

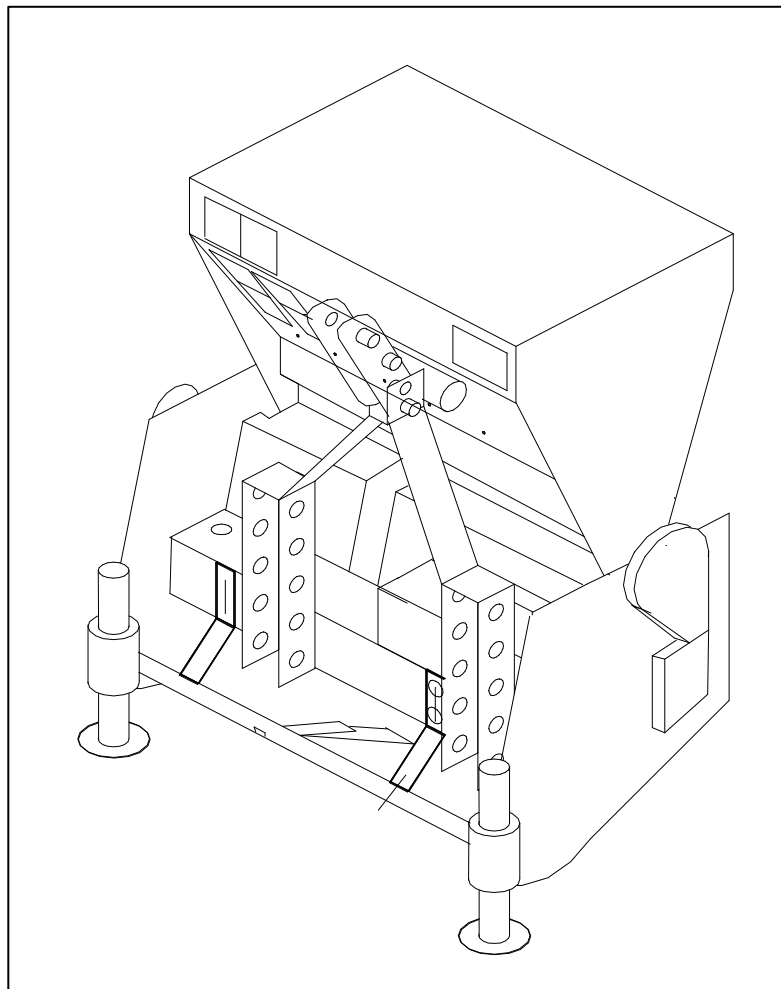
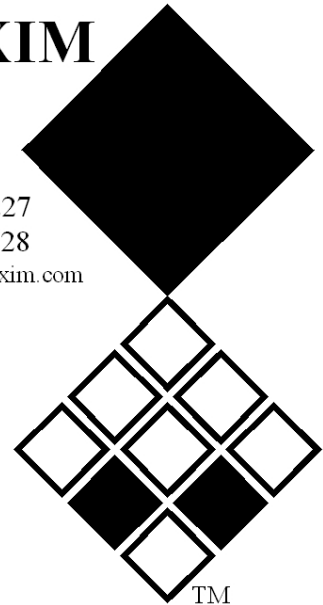
Operator and Parts manual Verti-Seed®

Model 004-804 / 004-1204

Serial number:

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NOTE:

IN ORDER TO ENSURE THE SAFE USE AND TO ACHIEVE THE BEST PERFORMANCE, IT IS ESSENTIAL THAT THIS OPERATORS MANUAL IS CAREFULLY READ BEFORE THE VERTI-SEED IS USED.

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Introduction / Conditions of Guarantee / Registration card.

