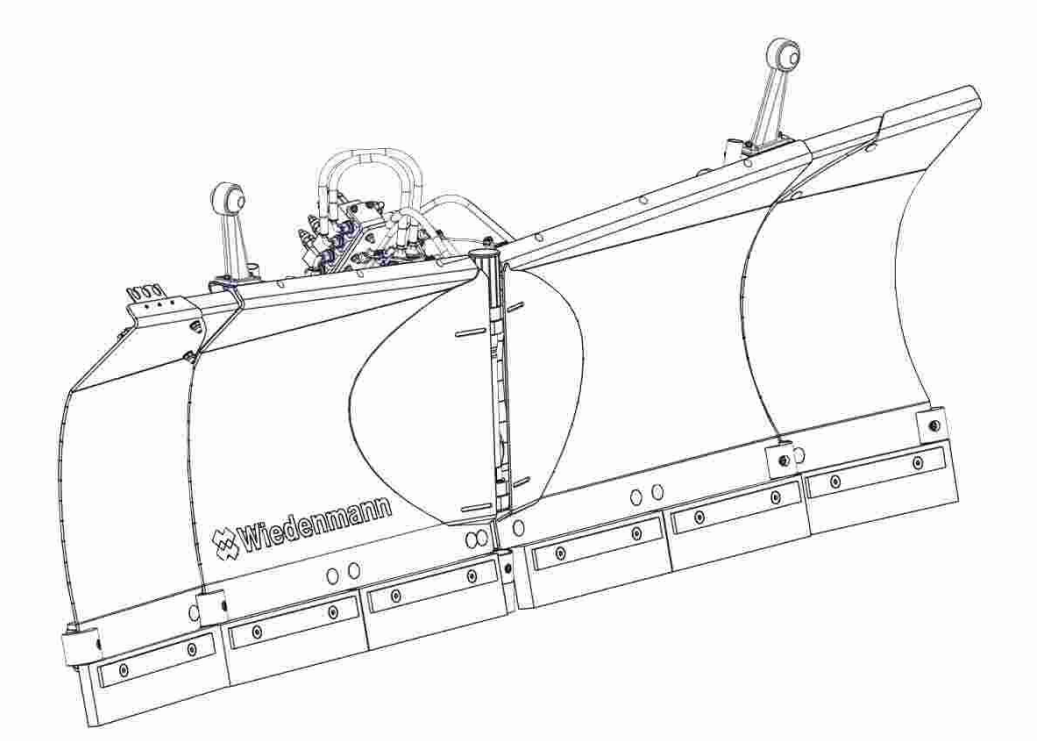
Translation of original Operating Instruction

EN

Snow Rake Blade Snow Master Vario Flex

Series 3370



Document number: **3370 99 01.003**

From equioment I.D. No.:

Status: 02 / 2019

IMPORTANT!

- Read these operating instructions thoroughly before initial commissioning and observe the safety information.
- Keep these operating instructions in a safe place.

1. Manufacturer

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1.1. Information for inquiries and orders

Year	
Machine no.	
Typ	**Snow Master Vario Flex**

1.2. Contact details of your dealer

1.3. Preface

These operating instructions are an integral part of this delivery. They must always be kept in the vicinity of the device.

In the event that the device is sold on, the operating instructions must be passed on to the purchaser.

Read these operating instructions carefully to learn how to operate and service your device correctly. Failure to do could result in personal injury or equipment damage. These operating instructions and safety signs on your device may also be available in other languages (see your dealer to order).

Please be aware that we cannot assume liability for damage or downtimes which occur as the result of failure to observe the operating instructions.

This device is designed for winter services clearing snow from roads and grassy areas. See chapter 3.3 “Intended use”.

The device described in these operating instructions corresponds to the state of the art of the time when these operating instructions were created.

Before delivery of this machine, your dealer performed a pre-delivery inspection to ensure optimal performance.

In the interest of further developing the machine, we reserve the right to make those changes to individual components and accessories, which shall be made for your benefit while maintaining the essential functions of the machine and shall be deemed expedient in terms of increasing the performance and safety of the machine.

Measurements in these operating instructions are given in the metric system. Only use suitable parts and screws. Different wrenches are required for metric and inch screws.

Enter the product identification number in the appropriate “Technical data” or “Product - Identification Number” sections. Please ensure that all figures are accurately entered. These numbers can be of invaluable assistance for tracing the machine should it be stolen. Your dealer also needs these numbers when you order spare parts. We recommend that you additionally file these identification numbers in a secure place away from the machine.

1.4. Table of contents

2. To this document

2.1. Validity

This document applies to machines of the type:

Snow Master Vario Flex 3370

All information, illustrations and specifications in these Operating Instructions are based on the latest information available at the time of publication. We reserve the right to make design changes at any time without prior notification.

2.2. Reorder

Should this document have become wholly or partly unusable, you can use the document number on the cover sheet to request a replacement.
The document can also be downloaded via the Wiedenmann homepage.
www.wiedenmann.com

2.3. Applicable documents

Alongside the machine operating instructions, the following documents are also supplied and should also be observed:

- Operating manual tractor

2.4. Target group of the document

This document is aimed at machine operators that fulfil the minimum personnel qualification requirements, see Section 3.6.1 “Personnel qualification of the operating personnel”.

2.5. How to use this document

2.5.1. Directories and references

Table of contents / Headers and footers

The table of contents, as well as the headers and footers in this document provide fast orientation in the sections.

Cross-references

The text contains cross references to other documents or page references to a different section in the same document.

2.5.2. Directions

The designations “right” and “left” are applicable to the trailed device moving in forward direction.

2.5.3. Term device

The term "device" is also used to refer to the "snow rake blade" in the remainder of this document.

2.5.4. Figures

The figures in this document do not always represent the exact device type. The information with reference to the figures always corresponds to the device type in this document.

2.5.5. Scope of the document

Alongside the standard equipment, optional equipment is also described in this document. Your specific device may differ from this.

2.5.6. Means of presentation

Symbols in Text

The following means (symbols) are used to present the text with a clear structure.

- ➢ This arrow represents an **action step**. Multiple arrows in succession represent a sequence of actions that is to be performed one step at a time.
- ✓ This symbol represents a **prerequisite** that must be met in order to perform an action step or sequence of actions.
- ⇨ This arrow represents the **interim result** of an action step.
- ☑ The tick represents the result of an action step or sequence of actions.
- • The dot represents a list. If the dot is indented, it represents a further level of the list.

Symbols in pictures

The following symbols can be used in figures:

Symbol	Explanation
(1)	Reference sign for component

Symbol	Explanation
A	Position of a component

Position numbers in pictures

Digits in round brackets refer to item numbers in figures.

Warnings

Warnings regarding hazards are offset from the rest of the text as warning signs and also include both a danger symbol and signal words.

To avoid personal injury and material damage, it is important to observe the warning signs and their measures!

Explanation of the danger sign

This is the danger symbol that warns about a potential risk of injury and material damage.

Observe all notes with the danger symbol!

Explanation of the signal words

	**DANGER!** ➢ The signal word **DANGER** warns of a dangerous situation that will lead to serious injuries or even death if the warning message is not observed.

	**WARNING!** ➢ The signal word **WARNING** warns of a dangerous situation that could lead to serious injuries or even death if the warning message is not observed.

	**CAUTION!** ➢ The signal word **CAUTION** warns of a dangerous situation that could lead to minor or moderate injuries if the warning message is not observed.

	**ATTENTION!** ➢ The signal word **ATTENTION** warns of a dangerous situation that could lead to property and material damage if the warning message is not observed.

	**NOTE!** ➢ The signal word **NOTE** in connection with a mandatory sign specifies corresponding protective measures that prevent health risks.

	**INFO!** ➢ The signal word **INFO** in connection with the symbol provides information and tips on how to use the machine.

3. Safety notes

3.1. Obligation of the operator

The operator must ensure that only those persons work with the device that

- have knowledge of the accident prevention regulations associated with health and safety at work.
- have received instruction in how to work with/at the device.
- have read and understood the operating instructions.

The operator must ensure that

- all safety signs on the device are clearly legible.
- damaged safety signs are replaced with new ones.

3.2. Obligation of the operator

All persons commissioned to perform work with/at the device are committed to

- observing the fundamental regulations regarding workplace safety and accident prevention.
- reading and observing the information in the section entitled "Safety information" in these operating instructions.
- reading the information provided in the section entitled "Warning signs" in these operating instructions and observing the safety instructions associated with the warning signs when operating the device.
- familiarising themselves with the device.
- reading the sections of the operating instructions that are important for performing the work assigned to them.

If the operator determines that a safety device is not in perfect working order, this defect must be rectified immediately or the issue reported to the superior (operator).

3.3. Intended use

This device is designed for winter services clearing snow from roads and grassy areas.

Any use that goes beyond this is NOT considered "intended use", and the manufacturer will not be liable for any damage resulting from this. All risks in this regard are borne exclusively by the user. Intended use also includes compliance with the operating, maintenance and servicing conditions prescribed by the manufacturer.

3.4. Foreseeable incorect use

It is not permitted to use the trailed device to transport persons or things.

This device must only be operated, maintained and repaired by persons familiar with all its particular characteristics and acquainted with the relevant safety regulations. The relevant accident prevention regulations, all other generally recognised safety-related, occupational medicine and road traffic regulations must be adhered to. Any modifications carried out to this device without the express approval of the manufacturer excludes the manufacturer of all liability for any resulting damage.

3.5. Service life of the device

- The useful life of this device depends on correct operation and maintenance, as well as the deployment and operating conditions.
- Continuous operational readiness and a long useful life of the machine can be achieved by following the instructions and notes in these operating instructions.
- Once the season is over, the machine should be checked thoroughly for wear and any other damage.
- Damaged and worn components should be replaced before using the device again.

3.6. General safety instructions

- Observe the generally applicable safety and accident prevention regulations as well as the notes in these operating instructions!
- Familiarize yourself with all equipment and operating elements and their functions before starting work. Ensure that all protective equipment has been properly installed.
- In the working area, the user is responsible for the safety of other persons.
- Observe the applicable regulations when using public roads!
- Check the immediate surroundings before driving (children!)!
- Keep all persons clear of the danger zone of the device!
- Only use the attachment components designated for use with the attached equipment.
- Observe permitted axle loads and axle load distribution. The tractor's ability to steer and brake must be maintained.
- The driving and operating properties of the tractor may be influenced by the attachment of the device! Always adapt your driving style to match the terrain and ground conditions. Special care should be taken when working and turning on a slope.
- Switch the machine and the motor of the tractor off and remove the ignition key before carrying out maintenance.
- All safety devices must be assembled before initial operation of the device.
- Always keep the device in a good condition. Improper changes to the machine impair its function, operational reliability and service life

3.6.1. Personnel qualification of the operating personnel

Improper handling can lead to serious personal injuries or even death. To prevent accidents, all persons working with the machine must meet the following minimum requirements:

- They must be physically capable of controlling the machine.
- They must be able to perform the work with the device described in these operating instructions safely.
- They must understand how the machine works within the scope of their duties and be able to both recognise and avoid the hazards/dangers.
- They must have read and understood the operating instructions.
- They must be familiar with operating vehicles.
- When driving the device on roads, they must have sufficient knowledge of the rules of road traffic and possess the stipulated driving licence.

3.6.2. Personnel qualification of the specialist personnel

If the work to be performed (conversion, retrofitting, repairs, etc.) is carried out improperly on the device, persons can potentially suffer serious injuries or even death. To prevent accidents, all persons performing work in line with these instructions must meet the following minimum requirements:

- They must be a qualified specialist with corresponding training.
- They must be capable of completing the work to be performed within the scope of these instructions correctly and safely.
- They must understand how to perform the requisite work, how the device itself works and be able to both recognise and avoid the hazards/dangers.
- They must have read and understood the operating instructions.

3.6.3. Children in danger

Children cannot properly assess dangers and can behave unpredictably. Children therefore represent a particular risk.

- ➢ Keep children away from the device.
- ➢ Keep children away from operating materials.
- ➢ Particularly prior to starting up the machine and activating device movements, first ensure that there are no children in the danger area.

3.6.4. Coupling up the device

Failure to couple the tractor and device correctly leads to hazards that can cause serious accidents.

- ➢ Observe all relevant information in the various operating instructions when coupling the device. These include:
  - The tractor operating instructions
  - The device operating instructions, see Section 7 “Connecting to the Tractor”.
- ➢ Be aware of the altered driving characteristics of the combined unit.

3.6.5. Structural changes to the device

Unauthorised structural changes and extensions can impair the functionality and operational reliability of the device. This leads to an increased risk of injury.

Structural changes and extensions are not permitted!

3.6.6. Additional equipment and spare parts

Additional equipment and spare parts that do not meet the requirements of the manufacturer can impair the operational reliability of the device and cause accidents.

- ➢ To ensure operational reliability, always use original or standard parts that meet the requirements of the manufacturer.

3.6.7. Workstations at the device

Objects flying out of the device can hit and potentially injure any persons riding along on the device.

- ➢ Never allow anyone to ride along on the device.

3.6.8. Operational reliability, perfect technical condition

Operation only after proper commissioning

Without proper commissioning in line with these operating instructions, the operational reliability of the device is not guaranteed. This can then lead to a risk of serious or even fatal injuries.

- ➢ Do not use the device until it has been properly commissioned.
  See Section 8 „Before Initial Operation“.

Technically perfect condition of the machine

Improper maintenance and settings can influence the operational reliability of the machine and cause accidents. This can then lead to a risk of serious or even fatal injuries.

- ➢ Perform all maintenance and setting/adjustment work in line with the "Maintenance" and "Settings" sections.
- ➢ Prior to performing any maintenance or setting/adjustment work, shut down and secure the machine, see Section 3.7.1 “Shutting down and securing the device".

Dangers due to damage to the device

Damage to the device can impair its operational reliability and cause accidents. This can then lead to a risk of serious or even fatal injuries. The following parts of the device are particularly important with regards to safety:

- Guards
- Coupling devices
- Hydraulics

If you are in any doubt regarding the operational condition of the device, for example if it suddenly starts to behave differently unexpectedly or if you observe visible damage / fluids escaping:

- ➢ Shut down and secure the device, see Section 3.7.1 “Shutting down and securing the device".
- ➢ Eliminate any potential causes of the damage immediately, such as heavy soiling or loose screws.
- ➢ If you encounter damage that affects operational reliability and which you cannot rectify yourself by following the information/instructions in the operating instructions, please have the equipment repaired by a qualified specialist workshop.

Technical limits

The device can be damaged if its technical limits are not observed. This can then lead to a risk of serious or even fatal injuries. Observing the following limits is particularly important in terms of safety:

- Maximum permitted hydraulic operating pressure
- Maximum permitted tractor axle loads

- ➢ Observe the limits, see Section 4.3 “Technical specifications 01 series 3370”.

3.6.9. Danger areas

Moving parts pose a risk of crushing

- ➢ Never reach into the crush-risk area when parts are moving or could move there.
- ➢ Observe the information provided in all relevant operating instructions:
  - The tractor operating instructions
  - The device operating instructions, see Section 7 “Connecting to the Tractor“.

Danger zone between tractor and device

Anyone remaining between the tractor and the equipment can potentially suffer serious or even fatal injuries due to the equipment moving, the tractor rolling away or carelessness:

- ➢ Shut down and secure the equipment before performing any work between the tractor and the equipment, see Section 3.7.1 "Shutting down and securing the device". This also applies to quick checks.

Protective devices keep functioning

There is an increased risk of injury if any guards protecting moving device parts are missing or damaged!

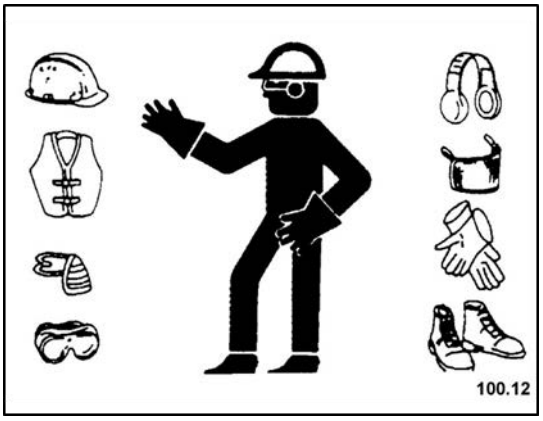
- ➢ Replace damaged guards.
- ➢ Keep hands, feet and garments well away from moving parts.
- ➢ Before starting up the device, re-attach any guards covering device parts that were removed and then move them into their guard position.
- ➢ If you are in any doubt as to whether all guards have been fitted properly and are working as they should, commission a specialist workshop to perform a check.

3.6.10. Personal protective equipment

Wearing personal protective equipment is an important safety measure. Missing or unsuitable protective equipment increases the risk of health issues and personal injuries.

Examples of personal protective equipment include the following:

- Suitable protective gloves
- Safety shoes
- Tight-fitting protective clothing
- Hearing protection
  - ➢ Specify and provide personal protective equipment for the specific task at hand.
  - ➢ Only use personal protective equipment that is in proper condition and offers effective protection.
  - ➢ Adjust personal protective equipment to the person performing the work. (e.g. size)
  - ➢ Remove any unsuitable items of clothing and jewellery.

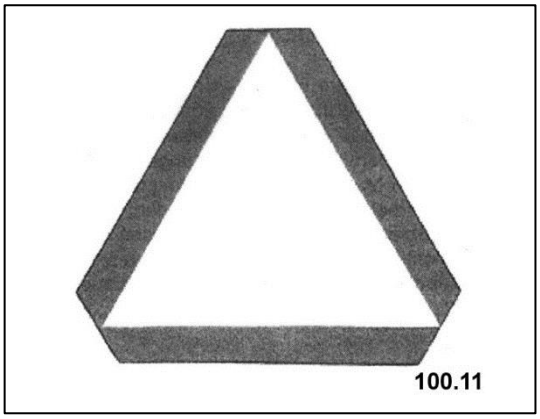


Secure operation of the machine requires the driver's full attention.

- ➢ Never wear headphones to listen to the radio or music.

