OPERATOR'S MANUAL

DISK MOWER

DM1270

FRONTIER

9N005AUS G - English (USA) - 12-2012
In buying a Frontier machine you have chosen wisely. Into it have gone years of thought, research and improvement. You will find, as have thousands of owners all over the world, that you have the best that engineering skill and actual field testing can produce. You have purchased a dependable machine, but only through proper care and operation can you expect to receive the performance and long service built into it.

This manual contains all the necessary information for you to receive full efficiency from your machine. The performance you get from this machine is largely dependent on how well you read and understand this manual and apply this knowledge. Please DO NOT ASSUME YOU KNOW HOW TO OPERATE AND MAINTAIN YOUR MACHINE before reading this manual carefully. KEEP THIS MANUAL AVAILABLE FOR REFERENCE. Pass it on to the next owner if you re-sell the machine.

Your John Deere dealer can offer a complete line of original manufacturer service parts. These parts are manufactured and carefully inspected in the same factory that builds the machine to assure high quality and accurate fitting of any necessary replacements.

About improvements

We are continually striving to improve our products. We therefore reserve the right to make improvements or changes when it becomes practical to do so, without incurring any obligations to make changes or additions to the equipment sold previously.

Wearing parts

Wearing parts fitted on our machines have been tested in very different situations to optimize their service life. Nevertheless, the service life depends highly on the conditions of use (products to handle, soil, weather conditions, etc...).

Designated use of the machine

The DM1270 mower must only be used for the purpose for which it was manufactured: mowing on the ground of hay fields, grass silage fields and improved pastures for the purpose of harvesting fodder for feeding livestock.
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IDENTIFICATION OF THE MACHINE

1. Front view

2. Rear view
3. Model identification plate

Please write below the type and serial number of the machine. This information is to be given to your John Deere dealer for all parts order or warranty claim.

Type: DM1270

Serial no.: 

4. Optional equipment

Check the boxes corresponding to the equipment fitted on your machine:

- Kit no. KN1016400: Raised skid shoes.
- Kit no. KN1036000: Inner swath shield.
- Kit no. KN1046060: High cone disk.
- Kit no. KN1046070: Compensating spring.
1. Description of symbols used in this document

This symbol indicates a potentially hazardous situation that if not avoided, could result in serious bodily injury.

This symbol is used to identify special instructions or procedures which, if not followed strictly, could result in machinery damage.

This symbol is used to communicate technical information of particular interest.
2. Safety instructions

- **Introduction**

The machine must only be operated, maintained and repaired by qualified persons who are familiar with the machines' operation and understand safety regulations and procedures for preventing accidents. The operator must follow the safety instructions in this manual and in the warnings posted on the machine. The operator is also obliged to respect current legislation concerning accident prevention, work safety and public traffic circulation.

The intended use of the machine includes following all operation, maintenance and repair recommendations given by the manufacturer, and using only genuine spare parts, equipment and accessories, as recommended by the manufacturer.

The manufacturer is not held liable for any damage resulting from machine applications other than those specified by the manufacturer. Any use other than the designated operation is at the risk and responsibility of the operator.

The manufacturer is not held liable for any damage or accident resulting from machine modifications carried out by the operator himself or by a third party without previous written agreement from the manufacturer.

- **Read and follow the safety instructions**

Before using the machine, carefully read all the safety instructions in this manual and the warnings placed on the machine.

Before starting work, the operator must be familiar with all machine controls, handling devices and their functions. It is too late to learn once work has been started!

Never let anyone operate the machine who is not trained to do so.

Should you have any difficulties in understanding certain parts in this manual, please contact your John Deere dealer.

- **Precautions to be taken before carrying out any operations on the machine**

Before leaving the tractor or before adjusting, maintaining or repairing the machine, disengage the PTO drive, turn off the engine, remove ignition key and wait until all moving parts have come to a complete stop and apply park brake.
Precautions to take before using the machine

Do not wear loose clothing which could become caught up in moving parts.

Wear appropriate protective clothing (gloves, shoes, goggles, helmet, ear defenders, etc.).

Ensure that all operating controls (ropes, cables, rods, etc.) are placed so as they cannot be operated unintentionally and cause damage or injury.

Before operating the machine, check tightness of nuts and bolts, particularly on components that the machine uses to process material (tines, forks, blades, knives, etc.). Retighten if necessary.

Before operating the machine, ensure that all the safety guards are firmly in place and in good condition. Immediately replace any worn or damaged guard.

Precautions when driving

Tractor handling, stability, performance and braking efficiency are all affected by weight distribution, trailed or mounted implements, additional ballast and driving conditions. It is therefore of great importance that the operator exercises caution in every given situation.

