USER MANUAL

PNEUMATIC SEEDERS
-
DSF1000
DSF1600
DSF2200

Return the warranty certificate within 15 days together with a copy of the invoice (*without these documents the warranty procedure cannot be implemented*).

Original Manual

AGRISEM INTERNATIONAL S.A. – 535 Rue Pierre Levasseur – CS 60263 – 44158 ANCENIS - France
Tel.: +33 (0)2 51 14 14 40 – Fax: +33 (0)2 40 96 32 36

FOREWORD

This manual is provided with your machine to enable you to make optimum use of your equipment, in particular under safe working conditions.

All owners are reminded that the manual is **an essential accessory** which must remain with the machine at all times, and that in the event of resale, article 1615 of the Civil Code requires that as such it **must be handed over** to the new owner.

You are also reminded that as the manual is essential to the machine, all owners must undertake to **leave it physically** available with the machine for all users to consult.

Original Manual: **http://bit.ly/manuels_agrisem**

WARRANTY CERTIFICATE NUMBER

AGRISEM INTERNATIONAL

TO BE RETURNED ON RECEPTION OF THE MACHINE

Dealer	Purchaser
Name Address Tel.	Name Address Tel.

Type of machine:	
Working width:	
Machine serial number:	
Customer and user delivery date:	
Make, model and power of the tractor used:	
Type of soil, % clay:	
Utilised agricultural area belonging to the farm:	

Signed in:.....
On.....

Signature and stamp of the purchaser

Signature and stamp of the dealer

We acknowledge that we have read the whole of the user manual and the warranty clauses, to which we adhere.

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DECLARATION OF COMPLIANCE WITH THE "MACHINERY" DIRECTIVE

The manufacturer referred to above certifies that the new equipment described below:

PNEUMATIC SEEDERS

Complies with the provisions of the amended "Machinery" directive (Directive 2006/42/CE) and with the applicable national legislation.

Ancenis,

21 May 2013

M. Guzowski

Michal Guzowski
Chief Executive Officer

Identification of the machine

On receipt of the machine, please enter the corresponding information below:

Type of machine: .....

Serial number: .....

Year of manufacture: .....

Date of first use: .....

Accessories: .....

.....

.....

Name of the Dealer: .....

Address: .....

.....

.....

Telephone number: .....

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This document should be kept inside this user manual

CONTENTS

1. INTRODUCTION

The warranty certificate MUST be returned within 15 days of delivery of the machine to the final user.

You have just taken ownership of your AGRISEM machine. It has been designed to give complete satisfaction.

The equipment has been carefully designed using the latest technological solutions to reduce usage costs.

However, for the best and most profitable use of your AGRISEM machine, please read this manual carefully before starting it up and strictly follow the instructions. In particular, follow the instructions for adjusting and servicing the machine, as well as the safety precautions, very carefully.

Please contact our distributor for any information or advice.

The instructions in this user manual must be read and applied by any persons who will be carrying out work on or with the machine, in particular:

- Use of the machine (including preparation, repairs required during work and maintenance).
- Maintenance (servicing and inspection).
- Transport.

AGRISEM INTERNATIONAL cannot be held liable for personal injury or damage to equipment and malfunctions resulting from failure to comply with the instructions given by the manufacturer in this manual.

This user manual is an integral part of the machine and must always be kept with the machine, especially in the event of resale.

AGRISEM INTERNATIONAL is constantly seeking to improve its products and reserves the right to modify or improve its products with no obligation to apply these modifications or improvements to products already on the market.

The instructions in this manual are not exhaustive and cannot cover all eventualities. The user must comply with the applicable legislation, in particular with regard to safety, ensure that the rules of safety and caution dictated by the situation are applied, use common sense and adapt the use of the machine to the circumstances.

It is the Purchaser’s responsibility to check that the AGRISEM machine complies with the legislation and regulations applicable to its final destination.

2. WARRANTY CONDITIONS

The warranty conditions applicable to machines fitted exclusively with genuine spare parts from AGRISEM INTERNATIONAL, France, are as follows:

➢ DURATION

- If a defect is observed on a structural part within a period of **12 months** as from the date of delivery of the machine, and if this defect is due to faulty raw materials, or its manufacture at the factory. The parts alleged to be faulty must be returned to the Company's address for an expert inspection.

  The following shall be considered to constitute proof of the date of delivery of the equipment:
  - the date of the delivery slip and the purchaser's invoice.
  - the return of the warranty certificate within 15 days (with the dealer's and purchaser's stamp and signature) following delivery of the equipment.

➢ MACHINES AND PARTS CONCERNED

- For the purposes of this warranty, the term "Machine" is exclusively used to designate machines and parts manufactured by AGRISEM INTERNATIONAL. (It does not include external components, in particular tyres, hydraulic hoses, etc. even though these parts are also supplied by the Company)

- **The warranty is void if any modifications have been made to the machine without the formal agreement of AGRISEM INTERNATIONAL or if parts other than those manufactured by the Company have been fitted (e.g. counterfeit wear parts).**

➢ EXTENT OF THE WARRANTY

- The warranty is limited to the reimbursement or repair of parts recognised as faulty with regard to their raw materials or machining, in our factories by our Technical Departments.

- Any costs linked to the dismantling and replacement of the faulty part are not covered by the warranty. The cost of transporting machines or machine parts to the place of repair and their return to their owner is not covered either.

- Wear parts are not covered by the warranty.

➢ PRECONDITIONS

The machine must be maintained and used in accordance with the instructions in this User Manual.

All of the safety measures described in the User Manual and in the manuals of any additional equipment must be complied with.

All of the protection and safety devices and hazardous parts (e.g. shock absorbers) must be regularly inspected and replaced if necessary.

The warranty is only valid if the customer has met the contract's general obligations, in particular the payment conditions.

➢ WARRANTY EXCLUSIONS

The warranty does not of course apply to:

- Faults due to normal wear, incorrect use, lack of maintenance, inadequate monitoring or negligence.
- If the machine is damaged by an accident or develops a fault due to being used for purposes other than those specified by AGRISEM.
- In the event of non-compliant use of the machine. Please consult chapter 3 with regard to this point: Compliant use of the machine.
- If the manufacturer's instructions and requirements given in this manual are not complied with, particularly those regarding safety, assembly, use, operation and servicing.
- In the event of improper handling on the part of the user.
- Causes due to the presence of foreign bodies.
- In the event of damage due to the machine being combined with other machines or instruments without the prior written agreement of AGRISEM, and/or without complying with the instructions given by the manufacturers of the tractor and other instruments or machines.
- If the machine is used with protection and safety devices that are incorrectly fitted or not working.
- If the machine has been modified without prior written permission from AGRISEM, or if spare parts, accessories or equipment have been fitted to the machine which were not recommended by AGRISEM.
- In the event of non-compliant repair.
- If faults are due to the machine being immobilised.
- In the event of damage during transport or handling by a carrier. It is the recipient’s responsibility to lodge the necessary complaints with the carrier.
- The adverse consequences of the machine being immobilised due to a fault or incident on the machine are not covered by the warranty.
- Personal injury to the owner or a third party and the indirect consequences resulting from this are not covered by the warranty.

Moreover, AGRISEM INTERNATIONAL shall not be liable for the payment of compensation for any reason whatsoever in the event of the loss of crops or any damage whatsoever due to a fault, hidden defect or machine breakdown.

The purchaser is always responsible for the choice of product and the suitability of the machine for the result that he hopes to obtain. He is responsible for its correct use in line with professional practice and the regulations.
Under no circumstances will AGRISEM INTERNATIONAL have any obligation with regard to the final result.

➢ LIMITATIONS AND LIABILITY

- The warranty cannot be assigned or transferred to any other person without the prior written permission of AGRISEM INTERNATIONAL.
- Under no circumstances do those selling our machines have the right or power to make any decision whatsoever, either express or tacit, in the Company's name.
- The technical assistance given by the Company or its representatives with the repairing or operation of equipment does not make it liable for any costs and in no way alters or leads to the waiving of the conditions of this warranty.

➢ WARRANTY ENFORCEMENT PROCEDURE: TO BE STRICTLY ADHERED TO BY THE DISTRIBUTOR AND BY THE PURCHASER

The warranty's enforcement is subject to strict compliance by the dealer and the user with the

following requirements:

A) **RETURNING** BY THE DEALER **OF THE WARRANTY CERTIFICATE** DULY COMPLETED AND SIGNED BY THE DEALER AND THE PURCHASER.

B) Claims must be made without fail using an AGRISEM INTERNATIONAL**"WARRANTY CLAIM FORM"** (see appendix) and sent by registered letter with acknowledgement of receipt **by the dealer** to the company's technical department within 10 days of the incident. This form must be completed legibly by the dealer and must include the following information:

- Name and address of the dealer, code No.,
- Name and address of the purchaser,
- Type of machine,
- Working width,
- Machine serial number,
- Date of delivery to the purchaser,
- Date of breakdown,
- **Precise references of the parts replaced, No. and date of invoice,**
- **Make and model of the tractor used,**
- Detailed description and alleged cause of the incident.
- Surface worked with the Disc-O-Mulch,
- Utilised agricultural land belonging to the farm,
- Type of soil in terms of % clay,
- Proof of wear part invoice
- Stones ☐ yes ☐ no
- Parts replaced ☐ yes ☐ no (send the photocopy of the invoice)

C) **Allegedly faulty parts are to be returned by the dealer to the Company's address for an expert inspection**, together with the copy of the warranty claim form provided for this purpose. **The dealer must order the faulty part from the spare parts department.** Any transport costs incurred by the returning of said parts are payable by the sender.

D) The final decision regarding payment under the terms of the warranty shall be made by **the company's technical or general management**. Whatever the reason for the warranty claim, this decision is final and irrevocable and the purchaser undertakes to accept this decision both with regard to the fault and the replacement of the part or parts.
Under no circumstances are the company's salesmen authorised to make such a decision, which would be void.
NOTE: In the event of refusal, the part remains at the customer's disposal for eight days. After this time it will be scrapped with no appeal possible.
Under no circumstances do those selling our machines have the right or power to make any decision whatsoever, either express or tacit, in the Company's name.

➢ 5-YEAR WARRANTY AGREEMENT

If the customer subscribes to the 5-year warranty, please see this agreement for the terms and conditions of the warranty's enforcement.

2.1. EXCLUSIVE LIABILITY CLAUSE

AGRISEM INTERNATIONAL denies any liability for damage (and any indirect consequences linked to it) resulting from one or more of the following causes:

- Non-compliant use of the machine.
- Failure to follow the manufacturer's instructions or those given in this manual, particularly those regarding safety, assembly, start-up, use, operation and servicing.
- Unsuitable assembly, start-up, use and maintenance of the machine.
- Use of the machine with faulty protection and safety devices or safety and protection devices that are incorrectly installed or not working.
- Combining of the machine with other instruments or machines without the written agreement of AGRISEM and/or without complying with the instructions given by the manufacturers of the tractor and other instruments or machines.
- Modifications made to the machine without the written permission of AGRISEM.
- Fitting of spare parts, accessories or equipment on the machine which are not genuine or which have not been recommended by AGRISEM.
- Failure to monitor the wear parts on the machine.
- Use of the machine other than for the purposes specified by the manufacturer.
- Non-compliant repair and maintenance.
- Catastrophes resulting from the presence of foreign bodies, unforeseeable circumstances and cases of force majeure.

Moreover, AGRISEM INTERNATIONAL cannot be held liable for injury to the owner or a third party or for the indirect consequences of such an injury, whether or not it results from a fault. You are reminded that a safe distance of 50 metres must be maintained around the machine.

Any claim for compensation for damage that did not occur directly on the machine is excluded.

AGRISEM INTERNATIONAL cannot be held liable for damage caused by driving or use errors.

AGRISEM INTERNATIONAL cannot be held liable for compensation for the consequences of the instrument's immobilisation due to a fault or an incident on the machine.

2.2. COMPLIANT USE OF THE MACHINE

AGRISEM INTERNATIONAL products must only be used for the work for which they were designed:

Work on arable land under normal conditions

In the event of damage linked to the use of the machine other than for the purposes specified by the manufacturer, the manufacturer shall be entirely released from liability.

Only use the machine in good technical condition, in accordance with the purpose for which it was designed and in full knowledge of the risks.

Compliant use of the machine also involves:

- Compliance with the instructions for use, servicing and maintenance issued by the manufacturer

- Compliance with all of the instructions in this manual, particularly including the safety instructions

- The exclusive use of genuine spare parts, accessories and equipment or those recommended by the manufacturer.

AGRISEM machines must not be combined with other machines or instruments without prior written permission from AGRISEM INTERNATIONAL.

For any combinations, the user must also comply with the instructions given by the tractor manufacturer.

AGRISEM machines must only be used, serviced and repaired by competent persons who are familiar with the machine's features and operating procedures. These persons must be informed of the dangers to which they may be exposed.

The user is required to strictly comply with the current legislation with regard to:

- Accident prevention
- Safety at work (labour code)
- Driving on the public highway (Highway code)

He is required to observe the warnings affixed to the machine. Any modifications made to the machine by the user or any other person without the prior written permission of the manufacturer releases the latter from any liability for the damage which may result.

Damage resulting from non-compliant use of the machine:

- Is entirely the user's responsibility,
- May under no circumstances be assumed by AGRISEM INTERNATIONAL

2.3. SAFETY INSTRUCTIONS

2.3.1. Safety instructions

2.3.1.1. Introduction

Most accidents which occur during work, maintenance or travel from one place to another are due to a failure to observe the most basic safety rules. It is therefore essential for anyone likely to be working with this machine to adhere to the basic rules listed below and to the safety instructions displayed on the stickers affixed to the machine.

This machine has been designed for a specific task. It must always be in good working order and must only be repaired using genuine AGRISEM INTERNATIONAL spare parts.

This machine must only be used, maintained and repaired by competent persons who are familiar with its features and its operating procedures and who are aware of the safety rules for accident prevention and the dangers to which they may be exposed.

This machine must only be used in accordance with its purpose and in a condition that does not present any safety risks. Any malfunctions likely to be detrimental to safety must be corrected immediately.

The user is required to strictly adhere to the safety instructions in this manual and the stickers affixed to the machine.
The user is also required to strictly comply with the current legislation with regard to accident prevention, safety at work (labour code), occupational medicine and highway legislation.

Before using the machine for the first time, read all of the safety instructions in this user manual carefully and familiarise yourself with the controls.

The machine must never be entrusted to a person who is not trained to use it.

Liability and warranty:

In addition to the other cases mentioned in this manual, the manufacturer denies any liability for any injury or damage to equipment resulting from one or more of the following causes:

- Failure to follow the manufacturer's instructions or those given in this manual, particularly those regarding safety, assembly, start-up, use, operation and servicing.
- Non-compliant use of the machine.
- Unsuitable assembly, start-up, use and maintenance of the machine.
- Use of the machine with faulty protection and safety devices or safety and protection devices that are incorrectly installed or not working.
- Combining of the machine with other instruments or machines without the written agreement of AGRISEM and/or without complying with the instructions given by the manufacturers of the tractor and other instruments or machines.
- Modifications made to the machine without the written permission of AGRISEM.
- Fitting of spare parts, accessories or equipment on the machine which are not genuine or which have not been recommended by AGRISEM.
- Failure to monitor the wear parts on the machine.
- Use of the machine other than for the purposes specified by the manufacturer.
- Non-compliant repair and maintenance.

- Catastrophes resulting from the presence of foreign bodies, unforeseeable circumstances and cases of force majeure.

Similarly, in addition to the other cases mentioned in this manual, any claim under the warranty linked to damage resulting from one or more of the above-mentioned causes is excluded.

2.3.1.2. Instructions to be followed before using the machine

Wear close-fitting clothes. Loose clothing may become caught in moving parts.

Wear individual protective equipment corresponding to the work you are planning to do (gloves, shoes, goggles, helmet, ear protection, etc.).

Be aware that tillage equipment, even if not very wide, has very sharp parts (blades, shares, disks, etc.) which can cause serious injury in the event of an accident.

Whenever the machine is used, check the area around the machine beforehand (presence of children). Ensure you have sufficient visibility.

Before any work, ensure that the tractor is sufficiently weighted at the front to avoid any risk of the front lifting. If not, add weights to the front of the tractor.

Check that screws, nuts and bolts are correctly tightened whenever you use the machine. Tighten if necessary. Also check the condition of the tools and their fastening elements in accordance with the instructions in this manual.

No-one must be within 50 metres of the machine when it is being folded and unfolded.

Check that the machine is correctly hitched.

Always install the pins and locking systems.

Check that the machine meets personal safety requirements.

Whenever you use the machine, check that the safety and protection devices are in place and working. Replace any worn or damaged protectors immediately.

Move any people or animals likely to be in the area where the machine is being manoeuvred or used. A 50-metre safety zone must be kept clear around the machine.

Go around the machine looking for any external damage and checking the condition of the protection devices.

Only persons authorised by the owner of the machine and who have been trained and instructed are allowed to work on and with this machine. The operator is responsible towards third parties when he is working on and with the machine.
The owner of the machine must:

- Provide the operator with the user manual.
- Ensure that the operator has read it and understands it.
- Ensure that the operator knows the basic instructions regarding safety at work and accident prevention.

2.3.1.3. Instructions to be followed for hitching and unhitching

Pay attention to the various possibilities permitted for the connecting of the tractor's coupling equipment to that of the machine.
Only combine equipment that is compatible (machine and tractor).

- **Check that the tractor has the characteristics necessary to hitch the machine.**

WARNING:

Non-compliant implementation may result in a risk of the tractor breaking during operation, being insufficiently stable when loaded and having insufficient manoeuvrability and braking power.

Check that the tractor meets the necessary requirements before installing or hitching the machine.

The machine must only be mounted on or hitched to a tractor if it meets the necessary requirements.

Perform a braking test to check that the tractor can provide the regulatory deceleration power even with the machine mounted or hitched.

The requirements relating to the tractor include:

- The total authorised weight
- The authorised axle loads
- The authorised vertical load on the tractor coupling point
- The permissible load capacities of the tyres mounted on the tractor
- Sufficient authorised load on the coupling point

You will find this information on the data plate or in the vehicle's registration papers and in the tractor user manual.

The front axle must support at least 20% of the tractor's empty weight at all times.

- Calculation of the real values of the total tractor weight, tractor axle load and the load capacity of the tyres, and of the minimum ballast required:

The total authorised weight of the tractor indicated in the vehicle's registration papers must be greater than the sum of:

- The tractor's empty weight,
- The ballast,
- The total weight of the mounted machine or the vertical load of the hitched machine.

This instruction only applies in Germany:

If the axle loads and/or the total authorised weight are not complied with after all the possibilities have been exhausted, the competent authority according to the law of the Land may issue a waiver based on the report of an approved expert in the field of motor vehicle circulation and with the agreement of the manufacturer, in accordance with article 70 of the German law governing the authorisation of vehicles to use the public highway, and the obligatory authorisation under the German highway code.

Combining of machines: do not combine machines that are incompatible or are incompatible with the tractor when combined.

AGRISEM denies any liability in the event of damage resulting from a combination of machines that has not received written authorisation from AGRISEM.

Accidents linked to the breaking of components during operation may result from unauthorised combinations of hitching equipment.

