



User manual

STENSBALLE Flail Mower

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GB Registration of Use

Nesbo produces high quality machines for professional users.
The warranty period on our machines is 12 months from the date of purchase and covers compensation in the event of material and production faults.
Any parts that have suffered damage as a result of material and production faults will be replaced by Nesbo a/s at no charge.
Consequential damage and wearing parts will not be replaced.

A condition for the processing of claims is that this registration of use is submitted to Nesbo a/s.

This can be done on our website www.nesbo.dk

or by completing and scanning/submitting the coupon below to:

Nesbo a/s
Daniavej 31
9550 Mariager,
Denmark
nesbo@nesbo.dk

NOTE:

In order to maintain the warranty, the dealer is required to complete and submit the registration of use within one month of delivery to the purchaser.

Registration of Use:

Machine number	<input type="text"/>
Model	<input type="text"/>
Delivery date	<input type="text"/>
End user	<input type="text"/>
Address	<input type="text"/>
Dealer	<input type="text"/>

EC-Declaration of Conformity

Manufacturer: GMR maskiner a/s
Saturnvej 17, DK-8700 Horsens
Tel.: +45 7564 3611 Fax: +45 7564 5320

Hereby declares that

Machinery: STENSBALLE _____
Machine no. _____

Is in conformity with the applicable requirements of:

Directive 2006/42/EC of the European Parliament and of the Council of
17 June 2006 on the approximation of the laws of the Member States relating
to machinery.

Signature



General information

Please read the User Manual before attaching or using your new STENSBALLE Flail Mower.

If in any doubt – ask your dealer for help.

Use only original STENSBALLE parts in your Flail Mower.

To order original parts, contact your dealer or GMR maskiner a/s directly.

This User Manual includes an illustrated spare parts list. Read the introduction to the spare parts list before ordering spare parts.

Your STENSBALLE Flail Mower is fully assembled and tested at the factory, and ready for use.

Safety notes

The following warnings are used in this User Manual:



WARNING

A technical procedure or similar, which may be associated with a risk of personal or fatal injury.



CAUTION

A technical procedure or similar, which, in the event of negligence, may cause damage to the machine or accessories.



COMMENT

Refers to a very important technical use procedure or similar.

Never

- - allow unauthorised persons to use the machine unattended.
- - use a PTO shaft without a CE mark.
- - operate the machine without the safety guards fitted by GMR maskiner a/s.
- - allow anyone to stand within the machine's defined working area.
- - leave the tractor cab while the machine is in operation and the flails are rotating.
- - stop the tractor with the PTO connection activated.
- - set/adjust the machine while the tractor engine is running.
- - carry out repair or maintenance work while the tractor is running.
- - carry out a lift of the flail mower while it is operating.
- - exceed the rpm for the PTO connection that is stated with the machine.

Always

- - check the working area for wires, steel pipe, large stones, bottles and other hazardous items and remove before the work begins.
- - tighten nuts and bolts after 15 hours of operation and then regularly ensure nuts and bolts are securely tightened and inspect the flails and the rotary parts for defects.
- - replace defective parts as quickly as possible.
- - ensure that you are well-acquainted with the tractor.
- - ensure that no one is present inside the machine's working area while it is in use.
- - stop the tractor and disconnect the tractor's PTO connection for every adjustment, or maintenance or repair of the machine.
- - ensure that the tractor's PTO never operates slower than 90% of the machine's stated PTO rpm.

STENSBALLE

Type:

SK 1500 PM and PH

SK 1700 PM and PH

SK 2000 PM and PH

SK 2200 PM and PH

For tractors in the power
range 30-75 kW.

STENSBALLE PM and PH type Flail Mowers are powerful, mechanically or hydraulically driven machines, designed for fitting to most tractors with front-fitting systems made by different manufacturers.

If mechanical: The necessary power to operate the machine is supplied from the tractor's PTO connection through the accompanying PTO shaft.

If hydraulic: The necessary power is supplied from hydraulic hoses, which are connected to the tractor.

Noise

The daily noise level to which the driver is exposed in the tractor cab has been measured as 74-85 dB (A).

This range refers to normal use of the Flail Mower, where the noise changes between a minimum (machine is unloaded) and the measured maximum value (the machine is loaded).

The figures require that the machine is fitted to a tractor with a cab that is noise protected with closed windows, and operates in a normal, open environment.

In addition, the recommended operating speed is 4–10 km/h. The noise level also require that the grass length when cutting is 10–15 cm and that there is no wind.

If the cab rear window, roof window or similar is open, the noise level will exceed the values stated.

Under conditions where the cab is open, as described above, GMR maskiner a/s recommends the use of ear protectors or similar.

