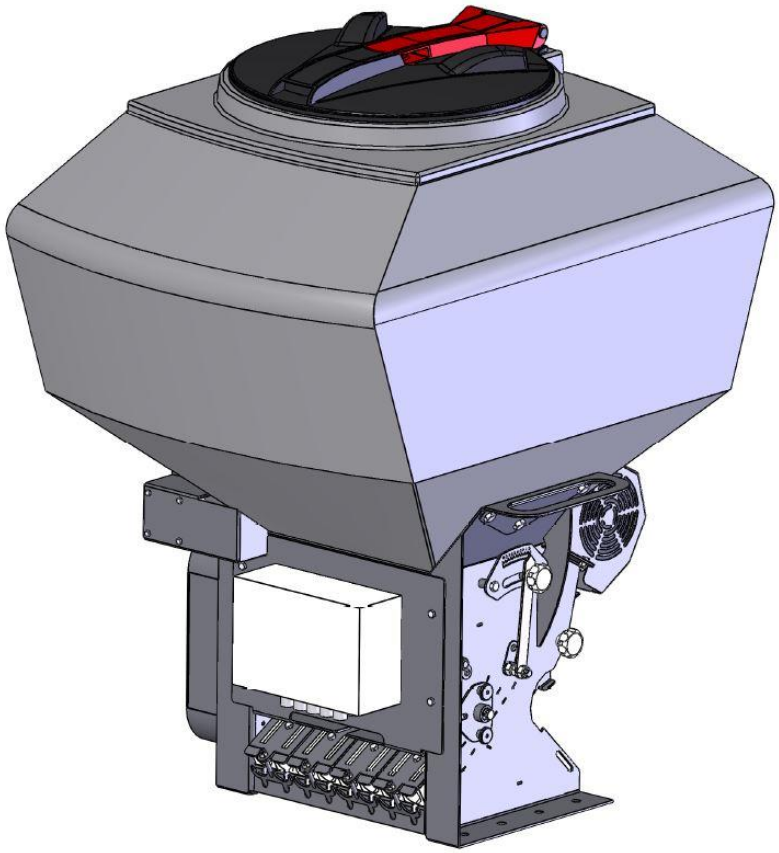
OPERATING MANUAL

FP-250/550

SEEDER



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FP-250/550

Seeder

OPERATING MANUAL

Machine identification data:

Type	
Manufacture date	
Serial No.	

This User Manual is an integral part of the machine. The Manual should always be available for the user of the machine. The machine owner should make the Manual available to the machine operators and people involved in its operation, adjustment, repairs and overhauls.

:

Before operating the machine, read this User Manual and follow the safety instructions and guidelines contained therein as well as those concerning the correct use of the machine.

Developed by:
UNIA sp. z o.o.
Design Office

We would like to pay attention to the fact that the individual properties of the sown material have a large impact on the spreading standard. Therefore, the control data contained in the tables are only indicative and calibration should be carried out before each sowing.

Sowing properties depend on:

- the type of seed, its varieties, weight and shape of seeds
- heap up properties of seeds
- the type of soil, on which sowing is carried out

Therefore, we cannot guarantee that the seed with the same name, variety and even the same manufacturer has the same spreading characteristics as the one included in the sowing chart.

The given machine settings and sowing rates are indicative and are used to pre-set the machine for calibration. In this case, the manufacturer's liability for damage caused as a result of incorrect sowing resulting from failure to perform tests is excluded.

Unload the seeder from the vehicle with a crane or tractor using a ramp.

Always lift and handle the machine with the utmost care, with the seed box empty. Do not allow any bystanders staying within the range of performed works.

Caution!
Always attach a special board at the back of the machine before leaving for public roads!

UNIA sp. z o.o.
Szosa Toruńska Street, No. 32/38, 86-300 Grudziądz, Poland
2020

Duties and Responsibility

Follow the instructions in the User Manual

The staff operating the machine should be familiar with the general safety regulations applicable when operating agricultural machinery**. The operators are obliged to read and follow the instructions and guidelines in this User Manual.** Always follow the health and safety instructions.

User's obligation

The user undertakes to allow the machine to be only operated and maintained by personnel, who:

- ✓ are trained in the area of health and safety and accident prevention,
- ✓ have appropriate qualifications and are properly trained in working and servicing the machine in question, and
- ✓ have read and understood this User Manual.

Personnel working on and with the machine must be provided with the required personal protective equipment, such as

- ✓ safe work footwear,
- ✓ protective clothing,
- ✓ means for protecting the skin,
- ✓ additional protection against adverse weather conditions etc.

The user undertakes to ensure that:

- ✓ **all warning signs on the machine are kept legible. Complete/replace any damaged or missing warning signs.**

All persons employed at work with/on the machine shall undertake the following before commencing work:

- ✓ to comply with applicable labour safety and accident prevention regulations;
- ✓ to read the chapters: SAFETY AT WORK, RESTRICTIONS ON MOVING ON PUBLIC ROADS, PREPARATION OF THE UNIT TO WORK, and SAFETY SIGNS. When using the machine, follow the instructions and indications contained in the mentioned chapters;
- ✓ to familiarize themselves with the machine, its construction, and mode of operation;
- ✓ to read the chapters describing the procedures necessary for the performance of work tasks.

If you find that the machine or its component has been damaged and/or worn out, and therefore, does not ensure safe operation, rectify any defects in this respect immediately. If you have not the necessary resources and/or qualifications, go to a service centre or workshop that provides proper service in this regard.

TABLE OF CONTENTS

Read the User Manual thoroughly and then learn the design and operation of the seeder and its assemblies. Strict adherence to the instructions contained in this Manual will ensure long-term, efficient, trouble-free and safe operation of the machine. **In case of any problems and doubts with the operation, please contact the nearest authorized dealer or the manufacturer's Sales Department.** The Vendor is obliged to enter the address of warranty service into the warranty card.

UNIA – a limited liability company will be grateful for your comments to this Manual as well as comments on the machine, its operation and service sent to us. UNIA Sp. z o.o. shall assume no liability for any damages resulting from non-observance of instructions contained in this User Manual.

Throughout the text of the manual, the left hand (LH) or right hand (RH) sides of the machine are determined by looking from the rear of the machine in the direction of its operation (driving).

The technical safety requirements are only met, if only original spare parts are used for repairs.

I. GENERAL

1. SAFETY AT WORK

1. Do not allow unauthorized people (children) who are not familiar with its intended use and operation to operate the machine.
2. The seeder may only be operated by an operator who has read this User Manual.
3. Working without the guards and/or riding on the seeder is forbidden.
4. Entering the load box is forbidden during work and transport.
5. It is forbidden to exceed the permitted speed of the unit.
6. Leaving the unit on slopes and inclinations without braking and protecting the wheels (by placing wedges) is forbidden.
7. Staying within the machine's operating range is forbidden. Keep at least 6m distance away from the machine.
8. Exceeding the permissible speed may damage the machine and cause an accident.
9. It is forbidden to load or unload the seeder, if it is not coupled with the tractor.
10. Do not leave any objects or tools inside the load box.
11. When sowing the treated seeds, the operator of the unit should wear a tight suit in order to be protected against the harmful effects of dust.
12. It is unacceptable to perform mechanical loading using the universal loader, if there is somebody staying in the area of its operation.

