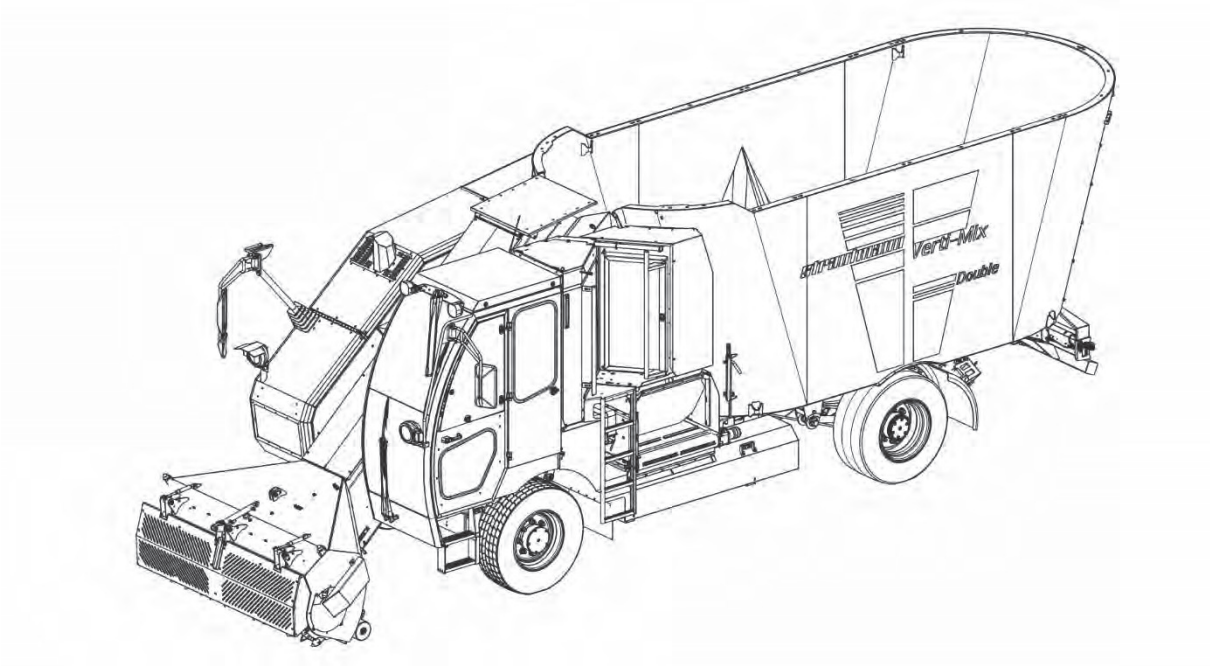
Translation of the Original Operating Instructions

Self-propelled fodder mixing wagon

Verti-Mix 1102 / 1302 / 1502 SF, Verti-Mix 1402 / 1702 / 2002 Double SF



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07/17

EN

EU Declaration of Conformity

Manufacturer:

B. Strautmann & Söhne GmbH u. Co. KG
Bielefelder Str. 53
D-49196 Bad Laer

Legal person established within the EC and authorized to compile the technical documentation:

B. Strautmann & Söhne GmbH u. Co. KG
Bielefelder Str. 53
D-49196 Bad Laer

Description and identification of machine:

Designation:	Self-propelled fodder mixing wagon
Function:	Removal, charging, chopping, mixing, transport and discharge of all types of silage and normal fodders used in keeping livestock
Model:	Self-propelled fodder mixing wagon Verti-Mix
	Self-propelled fodder mixing wagon Verti-Mix Double
Type:	Verti-Mix 1102 / 1302 / 1502 SF
	Verti-Mix 1402 / 1702 / 2002 Double SF
Serial number:	W09632000_0S38001 – W09643000_0S38999
Trade name:	Self-propelled fodder mixing wagon Verti-Mix
	Self-propelled fodder mixing wagon Verti-Mix Double

We hereby explicitly declare that the machine complies with all relevant provisions of the following directives:

2006/42/EC:2006-05-17	EC machinery directive 2006/42/EC
2014/30/EU:2014-02-26	(Electromagnetic compatibility) Directive 2014/30/EU of the European Parliament and the Council dated 26 February 2014 for harmonisation of laws of the member states on the electromagnetic compatibility (revised version)

Sources of the applied harmonized standards:

EN ISO 12100:2010	Safety of machinery - Basic concepts, general principles of design - Risk assessment and risk reduction
EN ISO 13857:2008	Safety of machinery - Safety distances to prevent hazard areas from being reached by upper and lower limbs
EN ISO 4254-1:2013	Agricultural machinery - Safety - Part 1: General requirements
EN 349:1993+A1:2008	Safety of machinery - Minimum distances to prevent limbs from being crushed
EN ISO 4413:2010	Fluid power - General rules and safety requirements for hydraulic systems and their components
EN 703:2004+A1:2009	Agricultural machinery - Silage loading, mixing and/or chopping and distributing machines - Safety

Bad Laer, 18/08/2017

Dipl.-Kfm. W. Strautmann
Managing Director

Dipl.-Wirt.-Ing. P. Strautmann
Managing Director

Identification data

Please enter the machine's identification data here. They are registered on the type plate.

Manufacturer: B. Strautmann & Söhne GmbH u. Co. KG

Vehicle/Machine ID number: _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _

Type:

Year of manufacture:

Manufacturer's address

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E-mail: parts@strautmann.com

Spare parts catalogue online: www.strautmann-elise.de

Please always refer to the vehicle/machine ID number of your machine when ordering spare parts.

Formal information about the operating instructions

Document number: 63200971 0.000

Date of compilation: 07/17

Foreword

Dear customer,

You have decided in favour of a quality product from the large B. Strautmann & Söhne GmbH u. Co. KG product range. We thank you for the confidence you have shown in us.

Upon receipt of the machine, please check for transport damage or missing parts! Check the delivered machine for its completeness, including the ordered optional extras, by means of the delivery note. Only immediate complaints will give reason to compensation!

Read and observe these operating instructions and any other included operating instructions for individual machine components before the first start-up; in case of doubt, the details and information contained in such sub-supplier documentation shall prevail! In particular observe the safety instructions, thus being able to fully benefit from the advantages of your recently acquired machine.

Please make sure that all operators of the machine have read these operating instructions before starting the machine.

The machines are available with various optional extras. Due to the individual equipment of your machine, not all descriptions included in these operating instructions apply to your machine. Optional extras are marked in these operating instructions and are available at extra cost.

In case of any inquiries or problems, please refer to these operating instructions or call us.

Regular service and maintenance and timely replacement of worn-out or damaged parts will result in a longer service life of your machine.

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1 User information

The chapter “User information“ provides information about how to use the operating instructions.

1.1 Purpose of document

These operating instructions:

- describe the operation, service and maintenance of the machine,
- provide important information about safety-conscious and efficient handling of the machine.

Please contact us for further inquiries.

1.2 Keeping of operating instructions

The operating instructions are part of the machine.

Therefore, always keep these operating instructions in the machine.

Hand these operating instructions over to the buyer when the machine is sold.

1.3 Location details in the operating instructions

Any directional data in these operating instructions refer to the direction of motion.

1.4 Applied modes of specification

Instructions and responses

Activities which have to be carried out in a predetermined order are specified as numbered instructions. Always adhere to this order. In some cases, the response of the machine to the respective instruction is marked by an arrow.

Example:

1. Instruction 1
   → Response of machine to instruction 1
2. Instruction 2

Lists

Lists without predetermined order are specified as lists with bullet points.

Example:

- Item 1
- Item 2

Position numbers in figures

Numbers in parentheses refer to position numbers in figures. The first number refers to the figure, the second number to the position number in the figure.

Example: (Fig. 3/6) means figure 3, position 6.

Lines of position in figures

Starting from the position numbers, the lines of position refer to the respective components.

A line without an arrow head means:	———	the component can be seen in the figure,
A line with an arrow head means:	———►	the component cannot be seen in the figure (e.g. hidden by protective device).

References

An arrow head (►) in front of a sentence indicates a reference to further information elsewhere in the operating instructions.

Example:

► Also observe the information in the chapter "Technical data", page 21.

1.5 Applied terms

Term	The term means
third person/party	… all other persons apart from the operator.
risk	… the source of a possible injury or damage to health.
manufacturer	… B. Strautmann & Söhne GmbH u. Co. KG.
machine	… Self-propelled fodder mixing wagon Verti-Mix 1102 / 1302 / 1502 SF, Verti-Mix 1402 / 1702 / 2002 Double SF.
operating element	… the component of an operating element system which is directly actuated by the operator, e. g. by pressing. An operating element may be an adjusting lever, a key button, rotary switch, key etc.

1.6 Activity-related safety instructions and important information

Activity-related safety instructions and important information are included in the operating instructions. Signal words and symbols help to identify activity-related safety instructions and important information at a glance.

1.6.1 Activity-related safety instructions

Activity-related safety instructions:

- warn about risks which may occur in a certain situation or in connection with a certain behaviour,
- are directly mentioned in front of a hazardous activity in the individual chapters,
- are marked by the triangular hazard symbol and a preceding signal word. The signal word refers to the seriousness of the risk.

DANGER 	**DANGER** **marks a direct danger bearing a high risk, which will cause most serious bodily injury (loss of limbs or long-term harm) or even death if it is not prevented.** **Non-observance of the safety instructions marked by "DANGER" directly causes most serious bodily injury or even death.**

WARNING	WARNING
	**marks a possible danger bearing a moderate risk, which might cause most serious bodily injury or even death if it is not prevented.** **Non-observance of the safety instructions marked by “WARNING“ may cause most serious bodily injury or even death.**

CAUTION	CAUTION
	**marks a possible danger bearing a low risk, which might cause light or moderate bodily injury or material damage if it is not prevented.** **Non-observance of the safety instructions marked by "CAUTION" may cause light or moderate bodily injury or material damage.**

1.6.2 Important information

Important information:

- provides details for proper use of the machine,
- provides user hints for optimum use of the machine,
- is marked by the following symbols.

	IMPORTANT
	**marks an obligation to behave in a particular manner or to act in a certain way, in order to use the machine properly.** **Non-observance of these instructions may cause malfunctions of the machine or in its vicinity.**

	INFORMATION
	**marks user hints and particularly useful information.** **This information will help you to use all functions of your machine in the best possible way.**

2 Product description

This chapter includes

- comprehensive information about the machine design,
- the designations of the individual assemblies and operating elements.

Please read this chapter in the immediate vicinity of the machine if possible, thus acquainting yourself with the machine in the best possible way.

The machines are available with various optional extras. Due to the individual equipment of your machine, not all descriptions included in these operating instructions apply to your machine. Optional extras are marked in these operating instructions and are available at extra cost.

2.1 Self-propelled fodder mixing wagon Verti-Mix SF

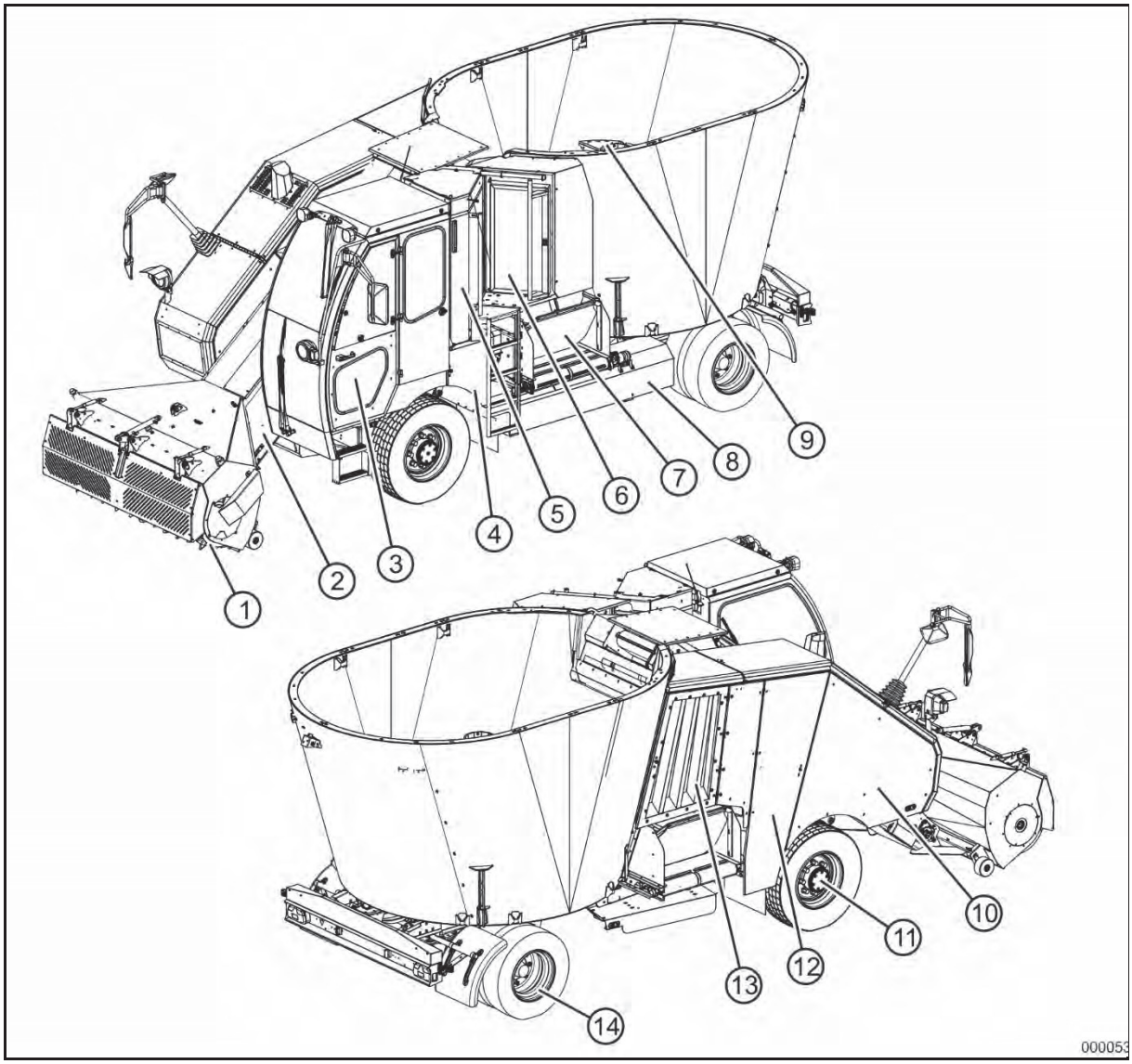


Fig. 1

(1) Pick-up milling cutter with swivelling protective device
(2) Conveyor duct with elevator conveyor
(3) Driver's cabin
(4) Battery box
(5) Hydraulic oil tank
(6) Hydraulic oil cooler
(7) Front crossover conveyor
(8) Diesel tank
(9) Mixing auger
(10) Hydraulic pumps
(11) Driving axle, hydrostatical
(12) Diesel engine
(13) Air intake / Air filter
(14) Braking axle

2.2 Self-propelled fodder mixing wagon Verti-Mix Double SF

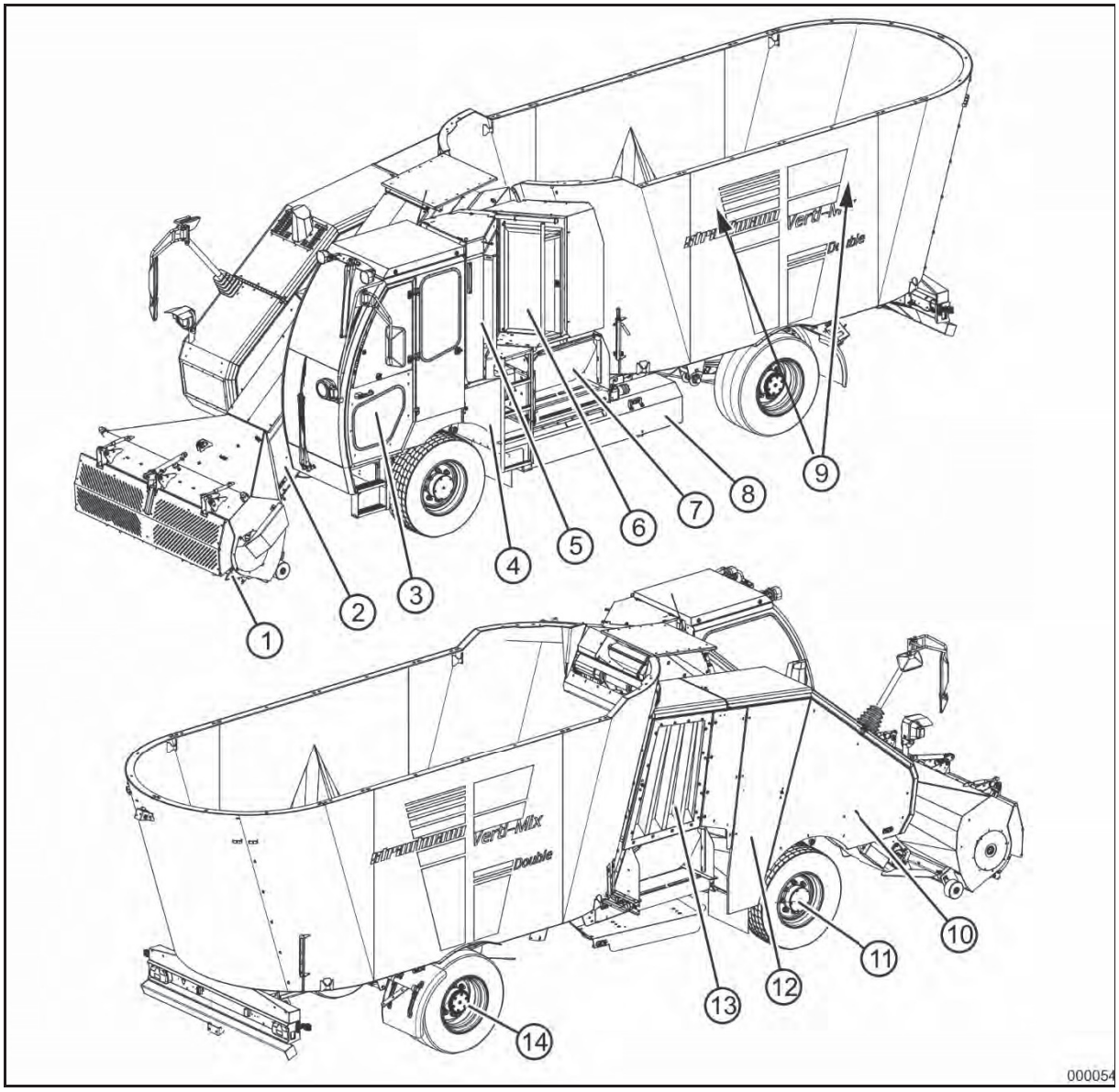


Fig. 2

(1) Pick-up milling cutter with swivelling protective device
(2) Conveyor duct with elevator conveyor
(3) Driver's cabin
(4) Battery box
(5) Hydraulic oil tank
(6) Hydraulic oil cooler
(7) Front crossover conveyor
(8) Diesel tank
(9) Mixing augers
(10) Hydraulic pumps
(11) Steering axle
(12) Diesel engine
(13) Air intake / Air filter
(14) Driving axle, hydrostatical

2.3 Safety and protective devices

This chapter shows the postion of the properly mounted protective devices in protective position.

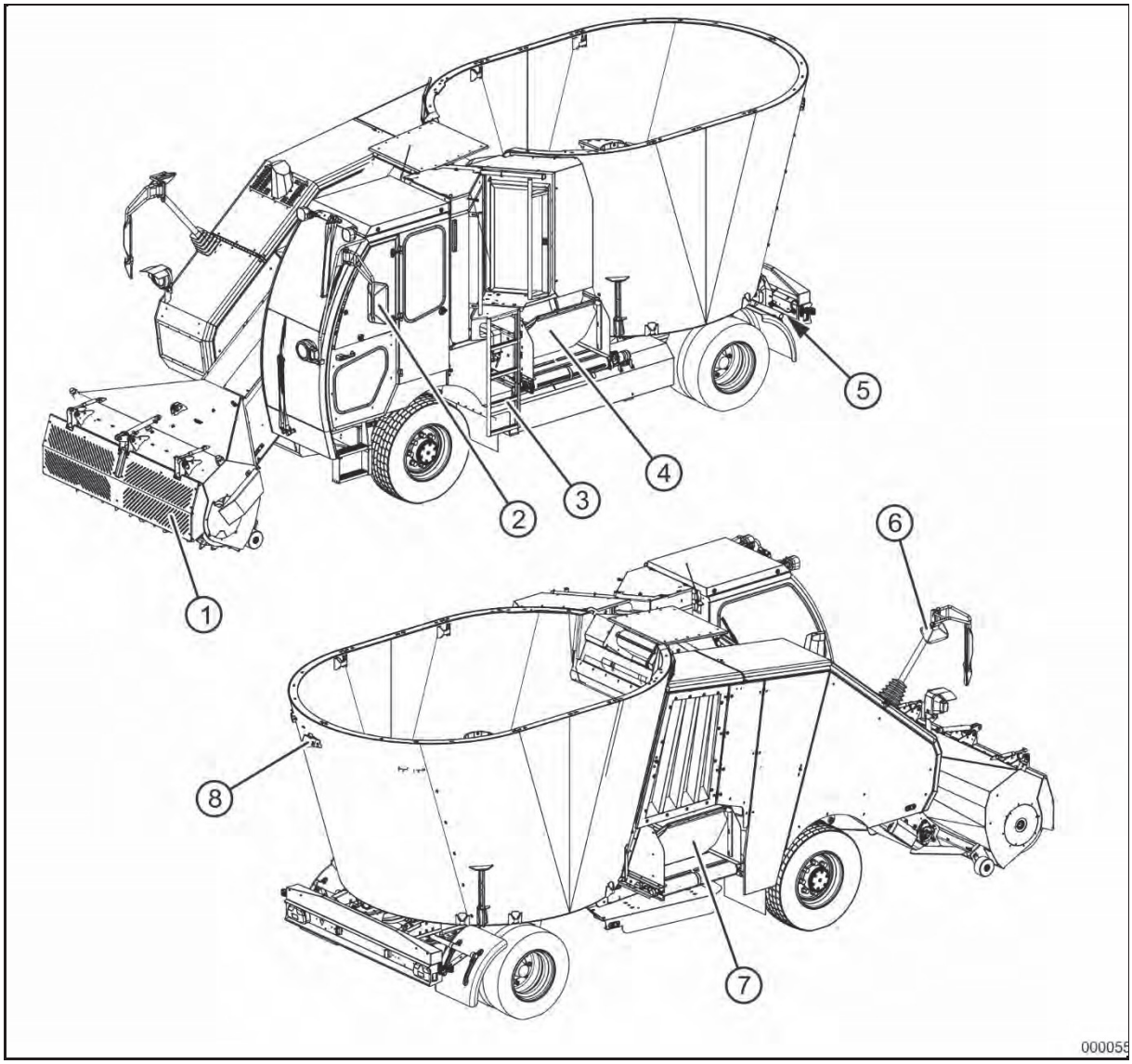


Fig. 3

(1) Protective device for pick-up milling cutter

(2) Left outside mirror

(3) Ladder

(4) Protective device, left discharge opening (close-fitting, swivelling protective cover)

(5) Chock

(6) Right outside mirror, close-proximity mirror, wide-angle mirror

(7) Protective device, right discharge opening (close-fitting, swivelling protective cover)

(8) Rear-view camera

2.4 Traffic-related equipment

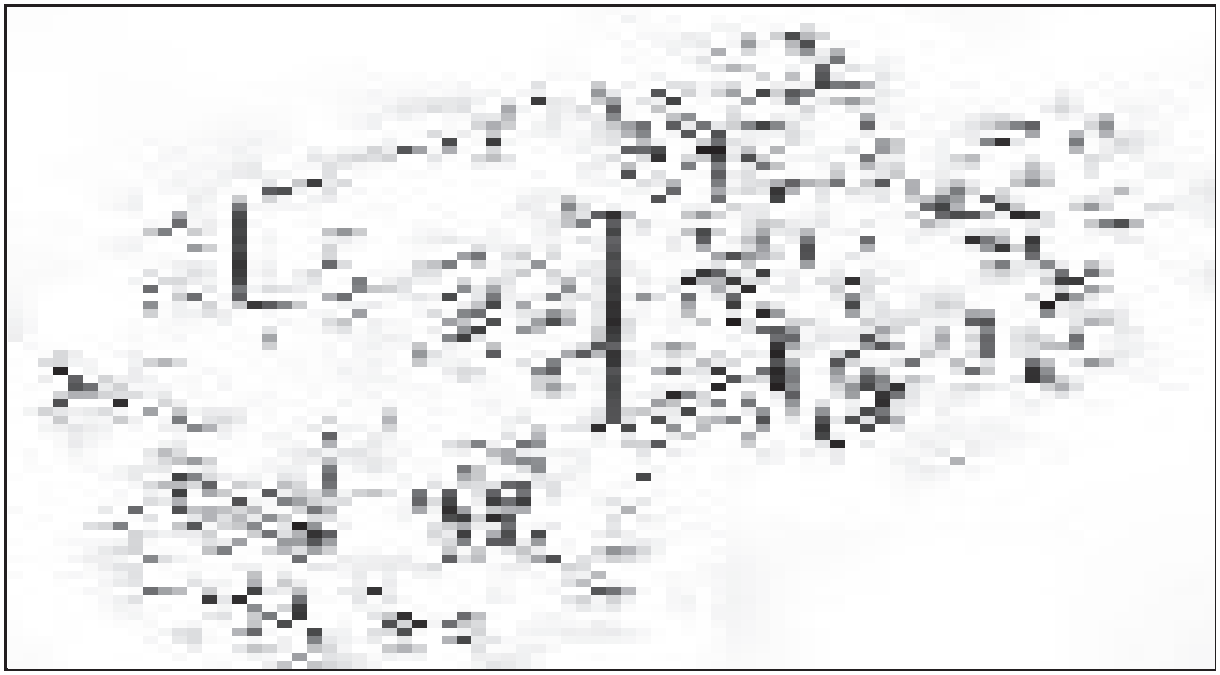


Fig. 4

(1) Headlight with indicator
(2) Side-marker light
(3) Multi-function light
(4) License plate light
(5) License plate
(6) Clearance light
(7) Chock
(8) Right outside mirror, close-proximity mirror, wide-angle mirror
(9) Speed sign

2.5 Correct use

The self-propelled fodder mixing wagons of the Verti-Mix series:

- are designed for removal, charging, chopping, mixing, transport and discharge of all types of silage and normal fodders used in keeping livestock if the dry substance content of the total mixture is more than 30 %,
- must not be charged otherwise than by means of:
  - the pick-up milling cutter,
  - a tractor equipped with a front loader,
  - a yard or wheeled loader,
  - the provided feeding aids such as mineral feed funnel, etc.

The following is also part of the correct use:

- The observance of all instructions contained herein,
- the observance of the specified service and maintenance work on the machine,
- the exclusive use of original spare parts.

2.6 Incorrect use

Any other use not complying with or beyond the "Correct use" described in the chapter "Correct use" or in the present operating instructions shall be deemed as incorrect use.

The manufacturer will not assume any liability for damage resulting therefrom. The user will be solely responsible.

- It is not allowed to carry out any changes or modifications on the machine.
- It is not allowed to bypass the safety devices for operating the machine.

Exceeding the admissible limit values shall be deemed as incorrect use. The following values are recorded in terms of date and time by the control system if the specified values are exceeded.

- Rated engine speed
- Maximum speed
- Milling pressure
- Drive pressure
- Hydraulic oil temperature
- Coolant temperature
- Weight for maximum load
- Mixer speed

In case of a warranty claim, the values can be read out via the control system.

2.7 Hazardous areas and dangerous spots

The hazardous area is the area within and/or in the vicinity of a machine, in which the safety or health of people might be impaired.

People are not allowed in the hazardous area:

- when the machine engine is running,
- if the machine is not secured against accidental starting and rolling.

Only if no people are within the hazardous area of the machine, is the operator allowed to:

- move the machine,
- initiate hazardous movements of movable components, e.g. lifting or lowering the cutter arm,
- set movable machine parts from transport to working position and from working to transport position,
- power working tools.

Within the hazardous area, risks occur at dangerous spots which cannot be completely eliminated due to the operational safety of the machine. The risks exist permanently or may occur unexpectedly.

Dangerous spots are marked by warning signs attached to the machine, which warn about existing residual risks.

In these operating instructions, activity-related safety instructions mark the existing residual risks.

Risks may arise:

- due to work-related movements of the machine and its working tools,
- due to substances or foreign objects blown out of the machine,
- due to accidental lowering of the lifted machine/of lifted machine parts,
- due to accidental starting and rolling of the machine / of tractor and machine.

Dangerous spots exist:

- within the area of the lifted and unsecured cutter arm,
- within the area of the powered pick-up milling cutter,
- in the mixing container with the machine powered or not powered,
- within the area of hydraulically operated discharge doors,
- within the area of hydraulically operated counter-cutters (optional extra),
- within the area of the powered discharge conveyor,
- within the area behind the vehicle in case of reverse travel,
- within the area of the diesel engine.

2.8 Type plate

The complete marking is treated as a document and must not be altered or made unrecognizable.

(1) Type plate with CE symbol at the right-hand front of the frame
(2) Vehicle / Machine ID number (embossed into the frame)

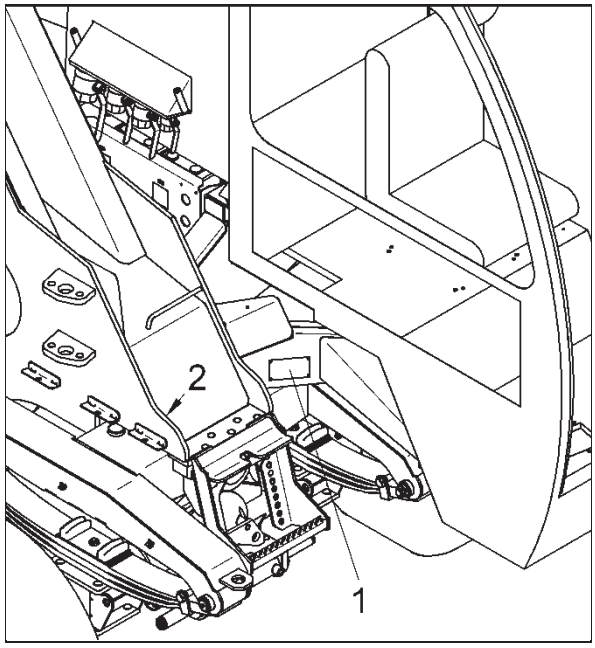


Fig. 5

Information on the type plate:

(1) Manufacturer
(2) CE symbol
(3) Vehicle/Machine ID number
(4) Type
(5) Empty weight [kg]
(6) Gross vehicle weight rating [kg]
(7) Admissible tongue load/front axle load [kg]
(8) Admissible rear axle load [kg]
(9) Approval number
(10) Year of manufacture
(11) Rated speed [min-1]
(12) Admissible hydraulic pressure [bar]
(13) Maximum admissible speed [km/h]

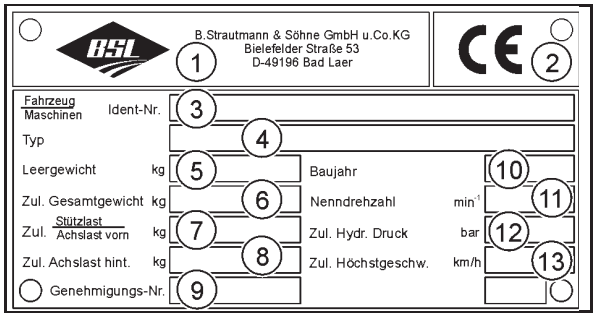


Fig. 6

2.9 Technical data

2.9.1 General data

2.9.1.1 Self-propelled fodder mixing wagon Verti-Mix SF

Model		1102 SF	1302 SF	1502 SF
Usable mixing capacity	m³	11	13	15
Picking-up width	m	2.00		
Elevator width	m	0.58		
Milling cutter diameter	m	0.67		
Axle loads and weights: see type plate				
Engine output at 1900 min^{-1}	kW / HP	129 / 175		
Diesel tank	l	200		
Hydraulic oil tank	l	370		
Electrical system	V	24		
2x battery type 63552	V / Ah	12 / 135		
Sound pressure level	dB(A)	84		
Tyres:				
• front		305/70 R19.5 (435/50 R19.5 optional)		
• rear single tyres		435/50 R19.5		
• rear double tyres		235/75 R17.5		
Tyre pressure	bar / psi	9 / 130		

Tab. 1

Figures, technical data and weights may change due to technical development and are not binding for delivery.

2.9.1.2 Self-propelled fodder mixing wagon Verti-Mix Double SF

Model		1402 Double SF	1702 Double SF	2002 Double SF
Usable mixing capacity	m³	14	17	20
Picking-up width	m	2.00		
Elevator width	m	0.58		
Milling cutter diameter	m	0.67		
Axle loads and weights: see type plate				
Engine output at 1900 min^{-1}	kW / HP	129 / 175		
Diesel tank	l	200		
Hydraulic oil tank	l	370		
Electrical system	V	24		
2x battery type 63552	V / Ah	12 / 135		
Sound pressure level	dB(A)	84		
Tyres:				
• front		305/70 R19.5 (435/50 R19.5 optional)		
• rear single tyres		435/50 R19.5 (455/45 R22.5 optional)		
• rear double tyres		235/75 R17.5 (275/70 R22.5 optional)		
Tyre pressure	bar / psi	9 / 130		

Tab. 2

Figures, technical data and weights may change due to technical development and are not binding for delivery.

2.9.2 Dimensions of wagon

2.9.2.1 Self-propelled fodder mixing wagon Verti-Mix SF

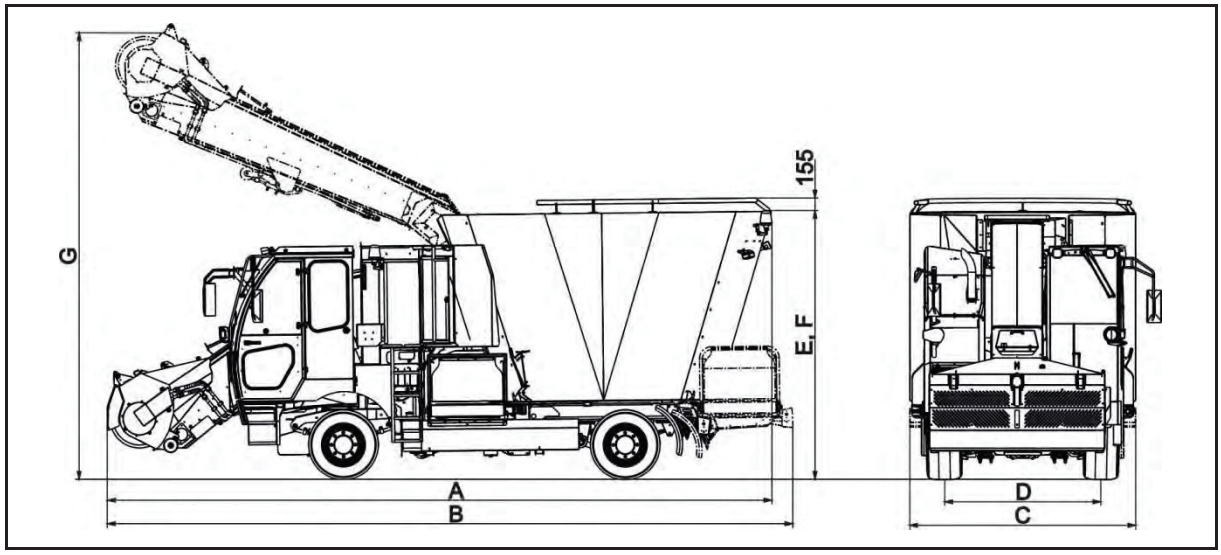


Fig. 7

Model	Unit	1102 SF	1302 SF	1502 SF
A = Total length, transport position – Front discharge conveyor:	m	7.28	7.38	7.55
B = Total length, transport position – Rear discharge conveyor:	m	7.59		7.77
C = Total width:	m	2.42		2.58
D = Track:				
• front	m	1.80		
• rear	m	1.80		
E = Total height (with mechanical suspension, without four-wheel steering): F = Charging height (with mechanical suspension, without four-wheel steering):				
• with single tyres 435/50 R19.5	m	2.84	3.17	
• with double tyres 235/75 R17.5	m	2.76	3.08	
E = Total height (with compressed-air suspension, without four-wheel steering): F = Charging height (with compressed-air suspension, without four-wheel steering):				
• with single tyres 435/50 R19.5	m	2.84	3.16	
• with double tyres 235/75 R17.5	m	2.76	3.08	
G = Discharging height:	m	5.00	5.10	

Tab. 3

Figures, technical data and weights may change due to technical development and are not binding for delivery.

2.9.2.2 Self-propelled fodder mixing wagon Verti-Mix Double SF

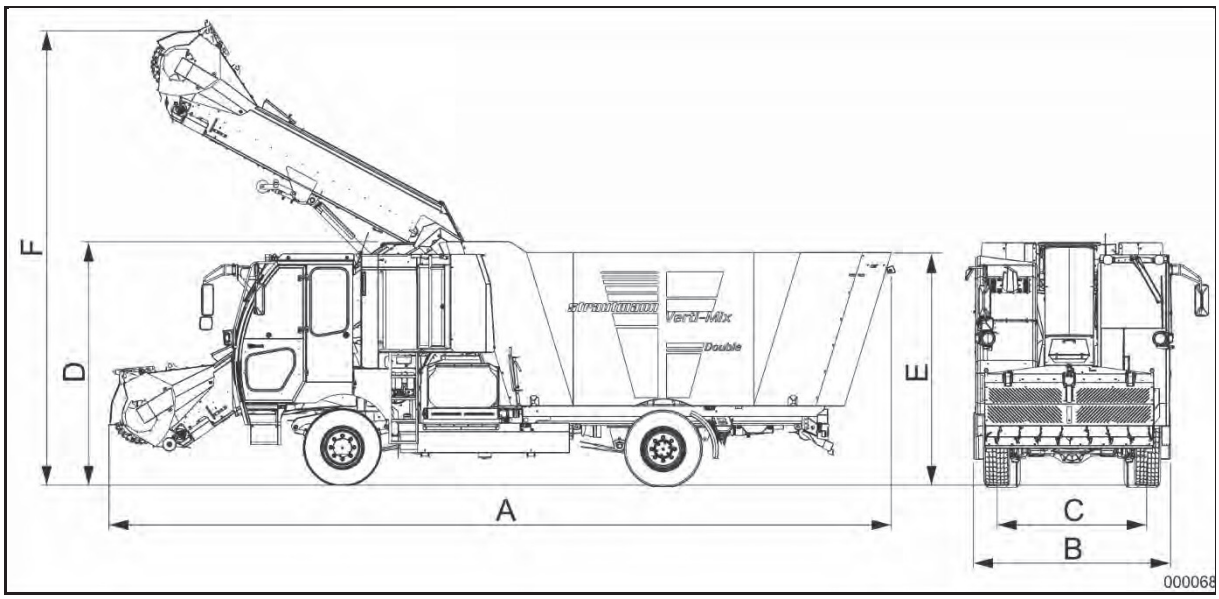


Fig. 8

Model	Unit	1402 D SF	1702 D SF	2002 D SF
A = Total length, transport position:				
• Front discharge conveyor	m	9.20	9.26	9.57
• Rear discharge conveyor	m	9.55		9.83
B = Total width:				
• with single tyres	m	2.30	2.30	2.30
• with four-wheel steering and double tyres 235/75 R17.5	m	2.31		
C = Track:				
• front	m	1.80		
• rear	m	1.66		
• rear with four-wheel steering	m	1.80		
D = Total height (with mechanical suspension, without four-wheel steering):				
• with single tyres 435/50 R19.5	m	2.80	2.94	–
• with single tyres 455/45 R22.5	m	2.84	3.00	3.09
• with double tyres 235/75 R17.5	m	2.74	2.88	2.97
• with double tyres 275/70 R22.5	m	2.84	2.98	3.08

Model	Unit	1402 D SF	1702 D SF	2002 D SF
D = Total height (with compressed-air suspension, without four-wheel steering:				
• with single tyres 435/50 R19.5	m	2.81	2.96	–
• with single tyres 455/45 R22.5	m	2.85	3.00	3.11
• with double tyres 235/75 R17.5	m	2.75	2.89	2.97
• with double tyres 275/70 R22.5	m	2.85	3.00	3.11
E = Charging height (with mechanical suspension, without four-wheel steering):				
• with single tyres 435/50 R19.5	m	2.57	2.80	-
• with single tyres 455/45 R22.5	m	2.61	2.86	2.99
• with double tyres 235/75 R17.5	m	2.51	2.74	2.87
• with double tyres 275/70 R22.5	m	2.61	2.84	2.98
E = Charging height (with compressed-air suspension, without four-wheel steering:				
• with single tyres 435/50 R19.5	m	2.58	2.82	–
• with single tyres 455/45 R22.5	m	2.62	2.86	3.01
• with double tyres 235/75 R17.5	m	2.52	2.75	2.87
• with double tyres 275/70 R22.5	m	2.62	2.86	3.01
F = Discharging height:	m	5.00	5.10	

Tab. 4

Figures, technical data and weights may change due to technical development and are not binding for delivery.

2.10 Noise specifications

The workplace-related emission value (sound pressure level) is 84 dB(A), measured during operating mode at the driver's ear, the cabin being closed.

3 Safety instructions

This chapter contains important information for the user and the operator on how to operate the machine in a safety-conscious and trouble-free way.

Observe all safety instructions included in these operating instructions!

Most accidents are caused by non-observance of simplest safety rules.

By observing all safety instructions included in these operating instructions, you help to prevent accidents.

3.1 Safety-conscious working

The machine complies with the safety-related requirements and state of the art. When using the machine, risks and impairments might yet arise:

- for life and limb of the operator or third parties,
- for the machine itself,
- to other material assets.

For the safety-conscious operation of the machine, please observe:

- these operating instructions, in particular:
  - the basic safety instructions, the activity-related safety instructions and the instructions what to do,
  - the instructions regarding correct use.
- the warning signs on the machine,
- the general national occupational safety, accident prevention and environmental protection rules,
- the national road traffic regulations when carrying out transport journeys.

Only operate the machine in perfect safety-related condition.

3.2 Organisational measures

The operating instructions:

- must always be kept at the machine's place of operation,
- must always be easily accessible for operating and maintenance staff.

3.2.1 User's obligation

The user is obliged:

- to observe the general national occupational safety, accident prevention and environmental protection rules,
- to exclusively have staff operating the machine who:
  - know the basic occupational safety and accident prevention regulations,
  - have been instructed how to operate the machine,
  - have read and understood these operating instructions.
- to keep all warning signs attached to the machine in legible condition,
- to replace any damaged warning signs,
- to provide the necessary personal protective equipment such as protective goggles, work gloves according to DIN EN 388, safety footwear, protective clothing, skin protectant, etc.

3.2.2 Operator's obligation

Any members of staff charged to operate the machine are obliged:

- to acquaint themselves with the machine before starting operation,
- to acquaint themselves with the following regulations and to observe them during work:
  - the general national occupational safety, accident prevention and environmental protection rules,
  - the chapter "Basic safety instructions“, page 31,
  - the chapter „Warning and instruction signs“, page 40, and the warning signs when operating the machine,
  - the chapters of these operating instructions which are important for the tasks assigned to them.

If the operator notices that a device is not in a sound safety-related condition, the operator shall be obliged to immediately eliminate this defect. If this is not part of the operator's scope of tasks or he/she lacks adequate expert knowledge, the operator shall be obliged to report this defect to his/her superior or to the user.

3.2.3 Qualification of operator

Only trained and instructed staff is allowed to operate the machine. The user must clearly define the responsibilities of the members of staff for operation, service and maintenance.

A person to be trained must be supervised when operating the machine.

The operator is only allowed to carry out such work as specified in these operating instructions which is not marked as "Shop work".

Only authorised workshops are allowed to carry out work on the machine which requires special expert knowledge. Authorised workshops have qualified staff and adequate means (tools, lifting and supporting equipment) at their disposal to carry out this work properly.

This applies to any work:

- which is not mentioned in these operating instructions,
- which is marked as "Shop work" in these operating instructions.

3.3 Product safety

3.3.1 Safety-conscious operation of machine

The machine is only allowed to be operated from the driver seat, provided that no people are present within the machine’s hazardous area. Observe the information in the chapter “Hazardous area and dangerous spots”, page 19.

3.3.2 Safety and protective devices

- Only operate the machine when all safety and protective devices are properly fixed and in fully operable condition.

  Defective or removed safety and protective devices might cause dangerous situations.
- Check all safety and protective devices for visible damage and functional ability before starting the machine.

3.3.3 Structural alterations

- Vehicles provided with an official operating license or vehicle-linked devices and equipment provided with an official operating license or a road traffic license according to the road traffic regulations must be in the condition specified by that license.
- You are only allowed to carry out structural alterations, extensions or modifications on the machine with the prior written consent of the manufacturer.
- In case of non-authorized structural alterations, extensions or modifications:
  - the declaration of conformity and the CE symbol of the machine will become invalid,
  - the operating license according to national and international regulations will become invalid.
- Exclusively use original parts or modification and accessory parts approved by the manufacturer such that:
  - the declaration of conformity and the CE symbol of the machine will remain unaffected,
  - the operating license according to national and international regulations will remain unaffected,
  - perfect functioning of the machine will be ensured.
- The manufacturer will not assume any liability for damage resulting from:
  - unauthorized alterations of the machine,
  - non-approved modification and accessory parts,
  - welding and drilling work on load-bearing parts of the machine.

3.3.4 Spare and wearing parts, auxiliary materials

Immediately replace machine parts which are not in perfect condition.

Exclusively use original parts of the manufacturer or parts approved by the manufacturer such that the operating license according to national and international regulations will remain unaffected. If spare and wearing parts produced by third-party manufacturers are used, their stress-related and safety-conscious design and production will not be ensured.

