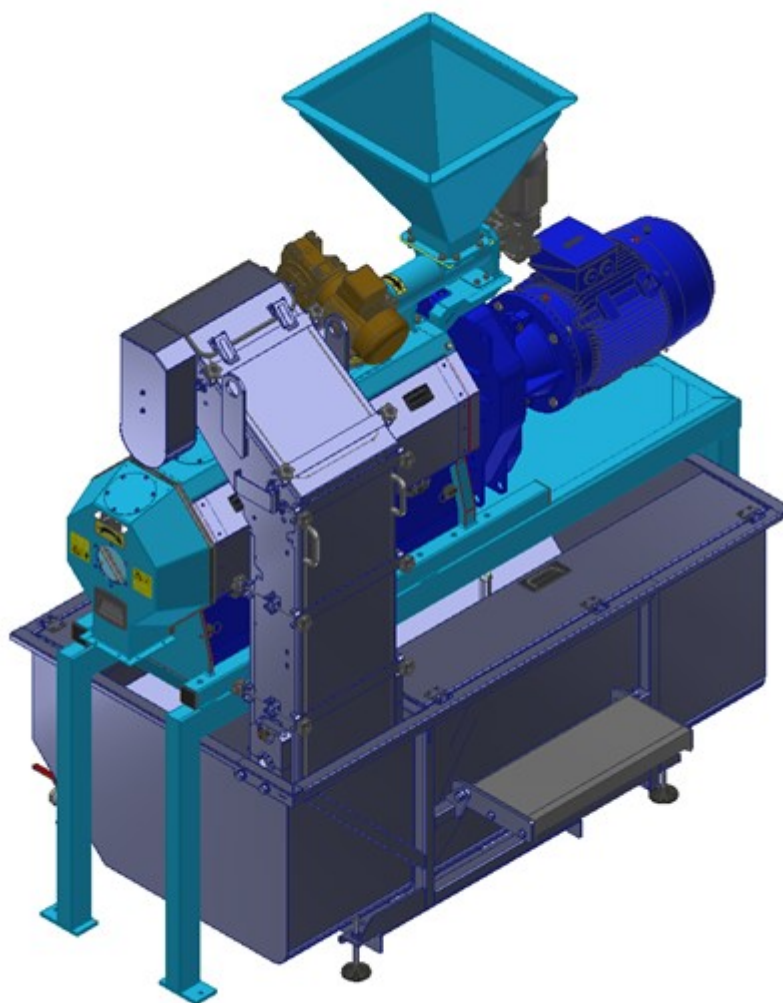


# OPERATING MANUAL

## Solid particles separator FIS 350



**Farmet a. s.**

Jiřínková 276

552 03 Česká Skalice

Czech Republic

Phone: +420 491 450 161

Fax: +420 491 450 129

E-mail: [oft@farmet.cz](mailto:oft@farmet.cz), [servis\\_oft@farmet.cz](mailto:servis_oft@farmet.cz)

[www.farmet.cz](http://www.farmet.cz)

Date of issue: 1.7. 2019

Issue number: 1.2

Subject to changes

**Issued by: Farmet a.s.**

Jřinková 276  
55203 Česká Skalice,  
Czech Republic

## Introduction

Dear Customer,

Your device is a high-quality product of Farmet a.s. Česká Skalice. You can fully utilise the advantages and qualities of the Equipment after thoroughly studying the operating manual.

The serial number of the Equipment is punched on the production label and written in the operating manual. The Equipment serial number must be stated whenever ordering spare parts for possible repairs. The production label is located on the basic frame by the gearbox.

Only use spare parts for the Equipment according to the **Spare Parts Catalogue** officially issued by the manufacturer, Farmet a.s. Ceska Skalice. The spare parts are identified by a catalogue number (e.g. LAMELA – 2900133).

### Possibilities of the Use of Your Equipment

The equipment is designed for separating solid particles from vegetable oil and returning coarse particles for repeated pressing.