Drive speed must be adapted to ground conditions as well as to roads and paths. Always avoid abrupt changes of direction.

Be particularly cautious when turning corners, paying attention to machine overhang, length, height and weight.

Never use a narrow track tractor on very uneven or steeply sloping ground.

Never leave the tractor seat while the machine is operating.

Carrying people or animals on the machine when working or in transport is strictly forbidden.
Precautions when driving on public roads

Dimensions
Depending on the dimensions of the machine, contact the relevant authorities to ensure that it can be legally transported on public roads.
If the machine is over the maximum legal size, follow the local regulations for special transportation of oversize equipment.

Gross weight and weight per axle
Check that the tractor's authorized gross weight as well as its lift capacity and maximum weight per axle are not exceeded.
The front axle load (1) must never, under any circumstances, be less than 20% of the tractor's unladen weight. If necessary, add ballast weights to the front or to the rear to preserve the steering and braking efficiency.

Transport position
Before transporting the machine on public roads, place the machine into its transport position, according to the instructions in this manual.

Lights and indicators
Before transporting the machine on public roads, ensure that all legally required lights and indicators are in place. Ensure that lights and indicators are clean and in good working order. Replace any missing or broken equipment.

Always obey current regulations for driving on roads.

Maximum speed
Always keep to the legal speed limit for driving a tractor-machine assembly on public roads.
**Precautions when coupling**

Before attaching the machine, make sure that it cannot accidentally start moving (chock the wheels) and that the parking stand is in the right position.
The machine must only be attached to the hitch points provided for this purpose.
Never stand between the tractor and the machine when operating the three point linkage.
Do not stand between the tractor and the machine without ensuring that the parking brake is applied.

**Hydraulic circuit**

Caution! The hydraulic circuit is under high pressure. Maximum pressure at work: 200 bar (2900 psi).
Before connecting hoses to the tractor hydraulics, ensure that tractor and machine circuits are not under pressure. Before disconnecting a hose, depressurize the hydraulic circuit.
To avoid making incorrect connections, mark hydraulic couplers and corresponding hoses with colors. **WARNING!** Functions could be reversed (for example: lift/lower) and cause accidents.
Regularly check the hydraulic hoses. In case of normal wear, replace the hydraulic hoses every 5 years. Damaged or worn hoses must immediately be replaced.
When replacing the hydraulic hoses, only use hoses with the specification recommended by the manufacturer of the machine.
To locate a leak, use appropriate means. Protect body and hands from liquid under pressure.
Any liquid under pressure (particularly oil from hydraulics) can penetrate the skin and cause severe injury. If injured, see a doctor immediately, there could be danger of infection.
Before any adjustments, maintenance or repairs are carried out, lower the machine to the ground, depressurize the hydraulics, turn off the engine, remove ignition key and wait until all moving parts have come to a complete stop.
**PTO shaft**

Use only PTO shafts supplied with the machine or recommended by the machine manufacturer.

The protective shield of the tractor PTO stub, the PTO shaft guards and the protective shield of the machine input shaft must always be in place and in good condition.

Make sure that the PTO shaft guards are secured with the safety chains provided. Check that the PTO shaft guard can turn freely a full rotation independent of the shaft.

Any worn or damaged guards must be replaced immediately. A worn guard or an unprotected PTO shaft can cause a serious or even a lethal accident.

Do not wear loose clothing that could be caught in the rotating PTO shaft.

Before attaching or removing a PTO shaft, or before doing any work on the machine, disengage the PTO drive, turn off the engine, remove ignition key and wait for all moving parts have come to a complete stop.

If the primary PTO shaft is equipped with a torque limiter or a free wheel, these must be fitted on the machine side.

Ensure that the PTO shaft is always correctly fitted and locked into place.

Before connecting the PTO shaft, ensure that the PTO speed (rotational frequency) and direction of rotation are in line with the machine manufacturer's recommendations.

Before engaging the PTO drive, make sure all people and animals are clear from the machine. Never engage the PTO drive when the tractor engine is stopped.

Do not install any adapter device that results in a portion of the tractor PTO stub, the rotating PTO shaft, or the adapter to be unguarded. The tractor master shield shall overlap the end of the splined shaft and the added adaptor device as outlined in the table.

When uncoupling the machine, rest the PTO shaft on the support specially provided, and replace protective shield on the PTO stub of the tractor.

Read and follow the instructions in the operator's manual provided with the PTO shaft.