The manufacturer will not assume any liability for damage resulting from the use of non-approved spare and wearing parts or auxiliary materials.

3.3.5 Warranty and liability

As a basic principle, our "General Sales Terms and Delivery Conditions" shall apply. They have been handed over to the user upon conclusion of contract at the latest.

Any warranty and liability claims in case of personal injury and material damage will be excluded if they are due to one or several of the following reasons:

- improper use of the machine,
- improper assembly, commissioning, operation and maintenance of the machine,
- operation of the machine, the safety devices being defective or the safety and protective devices having not been properly installed or being not serviceable,
- non-observance of the instructions included in the operating instructions referring to commissioning, operation and maintenance,
- unauthorized structural alterations on the machine,
- insufficient inspection of machine parts which are subject to wear,
- improperly effected repairs,
- disasters due to foreign objects and force majeure.

3.4 Basic safety instructions

Basic safety instructions:

- shall, as a basic principle, apply to the safe operation of the machine,
- are summarized in the subsections below.

3.4.1 General safety and accident prevention instructions

- Observe the general national safety and accident prevention regulations in addition to the safety instructions included in this chapter!
- Wear your personal protective equipment when carrying out work on the machine!
- Observe the warning and instruction signs attached to the machine. They provide important information for the safe and trouble-free operation of the machine!
- Observe the activity-related safety instructions included in the other chapters in addition to the basic safety instructions included in this chapter!
- Make sure that people leave the hazardous area of the machine, before moving or starting the machine! Particularly be aware of children!
- Always ensure a clear view through all windows!
- Carrying passengers and transport of objects are not allowed on the machine!
- Adapt your driving such that you have always safe control over the machine!
  Consider your personal abilities as well as the road, traffic, visibility and weather conditions and the driving characteristics of the machine.
- Avoid sudden changes of direction, in particular when travelling uphill and downhill and when traversing hills!
- Beware when driving in reverse gear.
- Never leave the machine unattended with the diesel engine running!
- The following measures are imperative before carrying out any work on the machine such as adjusting work or trouble-shooting:
  - Secure the machine against accidental starting and rolling,
  - secure lifted machine parts / the lifted machine against accidental lowering.
- It is not allowed to drill holes, to widen existing holes or to carry out welding work on load-bearing parts such as frame and chassis.

Use of machine

- Acquaint yourself with all mechanisms and operating elements of the machine and their functions before starting work! During operation it will be too late.
- Wear close-fitting clothing! Loose-fitting clothing increases the risk of becoming entangled in or wound up at drive shafts!
- Check the machine for its road and operational safety before each use.
- Adjust the mirrors and the rear-view camera such that there is sufficient visibility of the hazardous area around the machine.
- The fodder mixing wagon is only allowed to be operated by one person!
- Before operating the machine, make sure that third persons / animals leave the machine's hazardous area!
- Before reversing, make sure that there are no people, animals or objects behind or closely beside the machine.
- Start the machine only if all protective devices have been installed and are in protective position!
- Do not block any operating elements (levers, key buttons, etc.), which initiate dangerous movements, such as folding, swivelling or sliding operations! The movement must automatically stop as soon as the operating element is released.
- Fill the fodder mixing wagon only by means of a pick-up milling cutter / a tractor equipped with a front loader or by means of a wheeled loader!
- Observe the maximum load and the admissible axle and tongue loads of the machine! Run the machine being only partly filled if necessary.
- People are not allowed:
  - above the fodder mixing wagon, e.g. to fill the mixing container manually from a silo or a hayloft! People who are standing above the fodder mixing wagon risk to fall into the mixing container,
  - to climb onto the top edge of the mixing container,
  - to enter or reach into the mixing container,
  - to travel as passengers on the machine!
- It is not allowed to climb onto the cutter arm or to use it as a lifting device!
- Dose additional fodder (e.g. mineral feed) or other bulk material through the feeding flap mounted at the conveyor duct (optional extra) or through the feed funnel (optional extra) into the mixing container!
- Risk of crushing when opening and closing the discharge doors. Before opening or closing the discharge door(s), make sure that people and animals leave the hazardous area!
- Never reach into the mixing container through a discharge opening::
  - as long as the engine is running,
  - as long as the discharge door has not been secured against accidental lowering!
- People are not allowed:
  - within the operating/hazardous area of the machine,
  - within the discharge area of the machine,
  - within the turning and swivelling range of movable machine parts,
  - beneath lifted and unsecured movable machine parts!
- Powered (e. g. hydraulically) movable machine parts have crushing and shearing zones!

- You are only allowed to operate powered machine parts if there are no people within the machine's hazardous area!
- Before leaving the cabin you must:
  - close the protective device of the pick-up milling cutter,
  - lower the pick-up milling cutter to its end position,
  - apply the parking brake,
  - turn the engine off,
  - pull the ignition key out.

  Lock the cabin when leaving.
- Safely support folded-up covers before standing underneath them!

Transport of machine

- Transport journeys are only allowed with traffic-related equipment being completely mounted and in fully operable condition!
- Transport journeys are only allowed with lowered cutter arm and closed milling drum protection!
- Observe the respective national road traffic regulations when carrying out transport journeys on public roads!
- Before carrying out transport journeys, check:
  - the lighting system for damage, proper functioning and cleanliness,
  - the brake and hydraulic system for visible defects,
  - whether the parking brake has been completely released,
  - the brake system for proper functioning!
- Avoid sudden changes of direction, in particular when travelling uphill and downhill and when traversing hills!
- Always keep the cabin door closed when driving!
- Set all movable machine parts to transport position and secure them before carrying out transport journeys! Use the transport locks provided for this purpose!
- Adapt your travelling speed to the conditions prevailing at the time!
- Switch the work lights off when travelling on roads!

3.4.2 Hydraulic system

The hydraulic system is under high pressure!

- Only an authorised workshop is allowed to carry out work on the hydraulic system!
- Ensure that the hydraulic hoses and pipes never bend or chafe!
- Hydraulic hose pipes must be replaced in case of visible defects, damage and ageing! Only use original hydraulic hose pipes!
- The period of use of the hydraulic hose pipes should not exceed six years (including a maximum possible shelf life of two years).
- Never try to block leaking hydraulic hose pipes with your hand or fingers! Immediately contact an authorized workshop if a leak is suspected.

  Hydraulic oil squirting out under high pressure may enter the skin and the body and cause serious injuries.

  If injuries caused by hydraulic oil occur, immediately contact the medical services. Risk of infection!
- Never try to detect leakage points with your bare hands. Risk of serious infection! Use appropriate means when trying to locate leakage points (cleaning sprays, special leak detector spray)!
- Overcoating of hydraulic hose pipes is not allowed!

3.4.3 Electrical system

- Only an authorised workshop is allowed to carry out work on the electrical system (shop work)!
- Before carrying out any work on the electrical system, disconnect the electrical system from the battery by means of the battery main switch! Observe the switch-off time (see control lamp).
- Only use the specified fuses. When using bigger fuses, the electrical system may be destroyed. Risk of fire!
- Avoid sparking and open fire in the vicinity of the battery! Risk of explosion!
- As a basic principle, disconnect all electrical / electronic plug-in connections before carrying out welding work on the machine!
  - Disconnect both computers (BBX1 and BBX2) in the fuxe box behind the driver seat.
  - Disconnect all three plug-in connectors of the controller from the John Deere engine at the right-hand front in the engine compartment!
- Ensure correct order when connecting and disconnecting the battery:
  - Connection: First connect the plus pole, then the minus pole,
  - Disconnection: First disconnect the minus pole, then the plus pole!
- Always cover the plus pole of the battery as required. Risk of explosion in case of accidental ground!
- The machine can be equipped with electronic components and parts, the functioning of which may be affected by electromagnetic emissions of other devices. Such interferences may be a risk to people if the following safety instructions are not observed:
  - In case of a retrofitting of electrical devices or components into the machine and their connection to the on-board electrical system, the user must check on his own responsibility whether the retrofitted parts interfere with the vehicle electronics or other components.
  - Ensure that the retrofitted electrical and electronic components comply with the EMC directive 2004/108/EC as amended from time to time and bear the CE symbol!

3.4.4 Brake system

- Immediately stop the machine in case of failure of the brake system. Have the failure promptly remedied!
- Only authorized workshops or qualified personnel are allowed to carry out adjustment and repair work on the brake system!
- Have the brake system regularly and thoroughly checked!

  In order to maintain the operational safety, the wheel brakes must always be properly adjusted.
- Before carrying out any work in the brake system:
  - safely park the machine and secure it against accidental rolling (chocks),
  - secure the lifted machine/machine parts against accidental lowering!
- Especially beware when carrying out welding and drilling work and work involving open fire in the vicinity of brake lines!
- As a basic principle, test the brakes after any adjusting and maintenance work on the brake system!

3.4.5 Axles

As a basic principle, never overload the axles. Overloading of axles reduces the service life of the axle bearings and causes damage to the axles.

Therefore avoid:

- overloading of the machine,
- bumping into curbs,
- exceeding the speed limit,
- mounting wheels of wrong inserting depth,
- mounting wheels and tyres of wrong dimensions.

3.4.6 Tyres

- Only qualified personnel equipped with appropriate fitting tools is allowed to carry out repair work on tyres and wheels! Mounting of wheels and tyres requires sufficient know-how and appropriate tools.
- Safely park the machine and secure it against accidental lowering and rolling (parking brake, chocks) before carrying out any work on the tyres!
- Place the lifting device at the marked application points.
- Use lifting equipment suitable and approved for the machine's weight with sufficient lifting power.
- Deflate the tyre before removing it!
- Regularly check the tyre pressure!
- Observe the maximum admissible tyre pressure. Risk of explosion in case of excessive pressure!
- Keep to the side of the wheel when refilling the tyres! An inflation hose with an approximate length of 1.5 m makes work easier.
- Retighten all fastening screws and nuts according to the manufacturer’s specifications!

3.4.7 Service and maintenance of machine

- Carry out the required service and maintenance work on the machine in due time!
- Only an authorised John Deere workshop is allowed to carry out work on the diesel engine, to change the engine oil, to replace the filters, etc.! Otherwise, the manufacturer will not assume any warranty or liability for damage.
- Secure the machine against accidental starting and rolling before carrying out any service or maintenance work on the machine!
- Existing mechanical, hydraulic, pneumatic and electrical or electronic residual energies may cause accidental machine movements!

  Beware of existing residual energies in the machine when carrying out maintenance work. Warning signs mark the components with residual energies.
- Never enter the mixing container over the top edge of the mixing container!
- Only enter the mixing container through a discharge opening with utmost care:
  - with the engine turned off,
  - with the ignition key pulled out,
  - with the parking brake applied,
  - with the discharge door completely open,
  - when wearing your personal protective equipment.
- Risk of injuries caused by the sharp-edged cutting knives of the mixing auger(s). Wear your personal protective equipment (protective gloves, safety footwear), when carrying out maintenance work on the cutting knives of the mixing auger(s)!
- Keep sufficient safe distance to hot surfaces / components.
- Fix larger assemblies carefully to lifting equipment and secure them before replacing larger assemblies!
- Regularly check screws and nuts for tightness! Retighten loosened screws and nuts!

- Secure the lifted machine or lifted machine parts against accidental lowering before carrying out service or maintenance work on the machine!
- Use appropriate equipment and gloves when replacing working tools with blades!
- Never open protective devices,
  - when the machine is powered,
  - as long as the engine is running,
  - when the ignition key is in the machine,
  - when the machine is not secured against accidental rolling by means of the parking brake and/or the chocks.
- After finishing maintenance work, check the safety and protective devices for proper functioning! Immediately replace missing or defective protective devices!
- When using electrical tools, the connecting cables must not be moved over sharp-edged cutting knives!
- Immediately remove fresh oil stains by means of binding agents. Risk of slipping!
- Dispose of oils, greases and filters properly!
- Properly handle and dispose of substances and materials used for cleaning the machine, especially:
  - when working on lubrication systems and devices,
  - when carrying out cleaning work with solvents!
- Never clean the windows using fuel, paint thinner or similar. This may cause damage to the wiper blades.
- Disconnect the generator and battery cable and unplug the computers, before carrying out electrical welding work on the machine!
- Spare parts must at least comply with the specified technical standards of the manufacturer! This is guaranteed when using original parts!
- Observe the maintenance intervals for wearing parts!

3.4.8 Fire protection measures

- Always keep the machine in a clean condition to prevent the risk of fire. Especially on the hot spots such as engine and exhaust system, easily inflammable material such as dust and dry fodder, dirt accumulation, hay, straw, etc. might catch fire.
- Carry out exhaust gas cleaning only under convenient operating and ambient conditions and if the risk of fire can be excluded. During an exhaust gas cleaning process (regeneration), high temperatures of up to 650°C build up.
- Immediately remove wound fodder from rotating components if necessary.
- Reduce the risk of fire by removing accumulated fodder and dust from the machine several times a day if necessary and checking the machine parts for overheating.
- Eliminate oil leakages and adhere to the lubricant regulations.
- Conscientiously and frequently check electrical lines and hydraulic oil pipes for proper condition. Ensure that there is enough free space between the lines and pipes and possibly sharp contact edges.
- Be particularly careful when handling fuel. Increased risk of fire. Never top up fuel in the vicinity of open fire or ignitable sparks. Never smoke when topping up fuel.

3.5 Warning and instruction signs

The following warning and instruction signs are attached to the machine:

- Warning signs: They mark dangerous spots on the machine and warn about residual risks, which cannot be completely eliminated due to the machine's operational safety.
- Instruction signs: They include information referring to proper use of the machine.

Keep these signs always in a clean and clearly legible condition! Replace illegible signs. Order the warning and instruction signs according to their order number:

- from the dealer,
- directly via the Strautmann spare parts warehouse, phone: + 49 (0) 5424 802-30.

3.5.1 Warning signs

A warning sign consists of 2 pictographs:

(1) Pictograph for description of risk

The pictograph shows the pictographic description of the risk, surrounded by a triangular hazard symbol.

(2) Pictograph how to avoid the risk

The pictograph shows the pictographic instruction how to avoid the risk.

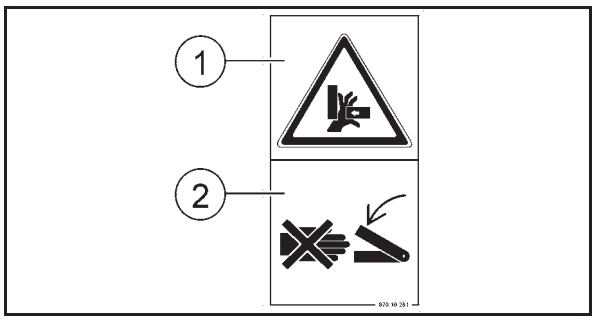


Fig. 9

Explanation of warning signs

The following list includes:

- in the right-hand column all warning signs attached to the machine,
- in the left-hand column the following details referring to the warning sign on the right-hand side:
  - the order number.
  - the description of risk, e. g. "Risk of crushing fingers or hand due to accessible movable machine parts!"
  - the consequences in case of non-observance of the instruction(s) how to avoid the risk, e. g. "This risk may cause most serious injuries involving loss of limbs."
  - the instruction(s) how to avoid the risk, e. g. "Never reach into the dangerous spot as long as the tractor engine is running with the propeller shaft coupled/the hydraulic/electronic system connected. Make sure that people leave the hazardous area of the machine before moving machine parts."

Order number and explanation	Warning signs

87010270

Please read and observe the operating and safety instructions before commissioning!

87007103

Risk to people and machine due to improper maintenance or repair!

Read and observe the operating instructions for the machine and for the diesel engine.

In particular observe the safety instructions.

87007120

Risks when carrying out work on the machine such as mounting, adjusting, trouble-shooting and maintenance, due to accidental starting of the machine!

This risk may cause most serious injuries or even death.

- Secure the machine against accidental starting before carrying out any work on the machine.
- Read and observe the instructions in the respective chapters in the operating instructions depending on the work to be carried out.

87010287

Dangerous situations may occur if load-bearing parts break due to mechanical work on frame elements!

This risk may cause most serious injuries or even death.

As a basic principle, the following work is not allowed:

- mechanical processing of the chassis,
- drilling at the chassis,
- boring up of existing holes at the chassis frame or at load-bearing parts,
- welding on load-bearing parts.

87007108

Risk to any part of the body of being crushed due to necessary work underneath unsecured, suspended loads or lifted machine parts!

This risk may cause most serious injuries or even death!

Activate the safety locking mechanism against accidental lowering of suspended loads or lifted machine parts before entering the hazardous area.

87007117

Risk to any part of the body of being drawn in or becoming entangled due to powered working tools!

This risk may cause most serious injuries or even death.

Never enter the mixing container as long as the diesel engine is running.

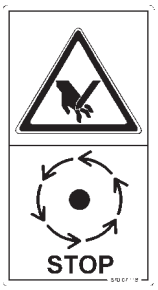
87007557

Risk to any part of the body of being drawn in or becoming entangled due to the rotating mixing auger(s)!

This risk may cause most serious injuries or even death.

Never enter the mixing container as long as the diesel engine is running!

87007118

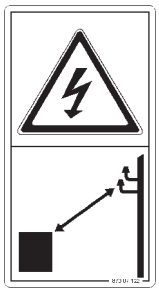


Risk of cutting fingers and hands due to sharp/sharp-edged powered working tools!

This risk may cause most serious injuries including loss of limbs.

- Do not touch working tools until they have completely stopped.
- Keep sufficient safe distance to powered working tools.
- Ensure that people keep sufficient safe distance to powered working tools.
- Never open nor remove protective devices as long as the tractor engine / the diesel engine is running.

87007122



Risk of electrical shock or burns due to accidental touching of electrical overhead lines or due to inadmissible approach to high-voltage overhead lines!

This risk may cause most serious injuries or even death.

Keep sufficient safe distance to high-voltage overhead lines.

Nominal voltage	Safe distance to overhead lines
up to 1 kV	1 m
over 1 up to 110 kV	3 m
over 110 up to 220 kV	4 m
over 220 up to 380 kV	5 m
nominal voltage unknown	5 m

87007123

Risk due to hydraulic oil squirting out under high pressure, caused by leaking hydraulic hose pipes!

This risk may cause most serious injuries or even death if hydraulic oil squirting out under high pressure enters the skin and the body.

- Never try to block hydraulic hose pipe leaks with your hands or fingers.
- Read and observe the information included in the operating instructions before carrying out service and maintenance work on hydraulic hose pipes.

87007126

Risk to any part of the body of being rolled over by the machine due to accidental rolling of the machine parked in unsecured condition!

This risk may cause most serious injuries or even death.

Before parking the machine, secure it against accidental rolling by means of the parking brake and/or the chocks.

87007121

Risk of falling for passengers on treads or platforms!

This risk may cause most serious injuries or even death.

- It is not allowed:
  - to transport people as passengers on the machine,
  - to transport objects on the machine,
  - to climb onto travelling machines.
- Ensure that there are no passengers on the machine.

87012568

Risk of becoming entangled, wound up, being drawn in and risk of slipping, stumbling or falling if people fall from the top edge of the mixing container!

This risk may cause most serious injuries or even death.

Therefore, it is not allowed

- to stay above the mixing container.
- to bend over the mixing container.
- to enter the mixing container over the top edge of the container.

87010271

Risk to any part of the body of being crushed and/or risk of impact if people stand within the hazardous area of the machine!

This risk may cause most serious injuries or even death.

- People are not allowed within the hazardous area of the machine as long as the diesel engine and the machine have not been secured against accidental rolling.
- Make sure that people leave the hazardous area of the machine as long as the diesel engine and the machine have not been secured against accidental rolling.

87010276

Risk to any part of the body of being drawn in or becoming entangled due to powered working tools!

This risk may cause most serious injuries or even death.

- Keep sufficient safe distance to powered working tools.
- Ensure that people keep sufficient safe distance to powered working tools.

87010279

Risk of cuts for fingers and hands due to work on sharp / sharp-edged working tools!

This risk may cause most serious injuries including loss of limbs.

Observe the information in the operating instructions before carrying out work on sharp working tools.

87010280

Risk to hands or arms of being drawn in or becoming entangled in moving power transmission parts!

This risk may cause most serious injuries including loss of limbs.

Never open or remove protective devices as long as the diesel engine is running.

87010281

Risk to fingers or hands of being crushed due to accessible movable machine parts!

This risk may cause most serious injuries including loss of limbs.

Never reach into the hazardous area as long as the diesel engine is running.

87010283

Risk due to substances or foreign objects blown away from or out of the machine to people standing within the hazardous area of the machine!

This risk may cause most serious injuries to any part of the body.

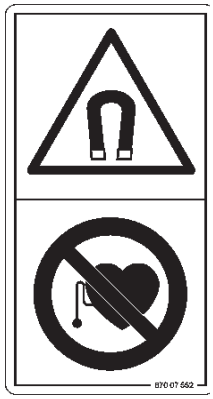
- Keep sufficient safe distance to the hazardous area of the machine.
- Make sure that people keep sufficient safe distance to the hazardous area of the machine as long as the diesel engine is running.

870 07 552

Risk for people with pacemakers and implanted defibrillators due to magnetic fields!

The magnetic fields of the powerful permanent magnets may interfere with the functioning of active electronic implants such as pacemakers and defibrillators and cause harm to the health or even death of their wearers.

- Keep sufficient distance to the magnets if you wear a pacemaker or implanted defibrillator.
- Warn people with a pacemaker or implanted defibrillator to stay away from the magnets.



87007554

Risk of electric shock when touching the machine if a preheating device is improperly connected to the power supply!

This risk may cause most serious injuries or even death.

Make sure that the protective conductor ("ground") is connected to a residual current circuit breaker (RCCB) with max. 30 mA through all used components such as extension cables, timers, sockets, fixed cables.

3.5.2 Instruction signs

An instruction sign consists of a pictograph:

(1) Pictograph including information about proper use of the machine.

The pictograph includes visual or descriptive information or information summarised in a table.

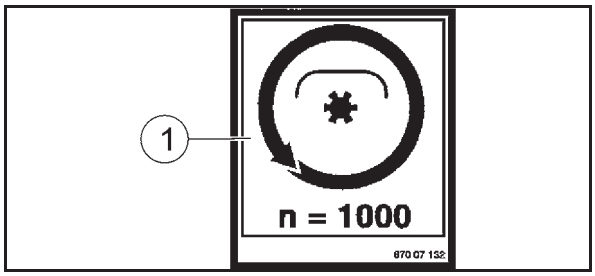
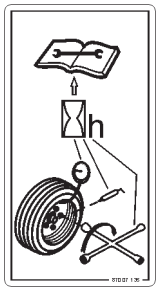
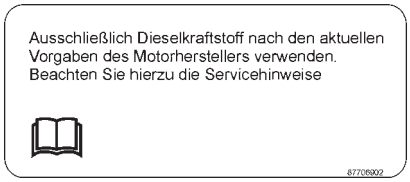


Fig. 10

Order number and explanation	Instruction signs
87007135 Observe the information for tyre maintenance included in the operating instructions.	
63280573 **Material damage to the electronic system due to early disconnection of battery main switch** Wait for approx. 2 minutes, until the control lamp is out, before disconnecting the battery main switch.	
87010288 This pictograph illustrates fixing points for lifting equipment (jack).	
877 06 091 The pictograph marks anchorage points for fixing slings for transport of the machine.	

87706902

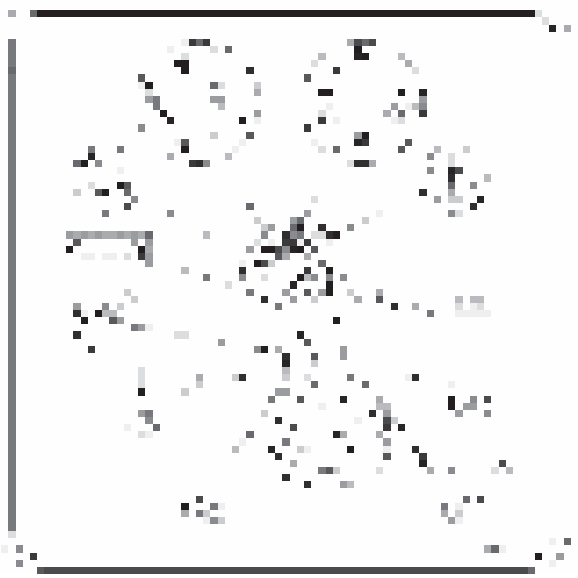
Use diesel fuel only in accordance with the current specifications of the engine manufacturer. Observe the service instructions.



63270583

Multi-function joystick

The assignment of the multi-function joystick keys and their functions are illustrated by symbols.



63280576

Display	Description	Operator's task
(1)	Exhaust filter cleaning in process	Ensure safe location for high exhaust temperatures
(2)	Exhaust filter in need of cleaning	AUTO or P 3 sec
(3)	Soot level moderately high	P 3 sec
(4)	Soot level extremely high	See authorised dealer
(5)	Automatic cleaning function disabled	If conditions are safe, enable automatic cleaning function AUTO

Please observe the information included in the operating instructions.

3.5.3 Placing of warning and instruction signs

The following figure illustrates the position of the warning and instruction signs on the machine.

Depending on the machine's equipment, more or less warning and instructions signs than shown here may be available.

3.5.3.1 Self-propelled fodder mixing wagon Verti-Mix SF

Fig. 11

3.5.3.2 Self-propelled fodder mixing wagon Verti-Mix Double SF

Fig. 12

Placing of warning signs at the discharge outlets

Side discharge

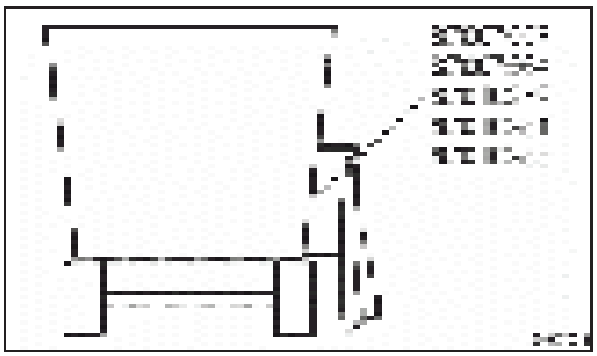


Fig. 13

Rear side discharge

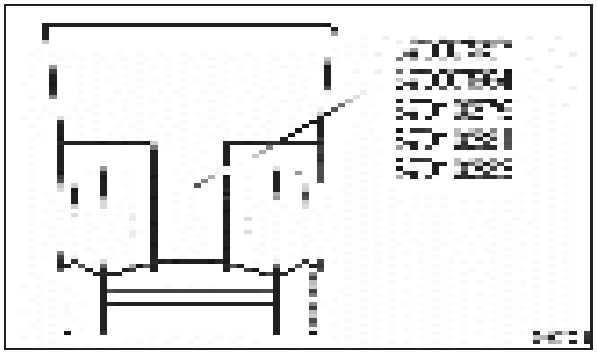


Fig. 14

Rear centre discharge

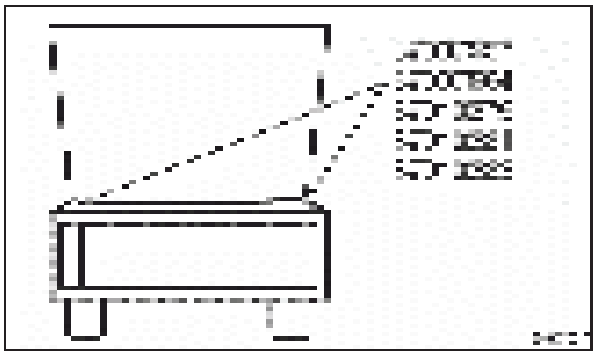


Fig. 15

Straw blower

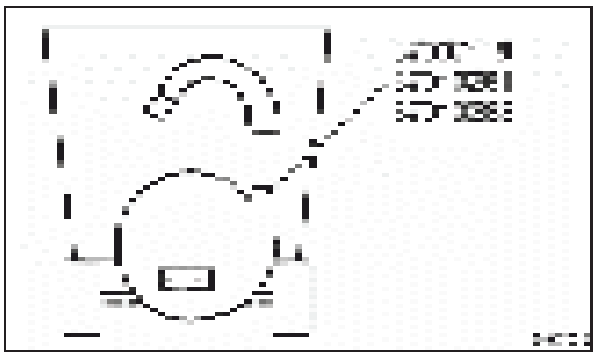


Fig. 16

Side discharge with side discharge conveyor

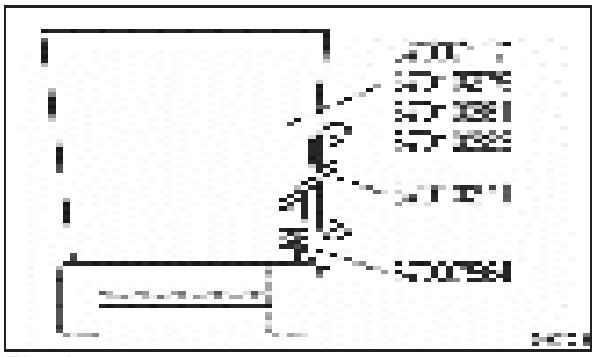


Fig. 17

Crossover conveyor with conveyor extension

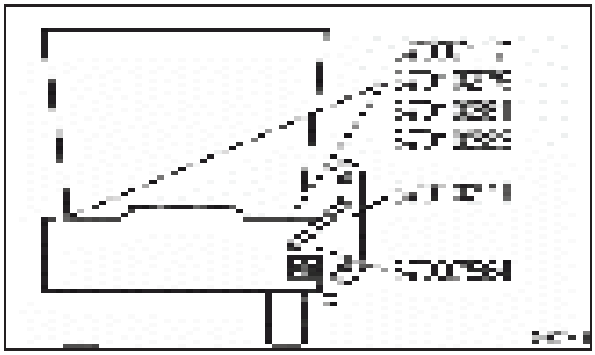


Fig. 18

Crossover conveyor

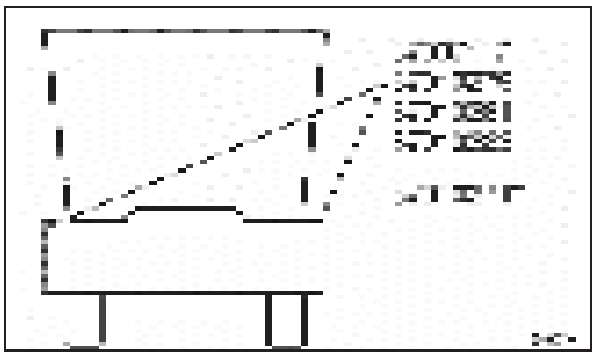


Fig. 19 * With movable crossover conveyor

Crossover conveyor with fast bedding roller

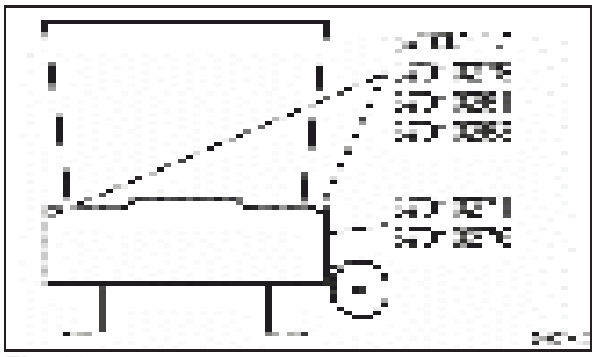


Fig. 20

3.6 Risks in case of non-observance of safety instructions and warning signs

Non-observance of the safety instructions and warning signs may:

- cause risk to people, environment and machine such as:
  - risk to people due to non-secured work areas,
  - failure of essential machine functions,
  - failure of specified methods for the use, service and maintenance of the machine,
  - risk to people due to mechanical and chemical effects,
  - threat to the environment due to leaking operating media.
- lead to invalidation of any claims for damages.

4 Loading of machine

Only the haulage contractor is authorised to carry out this work!

This work requires special know-how and/or specific technical equipment.

Otherwise, this work will impair your safety and the functional ability of the machine during and after its execution.

Lashing points on the machine for fixing lashing equipment are identified by the pictograph (Fig. 21).

Fig. 21

5 Design and function

Observe the information in the chapter "Basic safety instructions", page 31.

The following chapter provides information about the design of the machine, its function and the handling of the individual components.

Some of the machines are illustrated with optional extras. Optional extras are marked in these operating instructions and are available at extra cost.

5.1 Driver's cabin - Overview

This overview shall help to quickly acquaint yourself with the operating elements.

(1) Driver seat
(2) Steering column
(3) Steering wheel
(4) Control console with various toggle switches
(5) Multi-function joystick
(6) Manual throttle lever
(7) Terminal

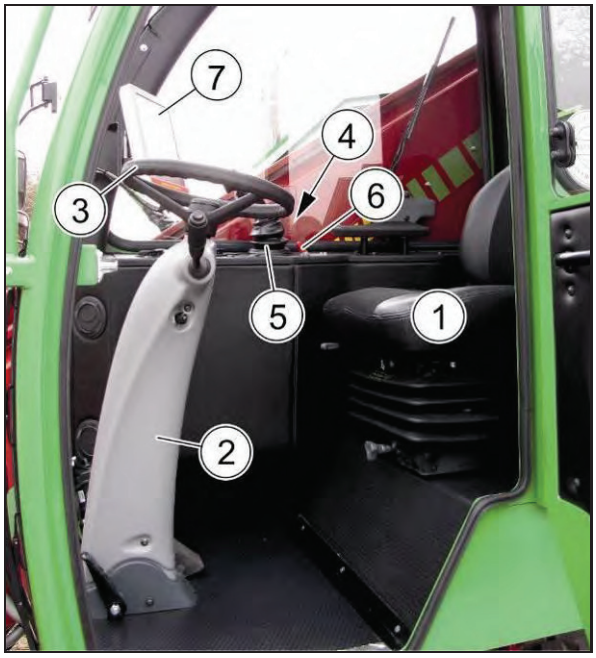


Fig. 22

(8) Locking mechanism for steering column

(9) Brake pedal

(10) Pedal

(11) Parking and driving light

(12) Reversing gear

(13) Ignition and starter switch

(14) Multi-function switch for indicator, dimmed and full headlights, headlight flasher, windscreen wiper / front screen washing water and horn

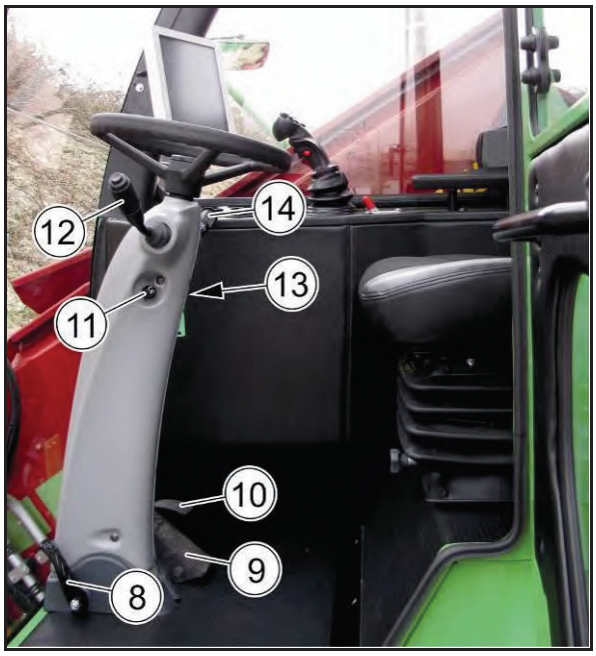


Fig. 23

5.2 Cabin door

5.2.1 Open cabin door

From outside:

1. Unlock the door lock (1) by means of the door key.
2. Push the door latch (2) in and open the door.

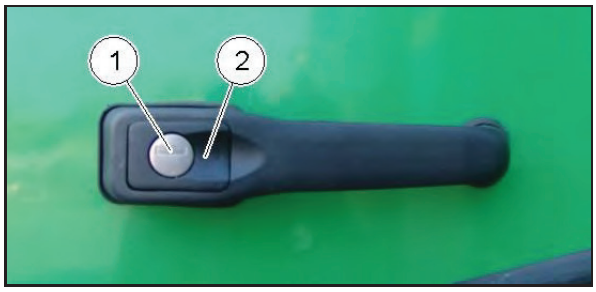


Fig. 24

From inside:

1. Push the door opening lever (1) down and open the door.

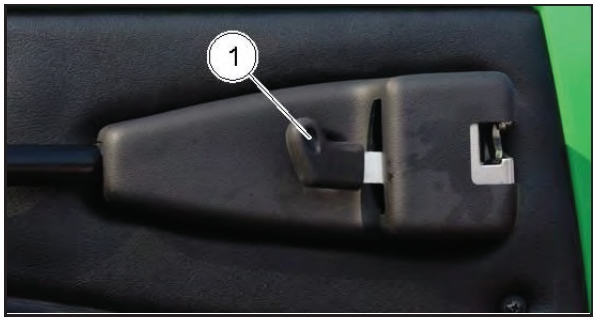


Fig. 25

5.2.2 Close cabin door

1. Close the cabin door up to the second notch.
2. Lock the cabin door if necessary.

5.2.3 Open door window

1. Turn the locking lever (2) and open the door window (1).
2. Swivel the door window until the open door window engages in the locking mechanism thus being secured against accidental slamming.

Fig. 26

5.2.4 Close door window

1. Close the cabin door up to the second notch.
2. Lock the cabin door if necessary.

5.2.5 Emergency exit

In case of emergency, all windows of the driver's cabin may be used as emergency exit and must be broken by means of the emergency hammer (1).

The emergency hammer is positioned on the left-hand side behind the driver seat.

Fig. 27

5.3 Driver seat

The machine is equipped with an air-cushioned driver seat.

The driver seat can be individually adapted to the physical characteristics of the driver. The following features are adjustable:

- the seat cushion via weight adjustment,
- the seat height via height adjustment,
- the horizontal cushioning (ON / OFF)
- the inclination of the back rest via back rest adjustment,
- the lumbar support.

- Proper adjustment of the driver seat is particularly important for:
  - easy and quick access to operating elements,
  - a relaxed and low-fatigue posture,
  - safe driving.
- Adapt the driver seat to your physical characteristics:
  - Do not adjust the seat cushion too soft, in order to avoid piercing of the seat in case of ground irregularities.
  - Adjust the height and the depth of the seat such that you can easily reach the pedals and floor them without physical effort.
  - Adjust the inclination of the back rest such that you reach the steering wheel with your arms slightly bent.
  - Adjust the lumbar support such that a hollow back or a humpback is avoided. The crucial point is that the back is in close contact with the back rest from the bottom to the shoulder blades.

DANGER

Risk of accident due to diverting attention!

Adjust the driver seat only when the machine is stationary, never during travel.

Adjust seat cushion:

1. Briefly push / pull lever (1):
   - Push = increase seat cushion.
   - Pull = reduce seat cushion.

Adjust height of seat:

1. Turn the handwheel (2).

→ The seat is lifted or lowered.

Adjust depth of seat:

1. Swivel the lever (3) outwards and move the seat forward or backwards.
2. Release the lever and move the seat on until the seat locking mechanism engages.

Adjust inclination of back rest:

1. Relieve the back rest and lift the lever (4).
2. Release the lever as soon as the inclination of the back rest has been properly adjusted.

Adjust lumbar support:

1. Relieve the back rest and turn the handwheel (5) to adjust the effect of the lumbar support.

Switch on / off horizontal cushioning:

1. Move the lever (6) up or down:
   - Lever up = switch horizontal cushioning on.
   - Lever down = switch horizontal cushioning off.

Fig. 28

5.4 Steering wheel

The position of the steering wheel is infinitely adjustable.

DANGER

Risk of accident due to diverting attention!

Adjust the position of the steering wheel only when the machine is stationary, never during travel.

CAUTION

Risk of impact or crushing and damage to the steering column adjustment due to the steering column rebounding unbraked!

Hold the steering wheel firmly with both hands, before unlocking the steering column adjustment by means of the pedal.

The steering column (1) is kept in vertical position by means of spring pressure.

1. Adjust the driver seat properly.
2. Take hold of the steering wheel (2) with both hands.
3. Floor the pedal (3) to unlock the steering column adjustment mechanism and keep the pedal pressed down.

→ The steering column is unlocked.

4. Set the steering wheel to the desired position.
5. Release the pedal when the steering wheel has reached the desired position.

→ The steering column is locked.

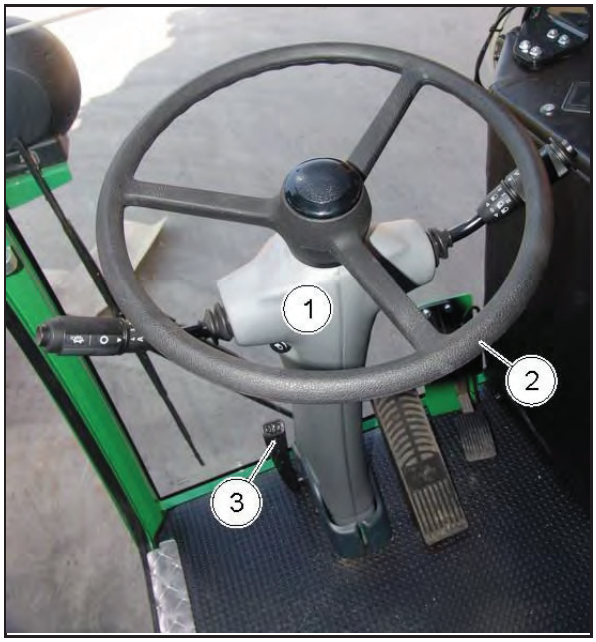


Fig. 29

5.5 Ignition starter switch

The ignition starter switch (1) has 4 positions.

0 = Diesel engine and electrical devices switched off. The ignition key can only be pulled out in position "0".

I = Electrical devices switched on. All warning and control lamps light up (lamp test). The terminal boots.

II = Diesel engine is ready to start, preheating

III = Start diesel engine.

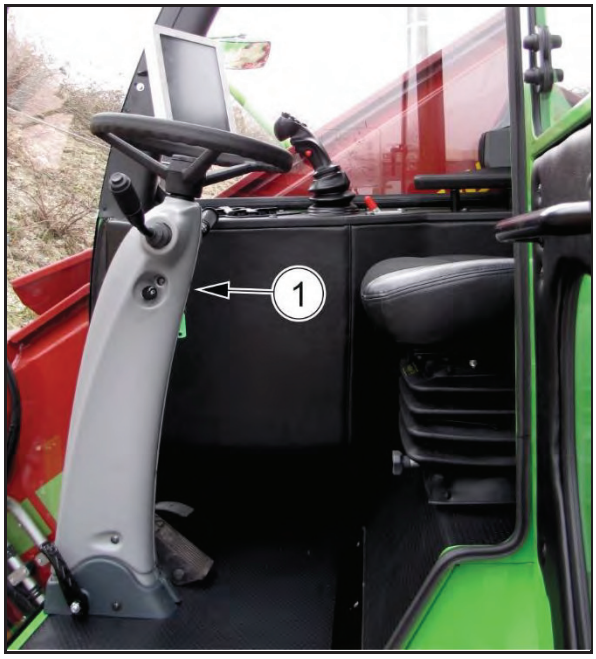


Fig. 30

5.6 Terminal

The MCD (Multi Colour Display) terminal is used for information reproduction and for operation. The MCD is operated by touching the display.

The terminal provides information about the operating states of the essential engine and machine functions, the operating states of the weighing device, the selected operating mode and the necessary service and maintenance work. Furthermore, a video system enables the display of different camera pictures on the terminal.

Always wait until the terminal has completely booted before starting the diesel engine!

Time after the ignition has been switched on: approximately 4 seconds; after a downtime of the machine of more than 24 hours approximately 1 minute.

If the terminal has only completely booted after the start of the diesel engine, it will display an error and the machine will not work.

Display splitting

(1) Display of camera pictures

(2) Display of weighing device information, e. g. total weight, list of saved recipes

(3) Entry of weighing device information, e. g. selection of recipe, reset total value, start charging mode, start discharging mode

(4) Display of warning and control messages, e.g. indicator on/off, full headlights on/off, operating mode, steering mode, parking brake on/off, fuel quantity, error conditions

(5) Display of machine information (display depends on current operating mode)

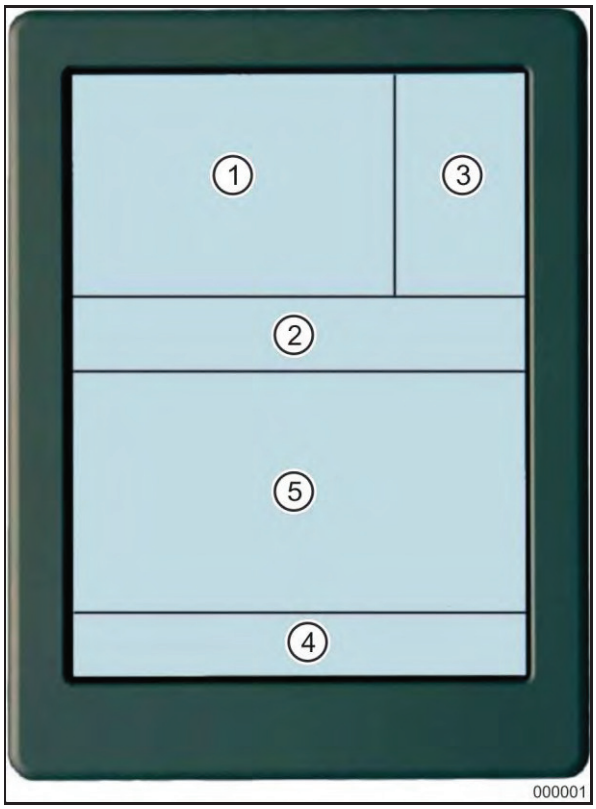


Fig. 31

Connections

The connections are located on the back of the terminal:

(6) Camera 1 (rear-view camera)

(7) Camera 2 (video surveillance camera in the mixing container)

(8) Camera 3 (optional extra)

(9) USB adapter

(10) Power supply

(11) Service (Ethernet interface)

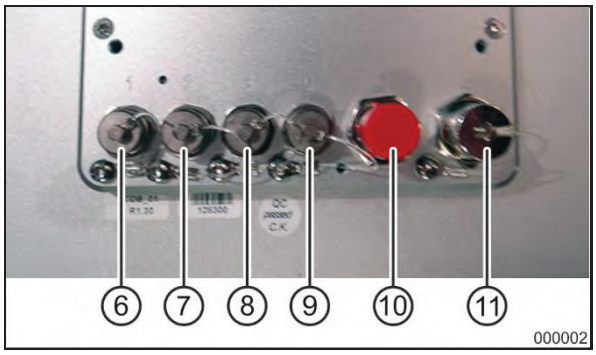


Fig. 32

5.7 Light and sight

5.7.1 Switch parking or driving light on and off

Switch parking light on

Turn the headlight switch (1) to position "I".

