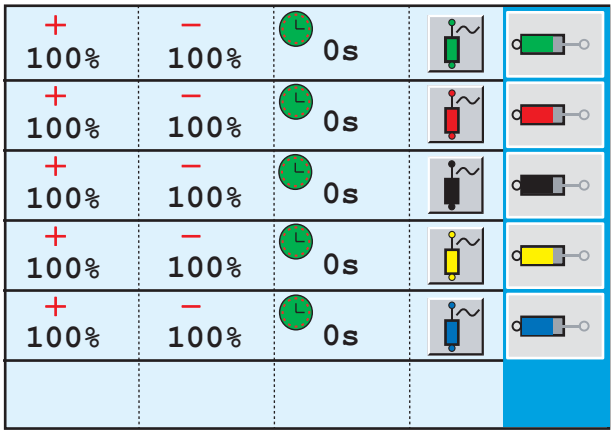
Shortcut icon providing access to the **EHS VALVE SETTINGS** application by pressing the key «6 when the window is active. The window (Fig. 41) is displayed.

Spool valve in floating position

Spool valve activation time. The value is displayed in a black frame when this function is activated.

Flow rate values adjusted

*NOTE: To carry out EHS valve adjustments, see section 7.6. (EHS VALVES application).*

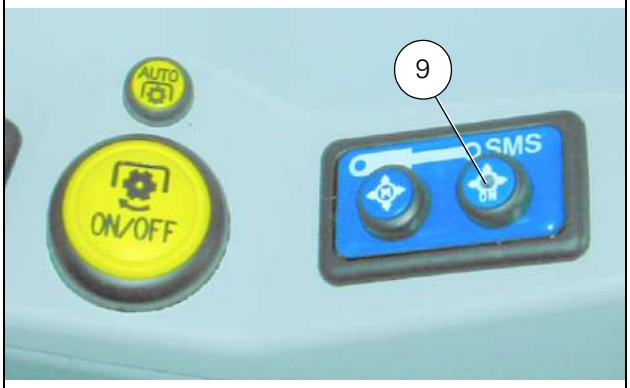



Z3A-876-08-04

Fig. 41

*NOTE: When the window (Fig. 41) is open, press the key* **ESC**. *The window (Fig. 40) is displayed again if it was open previously.*

*NOTE: To carry out EHS valve adjustments, see section 7.7. (EHS VALVES application).*




Z3A-1383-01-05

Fig. 42

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**EHS VALVES 5-6 menu displayed in the right-hand window only:**

- To display this menu, press key «2 twice. The first press selects the window and the second press displays the list if no application was activated previously. On colour screens, the active window is indicated by the green icon at the top right-hand of the window (10 Fig. 44), and on b/w screens the active window is indicated by the same icon in reverse video.
- To select the EHS VALVES 5-6 menu, select the application with the encoder. The selected application is displayed in a black frame (11 Fig. 43).
- Validate by pressing the encoder or the key «2. The window (Fig. 44) is displayed.

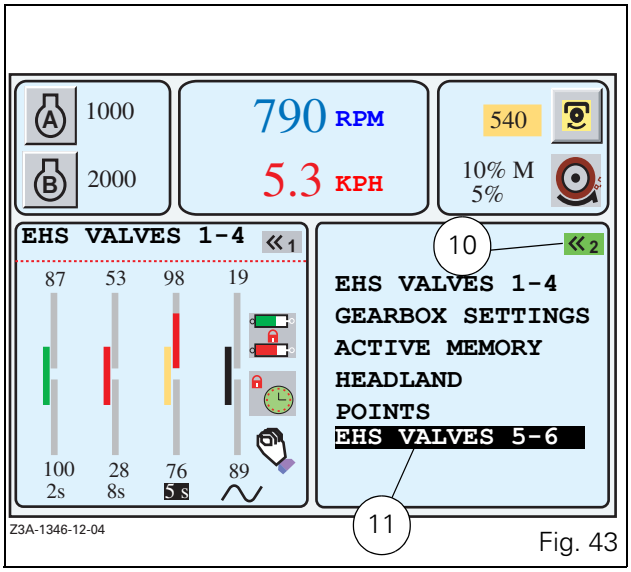

Fig. 43

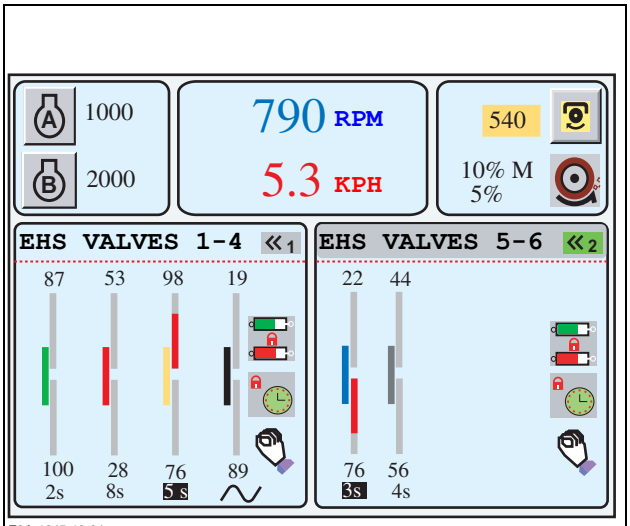

Fig. 44

**EHS valve identification:**

On colour screens, each EHS valve is identified by a colour matching the colour on each control (Fig. 45).

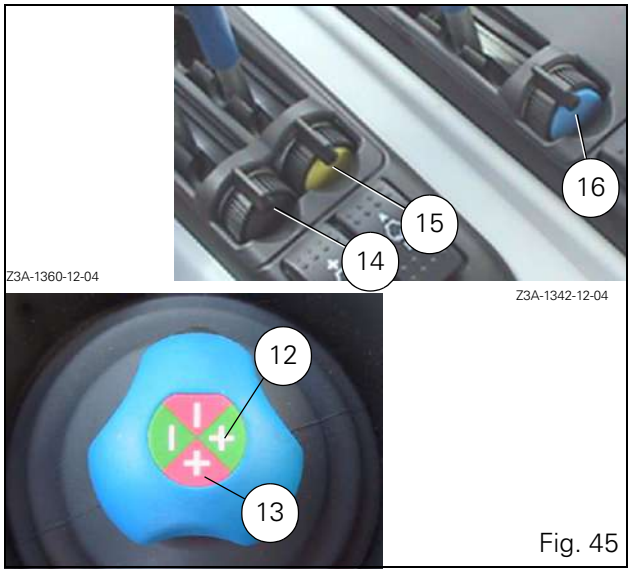

Fig. 45

12. Green
13. Red
14. Black
15. Yellow
16. Blue

On b/w screens, each EHS valve is identified by a number (17 Fig. 46). These numbers correspond to a colour on the EHS valve controls:

- **1** : green EHS valve control
- **2** : red EHS valve control
- **3** : black EHS valve control
- **4** : yellow EHS valve control
- **5** : blue EHS valve control

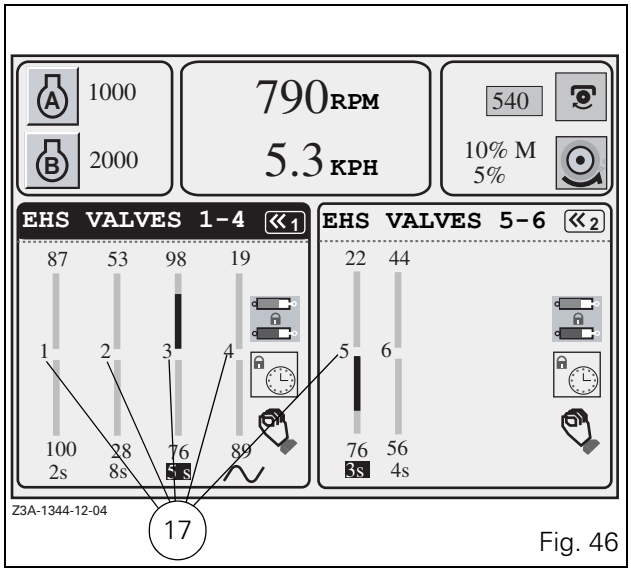

Fig. 46

### 7.9.4 - Gearbox settings menu

GEARBOX SETTINGS menu displayed in the right-hand window for example (Fig. 47):

This display is used to view the DYNA VT transmission settings.

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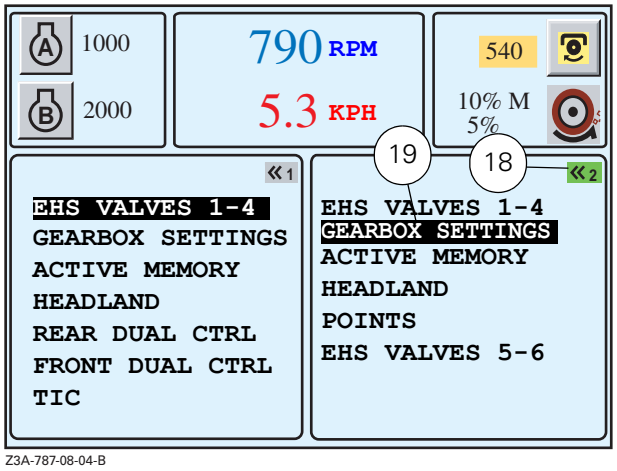


Fig. 47

- To display this menu, press key «$_2$ twice. The first press selects the window and the second press displays the list if no application was activated previously. The active window is indicated by the green icon at the top right-hand of the window (18 Fig. 47), and on b/w screens the active window is indicated by the same icon in reverse video.
- To select the GEARBOX SETTINGS menu, select the application using the encoder. The selected application is displayed in a black frame (19 Fig. 47).
- Validate by pressing the encoder or the key «$_2$. The window (Fig. 48) is displayed.

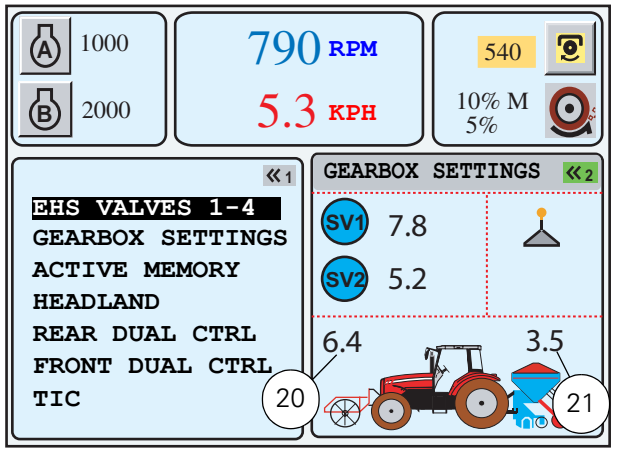


Fig. 48

**Description (Fig. 48):**

SV1 regulator speed value

SV2 regulator speed value

20. Forward restart speed
21. Reverse restart speed

The different transmission control modes:

Lever mode

Pedal mode (POWER or ECO)

Self-propelled mode

*NOTE: To perform these settings, see chapter 4 (Driving the tractor).*

### 7.9.5 - Active memory menu

This display allows the various parameters to be viewed during field work or road use.
ACTIVE MEMORY menu displayed in the left-hand window, for example (Fig. 49):

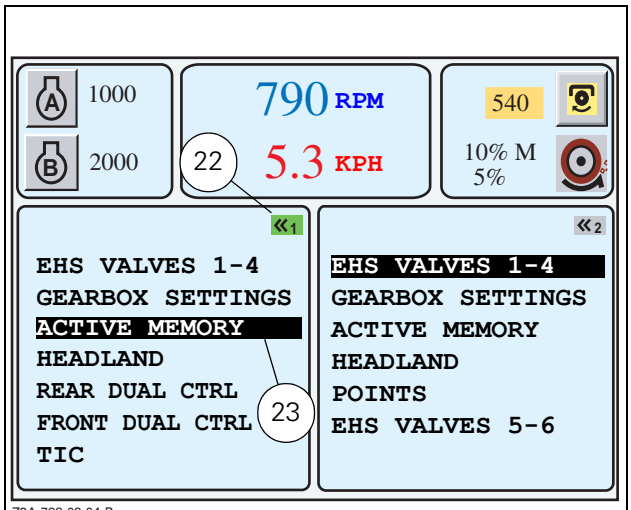


Fig. 49

- To display this menu, press key «$_1$ twice. The first press selects the window and the second press displays the list if no application was activated previously. The active window is indicated by the green icon at the top right-hand of the window (22 Fig. 49), and on b/w screens the active window is indicated by the same icon in reverse video.
- To select the ACTIVE MEMORY menu, select the application using the encoder. The selected application is displayed in a black frame (23 Fig. 49).
- Validate by pressing the encoder or the key «$_1$. The window (Fig. 50) is displayed.

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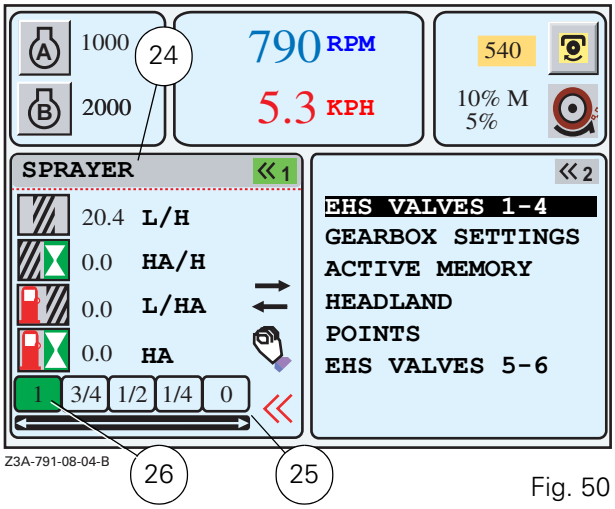


Fig. 50

*NOTE: The first window displayed shows transport parameters. To display field parameters, see the paragraph below (Transport parameters).*

**Field parameters: description (Fig. 50)**

Instant fuel consumption (litres / hour)

Instant area worked per hour (in hectares / hour)

Instant fuel consumption per unit of worked area (litres / hectare)

Total area worked

Allows field or transport parameters to be selected. When the window (Fig. 50) is open and active, the window (Fig. 53) is displayed.

Shortcut icon providing access to the **MEMORIES** application by pressing the key «$_5$ when the window is active. The window (Fig. 51) is displayed. (see section 7.3. MEMORIES application)

Allows a width divider to be selected by pressing key «$_6$ when the window is active

24. Name of the active memory (if no memory is active, "**MEMORY OFF**" is displayed)
25. Width divider

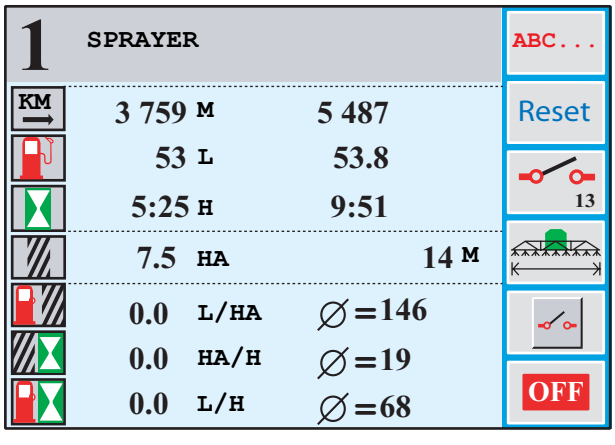


Fig. 51

*NOTE: When the window (Fig. 51) is open, press the key* **ESC**. *The window (Fig. 50) is displayed again if it was open previously.*

*NOTE: To carry out adjustments in the window (Fig. 51), see section 7.3. (MEMORIES application).*

**Using the width divider:**

This function can be used in a field with points (Fig. 52) to modify the surface area measurement. Thus by selecting the correct icon (1, 3/4, 1/2 or 0), the stored implement width is reduced, allowing the field shape to be taken into account for more precise measurements.

To select the corret icon, press the key «$_6$ when the window (Fig. 50) is open and the implement memory window is active.

**Example of use with any implement:**

When the total width of the implement is working, the first icon must be displayed in reverse video (26 Fig. 50). Then as the tractor moves forwards, the implement width must be reduced. For this purpose, press the key «$_6$ to select the corresponding fraction.

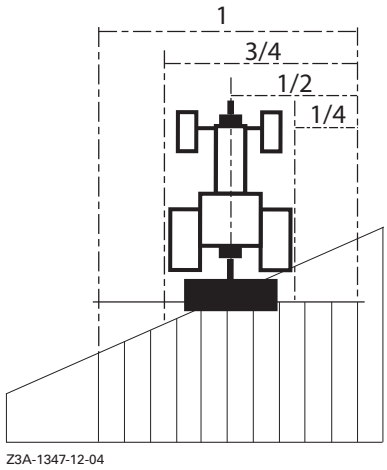


Fig. 52

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**Transport parameters: description (Fig. 53)**

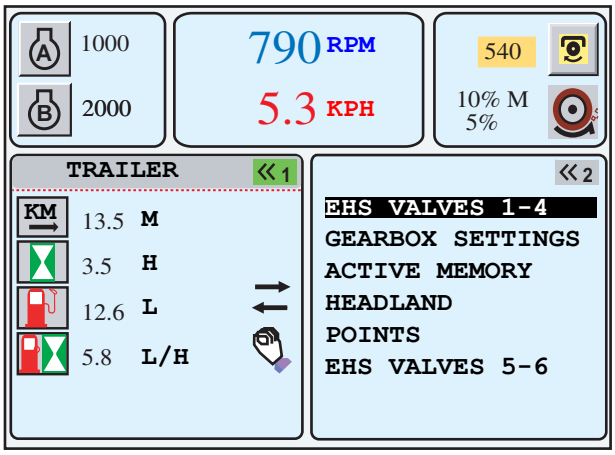


Fig. 53

Total distance covered during work (kilometres)

Hours worked

Total fuel used during work (litres)

Instant fuel consumption (litres / hour)

Allows field or transport parameters to be selected. When the window (Fig. 53) is open and active, the window (Fig. 50) is displayed.

Shortcut icon providing access to the **MEMORIES** application by pressing the key «$_5$ when the window is active. The window (Fig. 51) is displayed. (see section 7.3. MEMORIES application)

### 7.9.6 - Headland application

HEADLAND menu displayed in the right-hand window for example (Fig. 54):
This display is used to view the programmed sequences.

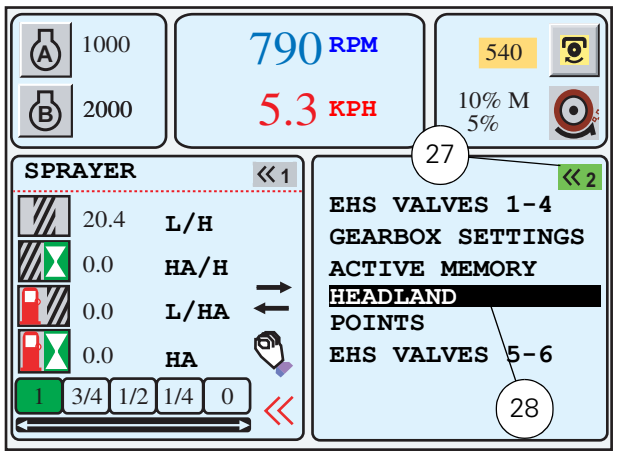


Fig. 54

- To display this menu, press key «$_2$ twice. The first press selects the window and the second press displays the list if no application was activated previously. The active application is indicated by the green icon at the top right-hand of the window (27 Fig. 54), and on b/w screens the active window is indicated by the same icon in reverse video.
- To select the HEADLAND menu, select the application using the encoder. The selected application is displayed in a black frame (28 Fig. 54).
- Validate by pressing the encoder or the key «$_2$. The window (Fig. 55) is displayed.

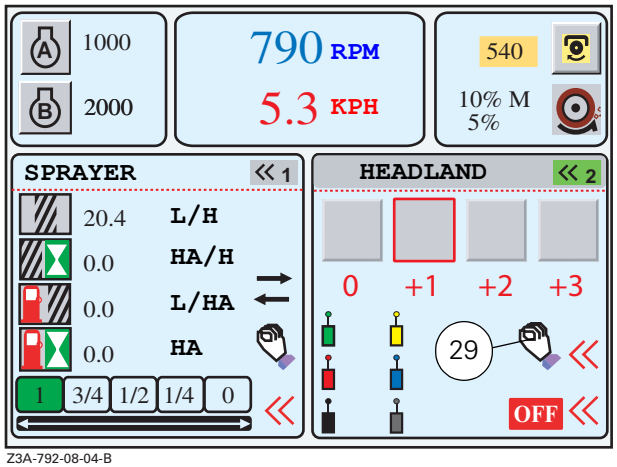


Fig. 55

- Pressing the key «$_5$ (facing symbol 29) calls up the HEADLAND configuration menu. The window (Fig. 56) is displayed.

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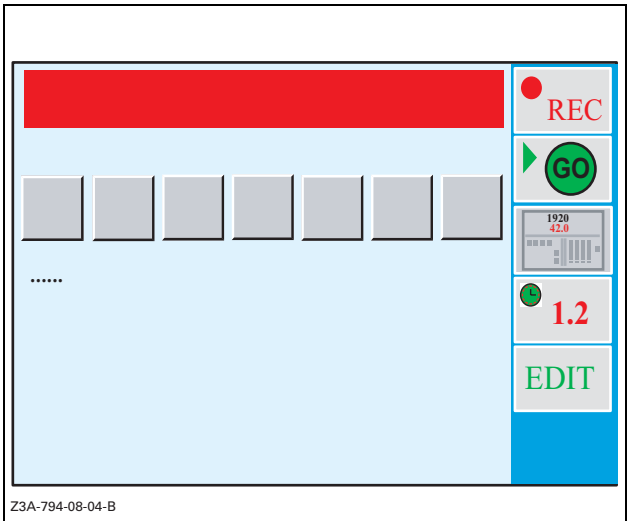


Fig. 56

- To return to the previous menu, press the key «$_3$. The window (Fig. 57) is displayed.

If a sequence is stored in the HEADLAND application, it can be activated from the WORK application. Example: (Fig. 57).

*NOTE: To activate a sequence, see section 7.3. (MEMORIES application). In this case, the actions are displayed in the icons (e.g.: Fig. 57).*

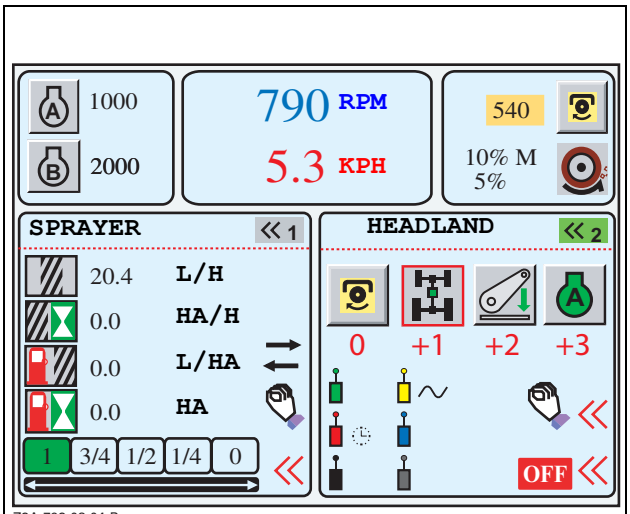


Fig. 57

**Description (Fig. 57):**

Current action (example: Engaging the power take-off)

Following action (example: Front axle activation)

Following action (example: rear linkage lowering activation)

Following action (example: memorised engine speed A activation)

Shortcut icon providing access to the **HEADLAND** application by pressing the key «$_5$ when the window is active (see section 7.6. HEADLAND application). HEADLAND application

Shortcut icon allowing a sequence to be started if one of them is active. For this, press the key «$_6$ when the window is active.

A symbol indicates the control status of each spool valve (see examples below):

Spool valve in floating position

Spool valve is in Kick out (spool valve activation time) position

*NOTE: When there is no symbol by a spool valve, the control is in neutral position.*

The red rectangle around the icon (Fig. 57) indicates the next action, that will be performed as soon as the headland button on the armrest (30 Fig. 58) is pressed. At start-up, only 3 actions are displayed as no action has yet been performed.

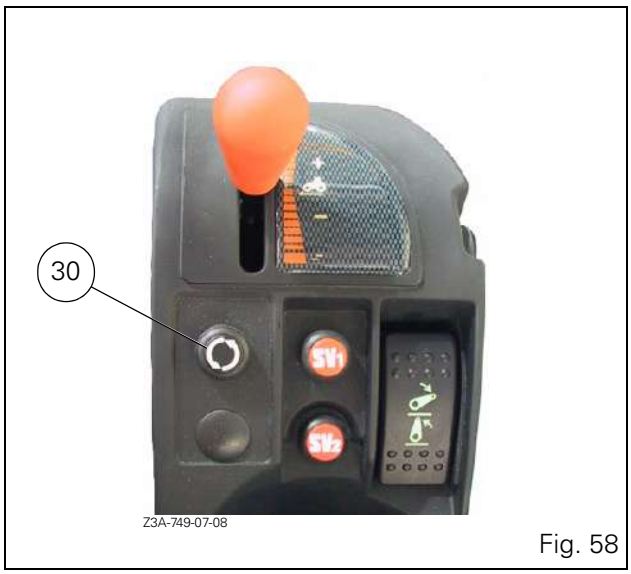


Fig. 58

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### 7.9.7 - REAR DUAL CONTROL menu

REAR DUAL CTRL menu displayed in the left-hand window only (Fig. 59):

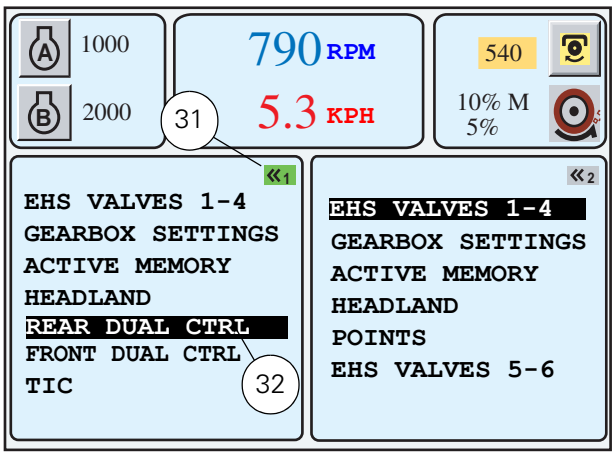


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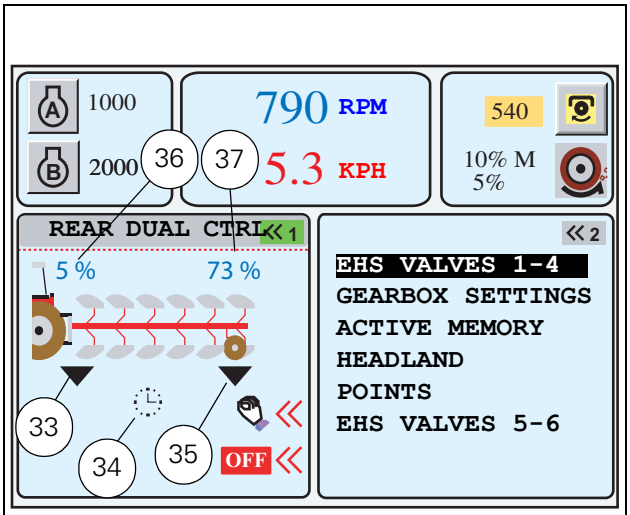
Fig. 59

- To display this menu, press key «$_1$ twice. The first press selects the window and the second press displays the list if no application was activated previously. The active application is indicated by the green icon at the top right-hand of the window (31 Fig. 59), and on b/w screens the active window is indicated by the same icon in reverse video.
- To select the REAR DUAL CTRL menu, select the application using the encoder. The selected application is displayed in a black frame (32 Fig. 59).
- Validate by pressing the encoder or the key «$_1$. The window (Fig. 60) is displayed.




Z3A-796-08-04-B

Fig. 60

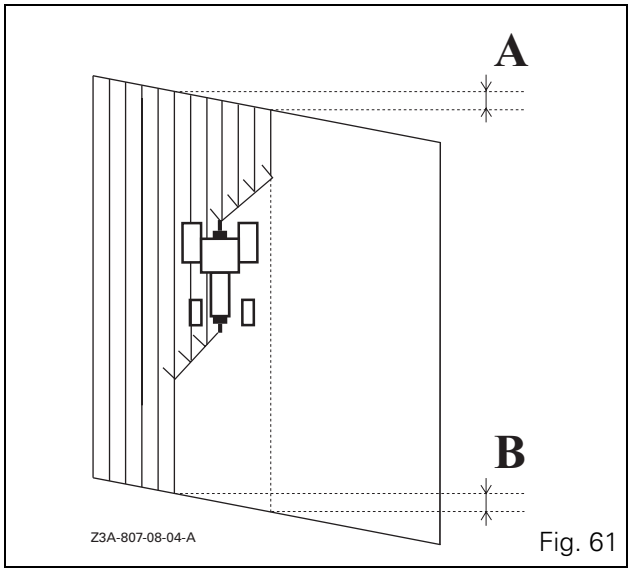
This display is used to view the evolution of settings performed while using a rear implement (for example a semi-mounted plough).
This window also allows activation and deactivation of the DUAL CONTROL function.

**Description:**

33. Indicates the position of the linkage control (e.g.: soil engagement)
34. Indicates if the DUAL CONTROL is in the furrow start or end mode
35. Indicates the position of the depth wheel spool valve control (e.g.: Lowering)
36. Indicates the linkage position value
37. Indicates the depth wheel position value

- Pressing the key «$_6$ switches the DUAL to ON or OFF when the window is active (green icon 32 Fig. 59).

*NOTE: If, in the case of a field with points (Fig. 61), the point correction lengths are different from 0 (to be defined in the right-hand POINTS window) and if this POINTS window is not displayed on the right-hand screen, then a POINT WARNING icon (38 Fig. 62) is displayed to alert the driver to the fact that the lengths will be modified when the DUAL CTRL is set to ON (see section 7.8 DUAL CONTROL application).*




Z3A-807-08-04-A

Fig. 61

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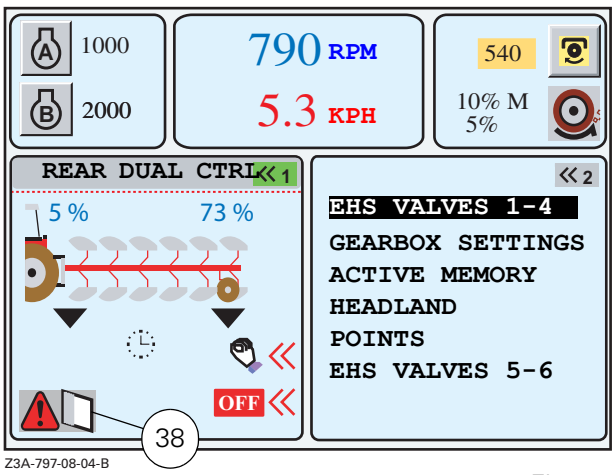


Fig. 62

- Pressing the key «5 returns the user to the REAR DUAL CONTROL configuration menu (Fig. 63).

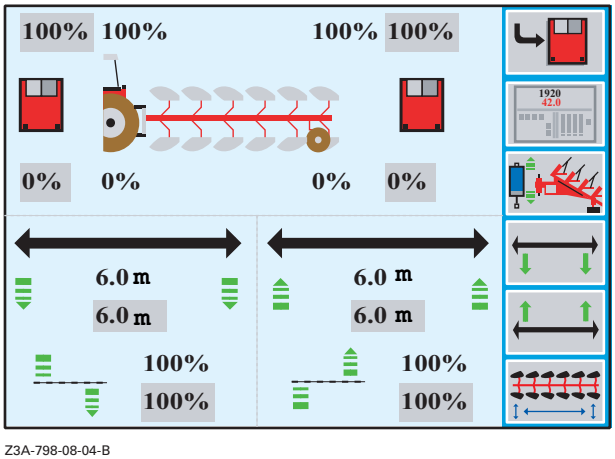


Fig. 63

*NOTE: For data description and settings (Fig. 63), see section 7.8. (DUAL CONTROL application).*

- To return to the previous window, press the key «2.

### 7.9.8 - FRONT DUAL CONTROL menu

FRONT DUAL CTRL menu displayed in the left-hand window only (Fig. 64):




Fig. 64

- To display this menu, press key «1 twice. The first press selects the window and the second press displays the list if no application was activated previously. The active application is indicated by the green icon at the top right-hand of the window (39 Fig. 64), and on b/w screens the active window is indicated by the same icon in reverse video.
- To select the FRONT DUAL CTRL menu, select the application using the encoder. The selected application is displayed in a black frame (40 Fig. 64).
- Validate by pressing the encoder or the key «1. The window (Fig. 65) is displayed.




Fig. 65

This display is used to view the evolution of settings performed while using a front implement (e.g.: plough, cultivator, roller) and a rear implement.
This window also allows activation and deactivation of the DUAL CONTROL function.