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SAFETY INSTRUCTIONS

- * Always use the VERTI-SEED with the correct tractor as described in the technical information.
- * The user is responsible for a safe Tractor/VERTI-SEED combination. The combination must be tested for noise, safety, risk, and easy usage. It is also necessary to draw up user instructions.
- * The VERTI-SEED is suited exclusively to grass fields.
- * Every VERTI-SEED user must be fully informed of the information contained in the user manual.
- * Inspect the area to be sown. Remove loose obstacles, avoid uneven ground.
- * **NEVER** step off the tractor if the engine is still running.
- * Ensure that other people are standing at least 4 metres (14') away from the VERTI-SEED.
- * Use appropriate clothing. Wear strong shoes with a steel reinforced toe cap, long trousers, tie up long hair. Do not have any loose pieces of clothing.
- * Check the VERTI-SEED once a week to ensure there are no loose screws or nuts and bolts.
- * The VERTI-SEED may never be used without protective covers and safety stickers.
- * **NEVER** crawl underneath the VERTI-SEED. If you need to work underneath, turn the VERTI-SEED on its front.
- * Use only the original VERTI-SEED spare parts in order to ensure the safe operation of the machine.
- * Never use VERTI-SEED in the dark, in heavy rain, frozen ground or stormy conditions or on slopes greater than 20 degrees.
- * Before operating the machine, also read the instructions and maintenance information for the power take-off. This component has its own certification mark.
- * Maintain a log book of repairs.
- * If any modifications are carried out on the machine the CE certification mark will be no longer valid. The user/dealer himself must then have the machine re-certified.

FOREWORD

Congratulations on the purchase of your VERTI-SEED. To ensure the safe and lasting operation of this VERTI-SEED you (and anyone using the machine) should read and understand this user's manual. A complete knowledge of the contents of the manual are necessary in order to ensure the safe use of this machine.

The VERTI-SEED is not an independently operating machine. It is the responsibility of the user to use the correct tractor.

The user will also need to check the tractor/VERTI-SEED combination on safety aspects, noise level, user instructions and risk analysis.

The VERTI-SEED is intended exclusively for grass fields or areas in which grass can grow.

In the following page, we will begin with the safety instructions. Every user must be familiar with these instructions and must follow them carefully. Below you will find a registration card which should be returned to us so that we are able to process any future claim.

In this user manual, many instructions are given which are stated in a numbered sequence. The user must follow the instructions according to this sequence. If the * appears this refers to safety instructions. If the @ is used this refers to a tip and/or note.

GUARANTEE CONDITIONS

ALL VERTI-SEED PRODUCTS ARE DELIVERED TO THE CUSTOMER ACCOMPANIED BY A GUARANTEE AGAINST DEFECTS IN THE MATERIALS USED.

THIS GUARANTEE APPLIES FOR A PERIOD OF 6 MONTHS AS OF THE DATE OF PURCHASE.

VERTI-SEED GUARANTEES ARE SUBJECT TO THE "GENERAL CONDITIONS FOR SUPPLY OF PLANT AND MACHINERY FOR EXPORT, NUMBER 188" WHICH ARE PUBLISHED UNDER THE AUSPICES OF THE UNITED NATIONS ECONOMIC COMMISSION FOR EUROPE.

REGISTRATION CARD

To avoid problems with any warranty claim, please fill in this card and send it to us.

Date of purchase:	Send to: Redexim Utrechtseweg 127 3702 AC Zeist Holland
Name and address of purchaser:	
Name of distributor:	
Series number of machine:	

1.0 TECHNICAL INFORMATION

Model	004.804/ 1204
Working width	004.804 : 80 cm (2' 8") 004.1204: 120 cm (4')
In-between sowing distance	4 cm (1-1/2")
Sowing depth	Up to 3 cm (1-1/4")
Weight (incl. 3 weights)	004.804 : 450 kg (990 lbs) 004.1204 : 590 kg (1300 lbs)
Tractor	004.804 : From 17 pk Lifting capacity min. 600 kg (1300 lbs) Front wheel pressure after lifting min. 200 kg 004.1204 : From 22 Pk Lifting capacity min. 750 kg (1650 lbs) Front wheel pressure after lifting min. 250 kg
Category	Cat 2
PTO	0 - 540 rpm
Speed	Up to 8 km/h (5 mph)
Capacity	004.804 : Up to 6000 m ² / hour (7200 sq yd/h) 004.1204 : Up to 10000 m ² / hour (12000 sq yd/h)
Gear box oil	SAE 90 EP
Tyre pressure	1 - 2 bar 14- 28 psi
Consignment measurements	004.804 : 115x60x110 cm 46"x24"x44" 004.1204: 155x60x110 cm 62"x24"x44"

2.0 SAFETY FEATURES / STICKERS

There are a number of stickers affixed to the VERTI-SEED.

RA = Read manual before use. This applies to all first time users and also to those who are no longer up to date with the machine.

RC = When maintenance is being carried out, or while making adjustments or carrying out inspections, the tractor engine must be switched off, the coupling for the PTO disconnected and the machine blocked/supported.

RD = Be aware of rotating parts. NEVER step down from the tractor while the engine is still running and ensure that other persons keep a minimum distance of 4 metres (14').

