



VERTICAL MIXER FEEDER USER'S MANUAL

ADDRESS: Fimaks Makina A.Ş.
Bursa yolu 2.km DSİ Karşısı
Karacabey-BURSA TÜRKİYE
TEL: +90.224.6623743
FAX: +90.224.6623747

Internet: www.fimaks.com
E-mail: info@fimaks.com

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1 Introduction

1.1 General

Congratulations with your new FIMAKS Vertical Mixer Feeder

With a FIMAKS you are assured of quality and performance. The FIMAKS Vertical Mixer Feeder was produced after intensive research and tests. One of the main goals was to produce machines meeting the latest norms and prescriptions of the EEC in use, operation, safety, maintenance and lifetime.

Before you put your mixer feeder into use, we ask you to read this manual very carefully. You will get the most benefit from your investment when you follow the instructions in this manual for use and maintenance.

Directional indications such as 'left', 'right', 'front' and 'rear' are to be interpreted when facing in direction of travel, with the mixer feeder attached to the rear of the tractor.

1.1.1 Destination and intended use

- Mixing and cutting of different kinds of cattle-fodder
- Transporting the fodder to the cattle
- Dosing the fodder to the cattle

Every other use than described above excludes your supplier from every responsibility.

1.1.2 Customers

The customers this manual refers to are supposed to be competent and technically skilled persons.

Competent persons are persons who:

- have obtained a certain knowledge by means of course/training (intern course specifically for the mixer feeder) and who are proficient in using the machine.

Technically skilled persons are persons who:

- are competent and who
- have obtained a certain technical knowledge by means of course/training and who
- are acquainted with the technique of the machine and who are aware of the possible dangers and risks





With operating we mean:

adjusting the machine, working with the machine, cleaning and doing simple maintenance.

The goal / function of this manual is to create a safe and efficient interaction between human and machine.

1.1.3 Used symbols

To focus on certain subjects or actions, the following symbols are used.

	<p>WARNING / DANGER OF LIFE <i>You can injure yourself if you don't execute the procedures carefully.</i></p>
	<p>CAREFUL <i>The machine can be damaged if you don't execute the procedures carefully.</i></p>
	<p>ATTENTION <i>A remark with additional information; warns you for possible problems.</i></p>
	<p>TIP <i>Gives you suggestions and advises to make certain tasks easier or handier.</i></p>

For questions or problems this manual doesn't answer, consult your dealer or F MAKS.

1.2 Liability and warranty

- You may not deviate from the intended use mentioned above in any way, without written permission of the manufacturer. If you do, liability and warranty will expire.
- Original FIMAKS accessories can be installed afterwards, if done by the manufacturer or the dealer, in accordance with the assembly and control indications of the manufacturer.
- Modifying the machine is not allowed. All liability and responsibility of the manufacturer will expire. Resulting damage, also damage to third-party, are never covered by the guarantee.
- Before the product left the factory, a lot of care was taken to save you from material and/or manufacturer defects. If these might still appear, FIMAKS will place all parts that show defects after normal use at your disposal, free of charge, till twelve months after delivery (with the exception of wear). This warranty will expire if the use and safety prescriptions in this manual are not completely or not correctly followed up.

2 Technical specifications

	FMV3	FMV 5	FMV 8S	FMV 12S	FMV 10F	FMV 12F	FMV 15F	FMV 20F
Volume	3 m ³	5 m ³	8 m ³	12 m ³	10 m ³	12 m ³	15 m ³	20 m ³
Weight	1100 kg	1600 kg	2250 kg	3000 kg	3850 kg	4050 kg	4250 kg	7060 kg
Maximum Permissible Weight	1200 kg	2000 kg	3200 kg	4800 kg	4000 kg	4800 kg	6000 kg	8000 kg
Weighing System	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional
Number of Loadcells	3	3	4	4	4	4	4	6
Number of Augers	1	1	1	1	1	1	1	2
Auger RPM	50rpm	30 rpm	30 rpm	30 rpm	30 rpm	30 rpm	30 rpm	30 rpm
Number of Knives	0/4	0/4	10 / 5	12 / 6	12 / 6	12 / 6	12 / 6	24 / 12
Number of Counter Knives	2	2	2	2	2	2	2	4
Minimum Power Requirement	21kW / 30 HP	28kW / 40HP	40kW / 54HP	50kW / 68HP	45kW / 61HP	50kW / 68HP	53kW / 75HP	74kW / 100HP
Tyres	2 X (235X75X15)	2 X (700X12)	2 X (12.50-80-15.3)	2 X (4.00-65)	2 X (4.00-65)	2 X (4.00-65)	2 X (4.00-65)	4 X (4.00-65)