**Description (Fig. 65):**

41. Indicates the position of the rear linkage control (e.g.: Lowering)

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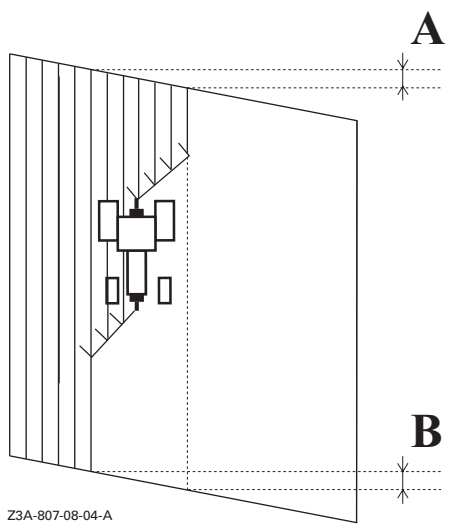
42. Indicates if the DUAL CONTROL is in the furrow start or end mode
43. Indicates the position of the front linkage control (e.g.: floating position)
44. Front linkage position value
45. Rear linkage position value

- Pressing the key «$_6$ switches the DUAL to ON or OFF when the window is active (green icon 39 Fig. 64).
- Pressing the key «$_5$ returns the user to the FRONT DUAL CONTROL configuration menu (Fig. 68).
- To return to the window (Fig. 67), press the key «$_2$ when the window (Fig. 68) is active.

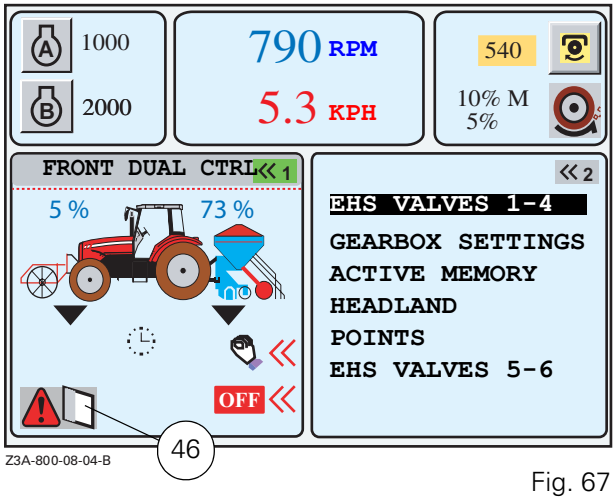
*NOTE: If, in the case of a field with points (Fig. 66), the point correction lengths are different from 0 (to be defined in the right-hand POINTS window) and if this POINTS window is not displayed on the right-hand screen, then a POINT WARNING icon (46 Fig. 67) is displayed to alert the driver to the fact that the lengths will be modified when the DUAL CTRL is set to ON.*

*NOTE: For data description and settings (Fig. 68), see section 7.8. (DUAL CONTROL application).*



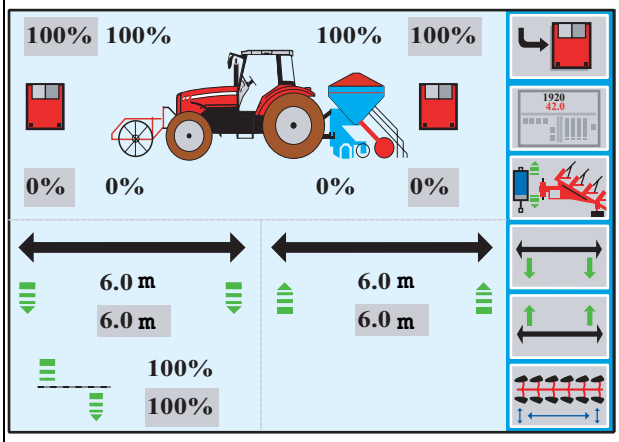

Z3A-807-08-04-A

Fig. 66




Z3A-800-08-04-B

Fig. 67




Z3A-801-08-04-B

Fig. 68

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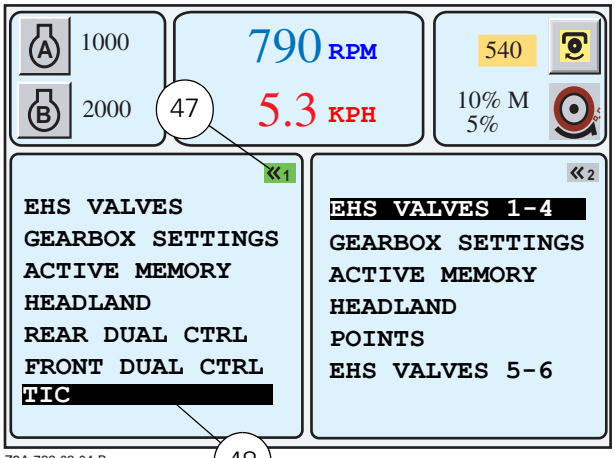
### 7.9.9 - Trailed Implement Control (T.I.C.) menu

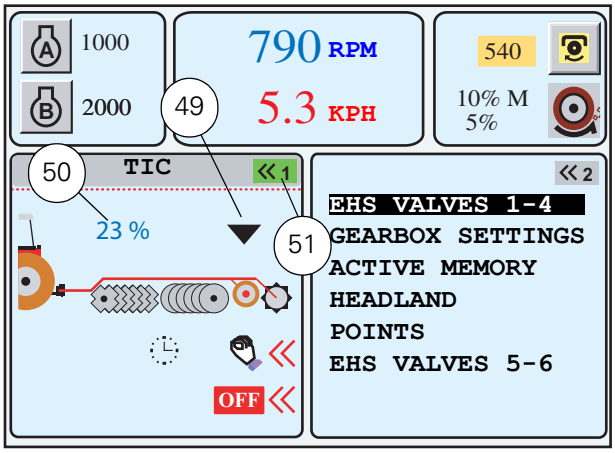
TIC menu displayed in the left-hand window only (Fig. 69):




Z3A-788-08-04-B

Fig. 69

- To display this menu, press key «$_1$ twice. The first press selects the window and the second press displays the list if no application was activated previously. The active application is indicated by the green icon at the top right-hand of the window (47 Fig. 69), and on b/w screens the active window is indicated by the same icon in reverse video.
- To select the different menu, select the application using the encoder. The selected application is displayed in a black frame (48 Fig. 69).
- Validate by pressing the encoder or the key «$_1$. The window (Fig. 70) is displayed.




Z3A-802-08-04-B

Fig. 70

This display is used to view the evolution of settings made while using a trailed rear implement on the swinging drawbar (a disc tiller for example) .

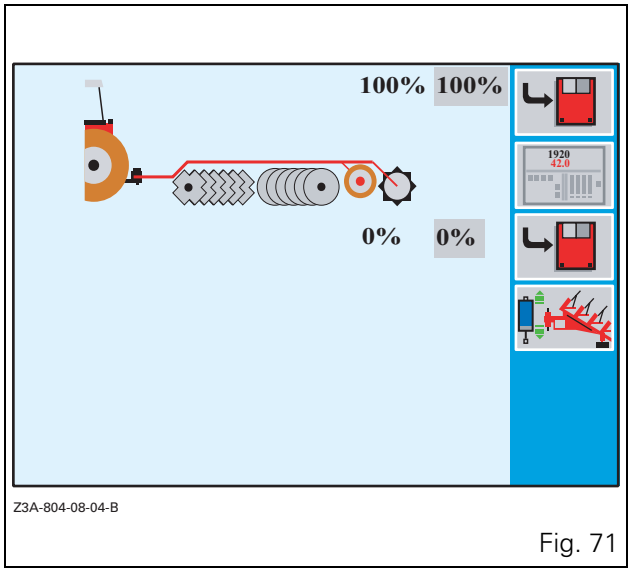
This window also allows activation and deactivation of the DUAL CONTROL function.

**Description (Fig. 70):**

49. Position of the spool valve control for the disc tiller lift cylinder

50. value of the disc tiller lift cylinder position

- Pressing the key «$_6$ switches the TIC to ON or OFF when the window is active (green icon 51 Fig. 70).
- Pressing the key «$_5$ returns the user to the TIC configuration menu (Fig. 71).




Z3A-804-08-04-B

Fig. 71

*NOTE: For data description and settings (Fig. 71), see section 7.8. (DUAL CONTROL application).*

- To return to the previous window, press the key «$_2$.

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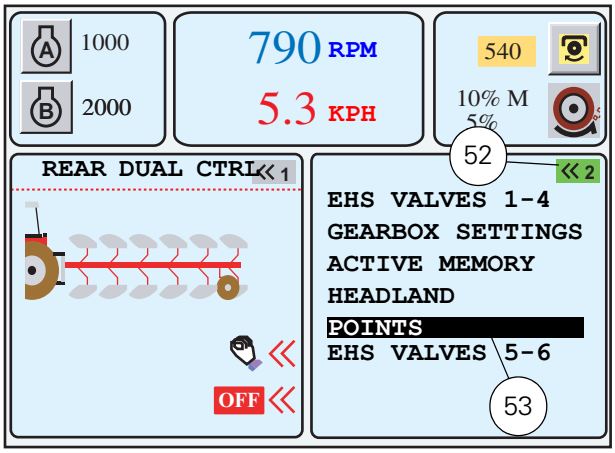
### 7.9.10 - Points menu

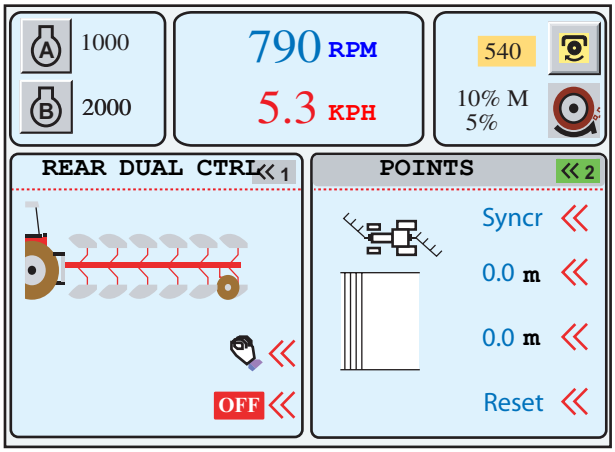
POINTS menu displayed only in the right-hand window (Fig. 72):




Z3A-796-08-04-B

Fig. 72

- To display this menu, press key «$_2$ twice. The first press selects the window and the second press displays the list if no application was activated previously. The active application is indicated by the green icon at the top right-hand of the window (52 Fig. 72), and on b/w screens the active window is indicated by the same icon in reverse video.
- To select the POINTS menu, select the application using the encoder. The selected application is displayed in a black frame (53 Fig. 72). Validate by pressing the encoder. The window (Fig. 73) is displayed.



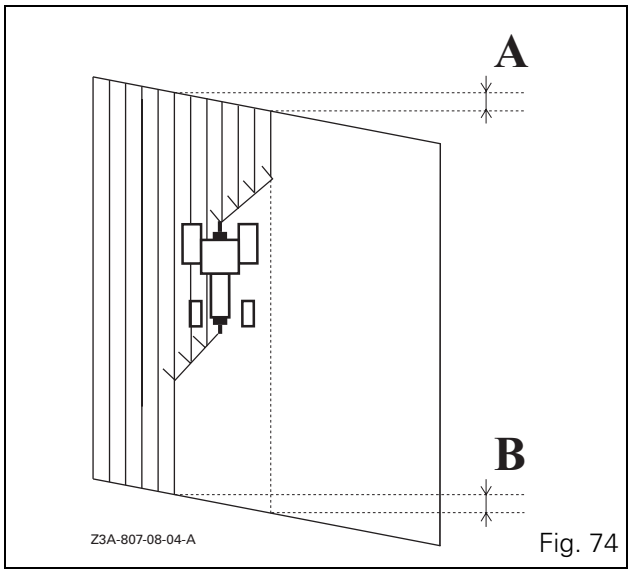

Z3A-805-08-04-B

Fig. 73

The DUAL CONTROL menus are used to initiate a straight furrow start or end phase. When the field is pointed, however (see diagram Fig. 74), the POINTS menu must be used.

This menu can only be used with a single DUAL CONTROL at a time.

*NOTE: To define the DUAL CONTROL and POINTS menu settings, see section 7.8. (DUAL CONTROL application).*




Z3A-807-08-04-A

Fig. 74

## 7.10 - SETTINGS APPLICATION

### 7.10.1 - General

This application is used to set the following parameters:

- hours,
- display and calculation units,
- screen (brightness and night mode),
- buzzer volume,
- language,
- servicing schedule.

To start the **SETTINGS** application (Fig. 75):

- Rotate the encoder (1) to the **SETTINGS** application and press the encoder once the active function is highlighted by red text and a red rectangle around the icon, or press the key «$_2$ (2). The main menu (Fig. 76) is displayed.
- To exit an application, press the **ESC**key (3).

7

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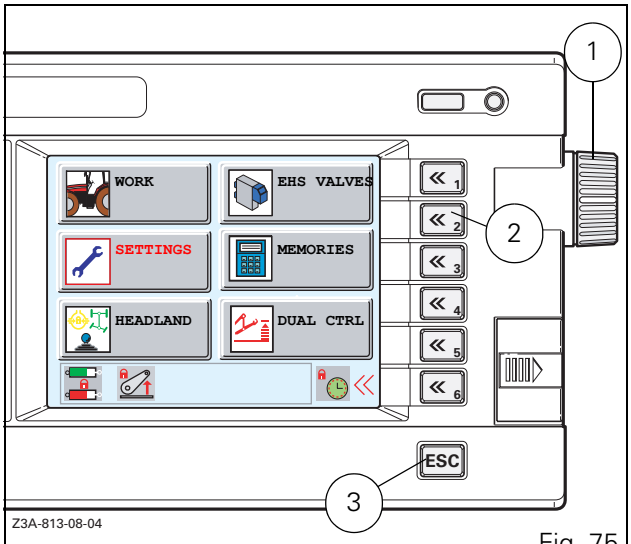


Fig. 75

### 7.10.2 - Setting parameters (Fig. 76)

To set each parameter, press keys «1 to «6, then adjust the values using the encoder. To validate each value, press the encoder.

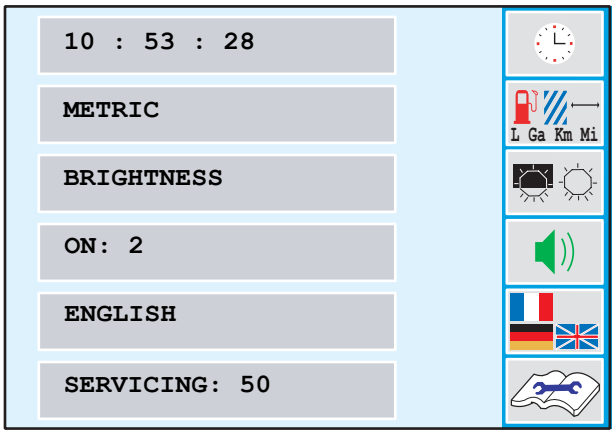


Fig. 76

### 7.10.2.1 - Setting the time

- Press the key «1, (the window (Fig. 77) is displayed). The current hours, minutes and seconds are displayed in black (4). The red hour display (5) indicates that these can be set.

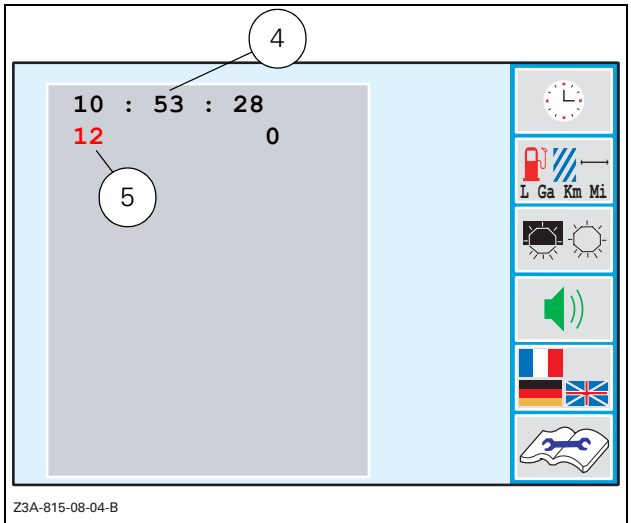


Fig. 77

- Adjust the hours using the encoder.
- Validate the hours by pressing the encoder (the hours are displayed in black (6) and the minutes switch to red (7 Fig. 78)).

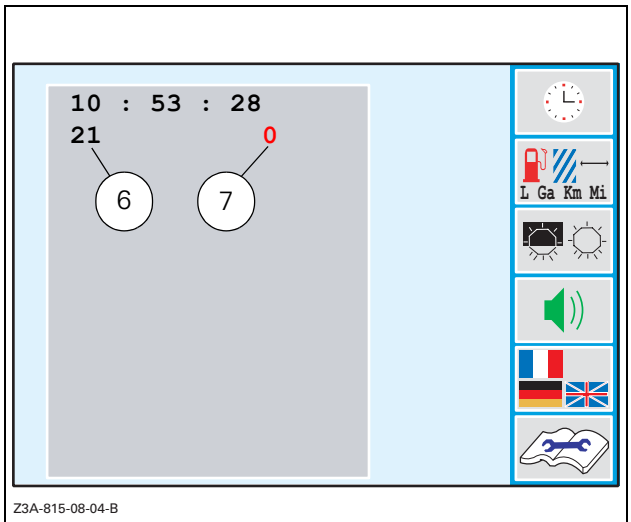


Fig. 78

- Adjust the minutes in the same manner.
- Validate by pressing the encoder. The main menu is now displayed with hours and minutes set (Fig. 76).

### 7.10.2.2 - Setting the display and calculation units

- Press the key «2 (the last selected unit is displayed in red (8 Fig. 79)).

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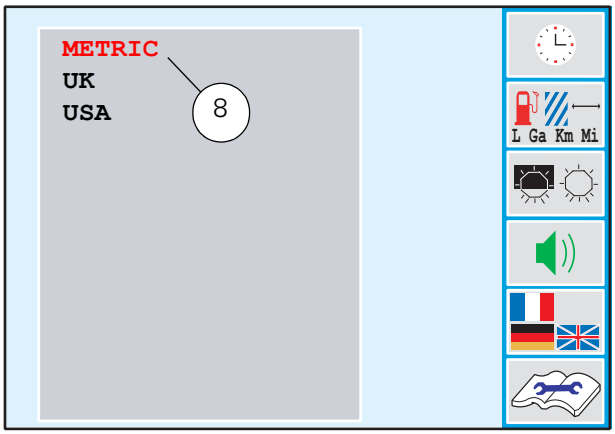



Z3A-815-08-04-B

Fig. 79

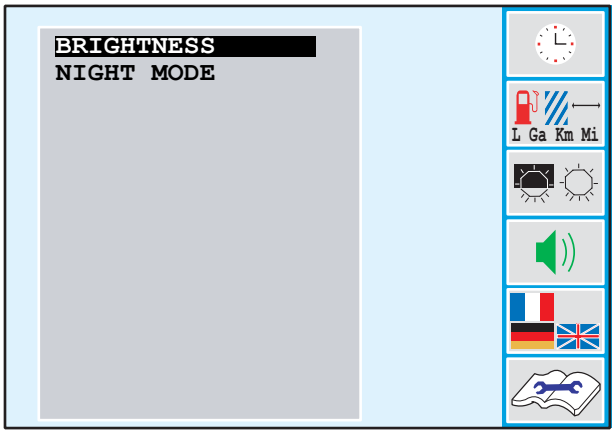
- Select the unit adapted to the country by rotating the encoder and validate to return to the main menu (Fig. 76).

*NOTE: The METRIC unit is intended for European countries. The UK and USA units are identical, with the exception of the gallon volume unit.*

### 7.10.2.3 - Adjusting the screen

**On colour screens:**

- Press the key «$_3$ when the window (Fig. 76) is open. The window (Fig. 80) is displayed.



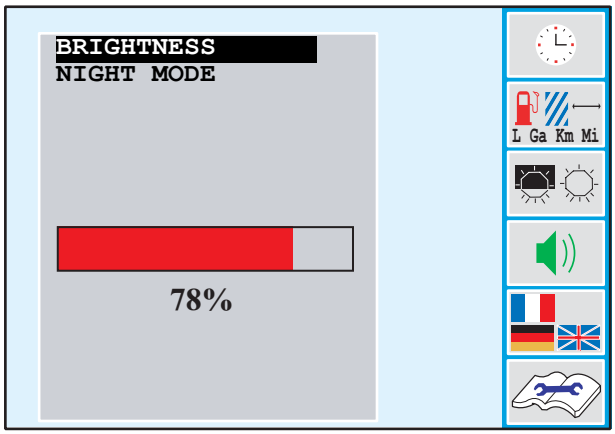

Z3A-815-08-04-B

Fig. 80

- Using the encoder, select **BRIGHTNESS** or **NIGHT MODE**.

**Adjusting the brightness:**

- Select the **BRIGHTNESS** menu using the encoder (the window Fig. 81 is displayed).




Z3A-816-08-04-B

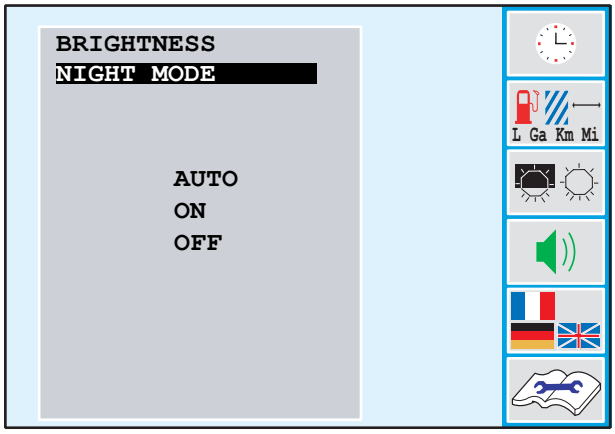
Fig. 81

- Adjust the brightness (from 0 to 100%) using the encoder.
- Validate by pressing the encoder. The main menu is displayed.

**Setting night mode**

This mode reduces screen brightness during night time use.

- Select the NIGHT MODE menu using the encoder (the window Fig. 82 is displayed).




Z3A-815-08-04-B

Fig. 82

- Using the encoder, select one of the following modes:
  - AUTO (the DATATRONIC 3 brightness automatically adapts to ambient brightness and the night mode is activated as soon as the tractor headlights are turned on),
  - ON (night mode is always active and, in this case, the screen goes dark),
  - OFF (night mode is always deactivated).

As soon as one of the modes is validated, the window (Fig. 83) is displayed.

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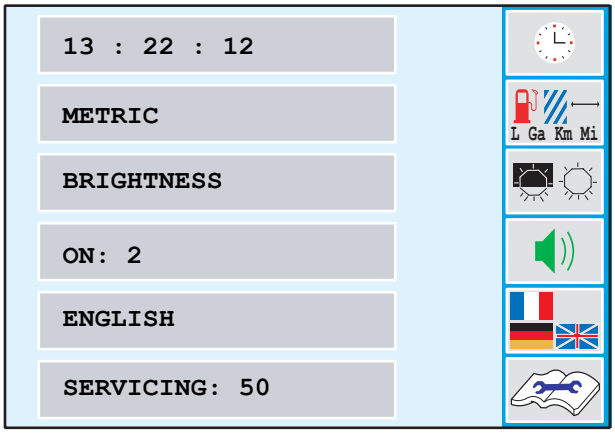
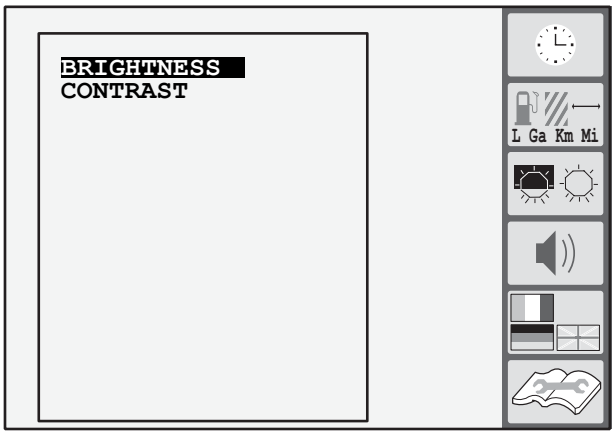



Z3A-814-08-04-B

Fig. 83

**On b/w screens:**

When the window (Fig. 83) is open, press the key «$_3$. The window (Fig. 84) is displayed.




Z3A-1351-12-04

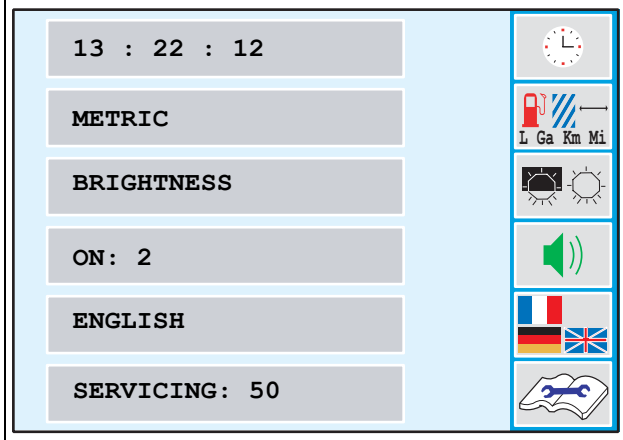
Fig. 84

*NOTE: On b/w screens, brightness and contract can be adjusted.*

*NOTE: The brightness and contrast adjustment procedures are identical.*

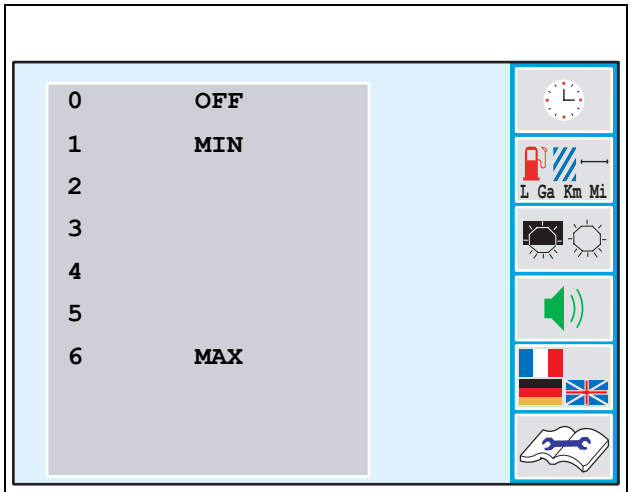
### 7.10.2.4 - Adjusting the volume

- Press the key «$_4$ when the window (Fig. 85) is open. The window (Fig. 86) is displayed.




Z3A-814-08-04-B

Fig. 85




Z3A-815-08-04-B

Fig. 86

- Adjust the volume (from 0 to 6) using the encoder.
- Validate by pressing the encoder. The main menu is displayed.

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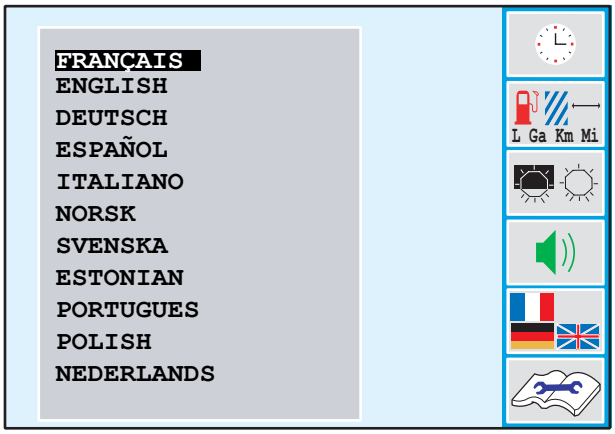
### 7.10.2.5 - Selecting the language

- Press the key «5 when the window (Fig. 85) is open. The window (Fig. 87) is displayed.




Z3A-815-08-04-B

Fig. 87

- Select the language by rotating the encoder.
- Validate by pressing the encoder. The main menu is displayed.

To exit the **SETTINGS** application, press **ESC** key.

### 7.10.2.6 - Setting the servicing schedule

This menu allows a warning message to be displayed to remind the driver that the tractor must be serviced.

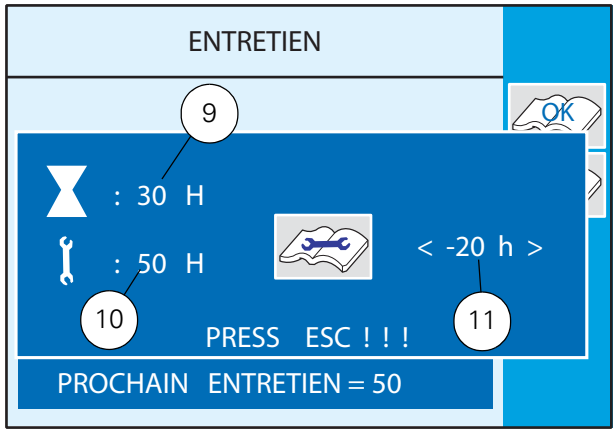
*IMPORTANT: The first servicing must take place after 50 hours and the second after 400 hours. Servicing should then take place every 400 hours. See Chapter 5, section 5.2 (Service guide).*

**For the first two servicings:**

The DATATRONIC is factory set. Therefore, a warning message will appear after 30 hours for the first servicing and after 350 hours for the second servicing.

**Operation :**

When the number of hours exceeds 30 hours, a warning message will be displayed regardless of which window is active. Example: (Fig. 88).



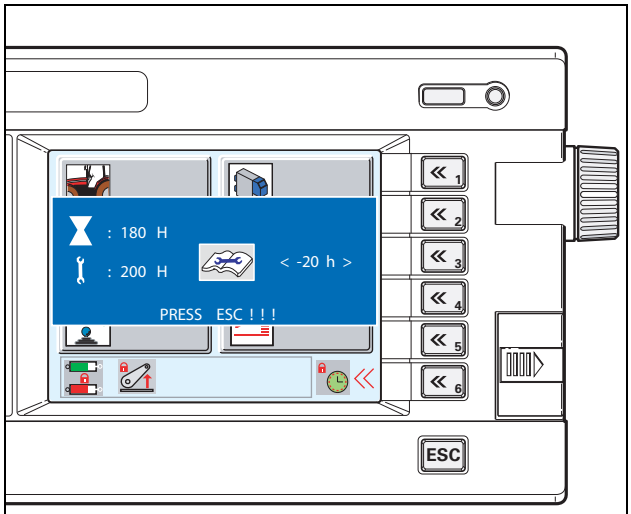

Z3A-1375-12-04

Fig. 88

**Description (Fig. 88)**

9. Number of actual tractor hours (identical to the number of hours displayed on the instrument panel digital display)
10. Total number of hours before the next servicing
11. Number of hours remaining before next servicing (30 - 50 = -20)

*NOTE: This message is also displayed at each start-up (Fig. 89).*




Z3A-1372-12-04

Fig. 89

- To cancel the message, press the key **ESC**.

When the servicing has been carried out, it should be validated. For this purpose:

- Press the key «6 when the window (Fig. 85) is open. The window (Fig. 90) is displayed.

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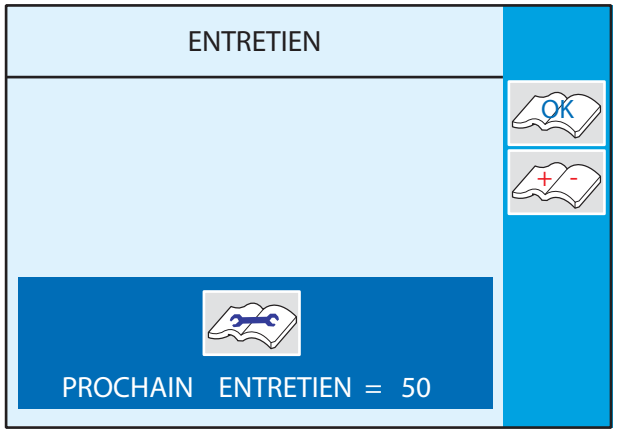
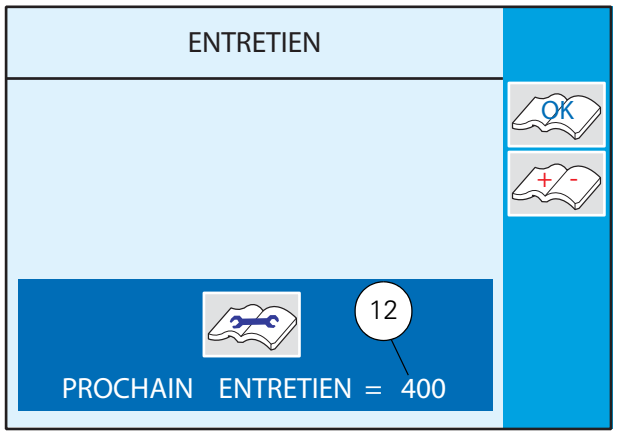



Z3A-1354-12-04

Fig. 90

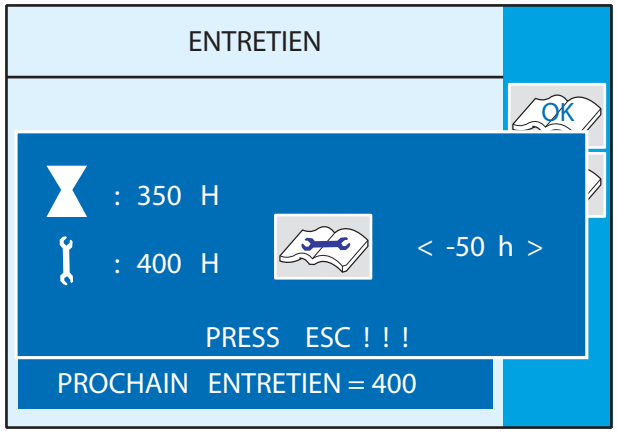
- Press the key «2. Regardless of the number of tractor hours, the number of hours to the next servicing is 400 hours (12 Fig. 91).