Switch driving light on

Turn the headlight switch (1) to position "II".

Switch lights off

Turn the headlight switch (1) to position "0".

Fig. 33

5.7.2 Warning lights

The warning lights serve to make other road users aware of your machine in case of danger.

If your machine breaks down:

1. Park your machine at a safe distance from the moving traffic.
2. Press the toggle switch to switch the warning lights on.

→ The control lamp flashes.

3. Switch the parking brake on.
4. Turn the diesel engine off.
5. Use the warning triangle to make other road users aware of your machine.
6. If you leave the machine:
   - 6.1 Pull the ignition key out.
   - 6.2 Lock the cabin door.

Fig. 34

5.7.3 Indicators, full headlights, headlight flasher, horn

Indicators, full headlights, headlight flasher and horn are actuated via the multi-function switch.

- The indicator system only works with the ignition switched on.
- Full headlights can only be switched on after the driving lights have been switched on.
- The headlight flasher lights up as long as you keep on pulling the lever – even if the driving lights have not been switched on.

The following functions can be selected via the multi-function switch:

Switch indicators on

Push the multi-function switch as far as it will go forward (A) to actuate the left-hand indicator, or backwards (B) to actuate the right-hand indicator.

→ With an indicator switched on, the control message "Indicator system" (Fig. 36) flashes.

In case of a defective light bulb of the indicator system, the flashing rhythm of the control message increases.

Switch full headlights on and off

1. Switch the driving light on. For details, please refer to the chapter "Switch lights on and off".
2. Push the multi-function switch down to switch on full headlights.

→ With full headlights switched on, the control message "Full headlights" (Fig. 37) lights up.

3. Pull the multi-function switch back to its initial position to switch the full headlights off again.

→ The control message "Full headlights" (Fig. 37) goes out.

Switch headlight flasher on

Pull the multi-function switch towards the steering wheel (C) to actuate the headlight flasher.

Sound the horn

Push the button of the multi-function switch (D) to sound the horn.

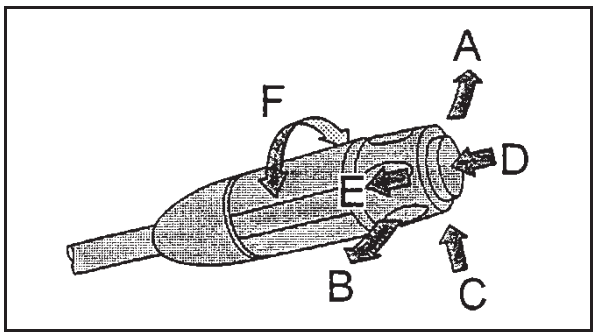


Fig. 35

Fig. 36

Fig. 37

5.7.4 Work lights

Never fit the machine with additional work lights without authorisation!

The manufacturer will not assume any liability or warranty for subsequent damage to the electrical system.

The number of work lights depends on the machine equipment. The standard version is fitted with three toggle switches. For the premium version, a fourth toggle switch is available as an optional extra.

The toggle switches have three positions each:

- Position "0" = Work lights OFF
- Position "I" = Work lights ON
- Position "II" = Additional work lights ON

The assignment of the toggle switches to the work lights can be seen from the table below.

Fig. 38

Switch work lights on

1. Turn the light switch (Fig. 39/1) to position "I" (parking light) or "II" (driving light).
2. Press the toggle switch (Fig. 38/1-4) for the respective work light to position "I" or "II" (ON)

Switch work lights off

1. Press the toggle switch (Fig. 38/1-4) for the respective work light (Fig. 38/1-4) to position "0" (OFF).
2. Turn the light switch (Fig. 39/1) to position "0" (OFF) if necessary.

Fig. 39

Position	Work light/Toggle switch			
	1	2	3	4
0	OFF	OFF	OFF	OFF
I	Cabin roof	Front discharge	Reversing lights	Periphery lighting, container
II	Cabin roof plus cabin bottom part	Front discharge plus rear discharge	Bottom reversing lights plus container interior	Periphery lighting, container plus front periphery lighting (cabin + mirror arm)

5.7.5 Interior light

The following positions can be selected by means of the rocker switch (1):

Switch interior light (2) on

Press the front of the rocker switch down to switch on continuous operation of the interior light.

Switch interior light (2) off

Press the rear of the rocker switch to switch the interior light permanently off.

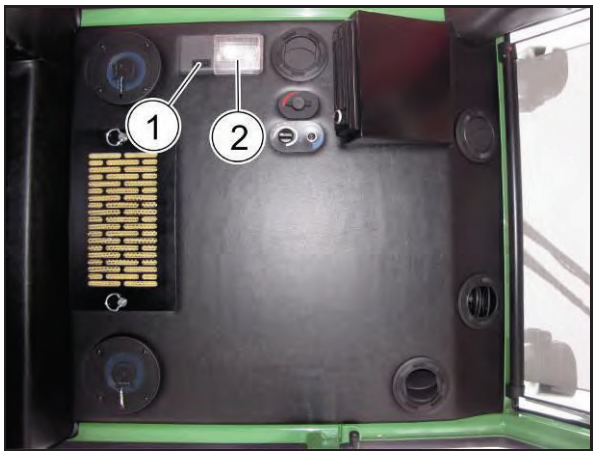


Fig. 40

5.7.6 Sun blind

Pull the sun blind (1) down from the cabin ceiling liner to adapt the sun blind position as required.

Roll up sun blind

Press the red adjusting knob (2).

Fig. 41

5.7.7 Windscreen wiper

Windscreen wipers are mounted at the front screen and the right-hand side window.

The windscreen wipers only work with the ignition switched on.

Windscreen wiper – Front screen

The windscreen wiper and the automatic wash / wipe mechanism of the front screen are actuated via the rotary switch of the multi-function switch.

The following positions can be selected via the multi-function switch (1):

Interval wiping

1. Turn the rotary switch forward in the direction of the arrow (F).

Slow wiping

1. Turn the rotary switch backwards in the direction of the arrow (F) up to the first notch to position "I".

Quick wiping

1. Turn the rotary switch backwards in the direction of the arrow (F) up to the second notch to position "II".

Automatic washing / wiping

1. Move and keep hold of the rotary switch in the direction of the arrow (E).

→ The windscreen washer starts immediately whereas the windscreen wipers start wiping shortly afterwards.

2. Release the rotary switch.

→ The wipers continue for approx. 5 seconds.

Switch windscreen wiper off

1. Turn the rotary switch in the required direction of the arrow (F) to its initial position (0).

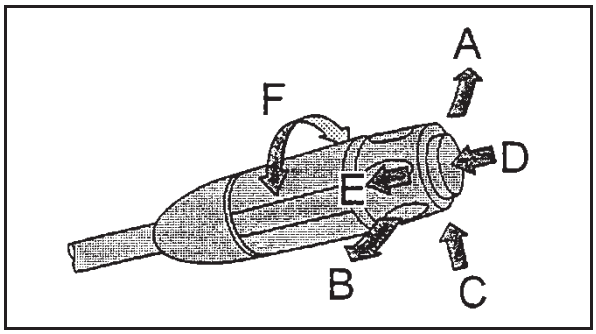


Fig. 42

Windscreen wiper – Side window

Switch windscreen wiper on

1. Press the toggle switch to position "I".

→ The windscreen wiper is switched on.

Switch windscreen wiper off

1. Press the toggle switch to position "0".

→ The windscreen wiper is switched off.

Switch windscreen washer on

1. Press and keep hold of the toggle switch in position "II".

→ The windscreen washer works as long as the toggle switch is being pressed down.

Fig. 43

5.7.8 Mirrors

On its left- and right-hand side, the machine is equipped with two large-scale, constantly heated outside mirrors. In addition, a close-proximity mirror and a wide-angle mirror are mounted on the right-hand side of the machine.

Adjust mirrors

1. Manually adjust the left-hand outside mirror such that you have a clear and complete view of the hazardous area at the rear and to the left of the machine.
2. Adjust the right-hand outside mirror manually or via the toggle switch such that you have a clear and complete view of the hazardous area at the rear and to the right of the machine.
3. Adjust the close-proximity mirror manually or via the toggle switch such that you have a clear view of the bottom area beside the right-hand front wheel.
4. Adjust the wide-angle mirror manually or via the toggle switch such that you have a clear and complete view of the hazardous area at the rear and to the right of the machine.

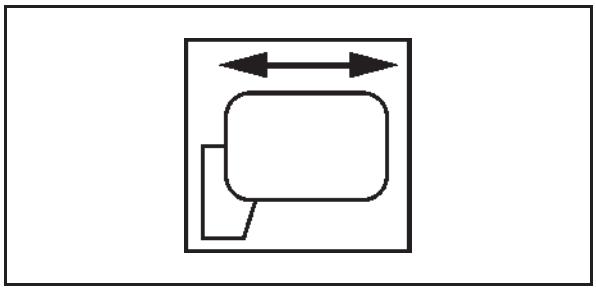


Fig. 44

5.7.9 Video surveillance of mixing container / reverse travel

The video surveillance of the mixing container / of reverse travel serves:

- to monitor the mixing process in the mixing container,
- to have a clear view of the hazardous area behind the machine during reverse travel.

  If you change from "Forward" to "Backward" direction of motion, the video surveillance display automatically shows the rear-view camera picture.

(1) Video surveillance camera in the mixing container

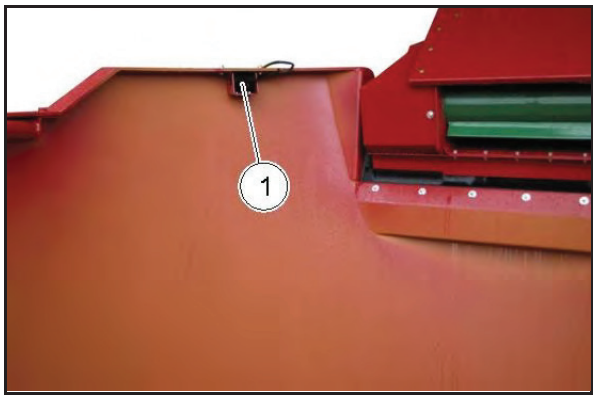


Fig. 45

(2) Rear-view camera

Fig. 46

5.8 Heating, ventilation, air-conditioning system

Heating:

- The heating performance depends on the coolant temperature. Maximum heating power and quick defrosting of the windows can only be achieved after the diesel engine has reached its operating temperature.

Air-conditioning system (optional extra):

- The air-conditioning system not only reduces the temperature, but also the humidity of the air in the cabin compartment, thus preventing the window panes from steaming up.
- The air-conditioning system works most efficiently with the door window closed. If, however, the cabin compartment has heated up, shortly opening the door window may accelerate the cooling-down process.
- Do not smoke while the air-conditioning system is running! The smoke will deposit on the evaporator and permanently cause unpleasant odours.

Ventilate cabin compartment

Fresh outdoor air flows into the cabin compartment through the open ventilation nozzles (2) in the cabin ceiling (Fig. 47) and in the footwell (Fig. 48).

Air circulates via the filter (1) in the cabin ceiling.

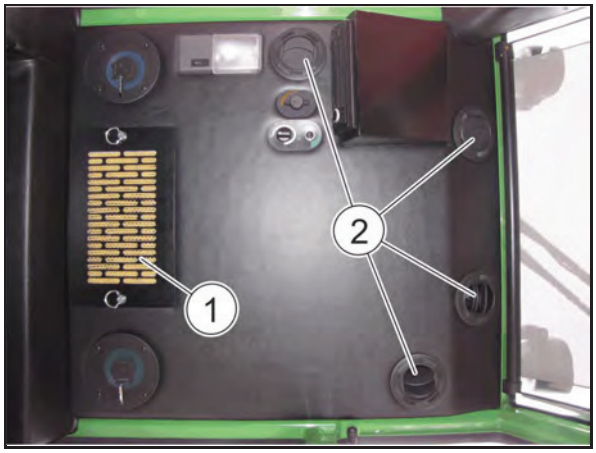


Fig. 47

Fig. 48

Heat cabin compartment

1. Turn the thermostat (3) anti-clockwise to set the desired temperature.

   For maximum heating performance, turn the thermostat anti-clockwise as far as it will go.

2. Turn the fan regulator (2) to the desired position.

   The fan is infinitely variable.

3. Open the slots of the ventilation nozzles.
4. Direct the air flow into the desired direction via the ventilation nozzles.

Fig. 49

Cool cabin compartment

1. Turn the thermostat (1) clockwise to set the desired temperature.

   For maximum cooling performance, turn the thermostat clockwise as far as it will go.

2. Turn the fan regulator (2) to the desired position.

   The fan is infinitely variable.

3. Open the slots of the ventilation nozzles.
4. Direct the air flow into the desired direction via the ventilation nozzles.

5.9 Cutter arm

The cutter arm (1) consists of the pick-up milling cutter (2) with the swivelling protective device (3), the elevator conveyor (4) with the elevator end (5) and the transport support (6) and Fig. 51).

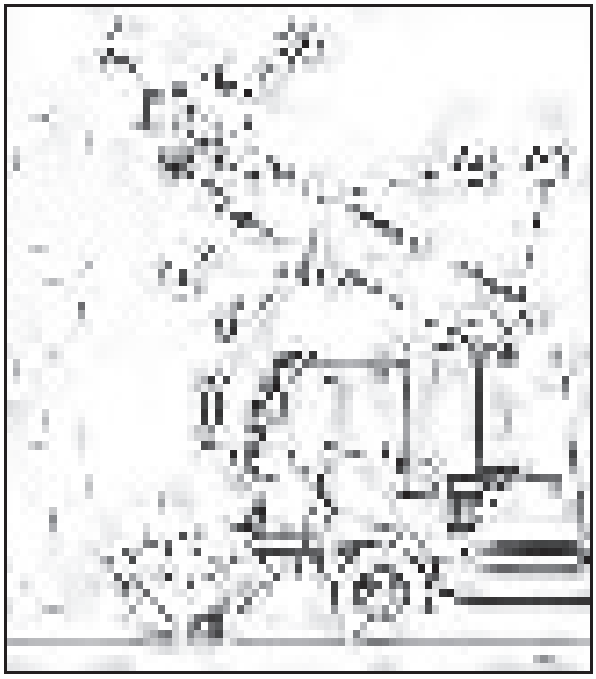


Fig. 50

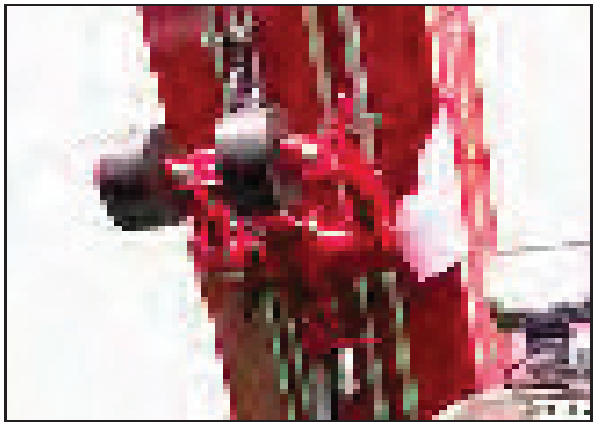


Fig. 51

5.10 Hydraulic system of machine

The hydraulic system consists of closed and open hydraulic units comprising a total of 6 hydraulic oil circuits:

- Closed hydraulic systems:
  - Traction drive
  - Milling cutter drive
  - Mixing drive
- Open hydraulic systems:
  - Steering
  - Brake
  - Operating hydraulics - Load-Sensing (LS)

The hydraulic pumps and control valves are fitted on the right-hand front of the machine.

5.10.1 Hydraulic pumps

(1) Pump power divider gearbox
(2) Axial piston pump "Traction drive"
(3) Axial piston pump "Milling"
(4) Axial piston pump "LS operating hydraulics"
(5) Axial piston pump "Mixing"
(6) Oil feed pump

Fig. 52

(7) Gear pump for hydraulic steering

(8) Gear pump for hydraulic brake

Fig. 53

5.10.2 Hydraulic oil tank

The hydraulic oil tank (1) is fitted on the left-hand side of the machine beside the ladder.

(1) Hydraulic oil tank (filling capacity 370 litres)

(2) Level indicator

(3) Oil drain valve

Fig. 54

(1) Filler neck for hydraulic tank with vent screw.

(2) Level switch monitoring the hydraulic oil level in the hydraulic oil tank. If the level falls below its minimum, the warning signal "Hydraulic oil level too low" appears in the display. If the level falls below its minimum, the level switch will set all hydraulic functions to zero and the diesel engine to idle position.

(3) Return-flow filter

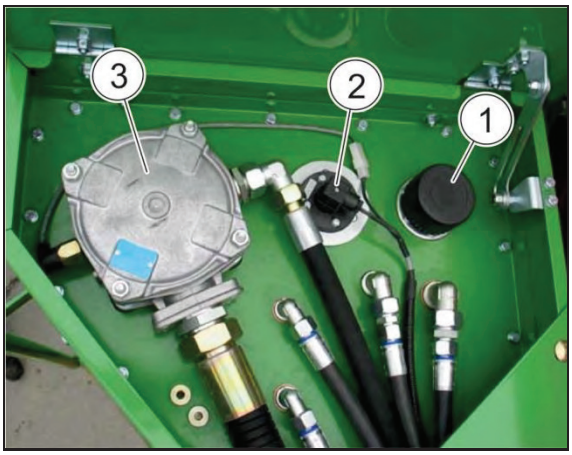


Fig. 55

(1) Oil feed filter

Fig. 56

5.10.3 Suction lines of hydraulic pumps

The suction lines of the hydraulic pumps are mounted on the rear side of the hydraulic oil tank.

(1) Axial piston pump "LS operating hydraulics"

(2) Feed pump "Travel", "Work“, "Mill" and "Mix"

(3) Gear pump for hydraulic steering

(4) Gear pumps for hydraulic brake

Fig. 57

5.10.4 Electro-hydraulic control block - Operating hydraulics

(1) Control valve for protective device of pick-up milling cutter

(2) Control valve for cutter arm

(3) Control valve for crossover conveyor

(4) Control valve for elevator conveyor

(5) Entry plate with pressure limiting valve (225 bar)

The pressure of the operating hydraulics is limited by means of the LS pump with 185 bar

(6) Control valve for options

(7) Control valve for dosage gate

Fig. 58

5.10.5 Emergency manual operation in case of failure of electrical system

In case of failure of the electrical system, the solenoids for switching the control valves can be actuated directly at the electro-hydraulic control block via the emergency manual operation function.

Use a blunt object (1) (Ø ≤ 3 mm) to push in the armature of the solenoid at the respective control valve to actuate the required hydraulic function.

Never use a sharp-edged object to actuate the proportional solenoids (2).

A sharp-edged object may damage the borehole in the proportional solenoids. A damaged borehole may cause leakages of the proportional solenoids.

Fig. 59

5.11 Operating modes

The 3 possible operating modes "Charging", "Discharging" and "Transport" are selected via the release switch "Charging" and the position of the manual throttle lever.

After selection of the required operating mode, the machine functions not needed are locked, thus avoiding operating errors.

5.11.1 "Transport" mode

- For carrying out transport journeys, select the operating mode "Transport".
- "Transport" mode is enabled after the release switch "Charging" has been turned off and the manual throttle lever has been moved to its idle position.
- Depending on its equipment, the machine can be moved via the pedal at a travelling speed between 0 and 25 km/h or 0 and 40 km/h in a fuel-saving way in "Transport" mode.

  The maximum travelling speed depends on the required machine power during the respective transport journey.
- With the "Four-wheel steering" function (optional extra) switched on, the maximum travelling speed is automatically limited to 18 km/h.

1. Switch the release button "Charging" off.
2. Set the manual throttle lever (1) to idle position.

→ The terminal displays the set engine speed.

→ The terminal displays the basic configuration of the "Transport“ mode with the "Rabbit“ symbol  .

The machine can be moved at a travelling speed between 0 and 25 km/h or 0 and 40 km/h.

Fig. 60

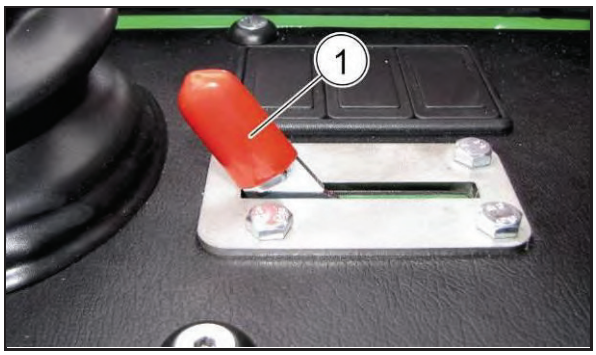


Fig. 61

5.11.2 "Charging" mode

- For charging the machine, select the operating mode "Charging".
- "Charging" mode is activated after the release switch "Charging" has been turned on and the manual throttle lever has been moved from its idle position.
- In "Charging" mode, the machine can be moved at maximum diesel engine speed (1900 min^{-1}) via the pedal at a travelling speed between 0 and 7 km/h.
- The required engine speed depends on the required machine power during charging.

1. Turn the release switch "Charging" on.
2. Set a diesel engine speed of 900 -1900 min^{-1} via the manual throttle lever (1).

→ The terminal displays the set engine speed.

→ The terminal displays the basic configuration of the "Charging" mode with the "Snail" symbol  .

The machine can be moved at a travelling speed between 0 and 7 km/h.

Fig. 62

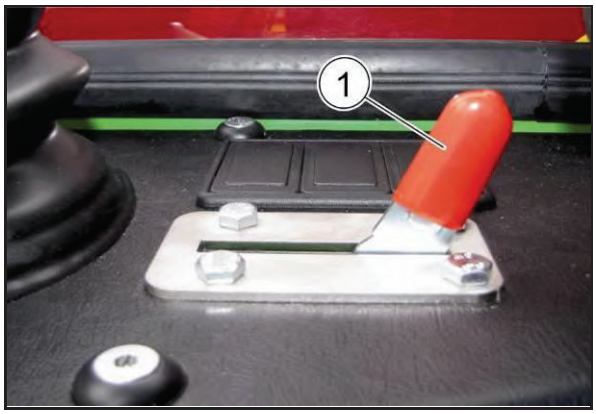


Fig. 63

5.11.3 "Discharging" mode“

- For fodder discharge select the operating mode "Discharging".
- "Discharging" mode is activated after the release switch "Charging" has been turned off and the manual throttle lever has been moved from its idle position.
- Depending on the set diesel engine speed (900 – 1900 min^{-1}), the machine can be moved at a travelling speed between 0 and 15 km/h via the pedal in "Discharging" mode.
- The required engine speed depends on the required machine power during discharging.

1. Switch the release button "Charging" off.
2. Set a diesel engine speed of 900 -1900 min^{-1} via the manual throttle lever (1).

→ The terminal displays the set engine speed.

→ The terminal displays the basic configuration of the "Discharging" mode with the "Tortoise" symbol  .

The machine can be moved at a travelling speed between 0 and 15 km/h.

Fig. 64

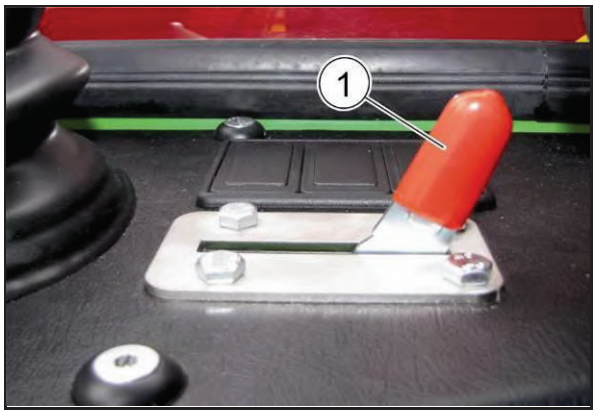


Fig. 65

5.12 Mixing container

5.12.1 Mixing auger(s)

In the mixing container, the cutting knives (1) of the mixing auger(s) (2) chop and mix the fodder components filled in. The number of cutting knives mounted on a mixing auger depends on the diameter and the height of the mixing auger.

Additional scrapers (5) mounted opposite the front auger end of the respective mixing augers ensure a uniform discharge of the mixed fodder components.

The cutting knives (1) may be screwed onto the mixing auger in a retracted position (3) (standard) and in an extended position (4). Adjustment of the cutting knives permits to individually adapt the mixing system to the operating conditions and the structure of the fodder components to be mixed. Observe the information in the chapter "**Fehler! erweisquelle konnte nicht gefunden werden.**", page 82

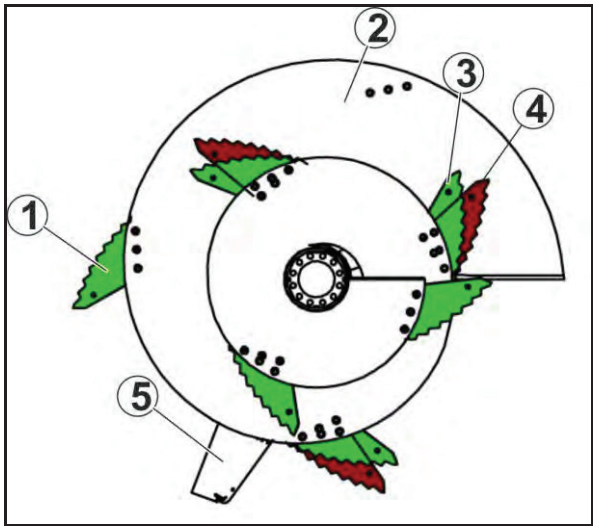


Fig. 66

Cutting knives retracted (out) (factory setting):

- Less driving power required.
- Better undoing of bales.

Cutting knives extended:

- Requires a higher driving power.
- Supports the emptying of the mixing container in case of highly-structured mixtures.
- An extended upper cutting knife can better pick up bale components and re-include them in the intensive mixing process.

5.12.2 Overflow ring

Optional extra

The overflow ring (1) prevents the fodder from being thrown over the container edge during mixing.

The overflow ring is screwed to the top edge of the container (2) and available in two designs:

Depending on the machine's equipment, it is fitted with:

- an elevated overflow ring (Fig. 67), screwed on the top edge of the container,

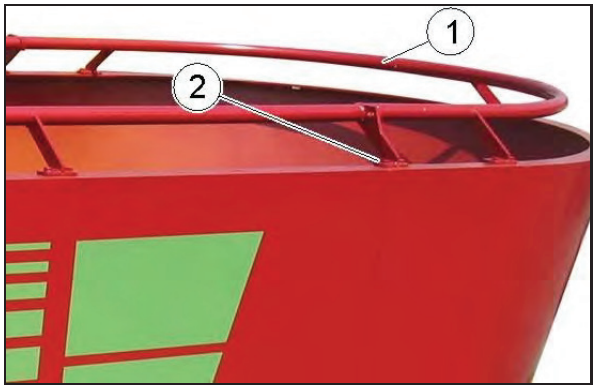


Fig. 67

- an inner overflow ring (Fig. 68) for low overhead clearances, screwed below the top edge of the container.

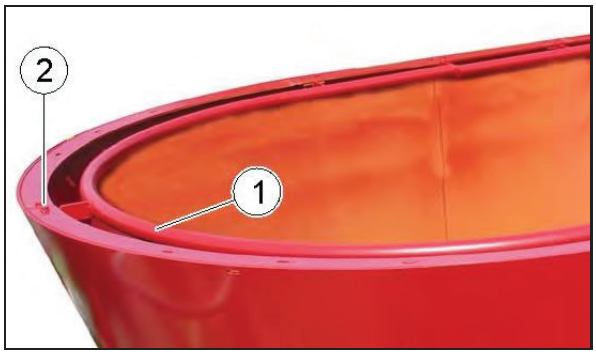


Fig. 68

5.12.3 Counter-cutters

The use of the counter-cutters (1) allows finer chopping and faster mixing of highly-structured fodder components.

The counter-cutters:

- are e.g. used for chopping and mixing round or cuboid bales,
- can be extended into the mixing container by placing the bolt (2) in 4 possible positions.
- are, as a standard feature, manually extended into the mixing container or retracted.

Fig. 69

Optional extra:

The counter-cutters (1) may be equipped with a hydraulic cylinder (2).

The hydraulic cylinders:

- permit the remotely controlled extension and retraction of the counter-cutters,
- let the counter-cutters extend into the mixing container by placing the bolt (3) in 4 possible positions,
- are actuated from the driver's cabin via the multi-function joystick or the assignable terminal keys.

Fig. 70

5.12.4 Feed funnel for mineral feed

Optional extra

1. At the container

Pourable mineral feed or other pourable fodder additives can easily be filled into the mixing container from the ground through the feed funnel mounted at the container (Fig. 71).

Fig. 71

On the cutter arm

Pourable mineral feed or other pourable fodder additives can easily be filled into the mixing container from the ground through the feeding flap mounted at the conveyor duct (Fig. 72). Fig. 72 shows the open feeding flap. For details, please refer to page 192.

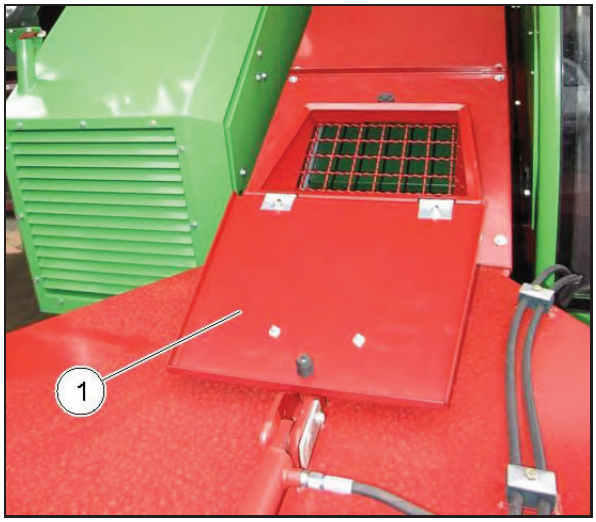


Fig. 72

Hydraulic feed hopper

Pourable mineral feed or other pourable fodder additives can easily be filled into the mixing container from the ground through the feed hopper mounted at the container (Fig. 72).
Fig. 72 shows the open feed hopper (2) with cover (1) and switch (3) to operate the dosing auger. For details, please refer to page 192.

Fig. 73

5.12.5 Magnetic system

Optional extra

The magnetic system consists of two powerful magnetic blocks (1) at each mixing auger.

The permanent magnets keep the fodder mixture free from pointed and sharp-edged foreign objects. Iron particles (nails, loose wire fragments etc.) stick to the magnets and can be removed later.

Fig. 74

5.13 Discharge options

5.13.1 Front crossover conveyor

The front crossover conveyor:

- is powered by a hydraulic motor. The conveyor speed has 10 setting levels in the standard version.
- can be powered in two driving directions. Depending on the driving direction, the fodder is discharged on the right-hand or left-hand side of the fodder mixing wagon.

The driving mechanism is switched on and off and switched over from one driving direction to the other via remote control from the driver's cabin. Fig. 75 shows a front crossover conveyor moved out with displacement.

Fig. 75

5.13.2 Rear crossover conveyor

The rear crossover conveyor:

- is powered by a hydraulic motor. The conveyor speed has 10 setting levels in the standard version.
- can be powered in two driving directions. Depending on the driving direction, the fodder is discharged on the right-hand or left-hand side of the fodder mixing wagon.

The driving mechanism is switched and and off and switched over from one driving direction to the other via remote control from the driver's cabin.

Fig. 76

5.13.3 Front / Rear crossover conveyor with displacement

Optional extra

The crossover conveyor displacement serves to displace the crossover conveyor by 415 mm (by 350 mm in case of crossover conveyor 2100 mm) to the right or left via remote control from the driver's cabin. This allows lateral fodder discharge at a great distance beside the machine.

Fig. 77

The crossover conveyor is in transport position only when the error message "Crossover conveyor central position" is no longer displayed at the terminal.

If an error occurs, it can be displayed in detail when pressing the "Warning message" key in the "Date and time" box.

Fig. 78

5.13.4 Discharge at the rear centre with protective device

Optional extra

The mixed fodder components are transported from the mixing container to the centre of the feeding table via the rear centre discharge device (Fig. 79).

Fig. 79

5.13.5 Fast bedding roller

Optional extra

Mix the bedding substrates such as straw, peat, sawdust, horse manure and lime in the mixing container to obtain a homogeneous mixture.

Make sure that the mixture possesses sufficient density. Add some water if necessary. If the density is too low, the spreading range will be considerably reduced.

For chopping the straw, extend the counter-cutters a little further into the mixing container if necessary.

When spreading, keep to the following order:

1. Switch crossover conveyor on.
2. Switch fast bedding roller on.
3. Open discharge door.

Adjust

- the spreading range by means of the speed of the fast bedding roller,
- the spreading quantity by means of the opening width of the discharge door.

Swivel the fast bedding roller completely to its transport position before transport journeys!

WARNING

Risk of injury due to crushing and impact when swivelling the fast bedding roller!

Keep people and animals away from the extending and retracting fast bedding roller.

WARNING

Risk of becoming entangled, being drawn in and wound up due to the rotating fast bedding roller!

Keep people and animals away from the rotating fast bedding roller.

WARNING

Risk of injury due to material being slung out!

Keep people and animals away from a wide area around the rotating fast bedding roller.

Keep the bedding material free from foreign objects, e.g. stones.

Fast bedding roller retracted to transport position

Fig. 80

Fast bedding roller extended to working position

Fig. 81

5.13.6 Straw blower

Optional extra

For chopping the straw, extend the counter-cutters a little further into the mixing container if necessary.

When spreading, keep to the following order:

1. Switch the straw blower on.
2. Open the discharge door (completely for dry straw)

Adjust the spreading range by lifting and lowering the ejection hood: The higher the ejection hood position, the further the straw is discharged.

Avoid blockage or clogging of straw blower:

- Discharge as dry straw as possible.
- Open the discharge door less, the damper the straw.
- Regularly remove foreign objects and water build-ups through the cleaning aperture.

WARNING

Risk of injury due to material being slung out!

Keep people and animals away from a wide area around the running straw blower.

Keep the straw free from foreign objects, e.g. stones.

Straw blower

(1) Blower casing

(2) Cleaning aperture with guard

(3) Blow-out pipe

(4) Ejection hood

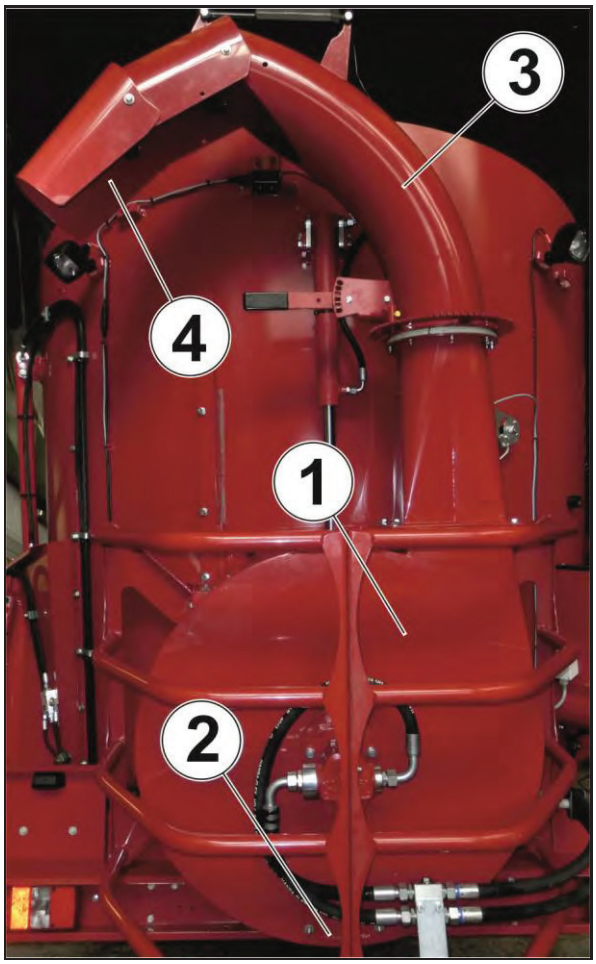


Fig. 82

5.14 Radio remote control

Optional extra

The data and information in the included sub-supplier documentation shall prevail!

The values of the added ingredients can be read from the radio remote control display even outside the cabin.

Angle the radio remote control before its removal and insertion into the holder, in order to prevent the contacts from being damaged.

Remove radio remote control

1. Bend the bottom end of the radio remote control (1) in direction "B".
2. Now move the radio remote control up.

→ The radio remote control is now detached from the holder.

Fix radio remote control

1. Bend the bottom end of the radio remote control (1) in direction "B".
2. Now move the radio remote control down into the guide rail of the holder.
3. The radio remote control can be bent in direction "A" as soon as it has engaged.

→ The radio remote control has been fixed.

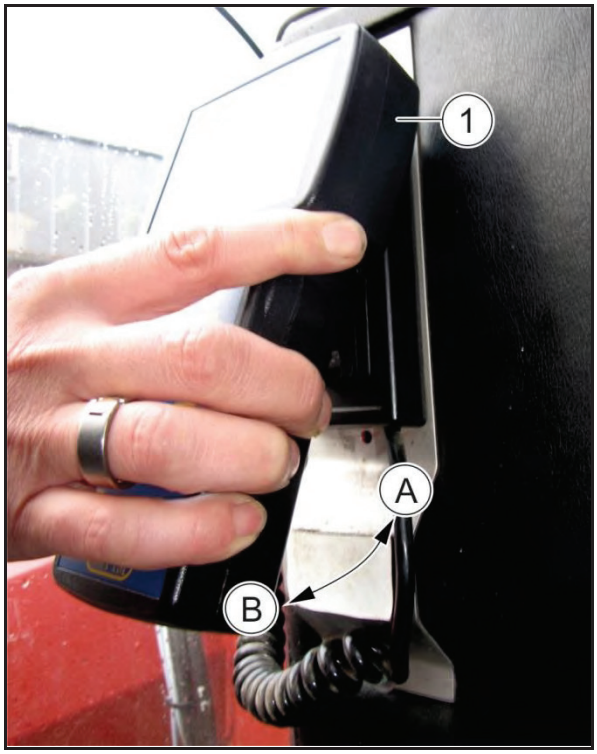


Fig. 83

5.15 Preheating devices

Optional extra

DANGER

Danger to life due to electric shock when touching the machine if a preheating device is improperly connected to the power supply!

Make sure that the protective conductor ("ground") is connected to a residual current circuit breaker (RCCB) with max. 30 mA through all used components such as extension cables, timers, sockets, fixed cables.

DANGER

Risk of explosion due to overheating of fuel when preheating the fuel!

Always adapt the preheating time to the fuel level: The lower the level, the shorter the preheating time.

Avoid damage to the machine and electrical equipment:

- Exclusively use the included connecting cable to connect the preheating devices to the power supply (230 V A.C.)!
- Completely unwind the extension cables from the cable reel to avoid overheating and scorching!
- Do not use multiple socket power strips to connect several preheating devices!
- Make sure to adapt cable cross sections, timers, sockets, power backups etc. to the connected output (see table)!
- Limit the preheating time such that overheating of the warmed-up operating media and damage to the preheating devices are excluded!
- Have malfunctions on the preheating devices eliminated by qualified staff only!

Always adapt the preheating time to the ambient temperatures! Usually it is enough to start preheating shortly before work begins.

Observe the fact that the temperature is measured near the heating element during preheating of hydraulic oil and fuel. The preheating device may therefore switch off before the entire tank contents have been warmed up or before the preset time has been reached when using a timer.

Preheating devices		Output	Input current	Mains voltage
	Diesel engine preheating	1000 W	4.5 A	230 V A.C.
	Hydraulic oil preheating	2000 W	9.0 A	230 V A.C.
	Fuel preheating	2200 W	10.0 A	230 V A.C.

The connections for the preheating devices are located in the entry area at the front left beneath the driver's cabin.

Connection of a preheating device to the machine.

(1) Protective conductor

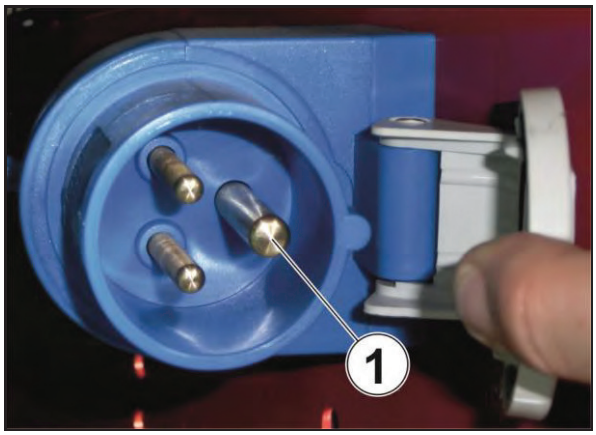


Fig. 84

Coupling of included connecting cable

(1) Protective conductor

Fig. 85

Plug of included connecting cable

(1) Protective conductor

Fig. 86

6 Operation

6.1 Terminal

The MCD (Multi Colour Display) terminal is used for information reproduction and for operation. The MCD is operated by touching the display.

The terminal provides information about the operating states of the essential engine and machine functions, the operating states of the weighing device, the selected operating mode and the necessary service and maintenance work. Furthermore, a video system enables the display of different camera pictures on the terminal.

Always wait until the terminal has completely booted before starting the diesel engine!

Time after the ignition has been switched on: approximately 4 seconds; after a downtime of the machine of more than 24 hours approximately 1 minute.

If the terminal has only completely booted after the start of the diesel engine, it will display an error and the machine will not work.

Display splitting

(1) Display of camera pictures

(2) Display of weighing device information, e. g. total weight, list of saved recipes

(3) Entry of weighing device information, e. g. selection of recipe, reset total value, start charging mode, start discharging mode

(4) Display of warning and control messages, e.g. indicator on/off, full headlights on/off, operating mode, steering mode, parking brake on/off, fuel quantity, error conditions

(5) Display of machine information (display depends on current operating mode)

Fig. 87

Connections

The connections are located on the back of the terminal:

(6) Camera 1 (rear-view camera)

(7) Camera 2 (video surveillance camera in the mixing container)

(8) Camera 3 (optional extra)

(9) USB adapter

(10) Power supply

(11) Service (Ethernet interface)

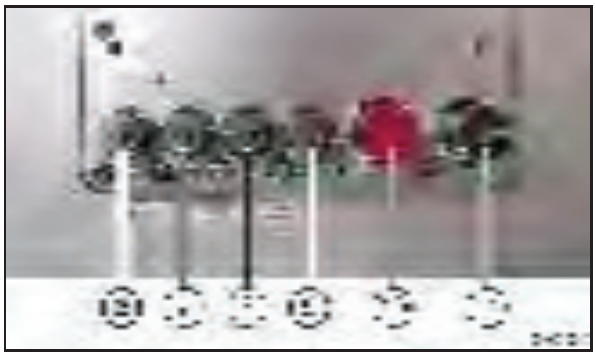


Fig. 88

6.2 Terminal – Displays

6.2.1 Basic configuration

Depending on the selected operating mode, the basic configuration "Transport", "Charging" or "Discharging" appears after the ignition has been turned on.