3 Safety

3.1 Safety instructions



DANGER OF LIFE

- Starting, working and trialing may never occur in a closed space, in connection with the rise of inhaling the exhaust-gases!
- Look around the machine (and tractor) before driving away and before putting the machine into operation! Pay attention to children! Ensure you have sufficient sight! It is forbidden to stand on the machine during work and transport! Don't stand between the machine and the tractor, unless the vehicle is protected with a handbrake and/or wheel blocks against rolling away! Don't come in the working and danger range of the machine. Stay away from the slewing area of the machine.
- Ensure the machine is attached well to the tow bar. Especially mind locking the pivot with f.e. a split pin. In case of a forced control, perform the same inspection for the extra pull point.
- It is forbidden to access the tub!



WARNING

- Observe the specific indications of this user manual, but also the general applying prescriptions for safety and accident prevention!
- Become familiar with all systems and control elements and their functions, before working with them! During work it's too late for that!
- Before every use, check machine and tractor for safety of work and traffic!
- Read the manual of the p.t.o. carefully, before working with it!
- As a user, wear close-fitting clothing! Avoid loose clothes!
- Always adapt driving speed to the circumstances of surroundings and terrain!
- Don't make any sudden turns when driving up or downhill or transverse on a slope.
- Carried or pulled machines, but also front weights influence the moving behavior, steerability and braking performance! Ensure sufficient braking effect and manageability!
- When turning, take care of the larger width (turning circle) and/or bigger mass (slowness) of the machine!
- The machine may only be operated by one person at a time!
- Secure the machine before leaving the tractor! Shut down the motor and remove the ignition key. In case of electrical control, always deactivate the gear functions and remove the plug.
- When working with the p.t.o., no one is allowed to stand in range of the spinning p.t.o. and the shaft!
- Attach the machine in accordance with the prescriptions and take care of a good connection!
- Take special care when attaching and detaching the machine!
- Only work with machines when the protection is complete, intact and in functional state!
- Immediately repair damage, before you work with the machine again!
- Check hydraulic hoses for damage regularly. Damaged hoses have to be replaced immediately with hoses of prescribed quality (SAE 100 R2A in accordance with DIN 20022/2). Never try to stop up a leakage of an operating motor with your hand. The oil can penetrate the skin and cause blood-poisoning.



CAREFUL

- Verify the chosen rotating direction and the r.p.m. of the p.t.o., before the p.t.o. is switched on. If these are not in correspondence with the rotating direction and the r.p.m. required (look for the decals), change them!
- Never switch on the p.t.o. when the motor is switched off!
- Machines driven by a p.t.o. shaft, as well as the shaft itself, may only be cleaned, greased or adjusted, after the p.t.o. has been switched off, the motor has been shut down and the ignition key has been removed!



ATTENTION

- When driving, the driver's seat has to be taken by the driver at all times.
- Observe the legal prescriptions with relation to road transport. Also mind lights and (side) reflectors!
- Verify:
 - * the maximum admissible axle load of the tractor
 - * the maximum admissible total weight - the maximum admissible transport dimensions
- Always switch off the p.t.o. when it's not used!
- Always mount front weights in accordance with the prescriptions, at the appropriate connection points!

3.2 Safety symbols

To contribute to injury prevention, there are placed an amount of decals at your mixer feeder with safety and warning indications. These draw your attention to risks that are still present when working with the machine, in spite of the safe design. Before putting the machine into use, always read the manual. Always follow up all instructions from the manual.