Z3A-1376-12-04

Fig. 91

Therefore, as soon as the number of tractor hours exceeds 350, a warning message identical to the first message is displayed (Fig. 92).




Z3A-137-12-04

Fig. 92

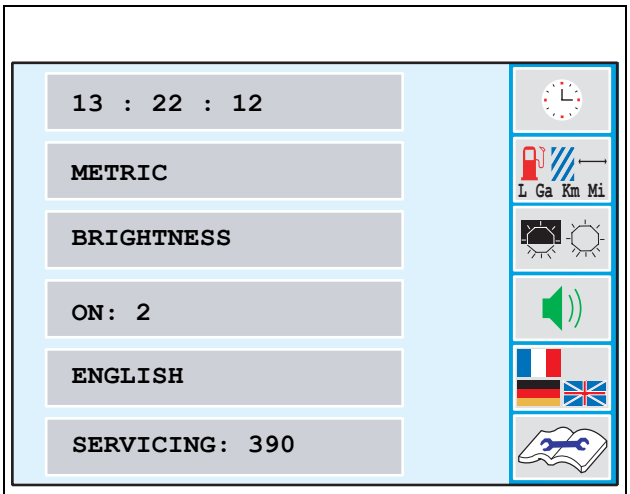
*NOTE: For the description of the message, see (Fig. 88).*

*IMPORTANT: For the first two servicings, the number of hours can be modified. However, the 50 and 400 hour markers must not be exceeded for the first two servicings. To modify the first two servicing times, see below.*

**For the following servicings:**

Each time the servicing has been carried out on the tractor, it should be validated. For this purpose:

- Press the key «6 when the window (Fig. 93) is open. The window (Fig. 94) is displayed.

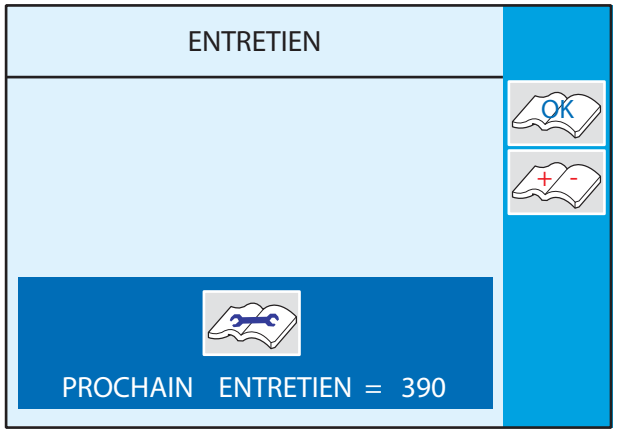



Z3A-814-08-04-B

Fig. 93

https://truckmanualshub.com/





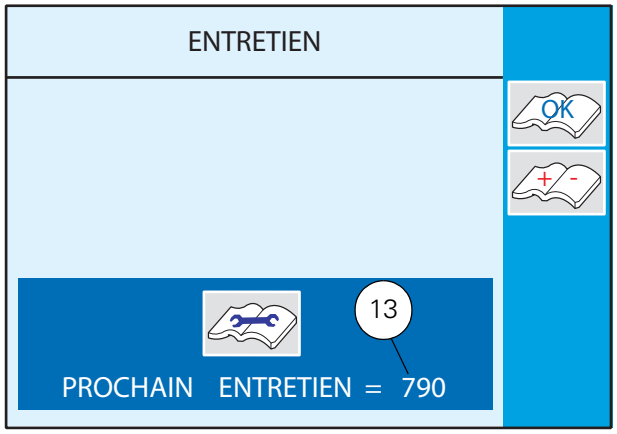

Z3A-1378-12-04

Fig. 94

- Press the key «2. Regardless of the number of tractor hours, the number of hours to the next servicing is increased by 400 hours. Example (13 Fig. 95).

**Example (13 Fig. 95): 390 + 400 = 790**

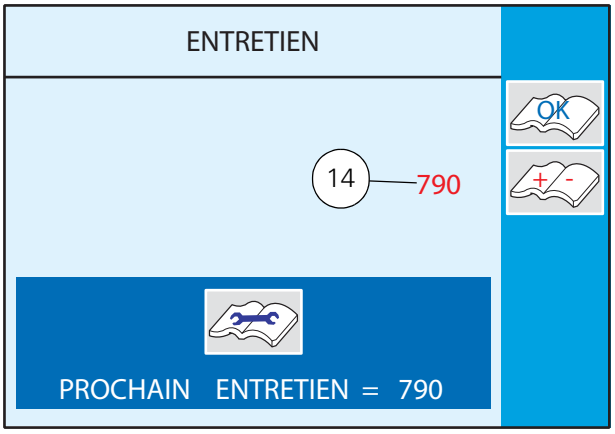
**390** : number of actual tractor hours (identical to the number of hours displayed on the instrument panel digital display)
**400** : service interval
**790** : hours total at which next servicing should take place.




Z3A-1379-12-04

Fig. 95

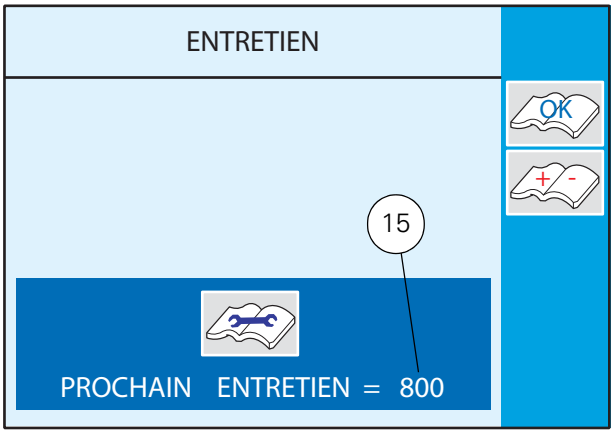
- However, the number of hours to the next servicing can be modified. For this, press the key «3 when the window (Fig. 95) is open. The number of hours to the next servicing is displayed facing the key «3 (14 Fig. 96).




Z3A-1353-12-04

Fig. 96

- Adjust the number of hours to the next servicing by turning the encoder.
- Validate by pressing the encoder. The adjusted number of hours is displayed in the lower part of the screen. Example: next servicing at 800 hours (15 Fig. 97).




Z3A-1380-01-05

Fig. 97

Press the key **ESC** to return to the previous menu. The window (Fig. 98) is displayed with the number of hours to the next servicing (16 Fig. 98).

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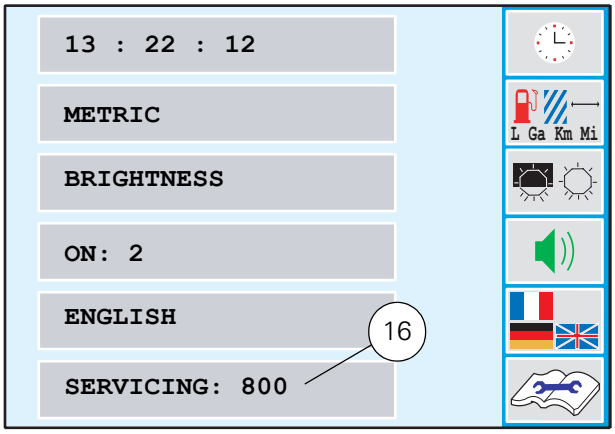


Fig. 98

Therefore, in this example, a warning message is displayed 50 hours before the set value, i.e. at 750 hours.

## 7.11 - HEADLAND APPLICATION

### 7.11.1 - General

This application is used to automatically manage manoeuvres at the end of the field. Using a single button, it is possible to automate all functions in order to avoid activating each control lever or button separately.
When using an implement, a sequence of 35 actions can be recorded from 41 different actions available.

**Description (Fig. 99):**

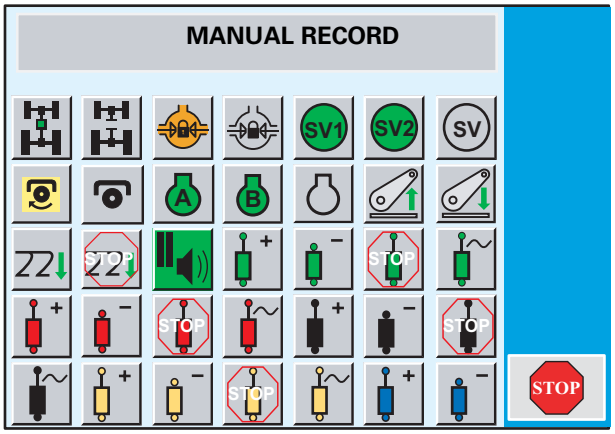


Fig. 99

Activate front axle

Deactivate front axle

Differential lock:

Deactivate differential lock

Activate SV1 speed regulator

Activate SV2 speed regulator

Deactivate speed regulator

Activate power take-off

Deactivate power take-off

Activate memorised engine speed A

Activate memorised engine speed B

Deactivate memorised engine speed

Activate rear linkage Lifting

Activate rear linkage Lowering

Activate quick soil engagement

Deactivate quick soil engagement

Insert pause

**For each spool valve:**

Activate spool valve control (e.g.: ram rod extension)

Activate spool valve control (e.g.: ram rod retraction)

Activate spool valve control in neutral position

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Activate spool valve control in floating position

**On b/w screens:**
Each icon representing a spool valve has a number reference. These numbers correspond to a colour on the EHS valve controls:

Activate spool valve control (e.g.: ram rod extension)

Activate spool valve control (e.g.: ram rod retraction)

Activate spool valve control in neutral position

Activate spool valve control in floating position

- **1** : green EHS valve control
- **2** : red EHS valve control
- **3** : black EHS valve control
- **4** : yellow EHS valve control
- **5** : blue EHS valve control

Each sequence is stored in the DATATRONIC 3 active memory. Up to 7 sequences can be memorised:
- 1 sequence can be permanently stored in the HEADLAND application,
- 6 sequences in the MEMORIES application, by assigning them an implement name (see section 7.3 MEMORIES Application).

To start the **HEADLAND** application (Fig. 100):
- Rotate the encoder (1) to the **HEADLAND** application and press the encoder once the active function is highlighted by red text and a red rectangle around the icon. Or press the key «3 (2). The window (Fig. 101) is displayed.
- To exit an application, press the **ESC** key (3).

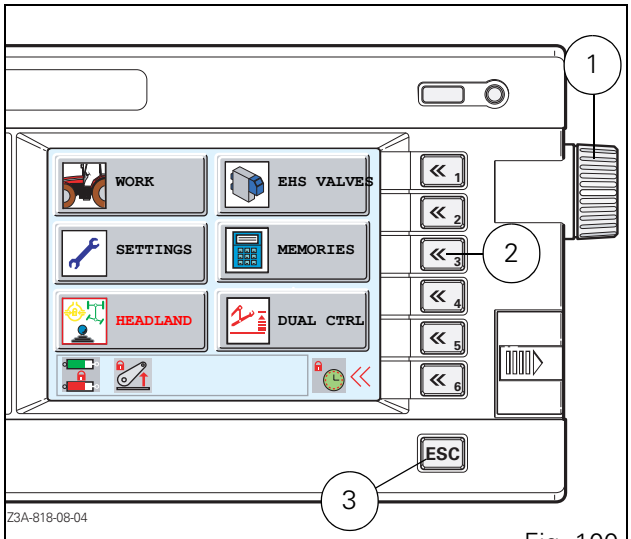


Fig. 100

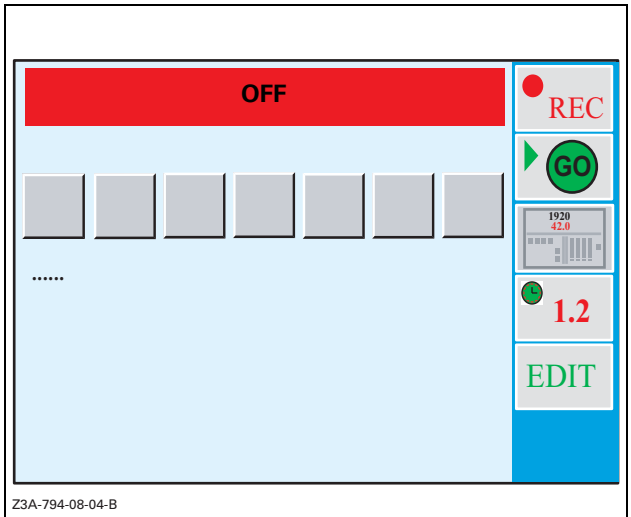


Fig. 101

7

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### 7.11.2 - Recording a sequence

To record a sequence, press the key «1 (REC) when the window (Fig. 101) is open. The recording window (Fig. 102) is displayed.

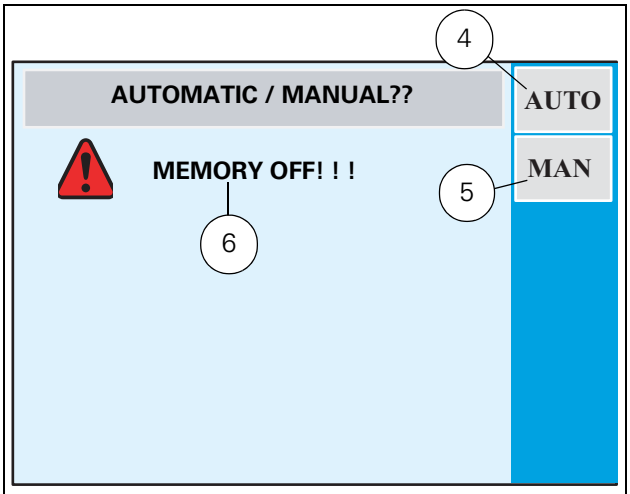


Fig. 102

Two recording modes are available:
- AUTOMATIC mode (4),
- MANUAL mode (5),

AUTOMATIC mode records a sequence based on the actions performed. Each action is displayed.

In MANUAL mode, the user records a sequence by manually selecting the actions to perform.

*NOTE: If no memory is active, a warning message is displayed (6). In this case, the sequence is recorded in the HEADLAND application. If other recordings are performed and if no memory is active, the previously recorded sequence is overwritten. To record a sequence in the memories application, see section 7.3. (MEMORIES application).*

#### 7.11.2.1 - Recording a sequence in AUTOMATIC mode

**Procedure to follow:**

*IMPORTANT: To record a sequence in automatic mode, it must be started at the end of the field when you are preparing to make a half turn (RECORD Fig. 103). Indeed, the recording time for a sequence must not exceed 2 minutes and 30 seconds.*

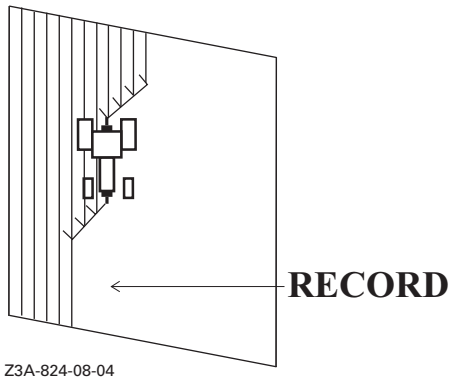


Fig. 103

- Press the key «1 (AUTO) when the window (Fig. 104) is open. A new display appears (Fig. 105).

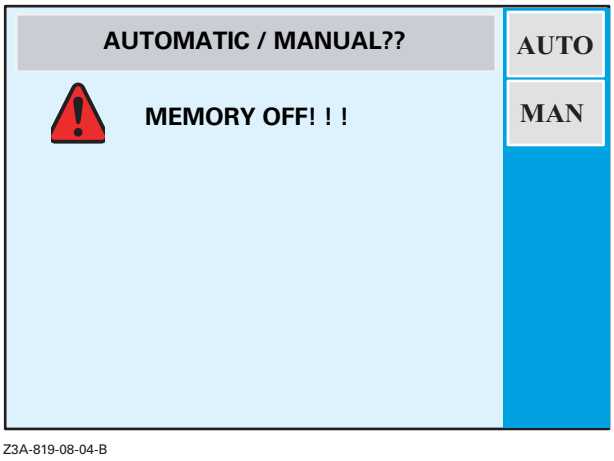


Fig. 104

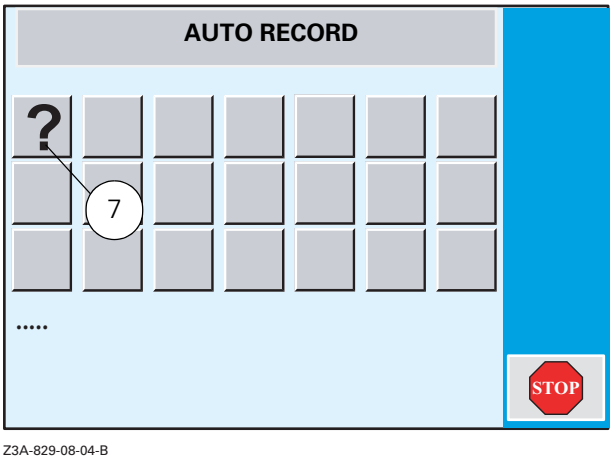


Fig. 105

The question mark (7) indicates that recording can start.

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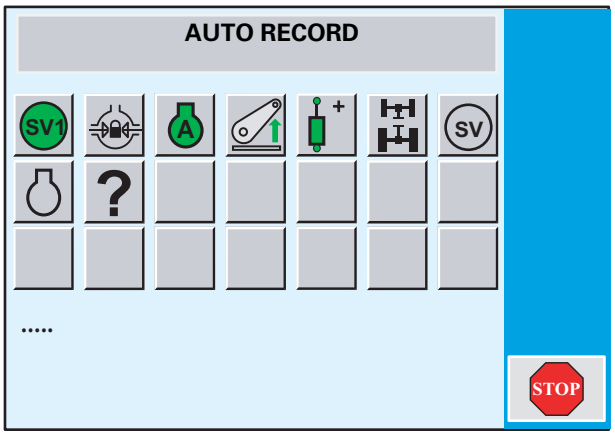
- Perform the usual end of field manoeuvres. The actions are automatically recorded and displayed. (Example Fig. 106).




Z3A-825-08-04-B

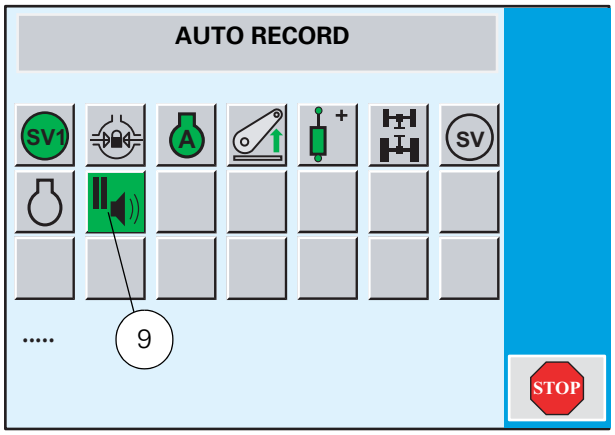
Fig. 106

- Insert a pause by pressing the headland button on the armrest (8 Fig. 107).

Z3A-749-07-04

Fig

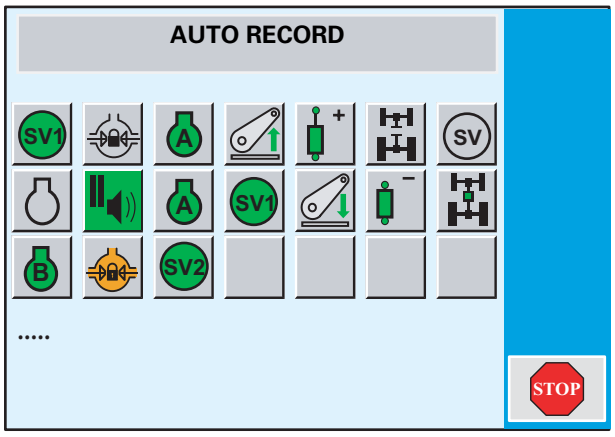
This stops sequence recording, allowing the operator to perform the end of field manoeuvres. Thus, the furrow end actions are recorded and end with a pause (9 Fig. 108).




Z3A-826-08-04-B

Fig. 108

- Make your half turn.
- Perform the furrow start actions in the same manner. The actions are once more recorded (Fig. 109).




Z3A-827-08-04-B

Fig. 109

- Press the key «6 (Stop) as soon as the furrow start manoeuvres are complete. A new pause is automatically inserted following the recorded actions (10 Fig. 110).

7

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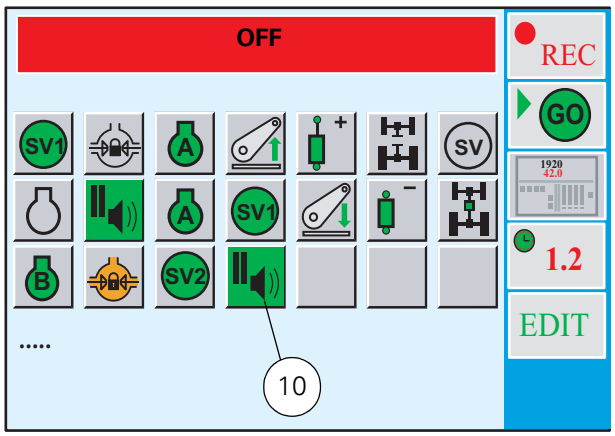


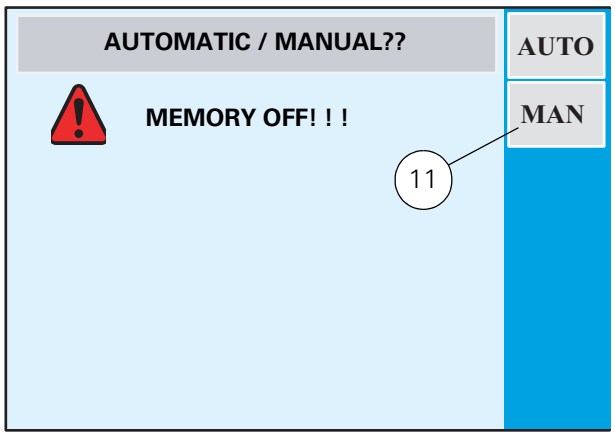

Z3A-828-08-04-B

Fig. 110

To read a sequence, see paragraph 7.6.4. (Reading a sequence).

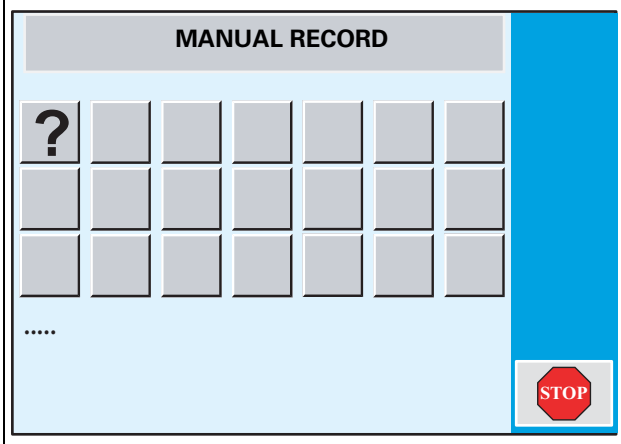
### 7.11.2.2 - Recording a sequence in MANUAL mode

When the window (Fig. 111) is open, press the key «$_2$ to select MANUAL mode (11). The window (Fig. 112) is displayed.




Z3A-819-08-04-B

Fig. 111



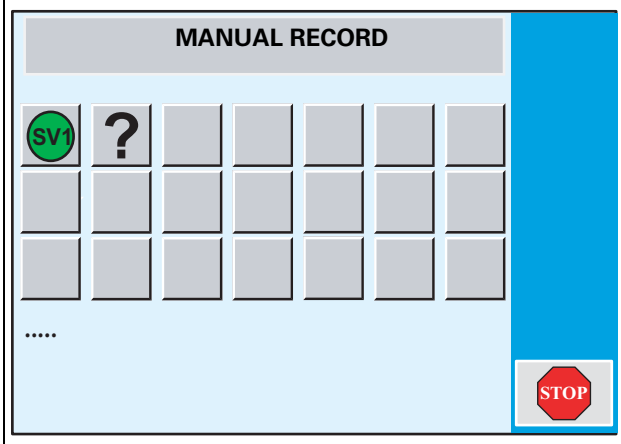

Z3A-829-08-04-B

Fig. 112

A question mark is displayed in the first icon.

*NOTE: For a sequence, the same actions can be recorded as in AUTOMATIC mode.*

- Select an action by rotating the encoder and validate by pressing it (e.g.: Fig. 113).




Z3A-860-08-04-B

Fig. 113

The action is recorded and a new question mark is displayed.

- Proceed in the same manner for the other actions.

*NOTE: As for automatic recording, a pause must be inserted (by pressing the Headland button Ref. 12 Fig. 114) to perform the end of field manoeuvres.*

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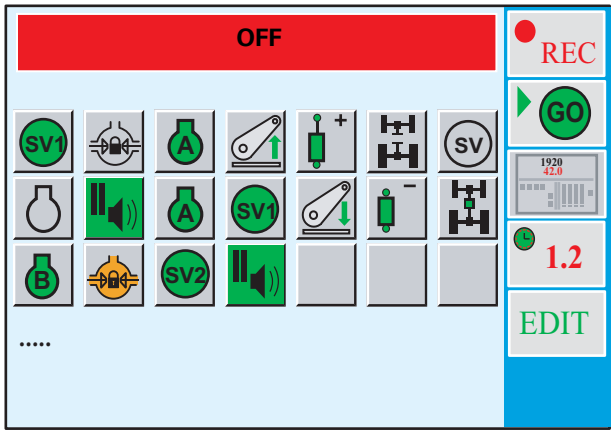
Z3A-749-07-08

Fig. 114

- Press the key «$_6$ (Stop) to terminate the sequence. A pause is automatically inserted and a new window is displayed (Fig. 115).




Z3A-828-08-04-B

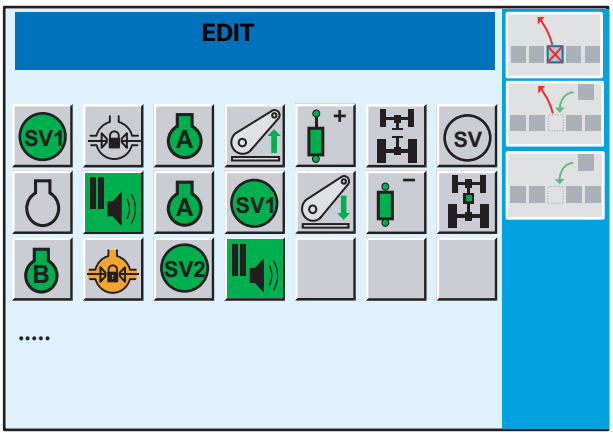
Fig. 115

To read a sequence, see paragraph 7.5.4. (Reading a sequence).

### 7.11.3 - Modifying a recorded sequence

When the window (Fig. 115) is open, the sequence is not active. An action can be deleted, modified or inserted. For this purpose:

- Press the key «$_5$, (the EDIT window Fig. 116 opens).

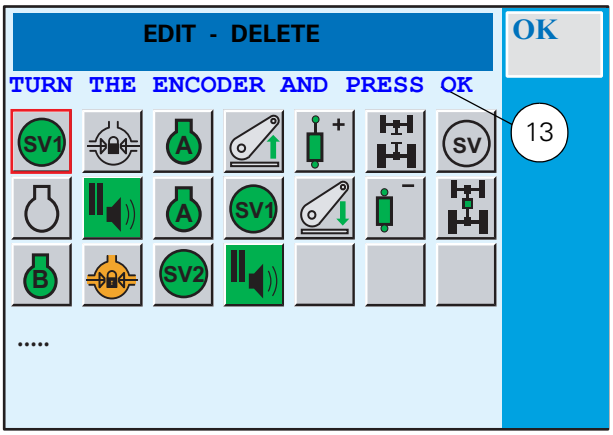



Z3A-861-08-04-B

Fig. 116

**Deleting an action:**

- Press the key «$_1$ in the window (Fig. 116). An instruction message is displayed (13) and the first icon is outlined in red (Fig. 117).




Z3A-862-08-04-B

Fig. 117

- Select the action you wish to delete by rotating the encoder.
- Validate either by pressing the encoder, or by pressing key «$_1$. The window (Fig. 118) is displayed with the icon deleted.

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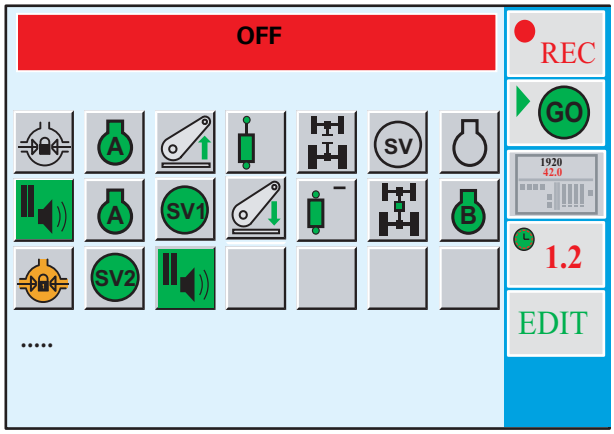
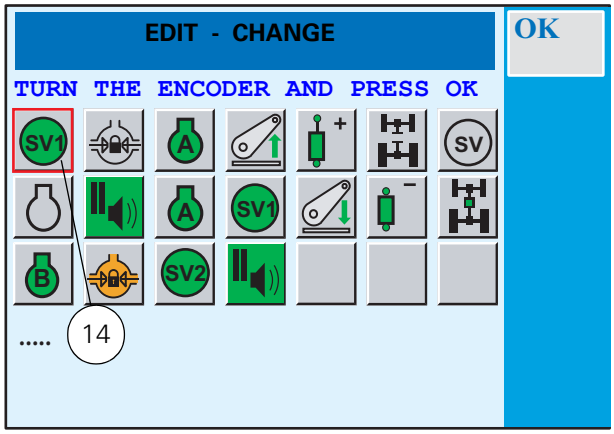



Z3A-865-08-04-B

Fig. 118

**Changing an action:**

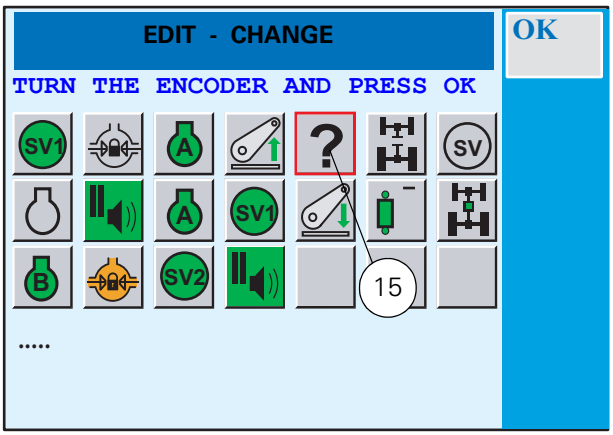
- Press the key «$_2$ in the window (Fig. 116). An instruction message is displayed and the first icon is outlined in red (14 Fig. 119).




Z3A-862-08-04-B

Fig. 119

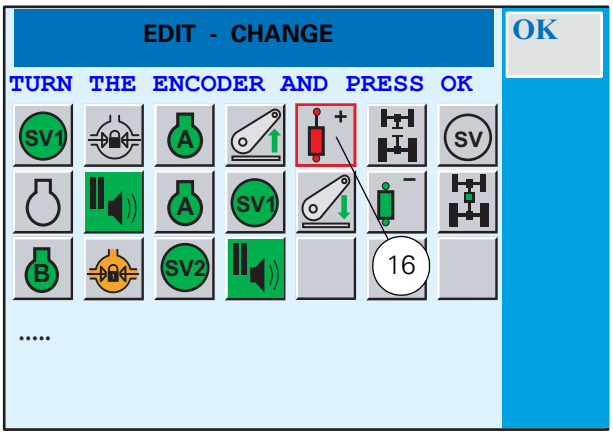
- Select the action you wish to change by rotating the encoder.
- Validate either by pressing the encoder, or by pressing key «$_1$. The icon to modify is replaced by a question mark (15 Fig. 120).