Hitching and ballasting are operations which involve a risk of injury.

- **Before hitching or unhitching:**

  - Place the machine on stable ground.
  - Chock the machine and take all of the necessary measures to avoid the accidental movement of the tractor.

The machine must only be coupled using the coupling points provided for this purpose and in accordance with the applicable rules.

When hitching, do not exceed:

- The tractor's total authorised weight
- The tractor's authorised axle loads
- The permissible load capacities of the tyres mounted on the tractor.

No one must be standing between the tractor wheels and the tool when hitching or unhitching.

2.3.1.4. Instructions to be followed before using the machine

WARNING

A failure to take movement or operating safety measures may result in accidents involving crushing, cuts, entanglement, pinching or impacts.

Before start-up, check that the machine and the tractor are able to move and operate in complete safety.

Never climb onto the machine or stand on it when it is moving.

Never work in reverse.

Never allow children to climb on the tractor or the machine, or to play near the equipment, even if the machine is stopped.

When using or manoeuvring the machine ensure that no-one is within the manoeuvring or working area.

The elements of the machine that are controlled by an external force have crushing and shearing zones. Keep away from these hazardous areas.

Be aware of hidden obstacles (stones, roots, pipes, cables, etc.) in the event of a collision with an obstacle.

In such an event you must stop the drive, stop the tractor engine, remove the ignition key and wait for the machine to stop completely.

Before starting work again, check the machine for any damage.

If the obstacle is an electric cable or gas pipe, inform the appropriate authorities.

When using the machine, stones or other foreign bodies are likely to be thrown a considerable distance.
Move any people or animals likely to be in the danger area around the machine.

Do not stand in the machine's working area or in the area where the machine rotates and pivots.

Each time the machine is used, carry out a careful visual inspection of the machine to detect any external damage and ensure that the safety and protection devices are operating correctly. Also carry out regular inspections of the various adjustments.

Do not approach the machine until all of the moving parts are completely immobile. Enforce a 50-metre safety area around the machine.

- **With regard to driving**:

Adapt your driving to ensure that you are in control of the tractor with the machine mounted or hitched under all circumstances.
Take into account your personal faculties, the conditions of the land or road, the traffic, the visibility and the weather, the tractor's driving characteristics and the conditions of use when the machine is mounted or hitched.
Ensure that the rules of safety and caution dictated by each situation are applied.

The speed and driving style must always be appropriate to the land, roads and tracks.
Reduce your speed on uneven ground or tight corners.
On bends, take into account the overhang and the inertia of the mounted tool.
Avoid sudden changes of direction at all times.

Do not leave the driver's seat until the equipment has completely stopped, the engine is off and the parking brake is on.

Do not transport any people or animals on the machine and the additional tools during work or transport.

- **When driving on the public highway:**

Comply with the highway code applicable in your country.

Before going out onto the public highway, check the width of the machine and unbolt or remove elements that exceed the regulatory width.

Take into account the widths authorised for transport and the transported height depending on the hitched machine, in line with current legislation.

Before setting off on the road, ensure that the hitched machine is fitted with the lighting and signalling devices required by the highway code and any other devices required by the current regulations.

AGRISEM rear signalling lights and panels may be removed when working. Check that this signalling equipment has been correctly refitted.
Check that the equipment is clean and operating correctly. Replace all missing or damaged equipment.

Before travelling on the road, secure all of the machine's pivoting parts in their transport position to avoid dangerous changes of position. Also check that the screws, nuts and bolts are tightened and that all of the machine parts are correctly attached and cannot move or become detached.

If your machine is a folding machine, the locking system must be engaged.

Follow the instructions in this manual on how to prepare the machine for transport.

If necessary, also check:
- The connection of the supply pipes;
- The braking system and the hydraulic circuit.

If the equipment does not already have them, fit signalling devices: lighting board, reflectors, reflective plates or adhesive strips.

Ensure that the machine or additional equipment does not hide the tractor's lights.

Ensure that the tractor tyres are inflated to the correct pressure.

Ensure that the tractor and additional equipment is correctly balanced.

Install ballast at the front and back to ensure that the brakes and steering are effective.

The tractor's front axle must systematically support at least 20% of the tractor's empty weight to guarantee sufficient manoeuvrability.

Never drive at more than 25km/hour when under load.

Clean off any soil stuck to the machine before going out onto the road.

After using the public highway, ensure that the road is cleaned of any mud left by the tractor and tools.

The driver/owner has sole responsibility when transporting the machine on the public highway.

2.3.1.5. Instructions to be followed before carrying out any operations on the machine

In particular during cleaning, servicing and repairs.

Comply with the instructions in this manual regarding the servicing of the machine.

Before carrying out any operations on the machine:

- Ensure that the machine is on stable ground.
- **Stop the tractor engine, remove the ignition key, wait for all of the moving parts to stop and engage the hand brake.**
- Set the machine on the ground, depressurise the hydraulic circuit and allow the machine to cool down.
- Secure the machine or elements that are in a raised position to avoid any accidental lowering.
- Chock the machine.

If using a high-pressure washer or steam cleaner, it is essential to comply with the following points:

Do not clean the electrical and hydraulic components.

Never direct the high-pressure washer or steam cleaner nozzle directly at the lubrication points or bearings.

Systematically keep the nozzle a reasonable distance from the machine.
Comply with the rules for using high-pressure washers.

Wear appropriate personal protective equipment for the work to be performed. In particular, wear safety shoes and gloves to handle sharp parts.

Take all of the necessary precautions when fitting working parts that are both heavy and sharp.

The machine must only be serviced and repaired by competent persons who are familiar with the machine's features and operating procedures.

The machine must only be repaired with genuine AGRISEM International spare parts.

For bare metal parts, use either an anti-rust product that leaves a greasy film or thick grease.

According to the type of machine: before carrying out any work on the electrical circuit or before any welding operations, disconnect the wiring harnesses coming from the tractor. Disconnect the battery and alternator cables.

Do not weld or use blow torches near pressurised fluids or inflammable products.

2.3.1.6. Instructions regarding installation

The machine may be fitted with electronic components and elements which may be affected by electromagnetic emissions from other devices. This type of interference may be a source of danger for people if the following safety instructions are not followed:

- If devices and/or electrical components are installed on the machine and connected to the on-board electrical circuit at a later date, the user must first check that installing these components will not interfere with the vehicle's electronics or other components.

- Ensure that electrical and electronic components subsequently installed comply with the current version of electromagnetic compatibility directive 2004/108/CEE and that they have a CE marking.

Before carrying out any operations on the electrical system, disconnect the battery's negative terminal.

Only use the recommended fuses. Using fuses which have too high an amperage may damage the electrical system and create a risk of fire.

Ensure that the battery terminals are correctly connected, starting with the positive terminal and then the negative terminal. When disconnecting the terminals, start with the negative terminal and then disconnect the positive terminal.

Systematically fit the cover provided for this purpose on the battery's positive terminal. Be aware of the risk of explosion when earthing.

Risk of explosion: avoid sparks and naked flames near the battery.

2.3.1.7. Instructions regarding the hydraulic system

If your machine is fitted with a hydraulic circuit, you must comply with the following instructions:
Warning! The hydraulic circuit is pressurised.

When mounting cylinders and hydraulic devices, take particular care to ensure that the circuits are correctly connected, in accordance with the manufacturer's instructions.

Mark the sockets and connectors of the hydraulic connections between the tractor and the machine to avoid handling errors.

Before connecting a hose to the tractor's hydraulic circuit, ensure that the circuits on both the tractor side and the machine side are perfectly clean and not under pressure.

Before connecting, check that the hydraulic quick connectors on the machine and the tractor are free from impurities.

Before performing any operations on the hydraulic circuit, lower the machine, depressurise the circuit, switch off the tractor engine, engage the parking brake and remove the ignition key.

Before carrying out any operations, allow the machine to cool down and discharge the hydraulic circuits' accumulators.

Check the hydraulic hoses regularly. Damaged or worn hoses must be replaced immediately. Check the appearance of the hydraulic hoses to detect any signs of tears or abnormal wear.

When replacing hydraulic hoses, ensure that you only use hoses of the characteristics and quality recommended by the machine's manufacturer.

Each time the machine is used, the hydraulic quick connectors' end fittings must be cleaned and the protective caps must be fitted afterwards. Replace connectors which do not lock correctly or which leak.
Hydraulic hoses must never trail on the ground.

If you find a leak, take all of the necessary precautions to avoid accidents. Never try to plug the leak with your hand or fingers.

Any pressurised liquid, in particular oil in the hydraulic circuit, can penetrate the skin and cause serious injury and infections.
In the event of injury, consult a doctor immediately.

To avoid accidents caused by unexpected hydraulic movements or by third parties, the distributors on the tractor must be locked or immobilised when they are not being used or in their transport position.

2.3.1.8. Instructions relating to the braking system

The braking system must be checked and serviced regularly. Servicing and repair work and adjustments must only be carried out by brake system specialists.
Stop the tractor immediately in the event of a brake system malfunction and have it repaired.

Before performing any operations on the braking system, place the machine on stable ground and chock it.

After any adjustment or repair work on the braking system, perform a braking test.

2.3.1.9. Instructions specific to AGRISEM seeders

In addition to the instructions applicable to all of machines, AGRISEM seeder users must comply with the following instructions:

Never climb onto the machine elsewhere than on the AGRISEM walkway provided for this purpose.
Only climb onto the machine when it is stopped.

When operations are performed on the AGRISEM seeder or during flow tests, the seeder must be stationary and a 50-metre safety area must be enforced around it. The hydraulic system must be depressurised (e.g. turbine stopped) and the rear window of the tractor must be shut, the tractor switched off and the ignition keys removed.

Ensure that no one is on or near the seeder when the grain is being loaded. The AGRISEM walkway must only be used when the seeder is stationary.

Always ensure that the entire area within the seeder's dimensions is completely clear.

Never stand under the sun wheel when it is in its transport position.

When testing the distribution flow, the user must turn the sun wheel with care to avoid any injury. When the wheel is rotating, no-one must be within 50 metres of the machine. This means that no-one must put their fingers into the distribution grooves unless the transmission system is completely stopped.

When changing the transmission gear ratios, ensure that the gearing and chain are handled with the greatest care to avoid any injury. No-one must be within 50 metres of the machine. Avoid putting yourself in danger when changing the gearing by avoiding climbing on the machine's beams or disks, as this could be dangerous.

Ensure that the sun wheel is protected during transport to avoid it hitting anything or injuring anyone.

Similarly, when the turbine is started up, a safety area must be enforced around the machine due to the risk of objects or liquids being ejected (e.g. soil, oil, stones, metal, etc.).

When travelling on the public highway, always be very careful and alert. As the rear visibility is reduced during transport, ensure that the way is clear before reversing the machine (50-metre safety area).

The user must comply with the highway regulations applicable in his country with regard to the front hopper.
If the tractor’s signalling equipment is not sufficient (or not sufficiently visible) ensure that you fit your front hopper with lighting and signalling plates.

When working, a 50-metre safety area must be enforced due to the risk of objects being ejected.

2.3.1.10. Instructions relating to safety systems with spring assemblies

Safety devices with pre-compressed spring assemblies are fitted on many AGRISEM tools. These can be very dangerous when performing technical operations on the machine if all of the necessary precautions are not taken.

WARNING: Written authorisation must be obtained from AGRISEM International before carrying out any operations on the "Spring Assembly".

2.3.1.11. Instructions relating to transmission shafts with universal joints

Consult the tractor manufacturer's instructions when performing any operations on transmission shafts with universal joints.

2.3.1.12. Instructions relating to loading and transport

Unless there is a specific transport agreement:

- For deliveries of less than three tonnes: the carrier is responsible for the loading, chocking, securing and unloading of the equipment from when he takes charge of it until its delivery.

- For deliveries of more than three tonnes: loading, chocking and securing on the one hand, and unloading on the other hand, are the responsibility of the contracting party or the recipient respectively. The responsibility for any equipment damage that occurs during these operations lies with the person carrying them out.

Unless there is a specific transport agreement, and for deliveries of more than 3 tonnes, the Purchaser will therefore unload the machine under his own responsibility.
Similarly, if the Purchaser sells the machine and has it delivered, as the sender, he will be responsible for the loading, chocking and securing of the equipment when it is sent.

In case of doubt regarding the unloading or loading, chocking and securing of the machine, please contact AGRISEM International.

2.3.1.13. The user's workstation

The machine must be operated by one person only, from the tractor driver's seat.

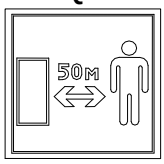
2.3.1.14. Noise data

The sound pressure level is 77 dB(A), as measured at the level of the user's ear during operation with the cab closed.
The sound pressure level mainly depends on the tractor used.

Measuring device: NICETY SL801A.

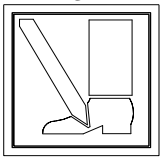
2.3.2. Safety symbols on the machine

ETIQ-501



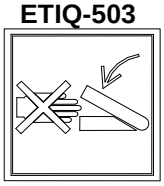
Keep a safe distance from the machine during work. Risk of serious injury.
Ensure that no-one is in the danger zone around the machine when the tractor engine is running.

ETIQ-502



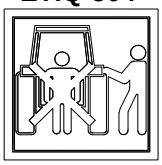
Keep a safe distance from the machine when lowering it. Risk of serious injury.
Ensure that no-one is under the machine when lowering it.

ETIQ-503

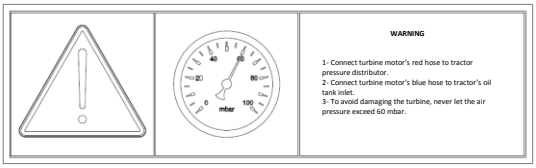


Beware of pinching. Risk of serious injury.
Do not touch the hazardous areas under any circumstances while the tractor engine is running and the universal joint shaft, hydraulic circuit or electronic system is operating.

ETIQ-504

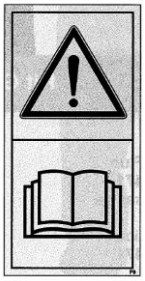


Keep a safe distance from the rear of the tractor during manoeuvres. Risk of serious injury.



Warning: never exceed a maximum air pressure of 60 mbar as this may damage the turbine.

ETIQ-908



Read the maintenance book and safety instructions before starting up the machine and abide by them during operation.

3. TECHNICAL INSTRUCTIONS

3.1. PNEUMATIC SEEDER

3.1.1. DSF1000 technical characteristics

Hopper volume:	1,000 L
Distribution heads Ø70 mm: Distribution heads Ø90 mm:	2 x 10 outlets 2 x 16 outlets
Distribution system:	Stainless steel
Distribution drive:	Electrical
Turbine drive:	Hydraulic
Maximum seeding rate with 2 x 70 mm distribution outlets:	600 kg/hour
Weight of DSF 1000 empty (variable depending on the equipment)	495 kg
Additional ballast (optional)	8 x 35 kg

3.1.2. DSF1600/2200 technical characteristics

Hopper volume:	1,600 L
Extender volume:	600 L
Distribution heads:	2 x 16/24 outlets
Distribution system:	Stainless steel
Distribution drive:	Electrical
Turbine drive:	Hydraulic
Maximum seeding rate with 2 x 70 mm distribution outlets:	1,200 kg/hour
Weight of DSF 1600 empty (variable depending on the equipment)	694 Kg

3.2. SETTINGS/USE OF THE PNEUMATIC SEEDER

FOREWORD:

As far as possible, read this chapter while standing in front of the machine.

When you receive the seeder, check that its characteristics are appropriate. Then carry out all of the preliminary operations prior to start-up as described in this manual.

3.2.1. Hitching – Unhitching

It is ESSENTIAL to read the safety instructions before reading the practical instructions for hitching and unhitching the machines

No-one must be within 50 metres of the machine while it is being hitched or unhitched

Before hitching or unhitching the seeder, it is important to ensure that:

- The tool is or will be on stable ground and no-one is within 50 metres of the machine.
- The top-links of the tractor's three point hitch are adjusted to the same dimensions
- The tractor tyres are inflated to the same pressure
- The tractor is suitable for the tool to be hitched and is weighted appropriately
- The tractor connections are suited to the tool to be hitched.
- When hitching, do not exceed:
  - The tractor's total authorised weight
  - The permissible load capacities of the tyres mounted on the tractor.
  - The tractor's authorised axle loads

Required tractor characteristics

Check that the tractor meets the necessary requirements before hitching the machine:

- Total authorised weight

- Permissible load capacities of the tyres

The authorised values for the total weight, the axle loads and the tyre load capacities can be found in the tractor's registration papers.

3.2.1.1. Tractor-mounted machine

- **Hitching a tractor-mounted machine:**

1/ Ensure that the machine is on stable ground
2/ Bring the tractor up to the coupling on the machine.
3/ Place the lower link arms in line with the drawbar couplings.
4/ Hitch the lower link arms using the appropriate equipment.
5/ Adjust the length of the top link and attach it using the pin and clip provided.
6/ Lock all of the hitch pins with lock handles using the clip pins.
7/ Connect the hydraulic hoses if the machine is fitted them.
8/ Connect the plug for the lighting equipment and check that it is operating.
9/ Lift the machine.
10/ Fold the side extensions for transport.
11/ Remove the stands (if the machine is fitted with them).
12/ Lock the machine for transport if it folds using the hydraulic controlled hook or mechanical locks.
13/ Ensure that everything is correctly connected and locked and that no there are no foreign bodies on the machine.

Take into account the clearance, in particular to ensure that there is room to pass under bridges and low power lines.

- **Parking:**

1/ Ensure that the machine is unhitched on stable ground.
2/ Unlock the machine before unfolding it
3/ Unfold the machine if it folds.
4/ Position the stands (if the machine is fitted with them).
5/ Disconnect the hydraulic hoses if the machine is fitted with them.
6/ Disconnect the plug for the lighting equipment.
7/ Unhitch the machine.

3.3. Starting up the turbine

3.3.1. Connecting the hydraulic hoses

Connect the oil intake ½ hydraulic hose to one of the tractor's single-acting distributors (*see Fig. 9***).**

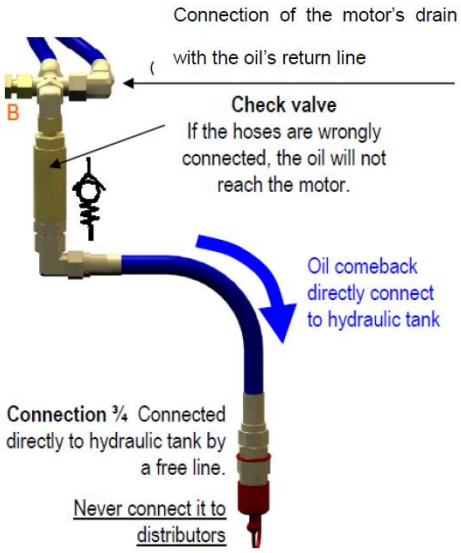
Fig. 9

Note the type of coupling on the free return on the tractor's hydraulic tank (screw-on coupling, valve coupling, etc.) (***see Fig. 10***). Check that the tractor's free return has no residual pressure to avoid disrupting the turbine's operation.