				Farmet a.s. Jiřínková 276 Česká Skalice CZECH REPUBLIC
TYP / TYPE	.....			
ROK VÝROBY / VÝROBNÍ ČÍSLO YEAR OF PRODUCTION / SERIAL NUMBER	20../....			
HMOTNOST / WEIGHT	.....	kg		
PŘÍKON / INPUT	...	kW		

## **IMPORTANT**

**READ CAREFULLY BEFORE USE**

**KEEP FOR FUTURE REFERENCE**

## CONTENTS

INTRODUCTION .....	3
1 LIMIT PARAMETERS OF THE EQUIPMENT .....	7
2 SAFETY MESSAGES .....	8
3 DESCRIPTION OF THE EQUIPMENT .....	11
4 ON-SITE ASSEMBLY AND INSTALLATION OF THE EQUIPMENT .....	12
5 ACTIVATION AND SHUTDOWN .....	13
5.1 SAFETY INSTRUCTIONS FOR THE OPERATOR .....	13
5.2 INSPECTION OF THE EQUIPMENT BEFORE ACTIVATION .....	14
5.3 ACTIVATION OF DEVICE .....	14
5.4 SHUTDOWN OF THE EQUIPMENT .....	15
6 OPERATION OF THE EQUIPMENT .....	16
6.1 INSPECTION OF THE OPERATING VALUES AND PARAMETERS .....	16
6.2 BREAKDOWN .....	16
6.3 OPERATING DIARY .....	16
7 ADJUSTING OPERATING MECHANISMS .....	17
8 MAINTENANCE AND REPAIRS OF THE EQUIPMENT .....	18
8.1 GENERAL INSTRUCTIONS .....	18
8.2 REGULAR MAINTENANCE AND REPAIRS .....	19
8.3 DISASSEMBLY AND ASSEMBLY OF THE EQUIPMENT PARTS .....	19
8.4 FIX THE SEPARATOR TO THE FRAME OF THE PRESS PAN .....	20
8.5 ASSESSING THE DETERIORATION OF THE OPERATING MECHANISMS OF THE EQUIPMENT .....	21
9 MACHINE DISPOSAL, ENVIRONMENTAL PROTECTION .....	22
10 SERVICE AND WARRANTY TERMS .....	23
10.1 SERVICE .....	23
10.2 WARRANTY .....	23



## 1 LIMIT PARAMETERS OF THE EQUIPMENT







The Equipment is designed to be operated in interiors with ambient temperature from 15 °C to 35 °C and relative humidity from 10 % to 90 % without condensation.

The Equipment is designed for continuous operation with periodical inspections and regularly performed maintenance.



The Operator must not use the equipment for any other purposes, especially for:










- for separating materials other than solid particles present in vegetable oil after screw pressing.

## 2 SAFETY MESSAGES



Symbol	Meaning
	The general warning symbol identifies important information regarding the safety instructions in the instruction manual and safety signs on your machine. If you see this warning sign, be aware that there is a risk of injury which may cause death. Instructions labeled this general warning sign must always be observed.
	<b>Danger!</b> This warning sign warns about an immediate dangerous situation ending with death or severe injury.
	<b>Warning!</b> This warning sign warns about a dangerous situation ending with death or severe injury.
	<b>Caution!</b> This warning sign warns about a situation that may end with a smaller or slight injury. It also warns about dangerous actions related to the activity that could lead to an injury.
	The symbol indicates an important instruction, feature or procedure that is required to meet during installation, use and maintenance of equipment. Failure to comply may result in equipment damage.
	Symbol indicates useful information related to equipment.

### A. GENERAL INSTRUCTIONS FOR USE

	A.1 Obsluha se musí se zařízením, jeho funkcí a ovládacími prvky podrobně seznámit ještě před jeho prvním použitím.
	<p>A.2 The Operator must get acquainted with the Equipment, its function and control elements prior to its first use.</p> <ul style="list-style-type: none"> <li>• The Operator must be demonstrably informed of the safety regulations for the operation of the Equipment and the operation of the technological unit in which it is installed and must be practically able to control the operation of the Equipment.</li> <li>• The Equipment must not be operated by a minor (person below 18 years of age).</li> <li>• The Operator must know the meaning of the safety signs placed on the Equipment. The safety signs must be respected to ensure a safe and reliable operation.</li> </ul>