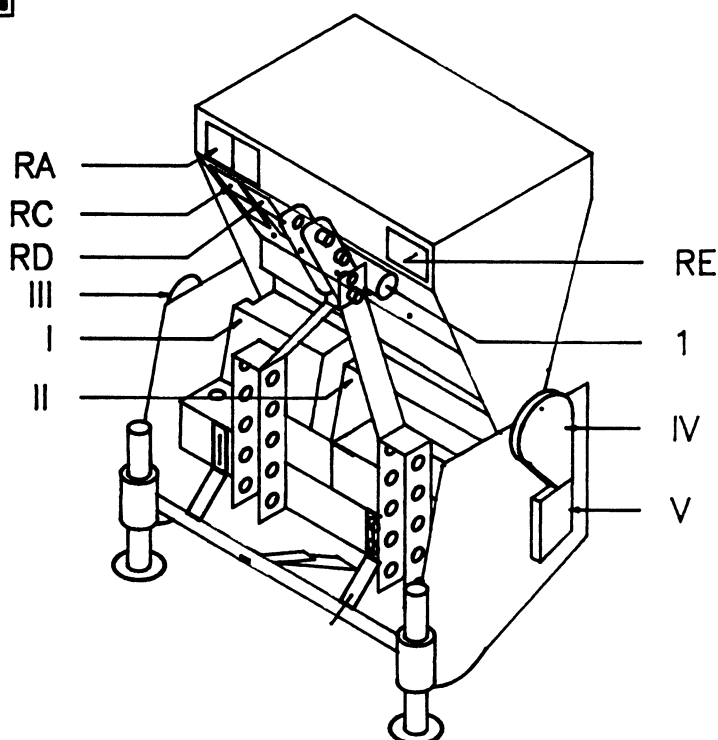
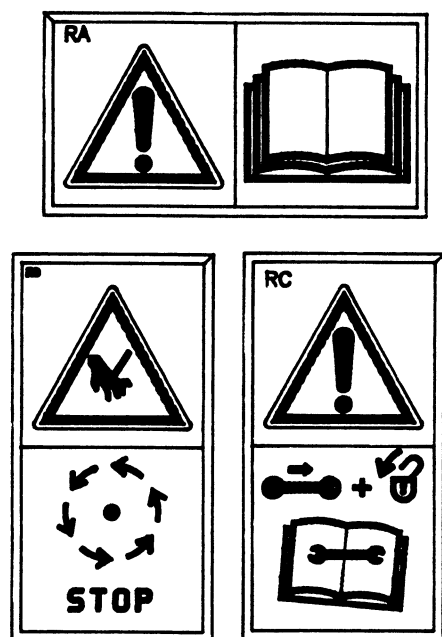
RE = Serial number plate on the machine with CE symbol and relevant data.

In addition, the VERTI-SEED has a number of safety guards:

I + II = Front guards

III + IV + V = Safety guards for the drive

The user's manual can be found in the case (1) which is affixed to the machine.



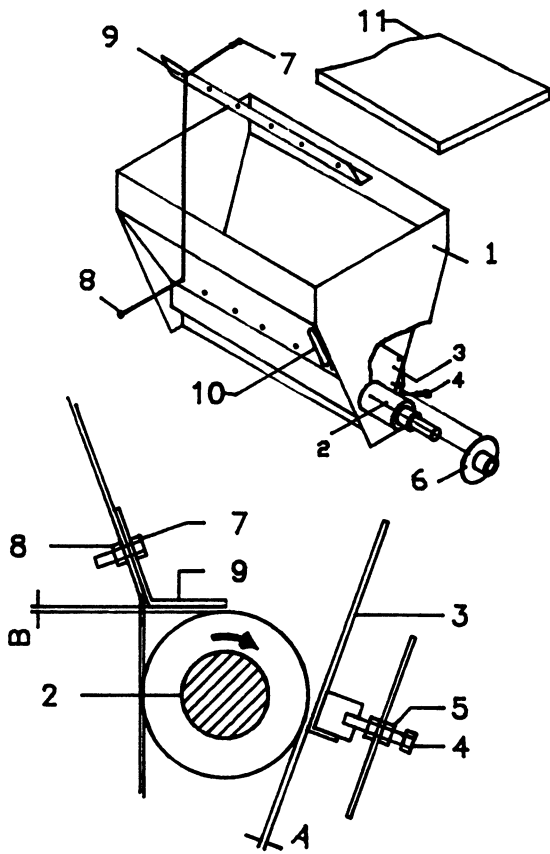


FIG.1.