6.2.1.1 Basic configuration – "Transport" mode

(1) Camera picture

(2) Charging mode

(3) Discharging mode

(4) Tare weight

(5) Reset total value

(6) No function

(7) No function

(8) Display, weighed value 1 (total weight only when editing a recipe)

(9) Display, weighed value 2 (total weight or part weight when editing a recipe) (component or group))

(10) Display of machine speed

(11) Display of mixing auger speed

(12) Display of fuel quantity

(13) Display of diesel engine speed

(14) Display of machine and diesel engine speed

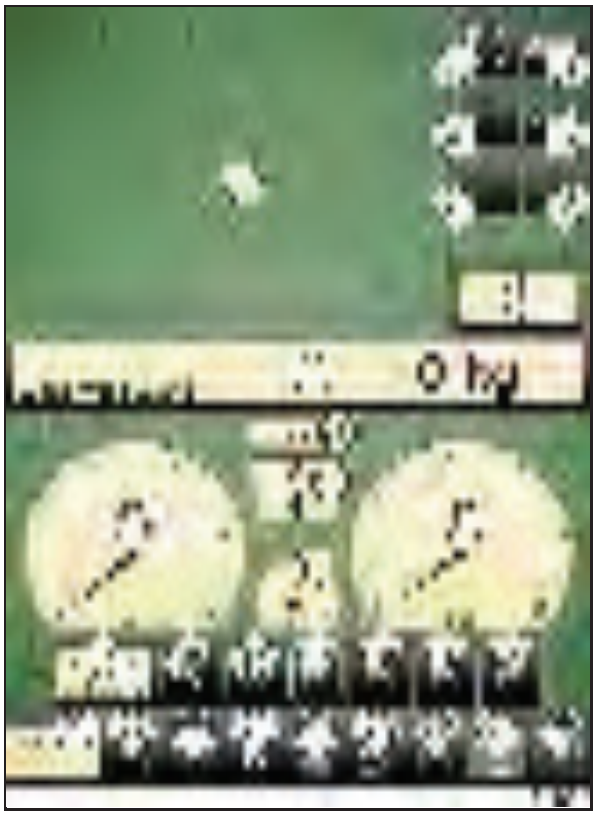


Fig. 89

(15) Display of assignment of the blue key of the multi-function joystick in the current operating mode

(16) Display of assignment of the green key of the multi-function joystick in the current operating mode

(17) Display of assignment of the yellow key of the multi-function joystick in the current operating mode

(18) Display of assignment and operation of display key 1 in the current operating mode

(19) Display of assignment and operation of display key 2 in the current operating mode

(20) Display of assignment and operation of display key 3 in the current operating mode

(21) Display of time and date

(22) Display of indicator system

(23) Display of full headlights and switchover between day and night-time lighting (dimmable background lighting is sensor-controlled)

(24) Display of direction of motion

(25) Display of steering mode

(26) Display of operating mode

(27) Display of parking brake

(28) Display of fuel quantity and call-up of level indicator

(29) Call up "Parameter / Diagnosis / Weighing device" menu

(30) Display of service hours

6.2.1.2 Basic configuration - "Charging" mode

(1) Camera picture

(2) Charging mode

(3) Discharging mode

(4) Tare weight

(5) Reset total value

(6) No function

(7) No function

(8) Display, weighed value 1 (total weight only when editing a recipe)

(9) Display, weighed value 2 (total weight or part weight when editing a recipe) (component or group))

(10) Display of pick-up milling cutter capacity and direction of milling

(11) Display of elevator conveyor driving direction

(12) Display of mixing auger speed

(13) Display of machine and diesel engine speed

(14) Display of assignment of the blue key of the multi-function joystick in the current operating mode

(15) Display of assignment of the green key of the multi-function joystick in the current operating mode

(16) Display of assignment of the yellow key of the multi-function joystick in the current operating mode

(17) Display of assignment and operation of display key 1 in the current operating mode

(18) Display of assignment and operation of display key 2 in the current operating mode

(19) Display of assignment and operation of display key 3 in the current operating mode

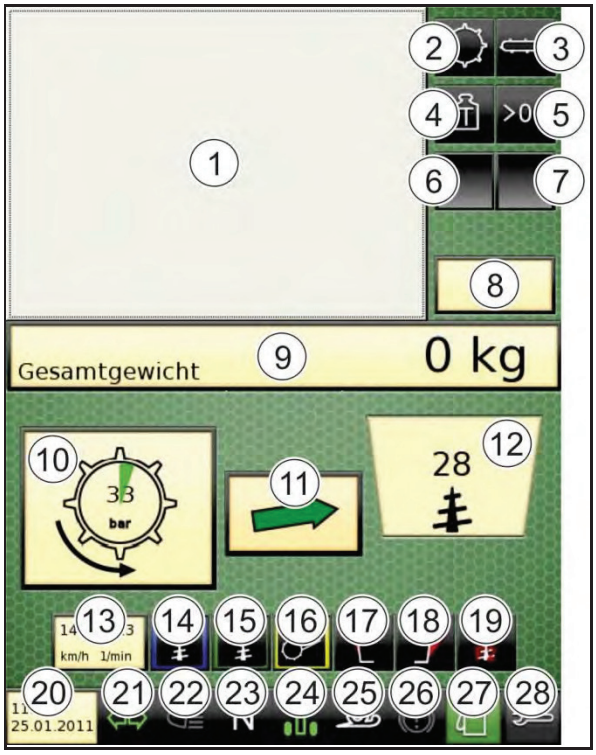


Fig. 90

(20) Display of time and date

(21) Display of indicator system

(22) Display of full headlights and switchover between day and night-time lighting (dimmable background lighting is sensor-controlled)

(23) Display of direction of motion

(24) Display of steering mode

(25) Display of operating mode

(26) Display of parking brake

(27) Display of fuel quantity and call-up of level indicator

(28) Call up "Parameter / Diagnosis / Weighing device" menu

6.2.1.3 Basic configuration - "Discharging" mode

(1) Camera picture

(2) Charging mode

(3) Discharging mode

(4) Tare weight

(5) Reset total value

(6) No function

(7) No function

(8) Display, weighed value 1 (total weight only when editing a recipe)

(9) Display, weighed value 2 (total weight or part weight when editing a recipe) (component or group))

(10) Display of the opening status(es) of the dosage gate(s)

(11) Display of mixing auger speed

(12) Display of speed and driving direction of crossover conveyor

(13) Display of machine and diesel engine speed

(14) Display of assignment of the blue key of the multi-function joystick in the current operating mode

(15) Display of assignment of the green key of the multi-function joystick in the current operating mode

(16) Display of assignment of the yellow key of the multi-function joystick in the current operating mode

(17) Display of assignment and operation of display key 1 in the current operating mode

(18) Display of assignment and operation of display key 2 in the current operating mode

(19) Display of assignment and operation of display key 3 in the current operating mode

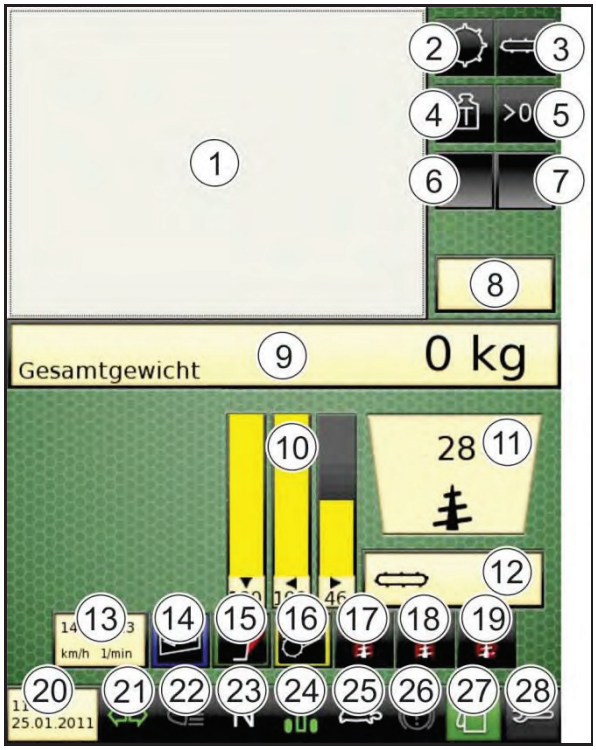


Fig. 91

(20) Display of time and date

(21) Display of indicator system

(22) Display of full headlights and switchover between day and night-time lighting (dimmable background lighting is sensor-controlled)

(23) Display of direction of motion

(24) Display of steering mode

(25) Display of operating mode

(26) Display of parking brake

(27) Display of fuel quantity and call-up of level indicator

(28) Call up "Parameter / Diagnosis / Weighing device" menu

6.2.2 Video surveillance

Irrespective of the operating mode, the rear-view camera picture is displayed during reverse travel.

The displaying camera may be manually switched at any time by touching the camera picture as often as is necessary to select the desired camera.

The displaying camera can be switched in the "Parameter" menu. For details, please refer to page 125.

Your machine is equipped with a maximum of 3 video surveillance cameras:

- Rear-view camera,
- video surveillance camera in the mixing container
- video surveillance camera according to customer request (optional extra).

Depending on the current operating mode, the following angles of view are preset for the camera:

Operating mode		Camera
	"Charging"	Video surveillance camera in the mixing container
	"Discharging"	Video surveillance camera in the mixing container
	"Transport"	Surveillance via rear-view camera

6.2.3 Weighing device

Depending on the machine’s equipment, it is fitted with:

- a programmable weighing device offering the possibility to save several recipes,
- a programmable weighing device offering the possibility to save several recipes and to transfer data to the PC via USB stick (optional extra).

All weighing procedures are automatically saved and can be analysed on the PC if necessary and if the appropriate software is available.

6.2.4 Operating states of individual machine components

6.2.4.1 General displays – Warning and control messages

The warning and control messages displayed at the terminal indicate certain functions or malfunctions. Some of the warning and control messages listed here are part of certain machine equipment or of optional extras.

If a general error, an engine or machine malfunction occurs, a warning message is displayed in the "Date and time" box. A warning message consists of a yellow or red box with a warning triangle. If such an error or malfunction occurs, it can be displayed in detail when pressing the "Warning message" key in the "Date and time" box.

	Pay attention to lighting-up warning or control messages and take appropriate measures to prevent damage on the machine! Contact an authorised John Deere workshop if necessary!

Observe the following instructions for warning messages:

Yellow background = Slight error		**Slight general error**
		**Slight engine malfunction**
		**Slight machine malfunction**

1. Touch the warning message on the display to get some details about the error or malfunction.

→ The terminal displays all current errors or malfunctions one after the other.

2.a Remedy the error(s) or malfunction(s) if possible.

2.b Have your machine ID no. (17-digit) ready and contact the Strautmann customer service under **Phone: + 49 (0) 5424 802-0**.

Red background = Serious error		**Serious general error**
		**Serious engine malfunction**
		**Serious machine malfunction**

1. Immediately stop the machine.
2. Touch the warning message on the display to get some details about the error or malfunction.

→ The terminal displays all current errors or malfunctions one after the other.

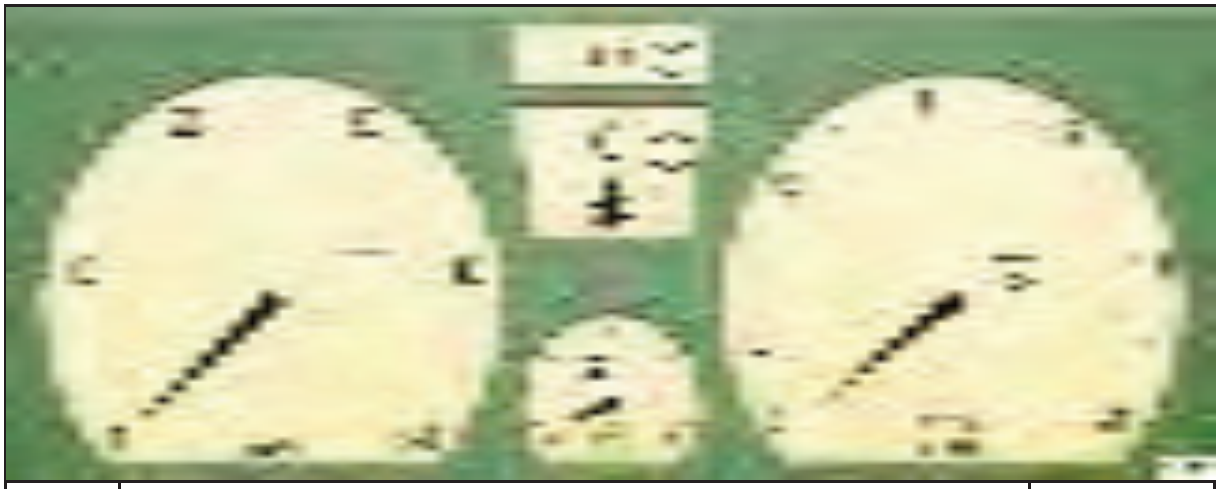
3.a Remedy the error(s) or malfunction(s) if possible.

3.b Have your machine ID no. (17-digit) ready and contact the Strautmann customer service under **Phone: + 49 (0) 5424 802-0**.

	**Time and date** Displays time and date.	
	**General error** • Yellow background in case of slight general error. • Red background in case of serious general error.	
	**Engine malfunction** • Yellow background in case of slight engine malfunction. • Red background in case of serious engine malfunction.	
	**Machine malfunction** • Yellow background in case of slight machine malfunction. • Red background in case of serious machine malfunction.	
	**Disabled automatic cleaning function** • Automatic exhaust filter cleaning function is disabled by means of the selector switch.	
	**Exhaust filter cleaning** • Exhaust gas temperature is high (over 300°C up to 650°C). • Idle speed of engine exceeds 1200 rpm. • Exhaust filter is cleaned.	
	**Exhaust filter** • Soot level in exhaust filter is high. • The exhaust filter must be cleaned.	
	**Exhaust filter plus additional warning lamp** • Machine output is reduced by 50%. • The exhaust filter must be cleaned.	
	**Exhaust filter plus stop alert** • The exhaust filter must be cleaned by service staff.	
	**Indicator system** • Grey with the indicator system disabled. • Flashing green with the indicator system being turned on.	
	**Full headlights** • Grey with full headlights disabled. • Lights up blue with full headlights turned on or with the headlight flasher being actuated. • For dimming the background lighting (5 seconds until set value is reached).	

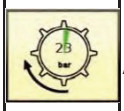
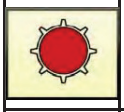
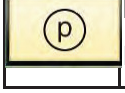
	**Direction of motion Forward** Direction of motion Forward selected.	
	**Direction of motion Neutral** Machine is at a standstill.	
	**Direction of motion Backward** Direction of motion Backward selected.	
	**"Charging" mode** "Charging" mode selected	
	**"Discharging" mode** "Discharging" mode selected	
	**"Transport" mode** "Transport" mode selected	
	**Front axle steering** • Lights up green with the front axle steering properly working. • Lights up yellow with a slightly defective front axle steering. • Lights up red with a seriously defective front axle steering.	
	**Four-wheel steering** • Lights up green with the four-wheel steering properly working. • Lights up yellow with a slightly defective four-wheel steering. • Lights up red with a seriously defective four-wheel steering.	
	**Parking brake** • Grey with the parking brake disabled. • Lights up red with the parking brake enabled.	
	**Fuel quantity** • Lights up green at large fuel quantity. • Lights up red at small fuel quantity. • Press the key for analog display of the fuel quantity.	
	**"Parameter / Diagnosis / Weighing device" menu** Opens a submenu. Enables the assignment of functions to display keys / keys of the multi-function joystick, the modification of machine parameters, the modification of scale settings and the performance of error diagnosis.	

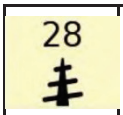
6.2.4.2 Operating states - "Transport" mode



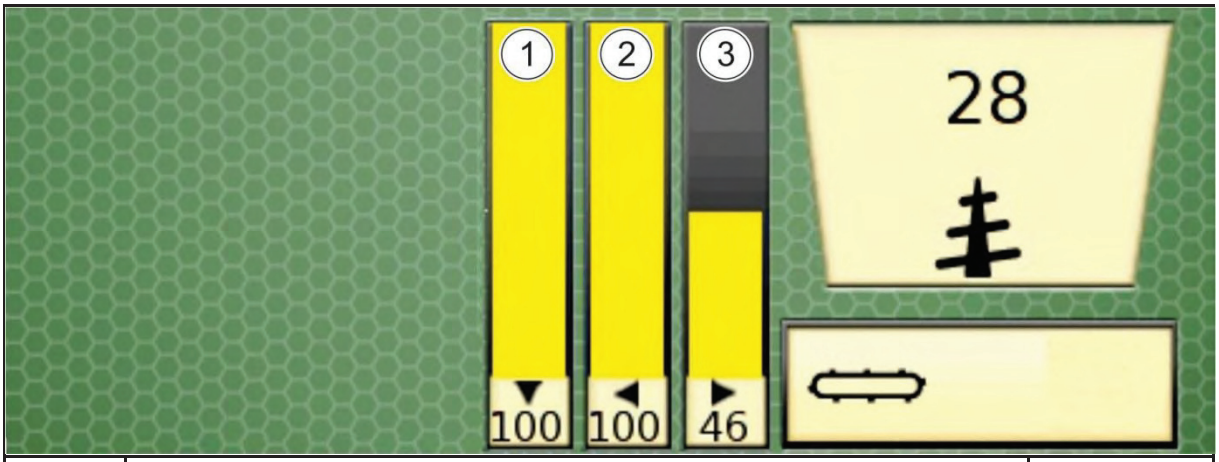
(1)	**Speed** Analog display of machine speed.	
(2)	**Fuel quantity** Analog display of fuel quantity.	
(3)	**Diesel engine speed** Analog display of diesel engine speed.	
(4)	**Service hours** Digital display of service hours up to now.	
(5)	**Mixing auger speed** Digital display of mixing auger speed.	
	**Mixing auger error** Indication of error state. Make sure that • the dosage gate(s) is (are) closed, • the mixing auger(s) is (are) not overloaded.	

6.2.4.3 Operating states - "Charging" mode

	**Pick-up milling cutter stop, diesel engine switched off** Indicates that the pick-up milling cutter is not milling and the engine is switched off.	
	**Pick-up milling cutter stop, diesel engine switched on** Indicates that the pick-up milling cutter is not milling and the engine is switched on.	
	**Pick-up milling cutter capacity and filling of pick-up milling cutter** Analog and digital display of milling pressure. Indicates that the pick-up milling cutter is switched on in driving direction "Filling".	
	**Pick-up milling cutter capacity and reverse of pick-up milling cutter** Analog and digital display of milling pressure. Indicates that the pick-up milling cutter is switched on in driving direction "Reversing".	
	**Pick-up milling cutter overload** Indicates exceeding of maximum admissible milling pressure.	
	**Elevator conveyor stop** Indicates that the elevator conveyor is not moving.	
	**Fill elevator conveyor** Indicates that the elevator conveyor is switched on in driving direction "Filling".	
	**Fill elevator conveyor - reduced speed** Indicates that the elevator conveyor is switched on in driving direction "Filling - reduced".	
	**Reverse elevator conveyor** Indicates that the elevator conveyor is switched on in driving direction "Reversing".	
	**Elevator conveyor overload** Indicates exceeding of maximum admissible pressure at elevator conveyor.	

	**Mixing auger speed** Digital display of mixing auger speed.	
	**Mixing auger error** Indication of error state.	
	**Mixing auger error** Indication of error state. Make sure that the discharge door(s) is (are) closed.	
	**Mixing auger error** Indication of error state. Make sure that the mixing auger(s) is (are) not overloaded.	
	**Mixing auger error** Indication of error state: the elevator conveyor is running while the mixing auger(s) has (have) come to a stop.	

6.2.4.4 Operating states - "Discharging" mode

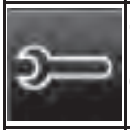


(1)	**Rear dosage gate - Opening status** Analog and digital display of opening status of dosage gate	
(2)	**Left-hand dosage gate - Opening status** Analog and digital display of opening status of dosage gate	
(3)	**Right-hand dosage gate - Opening status** Analog and digital display of opening status of dosage gate	
28	**Mixing auger speed** Digital display of mixing auger speed.	
	Mixing auger error Indication of error state.	
OF	**Mixing auger error** Indication of error state. Make sure that the crossover conveyor is running during discharge. Make sure that the dosage gate(s) is (are) closed during transport.	
BLOCK	**Mixing auger error** Indication of error state. Make sure that the mixing auger(s) is (are) not overloaded.	
SF	**Mixing auger error** Indication of error state: the elevator conveyor is running while the mixing auger(s) has (have) come to a stop.	
10	**Crossover conveyor, ccw rotation** Indicates the ccw rotation speed level of the crossover conveyor	
10	**Crossover conveyor, cw rotation** Indicates the cw rotation speed level of the crossover conveyor	

6.2.5 "Parameter/ Diagnosis / Weighing device" menu

The "Parameter / Diagnosis / Weighing device" menu (1) can be selected in any operating mode via the key (2) in the basic configuration of the terminal.

Fig. 92

	**"Diagnosis" menu** Opens the "Diagnosis" menu.
	**"Parameter" menu** Opens the "Parameter" menu
	**"Weighing device" menu** Opens the "Weighing device" menu
	**Exit menu** Closes the "Parameter / Diagnosis / Weighing device" menu

6.2.6 "Diagnosis" menu

Depending on the selected machine section, the "Diagnosis" menu displays machine statuses

When opening the "Diagnosis" menu, a general view of the self-propelled fodder mixing wagon appears. When touching the desired machine section, the functions available in the selected section and the associated statuses or values appear.

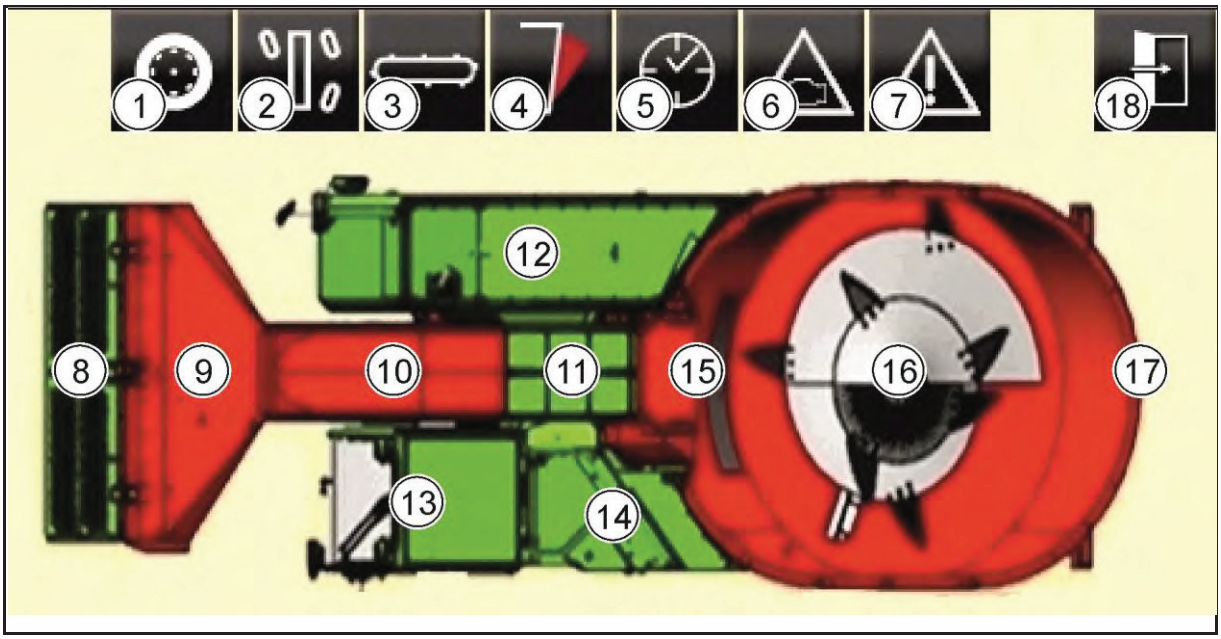
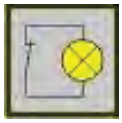


Fig. 93

(1) Travel control
(2) Steering system
(3) Crossover conveyor
(4) Hydraulic counter-cutters (optional extra)
(5) Hours counter
(6) Engine error
(7) General errors / Software, hardware, system information
(8) Protective device of pick-up milling cutter
(9) Pick-up milling cutter
(10) Cutter arm
(11) Elevator conveyor
(12) Diesel engine
(13) Driver's cabin
(14) Hydraulic oil supply
(15) Discharge door
(16) Mixing auger(s)
(17) Optional extras (e.g. straw blower, movable crossover conveyor)
(18) Exit menu

Possible displays of diagnosis outputs:

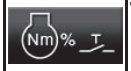
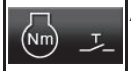
	Active status
	Inactive status
	Value and unit (example)

The respective integrated symbol indicates which signal type is called up.

	**Switching output** Examples: Light, relay, valve
	**Switching input** Examples: Switch, sensor
	**Analog input** Examples: Foot throttle, manual throttle, pressure sensor, sensor
	**Frequency** Examples: Diesel engine speed, mixing auger speed

Each display shows 6 functions. Scroll via the  ,  and  keys if necessary.

6.2.6.1 Diesel engine

e61		**Actual diesel engine speed** Indicates the actual diesel engine speed.
e62		**Nominal diesel engine speed** Indicates the set diesel engine speed.
e63		**Torque at operating point** Indicates the torque.
e64		**Absolute torque value** Indicates the absolute torque value.
e65		**Fuel consumption** Indicates the current fuel consumption.
e66		**Engine oil pressure** Indicates the engine oil pressure.
e67		**Coolant temperature** Indicates the coolant temperature. If temperature is above 113°C: Stop, turn off and allow diesel engine to cool down. Check coolant level.
e68		**Service hours** Indicates the service hours of the diesel engine.
e51		**Warning lamp "Diesel engine SAFETY"** Indicates that a warning message is sent from the diesel engine. Diesel engine is exposed to danger. Immediately turn diesel engine off, locate and remedy cause or have it remedied by an authorised workshop.
e52		**Warning lamp "Diesel engine WARNING"** Indicates that a warning message is sent from the diesel engine. Malfunction in engine control or defective operating state. Locate and remedy cause as soon as possible.
e53		**Warning lamp "Diesel engine STOP"** Indicates that a warning message is sent from the diesel engine. Diesel engine is exposed to danger. Immediately turn diesel engine off, locate and remedy cause or have it remedied by an authorised workshop.
e54		**Warning lamp "Diesel engine EMISSION"** Indicates that a warning message is sent from the diesel engine. Increased emissions. Locate and remedy cause or have it remedied by an authorised workshop.

e21		**Fuel quantity** Indicates the fuel level percentage.
e01		**Intake air heating** Indicates whether the intake air preheating is active.
e02		**Coolant level** Indicates whether the coolant level is too low.
e03		**Air filter** Indicates whether the switching input is active. If the switching input is not active: air filter element clogged. Replace air filter element.

6.2.6.2 Discharge door

b01		**Open discharge door** Indicates whether the switching input is active.
b02		**Close discharge door** Indicates whether the switching input is active.
b21		**Discharge door 1** Indicates the opening degree of the discharge door in percent.
b22		**Discharge door 2** Indicates the opening degree of the discharge door in percent.
b23		**Discharge door 3** Indicates the opening degree of the discharge door in percent.
b41		**Open discharge door** Indicates whether the switching output is active.
b42		**Close discharge door** Indicates whether the switching output is active.

6.2.6.3 Traction drive

101		**Foot brake** Indicates whether the switching input is active.
102		**Parking brake** Indicates whether the switching input is active.
103		**Direction of motion Forward** Indicates whether the switching input is active.
104		**Direction of motion Backwards** Indicates whether the switching input is active.
111		**Traction engine frequency - front** Indicates the frequency of the traction drive.
112		**Traction engine frequency - rear** Indicates the frequency of the traction drive.
121		**Foot throttle** Indicates the percentage value.
122		**Manual throttle** Indicates the percentage value.
123		**Traction drive pump, High pressure A (forward)** Indicates the pressure.
124		**Traction drive pump, High pressure B (backwards)** Indicates the pressure.
131		**Pump forward** Indicates the electric current.
132		**Pump backwards** Indicates the electric current.
133		**Traction engine, rear axle** Indicates the electric current.
134		**Traction engine, front axle** Indicates the electric current.
141		**Reversing lights** Indicates whether the switching input is active.
151		**Traction drive status** Indicates the status of the traction drive.

6.2.6.4 Cutter arm

801		**Release of cutter arm** Indicates whether the switching input is active.
802		**Automatic milling system** Indicates whether the switching input is active.
821		**Lift / Lower cutter arm** Indicates the percentage value of the multi-function joystick.
831		**Lift cutter arm** Indicates the electric current.
832		**Lower cutter arm** Indicates the electric current.
841		**Direction valve** Indicates whether the switching output is active.
851		**Status of cutter arm** Indicates the status of the cutter arm.
822		**Position of cutter arm** No function.

6.2.6.5 Pick-up milling cutter

901		**Pick-up milling cutter forward** Indicates whether the switching input is active.
902		**Pick-up milling cutter backwards** Indicates whether the switching input is active.
921		**Milling pressure** Indicates the milling pressure.
931		**Pick-up milling cutter in driving direction "Filling".** Indicates the electric current.
932		**Pick-up milling cutter in driving direction "Reversing".** Indicates the electric current.
903		**Safety button of pick-up milling cutter** Indicates whether the switching input is active.

6.2.6.6 Protective device of pick-up milling cutter

a01		**Open protective device of pick-up milling cutter** Indicates whether the switching input is active.
a02		**Close protective device of pick-up milling cutter.** Indicates whether the switching input is active.
a03		**Protective device of pick-up milling cutter open** Indicates whether the switching output is active.
a41		**Protective device of pick-up milling cutter opens** Indicates whether the switching output is active.
a42		**Protective device of pick-up milling cutter closes** Indicates whether the switching output is active.

6.2.6.7 Hydraulic counter-cutters (optional extra)

641		**Hydraulic counter-cutters extend** Indicates whether the switching input is active.
642		**Hydraulic counter-cutters retract** Indicates whether the switching input is active.

6.2.6.8 Cabin

401		**Emergency stop** No function.
402		**Release of hydraulic functions** Indicates whether the switching input is active.
403		**Seat sensor** Indicates whether the switching input is active.
404		**Feeding flap at conveyor duct** Indicates whether the switching input is active.
405		**Air-conditioning system** Indicates whether the switching input is active.
406		**Full headlights** Indicates whether the switching input is active.
407		**Indicator system** Indicates whether the switching input is active.
441		**Lubrication** Indicates whether the switching output is active.

6.2.6.9 Steering system

501		**Front axle steering** Indicates whether the switching input is active.
502		**Four-wheel steering** Indicates whether the switching input is active.
503		**Combined steering (crab steering)** No function.
521		**Position of rear axle** Indicates the percentage value by which the rear axle is turned in.
541		**Preselection, four-wheel steering** Indicates whether the switching output is active.
542		**Preselection, combined steering (crab steering)** No function.
543		**Stop valve 1** Indicates whether the switching output is active.
544		**Stop valve 2** Indicates whether the switching output is active.

6.2.6.10 Mixing auger(s)

301		**Reduce mixing auger speed** Indicates whether the switching input is active.
302		**Increase mixing auger speed** Indicates whether the switching input is active.
303		**Mixing augers ON** Indicates whether the switching input is active.
311		**Mixing auger frequency - normal mode** Indicates the mixing auger frequency.
312		**Mixing auger frequency - quick motion mode** Indicates the mixing auger frequency.
331		**Mixing pump** Indicates the electric current.
332		**Mixing motor** Indicates the electric current.
333		**Mixing motor** Indicates the electric current.

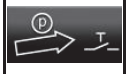
6.2.6.11 Hydraulic oil supply

201		**Hydraulic oil level top** Indicates whether the switching input is active.
202		**Hydraulic oil level bottom and feed pressure switch** Indicates whether the switching input is active.
203		**Accumulator charging pressure** Indicates whether the switching input is active.
204		**Oil filter - Feed oil** Indicates whether the switching input is active.
205		**Oil filter - Hydraulic tank** Indicates whether the switching input is active.
241		**Hydraulic oil cooler 1** Indicates whether the switching output is active.
242		**Hydraulic oil cooler 2** Indicates whether the switching output is active.
221		**Hydraulic oil temperature** Indicates the hydraulic oil temperature.

6.2.6.12 Crossover conveyor

701		**Crossover conveyor, ccw rotation** Indicates whether the switching input is active.
702		**Crossover conveyor, cw rotation** Indicates whether the switching input is active.
703		**Increase crossover conveyor speed** Indicates whether the switching input is active.
704		**Reduce crossover conveyor speed** Indicates whether the switching input is active.
705		**Crossover conveyor, central position** Indicates whether the switching input is active.
731		**Crossover conveyor, ccw rotation** Indicates the electric current.
732		**Crossover conveyor, cw rotation** Indicates the electric current.

6.2.6.13 Elevator conveyor

c01		**Elevator conveyor in driving direction "Filling".** Indicates whether the switching input is active.
c02		**Elevator conveyor in driving direction "Reversing".** Indicates whether the switching input is active.
c03		**Reduce elevator conveyor speed** Indicates whether the switching input is active.
c04		**Elevator conveyor overload** Indicates whether the switching input is active.
c31		**Fill elevator conveyor** Indicates the electric current.
c32		**Reverse elevator conveyor** Indicates whether the switching output is active.

6.2.6.14 Hours counter

f61		**Computer hours** Indicates the service hours of the computers BBX1 and BBX2.
f62		**Service hours** Indicates the service hours of the diesel engine.
f63		**Driving hours** Indicates the driving hours of the machine.
f64		**Mixing hours** Indicates the mixing hours of the machine.
f65		**Milling hours** Indicates the milling hours of the pick-up milling cutter.
f66		**Maintenance interval** Indicates the time left until the next maintenance procedure.

6.2.7 "Parameter" menu

The "Parameter" menu serves to display and modify settings if necessary.

(1) "Transport" mode (screen page 1)
(2) "Transport" mode (screen page 2)
(3) "Discharging" mode (screen page 1)
(4) "Discharging" mode (screen page 2)
(5) "Charging" mode (screen page 1)
(6) "Charging" mode (screen page 2)
(7) Mixing auger/s
(8) Date / Time
(9) Display settings
(10) Central lubrication

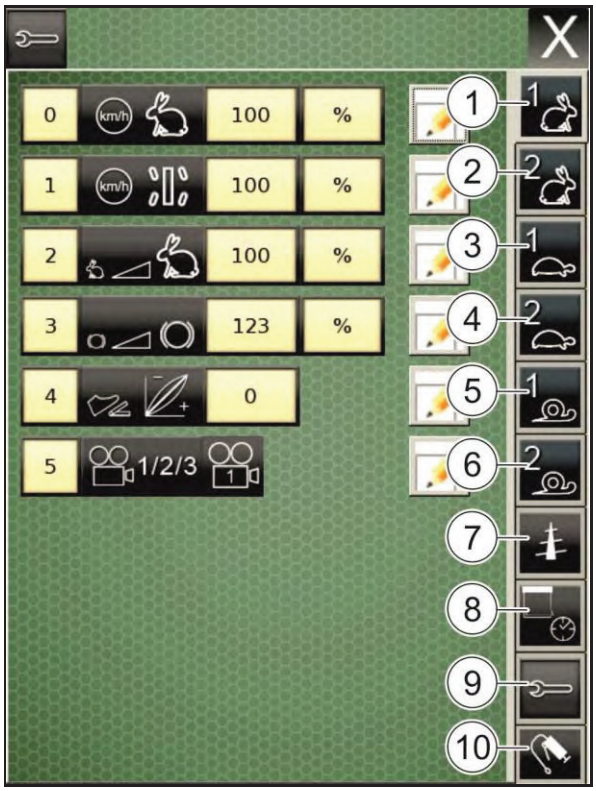


Fig. 94

When pressing the "Change entry data" key  , a dialogue box opens.

The dialogue box may have the form of:

- an input field,
- a status indication,
- a list of the cameras,
- a list of functions.

The position of a dialogue box can be varied.

1. Touch and keep hold of the dialogue box.
2. Use the holding finger to move the dialogue box to the desired position by moving the holding finger across the display.
3. Remove the finger from the box.

→ The dialogue box appears in its new position.

Input field

(1) Selected feature
(2) Dialogue box
(3) Entry of admissible range of values
(4) Entry of value with factory setting
(5) Set value of factory setting
(6) Number pad
(7) Plus / Minus key
(8) Clear digit
(9) Move pointer to the left-hand end
(10) Move pointer one position to the left
(11) Move pointer one position to the right
(12) Move pointer to the right-hand end
(13) Confirm data entry
(14) Cancel entry

1. Touch the respective digits in the input field to enter a numerical value.
2. Press the "Confirm" key (10) to confirm your entry.

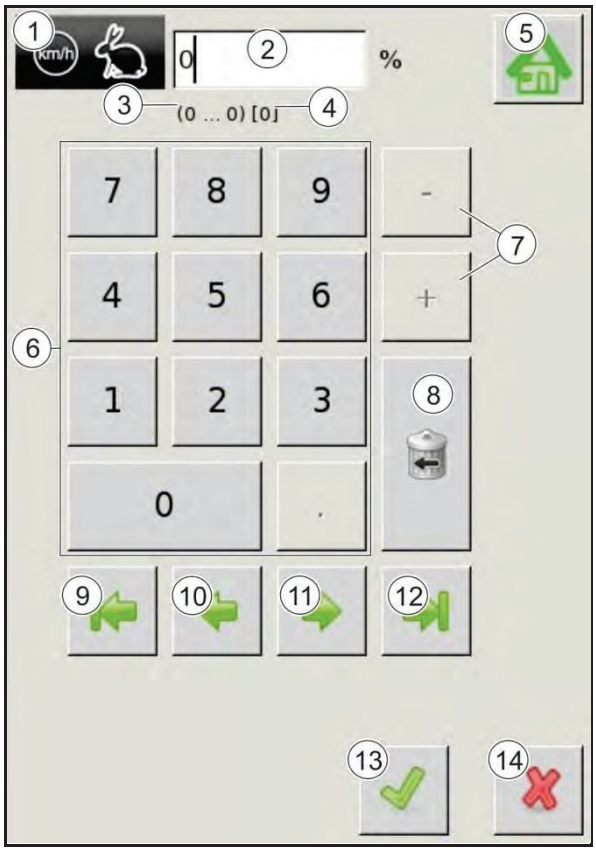


Fig. 95

If a warning triangle appears, the entered value is beyond the admissible range (3). Correct your entry using a value which is within the admissible range (3).

List of cameras

(1) Camera 1
(2) Camera 2
(3) Camera 3 (optional extra)
(4) Set value of factory setting
(5) Exit menu

Touch the respective camera symbol to select the desired camera.

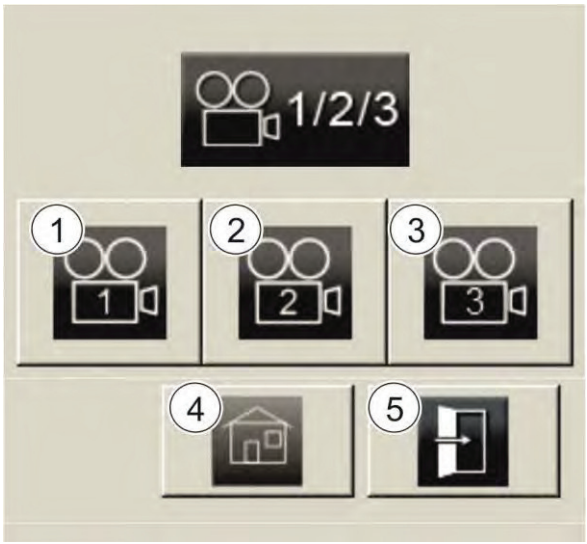


Fig. 96

List of functions for the freely assignable keys of the multi-function joystick

(1) Selected key

(2) Function: No function

(3) Extend hydraulic counter-cutters

(4) Retract hydraulic counter-cutters

(5) Elevator conveyor in driving direction "Filling".

(6) Elevator conveyor in driving direction "Reversing".

(7) Elevator conveyor in driving direction "Filling" – reduced speed

(8) Open protective device of pick-up milling cutter

(9) Close protective device of pick-up milling cutter.

(10) Speed preselection, mixing auger(s) – 1

(11) Speed preselection, mixing auger(s) – 2

(12) Speed preselection, mixing auger(s) – 3

(13) Speed preselection, mixing auger(s) – 4

(14) Speed preselection, mixing auger(s) – 5

(15) Speed preselection, mixing auger(s) – 6

(16) Speed preselection, mixing auger(s) – 7

(17) Speed preselection, mixing auger(s) – 8

(18) Mixing auger(s) – OFF

(19) Mixing auger(s) – ON

(20) Mixing auger(s) – Quick motion mode

(21) Diesel engine – Speed 1

(22) Diesel engine – Speed 2

(23) Pick-up milling cutter – Position 1 (no function)

(24) Pick-up milling cutter – Position 2 (no function)

(25) Switching function 1 – ON
(possibly movable crossover conveyor or folding side discharge conveyor, optional extras)

(26) Switching function 1 – OFF
(possibly movable crossover conveyor or folding side discharge conveyor, optional extras)

Fig. 97

(27) Switching function 2 – ON

(28) Switching function 2 – OFF

(29) Automatic procedure 1 (no function)

(30) Automatic procedure 2 (no function)

(31) Automatic procedure 3 (no function)

(32) Change of direction of motion

(33) Fast bedding roller – ON

(34) Fast bedding roller – Increase speed

(35) Fast bedding roller – Reduce speed

(36) Reset weighing device

(37) Weighing device – Confirm

(38) Weighing device – Skip position

(39) Block weighing device

(40) Set value of factory setting (no function)

(41) Exit menu

Touch the respective symbol to select the desired function.

List of functions for the freely assignable display keys

(1) Selected key

(2) Function: No function

(3) Extend hydraulic counter-cutters

(4) Retract hydraulic counter-cutters

(5) Switching function 1 – ON
(possibly movable crossover conveyor or folding side discharge conveyor, optional extras)

(6) Switching function 1 – OFF
(possibly movable crossover conveyor or folding side discharge conveyor, optional extras)

(7) Switching function 2 – ON

(8) Switching function 2 – OFF

(9) Set value of factory setting

(10) Exit menu

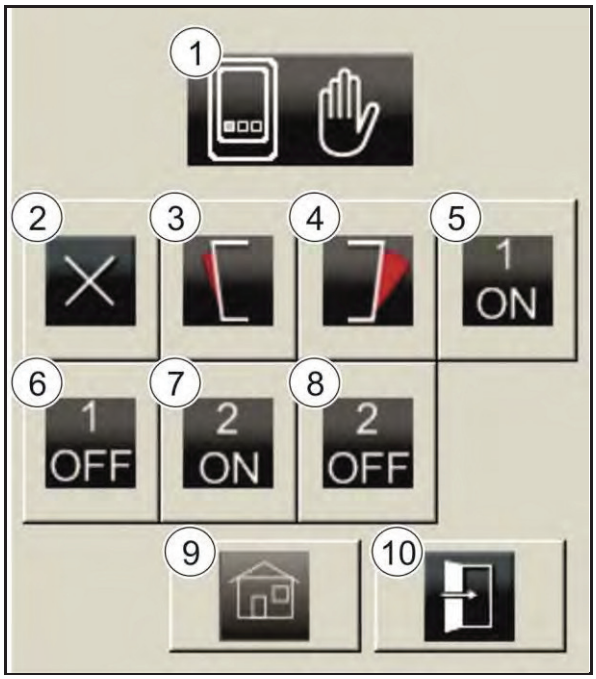


Fig. 98

Touch the respective symbol to select the desired function.

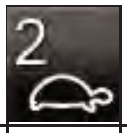
6.2.7.1 Settings of "Transport" mode

0		**Maximum speed - Front axle steering** Defines the possible maximum speed in "Transport" mode in percent.
1		**Maximum speed - Four-wheel steering** Defines the possible maximum speed for the "Four-wheel steering" function in percent.
2		**Ramp time - Accelerate** Defines how fast the vehicle accelerates.
3		**Ramp time - Reduce** Defines how fast the vehicle reduces its speed after the pedal has been released.
4		**Pedal curve** Defines the pedal's sensitivity.
5		**Camera** Defines the standard camera for this operating mode.

10		**Multi-function joystick - blue key** Defines the function of the blue key of the multi-function joystick in the selected operating mode.
11		**Multi-function joystick - green key** Defines the function of the green key of the multi-function joystick in the selected operating mode.
12		**Multi-function joystick - yellow key** Defines the function of the yellow key of the multi-function joystick in the selected operating mode.
13		**Assignable display key 1** Defines the function of the assignable display key 1 in the selected operating mode.
14		**Assignable display key 2** Defines the function of the assignable display key 2 in the selected operating mode.

15		**Assignable display key 3** Defines the function of the assignable display key 3 in the selected operating mode.

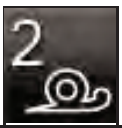
6.2.7.2 Settings of "Discharging" mode

		
20		**Maximum speed** Defines the possible maximum speed in percent.
21		**Ramp time - Accelerate** Defines how fast the vehicle accelerates.
22		**Ramp time - Reduce** Defines how fast the vehicle reduces its speed after the pedal has been released.
23		**Pedal curve** Defines the pedal's sensitivity.
24		**Limit value, mixing auger(s) (percentage) - Quick motion mode** No function.
25		**Limit value, mixing auger(s) (weight) - Quick motion mode** No function.
		
30		**Speed, crossover conveyor** No function.
31		**Camera** Defines the standard camera for this operating mode.
32		**Multi-function joystick - blue key** Defines the function of the blue key of the multi-function joystick in the selected operating mode.
33		**Multi-function joystick - green key** Defines the function of the green key of the multi-function joystick in the selected operating mode.
34		**Multi-function joystick - yellow key** Defines the function of the yellow key of the multi-function joystick in the selected operating mode.

35		**Assignable display key 1** Defines the function of the assignable display key 1 in the selected operating mode.
36		**Assignable display key 2** Defines the function of the assignable display key 2 in the selected operating mode.
37		**Assignable display key 3** Defines the function of the assignable display key 3 in the selected operating mode.

6.2.7.3 Settings of "Charging" mode

40		**Maximum speed** Defines the possible maximum speed in percent.
41		**Ramp time - Accelerate** Defines how fast the vehicle accelerates.
42		**Ramp time - Reduce** Defines how fast the vehicle reduces its speed after the pedal has been released.
43		**Pedal curve** Defines the pedal's sensitivity.
44		**Automatic milling system ON / OFF** Defines the status of the automatic milling system.
45		**Nominal milling pressure** Defines the nominal milling pressure.
46		**Minimum lowering speed** Defines the minimum lowering speed of the cutter arm in percent.
47		**Automatic milling system stop** No function.



50		**Standard speed** Defines the standard speed in percent.

51		**Reduced speed** Defines the reduced speed in percent.
52		**Camera** Defines the standard camera for this operating mode.
53		**Multi-function joystick - blue key** Defines the function of the blue key of the multi-function joystick in the selected operating mode.
54		**Multi-function joystick - green key** Defines the function of the green key of the multi-function joystick in the selected operating mode.
55		**Multi-function joystick - yellow key** Defines the function of the yellow key of the multi-function joystick in the selected operating mode.
56		**Assignable display key 1** Defines the function of the assignable display key 1 in the selected operating mode.
57		**Assignable display key 2** Defines the function of the assignable display key 2 in the selected operating mode.
58		**Assignable display key 3** Defines the function of the assignable display key 3 in the selected operating mode.

6.2.7.4 Mixing auger settings

		
60		**Mixing speed 1** Defines the mixing speed 1 in percent.
61		**Mixing speed 2** Defines the mixing speed 2 in percent.
62		**Mixing speed 3** Defines the mixing speed 3 in percent.
63		**Mixing speed 4** Defines the mixing speed 4 in percent.
64		**Mixing speed 5** Defines the mixing speed 5 in percent.
65		**Mixing speed 6** Defines the mixing speed 6 in percent.
66		**Mixing speed 7** Defines the mixing speed 7 in percent.
67		**Mixing speed 8** Defines the mixing speed 8 in percent.