	<p><b>A.3</b> Maintenance and servicing repairs on the Equipment may only be performed by a person:</p>
	<ul style="list-style-type: none"> <li>• Authorised by the Owner</li> <li>• Educated in the machinery field with knowledge of repairs of similar equipment</li> <li>• Demonstrably acquainted with safety regulations for work with the Equipment</li> </ul>
	<p><b>A.4</b> The Operator must secure the safety of other persons when working with the Equipment.</p>
	<p><b>A.5</b> The Operator may only enter the Equipment structure when the Equipment is in standstill and only for the following reasons:</p>
	<ul style="list-style-type: none"> <li>• Adjustment of the working parts of the Equipment</li> <li>• Repair and maintenance of the Equipment</li> </ul>
	<p><b>A.6</b> Any changes or modifications of the Equipment may only be performed with written consent of the Producer. The Producer bears no liability for any potential damage incurred due to the failure to observe this instruction. All warning and safety signs must be legible and in their places. In case of damage or loss, these signs must be immediately renewed.</p>
	<p><b>A.7</b> The Operator must have the Operating Manual with the work safety requirements available at any time when working with the Equipment.</p>
	<p><b>A.8</b> The Operator must not consume alcohol, medicines, narcotic and hallucinogenic substances that reduce attention and coordination capabilities while using the Equipment. If the Operator must use medicines prescribed by a physician or uses over-the-counter medicines, he must be informed by a physician, whether he is capable of a responsible and safe operation of the Equipment under such circumstances.</p>
	<p><b>A.9</b> The Equipment may be activated provided that it is technically fit and complies with regulations for safety and hygiene at work and provided that it is used in compliance with the terms and conditions specified by the Producer.</p>
	<p><b>A.10</b> When working with the Equipment, follow the instructions in this Operating Manual as well as generally binding regulations for safety at work, protection of health, fire and traffic safety and protection of the environment.</p>
	<p><b>A.11</b> Do not use water to extinguish fire of electric equipment. In case of fire, follow the valid fire regulations.</p>

## B. TRANSPORTING THE EQUIPMENT

	<p><b>B.1</b>The vehicle intended for the transportation of the Equipment must have at least the same bearing capacity as the weight of the transported Equipment is. The total weight of the Equipment is stated on the nameplate.</p>
	<p><b>B.2</b>The dimensions of the transported Equipment including the vehicle must comply with valid acts and regulations, e. g. Decree No. 102/1995 for road transportation.</p>

	<b>B.3</b> The transported Equipment must be always attached to the vehicle so that it cannot be released during transportation.
	<b>B.4</b> The carrier is liable for damages caused by the release of incorrectly or insufficiently attached Equipment to the vehicle.

**C. MANIPULATING THE EQUIPMENT BY A LIFTING DEVICE**

	<b>C.1</b> The lifting device and binding instruments intended for manipulation with the Equipment must have at least the same bearing capacity as the weight of the manipulated Equipment is.
	<b>C.2</b> The Equipment may only be attached for manipulation in designated places marked by stick-on labels showing a “chain”.
	<b>C.3</b> When attached (suspended) in designated places, it is not allowed to move in the area of a potential reach of the manipulated Equipment.