<table>
<thead>
<tr>
<th>PTO type</th>
<th>Diameter</th>
<th>X splines</th>
<th>A ±5 mm (0.20&quot;)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>35 mm (1.378&quot;)</td>
<td>6</td>
<td>85 mm (3.35&quot;)</td>
</tr>
<tr>
<td>2</td>
<td>35 mm (1.378&quot;)</td>
<td>21</td>
<td>85 mm (3.35&quot;)</td>
</tr>
<tr>
<td>3</td>
<td>45 mm (1.772&quot;)</td>
<td>20</td>
<td>100 mm (4.00&quot;)</td>
</tr>
</tbody>
</table>
Precautions during maneuvers

When moving the machine from the transport position to the working position and vice versa, make sure that nobody is within the machine pivoting area.

Remote controlled components

Danger of crushing and shearing can exist when components are operated by hydraulic or pneumatic controls. Keep away from these danger zones.

Safety decals

Safety warnings are placed in safety decal form on various parts of the machine. They are there to warn you of potential dangers and to tell you how to avoid accidents.
Always keep the safety decals clean and readable, and replace them when they are worn, damaged, missing or illegible.

Waste disposal

Respect the environment! Never spill pollutants (oil, grease, filters, etc.) on the ground, never pour them down the drain and never discard them in any other place where they could pollute the environment. Never throw away or burn a tire. Always take waste to specialized recycling or waste disposal centers.
**Precautions for maintenance and repair work**

Before leaving the tractor or before adjusting, maintaining or repairing the machine, disengage the PTO drive, turn off the engine, remove ignition key and wait until all moving parts have come to a complete stop and apply park brake.

Rest the machine on the ground, release the pressure from the hydraulic circuit and leave the machine to cool down.

Make sure that the parts of the machine that need to be lifted for maintenance or repair work are firmly propped up.

Before any work is done on the electric circuit or before any electric welding is carried out on the attached machine, disconnect the machine from the tractor electrical circuit. Also disconnect alternator and battery terminals.

Repairs on elements under pressure or tension (springs, pressure accumulators, etc.) must only be carried out by competent persons with regulation equipment.

Wear appropriate protective clothing (gloves, shoes, goggles, helmet, ear defenders, etc.).

Do not solder, weld or use a blow torch near fluids under pressure or flammable components.

For your own safety and for correct machine operation, only use original manufacturer parts.

It is strongly recommended to have your machine checked by your John Deere dealer after each season, especially tools and their attaching hardware.
Projection of stones and foreign objects

For driver safety, always use a tractor equipped with a cab. Keep the ground to mow free of foreign bodies. Avoid mowing on stony or rocky grounds. If this is not possible, take extra safety precautions, such as:

- Fit polycarbonate screens inside the tractor cab’s side and rear windows, or install narrow mesh guards on their exterior.
- Increase the cutting height to avoid contact with stones or rocks.

Never start the machine when there are people nearby. Even when the machine is used properly, objects may be thrown. Stones and other foreign objects thrown by the moving parts can travel a considerable distance. Keep all persons and animals away from the danger zone.

The protection covers help reducing risks of projections. Therefore, make sure that all mower protection devices are in place and good condition prior to using the machine.

Regularly check the condition of the protection covers. Immediately replace any worn, damaged or missing cover.
Precautions for machine use

After each use, check the cutting tools (disks, knives) and their attachment hardware in accordance with the instructions given in the present manual. Immediately replace any worn, damaged or missing cutting tool or element. To do this, use the tool outfit supplied with the machine. For your safety, only use genuine KUHN parts!

Regularly check the condition of the protection covers. Immediately replace any worn, damaged or missing cover. Before engaging the PTO, rest the cutterbar on the ground. Make sure all the guards are in place. Keep all persons and animals away from the danger zone.

Stay a safe distance from the machine when the cutting tools are in movement.

Never work in reverse.

After disengaging the PTO drive, cuttings tools can continue rotating for some time. Stay away from the machine until all moving parts have come to a complete standstill.

If the machine hits an obstacle, disengage the PTO drive, stop the tractor engine, remove the ignition key and wait for all moving parts to come to a complete standstill. Check the entire machine for any damage before resuming work.
3. Location and description of safety decals on the machine

- Location of safety decals

![Diagram of the machine with numbered safety decals]
## Description of safety decals

### Operating instructions (1)

The operators’ manual contains all the information necessary for using the machine safely. It is imperative to read and comply with all instructions.

### Working on the machine (2)

Before leaving the tractor or before adjusting, maintaining or repairing the machine, disengage the PTO drive, turn off the engine, remove ignition key and wait until all moving parts have come to a complete stop and apply park brake.

### Projections (3)

Stones and other debris projected by the moving parts can travel a long distance. The protection covers must always be in position and in good condition. Always stay at a safe distance from the machine.
Rotating cutting tools (4)
Keep away from the mower knives all the time the engine is running, the PTO drive engaged and the moving parts have not come to a complete stop.