2. RESTRICTIONS ON MOVING ON PUBLIC ROADS

Before going on public roads, check the correctness of the slow moving vehicle sign on the back of the machine and check the functioning of the lights.
It is forbidden to exceed the permitted speed of 25km/h.
If it is necessary to leave the unit on an inclined area, it is absolutely necessary to pull the brakes and secure the wheels by placing wedges under them.

3. NOISE AND VIBRATIONS

Sound pressure level is 77dB(A), measured at the operator's ear level during operation, with the tractor cab closed. During operation of the unit, the operator should be in the cab of an agricultural tractor or wear hearing protection.

When working with the unit, there are no hazards caused by vibrations, since the operator's work position is in the tractor cab, where the seat is cushioned and ergonomically shaped. The value of vibrations acting on the operator's body does not exceed 0.6m/sec^2.

4. SAFETY SIGNS

REMARK TO THE USER!

Protect signs and safety inscriptions against damage, contamination and overpainting; replace any damaged and illegible signs and inscriptions with new ones, which can be purchased from the machine manufacturer or vendor.

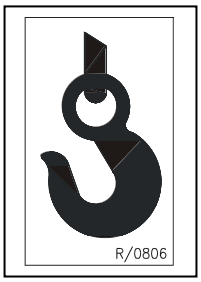
C.2.26

Switch off the engine and remove the ignition key before starting maintenance!

Read the User Manual!

C.2.27

Do not ride on platforms, scrapers and other machine components!



Lifting eye

C.2.23

Do not touch the machine components until all of its assemblies completely stop!

B.2.12.

Do not reach or enter the machine container until the engine is in motion!

C.2.20.

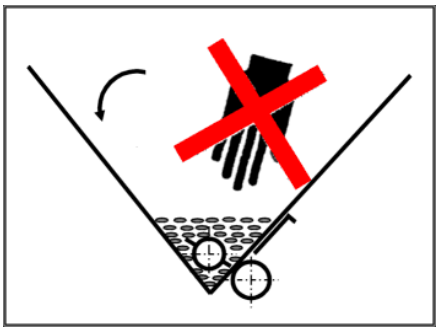
Do not open or remove the safety guards until the engine is in motion!

C.2.11.

Danger of catching on the PTO shaft. Keep away from moving parts

Caution!

Danger of being caught by the agitator!



5. GENERAL AND COMMERCIAL INFORMATION. REPAIR DURING THE WARRANTY PERIOD.

In case of any problems or doubts concerning the maintenance and operation, please contact the authorized vendor or the manufacturer's Sales Department. The vendor is obliged to enter the tasks performed during the warranty period into the warranty card. **Read the User Manual thoroughly before starting the machine for the first time and follow the safety instructions contained in it!**

The machine is only intended for generally accepted use, i.e. for sowing seeds and spreading fertilizers, as indicated in the User Manual (see sowing chart). In the case of sowing seeds other than those indicated in the instructions, contact the manufacturer in order to determine, if the machine can be used for this purpose. The usage other than in compliance with the above-mentioned method is treated as incompatible with the intended use. The manufacturer is not liable for damages resulting from such usage, only the user bears the risk.

Intended use also includes compliance with the conditions of use and maintenance of the machine in good condition and using only genuine spare parts specified by the manufacturer.

The seeder may only be used, maintained and kept in a proper condition by people familiar with its maintenance and informed about the hazards.

It is also necessary to comply with relevant accident prevention regulations and other generally accepted rules in the field of technical safety, occupational medicine and traffic regulations.

The nameplate is located on the frame, at the front of the machine.

The nameplate is filled by the manufacturer. It contains basic technical data suitable for the type of seeder purchased, according to the figure on the right. For technical data, see also the User Manual, page 13.

Nameplate

GENERAL SAFETY AND ACCIDENT PREVENTION GUIDELINES

The basic rule:

Check the technical condition of the machine before each use!

- Observe the instructions in this manual as well as generally accepted safety and accident prevention regulations.
- Observe the relevant traffic regulations when driving on public roads.
- Before starting work, familiarize yourself with all devices and actuators and their functions. It is too late when the machine is working!
- Before each start-up, check that nobody stays in the vicinity (especially children). Ensure proper visibility, e.g., use the assistance of a pilot, when reversing.
- The user's clothing should be close fitting. Avoid loose clothing!
- Keep the machine clean in order to avoid a fire hazard.

- Coupling the machine is only possible with the engine stationary and the key removed from the ignition switch

II. USER MANUAL

1. INTENDED USE

The FP 250/550 seeder is intended for sowing specific seeds and spreading specific fertiliser doses (see the sowing chart).
We offer pneumatic seeders with 250/550-litre tank volume.
The metering roller is powered by a 12 V electric motor. The speed is adjusted with a controller in the operator's cabin.
It is possible to synchronise the tractor's travel speed with the metering roller's speed (auxiliary equipment: Pilot FP controller), which ensures precise metering, regardless of the coupled unit's travel speed changes. The information about the speed can be provided by any of the following sensors: cable with a 7-pin plug, wheel sensor or GPS.
The feeder cable comes with a direct battery connector.

1.2 Mounting to the cooperating machine

In order to mount the seeder to the cooperating machine, use the mounting plate that can be fixed to various devices and in different places.
To ensure the seeder's stable mounting to the cooperating machine, use M12 screws of the correct length.

1.3 Mounting the spreading plates

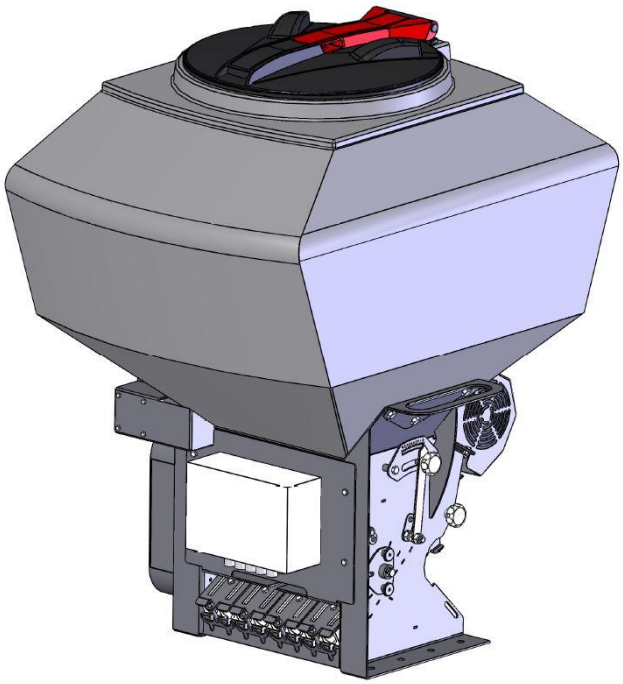
The spreading plates can be mounted with two special clamps.
The instructions below help an easy and correct mounting of the spreading plates:
- For easy mounting of the spreading plates, use the clamps to fix the plates to the hexagonal profiles, and then fix the profiles to the cultivation machine

- The spreading plates should be uniformly arranged along the cultivation unit's width

- Mount the spreading plates 20 - 40 cm above the ground

- Fix the hoses supplying the seeds/fertiliser to the spreading plates at a 90 degrees angle; fix the spreading plates at a 90 degrees angle to the hexagonal profiles.