6.2.7.5 Date / Time settings

70		**Year** Defines the year.
71		**Month** Defines the month.
72		**Day** Defines the day.
73		**Hour** Defines the hour.
74		**Minute** Defines the minute.
75		**Second** Defines the second.

6.2.7.6 Display settings

80		**Screen brightness** Controls the screen brightness of the current lighting level (day / night-time lighting).
81		**Touch sensitivity** Controls the touch sensitivity of the display keys.
82		**Volume** Controls the volume of the display sound.
83		**Language** Defines the language of the display screen. German, English, Dutch and a language requested by the customer are available.
84		**Software of weighing device** (Only an authorised workshop/the customer service is allowed to change the setting!)

6.2.7.7 Central lubrication settings

90		**Active time of central lubrication in minutes** Defines the number of minutes during which the central lubrication system is lubricating.
91		**Active time of central lubrication in seconds** Defines the number of seconds during which the central lubrication system is lubricating in addition to the set minutes.
92		**Break time of central lubrication in minutes** Defines the number of minutes during which the central lubrication system is not working.
93		**Central lubrication ON / OFF** Defines the status of the central lubrication system. Manually starts the central lubrication.

6.2.8 "Weighing device" menu

Apart from the weighing device described below, other external weighing devices can also be used.

For operation of the external weighing device, please refer to the enclosed sub-supplier documentation.

The "Weighing device" menu serves to generate and manage recipes and discharge programmes.

(1) "Weighing device – Organisation" menu; enables the import and export of recipes and discharge programmes via USB memory stick and the deletion of saved weighing data

(2) "Weighing device – Components" menu; enables the generation and management of fodder components

(3) "Weighing device – Discharge stations" menu; enables the generation and management of discharge stations

(4) "Weighing device – Recipes" menu; enables the generation and management of recipes

(5) "Calculator" menu; enables the calculation of quantities and weights

(6) Exit menu; closes the open menu and calls up the basic configuration of the terminal

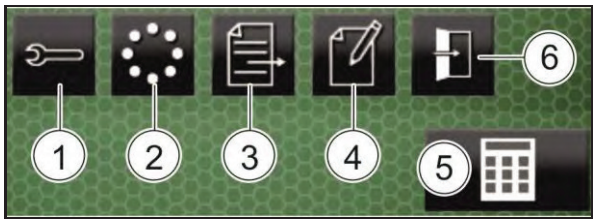


Fig. 99

6.2.8.1 "Weighing device – Organisation" menu

(1) Data transfer (selected here)

(2) Calibration 1 (only for customer service)

(3) Calibration 2 (only for customer service)

(4) Delete data

(5) Status display of USB memory stick; here: USB memory stick detected

(6) Data import

(7) Data export

(8) Preselection for data export: Export only current data
Touching switches over to symbol (9).

(9) Preselection for data export: Export all data
Touching switches over to symbol (8).

(10) Progress bar; shows the progress of the transfer procedure

(11) Status display of data import; here: Data are being imported

(12) Status display of data export; here: Data export successful

(13) Confirm

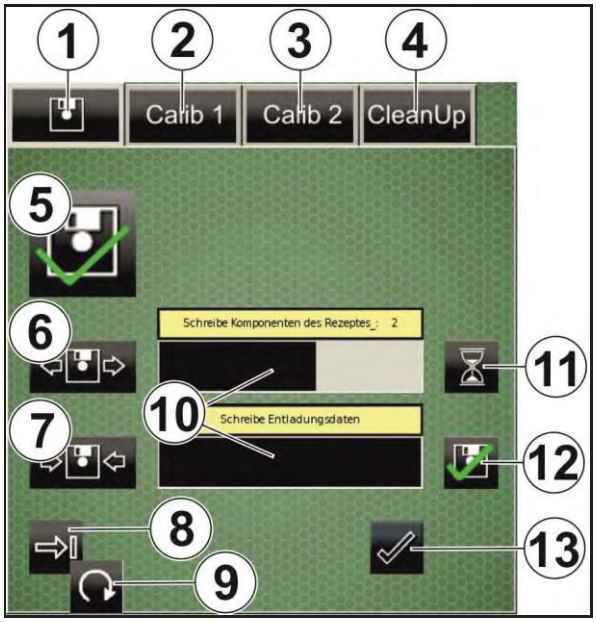


Fig. 100

6.2.8.2 "Weighing device – Components" menu

(1) Index of component

(2) Name of component

(3) Change entry data

(4) Generate new component

(5) Scroll up or down

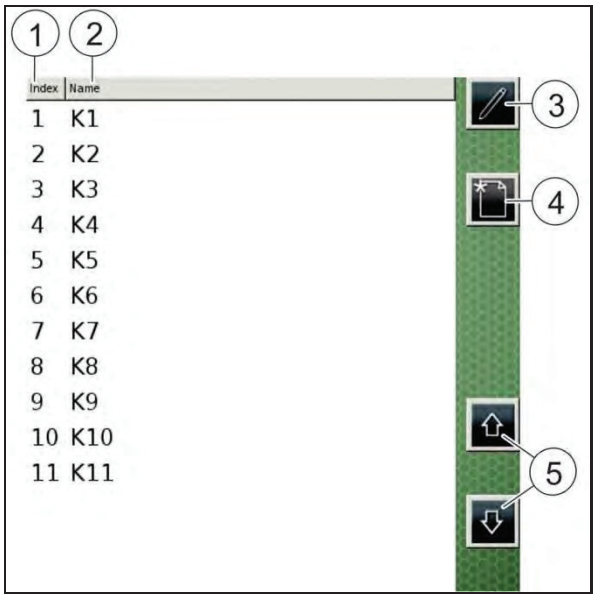


Fig. 101

6.2.8.3 "Weighing device – Discharge stations" menu

(1) Index of discharge station
(2) Name of discharge station
(3) Number of animals; number of animals to be fed per discharge station
(4) Deviation; admissible deviation from the specified number of animals in percent
(5) Change entry data
(6) Generate new discharge station
(7) Scroll up or down

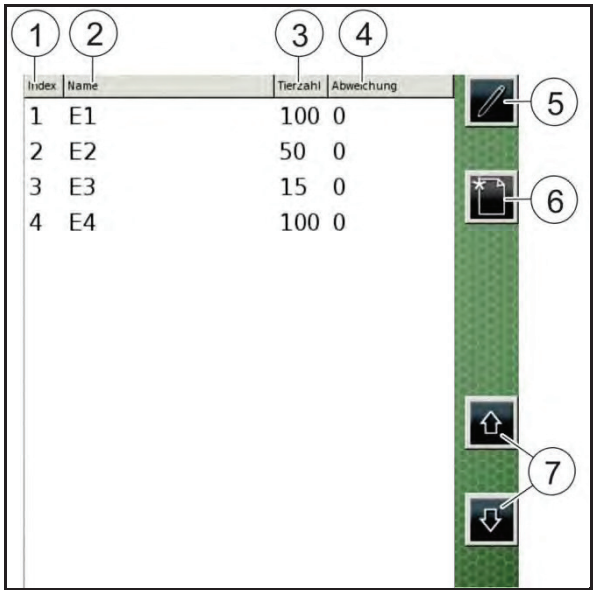


Fig. 102

6.2.8.4 "Weighing device – Recipes" menu

(1) Index of recipe
(2) Name of recipe
(3) Quantity per animal
(4) Mixing time
(5) Change entry data
(6) Generate new recipe
(7) Delete recipe
(8) Scroll up or down

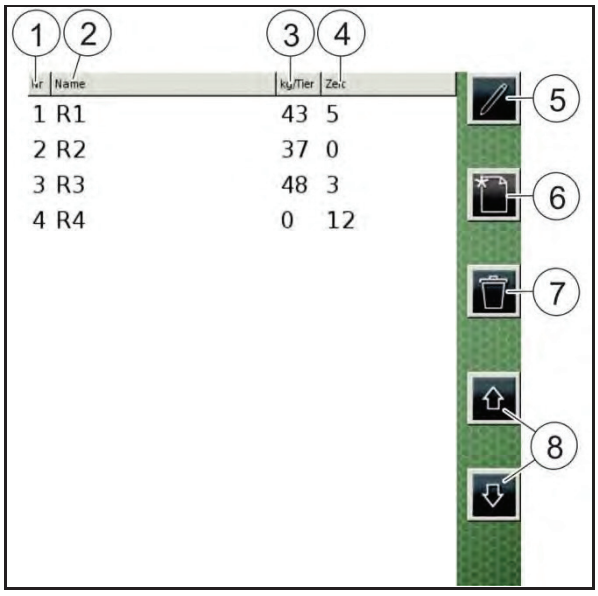


Fig. 103

Press the "Change entry data" (Fig. 103/5) or "Generate new recipe" (Fig. 103/6) key to make the "Recipe" display appear. The "Recipe" display is split into several tabs containing various input fields.

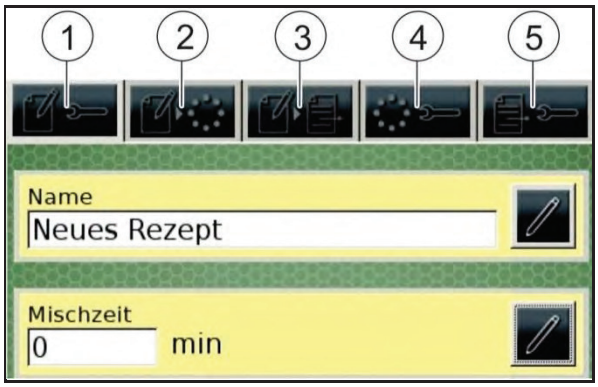


Fig. 104

Item	Tab	Input field
1	Basic settings	Name of recipe
		Mixing time; indicates the duration of the mixing procedure until the mixture can be discharged
2	Selection of components	Shows a list of the available components
3	Selection of discharge stations	Shows a list of the available discharge stations and the associated numbers of animals and deviations
4	Component parameters	Recipe position; defines at which position in the recipe the selected component is added
		Quantity per animal; required for calculation of the overall quantity to be charged
		Alarm value; defines the percentage value at which a visual signal appears indicating the approach to the nominal value (value until the nominal value is reached)
		Automatic charging; activates / deactivates the automatic charging mode for the selected component
5	Discharge station parameters	Recipe position; defines at which position the fodder is discharged at the selected discharge station
		Alarm value; defines the percentage value at which a visual signal appears indicating the approach to the nominal value (value until the nominal value is reached)

It is obligatory to fill in all fields referring to a recipe in order to be able to use the recipe! If a recipe is not listed in the recipes' list, at least one entry is missing.

6.2.8.5 "Weighing device – Calculator" menu

Meaning of non-numeric keys:

C	Delete all entry data
CE	Delete latest entry data
Neg	Reverse sign
•	Place comma
/	Divide
*	Multiply
–	Subtract
+	Add
=	Perform calculation and display result
Exit	Exit calculator
%	Percentage calculation
1/x	Divide 1 by entered number
sqrt	Calculate square root
x^2	Raise to the power of 2

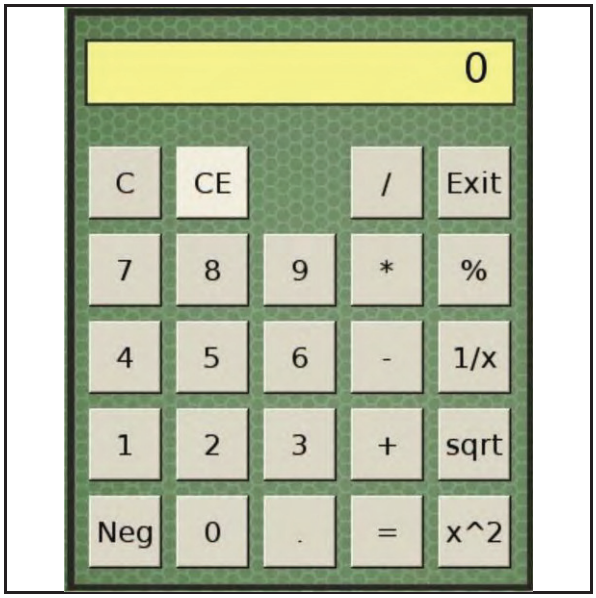


Fig. 105

6.3 Switches / Key buttons of control console

Depending on the type of optional equipment, the assignment, the number of gear levels and the symbols of the switches/key buttons may vary.

Release switch "Charging"

- "Charging" mode off
- "Charging" mode on

Fig. 106

Parking brake

- off
- on

Fig. 107

Four-wheel steering

- off
- on

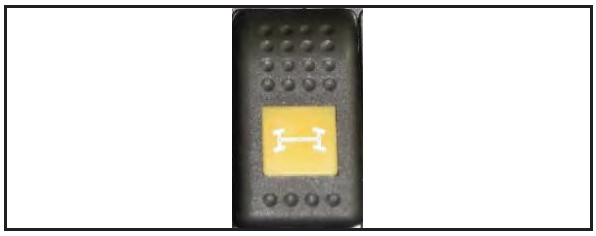


Fig. 108

Work lights

- off
- on (partly)
- on (all)

Fig. 109

Warning lights

- off
- on

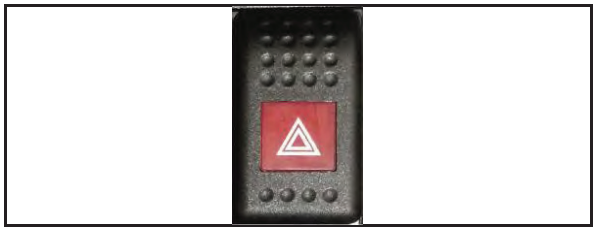


Fig. 110

Side window wiper

- off
- on (wiping)
- on (wiping and washing)

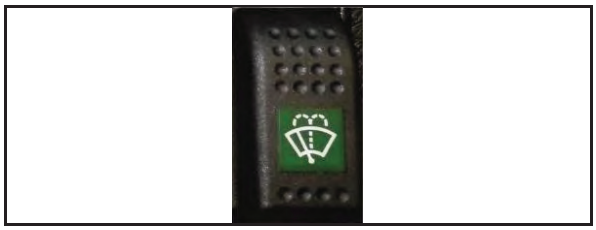


Fig. 111

Regeneration (diesel particulate filter)

- Stationary regeneration
- Automatic regeneration
- Cancel regeneration

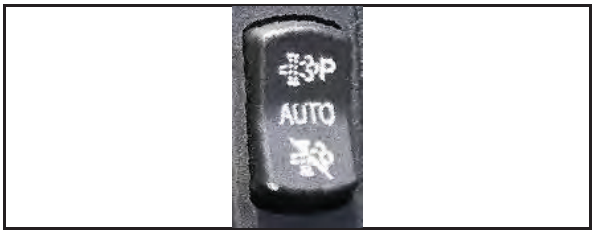


Fig. 112

Right-hand mirror arm

- retract
- off
- extend

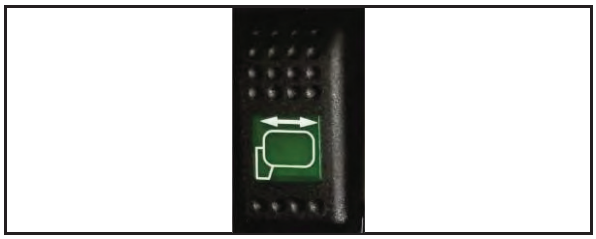


Fig. 113

Feeding flap

- Elevator conveyor off
- Elevator conveyor on (for filling the mixing container via the feeding flap (optional extra) on the cutter arm)

Fig. 114

Hydraulic feed funnel

- deactivate
- activate

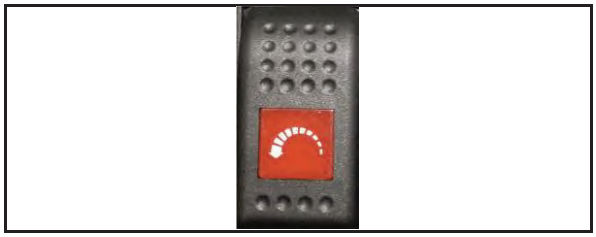


Fig. 115

Hydraulic counter-cutters

- extend (in)
- off
- retract (out)

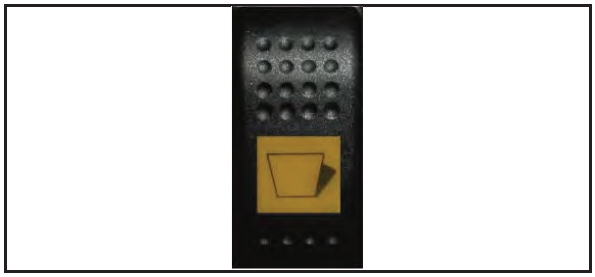


Fig. 116

Discharge door switching-over

- select discharge door 1
- select discharge door 2

Fig. 117

Straw blower

- off
- on (level 1)
- on (level 2)

Fig. 118

Warning lamp, hydraulic fan

- **Hydraulic fan 1**

  Lights up in case of failure of hydraulic fan 1.

  Turn the diesel engine off and remedy the cause of the malfunction!

- **Hydraulic fan 2**

  Lights up in case of failure of hydraulic fan 2.

  Turn the diesel engine off and remedy the cause of the malfunction!

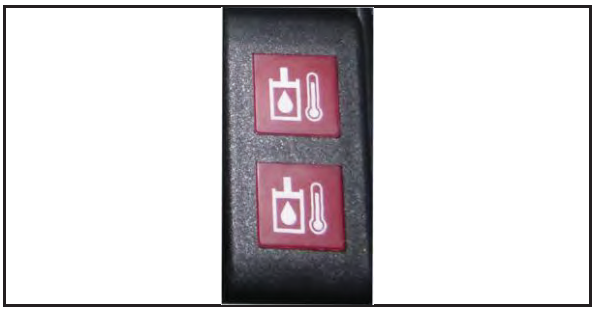
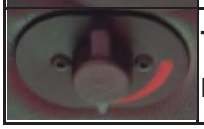


Fig. 119

6.4 Operating elements in the roof part

	**Fan regulator** Fan on / off (infinitely variable)
	**Thermostat cold** For adjustment of the cooling performance
	**Thermostat warm** For adjustment of the heating performance

6.5 Multi-function joystick - Overview

(1) Enabling button

(2) Crossover conveyor, ccw rotation/cw rotation

(3) Change direction of motion (only in "Charging" mode)

(4) Open protective device of pick-up milling cutter and retract transport support

(5) Close protective device of pick-up milling cutter and extend transport support

(6) Open dosage gate

(7) Close dosage gate

(8) Slow down mixing augers

(9) Accelerate mixing augers

(10) Slow down crossover conveyor

(11) Accelerate crossover conveyor

(12) Switch mixing augers on/off

(13) Freely assignable keys

(14) Move multi-function joystick backward = Lift pick-up arm

(15) Move multi-function joystick forward = Lower pick-up arm

(16) Move multi-function joystick to the left (with enabling button (1) pressed) = Power pick-up milling cutter and elevator conveyor in conveying direction

(17) Move multi-function joystick to the right (with enabling button (1) pressed) = Reverse pick-up milling cutter (reverse running direction)

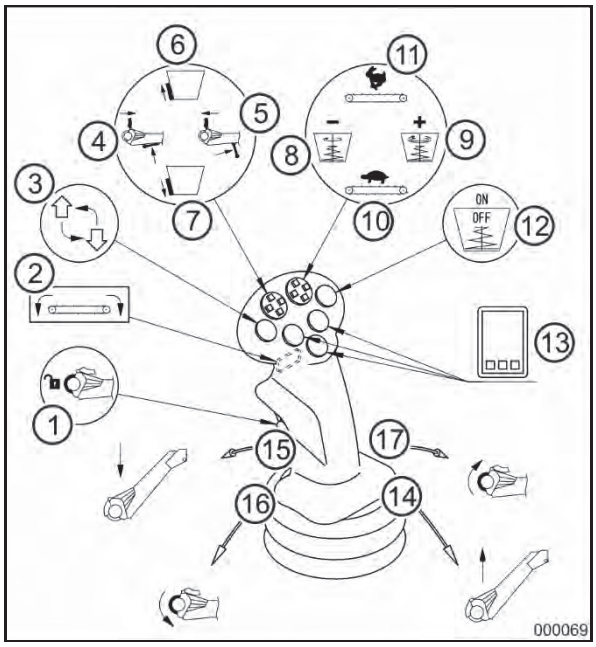


Fig. 120

7 Commissioning

- Before commissioning, the operator must have read and understood the operating instructions.
- When commissioning the machine, additionally observe the information included in the chapters:
  - "Operator's obligation",
  - "Qualification of staff",
  - "Basic safety instructions",
  - "Warning and instruction signs",
  - "Service and maintenance of machine".

  Observance of these chapters serves your safety.
- Before each startup, the operator must check the machine for its road and operational safety.
- The machine must comply with the national road traffic regulations.

  Owner (user) and driver (operator) of the vehicle are responsible for observing the national road traffic regulations.

7.1 Road traffic regulations

Observe the national road traffic regulations.
Owner (user) and driver (operator) of the vehicle are responsible for observing the national road traffic regulations.
Ensure that a warning triangle, a first aid kit, a signal lamp and a safety vest are always placed within reach in the driver's cabin.

7.1.1 Road traffic regulations in Germany

According to § 18 StVZO (note of transl.: German Road Traffic Licensing Code), the machine with a design-related maximum speed of more than 6 km/h is subject to license (no automotive machine, as it can be used for transporting goods).

7.2 Secure machine against accidental starting and rolling

1. Switch the parking brake on.
2. Turn the diesel engine off.
3. Pull the ignition key out.
4. Lock the driver's cabin.
5. Additionally secure the machine against rolling on uneven ground or downhill gradients by means of the chocks.

7.3 Read out error codes

7.3.1 Call up current warning messages

The terminal of the machine displays warning and control messages.

If an error occurs, a warning message is displayed in the "Date and time" box. A warning message consists of a yellow or red box with a warning triangle.

Press the "Date and time" display to call up the fault memory in case of an existing error.

1. Press the "Warning message" symbol in the "Time and date" box.

→ All current errors are successively displayed.

2. Remedy the cause(s) of the error(s).

7.4 Diesel engine operation

7.4.1 Operation monitoring

When a warning message appears in the terminal:

- Stop and turn the diesel engine off.
- Check the malfunction and remedy the defect if necessary.
- Contact an authorised John Deere workshop if necessary.

7.4.1.1 Warning and control messages for diesel engine operating states

The control message "Sufficient fuel quantity" appears if the fuel quantity is above the emergency fuel quantity sensor.

- Lights up green at large fuel quantity.

Irrespective of the operating mode, touching the symbol initiates the analog display of the fuel quantity.

The warning message "Fuel quantity too small" appears if the fuel quantity is below the emergency fuel quantity sensor.

- Lights up red at small fuel quantity. An acoustic warning signal sounds.

Refuel at the earliest possible opportunity.

Irrespective of the operating mode, touching the symbol initiates the analog display of the fuel quantity.

If the warning message "Diesel engine WARNING" appears, there is a malfunction in the engine control (e. g. a defective sensor) or a defective operating state has occurred, e.g.:

- Engine oil pressure too low,
- coolant temperature too high,
- coolant level too low,
- water in diesel fuel / clogged diesel fuel filter,
- air filter soiled,
- generator / battery is not charging.

Locate and eliminate as soon as possible the cause(s) for the appearance of this warning message. Have the diesel engine checked by an authorised John Deere workshop.

Immediately turn the diesel engine off if the warning message "Diesel engine STOP" appears, as the diesel engine risks to be damaged.

Immediately put the machine into a secured condition and turn the diesel engine off.

Locate and eliminate the cause(s) for the appearance of this warning message. Have the diesel engine checked by an authorised John Deere workshop.

7.4.1.2 Warning message Charge Control / Three-phase Generator

If the warning message lights up, the batteries are not charging.

If the warning message appears during travel, the batteries are no longer charged by the three-phase generator. Immediately remedy or have remedied a possible malfunction:

1. Turn the diesel engine off.
2. Check the cables and the connections at the three-phase generator and the batteries.
3. Check the V-belt at the three-phase generator.
4. If you are not able to remedy the malfunction, immediately contact an authorised workshop to have the electrical system checked.

   First switch off all electrical loads not required, in order to prevent the batteries from discharging.

7.4.1.3 Warning message Air Filter Element Clogged

The appearing warning message indicates a clogged air filter element.

If the warning message appears during travel, the air filter element is clogged. A clogged air filter element causes excessive suction resistance and reduced air supply for the diesel engine.

Replace the air filter element.

7.4.1.4 Warning message Coolant Level

If the warning message appears, the coolant level is too low.

A malfunction has occurred if the warning message appears during the use of the machine.

Top up coolant.

7.4.1.5 Warning message Coolant Temperature

If the warning message appears, the coolant temperature is too high.

A malfunction has occurred if the warning message appears during the use of the machine.

1. Immediately stop, put the machine into a secured condition and turn the diesel engine off.
2. Check the coolant level.

   If the coolant level is OK, the malfunction may have been caused by a soiled cooling system or by a failure of the radiator fan.
3. Clean the cooling system if necessary.
4. Check the radiator fan.
5. If you are not able to locate the cause, contact an authorised workshop.

7.4.1.6 Warning message Engine Oil Pressure

The warning message for the engine oil pressure is not an engine oil level gauge. Therefore check the engine oil level every day.

If the warning message appears, the engine oil pressure has fallen below the safe operating pressure.

1. Stop, put the machine into a secured condition and turn the diesel engine off.
2. Check the engine oil level.

   If the warning message appears, although the engine oil level is OK, do not continue your travel. The diesel engine must not idle either. Have the diesel engine checked by an authorised John Deere workshop.

7.4.1.7 Warning messages for regeneration (exhaust filter cleaning)

WARNING

Risk of fire due to high exhaust gas temperatures!

During an exhaust gas cleaning process (regeneration), high temperatures of up to 650°C build up. Due to the hot components of the engine and the exhaust system, easily inflammable material such as dust and dry fodder, dirt accumulation, hay, straw, etc. might catch fire.

Carry out exhaust gas cleaning only under convenient operating and ambient conditions and if the risk of fire can be excluded.

Always keep the machine in a clean condition to prevent the risk of fire. Frequently check the machine and remove dirt accumulation particularly in case of the occurrence of a high amount of dust!

Warning lamp, disabled automatic cleaning function

If the warning message appears, the automatic exhaust filter cleaning function is disabled.

If the operating and ambient conditions permit, set the switch to "Auto" to enable the automatic cleaning function.

Warning lamp, exhaust filter cleaning

If the warning message appears, one of the following states has occurred:

- The exhaust gas temperature is high (over 300°C up to 650°C).
- The idle speed of engine exceeds 1200 rpm.
- The exhaust filter is cleaned.

The machine can be further operated as usual.

Warning lamp, exhaust filter

If the warning message appears, the soot level in the exhaust filter is high. The exhaust filter must be cleaned.

Enable the automatic exhaust filter cleaning function if the operating and ambient conditions permit.

- Set the regeneration switch to "Auto" (central position).
- Set the engine speed to more than 1200 rpm.

Alternatively:

Carry out a stationary regeneration which takes about 45 minutes.

- Park the machine in safe condition.
- Switch the parking brake on.
- Set the regeneration switch to "Stationary regeneration" (upper position, touch-control)

Warning lamp, exhaust filter plus additional warning lamp

If the warning message appears, the machine output is reduced by 50% due to increased soot level. The exhaust filter must be cleaned.

Carry out a stationary regeneration which takes about 45 minutes.

- Park the machine in safe condition.
- Switch the parking brake on.
- Set the regeneration switch to "Stationary regeneration" (upper position, touch-control)

Warning lamp, exhaust filter plus stop alert

If the warning message appears, the exhaust filter must be cleaned by service staff.

Have a stationary cleaning process be carried out by authorised service staff.

7.4.1.8 Warning and control messages for operating states of hydraulic system

Warning message Oil Feed Filter

If the warning message "Oil feed filter" appears, the oil feed filter is clogged.

If the warning message appears during travel, the oil feed filter is clogged. A clogged oil feed filter causes a reduced hydraulic performance and intensive, impermissible heating-up of the hydraulic oil.

Have the oil feed filter replaced (shop work).

Warning message Return-flow Filter

If the warning message "Return-flow filter" appears, the return-flow filter is clogged.

If the warning message appears during travel, the return-flow filter is clogged. A clogged return-flow filter causes heavy, improper heating-up of the hydraulic oil.

Have the return-flow filter replaced (shop work).

Warning message Hydraulic Oil Temperature

If the warning message appears, the hydraulic oil temperature is too high or too low.

A malfunction has occurred if the warning message appears during the use of the machine.

1. Immediately stop, put the machine into a secured condition and turn the diesel engine off.
2. Check the hydraulic oil level.

   If the hydraulic oil level is OK, the ribs of the hydraulic oil cooler may be soiled.
3. Clean the hydraulic oil cooler if necessary.
4. Check whether the radiator fans are running.
5. If you are not able to locate the cause, contact an authorised workshop.

Warning message Hydraulic Oil Level

If the warning message appears, the hydraulic oil level is too low.

A malfunction has occurred if the warning message appears during the use of the machine.

Top up hydraulic oil.

7.4.2 Start diesel engine

DANGER

Risk of poisoning or even death due to exhaust gases when starting or operating the diesel engine in non-ventilated or closed locations!

- Connect the exhaust to a required ventilation system before starting or operating the diesel engine in a closed location.
- Ensure sufficient ventilation.

WARNING

Risk due to accidental rolling of the machine during start of diesel engine!

Only start the diesel engine from the driver seat.

- Observe the chapter "Daily lubrication and maintenance" of the included diesel engine operating instructions before starting the diesel engine.
- The diesel engine can only be started with the battery main switch in closed position.
- Observe the warning and control messages when the diesel engine is running. Immediately turn the diesel engine off if the symbol "Diesel engine STOP" appears or if there are signs of component malfunction. Observe the information in the chapter "Operation monitoring", page 147.
- Never start or operate the diesel engine without battery. This will destroy the three-phase generator.
- Observe the information in the chapter "Winter operation of diesel engine", page 158, when using the machine at low ambient temperatures.

Always wait until the terminal has completely booted before starting the diesel engine!

Time after the ignition has been switched on: approximately 4 seconds; after a downtime of the machine of more than 24 hours approximately 1 minute.

If the terminal has only completely booted after the start of the diesel engine, it will display an error and the machine will not work.

1. Switch the parking brake on.
2. Before starting the diesel engine, carry out all checks specified in the chapter "Daily lubrication and maintenance" of the included diesel engine operating instructions.
3. Put the ignition key into the ignition lock.
4. Set the manual throttle lever to idle position.
5. Turn the ignition key to position I.

→ The control messages light up. The terminal boots and, depending on the selected operating mode, the basic configuration "Charging", "Discharging" or "Transport" appears.

- Do not actuate the starter for more than 15 seconds at a time, otherwise the starter risks to be overheated.

  If the diesel engine does not start at first attempt, wait for at least 2 minutes before carrying out another start attempt. If the diesel engine has not started after four attempts, please refer to the chapter "Trouble-shooting" of the included diesel engine operating instructions.
- Release the ignition key as soon as the diesel engine starts. The starter must not rotate.

6. Turn the ignition key to position II and keep it in that position.
7. Start the diesel engine.
   - 7.1 Turn the ignition key against the spring pressure to the right to position III to start the diesel engine.
   - 7.2 Release the ignition key as soon as the diesel engine starts.

→ The ignition key returns to position I and the control messages disappear.

When releasing the ignition key before the diesel engine starts, wait until the starter and the diesel engine do not rotate any more before repeating the start attempt, thus avoiding possible damage to the starter and/or the flywheel.

8. After starting the diesel engine, immediately check whether the control message "Engine oil pressure too low" appears. If it does, immediately turn the diesel engine off, locate the cause and have it remedied.
9. Let the cold diesel engine warm up. Observe the information in the chapter "Warm up diesel engine", page 155.
10. Observe the warning and control messages when the diesel engine is running. Observe the information in the chapter "Operation monitoring".

Turn the diesel engine off if the warning or control messages suddenly light up during operation or if there are signs for the malfunction of a component. The following symptoms are early signs for diesel engine problems:

- Sudden drop of oil pressure,
- unusual coolant temperatures,
- unusual noise or vibrations,
- excessively black exhaust gases,
- excessive fuel consumption,
- excessive oil consumption,
- liquid leakages.

7.4.3 Warm up diesel engine

Do not run the cold diesel engine at full load!

- Let the diesel engine warm up free of load at an engine speed between 900 and 1200 min^{-1} for 1 - 2 minutes (in case of frost 3 - 6 minutes) to ensure proper lubrication of the diesel engine.
- Operate the diesel engine 15 minutes after starting at lesser load and engine speed than normal. Do not let the diesel engine run in high rpm range.
- Avoid high engine speeds, full throttle and heavy stress for the cold diesel engine.

At low ambient temperatures, the cold hydraulic oil of the hydrostatic traction drive limits the diesel engine speed immediately after starting the diesel engine.

At a hydraulic oil temperature of less than +10°C the diesel engine speed cannot be increased neither via the pedal nor via the manual throttle lever. Driving movements of the machine might not be possible.

Only when the hydraulic oil temperature has reached at least +10°C, the diesel engine speed can be continuously increased. Depending on the ambient temperature, warming-up of the hydraulic oil may take several minutes.

7.4.4 Start diesel engine by means of a jumper battery

WARNING

Risk of explosion due to battery gases, caused by sparking and open fire in the vicinity of batteries!

Avoid sparking and open fire in the vicinity of batteries.

- Ensure that the non-insulated parts of the pole pliers of the jumper cable do not come into contact with each other.
- Make sure to always connect the minus pole (-) jumper cable last and remove it first when connecting the jumper cables.

- The jumper battery must provide a voltage of 24 volts and about the same capacity (Ah) as the machine battery.
- Always use a jumper cable with insulated pole pliers and a cross-section from 50 mm².
- After having connected the machine battery and the jumper battery with each other, immediately start the diesel engine, in order to prevent the jumper battery from being discharged.

Avoid damage to the electrical system due to short-circuit:

- Before connecting the jumper and machine battery, beware of correct polarity. Always connect plus pole with plus pole (+) and minus pole with minus pole (-).
- Ensure that the jumper cable connected to the plus pole (+) does not come into contact with electroconductive machine parts.

1. Connect a plus pole (+) and a minus pole (–) of the two jumper batteries with each other to produce the required voltage of 24 V (Fig. 121)
2. Connect one end of the red jumper cable with the plus pole (+) of the jumper battery.
3. Connect the other end of the jumper cable with the plus pole (+) of the machine battery connected to the starter.

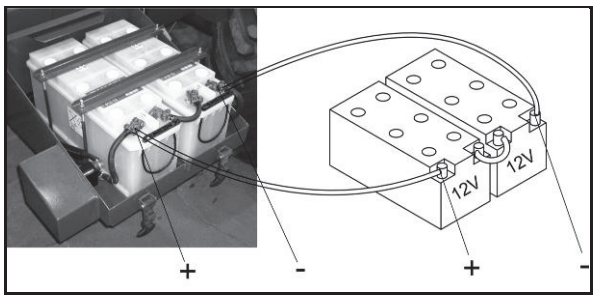


Fig. 121

4. Connect one end of the black jumper cable with the minus pole (-) of the jumper battery.
5. Connect the other end of the jumper cable with the minus pole (-) of the machine battery.
6. Start the diesel engine.
7. Immediately remove the jumper cables as soon as the diesel engine starts. Always disconnect the jumper cable first from the minus pole (-).

7.4.5 Tow-start diesel engine

Tow-starting of the diesel engine is not possible, as the machine is equipped with a hydrostatic traction drive.

7.4.6 Turn off diesel engine

Avoid engine damage:

- Let the diesel engine run for at least 3 to 5 minutes at an engine speed of 1000 - 1200 min^{-1} after a longer period of heavy stress, in order to allow hot diesel engine components to cool down and prevent a heat build-up in the engine compartment.
- Turn the diesel engine off exclusively at idle speed.

1. Set the manual throttle lever (1) to idle position.
2. Switch the parking brake on.
3. Turn the ignition key to position 0.

→ The diesel engine stops and the ignition is off. The terminal goes out.

4. Top the diesel fuel tank up, in order to minimise problems due to condensate. If the diesel fuel tank is topped up after operation of the machine, the humid air is pushed out of the tank.
5. Pull the ignition key out when leaving the machine.

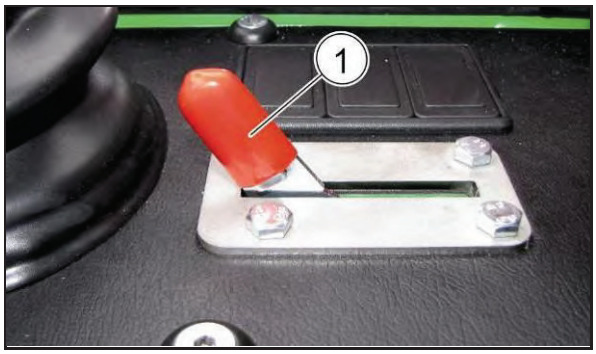


Fig. 122

7.4.7 Winter operation of diesel engine

- Keep the batteries in a good state of charge.
- Ensure that the viscosity class of the engine oil complies with the outside temperatures.
- Use winter diesel fuel at outside temperatures below 0°C.
- Do not use an engine starter spray for starting the diesel engine.
- Top up anti-freezing agent early enough.
- Observe also the included operating instructions for the diesel engine.

7.5 Travelling mode

The machine is equipped with a hydrostatic traction drive. The machine is infinitely accelerated and decelerated by means of the pedal. The further the pedal is pressed down, the higher the travelling speed.

The achievable travelling speed depends on the selected operating mode (**Charging, Discharging, Transport**), the position of the pedal (engine speed), the rolling resistance and the consumption of hydrostatic power for the operating hydraulics or the steering.

- In **"Transport"** mode, travelling speeds between 0 and 25 km/h or 0 and 40 km/h can be reached, depending on the machine's equipment.
- In **"Charging"** mode, travelling speeds between 0 and 7 km/h can be reached.
- In **"Discharging"** mode, travelling speeds between 0 and 14 km/h can be reached.

7.5.1 Forward travel

1. Switch the parking brake off.
2. Check the hazardous area of the machine.
3. Set the lever (1) of the reversing gear to direction of motion position "Forward" (2).

→ The terminal displays the symbol "Direction of motion Forward"  .

4. Accelerate or decelerate the machine by means of the pedal (3). The further the pedal is pressed down, the higher the travelling speed.

→ Analog and digital display of the value for the current travelling speed in the terminal.

Fig. 123

7.5.2 Reverse travel

DANGER 	**Danger to life for people and animals behind the machine due to insufficient visibility from the driver seat!** Before each startup of the machine, adjust the rear-view camera such that you have a complete view of the hazardous area behind the machine.

1. Switch the parking brake off.
2. Set the lever (1) of the reversing gear to direction of motion position "Backwards" (2).

→ The terminal displays the symbol "Direction of motion Backwards"  . An acoustic warning signal (optional extra) sounds and the video surveillance monitor displays the area behind the machine.

3. Check the hazardous area behind the machine in the terminal.
4. Make sure that people / animals leave the hazardous area if necessary.
5. Accelerate or decelerate the machine by means of the pedal (3). The further the pedal is pressed down, the higher the travelling speed.

→ Analog and digital display of the value for the current travelling speed in the terminal.

Fig. 124

7.5.3 Change direction of motion

1. Slow down the machine by means of the brake pedal (1).
2. Change the direction of motion via the lever (2) of the reversing gear.

→ Depending on the selected direction of motion, the terminal displays the symbol

"Direction of motion Forward" 

"Direction of motion Backwards"  or

"Direction of motion Neutral"  .

Fig. 125

7.5.4 Change direction of motion during charging

In "Charging" mode, the direction of motion can be changed with the pedal pressed down without actuating the reversing gear:

1. Keep the key button (3) of the multi-function joystick pressed.

→ The machine travels in the opposite direction.

2. Release the key button (3) of the multi-function joystick.

→ The machine travels again in the direction set by means of the reversing gear.

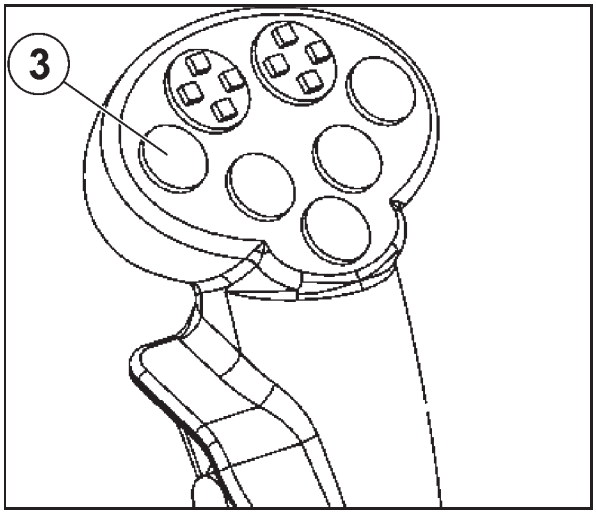


Fig. 126

7.5.5 Slow down and stop machine

Slightly slow down machine:

1. Remove the foot from the pedal (1).
2. Slightly press the brake pedal (2) down.

→ The machine slightly slows down.

Strongly slow down the machine (panic braking):

1. Remove the foot from the pedal (1).
2. Strongly press the brake pedal (2) down.

→ The machine immediately stops.

Prevent the machine from "creeping", e. g. during charging:

1. Remove the foot from the pedal (1).
2. Press the brake pedal (2) down.

Fig. 127

7.5.6 Slow down machine in case of excessive speed

By swivelling the hydraulic pump of the traction drive back, the machine can even out slight gradients on the travel route and slow down.

When exceeding the travelling speed of 25 km/h or 40 km/h, the machine is travelling too fast. A warning message appears in the display, indicating the excessive speed. In this case, the driver is requested to actively operate the brake.

Slow down machine:

1. Remove the foot from the pedal (1).
2. Press the brake pedal (2) down well-dosed.
3. Slow down the machine such that the admissible speed limit is kept to.

→ The machine travels at admissible speed.

Fig. 128

Exceeding the admissible speed and non-observance of the warning message shall be deemed as incorrect use and might cause damage to the machine. This misuse of the machine is recorded by the control system and can be read out in case of a warranty claim.

For details, please refer to chapter "**Fehler! Verweisquelle konnte nicht gefunden werden.**", page **Fehler! Textmarke nicht definiert.**.

7.5.7 Parking brake

- The active parking brake acts on the rear axle and secures the parked machine against accidental rolling.
- In case of a failure of the hydraulic pressure supply, the machine is automatically slowed down and switched off. In this situation, the machine can only be moved after emergency release of the spring-loaded cylinder by an authorised workshop.

Switch parking brake on:

1. Stop the machine.
2. Press the toggle switch "Parking brake".

→ The parking brake is switched on and the symbol "Parking brake activated"  appears in the terminal.

Switch parking brake off:

1. Switch the ignition on.
2. Press the toggle switch "Parking brake".

→ The parking brake is switched off and the "Parking brake" symbol in the terminal goes out.

Fig. 129

7.5.7.1 Manual release of parking brake

Manual release of the switched-on parking brake is only allowed in case of an emergency (e.g. for towing the machine).

The emergency release mechanism is mounted in the direction of motion beneath the front part of the mixing container.

DANGER

Danger to life due to accidental rolling of the machine when carrying out work beneath the machine!

Secure the machine against rolling by means of the chocks before manually releasing the parking brake beneath the machine.

1. Secure the machine against rolling by means of the chocks.
2. Unscrew the two nuts (1) and turn them up to the end of the threaded rod (2).

→ The parking brake is released.

3. Have the parking brake, which was manually released, applied again by an authorised workshop after having manoeuvred or towed the machine.

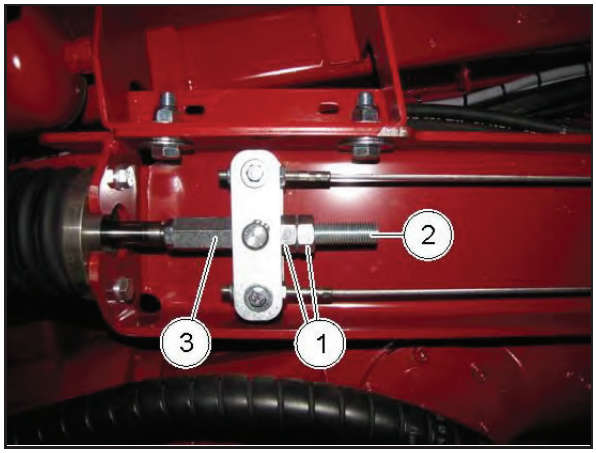


Fig. 130

7.5.8 Tow machine

Avoid damage to the machine's traction drive by

- opening the **hydraulic oil circuit of the traction drive** (free oil circulation) before towing the machine, such that the traction drive no longer acts as auxiliary brake.
- **manually releasing the parking brake** before towing the machine.
- limiting the towing procedure to the **shortest possible distances** (e.g. clearing a crossing, not more than 1 km of travelling distance!).
- towing the machine not faster than at **walking pace**.
- paying attention to heat development in the traction drive.
- restarting the traction drive only **after complete filling and venting** of the hydraulic oil circuit; otherwise, unintentional functions may occur.

7.5.8.1 Open hydraulic oil circuit of traction drive

► Also observe the information in the chapter "Working in engine compartment", page 234.

1. Open the engine cowling.
2. Unscrew the screw (1) at both high-pressure limiting valves by exactly 4 counterclockwise turns.

→ The hydraulic oil circuit of the traction drive is open.

3. Close the engine cowling.
4. Tow the machine.
5. Retighten the screw (1) at both high-pressure limiting valves at a tightening torque of 60 Nm after completion of the towing procedure.