Body crushing (5)
Stay a safe distance from the machine.
Crushing hazard.

Do not step on the machine (6)
Do not step on the machine : Risk of falling or damaging the protection device.

Uncoupling the machine (7)
Always park the machine with the cutterbar in horizontal position.
Precautions for machine use and maintenance (8)

With the guards in position, disengage the PTO drive and turn off the engine before adjusting, maintaining or repairing the machine, keep at a safe distance from all moving parts and wait until they have come to a complete stop.

PTO shaft (9)

To prevent accidents, check that PTO shaft guards are in place and stay at a safe distance from rotating parts.

PTO speed (10)

Never operate the machine at a PTO speed higher than 540 min⁻¹.
Hydraulic circuit under pressure (11)

Any liquid under pressure (particularly oil from hydraulics) can penetrate the skin and cause severe injury.

Before any adjustments, maintenance or repairs are carried out on the hydraulic circuit, always relieve pressure and comply with instructions given in the tractor and machine operator’s manuals.

To locate a leak, protect body and hands from liquid under pressure and use appropriate means: cardboard or similar material.
1. Description and glossary

<table>
<thead>
<tr>
<th>Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Check chain</td>
</tr>
<tr>
<td>2</td>
<td>Three-point hitch coupler</td>
</tr>
<tr>
<td>3</td>
<td>Safety breakback</td>
</tr>
<tr>
<td>4</td>
<td>Parking stand</td>
</tr>
<tr>
<td>5</td>
<td>Work/transport cylinder</td>
</tr>
<tr>
<td>6</td>
<td>Compensating spring</td>
</tr>
<tr>
<td>7</td>
<td>Belt guard</td>
</tr>
<tr>
<td>8</td>
<td>Front guard</td>
</tr>
<tr>
<td>9</td>
<td>Cutterbar</td>
</tr>
<tr>
<td>10</td>
<td>Swath shield</td>
</tr>
</tbody>
</table>
2. Technical specifications

<table>
<thead>
<tr>
<th>Attachment type</th>
<th>3 point linkage category 1 and 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of disks</td>
<td>7</td>
</tr>
<tr>
<td>Working width</td>
<td>2.80 m (9'2'')</td>
</tr>
<tr>
<td>Width in working position</td>
<td>4.68 m (15'4'')</td>
</tr>
<tr>
<td>Height in working position</td>
<td>1.15 m (3'9'')</td>
</tr>
<tr>
<td>Length in working position</td>
<td>2.35 m (7'9'')</td>
</tr>
<tr>
<td>Width in transport position</td>
<td>1.72 m (5'8'')</td>
</tr>
<tr>
<td>Height in transport position</td>
<td>3.33 m (10'11'')</td>
</tr>
<tr>
<td>Length in transport position</td>
<td>2.00 m (6'7'')</td>
</tr>
<tr>
<td>Disk rotational speed</td>
<td>3030 min⁻¹</td>
</tr>
<tr>
<td>PTO speed</td>
<td>540 min⁻¹</td>
</tr>
<tr>
<td>Weight</td>
<td>530 kg (1168 lb)</td>
</tr>
<tr>
<td>Minimum PTO power requirement</td>
<td>38 kW (50 hp)</td>
</tr>
</tbody>
</table>

3. Sound levels

Sound levels have been measured in accordance with the measuring methods as defined in:
NF EN ISO 4254-1
«Agricultural machinery - Safety - Part 1: General requirements»
Weighted equivalent continuous acoustic pressure level at the driver’s seat (closed cabin) L (A) eq:

Tractor only: 75.5 dB(A)
Tractor + machine: 82.2 dB(A)
PUTTING INTO SERVICE

1. Description of control elements

The machine is supplied with an 18 mm box wrench (1) to carry out certain adjustment and maintenance tasks.

2. Coupling and uncoupling

The machine adapts to tractors fitted with a 3-point hitch coupler category 1 or 2.

- Description of coupling elements
  - A PTO shaft 1 3/8” - 6 splines.
  - A check chain.
  - One hydraulic hose which controls the machine transport/work position setting.
■ Preparing the tractor

Check that the tractor's authorized gross weight as well as its lift capacity and maximum weight per axle are not exceeded. The front axle load (1) must never, under any circumstances, be less than 20% of the tractor's unladen weight. If necessary, add ballast weights to the front or to the rear to preserve the steering and braking efficiency.

The tractor must be fitted with lower link stabilizers.

The tractor PTO stub must rotate at a speed of 540 min⁻¹. The tractor must be equipped with a single-acting hydraulic outlet.
Preparation de la machine

Réglage du liaison

La machine s'adapte à des tracteurs équipés d'un système 3 points du couplage catégorie 1 ou 2.