Fig. 10

Use an adapter to connect the turbine engine anti-return valve coupling (*3/4 hose*) to the valve on the tractor's hydraulic tank free return (***see Fig. 11***).

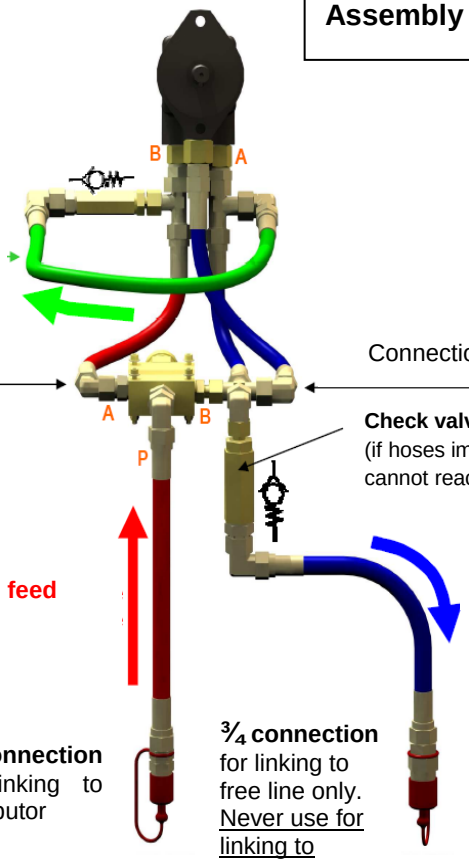
WARNING: The return MUST be connected to the tractor's tank = RETURN FREE before starting up the turbine engine.



Assembly of CRARY turbine on DSF 1600/2200

Hydraulic freewheel (Oil return flow so turbine stops smoothly)

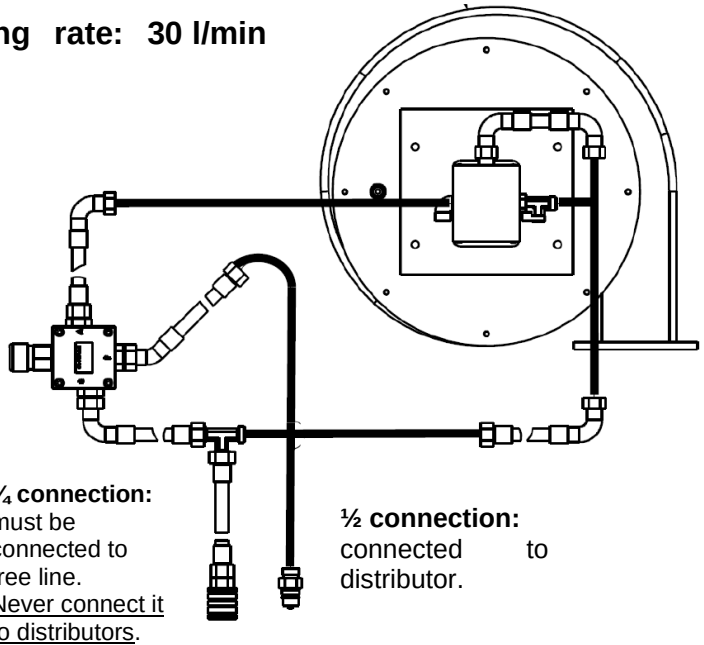
Q: 50 L/min
P: 180 bar
C: 9 cm³



The diameter of the hose linked with the tank of the tractor must match that shown here. A diameter reduction could damage the turbine. Only ¾ hydraulic connections should be used.

Assembly of turbine on DSF 1000

Seeding rate: 30 l/min



The diameter of the hose linked with the tank of the tractor must match that shown here. A diameter reduction could damage the turbine. Only ¾ hydraulic connections should be used.

3.3.2. Adjusting the turbine regulator

Fig. 12

Use the wheel on the regulator to adjust the turbine's speed. Set the regulator to scale mark 10 for a maximum oil flow. (***see Fig. 12***).

The regulator should always be on <u>scale mark 3</u> when the turbine is started up

3.3.3. Starting up the turbine engine

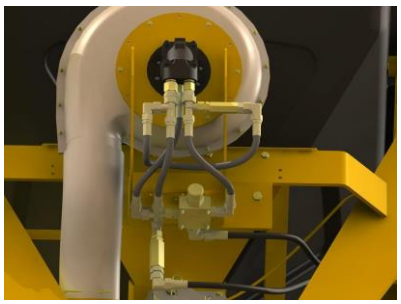


Fig. 13

After checking that the turbine's regulator is on scale mark 3, switch the tractor's distributor to its permanently open position. The turbine should turn.

If it does not, check the hydraulic system and check that the return is on the tractor's free return (***see Fig. 13***).

Switch the tractor distributor to its permanently open position again. The turbine should turn.

3.3.4. Adjusting the turbine engine speed

Fig. 14

Use the graduated flow limiter on the regulator to vary the speed at which the turbine rotates
(***see Fig. 14***).

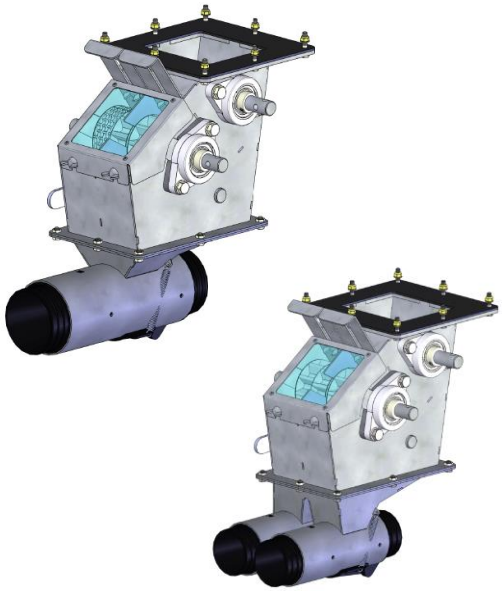
<u>N.B.</u> Never set the seeder's regulator to scale mark 10 as this may damage the seeder's hydraulic system.

Adjusting the sowing cell

Whenever the distribution system is used, check that it is completely clean. The correct operation of the tool depends on this.

3.3.5. Description

Each hopper has a volumetric distribution system, composed of one or two distribution channels. The seed metering is altered by engaging or disengaging different types of flutings. Interchangeable gears allow the speed of rotation of the distribution shaft and therefore the volume of the batch to be altered.

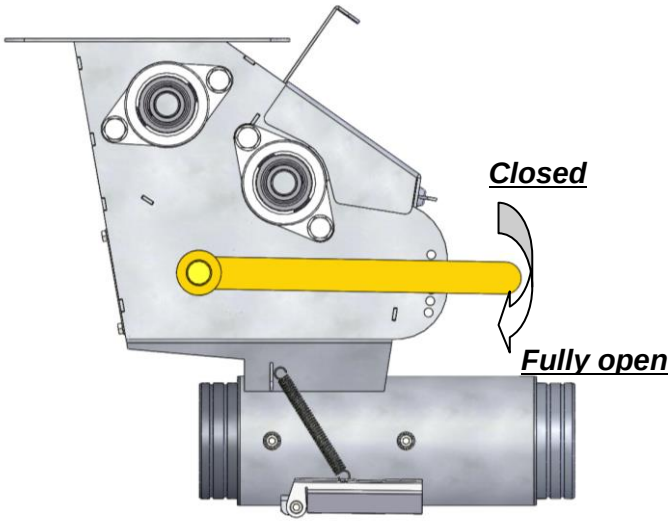


The fluting system is composed as follows:

- 3 large flutings (large seeds)
- 3 small flutings (small seeds)
- Possibility of 4 large flutings (large seeds)

3.3.6. Adjusting the tongue opening

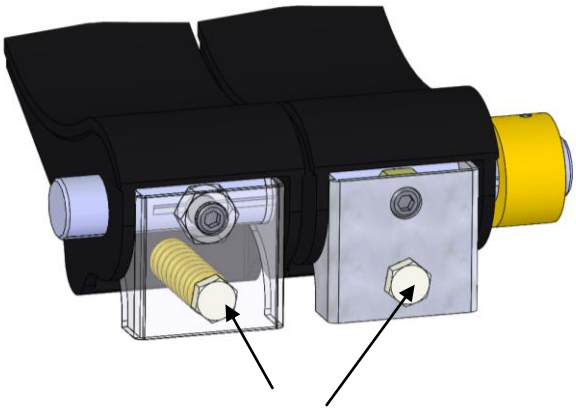
Refer to the metering table below according to the type of seed used, the working width to be considered and the desired sowing density (kg/ha). This allows you to define which flutings are to be used and the position in which the tongue opening lever must be set. The smaller the seed, the higher up the lever must be moved in position 1. An indicative table is provided below:



Type of seed	Rape	Wheat	Oats	Peas
Position of lever	Position 1	Position 2	Position 3	Position 4 – 5

3.3.7. Adjusting the tongue position

The batcher is fitted with tongues. The 2 distribution tongues are fitted to the same shaft. They are controlled by the same mechanism. However, each of them can be individually adjusted to achieve optimum accuracy. They are pre-set in the factory as standard.

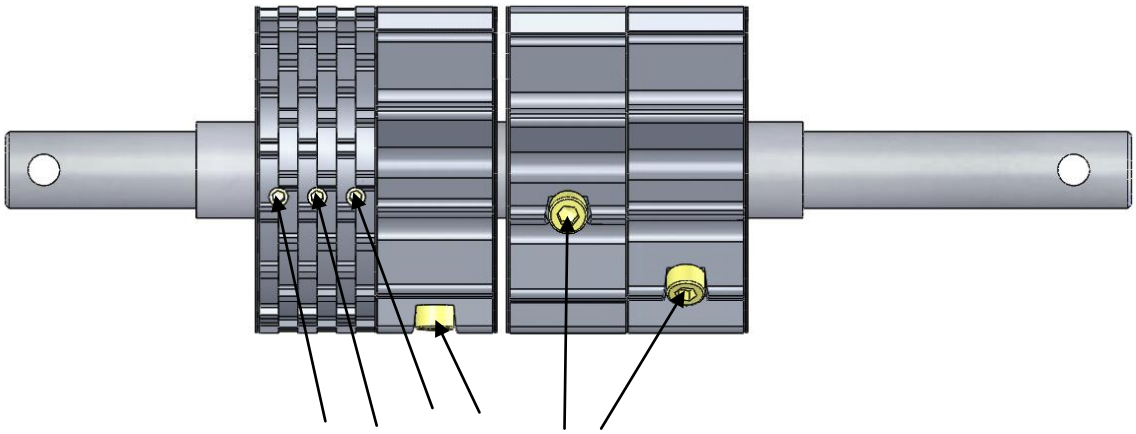


Setting screws

To modify this standard setting, simply turn the batcher adjustment lever to the closed position and then turn the tongue setting screws.

It is essential to check ALL of the tongues prior to each use of the seeder. When the moveable base control lever is in position 1, ALL of the tongues should be resting on the groove without forcing them.

3.3.8. Choosing the active flutings



Connecting or disconnecting screws

The active flutings must be selected according to the seed used.

Simply unscrew the screw on the fluting that is not used. This disconnects the fluting from the shaft.

The fluting system is composed as follows:

- 3 large flutings (large seeds)
- 3 small flutings (small seeds)
- Possibility of 4 large flutings (large seeds) as an option

3.3.9. Distribution head

Each of the distribution heads feeds 10, 16 or 24 seed chutes spread along the sowing ramp.

Depending on the working width, 4 returns have been built into these heads to enable the unused outlets to be recycled.

Moreover, a removable cover allows access to the inside of the distribution head by simply unscrewing it (***see Fig. 15***).

☞ Before each season when the DISC-O-SEM is used, you are advised to clean and blow out all of the outlets of each distribution head.

Fig. 15: Distribution head

3.3.10. Turbine

1 - Hydraulic connections for DSF 1600/2200

The oil flow delivered by the tractor must be at least equal to 50 L/min. Below this value, the turbine's rotation speed may be insufficient, particularly for sowing large seeds.

Maximum usage pressure: 200 bars

A flow regulator connected to the hydraulic motor allows the internal pressure of the distribution ducts to be adjusted according to its position. The manometer attached to the hopper (tractor side) is used to determine this pressure.

☞ The turbine speed must be adjusted according to the type of seed you wish to sow and the working width to be considered. For more information ***see the table below:***

Working width	3 m	4 m	5 m	6 m	7–8 m
small seeds:	40 mbar	50 mbar	55 mbar	65 mbar	75 mbar
large seeds:	50 mbar	60 mbar	75 mbar	80 mbar	85 mbar

2 - Hydraulic connections for DSF 1000

The oil flow delivered by the tractor must be no more than 30 L/min. Above this value, the turbine's rotation speed will be too high and may result in the seeder's hydraulic system getting damaged.

Maximum usage pressure: 200 bars

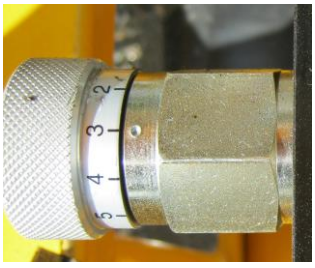
A flow regulator connected to the hydraulic motor allows the internal pressure of the distribution ducts to be adjusted according to its position. The manometer attached to the hopper (tractor side) is used to determine this pressure.

The turbine speed must be adjusted according to the type of seed you wish to sow and the working width to be considered. For more information ***see the table below:***

Working width	3 m	4 m	5 m	6 m
small seeds:	40 mbar	45 mbar	50 mbar	55 mbar
large seeds:	50 mbar	55 mbar	60 mbar	65 mbar

PROTECTING THE HYDRAULIC MOTOR:

Always make sure that the flow regulator is on scale mark 3 when the turbine is started up, then gradually increase the seeder's regulator to the required value. (see table above).



3.3.11. DSF 1000 seeding rate test

	Some seed treatments can severely disrupt the flow and correct operation of the distribution system.

To fine tune the required seeding rate, we strongly recommend performing static tests.

Seeding rate check

***Fig. 16:* Seeding rate test**

Before use, make sure that the inside of the various splines is completely clean. Otherwise, the seeding rate tests would be misleading.

After making all the necessary adjustments:

1/ Depending on the type of seed and the required dose, define the number of splines to be used.

2/ Disconnect the unused splines by undoing the coupling screw on each spline (see 3.3.8). This disconnects the spline from the shaft. It is recommended to place the screw against the body of the batcher to stop the spline turning.

To drive the splines being used, tighten the spline's coupling screw. A groove on the drive shaft rotates the spline.

3/ Adjust the tongue lever (see 3.3.6)

4/ Take a container.

5/ Open the hatch or hatches.

6/ Enter the required Ha dose in the electronic unit. (see page: 44)

7/ Start up the distribution system.

8/ Launch the seeding rate test procedure on the electronic unit by pressing the button on the side of the seeder (see photo 17) (see page 45)

Please note: hold the button down until the container has been filled.

The more in the container, the more accurate the calibration.

9/ Weigh the seed in the container.

10/ Enter this weight in the electronic unit.

11/ Repeat the operation 3 times to ensure accurate calibration.

***Fig. 17:* button to activate the seeding rate test**

3.3.12. DSF 1600-2200 seeding rate test

⚠	Some seed treatments can severely disrupt the flow and correct operation of the distribution system.

To fine tune the required seeding rate, we strongly recommend performing static tests.

Seeding rate check

Before use, make sure that the inside of the various splines is completely clean. Otherwise, the seeding rate tests would be misleading.

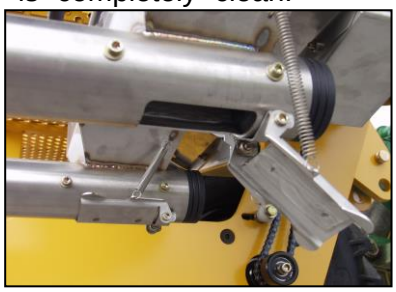


***Fig. 18*: Blanking plates**

After making all the necessary adjustments:

1/ Depending on the type of seed and the required dose, define the number of splines to be used.

2/ Disconnect the unused splines by undoing the coupling screw on each spline (see 3.3.8). This disconnects the spline from the shaft. It is recommended to place the screw against the body of the batcher to stop the spline turning.

To drive the splines being used, tighten the spline's coupling screw. A groove on the drive shaft rotates the spline.

3/ Adjust the tongue lever (see 3.3.6)

4/ Take a container.

5/ Open the hatch or hatches.

6/ Enter the required Ha dose in the electronic unit (see 5.2.5)

7/ Start up the distribution system.

8/ Launch the seeding rate test procedure on the electronic unit (see 5.3)

9/ Weigh the seed in the container.

10/ Enter this weight in the electronic unit.

11/ Repeat the operation 3 times to ensure accurate calibration.

⚠	With a partitioned DSF 1600/2200, this operation should be performed for fertiliser and seed.

3.3.13. Checks during sowing

The following checks should be carried out during sowing after each hectare sown:

1- Check that the rotation of the drive wheel causes seed to flow into each of the seed outlets on the DISC-O-SEM sowing ramp.

2- Check that all of the pneumatic pipes are correctly attached upstream and downstream of the distribution system.

3- Check that the turbine's hydraulic hoses are correctly connected to the tractor's distributor.

4- Visually check that none of the seed chutes are blocked.

5- Check that the quantity of seeds coming out of each drill is identical.

6- Manually check the sowing depth over the entire width of the machine.

7- Check that the hopper's tarpaulin is closed.

3.3.14 Operating recommendations

Problems	***Point to be checked***	***Solutions***
Incorrect volume / Ha	Adjustment and position of the tongues	Check that the tongues are operating correctly and that the tongue springs are correctly calibrated
	Direction of rotation of the batcher	Check that the drive chain is in the correct position at the universal joint outlet (see 3312)
	Flow rate test	Check that no metered seeds remain stuck in the pneumatic pipes during the test
	Sun wheel drive	Check that the number of sun wheel revolutions over 100 m matches the number given in the metering table
The seed is not reaching the distribution heads	Hatches at the bottom of the hopper	Check that the two hatches are in fact open
	Turbine connection	Check the turbine connections against the diagram
	Tube or hose tilt	Try to reduce bends as far as possible to aid the flow of seed.
	Hydraulic pressure of the tractor	Increase the hydraulic pressure of the distributor.
The seed does not run from some of the drill elements	Slope of the Ø35 pipes	Retension the pipes if necessary to avoid any horizontal sections
	Drill units	Check that none of the drill units are blocked
Irregular sowing depth	Forward speed	The speed must be between 10 and 12 km/h to ensure a regular working rate for the DISC-O-MULCH
	Level of the DOM	The DOM should always work more or less horizontally
Oil leak on the hydraulic engine	Internal seals	Change the engine seal

4 Using the electrically driven DSF 1000

4.1 The A-CONTROLER electronic system

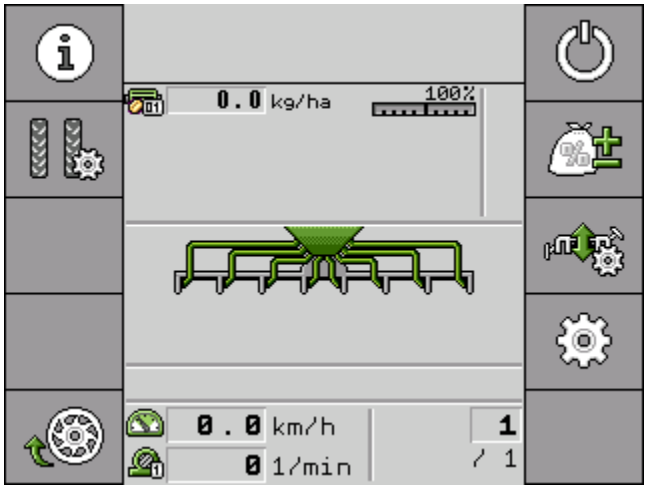
The electric DSF 1000 transmission is driven by an electric motor and managed by the following electronic unit:

The electronic unit must be switched off prior to connection.

