GB

©plus Hektor-Vario

Semi-mounted reversible plough

Operating manual

VOGEL NOOT
SOIL SOLUTIONS

MG5757
Issue 2013/04

VOGEL NOOT
SOIL SOLUTIONS

Declaration of Conformity

Within the meaning of EC Machinery Directive 2006/42/EC, Annex II 1.A

The manufacturer/company placing the product on the market

Vogel & Noot Mezögépgýar Kft.
Úttörö u. 43.
H-9200 Mosonmagyaróvár

Vogel & Noot Landmaschinen GmbH&CoKG
Grazerstrasse 1
A - 8661 Wartberg im Mürztal

hereby declares that the following exchangeable equipment

©plus HEKTOR VARIO / semi-mounted reversible plough

Serial number: _____

Type number: _____

complies with all the relevant provisions of the directive stated above.

The following EU directives were also applied:

2009/105/EC
2004/108/EC

The following harmonised standards were applied:

EN ISO 4254-1, EN ISO 12100, EN ISO 4413

Name and address of the person who is authorised to compile the technical documentation:

Joachim Hierzenhofer
Grazerstrasse 1
8661 Wartberg im Mürztal, Austria

The Declaration of Conformity has been issued:

Wartberg im Mürztal, April 2013

DI (FH) Wolfgang Muhri
Technical Director

Foreword to the Operating Manual

The aim of this Operating Manual is to simplify familiarisation with the machine and its correct use.
The Operating Manual contains important information on the safe, proper and economic operation of the machine/system. Compliance by you helps to

- avoid hazards
- reduce repair costs and downtime
- increase the machine's reliability and extend its service life.

The Operating Manual supplements the existing accident prevention and environmental protection regulations. It must always be available where the machine is in use and must be read by every person asked to work with/on the machine. This covers

- operation, including
  - setup
  - troubleshooting during operation
  - removal of production waste
  - care
  - disposal of fuels, lubricants and other auxiliary materials
- maintenance
  - servicing
  - inspections
  - repairs
- transport

In addition to the Operating Manual and the binding accident prevention regulations applicable where the unit is being used, generally recognised good engineering practice must also be observed.

Definitions

A skilled person, within the meaning of this Operating Manual, is anyone who, on the basis of his specialist

- training
- expertise
- experience and
- knowledge of the relevant provisions

is able to evaluate the work with which he is tasked and is able to identify possible hazards.

A trainee is someone who is taught or instructed by an expert with reference to

- the duties with which he is tasked
- possible hazards in the event of incorrect actions

and has been given instruction on the necessary protective equipment and measures.

A layperson is someone who is regarded as neither a skilled person nor a trainee.

The directly responsible person is the person responsible for a task who has to be familiar with the necessary safety measures.

The implement has been fitted with the equipment expressly requested by the customer.

The customer acknowledges that the implement may not be suitable for use on public roads, and may not have the safety equipment that is required for public roads. Vogel & Noot Landmaschinen GmbH & Co KG would like to point out that it is the vehicle owner and vehicle operator who are responsible for ensuring that the implement has the safety equipment necessary according to the applicable national legislation and regulations when being used on public roads.

IT IS ABSOLUTELY FORBIDDEN TO EXCEED THE SPEED OF 25km/h!

VOGEL NOOT
SOIL SOLUTIONS

1. Safety

Explanation of the pictograms

We classify the hazards according to various levels. The table gives you an overview of the allocation of symbols, hazard categories and signal words relating to the concrete hazard and the possible consequences.

Symbol	Hazard category		Signal word	Definition	Consequences
	A	Personal injury	Danger	Directly threatening hazard	Death or serious injuries (crippling injuries)-{}-
	B		Warning	Possibly hazardous situation	... Possible death or serious injuries
	C		Caution	Slightly hazardous situation	... Possibly slight or negligible injuries
	D		Attention	Possibly harmful situation	Possible damage - to product - surroundings
	E		Note Information	Application tips and other useful information	No signal word for a hazardous or harmful situation

WARNING!
Avoid hazards when operating the machine by means of

- ***safety-aware behaviour***
- ***autious actions***

Therefore carefully read and apply the warning information in this manual!

Correct use

The **Hektor-Vario 1000 semi-mounted reversible plough** has been designed exclusively for standard agricultural operations under normal conditions.

This machine may only be used in accordance with the specifications in this Operating Manual. All information relating to safety, operation, servicing and repairs must be rigorously observed.

Only use the machine if it is in perfect technical condition, observing the specifications of the Operating Manual, and be aware of safety requirements and possible hazards.

ATTENTION!
Any purpose other than that specified above is regarded as non-normal usage.
Modifying the machine in any way to enable other uses is expressly prohibited.

All uses other than those intended shall be deemed improper.

WARNING!
Riding on the plough is dangerous and represents improper use.
You are risking serious injury and death.

The manufacturer can accept no responsibility or offer any guarantee if harm or injury occurs as a result of

- improper operation
- non-compliance with the safety instructions contained in this manual
- removal or bypassing of safety systems.

Operator workplace

The operator's workplace is on the tractor driver's seat and, if necessary, on the stationary, secured machine.

Product monitoring

We are legally obliged to continue monitoring our products beyond the point of delivery.

We are extremely interested in:

- repeated malfunctions
- lack of clarity e.g. in operation, servicing, instructions
- usage other than for intended purpose
- bypassing/disabling safety systems
- incorrect, unsafe operation
- accidents which have occurred
- other unusual observations
- suggestions for improvements, requests

in particular as indicators of possible corrections to be made and/or modifications.

We request you to notify us of any such occurrences/suggestions. This is the only opportunity for us to improve our products, if so required, to make them as safe and reliable as possible.

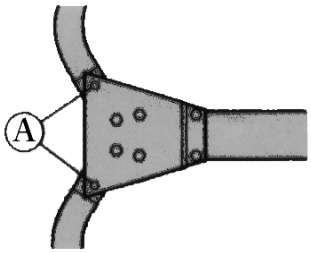
Information

- ***Please use the response form at the end of this manual for your feedback.***

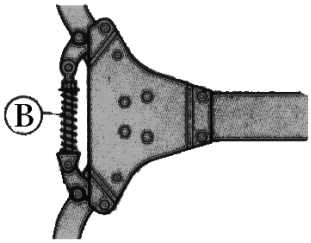
Protective equipment and measures

Types of overload protection system:

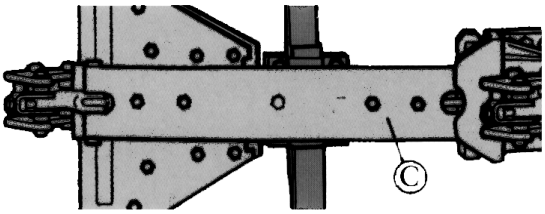
Shearbolt protection (steel bolts A)



Semi-automatic stump-jump system (helical spring B)



Fully automatic stump-jump system (leaf spring C)



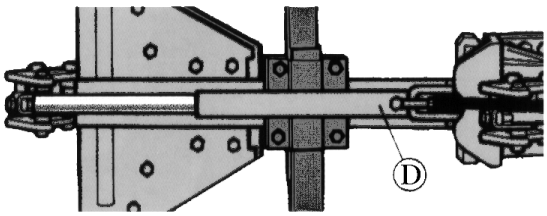
ATTENTION!
Components can break if overloaded and be ejected at high speed.
Ensure that there is nobody on the spring side (furrow side).

Keep everyone clear of the

- plough beam element and
- spring side of the plough (furrow side)

when in operation. Take care that you put no one at risk!

Fully automatic stump-jump system (hydraulic cylinder D)

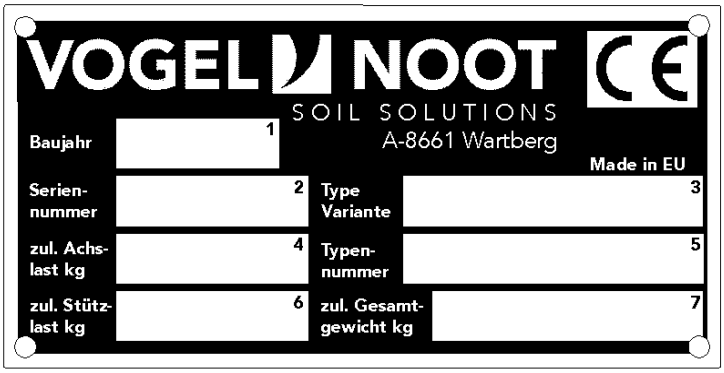


2. Technical specifications

Machine identification

Manufacturer	Vogel & Noot Landmaschinen GmbH & CoKG
Machine	Vario-Aufsatteldrehpflug
Model	Hektor 1000 Vario
Series	VN-©plus

The nameplate gives information on the
- year of construction
- machine no.
- model



Technical specifications

Stump-jump system design	**Shearbolt**	**Semi-automatic**	**Automatic, mech.**	**Automatic, hydraulic**
Interbody clearance 	100 cm			
Furrow width 	30 cm – 50 cm, infinitely adjustable			
Underbeam clearance 	Hektor 1000 Vario 76/82/90 cm		Hektor 1000 ST Vario 78/82 cm	
Clearance between tyres 	110 – 170 cm			
Plough wheel tyre pressure	See *Plough wheel tyre pressure* table – p.10			
Hektor weight 5-furrow 6-furrow 7-furrow	2920 kg 3210 kg 3500 kg	3040 kg 3354 kg 3668 kg	3270 kg 3620 kg 3970 kg	3260 kg 3605 kg 3940 kg

Plough wheel tyre pressure

Manufacturer	Size, ply rating	Profile type	Tyre pressure
Trelleborg	19"/45-17 14 PR	Implement AW	3.0 bar
	500/5017 14 PR	Implement AW	2.5 bar
	500/55/15.5 14 PR	RIB Trailer	2.5 bar
Vredestein	19"/45-17 14 PR	Implement AW	3.5 bar
	500/5017 14 PR	Implement AW	3.0 bar
Alliance	500/5017 14 PR	Implement AW	3.0 bar

Tools:

Body types	NL 460, UN 350, UN 400, UN 430 WY 400, UST 400 (slatted body) WXL 430, WL 430, WX 400, WST 430 (slatted body) WXH 400

Additional equipment

The machine can be fitted with the following additional equipment:

- Disc coulter
- Knife coulter
- Manure skimmer
- Skim coulter
- Trashboard
- Subsoiler

Note
Illustrations and application tips for the tools and additional equipment can be found in the appended parts list.