3 points, Catégorie 1:
- Placez les liens inférieurs en position a:

3 points, Catégorie 2:
- Placez les liens inférieurs en position b:
**Coupling the machine**

- Lower the tractor three-point linkage.
- Attach lower links to the hitch pins on either sides of the machine (a).
- Secure each hitch pin with lynch pin (b).

- Attach top link.

- Lift the machine using the tractor lift linkage until the parking stand no longer rests on the ground.
- Press push-button (1) and retract parking stand (2) until push-button engages in position (3).
Hydraulic connections

Connect the mowing unit lift cylinder to a single acting valve.

Check chain

Fit check chains
See section "Frame height adjustment" to position the check chains.
Primary PTO shaft

Make sure that the PTO shaft is correctly adjusted, to avoid premature wear and tear.

The tractor PTO stub must rotate at a speed of 540 min⁻¹.
Separate the two half PTO shafts and connect them to the machine's input shaft and to the tractor PTO stub.
Check the length of the PTO shaft:
- When the PTO shaft is in its maximum overlap position (retracted), tubes should not butt against the yokes. As a safety measure, a clearance (L) of at least 25 mm (1'') must be maintained.
- When the PTO shaft is in its maximum extended position, the tube overlap must be more than 250 mm (10'').

If this is not the case:
• Mark length (H) to cut when the transmission is the maximum overlap position.
• Shorten the guard tubes and the transmission tubes by the same length.
• Bevel and clean the tubes.
• Grease the inside of the outer tube.

Never operate the PTO shaft at an angle X exceeding 30°.

To avoid serious accidents, the PTO drive shaft guards must be properly in place and fixed with the chains provided.
Attach PTO shaft guard using chain provided in order to prevent it from rotating.

Immediately replace any worn or damaged guard.

Adjusting the machine

Positioning of lower links
- Measure dimension A.
- Adjust tractor lower link stabilizers to measure A = 50 mm (2").

Hitch pin parallelism.
From the headland turn position:
Measure and adjust the height of the hitch pins until the same measure is obtained on each side:
- Note the difference in height between the two hitch pins.
Place the machine in working position:
Adjust the tractor left levelling rod according to the difference in height.
Place the machine in headland turn position.
Check the difference in height between the 2 hitch pins.
Proceed the same way to obtain identical (A) and (B) heights.
Frame height and check chains.

- Tractor fitted with a hydraulic position control function:
  • Lower the tractor lift linkage so that hitch pins are at a distance \( H = 400 \text{ mm (1'4'')} \) from the ground.
  • Note the corresponding lever position in the tractor cab.

  It is not necessary to use the check chain supplied with the machine.

- Tractor not fitted with a hydraulic position control function:
  • Lower tractor lift linkage until hitch pins are at a distance \( H \) slightly over \( H = 400 \text{ mm (1'4'')} \) from the ground.
  • Insert hook (1) in check chain link corresponding to the required frame height and lock using roll pin (2).
  • Attach each check chain with its hook supplied with the machine to one of the upper free holes at the tractor's top link attachment clevis.
  • Lower the machine until the check chain is under tension.

The tractor lift linkage is in working position.
The height is correct when:
  • The cutterbar is resting on the ground.
  • The check chain is under tension.
  • The distance \( H = 400 \text{ mm (1'4'')} \).
  • The 2 hitch pins are parallel to the ground.

Refer to the decal fitted on the machine to check the distance between the hitch pins and the ground.
**Safety breakback**

On hitting an obstacle, the safety breakback causes the cutterbar to pivot rearwards.

If the machine hits an obstacle, disengage the PTO drive, stop the tractor engine, remove the ignition key and wait for all moving parts to come to a complete standstill.

*In case an obstacle has been struck, check that the mowing unit has not been damaged.*

The safety breakback is reset by reversing (a).

If the safety breakback releases after reset, tighten screw (1) to increase spring washer compression.

**Basic adjustments:**

- L = 94 mm (3.7”)
- a = 4 times 2 washers.
- b = 9 times 3 washers.
- c = 3 times 2 washers.
Uncoupling the machine

- Lift the machine with the tractor’s three point linkage.
- Remove lynch pin (1) and pin (2).
- Put compensation system in working position using pin (2) and lynch pin (1).
- Remove R-clip (2).
- Remove transport lock (1).
- Install lock (1) on frame.
- Secure using R-clip (2).

For tractors not fitted with a hydraulic position control function, unhook check chain.

The machine must be uncoupled in working position.
- Activate the transport/work cylinder control valve in the "pivot into work" position.

- Place the machine in headland turn position.
- Press push-button (1) and lower parking stand (2) until push-button engages in position (3).
- Lower the tractor three-point linkage to rest the machine on the ground.