⇨ Starting up the electronic unit.

1. Install the control console in the tractor cab.
2. Connect the seeder cable to the control console.
3. Turn on the control console.

⇨ Welcome screen:



Activate/deactivate the sowing cell

Setpoint adjustment

Spline pre-filling

Access to the different menus

Markers

Field marking

Required Ha quantity

Working speed

Turbine rotation system

Number of bouts for field marking

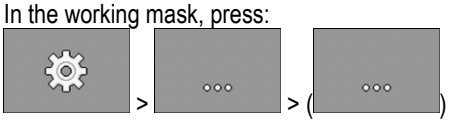
Temporary setpoint modification rate

a. Defining the setpoint

The "**Settings/Batcher**" mask lets you configure the following settings for each of the batchers:

- "**Setpoint**"
  Defines the quantity of seed or fertiliser to be sowed per hectare.
- "**Adjustment**"
  Defines the setpoint variation percentage that you can modify manually during sowing or spreading. [→ 47]
- "**Calibr. fact.**"
  Defines the dose of seeds or fertiliser supplied to each turn of the metering shaft on the seeder.

Procedure

1. In the working mask, press:
    > ( )
   ⇨ The "**Settings/Batcher**" mask is displayed.
2.  - If you are using more than one batcher, choose the one you want to configure.
   ⇨ You can recognise the chosen batcher by the number displayed in the top part of the mask.
3. Configure the settings.

b. Performing a calibration test

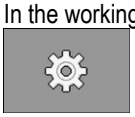
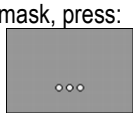
The calibration test can only be performed when the seeder is operational.

Procedure

☑ You have prepared the seeder and its batching controls for a calibration test as indicated (see page 39)

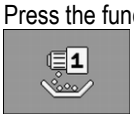
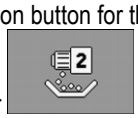
☑ The hopper is filled with enough seed or fertiliser. Do not overfill the hopper to enable easier removal or adjustment of a batcher roller if necessary.

1. Enter a setpoint. [➞ 44]

2. In the working mask, press:
 >  > ()
⇨ The "**Settings/Batcher**" mask is displayed.

3.  If you are using more than one batcher, choose the one you want to calibration test.
⇨ You can recognise the chosen batcher by the number displayed in the top part of the mask.

4. Enter the **"Setpoint"** at which you want to work.

5. Press the function button for the batcher control you want to calibration test, e.g.
 or 
⇨ The "**Calibration test**" mask is displayed.

6. In the field under "**Correct speed?**", indicate the speed at which you want to move during sowing.

7.  - Fill the batcher cells with seed/fertiliser.
⇨ The batcher cells start to turn for a few seconds.

8.  - Launch the calibration test.

9. Start the seeder calibration test.

10. Wait until the required quantity has been distributed.

11. Stop the seeder calibration test.
⇨ A mask with the following text appears on the screen: "**3. Volume**"
⇨ The computer determines a weight from the available data and displays it in the field next to the "**3. Volume**" text. The weight displayed may differ from the calibration test weight.

12. Weigh the seeds distributed during the calibration test.

Enter the weight in the field next to the "**3. Volume**" text.
⇨ The computer determines the minimum and maximum speeds at which this seeding rate is possible with the batcher roller used.

c. Pre-filling of the batcher cells or the distributor disk

So that you sow from the beginning and avoid some parts not being sown at the start of the plot, you must fill the seeder's batcher cells before setting off. Moreover, you can use the pre-batching function.

Procedure

1. In the working mask, press:

   ⇨ As long as the batcher cells/distribution disk has seeds in, the following icon is displayed in the working mask: 

2. Only start sowing when this icon is masked.

d. Starting seeding

Procedure

☑ The seeder rolls.

☑ The seeder is lowered.

☑ The batcher cells or the distribution disk are filled with seeds.

☑ The turbine has reached its minimum rotation speed.

1.  - Start sowing.

e. Stopping seeding

Procedure

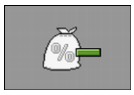
1.  - Stop sowing.

   ⇨ The following message appears in the working mask: "Application interrupted"

⇨ All of the batching controls stop.

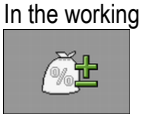
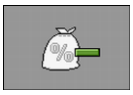
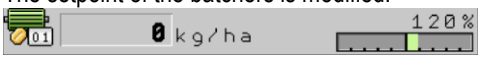
f. Adjusting the setpoint during work

You can adjust the setpoint during work.

Function icon	Meaning
	Setpoint increase. The setpoint is modified by the value you defined for the "Adjustment" setting. [➞ 44]
	Setpoint reduction.
	Restores the setpoint to 100%.

Procedure

☑ The **"Setpoint"** and **"Adjustment"** settings are defined. [➞ 44]

1. In the working mask, press:
   
   ⇨ The setpoint adjustment icons are displayed.
2.  ,  or  - Change the setpoint.
   ⇨ The setpoint of the batchers is modified:
   

   ⇨ The computer regulates sowing based on the new setpoint.

g. Using field marking

The computer can help you to organise field marking suited to the dimensions of the other machinery, e.g. a self-propelled sprayer.

A passage is arranged by closing the supply tube of the suitable shares. This means that a zone will be formed behind the machine where nothing will be seeded.

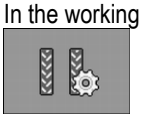
When the field marker is activated, the passes go up in increments to arrange field marking in the predefined passes. The passes are counted as soon as the seeder is lifted off the ground.

Control elements

Function icon	Meaning
	Incrementation of pass number. Example: resume work in the same pass after leaving the field.
	Decrementation of pass number.

Function icon	Meaning
	Example: you have had to lift the machine up momentarily during a pass and the computer has automatically activated the next pass.
	Deactivation of field marking. If you deactivate the field marking, the pass numbers will no longer go up in increments. For example, this must be done to work the headlands. The chosen field marking rhythm is no longer important. If field marking is deactivated, the following icon is displayed in the working mask:  If this icon is displayed, the markers will no longer be controlled automatically.
	Open the mask to choose a field marking rhythm for a seeder.

Procedure

1. In the working mask, press:


⇨ You can modify the pass number.

⇨ You can configure field marking.

Configuring field marking

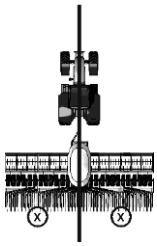
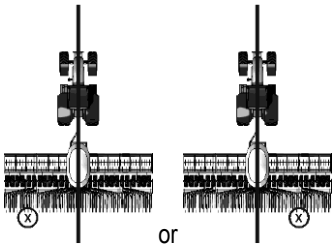
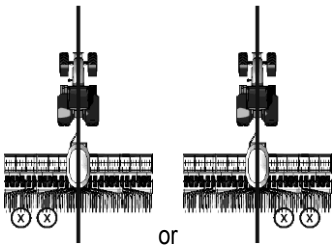
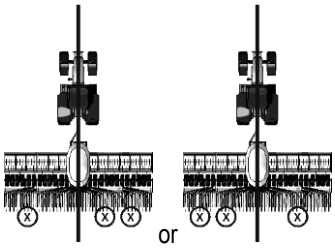
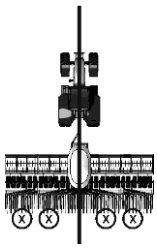
Procedure

Use the following procedure for configuration:

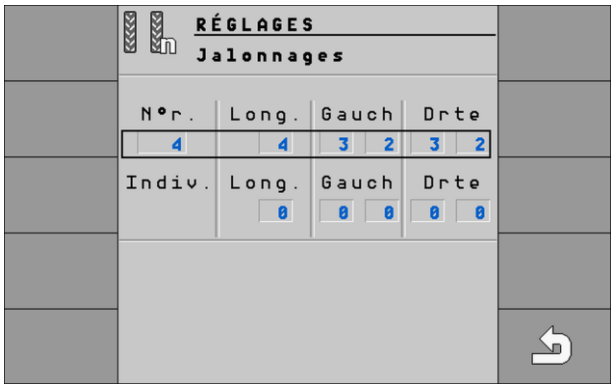
1. Determine the type of seeder. [➞ 48]
2. Choose a field marking rhythm. [➞ 50]
3. If you are using a seeding rate monitoring system: Adapt the seeding rate monitoring system to the field marking rhythm. [➞ 59]

Determining the type of seeder

If you are working with a field marking seeder, you need to know how many field marking mechanisms there are and where they are located. The following table shows how the field marking mechanisms can be positioned on your seeder.

	▪ A field marking mechanism on each side of the seeder.
 or	▪ A field marking mechanism on one side of the seeder.
 or	▪ Two field marking mechanisms on one side of the seeder.
 or	▪ One field marking mechanism on one side and two on the other side of the seeder.
	▪ Two field marking mechanism on each side of the seeder.

Choice of field marking rhythm



*"**Settings/Field marking**" mask for inline sowing*

No.r.	Number of field marking rhythm
Lngth	Number of passes up to which the field marking rhythm repeats.
Left, Right	You can see here the passes for which the Left or Right seed tubes are closed to arrange a passage. Up to two pass numbers can be entered for each direction.
Indiv.	Here you can define a personal field marking rhythm.

Procedure

Below is the procedure for choosing the right field marking rhythm:

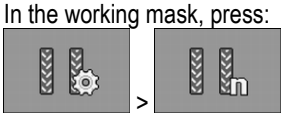
☑ You know the working width of your seeder.

☑ You know the working width of your sprayer.

☑ You know with which side of your seeder field marking will be arranged and how many field marking mechanisms it has on each side. [→ 48]

1. Decide whether to start work by the left-hand edge or the right-hand edge of the field.
2. Do the following calculations:
   working width of the sprayer divided by the working width of the seeder
   e.g. 12: 3 = 4; 15: 3 = 5 or 20: 3 = 6.67
   ⇨ The following results are possible: even numbers (2; 4; 6; etc.), odd numbers (3; 5; 7; etc.) and decimal numbers (1.5; 4.5; 5.33; etc.)
   ⇨ You must choose a different field marking rhythm depending on each result. You will find the results in the "Calculation results" column in the following chapters.
3. Find the chapter that corresponds to the suitable field marking rhythm.
   ⇨ Even numbers – Even field marking rhythms [→ 51]
   ⇨ Odd numbers – Odd field marking rhythms [→ 55]
   ⇨ Decimal numbers – Special field marking rhythms [→ 56]
4. From the chapters mentioned in stage 3, choose the table with the appropriate rhythm numbers. The tables can be differentiated by the side of the seeder arranging the field marking, the number of field marking mechanisms the seeder has and the edge at which you are starting work.

5. In the working mask, press:



⇨ **The "Settings/Field marking**" mask is displayed.

6. Select the appropriate rhythm number.
   OR
   Enter a personal field marking rhythm if the rhythm number indicated in the table in "999". [➞ 58]

⇨ You can start work.

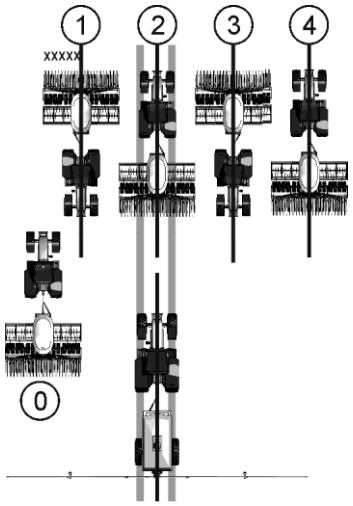
Arrangement of field marking with an even rhythm

Field marking with an even rhythm can be arranged over one or two passes.

- In a single pass if field marking is arranged on both sides of the seeder.
- In two passes if field marking is arranged on one side of the seeder and this side has one field marking mechanism.
- In one pass if field marking is arranged on one side of the seeder and this side has two field marking mechanisms.

Simultaneous arrangement of field marking on both sides of the seeder

Example



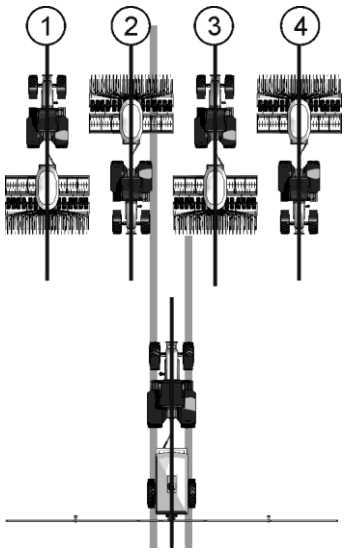
- The illustration shows the field marking rhythm 4S.
- Field marking is arranged during pass 2. (e.g. working width of sprayer = 12 m, working width of seeder = 3 m)
- Pass 0 must be done separately. To avoid overlaps, use the "Half-Sem deactivation" function (if the seeder has this function).
- For pass 0, field marking must be deactivated.

Possible hatch positions	Result of operation	Row no.	Length	Left		Right	
	2	2S	2		1		1
	4	4S	4		2		2

Possible hatch positions	Result of operation	Row no.	Length	Left		Right	
	6	6S	6		3		3
	8	8S	8		4		4
	10	10S	10		5		5
	12	12S	12		6		6
	14	999	14		7		7

Arrangement of field marking on one side of the seeder and with a single field marking mechanism

Example



- The illustration shows a custom field marking rhythm.
- Field marking is arranged during passes 2 and 3. (e.g. working width of sprayer = 12 m, working width of seeder = 3 m)

Sowing started on the left-hand edge of the field

Possible hatch positions	Result of operation	Row no.	Length	Left		Right	
	2	999	2			1	2
	4	999	4	2	3		
	6	999	6			3	4
	8	999	8	4	5		

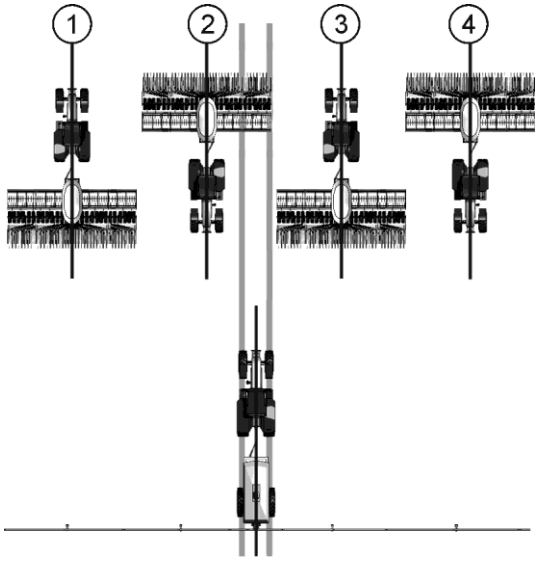
Possible hatch positions	Result of operation	Row no.	Length	Left		Right	
	10	999	10			5	6
	12	999	12	6	7		
	14	999	14			7	8

Sowing started on the right-hand edge of the field

Possible hatch positions	Result of operation	Row no.	Length	Left		Right	
	2	999	2	1	2		
	4	999	4			2	3
	6	999	6	3	4		
	8	999	8			4	5
	10	999	10	5	6		
	12	999	12			6	7
	14	999	14	7	8		

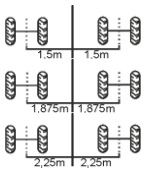
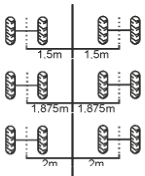
Arrangement of field marking on one side of the seeder and with two field marking mechanisms

Example

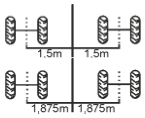


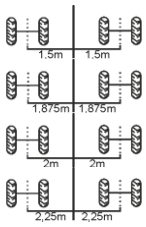
- The illustration shows a custom field marking rhythm.
- Field marking is arranged during pass 2. (e.g. working width of sprayer = 24 m, working width of seeder = 6 m)

Sowing started on the left-hand edge of the field

Possible hatch positions	Result of operation	Row no.	Length	Left		Right	
	2	999	2				1
	4	999	4		2		
	6	999	6				3

Sowing started on the right-hand edge of the field

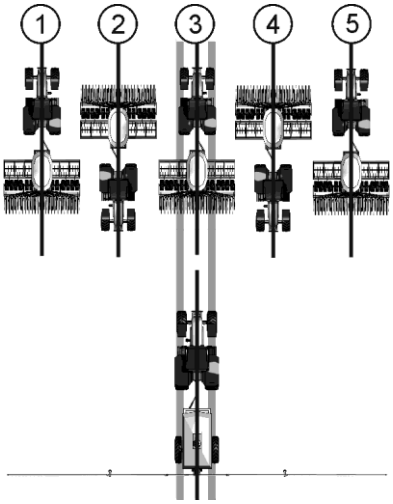
Possible hatch positions	Result of operation	Row no.	Length	Left		Right	
	2	999	2		1		

Possible hatch positions	Result of operation	Row no.	Length	Left		Right	
							
	4	999	4				2
	6	999	6		3		

Arrangement of field marking with an odd rhythm

In the case of an odd rhythm, field marking is always arranged over one pass. Field marking with an odd rhythm is only possible if the passages can be arranged on both sides of the seeder.

Example



- The illustration shows the field marking rhythm 5.
- Field marking is arranged during pass 3. (e.g. working width of sprayer = 15 m, working width of seeder = 3 m)

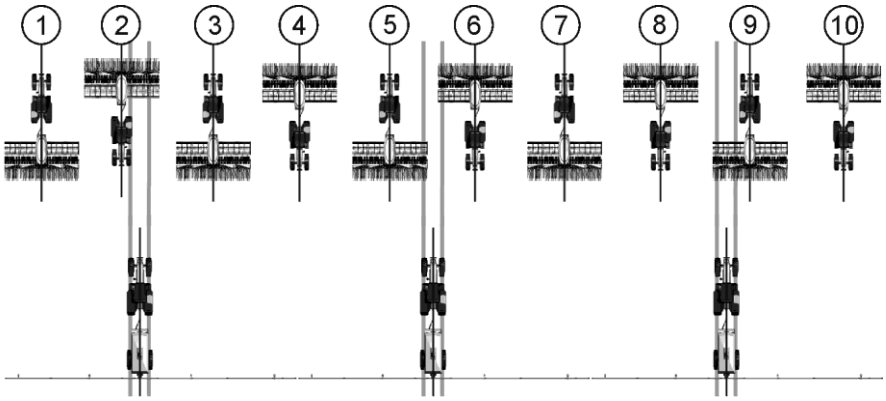
Possible hatch positions	Result of operation	Row no.	Length	Left		Right	
	3	3	3		2		2
	5	5	5		3		3
	7	7	7		4		4
	9	9	9		5		5
	11	11	11		6		6

Arrangement of field marking with special rhythms

In the case of special rhythms, field marking is always arranged over 4 passes. Field marking with an odd rhythm is only possible if the passages can be arranged on both sides of the seeder.