3. Transport, fitting, removal

Safety

ATTENTION!
It is essential to read these instructions before transport and operating.

Please familiarise yourself with all systems and operating mechanisms, as well as their function both on the tractor and on the plough. It is too late to do this during actual operations.

General information

Please check the new machine immediately for any damage and to ensure that it is complete. Notify the dealer or manufacturer immediately if there is any damage or any parts are missing.

Storage requirements

The machine should ideally be stored in a dry, dust-free and draught-free environment.

First use

Please check the following before first use:

- adequate front-axle loading of the tractor (loading by front weights, wheel disc weights, front loader)
- tyre pressures of tractor tyres (rear tyres 0.8 bar)
- tyre pressure of plough wheel (see *Technical specifications* on p.9)
- setting of lift links (details on p.16)
- lateral stability of bottom links (details on p.16)

Peel off the protective layer from plough blades and mouldboards.

ATTENTION!
Be aware of the increased risk of injury from sharp edges and points. Work carefully.

Check that screws, bolts and connections are tight. Tighten any loose screws, bolts or connections.

Transport

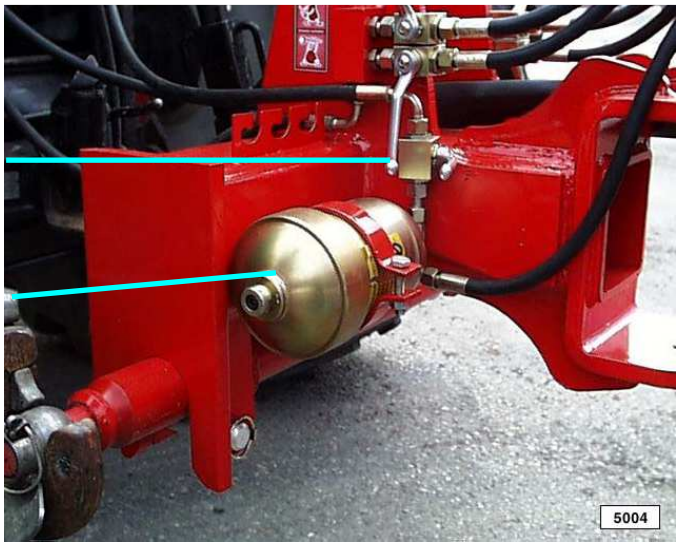
Check the implement in advance for the following whenever you are transporting it:

- damage

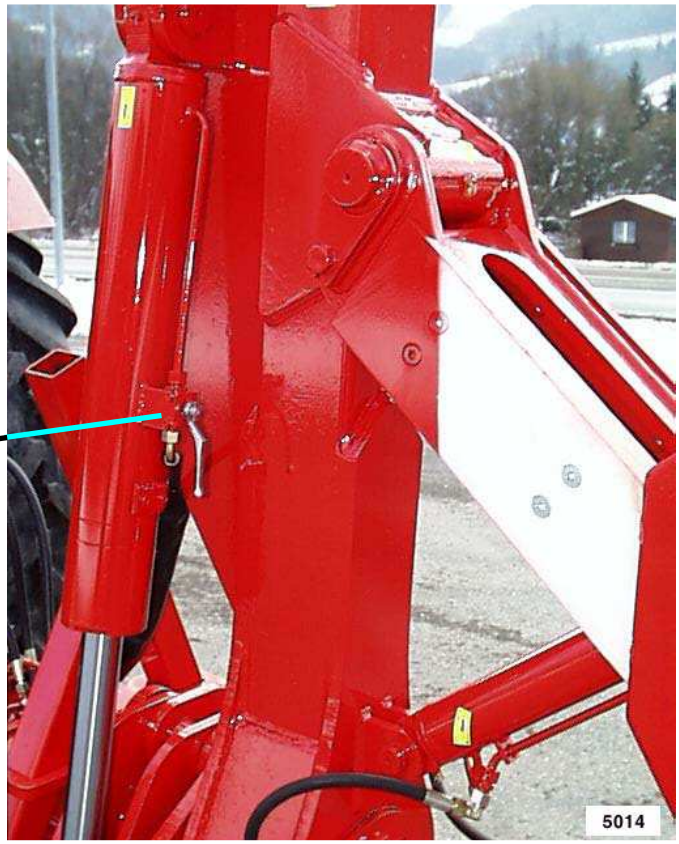
- material fatigue
- operational reliability of all safety-related transport components
- roadworthiness and operational safety

When transporting, hydraulically lock the turnover cylinder and lifting cylinder by means of the stop cock.

Hydraulic accumulator



Turnover cylinder lock
(open in photo)



ATTENTION!
When operating the external control for the three-point linkage, do not step between the tractor and plough.
There is a high risk of injury.

The pin diameters for the three-point linkage must be compatible for the tractor and plough.

Prior to connecting and disconnecting the implement to or from the three-point linkage, place the controls in such a position as to prevent inadvertent lifting or lowering.

Only use the genuine attachment components to attach the plough.

When the implement is in the transport setting, make sure there is adequate lateral locking of the tractor's three-point stabiliser bars!

There must be nobody between the tractor and implement unless the tractor and implement are secured by the parking brake and/or wheel chocks to prevent them from rolling away.

Handling, steering and braking are all influenced by the implement and ballast weight. Therefore ensure that the steering and brakes are not impaired.

When cornering, ensure that there is sufficient space between the tractor and the implement.

Observe relevant road traffic legislation relating to permissible transport dimensions.
Comply with regulations specifying the permissible axle loads, static vertical loads and gross vehicle weights.

DANGER!
Check the immediate vicinity before driving off.
Children and pets are at extreme risk.

Take into account the large overhang, momentum and high centre of gravity of the implement when cornering.

Do not leave the driver's cab while the tractor is in motion.

Riding on the implement during work or transportation is not permissible.

The highway code must be observed at all times when using public roads.

Before leaving the tractor

- Lower the implement to the ground.
- Switch the engine off.
- Remove the ignition key.

Place stand supports in the correct position and fasten securely when hitching and unhitching the plough.

Note
See also p.17 for details of Hitching and unhitching the plough!

Dismantling for scrap

Note
Incorrect disposal of lubricants and hydraulic fluid can cause serious environmental pollution.
These items must be disposed of as special waste. Under no circumstances may they be allowed to reach watercourses or groundwater.

If the machine is scrapped, hydraulic fluid must be disposed of properly in accordance with environmental legislation.

Have tyres disposed of by a dealer.

!!CORNERING IS FORBIDDEN!!

CORNERING during WORKING IS FORBIDDEN – due to overstraining at the equipment! Vogel & Noot offers without exception NO GUARANTEE for SUBSEQUENT DAMAGE!

4. Operation

Safety

Correct use

This machine may only be used in accordance with the specifications in this Operating Manual. All information relating to safety, operation, servicing and repairs must be rigorously observed.

The Hektor Vario semi-mounted reversible plough has been designed exclusively for standard agricultural operations under normal conditions.

Accident prevention

Follow the generally applicable safety and accident prevention regulations as well as the instructions in this manual. Wear close-fitting clothing and solid footwear.

ATTENTION!
Special care is to be taken when handling any sharp and pointed tools and equipment parts.
There is a high risk of injury.

There must be nobody between the tractor and implement unless the tractor is secured by the parking brake and/or wheel chocks to prevent it from rolling away.

When operating the external control for the three-point linkage, do not step between the tractor and plough.

Before starting the vehicle, always check its roadworthiness and operational safety.

Stickers relating to safety instructions must be kept clean and legible. Please replace them if they are damaged.

ATTENTION!
All hydraulically controlled moving parts have shear and squash zones!
Keep out of the danger zone.
There is a high risk of injury.

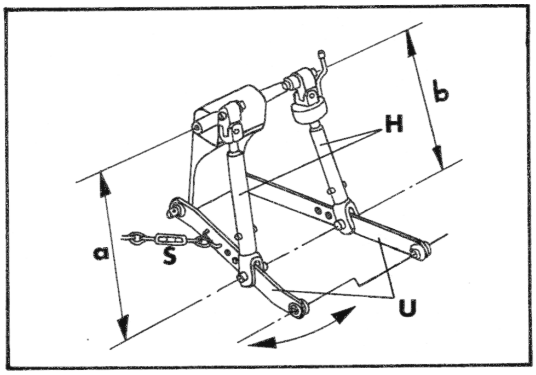
To avoid the risk of tipping over, only place the implement on a horizontal, level, hard surface!