- Detach the top link from the machine end.
- Uncouple the primary PTO shaft.
- Support PTO shaft with check chain attached around the hitch pin (1).
- Disconnect hydraulic hose from tractor.
- Release the lower links.
- Lower the tractor three-point linkage.

The machine is uncoupled.
INSTRUCTIONS FOR TRANSPORT

Before placing the machine into transport position:
- Check that nobody is within the machine pivoting area.
- If there is someone, make sure the person moves away.

1. Putting the machine into transport position

From the working position:
- Lift the machine with the tractor's three point linkage.
- Remove lynch pin (1) and pin (2).
- Lock compensation system in transport position using pin (2) and lynch pin (1).
- Unlock and lift front guard using 18mm box spanner supplied with the machine.
- The guard locks automatically.

Instructions for transport
- Activate the transport/work cylinder to bring the mowing unit in transport position.

- Remove R-clip (2).
- Remove transport lock (1).

- Install transport lock (1).
- Secure using R-clip (2).

The machine is in transport position.

Never engage the tractor PTO drive when the machine is in transport position.
2. Conformity with the road regulations

Before driving the machine on public roads, ensure that the machine complies with current highway code regulations.
INSTRUCTIONS FOR WORK

Before placing the machine in working position:

- Check that nobody is within the machine pivoting area.
- If there is someone, make sure the person moves away.

1. Putting the machine into work position

From the transport position:
- Lift the machine with the tractor's three point linkage.
- Remove lynch pin (1) and pin (2).
- Put compensation system in working position using pin (2) and lynch pin (1).

- Remove R-clip (2).
- Remove transport lock (1).
- Install lock (1) on frame.
- Secure using R-clip (2).

- Activate the transport/work cylinder control valve in the "pivot into work" position.

- Press lock (1) and lower front guard (2).
- The guard locks automatically.

The machine is in working position.

During work, only use the tractor lift linkage to place the machine in headland turn position.
2. Adjustments in working position

- **Cutting height**
  
The desired cutting height is obtained directly by adjusting the top link length. The height can be adjusted between 30 and 80 mm (1.1” - 3.1”) depending on the tractors.
  
  To obtain a different cutting height:
  - Place the machine in working position.
  - Lower the machine on the ground to remove weight from the top link.
  - Modify the top link length to alter the machine tilt angle.
  - Place the machine in working position to check cutting height.

---

Too low a cutting height can lead to:

- Excessive disk and knife wear.
- Crop being contaminated by soil.
- Delay in regrowth.
Swathing system

The swathing system comprises:
- A swath shield.
- A swath stick.

The swath stick fitted on the swath shield can be adjusted in 6 positions according to the working conditions:

Adjust stick angle according to the crop density and length.
### On slopes

For mowing on slopes exceeding 10° below horizontal, lengthen cylinder rod.

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**Coupling device (a):** Work on flat grounds.

**Coupling device (b):** On slopes (X).

To switch from configuration (a) to configuration (b):
- Remove bolts (1) and nuts (2).
- Offset rod (3) to the required position.
- Reinstall bolts (1) and nuts (2).
- Tightening torque: 4.9 daN m (36 lbf ft).
3. Machine use

Before mowing and to reduce risks of projections, lower the front guard. Keep all persons and animals away from the machine danger zone.

Never lean or step on the protection cover.

Before the machine engages the crop:
- Engage the tractor PTO and slowly increase the speed up to 540 min\(^{-1}\).
During work, only use the tractor lift linkage to place the machine in headland turn position.

Drive speed

Adapt the forward speed to the working conditions.
OPTIONAL EQUIPMENT

1. Raised skid shoes

   Kit no. KN1016400
   The raised skid shoes enable mowing higher, between 60 and 120 mm (2.4” - 4.8”).
   Replace the end disk skids by the 2 raised skid shoes.

   The use of raised skid shoes is also recommended on sticky grounds.

2. Inner swath shield

   Kit no. KN1036000
   The inner swath shield enables reducing the swath width by approximately 30 cm (1’) depending on the crop density.

3. High cone disk

   Kit no. KN1046060
   Replace second disk with the high cone disk to reduce swath width by approximately 30 cm (1’) depending on the crop density.
4. Compensating spring

Kit no. KN1046070

The additional compensating spring provides better floatation on very irregular or soft grounds.
Before adjusting, maintaining or repairing the machine, turn off ignition key and wait until all moving parts have come to a complete stop.