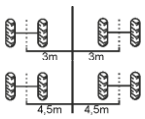
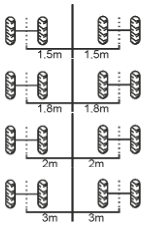
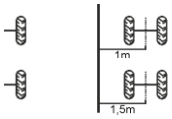
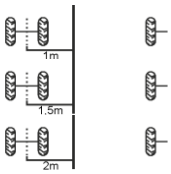
- One of the sides of the seeder has a single field marking mechanism and the other side has two mechanisms.
- The seeder has two field marking mechanisms on each side.

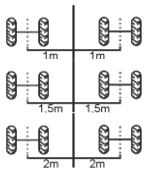
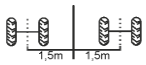
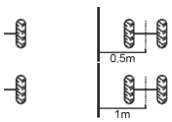
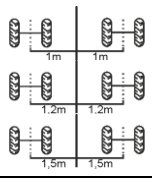
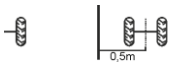
Example



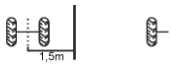
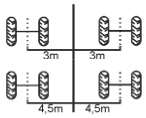
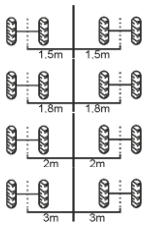
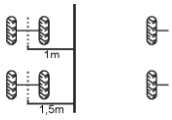
- The illustration shows the field marking rhythm 20.
- Field marking is arranged during passes 2, 5, 6 and 9. (e.g. working width of sprayer = 20 m, working width of seeder = 6 m)

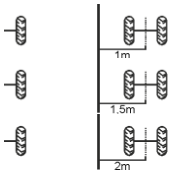
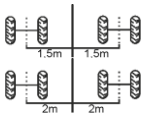
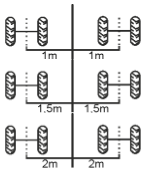
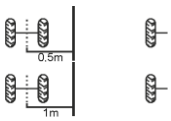
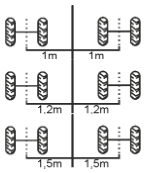
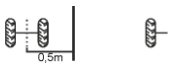
Sowing started on the left-hand edge of the field

Possible hatch positions	Result of operation	Row no.	Length	Left		Right	
	1.33	999	4	3	2	1	4
	1.5	22	6	4	3	6	1
	2.5	16	10	7	4	9	2
	2.67	999	8	5	4	7	2
	3.33	20	10	9	2	6	5
	3.5	28	14	13	2	9	6

Possible hatch positions	Result of operation	Row no.	Length	Left		Right	
							
	4.5	18	18	16	3	12	7
	4.67	999	14	3	12	7	8
	5.33	24	16	9	8	14	3
	5.5	999	22	14	9	3	20
	6.67	999	20	10	11	4	17
	7.5	30	30	27	4	19	12
	9.33	999	28	14	15	2	24

Sowing started on the right-hand edge of the field

Possible hatch positions	Result of operation	Row no.	Length	Left		Right	
	1.33	999	4	1	4	3	2
	1.5	23	6	6	1	4	3
	2.5	15	10	9	2	7	4
	2.67	999	8	7	2	5	4

Possible hatch positions	Result of operation	Row no.	Length	Left		Right	
	3.33	21	10	6	5	9	2
	3.5	29	14	9	6	13	2
	4.5	19	18	12	7	16	3
	4.67	999	14	7	8	3	12
	5.33	25	16	14	3	9	8
	5.5	999	22	3	20	14	9
	6.67	999	20	4	17	10	11
	7.5	31	27	19	12	27	4
	9.33	999	28	2	24	14	15

Programming an individual field marking rhythm

If you find that none of the saved field marking rhythms is suitable for your work procedure, you can programme a custom field marking rhythm.

Procedure

1. In the working mask, press:

   ⇨ The "**Settings/Field marking**" mask is displayed.

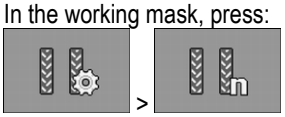
2. In the "**No.r.**" field, choose rhythm number "**999**".
   ⇨ All of the settings of the saved field marking rhythms are masked.
3. Configure the "**Length**", "**Left**" and "**Right**" settings for your custom field marking rhythm.
4. The values indicated stay in the mask, even if you choose another field marking rhythm. To use the custom field marking rhythm, you must always choose "No.r" "999".

Adaptation of the sowing controller system to the field marking rhythm

This monitoring system controls the flow rate of the seed or fertiliser in each supply tube.

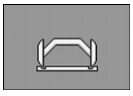
If you use this kind of system, you must adapt it to the selected field marking rhythm.

Procedure

1. In the working mask, press:
   
   ⇨ The "**Settings/Field marking**" mask is displayed.
   ⇨ This mask also has the **"Sensor number"** zone.
2. In the **"Sensor number"** zone, enter the sensors of the sowing control system that you want to deactivate for the corresponding field marking. You can deactivate up to 10 sensors per field marking.

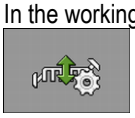
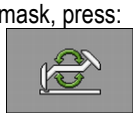
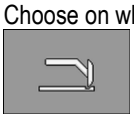
h. Marker controls

You can use the markers as you work to mark out a pass.

Function icon	Meaning
	Only the left-hand marker is used. The marker does not switch when the seeder is raised. For example, when sowing the headland.
	The two markers are deactivated.
	Raise the markers to pass an obstacle. The seeder itself is not raised.
	Use of both markers at the same time.
	Only the right-hand marker is used. The marker does not switch when the seeder is raised. For example, when sowing the headland.
	Alternate use of the markers. The markers switch each time the seeder is raised.

Function icon	Meaning
	The markers switch manually. The markers switch each time you press the function button.

Procedure

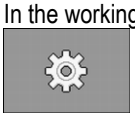
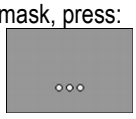
1. In the working mask, press:  > 
2. Choose on which side the marker should be lowered first. Press:  or 
   ⇨ You can see the marker that is lowered in the working mask.
3. Activate automatic marker control with: 
   ⇨ The left-hand marker is lowered.
4. Press  again to switch markers.

i. Calibrating the speed sensor using the 100 m method

If the speed sensor is calibrated using the 100 metres method, determine the number of pulses the speed sensor receives over a distance of 100 metres. Once it knows the number of pulses, the computer can calculate the actual speed.

After the first calibration, you can enter the number of pulses manually as a value of the "**Calibr. Fact.**" parameter.

Procedure

1. Drive the machine to the field.
2. Mark the position of the tyres on the ground using a stone, for example.
3. Measure a distance of 100 m in a straight line and mark at the end.
4. In the working mask, press:  >  > ()
   ⇨ The "**Settings/Speed**" mask is displayed.
5. In the "**Speed source**" parameter, choose the "**Machine**" value.
6.  - Call up the **"Calibration"** mask.
   ⇨ The "**Calibration**" mask is displayed.

7.  - Start the calibration.

8. Move forward to the end of the marked out distance.
   ⇨ As you move forward, the pulses counted are displayed in the "**No. of pulses**" field.

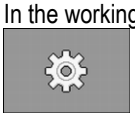
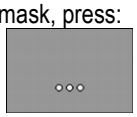
9.  - Press this button when you have reached the final mark.
   ⇨ The calibration is complete.

j. Enter the simulated speed

To check that a sensor is working correctly, you can simulate a speed.

	**⚠ WARNING** **Risk of injury if the seeder is running** When this function is activated, the driver can activate seeder functions that can normally only be activated when the seeder is moving forward. There is a risk of injury to anybody near to the seeder. ◦ Make sure that nobody is near to the seeder.

Procedure

1. In the working mask, press:
    >  > ()
   ⇨ The "**Settings/Speed**" mask is displayed.

2. In the "**Speed source**" parameter, choose the "**Simulation**" value.

3. For the "**Simulated speed**" parameter, choose the simulation speed.

⇨ The simulation will be done at the required speed.

⇨ If you restart the computer, the simulated speed will automatically go back to "0".

5 Using the single and dual motor electric DSF 1600/2200

5.1 The Artémis System

The electric DSF 1600/2200 transmission is driven by an electric motor and managed by the following Artémis unit.

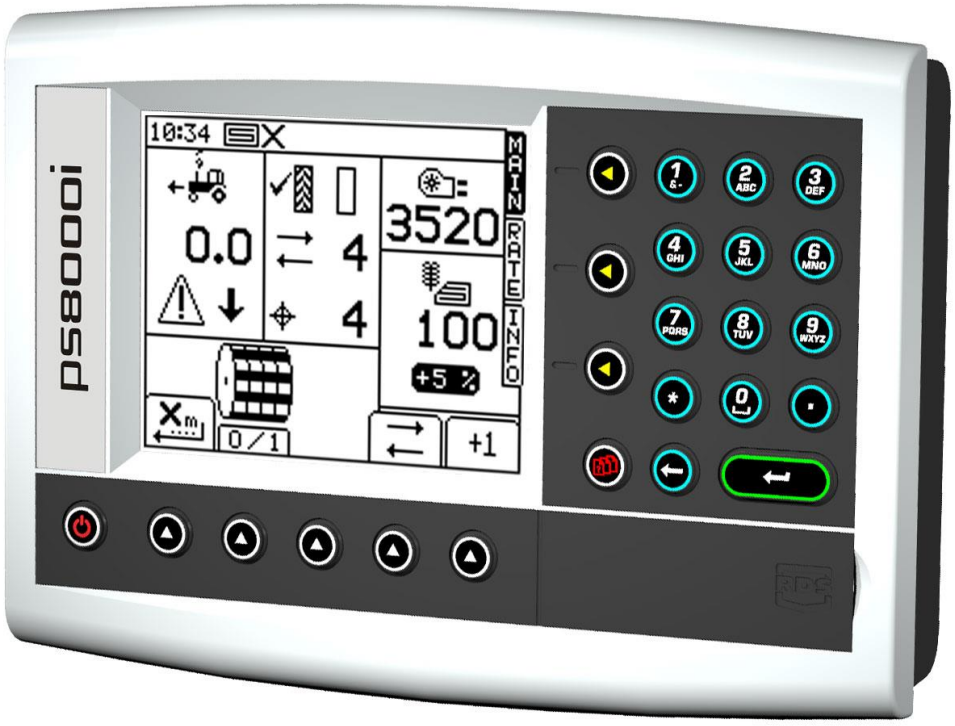


Figure 1

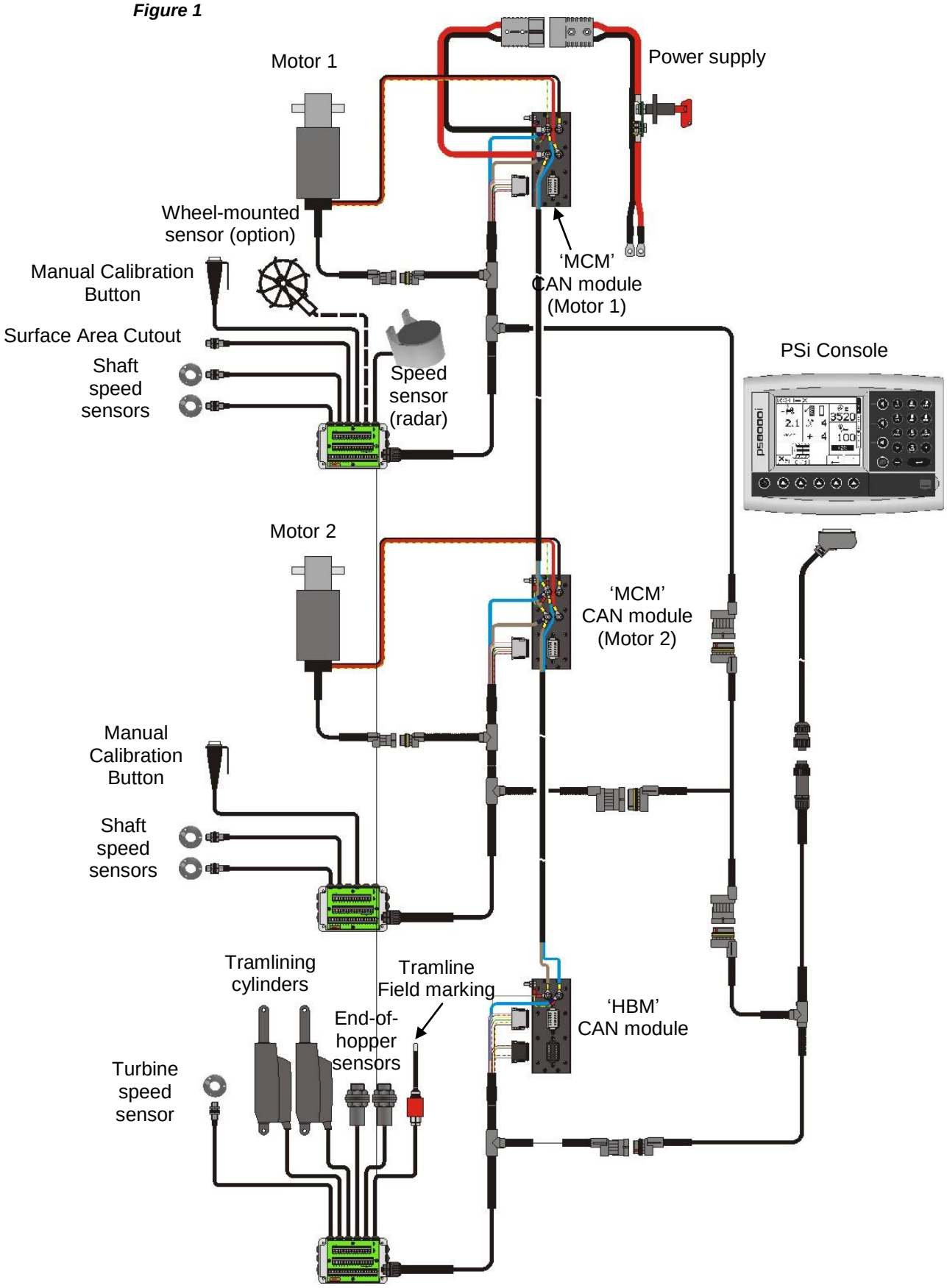
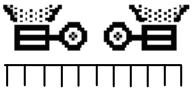
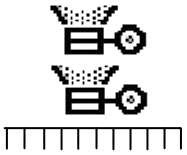
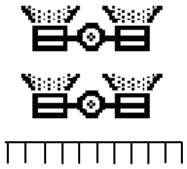

Motor 1
Power supply
Wheel-mounted sensor (option)
'MCM' CAN module (Motor 1)
Manual Calibration Button
Surface Area Cutout
Shaft speed sensors
Speed sensor (radar)
PSi Console
Motor 2
'MCM' CAN module (Motor 2)
Manual Calibration Button
Shaft speed sensors
Tramlining cylinders
Tramline Field marking
End-of-hopper sensors
'HBM' CAN module
Turbine speed sensor

Fig. 1 illustrates the different components of a single or dual motor Artémis system. All drilling configurations are possible (one or two motors with one or two batchers) and the Artémis PSi console can be configured accordingly.

PRODUCT	CONSOLE SETTING	BATCHER/MOTOR CONFIGURATION	CONSOLE SETTING
SEED		SINGLE MOTOR/BATCHER	
		SINGLE MOTOR/ DUAL BATCHER	
		2 MOTORS/ SINGLE BATCHER	
SEED + FERTILIZER		SINGLE MOTOR/BATCHER (SEED) + SINGLE	
		SINGLE MOTOR/ DUAL BATCHER (SEED) + SINGLE MOTOR/ DUAL BATCHER (FERTILIZER)	

Some screens differ slightly depending on the chosen seeder configuration. Look for the above symbols next to the text.

5.1.1. Main functions

The Artémis is designed to allow automatic variable metering control of any seeder using an Accord batcher. You can manually override the pre-set seed rate at any time to adapt to different zones in the field.

The basic functions are:

- Field marking

- Variable seed rate control
- Forward speed alarms
- End-of-hopper alarm
- Turbine speed alarm
- Information regarding the totals (surface area, quantities)

The console has a special mode for easy batcher CALIBRATION. In this CALIBRATION mode, each batcher is controlled by a "manual calibration button" to distribute the product (Fig. 1).

During normal operation, the system is started and stopped automatically by a magnetic sensor when the seeder is lifted and set down. Depending on the type of system, this sensor is activated either by the movement of a wheel or by the markers.

5.1.2 Control and data logging modes

Automatic control mode

The seed rate is automatically adjusted according to the forward speed to ensure that the actual seed rate corresponds to the pre-set target rate at all times. The seed rate can be manually increased or reduced in relation to the pre-set target rate.

Field data ("job summaries") can be logged and stored in the console's internal memory. Up to 75 summaries can be stored. With a GPS receiver and an SD memory card, you can also log the vehicle's route and the application data in a "dynamic log" file on the SD card. The job summary is also created in this file.

Control mode with variable seed rate treatment

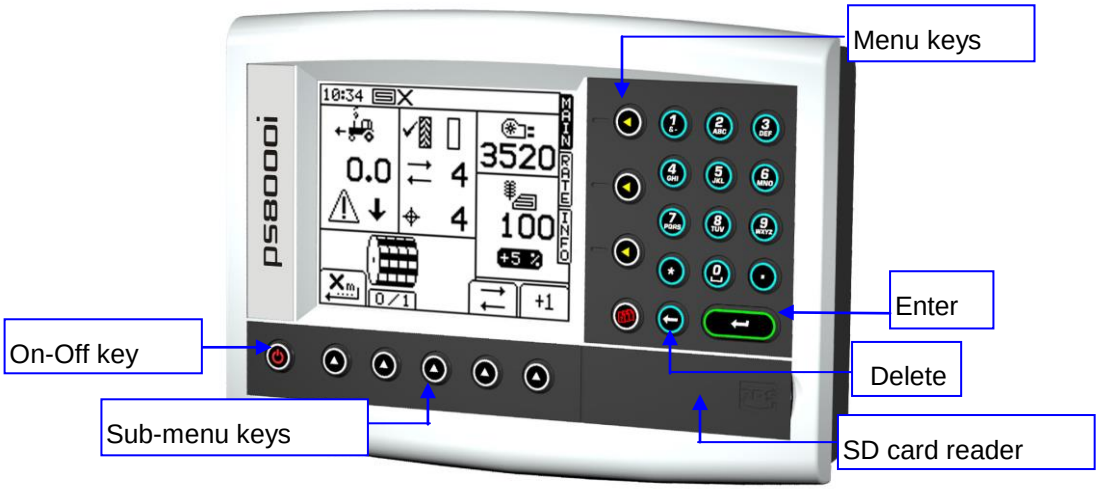
This enables the system to be controlled through treatment instructions (prepared using precision farming software and the position supplied by DGPS). For automatic variable seed rate treatment, the *PS 8000i* requires a DGPS receiver and an SD memory card to load the treatment instructions generated with precision farming software.