3.6.11. Road safety

Dangers when driving on the road



If the machine exceeds the maximum dimensions and weights stipulated by national legislation and is not properly illuminated as per the regulations, you will put other road users at risk when driving on public roads.

- Always observe local road traffic regulations when using public roads.
- Prior to any road travel, ensure that the maximum permitted dimensions, as well as the weight, axle, support and trailer loads are not exceeded.
  Observe all guidelines pursuant to national law when driving on public roads.
- Prior to any road travel, switch on the lighting and ensure that it is working properly (in line with the regulations).
- Prior to any road travel, move the tractor's control units to their neutral position and lock them in place.

3.6.12. Risk of tipping over on slopes

	⚠ WARNING!
	Impairment of the tractor's driving characteristics!
	➢ Always adapt your driving style to the respective ground conditions! ➢ Exercise extra caution when working and turning on a slope! ➢ Pay attention to any unevenness on the terrain (bumps)!

3.6.13. Shutting down the machine securely

A machine that has been improperly shut down can start to move in an uncontrolled manner. This can then lead to a risk of serious or even fatal injuries.

- Always shut down and park the machine on stable, horizontal and level ground.
- Secure the machine with a support rod.
- Prior to performing any servicing, maintenance or cleaning work, first make sure that the machine is on secure ground and is stable.

Unattended parking of the device

An inadequately secured and unattended device can present a danger to persons, particularly to children.

- Before parking, shut down and secure the machine, see Section 3.7.1 "Shutting down and securing the device.

3.6.14. Operating materials

Environmental protection and disposal

Operating materials such as hydraulic oil or gearbox oil can have harmful consequences for human health and the environment.

- Do not allow the operating materials to escape into the environment.
- Pour the operating materials into a liquid-tight container specially labelled for this purpose and dispose of them in line with official regulations.
- Soak up expired operating materials using absorbent material, pour them into a liquid-tight container specially labelled for this purpose and dispose of them in line with official regulations.

3.6.15. Potential hazards at the device

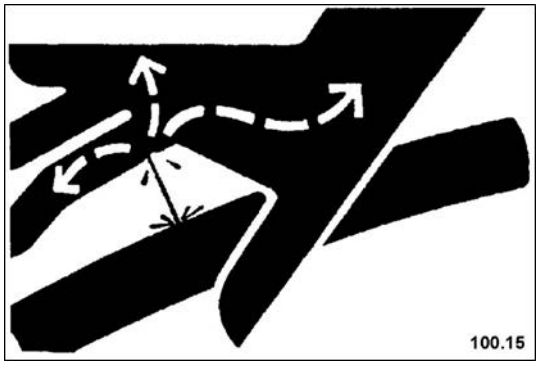
Noise can lead to health problems

The noise generated by the device while in operation can lead to health conditions such as hearing impairment, deafness or tinnitus. When using the device at high speed, the noise level is also increased.

- Before commissioning the device, first assess the danger posed by noise. Specify and use suitable hearing protection based on the environmental conditions, working times and work/operating conditions of the device.
- Specify a regulation for the use of hearing protection and for the duration of work.

Remove the hearing protection when driving on the road.

Liquids under high pressure



The following liquids are highly pressurised:

- Hydraulic oil

High-pressure fluids which leak under pressure can penetrate the skin causing serious injury.

- If you suspect that a pressure system may be damaged, shut down and secure the machine immediately and then contact a qualified specialist workshop.
- Never attempt to trace the source of leaks with your bare hands. Even just a pin hole can cause serious personal injuries.
- Use suitable materials when searching for leaks. (for example, a piece of cardboard)
- Keep your body and face well away from leaks.
- If a fluid penetrates the skin, it must be removed immediately by a doctor who is familiar with such injuries. Otherwise serious infections may result.
- Doctors unfamiliar with this type of injury should reference a knowledgeable medical source.
- Prior to recommissioning, check the leak-tightness of the hydraulic system!

Avoid heating near pressurized fluid lines

- ➢ Do not cause heating near pressurized fluid lines by welding, soldering or using a torch.
  - Pressurized fluid lines can be cut through accidentally if heat develops outside the immediate area of flame. In addition, heating near pressurized fluid lines can cause highly flammable mists to develop. If these mists ignite they can cause serious burns.

3.6.16. Hazards when performing certain tasks at the device

Work only on stopped device

If the devie has not been shut down and secured, parts can move unintentionally or the machine can begin to move.

Maintenance and repair work

Improper servicing and repair work jeopardise operational reliability. This can then lead to a risk of serious or even fatal injuries.

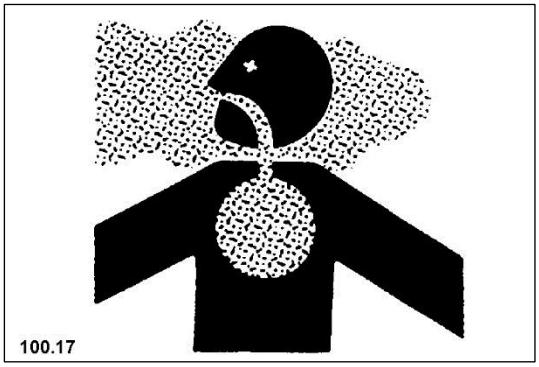
- ➢ Only perform the work described in these operating instructions.
- ➢ Prior to performing any work, shut down and secure the device, see Section 3.7.1 "Shutting down and securing the device“.
- ➢ Have all other servicing and repair work performed exclusively by a qualified specialist workshop.

Raised device or device parts

The raised device or raised device parts can descend or tip over unintentionally. This can then lead to a risk of serious or even fatal injuries.

- ➢ Do not stand or remain below the raised device or raised device parts that do not have proper supports, see Section 3.7.1 "Shutting down and securing the device“.
- ➢ Prior to performing any work below a raised device or raised device parts, secure the respective device or device parts and prevent them from descending using a rigid safety prop or hydraulic locking device and suitable supports.

Hazard due to welding work



Welding should only be carried out by persons with a relevant qualifying certificate i.a.w. EN287.

Improper welding work jeopardises the operational reliability of the machine. This can then lead to a risk of serious or even fatal injuries.

- ➢ Never weld any of the following parts:
  - Components of the hydraulic system
  - Chassis or load bearing assemblies
- ➢ Prior to performing welding work on the device, shut down the device securely and uncouple it from the tractor.
- ➢ Attach the earth of the welding device near to the welding point.
- ➢ Avoid generation of toxic vapour and dust. Hazardous fumes can be produced when paint is heated by welding, soldering, or using a torch.
- ➢ Do all work outside or in a well ventilated area.
- ➢ Dispose of paint and solvent properly.
- ➢ Remove paint before welding or heating:
  - If you sand or grind paint, avoid breathing the dust. Wear an approved respirator.
  - If you use solvent or paint stripper with soap and water before welding. Remove solvent or paint stripper containers and other flammable material from the area. Allow fumes to disperse at least 15 minutes before welding or heating.

3.7. Safety routines

3.7.1. Shutting down and securing the device

	⚠ WARNING!
	Risk of injury due to movements of the device or device parts!
	➢ Shut down and secure the device before leaving the operator's seat!

To shut down and secure the device:

- ➢ Shut down the tractor's engine, remove the ignition key and take it with you.
- ➢ Secure the tractor to prevent it from rolling away. (parking brake).

3.7.2. Securing the raised device and device parts to prevent them from descending

	⚠ WARNING!
	Risk of injury due to the device or device parts descending!
	➢ Prior to performing any work below a raised device or raised device parts, secure the respective device or device parts and prevent them from descending using a rigid safety prop or hydraulic locking device (e.g. stop valve) and suitable supports.

To securely support the device or device parts:

- ➢ Only use suitable and adequately dimensioned materials as supports.
- ➢ Car jacks are not suitable for supporting the device or device parts and therefore must not be used for this purpose.

3.8. Safety mark on the device

Safety stickers on the device offer warnings against hazards in danger areas and are an important component of the devices safety equipment. Missing safety stickers increase the risk of serious or even fatal personal injuries.

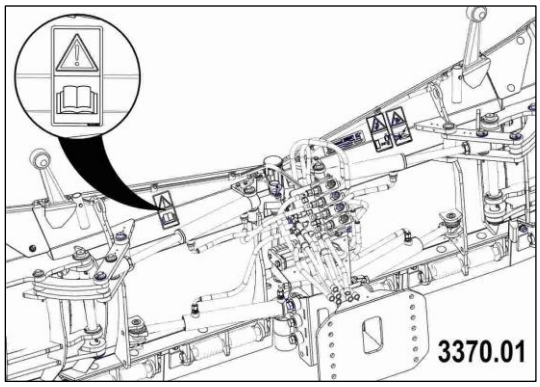
- ➢ Clean soiled safety stickers.
- ➢ Check all safety stickers after all cleaning work to ensure that they are still complete and easily legible.
- ➢ Immediately replace any missing, damaged or illegible safety stickers. (replacement safety stickers are available from your dealer)

3.8.1. Position and meaning of the safety stickers

Operating Instructions

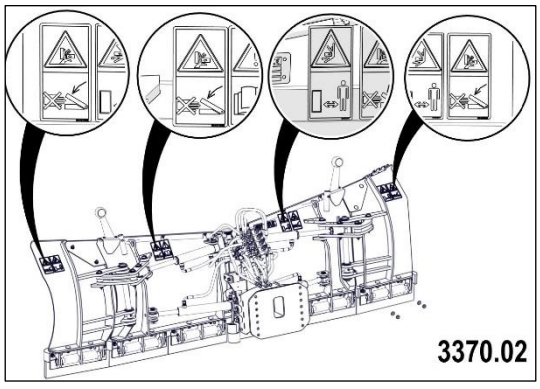
These operating instructions contain all important information necessary for safe device operation.

- ➢ Carefully observe all safety instructions to avoid accidents.
- ➢ Read operating instructions!



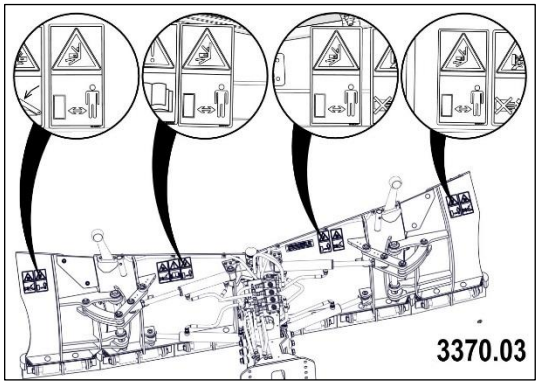
Danger of crushing through moving parts

- ➢ Never reach into crushing hazard zones while parts located there can still move



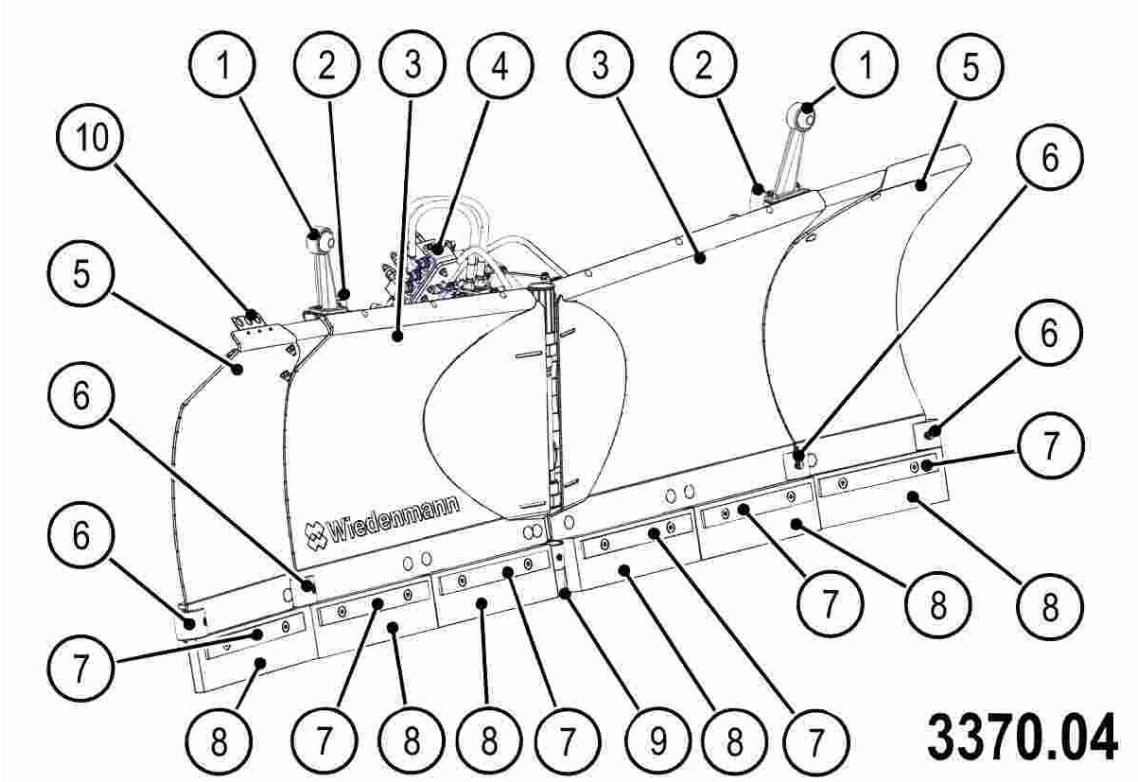
Danger of crushing – stay clear of swivel area

- When the tractor engine is running, stay clear of the swivel area of the rake blade.



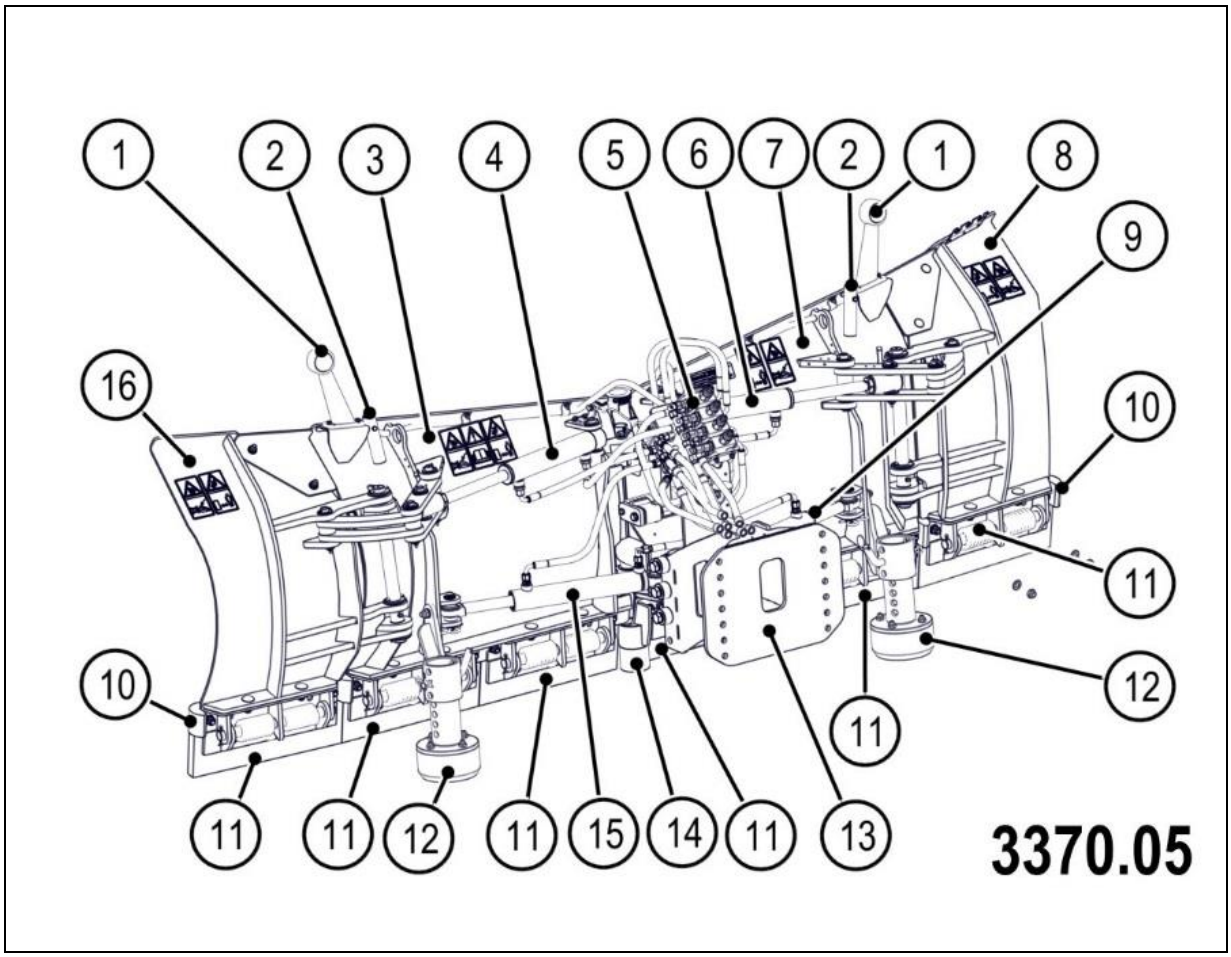
4. Device description

4.1. Devices overview



1	Side lamp
2	Bracket for warning flags (optional)
3	Share plate inside
4	Hydraulic control block (optional)
5	Share plate outside

6	Collision protection guard
7	Retaining strip
8	Waer strip
9	Scraping block
10	Bracket for hydraulic connections



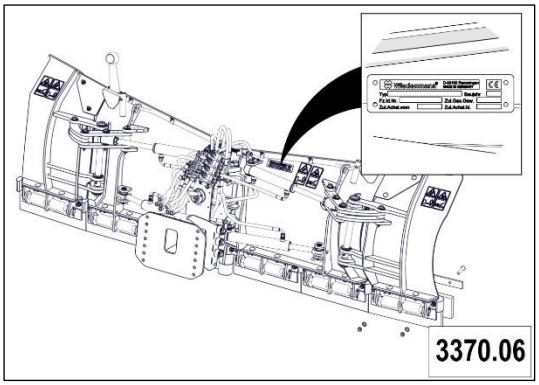
1	Side lamp
2	Bracket for warning flags (optional)
3	Share plate left inside
4	Hydraulic cylinder for outer left blade
5	Hydraulic control block (optional)
6	Hydraulic cylinder for outer right blade
7	Share plate right inside
8	Share plate right outside

9	Hydraulic cylinder for inner right blade
10	Collision protection guard
11	6x wear strips with spring flaps
12	Skid shoes
13	Support plate
14	Scraping block
15	Hydraulic cylinder for inner left blade
16	Share plate left outside

4.2. Nameplate

> **INFO!**
>
> ➢ The nameplate lists documented values and must not be changed, damaged or otherwise concealed!