## 1. Frequency chart

<table>
<thead>
<tr>
<th></th>
<th>After the first 10 hours of use</th>
<th>Every 200 hours or at the end of the season</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Oil change:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Cutterbar.</td>
<td>☑</td>
<td>☑</td>
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<tr>
<td>- Side gearbox.</td>
<td></td>
<td></td>
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<tr>
<td><strong>Check and clean:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Breather plug</td>
<td>☑</td>
<td>☑</td>
</tr>
</tbody>
</table>
2. Lubrication

Clean grease zerks before greasing.

Lubricate with multi-purpose grease grade NLGI 2.

PTO shaft

Primary PTO shaft
- Every 8 hours:
  • universal joints (1).
- Every 20 hours:
  • transmission tube (2).
- Every 40 hours:
  • Guide rings (3).
Cutterbar draining and refilling

Before draining oil, operate the machine for a few minutes so that the oil warms up.

The cutterbar is lubricated with 2.25 L (0.59 US gal) of extreme-pressure gear oil with viscosity grade SAE 80W90 and API grade GL5.

When draining and refilling, it is recommended to use either a mineral base oil with viscosity grade SAE 80W90 and API grade GL5, or a synthetic base oil, type PAO (Poly-Alpha-Olefins) with a viscosity grade equivalent to SAE 80W90.

Never use an oil of viscosity SAE 90 in the cutterbar.

From the transport position:
- Place a container of sufficient capacity under drain plug.
- Remove filler plug (1) and its washer.
- Remove drain plug (2) and its washer.
- Allow oil to drain completely.
- Wait for dripping to stop.
- Clean and reinstall drain plug (2) and its washer. Replace if necessary.
- Pour the correct oil quantity and quality through the opening of the filler plug.
- Clean and reinstall filler plug (1) and its washer. Replace if necessary.
■ Lateral gearbox draining

Before draining oil, operate the machine for a few minutes so that the oil warms up.

The lateral gearbox is lubricated with 0.25 L (0.5 US pints) of extreme-pressure oil for mechanical transmissions with viscosity grade SAE 80W90 and API grade GL5.

When draining and refilling, it is recommended to use either a mineral base oil with viscosity grade SAE 80W90 and API grade GL5, or a synthetic base oil, type PAO (Poly-Alpha-Olefins) with a viscosity grade equivalent to SAE 80W90.

From the transport position:
- Remove filler plug (1) and its washer.
- Place a container of sufficient capacity under drain plug.
- Remove drain plug (2) and its washer.
- Allow oil to drain completely.
- Wait for dripping to stop.
- Place the machine in working position. (See chapter: Putting the machine into work position).
- Pour the correct oil quantity and quality through the opening of the filler plug (1).

- Check lateral gearbox oil level:
  - The oil level must reach the lower edge of the emptying hole.
- Clean and reinstall drain plug (2) and its washer.
- Clean and reinstall filler plug (1) and its washer.
3. Maintenance

Before adjusting, maintaining or repairing the machine, turn off ignition key and wait until all moving parts have come to a complete stop.

- Belt tension

Regularly check belt tension and in particular during the first hours of use.

Never replace belts individually. Replace belts in full sets.

Checking the tension:
Apply a force of 3.5 daN (8 lbf) on the belt: the belt should not deflect more than 10 mm (0.39") (H).
Adjusting the tension:
- Unscrew the 2 nuts (1).
- Tighten screw (2) to tension belts.
- Check belt tension.
- Tighten the 2 nuts (1).
- Torque: 13 daN m (96 lbf ft).

Breather plug checking and cleaning

From the working position:
- Remove breather plug (1).
- Clean and check breather plug for good functioning (1).
- Reinstall breather plug (1).
### Checking cutterbar oil level

Regularly check the cutterbar oil level:
From the transport position:
- Remove filler plug (1).

The oil must reach the lower edge of the filling hole.
- Top up if necessary.
- Clean and reinstall filler plug (1) and its washer. (Replace if necessary).

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If it is found that the transmission case is very hot to touch by hand, there is no cause of alarm provided:

- Lubrication recommendations have been respected.
- Disks can be rotated freely by hand when the machine is hot.

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Before checking that the disks rotate freely by hand:

- Turn off the engine, remove ignition key and wait until all moving parts have come to a complete stop.
Inspection of knives and securing elements

Knives

Inspect systematically all knives before the machine is operated to:

- guarantee the cutting quality.
- guarantee safety in use.
- Prevent cutterbar damage risks.

Replace knives in the following cases:

- Damaged knives. Very rough conditions can cause knives to crack and become deformed.
- Worn knives

Knife length C must exceed 80 mm (3.15”).

Knife width B, measured at a distance A of 10 mm (0.4”) from the disk edge must exceed 20 mm (0.8”).

The hole L for the securing bolt must not become oval by more than 20 mm (0.8”).

Always replace both knives per disk to avoid creating an out-of-balance force.