A work record file is automatically created on the card to log the data confirming the current application. The job summary is also created in this file, which can be opened in precision farming software.

5.1.3 Console keys

All of the console functions are accessible using nine keys located at the side of the LCD screen.

Figure 1



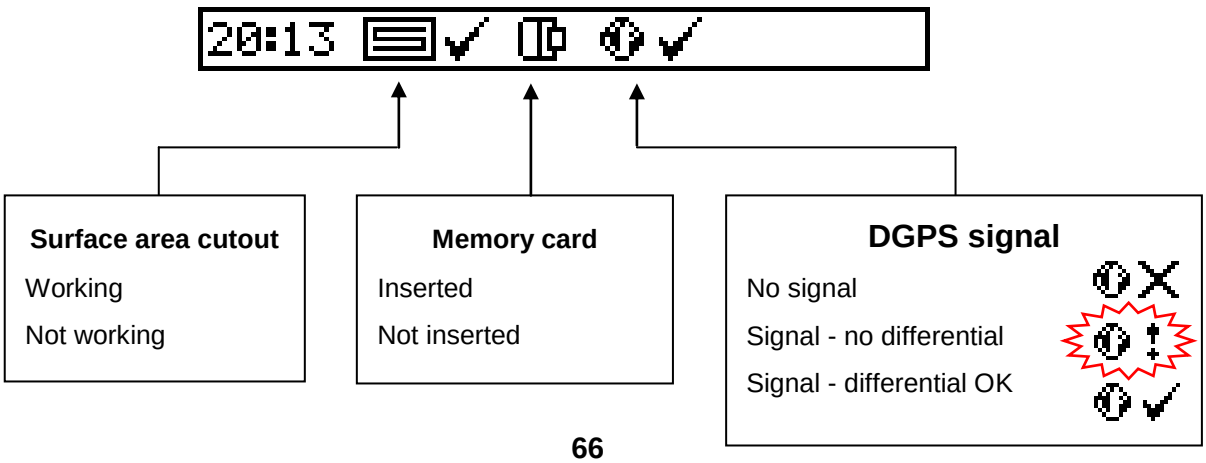
The four menu keys located on the right of the screen (Fig. 1) display the basic screen pages (those used during normal operation). There are three 3 basic screens: MAIN, RATE and INFO for the normal operating functions and a SETUP screen for the CALIBRATION functions.

The 5 sub-menu keys below the screen control the various display functions and the settings for each basic screen. Text or icons are displayed above each key to show their function.

5.2 Operation of the Artémis unit

5.2.1 Status icons

All of the operating screens have a status bar at the top of the screen displaying the time and a number of different icons. These icons indicate:

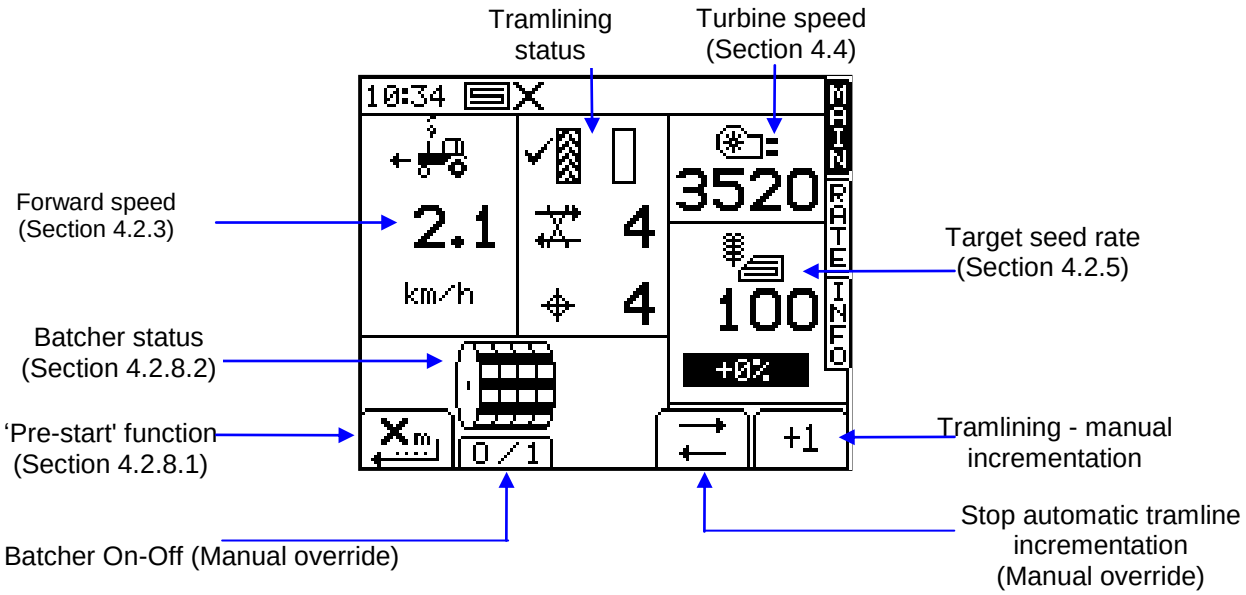


N.B. The icons for the memory card and GPS are only displayed when these functions have been enabled in the settings.

5.2.2 "MAIN" screen

The console always displays the MAIN screen on start-up. The MAIN screen is divided into five parts displaying the following functions.

Figure 2: MAIN screen (single product/single batcher)



N.B. The batcher status will be displayed differently depending on the seeder's configuration (figures 3 and 4).

Figure 3: MAIN screen (dual product/single batcher)

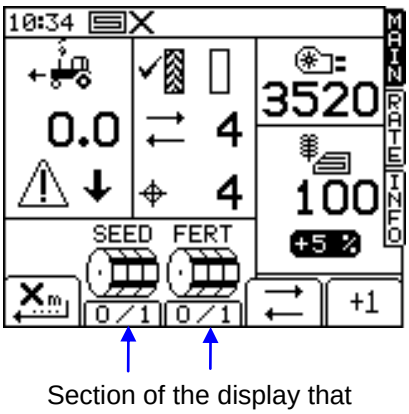
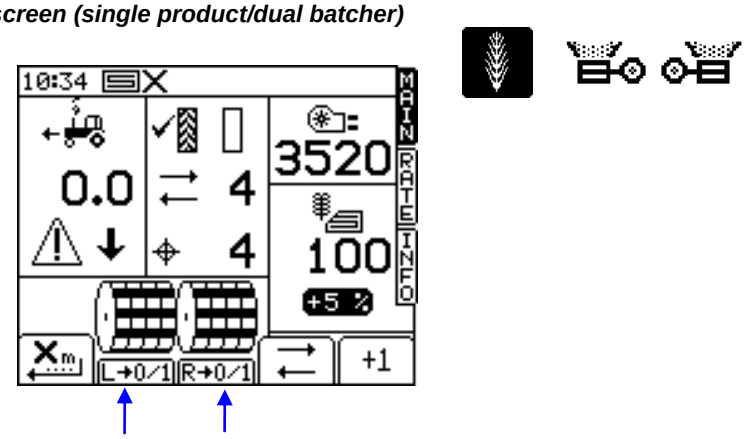


Figure 4: MAIN screen (single product/dual batcher)



Section of the display that changes

5.2.3 Forward speed display and alarm function

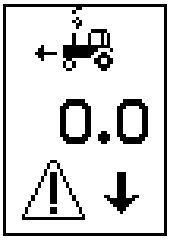
Smoothing of the displayed speed

Apart from rapid changes of speed, the forward speed displayed at any given moment is the average speed calculated over 3 seconds.

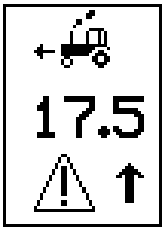
Speed alarms on the MAIN screen

The console is programmed with low and high forward speed alarms.

If the seeder is working and the forward speed is less than 0.5 km/h, this warning logo flashes on the screen with an audible alarm.



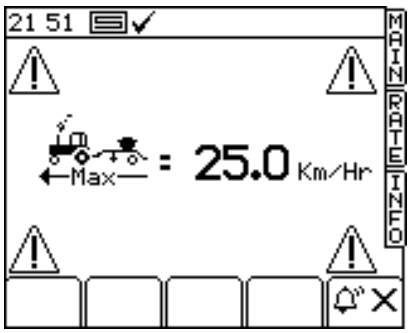
If the seeder is working and the forward speed is greater than the maximum speed acceptable by the Artémis system (indicated on the RATE screen) this warning logo flashes on the screen with an audible alarm.



Maximum forward speed

When you set a new target seed rate on the RATE screen, the console recalculates and displays the maximum forward speed at which the seed rate can be maintained (Fig. 5). This is calculated based on the seed rate, the width of the seeder, the current CALIBRATION factor, the gear box transmission ratio and the maximum motor speed.

Figure 5

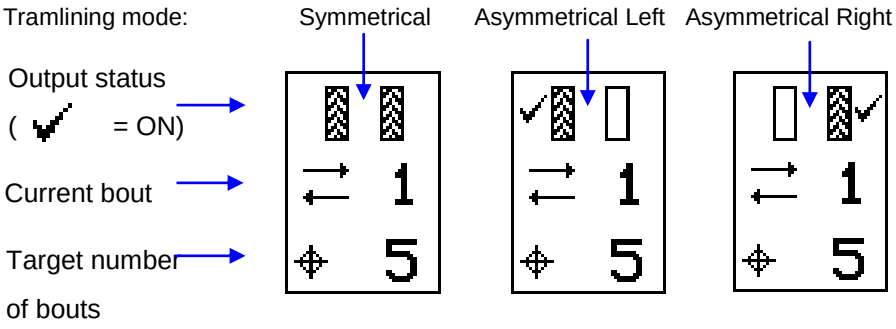


Press  to return to the RATE screen.

N.B. *If the speed is too low, the operator must open the batcher and re-calibrate to increase the calibration factor (see 'CALIBRATION' manual).*

5.2.4 Tramlining functions/statuses

The MAIN screen shows the current tramlining status.



Increasing the number of bouts manually

When the console starts up, the tramline sequence always starts at '1'.

If necessary, press +1 to select the correct bout number, e.g. to start a field zone with a bout number other than '1'.

Freezing the bout number

Press  to freeze the bout number displayed (e.g. to sow around a post requiring the seeder to be lifted and lowered several times).

The  indicates that the bout number has been frozen. Press  to return to normal operation.

N.B. The tramlining sequence is configured on the SETUP screen (see section 4.2.6).

5.2.5 RATE screen

This screen is used to configure the seed rate. Either kg/ha or seeds/m ^{2} can be configured in the SETUP screen.

Figure 6: RATE screen - single product

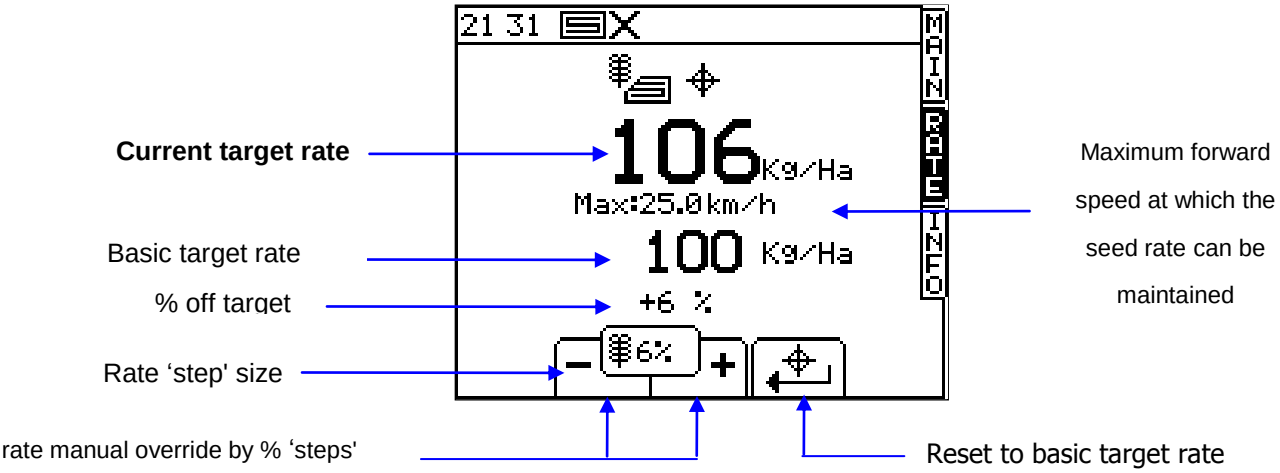
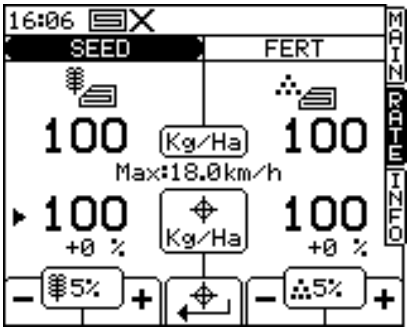


Figure 7: RATE screen - dual product



N.B. The maximum forward speed displayed is the lowest for the two products.

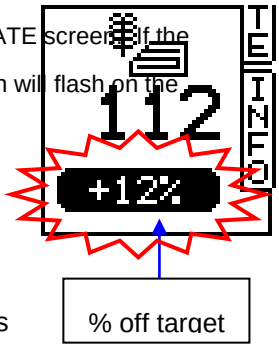
Configuring/overriding the target rate

To configure the target rate, simply enter the value and press the ENTER key to confirm.

To set the target rate or manually set the rate for each product, first press the ENTER key to select the SEED or FERTILIZER product.

The application rate displayed on the MAIN screen is the same as that displayed on the RATE screen. If the target rate on the RATE screen is manually increased or decreased, the % of this alteration will flash on the main screen.

When the system is operating with a treatment instruction, this number will only flash if the target rate has been changed using the '+' or '-' keys on the RATE screen.



To override the target rate, use the keys 

. The % 'step' size is configured on the SETUP screen.

To return to the target rate, press  .

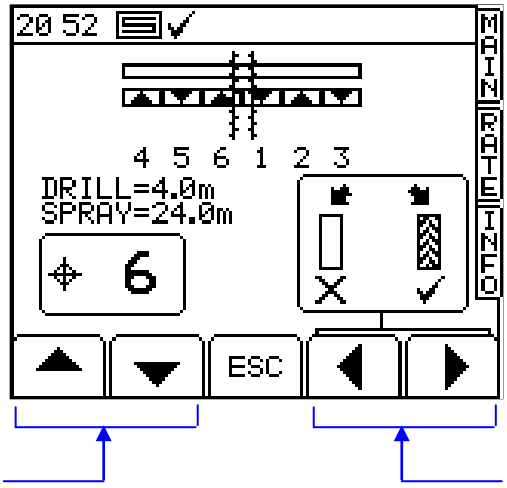
Both products are reset to their respective target rate.

5.2.6 Field marking

To configure tramlining mode, select the SETUP screen and press 

Figure 9

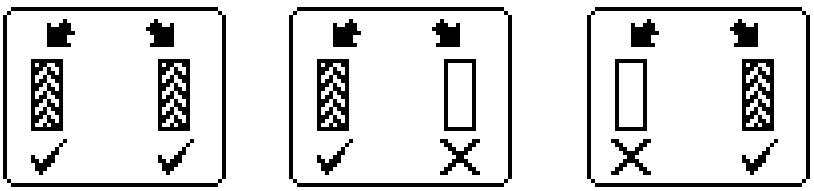
Calculation of the crop sprayer width is based on the width of the seeder, on the target number of bouts and the field-marking mode.



Increase/decrease the target number of bouts.

Select Mode

The target number of bouts can be up to 10, with symmetrical, asymmetrical left or asymmetrical right field-marking modes.

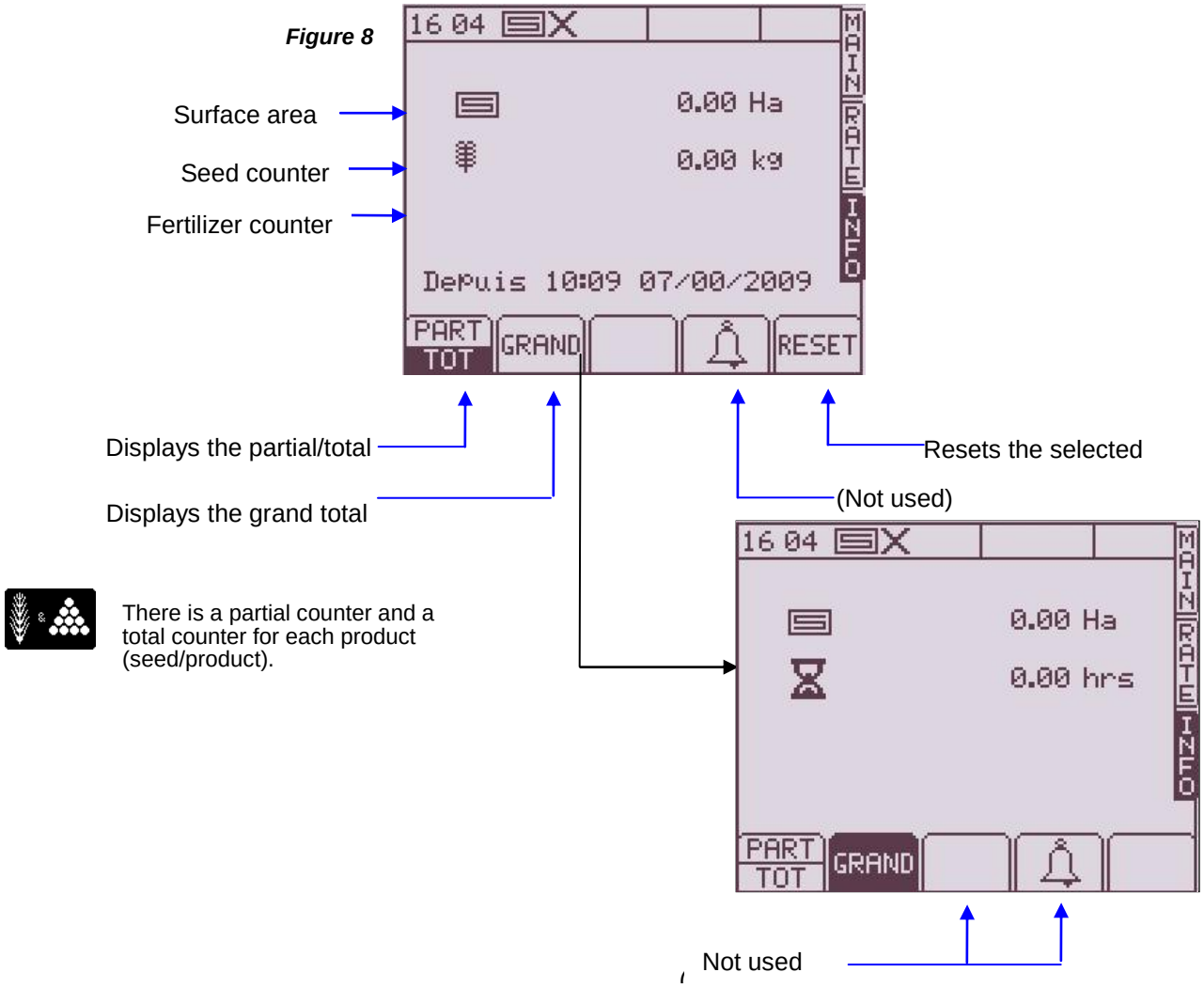


Symmetrical | Asymmetrical left | Asymmetrical right

The console displays the seeder/crop sprayer width combination for the target number of bouts.