Check if the decals are all present. If this is not the case, don't work with the machine, but take contact with the dealer.

The decals consist of a picture that represents the danger (with the triangle) and a picture that makes clear how to avoid it. The decals always have to be clean and clearly legible. When damaged, always replace the decal. These are obtainable from your dealer.

3.2.1 Explanation of used safety symbols



Danger of life

Driving along on the mixer feeder between tractor and mixer feeder is dangerous. It is forbidden to stand on the mixer feeder when it's moving.



Warning

Tamping the fodder can cause severe damage to the machine.

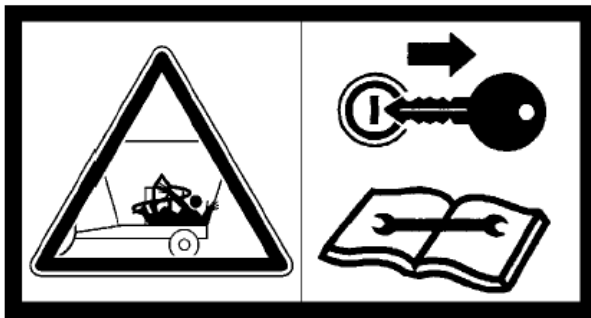
Let the fodder fall slowly into the tub and wait until it is cut, before you continue loading.



Danger of life

Falling into a working machine can cause serious physical injuries.

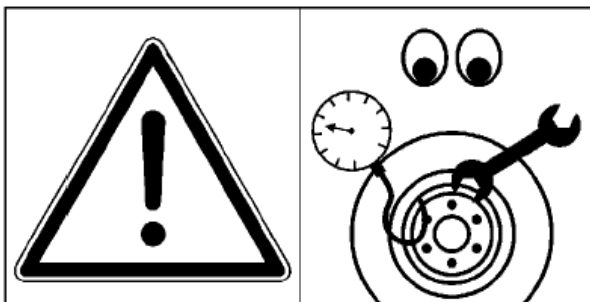
It is forbidden to stand above the machine when the auger is rotating.



Warning

Working at the auger can cause injuries to hands, feet and other physical damage.

When maintaining or repairing, always shut down the motor, remove the ignition key, read the manual and follow the instructions in the manual carefully.



Warning

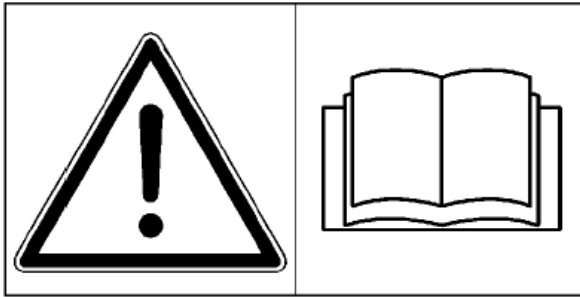
After the first operating hour and then after every 10 operating hours, tighten the wheel nuts and check the tire pressure.



Warning

Touching the drive shaft can cause serious physical injuries.

Stay out of the range of the rotating drive shaft. Only wear close-fitting clothing.



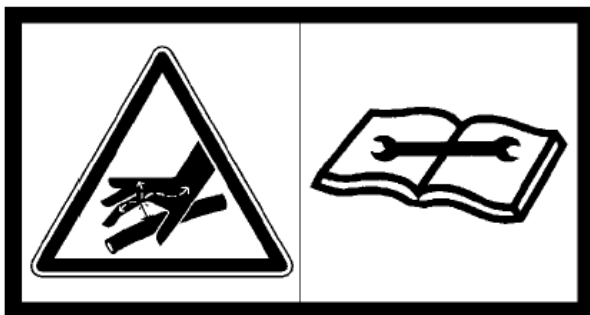
Warning

Before putting the machine into use, always read and observe the manual and the safety instructions.