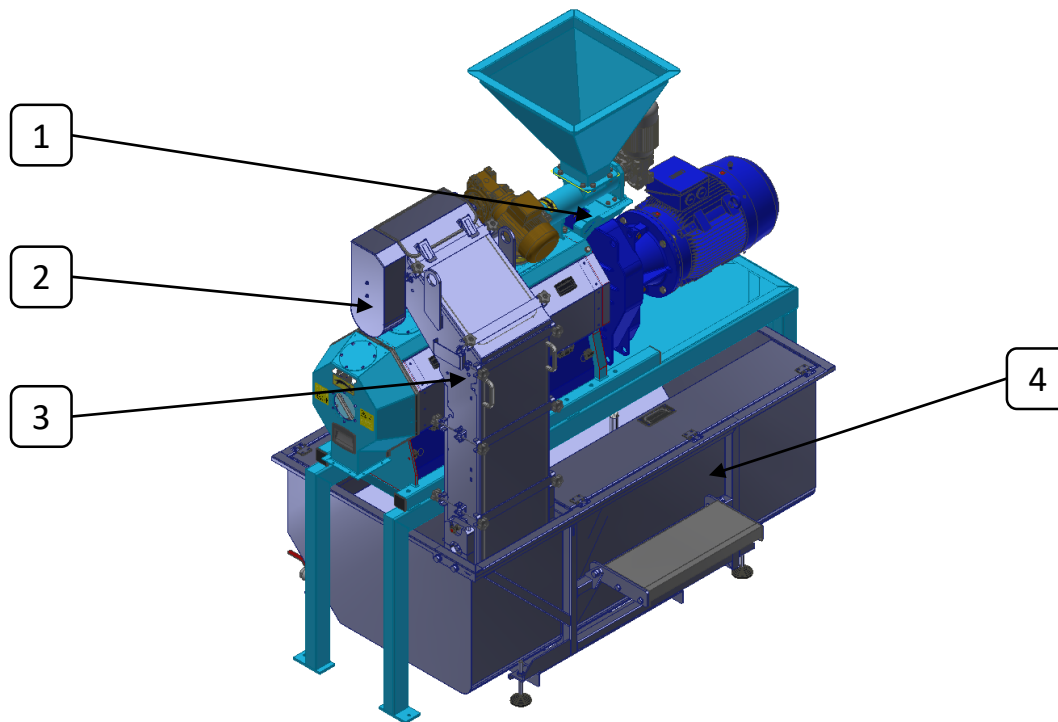
**D. WORK SAFETY LABELS**

	<p><b>The warning safety labels are used for the Operator’s protection.</b></p> <p><b>The following applies generally:</b></p> <ul style="list-style-type: none"> <li>• Strictly observe the warning safety labels.</li> <li>• All safety instructions also apply to other users.</li> <li>• If the aforementioned “<b>SAFETY LABEL</b>” located on the Equipment is damaged or destroyed, <b>THE OPERATOR MUST REPLACE IT WITH A NEW ONE!!!</b></li> <li>• The position, appearance and exact meaning of work safety labels on the Equipment are given in the following table and figure</li> </ul>
--	--

Tab. 1 : Warning Safety Labels

WARNING SAFETY LABEL	TEXT OF THE LABEL	POSITION ON THE EQUIPMENT
	Read the Operating Manual carefully prior to manipulation with the Equipment. Observe the instructions and safety rules when operating the Equipment.	<b>P 1 H</b>
	Do not remove the gearbox cover and never intervene with the gearbox unless the Equipment is in standby and the engine is turned off.	<b>P 9 H</b>

### 3 DESCRIPTION OF THE EQUIPMENT



*Figure 1 - Description of the equipment*

1. Press FS350
2. Dosing conveyors of solid particle return
3. Solid particle discharge
4. Sedimentation pan

The sedimentation pan is a stainless-steel vessel used for the sedimentation of solid particles. The sedimented particles are transported by discharge rakes and dosing conveyor for repeated pressing. The oil from the separated sediment flows through sieves back into the sedimentation pan. The pan also has flanges for pumping oil for further handling

## 4 ON-SITE ASSEMBLY AND INSTALLATION OF THE EQUIPMENT

- The Owner must perform the assembly according to the instructions of the Producer, best in cooperation with an expert servicing technician assigned by the Producer.



The Owner must secure a functional test of all assembled parts after the completion of the Equipment assembly.

- The wiring must be executed in compliance with valid standards and documented by a revision. Any repairs, modifications and other work on the wiring may only be performed by authorized persons with corresponding electrical qualifications.
- The spatial organization of the pressing shop must ensure free access to the Equipment so that it is possible to perform its maintenance and service without any difficulties.
- If more than one piece of equipment is installed in the pressing shop, make sure that the individual control elements, boxes and equipment are clearly and visibly marked so that there is no confusion in case an emergency stop is required.
- When installing the Equipment, make sure that the Equipment is accessible for the purpose of maintenance and oil change (access to the outlet and inlet openings, oil level gauges, air release plugs and sight holes).
- The Equipment may be installed on a floor with the bearing capacity specified in the project.
- The Equipment is oriented according to the technological disposition.
- Make sure that there are tools available. It is also suitable to provide all other equipment required for maintenance, such as various hand tools, crowbars and lifting devices.
- Check the direction of turning for all rotary devices.

### **WARNING**

---



Do not reposition the equipment with oil in the sedimentation tank. When moving the tank, always empty the sedimentation tank.

---

## 5 ACTIVATION AND SHUTDOWN

The operation of the Equipment is designed as automated with a regular inspection round. Statuses and important process parameters are displayed on the TOUCH screen of the distributor and the control PC in the control room.

The control system checks a whole range of quantities and parameters and evaluates the seriousness of their potential excess. When incorrect values appear, the Operator is optically notified by the control panel; also accompanied by a sound signal in emergency. If the deviation is significant or dangerous, the system will activate a shutdown of the technology. All equipment is immediately stopped in case of the occurrence of truly hazardous parameters or when the CENTRAL STOP circuit is activated.