2. TECHNICAL DATA



Tank volume:	250/550 dm3
Working width:	3m-6m
Distribution head:	8 outputs
Dispenser:	Plastic
Dispenser drive:	Electrical
Turbine drive:	Electrical
Maximum dispenser output.	18 kg / min
No. of dispenser wheels:	8
Possibility of sowing two doses:	NO
FP-250/550 seeder weight (can be different, depending on equipment):	60/75 Kg

3. CONSTRUCTION AND OPERATION

3.1. Main Assemblies of the Seeder.

The seeder consists of the following assemblies (Fig. 1):

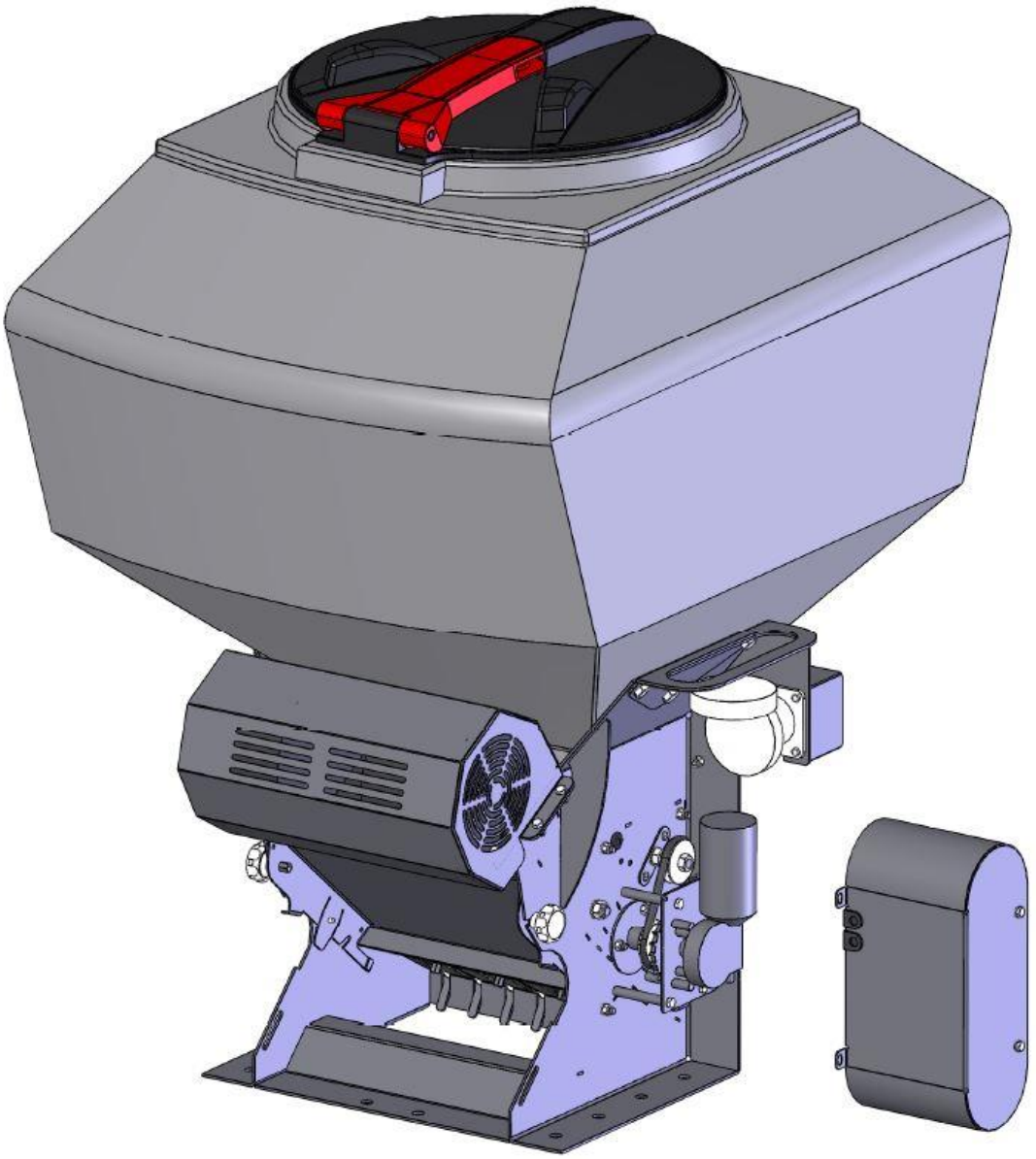


Fig. 1
1 – electric fan, 2 – metering roller's electric motor, 3 – spreader control,
4 – metering roller, 5 – calibration test sheet, 6 – mixer set, 7 – tank,
8 – charging cover,

4. USING THE MACHINE

4.1. Selecting the correct metering roller.

Before filling the hopper with the seeds/fertiliser, make sure that the correct metering roller has been selected.
The metering roller should be selected depending on the seeds/fertiliser characteristics and the sown/spread quantity.

Types of metering rollers

Standard equipment

5655	444
Mustard	Cereals
Buckwheat	Grass

A standard FP-250 seeder features 2 complete metering rollers (already installed):
1 metering roller with coarse metering wheels (i.e. with large tines; 444) (Fig.: 2)
1 metering roller with a small metering wheel for each outlet (5655) (Fig.: 3)

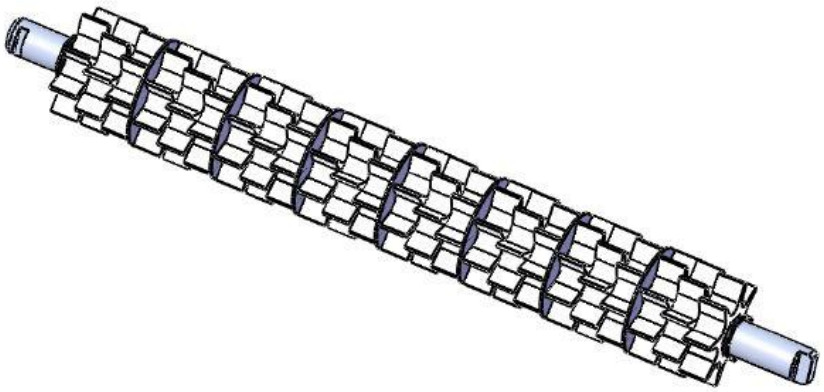


Fig.: 2

Scope of coarse metering wheels application:
Generally for large quantities or large seeds.
Examples: grass mixes, rye, barley, wheat, oats, etc.