3.0 THE SEED HOPPER fig. 1

The seed hopper consists of a collection box 1 with a driven rubber roll 2. The lid can also be used to collect the seed under the machine during calibration. The opening 10 is for the purpose of observation.

3.1 ADJUSTING THE SEED SLOT

The slot between roll 2 and plate 3 ("A") can be adjusted by slackening bolt 4 and nut 5. The slot must be uniform along the entire width of the machine. The size A must equal the size of the smallest seed. The standard adjustment for A is 0.3 mm

3.2 ADJUSTING THE SCRAPER

The scraper 9 acts as a seal. By slackening off bolt 7 and nut 8, the distance B can be adjusted. The scraper must not rest on the roll 2.

4.0 THE DRIVE OF THE SOWING SHAFT fig. 2

The wheel 10, which is mounted independently of the machine, drives the sowing shaft 2 (Fig. 1) by means of chain 11, change wheels 20 & 14 and chain 18.

The spring and set screw 17 ensure that the wheel 10 remains in contact with the ground.

The machine is supplied with a standard kit containing 3 sets of change wheels which can be used in two positions. 6 doses is the standard amount of doses possible. The other two sets of change wheels can be found at the front of the machine, on the left hand side, underneath the safety guard.

In addition, a set of change wheels and a low range kit are available as options.

This low range kit consists of an extra change wheel 6, an extra chain tensioner 12 and an additional length of chain. This kit replaces chain wheel 6.

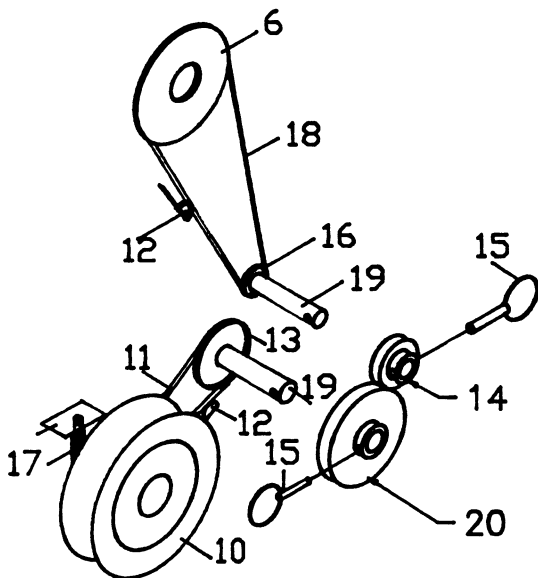


FIG.2.

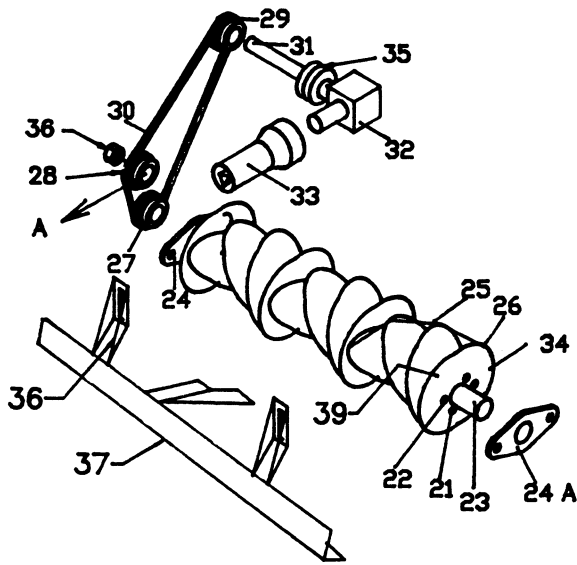


FIG.3.

5.0 THE CUTTING DISCS fig. 3

The cutting discs cut a groove in the ground. This groove must have the correct depth. It is possible to adjust this depth.

The cutting shaft is driven by means of the PTO 33, the gear box 32, the flexible coupling 35 and the chain 30.

5.1 THE CUTTING DEPTH OF THE DISCS

The cutting depth of the cutting discs can be adjusted by modifying the tractor coupling (See 8.3) or by adjusting the strain on the laminated suspension spring 37. This spring 37 must always be uniformly adjusted. Markings can be found on both holders 36 to facilitate this purpose.