### 5.1 SAFETY INSTRUCTIONS FOR THE OPERATOR



**The Operator must not:**

- **Activate or use the Equipment when the covers are removed or damaged**
- **Touch the moving parts of the Equipment**
- **Work with the Equipment when the working area of the Equipment and the workstation are not sufficiently illuminated**
- **Perform the maintenance, cleaning, repairs and adjustments of the Equipment when in operation**
- **Discard and remove safety protective and locking devices**
- **Take off or remove the covers unless the machine is in complete standstill and the shutdown condition has been secured**
- **start the equipment without oil in the sedimentation bath**

- The Operator must get acquainted with the Equipment, its function and control elements prior to its first use.



The Operator must check the Equipment with regard to its completeness, work safety, work hygiene, fire safety, traffic safety and protection of the environment prior to each use (activation after a shutdown).

- The Operator is responsible for the safety and all damages caused by the operation of the Equipment.
- The Operator must observe the technical and safety regulations for the Equipment specified by the Producer.
- The Operator must prevent unauthorized access to the rotary parts of the Equipment.
- Check the condition of the Equipment prior to its activation. It is forbidden to active the Equipment when showing signs of damage.
- It is required to use working clothes, gloves, shoes with anti-slip soles and protective goggles when operating the Equipment.
- It is recommended to use anti-noise protectors when moving around the pressing shop. It is a workplace with periodical supervision and operation.
- The Operator must keep the workplace clean and in order and must check and clean the functional elements.
- Do not use water to extinguish fire on electrical devices. A dry powder or foam extinguisher must be available by the Equipment and the Operator must be informed of its application. A water or foam extinguisher may only be used after the electrical devices have demonstrably been disconnected from the power supply.

## **5.2 INSPECTION OF THE EQUIPMENT BEFORE ACTIVATION**

Clean the conveyors and clean any other equipment components from impurities and metal objects. Note: Metal objects and similar impurities may cause serious damage to the press if they get inside.

Prior to the activation, check the intactness of control panels, cable distributors and cables and their functionality.

Check that the separator is correctly attached to the frame of the sedimentation pan according to Chapter 8.4., correct separator attachment to the press and correct locking of separator tilting.

Switch the discharge rake motor on for a short time to make sure that it runs in the proper direction and smoothly.

## **5.3 Activation of device**

- Check the minimum level of oil in the sedimentation tank. The lower rolls of the discharge rakes must be submerged in pressed oil.
- After a longer shutdown without emptying the pan, mix the oil in the sedimentation pan using the pump before starting the separation.

- Before starting the separation, switch the press on and bring it to a steady state.
- Switch the solid particle separator on and check its correct function.
- If you increase the dosing or if the press is cold, the press may become oiled up (the material stops moving in the press working unit, the power input of the press decreases and the material starts to accumulate in the press hopper). In that case, shut down the solid particles separator and follow the operating manual.

#### **5.4 SHUTDOWN OF THE EQUIPMENT**

- The separator is shut off by switching off the separator drive.

For long-term shutdowns, it is recommended to empty the sedimentation pan and clean the entire pan and separator equipment. This will avoid any trouble with restarting the equipment.

## 6 OPERATION OF THE EQUIPMENT



### 6.1 INSPECTION OF THE OPERATING VALUES AND PARAMETERS

The Equipment may work continuously with regular inspections provided that a regular feed of material has been ensured.

Many problems and defects may be prevented by regular inspection rounds, **during which you should check:**

- **Noise, vibrations** – increase in noise, banging, creaking or vibrations may signal wear or malfunction – of bearings and other components. If such a noise is present, try to identify its location and inform your service technician, or the Producer’s service.

### 6.2 BREAKDOWN

	<p><b>Warning!</b> In case of an unnaturally loud noise coming from the Equipment (banging, creaking, blows) or in case of smoke or any other dangerous situation, immediately stop the material feed. If there is a risk of injury of the employees or damage to the property or the Equipment, immediately stop the Equipment, contact the service centre.</p>
	<p><b>Warning!</b> The Equipment may only be activated again after the cause of the breakdown has been identified and removed.</p>

Please, contact the service centre in case of any uncertainties or unknown failures. The contact information is provided on the title page of the Operating Manual.

### 6.3 Operating diary

The recommendations for keeping an operating diary are provided in the annex to the Operating Manual.