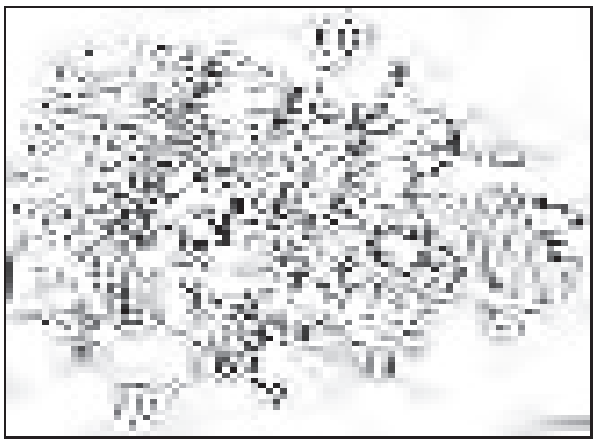


Fig. 131

7.5.9 Steering

The standard machine model is equipped with a front axle steering. Hydraulic steering reduces the effort required to actuate the steering wheel.

Four-wheel steering is an optional extra. Four-wheel steering with opposite steering angle of the front and rear wheels acts as a reduction of the wheelbase and the turning radius. Four-wheel steering allows to manoeuvre the machine under difficult or strongly limited spacious conditions.

- Hydraulic steering only works with the diesel engine running.
- With the four-wheel steering (optional extra) switched on, the travelling speed is limited to 18 km/h.
- Always change between front axle steering and four-wheel steering at low speed, not with the vehicle stationary.

7.5.9.1 Switch four-wheel steering on

1. Press the toggle switch "Four-wheel steering" (Fig. 132).

→ The four-wheel steering is switched on and the symbol "Four-wheel steering"  appears in the terminal.

2. Align the wheels of the front axle in a straight line by means of a short forward or reverse travel of the machine.

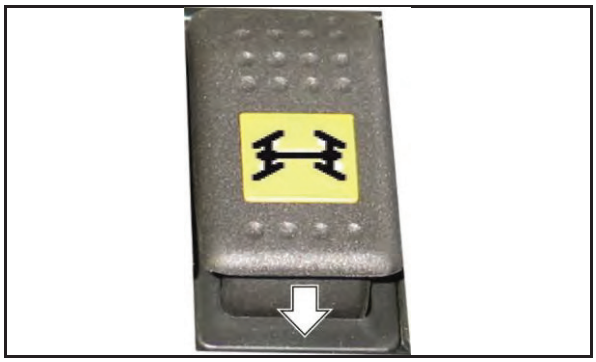


Fig. 132

7.5.9.2 Switch four-wheel steering off

1. Press the toggle switch "Four-wheel steering" (Fig. 133).

→ The four-wheel steering is switched off and the symbol "Front axle steering"  appears in the terminal.

2. Align the wheels of the rear axle in a straight line by means of a short forward or reverse travel of the machine.

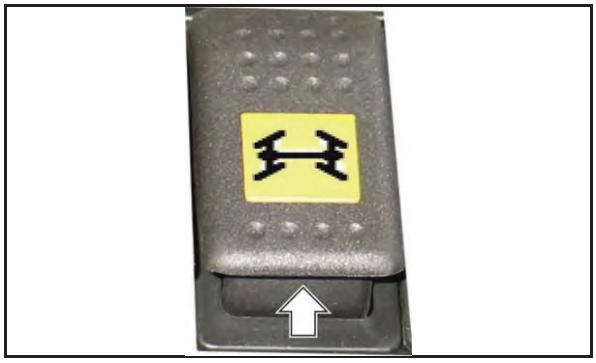


Fig. 133

7.5.10 Air suspension with levelling system

Optional extra

Do not exceed 10 km/h when travelling with the lowered machine! This may cause damage to the machine.

WARNING

Risk of crushing and impact to people and animals when lifting and lowering the machine!

Make sure that people and animals leave the hazardous area next to or beneath the machine before actuating the levelling system.

Lower machine

1. Reduce the travelling speed to less than 10 km/h.
2. Turn the rotary switch to position "Lower machine".

→ The machine comes down onto the mechanical emergency running springs.

Fig. 134

Lift machine

Turn the rotary switch to position "Lift machine".

→ The machine rises up to the set travelling height.

Fig. 134

7.6 Assign functions to freely assignable keys

The ex works equipment provides some standard options assigned to the freely assignable keys of the multi-function joystick and the display. Adapt the keys to your needs and the equipment of your machine.

Observe the fact that the function selection for the freely assignable display keys is limited.

1. Select the "Parameter" menu. For details refer to page 111.

→ The "Settings" display appears.

2. Select one of the assignable keys and press the respective key:
   - Multi-function joystick – blue key
   - Multi-function joystick – green key
   - Multi-function joystick – yellow key
   - Display key 1
   - Display key 2
   - Display key 3

→ The "List of functions" display appears.

3. Select and press the key providing the desired function.

→ The function is assigned to the key. The "Settings" display appears.

7.7 Set screen brightness

Carry out the following adjustment if the display is too bright.

1. Press the "Settings" key to select the "Parameter" menu  . For details, please refer to page 111.

→ The "Settings" display appears.

2. Press the "Display settings" key  .

→ The "Keyboard" display appears.

3. Press the "Change entry data" key  .

→ The input field appears.

4. Enter the desired value to reduce the screen brightness from 100% to e.g. 50% for night-time lighting.

5. Press the "Confirm" key  to confirm your entry.

→ The "Settings" display appears.

6. Press the "Full headlights" key  to switch between day and night-time lighting.

→ The screen brightness appears at the preset value.

8 Use of machine

When using the machine, additionally observe the information included in the following chapters:

- "Operator's obligation",
- "Qualification of staff",
- "Basic safety instructions",
- "Warning and instsruction signs".

Observance of these chapters serves your safety.

8.1 Perform functions

8.1.1 Lift / Lower cutter arm

The cutter arm can be lifted and lowered in all operating modes.

DANGER

Danger to life when the cutter arm approaches or comes into contact with power lines!

Always keep sufficient safe distance to power lines when lifting the cutter arm.

WARNING

Risk to people and animals when lifting and lowering the cutter arm!

- Make sure that people or animals leave the hazardous area of the cutter arm before lifting or lowering the cutter arm.
- Immediately release the multi-function joystick when people or animals enter the hazardous area of the cutter arm.

Lift cutter arm:

1. Move the multi-function joystick (1) backwards and keep hold of it in the direction of the arrow (2).

   The further the multi-function joystick (1) is moved in the direction of the arrow (2), the faster the cutter arm rises.

2. Release the multi-function joystick (1) when the cutter arm has reached the desired height.

→ The multi-function joystick returns to neutral position and the movement of the cutter arm stops.

Lower cutter arm:

1. Move the multi-function joystick (1) forward and keep hold of it in the direction of the arrow (3).

   The further the multi-function joystick is moved in the direction of the arrow (3), the faster the cutter arm goes down.

2. Release the multi-function joystick (1) when the cutter arm has reached the desired height.

→ The multi-function joystick returns to neutral position and the movement of the cutter arm stops.

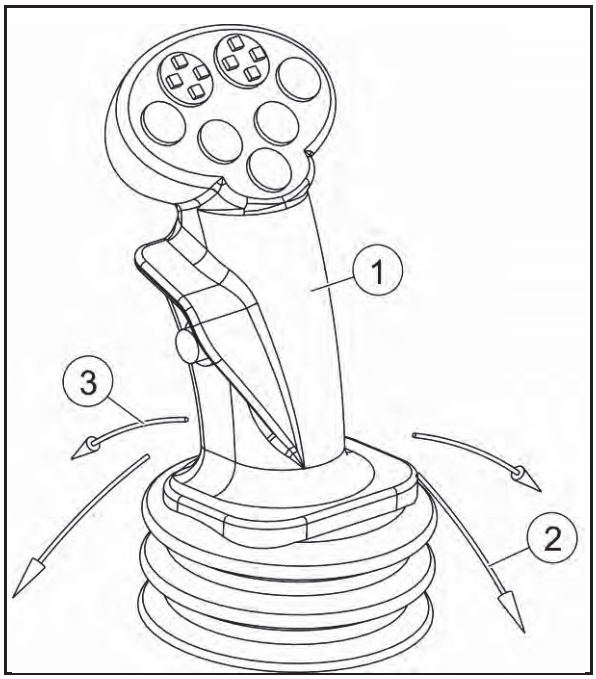


Fig. 135

Lift cutter am via emergency lifting device:

- The cutter arm can be lifted via the emergency lifting device in the event of a failure of the electrical or the control system and the lowered cutter arm impairs access to the central electrical system.
- The emergency lifting device only works if the power supply to the ignition starter switch is not interrupted (ignition can be switched on).
- The emergency lifting device is operated via the lever of the stop-cocks on the front right-hand wing.

1. Remove the locking mechanism (1) of the lever (2) of the stop-cocks.
2. Swivel the lever (2) of the stop-cocks from position (A) to position (B).

→ The stop-cocks are open.

3. Actuate the starter via the ignition starter switch.
4. Turn the steering wheel (hard to turn!) to its right or left end position..

→ The cutter arm rises.

5. Swivel the lever (2) of the stop-cocks from position (B) to position (A).

→ The stop-cocks are closed.

6. Secure the lifted cutter arm against accidental lowering by means of the mechanical support device.

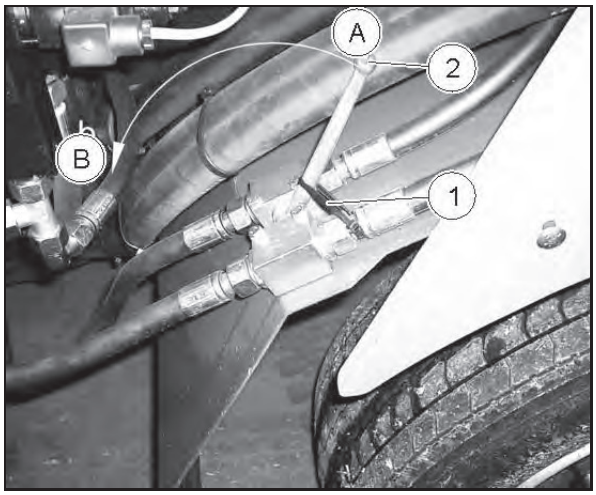


Fig. 136

8.1.2 Actuate protective device of pick-up milling cutter and transport support

The protective device (1) of the pick-up milling cutter and the transport support (2) for the cutter arm (3) are coupled with each other by means of the hydraulic control.

When opening the protective device (1), the transport support (2) is automatically retracted (Fig. 137).

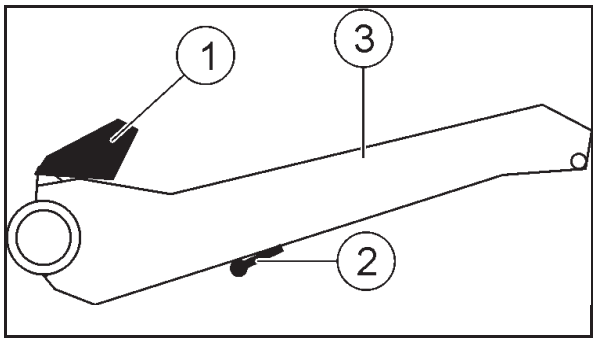


Fig. 137

When closing the protective device (1), the transport support (2) is automatically extended.

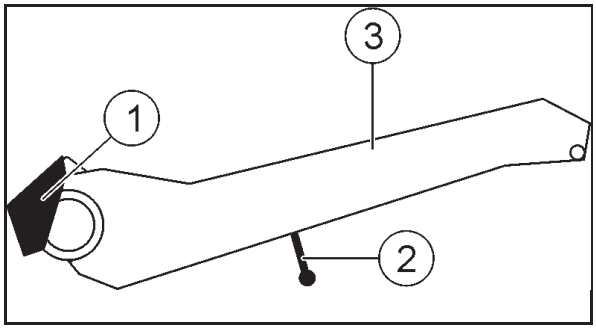


Fig. 138

Before opening or closing the protective device of the pick-up milling cutter:

Always lift the cutter arm far enough to enable you to see

- whether the transport support can be easily extended or retracted.
- whether the transport support has reached its proper end position after having been extended or retracted.

WARNING

Risk to people and animals when opening and closing the protective device of the pick-up milling cutter!

- Make sure that people or animals leave the hazardous area of the protective device before opening or closing the protective device.
- Immediately release the key button of the multi-function joystick when people or animals enter the hazardous area of the protective device.

Open protective device of pick-up milling cutter / Retract transport support

1. Lift the cutter am far enough to enable you to see the transport support.
2. Press and keep hold of the key button (1) of the multi-function joystick to the left (2).

→ The protective device of the pick-up milling cutter opens and the transport support retracts.

3. Release the key button (1) of the multi-function joystick when the protective device is open and the transport support is in close contact with the underside of the cutter arm.

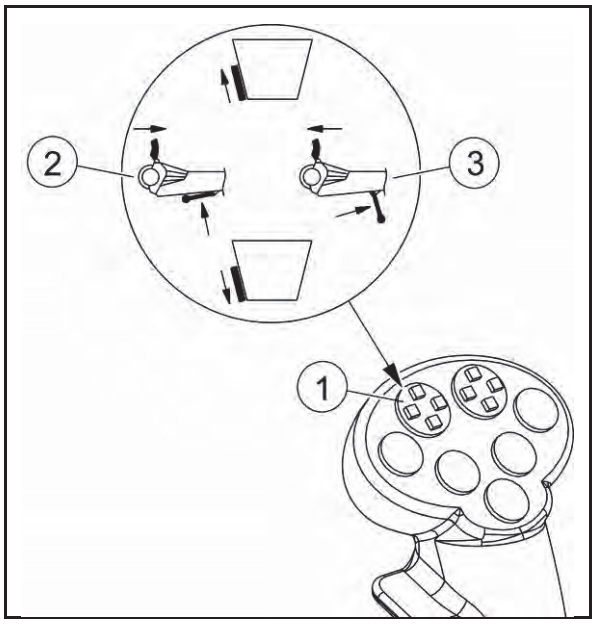


Fig. 139

Close protective device of pick-up milling cutter / Extend transport support

1. Lift the cutter am such that you can see the transport support.
2. Press and keep hold of the key button (1) of the multi-function joystick to the right (3).

→ The protective device of the pick-up milling cutter closes and the transport support extends.

3. Release the key button (1) of the multi-function joystick when the protective device is closed and the transport support is extended to its maximum.

8.1.3 Switch pick-up milling cutter and elevator conveyor on and off

- The drives for the pick-up milling cutter and the elevator conveyor are coupled: When the pick-up milling cutter is switched on, the elevator conveyor also starts to run and the elevator end flap opens.
- The pick-up milling cutter and the elevator conveyor can be powered in the driving directions "Filling" and "Reversing":
  - o For filling the mixing container, select "Filling" direction.
  - o For transporting fodder components out of the range of the pick-up milling cutter and the elevator conveyor, select "Reversing" direction.

  Depending on the selected driving direction, the symbols "Fill pick-up milling cutter", "Reverse pick-up milling cutter", "Pick-up milling cutter Stop" and "Fill elevator conveyor", "Reverse elevator conveyor", "Elevator conveyor Stop" appear in the basic configuration of the "Charging mode".
- The higher the speed of the diesel engine, the higher the driving power of the pick-up milling cutter.

WARNING

Risk to people and animals due to powered pick-up milling cutter!

- Make sure that people or animals leave the hazardous area of the pick-up milling cutter before switching the pick-up milling cutter on.
- Immediately release the multi-function joystick when people or animals enter the hazardous area of the pick-up milling cutter.

Switch pick-up milling cutter and elevator conveyor on in driving direction "Filling":

1. Select "Charging" mode. For details, please refer to page 80.
2. Press and keep hold of the release button (1) at the multi-function joystick (2).

→ The switching-on function for the pick-up milling cutter is enabled!

3. Move the multi-function joystick (2) to the left and keep hold of it in the direction of the arrow (3).

→ The pick-up milling cutter and the elevator conveyor start in "Filling" direction and the elevator end flap opens.

At the same time, the symbols "Fill pick-up milling cutter" (Fig. 141/left) and "Fill elevator conveyor" (Fig. 141/right) appear in the terminal.

The release button (1) at the multi-function joystick (2) can now be released.

Switch pick-up milling cutter and elevator conveyor off:

1. Set the multi-function joystick (2) back to neutral.

→ In neutral position, the pick-up milling cutter and the elevator conveyor stop. At the same time, the symbols "Pick-up milling cutter Stop" (Fig. 142/left) and "Elevator conveyor Stop" (Fig. 142/right) appear in the terminal.

2. Switch the release button "Charging" off.

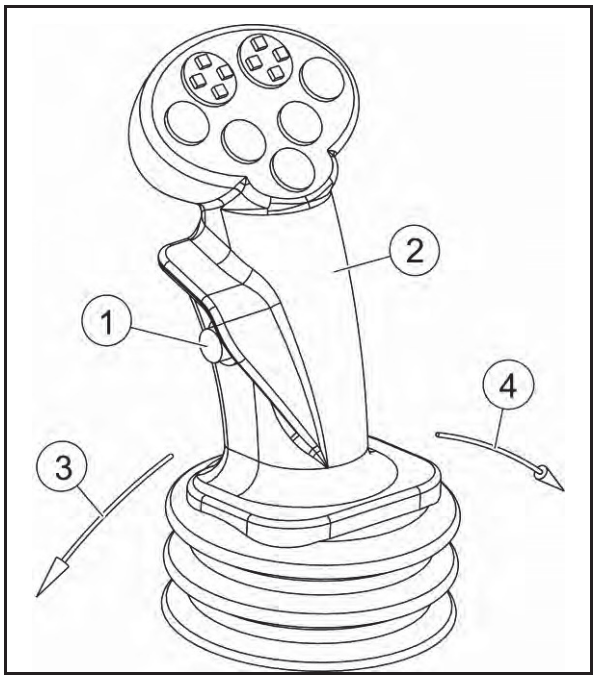


Fig. 140

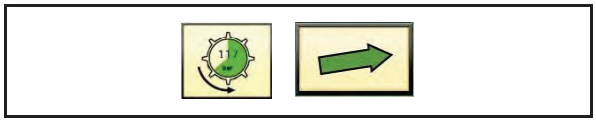


Fig. 141

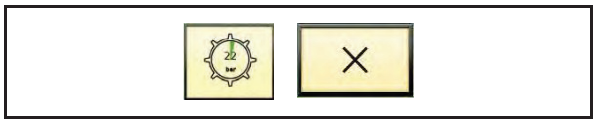


Fig. 142

8.1.4 Actuate elevator conveyor

To perform the following functions:

- assign the desired functions to the assignable keys of the multi-function joystick and/or the display in "Charging" mode.
- select "Charging" mode.

Switch elevator conveyor on:

Press and keep hold of the preselected key providing the "Fill elevator conveyor" (Fig. 143) function.

→ The elevator conveyor starts to run in "Filling" direction. At the same time, the symbol "Fill elevator conveyor" (Fig. 144) appears in the terminal.

Reverse elevator conveyor:

Press and keep hold of the preselected key providing the "Reverse elevator conveyor" function (Fig. 145).

→ The elevator conveyor starts to run in "Reversing" direction. At the same time, the symbol "Reverse elevator conveyor" (Fig. 146) appears in the terminal.

Switch elevator conveyor off:

Release the preselected key.

→ The elevator conveyor stops. At the same time, the symbol "Elevator conveyor Stop" (Fig. 147) appears in the terminal.

Fig. 143

Fig. 144

Fig. 145

Fig. 146

Fig. 147

The elevator conveyor speed can be reduced for a short time to pick up light fodder components or components tending to heavy formation of dust.

Reduce conveyor speed:

Press and keep hold of the preselected key providing the function "Fill elevator conveyor slowly" (Fig. 148).

→ The elevator conveyor runs at reduced driving speed. At the same time, the symbol "Fill elevator conveyor slowly" (Fig. 149) appears in the terminal.

Fig. 148

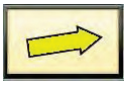


Fig. 149

8.1.5 Reverse pick-up milling cutter

For transporting picked-up fodder components out of the range of the pick-up milling cutter and the elevator conveyor, select "Reversing" direction.

WARNING

Risk to people and animals due to powered pick-up milling cutter!

- Make sure that people or animals leave the hazardous area of the pick-up milling cutter before switching the pick-up milling cutter on.
- Immediately release the multi-function joystick when people or animals enter the hazardous area of the pick-up milling cutter.

Reverse pick-up milling cutter:

1. Press and keep hold of the release button (1) at the multi-function joystick (2).

→ The switching-on function for the pick-up milling cutter is enabled.

2. Move the multi-function joystick (2) to the right and keep hold of it in the direction of the arrow (4).

→ The pick-up milling cutter starts to run in "Reversing" direction and the elevator end flap closes.

At the same time, the symbol "Reverse pick-up milling cutter" (Fig. 151) appears in the terminal.

The release button (1) at the multi-function joystick (2) can now be released.

Switch pick-up milling cutter and elevator conveyor off:

1. Set the multi-function joystick (2) back to neutral.

→ In neutral position, the pick-up milling cutter and the elevator conveyor stop. At the same time, the symbols "Pick-up milling cutter Stop" (Fig. 152/left) and "Elevator conveyor Stop" (Fig. 152/right) appear in the terminal.

2. Switch the release button "Charging" off.

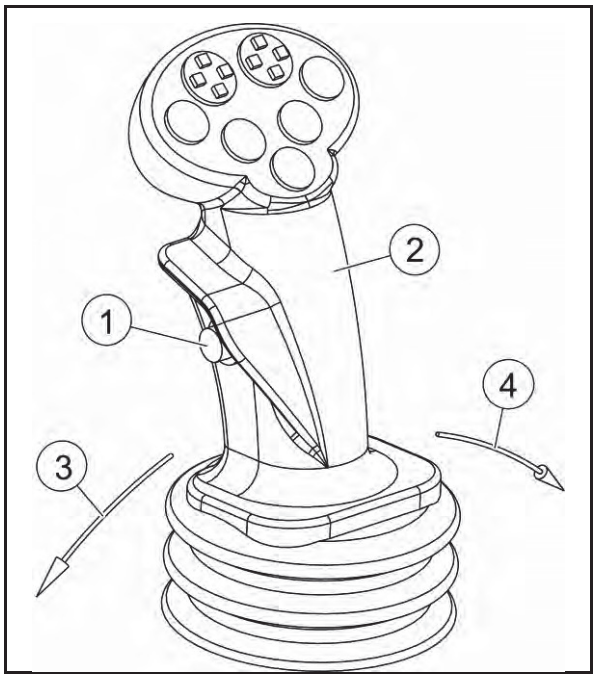


Fig. 150

Fig. 151

Fig. 152

8.1.6 Actuate hydraulic counter-cutters / crossover conveyor displacement / side discharge conveyor

Optional extra

To perform the following functions:

- assign the desired functions to the assignable keys of the multi-function joystick and/or the display in "Discharging" or "Transport" mode.
- select "Discharging" or "Transport" mode.

WARNING

Risk to people and animals when extending and retracting the counter-cutters / when displacing the crossover conveyor / when extending and retracting the side discharge conveyor!

- Make sure that people or animals leave the hazardous area of the counter-cutters / the crossover conveyor / the side discharge conveyor before extending and retracting the counter-cutters / displacing the crossover conveyor / extending and retracting the side discharge conveyor.
- Immediately release the key button of the multi-function joystick when people or animals enter the hazardous area of the counter-cutters / the crossover conveyor / the side discharge conveyor.

Retract hydraulic counter-cutters / displace crossover conveyor / retract side discharge conveyor:

Press and keep hold of the preselected key providing the function "Retract hydraulic counter-cutters (Fig. 153/left) / displace crossover conveyor (Fig. 153/right) / retract side discharge conveyor (Fig. 153/right)".

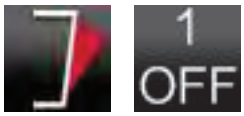


Fig. 153

Extend hydraulic counter-cutters / displace crossover conveyor / extend side discharge conveyor:

Press and keep hold of the preselected key providing the function "Extend hydraulic counter-cutters (Fig. 154/left) / displace crossover conveyor (Fig. 154/right) /extend side discharge conveyor (Fig. 154/right).

Fig. 154

8.1.7 Switch crossover conveyor on and off

WARNING

Risk of injury to people and animals due to becoming entangled, being drawn in and wound up by the running crossover conveyor!

- Make sure that people or animals leave the hazardous area of the crossover conveyor before powering the conveyor.
- Immediately switch the crossover conveyor off if people or animals enter the hazardous area of the crossover conveyor.

Switch crossover conveyor on:

1. Select "Discharging" mode. For details please refer to page 81.
2. Press the rocker switch (1) down on the left-hand or right-hand side.

→ The crossover conveyor starts to run to the left or to the right. At the same time, the symbol "Crossover conveyor ccw rotation" (Fig. 156) or "Crossover conveyor cw rotation" (Fig. 157) appears in the terminal.

Switch crossover conveyor off:

Set the rocker switch (1) back to neutral.

→ The crossover conveyor stops. At the same time, the symbol "Crossover conveyor Stop" (Fig. 158) appears in the terminal.

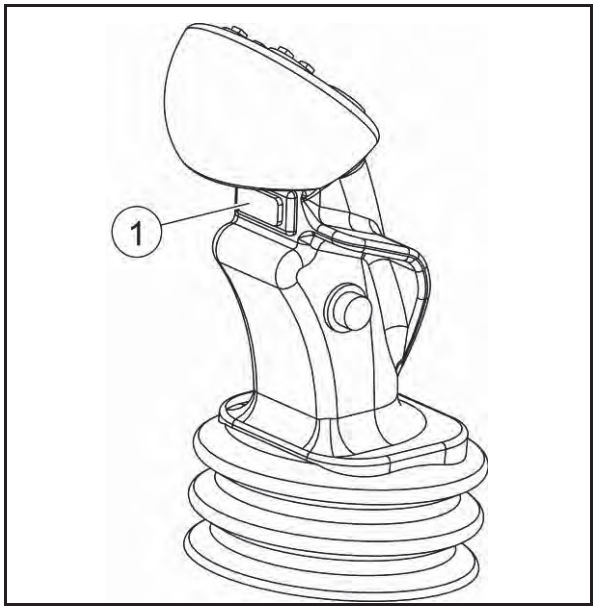


Fig. 155

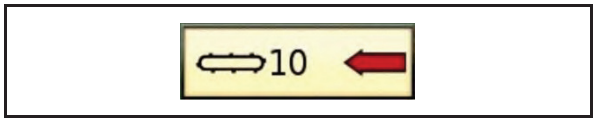


Fig. 156

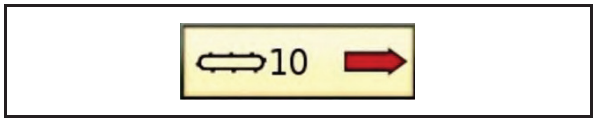


Fig. 157

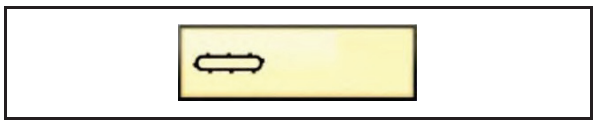


Fig. 158

8.1.8 Set crossover conveyor speed

1. Switch the crossover conveyor on.
2. Keep the key button (1) pressed to the top (2) or to the bottom (3) until the terminal displays the desired speed level next to the symbol "Crossover conveyor" (Fig. 160).
3. Switch the crossover conveyor off.

→ The last selected speed level is saved.

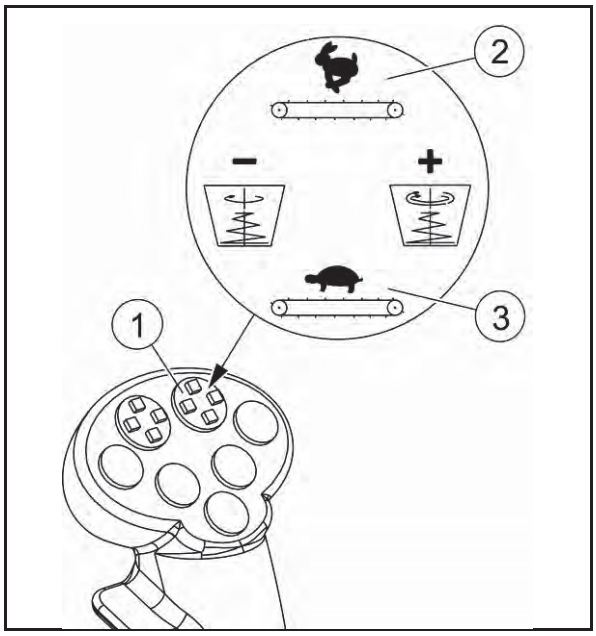


Fig. 159

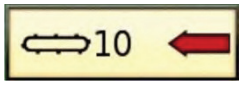


Fig. 160

8.1.9 Open and close dosage gate

If the machine is equipped with several dosage gates, first preselect the dosage gate to be activated via the toggle switch at the control console. For details, please refer to **Fehler! Verweisquelle konnte nicht gefunden werden.**, page **Fehler! Textmarke nicht definiert.**.

WARNING

Risk of crushing due to closing discharge door!

- Before actuating the discharge door, make sure that people or animals leave the hazardous area of the discharge door!
- Immediately release the key button of the multi-function joystick when people or animals enter the hazardous area of the discharge door.

1. Select "Discharging" mode. For details, please refer to page 81.
2. Press the key button (1) of the multi-function joystick to the top (2) or bottom (3) and keep it pressed.

→ The discharge door opens or closes. At the same time, the terminal displays the opening status of the discharge door as a yellow bar and percentage value (Fig. 162).

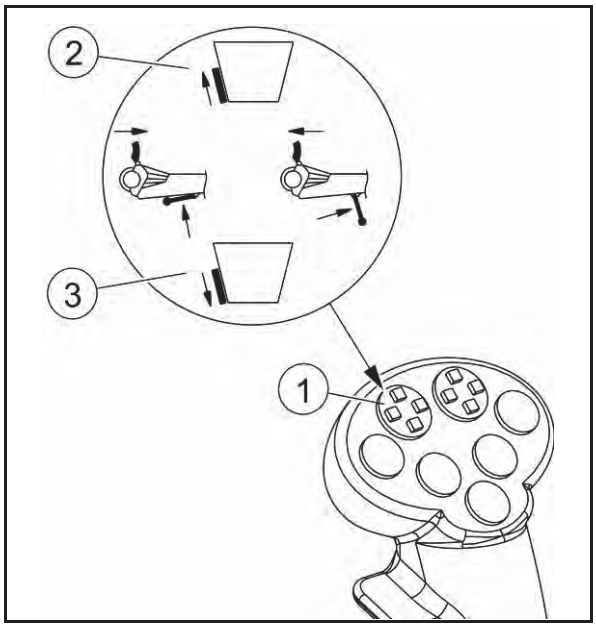


Fig. 161

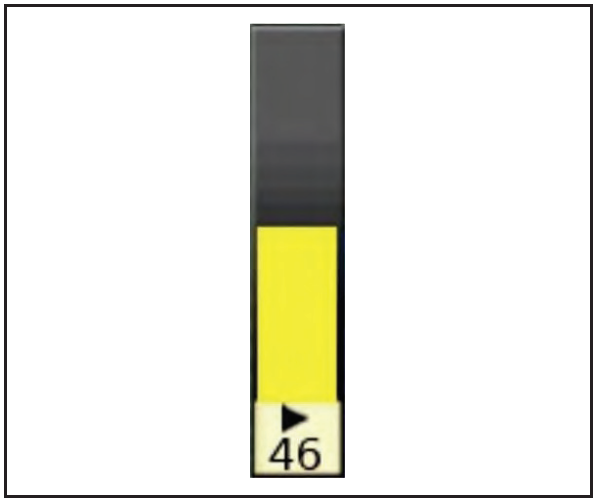


Fig. 162

8.1.10 Switch mixing auger(s) on and off

Switch mixing auger(s) on:

Press the key button (1) of the multi-function joystick.

→ The last set speed (Fig. 164) appears in the "Mixing auger(s)" symbol in the terminal.

Switch mixing auger(s) off:

Press the key button (1) of the multi-function joystick again.

→ The last set speed disappears in the "Mixing auger(s)" symbol in the terminal.

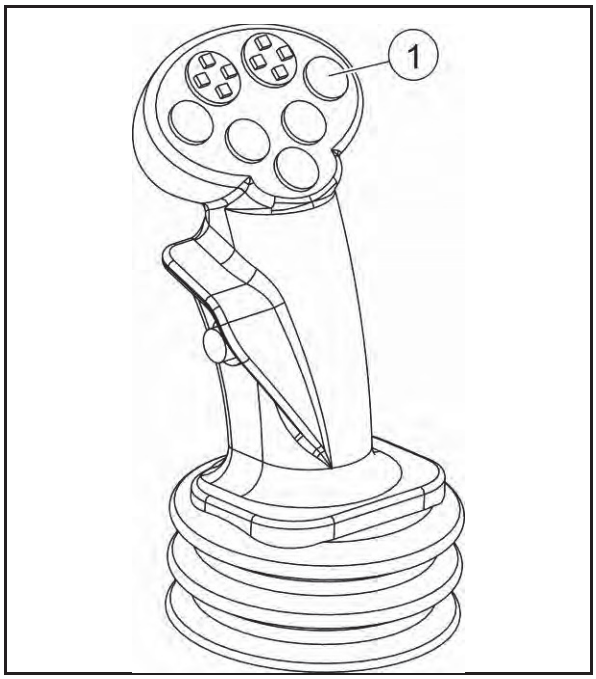


Fig. 163

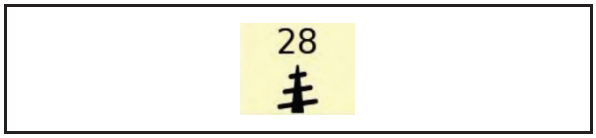


Fig. 164

8.1.11 Set mixing auger speed

The mixing auger speed can be set at 10 levels in the standard version.

The rpm ranges for the Verti-Mix SF and Verti-Mix Double SF models are specified in the adjacent table.

	Mixer speeds [min^{-1}]	
	SF	**Double SF**
Normal mode	1-21	1-15
Quick motion mode	1-47	1-47

Increase or reduce mixing auger speed:

Press and keep hold of the key button (1) of the multi-function joystick to the right (2) or left (3) until the desired speed appears in the "Mixing auger(s)" symbol (Fig. 166) in the terminal (0 = mixing auger(s) switched off).

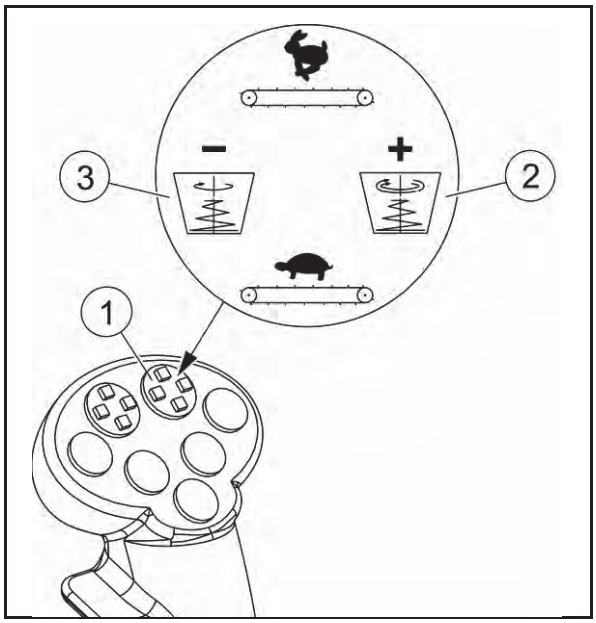


Fig. 165

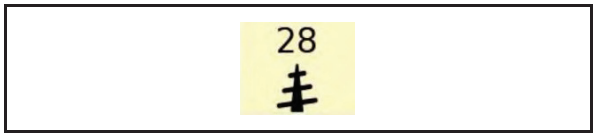


Fig. 166

To throw off fodder residues from the mixing auger and to completely empty the mixing container towards the end of the discharging procedure, switch the mixing auger(s) to quick motion mode for a short time. Assign the function "Mixing auger – Quick motion mode" to an assignable key of the multi-function joystick or the display in "Discharging" mode for this purpose.

Switch quick motion mode of mixing auger(s) on:

Press the individually selected key providing the function "Mixing auger – Quick motion mode".

→ The driving speed is almost doubled and the current speed appears in the "Mixing auger(s)“ symbol in the terminal.

Switch quick motion mode of mixing auger(s) off:

Press the switch (1) of the multi-function joystick.

→ The mixing auger(s) is(are) switched off.

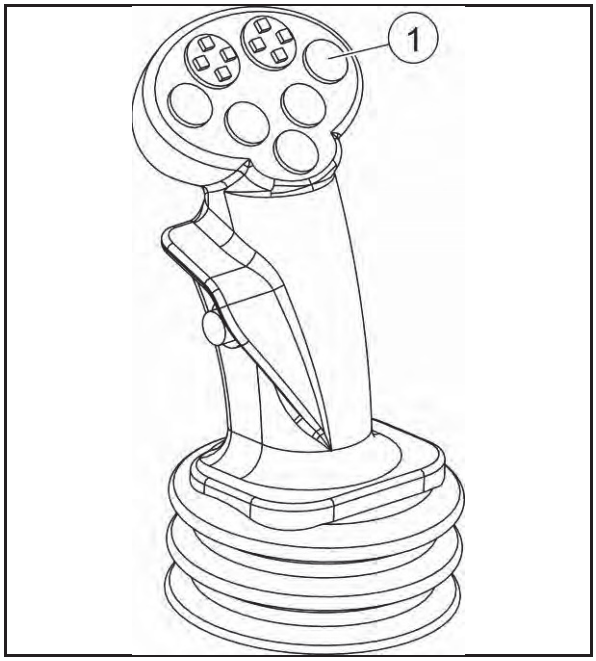


Fig. 167

8.2 Fill fodder mixing wagon

- Do not let the pick-up milling cutter come into contact with stationary elements such as e.g. silo walls or the floor.
- Ensure that no foreign objects such as e.g. stones lying on the floor, metal objects or parts of the silo cover (tyres) get into the pick-up milling cutter.
- Apply load to the pick-up milling cutter as equally as possible over the entire width.
- Observe the maximum load of the machine and the filling order of the individual fodder components to prevent a build-up of overload (e.g. at the counter-cutters). Overload may damage the power train and bend the cutting knives of the mixing auger(s).

- The mixing container can be exactly charged by means of the weighing system. The material in the mixing container is weighed.

  If the filling quantity of a fodder component in the mixing container has been reached, the picked-up fodder component can be transported out of the range of the pick-up milling cutter and the elevator conveyor. Observe the information in the chapter "Reverse pick-up milling cutter and elevator conveyor", page **177**.
- The total fodder quantity that can be mixed and chopped in one mixing container filling cycle depends on the following factors:
  - Mixing container capacity,
  - total dry mass of the fodder components to be mixed,
  - structure (stalk length and quality) of the individual fodder components,
  - way and order of filling,
  - engine power.

8.2.1 Recommended filling order

1. Pick up highly-structured fodder components (hay, straw etc.) with the mixing auger powered.

   Have them possibly mixed for some time before filling in the next component.
2. Pick up concentrated feed, grain feed etc.
3. Fill in mineral feed via the feeding flap mounted at the conveyor duct (optional extra) or via the feed funnel for mineral feed (optional extra).
4. Pick up grass silage.
5. Pick up maize silage, grain silage.
6. Pick up fodder components with a high proportion of water, e.g. draff, potato pulp or beet chips.
7. Pick up liquid components via the feed funnel for mineral feed (optional extra), e. g. liquid yeast, molasses.

8.2.2 Pick up silage from the bunker silo

When lowering the cutter arm at the silo stack via the multi-function joystick, the automatic milling system controls the lowering speed of the cutter arm.

WARNING

Risk of injuries due to the rotating pick-up milling cutter, the opening and closing milling drum protection, the lifting and lowering cutter arm, the advancing and reversing machine!

Make sure that people and animals leave the hazardous area of the machine.

1. Select "Charging" mode. Observe the information in the chapter "Charging mode", page 80.
2. Open the protective device of the pick-up milling cutter.
3. For the first cut, position the pick-up milling cutter at the silo stack (Fig. 168) such that the top edge (1) of the silo stack is within the range (2) between the centre (3) of the pick-up milling cutter and the milling hood (4).

   This prevents silage from being conveyed onto the silo stack during first cut.
4. Switch the pick-up milling cutter on. Observe the information in the chapter "Switch pick-up milling cutter and elevator conveyor on and off", page 174.

→ The symbols "Fill pick-up milling cutter" (Fig. 169/left) and "Fill elevator conveyor" (Fig. 169/right) appear in the terminal.

5. Switch the mixing auger(s) on. Please observe the information in the chapter "Switch mixing auger(s) on and off".
6. Set the manual throttle lever to full load.

→ The diesel engine is powered at rated speed (1900 min^{-1}) and the pick-up milling cutter runs with maximum power.

7. Move close to the silo stack such that the scraper bar (5) tightly fits the silo stack.

   This allows the silage to be conveyed into the conveyor duct of the elevator conveyor without substantial losses.

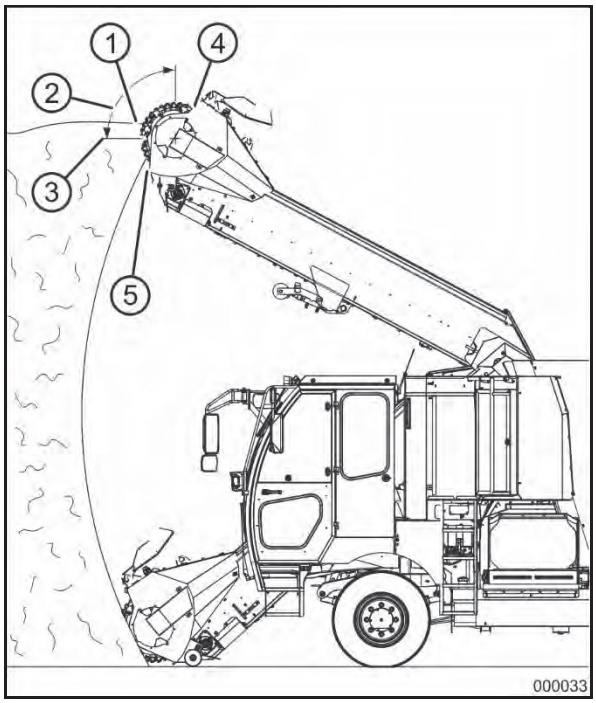


Fig. 168

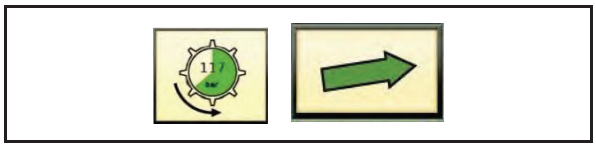


Fig. 169

8. Lower the cutter arm. Observe the information in the chapter "Lift / Lower cutter arm", page 169.

→ In the terminal, the circular area of the symbol "Pick-up milling cutter capacity" (Fig. 170) turns green depending on the load of the pick-up milling cutter and the digit increments.

If approx. 90 % of the circular area has turned green, the pick-up milling cutter is used to its capacity in the best possible way.

If the symbol "Pick-up milling cutter overload" (Fig. 171) appears, the required driving power for the pick-up milling cutter is too high. Observe the information in the chapter "Overload at pick-up milling cutter", page 194.

If the symbol "Elevator conveyor overload" (Fig. 172) appears, the required driving power for the elevator conveyor is too high. Observe the information in the chapter "Overload at elevator conveyor", page 194.

9. Watch the display at the weighing device terminal to make sure to have the desired fodder quantity filled into the mixing container.

10. Switch the pick-up milling cutter off when the desired fodder quantity has been filled into the mixing container. Observe the information in the chapter "Switch pick-up milling cutter and elevator conveyor on and off", page 174.

→ The symbols "Pick-up milling cutter Stop" (Fig. 173/left) and "Elevator conveyor Stop" (Fig. 173/right) appear in the terminal.

11. Reverse the pick-up milling cutter and the elevator conveyor to stop filling the fodder components from the range of the pick-up milling cutter and the elevator conveyor into the mixing container. Observe the information in the chapter "Reverse pick-up milling cutter and elevator conveyor", page 177.

12. Close the protective device of the pick-up milling cutter.

Fig. 168

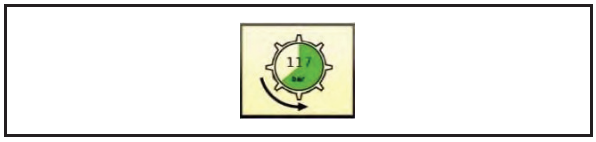


Fig. 170

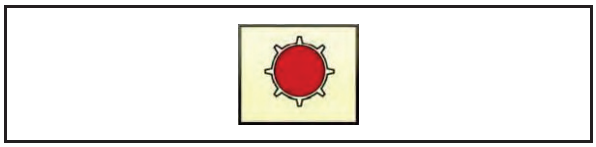


Fig. 171

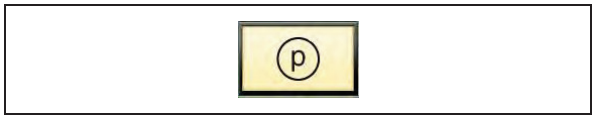


Fig. 172

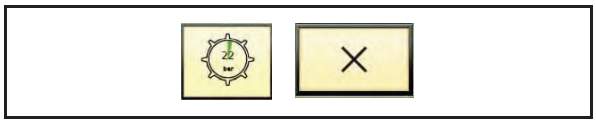


Fig. 173

8.2.3 Pick up round and cuboid bales

- Remove strings, nets or foils before picking up round or cuboid bales.
- Before picking up round bales, deposit them at the front such that they are not rotated by the pick-up milling cutter.

WARNING

Risk of injuries due to the rotating pick-up milling cutter, the opening and closing milling drum protection, the lifting and lowering cutter arm, the advancing and reversing machine!