The device data is printed on the nameplate. The nameplate is fitted on the right-hand side of the device chassis.



4.2.1. Chassis number

This number should be quoted in the event of warranty claims and when ordering spare parts. See Section 4.2 "Nameplate".

➢ Enter the vehicle identification number, the device type and the year of manufacture on the front cover page of these operating instructions.

4.3. Technical specifications 01 series 3370

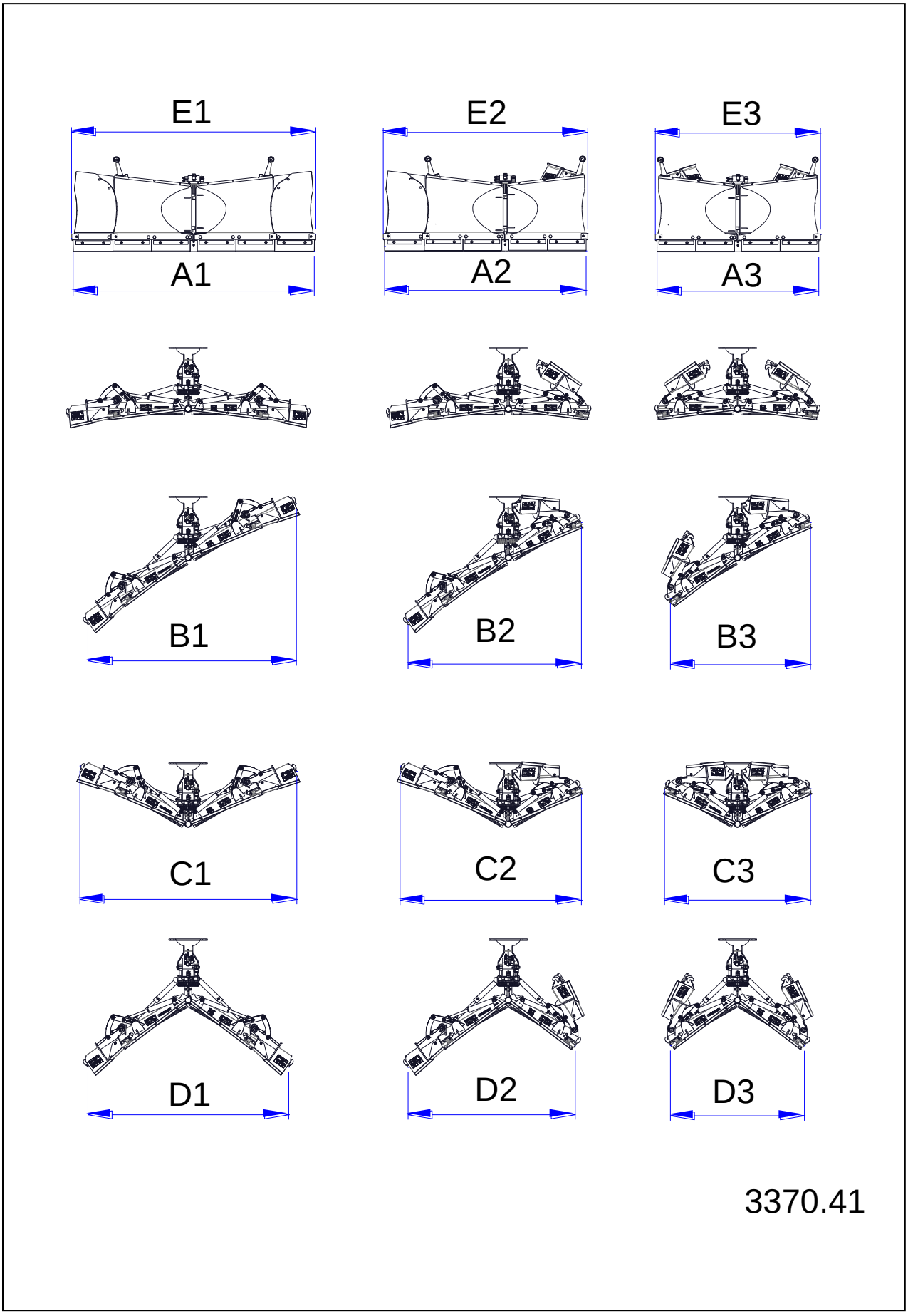
Cf. pages 28 and 29.

Pos	Designation	Pic.	3370 electro-hydraulic	3370 fully hydraulic
A1	Effective width in straight position - both sides folded out	3370.41	2505 mm	
A2	Effective width in straight position - one side folded out		2090 mm	
A3	Effective width in straight position - both sides folded in		1670 mm	
B1	Effective width in inclined position – both sides folded out	3370.41	2170 mm	
B2	Effective width in inclined position – one side folded out		1885 mm	
B3	Effective width in inclined position – both sides folded in		1505 mm	
C1	Working width in wedge position – both sides folded out	3370.41	2270 mm	
C2	Working width in wedge position – one side folded out		1910 mm	
C3	Working width in wedge position – both sides folded in		1540 mm	

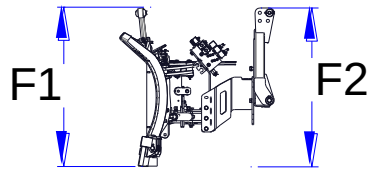
Pos	Designation	Pic.	3370 electro-hydraulic	3370 fully hydraulic
D1	Working width in V-position – both sides folded out	3370.41	2090 mm	
D2	Working width in V-position – one side folded out		1770 mm	
D3	Working width in V-position – both sides folded in		1370 mm	
E1	Width of device – both sides folded out	3370.41	2535 mm	
E2	Width of device – one side folded out		2125 mm	
E3	Width of device – both sides folded in		1710 mm	
	Working speed at full weight loads on skide shoes		20 km/h	
	Working speed at full weight loads on wear strips		16 km/h	
	Attachment to vehicles up to		80 PS (60 kW)	
	Max. hydraulic operating pressure		225 bar	
	Machine height with Steel- or Plastic Scraping Edge			
F	Shield height	3370.42	830 mm	
F1	Machine height with side lamps		970 mm	
F2	Height of device incl. attachment C		860 mm	
	Machine height with corundum plastic scraping edges			
G	Shield height	3370.42	880 mm	
G1	Machine height with side lamps		1020 mm	
G2	Height of device incl. attachment C		910 mm	

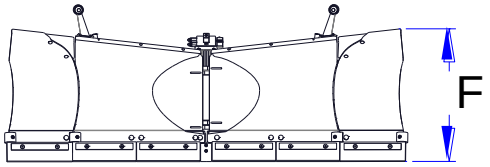
Pos	Designation	Pic.	3370 electro-hydraulic	3370 fully hydraulic
	Length of device from tractor connecting point			
H	Basic unit without attachment components	**3370.42**	**800 mm**	
H1	Basic unit with attachment A		**870 mm**	
H2	Basic unit with attachment B		**930 mm**	
H3	Basic unit with attachment C		**900 mm**	
H4	Basic unit with attachment D		**1115 mm**	
H5	Basic unit with attachment E		**830 mm**	
	Weights			
	Basic unit		**322 kg**	**312 kg**
	Attachment components – A		**20 kg**	
	Attachment components – B		**30 kg**	
	Attachment components – C		**34 kg**	
	Attachment components – D		**54 kg**	
	Attachment components – E		**22 kg**	
	Attachment – steel scraping edges		**28 kg**	
	Attachment – plastic scraping edges		**20 kg**	
	Attachment – corundum plastic scraping edges		**32 kg**	
	Attachment – skid shoe fittings		**18 kg**	
	Attachment – warning flag fittings		**2 kg**	
	Max. total weight		**428 kg**	**418 kg**

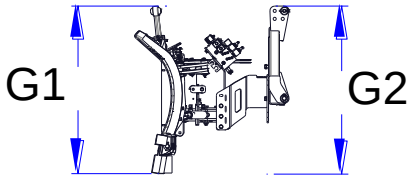
4.3.1. Technical data sheet 01 type 3370

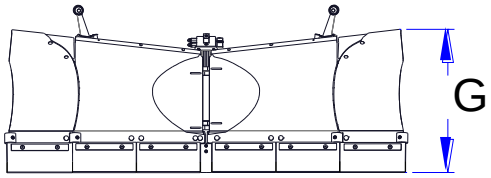


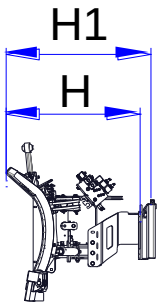
4.3.2. Technical data sheet 02 type 3370

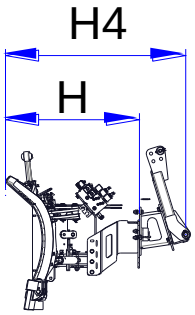


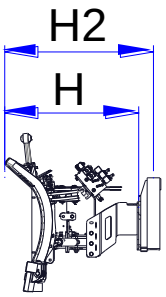


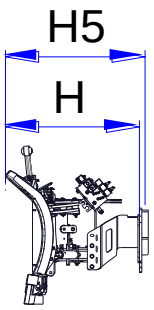


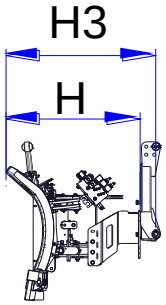






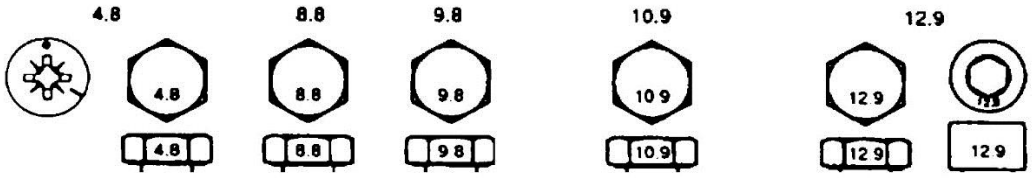
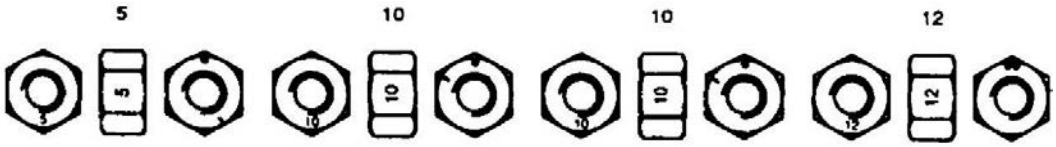






3370.42

4.3.3. Torques for metric screws

Class and markings of the screw heads	
Class and markings of the nuts	

Size	Class 4.8				Class 8.8 oder 9.8				Class 10.9				Class 12.9			
	Lubricated *		Dry **		Lubricated *		Dry **		Lubricated *		Dry **		Lubricated *		Dry **	
	Nm	lb-ft	Nm	lb-ft	Nm	lb-ft	Nm	lb-ft	Nm	lb-ft	Nm	lb-ft	Nm	lb-ft	Nm	lb-ft
M6	4,8	3,5	6	4,5	9	6,5	11	8,5	13	9,5	17	12	15	11,5	19	14,5
M8	12	8,5	15	11	22	16	28	20	32	24	40	30	37	28	47	35
M10	23	17	29	21	43	32	55	40	63	47	80	60	75	55	95	70
M12	40	29	50	37	75	55	95	70	110	80	140	105	130	95	165	120
M14	63	47	80	60	120	88	150	110	175	130	225	165	205	150	260	190
M16	100	73	125	92	190	140	240	175	275	200	350	255	320	240	400	300
M18	135	100	175	125	260	195	330	250	375	275	475	350	440	325	560	410
M20	190	140	240	180	375	275	475	350	530	400	675	500	625	460	800	580
M22	260	190	330	250	510	375	650	475	725	540	925	675	850	625	1075	800
M24	330	250	425	310	650	475	825	600	925	675	1150	850	1075	800	1350	1000
M27	490	360	625	450	950	700	1200	875	1350	1000	1700	1250	1600	1150	2000	1500
M30	675	490	850	625	1300	950	1650	1200	1850	1350	2300	1700	2150	1600	2700	2000
M33	900	675	1150	850	1750	1300	2200	1650	2500	1850	3150	2350	2900	2150	3700	2750
M36	1150	850	1450	1075	2250	1650	2850	2100	3200	2350	4050	3000	3750	2750	4750	3500

The torques in this table are guidelines and do NOT apply where a different torque for certain screws or nuts is given in this instruction manual. Check tightness of fasteners periodically. Shear bolts are designed to fail under predetermined loads. Always replace shear bolt with identical property class.

Fasteners should be replaced with the same or higher property class. If higher property class fasteners are used, these should only be tightened to the strength of the original.

Make sure fasteners threads are clean and that you properly start thread engagement. This will prevent them from failing when tightening.

Tighten plastic insert or crimped steel-type lock nuts to approximately 50 % of the dry torque shown in the chart, applied to the nut, not to the bolt head. Tighten toothed or serrated-type lock nuts to the full torque value.

* "Lubricated" means coated with a lubricant such as engine oil, or fasteners with phosphate and oil coatings.

** "Dry" means plain or zinc plated without any lubrication.

5. Assembly

5.1. General information on assembly

- For this work, please use your personal protective equipment (PSA) such as:
  - gloves
  - goggles
  - ear protectors.....
- Lay all the hydraulic lines and electrical cables so that they are not damaged during operation.

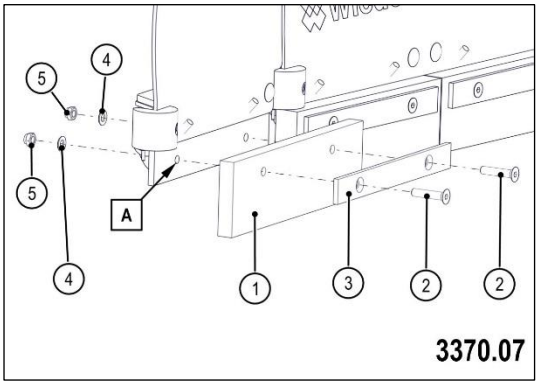
5.2. Mounting the scraping edges

5.2.1. Plastic cutting edges

Plastic scraping edges are easy going on the road surface and are not as noisy.

Fitting new wear strips

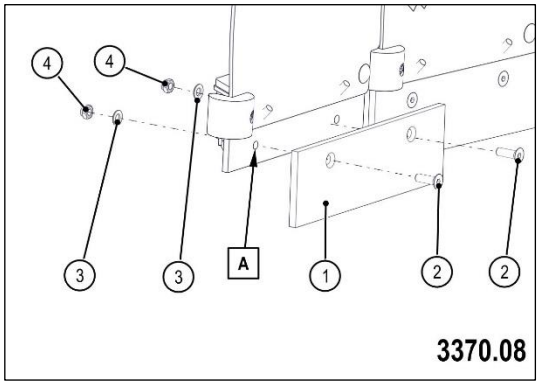
- Fit new wear strips (**1**) in hole row (**A**) and secure them in place with countersunk screws (**2**), retaining strips (**3**), washers (**4**) and self-locking nuts (**5**).



5.2.2. Steel scraping edges

Fitting new wear strips

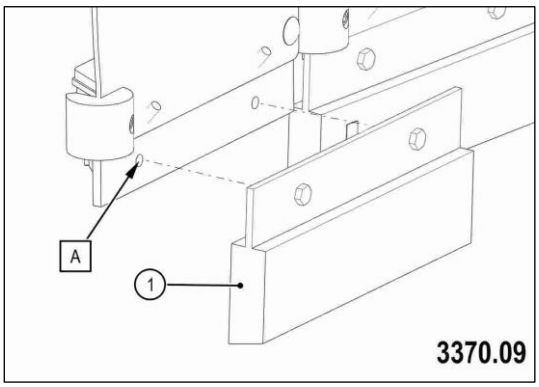
- Fit new wear strips (**1**) in hole row (**A**) and secure them in place with countersunk screws (**2**), washers (**3**) and self-locking nuts (**4**).



5.2.3. Secure corundum plastic scraping edges

Fitting new wear strips

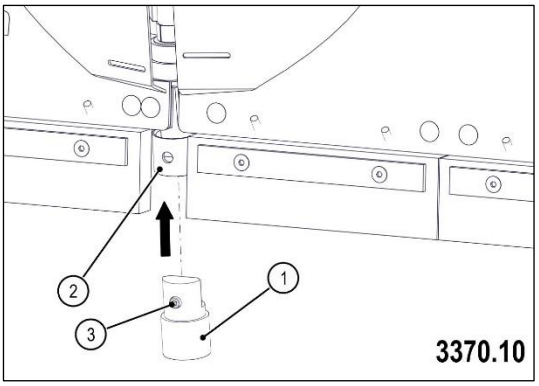
- Fit new wear strips (**1**) in hole row (**A**) and secure them in place with countersunk screws, washers and self-locking nuts.