## 7 ADJUSTING OPERATING MECHANISMS

- When adjusting the operating mechanisms of the Equipment, the Operator must follow the recommended values specified in the Operating Manual. Always observe the principles of safe operation of the Equipment and instructions provided in *Chapter 5.1* and *Chapter A*.
- The Operator may only adjust the operating mechanisms when the Equipment is in standstill, i.e. the Equipment is not operating. When adjusting the operating mechanisms, always turn the Equipment off and place a sign on the control cabinet stating “DO NOT TURN ON, THE EQUIPMENT IS BEING REPAIRED!”
- The device is factory-adjusted.

## 8 MAINTENANCE AND REPAIRS OF THE EQUIPMENT

Before the Equipment leaves the production plant, due diligence is ensured for a trouble-free operation. However, proper lubrication and maintenance are required for a due performance of the Equipment. If you need any other information that is not provided in the Operating Manual, do not hesitate to contact the service centre and remember to provide the serial number of the Equipment. The serial number of the Equipment is stated on the name-plate. The contact information of the production plant is provided on the title page of the Operating Manual.

In case of any repairs or maintenance works, it is required that the parts are properly cleaned and kept clean.

The Equipment suffers when it is not regularly and carefully maintained due to its robust structure. A failure to provide basic maintenance may have a negative effect on the reliable operation and the technical parameters of the Equipment.

### 8.1 GENERAL INSTRUCTIONS



Any work on the Equipment (maintenance, assembly) may only be executed when the Equipment is in standstill and secured from accidental activation it is required to place a sign on the main switch stating ***“DO NOT TURN ON, THE EQUIPMENT IS WORKED ON”***.

- You must follow the safety regulations according to items A-D/p. 12 -15 in case of any repairs or maintenance.
- Make sure that a safe work method has been specified and that the proper tools, instruments and equipment are available.
- Check the tightness of all assembly points on the Equipment after the first 200 hours of operation; then continuously as needed.
- Lubricate all lubrication spots according to the lubrication plan for the Equipment.
- When executing adjustments, cleaning, maintenance and repair of the Equipment, secure the parts of the Equipment that could endanger the Operator by fall or another movement.
- During repairs of the Equipment, use exclusively genuine spare parts, suitable tools and protective equipment.
- Keep the Equipment clean, particularly the parts that heat up (engine, gearbox...).
- It is forbidden to use a high-pressure appliance to clean the Equipment.
- Check the status of the oil in the gearbox prior to the activation of the Equipment.
- Check the proper function of the Equipment at least 3 x per hour.

- In case of a long shutdown, empty the Equipment and protect it against corrosion with suitable agents.
- Perform all jobs in a dutiful way and with thoroughly trained staff. The intervals for maintenance, inspections and repairs depend on the experience of the Operator. Therefore, there is no generally valid regulation for such works.
- Do not use brute force during repairs or maintenance.
- Mark the mutual positions of the components prior to disassembly.
- Wash the parts with a cleaning agent prior to assembly. Lubricate the functional surfaces of the parts prior to assembly.
- When executing repairs, avoid dropping any tools or parts into the Equipment. Any object that falls into the Equipment or the gearbox or the electromotor must be removed as it could cause a breakdown of the Equipment.
- Always test the function of assembled groups to prevent any potential jamming of the moving parts and to check that the relevant clearances have been met etc.

## 8.2 Regular maintenance and repairs

Always perform all the jobs in a dutiful way and with thoroughly trained staff. The recommended time intervals are stated in time for continuous operation / in motor-hours for other operations.