Please read also “Transport
“ on p.12.

Preparations for use

Setting the lift links and bottom links

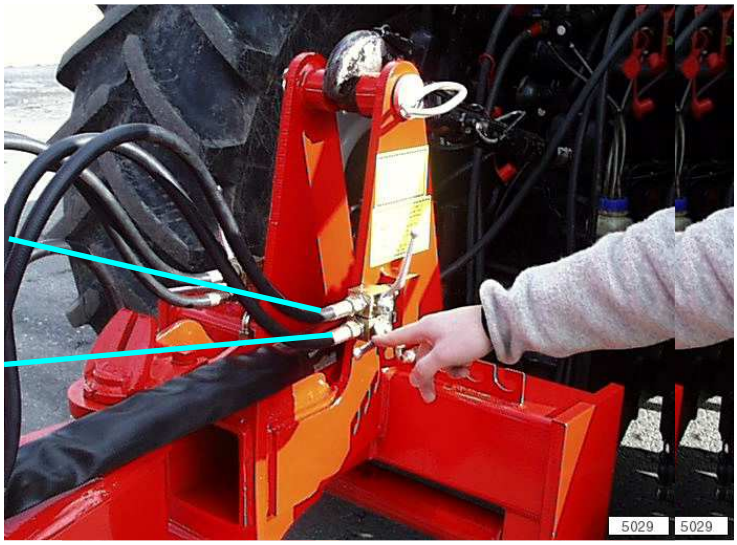
- Set the lift links (H) such that they are equally long (a, b) and as far to the rear as possible (U) in order to relieve the tractor hydraulics.



Lateral stability of bottom links

- Secure the bottom links (U) laterally using stabilising bars or tension chains (S) to prevent lateral movements.

This setting applies to both ploughing and transport.



Front axle loading

The provision of sufficient front ballast (front weights, wheel disc weights, front loader) ensures

- steerability with a mounted plough
- good front-axle traction transmission (4-wheel drive tractors)

ATTENTION!
Take care with tight corners. Ensure an adequate gap between the tractor and implement.
Damage may otherwise occur.

Hitching and unhitching the plough

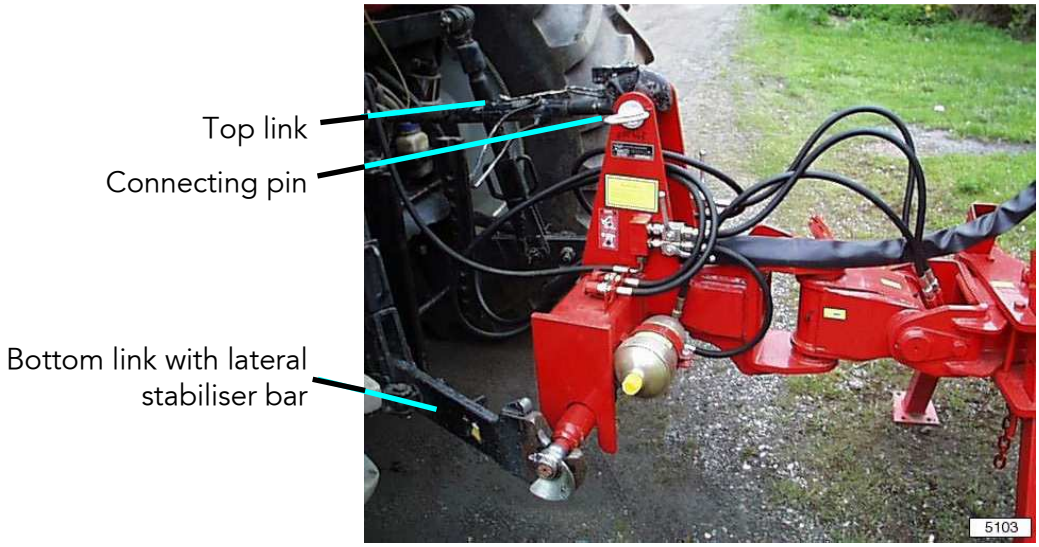
Note
For tractors with hydraulic control, ploughing is carried out using draft or mixed control.
Hitching and unhitching of the plough is carried out using position control.

Hitching the plough to the tractor

We assume that you are familiar with operating the tractor and the associated hydraulic systems. Consult the tractor's User Manual if you are unsure of any point.

The plough, which is supported in its working position, is connected to the tractor as follows:

- The quick hitch bar diameter (pin diameter) must be 36 mm.
- Place the tractor hydraulics in position control.



- Connect the bottom link to the cross-shaft and secure it with linch pins.
- Raise the mounting body using the bottom links and release the chain from the universal joint.
- Lower the bottom link until the top link is level with the upper bore of the mounting body.
- Connect the tractor's top link to the mounting body using the connecting bolt and secure it with linch pins. Adjust the length of the top link such that the mounting body and drawbar lie in a horizontal plane.
- Raise the bottom link.
- Release the stand support, push it upwards and secure it in this position.
- Connect the hydraulic hoses to the tractor control unit.
- Remove the wheel chocks.
- To plough, switch the hydraulic system to draft or mixed control.

Transport

- Set the cylinder to the minimum furrow width (30 cm).
- Raise the plough to its full height using the hydraulic lifting system (depth wheel) and then lower the implement again to its mid-point. This actuates the shock absorber.
- Close all the hydraulic valves on the plough.

The depth wheel should be at approx. half height for transport purposes.

Please also see the photos on p.12.

Unhitching the plough from the tractor

- Switch the hydraulic system to position control
- Turn the plough frame to its working position and then close the ball cocks on the turnover cylinder again.
- Close the stop cocks for track width adjustment.
- Place the plough on a solid, level surface.
- Release the stand support, push it downwards and lock it again.
- Lower the running gear fully and close the stop cock for the hydraulic lifting system.
- Position chocks to prevent the running gear from rolling.
- Lower the bottom links until the top link can move freely.
- Remove the top link from the mounting body and raise the bottom links.
- Connect the safety chain to the universal joint and lower the bottom links.
- Separate the bottom links from the cross-shaft.
- Depressurise the tractor hydraulics – see also p.29.
- Switch the engine off and remove the ignition key.
- Disconnect the hydraulic hoses from the tractor and fit the dust caps.

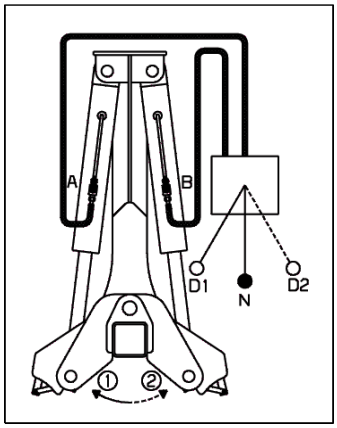
Turning the plough

DANGER!
The plough swings out when turning.
Check the immediate vicinity before turning.

Check that there are no persons or pets in the vicinity of the plough's turning and swivel area.

- While driving, lift the implement at the front end as soon as you reach the headland.
- Lift the plough completely when the last plough blades reach the headland.

ATTENTION!
For safety reasons only operate the hydraulic turning system from the driver's seat.



The plough is turned with the aid of a double-action control system (D1, N, D2) and two turnover cylinders (A, B). The plough turns in the direction indicated when operated.

Make sure that

- hydraulic hoses are not kinked

- plug connections are always kept clean

Note
Ensure that the hydraulic fluid remains clean at all times. Any contamination of the fluid causes damage to the hydraulic system and shortens its service life.

Clean the connections with a clean, lint-free cloth. Always fit dust caps.

Setting the plough

Furrow-width adjustment

Die oberen Hydraulikleitungen (links und rechts) führen zum Schnittbreiten-Verstellzylinder (Variozylinder)

Nebenstehendes Bild zeigt die korrekte Einstellung der Kugelventile zur Schnittbreitenverstellung.

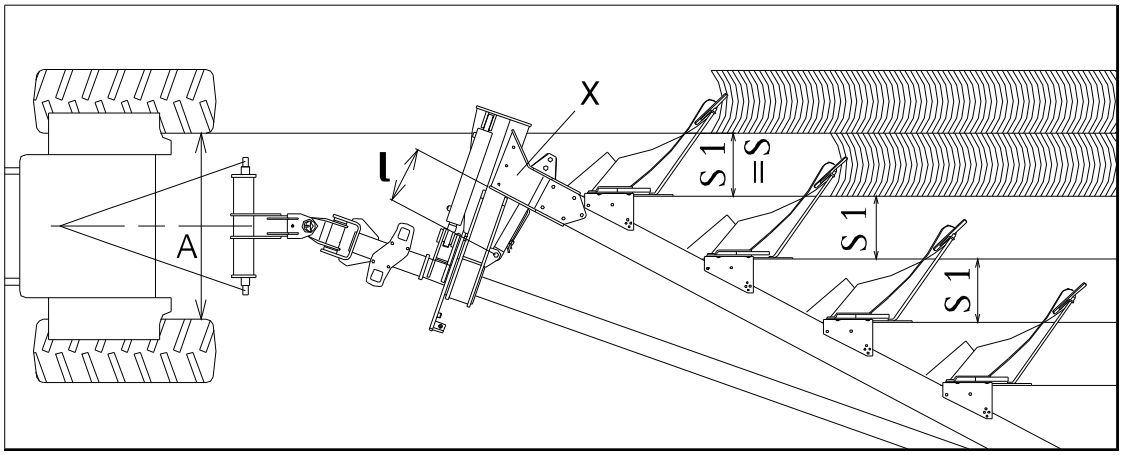
Die Schnittbreitenverstellung erfolgt hydraulisch und stufenlos. Die Schnittbreite wird durch den Schnittbreitenzeiger angezeigt.