Scope of fine metering wheels application:

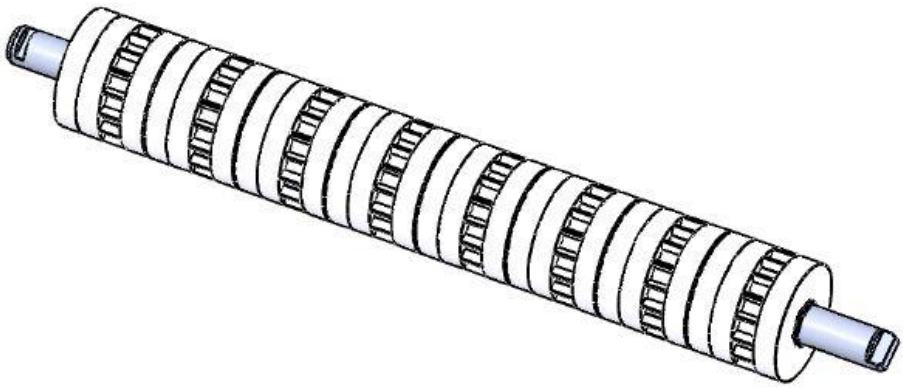


Fig.: 3

Generally for small quantities or fine seeds.
Fine seeds such as rape, clover, blue tansy, molluscicide (pellet), etc.

TIP: Blind or very fine metering wheels significantly reduce the quantity of the seeds sown/ fertiliser spread.
Note: Make sure that the selected type of metering roller enables setting the adequate sowing/spreading dose by setting the metering roller's speed between 20% and 80% of its available speed. It enables smooth and free metering changes when the tractor's travel speed is changed. This way, at speed-depending sowing, at very low and very high speeds, it is possible to correctly adjust and uniformly feed the seeds/fertiliser.

4.2. Replacing the metering roller

In order to replace the metering roller:

Note: Before replacing the metering roller, make sure that the tank is empty. After replacement, make sure that the metering roller rotates freely after starting.

- Check what metering roller type is required for the particular material (type of seeds, dose)
- Empty the tank completely
- Loosen the nuts fixing the metering roller
- Remove the metering roller
- Replace the removed metering roller with the selected one

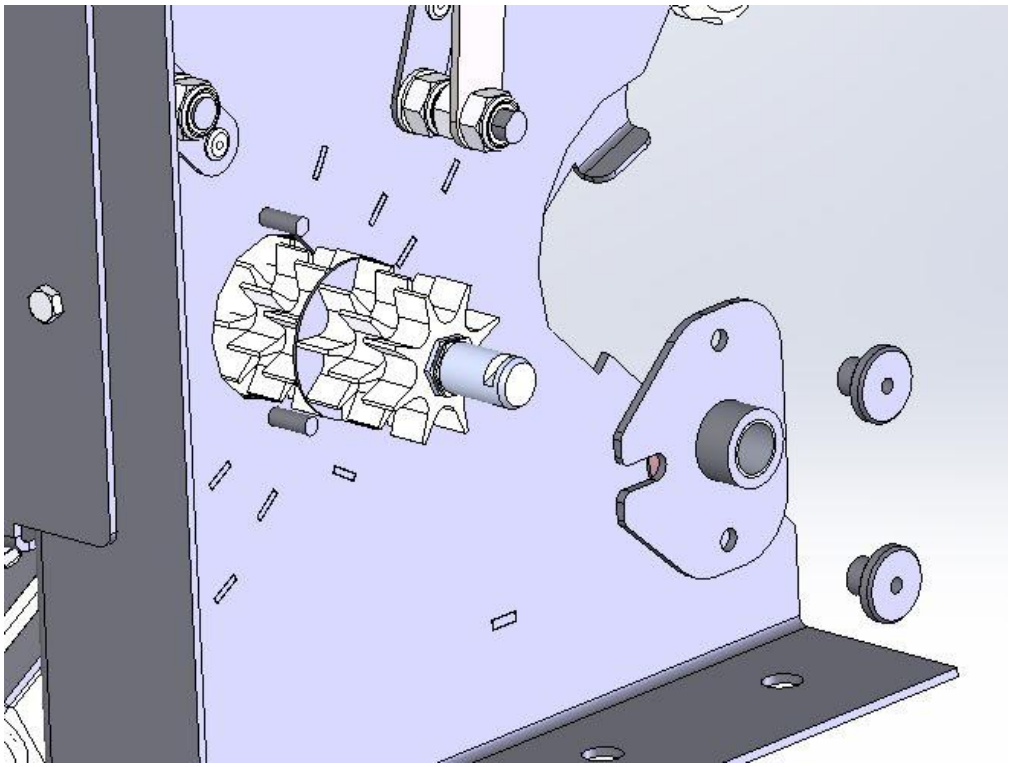


Fig.: 4

4.3. Pressure brushes

The lever on the seeder side is used for setting the pressure brushes on the metering roller. The lever moves along the 0 - 9 scale.
If the lever is moved from 0 to 9, the pressure brushes press the metering roller stronger - it reduces the quantity of the seeds sown. Moving the lever from 9 to 0 increases the distance between the brushes and the metering roller - the quantity of the seeds sown rises.
The lever's home position is 4 - start the sowing test at this position. For very fine seeds, move the lever to higher values on the scale and to low values on the scale for large seeds.

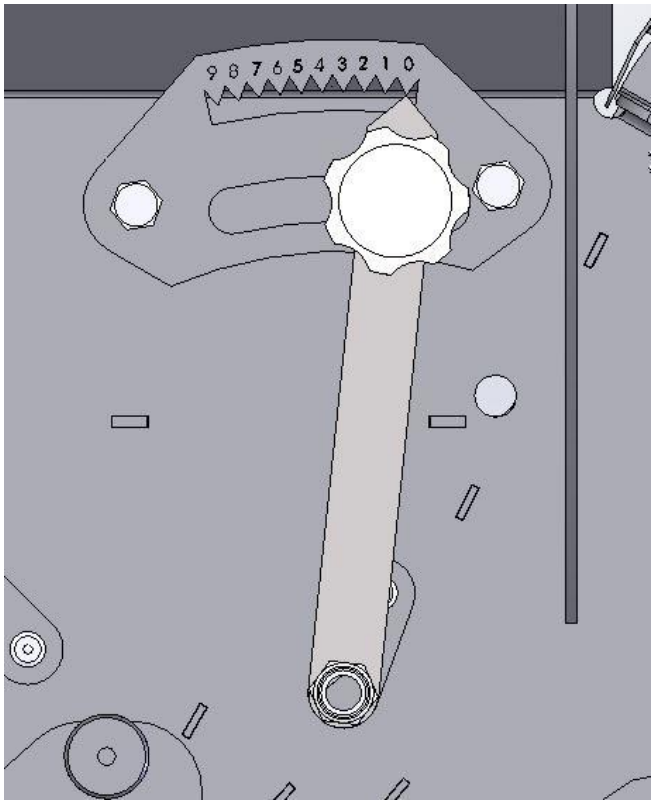


Fig.: 5

4.4. Mixer

The mixer is used only for easily trapped (suspending) seeds (e.g., grass).
If the mixer is not required, remove the band connecting the metering roller with the mixer (under the cover, on the seeder side).