Make sure that people and animals leave the hazardous area of the machine.

1. Select "Charging" mode. Observe the information in the chapter "Charging mode", page 80.
2. Open the protective device of the pick-up milling cutter.
3. Switch the pick-up milling cutter on. Observe the information in the chapter "Switch pick-up milling cutter and elevator conveyor on and off", page 174.

→ The symbols "Fill pick-up milling cutter" (Fig. 169/left) and "Fill elevator conveyor" (Fig. 169/right) appear in the terminal.

4. Set the required diesel engine speed:
   - Hay or straw bales = 1500 - 1600 min^{-1},
   - Silage bales = rated speed (1900 min^{-1}).
5. **Pick up cuboid bales:** Move lengthwise close to the cuboid bale.

   Pick up round bales: Move close to the round bale such that the scraper bar tightly fits the round bale (Fig. 175).
6. Switch the mixing auger(s) on.

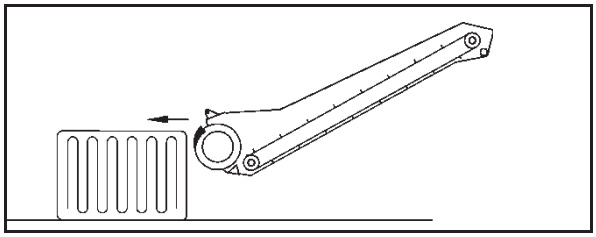


Fig. 174

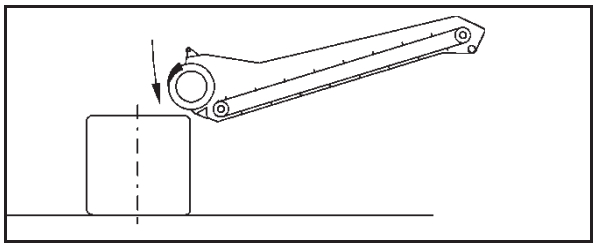


Fig. 175

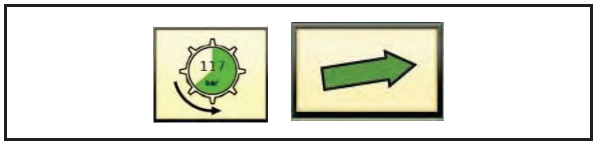


Fig. 169

7. **Pick up cuboid bales:** Lower the cutter arm according to Fig. 174 and drive slowly forward to pick up the fodder. Observe the information in the chapter "Lift / Lower cutter arm", page 169.

   Pick up round bales: Lower the cutter arm to pick up the fodder. Observe the information in the chapter "Lift / Lower cutter arm", page **169**.

→ In the terminal, the circular area of the symbol "Pick-up milling cutter capacity" (Fig. 170) turns green depending on the load of the pick-up milling cutter and the digit increments.

   If approx. 90 % of the circular area has turned green, the pick-up milling cutter is used to its capacity in the best possible way.

   If the symbol "Pick-up milling cutter overload" (Fig. 171) appears, the required driving power for the pick-up milling cutter is too high. Observe the information in the chapter "Overload at pick-up milling cutter", page 194.

   If the symbol "Elevator conveyor overload" (Fig. 172) appears, the required driving power for the elevator conveyor is too high. Observe the information in the chapter "Overload at elevator conveyor", page 194.

8. Watch the display at the weighing device terminal to make sure to have the desired fodder quantity filled into the mixing container.

9. Switch the pick-up milling cutter off when the desired fodder quantity has been filled into the mixing container. Observe the information in the chapter "Switch pick-up milling cutter and elevator conveyor on and off", page 174.

→ The symbols "Pick-up milling cutter Stop" (Fig. 173/left) and "Elevator conveyor Stop" (Fig. 173/right) appear in the terminal.

10. Reverse the pick-up milling cutter and the elevator conveyor to stop filling the fodder components from the range of the pick-up milling cutter and the elevator conveyor into the mixing container. Observe the information in the chapter "Reverse pick-up milling cutter and elevator conveyor", page 177.

11. Close the protective device of the pick-up milling cutter.

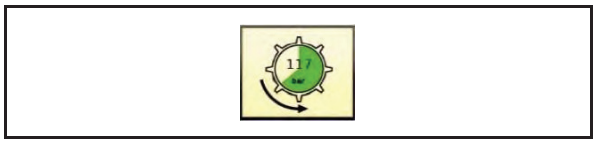


Fig. 170

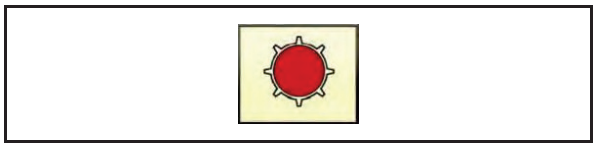


Fig. 171

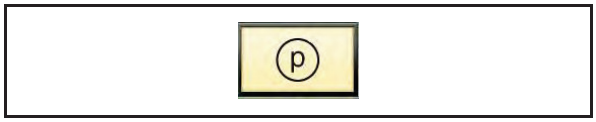


Fig. 172

Fig. 173

8.2.4 Pick up ground grain, concentrated feed, draff etc.

WARNING

Risk of injuries due to the rotating pick-up milling cutter, the opening and closing milling drum protection, the lifting and lowering cutter arm, the advancing and reversing machine!

Make sure that people and animals leave the hazardous area of the machine.

1. Select "Charging" mode. Observe the information in the chapter "Charging mode", page 80.
2. Open the protective device of the pick-up milling cutter.
3. Switch the pick-up milling cutter on. Observe the information in the chapter "Switch pick-up milling cutter and elevator conveyor on and off", page 174.

→ The symbols "Fill pick-up milling cutter" (Fig. 169/left) and "Fill elevator conveyor" (Fig. 169/right) appear in the terminal.

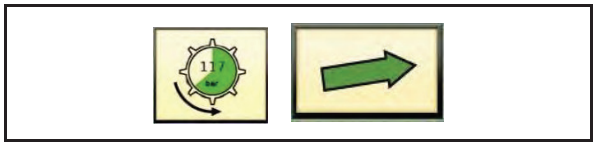


Fig. 169

4. Set the manual throttle lever such that the diesel engine is powered at an engine speed of approx. 1000 min^{-1}.
5. Reduce the elevator conveyor speed if the fodder tends to the heavy formation of dust (e.g. ground grain) . Observe the information in the chapter "Reduce elevator conveyor speed", page 176.
6. Switch the mixing auger(s) on.
7. Lower the cutter arm and drive slowly forward to pick up the fodder from the ground. Observe the information in the chapter "Lift / Lower cutter arm", page 169.

→ In the terminal, the circular area of the symbol "Pick-up milling cutter capacity" (Fig. 170) turns green depending on the load of the pick-up milling cutter and the digit increments.

If approx. 90 % of the circular area has turned green, the pick-up milling cutter is used to its capacity in the best possible way.

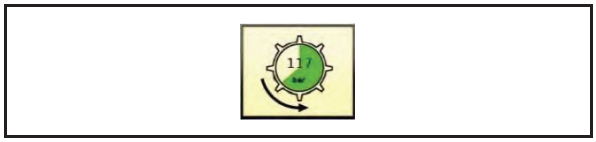


Fig. 170

If the symbol "Pick-up milling cutter overload" (Fig. 171) appears, the required driving power for the pick-up milling cutter is too high. Observe the information in the chapter "Overload at pick-up milling cutter", page 194.

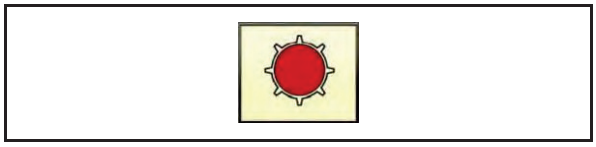


Fig. 171

If the symbol "Elevator conveyor overload" (Fig. 172) appears, the required driving power for the elevator conveyor is too high.

Observe the information in the chapter "Overload at elevator conveyor", page 194.

8. Watch the display at the weighing device terminal to make sure to have the desired fodder quantity filled into the mixing container.
9. Switch the pick-up milling cutter off when the desired fodder quantity has been filled into the mixing container. Observe the information in the chapter "Switch pick-up milling cutter and elevator conveyor on and off", page 174.

→ The symbols "Pick-up milling cutter Stop" (Fig. 173/left) and "Elevator conveyor Stop" (Fig. 173/right) appear in the terminal.

10. Reverse the pick-up milling cutter and the elevator conveyor to stop filling the fodder components from the range of the pick-up milling cutter and the elevator conveyor into the mixing container. Observe the information in the chapter "Reverse pick-up milling cutter and elevator conveyor", page 177.
11. Close the protective device of the pick-up milling cutter.

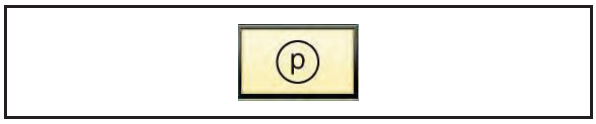


Fig. 172

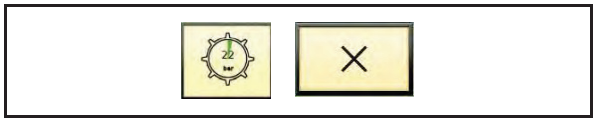


Fig. 173

8.2.5 Fill in fodder additives through feed hopper

Optional extra

1. Switch the parking brake on.
2. Fill the desired quantity of fodder additives into the feed hopper at the mixing container.

Fig. 176

8.2.6 Fill in fodder additives through feeding flap at conveyor duct

Optional extra

1. Select "Charging" mode. Observe the information in the chapter "Charging mode", page 80.
2. Set the manual throttle lever such that the diesel engine is powered at an engine speed of approx. 1000 min^{-1}.
3. Switch the mixing auger(s) on.
4. Switch the elevator conveyor on.
5. Press the release switch "Feeding flap" (Fig. 178) to position "I".
6. Switch the parking brake on.

Fig. 177

Fig. 178

7. Open the feeding flap (1) mounted at the conveyor duct.
8. Fill the desired amount of fodder additives into the feed opening.
9. Close the feeding flap mounted at the conveyor duct.

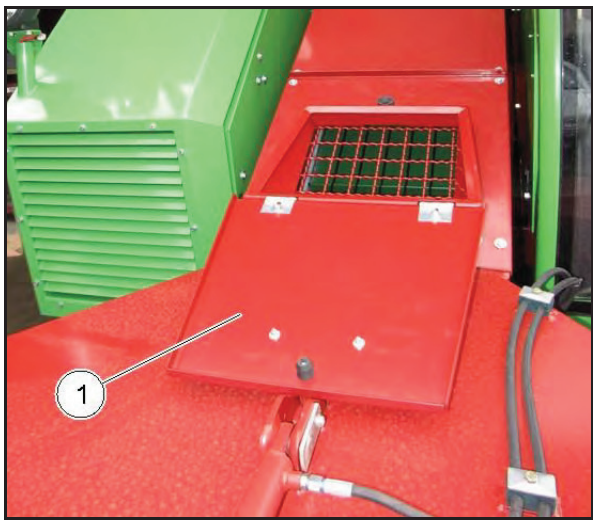


Fig. 179

10. Press the release switch "Feeding flap" to position "0".

→ The elevator conveyor stops and the symbol "Elevator conveyor Stop" (Fig. 180) appears in the terminal.

Fig. 180

8.2.7 Fill in fodder additives through hydraulic feed hopper

Optional extra

WARNING 	**Risk of injury to hands and fingers due to being crushed, becoming entangled or being drawn in by the rotating dosing auger!** Never use the hydraulic feed hopper with the protective grating missing or being defective! Never press fodder additives into the hydraulic feed hopper with your hands or an object!

1. Select "Charging" mode. Observe the information in the chapter "Charging mode", page 80.
2. Set the manual throttle lever such that the diesel engine is powered at an engine speed of approx. 1000 min^{-1}.
3. Switch the mixing auger(s) on.
4. Switch the parking brake on.
5. Open the cover (1) of the hydraulic feed hopper (2) and secure it against slamming.
6. Fill the fodder additives into the hydraulic feed hopper.
7. Press the key button (3) down until the dosing auger has conveyed the fodder additives into the mixing container.
8. Close the cover of the hydraulic feed hopper.

Fig. 181

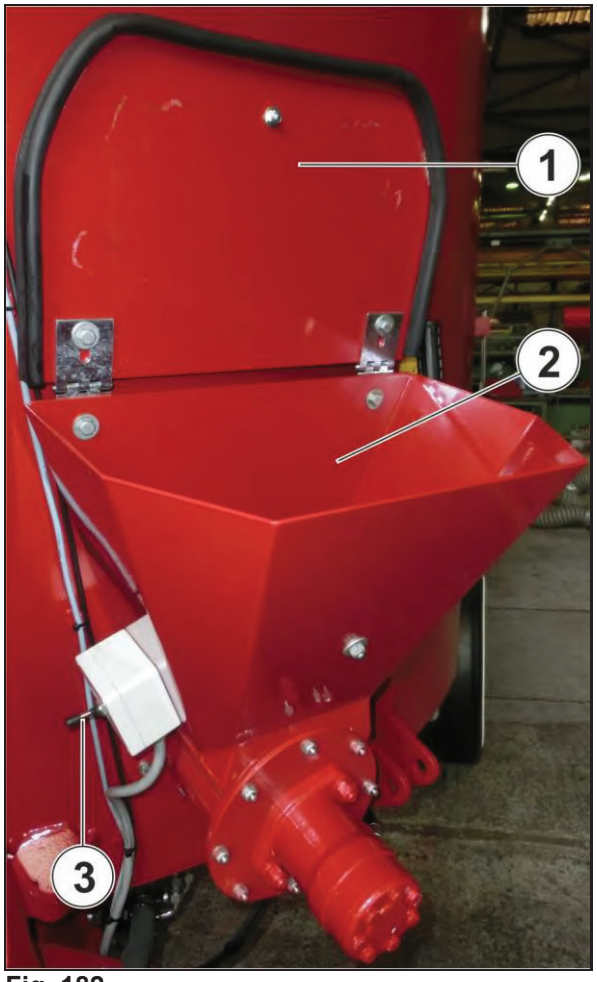


Fig. 182

8.2.8 Overload at pick-up milling cutter

Immediately switch the pick-up milling cutter off if the symbol "Pick-up milling cutter overload" (Fig. 183) appears in the terminal.

1. Switch the pick-up milling cutter off. Observe the information in the chapter "Switch pick-up milling cutter and elevator conveyor on and off", page **174**.
2. Let the pick-up milling cutter reverse. Observe the information in the chapter "Reverse pick-up milling cutter and elevator conveyor", page **177**.
3. Switch the pick-up milling cutter on again.

   If the symbol "Pick-up milling cutter overload" (Fig. 183) does not go out, repeat steps 1 and 2.

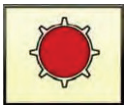


Fig. 183

8.2.9 Overload at elevator conveyor

Immediately switch the pick-up milling cutter and the elevator conveyor off if the symbol "Elevator conveyor overload" (Fig. 184) appears in the terminal.

1. Switch the pick-up milling cutter off. Observe the information in the chapter "Switch pick-up milling cutter and elevator conveyor on and off", page **174**.
2. Let the elevator conveyor reverse. Observe the information in the chapter "Reverse pick-up milling cutter and elevator conveyor", page **177**.
3. Switch the pick-up milling cutter on again.

   If the symbol "Elevator conveyor overload" (Fig. 184) does not go out, repeat steps 1 and 2.

Fig. 184

8.3 Mix fodder components

- Monitor the mixing process by means of the surveillance camera.
- Reduce the driving speed of the mixing auger(s) if light fodder components are thrown over the edge of the mixing container during mixing.
- Extend the counter-cutters into the mixing container only as far as to ensure that the fodder will not get entangled by or pile up on the counter-cutters.
- Stop the mixing process before extending or retracting the counter-cutters.
- Stop the mixing process when the fodder components have been homogeneously mixed. In case of a too long mixing process, the mixture risks to lose its structure
- Regularly sharpen cutting knives. Sharp cutting knives reduce the required mixing auger power.

8.4 Fodder discharge

- The higher the driving speed of the mixing auger, the wider the opening width of the discharge door, and the slower the travelling speed of the machine, the larger the fodder quantity discharged onto the feeding table.
- Completely open the discharge door when discharging very dry, long-stalk and highly-structured fodder.
- Extend the counter-cutter in front of the discharge opening a little into the mixing container to improve the homogeneous flow of the fodder material.
- If blockages occur during discharge, immediately switch the mixing auger(s) off and eliminate the blockage.
- To throw off fodder residues from the mixing auger(s) and to completely empty the mixing container towards the end, switch the driving speed of the mixing auger(s) to quick motion mode for a short time.

8.4.1 Fodder discharge through discharge openings

1. Select "Discharging" mode. Observe the information in the chapter "Operating modes", page 81.
2. Set a diesel engine speed of 900-1900 min^{-1} via the manual throttle lever. The required engine speed depends on the necessary machine driving power.
3. Power the mixing auger(s) at the desired driving speed. Observe the information in the chapter "Set mixing auger driving speed", page 182.
4. Slowly open the discharge door until the fodder is homogeneously coming out of the discharge opening.

→ The symbol "Opening status" (Fig. 185) displays the opening status of the discharge door in the terminal.

5. Travel over the feeding table at the desired travelling speed.
6. Interrupt fodder discharge:

   Close the discharge door.
7. Finish fodder discharge:
   - 7.1 Switch on quick motion mode for the mixing auger(s) for a short time if necessary. Observe the information in the chapter "Set mixing auger driving speed", page 182.
   - 7.2 Close the discharge door.
   - 7.3 Switch the mixing auger(s) off.

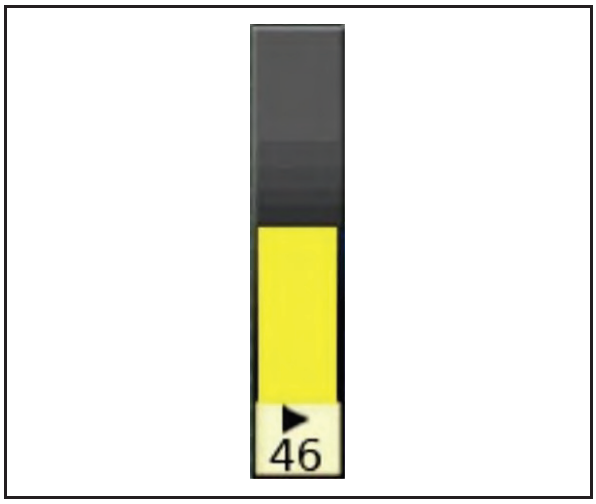


Fig. 185

8.4.2 Fodder discharge via crossover conveyor

WARNING

Risk of injuries due to being drawn in and becoming entangled and due to fodder or foreign objects being blown out!

Keep people and animals away from the running crossover conveyor.

1. Select "Discharging" mode. Observe the information in the chapter "Operating modes", page 81.
2. Set a diesel engine speed of 900-1900 min^{-1} via the manual throttle lever. The required engine speed depends on the necessary machine driving power.
3. Power the mixing auger(s) at the desired driving speed. Observe the information in the chapter "Set mixing auger driving speed", page 182.
4. Switch the crossover conveyor on in the desired driving direction.

→ The crossover conveyor starts to run at the conveyor speed set last.

5. Slowly open the discharge door until the fodder is homogeneously coming out of the discharge opening.

   The symbol "Opening status" (Fig. 185) displays the opening status of the discharge door in the terminal.
6. Travel over the feeding table at the desired travelling speed.
7. Correct the set crossover conveyor speed if necessary.
8. Interrupt fodder discharge:
   - 8.1 Close the discharge door.
   - 8.2 Only switch the crossover conveyor off when the fodder discharge has been finished.

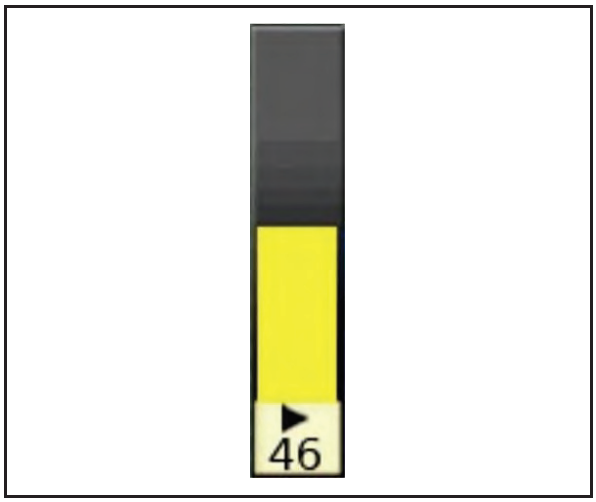


Fig. 185

9. Finish fodder discharge:
   - 9.1 Switch on quick motion mode for the mixing auger(s) for a short time if necessary.
   - 9.2 Close the discharge door.
   - 9.3 Only switch the crossover conveyor off when the fodder discharge has been finished.
   - 9.4 Switch the mixing auger(s) off.

8.4.3 Eliminate blockages

WARNING	**Risk of injury when working in the discharge opening!**
	Secure the lifted dosage gate against accidental lowering! Wear cut-proof protective gloves and use a device or tool to eliminate the blockage of the discharge opening!

1. Completely open the discharge door of the clogged discharge opening.
2. Switch the parking brake on.
3. Turn the diesel engine off.
4. Pull the ignition key out.
5. Eliminate the blockage such that the discharge opening gets free and the mixed materials can be easily discharged again.
6. Start the machine.
7. Close the discharge door.
8. Power the mixing auger(s) at the desired driving speed.
9. Switch the crossover conveyor on (if available).
10. Open the discharge door at the desired opening width and continue the fodder discharge.

8.5 Weighing device

8.5.1 Data import

Format the USB memory stick in FAT16 format or, if not possible, in FAT32 format before first use!

A USB memory stick formatted incorrectly or not at all will not be detected by the terminal.

A maximum of 100 components, 100 discharge stations and 150 recipes can be imported.

Observe the fact that this process initiates the overwriting of all existing data!

1. Select the "Weighing device" menu.
2. Select the "Weighing device – Organisation" menu (1).

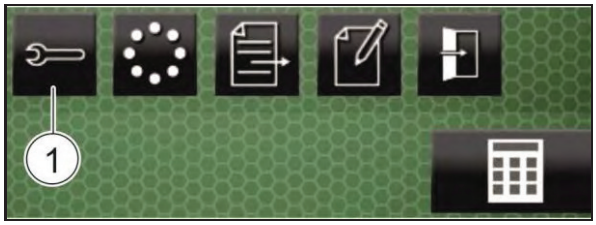


Fig. 186

3. Connect the USB adapter (2) to the terminal (3).
4. Connect your USB memory stick to the USB adapter.

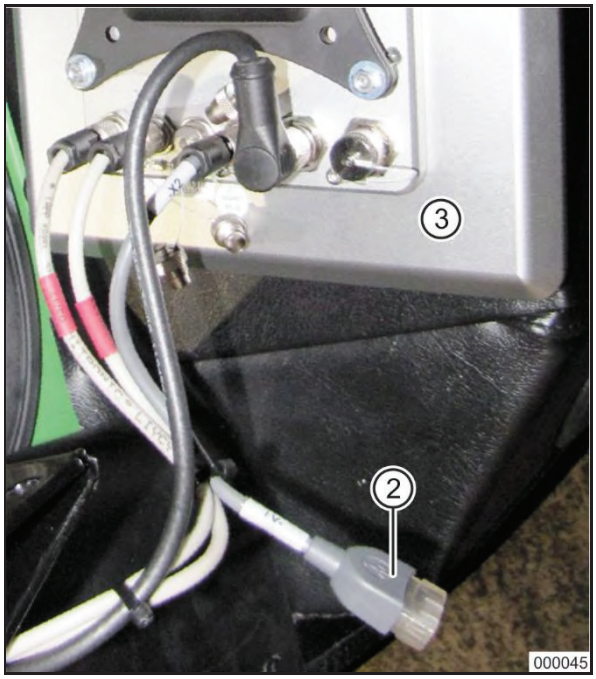


Fig. 187

5. When the "USB memory stick detected" symbol (4) appears, press the "Data import" key (5).

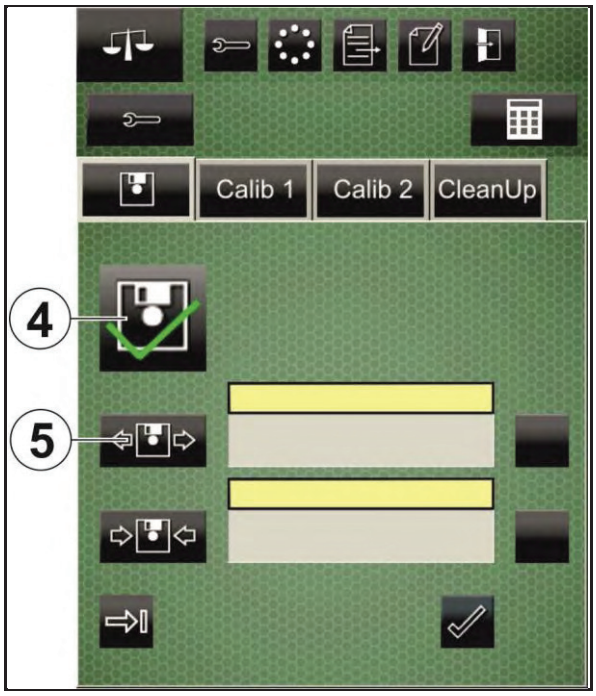


Fig. 188

6. If no data produced at the PC is available for being imported (Fig. 189), press
   - the "Yes" key to import the data produced at another terminal,
   - the "No" key to cancel the procedure.

Fig. 189

7. When the symbol "Data imported" (6) appears, press the "Confirm" key (7) to finish the procedure.
8. Press the "Exit menu" key (8) to call up the basic configuration of the terminal.

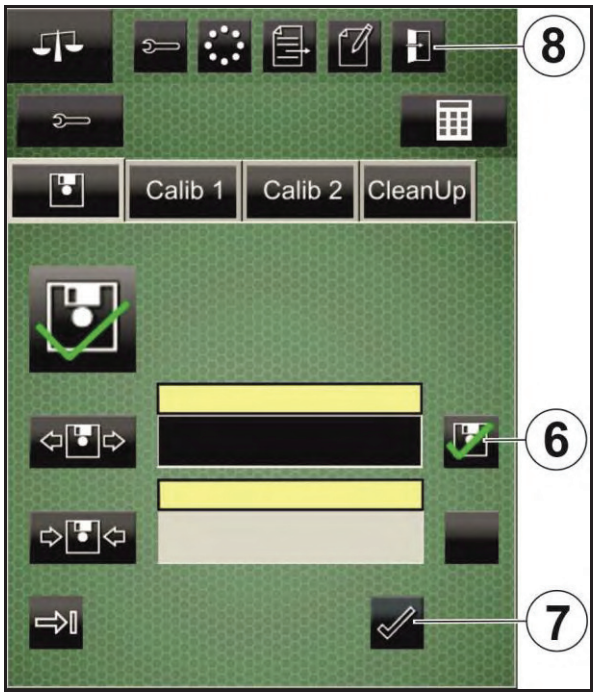


Fig. 190

8.5.2 Data export

Format the USB memory stick in FAT16 format or, if not possible, in FAT32 format before first use!

A USB memory stick formatted incorrectly or not at all will not be detected by the terminal.

Observe the fact that this process initiates the overwriting of all existing data!

1. Select the "Weighing device" menu.
2. Select the "Weighing device – Organisation" menu (1).

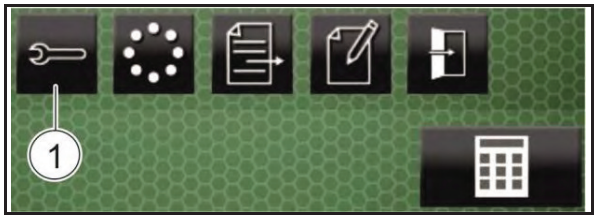


Fig. 191

3. Connect the USB adapter (2) to the terminal (3).
4. Connect your USB memory stick to the USB adapter.

Fig. 192

5. When the "USB memory stick detected" symbol (4) appears, press the "Data export" key (5).

The  symbol indicates that only the current data is being exported.

The  symbol indicates the export of all data.

Touch the symbol to switch over.

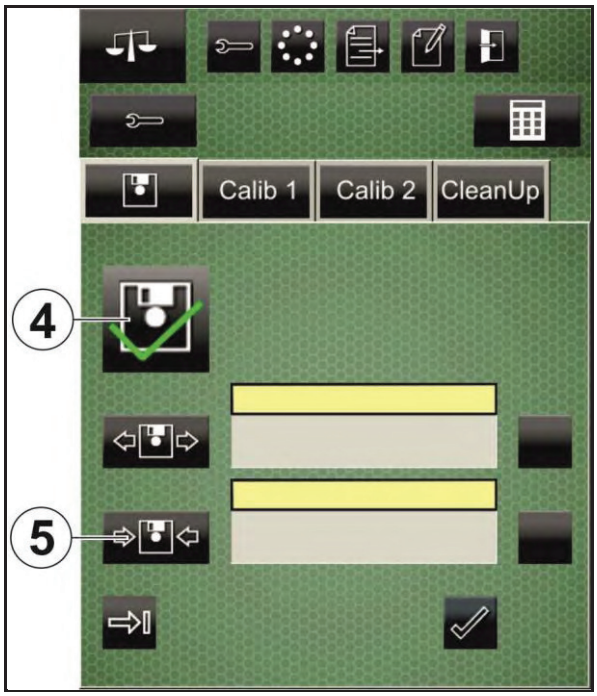


Fig. 193

6. If the USB memory stick is not empty (Fig. 194), press
   - the "Yes" key to overwrite the data on the USB memory stick,
   - the "No" key to cancel the procedure.

Fig. 194

7. When the symbol "Data exported" (6) appears, press the "Confirm" key (7) to finish the procedure.
8. Press the "Exit menu" key (8) to call up the basic configuration of the terminal.

Fig. 195

8.5.3 Delete data

This function **irrevocably deletes all weighing data** saved in the terminal (components, recipes, discharge stations etc.)!

- Only use this function if the quantity of saved data considerably slows down the terminal.
- If you still need your weighing data, first save them on a USB memory stick (see chapter "Data export", page 201).

1. Select the "Weighing device" menu.
2. Select the "Weighing device – Organisation" menu (1).
3. Open the "CleanUp" tab (2).
4. Press the "Delete data" key (3).

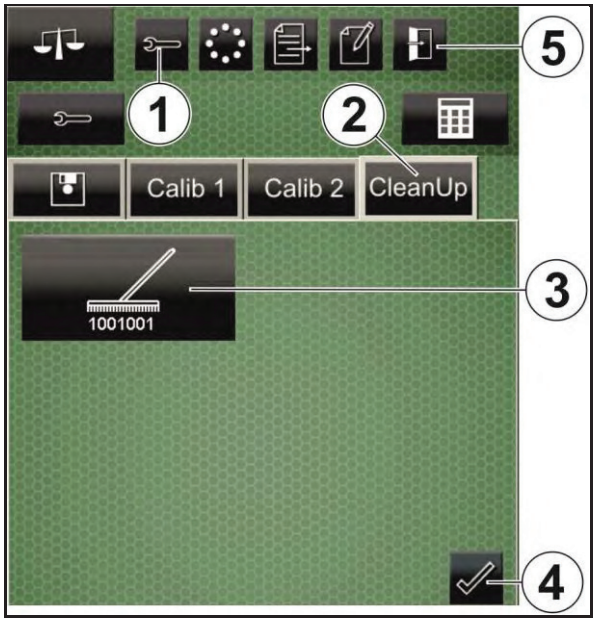


Fig. 196

5. Press the "Yes key to delete all data.

   Press the "No" key to not delete the data and cancel the procedure.

6. Press the "Confirm" key (Fig. 196/4) to finish the procedure.
7. Press the "Exit menu" key (Fig. 196/5) to call up the basic configuration of the terminal.

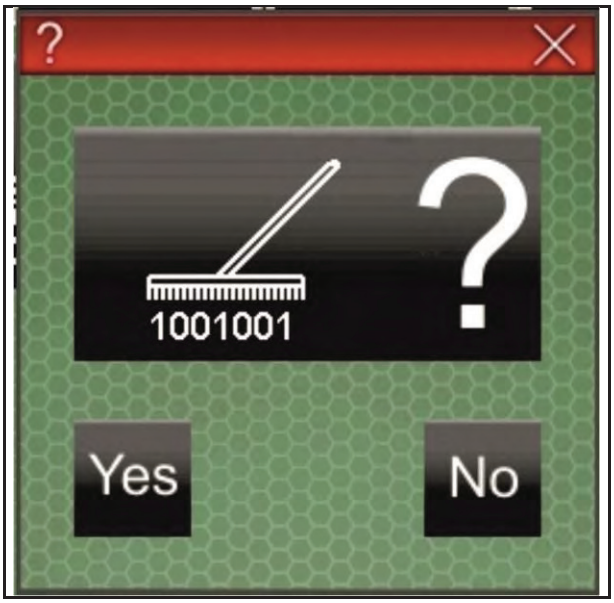


Fig. 197

8.5.4 Generate / change component

Generate and change components, discharge stations and recipes only via the weighing device if you do not use data transfer to the PC! The components, discharge stations and recipes generated and modified via the weighing device are not transferred to the PC.

Observe the fact that the components and discharge stations cannot be deleted via the terminal.

1. Select the "Weighing device" menu.
2. Select the "Weighing device – Components" menu (1).
3. Press the "Generate new component" key (2) to generate a new component.

   Highlight the desired component by touching and press the "Change entry" key (3) to change an existing component.

   If not all components are visible in the display, press the arrow keys (4) to scroll up or down.

Use the  key to call up the calculator and perform calculations.

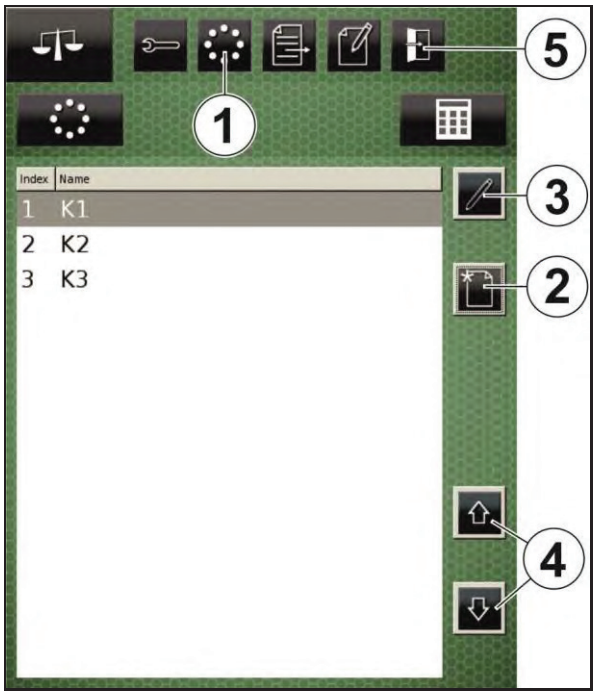


Fig. 198

4. Press the "Change entry" key (6) to enter the component's name.
5. Press the "Confirm" key (7) to save the entry.

   Press the "Exit menu" key (8) to not save the entry.
6. Press the "Exit menu" key (Fig. 198/5) to call up the basic configuration of the terminal.

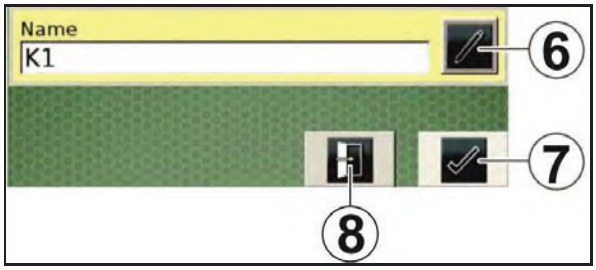


Fig. 199

8.5.5 Generate / change discharge station

Generate and change components, discharge stations and recipes only via the weighing device if you do not use data transfer to the PC! The components, discharge stations and recipes generated and modified via the weighing device are not transferred to the PC.

Observe the fact that the components and discharge stations cannot be deleted via the terminal.

1. Select the "Weighing device" menu.
2. Select the "Weighing device – Discharge stations" menu (1).
3. Press the "Generate new discharge station" key (2) to generate a new discharge station.

   Highlight the desired discharge station by touching and press the "Change entry" key (3) to change an existing discharge station.

   If not all discharge stations are visible in the display, press the arrow keys (4) to scroll up or down.

Use the  key to call up the calculator and perform calculations.

Fig. 200

4. Press the "Change entry" keys (6) to enter the name, the number of animals and the deviation for the discharge station. (The keys (7) do not have any function.)

> Use the key in the "Keyboard" display to accept the number of animals and deviation preset by the manufacturer.

5. Press the "Confirm" key (8) to save the entries.

   Press the "Exit menu" key (9) to not save the entries.

6. Press the "Exit menu" key (Fig. 200/5) to call up the basic configuration of the terminal.

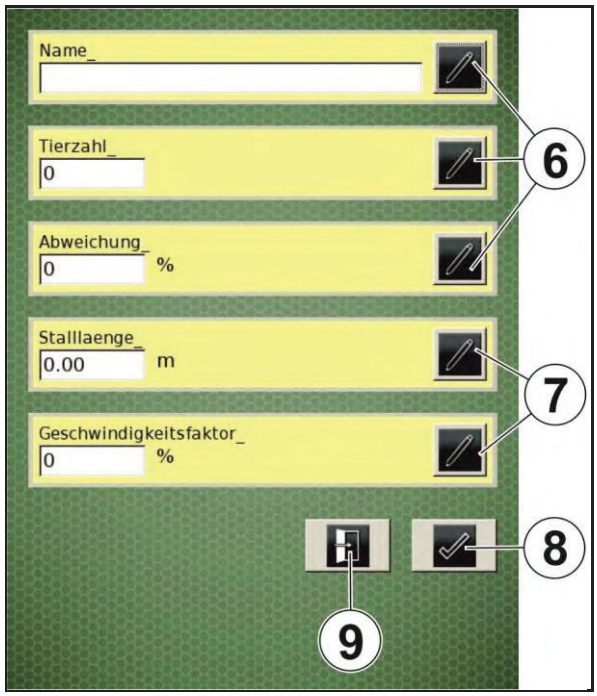


Fig. 201

8.5.6 Generate / change recipe

Generate and change components, discharge stations and recipes only via the weighing device if you do not use data transfer to the PC! The components, discharge stations and recipes generated and modified via the weighing device are not transferred to the PC.

1. Select the "Weighing device" menu.
2. Select the "Weighing device – Recipes" menu (1).
3. Press the "Generate new recipe" key (2) to generate a new recipe.

   Highlight the desired recipe by touching and press the "Change entry" key (3) to change an existing recipe.

   If not all recipes are visible in the display, press the arrow keys (4) to scroll up or down.

Use the  key to call up the calculator and perform calculations.

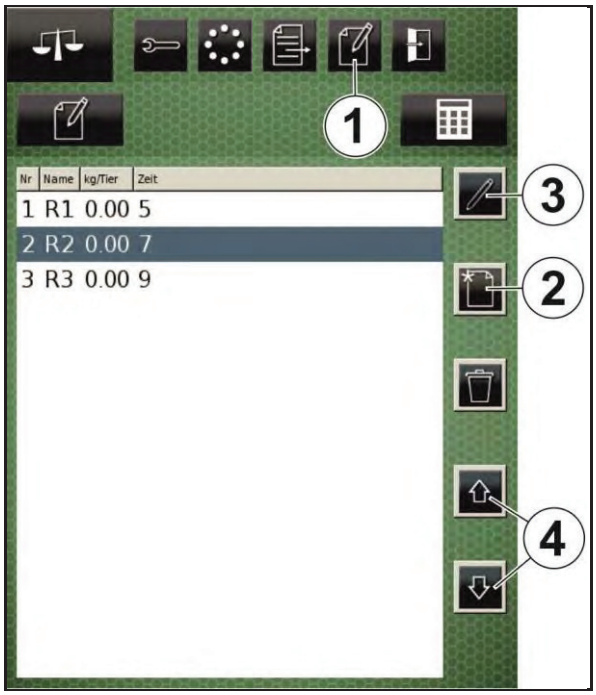


Fig. 202

4. Press the "Change entry" key (5) to enter the name and mixing time for the recipe. (The keys (6) do not have any function.)

Use the  key in the "Keyboard" display to accept the mixing time preset by the manufacturer.

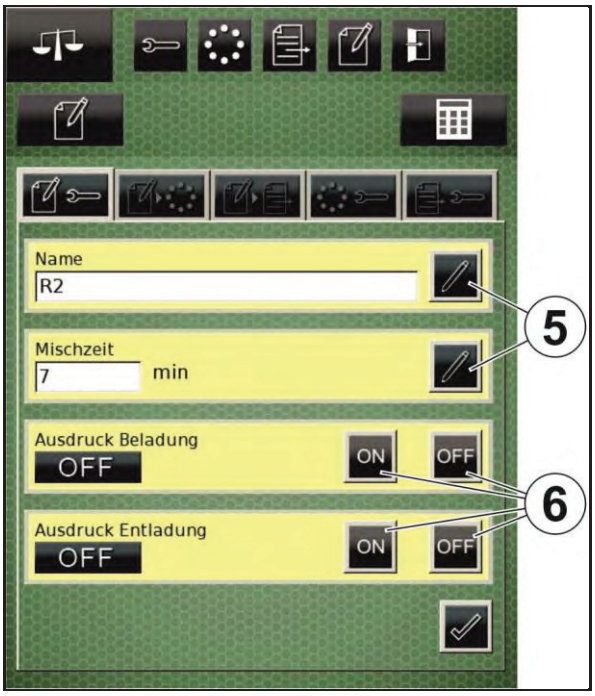


Fig. 203

5. Open the "Component options" tab (7).
6. Touch the check box (☐) to select the desired components.

   If not all components are visible in the display, press the arrow keys (8) to scroll up or down.

Fig. 204

7. Open the "Component parameters" tab (9).

→ The display shows the just selected components.

   If not all components are visible in the display, press the arrow keys (10) to scroll up or down.

8. Highlight a component by touching and press the keys (11) to change the component order and move the component up or down.
9. Highlight a component by touching and press the "Change entry" key (12) to edit the component parameters.

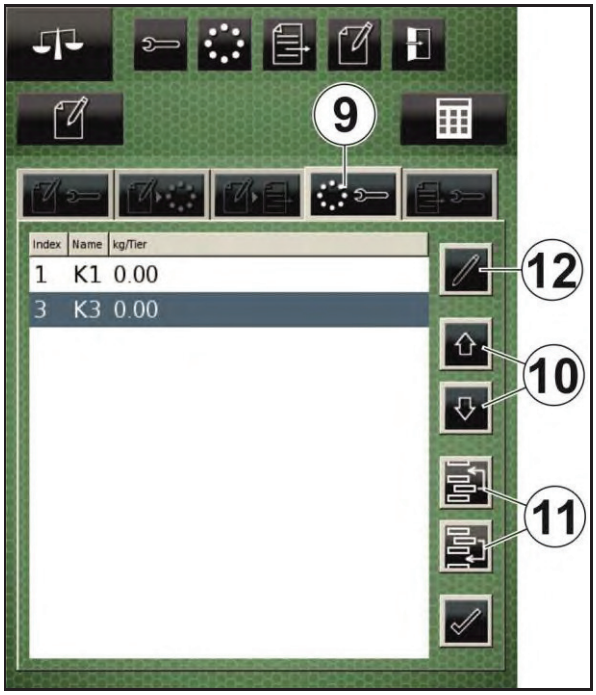


Fig. 205

10. Press the "Change entry" key (13) to change the quantity and the alarm value.

> Use the key in the "Keyboard" display to accept the alarm value preset by the manufacturer.

11. Press the "A" key to switch on the automatic charging mode.

    Press the "M" key to switch off the automatic charging mode.

12. Press the "Confirm" key (14) to save the entries.

    Press the "Exit menu" key (15) to not save the entries.

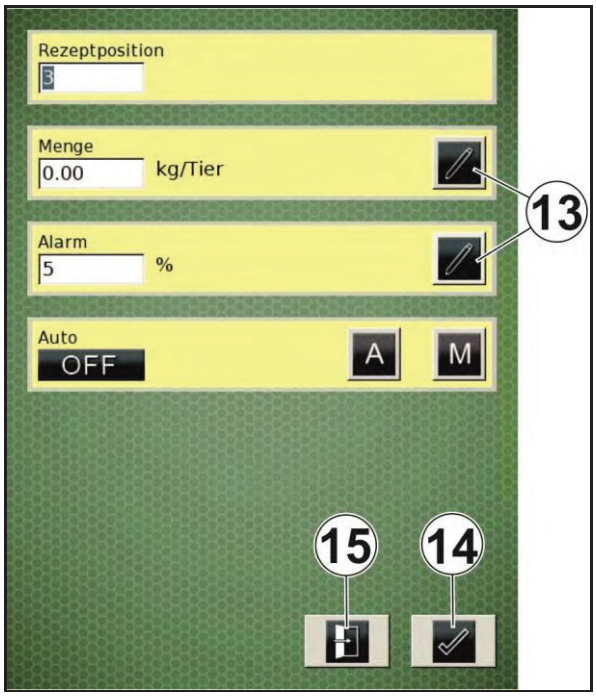


Fig. 206

13. Open the "Discharge station options" tab (16).
14. Touch the check box (☐) to select the desired discharge stations.

    If not all discharge stations are visible in the display, press the arrow keys (17) to scroll up or down.