5.2 THE DRIVE CHAIN

The tension of the drive chain can be changed by slackening nut 38 slightly and then sliding the tension wheel in the direction of A.

5.3 CHANGING THE CUTTING DISCS

It is important that the discs are not allowed to rotate unnecessarily. When working in hard and/or matted ground, it will be necessary to drive more slowly and the discs will have to rotate more than in softer ground. If the discs rotate too quickly or the machine is driven too slow, the discs will wear out more quickly.

The discs are replaced as follows:

1. Place the machine on the ground with the front raised.
2. Slacken the chain tensioner 28.
3. Slacken the bearing 24A; the cutting shaft drops down on one side.
4. Slacken the bolts/nuts of the bearing 24.
5. Slacken the nuts 22 of the central bolt.
6. It is now possible to slide the discs using the spacers on the shaft 23. (Slacken the locking screws 39 in the first and last spacer. For the end discs, it will be necessary to slightly rotate the shaft 23 every time.)
7. Clean all parts.
8. Fit the new discs. The same spacers are used again.
9. The discs MUST be fitted in a spiral fashion (26).
10. Tighten all the bolts and nuts again in the same sequence as when slackened.

* Secure the machine to ensure that it cannot slip or fall over.

The discs can also be changed using another method. Once the chain 30 and the chain wheel 27 have been removed, it is possible to remove the entire shaft.

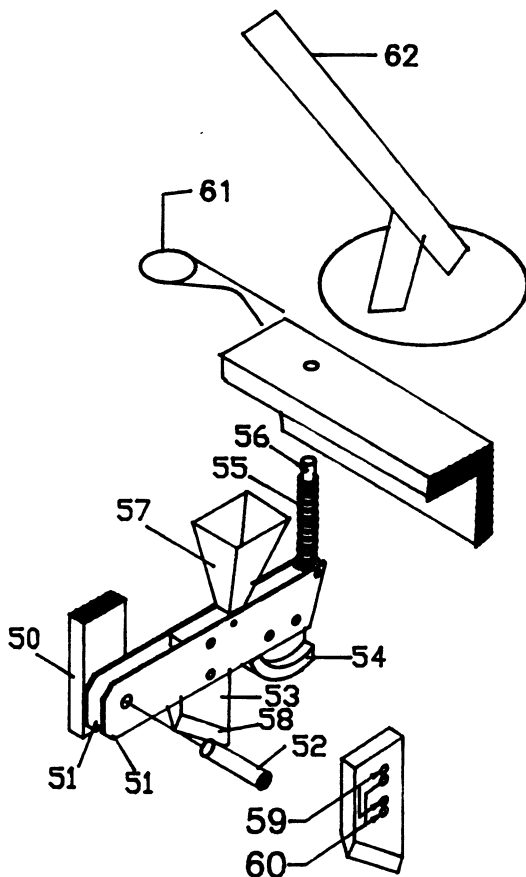


FIG.4.

6.0 THE SOWING COMPONENT fig. 4

There are a number of individually suspended sowing components on the VERTI-SEED.

The knife 53 opens out the groove which has been cut by the cutting discs. Then seed is dispersed via the funnel 57 into the groove. The slide block 54 closes the groove. The spring 55 maintains all individual sowing components under prestress.

There are two possible positions for the knife 53. Holes 60 for shallow sowing and a standard position which is hole 59.

The barrel arbor 56 has an extra hole. After the spring 55 is removed, the sowing component can be slid upwards and secured with a spring clip 61. If this is done alternately, then there is less risk of damage when working on an extremely weak turf.

@ If the sowing components cause too much damage, then it is necessary to modify the adjustment for the tractor, see 8.3. Another option is to remove the weights.

6.1 THE REAR SUPPORT

The purpose of the rear support 62 is to ensure that the sowing components do not touch the ground during starting up. Once the machine has started up, the sowing components "step" into the groove which has just been cut, without damaging the turf.

@ The support 62 can only be used in combination with the flexible top bar connection, see 8.3.

@ When in the secured position, the support 62 can be used to support the machine during storage.

@ It is possible to work without the support 62. The top bar can then be blocked.

This is necessary if one wishes to use greater working speeds (greater than 4 km/h, 2.5 mph).

7.0 THE MAIN FRAME

The support 74 can be secured in either a low or a high position using the locking pin 84. In addition, the rear support 75 can also be secured. With the supporting legs secured it is possible to store the machine safely when not in use.