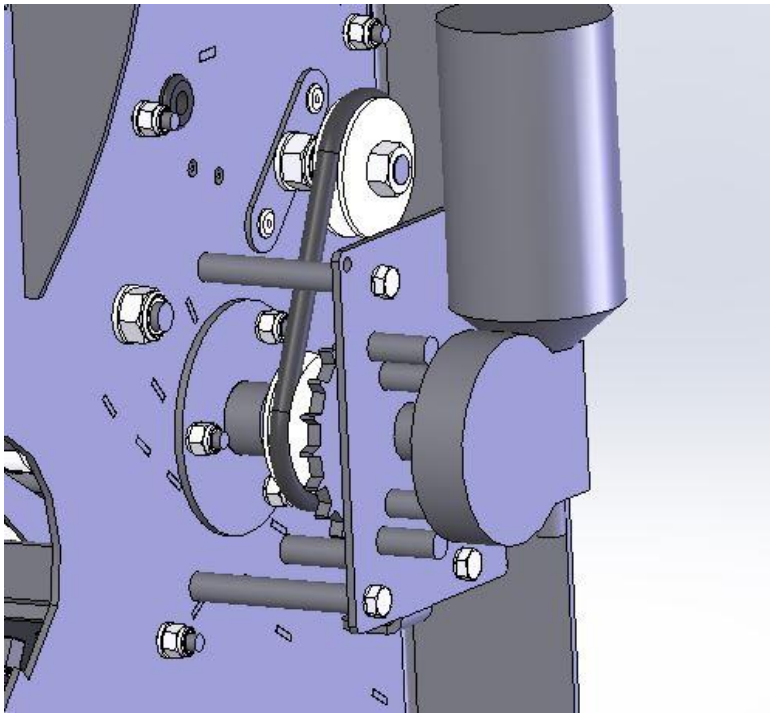


Fig.: 6

4.5. Metering roller's pneumatic plate

For large seeds such as vetch, pea and lupin, remove the metering roller's pneumatic plate to avoid damage to the metering wheels. The pneumatic plate is fixed with four M6 screws.

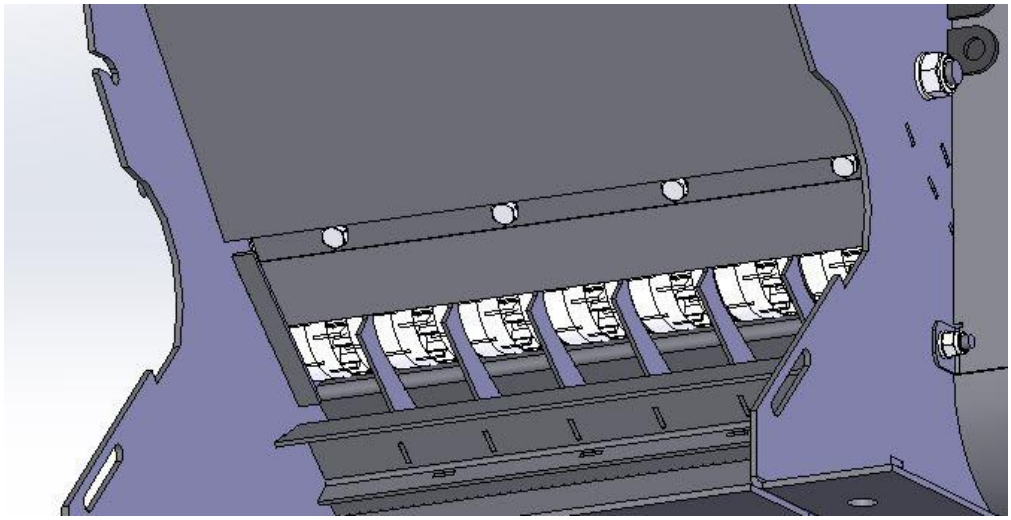


Fig.: 7

4.6. Filling sensor

The filling sensor is optional for FP-250/550.
The filling sensor reacts when it is no longer covered with seeds. The height of the sensor's position in the tank is adjustable.
You can also adjust the sensor's sensitivity by turning in or out the screw at the sensor. The filling sensor emits a light signal once it is connected and the tank is filled with seeds. You can check its function by covering the sensor with your hand - a light signal should be emitted.