Durch die spezielle Verstellkinematik erfolgt eine optimale Anpassung von Zugpunkt und Vorderfurche.

Any adjustments to the furrow width are automatically passed on to tools such as a manure skimmer, disc coulter and depth wheel (if present) and fit the new furrow width exactly.

No further adjustments whatsoever are required.

Approximate adjustment of the plough to the tractor



The plough is first approximately adjusted using the slide block guide (X) in accordance with the different clearances between the rear tractor wheels (A) and the set furrow width (S).

- Lower the implement until it is level (horizontal).
- Set the furrow width to 40 cm using the cylinder.
- Plough the first furrow.
- Turn at the headland and rotate the plough using the turnover cylinder.
- Now drive with tractor wheels into the furrow (the tractor is now at an angle).

Setting the ploughing depth

Deeper:

- Lower the hydraulic power lift (follow the tractor manufacturer's instructions).
- Lower the running gear (move stop pin forwards, adjust hydraulic lifting system).

Shallower:

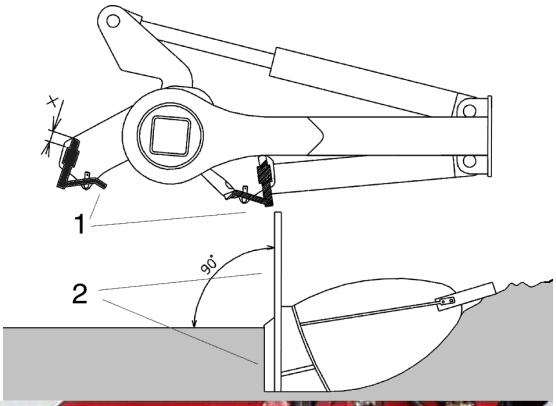
- Raise the hydraulic power lift.
- Raise the running gear (raise using the hydraulic lifting system, adjust the pin, lower the hydraulic system onto the pin).

The plough must be horizontal in operation. To ensure this, set the inclination as follows:

Inclination setting

- Set the inclination symmetrically on the left and right by means of adjusting spindles (1).

The legs or beams (2) must be at right angles to the soil.



Inclination stop at front

- To turn the adjusting spindles, briefly pressurise the turnover cylinder.

This relieves the spindles.

Inclination stops at rear

Exact track width adjustment

- Then correct the measurement (L) in accordance with the cultivation depth and inclination setting such that the furrow width (S) corresponds to the respective furrow widths of the rear bodies S.

Every adjustment to settings produces changes to other settings, which will have to be corrected accordingly.

Disc coulter setting

Set the depth of the disc coulter after loosening screw (S) and altering the position of swing arm (A) according to the desired ploughing depth such that the hub does not touch the ground. When adjusting the swing arm, ensure that the toothing meshes and that the screw is retightened.

The distance between the side of the disc and the ploughing tackle should be between approx. 1 and 3 cm and at least protrude beyond the manure skimmer. This distance is achieved by rotating the coulter shaft (C), but it is necessary to loosen the hexagonal screw (D).

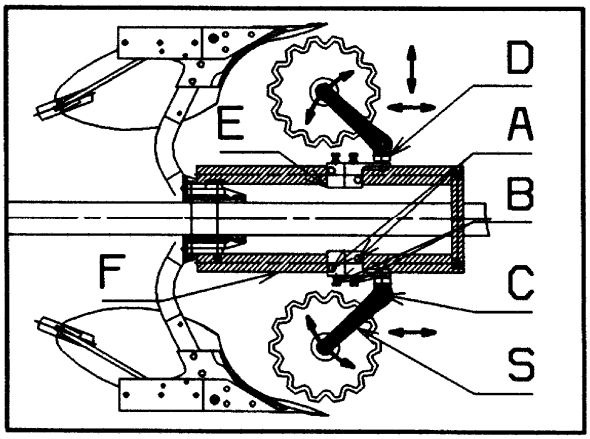
Wiederum ist darauf zu achten, dass die Befestigungsschrauben fest angezogen werden bzw. fest angezogen sind.

Es sind vier Möglichkeiten der Positionierung des Sechschaftes (C) – Scheibensech Ø500, Ø600 – vorgesehen. Der Sechschaftbügel € hat zwei Verstellmöglichkeiten: Verstellung wird durch Versetzen des Sechschaftbügels am Sechschafthalter (F) erreicht. Durch Verdrehen des Sechschaftes (C) um 180° am Sechschaftbügel (E) erhält man zusätzlich Verstellmöglichkeit 3 und 4!

ACHTUNG:

ATTENTION:

Adjust the disc coulter in driving direction ONLY at maximum possible furrow width!



(Es ist darauf zu achten, dass der Schwingarm (A) – siehe Abbildung – in Fahrtrichtung des Pfluges gesehen, nach hinten steht!)

Bei großen Ernterückständen sind die Scheibenseche entsprechend weit nach vorne zu setzen.

Das seitliche Auspendeln des Sechs muss über den Anschlag (B) eingestellt werden.

Manure skimmers

Set the manure skimmers such that the ploughing depth represents approx. $^1/_3$ of the cultivation depth, or a little more where there is a large amount of harvesting trash.

Should the manure skimmers be obstructed by excessive harvesting trash, they can easily be removed by loosening two screws.

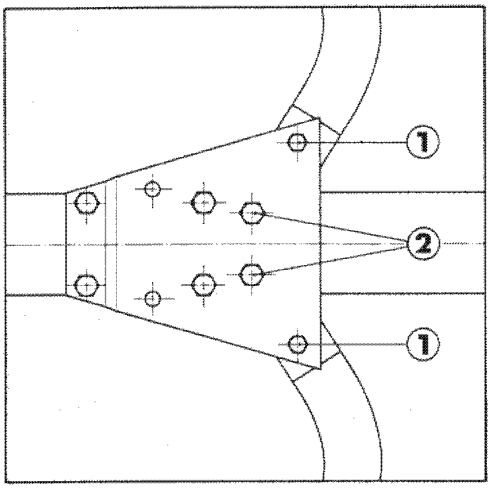
Overload protection

Types of overload protection system:

Shearbolt protection system (shearbolt 1):
To protect V&N ploughs from damage through overloading, they are fitted with shearbolts (1).

If a shearbolt (1) snaps:

- Lift the plough.
- Loosen the pivot screw (2) of the sheared plough body.
- Remove the remains of the shearbolts.
- Swing the plough body back into position.
- Fit a new shearbolt.
- Retighten the shearbolt (1) and pivot screw (2).

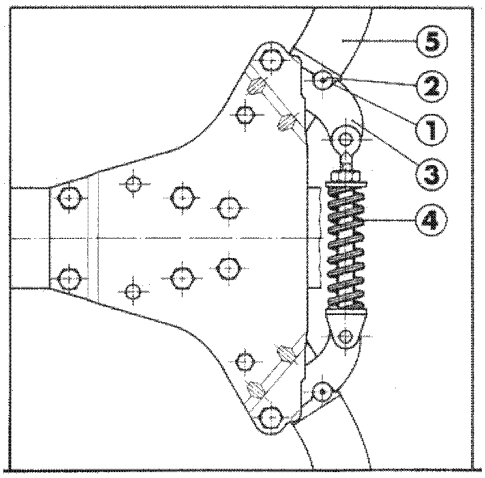


Note
Only use genuine shearbolts.
Bolts from other sources can

- ***not guarantee the necessary safety***
- ***cause damage***
- ***be triggered too soon***

Semi-automatic stump-jump system (compression spring 4):
The semi-automatic stump-jump system is used where the shearbolt protection system would be activated too often in very stony soil.

When the plough body meets an obstruction, roller pins (1) and bearing rollers (2) activate catches (3) and thus compress the compression springs (4). The plough body plus beams (5) can swing away.



To swing the plough body back into position and engage it

- stop the tractor
- lift the plough out briefly or reverse the tractor slightly

Note
The rolling pin (1) must always be lubricated.
Check roller pins (1), bearing rollers (2) and catches (3) regularly and fit new ones if worn.

Fully-automatic stump-jump system
(with leaf spring)

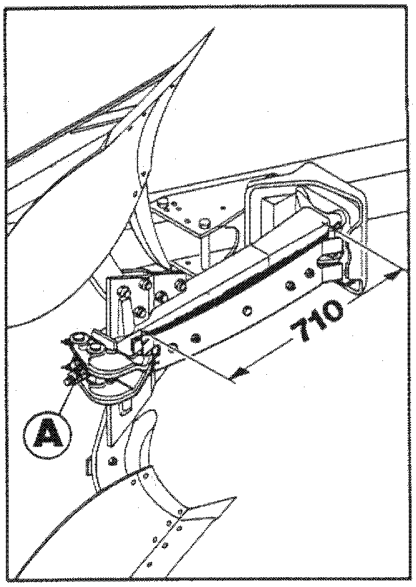
When the plough body meets an obstruction, the plough beam element turns upwards thanks to the cardan joint. The spring is then compressed.

When the obstruction has been passed, the plough beam element returns to its original position.

The whole procedure occurs without having to stop the plough (non-stop).

The measurement must not be less than 710 mm!

For fitting details please see p.30.