5.2.4. Scraper block

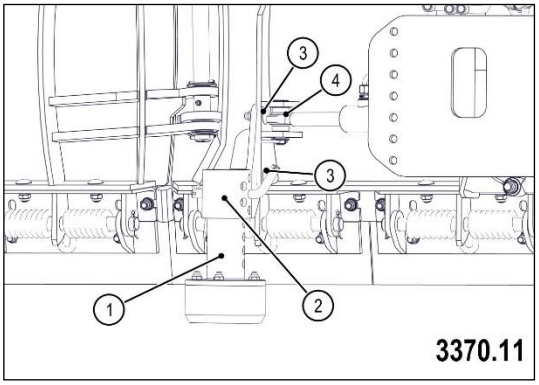
Fitting a new scraper block

- Insert a new scraper block (**1**) into the bracket and secure with a hexagon socket screw.



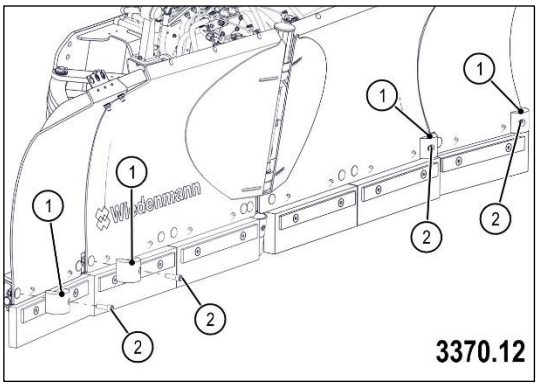
5.3. Mounting the skid shoes

- Screw skid shoe (**1**) into hole pattern (**3**) provided on both sides using bracket (**2**).
- Unhinge the hydraulic cylinder at the share plate (**4**) to insert the top screw.



5.4. Fitting the collision protection guard

- Screw collision protection guard (**1**) into hole (**2**) provided (outer edge of shield parts).



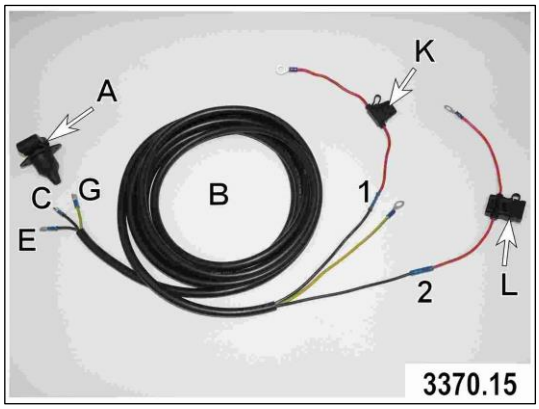
5.5. Electric connection

5.5.1 Electric connection to battery

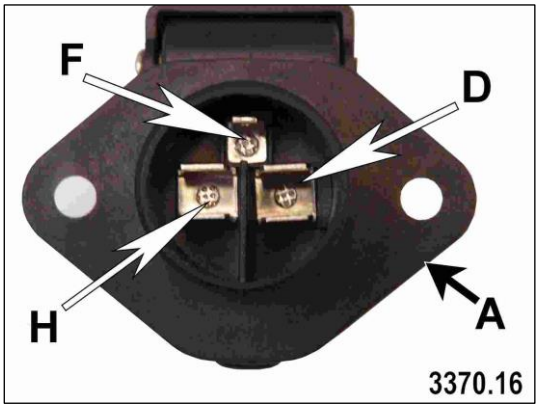
ATTENTION!

Incorrect electrical connection!

- Only appropriately qualified professionals may carry out the connection work!



- Mount 3-pin socket (**A**) at a suitable location in the area of the driver's seat.
- Install cable (**B**) from the battery to 3-pin socket (**A**).
- Insert flat connector (**C**) of line 1 in socket (**A**) at position (**D**).
- Insert flat connector (**E**) of line 2 in socket (**A**) at position (**F**).
- Insert flat connector (**G**) of green/yellow line in socket (**A**) at position (**H**).
- Connect ring shoe of lines 1 and 2 to positive terminal of battery.
- Connect ring shoe of green/yellow line to negative terminal of battery.



The lines are fused as follows:

Line 1 with 25 A (**K**)

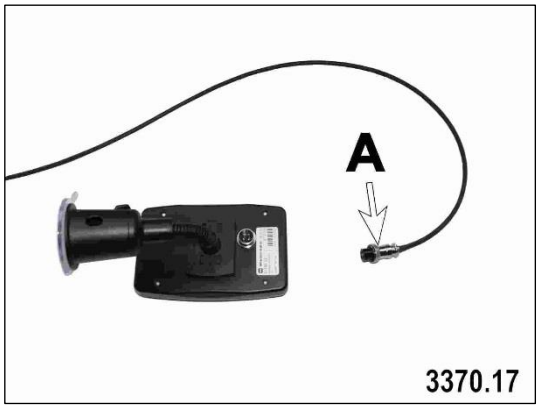
Line 2 with 10 A (**L**)

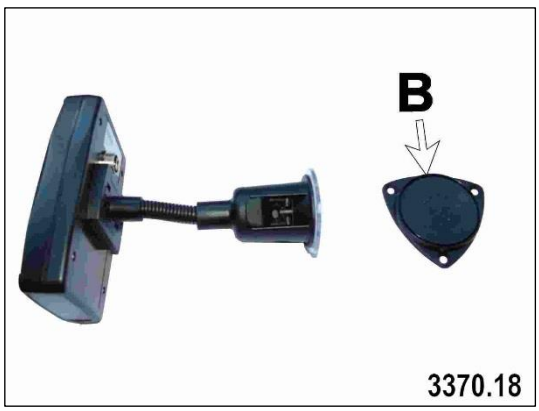
5.5.2 Connecting the control unit

The control unit has a 4-pin connection on its rear side to which the connection cable (**A**) must be connected.

The control panel must be in a suitable bracket during operation.

A suction cup holder is included with the machine. It must be attached to a smooth and clean glass surface. A screw-on adapter plate (**B**) is included for mounting at other positions.





6. Transport

6.1. Safety instructions for transport

The machine is delivered secured on a transport frame.

	DANGER!
	Danger to life due to falling load!
	➢ Only use a forklift truck with sufficient load capacity to raise the machine! ➢ Never stand under lifted loads.

Improper transportation and attachment of the machine can:

- injury to persons
- damage to property

➢ Pay special attention to the direction of approach when lifting the machine with the transport frame.
We do not accept any liability for damage resulting from improper handling.

	WARNING!
	Risk of injury due to the ends of the tensioning straps "jumping up"!
	➢ Caution must be excercised when cutting through the securing straps.

6.2. Transport of the device

6.2.1. Transport using a forklift

If the device is still secured to the transport frame

➢ Insert the forks under the transport frame (pay attention to the direction of approach).

➢ Carefully lift the transport frame.

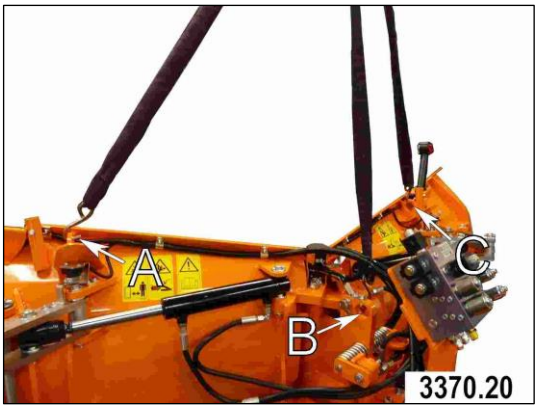
	CAUTION!
	Tilting load!
	➢ When raising the shipping container, pay attention to the load's centre of gravity!

➢ Unload the device from the transport device when it is balanced.

➢ Cut through the securing straps.

➢ Lift the device from the transport frame and connect it on the carrier vehicle.
See item 7 “Connecting to the Tractor”.

6.2.2. Transport Using a Crane



- Hook ropes or carrying loops into bores (**A, B, C**) of rods.
- Unload the device when it is securely suspended.

	INFO!
	➢ Transportation damage and missing parts must be immediately reported in writing to the transport company and Wiedenmann GmbH or the supplier!

6.3. Transport

	⚠ ATTENTION!
	Risk of accident during transport!
	➢ Switch on the marker lights for transport. See section 8.3.2 „Switch on the control unit Vario Flex“! ➢ Switch on the road travel protection on the tractor.

6.3.1. With 3-point installation

- Raise the attached equipment with the tractor rear hydraulic system and secure against inadvertent lowering.

	⚠ WARNING!
	Being in the range of motion poses a risk of accident.
	➢ Be aware of the attached equipment's range of motion when driving on public roads.

6.3.2. With coupling triangle

- Raise the attached equipment with the tractor rear hydraulic system and secure against inadvertent lowering.

	⚠ WARNING!
	Being in the range of motion poses a risk of accident.
	➢ Be aware of the attached equipment's range of motion when driving on public roads.

7. Connecting to the Tractor

7.1. Safety instructions for attachment to the tractor

⚠ CAUTION!

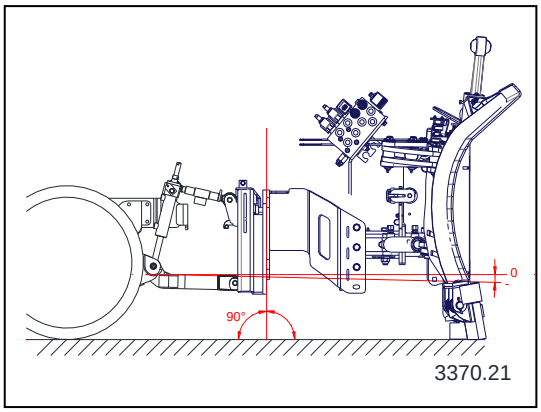
Impairment of the tractor's driving characteristics!

- ➢ Do not exceed the max. authorized axle load of the tractor!
- ➢ Observe the information in the operating instructions for the tractor.

- ➢ For this work, please use your personal protective equipment (PSA) such as:
  - Gloves
  - Goggles
  - Aar protectors

7.2. The correct position of the installation trestle

- ➢ The attachment components must be attached to the rake blade so that the lower guide bar of the tractor front hydraulic system are parallel to the ground or just slightly tilted downward.

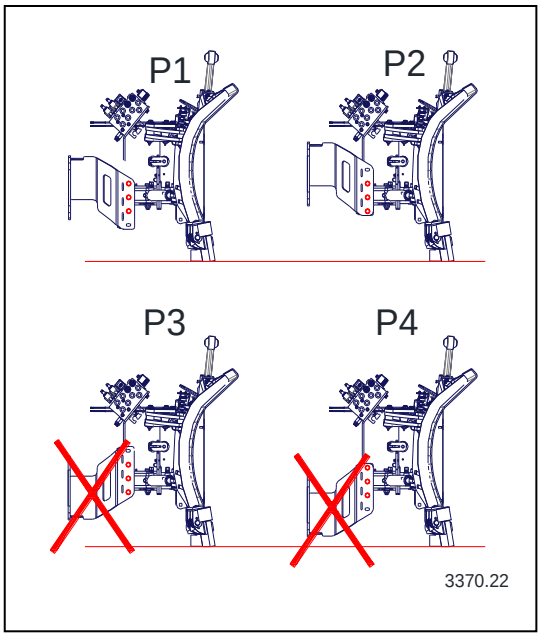


INFO!

- ➢ In working position, the attachment frame should be perpendicular to the floor!

INFO!

- ➢ Make sure that all scraping edges have even contact with the ground on level ground as well as in the wedge and V position!



Position P1 (Standard position upon delivery):

This is the highest position of the adapter plate.

Position P2:

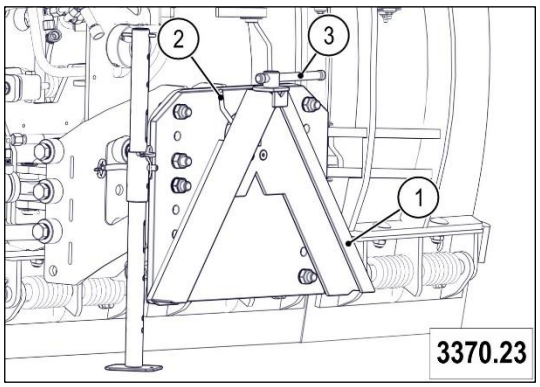
The adapter plate is screwed on 1 hole lower down.

⚠ ATTENTION!

Risk of collision when folded in!

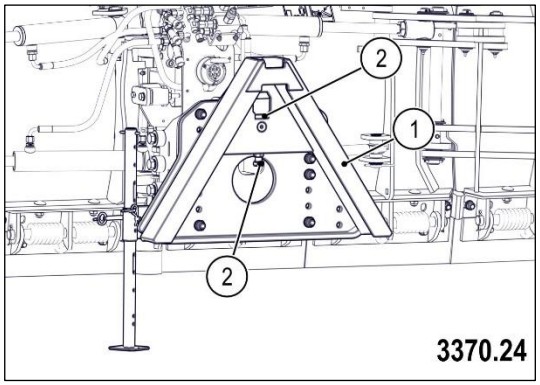
- ➢ The adapter plate must not be turned by 180° (position P3;P4)!

7.3. Attaching with A-frame cat. 0 A



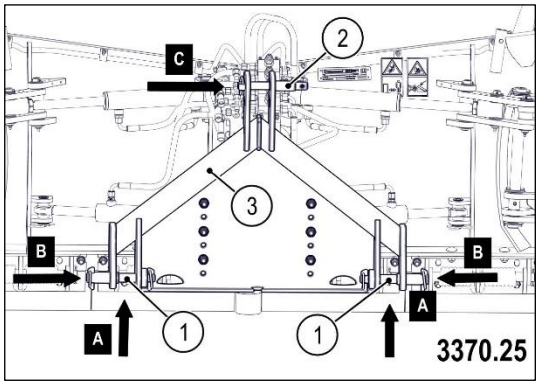
- Carefully drive up to the A-frame cat. 0. (**1**).
- Lift the tractor front hydraulic system so that the A-frame cat. 0 (**1**) engages.
- Adjust safety catch (**2**) or insert lever screw (**3**).
- Raise parking supports.
  See section 7.6 “Raising the support”.
- Connect hydraulic lines.
  See section 7.7 „Connecting the hydraulic system“.
- Adjust the upper guide bar so that the three-point frame is perpendicular to the road.
- Connect the power supply and control unit.

7.4. Attaching with triangular coupling B



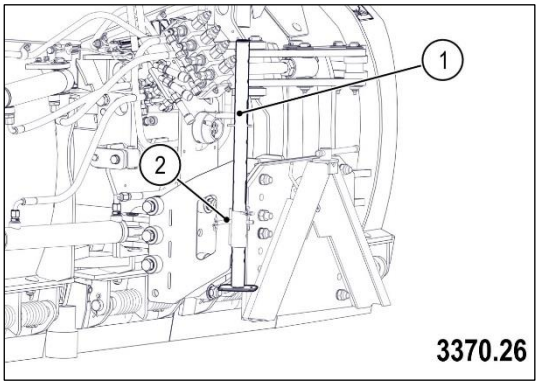
- Carefully drive up to the triangular coupling. (**1**).
- Lift the tractor front hydraulic system so that the triangular coupling (**1**) engages.
- Adjust safety catch (**2**)
- Raise parking supports.
  See section 7.6 “Raising the support”.
- Connect hydraulic lines.
  See section 7.7 „Connecting the hydraulic system“.
- Adjust the upper guide bar so that the three-point frame is perpendicular to the road.
- Connect the power supply and control unit.

7.5. Attaching with three-point frame C



- Carefully navigate between the attachment brackets using the tractor front hydraulic system. (**A**).
- Insert lower guide bar and secure with bolts (**1**).
- Peg out upper guide bar with pin (**2**) on three-point frame (**3**) and secure.
- Raise parking supports.
  See section 7.6 “Raising the support”.
- Connect hydraulic lines.
  See section 7.7 „Connecting the hydraulic system“.
- Adjust the upper guide bar so that the three-point frame is perpendicular to the road.
- Connect the power supply and control unit.

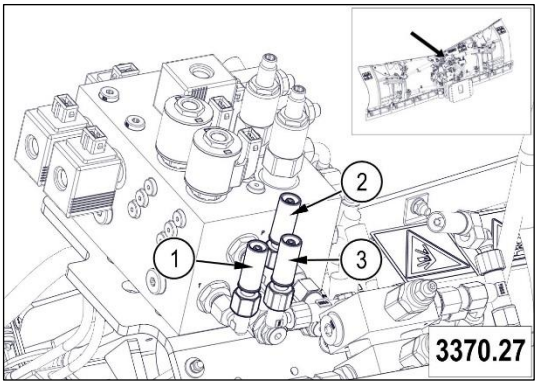
7.6. Raising the support



➢ When the attachment process is finished, insert and secure the support (**1**) in the topmost position (**2**).

7.7. Connecting the hydraulic system

7.7.1 Vario Flex electro-hydraulic



⚠ ATTENTION!
Take care to install the hydraulic lines correctly.
➢ Avoid tight bends and chafing of the hydraulic lines!

➢ Secure the hydraulic connections (**1**; **2**) to the hydraulic sockets located on the front of the tractor. (Connections A and B)

➢ Connect the optional depressurised return (**3**) to the relevant socket on the tractor. (Connection T)

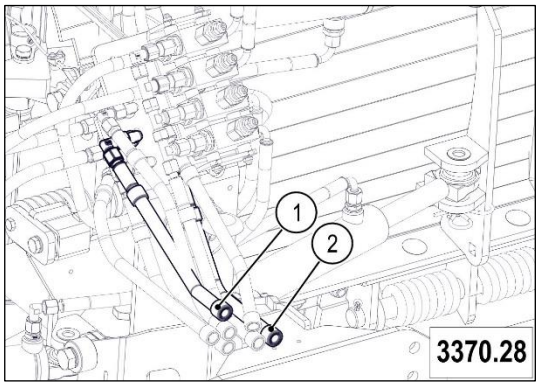
7.7.2 Vario Flex fully hydraulic

INFO!
The following connections are required to operate the Vario Flex fully hydraulically. • 3 x dual-acting connections/1 x pressureless return line

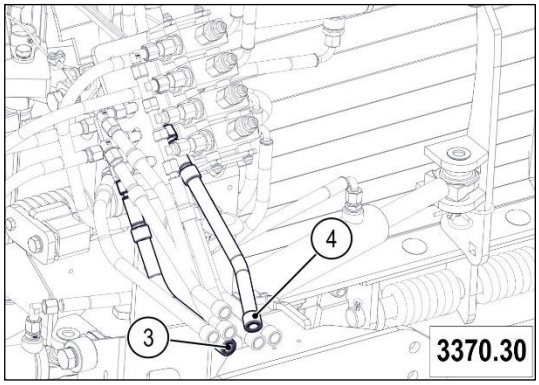
⚠ ATTENTION!
Take care to install the hydraulic lines correctly.
➢ Avoid tight bends and chafing of the hydraulic lines!