The height of the laminated suspension spring 82 can be adjusted using nuts 83. The suspension springs, consisting of a short 89 and a long 90 spring, suspend the machine in the centre of the cutting shaft. With the result that an uneven terrain has little or no influence on the working depth.

7.1 THE WEIGHTS ON THE MACHINE

The machine is normally supplied with 3 weights: 2 x 77 on the back and 1 x 76 on the front to act as compensation for the driving wheel.

In addition to these weights, it is possible to fit three extra weights: 2 x 78 on the back and 1 x 81 on the front.

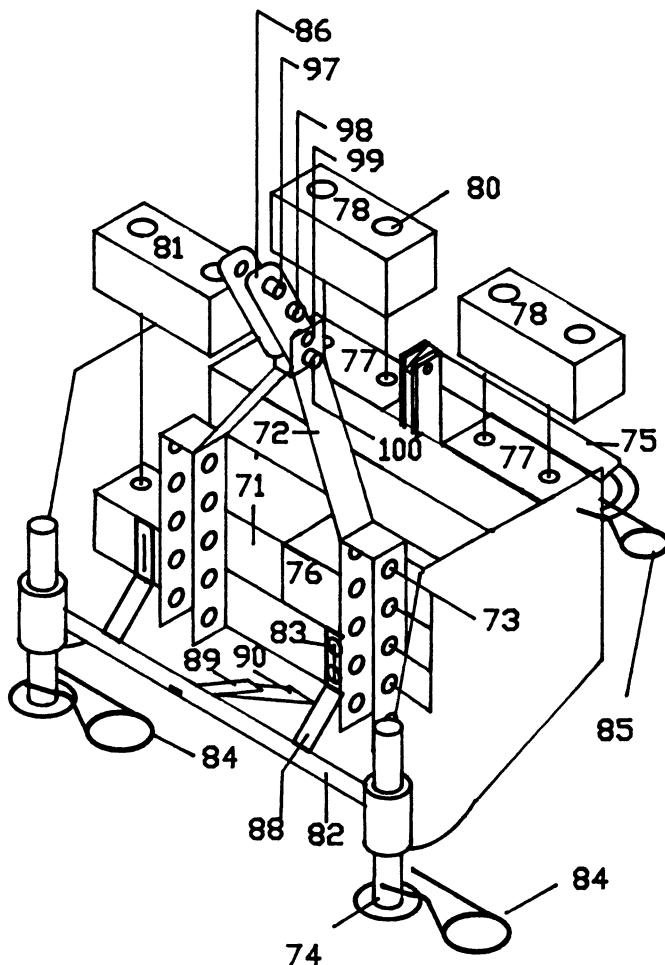
7.2 THE HINGE JOINT OF THE ROD COUPLING

The hinge joint 86 creates the flexible rod coupling for the tractor. This hinge joint can be blocked using pin 98.

Flexibility is necessary so that the Verti-seed can follow the contours of the terrain as accurately as possible. The flexibility restricts the maximum speed to approximately 4 km/h (2.5 mph). Above this speed, the hinge joint 86 must be secured and the support 75 must be removed.

@ It is also recommended to secure the hinge joint 86 during transportation.

The three-point lower arms can be positioned in a number of holes 73. The position is extremely important with respect to the cutting depth of the groove, see 8.3.



8.0 PREPARATIONS FOR (FIRST TIME) USE

The VERTI-SEED is unloaded on a wooden pallet on delivery. The tractor can be hitched up directly. The rear support is then attached. Subsequently, the PTO can be adapted to fit correctly.

8.1 ADAPTING THE PTO

To determine the exact minimum length of the PTO, block the rear support and slide both front support upwards. Then carefully lower the machine to the ground into the 3 points of the tractor and tilt forward. This is the position used when shortening the PTO.

The procedure is as follows:

- Measure the PTO distance between the tractor and the VERTI-SEED from groove to groove (A).
- Measure the distance of the PTO itself in the non-extended position from locking pin to locking pin (B).
- The PTO must be shortened by $C=B-A-50\text{mm}$ (2").
- Take the PTO apart. Remove the safety guards. Shorten all parts C.
- Deburr the PTO parts and reassemble.