ATTENTION!
Components can break if overloaded and be ejected at high speed.
Ensure that there is nobody on the spring side (furrow side).

Keep everyone clear of the

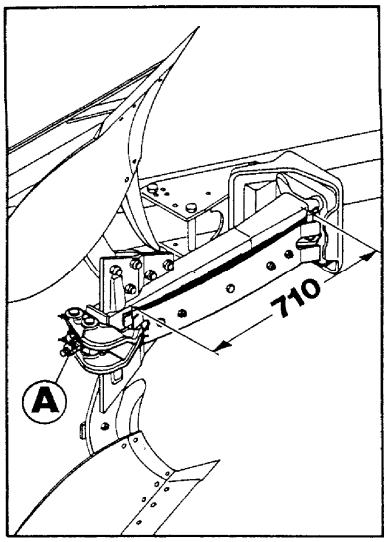
- plough beam element and
- spring side of the plough (furrow side).

Take care that you put no one at risk!

NON-STOP (fully automatic)

9.3.1 LEAF SPRING (mechanical):

Fully automatic, mechanical NON-STOP stone protection functions as follows:
When plough body meets an obstruction (stone), the plough beam element turns upwards through the cardan joint. The spring is compressed by the drawbar and the rectangular lever. When obstruction has been passed, the plough beam element falls back into original position. The whole procedure occurs without having to stop the plough (Non stop).



It is FORBIDDEN to stand near the plough beam element or the spring side of the plough (furrow side) during work!

To dismount plough beam element or leaf spring, remove nut (**A**) on pull bar. When mounting tighten nut so that a measurement of 710 mm (free clamping length of spring pre-stretched) is achieved (bolt centres)

The measurement must not be less than 710 mm!

9.3.2 HYDRAULIC CYLINDER (hydraulic = central accumulator or compact accumulator):

In principle, fully automatic hydraulic NON-STOP stone protection (central or compact accumulator) works in the same way as mechanical stone protection. The only difference is that, instead of the leaf springs, a hydraulic-cylinder with a connected hydro-accumulator is used.

Difference between central and compact accumulator:

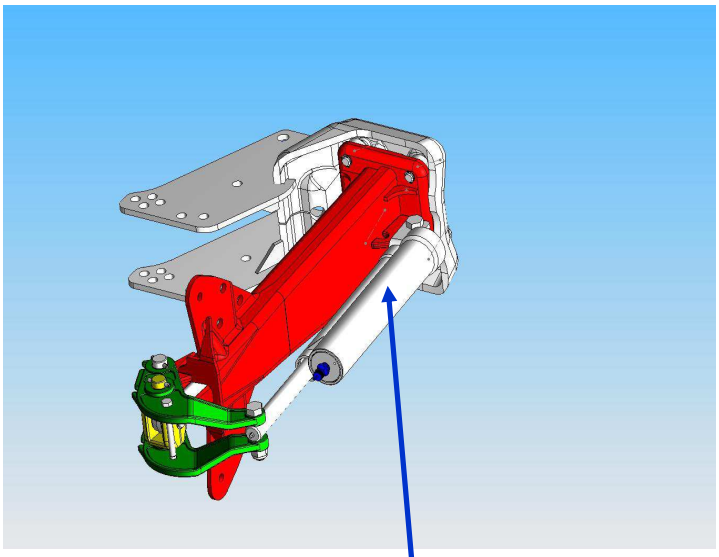
- in the case of the central accumulator all elements have the same release force. The accumulator is mounted on the plough frame.
- In the case of the compact accumulator release forces can be set independently for individual elements! The accumulator is integrated on the cylinder!

KEEP CLEAR of plough beam element and hydraulic accumulator(System is under high pressure).

SAFETY INSTRUCTIONS:
Prior to assembling or disassembling the hydraulic stone protection device (cylinder, accumulator, hose lines, tubes, etc.), reduce system pressure completely using the pressure control tube (system is under high pressure) RISK OF ACCIDENT!
Before reducing the system pressure, the plough must be attached or supported appropriately or it may overturn!

Functioning:

When the body of the plough meets an obstruction (stone) the resistance is so high, that the NON-STOP-element activates. The hydraulic oil of the hydraulic cylinder (fixed on the NON-STOP-element) gives pressure to the piston accumulator. As soon as the body of the plough has overcome the obstruction, the hydro accumulator presses the oil back in the hydraulic cylinder and brings the NON-STOP-element back in position.



The release-pressure (= work pressure) can be adjusted, if needed, through the pressure regulating tube connected to the tractor hydraulics. The work pressure can be read from the pressure manometer.

When disconnecting the pressure regulating tube from the tractor the stop cock tap on the plough must be locked, the pipe to the tractor hydraulic must be cleared (pressure-free) and only then taken out. When leaving the pipe connected to the tractor, care must be taken that the pipe does not get squeezed or covered.

For protection against damage through overloading, all NON-STOP-elements are provided with a shear bolt. Installation and dismantling instructions using the three-point bolt are described under "Shear-off protection".

PRESSURE ON THE HYDRO ACCUMULATOR:

Pre-stress pressure **90 bar**
(nitrogen)

Min. operating pressure **90 bar**
(hydr. oil)

Max. operating pressure 140 bar
(hydr. oil)

The gas pressure side must only be adjusted by the dealer or V&N - without exception - and, in the case of central or compact accumulators, must be **checked yearly**.

The oil pressure can be adjusted using the tractor hydraulic and the pressure regulating tube.

The maximum pressure set must not exceed 140 bar, otherwise component parts on the plough will be subject to overload and damage!

5. Servicing, repair

General information

ATTENTION!
Read these instructions before starting any work.
Please note:
Only genuine spare parts guarantee the machine's performance and service life.

ATTENTION!
The machine may only be operated with the factory-supplied guards in place.
Hydraulic cylinders may only be opened by authorised persons.

The mounting category (pin diameter) for three-point linkage must be compatible for the tractor and plough.

Special care must be taken when hitching or unhitching the implement to or from the tractor. Prior to connecting and disconnecting the implement to the three-point linkage, place the controls in such a position as to prevent inadvertent lifting or lowering.

Check the hydraulic hoses and connections regularly and maintain them in good condition.

Service, maintenance and adjustment work may only be carried out with the implement lowered to the ground in its working position and with the hydraulic system depressurised.

Note
Check the tractor manufacturer's Operating Manual for details of how to depressurise the system.

ATTENTION!
The stored energy in the hydraulic accumulator can result in serious injury when working on the hydraulic system.
Hydraulic pressures up to 400 bar!
Ensure that the system is depressurised before working on it.

Depressurising the hydraulic system

Before working on the hydraulic system: depressurise the system.

Hydraulic accumulator

ATTENTION!
When you depressurise a plough with a hydraulic stump-jump system in its working position, the implement will tip over.
Place a stand under the implement or hitch it to the tractor.

The system is only depressurised once

- the implement is supported on the ground in its working position
- the depth wheel has been completely retracted with the tractor's hydraulic lifting system
- the system including the hydraulic accumulator has been depressurised using the tractor hydraulics.

Stump-jump systems

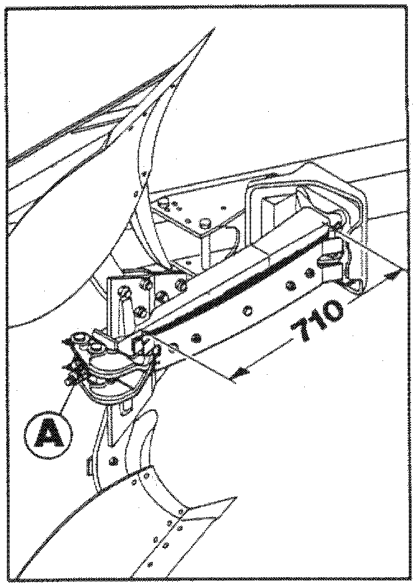
Shearbolt protection system

Please see p.24 for details

Semi-automatic stump-jump system

Please see p.24 for details

Fully-automatic stump-jump systems



Fully automatic stump-jump system (leaf spring)

To remove the plough beam element or leaf spring, loosen nut (A) on the pull rod.

When fitting, tighten the nut so that a measurement of 710 mm (free clamping length of the pre-stretched spring) is achieved (bolt centres).

The measurement must not be less than 710 mm!

Keep everyone clear of the

- plough beam element and
- spring side of the plough (furrow side).

Take care that you put no one at risk!

	ATTENTION! **Components can break if overloaded and be ejected at high speed.** **Ensure that there is nobody on the spring side (furrow side).**

	ATTENTION! **Components can break if overloaded during ploughing and be ejected at high speed.** **The piston accumulator is highly pressurised.** **Ensure that no one is in the vicinity of the accumulator and the stump-jump system hydraulic cylinder.**

Keep everyone clear of the

- plough beam element and
- the accumulator and stump-jump system hydraulic cylinder.

Take care that you put no one at risk!

	ATTENTION! **The piston accumulator is highly pressurised.** **Only work on the system once depressurised.**

Depressurise the system before starting work on the hydraulic stump-jump system (cylinder, accumulator, hoses, pipes etc.).

Before lowering the system pressure

- hitch the plough to the tractor
- or provide appropriate support.

Otherwise it is at risk of tipping over.

Note
The non-stop stump-jump systems are also secured by means of shearbolts.
Please see "Types of overload protection system" on p.25.