In addition, GMR maskiner a/s recommends that the operator is protected from noise when operating the machine if he or she is disturbed by the noise in any way.

Power requirements

To ensure satisfactory mowing and stability under all conditions, the following tractor power on the PTO connection is required for the different mower models:

SK 1500 PM: 20 kW
SK 1700 PM: 22.5 kW
SK 2000 PM: 25 kW
SK 2200 PM: 30 kW

At all times be aware that there are minimum values required to achieve the machine's working conditions and stability when working and transporting. The choice of tractor and mower must be considered in relation to which areas and under what conditions the operator wishes to work in.

Hoist requirement

The tractor must be equipped with a three-point hoist category 1 or 2, an A-frame category 1 or 2 or another type of hoist.

The machine can be ordered with the desired frame type fitted.

PTO connection

The tractor must be equipped with independent power transmission, so the tractor's progress can be adjusted without affecting mower operating speed.



CAUTION

Note that tractors, which have twice as much power as stated above, will be capable of overloading the machine if the operator drives too fast.

RPM

When mowing with the mechanically-driven STENSBALLE flail mower, the rpm on the PTO connection must be between the machine's stated standard figure and no less than 90 % of this. The following table states the standard minimum and maximum for the most frequently occurring RPM value.

Standard RPM	Minimum RPM	Maximum RPM
1000	900	1000



WARNING

Never exceed the RPM for the PTO connection that is stated with the machine.

Hydraulic model

In addition, follow the tractor's standard rpm and do not allow the tractor's RPM to be less than 90% of the standard rpm.



WARNING

When lifting the machine, all persons must stay clear of the machine.

The distance must be at least 2 m.

Packaging

The plastic packaging that the machine is supplied in, is made from polythene (PE), which can be recycled. The packaging must therefore be disposed of for re-melting and recycling.

The points marked with * may only be executed when fitting for the first time.

The STENSBALLE Flail Mower type SK/M is supplied with an approved PTO shaft. When replacing the PTO shaft, never use a PTO shaft that does not have a CE mark.

The machine type SK/M from GMR maskiner a/s, is supplied partially separated. To fit the mower, carry out the following:

- Place the mower on a solid, level surface.
- * Unpack the machine from the protective plastic and remove the PTO shaft.
- * Check that the delivered User Manual and machine information plate are correct. Check that the rpm and direction indicated on the PTO protection on the angular gear are correct for the tractor.
- If not – contact your dealer.
- Check the oil level. The oil must be in the middle of the oil glass, if not, the gear must be re-filled using Hypogear SAE 80-90.
- Fit the PTO shaft to the machine, check the shaft is facing the correct way, and that the locking pawl in the fitting fork has clicked into place in the notch.
- Fit the safety chain. This must be loose so that it does not break when the machine is lifted into the transport position.
- Drive the tractor over to the mower and lower the hoist, so that it is outside the fitting frame.

Fitting the machine on the tractor

GB

A-frame

Raise the lift and let it lock.

3-point tractor linkage

Fit the lifting arms onto the mower frame and secure using ring pins. Fit the top bar between the tractor's top point and the mower's top point bracket.

If there are several fitting options for the top bar on the tractor, use the one that ensures the top bar points slanted up at the mower.

Other frames

Follow the instructions for the specific type of frame.



WARNING

Manoeuvring the lift through a doorway risks fatal injury if a person stands in the vicinity of the lift parts - Seek assistance!

Mechanically driven SK / PM

Check that the PTO shaft has the correct length. If it is too long, measure the distance between the tractor's PTO connection and the mower's input shaft and shorten the PTO shaft until the length fits.

Fit the PTO shaft to the tractor. Check that the locking pin in the fitting fork has clicked into the notch. Fit the safety chain. The safety chain must be loose so that it does not break when the machine is lifted into the transport position.

Hydraulically driven

Fit the hydraulic hoses to the tractor. Ensure that the hoses are attached without touching wheels or other moving parts.



CAUTION

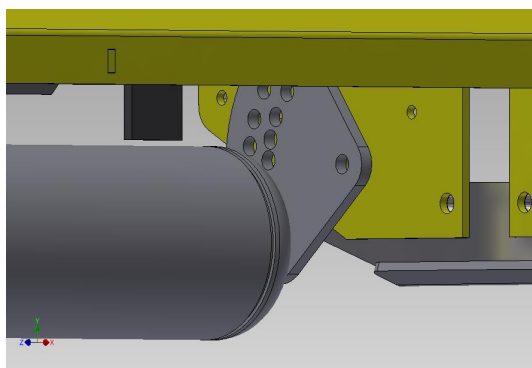
It is important with hydraulically driven machines that the hydraulic hoses are fitted correctly, otherwise an incorrectly fitted hose will load the machine until the mistake is discovered.