Z3A-864-08-04-B

Fig. 120

- Select an action by rotating the encoder. The question mark is replaced by an action. (e.g.: 16 Fig. 121)




Z3A-866-08-04-B

Fig. 121

- Validate either by pressing the encoder, or by pressing key «$_1$. The window (Fig. 122) is displayed with the changed icon.

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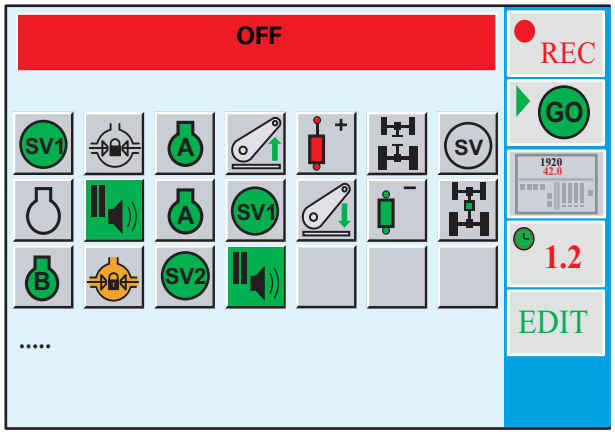
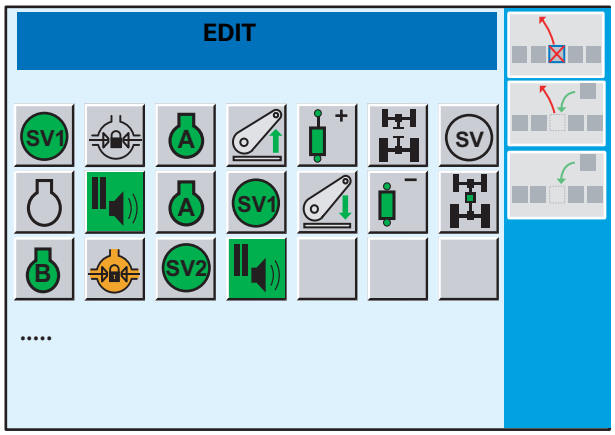



Z3A-867-08-04-B

Fig. 122

**Inserting an action:**

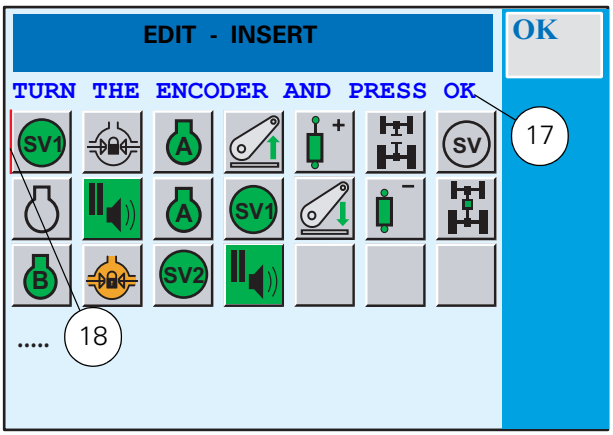
- Press the key «$_3$ when the window (Fig. 123) is open.




Z3A-861-08-04-B

Fig. 123

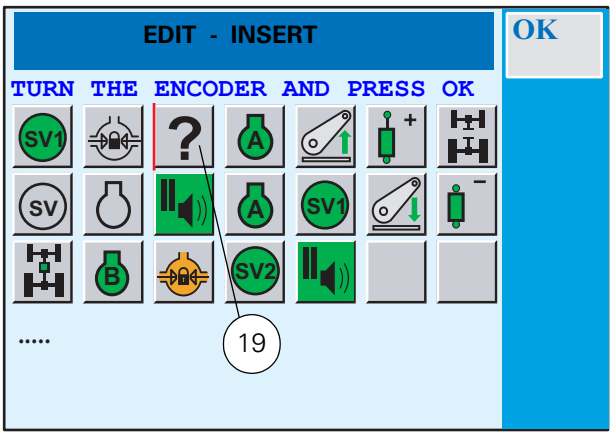
An instruction message (17) and a red hyphen (18) are displayed (Fig. 124).




Z3A-868-08-04-B

Fig. 124

- Move the red hyphen by rotating the encoder (the hyphen corresponds to the position of the action to insert).
- Validate either by pressing the encoder, or by pressing key «$_1$. An icon with a question mark is inserted. (e.g.: 19 Fig. 125).




Z3A-869-08-04-B

Fig. 125

- Select the action to insert by rotating the encoder. The question mark is replaced by an action (e.g.: 20 Fig. 126).

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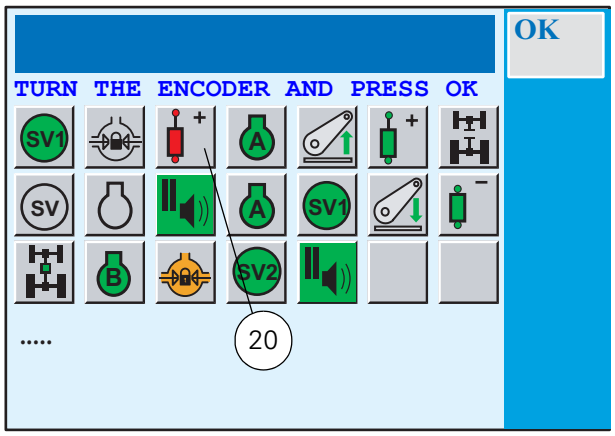
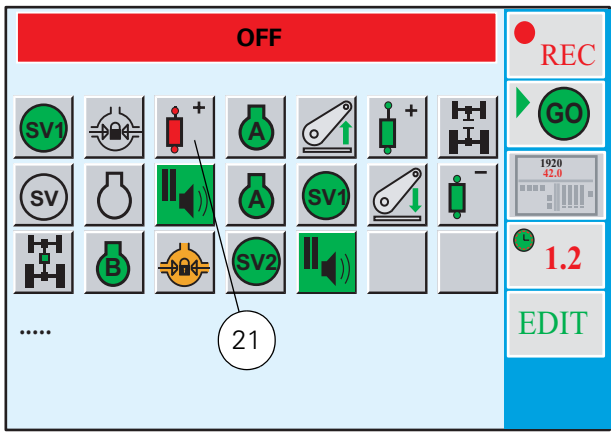



Z3A-870-08-04-B

Fig. 126

- Validate either by pressing the encoder, or by pressing key «1. The window (21 Fig. 127) is displayed with the inserted icon.




Z3A-871-08-04-B

Fig. 127

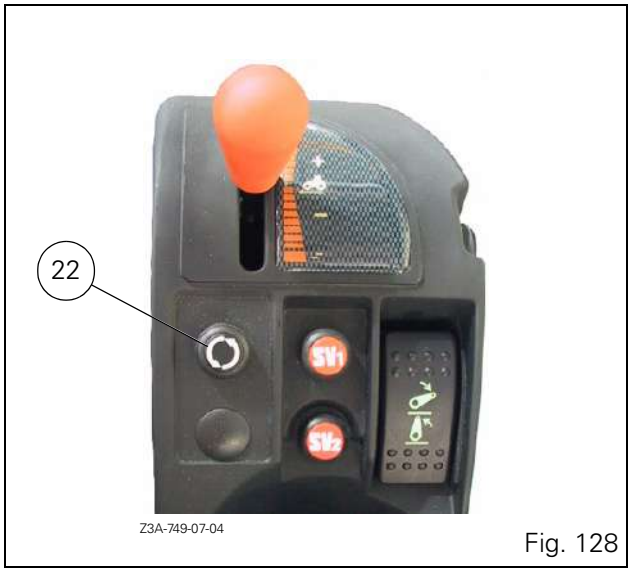
### 7.11.4 - Reading a sequence

The DATATRONIC 3 can read either one of the 6 sequences recorded in the MEMORIES application, or a sequence recorded in the HEADLAND application.

*NOTE: To read one of the 6 sequences recorded in the MEMORIES application, a memory must first be activated. To do it, see paragraph 7.7.8 (Activating a memory).*

Two modes are available for reading a sequence:

- Manual mode reading. This mode requires the user to press the headland button (22 Fig. 128) to start each action.
- Automatic mode reading This mode starts a series of actions by pressing the headland button once, for 1.5 seconds.

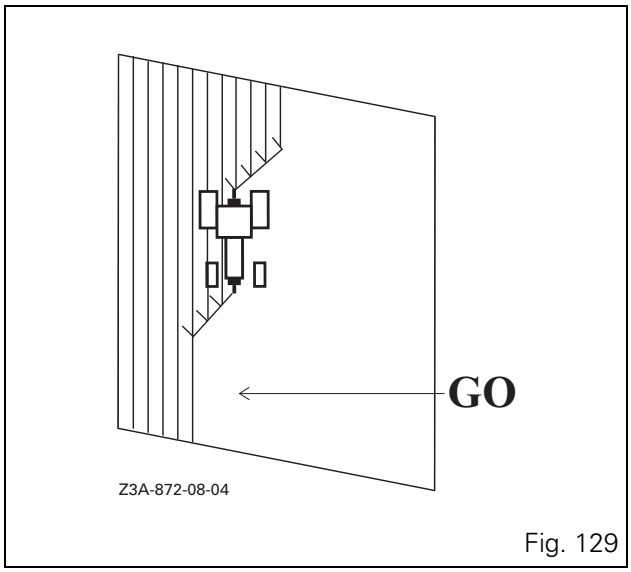



Z3A-749-07-04

Fig. 128

#### 7.11.4.1 - Reading a sequence in MANUAL mode

Start reading a sequence according to the order in which the actions were recorded, in particular just before furrow end (GO Fig. 129) when the sequence has been recorded in automatic mode.




Z3A-872-08-04

Fig. 129

**Procedure to follow:**

- Press the key «2 (GO) when the window (Fig. 130) is open. A new window is displayed (Fig. 131).

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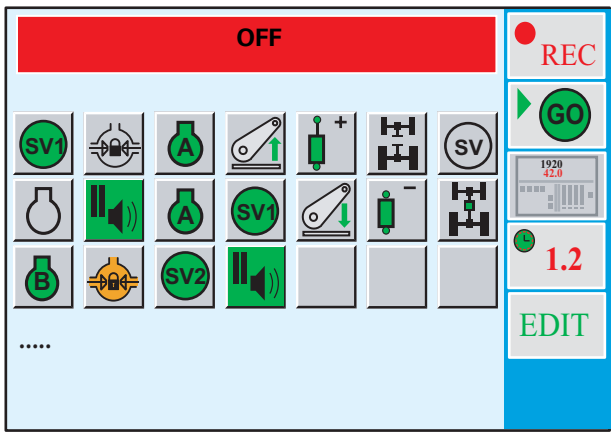
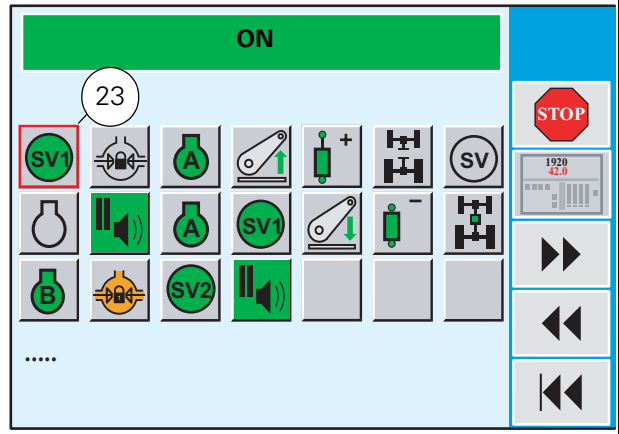



Z3A-828-08-04-B

Fig. 130




Z3A-873-08-04-B

Fig. 131

The first icon (first action) is outlined in red (23 Fig. 131).

- Press the headland button on the armrest (22 Fig. 128) for each action to perform. The icon outlined in red indicates the next action to be performed.
- To stop reading a sequence, press the key «$_2$ (STOP).

*NOTE: When a PAUSE action is triggered, a buzzer sounds (except if the volume is set to 0).*

### 7.11.4.2 - Reading a sequence in AUTOMATIC mode

**Procedure to follow:**

- Press the key «$_2$ (GO) when the window (Fig. 132) is open. A new window is displayed (Fig. 133).




Z3A-828-08-04-B

Fig. 132




Z3A-873-08-04-B

Fig. 133

The first icon (first action) is outlined in red (24 Fig. 133).

- Press the headland button on the armrest (22 Fig. 128) for 1.5 seconds to start reading the sequence. The actions are performed sequentially at defined time intervals (see Setting reading parameters). The icon outlined in red indicates the next action to be performed.
- To stop reading a sequence, press the key «$_2$ (STOP).

*NOTE: When a PAUSE action is triggered, reading stops and a buzzer sounds (except if the volume is set to 0). To resume reading, proceed in the same manner.*

*IMPORTANT: If for any reason it is necessary to stop reading the sequence, press the headland button (22 Fig. 128) again.*

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**Setting reading parameters:**
The time delay between each action can be increased or decreased by a period of 0.2 to 3 seconds.

When the (Fig. 132) window is open, press the key «$_4$. Pressing this key increases the time delay by 0.2 seconds.

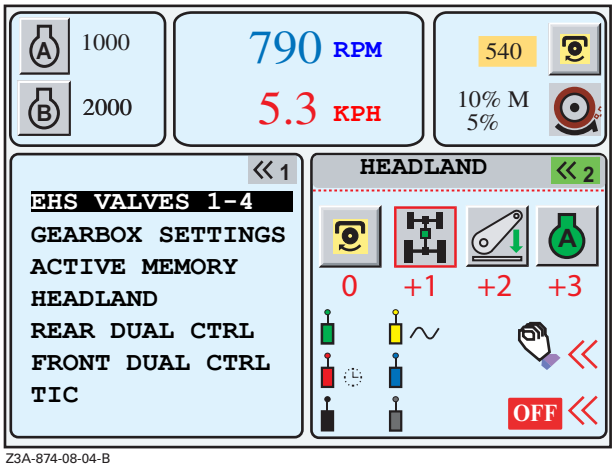
### 7.11.4.3 - Modifying reading

In both reading modes, reading progress can be modified if an action needs to be activated manually (Fig. 133):

- To manually move to the next action, press the key «$_4$,
- To manually move to the previous action, press the key «$_5$,
- To move back to the start of a sequence, press the key «$_6$.

### 7.11.4.4 - Displaying reading in the WORK application

When the window (Fig. 132) is open, press the key «$_3$. The window (Fig. 134) is displayed.

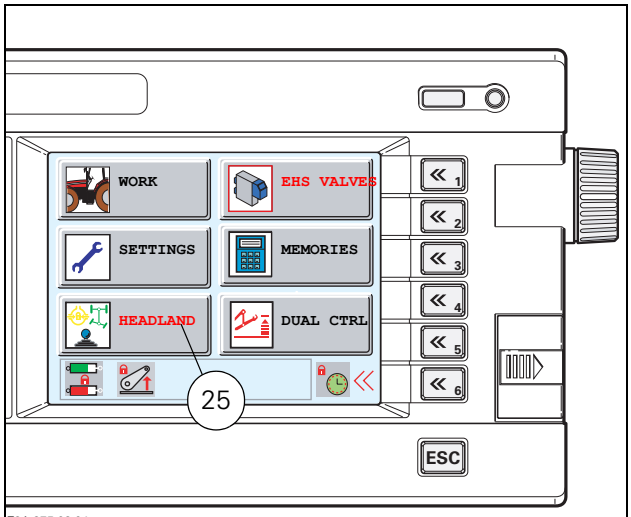



Z3A-874-08-04-B

Fig. 134

*NOTE: For the description of the window (Fig. 134), see paragraph 7.4.6 (HEADLAND menu).*

*NOTE: If a sequence reading operation is active when the window (Fig. 135) is open, the word **HEADLAND** flashes red to alert the driver (25).*




Z3A-875-08-04

Fig. 135

## 7.12 - EHS VALVES APPLICATION

### 7.12.1 - General

This application is used to set the hydraulic spool valve parameters (maximum 5). The DATATRONIC 3 allows the following to be performed for each spool valve:

- setting the ram rod retraction or extension flow rate,
- setting "Kick out" values (spool valve activation time),
- authorisation, or not, of spool valve floating position.

To start the **EHS VALVES** application (Fig. 136):

- Rotate the encoder (1) to the **EHS VALVES** application and press the encoder once the active function is highlighted by red text and a red rectangle around the icon. Or press the key «$_4$ (2). The window (Fig. 137) is displayed.
- To exit an application, press the **ESC** key (3).

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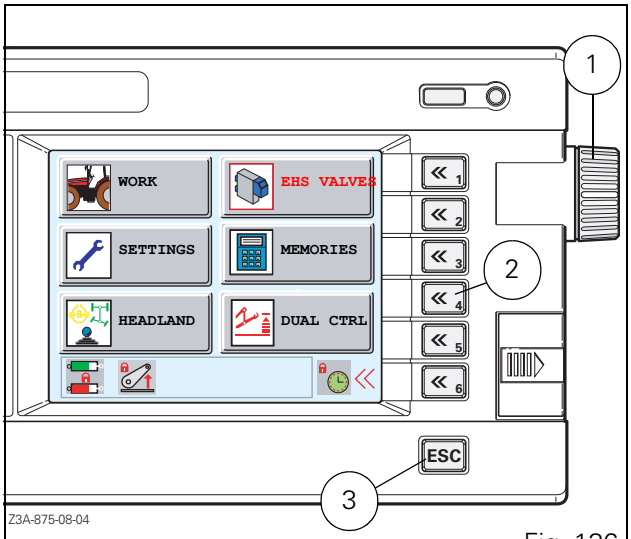


Fig. 136

### 7.12.2 - Description (Fig. 137)

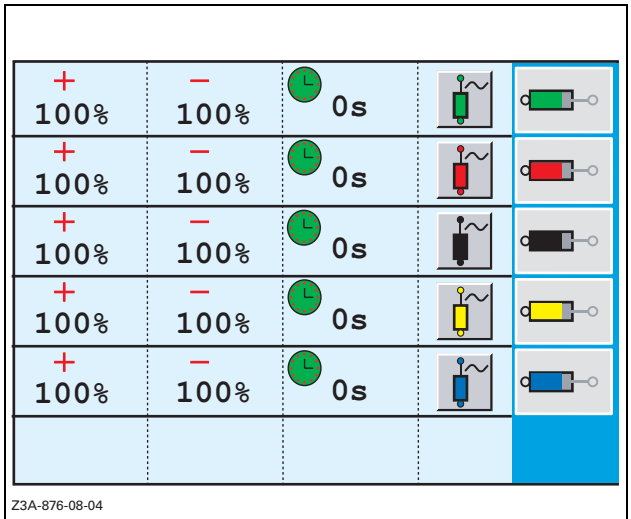


Fig. 137

Green spool valve controlled by the Joystick

Red spool valve controlled by the Joystick

Black spool valve controlled by lever 1

Yellow spool valve controlled by lever 2

Blue spool valve controlled by lever 3

**For each spool valve:**

Floating position available

Spool valve activation time

Value of the spool valve flow rate (on ram rod extension for example)

Value of the spool valve flow rate (on ram rod retraction for example)

*NOTE: The values displayed, along with the floating position of the spool valves in the window (Fig. 137) are default values.*

**EHS valve identification:**

On colour screens, each EHS valve is identified by a colour matching the colour on each control (Fig. 138).

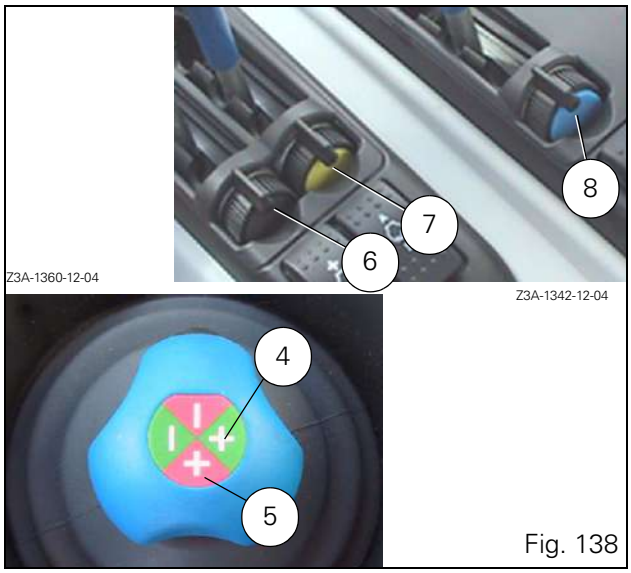


Fig. 138

4. Green
5. Red
6. Black
7. Yellow
8. Blue

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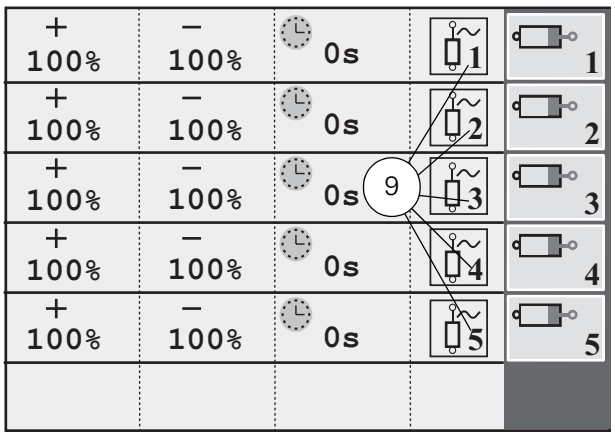
**On b/w screens:**
Each EHS valve is identified by a number (9 Fig. 139). These numbers correspond to a colour on the EHS valve controls (Fig. 138):

- **1** : green EHS valve control (Joystick)
- **2** : red EHS valve control (Joystick)
- **3** : black EHS valve control
- **4** : yellow EHS valve control
- **5** : blue EHS valve control



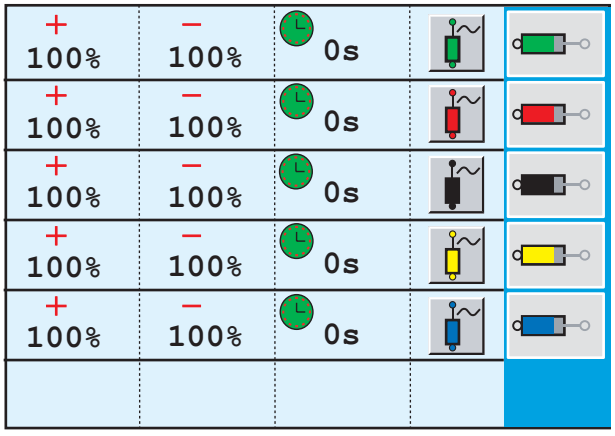

Z3A-1361-12-04

Fig. 139

### 7.12.3 - Setting hydraulic spool valve parameters

#### 7.12.3.1 - Setting flow rates (Fig. 140)

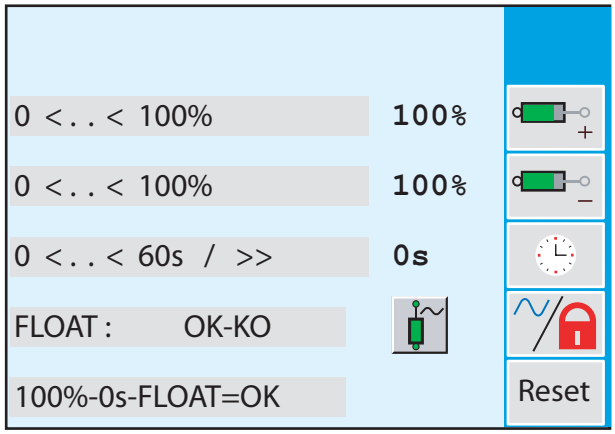
- Select the spool valve to adjust using keys «$_1$ to «$_5$.




Z3A-876-08-04

Fig. 140

Example: key «$_1$ provides access to the first spool valve. A new window is displayed (Fig. 141).

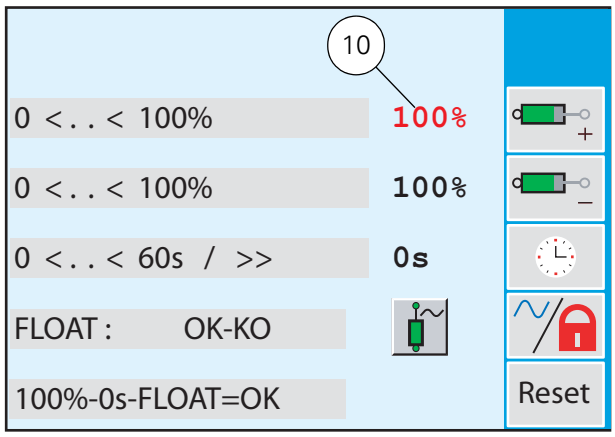



Z3A-885-08-04

Fig. 141

- Select the rod extension flow rate by pressing the key «$_2$. The percent flow rate is displayed in red (10 Fig. 142).

*NOTE: On b/w screens, this value is displayed in reverse video.*




Z3A-887-08-04

Fig. 142

- Adjust the flow rate value (from 0 to 100%) by rotating the encoder.
- Validate the selected value by either pressing the encoder, or by pressing key «$_2$. The value is displayed in black (11 Fig. 143).

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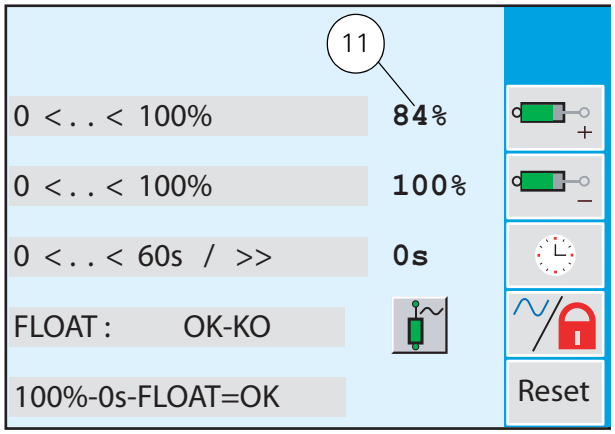


Fig. 143

Proceed in the same manner to adjust the rod retraction flow rate.
To return to the previous window, press the **ESC** key.

*NOTE: The flow rate values are defined with respect to the spool valve maximum flow rate.*

**Operation (Fig. 144):**
As long as the position of control lever for the concerned spool valve is inferior to 80% of its maximum position, the generated flow is proportional to its position. Beyond 80%, the flow generated is that which was stored.
When the EHS VALVES menu in the WORK application is open and a spool valve control is moved, the red real-time display zone moves in proportion to the lever position (12). The values of the set flow rates are displayed on either side of the progress bars (13 and 14).

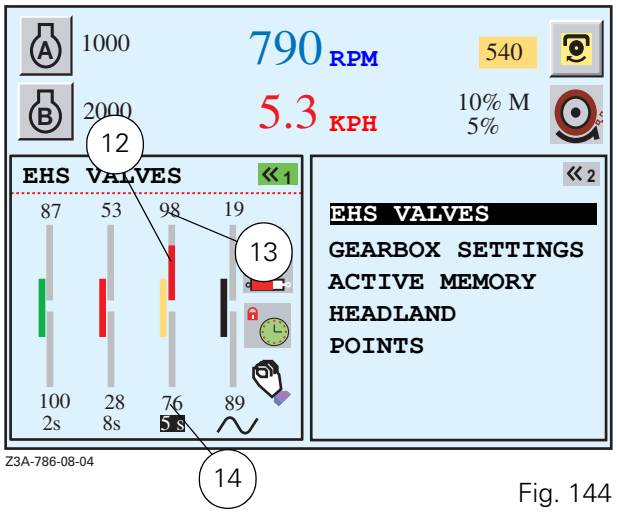


Fig. 144

*NOTE: To display this window, see section 7.4. (WORK application).*

**7.12.3.2 - Setting spool valve activation times (Fig. 145)**

- Select the spool valve to adjust using keys «1 to «5.

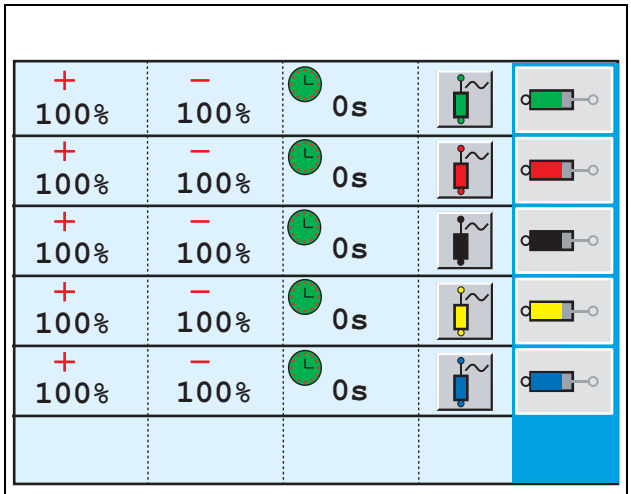


Fig. 145

Example: key «1 provides access to the first spool valve. A new window is displayed (Fig. 146).

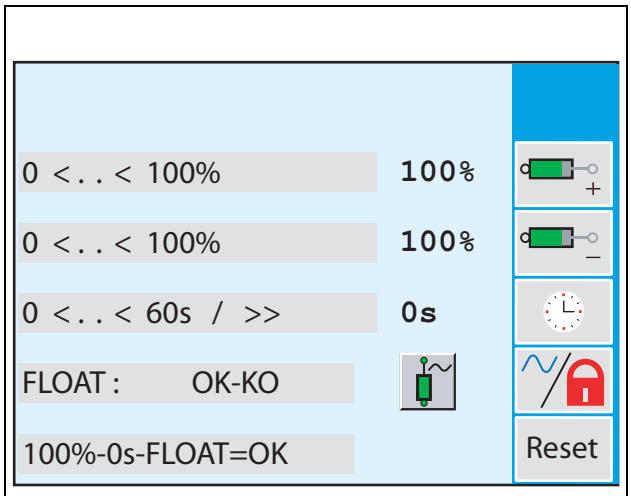


Fig. 146

- Press the key «4. The spool valve activation time is displayed in red (15 Fig. 147).

*NOTE: On b/w screens, this value is displayed in reverse video.*

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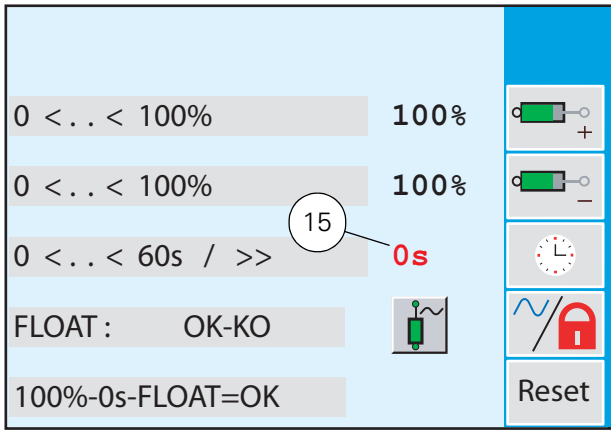


Fig. 147

- Adjust the activation time by rotating the encoder (from 0 to 60 seconds or **>>** for permanent flow (hydraulic motor supply for example)).
- Validate the value by either pressing the encoder, or by pressing key «$_3$. The value is displayed in black (16 Fig. 148).

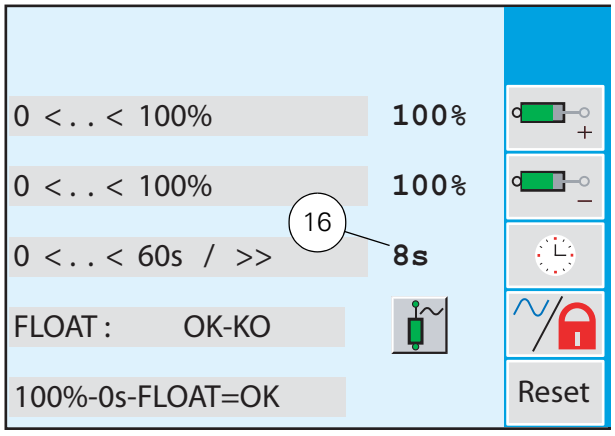


Fig. 148

To return to the previous window, press the **ESC** key.