➢ Connect the following hydraulic connections on the tractor:

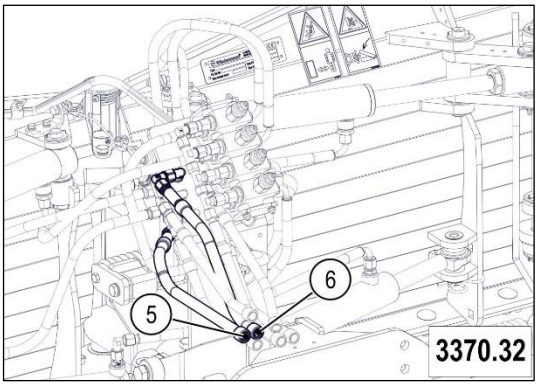
Hydraulic connections green (1) and (2) :



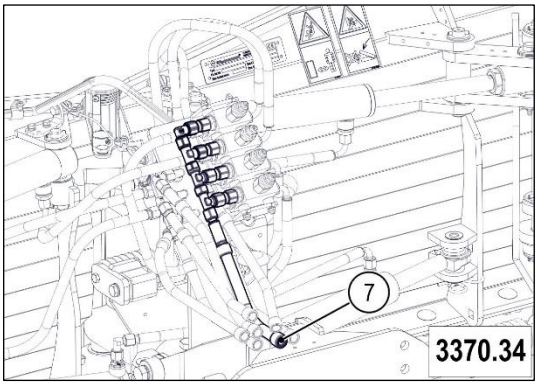
Hydraulic connections red (3) and (4) :



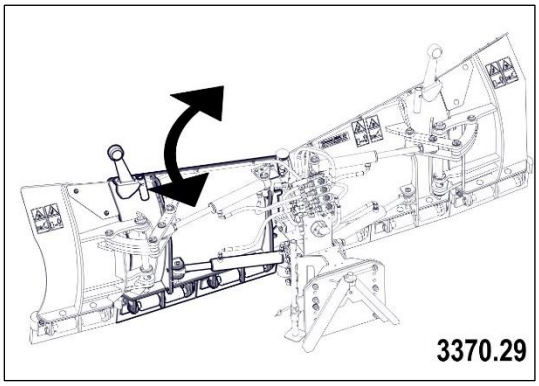
Hydraulic connections yellow (5) and (6) :



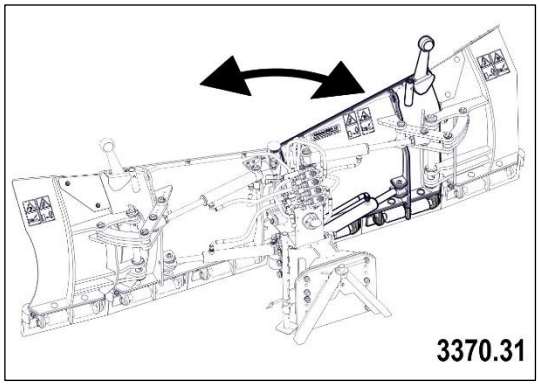
Pressure-free hydraulic connection blue (7)



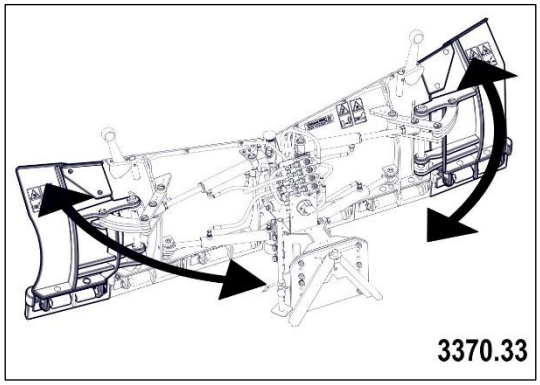
Inner shield left



Inner shield right



Outer shield left and right



7.8. Ballast

	⚠ CAUTION!
	Impairment of the tractor's driving characteristics!
	➢ Do not exceed the tractor's maximum axle load. ➢ Specifications in the Operating Instructions for the tractor must be observed!

- The ability to steer must be maintained.
- Loads must always be attached to the mounting points provided in accordance with regulations
- When selecting the additional weights, ensure that the permissible axle load weight, as well as the permissible overall weight including the mounted equipment, is not exceeded.

8. Before Initial Operation

8.1. General information initial operation

- ➢ Familiarise yourself with all equipment and operating elements and their functions before starting work.
- ➢ In addition to the information provided in these Operating Instructions, please also observe generally applicable safety and accident-prevention standards
- ➢ During operation on public highways, the relevant traffic regulations must be observed! Ensure the permissible front axle load is not exceeded because the steerability of the tractor must be maintained (if necessary, place weights in position as described in the tractor Operating Manual).
- ➢ Special care should be taken when working and turning on a slope **– DANGER OF TOPPLING – !**
- ➢ Upon receiving the equipment, check to ensure that all the connection pieces have been included.
- ➢ Observe the technical specifications when attaching the equipment to other tractors.
- ➢ Observe the warning and information signs on the equipment.

8.2. Settings on the device

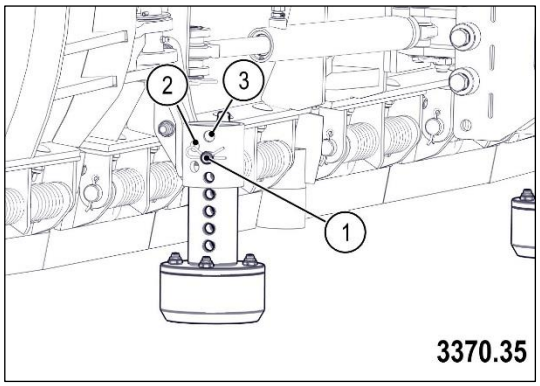
8.2.1. Adjusting the sliding shoes

- ➢ Lower the attached rake blade to the ground.

	INFO!
	➢ Position the skid shoes so that they **glide** over the ground and are in contact with the ground but can still move.

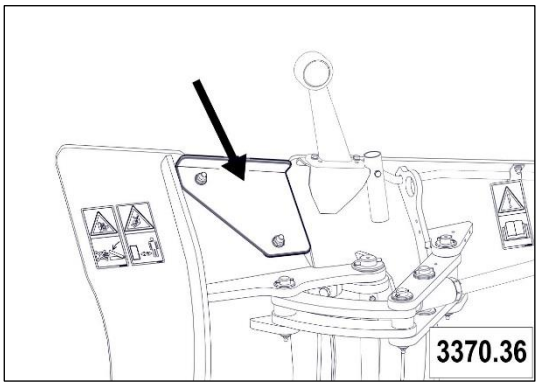
The skid shoes must be aligned with the scraping edge fitted on an even, firm surface.

- ➢ Insert locking pin (**1**) into the relevant hole (**2** or **3**) and secure it.

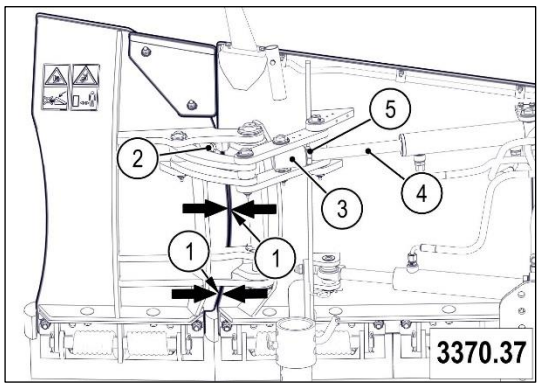


8.2.2. Using the separator plates

If required, the separator plates can be removed – with the outer shield folded in – in order to get closer to an obstacle with the inner shield.



8.2.3. Adjusting the distance between the middle and outer shields

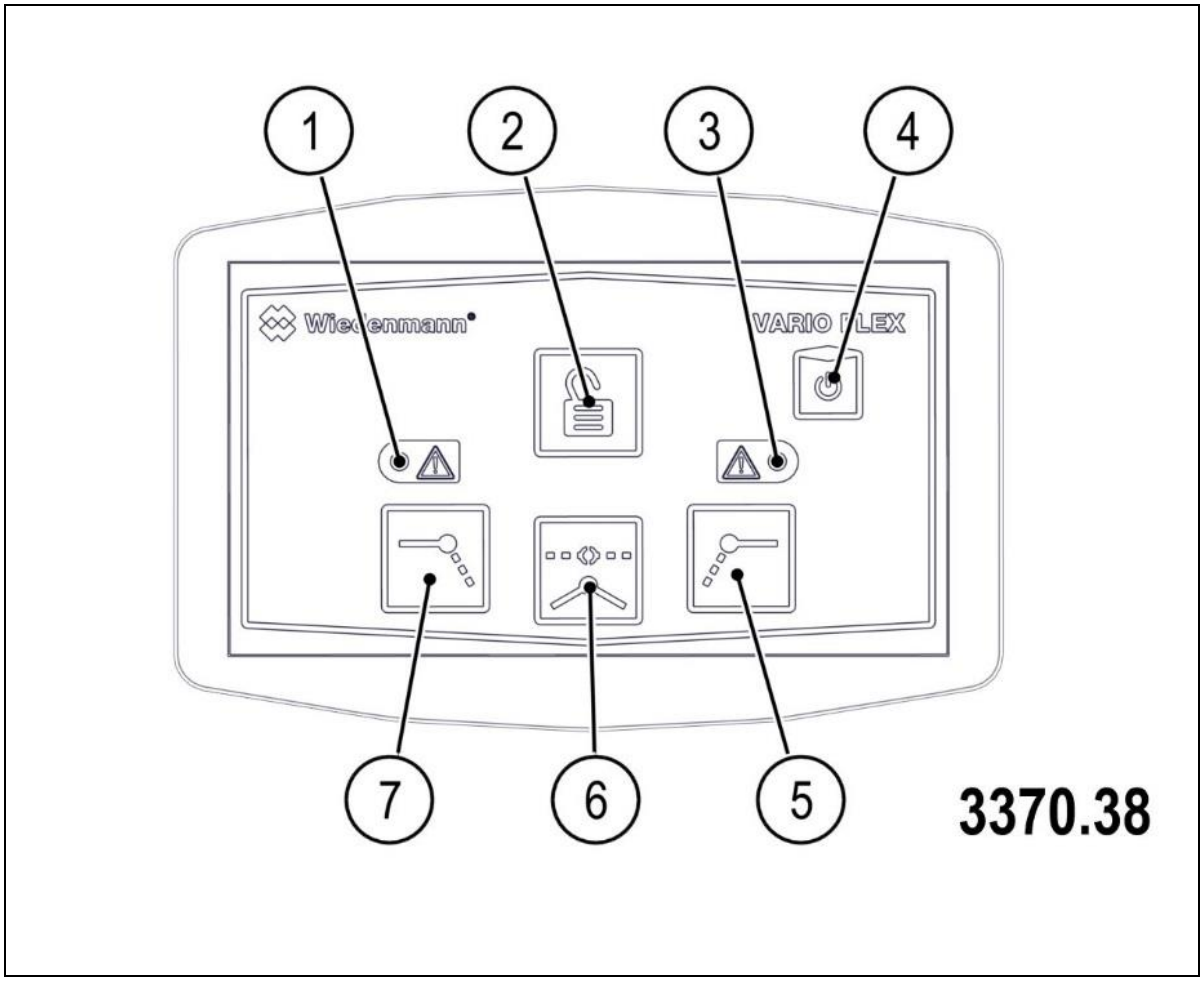


- Regularly check whether the distance (**1**) between the middle and outer shields remains constantly approx. 6 mm from top to bottom.
- Adjust the distance between the middle and outer shields as required by turning the adjusting bolt (**2**).
- Turn the cylinder eyelet (**3**) on the piston rod (**4**) until the outer shield presses against the adjusting bolt (**2**) when extended. To do so:
- Undo the lock nut (**5**) on the piston rod (**4**) and turn the cylinder eyelet and piston rod (**3**) in or out accordingly.
- Secure the cylinder eyelet (3) with the lock nut (5) again.

	INFO!
	If the piston rod is not pushing the outer shield against the adjusting screw, during operation this could result in uneven movement of the outer shield (wobbling).

8.3. Control Unit Vario Flex (electro-hydraulic)

8.3.1. Overview control unit Vario Flex



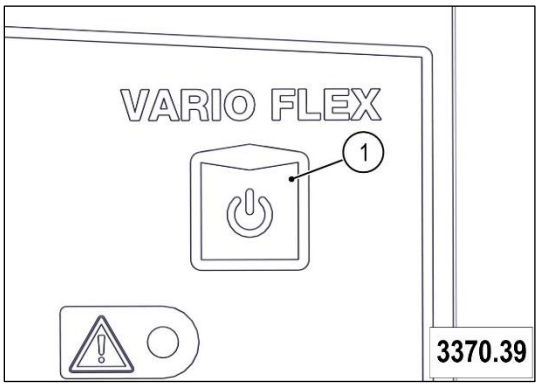
1	Control LED for left shield position
2	Unlock button
3	Control LED for right shield position
4	Control unit ON/OFF button

5	Selection button for right outer shield
6	Selection button for inner shields
7	Selection button for left outer shield

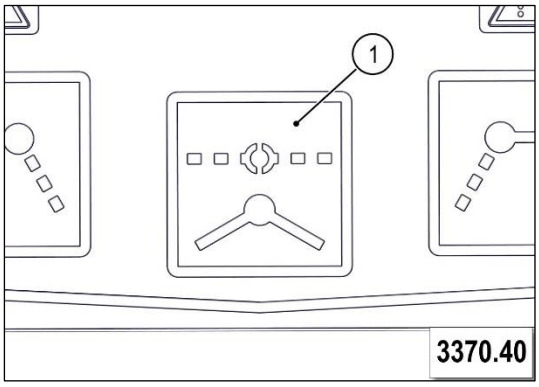
8.3.2. Switch on the control unit Vario Flex

➢ Press the "Control unit ON/OFF" button (**1**).

	INFO!
	This switch also switches the side lamps on and off.



8.3.3. Operating the inner shields



➢ The selection button (**1**) generally selects the function of the Vario-Flex inner shield parts.
Switching between the various functions is possible with multiple clicks.

Selection button functions inner shields (1):

V or wedge function (green)

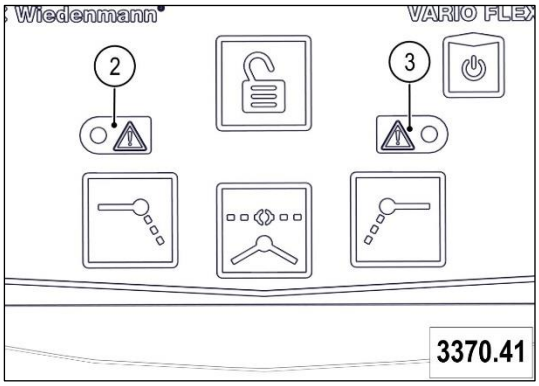
The V or wedge function is active as soon as the green LED (**1**) is lit (permanently lit). This moves the shield parts so that they are pointing in the same direction (forwards/back).

180° function (yellow)

The 180° function is active as soon as the yellow LED flashes. This moves the shield as a straight shield. Both sides of the shield therefore move in the opposite direction.

INFO!

- In the V or wedge function, switch to 180° function (LED flashes) and actuate the hydraulics.
  As soon as the two shield parts have reached the 180° function, the shield automatically swings further into the 180° position.
- The selection button (**1**) flashes yellow until the shield has reached the 180° position.

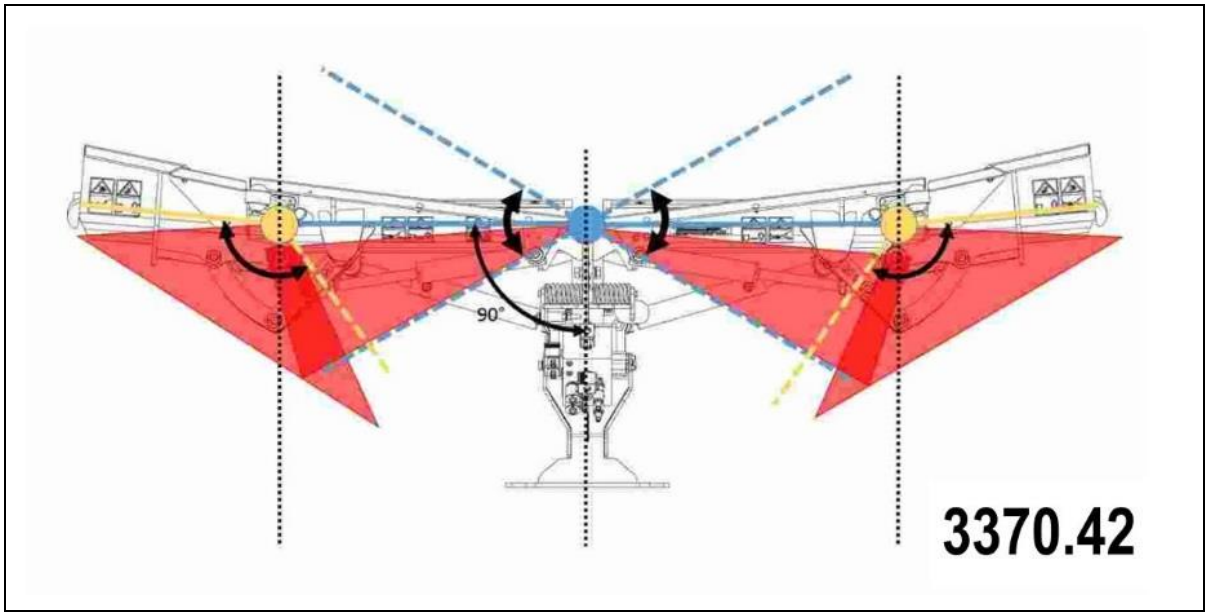


☑ Both LEDs (**2** / **3**) light up green as soon as the shield reaches the 180° position and is 90° to the direction of travel.