Regulating the stump-jump system oil pressure

- Connect the long end of the pressure-regulating hose to the hydraulic cylinder.
- Connect the short end with the pressure gauge to the tractor hydraulics.
- Read off the pressure at the pressure gauge and set the desired actuation pressure.
- Close the stop cock on the plough.
- Depressurise the hose using the tractor hydraulics.
- Remove the hose.

Note
Pre-stress pressure 90 bar
Min. working pressure..... 90 bar
Max. working pressure... 140 bar

Under no circumstances may anyone other than an appropriately trained skilled person adjust the gas pressure.

The oil pressure can be adjusted using the tractor hydraulics and the pressure-regulating hose.

Changing the depth wheel (tyre)

- Remove all load from the depth wheel so that it can move freely.
- Unscrew the two central axle-mounting screws.
- Remove the wheel from the forks.
- Unscrew the screws connecting the rim to the axle.
- Change the tyre.
- Fit the rim and axle-mounting screws in reverse order.

Maintenance table

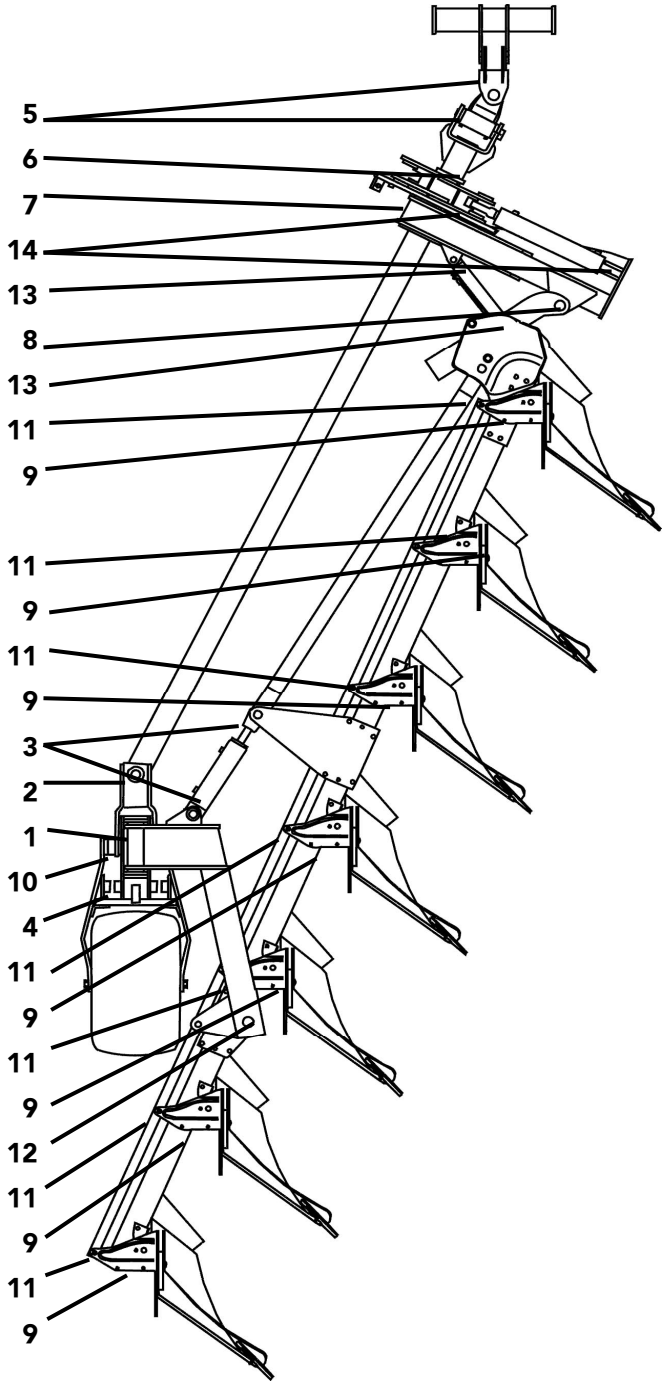
Interval	Work required
After first use, then every 20 operating hours	Check all screws and bolts for tightness and retighten if necessary.
Daily after use	Check the shares, mouldboards and other tools for wear. Replace any worn tools promptly to prevent damage to plough bodies or supporting parts.
Daily during use	Check the hydraulic hoses and connectors for leaks. Always keep connections clean. Always use protective caps. Leaking or defective hoses must be replaced immediately.
Daily after use	After operation, clean the plough thoroughly and protect exposed surfaces against corrosion using acid-free grease.
Every 10 operating hours	Lubricate all lubrication points in accordance with the lubrication chart. Please see the “Lubrication chart” on p.36.
Weekly	Check and, if necessary, correct the depth wheel tyre pressure. Specified pressure: see p.10.

You will see this maintenance reminder on the front of the plough.

See the “Lubrication chart” on p.36.
See the “Lubrication points” on p.37.

Lubrication chart

1. Turnover extension arm
2. Universal joint long
3. Vario-cylinder (adjustment cutting width)
4. Lifting cylinder left and right
5. Universal joint
6. Folding lever
7. Turnover body
8. Extension arm
9. Beam bracket bearing
10. Lifting bearing
11. Connecting rod
12. Frame bearing
13. Track width adjustment cylinder
14. Turnover cylinder
    Wheel bearing (both sides)



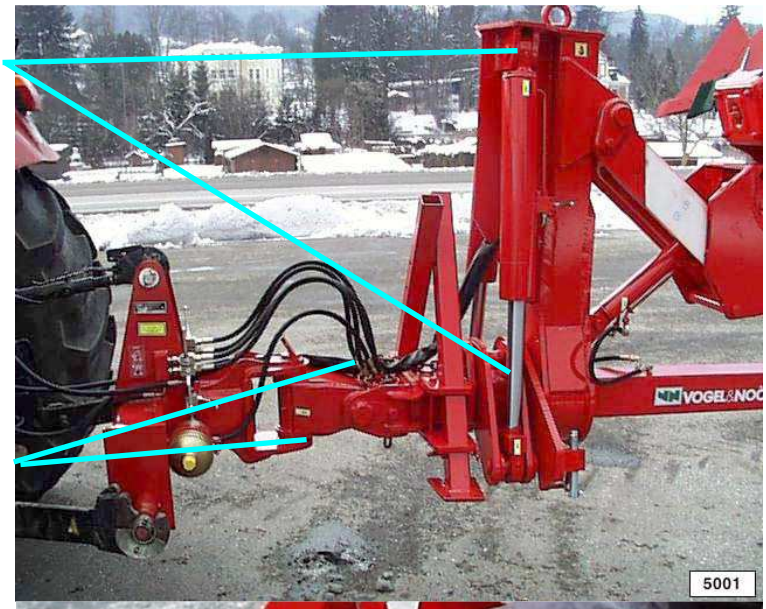
The next few pages contain an illustrated overview of the individual lubrication points.

The lubrication points are shown with the item numbers as above and the designation of the point to be lubricated.

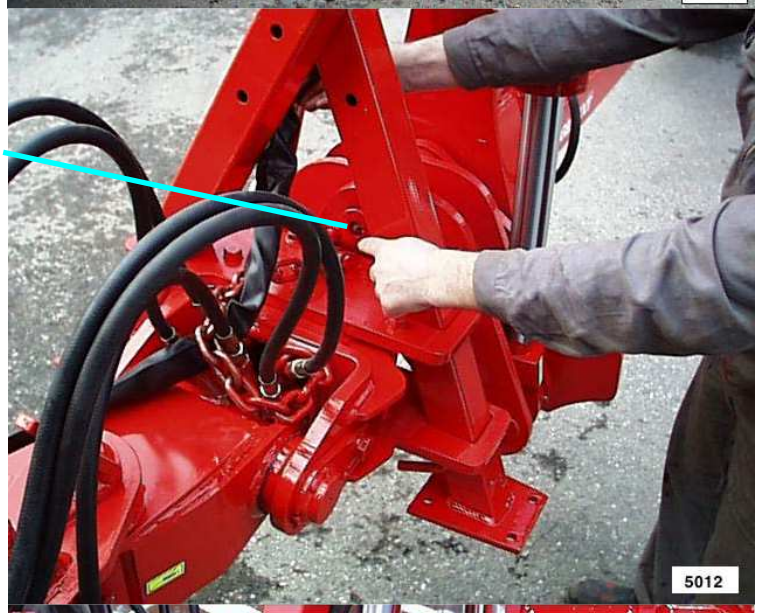
Lubrication points

Turnover cylinder (14)

Universal joint (5)



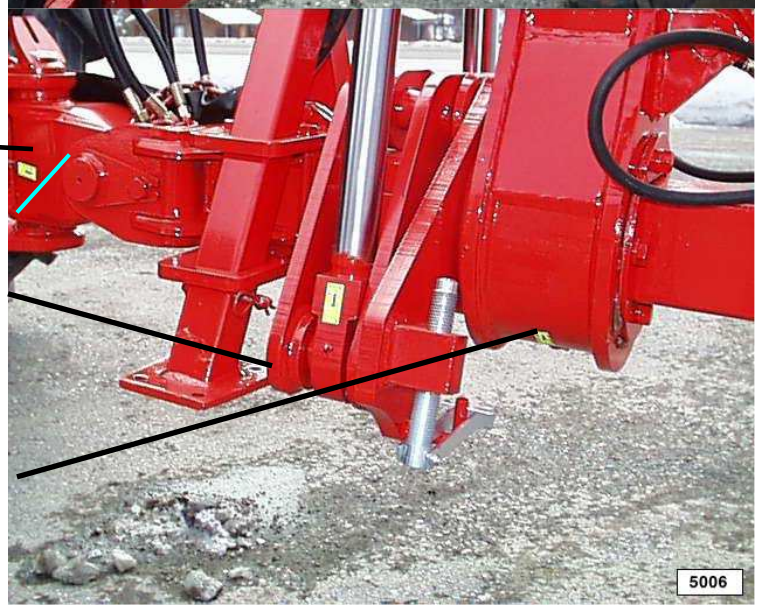
Folding lever (6)