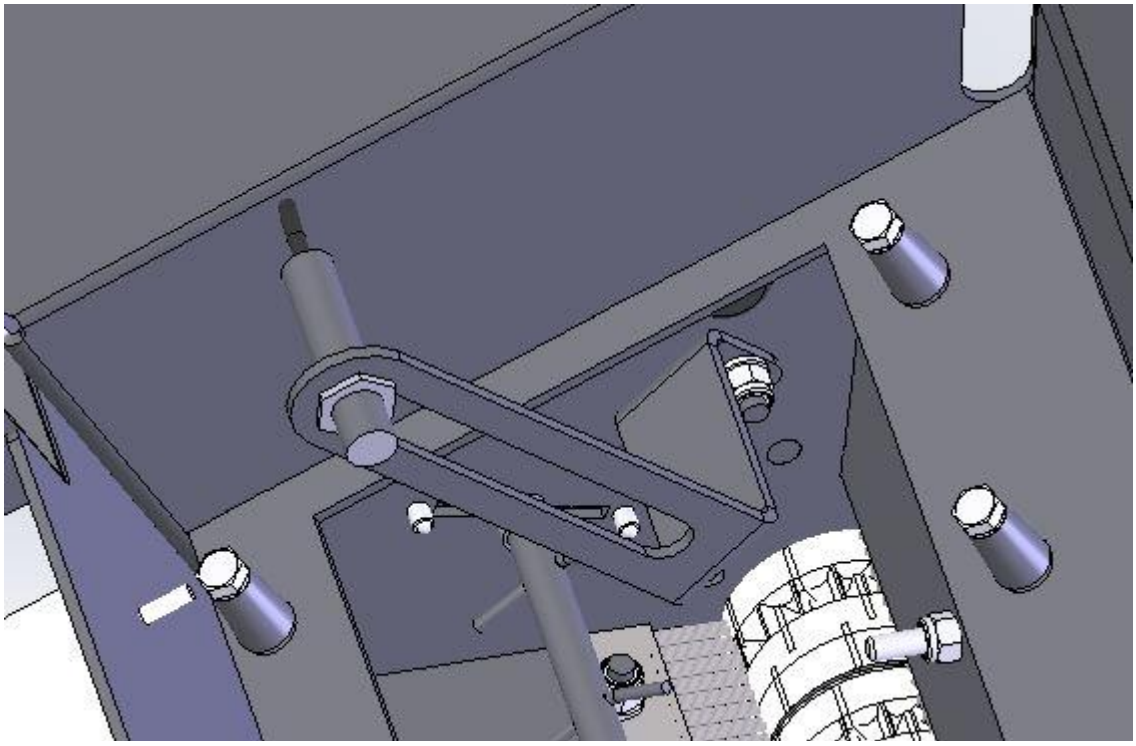


Fig.: 8

4.7. Working width/ sowing charts

The FP-250/550 seeder can be used up to the maximum sowing width of 6 m (with an electric blower).
The quantity of the sown material depends on the metering roller's speed. The sowing dose [kg/ha] is a combination of the quantity of the sown material, working width and the tractor's travel speed.
The formula below shows a combination of three data (dose per hectare, travel speed, working width) based on which the quantity of the seeds sown by the spreader in one minute [kg/min] is determined. The formula is indispensable for the sowing test. The value of the sowing test [kg/min] is correlated with the metering roller's speed - the information is given in the sowing chart.
Note: The values in the sowing chart are for guidance only. The data included in the sowing chart should always be verified with the sowing test. Any differences between the data in the chart and the sowing test result can depend on the seeds' individual characteristics (thousand seed weight, moisture content, etc.)
Use the following formula for the sowing test:

$$\frac{\text{Required sowing dose (kg/ha)} \times \text{travel speed (km/h)} \times \text{working width (m)}}{600} = \text{weight (kg/min)}$$

Example:

$$\frac{15[\text{kg/ha}] \times 10.0\ [\text{km/h}] \times 6.0\ [\text{m}]}{600} = 1.5\ [\text{kg/min}]$$

4.8. Sowing test/ sowing dose adjustment

In order to achieve the required sowing dose, carry out a sowing test.
To perform a sowing test, proceed as follows:
1. Remove the plate covering the metering roller (the plate is located on the opposite side to the section with hoses).

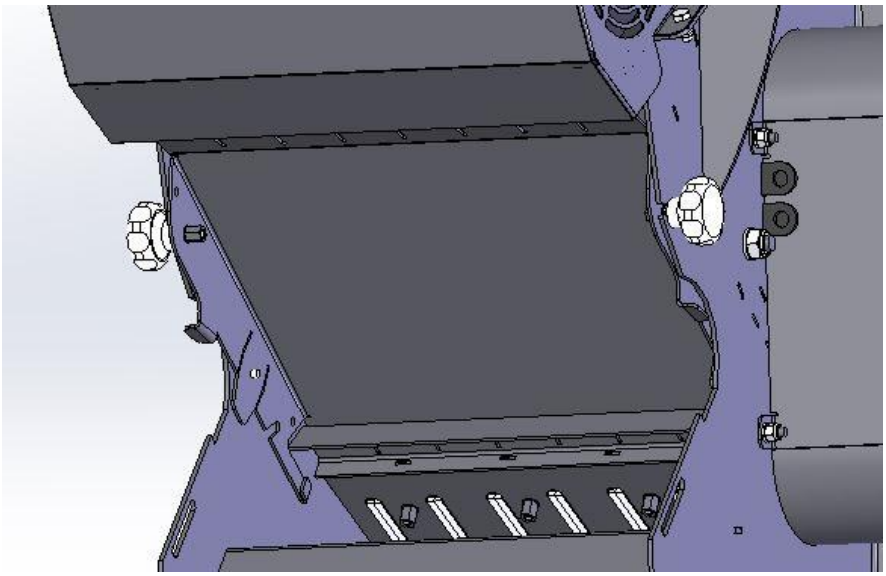


Fig.: 9

2. Mount the sowing test plate under the metering roller and secure it on the sides.

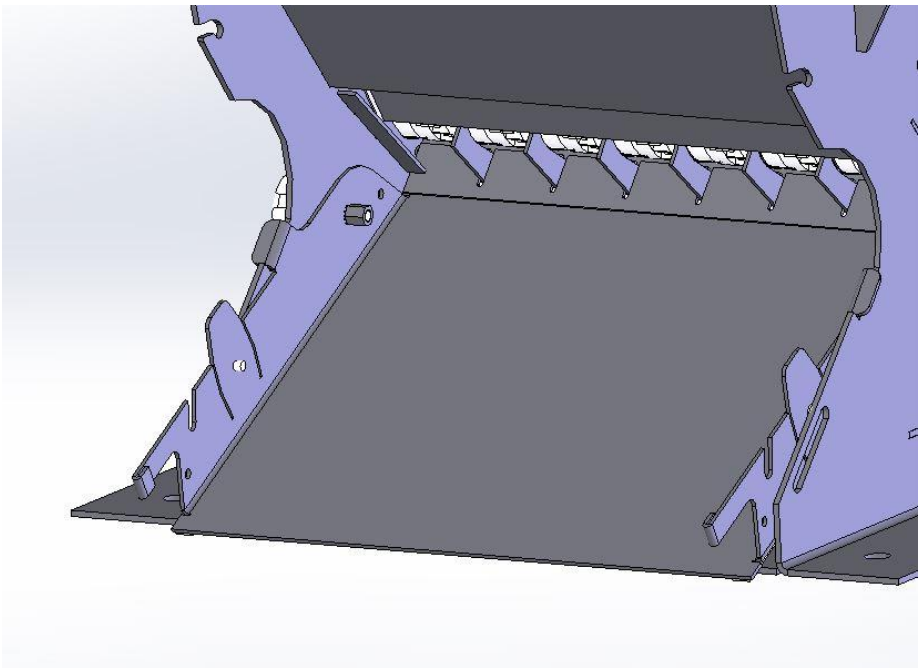


Fig.: 10

3. Put the bag for the sowing test onto the plate.

4. Use the formula for calculating the dose (item 7.6) to calculate the required quantity of the seeds sown for one minute.

5. Then find the corresponding metering roller's speed in the chart (the speed should be relevant for the quantity of the seeds sown per minute).

6. Enter the metering roller's speed into the controller.

7. Then start the sowing test and wait until it ends (1 minute). When you use the Starter FP (or Pilot FP) controller, the sowing test activation is shown on the screen.

4.9. Guidance sowing chart/ fine seeds

Seed type	**Vetch**	**Mustard**	**Lucerne**	**Clover**	**Blue tansy**	**Rape**
Qty	kg/min	kg/min	kg/min	kg/min	kg/min	kg/min
Roller type	5655	5655	5655	5655	5555	5655
Roller rpm						
5	0.76	0.04	0.1	0.04	0.14	0.11
8	1.42	0.15	0.21	0.15	0.31	0.211
11	2.51	0.33	0.4	0.33	0.61	0.38
14	3.61	0.5	0.6	0.51	0.9	0.548
17	4.71	0.68	0.79	0.7	1.19	0.717
20	5.81	0.86	0.98	0.88	1.49	0.885
23		1	1.15	1.06	1.52	1.031
26		1.15	1.32	1.23	1.56	1.178
29		1.29	1.49	1.41	1.59	1.324
32		1.43	1.65	1.58	1.63	1.47
35		1.58	1.82	1.76	1.66	1.617
38		1.65	1.86	1.82	1.75	1.685
41		1.72	1.9	1.87	1.85	1.754
44		1.79	1.93	1.93	1.94	1.823
47		1.86	1.97	1.98	2.04	1.892
50		1.93	2.01	2.04	2.13	1.96
54		2	2.04	2.09	2.23	2.029
58		2.07	2.08	2.15	2.32	2.098
62		2.14	2.12	2.2	2.42	2.167
66		2.31	2.24	2.33	2.52	2.303
70		2.48	2.36	2.46	2.62	2.44