8.3.4. Operating the outer shields

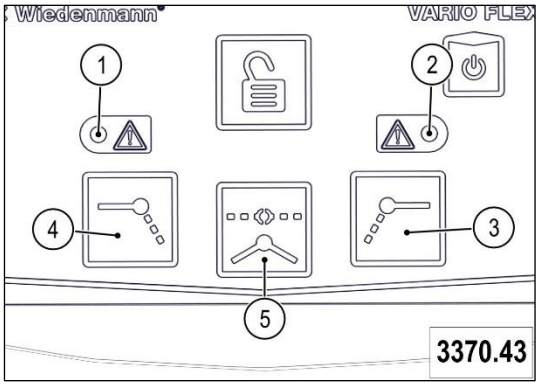
	INFO!
	Collision zone = area between attachment and shield in 180° position (90° to direction of travel).

Collision zone



The outer shields can only be actuated if the corresponding inner shield is not in the collision zone. The buttons (**3** / **4**) light up blue.

If a shield part is in the collision zone, the corresponding LEDs (**1** / **2**) light up red.



Selecting the left outer shield

- ➢ Press the selection button (**4**).

Selecting the right outer shield

- ➢ Press the selection button (**3**).

Selecting the left and right outer shields at the same time

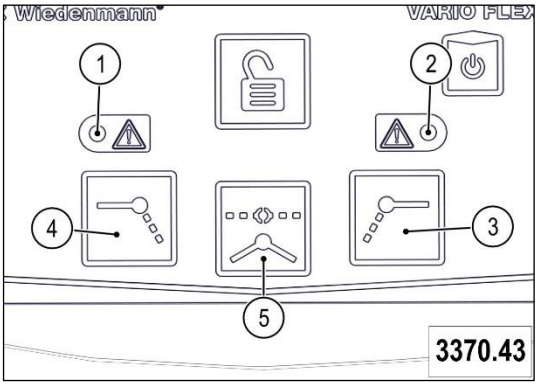
- ➢ Press the selection button (**3**) or (**4**) twice.

☑ If the outer shields are moving into their final position, the corresponding selection button (**3**) or (**4**) flashes green.

Ending the outer shield function

- ➢ Press the selection button (**5**).

The Vario Flex has hydraulic "collision protection". This means that in the event of a major collision, the relevant outer and/or inner shield(s) yield(s) by moving to the rear and remain(s) within the collision zone.



Information in the collision zone

As a function of the inner shield position, the relevant shield is automatically selected while the outer shields are moving so that only the hydraulic valve on the vehicle needs to be activated for swinging back.

☑ The corresponding button (**3**) or (**4**) flashes green.

☑ If the inner shields are in the collision zone, the corresponding LED (**1**) or (**2**) lights up red.

	INFO!
	In this case, the outer shield can only be moved forwards. If the shield is moved backwards towards the attachment, the hydraulic valve stops the movement for 2 sec. Afterwards, the shield moves abruptly.

If there is immediate danger of collision with the attachment, the shield function will be disabled.

☑ The corresponding LED (**1**) or (**2**) flashes red.

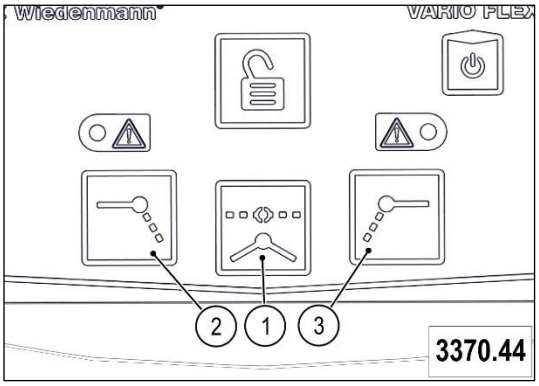
➢ To reset the shield using the unlock function, see Section 8.3.6 "Meaning of the left and right warning LEDs

Left LED (2)	
Lights up green	Shield is at 90° to the direction of travel (in 180°mode).
Lights up red	Left inner shield is in collision zone or sensor has malfunctioned (See section 12 „Troubleshooting“)
Flashes red	Left inner and outer shields are in collision zone, shield function is disabled: See Section 8.3.7 "Unlock button function“.

Right LED (3)	
Lights up green	Shield is at 90° to the direction of travel (in 180°mode).
Lights up red	Right inner shield is in collision zone or sensor has malfunctioned (See section 12 „Troubleshooting“)
Flashes red	Right inner and outer shields are in collision zone, shield function is disabled: See Section 8.3.7 "Unlock button function“.

➢ ".

8.3.5. "Garage access" special function



In order to ensure that entrances and junctions are cleared, you can use the "Garage access" special function as described below:

- ➢ Approach the entrance in the 180° inclined position.
- ➢ Press and hold the selection button (**1**) and then press either of the appropriate buttons (**2**) or (**3**).

☑ The Vario Flex moves to the V position.

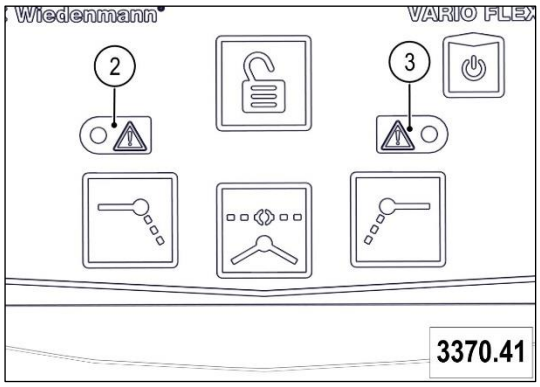
This means that the half of the shield you wish to move can be swung forwards into the V position and then back again.

Ending the "Garage access" special function

- ➢ Press the selection button (**1**) again.

☑ The "Garage access" special function is ended and the control system switches back to the previous function.

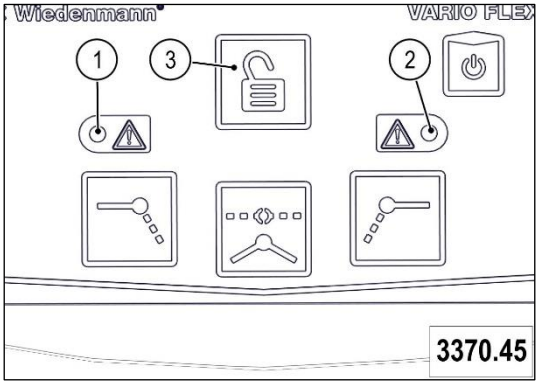
8.3.6. Meaning of the left and right warning LEDs



Left LED (2)	
Lights up green	Shield is at 90° to the direction of travel (in 180°mode).
Lights up red	Left inner shield is in collision zone or sensor has malfunctioned (See section 12 „Troubleshooting“)
Flashes red	Left inner and outer shields are in collision zone, shield function is disabled: See Section 8.3.7 "Unlock button function“.

Right LED (3)	
Lights up green	Shield is at 90° to the direction of travel (in 180°mode).
Lights up red	Right inner shield is in collision zone or sensor has malfunctioned (See section 12 „Troubleshooting“)
Flashes red	Right inner and outer shields are in collision zone, shield function is disabled: See Section 8.3.7 "Unlock button function“.

8.3.7. Unlock button function



⚠	**ATTENTION!**
	Risk of collision because the shields may swing back!
	➢ When using the unlock button (**3**) to operate the hydraulic control system, proceed slowly and carefully.

If the shield function is disabled, the inner shields must be manually swung out of the collision zone into their forward final position.
Shield locking is indicated on the control unit by the corresponding LED (**1**) or (**2**) flashing red and the unlock button (**3**) lighting up blue.

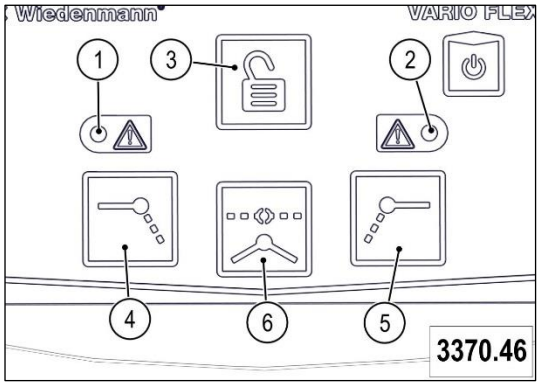
➢ To unlock the shield, press the unlock button (**3**).

☑ The corresponding shield sides will then be automatically activated and can be swung out of the collision zone by actuating the vehicle hydraulics.

In this case, the outer shield can only be moved forwards. If the shield is moved backwards towards the attachment, the hydraulic valve stops the movement for 2 sec. Afterwards, the shield moves abruptly.

☑ After the disabled inner shields reach their forward final position, the unlock function will be exited automatically and the previous function resumed.

8.3.8. Emergency function



If sensors malfunction or fail, the shield can be operated in emergency mode without sensor monitoring.

⚠	**CAUTION!**
	Risk of collision because the shields may swing back!
	➢ When using the unlock button to operate the hydraulic control system, proceed slowly and carefully.

Activating the emergency function

➢ Press and hold the unlock button (**3**) for more than 5 sec. until it lights up orange.

The following functions can now be activated by selection of the function buttons:

Swinging the left outer shield

➢ Press the selection button (**4**).

Swinging the right outer shield

- Press the selection button (**5**).

Wedge function; swinging the inner shields

- Press the selection button (**6**).

Left garage function

- Press the selection buttons (**6**) and (**4**).

Right garage function

- Press the selection buttons (**6**) and (**5**).

Ending the emergency function

- Press the unlock button (**3**) again.

	INFO!
	If the button is pressed for more than 30 sec., the emergency function will end automatically and the previous function resumed. The 180° position is not possible in the emergency function.

9. Operation

9.1. General information on operation

⚠ WARNING!

Risk of injury when remaining in the danger area!

- In the working area, the user is responsible for the safety of other persons!
- Keep all persons clear of the danger zone of the machine!
- When approaching, always observe the proximity (children!)!

⚠ CAUTION!

Incorrect operation causes material damage.

- Avoid sharp steering movements when using articulated tractors.
- The front hydraulic system of the tractor must always be in the floating position during operation!
- After a short running-in period, check the security of all screw fittings!
- Check the parts connecting the equipment to the tractor on a regular basis.
- Do not drive backwards when the SNOW MASTER VARIO is operating.
- Fully lift the rake blade in the case of reversing.

9.2. Driving characteristics

⚠ CAUTION!

Impairment of the tractor's driving characteristics!

- Always adapt your driving style to the respective ground conditions!
- Exercise extra caution when working and turning on a slope!
- Operating speed max. 20 km/h!
- Pay attention to any unevenness on the terrain (bumps)!

INFO!

- A better result is obtained at low speeds.

10. Detaching from the tractor

10.1. Safety instructions for dismantling the tractor

⚠ DANGER!

An unsecured tractor poses a risk of injury.

- Switch the machine and the motor of the tractor off and remove the ignition key before carrying out maintenance.
- Secure the tractor to prevent it from rolling away. (parking brake).
- Always position the machine on a flat surface before detaching it.

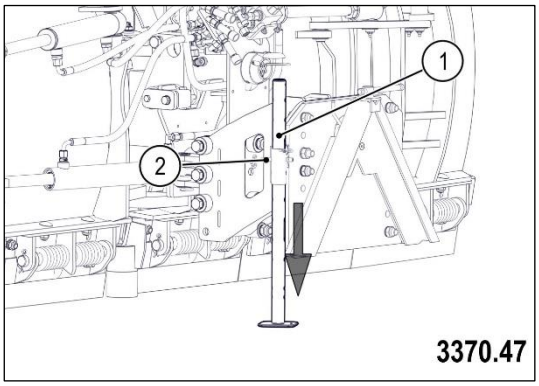
⚠ WARNING!

Failure to wear personal protective equipment poses a risk of injury.

- Wear personal protective equipment.
  See Section 3.6.10 "Personal protective equipment"

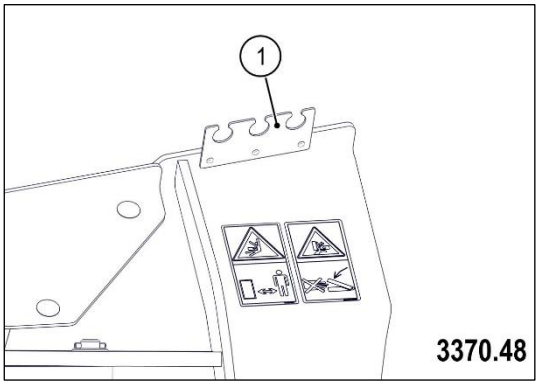
10.2. Lowering the support

- For removal, the support (**1**) must be lowered into position, inserted and secured (**2**) to ensure that the next attachment procedure does not pose any risk and that the snow rake blade does not tip over forwards.

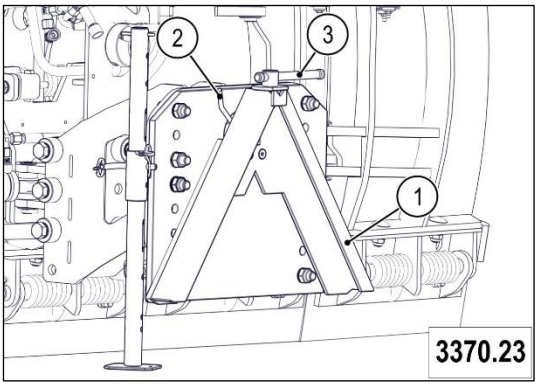


10.3. Releasing the hydraulic connection

- Disconnect all hydraulic from the tractor.
- Hydraulic pipe - attach to the fitted retainer (**1**).

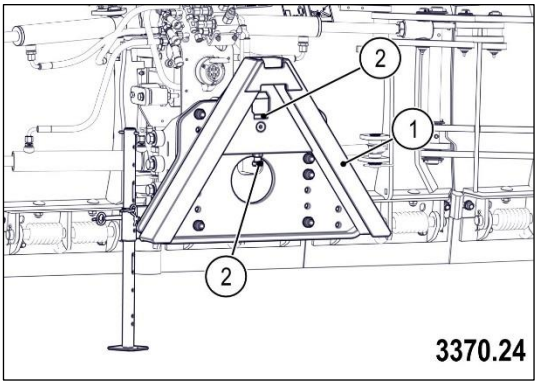


10.4. Removal with A-frame cat. 0 A



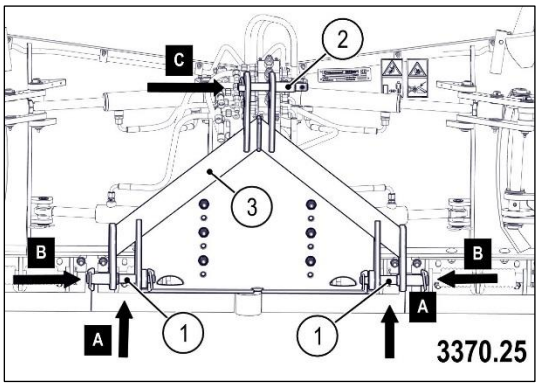
- Lower the supports.
- Release safety catch (**2**) or remove lever screw (**3**).
- Disconnect hydraulic lines.
- Lower the snow rake blade to the ground and carefully back out.

10.5. Removal with triangular coupling B



- Lower the supports.
- Release safety catch (**2**).
- Disconnect hydraulic lines.
- Lower the snow rake blade to the ground and carefully back out.

10.6. Removal with three-point frame C



- Lower the supports.
- Disconnect hydraulic lines.
- Lower the snow rake blade to the ground.
- Disconnect hydraulic lines.
- Release upper guide bar and disconnect pins (**2**) from threepoint frame.
- Withdraw lower guide bar bolt (**1**).
- Carefully back out.

11. Maintenance

11.1. General instructions for maintenance

DANGER!

Improper maintenance poses a risk of accident!

- Maintenance, repair and dismantling work must only be carried out by qualified professionals.

CAUTION!

Improper maintenance poses a risk of accident!

The springs of the spring flaps are under tension!

DANGER!

An unsecured tractor poses a risk of injury.

- Always carry out maintenance work with the equipment attached.
- Prior to performing any servicing, maintenance or cleaning work, shut down the engine and remove the ignition key!
- Secure the tractor to prevent it from rolling away. (parking brake).

WARNING!

Failure to wear personal protective equipment poses a risk of injury.

- Wear personal protective equipment.
  See Section 3.6.10 "Personal protective equipment"

ATTENTION!

- **Only original parts should be used!**
  Parts from other manufacturers are often not of sufficient quality and so endanger your safety.

In addition, the warranty and claims against warranty can only be guaranteed if only **original parts by Wiedenmann** were used. We explicitly inform you that parts not delivered by Wiedenmann are not tested or released by Wiedenmann. Therefore, installing or using such products may negatively influence preset properties of your vehicle and therefore endanger your active or passive safety. Damage caused by the use of parts other than original parts are excluded from the manufacturer's liability

11.2. Maintenance tables

11.2.1. Maintenance table (staggered in time)

Maintenance interval	Area	Maintenance measure
Every 50 hours	• Pivot points on outer shields	➢ Lubricate pivot points on outer shields. See Section 0 “Pivot points on outer shields”
	• Centre pivotal point	➢ Lubricate centre pivotal point. See Section 0 “Central pivot point”
	• Adjustment pivot point	➢ Lubricate the adjustment pivot point. See Section 11.3.2 "Adjustment pivot point"
	• Skid shoes	➢ Check skid shoes for wear. ➢ Replace worn skid shoes.
	• Collision protection guard	➢ Check the collision protection guard for wear. ➢ Repair worn wear protection.
	• Guide bushings	➢ Check bearing play. ➢ Readjust the play by adjusting the hydraulic cylinder eye on the piston rod or replace the set of worn guide bushings.
After 1 year	• Hydraulic hoses	➢ Replace worn and damaged hoses.
After 6 years	• Hydraulic hoses	➢ Replace.