- Start the tractor and raise the machine so that the front edge is lifted to max. 400 mm above the ground. Set the lift stop, so that the machine cannot be lifted any higher.
- Raise the support leg at the front of the mower, so that it does not touch the ground during operation.
- Carefully lower the mower to the ground.

**Mechanical adjustment
of mowing height
SK / PM**

Adjust the mowing height by raising or lowering the rear roller. Lift the mower up in the linkage and secure the mower using joists or similar under the skids.

Loosen and remove the two bolts that secure the rear roller brackets at the current height. Raise or lower the rear roller to the desired height – a single hole equals approx. 15 mm change in height. Re-fit the two bolts and tighten them. The mower is now ready for use.



**Hydraulic mowing height
setting SK / PM**

The mowing height is adjusted from the tractor cab using one of the tractor's dual-action connections.

Lift the mower from the ground and set the mowing height to the desired height by raising or lowering the rear roller. The hydraulic cylinders work in accordance with a "master/slave" system and must be reset. To reset, raise the mower from the ground and move the cylinders all the way to the outer position (longest).

Once the cylinders are in the outer position, a valve is opened internally in the cylinders, so that the system can be emptied for air and the cylinders can be synchronised. Continue by flushing oil through the cylinders for about another minute to ensure that both cylinders are completely out and ensure that the system is bled for air. Next, set the mowing height to the desired height.

Should the cylinders go out of sync, they can be re-activated by executing the above.

The mowing height can be finely adjusted using the top bar between the tractor and the fitting frame.

Start-up

Prior to start-up, the working area must be inspected and cleared of any foreign objects.



CAUTION

Steel wire, pieces of iron and other hard items can cause major damage to the flails and other parts in the transmission.

Start-up procedure - mechanically driven machines:

1. Check that the tractor's PTO is disengaged.
2. Start the tractor and leave it idling rapidly.
3. Engage the tractor's PTO connection and let the machine idle while checking that the machine's moving parts rotate freely and do not encounter obstacles.
4. Increase the PTO rpm to the standard rpm and allow the machine to run for 60 seconds. Check for abnormal vibrations or noises coming from the machine. If there are abnormal vibrations or noises, contact your dealer immediately.
5. Reduce the tractor engine's rpm to idle and disengage the PTO connection to stop the mower.

Start-up procedure - hydraulically driven machines:

1. Check that the tractor's hydraulic connection is in the neutral position.
2. Start the tractor and leave it idling rapidly.
3. Engage the tractor's operating hydraulics and let the machine idle while checking the machine's moving parts rotate freely and do not encounter obstacles.
4. Increase the tractor engine's rpm to the standard rpm and allow the machine to run for 60 seconds. Check for abnormal vibrations or noises coming from the machine. If there are abnormal vibrations or noises, contact your dealer immediately.
5. Reduce the tractor engine's rpm to idle and set the hydraulic control handle to the neutral position.



WARNING

When starting up and using the mower, it must be lowered to the surface before the machine is started.

Stop the machine before lifting. Failure to do so implies of personal injury on contact with rotating parts (flails).

6. The machine is now ready to run.

Breakdown

- Reduce the tractor's rpm to idle.
- Disengage the tractor's PTO connection or hydraulic connection.
- You must stop the tractor before leaving the cab seat.

If you cannot identify the cause of the breakdown, contact your dealer!

Restart

- Check that the PTO connection is disengaged (mechanically driven machines) or that the hydraulic handle is set in the neutral position (hydraulically driven machines).
- Start the tractor and leave it idling rapidly.
- Start the Flail Mower and let the machine idle while checking the machine's moving parts rotate freely and do not encounter obstacles.

Limitations

The STENSBALLE Flail Mowers in this User Manual are designed to mow grass and can, depending of the choice of flail type, mow other types of vegetation. As long as the vegetation is not too heavy.

Avoid mowing areas with more heavy vegetation and at the very least, exercise great care and attention to any foreign objects and avoid them as much as possible. Mowing in such areas will lead to greater wear on the flails and may lead to undue damage to the machine and mean that your warranty will be voided.

The machine may only be used to mow when running on its rear roller. It may not row when it is lifted from the ground.



WARNING

Always ensure helpers and other parties keep to a safe distance from the machine.

Start-up

Slowly lower the mower to the ground, start the mower and increase the rpm to the standard rpm.

Put the guide valve for the front lift in the floating setting.