4.10. Guidance sowing chart/ coarse seeds

Seed type	**Grass**	**Barley**	**Wheat**	**Rye**	**Buckwheat**	**Lupin**	**Oat**
Qty	kg/min	kg/min	kg/min	kg/min	kg/min	kg/min	kg/min
Roller type	444	444	444	444	444	444	444
Roller rpm							
5	0.27	0.54	0.52	0.46	0.54	0.42	0.15
8	0.61	0.87	1.18	0.99	0.99	1.11	0.46
11	1.17	1.41	2.3	1.87	1.74	2.26	0.98
14	1.73	1.96	3.41	2.74	2.49	3.41	1.5
17	2.3	2.51	4.52	3.62	3.24	4.56	2.02
20	2.86	3.06	5.64	4.5	3.99	5.71	2.54
23	3.42	3.61	6.7	5.33	4.68	6.87	3.03
26	3.98	4.16	7.76	6.16	5.38	8.03	3.52
29	4.55	4.71	8.82	6.98	6.07	9.19	4.01
32	5.11	5.26	9.88	7.81	6.76	10.35	4.5
35	5.67	5.81	10.94	8.64	7.45	11.51	4.99
38	6.23	6.7	11.21	9.45		12.48	5.42
41	6.79	7.59	11.48	10.27		13.44	5.85
44	7.36	8.48	11.76	11.08		14.41	6.29
47	7.92	9.38	12.03	11.89		15.37	6.72
50	8.48	10.27	12.3	12.71		16.33	7.15
54	9.05	11.16	12.57	13.44		17.3	7.58
58	9.61	12.05	12.84	14.18		18.26	8.02
62	10.17	12.95	13.12	14.92		19.23	8.45
66	10.73	13.84	13.93	15.14		21.71	8.73
70	11.3	14.73	14.75	18.1		24.2	10.23

4.11. Working in the field

To start working with the seeder, proceed as follows:
- Start the tractor.

- Start the seeder (START/STOP button).

- Switch on the blower and the metering roller - on the right of the Starter controller (to start sowing).

Note: If the speed sensor is connected, do not start the blower or the metering roller - the seeder automatically starts working when the tractor starts driving.
- Every time the tractor reaches a headland, press the metering roller's button (the roller stops feeding the seeds) and press it again to resume sowing (the roller starts feeding the seeds again).
- After work, first switch off the metering roller, then the blower and finally the whole seeder (START/STOP button).

When working in the field, pay attention to the following:
- The blower is on all the time.
- The sowing dose is maintained.
- The seeds are uniformly distributed on the metering plates.
- The height of the metering plates above the ground (ca. 20 - 40 cm).
- The inclination angle of the plates against the ground (the recommended angle is 90 degrees).
- The position of the seed feeding lines - they should be slightly tense, with no folds, possibly oriented downwards (or horizontally).
- The tank is closed tight.

4.12. Tank emptying

To empty the tank, similarly as to the calibration test, remove the cover which guards the metering roller, mount the plate used for calibration test and put the bag for collecting the seeds. On the Starter FP series controller, use the "tank emptying" function and activate it. After emptying the tank, press the "START/STOP" button to stop emptying.

Always switch off the electronic panel first and then remove the electric power supply plug.

5. Daily Maintenance.

Observe the safety instructions for daily maintenance. Your machine has been designed and built to achieve maximum efficiency, profitability and comfort in a variety of working conditions. Your machine has been inspected at the factory and by our distributor before delivery, to ensure that you receive the machine in excellent condition. In order to keep the machine in perfect working condition, perform the daily maintenance at the indicated intervals.

In order to keep the machine in good condition and achieve optimum performance at all time, it is necessary to clean and perform the maintenance work on the machine at regular intervals. Hydraulic assemblies and bearings may not be washed with a high-pressure cleaner, or with direct water jets. Gears, bolted joints and bearings are not sealed id washed with water under VERY high pressure.

5.1. Maintenance Intervals

Maintenance intervals are determined by a number of factors. They are affected, for example, by different working conditions, weather conditions, driving and operating speeds, formation of dust, soil type, etc., the quality of the lubricants and preservatives used, which determine the length of time to carry out the next maintenance work.

The indicated review intervals can therefore only serve as reference points. When we go away of the normal conditions of use, the periods between maintenance works must be adapted to these conditions:

1/ After the first 10 hours of operation:

- Check tightness of all bolts and nuts.
- Check the hydraulic system (for tightness).
- Check the tightness of the wheel nuts.
- Carry out complete machine diagnostics to ensure there is no problem.
- Clean the machine from the soil.

2/ After the first 50 hours of operation

- Check tightness of all bolts and nuts.
- Check the hydraulic system (for tightness).
- Check the tightness of the wheel nuts.
- Carry out complete machine diagnostics to ensure there is no problem.
- Lubricate the articulated joints provided with the grease nipples.
- Clean the machine from the soil.

5.2. Storage

If the machine will not be used for a longer period of time:

- Store the machine in a roofed area, if possible.
- Disconnect the electrical controls and place them in a dry place.
- Secure the machine against rust. Spray the oil that is readily biodegradable, e.g. rapeseed oil.
- Protect piston rods of hydraulic cylinders against rust.

Do not spray oil or any anti-corrosion agent on plastic or rubber parts, as they may become brittle and break.

Cleaning

Before every folding of the machine, it should absolutely be cleaned of dust settled under the cylinder. Build-up of soil, stones or other material may damage the cylinder. Failure to follow this instruction may void the warranty

Hygiene

The use of lubricants and mineral substances is in line with the recommendations and is not dangerous. However, you should avoid prolonged contact with the skin, and do not inhale their vapours.

Handling the lubricants.

CAUTION:

Protect yourself against direct contact with lubricants by wearing protective gloves or using protective creams.

Wash any traces of lubricants on the skin thoroughly with warm water and soap. Do not clean the skin with petrol or diesel fuel or with other detergents.

The oil is poisonous. If you have swallowed oil, consult a physician immediately.

- Keep lubricants out of the reach of children.
- Never store lubricants in open containers or in containers without a description.
- Avoid skin contact with clothes that are soaked or stained with oil. When the clothing is dirty, it must be changed.
- Do not keep cleaning clothes that are soaked in oil in pockets.
- Get rid of oil-soaked shoes and treat them as hazardous waste.
- If oil gets in your eyes, rinse them with clean water and consult a physician, if necessary.
- Absorb spillage with the help of a sorbent material and dispose of.
- In the case of oil ignition, never extinguish it with water. To do this, use appropriate, authorized extinguishing agents and wear a respiratory protection device.
- Waste contaminated with oil and used oils must be disposed of in accordance with applicable regulations.