8.2 PREPARATIONS FOR SOWING

The machine is now ready for use. To obtain the correct result, the following steps must be carried out first:

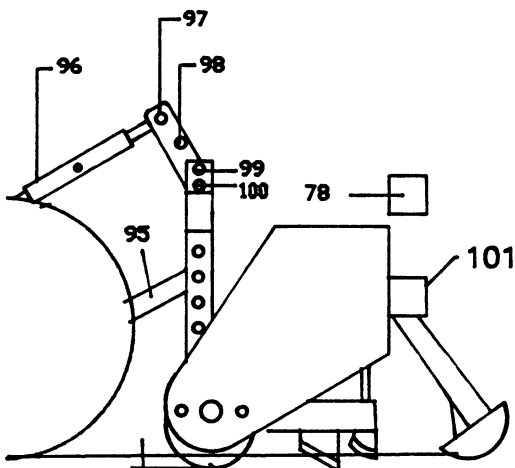
- Put the seed into the seed hopper.
- Determine dose with the aid of the change wheels.
- If preferred, run a test. See section 9.0.
- Adjust the working depth.
- Check the sowing components to ensure that the funnels are not blocked.
- Remove the locking pins from the support.
- Rotate side wheel once (anti-clockwise) and check sowing pattern.

* During all inspections and adjustments, the tractor engine must be turned off and the machine must be completely supported on the ground.

8.3 THE TRACTOR COUPLING fig. 6

If the hinge joint 97 can move freely, the position of the lower arm 95 determines the amount of weight on the cutting shaft. When in a high position, the arm 95 is inclined to pull the machine over forwards so that the weight is transferred from the back of the machine to the front. This is necessary if the cutting discs will not penetrate.

When working in soft ground, the lower arms 95 can be moved downwards to reduce the weight of the cutting shaft thereby transferring the weight to the tractor. (See also 7.2.)



Therefore if the hinge joint 97 can move freely, the cutting depth adjustment is a dynamic action. If the hinge joint 97 is in a fixed position, the VERTI-SEED will rest on the rear side blocks of the sowing components and the working depth can be adjusted to a static position. In the latter case, the VERTI-SEED will not follow all the surface irregularities.

With both the dynamic and the static adjustments, extra weights 78 can be added. See also 7.1. It is also possible to remove the standard weights.

8.4 SOWING

Once the machine is ready, sowing can commence, as follows:

- Inspect the terrain for any obstacles (remove) and for any large areas of uneven ground (avoid).
- Determine the sowing direction. It is important to sow in straight rows. Slight curves are possible.
- Switch the PTO to 540 rpm.
- Start with a speed of approximately 3 km/h (2 mph).
- Turn the engine to 1300 rpm.
- Lower the VERTI-SEED to the ground. (If the flexible hinge joint is on the rear support, the machine will tilt over.)
- Sow a straight row.
- Raise the machine out of the ground at the end of the row.
- Check if the sowing has been carried out satisfactorily.

@ The PTO may continue to rotate while manoeuvring to the next starting point.

@ If the rear support is removed and the hinge joint is secured, the machine can be lowered without stopping and one can recommence while still driving.

@ It is important to closely watch the machine while it is being lowered into the ground.

@ Repeated crisscross sowing is possible.

9.0 THE SEED DOSE

The table on the following page gives the doses which are possible for the VERTI-SEED.

As the table shows, the type of grass seed does not have any real bearing on the dose. This being due to the unique dose theory.

What is important is the adjustment of the seed slot in the seed hopper (See section 2.0). In principle, this seed slot is to be adjusted only once and it is not intended to be used as a method for adjusting the dose.

If one wishes to check the dose or if a different seed type is to be used, then the method for determining the sowing quantity is as follows:

- Ensure that the machine is standing safely on the ground and supported.
- Inspect the dose slot.
- Place the lid of the seed hopper under the machine.
- Rotate the driving wheel 13 revolutions COUNTER CLOCKWISE.
- Weigh the seed and multiply the value by 10 for the 804.
Weigh the seed and multiply the value by 6,66 for the 1204.
- This value is the theoretical amount in kg/100m².
- If the value obtained for the weighed seed is multiplied by 20, the theoretical amount in lbs/1000 sq ft is obtained.

9.1 THE SEED DOSE TABLE

COMMENT:

- The figures are in kg/100 m².
- The figures between brackets show the equivalent in lbs/1000 sq ft.
- The figures are theoretical values. Due to overlapping during start/stop actions, it is possible that the actual working values will deviate from these figures.
- Combination 2 : 2A means:
 Gear 2 left bottom, = gear 20 in fig. 2
 Gear 2A right top, = gear 14 in fig. 2
- The doses are determined with a slot width of 0.3 mm, see section 3.0.