11.3. Lubrication

11.3.1. Lubricating greases

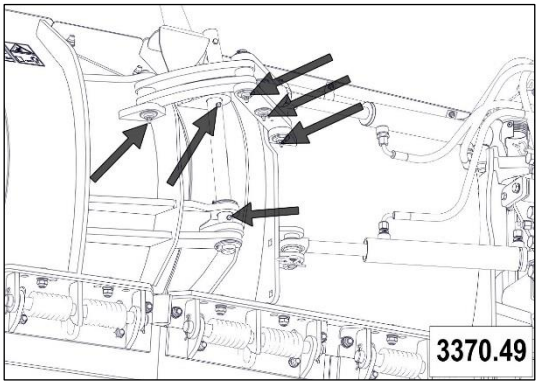
Designation	Specifications
SAE high pressure multipurpose grease	with 3-5 % molybdenum disulphide

- Lubricate more often, if required, (until all lubrication points are sufficiently lubricated).
- Clean lubrication nipple before use.
- Clean up leaking grease.
- Before starting the machine after a longer standstill, lubricate and maintain the entire machine.
- Keep all exposed machine parts, threaded spindles and guides slightly lubricated.

11.3.2. Lubricating points

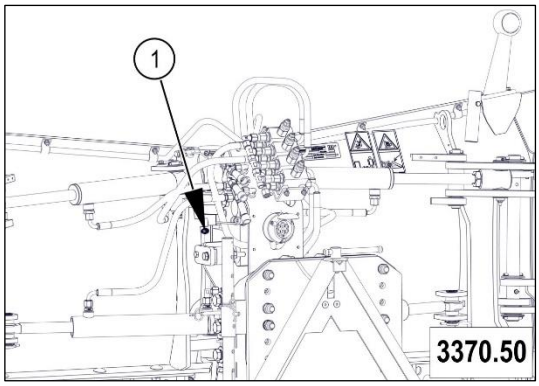
Pivot points on outer shields

- Lubricate the pivot points of the outer shields on both sides.



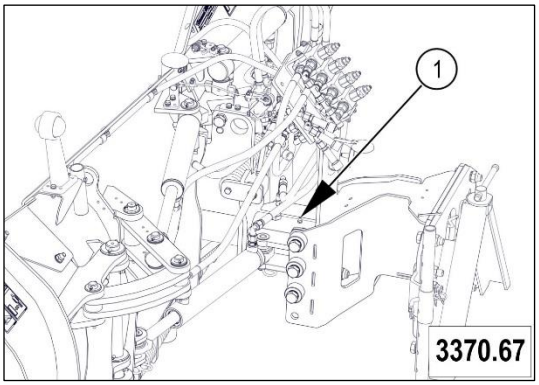
Central pivot point

- Lubricate the grease nipple (**1**) of the central pivot point.



Adjustment pivot point

Lubricate the grease nipple (**1**) of the adjustment pivot point.



11.4. Hydraulic system

Suitable for hydraulic fluids based on mineral, glycol and synthetic oils.

Examine hydraulic hose lines regularly for damage and ageing and replace if necessary.

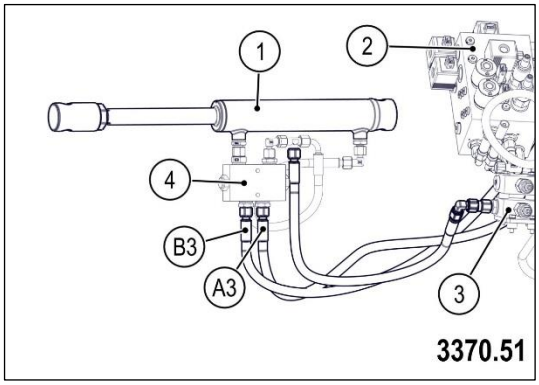
11.4.1. General safety information for the hydraulic system

- The hydraulic system is not approved for the use of BIO oils.
- Only trained personnel are permitted to work on the hydraulic system!
- High-pressure fluids which leak under pressure can penetrate the skin causing serious injury.
- If you suspect that a pressure system may be damaged, shut down and secure the machine immediately and then contact a qualified specialist workshop.
- Never attempt to trace the source of leaks with your bare hands. Even just a pin hole can cause serious personal injuries.
- Use suitable materials when searching for leaks. (for example, a piece of cardboard)
- Keep your body and face well away from leaks.
- If a fluid penetrates the skin, it must be removed immediately by a doctor who is familiar with such injuries. Otherwise serious infections may result.
- Doctors unfamiliar with this type of injury should reference a knowledgeable medical source.
- Prior to recommissioning, check the leak-tightness of the hydraulic system!
- According to the manufacturer's specifications, the replacement period for hydraulic lines is 6 years.

11.4.2. Hydraulic connection – Vario Flex electrohydraulic

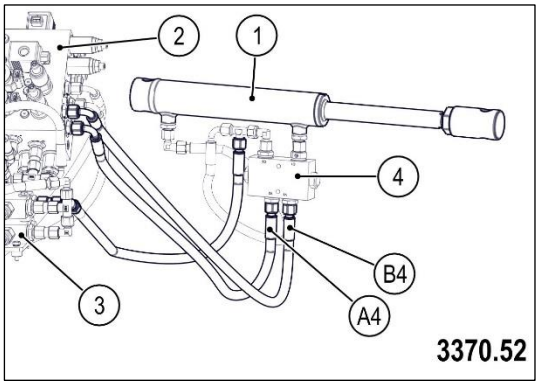
Hydraulic connection for left outer shield

1	Hydraulic cylinder for left outer shield
2	Control block
3	Left pressure relief valve
4	Non-return valve
A3	Hydraulic line V1 at control block A3 (1000 mm)
B3	Hydraulic line V2 at control block B3 (1000 mm)



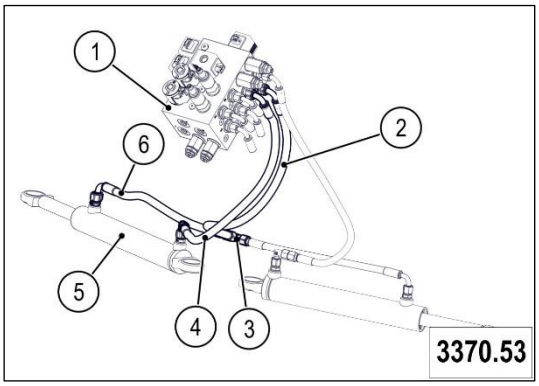
Hydraulic wiring diagram for right outer shield

1	Hydraulic cylinder for right outer shield
2	Control block
3	Right pressure relief valve
4	Non-return valve
A4	Hydraulic line V2 at control block A4
B4	Hydraulic line V1 at control block B3



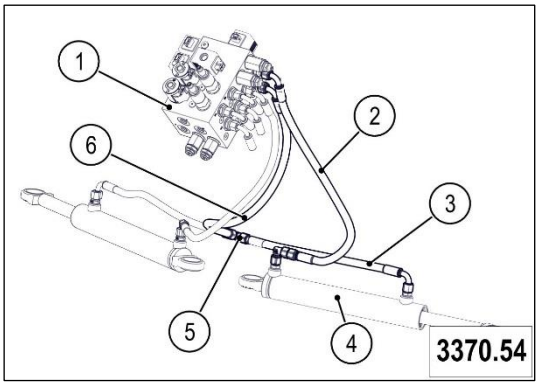
Hydraulic connection for left inner shield

1	Control block
2	Connection between T-union and control block B
3	T-union
4	Connection between hydraulic cylinder and control block A1
5	Hydraulic cylinder for left inner shield
6	Connection between hydraulic cylinder and T-union



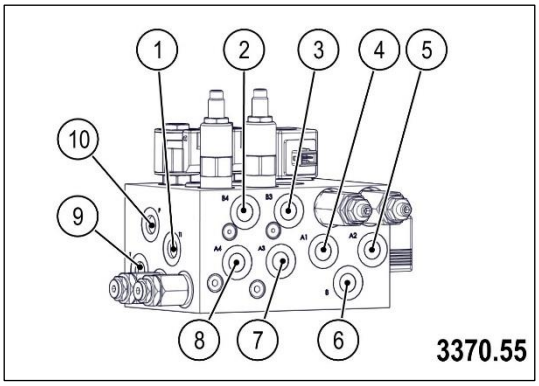
Hydraulic connection for right inner shield

1	Control block
2	Connection between hydraulic cylinder and control block A2
3	Connection between hydraulic cylinder and T-union
4	Hydraulic cylinder for right inner shield
5	T-union
6	Connection between T-union and control block B



Control block hydraulic connection

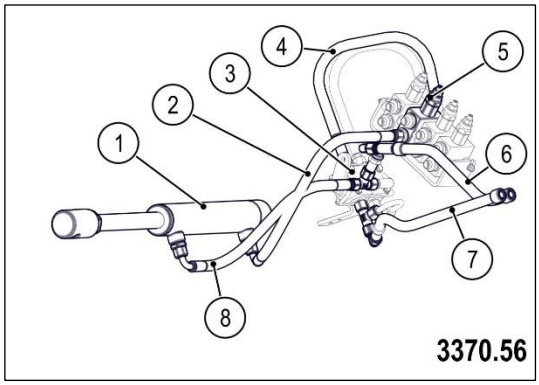
1	T1	Pressureless return line to tractor
2	B4	Right non-return valve V1
3	B3	Left non-return valve V2
4	A1	Hydraulic cylinder for left inner shield
5	A2	Hydraulic cylinder for right inner shield
6	B	Hydraulic cylinder for left and right inner shields
7	A3	Left non-return valve V1
8	A4	Right non-return valve V2
9	T	Hydraulic connection to tractor
10	P	Hydraulic connection to tractor



11.4.3. Hydraulic wiring diagram – Vario Flex fully hydraulic

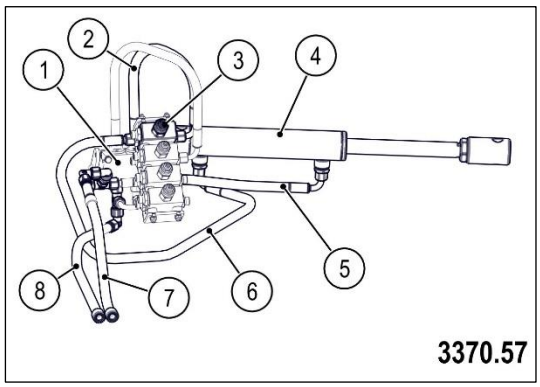
Hydraulic connection for left outer shield (yellow)

1	Hydraulic cylinder for left outer shield
2	Connection between hydraulic cylinder and pressure relief valve "P"
3	Stroke limiter
4	Connection between stroke limiter and pressure relief valve
5	Pressure relief valve "Hydraulic cylinder for left outer shield"
6	Hydraulic connection (yellow) between tractor and T-union of hydraulic cylinder for outer shields
7	Hydraulic connection (yellow) between tractor and stroke limiter
8	Connection between hydraulic cylinder and T-union



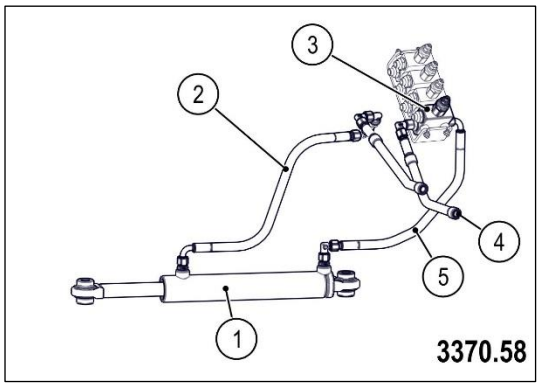
Hydraulic connection for right outer shield (yellow)

1	Stroke limiter
2	Connection between stroke limiter and pressure relief valve
3	Pressure relief valve "Hydraulic cylinder for right outer shield"
4	Hydraulic cylinder for left outer shield
5	Connection between hydraulic cylinder and T-union
6	Connection between hydraulic cylinder and pressure relief valve "P"
7	Hydraulic connection (yellow) between tractor and T-union of hydraulic cylinder for outer shields
8	Hydraulic connection (yellow) between tractor and stroke limiter



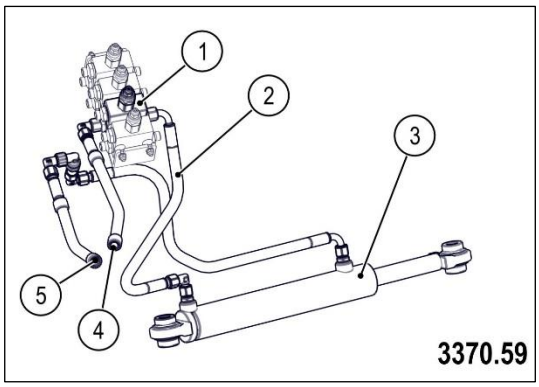
Hydraulic connection for left inner shield (green)

1	Hydraulic cylinder for left inner shield
2	Hydraulic connection (green) between tractor and hydraulic cylinder for inner shield
3	Pressure relief valve "Hydraulic cylinder for left inner shield"
4	Hydraulic connection (green) between tractor and pressure relief valve
5	Connection between hydraulic cylinder and pressure relief valve "P"



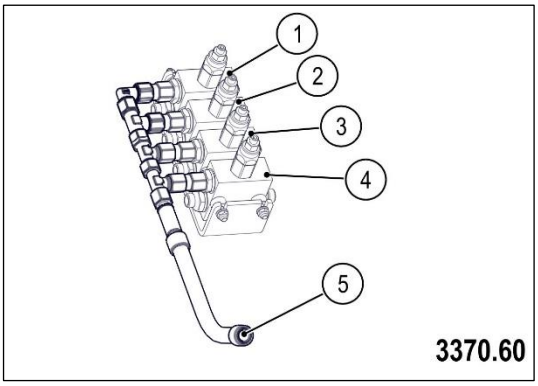
Hydraulic connection for right inner shield (red)

1	Pressure relief valve "Hydraulic cylinder for right inner shield"
2	Connection between hydraulic cylinder and pressure relief valve "P"
3	Hydraulic cylinder for right inner shield
4	Hydraulic connection (green) between tractor and pressure relief valve
5	Hydraulic connection (green) between tractor and hydraulic cylinder for inner shield

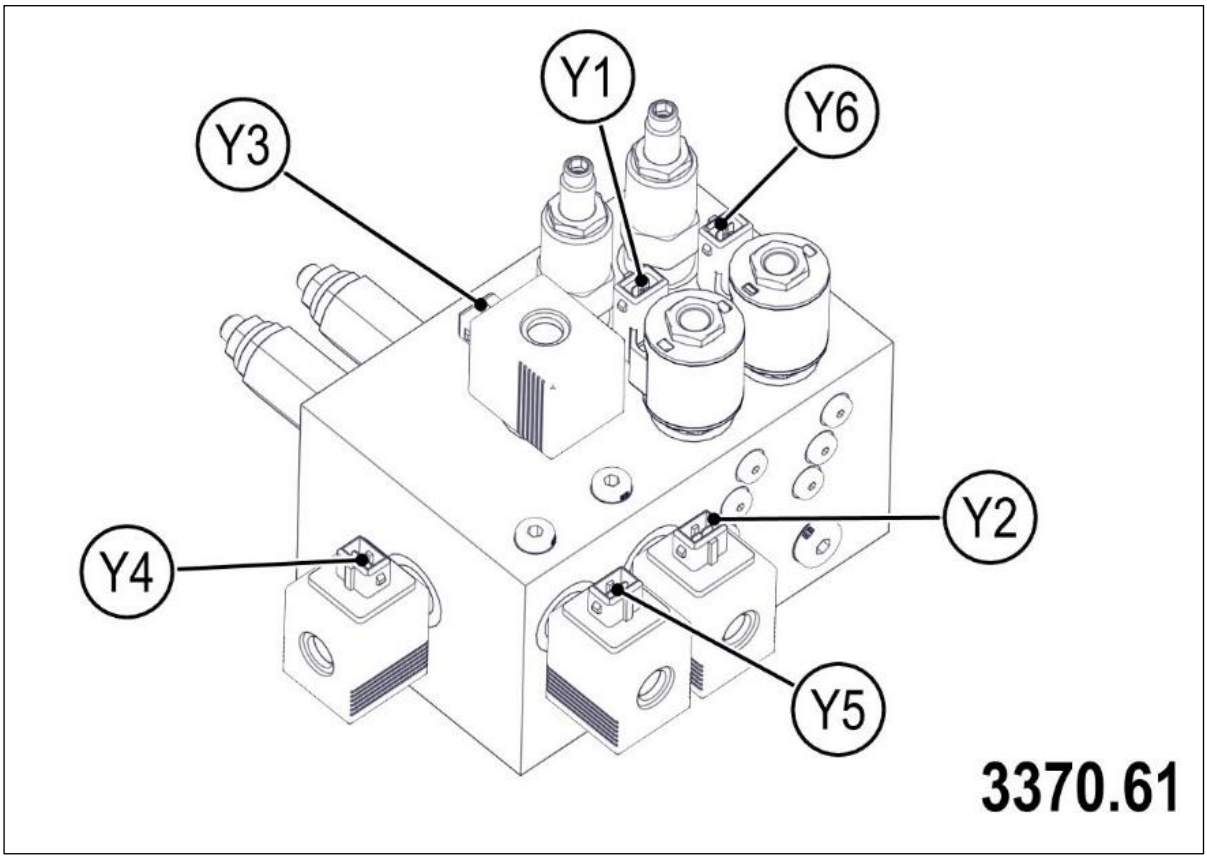


Hydraulic connection for pressureless return line (blue)

1	Pressure relief valve "Hydraulic cylinder for right outer shield"
2	Pressure relief valve "Hydraulic cylinder for left outer shield" 3
3	Pressure relief valve "Hydraulic cylinder for right inner shield"
4	Pressure relief valve "Hydraulic cylinder for left inner shield"
5	Pressureless return line to tractor (blue)



11.5. Electrical connection diagram



11.6. Cleaning the device

Checking and cleaning the equipment on a regular basis will help you detect the following damage at an early stage:

- Loose components
- Damaged cables or lines
- Wear and unintended collision points.