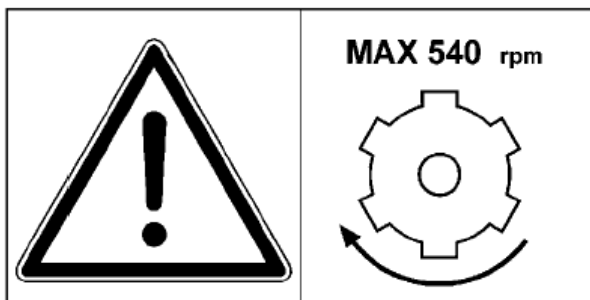
Warning

Touching the auger and the knives can cause injuries.
Don't come in the radius of the rotating auger when the unloading door is open.



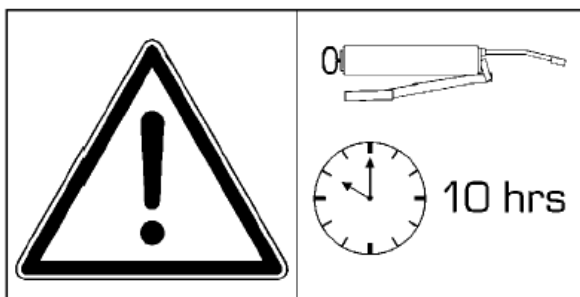
Warning

Defect hoses can cause physical damage and environment pollution.
You are only allowed to work on the hydraulic system when the system is pressureless.



Warning

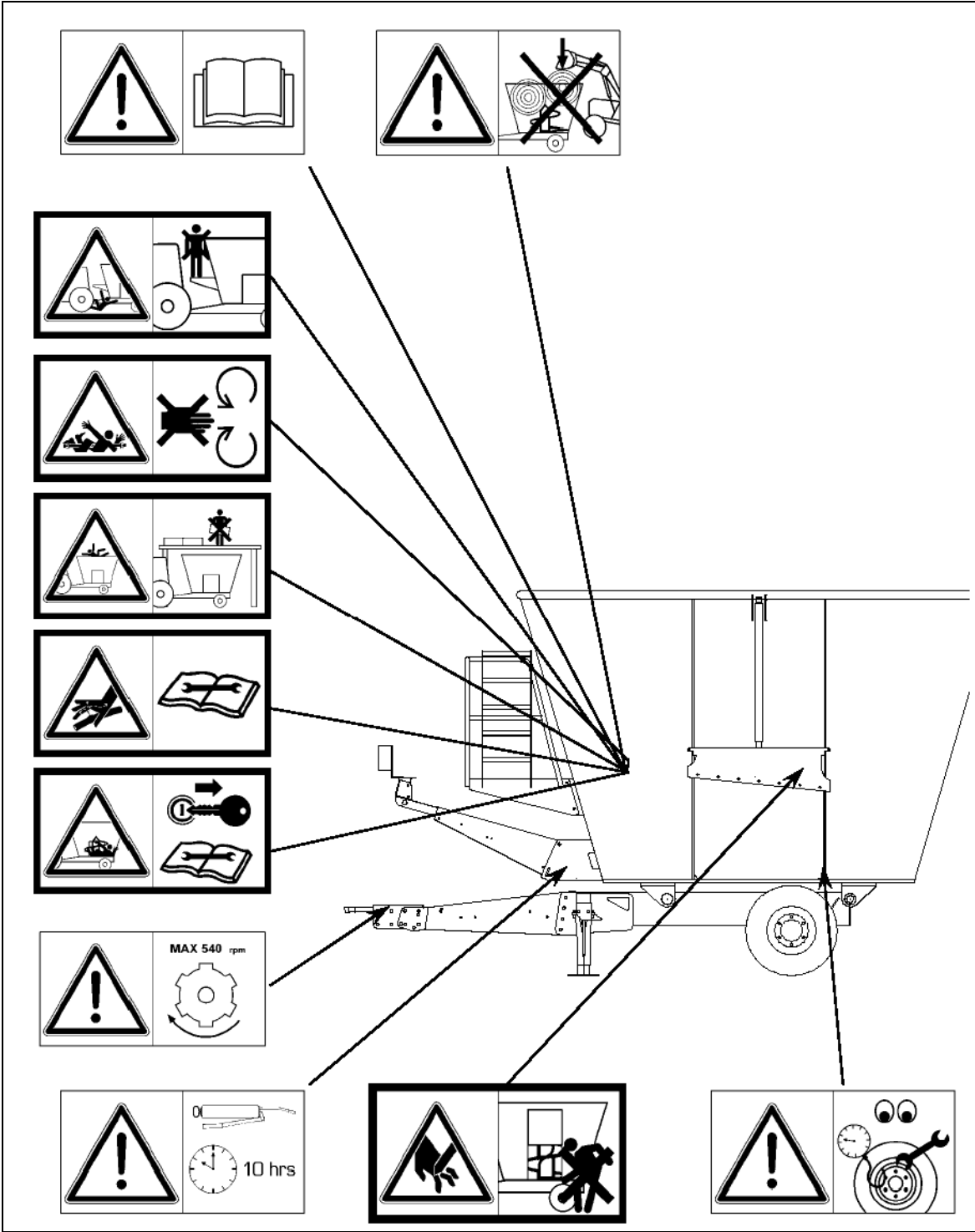
Never drive backwards if you have a tractor with a p.t.o. that auto-matically reverses.
Maximum r.p.m. of the pto is 540 rpm unless mentioned differently.