Large universal joint (5)
(2 lubricating nipples)

Turnover cylinder bottom
(14)

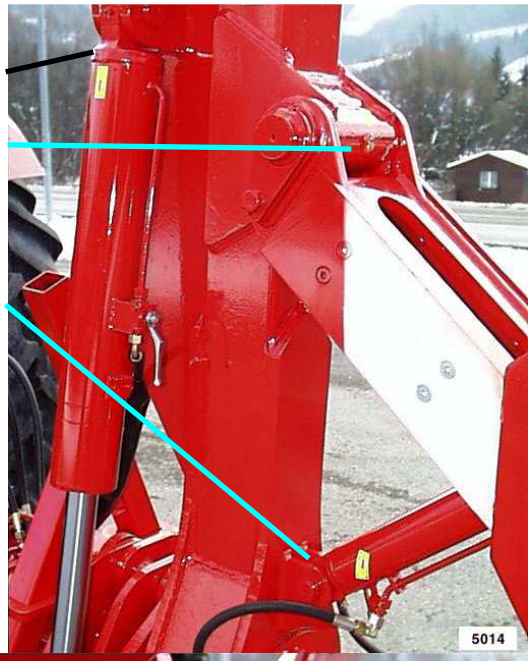
Large bearing
for turnover body (7)



Turnover cylinder (14)

Extension arm (8)

Track width adjustment cylinder (13)



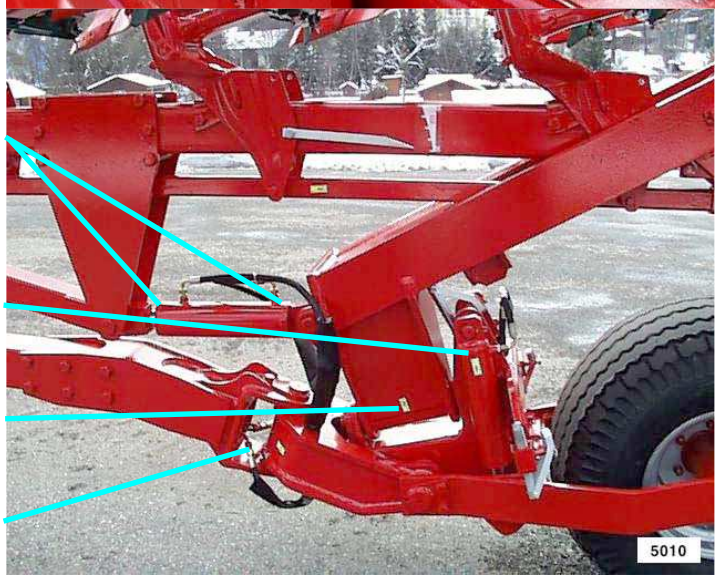
Beam bracket bearing (9)

Vario-cylinder
adjustment cutting width (3)

Lifting cylinder left and
right (4)
top and bottom

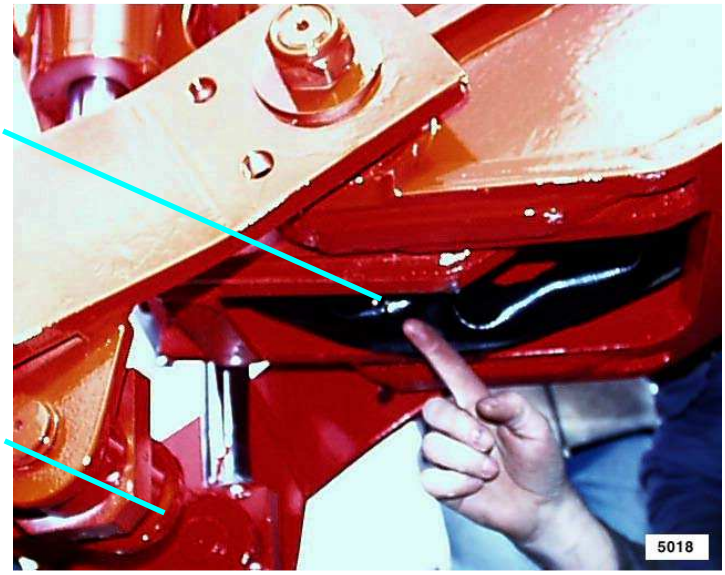
Turnover extension arm (1)

Universal joint long (2)



Lifting bearing (10)

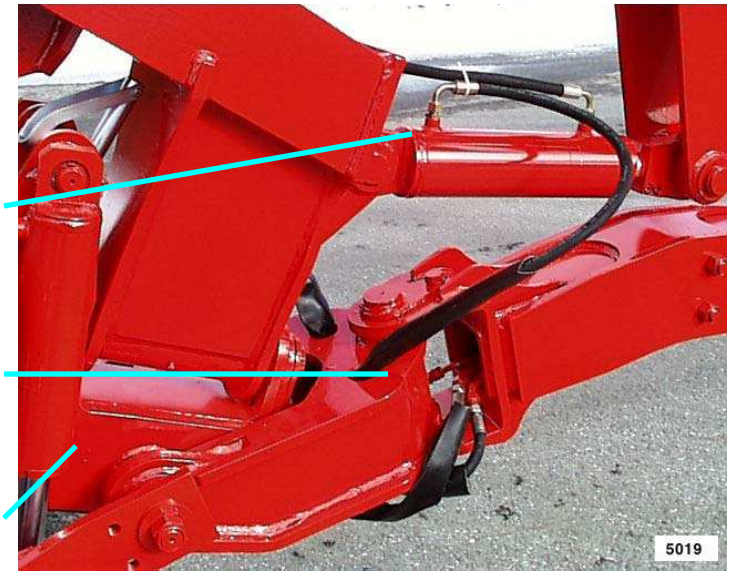
Lifting cylinder left and right (4)



Vario-cylinder adjustment cutting width (3)

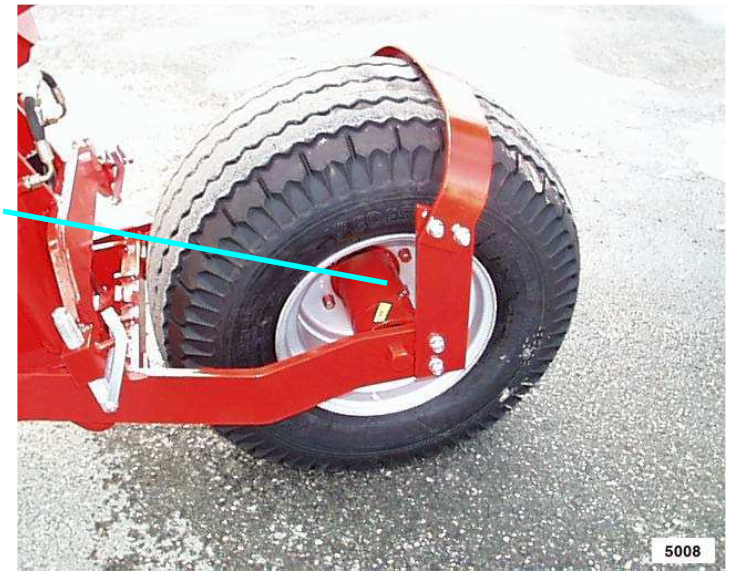
Universal joint long (2)

Lifting bearing (10)



Wheel bearing

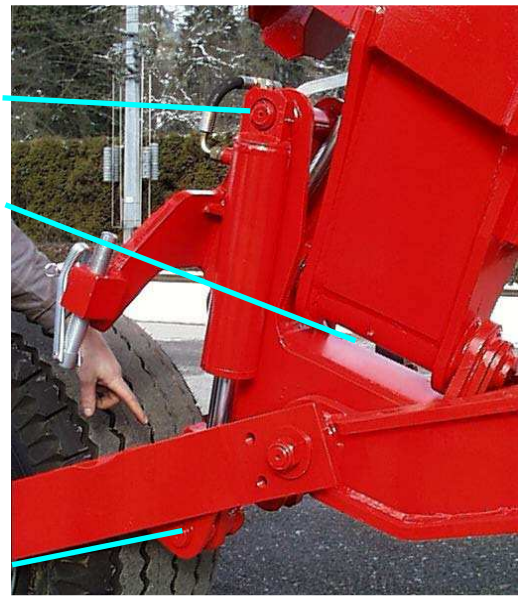
There are lubricating nipples on both sides. Lubrication on one side is sufficient.