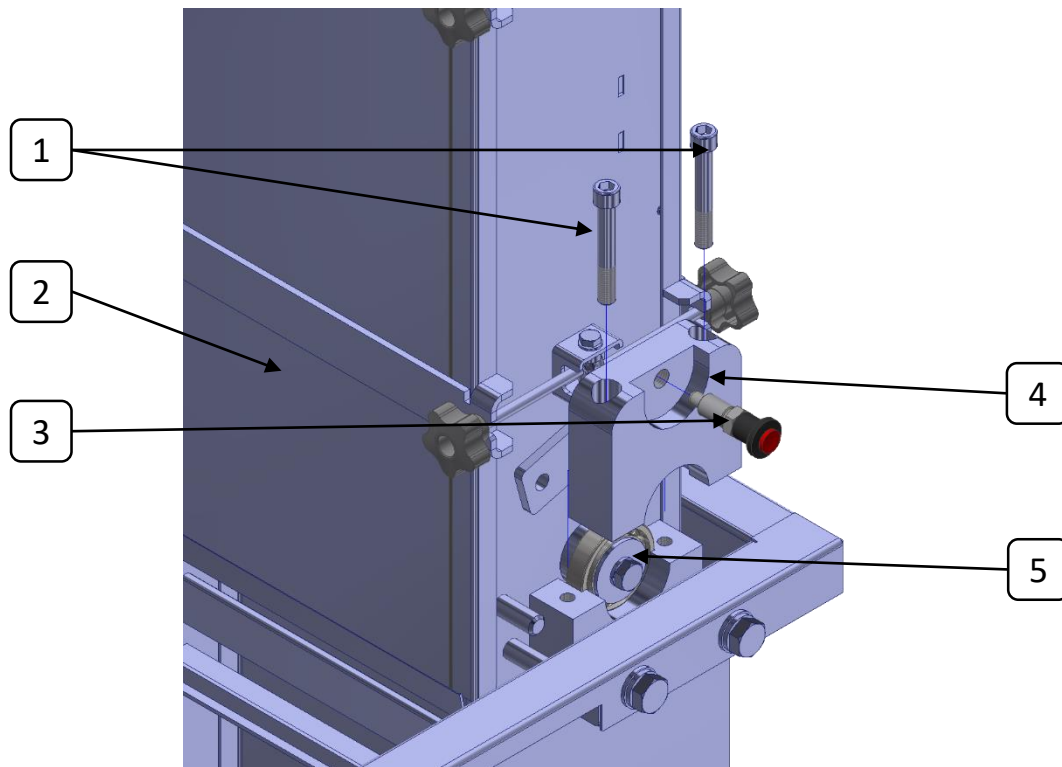
*Tab. 2 : Maintenance schedule*

Job	Activity	Schedule
		5 years
Change of oil	Change the oil in the transmission. Specification ISO VG 320 long life, 0.2 l.	x

## 8.3 DISASSEMBLY AND ASSEMBLY OF THE EQUIPMENT PARTS

When disassembling and assembling the Equipment parts, pay special attention to manipulating heavy weights. The Equipment is disassembled in case of a breakdown of one of its parts or when adjusting the Equipment. When disassembling and assembling the Equipment, always use the Spare Parts Catalogue – it provides detailed installation drawings of the subassemblies of the Equipment.

## 8.4 Fix the separator to the frame of the press pan



*Figure 2 - Fixing the separator*

1. Separator fixing screws
2. Solid particles separator
3. Lock pin
4. Bearing housing
5. Bearing

Assembly and disassembly of the solid particles separator is done by two screws on each bearing housing. The lower part of the housing is attached to the frame of the sedimentation tank. Disassembly and assembly is carried out with the FS350 press already removed.

### Separator installation

- The separator is installed by placing the separator on the lower bearing housing and securing the upper housing part with screws
- Then screw in the locking pin

## **8.5 ASSESSING THE DETERIORATION OF THE OPERATING MECHANISMS OF THE EQUIPMENT**

The operating mechanisms of the Equipment have a limited service life. The service life of the individual parts of the Equipment may be prolonged by observing the instructions for the operation and maintenance provided in the Operating Manual.

Increased deterioration of the operating mechanisms of the Equipment is manifested by a change in the parameters of the Equipment. To assess the level of deterioration of the individual parts of the Equipment, please contact the service centre.

If a deteriorated part needs to be replaced, contact the relevant service centre or a sales representative of Farmet a.s. The list of spare parts with relevant catalogue numbers is provided in the Spare Parts Catalogue.

## **9 MACHINE DISPOSAL, ENVIRONMENTAL PROTECTION.**

- The Owner must ensure that the Equipment is disconnected from the power supply prior to the commencement of disposal.
- The Owner must ensure that steel parts and parts contaminated with the transmission oil and lubrication grease are separated during the disposal of the Equipment.
- The Owner must cut the steel parts according to the safety regulations and deliver them to the usable by-products collecting station. The Owner must follow valid regulations on wastes when disposing other parts.

## **10 SERVICE AND WARRANTY TERMS**

### **10.1 Service**

The service is provided by service centres or directly by the Producer. Only use spare parts according to the Spare Parts Catalogue published by the Producer.

### **10.2 WARRANTY**

The Producer provides guarantee for the Equipment in compliance with the terms and conditions of the Purchase Contract and the General Terms of Trade.