5.3. Hydraulic System Maintenance and Use.

Caution: The risk of infection caused by hydraulic oil ejecting under high pressure that penetrates the skin.

- Work with the hydraulic system should be carried out in a specialist workshop.
- Completely depressurize the hydraulic system before starting any work.
- Use appropriate tools to detect leaks.
- Never stop oil leakage with your hands or fingers.
- Liquid ejecting under high pressure (hydraulic oil) may penetrate the skin and cause serious injury.
- In the case of injuries caused by hydraulic oil, consult a physician immediately. The risk of infection!
- When connecting the hydraulic hoses of the machine with the tractor hydraulic system, make sure that the hydraulic systems of the tractor and machine are not under pressure.
- Check the correctness of connecting the hydraulic hoses.
- Regularly check that the hydraulic hoses, connectors and sockets are in good condition and clean.
- Have the hydraulic hoses inspected by a specialist at least once a year, in order to ensure they are in good condition.
- Damaged or worn hydraulic hoses must be replaced with new ones.
- Use only original hydraulic hoses.
- The service life of hydraulic hoses must not exceed 6 years, including the storage time of the machine, for a maximum of two years. Even in the case of proper storage and observance of the instructions for use, hoses, hydraulic hoses and connections are getting old, which is completely normal, hence the limitation of their storage and working time. However, the time of use may depend on empirical factors, in particular taking into account the potential risks. With regard to hoses and thermoplastic hydraulic hoses, other reference parameters may also be taken into account.
- Disposal of used oils must comply with applicable regulations. In the event of a problem, please contact your oil dealer.
- Store hydraulic oils out of the reach of children.
- Be careful not to contaminate the ground or water with hydraulic oil!

After the first 10 hours of operation, and then, after every 50 hours of operation

1. Check all components of the hydraulic system for tightness.

2. If necessary, tighten the connectors.

Before each start-up

1. Visually inspect the condition of the hydraulic hoses for any defects.

2. Eliminate points of friction of pipes and hoses.

3. Damaged or worn hydraulic hoses must be replaced immediately.

Inspection criteria for hydraulic hoses.

For your own safety, observe the following review criteria:

Replace the hydraulic hoses if, during the review, you find one of the following:

- Damage to the outer layer up to the reinforcement (e.g. abrasion areas, cracks, crevices, scratches, etc.).
- Crushing of the outer layer (formation of cracks).
- Deformations that do not correspond to the natural shape of the hose or pipe, under pressure or without pressure, or during bending (e.g. separation of layers, formation of bubbles, spot crumbling, cracks, crumbling of bending points, etc.).
- Leaks.
- Damage or deformation of a tip (affecting the seal), (minor surface defects do not constitute grounds for replacement).
- The hydraulic hose disconnects from the terminal (connector).
- Corrosion of a tip (connector), resulting in reduced performance and reliability.
- Failure to comply with the installation specifications.

Assembly and disassembly of hydraulic hoses

The following instructions must be strictly observed when assembling or disassembling hydraulic hoses:

- Use only genuine hydraulic hoses.
- Always take care of cleanliness.
- When assembling hydraulic hoses, they must be mounted in such a way that in each operating condition:
  - ✓ They were not exposed to stretching, other than that exerted by their own weight.
  - ✓ They were not subject to crushing on short sections.
  - ✓ They were not exposed to external mechanical influences.
  - ✓ The friction of the hoses against the machine components or between them was avoided; for this purpose, they should be correctly positioned and fastened. Otherwise, the hydraulic lines should be protected with covers. Cover the components with sharp edges.
  - ✓ The admissible bending angle was not exceeded.
- If a hydraulic hose is connected to moving parts, the length of the hose should be measured in such a way that the total movement range was not less than the smallest allowable radius of bend and/or that the line was not otherwise subjected to friction.
- Hydraulic hoses should be fastened in places provided for this purpose. Therefore, avoid such brackets that obstruct the natural movement and modification of the length of the line.
  Hydraulic hoses must not be painted.

6. Disassembly and decommissioning.

The user of the machine, in accordance with the provisions on environmental protection, is obliged to conduct proper waste management agreed with the relevant local self-government authorities.

As part of these activities, at the time of replacement and scrapping of parts and assemblies or liquidation of the entire device, the user should:

- parts that are still suitable for further use can be preserved and stored in the warehouse,
- the scrap metal parts must be handed over to the scrap collection point,
- components made of cardboard, paper, plastics, rubber, etc., should be transferred to points dealing with the purchase of recyclable materials,
- used oil from meshing devices should be handed over to companies managing the collection of used oils and lubricants; otherwise, follow local regulations regarding waste management for environmental protection.

7. Manufacturer's Liability.

The manufacturer shall not be liable, if the machine is operated contrary to the law, safety regulations or recommendations of this manual. Because, during operation of the machine, situations not provided for in this manual may occur, the user should always follow the general safety rules.

The manufacturer's responsibility shall be excluded in the event of arbitrary use on the machine spare parts or parts other than genuine or approved by the manufacturer.

The manufacturer shall not be liable for indirect damages, including damage to other machines or devices.

The manufacturer shall not be responsible for the wrong selection of seeds, their type or quantity. If your own experience in this area proves to be insufficient, you should ask a specialist for help.

The manufacturer's liability shall not cover improper (or departing from expected) work results. In any case, the user must control and supervise the cultivation and sowing to ensure that the sown dose is correct under all operating conditions. The user should also constantly check the correctness of sowing.

The owner is responsible for the operation and maintenance of the machine.

The owner of the machine is responsible for the appropriate qualifications of the operators and their knowledge of the operation and maintenance of the machine.

It should be remembered that improper operation of the machine poses a risk to people, animals, water reservoirs and arable fields. Always follow the instructions of manufacturers of machines and devices, seeds as well as plant protection products and fertilizers, contained in specialist instructions.

DESIGN SOLUTIONS OTHER THAN SHOWN HERE AND THOSE THAT DO NOT REQUIRE CHANGE OF THE MANUAL ARE ALSO ALLOWED.

8. Warranty Terms and Conditions.

The warranty covers defects and damages resulting from the fault of the manufacturer due to material defects, poor machining or assembly.

NOTE

The manufacturer / vendor / shall not accept the warranty claim if:

1 - THE CONTENT OF THIS MANUAL IS NOT FOLLOWED;

2 - ANY TECHNICAL MODIFICATIONS AND REPAIRS HAVE BEEN MADE WITHOUT THE CONSENT OF THE MANUFACTURER;

3 - THE MACHINE OR ITS ACCESSORIES HAVE BEEN IMPROPERLY STORED, MAINTAINED AND USED;

4 - THE WARRANTY CARD IS NOT BE FILLED BY THE VENDOR OR IT IS INCOMPLETE.

The warranty does not cover wear and tear parts that have worn out due to normal use.

Rubber and plastic components are only covered by the warranty in the case of obvious material defects.

NOTES AND REMARKS

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