Immediately replace worn or damaged parts with original manufacturer parts.
Fixing elements

Check the fixing elements:
- After hitting an obstacle.
- When replacing knives.
- At the beginning of each season.

The fixing bolts should be changed in the following cases:
- When there is visible distortion.
- When the locking compound is worn or inoperational.
- When the bolt head wear reaches the center line of the bolt.
- When diameter D of the bolt shoulder is less than 15 mm (0.6”).
- After having been removed 5 times.

Replace nuts in the following cases:
- When the contact washer has lost its elasticity.
- When the contact washer loosens itself from the nut.
- When nut wear reaches $a = 5 \text{ mm (0.2“)}$.
- After having been removed 5 times.

Check the condition of the fixing elements regularly and also the torque of the knife-fixing bolt: 12 daN m (89 lbf ft).
## Knife replacement

*Replace knife lock-nuts and bolts when they have been removed 5 times.*

*Replace immediately all worn or distorted knives. Never straighten a bent knife.*

*Always replace both knives per disk.*

Clean the nut case.
Place a wooden wedge between two disks to stop them from rotating.
Loosen nut using box wrench supplied with the machine.
Remove bolt through opening located at the front of the disk guard.
Knives can be turned over on the same disk to use the other cutting edge or replaced. On each knife, an arrow indicates the disk's direction of rotation.
Make sure that the securing nut and bolt are in good condition and if necessary, replace them.
Torque knife locknut to 7.5 daN m (55 lbf ft).
Dull knives require more horse power and have a negative effect on the cut quality.

## Disk replacement

Place a wooden wedge (2) between two disks to stop them from moving.
Remove nut (1).
Remove the disk.
When remounting:
Position their largest diameters at right angles to each other.
Position conical center of spring washer at the top.
Tighten nut (1).
Torque: 18 daN m (133 lbf ft)
4. Storage

- **At the end of each season**
  - Clean the machine thoroughly.
  - Drain all gearboxes and cutterbar and refill with new oil (see "Lubrication" chapter).
  - Touch up any areas of damaged paintwork.
  - Put the machine under cover in a dry place.
  - Inspect and replace worn knives and bolts (See section "Inspection of knives and securing elements").
  - Slacken V-belts and check their condition.
  - Fully lubricate the machine.

- **At the start of each season**
  - Check that all nuts and bolts are sufficiently tightened.
  - Retension belts.
  - Check that safety breakback system functions.
  - Re-read the operators' manual.
  - Make sure all the guards are in place.

When replacing outer and inner cones, make sure to reinstall caps.
<table>
<thead>
<tr>
<th>Problem</th>
<th>Cause</th>
<th>Remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Uneven stubble.</td>
<td>Dull or broken knives.</td>
<td>Replace knives.</td>
</tr>
<tr>
<td></td>
<td>Knives not installed correctly.</td>
<td>Make sure the arrow on the knife upper face is pointing in the disk's direction of rotation.</td>
</tr>
<tr>
<td></td>
<td>Too low PTO speed (rotational frequency).</td>
<td>Increase speed to 540 min⁻¹.</td>
</tr>
<tr>
<td>Soil build up in front of the cutterbar.</td>
<td>Very wet working conditions.</td>
<td>Adjust main frame height with regards to the ground.</td>
</tr>
<tr>
<td></td>
<td>Too much cutterbar down pressure.</td>
<td>Fit compensating spring.</td>
</tr>
<tr>
<td>Bad ground contour adaptation.</td>
<td>Incorrect main frame setting.</td>
<td>Adjust main frame height with regards to the ground.</td>
</tr>
<tr>
<td></td>
<td>Excessive ground speed.</td>
<td>Reduce ground speed.</td>
</tr>
<tr>
<td>Insufficient cutterbar ground clearance in &quot;headland turn” position.</td>
<td>Incorrect tractor lift linkage setting.</td>
<td>See machine attachment.</td>
</tr>
<tr>
<td></td>
<td>Too long levelling rod adjustment on tractor 3-point lift.</td>
<td>Shorten levelling rods on tractor 3-point lift.</td>
</tr>
<tr>
<td></td>
<td>Lengthened cylinder rod.</td>
<td>Shorten cylinder rod.</td>
</tr>
<tr>
<td>Considerable vibrations.</td>
<td>Nylon plug missing.</td>
<td>Immediately replace missing cap.</td>
</tr>
<tr>
<td>Too frequent safety breakback release.</td>
<td>Insufficient spring washer compression.</td>
<td>Increase spring washer compression.</td>
</tr>
<tr>
<td>Poor division between cut and uncut crop.</td>
<td>Tangled and down crops.</td>
<td>Check swath shield retaining spring tension.</td>
</tr>
</tbody>
</table>