"*" is an extra gear set.

"**" is an interchangeable chain wheel set for low range doses.

Gear standard	Bent Grass	Kentucky Bluegrass	Ryegrass
1 : 1A	0,4 (0.9)	0,4 (0.9)	0,4 (0.9)
4 : 4A*	0.5 (1.0)	0.6 (1.2)	0.5 (1.0)
2 : 2A	0.7 (1.4)	0.8 (1.6)	0.6 (1.2)
3 : 3A	0.8 (1.6)	0.9 (1.8)	0.7 (1.4)
3A : 3	0.9 (1.8)	1.0 (2.0)	0.8 (1.6)
2A : 2	1.1 (2.2)	1.1 (2.2)	0.9 (1.8)
4A : 4*	1.3 (2.6)	1.5 (3.0)	1.1 (2.2)
1A : 1	1.9 (3.8)	1.9 (3.8)	1.4 (2.8)

WITH LOW RANGE CHAIN WHEEL SET **:

1 : 1A	0.20 (0.40)	0.25 (0.50)	0.20 (0.40)
4 : 4A*	0.25 (0.50)	0.30 (0.60)	0.25 (0.50)
2 : 2A	0.30 (0.60)	0.35 (0.70)	0.30 (0.60)
3 : 3A	0.40 (0.80)	0.45 (0.90)	0.35 (0.70)
3A : 3	0.45 (0.90)	0.50 (1.00)	0.40 (0.80)
2A : 2	0.55 (1.10)	0.60 (1.20)	0.45 (0.90)
4A : 4*	0.60 (1.20)	0.75 (1.50)	0.55 (1.10)
1A : 1	0.85 (1.70)	0.85 (1.70)	0.65 (1.30)

10.0 TROUBLE SHOOTING

PROBLEM	CAUSE	REMEDY
Seed scatters out of seed hopper	Seed slot too wide Scraper position	Readjust Place closer to roll
	Side adjusting plate	Seal with tape / adhesive
Seed not in groove	Groove cut too shallow	Adjust cutting depth
	Funnels soiled Rear blades worn	Clean Replace
Funnels blocked	Funnels wet	Dry and postpone use
	Funnels soiled	Clean
Not able to obtain depth	Tractor coupling too low	Set arms in higher hole
	Not enough weights Ground too hard	Add weights Aerate / overhead irrigation
	Incorrect adjustment	Adjust laminated suspension spring
Laminated suspension springs cause marks	Too much weight	Modify tractor coupling
	Incorrect adjustment	Readjust laminated suspension springs
Turf damaged	Substandard turf	Improve condition Raise sowing components
	Working depth too great	Sow less deeply Adjust working depth
Sowing tubes blocked	Have become wet Soiled	Dry Clean
Drive wheel slips	Turf wet	Postpone work
	Tyre pressure too low	Pump up
	Dosing roll soiled	Clean
	Drive stiff	Lubricate

11.0 MAINTENANCE TO BE CARRIED OUT BY USER

The VERTI-SEED has been designed in such a way that it requires little maintenance. However the machine does require lubrication and cleaning.

11.1 MAINTENANCE SCHEDULE

Drive chain cutting shaft	:	Lubricate once a week with oil or special chain spray
Drive chain wheel		through holes in safety guard
Drive chain seed hopper		or along edge of protective cover.
PTO	:	Lubricate grease nipples (2x) once every 50 hours with 4 g grease.
Bearing drive shaft and cutting shaft	:	Lubricate grease nipples (3x) once every 50 hours with 4 g grease.
Gear box	:	Change oil: First time after 100 hours Then every 500 hours

11.2 CLEANING THE MACHINE

The machine can be cleaned with water. However be careful of wetting crucial parts such as the seed hopper, the funnels etc. It is better to clean the machine with compressed air and/or a brush.

12.0 EC DECLARATION OF AGREEMENT

We, REDEXIM USA BV, Utrechtseweg 127, 3702 AC Zeist, Holland declare that, under our own responsibility, the product:

VERTI-SEED MODEL 004.804/1204. with machine number as given on the second page of this manual,

to which this declaration applies, is in accordance with the standards NEN-EN 292-1, NEN-EN 292-2 and NEN-EN 294 according to the stipulation of the Machine Guideline 89/392/EEC, modified by the guidelines 93/368/EEC, 93/44/EEC and 93/68/EEC.

Redexim BV, Holland, Jan. 1995