CAUTION

If the tractor does not have an interlocked floating setting, it must either be equipped with one or the mower must be equipped with a fitting frame with moveable arms!

- Otherwise when operating the machine in uneven areas, the machine will be lifted above the ground, sometimes transferring the tractor's weight to the machine, which will lead to defects.



WARNING

Never exceed the standard RPM for the Flail Mower.



CAUTION

Never allow the machine to fall heavily to the ground, as this may damage the machine.

Working speed

The tractor speed is determined by natural common sense and experience. It should be slow enough make sure that the mower can actually mow cleanly, without the tractor's RPM falling. As recommended, the speed should be between 4–10 km/h, depending on the conditions.



WARNING

If the standard rpm falls to under 90% of the rpm stated on the machine, it will result in poor mowing and overloading e.g. of the PTO shaft, angular gear and V-belts with destruction to follow.



COMMENT

The tractor's speed is determined by the choice of gear, not with reducing the motor rpm, since this would cause reduced speed.

Procedures

The user is responsible for developing safe working procedures. From the very beginning, develop good habits and at all times ensure that all of the safety guards are in position and secure so they do not fall off.

Mechanically driven models: Always disengage the PTO connection before stopping the engine.

Hydraulically driven models: Put the hydraulic handle into the neutral position before stopping the engine.

Wait in the cab seat until the rotor has stopped.
Stop the engine, before carrying out any adjustments.
Regularly tighten all of the nuts and bolts.



CAUTION

If foreign objects are collected by the flails, the mower must be immediately stopped and cleaned of any foreign objects.



COMMENT

If a flail is damaged, it must be replaced as soon as possible or the system will become unbalanced and the machine will shake.

Disconnection site

When disconnecting your mower after use, you must find a suitable location, i.e. solid and level surface.

Disconnecting

Once the disconnection site has been established, carry out the following:

1. Raise the mower to the top position and lower the support leg at the front of the mower.
2. Carefully lower the mower down onto the surface and stop the tractor.
3. Mechanically driven models: Remove the PTO shaft from the tractor and attach the free end to the mower using the safety chain. Hydraulically driven models: Remove the quick release connections from the tractor and attach the dust caps. Next, lay the hoses across the mower.



CAUTION

When disconnecting, avoid the PTO shaft and quick release connections coming into contact with soil or dirt.

- Tractor with 3-point hitch**
3. Remove the pin for the top bar on the mower, so that the top bar is only attached to the tractor.
 4. Next, remove pins for the lift arms. Start the tractor and drive away from the mower.
- Tractor with A frame hitch**
3. Lift the locking pin on the female part. Lower the frame until it is clear. Now drive the tractor away from the mower.
- Other frame types** Follow the instructions for the specific type of frame.



WARNING

Never manoeuvre the tractor hoist if there is a risk that someone can come into contact with the machine and tractor.

There is a crushing hazard which may lead to serious personal injury.



COMMENT

Grass juice is very aggressive, so the user should always rinse under the bottom of the machine after use.



CAUTION

Large accumulations of dry grass under the shielding/guard can lead to a spontaneous combustion hazard from the heat generated by the belt drive. Therefore it is necessary to regularly remove the shielding/guard and to clean the rotary deck for grass.

Storage

After the season has ended, clean the mower and loosen the V-belts.

In particular ensure that the flails are carefully cleaned and lubricated with oil. This will avoid the formation of rust and prolong their lifetime.

Take extra good care of your mower and store it in an area with low air humidity, protected from rain and snow.

GB Maintenance

Lubricate daily

- PTO shaft (important: the PTO shaft is an independent machine, therefore see the PTO shaft's user instructions)

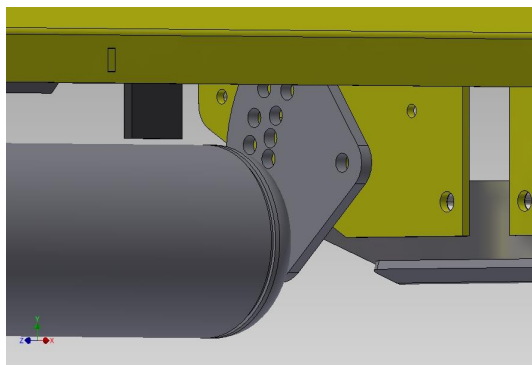
After every 50 operating hours

- bearing housing for the flail roller and drive shaft
- slide tube for the side shift

The machine has labels attached for grease and oil lubrication, respectively. These have symbols for a grease gun and oil can.

Angular gear (only mechanical operating)

The angular gear is half-filled with oil on delivery. In general it does not require any maintenance, only a check of the oil level and if required, refilling with high-pressure oil SAE 80-90.