5.2.7 *"INFO" screen*

Figure 8



There is a partial counter and a total counter for each product (seed/product).

5.2.8 Functions

Pre-start function

This function is particularly used in the case of a front-mounted metering hopper. The pre-start function helps to prevent unseeded areas, particularly in the corners of fields. This starts up the batcher at the calibrated speed while the seeder is still stopped and thus primes the seeder so that the seed reaches the drill units just before the seeder starts to work.

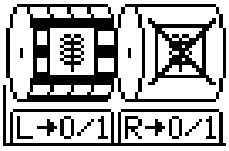
The settings for this function are made by trial and error tests when the system is switched on for the first time, and are then adjusted in the SETUP menu.

To use the pre-start function, press  on the MAIN screen before moving.

The motor will run at the calibrated speed for a pre-set time or until the forward speed exceeds 2km/h, then automatic control will take over.

Electric motor – manual override/sowing a half-width

Press the required button.



The electric motor can be stopped manually when required, e.g.

(a) The land on part of the field needs more preparation before being sown.

(b) In the case of a front-mounted metering hopper, the electric motor is stopped just before the end of the bout to sow all of the seed remaining in the pipes (the opposite of the 'pre-start' function).

(c) You want to sow a half-width.

5.3 Product calibration

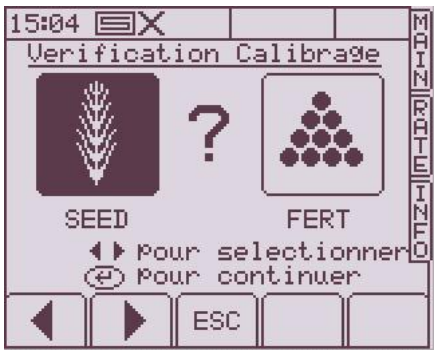
5.3.1 Initial product calibration

Prepare the seeder as usual for calibration with weighing.

1. On the SETUP screen press 

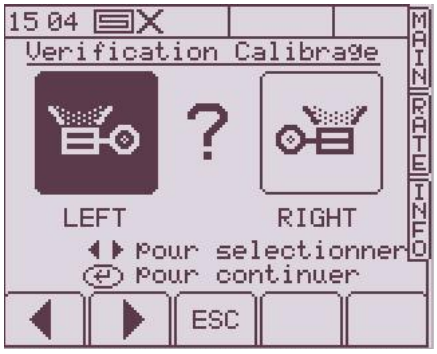
2a. If the console is configured for two products, select the product that you wish to calibrate (fig 10).

Figure 10: Dual product/Single batcher



2b. Or if configured for two batchers, select the batcher to be calibrated (fig 11).

Figure 11: Single product/Dual batcher



3. Otherwise, select the desired weight unit (kg or g), then enter the weight required for calibration (fig. 12) and press ENTER. The batcher starts and runs at the programmed calibrated speed to deliver the correct quantity of product and then stops.

N.B. If a manual calibration button is used for calibration, the calibration procedure will start at fig. 13.

4. Weigh the product obtained in a recipient and then enter this value (fig. 14) and press ENTER to confirm.

Figure 12

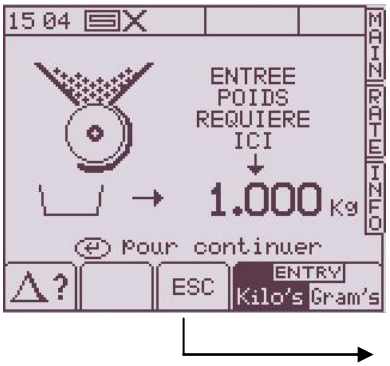


Figure 13

Figure 14

5. Press ENTER again and the console recalculates and displays the new calibration factor in kg/rev, the error %, and the maximum permitted forward speed calculated according to the application rate set for the product (Fig. 15).

Figure 15

6. Press ENTER again to confirm and store the new calibration factor, or press ESC to return to the SETUP screen.

You are advised to delete the PARTIAL counter before stating to sow. This will allow you to quantify any calibration factor error after sowing part of the field by comparing the theoretical quantity of product sown to the actual known quantity used (e.g. an entire big bag).

You can then adjust the calibration factor accurately if necessary (section 4.3.2).

N.B. Systems mounted on an 'AGRISEM' type batcher

When you switch from a low seed rate to a high seed rate, e.g. from 3kg/ha to 100kg/ha, use the following procedure:

1. Open the batcher to a high position.
2. Start the calibration procedure, deliver a suitable quantity of product and enter the weight obtained. The error will be significant but press ENTER to correct the calibration factor and continue (see Fig. 15).
3. The programme now needs the application rate (see section 4.2.5).
4. Repeat the calibration procedure again. The error should be low this time. Accept the error and start to sow.

When you switch from a high seed rate to a low seed rate, e.g. from 100kg/ha to 3kg/ha, use the following procedure:

1. Open the batcher to a low position.
2. Start the calibration procedure, deliver a suitable quantity of product and enter the weight obtained. If the manual calibration button is used, deliver a small quantity of product and enter the weight. The error will be significant but press ENTER to correct the calibration factor and continue (see Fig. 15).
3. The programme now needs the application rate (see section 4.2.5).
4. Repeat the calibration procedure again. The error should be low this time. Accept the error and start to sow.

5.3.2 NUDGE Calibration – Adjusting the calibration factor

The 'Nudge CALIBRATION' procedure allows you to adjust the existing calibration factor without having to repeat the bucket test.

1. First note down the quantity of product displayed in the PARTIAL counter in the INFO screen. This is the theoretical quantity that the instrument has calculated.

In the SETUP screen, press either  (Calibration Check) or  (Seeder SETTINGS).

If the console is configured for two products, select the product that you wish to calibrate (Fig. 10).

Similarly, if the console is configured for two batchers, select the left- or right-hand side (Fig. 11).

2. On each screen, press t[△?] the 'Nudge CALIBRATION' screen (Fig. 16).

Figure 16

Figure 17

Figure 18

3. Enter the theoretical weight that you noted down from the INFO screen in step 1 and press ENTER twice.
4. Enter the weight actually sown and click ENTER twice.
5. The calibration factor is re-calculated with the % error and maximum forward speed also displayed (Fig. 18). Press ENTER again to confirm the new factor.

5.4 Turbine speed and end-of-hopper alarm settings

To see the alarm thresholds (Fig. 19) from the SETUP screen, press [🔔?]

Figure 19

Low turbine speed alarm

High turbine speed alarm

End-of-hopper alarm

To adjust the thresholds

5.5 Forward

If the forward speed sen stops working, you can continue to sow by simulating a forwar er your forward speed before the fault occurred in order to ente e the seed density will not be correct. If you sow at a higher spe der-apply and vice-versa.

To set the simulated forward speed, select '1 Operator Config' in the SETUP screen, then '2. Speed sensor factor'.

Press [sim] (Fig. 20), then enter the simulation speed value (Fig. 21).

Press the ENTER key to start the speed simulation.

Figure 20

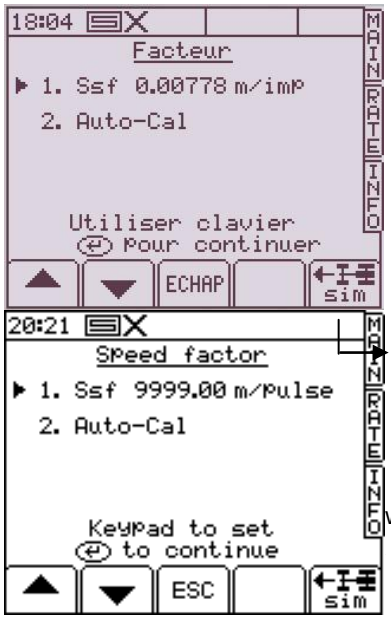


Figure 21

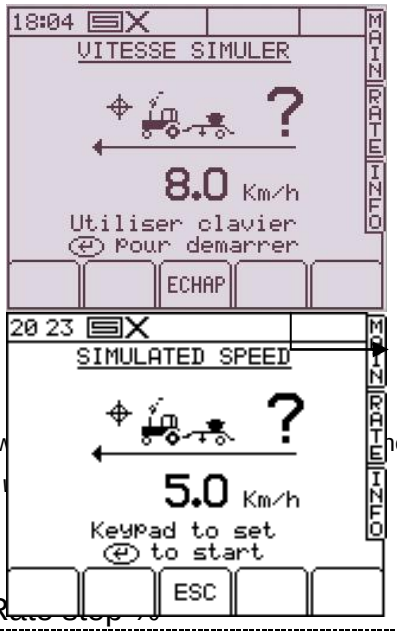
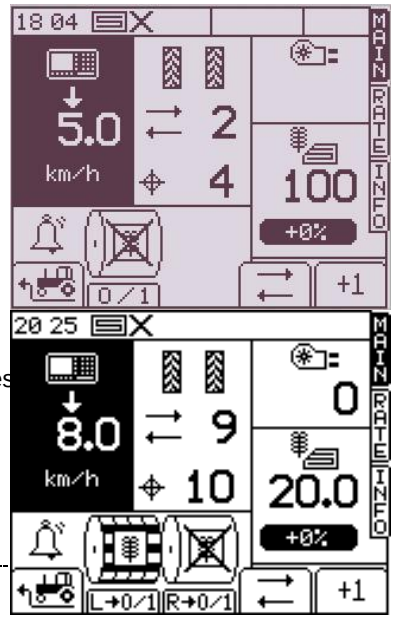


Figure 22

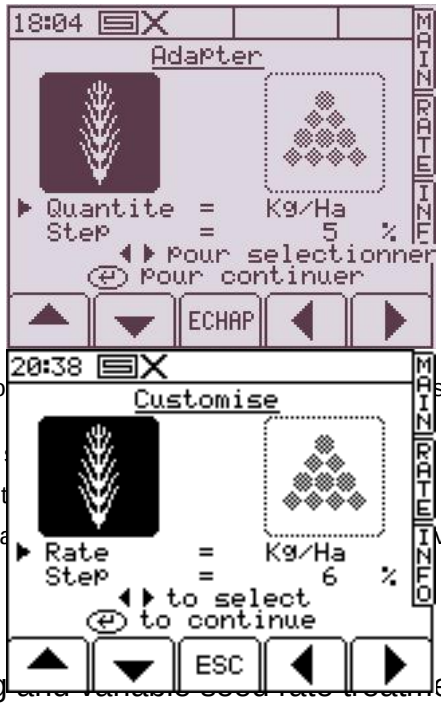


N.B.

5.6 Select the units/Rate Step

Select '1 Operator Config' on the SETUP screen, then '3. Customise'.

Figure 23



If the console is configured fo sing the LEFT/RIGHT arrows (Fig. 23).

Use the UP/DOWN arrows to

Use the LEFT/RIGHT arrows t

Use either the LEFT/RIGHT a value using the numerical keypad and press ENTER to confirm.

5.7 Data logging and variable seed rate treatment

The data logging and variable seed rate control functions are accessible from the SETUP screen.

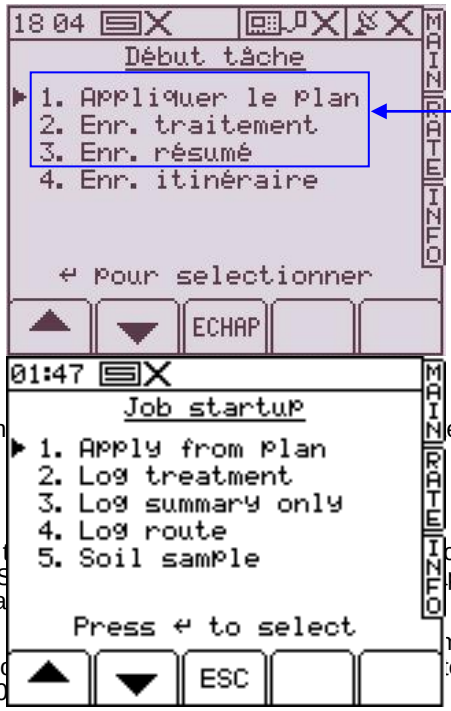
1. Press to display the logging screen (fig. 24).

The console then detects the presence of a memory card.

2. Press the START key to access the ‘Job startup’ page (fig. 25).

Figure 24

Figure 25



Functions usable with the Artémis

There are several possible functions. Only fun émis.

1. Apply the plan (Variable rate treatment)

There are several possible configurations:

(a) The PS 8000i receives the seed rate from a t card and controls the system according to this rate via the RDS pplication carried out is generated and saved on the memory ca

(b) The PS 8000i receives the seed rate from a memory card and sends it to a third party controller, which co em produced by another manufacturer. In this case the PS 800

(c) The PS 8000i receives the seed rate from a third party controller and controls the application via the RDS control system. The PS 8000i can send the current application rate back to the third party controller.

All of these configurations allow the operator to carry out variable rate treatment.

For configurations (a) and (b), a full recording of the application carried out is generated and saved on the memory card. The work record file can be opened in a mapping software program. The job summary is also created in this file.

2. Treatment log (Dynamic data logging)

A complete recording of the application carried out is generated, saving the seed rate and other settings (e.g. "tags") in real time, linking this data to the geographically-referenced position. The associated "Dynamic Logging" file can be opened in a mapping software program. A large quantity of data is generated by the dynamic logging and must be saved in the SD memory card. The job summary is also created in this file.

3. Summary log (Internal data logging)

For simple recording for traceability purposes, you can save a summary of each work session in the internal memory, and then download them directly to a computer or a memory card, or print them out. The amount of summary data for each work session is small and is stored in the console's internal memory. The console can store up to 75 summaries.

6 Adjusting seeder components

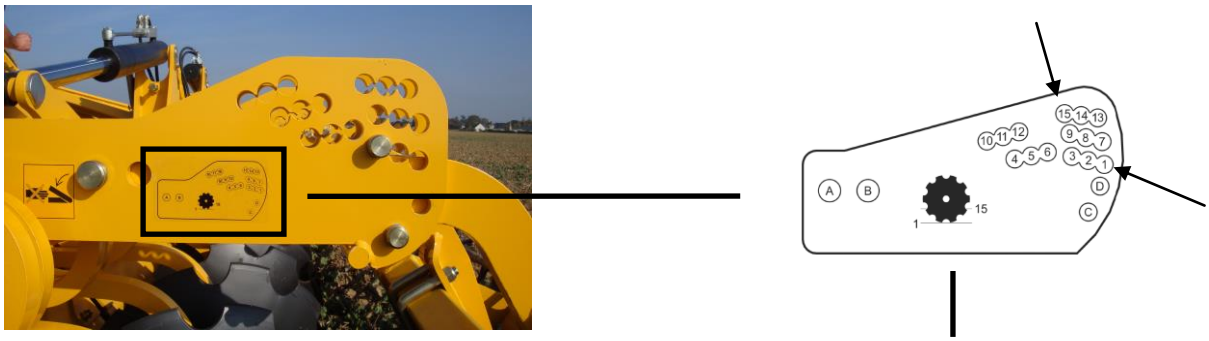
6.1 Disc-O-Sem

The DISC-O-Sem's frame may be fitted with a variable number of elements. Each element is fitted with a replaceable wear disk. The working depth of the disks is controlled by a depth control device in the form of a roller (e.g. cage roller or Flexi-Pack roller).

6.1.1 Adjusting the working depth using the roller

The working depth of the rear disks is controlled using the roller. The roller also levels and compresses the soil after the seeds have been sown.

Example:



Several working depth settings are possible thanks to the Agrisem **"MULTISTOP"**.
The lowest position produces the minimum working depth, here position (1)
The highest position produces the maximum working depth, here position (15)
Position (A) is the position of the roller in relation to the Disc-O-Mulch. This is the position in which the roller kit and the rear row of disks are the closest. This is the standard mounting of a roller kit on a Disc-O-Mulch.
Position (B) is the position in which the roller is the furthest away for a greater distance between the roller kit and the rear row of disks.
Positions (C) and (D) correspond to the bottom roller stop. This allows you to limit the travel of the roller arm between the lower and upper stops.

RECOMMENDATION:

- If this is permitted by the working position, immobilise the roller arms using the lower stop pins. This prevents friction between the roller arms and the multistops that might otherwise cause premature wear.
- It is the setting of the multistops and therefore the height of the roller that dictates the working depth. A Disc-O-Mulch works on the surface (between 2 and 6 cm) at a high forward speed (around 12 km/h).

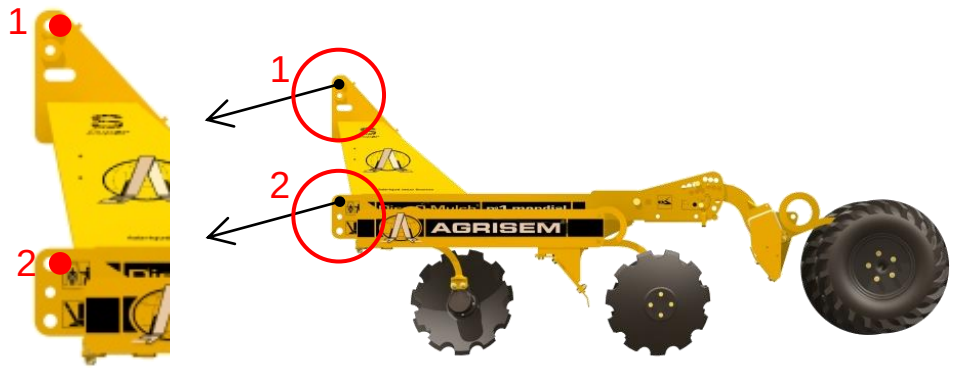
6.1.2 Disc-O-Sem settings for firm ground

Tractor 3-point hitch in floating position with no position control

Adjusting the working depth of the 1st row of disks:

Alter the length of the tractor's top link. Shortening the top link increases the depth of the first row of disks.

Warning: *the working depth apparent when the machine has stopped is often less than when the machine is in movement. At speed, the machine's pressure on the top link and the percussion effect of the 3D safety system increases the working depth. You should therefore check the working depth by examining the profile of the topsoil in an area worked at speed and not at the edge of the field.*



Adjusting the working depth of the 2nd row of disks:

The second row of disks is controlled by the rear roller with the help of the multistops.

6.1.3 Disc-O-Sem settings for soft ground

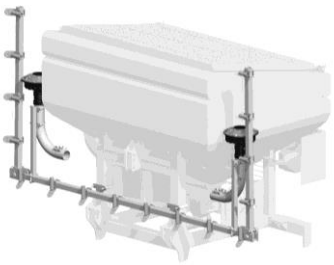
On soft ground, the pressure of the Disc-O-Sem on the tractor's top link can make the machine unstable. You should therefore modify the machine's settings.