**Operation (Fig. 149):**

- To initiate a spool valve activation time, push its control lever beyond 80% of its maximum position, then release the lever.
- During the activation phase, the time delay set appears in a black frame (17). As long as the position of control lever for the concerned spool valve is inferior to 80% of its maximum position, the generated flow is proportional to its position. Beyond 80%, the flow generated is that which was stored.
- Two other different symbols can be displayed depending on the configuration:

Permanent spool valve flow (18)

Spool valve in floating position (19)

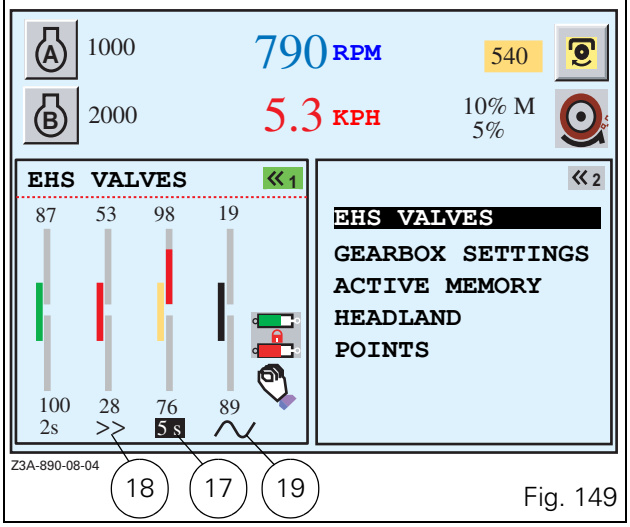


Fig. 149

*NOTE: To display this window, see section 7.3 (WORK application).*

**7.12.3.3 - Activating the floating position (Fig. 150)**

- Select the spool valve to adjust using keys «$_1$ to «$_5$.

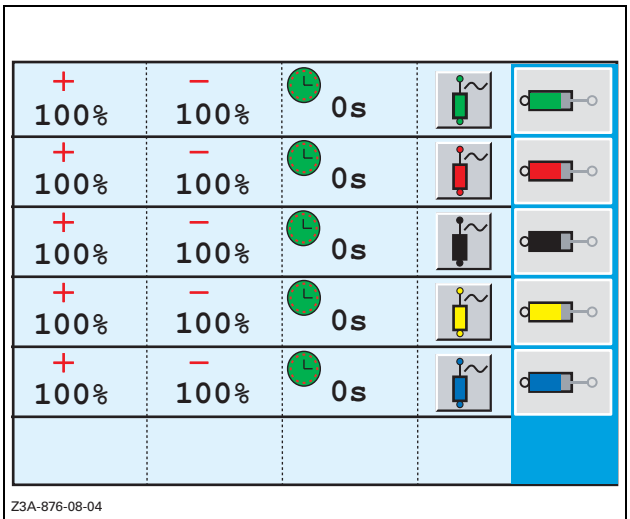


Fig. 150

Example: key «$_1$ provides access to the first spool valve. A new window is displayed (Fig. 151).

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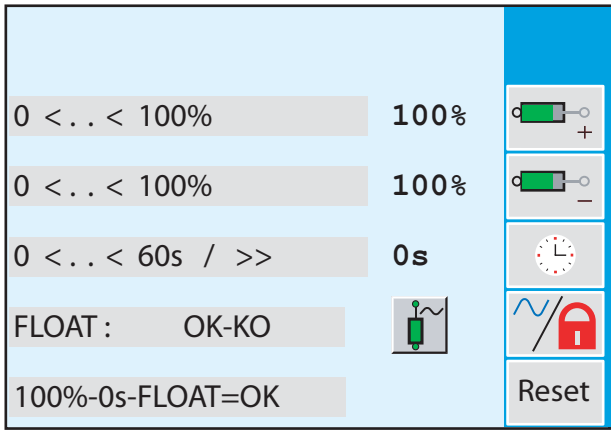



Z3A-885-08-04

Fig. 151

- Press the key «$_5$ to display either:

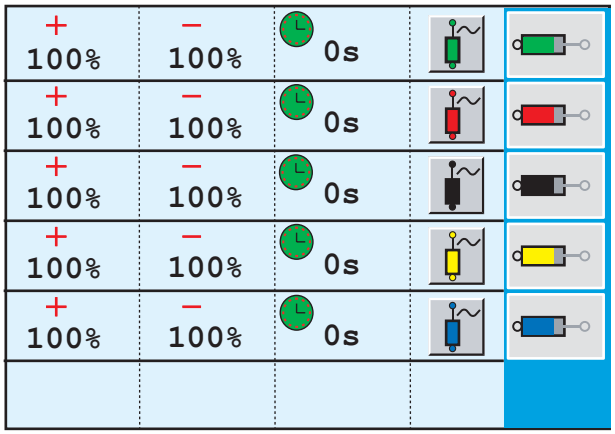
Floating position unavailable

Floating position available

To return to the previous window, press the **ESC** key.

### 7.12.3.4 - Resetting the parameters (Fig. 152)

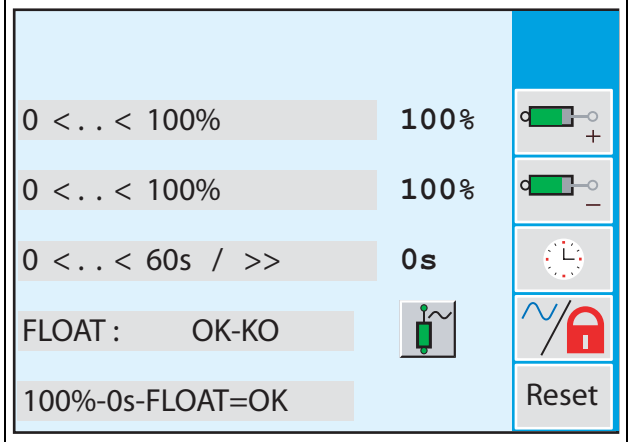
- Select the spool valve to adjust using keys «$_1$ to «$_5$.




Z3A-876-08-04

Fig. 152

Example: key «$_1$ provides access to the first spool valve. A new window is displayed (Fig. 153).




Z3A-885-08-04

Fig. 153

- Press the key «$_6$ (RESET) to reset the values.

**Default values after reset:**

- spool valve flow on rod retraction and extension at 100%,
- spool valve activation time at 0 seconds,
- floating position available.

To return to the previous window, press the **ESC** key.

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## 7.13 - DUAL CONTROL APPLICATION

### 7.13.1 - General

The DUAL CONTROL is a system which automatically controls implements in working position and at the end of the field.

It also allows the rear linkage position to be carried over to the front linkage position or to the depth wheel position of a semi-mounted plough for example.

The information necessary for the correct operation of the system is acquired by sensors, processed by the "DATATRONIC 3" onboard computer and the electronic linkage calculator which control the operation of an electro-hydraulic spool (EHS) valve.

Using this application, the following can be controlled:

- a front and rear implement, with the FRONT DUAL CONTROL (e.g.: a front roller and a combined rear seeder (Fig. 154), a front and rear plough, etc.),
- a semi-mounted rear implement, with the REAR DUAL CONTROL (e.g.: a semi-mounted plough (Fig. 155), a semi-mounted disc tiller, etc. These implements being hitched to the rear linkage),
- a trailed rear implement with the TRAILED IMPLEMENT CONTROL (T. I. C.) (e.g.: a disc tiller (Fig. 156), a trailed Chisel, etc.). These implements must be hitched either to the swinging drawbar, or to the lift arms. This system allows the implement height to be set according to the wheel slip and the draft applied to the lift arms (if the implement is hitched to the lift arms).

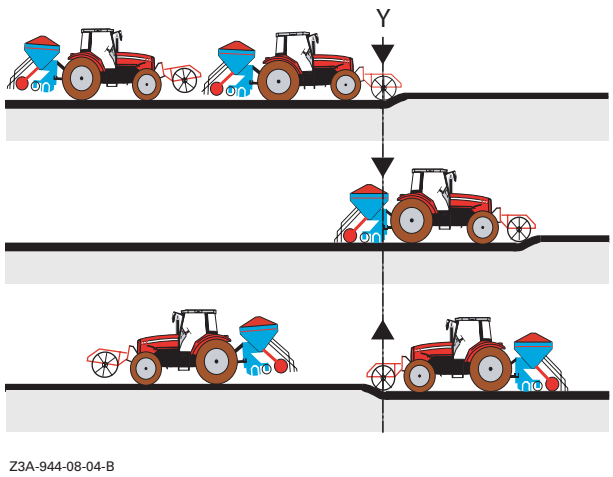


Fig. 154

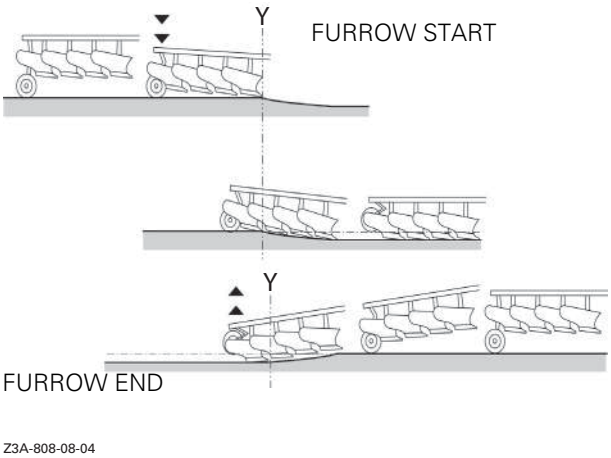


Fig. 155

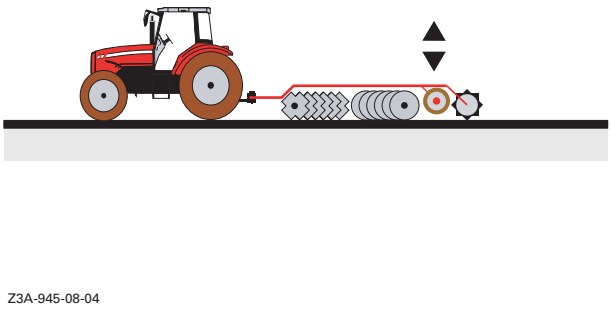


Fig. 156

To start the **DUAL CONTROL** application (Fig. 157):

- rotate the encoder (1) to the **DUAL CTRL** application.

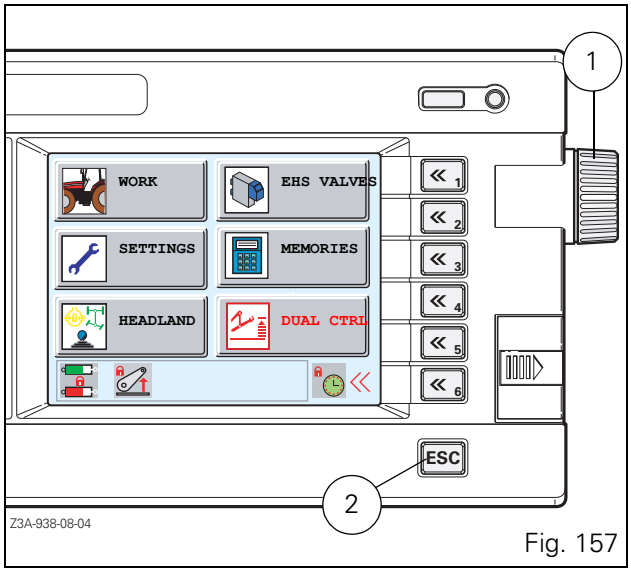


Fig. 157

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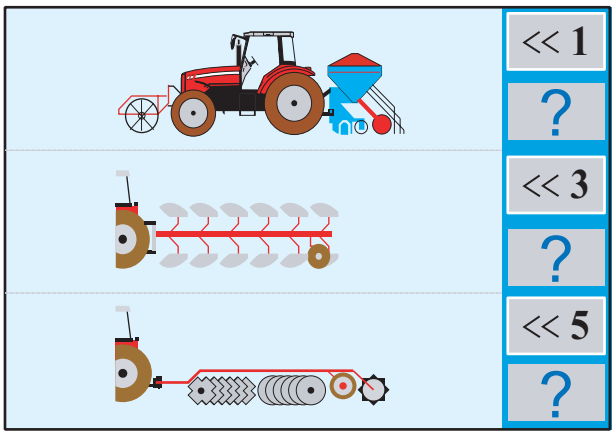
- press the encoder when the active function is highlighted by red text and a red rectangle around the icon (the window Fig. 158 is displayed).
- to exit an application, press the **ESC** key (2).

### 7.13.2 - FRONT DUAL CONTROL

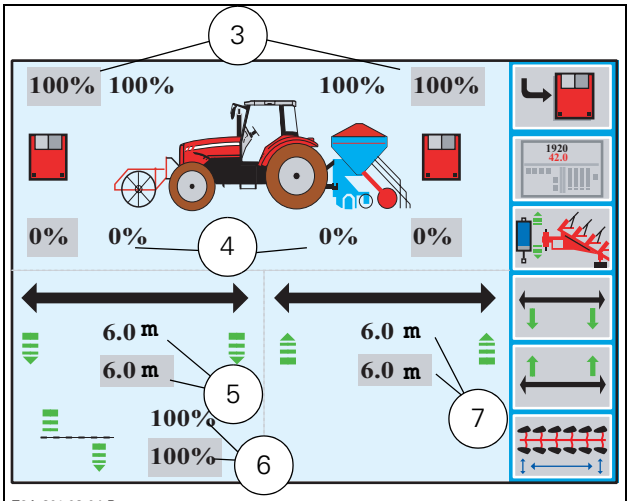
*NOTE: The explanations in the section shall be illustrated with the example of a front roller and a combined rear seeder.*

When the window (Fig. 158) is open, press the key «1. The window (Fig. 159) is displayed.




Z3A-817-08-04

Fig. 158




Z3A-801-08-04-B

Fig. 159

**Description:**

- Right-hand part of the window:

Memorises high and low implement positions

Displays the FRONT DUAL menu in the work application

Opens the linkage calibration menu

Authorises furrow start setting

Authorises furrow end setting

Activates or deactivates the rear implement depth transfer function

- Left-hand part of the window:

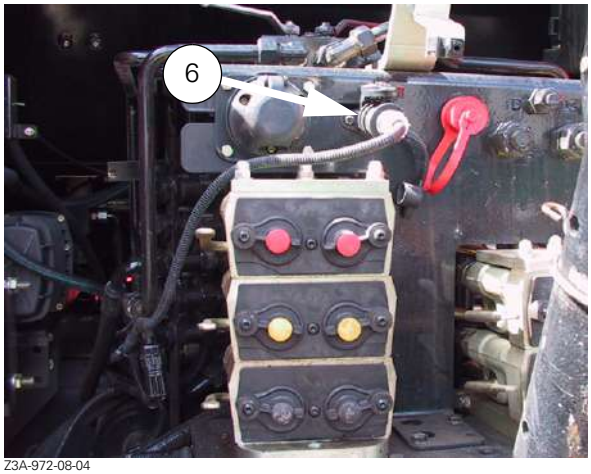
In all greyed boxes, memorised values

*NOTE: The values that are not in boxes correspond to instant values.*

3. Linkage high position values
4. Linkage low position values
5. Furrow start length
6. Furrow start front linkage extra-lowering value
7. Furrow end length

#### 7.13.2.1 - Calibration

The FRONT DUAL CONTROL is operated by the Datatronic which receives information from a position sensor located on the front linkage. This must be connected to the rear of the tractor (6 Fig. 160).




Z3A-972-08-04

Fig. 160

7

https://truckmanualshub.com/

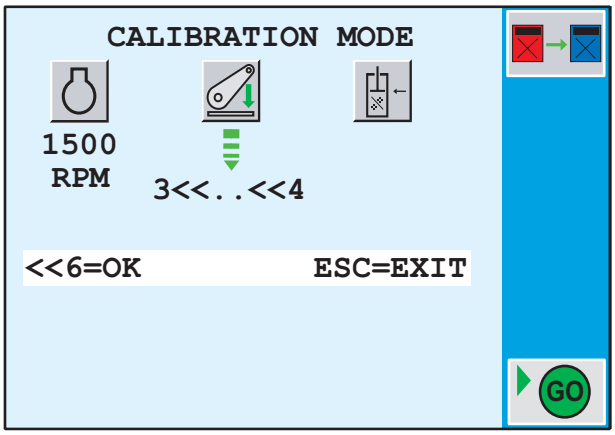


However, for the DUAL CONTROL to operate correctly, the front linkage position sensor must be calibrated.

*IMPORTANT: This operation must be performed on first use, or as soon as work is carried out on the front linkage position sensor.*

*NOTE: If a memory is active, the calibration is stored in this memory.*

To carry out calibration, press the key «$_6$ when the window (Fig. 159) is open. The window (Fig. 161) is displayed.




Z3A-958-08-04-B

Fig. 161

**Conditions required for calibration:**

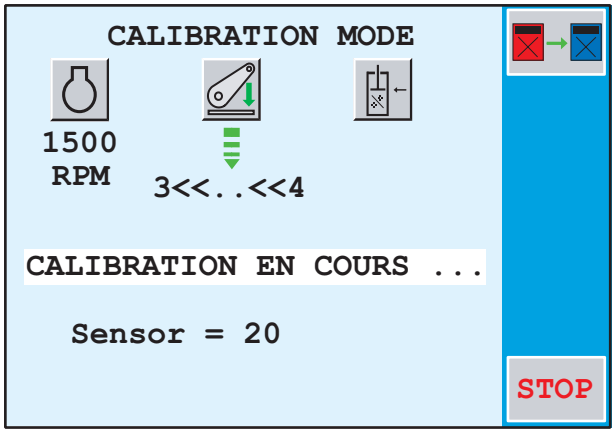
- Joystick control unlocked and front linkage set approximately at mid- travel.
- rear linkage control unlocked and in lowering position (7 Fig. 162),
- engine speed at 1500 rpm,
- rear linkage height / depth setting control set to between 3 and 4 (8 Fig. 162).

*IMPORTANT: For efficient calibration, the front linkage must be able to move from its highest position to its lowest position. For this purpose, perform the calibration without any front implements.*

Z3A-706-07-04

Fig. 162

- Press the key «$_6$ (GO). Calibration starts and a new window is displayed (Fig. 163).




Z3A-1013-08-04-B

Fig. 163

During calibration, the front linkage is lifted and lowered several times. Then, as soon as calibration is complete, the window (Fig. 161) is displayed again.

***DANGER: Ensure that no one can enter the front linkage operating area throughout the calibration process.***

*IMPORTANT: In an emergency, press the key «$_6$ (STOP) to stop calibration.*

When sensor calibration is complete, a new window is displayed (Fig. 164). This indicates the values read by the DATATRONIC required by the service engineer.

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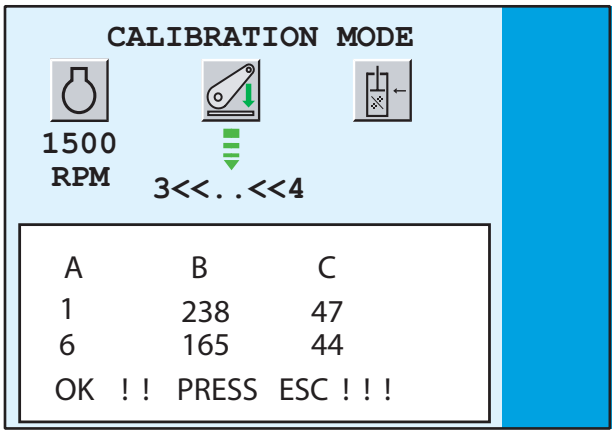



Z3A-1374-12-04

Fig. 164

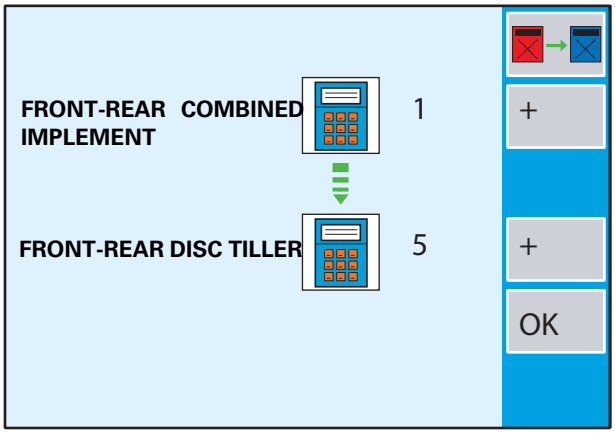
- To return to the SETTINGS window, press the **ESC** key.

### 7.13.2.2 - Downloading the calibration

If different front implements are to be used, the front linkage sensor calibration can be stored in different memories. This avoids repeating sensor calibration when different front implements are used.

*IMPORTANT: However, if work is carried out on the front linkage sensor, it will have to be recalibrated.*

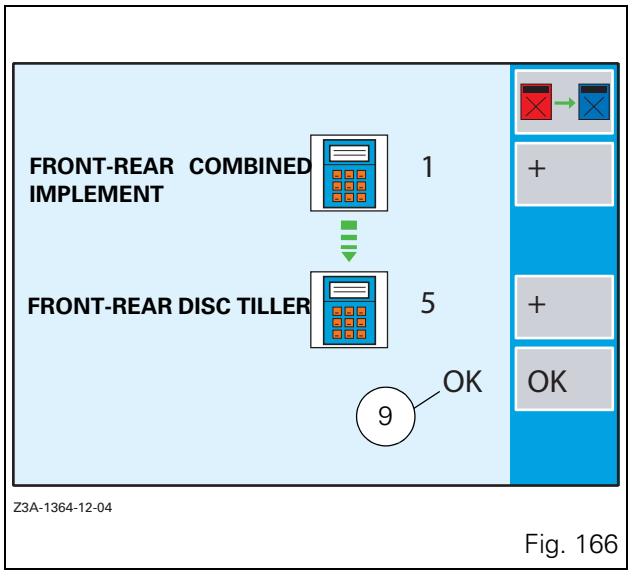
- To download a calibration in another memory, press the key «$_1$ when the window (Fig. 163) is open. The window (Fig. 165) is displayed.




Z3A-1363-12-04

Fig. 165

- Select the reference memory, i.e. that from which the calibration will be copied. For this purpose, press the key «$_2$ to display the required memory (e.g.: memory 1 (FRONT-REAR COMBINED IMPLEMENT)).
- Select the memory for which the front linkage sensor calibration must be identical to the previously selected memory. For this purpose, press the key «$_4$ to display the required memory (e.g.: memory 5 (FRONT-REAR DISC TILLER)).
- Validate by pressing the key «$_5$. The symbol (OK) is displayed (9 Fig. 166).

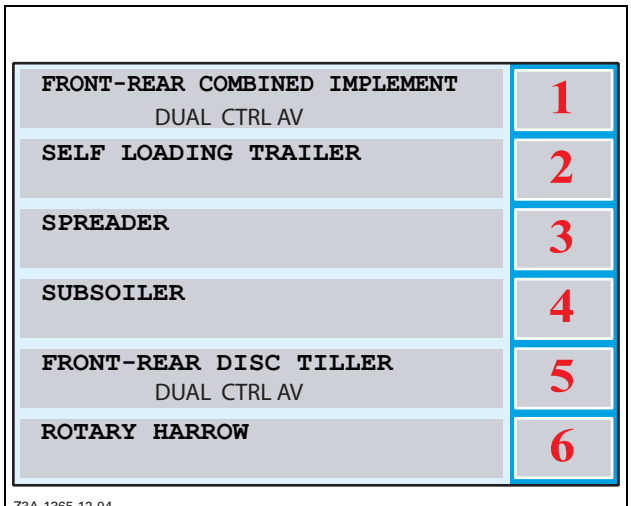



Z3A-1364-12-04

Fig. 166

*NOTE: On completion of this operation, the DATATRONIC 3 displays the name of the downloaded calibration. Example (Fig. 167): the FRONT DUAL CONTROL calibration is identical for memory 1 and memory 5.*

*NOTE: This operation is valid for calibration of both the front linkage sensor and the rear implement sensor, as long as no work is carried out on the sensor. If required, calibration must be carried out again.*




Z3A-1365-12-04

Fig. 167

https://truckmanualshub.com/



### 7.13.2.3 - Memorising high and low linkage positions

For FRONT DUAL CONTROL operation, the DATATRONIC must know the high and low positions of the implements. It must therefore be entered with these values.

**Memorising the high position:**

- Set the front and rear implements in the high position (Fig. 168) using the following controls:
  - the linkage control and high position limiter,
  - the front linkage spool valve control.

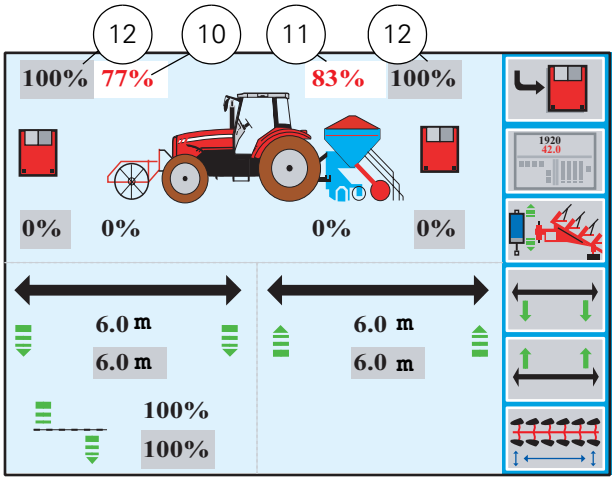
Z3A-954-08-04

Fig. 168

When the linkage controls are actuated, the position values in the white boxes are displayed in red and vary (Fig. 169):

10. Front linkage high position value
11. Rear linkage high position value

*NOTE: On b/w screens, these values are displayed in reverse video.*



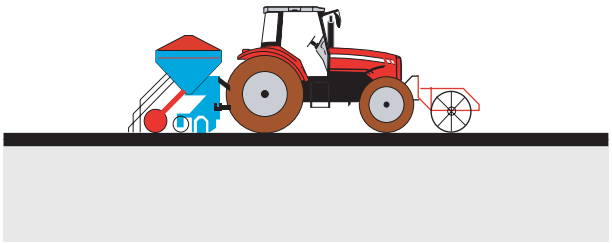

Z3A-955-08-04-B

Fig. 169

- Memorise the high positions by pressing the key «$_1$. The high position values are displayed in the greyed boxes and are memorised (12).

**Memorising the low position:**

- Set the front and rear implements in the low position (Fig. 170) using the following controls:
  - the rear linkage control and low position limiter,
  - the front linkage spool valve control.



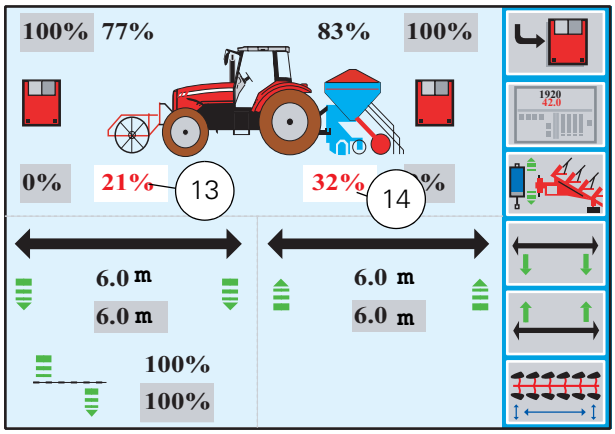
Z3A-956-08-04

Fig. 170

When the linkage controls are actuated, the position values in the white boxes are displayed in red and vary (Fig. 171):

13. Front linkage low position value
14. Rear linkage low position value

*NOTE: On b/w screens, these values are displayed in reverse video.*




Z3A-957-08-04-B

Fig. 171

- Memorise the low positions by pressing the key «$_1$. The values of the memorised low values are displayed in the greyed boxes.

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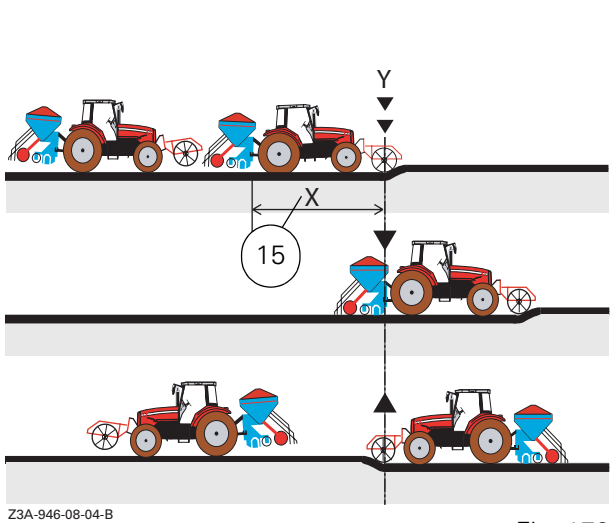
### 7.13.2.4 - Setting furrow start length

(Implement example: front roller with combined rear seeder).

To ensure that the rear implement enters the soil at a certain distance after entry of the front implement, the DATATRONIC must know the length X (15 Fig. 172) between these two implements.

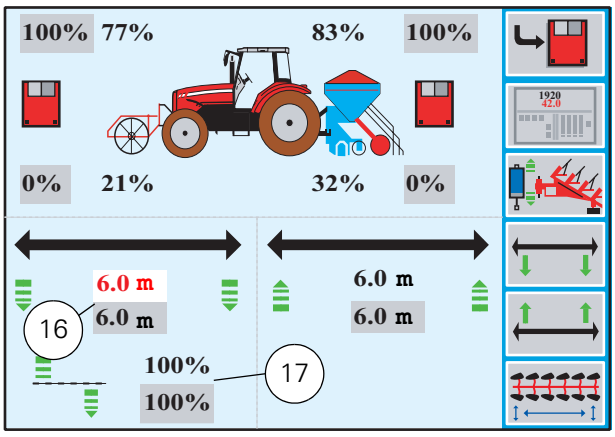



Z3A-946-08-04-B

Fig. 172

- Press the key «4 when the window (Fig. 173) is open. The furrow start length is displayed in red (16 Fig. 173).

*NOTE: On b/w screens, these values are displayed in reverse video.*




Z3A-947-08-04-B

Fig. 173

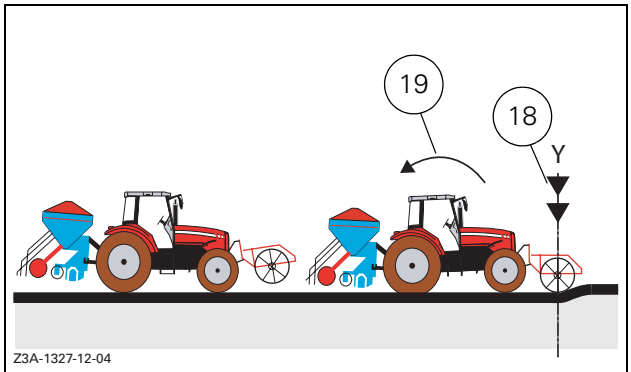
- Adjust the length X by rotating the encoder and validate by pressing the latter. The length is displayed in black inside the white and grey box, and the front linkage furrow start extra-lowering value is displayed in red (17 Fig. 173).

*NOTE: On b/w screens, these values are displayed in reverse video.*

### 7.13.2.5 - Setting furrow start front linkage extra-lowering

**Definition (Fig. 174):**

When the rear linkage Lowering control is activated, the front linkage is lowered (18), which ballasts the front of the tractor (19). For this reason, as long as the rear implement is not on the ground, the front implement does not work at the previously set depth (see paragraph 7.8.2.2 Memorising high and low linkage positions). To ensure the front implement works at the correct depth even when the rear implement is not lowered to the ground, a front linkage extra-lowering depth can be set to avoid the above phenomenon. Therefore, when the rear linkage lowering control is then activated, the front linkage working position is slightly higher during the furrow start phase. This function remains active even while the complete furrow start length has not yet been run.




Z3A-1327-12-04

Fig. 174

*NOTE: To set the front linkage furrow start extra-lowering value, the furrow start length must first be set (see previous paragraph).*

**Adjustment :**

- When the window (Fig. 173) is open, press the key «4. The furrow start length is displayed in red. If this value is suitable, validate by pressing the encoder. The front linkage extra-lowering value (20 Fig. 175) is displayed in red.

*NOTE: On b/w screens, these values are displayed in reverse video.*

*NOTE: If the furrow start length must be modified, see the previous paragraph.*

- Validate by pressing the encoder. The value is displayed in black.

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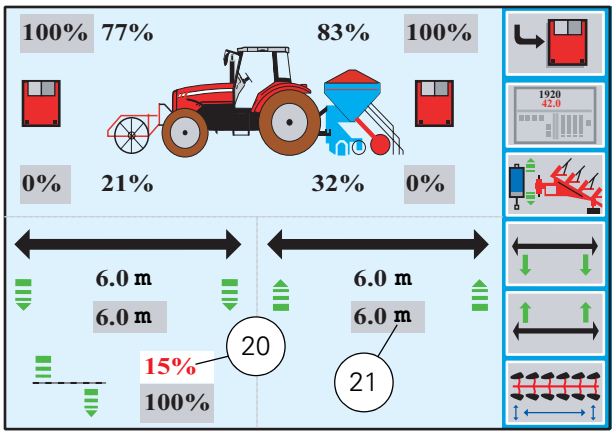



Z3A-952-08-04-B

Fig. 175

*NOTE: The furrow start front linkage extra-lowering value (e.g.: 15%) corresponds to 15% of the maximum front linkage height.*

### 7.13.2.6 - Setting furrow end length

As for the furrow start, the DATATRONIC needs to know the length between the front and rear implements.