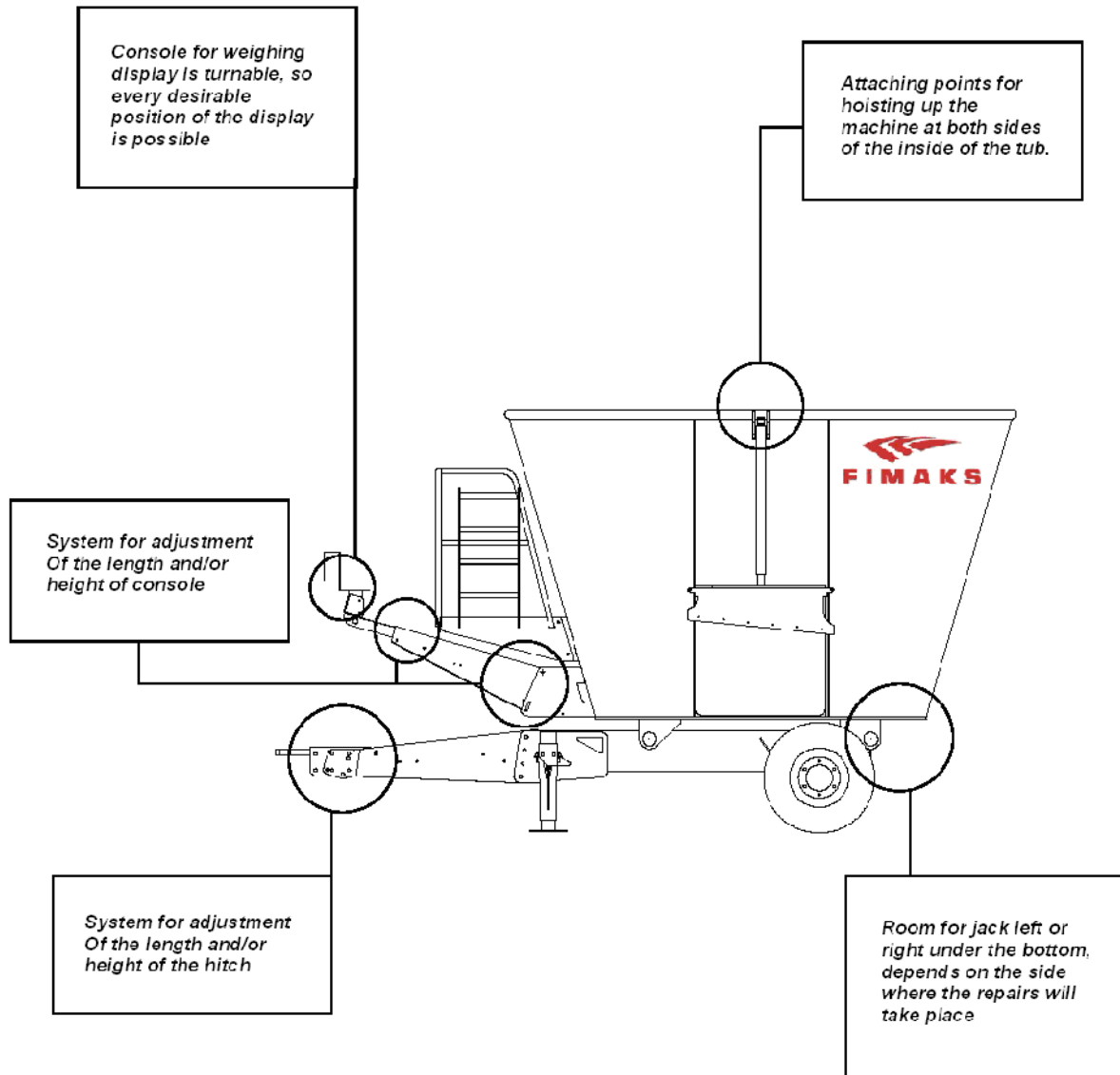
Warning

All greasing nipples have to be checked and greased every 10 operating hours.

3.2.2 Safety symbols on the machine





3.3 Attaching and support points





4 Attachment to the tractor

- Step 1**
- The hitch of the mixer feeder has to be approached up to ± 20 cm by the tow bar of the tractor.
 - The mixer feeder and the tractor have to be secured from driving away by means of the handbrake or wheel blocks.
- Step 2**
- When equipped with a manually adjusted jack: shove the jack manually in or out, so that the hitch comes a little higher than the tow bar of the tractor.
 - When equipped with an hydraulically adjusted jack (optional): connect the hydraulic connector with the hydraulic system of the tractor. Open the spherical plug and shove the jack in or out so that the hitch comes a little higher than the tow bar of the tractor.
- Step 3**
- Move the tractor backwards and put the pivot in (cotter with the split pin).
- Step 4**
- Screw in the jack. (When equipped with an hydraulically adjustable jack, this can be done by first opening the spherical plug and then opening the concerning tractor valve, so that the oil is carried off.)
 - Retract the jack completely.
 - Remove the lock pin.
 - Fold in the jack.
 - Apply the lock pin again.
- Step 5**
- Shut down the motor of the tractor, and remove the ignition key.
- Step 6**
- Connect the p.t.o. between the mixer feeder and the tractor.

	<p>ATTENTION</p> <p><i>The tractor side of the p.t.o. is indicated with a decal on the protection shield. Verify if the max. r.p.m. is the same as the r.p.m. of the p.t.o. of the tractor</i></p>