Lifting cylinder left and right (4)

Turnover extension arm (1)

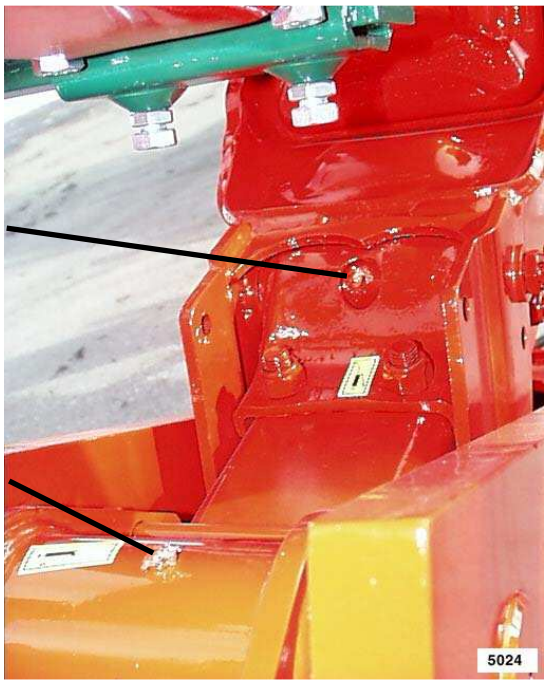
Lifting cylinder left and right (4)



Connecting rod (11)

Beam bracket bearing (9)

Frame bearing (12)

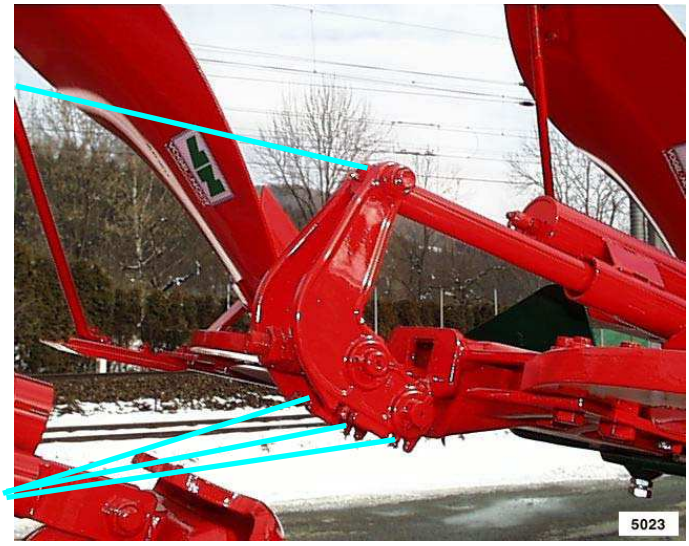


Track width adjustment cylinder (13)

Stone protection

Angel lever

Stone protection



Spare and wearing parts

If you have any queries, you can reach us at:

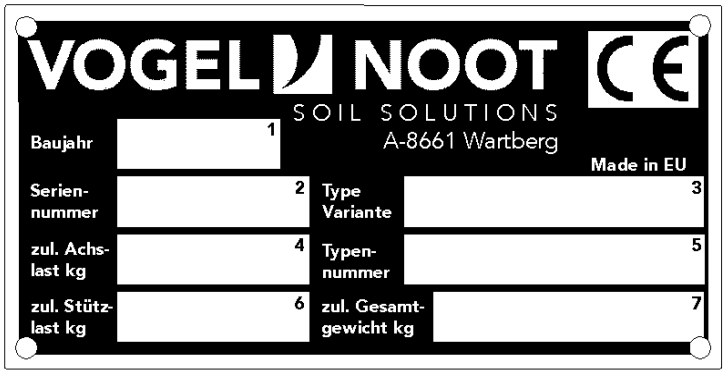
VOGEL & NOOT
Landmaschinen GmbH & CoKG
Grazerstrasse 1
A-8661 Wartberg i.M., AUSTRIA

Telephone orders:	+43 (0) 3858 / 605 – 253 for Parts Centre (Austria, Germany, SouthTirol) +43 (0) 3858 / 605 – 254, 255 (International)
Fax:	+43 (0) 3858 / 605 – 259 for Parts Centre
E-mail:	info@vogel-noot.net www.vogel-noot.info

Please quote the following for all queries and orders:

- Year of construction
- Machine number
- Plough model

These numbers are embossed in the nameplate on the mounted body.



1	Year of construction
2	Serial number
3	Type/variant
4	Permitted axle load (kg)
5	Type number
6	Permitted static vertical load (kg)
7	Permitted total weight (kg)

Note
Only genuine spare parts guarantee correct performance, a long service life and safe working.

6. Appendix

Product monitoring notification form

We are legally obliged to continue monitoring our products beyond the point of delivery.

We are extremely interested in:

- repeated malfunctions
- usage other than for intended purpose
- bypassing/disabling safety systems
- incorrect, unsafe operation
- accidents which have occurred
- other unusual observations

in particular as indicators of possible corrections to be made and/or modifications.

We request you to notify us of any such occurrences/suggestions. This is the only opportunity for us to improve our products, if so required, to make them as safe and reliable as possible.

Date	Occurrence	Note

Our address:

Vogel & Noot
Landmaschinen GmbH & CO.KG
Grazerstrasse 1
A-8661 Wartberg,
Tel (+43 3858) 605-0, Fax -109
E-mail: **info@vogel-noot.net**

The implement has been fitted with the equipment expressly requested by the customer.

The customer acknowledges that the implement may not be suitable for use on public roads, and may not have the safety equipment that is required for public roads. Vogel & Noot Landmaschinen GmbH & Co KG would like to point out that it is the vehicle owner and vehicle operator who are responsible for ensuring that the implement has the safety equipment necessary according to the applicable national legislation and regulations when being used on public roads.

IT IS ABSOLUTELY FORBIDDEN TO EXCEED THE SPEED OF 25km/h!

II. TERMS OF WARRANTY

We guarantee the product as specified below:

- Extent of warranty:

We guarantee the initial purchaser a delivery item with state-of-the-art technology regarding serviceability and operability.
The warranty moreover covers the removal of defects in the case of damage to delivery items due to defective material, design faults, or finishing defects.

- Duration of warranty claims:

The period of warranty begins with delivery of the item. It covers:

a) 1 year for structural parts
b) Bought-in parts:
   For those parts not manufactured by ourselves, e.g. the turnover cylinder, we can only honour the warranty to the extent that our warranty is covered by the supplier.

- Removal of defects:

Fulfilment of warranty is as follows: parts that are proven to be defective or have become defunct through material, design or processing defects are repaired at our discretion or can be returned freight-free to our plant in Wartberg to be replaced. Proof of defect is governed by the inspection report of our plant. Removal of defects does not affect duration of warranty.

All further claims to redhibition, diminution or replacement delivery, as well as compensation for direct or indirect consequential damages shall remain ineligible.

- Exclusion from warranty:

The following are excluded from warranty:
a) Wearing parts as a result of normal wear and tear.
b) Damage traceable to negligence, overloading or improper handling

- Expiry of warranty;

a) If claims on warranty in reference to wrong or incomplete delivery or other overt shortcomings are not made in writing and reported to our plant within 8 days of delivery.
b) If specifications pertaining to the treatment of the delivery items (operating manual) are not followed.
c) In cases of incorrect mounting or operation by purchaser or third party.
d) If alterations are made to the delivery item by the purchaser or third party without our prior permission, or when repair work is undertaken without our permission.
e) In cases of resale of the delivery item within the duration of the warranty.
f) If the purchaser is in default of payment or does not fulfil other incumbent obligations.
g) In cases of use or mounting of foreign parts, or accessory tools or trailing implements not recommended by ourselves.
h) If the warranty card is not returned immediately after purchase or is not filled in correctly.

III. PARTS LIST

Please note the following with regard to parts orders:

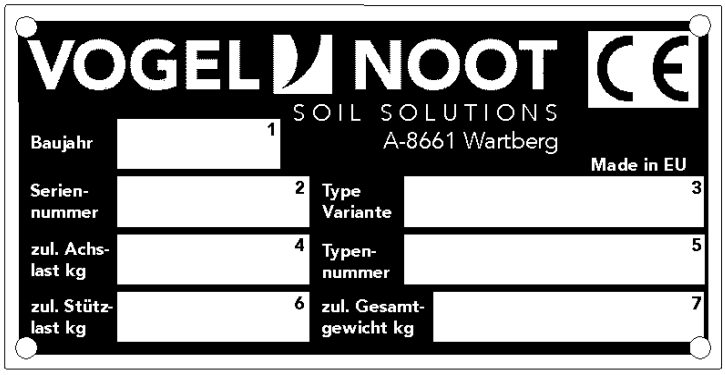
Telephone orders:	+43 (0) 3858 / 605 – 253 for Parts Centre (Austria, Germany, SouthTirol) +43 (0) 3858 / 605 – 254, 255 (International)
Fax:	+43 (0) 3858 / 605 – 259 for Parts Centre
E-mail:	info@vogel-noot.net www.vogel-noot.info

Please address your consignment to us as follows:

VOGEL & NOOT
Landmaschinen GmbH & Co KG
Grazer Strasse 1
A-8661 WARTBERG, Austria

This address applies to consignments sent both by post and by rail.

Please do not forget to specify your exact address and the required dispatch method. Unless we receive information to the contrary, goods will be dispatched by post as a parcel or by train as freight. Please quote the **construction year, machine no**., and **plough model** for all enquiries and orders. These numbers are embossed in the **nameplate** on the mounted body.



1 Year of construction
2 Serial number
3 Type/variant
4 Permitted axle load (kg)
5 Type number
6 Permitted static vertical load (kg)
7 Permitted total weight (kg)

The parts are marked with **figure numbers** in the **figures**. In the parts lists you will find the **order number** and the designation of the relevant part in addition to the **figure number**. Please always quote the order number and part designation in your order.

Example:
523804 (order no.) **Hexagon head screw M20x80** (designation)
References to right or left: the right side of the plough is the side which displaces soil to the right when viewed in the direction of travel.