*NOTE: The furrow start and end lengths may differ, depending on the linkage lowering and lifting speeds.*

- Press the key «$_5$ when the window (Fig. 175) is open. The furrow end length is displayed in red (21 Fig. 175).

*NOTE: On b/w screens, these values are displayed in reverse video.*

- Adjust the length by rotating the encoder and validate by pressing the latter. The value is displayed in black.

### 7.13.2.7 - Transferring the rear linkage depth value

When using the DUAL CONTROL, this function can be activated or deactivated. When this function is activated, modifications to the rear linkage depth during use are automatically transferred to the front linkage. This keeps the front and rear implements horizontal in relation to one another.

To activate or deactivate this function, press the key «$_6$ when the window (Fig. 175) is open.

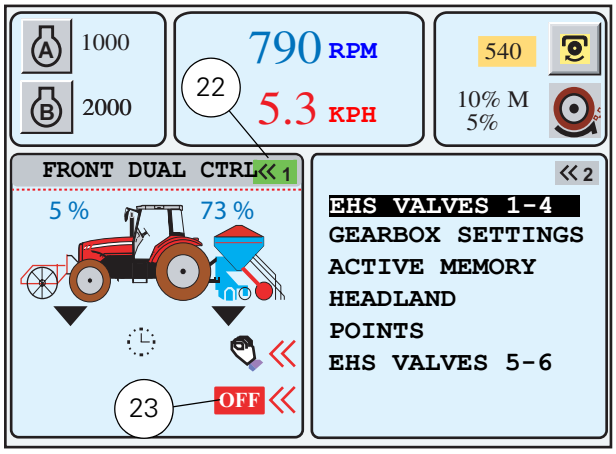
Function activated

Function deactivated

### 7.13.2.8 - Activating the FRONT DUAL CONTROL function

In order to use the DUAL CONTROL function, it must first be activated.

- For this, press the key «$_2$ when the window (Fig. 175) is open. The window (Fig. 176) is displayed.




Z3A-799-08-04-B

Fig. 176

- Press the key «$_6$ when the icon (22 Fig. 176) is green (if this is not the case, first press the key «$_1$ so the icon (22 Fig. 176) is displayed in green. The DUAL CONTROL function is then active and the symbol (23 Fig. 176) changes from OFF to ON (24 Fig. 177).

*NOTE: On b/w screens, the active window is indicated by the icon (22 Fig. 176) in reverse video.*

During use, a symbol is displayed under each linkage to indicate their control position (e.g. 25 Fig. 177).
The following symbols can be displayed:

Linkage control in raised position

Linkage control in lowered position

Indicates if the DUAL CONTROL is in the furrow start or end mode

Linkage control in floating position

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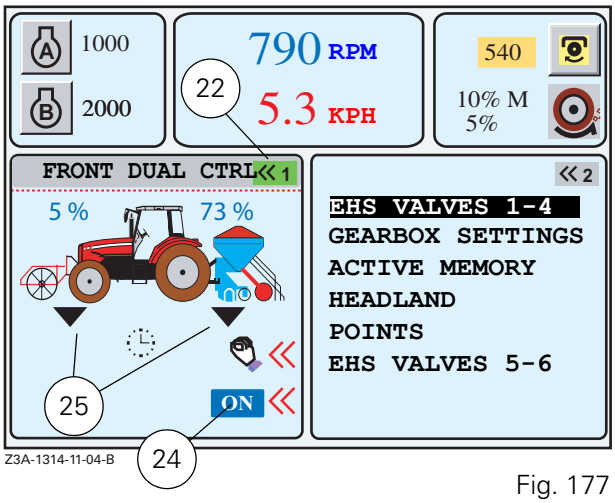


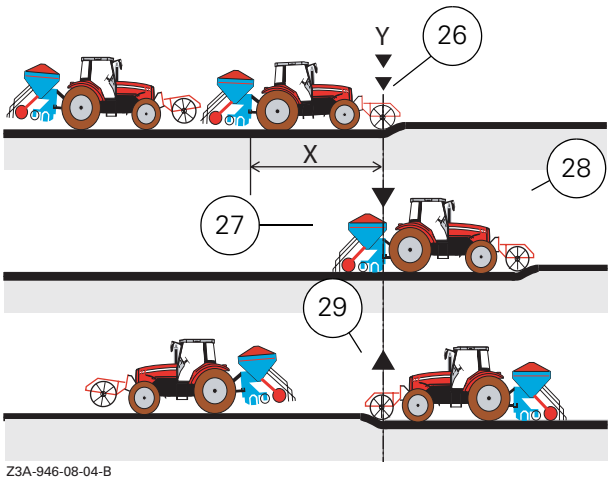

Fig. 177

To return to the window (Fig. 175), press the key «5 when the window (Fig. 177) is open and the icon (22 Fig. 177) is green or in reverse video on b/w screens.

### 7.13.2.9 - Working operation

**Furrow start:**

When the tractor is at the start of a furrow, activate the rear linkage lowering control as soon as the tractor front implement reaches mark Y (26 Fig. 178). The front implement lowers to below the set working depth because the tractor front is ballasted (front linkage extra-lowering). When distance X has been travelled, the rear linkage lowers automatically (27 Fig. 178). The back of the tractor is now ballasted. Thus the front linkage raises slightly to working position (28 Fig. 178).




**LEGEND:**

26. Lowering the front linkage below working position
27. Lowering the rear linkage into working position
28. Lifting the front linkage into working position
29. Lifting of the front linkage

Fig. 178

**Furrow end:**

At the end of a furrow, activate the rear linkage lifting control when the front implement reaches mark Y (29 Fig. 178). The front implement lifts. When distance X has been travelled, the rear linkage is automatically activated to lift the implement.

*NOTE: For pointed fields, however, the POINTS menu must be used to optimise the operation of the DUAL CONTROL (see paragraph 7.8.5).*

*IMPORTANT: If the linkage high and low stops are modified during work, they are not stored in the DATATRONIC active memory. To memorise them, see paragraph 7.8.2.2.*

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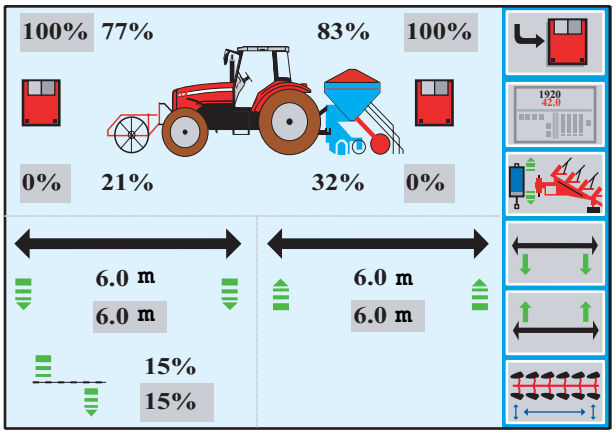
**Displaying parameters:**
During work either the Settings window (Fig. 179), or the Work window (Fig. 180) can be displayed.

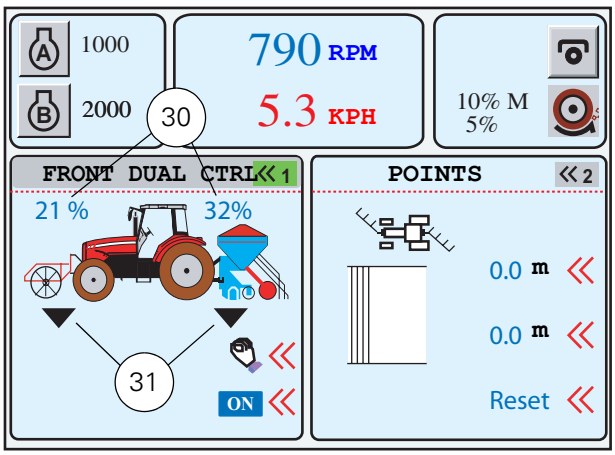



Z3A-961-08-04-B

Fig. 179

**Description (Fig. 179):**
As the front and rear linkage positions change, the corresponding height values change.
The values in the grey boxes are memorised and fixed.

**Description (Fig. 180):**




Z3A-962-08-04-B

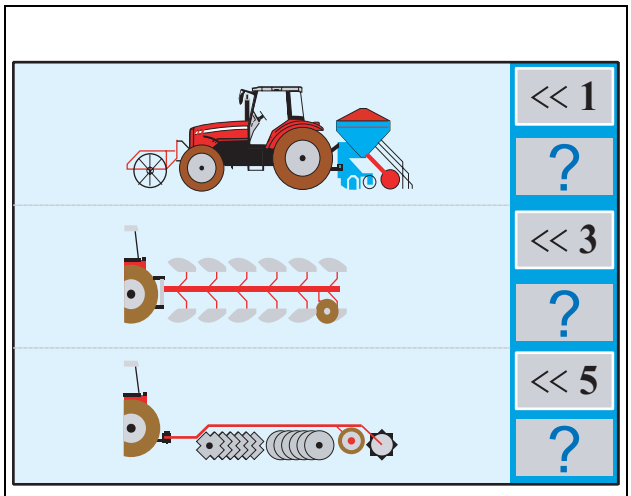
Fig. 180

To display this window, press the key «$_2$ when the window (Fig. 179) is open.
**Left-hand part of the window:**
The linkage position values (30) are the active values.
The symbols under the linkages (31) indicate their control status.
**Right-hand part of the window:**
See section 7.8.5 (POINTS menu).

### 7.13.3 - REAR DUAL CTRL

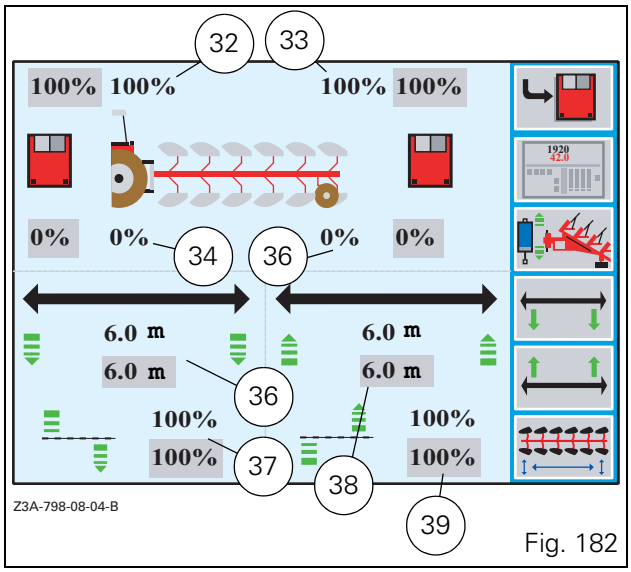
*NOTE: In this section, explanations shall be illustrated by a semi-mounted plough example.*

When the window (Fig. 181) is open, press the key «$_3$. The window (Fig. 182) is displayed.




Z3A-817-08-04

Fig. 181




Z3A-798-08-04-B

Fig. 182

**Description:**

Memorises high and low implement positions

Displays the REAR DUAL CTRL menu in the WORK application

Opens the linkage calibration menu

Authorises furrow start setting

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Authorises furrow end setting

Activates or deactivates the rear implement depth transfer function

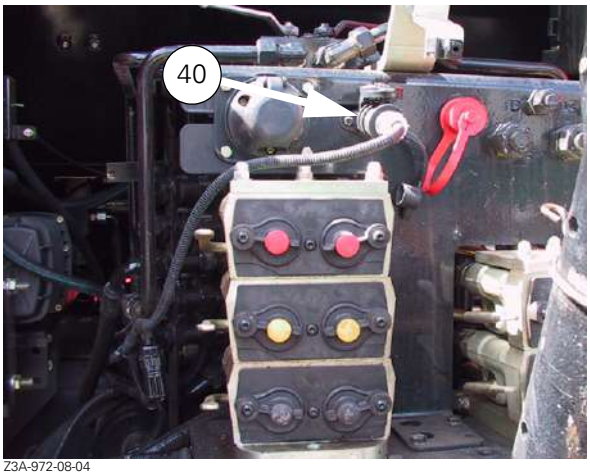
Greyed boxes: memorised values

*NOTE: The values that are not in grey boxes correspond to instant values.*

32. Rear linkage high position values
33. Plough depth wheel high position values
34. Rear linkage low position values
35. Plough depth wheel low position values
36. Furrow start lengths
37. Furrow start plough depth wheel partial lowering values
38. Furrow end lengths
39. Furrow end plough depth wheel partial lifting values

### 7.13.3.1 - Calibration

The REAR DUAL CONTROL is operated by the Datatronic which receives information from a position sensor located on the rear implement. This must be connected to the rear of the tractor (40 Fig. 183).




Z3A-972-08-04

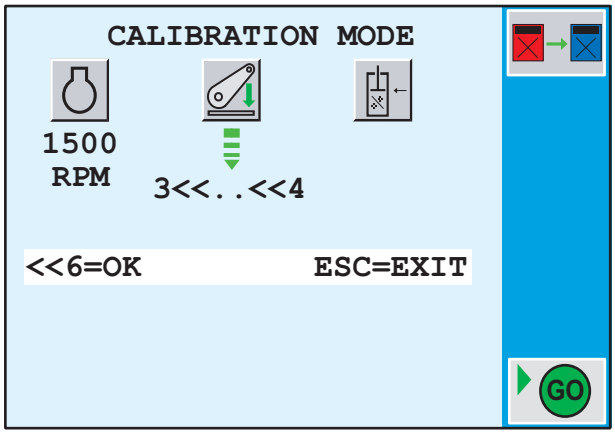
Fig. 183

However, for the DUAL CONTROL to operate correctly, the rear implement position sensor must be calibrated.

*IMPORTANT: This operation must be performed on first use, or as soon as work is carried out on the rear implement position sensor.*

*NOTE: If a memory is active, the calibration is stored in this memory.*

To carry out calibration, press the key «6 when the window (Fig. 182) is open. The window (Fig. 184) is displayed.




Z3A-958-08-04-B

Fig. 184

**Conditions required for calibration:**

- Joystick control unlocked and plough depth wheel set approximately at mid- travel.
- rear linkage control unlocked and in lowering position (41 Fig. 185),
- engine speed at 1500 rpm,
- rear linkage height / depth setting control set to between 3 and 4 (42 Fig. 185).

*IMPORTANT: For efficient calibration, the front linkage must be able to move from its highest position to its lowest position. For this, lift the implement to avoid the shares from touching the soil when the implement in is low position (e.g.: Fig. 186).*

Z3A-706-07-04

Fig. 185

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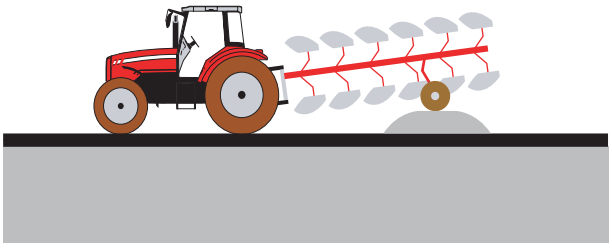
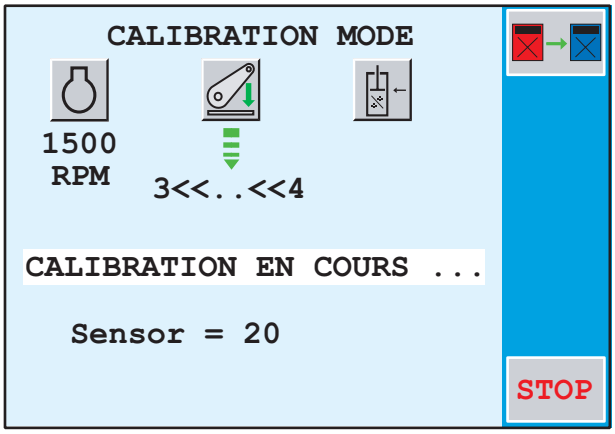


Z3A-1014-08-04

Fig. 186

- Press the key «$_6$. Calibration starts and a new window is displayed (Fig. 187).

***DANGER: Ensure that no one can enter the front linkage operating area throughout the calibration process.***




Z3A-1013-08-04-B

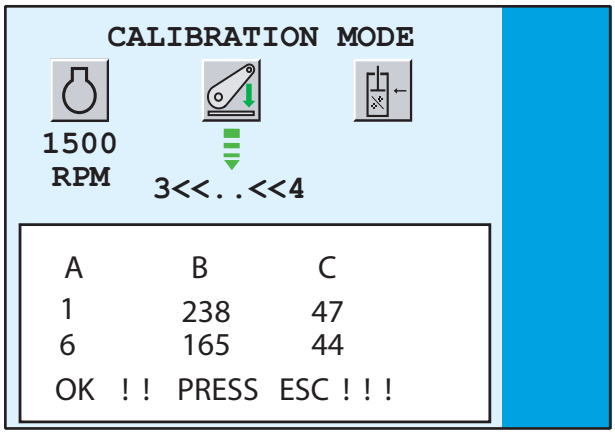
Fig. 187

During calibration, the rear implement is lifted and lowered several times. Then, as soon as calibration is complete, the window (Fig. 184) is displayed again.

***DANGER: Ensure that no one can enter the front linkage operating area throughout the calibration process.***

*IMPORTANT: In an emergency, press the key «$_6$ (STOP) to stop calibration.*

When sensor calibration is complete, a new window is displayed (Fig. 188). This indicates the values read by the DATATRONIC required by the service engineer.




Z3A-1374-12-04

Fig. 188

- To return to the SETTINGS window, press the **ESC** key.

### 7.13.3.2 - Downloading the calibration

If different implements are to be used, the rear implement sensor calibration can be stored in different memories. This avoids recalibrating the sensor.

*IMPORTANT: However, if work is carried out on the rear implement sensor, it will have to be recalibrated.*

The downloading procedure is identical to that of the FRONT DUAL CONTROL. See paragraph 7.8.2.2. (Downloading the calibration).

### 7.13.3.3 - Memorising high and low linkage positions

For REAR DUAL CONTROL operation, the DATATRONIC must know the high and low positions of the linkage and the plough depth wheel. It must therefore be entered with these values.

**Memorising the high position:**

- Place the linkage and depth wheel in high position (plough horizontal Fig. 189) using the following controls:
  - the linkage control and high position limiter,
  - the plough depth wheel spool valve control.

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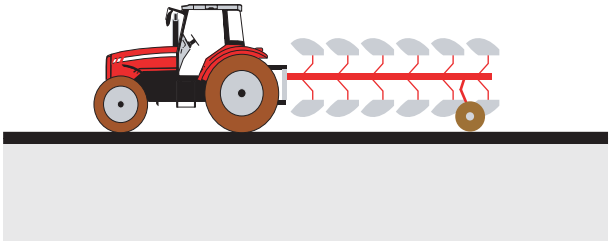


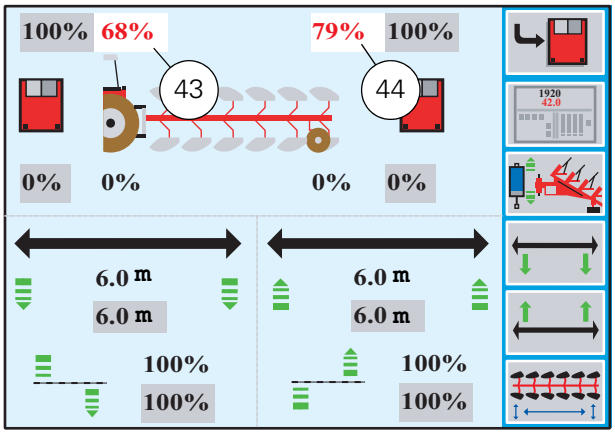
Z3A-963-08-04

Fig. 189

When the linkage and depth wheel controls are actuated, the position values vary (Fig. 190):

43. Linkage high position value

**44. Plough depth wheel high position value**




Z3A-964-08-04-B

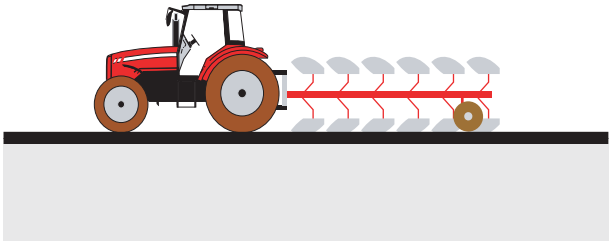
Fig. 190

- Memorise the high positions by pressing the key «1. The high position values are displayed in the greyed boxes and are memorised.

**Memorising the low position:**

- Place the linkage and depth wheel in working position (plough horizontal Fig. 191) using the following controls:
  - the rear linkage control and low position limiter,
  - the plough depth wheel spool valve control.

*NOTE: If possible, place the depth wheel cylinder in the low mechanical stop position.*



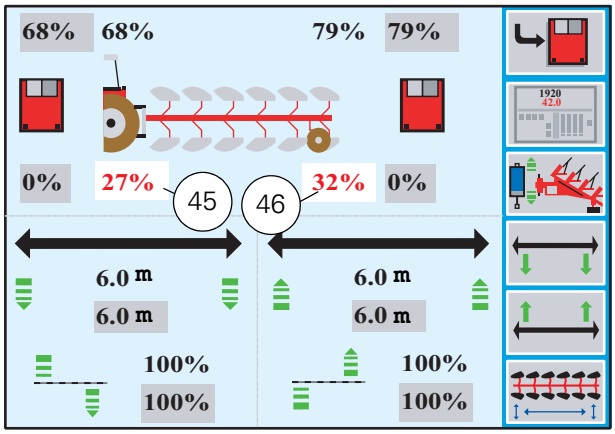
Z3A-965-08-04

Fig. 191

When the linkage and depth wheel controls are actuated, the position values in the white boxes vary (Fig. 192):

**45. Linkage low position value**

**46. Plough depth wheel low position value**




Z3A-966-08-04-B

Fig. 192

- Memorise the low positions by pressing the key «1. The low position values are displayed in the greyed boxes and are memorised.

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### 7.13.3.4 - Setting furrow start length

To ensure that the last plough share enters the soil at the same place as the first share (Y Fig. 193), the DATATRONIC must know the length X between the first and last share (47 Fig. 193).

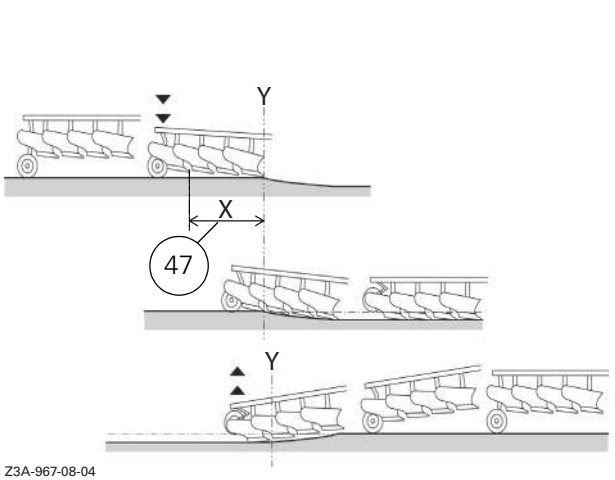


Fig. 193

- Press the key «4 when the window (Fig. 194) is open. The furrow start length is displayed in red (48 Fig. 194).

*NOTE: On b/w screens, these values are displayed in reverse video.*

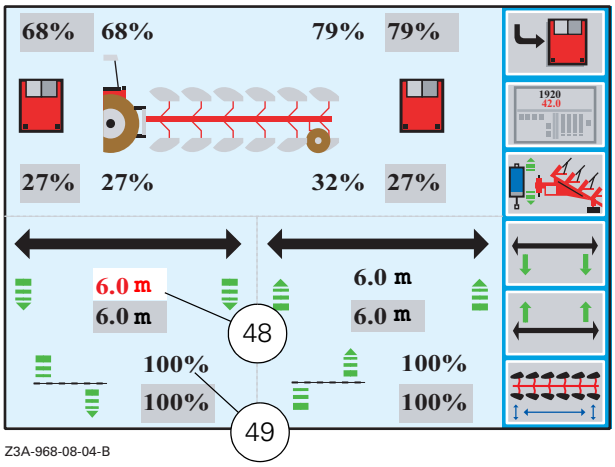


Fig. 194

- Adjust the length X by rotating the encoder and validate by pressing the latter. The length is displayed in black inside the white and grey box, and the linkage furrow start height is displayed in red (49 Fig. 194).

*NOTE: To return to the previous menu, press the **ESC** key.*

### 7.13.3.5 - Setting furrow start depth wheel partial lowering

**Definition:**

For the plough to enter the soil as rapidly as possible, it must be partially lowered (50 Fig. 195) as soon as the linkage control is actuated.

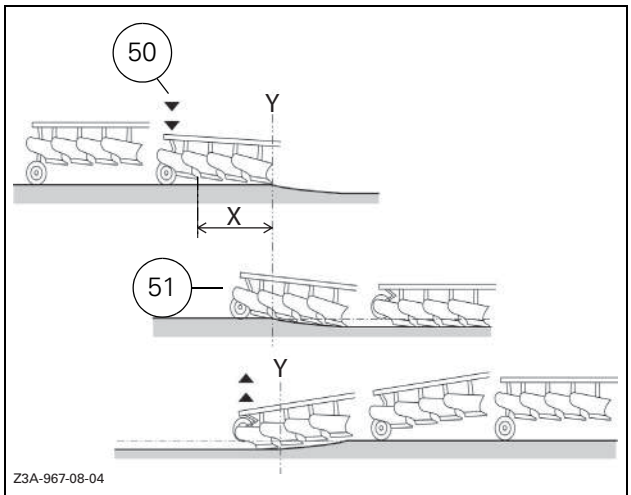


Fig. 195

Next, as soon as distance X has been covered, the plough depth wheel is lowered to its working position (51 Fig. 195).

For this manoeuvre to be performed automatically, the depth wheel partial lowering value must be defined.

*NOTE: To set the depth wheel partial lowering value, first set the furrow start length (48 Fig. 194).*

**Settings:**

- When the linkage height is displayed in red (49 Fig. 194), adjust the latter by rotating the encoder.
- Validate by pressing the encoder. The value is displayed in black (52 Fig. 196).

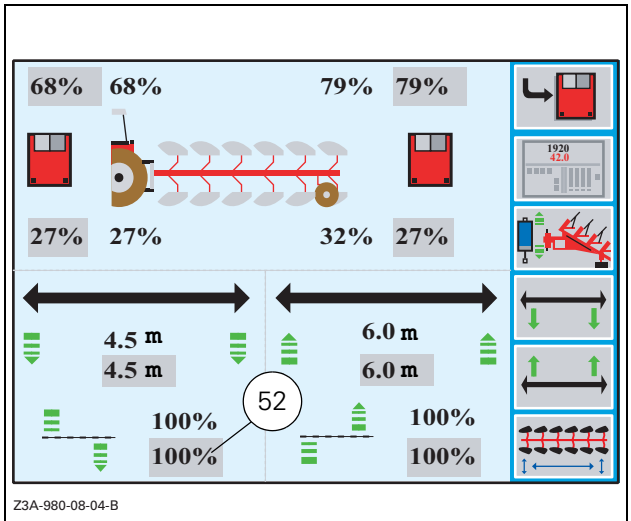


Fig. 196

https://truckmanualshub.com/



*NOTE: The plough depth wheel partial lowering value (e.g.: 85%) corresponds to 85% of the maximum depth wheel height.*

### 7.13.3.6 - Setting furrow end length

As for the furrow start, the DATATRONIC needs to know the length between the first and last shares.

*NOTE: The furrow start and end lengths may differ, depending on the linkage and plough depth wheel lowering and lifting speeds.*

- Press the key «$_5$ when the window (Fig. 197) is open. The furrow end length is displayed in red (53 Fig. 197).

*NOTE: On b/w screens, these values are displayed in reverse video.*

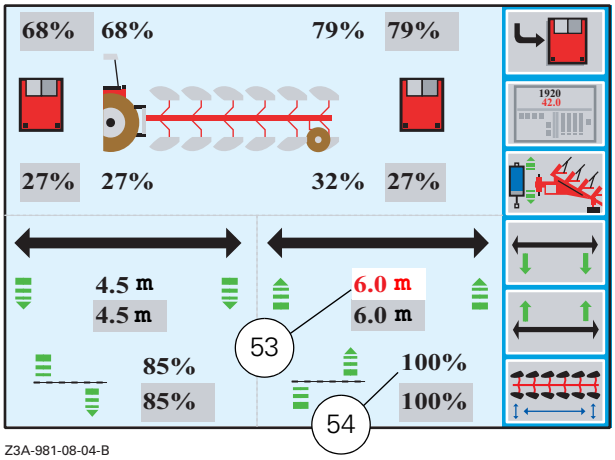


Fig. 197

- Adjust the length by rotating the encoder and validate by pressing the latter. The value is displayed in black and the furrow end depth wheel partial lifting value is displayed in red (54 Fig. 197).
- To return to the previous menu, press the **ESC** key.

### 7.13.3.7 - Setting furrow end depth wheel partial lifting

**Definition (Fig. 198):**

At the end of the furrow, when the tractor linkage lifts (55), the rear of the plough tends to tip. Indeed, the latter pivots around the plough wheel. Thus, the last shares operate below the normal ploughing limit (56).

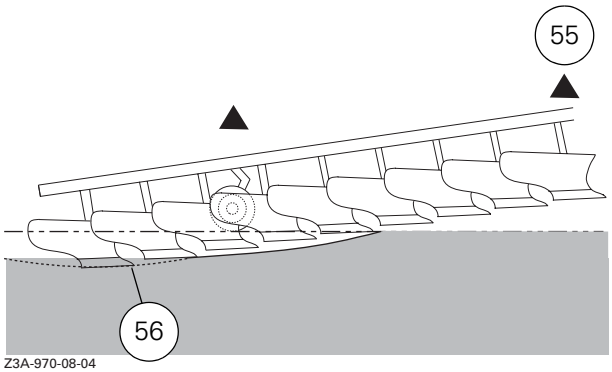


Fig. 198

To avoid this phenomenon, the DATATRONIC partially lifts the plough depth wheel during the furrow end phase. This value therefore needs to be set.

*NOTE: To set the plough depth wheel furrow end partial lifting value, first define the furrow end length (53 Fig. 197).*

**Settings:**

- When the depth wheel partial lifting value is displayed in red (54 Fig. 197), adjust it by rotating the encoder.
- Validate by pressing the encoder. The value is displayed in black.

*NOTE: To return to the previous menu, press the **ESC** key.*

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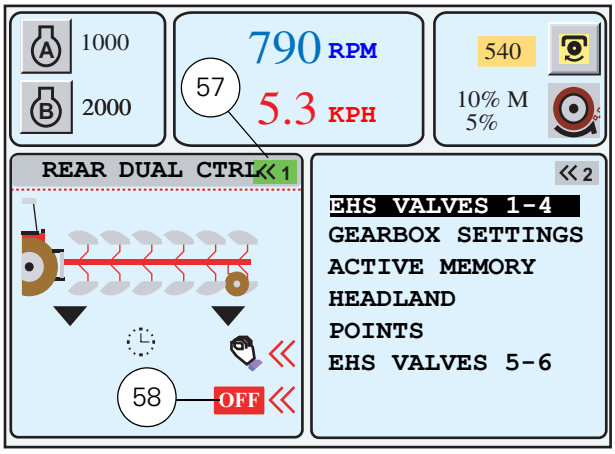
### 7.13.3.8 - Activating the REAR DUAL CONTROL function

In order to use the DUAL CONTROL function, it must first be activated.

- For this, press the key «$_2$ when the window (Fig. 197) is open. The window (Fig. 199) is displayed.




Z3A-1318-11-04-B

Fig. 199

- Press the key «$_6$ when the icon (57 Fig. 199) is green (if this is not the case, first press the key «$_1$ so the icon (57 Fig. 199) is displayed in green. The DUAL CONTROL function is then active and the symbol (58 Fig. 199) changes from OFF to ON (59 Fig. 200).