	ATTENTION!
	Material damage caused by aggressive cleaning products.
	➢ Do not bring plastic and sealing elements in contact with aggressive fluids (e.g. carbon tetrachloride, tri, benzene, caustic solutions,acids etc.)!

	CAUTION!
	Environmental pollution caused by dripping oil.
	➢ Bind drops of oil with a binding agent and dispose of it according to the regulations! ➢ Eliminate the cause!

	WARNING!
	Failure to wear personal protective equipment poses a risk of injury.
	➢ Wear personal protective equipment. See Section 3.6.10 "Personal protective equipment"

➢ Clean all dirty parts with water.

➢ Clean all signs and markings with a dry cloth.

➢ Apply spray oil to the equipment after cleaning.

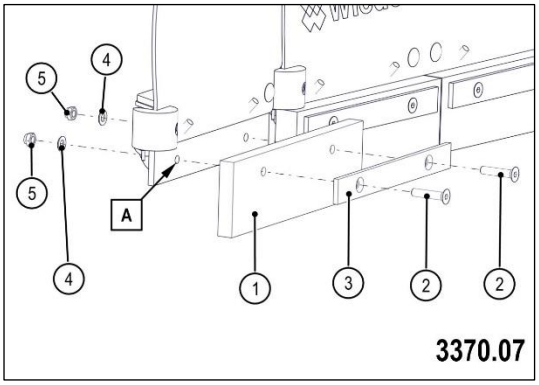
11.7. Replacing the wear strips

11.7.1. Plastic cutting edges

Plastic scraping edges are easy going on the road surface and are not as noisy.

Fitting new wear strips

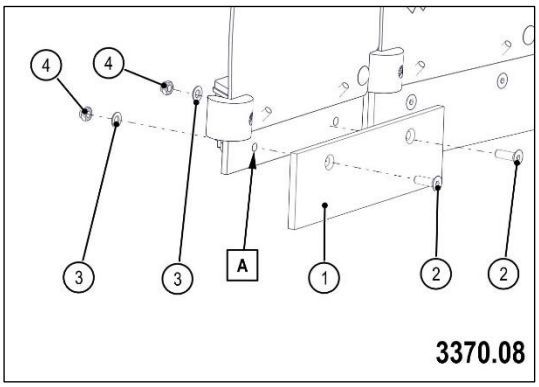
➢ Fit new wear strips (**1**) in hole row (**A**) and secure them in place with countersunk screws (**2**), retaining strips (**3**), washers (**4**) and self-locking nuts (**5**).



11.7.2. Steel scraping edges

Fitting new wear strips

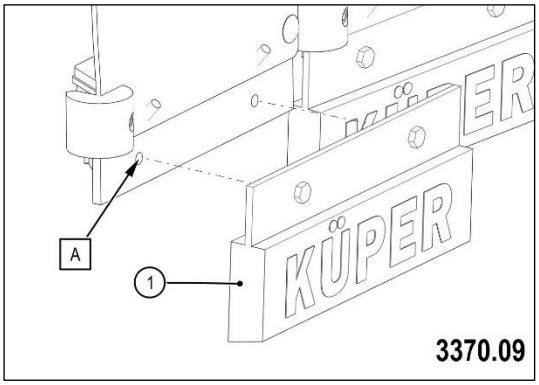
- Fit new wear strips (**1**) in hole row (**A**) and secure them in place with countersunk screws (**2**), washers (**3**) and self-locking nuts (**4**).



11.7.3. Secure corundum plastic scraping edges

Fitting new wear strips

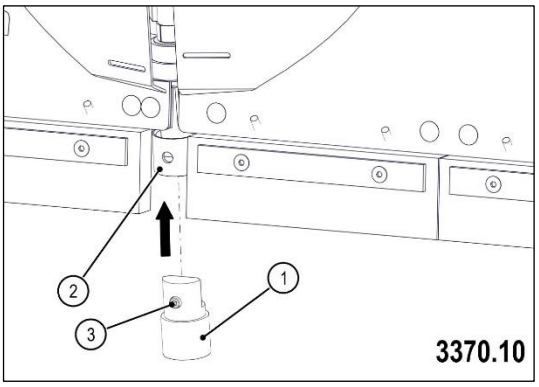
- Fit new wear strips (**1**) in hole row (**A**) and secure them in place with countersunk screws, washers and self-locking nuts.



11.7.4. Scraper block

Fitting a new scraper block

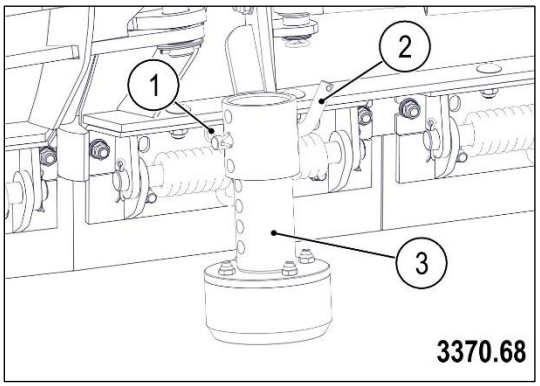
- Insert a new scraper block (**1**) into the bracket and secure with a hexagon socket screw.



11.8. Skid shoes

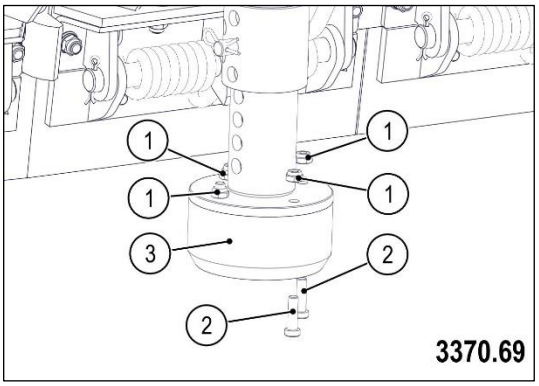
11.8.1. Fitting a new skid shoe

- Remove the cotter pin (**1**).
- Pull out the locking pin (**2**) and remove the skid shoe (**3**) by pulling it downwards.
- Insert a new skid shoe (**3**) into the guide and set at the required height using a locking pin (**2**).
- Secure the locking pin (**2**) with the cotter pin (**1**).



11.8.2. Fitting a new wear block

- Undo four hexagon nuts (**1**) and bolts (**2**) and place to one side.
- Remove the wear block (**3**).
- Screw on a new wear block (**3**) with bolts (**2**) and hexagon nuts (**1**).

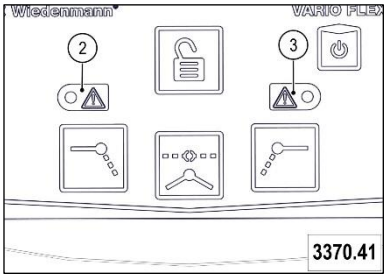
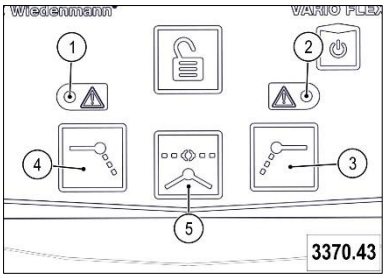


11.9. Unauthorized conversion and spare part manufacture

- Only convert or change the machine with the express permission of the manufacturer!
- The use of original parts and accessories authorized by the manufacturer is in the interest of your safety. Using parts not released by the manufacturer can have a negative impact on the properties of the machine. In this case, the manufacturer will assume no responsibility for the resulting consequences.

12. Troubleshooting

Description	Cause	Remedy
Spring flaps actuate too quickly	• Leg spring is fatigued	➢ Replace spring flap.
	• Leg spring is broken	
Rake shield no longer fits the ground on the sides	• Guide is running dry	➢ Lubricate the adjustment pivot point (see Section 11.3.2 "Adjustment pivot point")
	• One of the balancing springs is faulty or loose	➢ Replace the balancing spring(s) or tighten it
The tractor front wheels are not sufficiently weighed down, resulting in steering problems	• Check the position of the control lever for the tractor front hydraulic system	➢ Control lever must be in floating position
	• Installation trestle mounted incorrectly	➢ Check the position of the installation trestle and change, if necessary (see Section 7.2 „The correct position of the installation trestle“)
Rake shield is rattling severely	• Skid shoe incorrectly adjusted	➢ Readjust skid shoes
		➢ Fine-tune the upper guide bar
	• Check limit stop and oscillating unit screws	➢ Tighten loose screws
Outer shield begins to wobble (uneven movement)	• Guide bushings are wornlissen	➢ In the case of slight wear, it is possible to readjust them by adjusting the cylinder eye on the piston rod. ➢ In the case of significant wear, the guide bushings must be replaced
	• Cylinder eye is inserted too far – piston rod moves to end position and no longer pushes the outer shield onto the adjusting screw	➢ Turn the cylinder eye to move it out until the outer shield is positioned on the adjusting screw (see Section 8.2.3 „Switch on the control unit Vario Flex“)

<table>
<tr>
<td>Outer or inner shields cannot be moved
(when operated electrohydraulically)</td>
<td>• Outer shield is in the collision zone
• LED on left (2) or right (3) flashing red.
 
</td>
<td>➢ Swing the inner shield out of the collision zone
(see section 8.3.7„Unlock button function“)</td>
</tr>
<tr>
<td>Vario Flex no longer works –
Function button on control unit and LED lit up red
(on the electrohydraulic model)</td>
<td>• Angle sensor faulty
 

<table>
<tr><td>1 + 4</td><td>Left outer shield</td></tr>
<tr><td>2 + 3</td><td>Right outer shield</td></tr>
<tr><td>1 + 5</td><td>Left inner shield</td></tr>
<tr><td>2 + 5</td><td>Right inner shield</td></tr>
</table></td>
<td>➢ Please contact your dealer.</td>
</tr>
<tr>
<td rowspan="2">Vario Flex no longer works – control unit cannot be switched on
(when operated electrohydraulically)</td>
<td>• Faulty fuse in switch box</td>
<td>➢ Replace the fuse</td>
</tr>
<tr>
<td>• Replace the fuse</td>
<td>➢ Check electrical cables and connections</td>
</tr>
</table>

13. Disposal

13.1. Disassembly/disposal

ATTENTION!

Incorrect disassembly of machine parts!

- Please refer to the chapter "Safety measures" and local safety regulations!
- The following hazards are:
  - residual pressure in lines and components.
  - heavy parts that could fall after disassembly
  - Tensioned springs
  - sharp edges
  - crushing if machine topples

- Place the machine on firm ground.
- Drain the hydraulic oil and collect it in a suitable vessel.
- Disassemble the machine from top to bottom.

ATTENTION!

Incorrect disposal of environmentally hazardous substances!

- Regulations and laws concerning the disposal of hazardous substances and pollutants must be observed in all cases!
- Familiarize yourself completely with the procedure for disposal!

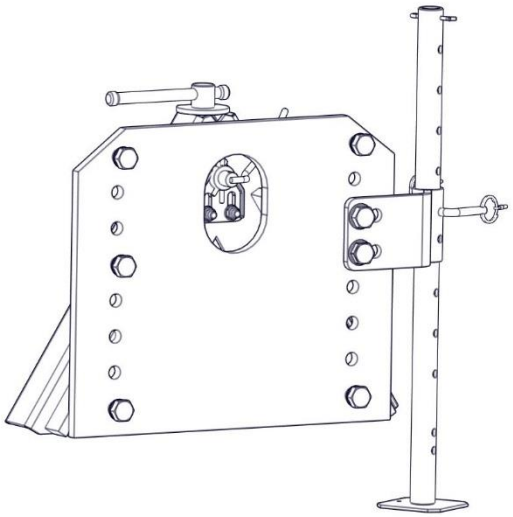
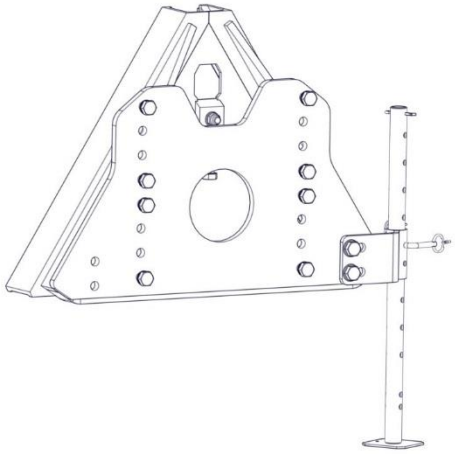
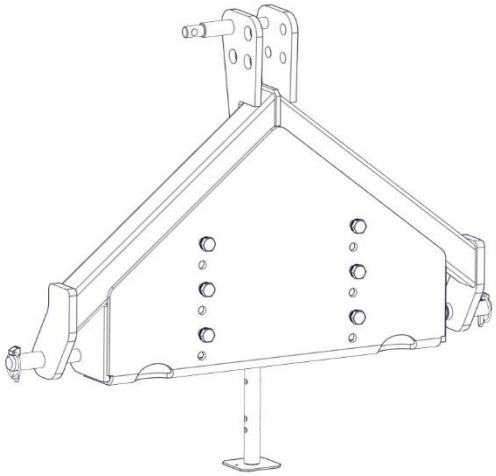
14. Additional Equipment

14.1. Scope of Delivery

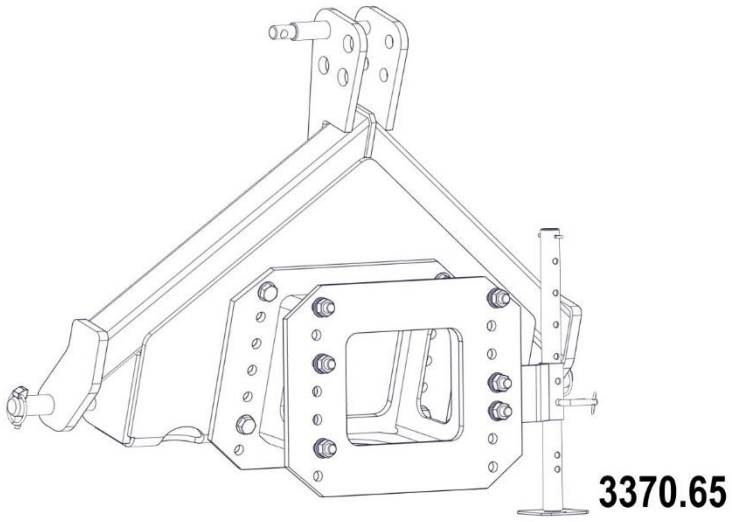
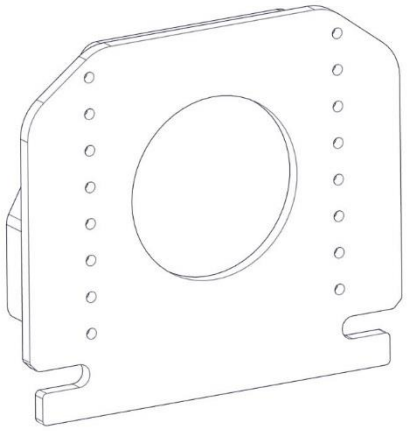
Attachment parts for: three-point installation	Attachment parts for: coupling triangle	Attachment parts for: special attachment
Hydraulic swivel device		
Plastic scraping edge or Steel scraping edge		
Corundum plastic scraping edges		
Side lamp fittings		
Operating instructions, transfer declaration with guarantee card.		

14.2. Additional equipment

14.3.1 Standard attachment components

Model **A** A-frame cat. 0	 3370.62
Model **B** triangular coupling	 3370.63
Model **C** three-point hitch cat. 1+2	 3370.64

14.3.1 Special attachment components

Model **G** for Holder Multipack tractors	 3370.65
Model **E** for Tremo	 3370.66

14.3. Tine set

	3370 electro-hydraulic	3370 fully hydraulic
Steel scraping edge	W	W
Plastic scraping edge	W	W
Corundum plastic scraping edge	W	W

S = standard	W = selective	O = optional

14.4. Special equipment

	3370 electro-hydraulic	3370 fully hydraulic
Gliding show fittings	O	O
Warning flag fittings	O	O
Side lamp fittings	S	S

S = standard	W = selective	O = optional

15. EC Declaration of conformity

EC DECLARATION OF CONFORMITY

We

Wiedenmann GmbH
Am Bahnhof
89192 Rammingen

declare under our sole responsibility that the product

Snow Rake Blade Snow Master Vario Flex Series 3370

to which this declaration refers, corresponds with the relevant basic safety and health requirements of the machinery directive 2006/42/EC.

Rammingen, the 09.10.2018	Horst Wiedenmann
(Place and date of issue)	**Managing Partner**
	(Name, function and signature of authorized person)

Rammingen, the 01.02.2019	Winfried Eckle
(Place and date of issue)	**Technical office manager Authorised representative for tech. documentation**
	(Name, function and signature of authorized person)

NOTE: **The declaration of conformity is no longer valid if changes are made to the machine that have not been agreed with the manufacturer.**

16. Declaration of conformity

CE

Declaration of conformity

We

Wiedenmann GmbH
Am Bahnhof
89192 Rammingen

hereby declare that the product

Snow Rake Blade Snow Master Vario Flex Series 3370

referred to by this declaration complies with the requirements of Machinery Directive 2006/42/EC.

Rammingen, the 09.10.2018	Oliver Matthes
(Place and date of issue)	**Sales Manager**
	(Name, function and signature of authorized person)

Rammingen, the 01.02.2019	Markus Remmele
(Place and date of issue)	Operations Manager
	(Name, function and signature of authorized person)

17. Notes