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	<p>CAREFUL</p> <p><i>The p.t.o. needs at least 10-15 cm of space to shove in: so the drive won't be damaged in sharp turns.</i></p>
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	<p>ATTENTION</p> <p><i>Ensure that the hydraulic system of the tractor and the machine is pressureless when the hydraulic hose are connected or disconnected.</i></p>
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	<p>ATTENTION</p> <p><i>Ensure that the free-return hose is attached carefully to prevent pressure increasing in the return pipe</i></p>
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- Step 7* Connect the hydraulic system of the mixer feeder to the hydraulic system of the tractor. The hoses that should be connected are one free return and one with single-working function.
- Step 8* If you have a mixer feeder with optional weighing installation, plug the feeding cable of the weighing installation in the socket of the tractor.
- Step 9* First execute the daily maintenance before using the machine.

For any doubt, consult your dealer or FIMAKS.

5 Operating the machine

In the chapter below, the control functions of the machines are explained.

On the mixer feeder, 5 switches can be found to operate the machine. The function of every switch is indicated with symbols on the decal near the switches. For operating the weighing installation (optional), consult the manual about the weighing installation specifically.

The unloading door of the machine is regulated by the hydraulic system of the tractor.

The auger is put into operation by switching on the p.t.o. (540 tpm). By means of changing the r.p.m. of the tractor, you can adjust the speed of the auger.