*NOTE: On b/w screens, the active window is indicated by the icon (57* Fig. 199*) in reverse video.*

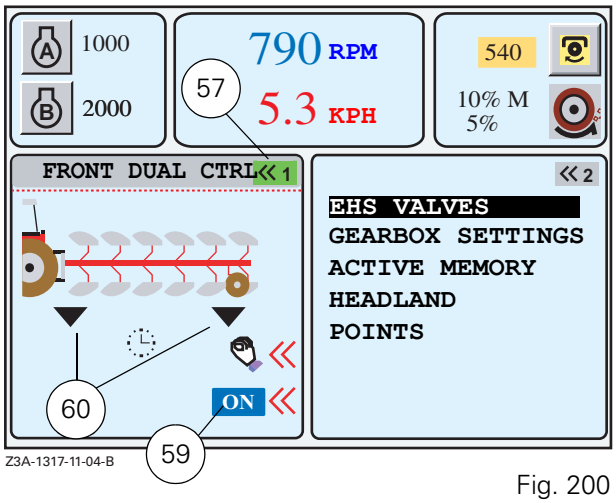
During use, a symbol is displayed under each linkage to indicate their control position (e.g. 60 Fig. 200).
The following symbols can be displayed:

Linkage control in raised position

Linkage control in lowered position

Indicates if the DUAL CONTROL is in the furrow start or end mode

Linkage control in floating position




Z3A-1317-11-04-B

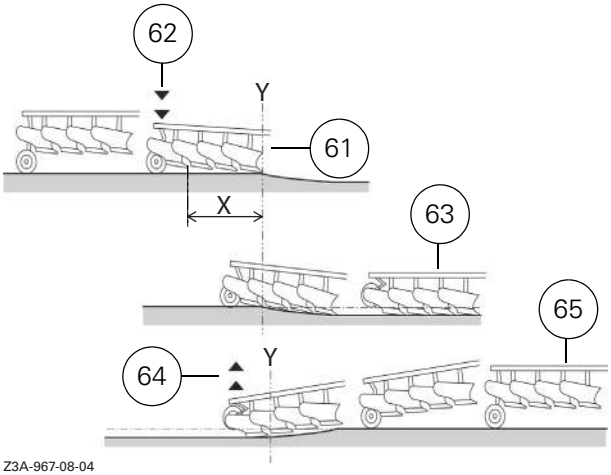
Fig. 200

To return to the window (Fig. 197), press the key «$_5$ when the window (Fig. 200) is open and the icon (57 Fig. 200) is green.

### 7.13.3.9 - Working operation

**Furrow start (Fig. 201):**

When the tractor is at the start of a furrow, activate the rear linkage lowering control as soon as the first share reaches mark Y (61). At the same time, the plough depth wheel is partially lowered (62). As soon as distance X has been covered, the depth wheel is lowered to its working position (63).




Z3A-967-08-04

**LEGEND:**

61. Lowering the linkage into working position
62. Partial depth wheel lowering
63. Plough in working position
64. Partial depth wheel lifting
65. Plough in high horizontal position

Fig. 201

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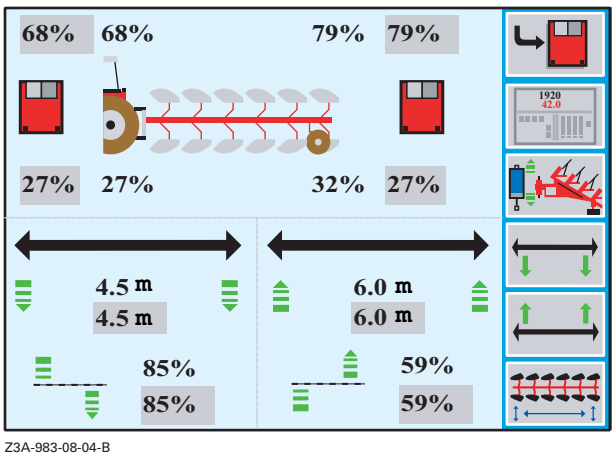
**Furrow end:**
Actuate the rear linkage lifting control as soon as the first share is positioned on mark Y. At the same time, the plough depth wheel makes a half turn (64). As soon as distance X has been covered, the depth wheel lifts to its high position (65).

*IMPORTANT: If the linkage high and low stops are modified during work, they are not stored in the DATATRONIC active memory. To memorise them, see paragraph 7.8.3.2. (Memorising high and low linkage positions).*

*NOTE: For pointed fields, the POINTS menu must be used to optimise the operation of the DUAL CONTROL. This allows the tractor to make straight furrow starts and ends, whatever the field shape. To make these adjustments, see section 7.8.5 (POINTS menu).*

**Displaying parameters:**
During work either the Settings window (Fig. 202), or the Work window (Fig. 203) can be displayed.




Z3A-983-08-04-B

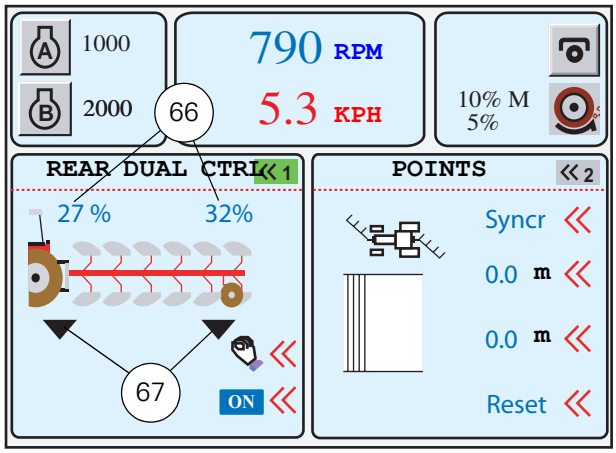
Fig. 202

**Description (Fig. 202):**
As the plough position changes, the linkage and depth wheel high and low position values vary accordingly.
The values in the grey boxes are memorised and fixed.

**Description (Fig. 203):**
To display this window, press the key «$_2$ when the window (Fig. 202) is open.

**Left-hand part of the window:**
The linkage and depth wheel position values (66) are the active values.
The symbols under the linkage and depth wheel (67) indicate their control status.

**Right-hand part of the window:**
See paragraph 7.8.6 (POINTS menu).




Z3A-984-08-04-B

Fig. 203

## 7.14 - TRAILED IMPLEMENT CONTROL (T. I. C.)

This menu controls the trailed implements hitched to the swinging drawbar or lift arms (linkage is fixed). In work mode, wheel slip, implement depth and draft applied to the lift arms (when an implement is hitched to the lift arms) are analysed by the linkage calculator, which varies the implement working height accordingly.
The information required for system operation is acquired by 4 sensors :

- two draft sensor on the lift arms,
- one trailed implement position sensor,
- one ground speed radar.

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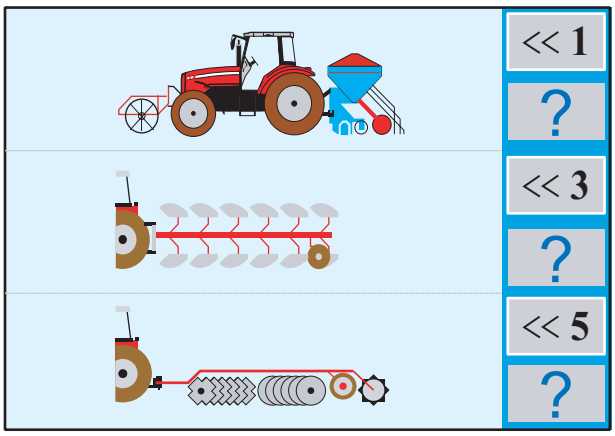
*NOTE: In this section, explanations shall be illustrated by a disc tiller example.*

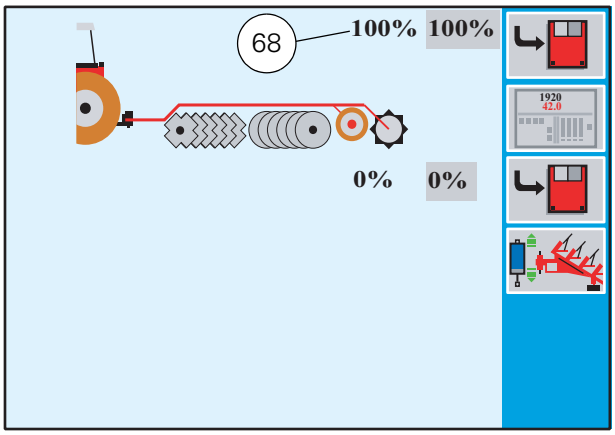
*IMPORTANT: If this implement is hitched to the tractor lift arms, the linkage must first be set to working position and then the TIC menu must be activated (activation of the TIC menu locks the linkage).*

When the window (Fig. 204) is open, press the key «5. The window (Fig. 205) is displayed.




Z3A-817-08-04

Fig. 204




Z3A-804-08-04-B

Fig. 205

**Description:**

Memorises high implement position

Displays the TIC menu in the Work application

Memorises low implement position

Opens the sensor calibration menu

Greyed boxes: memorised values

*NOTE: The values that are not in boxes correspond to instant values.*

### 7.14.0.1 - Calibration

The TIC is operated by the Datatronic which receives information from a position sensor located on the rear linkage.

However, for the DUAL CONTROL to operate correctly, the rear implement position sensor must be calibrated. The calibration procedure is identical to that described in paragraph 7.8.3.1. (Calibration).

*IMPORTANT: This operation must be performed on first use, or as soon as work is carried out on the rear implement position sensor.*

*NOTE: If a memory is active, the calibration is stored in this memory.*

*NOTE: As with the FRONT and REAR DUAL CONTROL, the calibration can be downloaded into different memories. The procedure is set out in paragraph 7.8.2.2. (Downloading the calibration).*

### 7.14.0.2 - Memorising the disc tiller high and low positions

For optimum operation, the DATATRONIC must know the disc tiller high and low positions. For this purpose, the implement hitched to the swinging drawbar must be fitted with a position sensor connected to the rear of the tractor.

.

**Memorising the high position:**

- Place the disc tiller in high position (Fig. 206) using a linkage cylinder spool valve control.

When the spool valve control is actuated, the high position value varies (68 Fig. 205).

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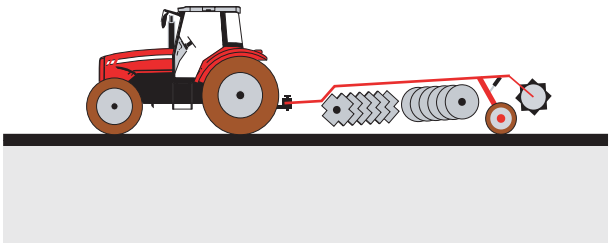


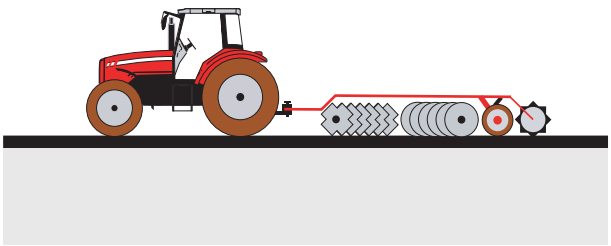
Z3A-988-08-04

Fig. 206

- Memorise the high position by pressing the key «$_1$. The high position value is displayed in the greyed box and is memorised.

**Memorising the low position:**

- Place the disc tiller in working position (Fig. 207) using a linkage cylinder spool valve control.



Z3A-989-08-04

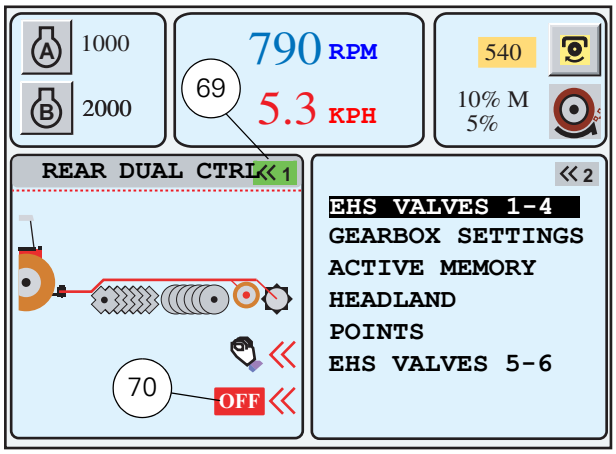
Fig. 207

- Memorise the working position by pressing the key «$_2$. The memorised working position value is displayed in the greyed box.

### 7.14.0.3 - Activating the TIC function

In order to use the TIC function, it must first be activated.

- For this, press the key «$_3$ when the window (Fig. 205) is open. The window (Fig. 208) is displayed.




Z3A-1319-11-04-B

Fig. 208

- Press the key «$_6$ when the icon (69 Fig. 208) is green (if this is not the case, first press the key «$_1$ so the icon (70 Fig. 208) is displayed in green. The TIC function is then active and the symbol (70 Fig. 208) changes from OFF to ON.

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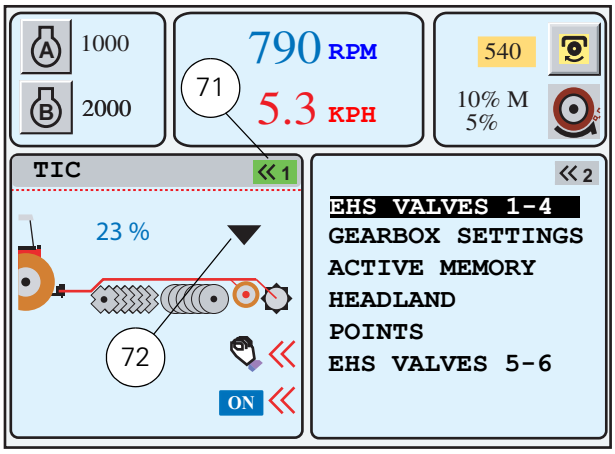
During use, a symbol is displayed below the lift ram to indicate the linkage control position (examples 72 Fig. 209).

**The following symbols can be displayed:**

Linkage control in raised position

Linkage control in lowered position

Linkage control in floating position




Z3A-1320-11-04-B

Fig. 209

To return to the window (Fig. 205), press the key «5 when the window (Fig. 209) is open and the icon (71 Fig. 209) is green.

*NOTE: On a b/w display, the active window is indicated by the same icon in reverse video.*

### 7.14.0.4 - Working operation

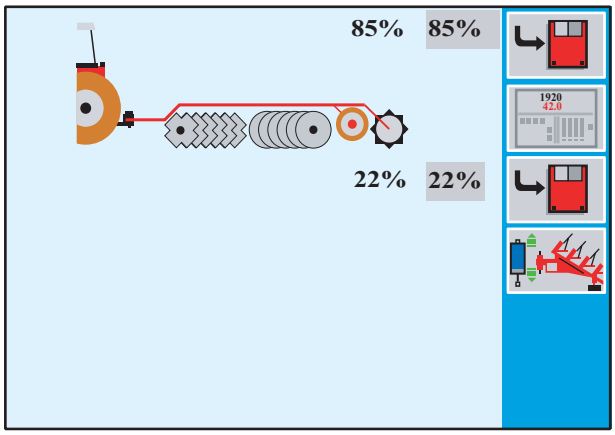
To activate disc tiller Lifting or Lowering, use the rear linkage control. When the TIC is in use, the linkage is inactive and locked.

As soon as the implement is in working position, wheel slip, implement depth and the draft applied to the lift arms (if the implement is hitched to the lift arms) are analysed by the calculator, which varies the implement working height accordingly.

*IMPORTANT: If the disc tiller high and low position stops are modified during work, they are not stored in the DATATRONIC active memory. To memorise them, see paragraph 7.8.4.2. (Memorising the disc tiller high and low positions).*

**Displaying parameters:**

During work either the Settings window (Fig. 210), or the Work window (Fig. 211) can be displayed.




Z3A-990-08-04-B

Fig. 210

**Description (Fig. 210):**

As the disc tiller position changes, the high and low position values vary accordingly in the white boxes.

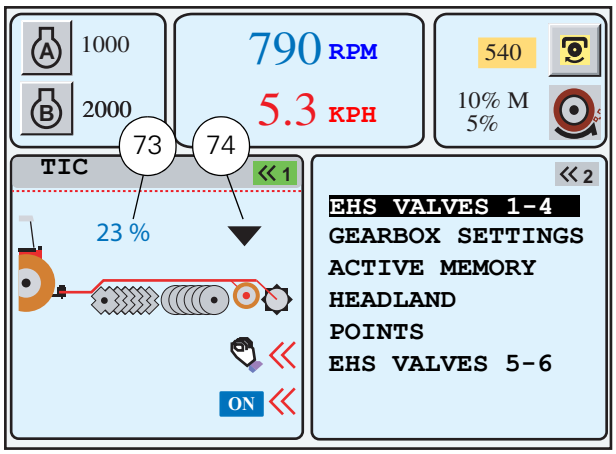
The values in the grey boxes are memorised and hence fixed.

**Description (Fig. 211):**

To display this window, press the key «3 when the window (Fig. 210) is open.

**Left-hand part of the window:**

73. Active disc tiller position value.
74. Indicate the spool valve control status.




Z3A-1320-11-04-B

Fig. 211

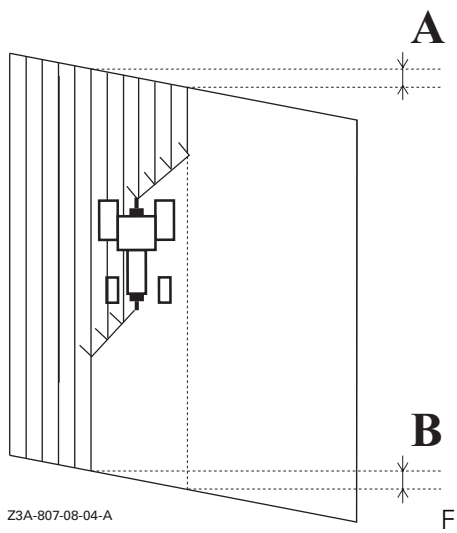
https://truckmanualshub.com/



### 7.14.1 - Points menu

#### 7.14.1.1 - General

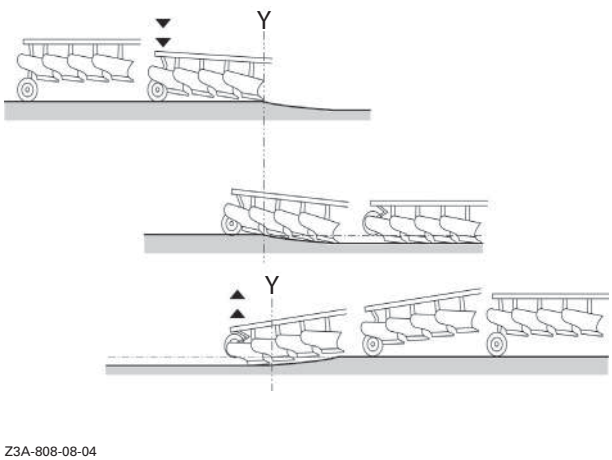
This function is used to automatically modify the furrow start and end lengths according to the shape of the field. Furrow starts and ends are therefore always rectilinear. For this purpose, the length of the points must be stored (A and B Fig. 212). This corresponds to the difference in length (for example A or B) in relation to the width of work.




Z3A-807-08-04-A

Fig. 212

When using a semi-mounted plough, for example, the DUAL CONTROL ensures that the exit or entry of the last share occurs at the same position as the first share (Y Fig. 213). In the case of a negative point value (B Fig. 212), the furrow end length is automatically extended. The opposite applies for a positive point length. The purpose is to perform straight furrow ends, whatever the shape of the field.




Z3A-808-08-04

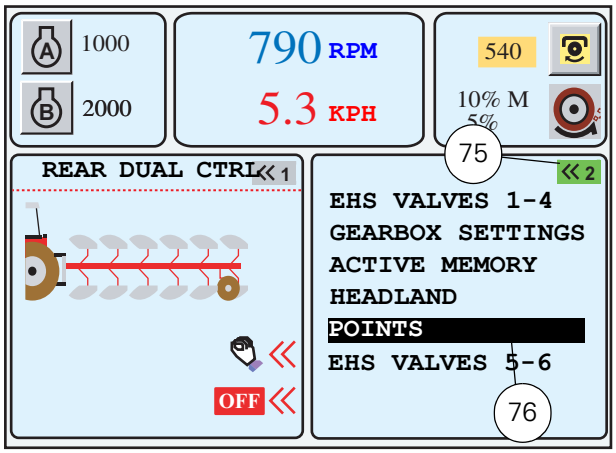
Fig. 213

*NOTE: This function is only used with the FRONT or REAR DUAL CONTROL.*

#### 7.14.1.2 - Setting the points

To access the POINTS menu, open the WORK application window. For this, see section 7.4. (WORK application).

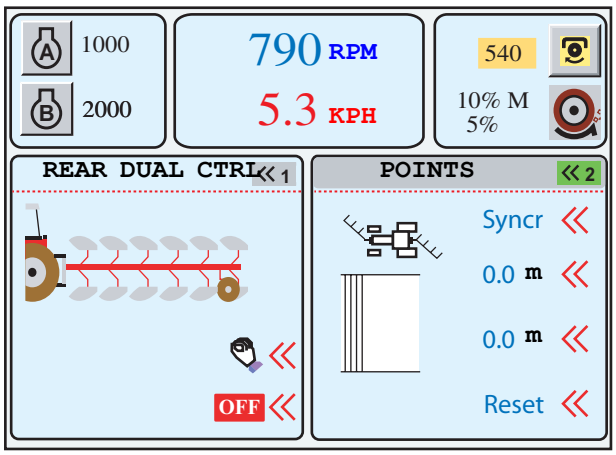
**POINTS menu displayed only in the right-hand window (Fig. 214):**




Z3A-796-08-04-B

Fig. 214

- To display this menu, press key «₂ twice. The first press selects the window and the second press displays the list if no application was activated previously. The active application is indicated by the green icon at the top right-hand of the window (75 Fig. 214), and on b/w screens the active window is indicated by the same icon in reverse video.
- To select the POINTS menu, select the application using the encoder. The selected application is displayed in a black frame (76 Fig. 214).
- Validate by pressing the encoder or the key «₂. The window (Fig. 215) is displayed.




Z3A-805-08-04-B

Fig. 215

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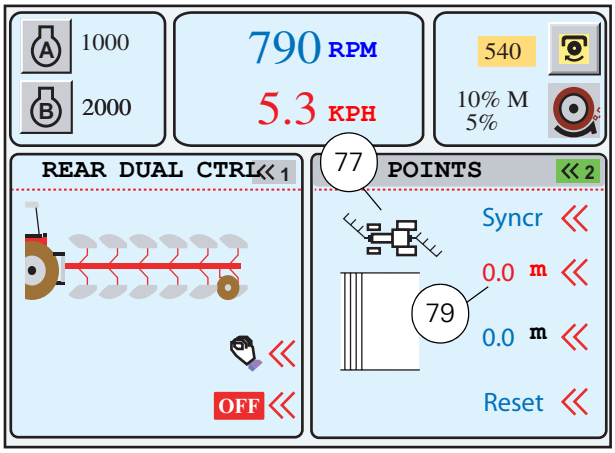
**Instructions for modifying furrow start and end lengths:**

- To make these settings, the icon in the right-hand window must be displayed above the field (transport mode) (77 Fig. 216).
- Move the tractor and its implement to the end of the field (as in window (77 Fig. 216)), placing the linkage control in neutral position.

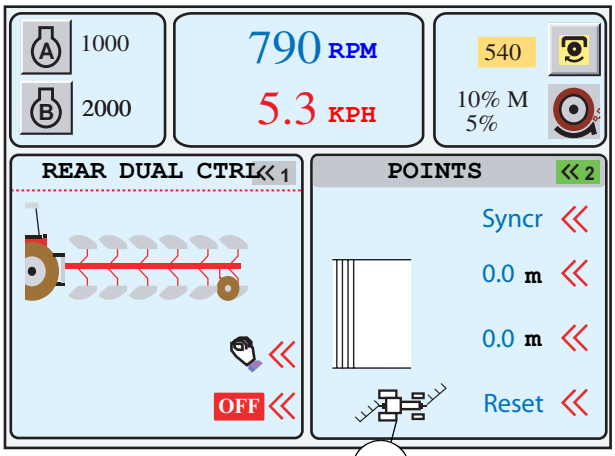



Z3A-809-08-04-B

Fig. 216

*NOTE: All of these different possible situations, i.e. all different field shapes, are listed in section 7.8.5.3. You can thus use the diagram the best fits your field to make the necessary adjustments.*

*IMPORTANT: if the ploughed earth is to be tilled to the left of the tractor on the outward run, move the tractor icon by pressing the key «$_3$ until it is in transport position, as in the window (78 Fig. 217).*



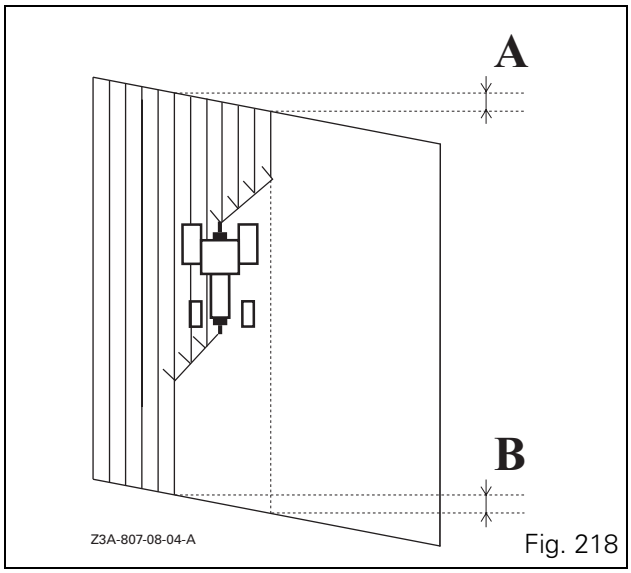

Z3A-1368-12-04

Fig. 217

- Press the key «$_4$ (furrow start) when the window (Fig. 216) is open. The value is displayed in red (79 Fig. 216).

*NOTE: On a b/w display, the active window is indicated by the same icon in reverse video.*

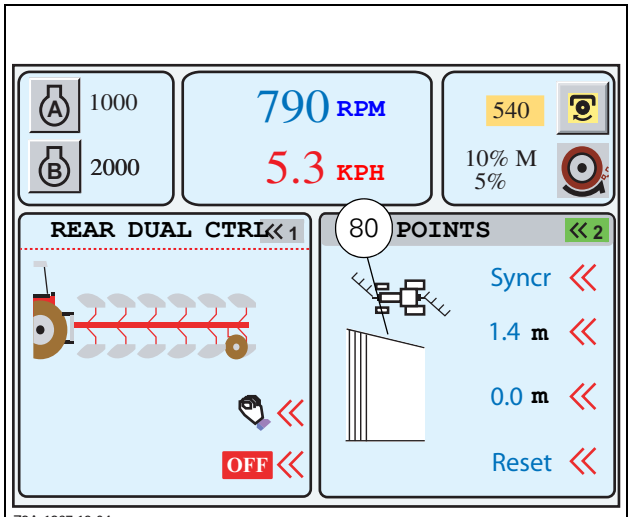
- Using the encoder, adjust the value (positive or negative). This value corresponds to the furrow start length (A Fig. 218 positive furrow start).




Z3A-807-08-04-A

Fig. 218

- Validate this value by pressing the encoder. It is displayed in blue and the field shape is modified according to the positive or negative value (e.g. (80 Fig. 219) positive length).




Z3A-1367-12-04

Fig. 219

- To modify the furrow end value, press the key «$_5$ and proceed in the same manner. This value correspond to length B of the diagram (Fig. 218 positive furrow end).

The key «$_6$ (RESET) resets the previous lengths.

**Operation :**

The DUAL CONTROL function must first be activated. For this, see section 7.8.3.7. (Activating the REAR DUAL CONTROL function).

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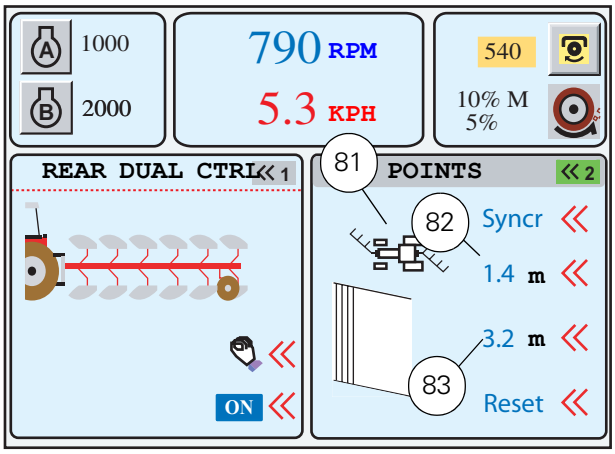
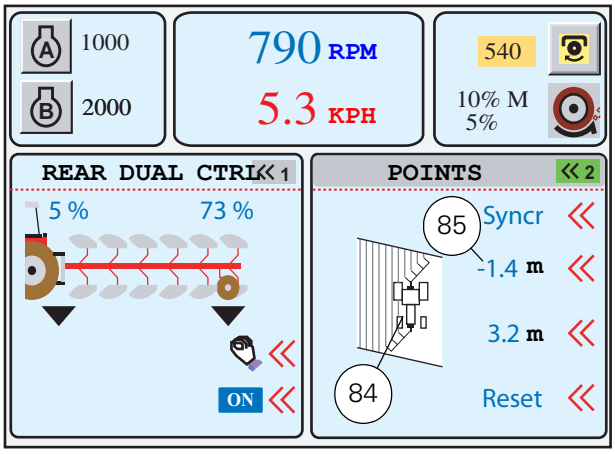
**On furrow start (outward run):**
The tractor icon on display is in transport position (81 Fig. 220).




Z3A-1369-12-04

Fig. 220

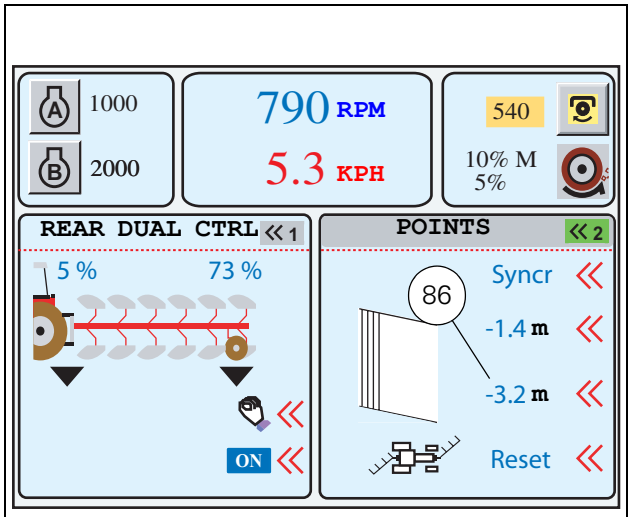
The lengths (82 and 83 Fig. 220) are positive. Indeed, in this example, the furrow start and end lengths must be extended to perform a straight furrow start and end.
As soon as the linkage Lowering control is actuated, the tractor icon is positioned in the centre of the field (working position) (84 Fig. 221).
When the tractor is in working position, the positive length become negative (85 Fig. 221). This is because when the tractor icon moves up the window, i.e. on its return run, the furrow end length should be negative.




Z3A-1024-09-04-B

Fig. 221

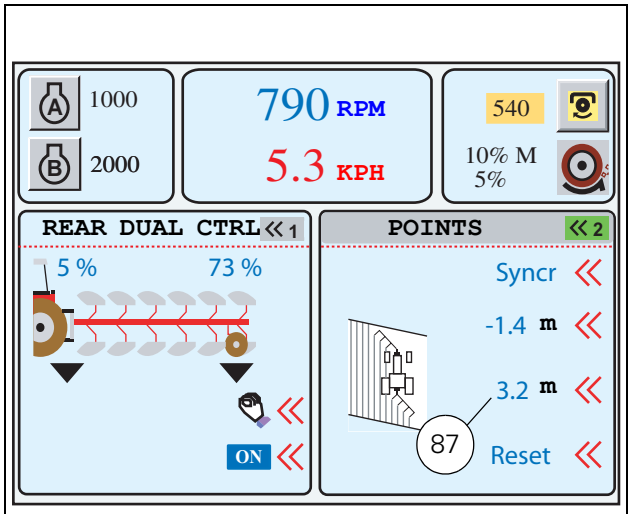
**On furrow end (outward run):**
As soon as the linkage lifting control is actuated, the tractor icon is positioned at the bottom of the field (Fig. 222). The furrow end length becomes negative (86 Fig. 222). This is because when the tractor icon moves up the window, i.e. on its return run, the furrow start length should be negative.




Z3A-811-08-04-B

Fig. 222

**On furrow start (return run):**
As soon as the linkage lowering control is actuated, the tractor icon is positioned in the centre of the field (working position) (Fig. 223).
When the tractor icon is in working position, the negative length become positive (87 Fig. 223). This is because when the tractor icon moves down the window, i.e. on its next run, the furrow end length should be negative.




Z3A-812-08-04-B

Fig. 223

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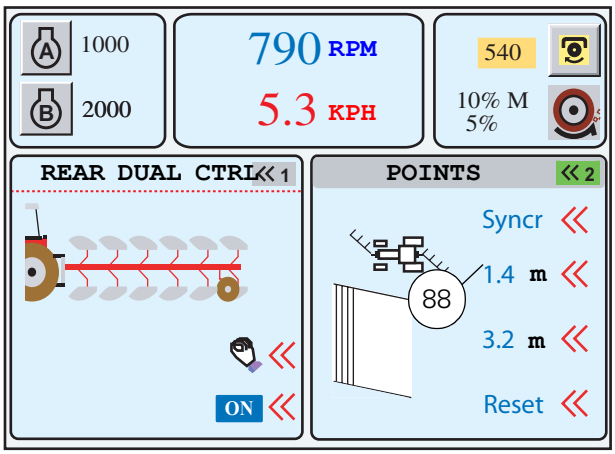
**On furrow end (return run):**

As soon as the linkage lifting control is actuated, the tractor icon is positioned at the top of the field (transport position) (Fig. 224).