WARNING

Handling grease and oil can be hazardous to health.

Follow the safety instructions stated on the grease or oil packaging.

V-belts

New V-belts will stretch a lot after the first hours of use. It may be necessary to tighten the V-belts after 2-3 hours of use.



WARNING

The V-belt drive will generate heat during operation. Exercise caution and avoid touching the V-belts immediately after the machine has operated to avoid burns.

Tightening

- Remove the shielding/guard above the V-belts.
- Loosen the bolt that goes through the belt tensioning oblong hole, without removing it completely.
- Tighten the V-belts by first loosening the contra nut on the adjusting bolt and then tighten the adjusting bolt until the desired tension is achieved.
- The V-belts must be tensioned, so that if you press by hand the longest free section, it can deform by 2 cm in either direction.
- Re-tighten the contra nut.
- Attach the shielding/guard.

Replacing

- Release the tensioning bracket as above.
- Remove the V-belts.
- Attach V-belts on the outer belt guide and lead them onto the belt disc, guide for guide, until all of the V-belts are in place. The V-belts can be difficult to attach, but this can be made easier by first twisting the belt, so the inner side faces out. The belt is then easier to attach and the belt can then be twisted into place again.
- Tighten the V-belts, as above.

Flails

The flails are manufactured from the highest quality of tempered steel. The hardness of the flails is continuously checked.



WARNING

Using flails made by other manufacturers risks fatal injury, and the machine warranty will be void if they are used!

Sharpening

Keep the flails sharp by sharpening them from the top side.

To sharpen flails, use a fast hand grinder that uses a steel grinding point.

Replacing single flails risks the machine becoming unbalanced, leading to vibrations that can damage the machine. In the case of major wear or a damaged flail, it is recommended that all of the flails on the roller are replaced at the same time.

Remember to tighten the flail bolts' contra nuts afterwards.

Replacing

The flails are secured using a special bolt with washers and a locking nut.

- Remove the special bolt and remove the flail.
- Clean the fitting holes in the flail roller of any dirt.
- Insert a new flail (check that this faces the correct way in relation to the direction of rotation).
- Always insert a new special bolt and tighten using washers and a locking nut.

Worn flail bolts, washers and locking nuts must always be replaced.

Safety guards

To prevent foreign objects being ejected, the mower is equipped with a number of welded and bolted safety guards.

These must be in position on the machine and any defective guards must be replaced with new guards.

Rotor guard

The rotor guard (mower housing) forms a guard to prevent the ejection of stones and other items. This also ensures there is no contact with the flail system.

Damage/dents must be repaired before the work can continue.

Front guard

The machine is equipped with powerful guard flaps or chain links under the front. These allow the grass to move under the mower and prevent ejected stones passing. Defective guard flaps or chain links must be replaced.

Belt guard

The machine has a bolted belt guard on the left side. If this is damaged it can easily be removed for repair or replacement.

PTO guard

The machine is equipped with a plastic guard, which shall prevent people/the user from unintentionally coming into contact with the rotating drive shaft.

In addition, mechanically driven machines are equipped with a plastic PTO guard, which covers the area between the PTO shaft and the angular gear. This is an item that can easily be replaced.

PTO version

The machine may only be used with a PTO shaft that has a CE mark.

The PTO shaft is equipped with tube protection. This must be complete and undamaged, and the chains that prevent it rotating with the shaft, must be attached to the mower and the tractor.



WARNING

It is forbidden and risks fatal injury to use the machine without the bolted/welded safety guards!

The machine is equipped with various safety signs. These must be on the machine and any damaged/illegible signs must be replaced with new signs.

New signs are available from the factory. Contact your dealer to order.

Warning signs

The machine is equipped with warning signs, which contain the following information:

Crushing hazard:



Avoid coming into contact with the mower when manoeuvring.

Risk of ejection of foreign objects:



Keep people away from the working area.

Hazard from rotating flails:



Avoid coming into contact with the rotating parts.

GB Marking / Labelling

Read the manual

Read the manual before starting the machine.



NEVER use high-pressure cleaners

Grease can be rinsed out of the bearings, which will lead to defects. Damage to paint caused by ejected items will be made worse.



Type plate/serial number plate

Machine number and other specifications:



The machine is equipped with a riveted information plate/number plate. The engraved number in this plate is unique for the actual machine, and the factory will always be able to trace the machine if this number is given.

The number plate also states the machine type, weight in kg, power requirements in kW and the machine's CE mark, which indicates that the machine complies with the Machinery Directive's requirements relating to safety.

Other labels

The machine is also equipped with the manufacturer's own labels (logos, etc.) and a technical data label.