Contra knives: they are adjustable in three positions from 0 to 2, for reducing the mixing and cutting time. In position 2, the mixing and cutting intensity is the highest.

5.1 2-SPEED GEARBOX

It is possible to have a 2-speed gearbox mounted as additional equipment. With a 2-speed gearbox you are able to use a small tractor to operate the complete mixer.


During mixing and early stages of discharge the 2-speed gearbox must be in the low gear. When the wagon has been emptied so much that the tractor can pull the high gear, the gear is changed up and the rest is discharged.


OPERATION OF THE 2-SPEED GEARBOX

In order to change the gear it is necessary to stop the PTO shaft.


After the PTO shaft has stopped the gear can be changed by means of the gear shifting lever on the 2-speed gearbox. Now the PTO shaft can be started again.


6 Working with the machine

	<p style="text-align: center;">WARNING</p> <p style="text-align: center;"><i>Observe the important safety measures! (chapter 3)</i></p>
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	<p style="text-align: center;">ATTENTION</p> <p style="text-align: center;"><i>You can do an emergency stop by shutting down the engine of the tractor, so the drive and the hydraulic system are switched off.</i></p>
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6.1 Loading the fodder

	<p style="text-align: center;">ATTENTION</p> <p style="text-align: center;"><i>Don't load too many products in the machine at one go, so overloading of the auger is avoided.</i></p>
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	<p style="text-align: center;">TIP</p> <p style="text-align: center;"><i>When you want to process round or square bales with the mixer feeder, it is advisable not to load these at one go, but in pieces, to reduce the mixing time and to avoid overloading of the auger.</i></p>
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1. Place the machine near the product to load. Place the tractor right in front of the mixer feeder, if you want it to mix during loading.
2. Check if the unloading door is closed.
3. Load the machine from the side, because it is the widest side and you have more space there to load the tub.
4. Bring the loading bin or fork far into the tub to keep the falling distance as small as possible. This way you avoid damaging the knives and the auger. Take care that you don't hit the auger with the loading bin or fork though, to avoid damaging the machine.

6.2 Mixing the fodder





1. Let the machine mix or cut 5 to 8 minutes (dependent on the loaded product) with full load, to get an optimal homogeneous mix. Owners of a machine with a wide angle p.t.o. (optional) can also mix during transport.
2. The cut intensity of the knives can be changed by adjusting the two contra knives at the front and back of the machine.
3. The r.p.m. of the auger can be changed by adjusting the r.p.m. of the tractor.

6.3 Unloading the fodder

1. Switch on the p.t.o. so the auger starts rotating.
2. Open the unloading door. By adjusting the size of the gap, you can dose the amount of fodder.
3. When the tub is empty, you can remove the remaining fodder of the auger by increasing the r.p.m. of the p.t.o. (auger).
4. Switch off the p.t.o.
5. Close the unloading door.

7 Maintenance and lubrication

7.1 General instructions

	<p style="text-align: center;">WARNING</p> <p><i>Installing, doing periodical maintenance and performing repairs, may only be done by technically skilled persons, unless indicated differently (chapter 1.1.2)</i></p>
	<p style="text-align: center;">WARNING</p> <p><i>When repairing, maintaining, cleaning or fixing problems: always shut down the motor, remove the ignition key and carefully observe the instructions of the manual.</i></p>
	<p style="text-align: center;">WARNING</p> <p><i>When mounting or dismounting, always use the right tools and wear gloves. When working on a hoisted machine, always take care of decent support.</i></p>
	<p style="text-align: center;">ATTENTION</p> <p><i>Damage, including damage caused by insufficient greasing, is not covered by the guarantee.</i></p>

7.2 Every 10 operating hours

- * Maintenance of the p.t.o. in accordance with the p.t.o. manual.
- * Grease the grease nipples :
 - 3 grease nipples at every auger on the console.
 - 1 grease nipple on the optional support bearing, where the p.t.o. shaft is connected to the drive shaft of the mixer feeder.
 - 1 grease nipple on the p.t.o. shaft, which goes to the gearbox.
 - 2 grease nipples on every p.t.o. (when equipped with a wide angle p.t.o.: 4 grease nipples).
 - 1 grease nipple on the (optional) gear reducer.
- * After visible wear of the knives, sharpen or replace them
- * Check the oil level of the gearbox and the optional gear reducer. (chapter 7.4)