Disconnect the tractor's top link from the Disc-O-Sem. **You must then accurately adjust the working depth of the 1st row of disks using the tractor's 3-point hitch position control.** When the required high speed working depth is found, stop the tractor and reconnect the tractor's top link to the Disc-O-Sem in the floating position. The coupling pin must be in the centre of the elongated hole.

If the machine is still unstable, **lateral stabilising wheels** must be fitted. These wheels will prevent the machine from rocking from left to right and going into vertical resonance. These are stabilising wheels and not position control wheels. They must be adjusted to approximately 2 cm above the ground.

6.2 Sowing ramp

The sowing ramp has a variable number of sparkers. It may be fixed to a front hopper (DSF 1600/2200).
The job of the sowing ramp is to deposit seeds in the ground.
To evenly distribute the seeds, the sowing ramp must be used between 40 and 70 cm above the ground.



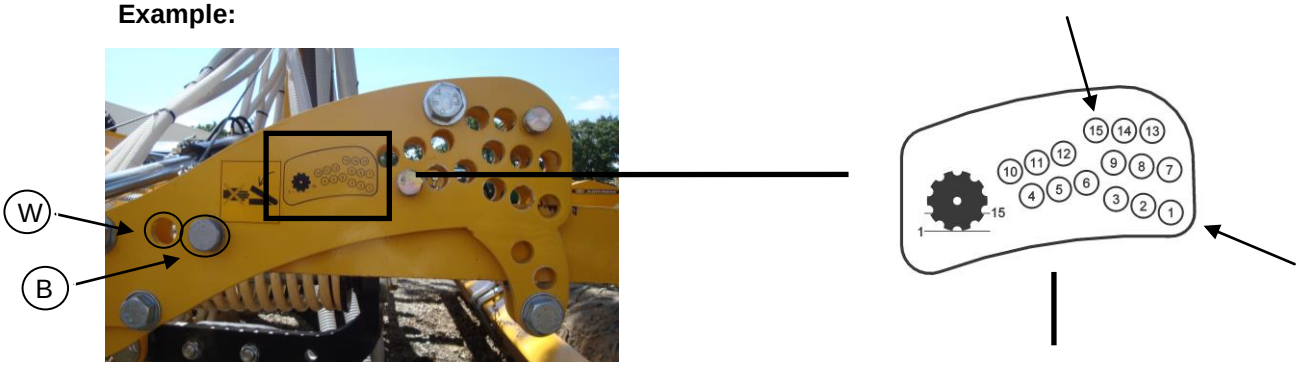
6.3 Tri-O-Sem

The Tri-O-Sem's frame may be fitted with a variable number of elements. Each element is fitted with a replaceable wear share. The sowing depth of the shares is controlled by a depth control device in the form of a roller (e.g. cage roller or Flexi-Sem roller).

6.3.1 Adjusting the sowing depth using the roller

The sowing depth of the rear shares is controlled using the roller. The roller also levels and compresses the soil after the seeds have been sown.

Example:



Several working depth settings are possible thanks to the Agrisem **"MULTISTOP"**.
The lowest position produces the minimum working depth, here position (1)
The highest position produces the maximum working depth, here position (15)
Position (A) corresponds to the position of the roller in relation to the Tri-O-Sem. This position is the closest together between the roller kit and the rear row of disks.
Position (B) is the position in which the roller is the furthest away for a greater distance between the roller kit and the rear row of teeth.

Check that the tool is correctly hitched and is perfectly horizontal during work, sideways and crossways.

RECOMMENDATION:

- If this is permitted by the working position, immobilise the roller arms using the lower stop pins. This prevents friction between the roller arms and the **MULTISTOPS** that might otherwise cause premature wear.
- It is the setting of the **MULTISTOPS** and therefore the height of the roller that dictates the working depth.

6.4 Vibrosem

The Vibrosem's frame may be fitted with a variable number of elements. Each element is fitted with a replaceable wear share. The sowing depth is checked using the machine's depth control device. (e.g. cage roller).

6.4.1 Commissioning

6.4.2. Adjusting the sowing depth

The tool's tilt during work is adjusted by adjusting push bar "A".

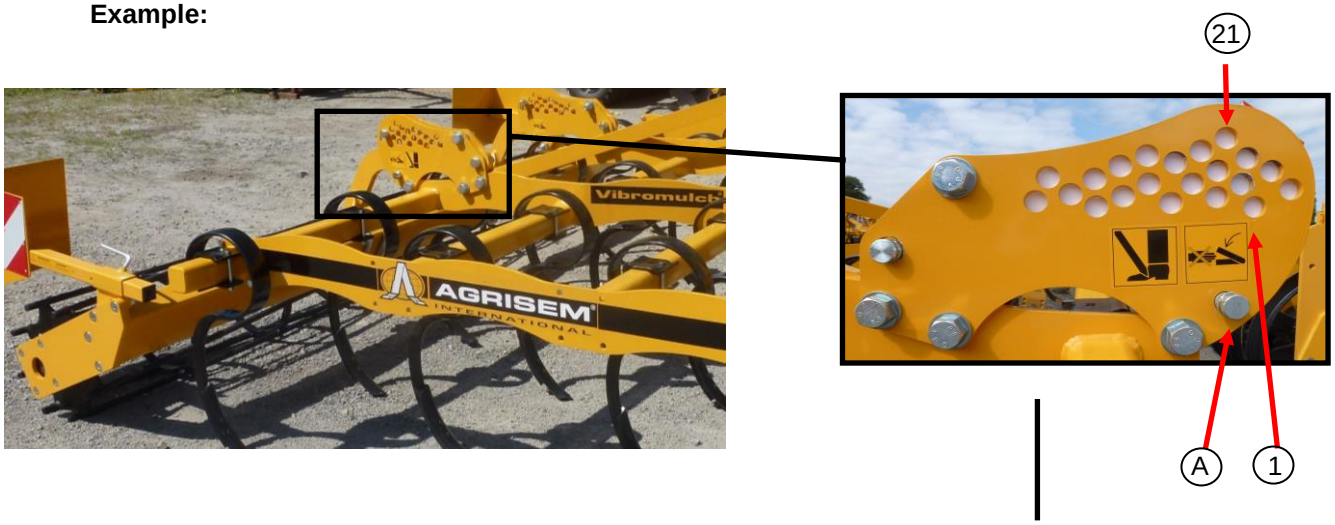
The AGRISEM multistop allows you to adjust the working depth using the roller.

Check that the tool is correctly hitched and is perfectly horizontal during work, sideways and crossways.

Stop the tractor's engine and put on the parking brake before any operations to check the working depth.

The sowing depth of the Vibrosem teeth is controlled using the roller. The roller also levels and compresses the soil after the seeds have been sown in order to ensure good earth/seed contact.

Example:



Several working depth settings are possible thanks to the Agrisem **"MULTISTOP"**.
The lowest position produces the minimum working depth, here position (1)
The highest position produces the maximum working depth, here position (21)
Position (A) corresponds to the bottom roller stop. This allows you to limit the travel of the roller arm between the lower and upper stops.

RECOMMENDATION:

- If this is permitted by the working position, immobilise the roller arms using the lower stop pins. This prevents friction between the roller arms and the **MULTISTOPS** that might otherwise cause premature wear.
- It is the setting of the **MULTISTOPS** and therefore the height of the roller that dictates the working and sowing depth.

6.4.3 Adjusting the intensity of the comb harrow

To adjust the work intensity of the comb harrow, use the push bar (see Fig. 30).

Figure 30

- To increase the work intensity of the comb harrow, shorten the push bar.
- To decrease the work intensity of the comb harrow, lengthen the push bar.

7 SERVICING - MAINTENANCE

Comply with the safety instructions regarding servicing and maintenance. Your machine has been designed and built for maximum yield, profitability and comfort under many different usage conditions. Your machine has been checked at the factory and by your dealer before its delivery to ensure that you receive a machine in perfect condition. To maintain it in good working condition, it is important that servicing and maintenance operations are performed at the recommended frequency.

In order to ensure that your machine always operates correctly and to obtain an optimum performance, you must clean and maintain it at regular intervals. The hydraulic components and bearings must not be cleaned with a high-pressure washer or directly hosed down. The units, screwed connectors and bearings are not watertight to VERY high pressure cleaning.

7.1.1 Servicing frequency

The servicing frequency is determined by various factors. Different usage conditions, the weather, driving and working speeds, dust and the type of soil, etc. affect the frequency, and the lubrication and maintenance products used also determine the time until the next servicing work is required.

The servicing frequency indicated is therefore only to be used as a reference. If you deviate from the normal conditions of use, you must adapt the frequency at which this maintenance and servicing is carried out to suit the conditions:

1/ After the first 10 hours of use:

- Check the tightness of the nuts and screws
- Check the hydraulic system (tightness and sealing)
- Check the tightness of the wheels
- Perform a complete diagnosis of the machine to ensure that there are no elements causing problems.
- Clean the soil off the machine

2/ Every 50 hours of use

- Check the tightness of the nuts and screws
- Check the hydraulic system (tightness and sealing)
- Check the tightness of the wheels
- Perform a complete diagnosis of the machine to ensure that there are no elements causing problems.
- Lubricate the joints with greasers
- Clean the soil off the machine

7.1.2 Storage

If the machine is not going to be used for an extended period:

- Store the machine under a roof if possible.
- Disconnect the electrical control devices and store them in a dry place.
- Protect the machine against rust. Only spray with oils that are easily biodegradable, e.g. rape oil.
- Unload the wheels.
- Protect the hydraulic cylinder piston rods against corrosion.

Do not spray plastic and rubber parts with oil or an anti-corrosion agent or these parts may become fragile and break.

Cleaning

Before folding the machine, the beam under the cylinder must always be cleaned.
A build-up of soil, stones or other obstacles can damage the cylinder.
Failure to comply with this instruction will invalidate the warranty.

7.1.3 Lubrication

Lubricating the machine:
The machine must be lubricated regularly and after each pressure wash.
This keeps the machine in good working order and reduces the costs of repairs and downtime.

Hygiene:
Using lubricants and mineral products in line with the recommendations does not present any health risks. However, avoid prolonged contact with the skin or inhaling the vapours.

Handling lubricants

WARNING:

Protect yourself from direct contact with oils by wearing gloves or protective cream.

Carefully wash all traces of oil off your skin with soap and hot water. Do not clean your skin with petrol, diesel or other detergent products.

Oil is toxic. If you swallow oil, consult a doctor immediately.

- Keep lubricants out of reach of children.
- Never store lubricants in open containers or containers that are not labelled.
- Avoid your skin coming into contact with clothes that are soaked in oil. Change clothes when they are dirty.
- Do not keep cleaning cloths impregnated with oil in your pockets.
- Dispose of shoes impregnated with oil as dangerous waste.
- If oil splashes in your eyes, rinse with clean water and consult a doctor.
- Soak up spilt oil with a binder product and dispose of it.
- Never extinguish fires caused by oil with water. Only use authorised, appropriate extinguishing products and wear breathing apparatus.
- Waste polluted by oil and used oil must be disposed of in line with current regulations.

Lubricate / grease the machine at the stated frequency.

Carefully clean the lubrication points and the grease pump before lubrication to avoid any dirt getting into the bearings. Drain contaminated grease out of the bearings and replace with new grease!

7.1.4 Lubrication

The cage rollers are attached using two self-aligning bearings with greasers.

To ensure that the self-alignment operates correctly, the bearings must be greased at the start of each new season and then regularly throughout the season.

Use lithium grease reinforced with molybdenum disulphide / Grade NLG12. AGRISEM INTERNATIONAL may not be held liable if another type of grease is used.

7.1.5 Maintenance

- Hydraulic maintenance

Risk of infection caused by the oil in the hydraulic circuit penetrating the skin under high pressure.

- Operations on the hydraulic circuit must only be performed by a specialised workshop.
- Depressurise the hydraulic circuit completely before carrying out any operations on it.
- Only use appropriate tools to look for leaks.
- Under no circumstances must you try to plug a leak in the hydraulic hoses with your hand or fingers.
- Liquid leaking under high pressure (hydraulic oil) can penetrate the skin and cause serious injury.
- In the event of an injury caused by hydraulic oil, consult a doctor immediately. Risk of infection.
- When connecting hydraulic hoses to the tractor's hydraulic circuit, ensure that the hydraulic circuits on the tractor and machine are not under pressure.
- Check that the hydraulic hoses are correctly connected.
- Regularly check that the hydraulic hoses and connections are in good condition and are clean.
- Have the hydraulic hoses checked by a specialist at least once a year to ensure that they are in good condition.
- Replace damaged or worn hydraulic hoses.
- Only use genuine AGRISEM hydraulic hoses.
- Hydraulic hoses must not be used for more than six years, including a possible storage time of two years maximum. Even under appropriate storage and usage conditions in line with permissible stresses, it is completely normal for hoses and connectors to age, which is why they have a limited storage time and service life. Nevertheless, the duration of use can be established in line with empirical values, in particular taking potential risks into account. Other reference values can be taken into consideration for thermoplastic hoses and pipes.
- Dispose of used oil in accordance with current regulations. If this poses a problem, contact your oil supplier.
- Keep hydraulic oil out of reach of children.
- Ensure that you do not contaminate the soil or water with hydraulic oil.

After 10 hours of service, and then every 50 hours of service

1. Check that all of the hydraulic circuit's components are sealed.
2. If necessary, tighten screwed connectors.

Before each start-up

1. Visually check the hydraulic hoses for faults.
2. Remove any friction points on hydraulic hoses and tubes.
3. Replace damaged or worn hydraulic hoses immediately.

Inspection criteria for hydraulic hoses.

For your own safety, comply with the following inspection criteria.

Replace the hydraulic hoses if you notice any of the following when examining them:

- Deterioration of the outer layer down to the lining (e.g. friction points, cuts, splits).
- Embrittlement of the outer layer (formation of cracks on the outer layer).
- Distortions which do not correspond to the natural shape of the hose or pipe, whether or not they are under pressure or bent (e.g. separation of the layers, bulges, crushed areas, bending).
- Areas that are leaking.
- Damaging or distortion of the end fitting (affecting its leaktightness). Slight superficial damage does not warrant replacement.
- Hose becoming detached from the end fitting.
- Corroded end fitting leading to reduced solidity and function.
- Non-compliance with mounting specifications.
- Exceeding of the 6-year usage period. The following information is vital: the date of manufacture of the hydraulic hose marked on the end fitting, to which you must add 6 years. If the date of manufacture indicated on the connector is "2004" the usage period will end in February 2010. See the "Marking of hydraulic hoses" section for further information.

Fitting and removing hydraulic hoses

When fitting and removing hydraulic hoses, the following instructions must be strictly adhered to:

- Only use genuine AGRISEM hydraulic hoses.
- Pay particular attention to cleanliness.
- You should always fit hydraulic hoses so that in all operating conditions,
    - ✓ They are not subject to traction, apart from that caused by their own weight.
    - ✓ No short lengths are flattened.
    - ✓ There are no external mechanical stresses on the hydraulic hoses.
    - ✓ Avoid hoses rubbing against parts of the machine or against each other by arranging and attaching them correctly. Protect hydraulic hoses with protective sheaths if necessary. Cover parts with sharp edges.
    - ✓ The authorised bending radii must not be exceeded.
- If hydraulic hoses are connected to moving parts, measure the length of the hose to ensure that the total range of movement is no less than the smallest authorised bending radius and/or that the hose is not subject to traction.
- Attach hydraulic hoses at the places intended for this purpose. Avoid mountings that may hinder the natural movement of the hose and modifications to its length.
- Hydraulic hoses must not be painted.

Wear ring maintenance:

Some joints on AGRISEM tools have wear rings. These must be changed at the first sign of lateral play.

WARNING: Written authorisation must be obtained from AGRISEM International before carrying out any operations on the "Spring Assembly".

Tyre maintenance:

The tyres must always be inflated to a pressure appropriate to their use. The pressure may need to be changed when moving between the road and the field. The average pressure of all Flexi-Pack tyres is 2.5 bars.

7.1.6 Disks

⇒ The disks must be replaced as soon as their diameters reach the values given below.

Mulcher disk diameter	Max. wear diameter
 Ø 510	Ø 430
 Ø 560	Ø 430
 Ø 610	Ø 430
 Ø 660	Ø 500

Serrated disk diameter	Max. wear diameter
 Ø 460	Ø 400
 Ø 510	Ø 440
 Ø 560	Ø 480
 Ø 610	Ø 520

AGRISEM INTERNATIONAL cannot be held liable if the DISC-O-SEM is used with disks presenting greater wear than that specified above.

7.1.7 Lighting system

Always check that your lighting system is in full working order, clean and operational before driving on the road.

Never set out on the public highway if one of these elements is not in good condition.

Replacing bulbs:

1. Unscrew the protective glass.
2. Remove the faulty bulb.

3. Fit the replacement bulb (ensure that the voltage and amperage are correct).
4. Refit the protective glass and screw on.

THE LIGHTING IS REMOVABLE AND MUST BE REMOVED BEFORE WORKING

The lighting board must be removed when using the DISC-O-SEM in the field.

As the lighting board is designed solely for transport, AGRISEM INTERNATIONAL cannot be held liable if the lighting board breaks due to being used during work.

7.1.8. Wear part with carbide plates:

Wear parts with carbide plates are designed for working in fields without stones.
Using them on stony ground may lead to the premature wearing of these parts and possible breaking.
It is up to the user to decide on and take full responsibility for the risks linked to the use of wear parts fitted with carbide plates under these conditions.

AGRISEM INTERNATIONAL cannot be held liable under any circumstances for the premature wearing or breaking of wear parts with carbide plates if these instructions are not complied with.

Using the DISC-O-SEM correctly ensures that work on crops takes place safely under optimum conditions. It is up to the user to decide on and take full responsibility for the risks linked to the incorrect or inappropriate use of the DISC-O-SEM.

AGRISEM INTERNATIONAL cannot be held liable under any circumstances for soil damage or a result that does not meet the user's expectations if the use and safety instructions have not been complied with.

WARRANTY CLAIM FORM N°

Dealer's name :		Dealer's stamp	
File followed by :			
Date of purchase of the machine :		N° Invoice AGRISEM	
Customer's name and address :			
Delivery date : *(join a copy of invoice and dealer's delivery note)*		Area of farm :	
Serial Number of the machine :		Working width :	
Description of the equipment combination (make and type):			
Type of tractor used :		Horse Power :	
Model of tractor :			
Detailed description and presumed causes of incident :			
Date of problem :		**Date present :**	

Reference of Defective part	Quantity	Désignation	Price List	Coef SAV	TOTAL (€)

Pictures attached :	☐ **YES**	Parts returned : *Freight costs paid by the sender*	☐ **YES**

The warranty is limited to replacement of defective parts excluding reparation of all other damage

RESULT OF AGRISEM INTERNATIONAL EVALUATION

Comments :	

Date :		**Signature :**	
The after-sales service technician			
yoann.jaunasse@agrisem.com			

AGRISEM INTERNATIONAL - 535 Rue Pierre Levasseur CS 60263 – 44158 ANCENIS CEDEX – Tél : 02 51 14 14 40 – Fax : 02 40 96 32 36