Z3A-1369-12-04

Fig. 224

The length (88 Fig. 224) has become positive again. Thus, a complete run has been performed.

If for any reason the linkage control must be activated while using the POINTS menu, the sequence of actions is no longer synchronised. In other words, the tractor icon is not positioned correctly in the POINTS menu in relation to reality. To correct the tractor icon position, press the key «$_3$ when the window (Fig. 224) is open. Each time this key is pressed, the tractor icon is moved.

*NOTE: This menu can only be used with a single DUAL CONTROL.*

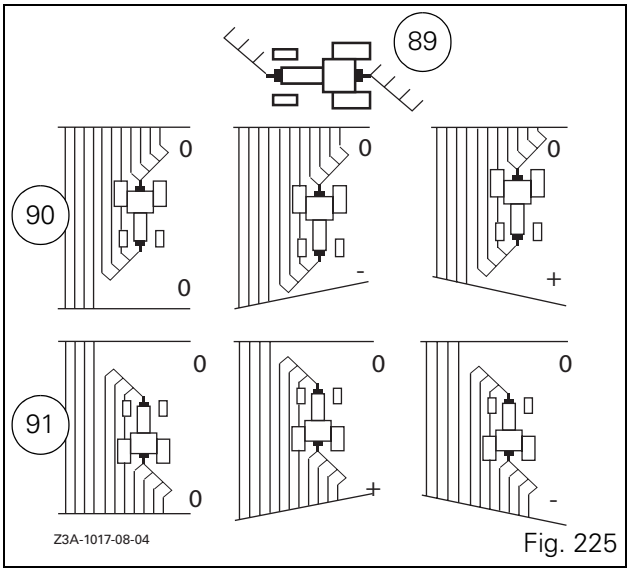
### 7.14.1.3 - Diagram identification:

- Method for a figure (Fig. 225)

In each figure, various field shapes are represented. The tractor icon (89 Fig. 225, Fig. 226 and Fig. 227)is in transport position at the top of each window.

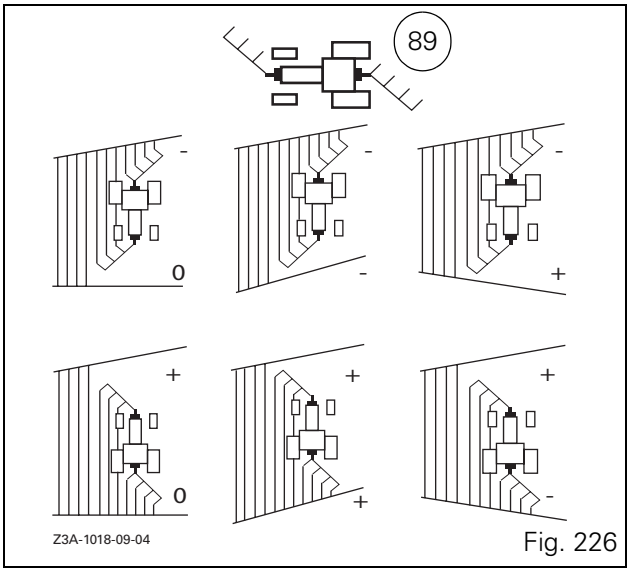
- Select the diagram best adapted to your field. The three top diagrams represent the outward run (90) and the three bottom diagrams represent the return run (91).
- Observe the point length sign (plus (+), minus (-) or zero (0)) of the diagram you are interested in.
- Set the value corresponding to your field in the points menu (Fig. 216).

*IMPORTANT: To adjust the point lengths, the three top diagrams must be considered (90). The bottom diagrams representing the return trip show that the plus (+), minus (-) or zero (0) values are reversed as soon as the half turn has been made.*



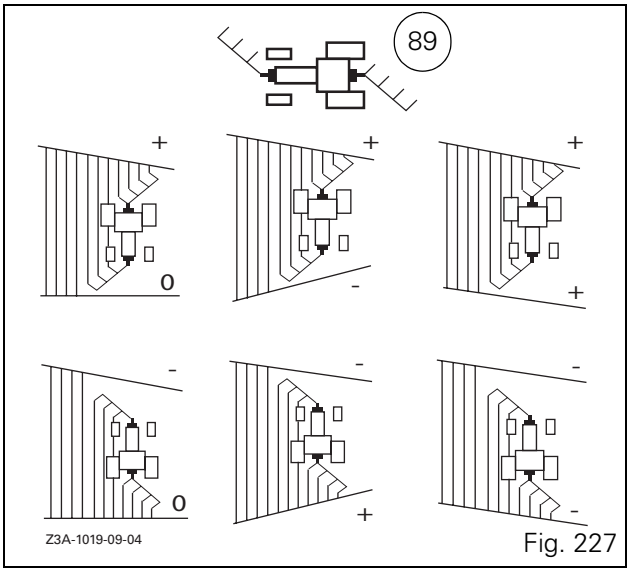

Z3A-1017-08-04

Fig. 225




Z3A-1018-09-04

Fig. 226




Z3A-1019-09-04

Fig. 227

*NOTE: These three figures (Fig. 225, Fig. 226 and Fig. 227) apply in cases where the ploughed earth is tilled to the right of the tractor on the outward run. If the*

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*ploughed earth is to be tilled to the left of the tractor on the outward run (92 Fig. 228), make the point length adjustments when the tractor icon is at the bottom of the field (93 Fig. 229). In this case, the transport position must be considered as on screen (Fig. 229) and operation will remain identical.*

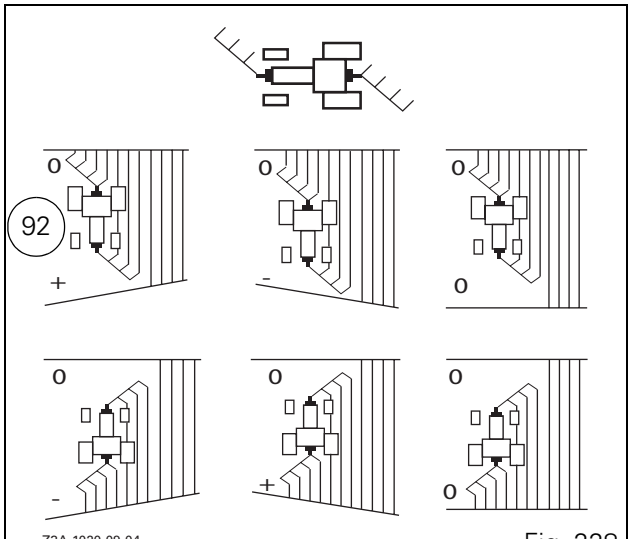


Fig. 228

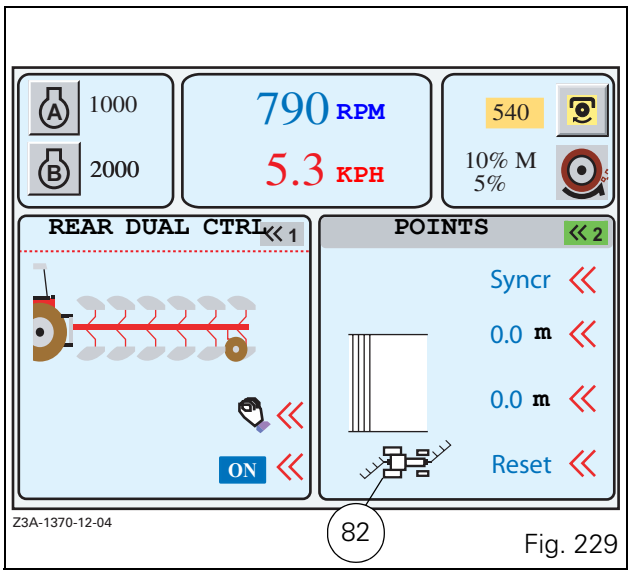


Fig. 229

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## 7.15 - FRONT LINKAGE

### 7.15.1 - General

The front linkage should be used in compliance with safety instructions. It should be used exclusively for agricultural purposes, i.e. for hitching mounted and pushed agricultural machinery.

The front linkage can carry or push an implement.

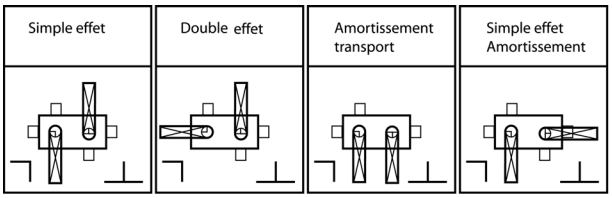
The design of the linkage and tractor allows the use of heavy implements, but it is advisable to avoid submitting the linkage to excessive loads.

Z2-403-03-04

Fig. 230

### 7.15.2 - Use

*IMPORTANT: Position the circuit valves located at the rear of the tractor as shown on the decal.*




The front linkage is controlled by one of the spool valve control levers or by Joystick 1 (Fig. 231) located in the cab (depending on fitted options).

| Spool valve to be used according to colour | Open centre | LS Mech | LS Joystick |
|---|---|---|---|
| Model fitted with mechanical spool valves | Red | Green | Green |
| Model fitted with 3 or 4 “electric” + FRONT / BACK Dual Control spool valves | | | Black |

The maximum flow rate is adjusted in the spool valve block at the rear of the tractor, either from the cab (hydraulic controls) or using the electrohydraulic controls of the SMS (Spool Valve Management System).

Controlling the depth:

For toothed implements, the depth is controlled by of the implement depth wheels; in this case set the spool valve to floating position (no load transfer takes place).

Controlling the work depth of the implement after setting the position:

An average depth level should be set using the height / depth control (load transfer is recommended to improve tractor tyre grip).

It is then possible to use the draft control mode of the Front Dual Control to adjust the work depth depending on the traction load applied to the rear linkage, especially when using a front and rear plough.

For crushing implements, the tractor load must be transferred to the implement. This is obtained by pushing the lever or SMS control forwards, as long as the linkage is double acting.

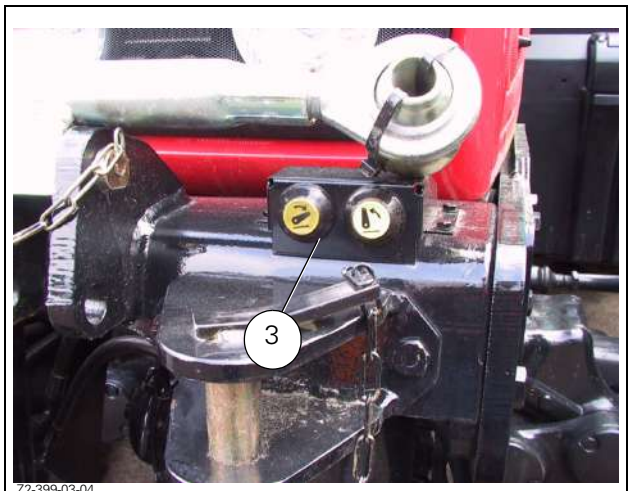
Mounted implements (ballasting, hoppers, etc.) are raised to avoid decreasing ground clearance.

Z2-478-05-03

Fig. 231

- External controls

The external lifting / lowering controls 3 (Fig. 232) can only operate with the engine running.




Z2-399-03-04

Fig. 232

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***DANGER: Operate the external controls with care, keeping a safe distance from the lift arms.***

Apply the following procedure before use:

Before using the external controls, activate the Joystick (indicator light 2 Fig. 231 off) and move the linkage switch to neutral or lower position.

After each use of the external controls the Joystick is locked (indicator light fixed on).

To use the cab controls again, the Joystick must be activated (indicator light off).

*NOTE: The external controls do not operate if the Joystick is not activated after starting the tractor.*

If they are moved all the same, the linkage switches to safety mode (indicator light flashes) and the engine must be restarted.

The oil outlets 4 (Fig. 233) are controlled by the spool valve control located in the cab, and have the same characteristics as those used at the rear.

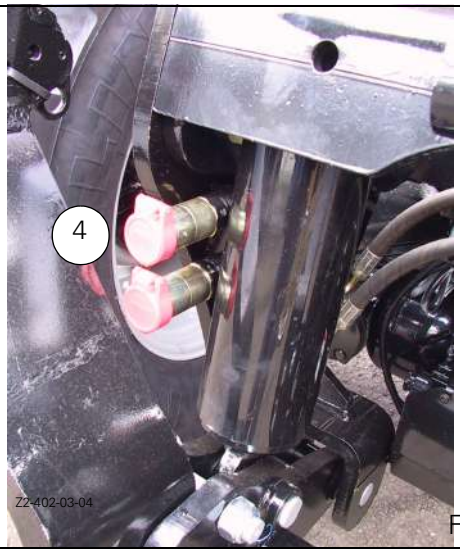


Fig. 233

### 7.15.3 - Loads allowed on the front axle beam

The load allowed on the tractor is limited by the following two factors:

1. Axle beam
2. Tyres.

Using a long heavy implement can cause an overload on the front axle.

The loads allowed on the front axle beam should be complied with. To measure the maximum load allowed by the front axle, place the front axle on a scale, lift the front implement and lower the rear implement.

Nominal loads allowed on the front axle (suspended or not) depending on models:

| Model | Load |
|---|---|
| MT525B | 3,000 kg |
| 535B / 545B | 3,400 kg |
| MT 555B / MT 565B / MT575B | 4,600 kg |

*IMPORTANT: A front implement weighing one ton overloads the axle by more than one ton due to chassis frame overhang (allow on average 1.5 times the weight). The wheelbase length is usually double the implement overhang.*

#### 7.15.3.1 - Load allowed by the tyres

The load allowed by the tyres depends on their inflation pressure, maximum travel speed and the torque to be transmitted. In general, the greater the load the tyre must support, the greater its volume should be.

*IMPORTANT: This is the most common factor limiting front axle capacity. Tyre manufacturers offer charts detailing loads allowed for a tyre type depending on operating conditions. Failure to respect these limits can lead to tyre damage, an unstable machine, and poorer performance.*

Examples for standard agricultural tyres:

| Dimension Tyre | Load on axle beam | Pressure | Speed |
|---|---|---|---|
| 14.9R24 | 3 T | 1.4 bar | 40 kph |
| 480/65R28 | 4.5 T | 1.6 bar | 40 kph |

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### 7.15.4 - Hitching an implement

- Three positions can be used depending on requirements: Fixed, floating and transport position

(Fig. 234)

1. Fixed position
   Position the arms horizontally and fit the pin in position A.
2. Transport position
   No hitched implement: Position the arms vertically to reduce bulkiness and fit the pin in position B.
3. Floating position
   Position the arms horizontally and fit the pin in position C.
   This position can be used to compensate for sloping ground, thus allowing the implement to follow the natural lie of the land.
   Example: Implement with one depth wheel to either side of a roller.

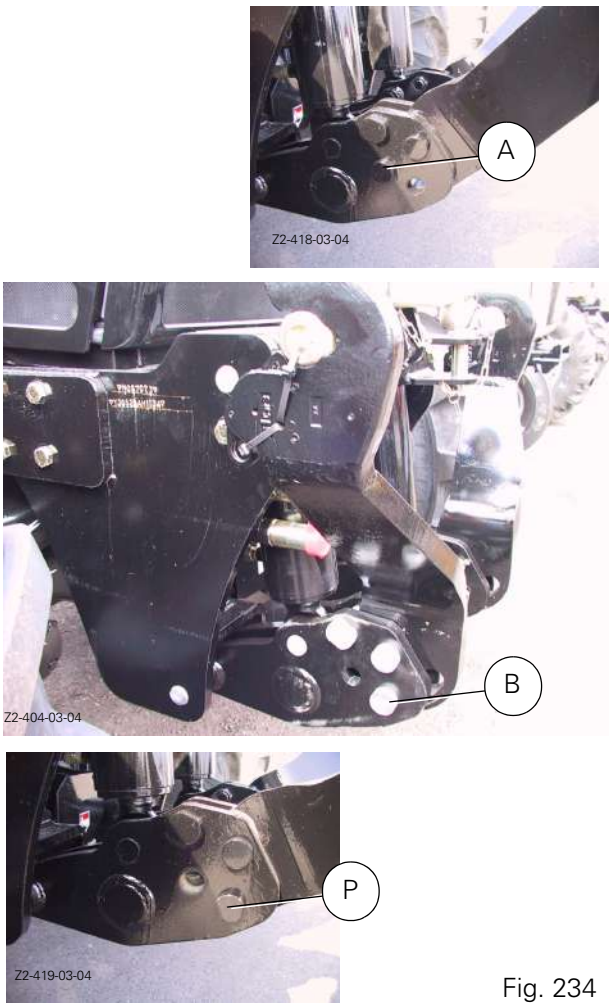

Fig. 234

- The linkage is fitted with automatic lower jaws, allowing an implement to be hitched safely from the tractor cab.

Apply the following procedure when hitching an implement.

1. Move the lift arms to working position (fixed or floating), and fit the hitch ball joints to the implement using suitable stop pins.
2. Drive the tractor forwards towards the implement and lower the lower arms.
3. Drive the tractor forwards to position the jaws under the balls, and raise the lower arms carefully until the jaws lock.
4. Tighten the handbrake and switch off the engine before climbing out of the tractor.
5. Fit the third-point linkage, adjusting its length to set the implement level, and couple the hydraulic unions and universal joint if fitted.
6. Store implements on flat ground to keep them stable. This makes hitching and unhitching easier.

Unhitching: carry out the operation in reverse order.

The external controls can also be used to adjust the linkage.

- Storing the third-point linkage (Fig. 235)

Store the top link on its support when not in use.

### 7.15.5 - Driving on the road

- Controlling the active transport control system

This makes driving with lift implements at high speeds more comfortable. It cannot be used for field work. Implement height cannot be adjusted when the transport control system is operating.

To switch on the transport control system, lift the implement, leaving 40 to 50 mm of cylinder travel to allow the transport control system to operate (release).

***WARNING: The valves must be positioned at "transport control system" (see decal) to deactivate the spool valve action and avoid accidental lowering of the implement.***

Fig. 235

- Maintenance

In addition to taking good care of equipment during use, it should be maintained at regular intervals. This helps ensure manufacture quality performance and reliability for a number of years.

Regularly check the tightness of attachment screws, especially the first few times the linkage is used.

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Change hydraulic feed hoses in poor condition as a preventive measure, even if there is no leak (danger of bursts during use).
Breakdowns and accidents always cost more.

- Greasing: (see section 5.6).

## 7.16 - FRONT POWER TAKE-OFF

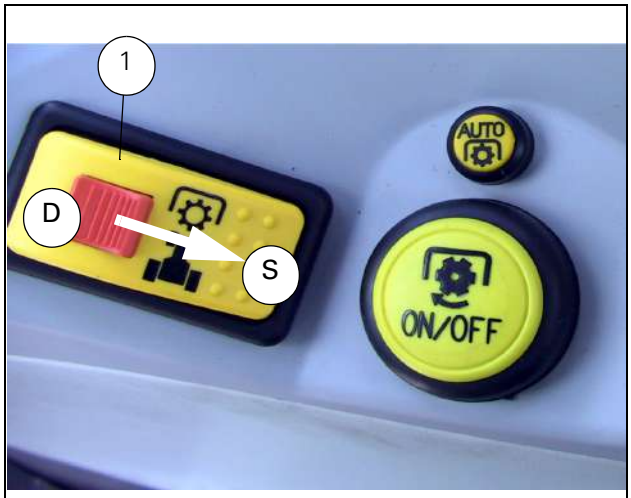
### 7.16.1 - Power level allowed

Unlike the power available to the rear PTO and the wheels, the front PTO power must be limited.
- For SISU engines, half of the engine power can be used for the front PTO.
- For 6-cylinder Perkins engines, 75 hp is the maximum power allowed at the front PTO.
- For 4-cylinder Perkins engines, there is no restriction.

Do not use implements that require higher power levels than stated above. Instead, use the rear PTO for heavy work (stationary grinders, etc.)

### 7.16.2 - Power Take-Off Control

The front PTO is controlled by the switch Ref.1 - Fig. 236
To engage PTO, slide the red safety slider in the direction indicated by the arrow, while pressing the switch Ref. D in order to unlock it.
Push as shown by Ref. E to stop PTO; in this position the switch prevents it from disengaging accidentally.
*IMPORTANT: When the PTO is stopped, the PTO brake is engaged.*




Z2-039

Fig. 236

The cab control activates a solenoid valve placed close to the front PTO unit; this valve controls the PTO clutch and brake.
The pressure at the valve inlet is 17 bar, but the flow rates for the clutch and brake can be adjusted separately (Fig. 237). Screw 1 allows the user to adjust the brake oil flow rate; screw 2 that of the clutch.

1. Adjusting the brake:
   Set screw 1 is preset with an opening of 9 mm.
   If the engine is running and the clutch is released but the PTO shaft rotates alone, braking power should be increased by loosening screw 4 until the rotation stops. Retighten locknut 5.
2. Adjusting the clutch:
   Set screw 2 is preset with an opening of 13 mm, which corresponds to the maximum oil flow rate.
   If using implements of low inertia requiring low levels of power, clutch progressivity can be increased by tightening set screw 6.

*IMPORTANT: If the screw is too tight, the torque to be transmitted to the implement might exceed the torque provided by the clutch; in this case excessive clutch slippage will cause premature clutch wear. To avoid this problem, loosen set screw 6 to reduce clutch progressivity and prevent clutch slippage.*

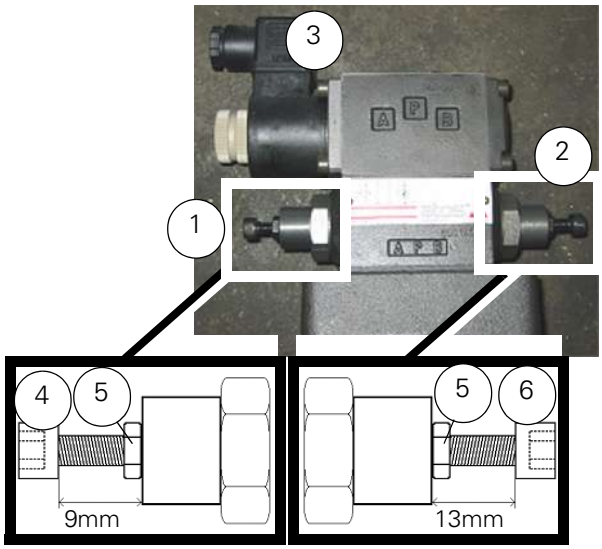



Fig. 237

- Maintenance

In addition to taking good care of equipment during use, it should be maintained at regular intervals. This helps ensure manufacture quality performance and reliability for a number of years.
Regularly check the tightness of attachment screws, especially the first few times the linkage is used. Incorrect tightening causes parts to move among themselves and reduces the strength of the linkage.

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*IMPORTANT: Change hydraulic feed hoses in poor condition as a preventive measure, even if there is no leak (danger of bursts during use).*

- Greasing: (see section 5.6).

- Tightening torques

The tightening torques in the table below must be complied with:

| screw Ø (mm) | Tightening torque (daN/m) depending on screw grade | |
|---|---|---|
| | 8.8 | 10.9 |
| 5 | 0.6 | 0.9 |
| 6 | 1 | 1.5 |
| 8 | 2.5 | 3.5 |
| 10 | 5 | 7 |
| 12 | 8.5 | 11.5 |
| 14 | 12.5 | 18 |
| 16 | 20 | 27.5 |
| 18 | 26.5 | 37.5 |
| 20 | 38 | 54 |
| 22 | 50 | 71.5 |
| 24 | 65.5 | 92 |
| 30 | 120 | 169 |

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*Chapter 8*

# *TROUBLESHOOTING*

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The following pages detail the most common problems relating to diagnostics procedures for engine and transmission malfunction. 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 most simple 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.
Starter or engine contact malfunctioning. Consult your Dealer.

### 8.1.2 - Engine runs but will not start

Injection pump solenoid cannot open injection pump.
Fuel tanks empty. Check fuel level before trying to start engine.
Pipes clogged. Remove and clean pipes.
Fuel used is too viscous. High viscosity fuel thickens in cold weather. Use lower viscosity fuel.
Cetane number of fuel used is too low. See fuel specifications.
Air in fuel pipes. See Bleeding section in Chapter 5.
Fuel filter clogged. Replace parts.
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 malfunctioning.
Compression low. Consult your Dealer.

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

Throttle link on injection pump misadjusted.
GSPTO too fast. Set transmission to a lower speed to avoid engine overload.
Fuel tank vent clogged. Consult your Dealer.
Fuel filter clogged. Replace the filter.
Fuel type incorrect. See specifications.
Fuel used is too viscous. In cold weather, high viscosity fuel might not pass through the pipes.
Air leak in fuel pipes. Consult your Dealer.
Exhaust silencer clogged. Replace it.
Ignition misadjusted. Consult your Dealer.
Air intake clogged. Clean it. Inspect air purifier.
The air purifier dirty. Inspect air purifier.
Engine runs but overheats. Consult your Dealer.
Transmission clutch slips. Consult your Dealer.

### 8.1.4 - Engine overheating

Coolant level too low. See Expansion tank section in Chapter 5.
Radiator hose clogged or sagging. Replace hose.
Temperature gauge malfunctioning. Consult your Dealer.
Fan belt slack or frayed. See Ventilator belt section in Chapter 5.
Thermostat malfunctioning - replace it. DO NOT RUN ENGINE WITHOUT WORKING THERMOSTAT.
Engine oil level too low. Top up level.
Engine oil too thick. Use recommended oil type.
Tractor overloaded. Shift to lower transmission speed.
Fuel dirty. See fuel specifications.
Injection pump timing incorrect. Consult your Dealer.
Exhaust silencer blocked. Replace it.
Water pump malfunctioning. Consult your Dealer.

### 8.1.5 - Excessive fuel consumption

Air intake clogged or air purifier blocked. See Maintenance Chapter.
Fuel pipes leaking. Block leaks.
Injection pump timing incorrect. Consult your Dealer.
Fuel type incorrect. See fuel specifications.
Engine overloaded. To save fuel, engine load should not exceed nominal values.

### 8.1.6 - Overconsumption of oil

Oil drain plug loose. Tighten it.
Seal leaks. Replace seal.
The oil number incorrect. See Chapter 5.
Engine sump oil diluted. Consult your Dealer.
Engine overheating. Find cause of overheating.
Oil pressure too high. Consult your Dealer.
Piston rings not fitted or worn. Consult your Dealer.

### 8.1.7 - Engine misfiring

The injector nozzles dirty or misadjusted. Consult your Dealer.
Valves burnt out or seized up. Consult your Dealer.

### 8.1.8 - Engine speed irregular

Transmission clutch slips. See Clutch Adjustment section.
Regulator slow. Consult your Dealer.

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## 8.2 - HYDRAULIC CIRCUIT TROUBLE-SHOOTING

### 8.2.1 - Remote controlled ram will not retract

Hoses not connected correctly or not paired up. Check hoses and tighten connections.

Coupling lever in CLOSED position. Move lever to OPEN position.

### 8.2.2 - Remote controlled ram will not extend

Hoses not connected correctly or not paired up. Check connections.

Coupling lever in CLOSED position. Move lever to OPEN position.

Flow rate regulation control is closed on remote controlled ram.

Ram overloaded.

Implement design does not allow piston to travel complete stroke or implement linkage is obstructed. Check ram is correctly fitted to implement and ensure ram can complete full travel.

Implement hitch linkage mechanism seized up. Clean, lubricate or straighten linkage.

Rams leaking internally. Consult your Dealer.

### 8.2.3 - Lift arms do not lift

Electronic linkage control not activated. Activate linkage as indicated in Chapter 4.

Electronic linkage control not calibrated. Consult your Dealer.

Linkage 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 malfunctioning. Consult your Dealer.

### 8.2.5 - Control valves do not return to idle position at end of ram travel

Control valve notch adjustment screw is not correctly set or driver has not moved control lever enough to allow engagement in 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 idle position. Refit control lever locknuts to work without floating position.

Selector or spool valve seized up. Move hydraulic control lever to LIFT or LOWER positions several times to try to cancel seizing up.

Return mechanism leaking internally. Consult your Dealer.

### 8.2.6 - Control valves reach idle position before ram reaches end of travel

Control valve notch adjustment screw set incorrectly.

Driver has not moved control lever enough to allow engagement in notch. Move lever forwards or backwards through full travel. (Drawbar adjustment may be necessary).

Notch springs broken or holding grooves worn. Consult your Dealer.

### 8.2.7 - Oil foam forming at breather outlet

Oil level too high. See final transmission / hydraulic system oil instructions in Chapter 5.

Oil level too low. See final transmission / hydraulic system oil instructions in Chapter 5.

Incorrect oil type in tank. See final transmission / hydraulic system oil instructions in Chapter 5.

Pressure relief valve burnt. Consult your Dealer.

Air leak in circuit. Consult your Dealer.

### 8.2.8 - Oil leaks at accessories level

Connection loose. Check tightness.

Threads damaged. Fit new piping or accessories if required.

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

Male union type incorrect.

Hoses incorrectly fitted to trailed implements. Fit hoses via stirrups to supports to prevent them from hanging behind the hitch mechanism union.

Tractor driving on very rough ground. Fit hoses of trailed implements to supports to prevent the slack from swinging between the hitch mechanism and support.

### 8.2.10 - Remote controlled ram linkage mechanism warped

Implement prevents piston from travelling full stroke. Check and adjust the implement so ram rod can travel full stroke.

Implement linkage mechanism seized up. Straighten and lubricate mechanism.

### 8.2.11 - Tank losing oil

External leakages. Repair or replace hoses, attachments, pipes, seals, etc. as required.

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### 8.2.12 - Final transmission / hydraulic system oil overheating

Oil level too low. See final transmission / hydraulic system oil instructions in Chapter 5.

Oil too thick or insufficient oil. See final transmission / hydraulic system oil instructions in Chapter 5.

Oil contaminated. See changing final transmission / hydraulic system oil instructions in Chapter 5.

Safety valve setting incorrect. Consult your Dealer.

Valves leaking internally. Consult your Dealer.

Excessive lift arm oscillation - adjust linkage load response for heavier draft - see "Setting linkage load response", Chapter 4.

Coolant by-pass valve blocked in open position. Consult your Dealer.

### 8.2.13 - Spongy brakes

Air in circuits. Bleed brake circuit. See chapter 5.

Pressure relief valve failure. Consult your Dealer.

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*Appendix*

# CONVERSION TABLES

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| 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 |

| AREA WORKED | | |
|---|---|---|
| multiply by | | |
| $mm^2$ | x 15 | $in^2$ |
| $in^2$ | x 645.16 | $mm^2$ |
| $m^2$ | x 10.764 | $ft^2$ |
| $ft^2$ | x 0.0929 | $m^2$ |
| ha | x 2.4711 | acre |
| acre | x 0.4047 | ha |

| VOLUME | | |
|---|---|---|
| multiply by | | |
| $mm^3$ | x 0.6102 | $in^3$ |
| $in^3$ | x 163.87 | $mm^3$ |
| $m^3$ | x 35.315 | $ft^3$ |
| $ft^3$ | x 0.0283 | $m^3$ |

| CAPACITY | | |
|---|---|---|
| multiply by | | |
| ml | x 0.0351 | liquid oz |
| liquid oz | x 28.413 | ml |
| litre | x 0.2200 | imp. gal. |
| imp. gal. | x 4.5640 | litre |
| litre | x 0.2640 | gal. English US |
| gal. English US | x 3.7850 | litre |
| imp. gal. | x 1.2010 | gal. English US |
| gal. English US | x 0.8330 | imp. gal. |

| POWER | | |
|---|---|---|
| multiply by | | |
| ps | x 0.9863 | ch |
| ch | x 1.0139 | ps |
| kW | x 1.3410 | ch |
| ch | x 0.7457 | kW |

| TORQUE | | |
|---|---|---|
| multiply by | | |
| Nm | x 0.738 | lbf ft |
| lbf ft | x 1.356 | Nm |

| PRESSURE | | |
|---|---|---|
| multiply by | | |
| bar | x 14.504 | $lbf/in^2$ |
| $lbf/in^2$ | x 0.0690 | bar |

| FWD SPEED | | |
|---|---|---|
| multiply by | | |
| kph | x 0.6214 | mph |
| mph | x 1.6093 | kph |

| WEIGHT | | |
|---|---|---|
| multiply by | | |
| gramme | x 0.0353 | oz |
| oz | x 28.350 | gramme |
| kg | x 2.2046 | pound |
| pounds | x 0.4536 | kg |
| kg | x 0.00098 | British ton |
| British ton | x 1016.1 | kg |
| ton (metric) | x 0.9842 | British ton |
| British ton | x 1.016 | ton (metric) |

| TEMP. | | |
|---|---|---|
| °C | °C x 1.8 + 32 | °F |
| °F | (°F - 32)/1.8 | °C |

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