7.3 Every 25 operating hours

- * Check the hydraulic hoses and hydraulic cylinder for wear, leakage and damage. Replace if necessary.
- * Check tyre pressure. (7.00 – 12 “8 bar”)
- * Check the wheel nuts and tighten them.
- * Verify if all bolts and nuts are still tight. Tighten if necessary.

<i>Tightening moments (of bolts quality 8.8)</i>		
<i>Nominal dimension</i>	<i>Spanner width (mm)</i>	<i>Tightening moment (Nm)</i>
<i>M 8</i>	<i>13</i>	<i>24</i>
<i>M 10</i>	<i>16</i>	<i>48</i>
<i>M 12</i>	<i>18</i>	<i>85</i>
<i>M 14</i>	<i>21</i>	<i>135</i>
<i>M 16</i>	<i>24</i>	<i>210</i>
<i>M 18</i>	<i>27</i>	<i>290</i>
<i>M20</i>	<i>30</i>	<i>400</i>
<i>M22</i>	<i>34</i>	<i>550</i>
<i>M24</i>	<i>36</i>	<i>700</i>

- * Check wheel bearings, if necessary let your dealer or FIMAKS adjust them.
- * After the first working-day, tighten the wheel nuts. From then, every 25 operating hours.
- * For safety, replace the hydraulic hoses 7 years after date of building.

7.4 Gearbox

Check the oil level of the gearbox, which is found under the mixing auger. This is possible with the oil gauges of the oil reservoir at the front side of the tub.

The oil of the gearbox is 85W140. It is available from your dealer or FIMAKS.

The first oil of the gearbox has to be replaced after 50-100 operating hours.

The oil of the gearbox has to be replaced every 200-500 operating hours.

The screw to draw off the oil is found under the gearbox. This is under the auger, at the bottom of the machine. After drawing off, refill with oil till the appropriate level.

7.4.1 Refilling the gearbox with oil



ATTENTION

Filling the gearbox can take several hours. Take this into account.

Step 1 The screw above the oil reservoir has to be removed to refill it.

Step 2 Before gauging the oil, let the auger rotate for a few minutes so there isn't any air in the system anymore.

Step 3 Refill the oil level if necessary, when it comes under the lower oil gauge. Never fill the oil higher than the maximum indicated level (upper oil gauge). The total amount of oil in the planetary gearbox is about 13 liters.

Step 4 After refilling, put the lock screw back.

8 Troubleshooting

<i>Problem</i>	<i>Cause</i>	<i>Measure / solution</i>
<i>Hydraulic system doesn 't respond</i>	<i>Hydraulic pressure hose is connected wrong</i>	<i>- Rnnect</i>
<i>Hydraulic system doesn't function well</i>	<i>Hydraulic pressure hose is connected wrong</i> <i>Output of tractor pump is too small.</i> <i>Leakage hydraulic hoses and/or pipes</i> <i>Interruption in the overpressure valve</i>	<i>- Reconnect (return has to be free!)</i> <i>- Minimum output ca. 30 liters/min</i> <i>- Check oil supply</i> <i>- Locate the problem and repair</i> <i>- Clean or adjust the overpressure valve (180 bar)</i>
<i>Auger doesn't move</i>	<i>R.p.m. of the p.t.o. is too high</i> <i>Both contra knives are operating</i> <i>Main bearing has run dry</i>	<i>- Switch to 540 rpm</i> <i>- Change the position of the contra knives</i> <i>- Grease the grease nipples</i>

9 Parts

Instructions for ordering parts.

Your parts order has to contain the following information:

- Machine type
- Serial number
- Year of building of the machine
- Name, number and quantity of the part (look in the parts list)

For parts from which you can't find the number with certainty with the illustrated parts list, you can - to avoid a wrong delivery - send us the original part.