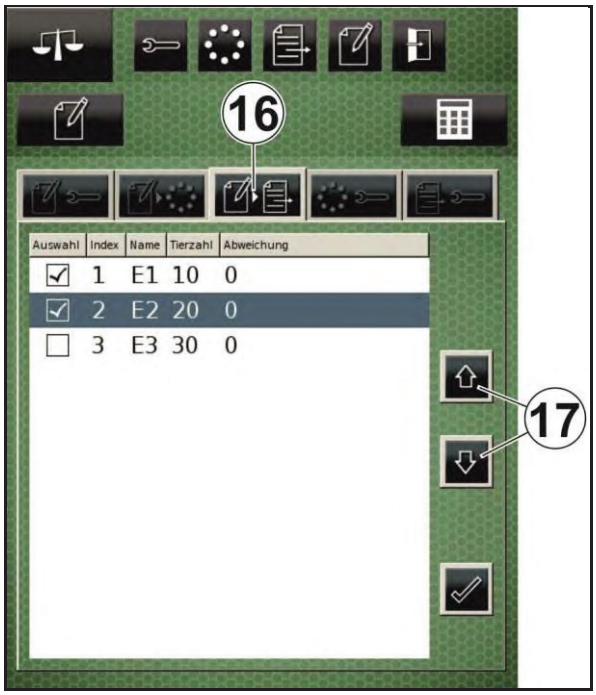


Fig. 207

15. Open the "Discharge station parameters" tab (18).

→ The display shows the just selected discharge stations.

If not all discharge stations are visible in the display, press the arrow keys (19) to scroll up or down.

16. Highlight a discharge station by touching and press the keys (20) to change the order of the discharge stations and move the discharge station up or down.
17. Highlight a discharge station by touching and press the "Change entry" key (21) to edit the discharge station parameters.

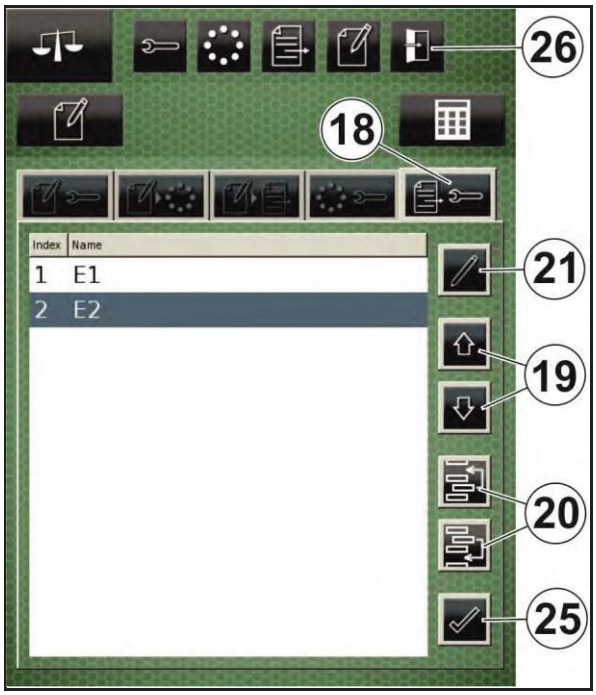


Fig. 208

18. Press the "Change entry" key (22) to change the alarm value.

Use the key in the "Keyboard" display to accept the alarm value preset by the manufacturer.

19. Press the "Confirm" key (23) to save the entry.

Press the "Exit menu" key (24) to not save the entry.

20. Press the "Confirm" key (Fig. 208/25) to save the new or changed recipe.
21. Press the "Exit menu" key (Fig. 208/26) to call up the basic configuration of the terminal.

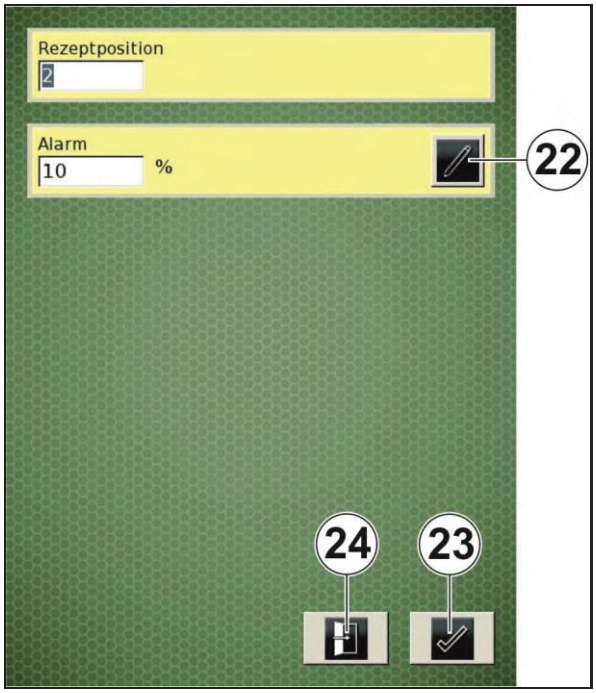


Fig. 209

8.5.7 Delete recipe

1. Select the "Weighing device" menu.
2. Select the "Weighing device – Recipes" menu (1).
3. Highlight the desired recipe by touching.

   If not all recipes are visible in the display, press the arrow keys (2) to scroll up or down.
4. Press the "Delete recipe" key (3).

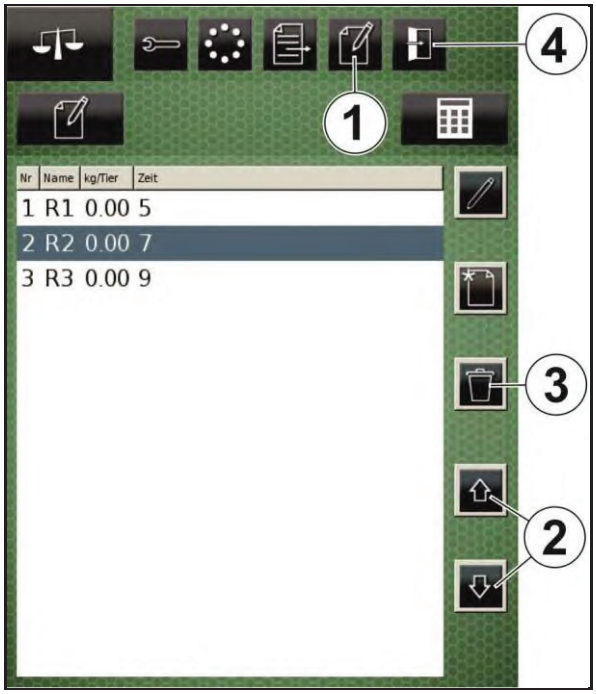


Fig. 210

5. Press the "Yes" key to delete the recipe.

   Press the "No" key to not delete the recipe.
6. Press the "Exit menu" key (Fig. 210/4) to call up the basic configuration of the terminal.

Fig. 211

8.5.8 Weigh components

1. Press the "Reset total value" key (1a).

→ The key jumps to the left-hand bottom position.

2. Press the "Reset total value" key (1b) again.

→ The "Display Weight 2" (2) shows "0" as total weight.

3. Fill the mixing container. Observe the information in the chapter "Fill fodder mixing wagon", page 184.

→ The "Display Weight 2" (2) shows the current total weight.

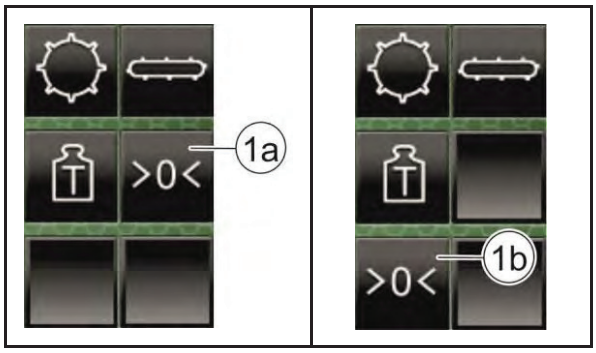


Fig. 212

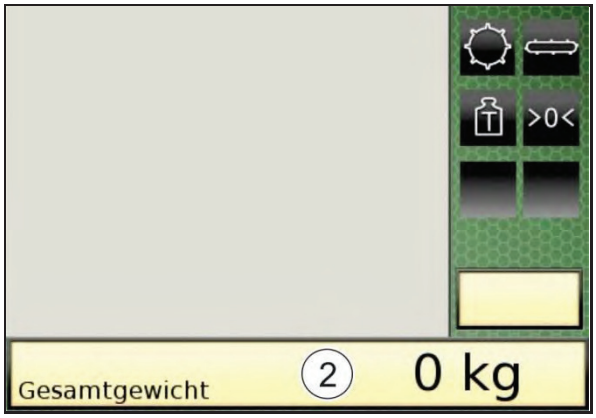


Fig. 213

8.5.9 Weighing by difference

The weight of the components which are being added can be determined.

1. Press the "Tare weight" key (1).

→ The "Display Weight 2" shows "0" as tare weight. The "Display Weight 1" shows the current total weight.

2. Fill the mixing container. Observe the information in the chapter "Fill fodder mixing wagon", page 184.

→ The "Display Weight 2" shows the current tare weight. The "Display Weight 1" shows the current total weight.

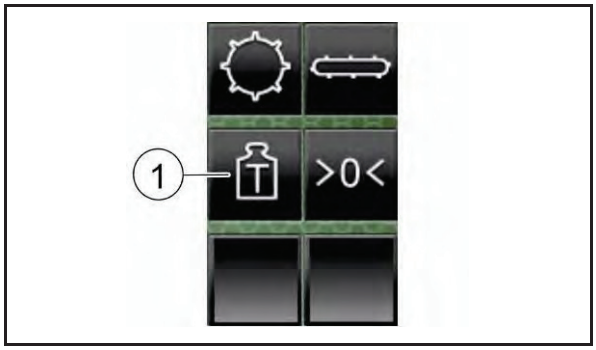


Fig. 214

8.5.10 Start charging mode

1. Select "Charging" mode. For details, please refer to page 80.
2. Press the "Charging mode" key (1).

→ Instead of the camera picture, the terminal displays a list of saved recipes (Fig. 216).

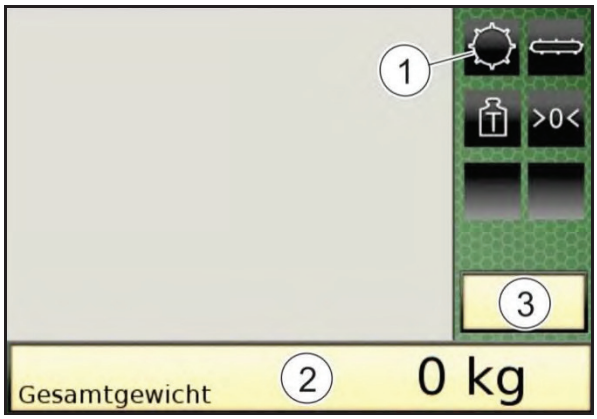


Fig. 215

3. Touch the respective line on the display to select the desired recipe. Scroll through by means of the arrow keys if necessary.

→ The selected line is highlighted by means of a blue background.

> Press the  key to directly change the number of animals.

Fig. 216

4. Change the settings of the discharge station(s) of the selected recipe if necessary.

   4.1 Press the "Change entry data" key (4).

   → The "Discharge station options" display (Fig. 217) appears.

   4.2 Add or deselect discharge stations to adapt your list of options.

   → Selected discharge stations are ticked.

   4.3 Press the "Confirm" key (5) to confirm your entry.

   → The "List of discharge stations" display (Fig. 218) appears.

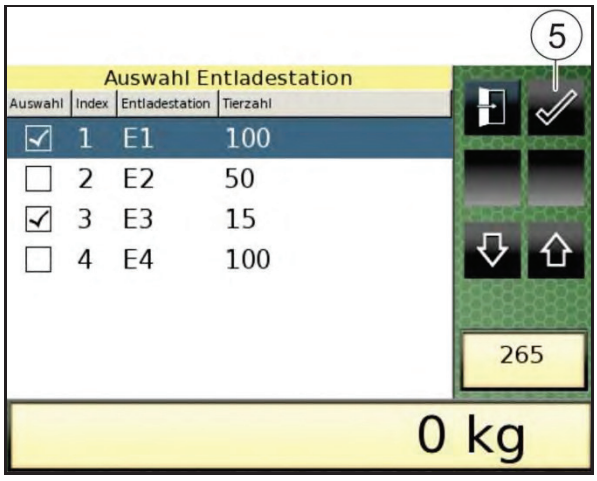


Fig. 217

4.4 Select the discharge station to be modified.

→ The selected line is highlighted by means of a blue background.

4.5 Press the "Change entry data" key (6).

→ The "Recipe overview - Discharge stations" display (Fig. 219) appears.

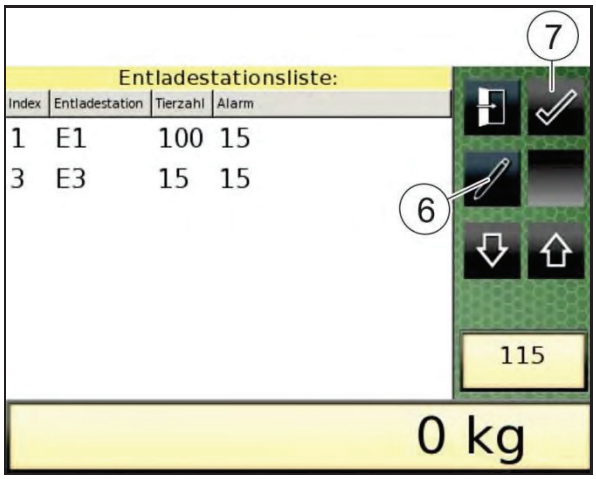


Fig. 218

4.6 Select the setting to be modified and press the respective "Change entry data" key (8).

→ The "Keyboard" display appears.

4.7 Enter the desired name / value.

4.8 Press the "Confirm" key to confirm your entry.

→ The "Recipe overview - Discharge stations" display (Fig. 219) appears.

4.9 Press the "Confirm" key (9) to finish the change of settings regarding the selected discharge station.

→ The "List of discharge stations" display (Fig. 218) appears.

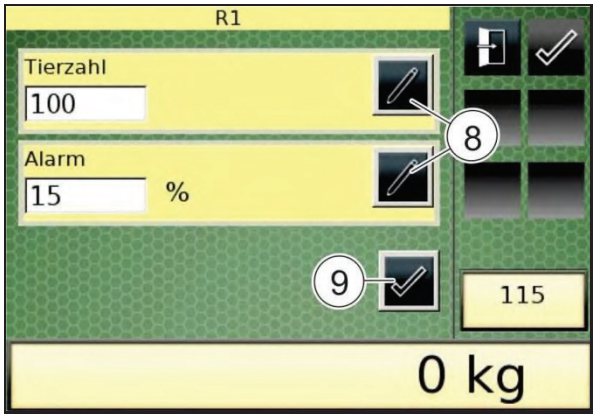


Fig. 219

5. Repeat step 4 until all changes have been entered.

6. Press the "Confirm" key (7) to confirm your entry.

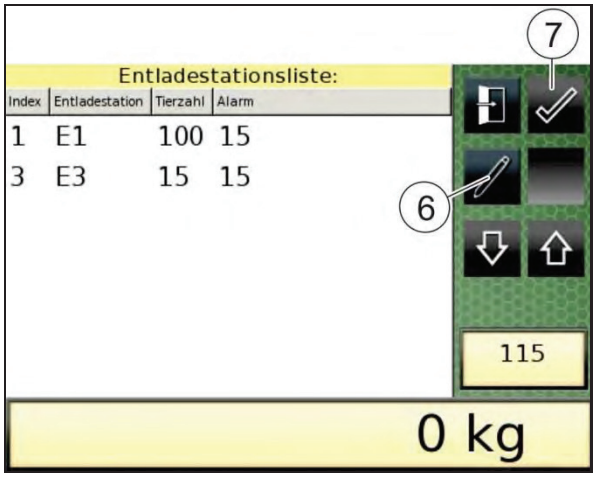


Fig. 218

→ Instead of the camera picture, the terminal displays an overview of the selected recipe (Fig. 220) including:

- name of recipe
- number of animals specified in the recipe
- new number of animals; differs from the "number of animals specified in the recipe" if changes have been carried out for this charging cycle

7. Press the "Confirm" key (10) to confirm your entry.

→ The charging mode is started. The "Charging mode" display (Fig. 221) appears.

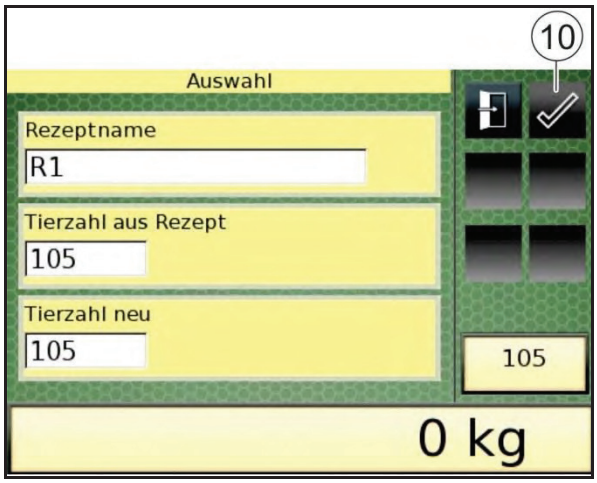


Fig. 220

The "Display Weight 2" shows the name of the recipe (11), the first component to be charged (12) and the remaining quantity (13) of this component to be charged.

The "Display Weight 1" (14) shows the total weight charged.

8. Start manual or automatic charging.

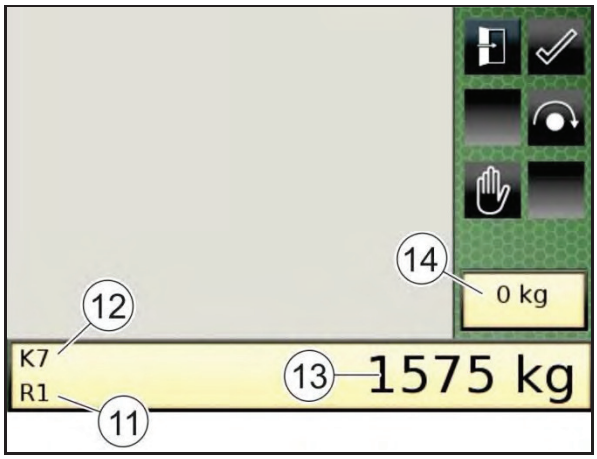


Fig. 221

Manual charging

Stop the charging procedure manually if "Automatic charging" is deactivated in the recipe setting for the current component. Observe the acoustic signal indicating the approaching of the nominal value. For details, please refer to page 139.

1. Start the charging procedure. Observe the information in the chapter "Fill fodder mixing wagon", page 184.

→ In "Display Weight 2", the value of the remaining quantity (1) of the current component to be charged decrements.

The "Display Weight 1" shows the total weight charged (2).

2. Stop the charging procedure for the current component as soon as the nominal value has been reached.
3. Press the "Confirm" key (3) to switch to the next component during the charging.

→ The charging procedure for the current component is finished. The next component is displayed.

4. Repeat steps 5 to 7 until all components have been charged.

→ After completion of the last component, the "Mixing" display (Fig. 223) appears.

5. Start the mixing procedure. Observe the information in the chapter "Perform functions", page 169.

→ The "Display Weight 2" shows the remaining mixing time (4).

6. Wait for the end of the mixing time.

If the mixing time is exceeded, the mixing time is incremented again with negative sign.

7. Press the "Exit menu" key (5) to finish the charging mode.

→ The basic configuration of the current operating mode appears.

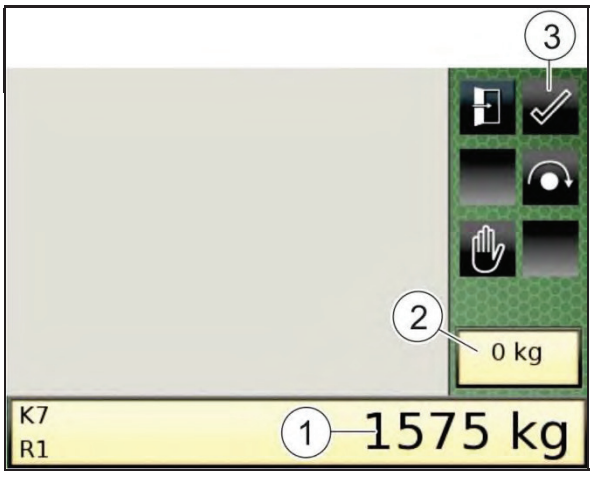


Fig. 222

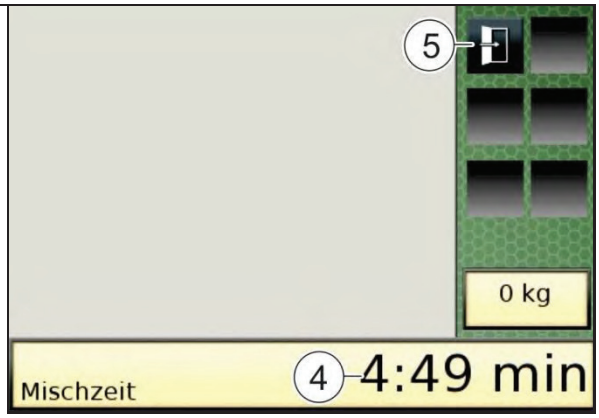


Fig. 223

Automatic charging

If in the recipe setting "Automatic charging" is activated for the current component, the weighing device automatically switches over to the next component when the set quantity is reached. For details, please refer to page 139.

1. Start the charging procedure. Observe the information in the chapter "Fill fodder mixing wagon", page 184.

→ In "Display Weight 2", the value of the remaining quantity (1) of the current component to be charged decrements.

The "Display Weight 1" shows the total weight charged (2).

The weighing device automatically switches over to the next component when the set quantity is reached.

2. Go to the next component and continue the charging procedure as soon as the weighing device has switched over to the next component.
3. Repeat step 2 until all components have been charged.

→ After completion of the last component, the "Mixing" display (Fig. 223) appears.

The "Display Weight 2" shows the remaining post-mixing time (4).

4. Wait for the end of the mixing time.

If the mixing time is exceeded, the mixing time is incremented again with negative sign.

5. Press the "Exit menu" key (5) to finish the charging mode.

→ The basic configuration of the current operating mode appears.

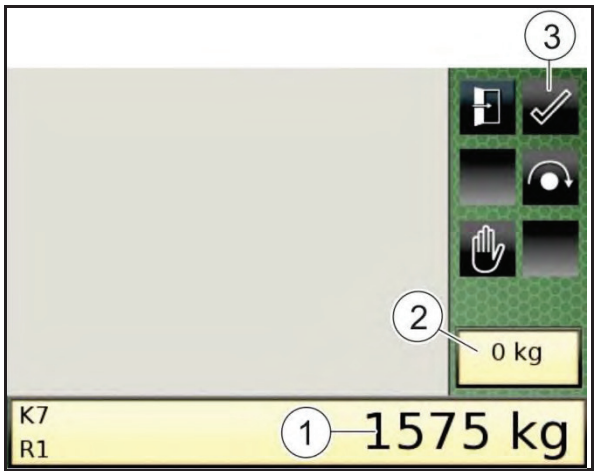


Fig. 224

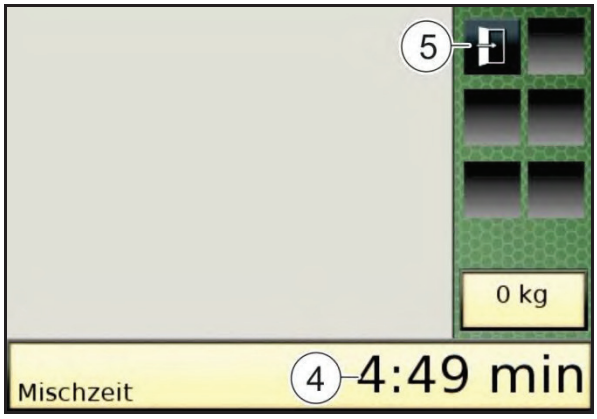


Fig. 223

Skip component

The order of the components to be charged can be changed.

1. Press the "Skip component" key (1).

→ The next component is displayed. The skipped component is called up again at the end of the charging procedure.

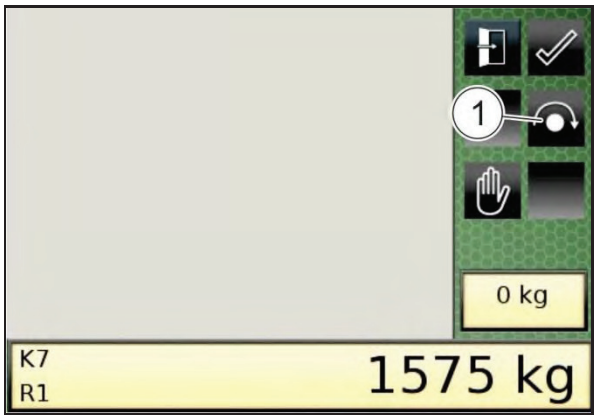


Fig. 225

Disable weighing device

The weighing device can be disabled, in order to avoid any weighing result variations possibly caused by travelling movements.

1. Press the "Disable weighing device" key (1).

→ The weighing device is disabled. The "Enable weighing device" key appears.

The weight of the current component remains unchanged. The total weight is increased when material is filled in.

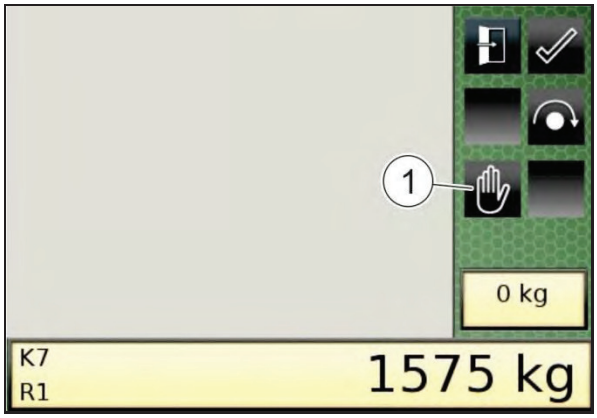


Fig. 226

Enable weighing device

1. Press the "Enable weighing device" key (1).

→ The weighing device is enabled. The charging procedure can be continued.

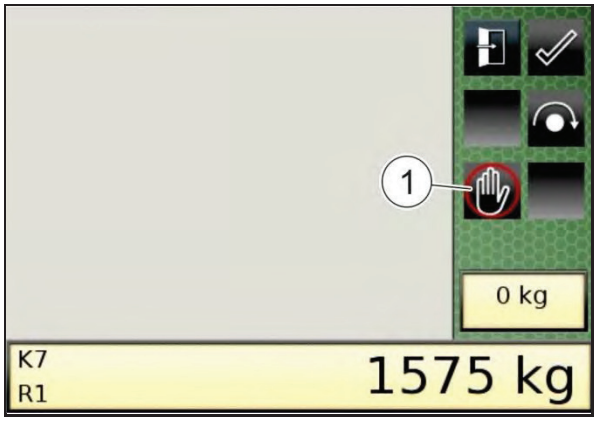


Fig. 227

8.5.11 Start discharging mode

Homogeneous discharge is controlled by the interaction of:

- machine speed,
- crossover conveyor speed,
- mixing auger speed,
- discharge door opening.

1. Select "Discharging" mode. For details, please refer to page 80.
2. Press the "Discharge mode" key (1).

→ Instead of the camera picture, the terminal displays a list of saved recipes (Fig. 229). The recipe of the last charging cycle is preselected.

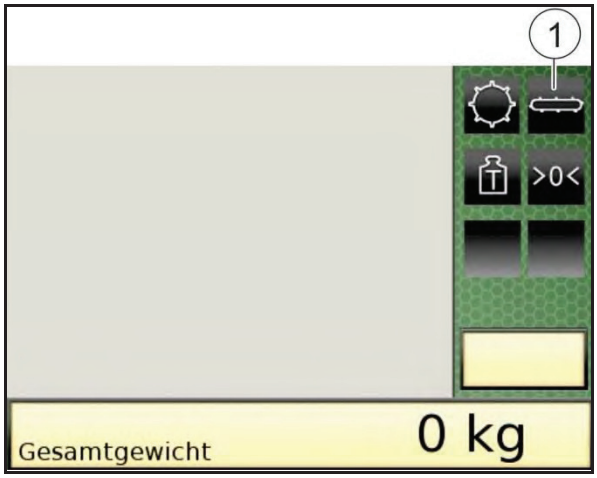


Fig. 228

3. Touch the respective line on the display to select the desired recipe. Scroll through by means of the arrow keys if necessary.

→ The selected line is highlighted by means of a blue background.

Press the key to directly change the number of animals.

4. Modify the settings of the discharge station(s) of the selected recipe if necessary.

   4.1 Press the "Change entry data" key (4).

   → The "Discharge station options" display (Fig. 230) appears.

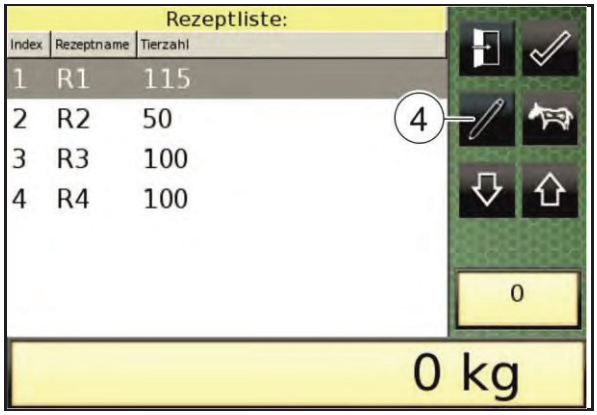


Fig. 229

4.2 Add or deselect discharge stations to adapt your list of options.

→ Selected discharge stations are ticked.

4.3 Press the "Confirm" key (5) to confirm your entry.

→ The "List of discharge stations" display (Fig. 231) appears.

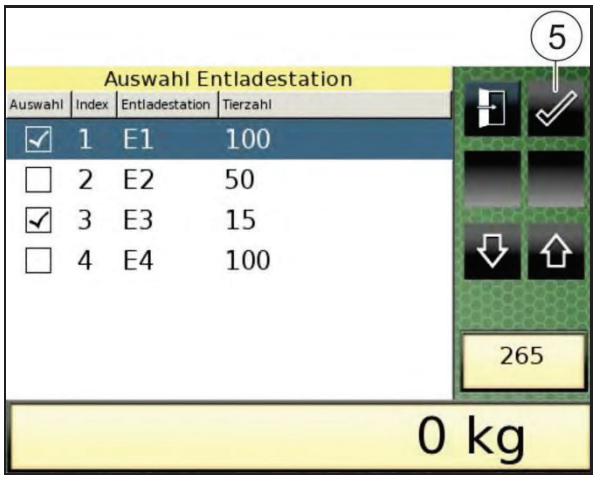


Fig. 230

4.4 Select the discharge station to be modified.

→ The selected line is highlighted by means of a blue background.

4.5 Press the "Change entry data" key (6).

→ The "Recipe overview - Discharge stations" display (Fig. 232) appears.

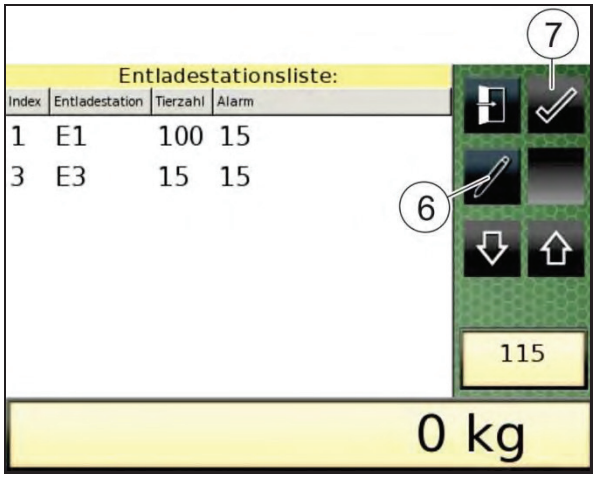


Fig. 231

4.6 Select the setting to be modified and press the respective "Change entry data" key (8).

→ The "Keyboard" display appears.

4.7 Enter the desired name / value.

4.8 Press the "Confirm" key to confirm your entry.

→ The "Recipe overview - Discharge stations" display (Fig. 232) appears.

4.9 Press the "Confirm" key (9) to finish the change of settings regarding the selected discharge station.

→ The "List of discharge stations" display (Fig. 233) appears.

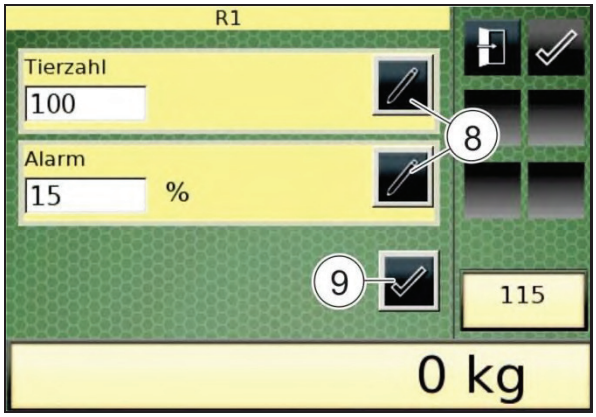


Fig. 232

5. Repeat step 4 until all changes have been entered.
6. Press the "Confirm" key (7) to confirm your entry.

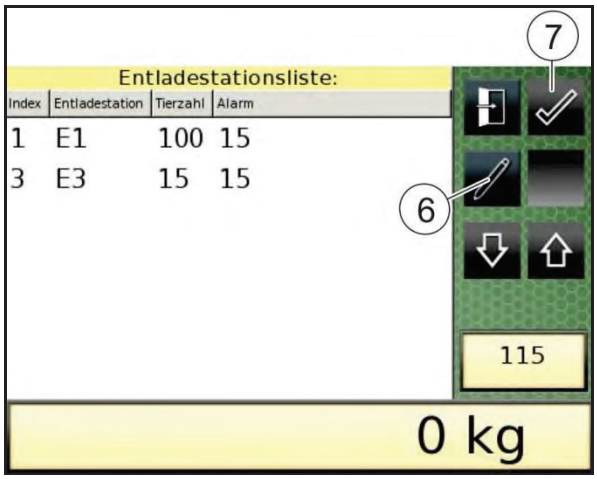


Fig. 233

→ Instead of the camera picture, the terminal displays an overview of the selected recipe (Fig. 234) including:

- name of recipe
- number of animals specified in the recipe
- new number of animals; differs from the "number of animals specified in the recipe" if changes have been carried out for this charging cycle

7. Press the "Confirm" key (10) to confirm your entry.

→ The discharging mode is started. The "Discharging mode" display appears (Fig. 235).

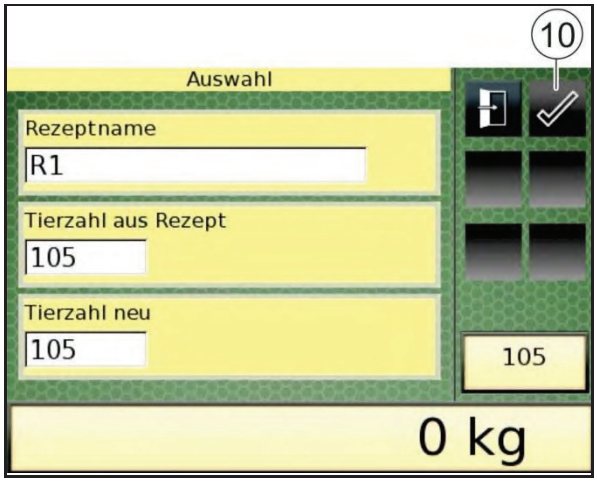


Fig. 234

The "Display Weight 2" shows the name of the recipe (11), the first discharge station (12) and the remaining quantity to be discharged (13) at this discharge station.

The "Display Weight 1" (14) shows the total weight of the material in the mixing container.

8. Start the discharging procedure. Observe the information in the chapter "Fodder discharge", page 195.

→ In "Display Weight 2", the value of the remaining quantity to be discharged (13) at the current discharge station decrements.

The "Display Weight 1" (14) shows the total weight of the material in the mixing container.

9. Stop the discharging procedure for the current discharge station as soon as the set value has been reached.

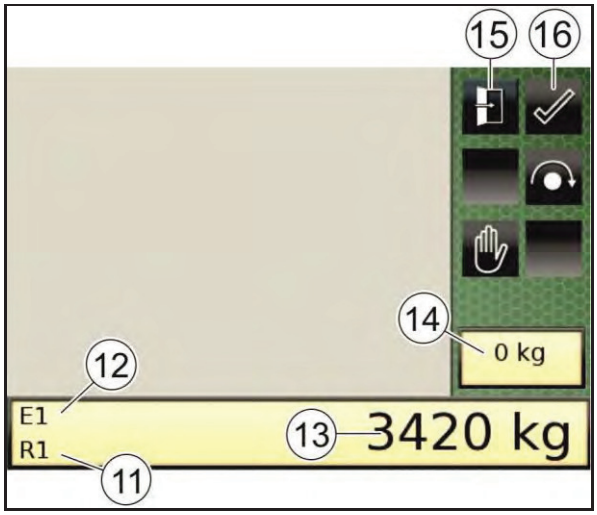


Fig. 235

10. Press the "Confirm" key (16) to switch to the next discharge station within the discharging procedure.

→ The discharging procedure for the current discharge station is finished. The next discharge station is displayed.

11. Repeat steps 5 to 7 until all discharge stations have been served.

12. Press the "Exit menu" (15) or "Confirm" (16) key to finish the discharging mode.

→ The basic configuration of the current operating mode appears.

Skip discharge station

The order of the discharge stations can be changed.

1. Press the "Skip discharge station" key (1).

→ The next discharge station is displayed. The skipped discharge station is called up again at the end of the discharging procedure.

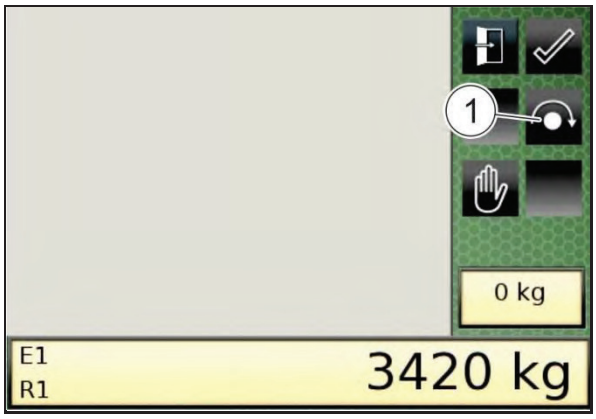


Fig. 236

Disable weighing device

The weighing device can be disabled, in order to avoid any weighing result variations possibly caused by travelling movements.

1. Press the "Disable weighing device" key (1).

→ The weighing device is disabled. The "Enable weighing device" key appears.

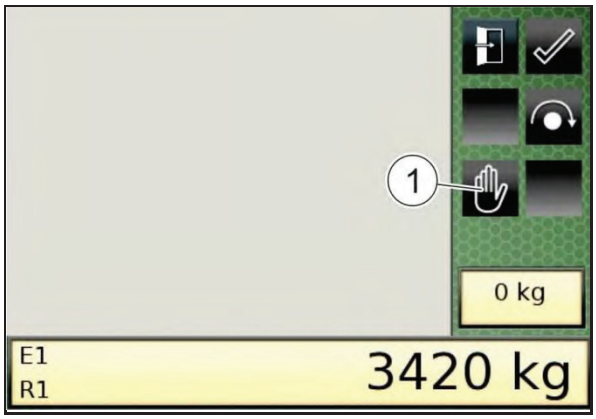


Fig. 237

Enable weighing device

1. Press the "Enable weighing device" key (1).

→ The weighing device is enabled. The discharging procedure can be continued.

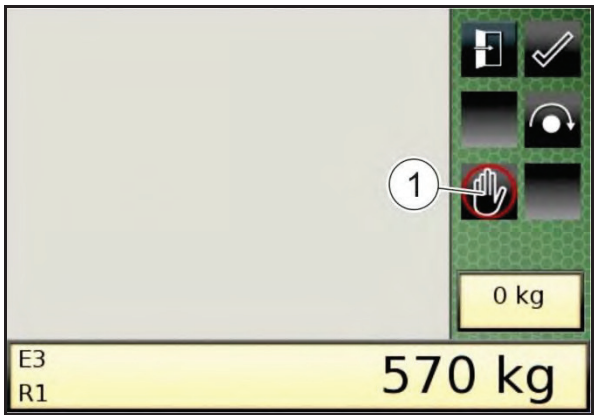


Fig. 238

9 Transport journeys

A transport journey is a journey of the charged or empty machine to or from the place of operation.

DANGER 	**Danger to life due to falling from the machine in road traffic!** Never allow people to travel as passengers on the machine (e.g. on the platform or the ladder).

- Additionally observe the chapter "Basic safety instructions", when carrying out transport journeys.
- Before carrying out transport journeys, check:
  - the lighting system for damage, proper functioning and cleanliness,
  - whether the parking brake has been completely released,
  - the brake system for proper functioning,
  - whether parts of the load risk to fall off the machine. When travelling on public roads and paths parts of the load falling off onto the road must be avoided.
- Set all moving machine parts to transport position before carrying out transport journeys. This shall in particular apply to parts protruding over the sides in operating position, e.g. when the machine is equipped with optional extras such as the fast bedding roller, the side discharge conveyor, the conveyor extension or the blow-out pipe of the straw blower.
- Engage the transport support before transport journeys to prevent damage to the machine.
- Switch the work lights off when travelling on roads.

9.1 Engage transport support

WARNING

Risk to people and animals when lifting and lowering the cutter arm!

- Make sure that people or animals leave the hazardous area of the cutter arm before lifting or lowering the cutter arm.
- Immediately release the multi-function joystick when people or animals enter the hazardous area of the cutter arm.

1. Lift the cutter am (3) far enough to enable you to see the transport support (2).
2. Extend the transport support (2).

→ At the same time, the protective device (1) of the pick-up milling cutter closes.

3. Lower the cutter arm (3) to its end position.

→ The cutter arm rests on the transport support.

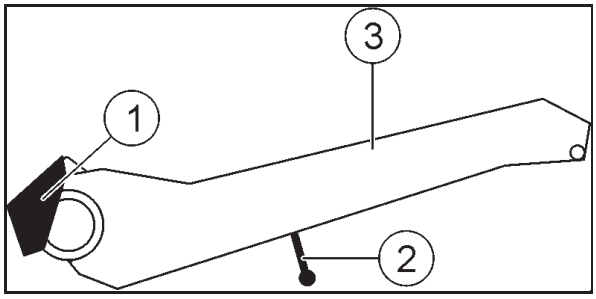


Fig. 239

9.2 Secure protective devices for transport journeys

Secure the protective devices (1) for side or rear discharge in transport position by means of the rubber strap (2) before starting the journey.

Fig. 240

10 Stop-cock at side discharge conveyor or conveyor extension

In order to secure the side discharge conveyor or conveyor extension against accidental folding-out during road journeys, it is equipped with a stop-cock.

Depending on the use of the machine, close or open the stop-cock.

Before road journeys

Close the stop-cock to secure the conveyor against lowering in transport position: Swivel the lever transversely to the cable direction (Fig. 241/1, Fig. 242/1).

Before fodder discharge

Open the stop-cock to swivel the conveyor down to its working position: Swivel the level in the direction of the cables (Fig. 241/2, Fig. 242/2).

Stop-cock with short conveyor (1 hydraulic cylinder)

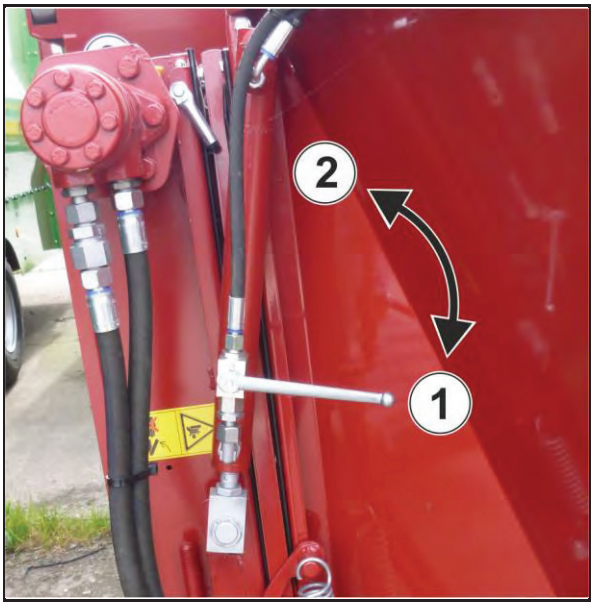


Fig. 241

Stop-cock with longer conveyor (2 hydraulic cylinders)

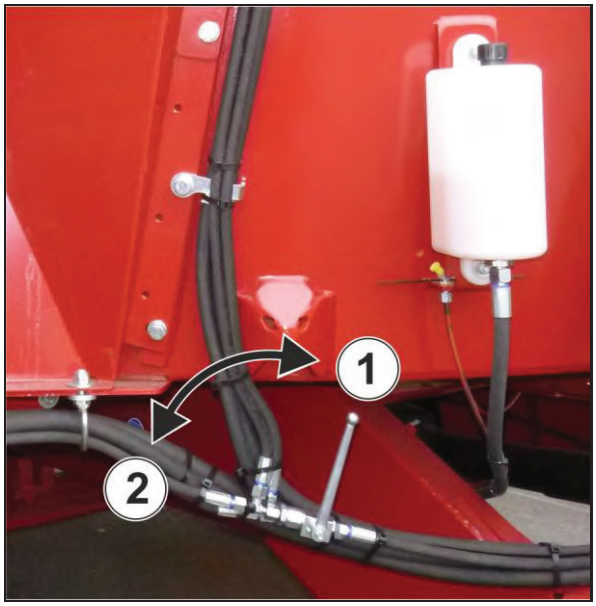


Fig. 242

(1) Stop-cock closed for transport position of conveyor during road journeys

(2) Stop-cock open for working position of conveyor during fodder discharge

The discharge conveyor is in transport position only when the hydraulic cylinder has been completely retracted.

11 Service and maintenance of machine

Regular and proper service and maintenance:

- will keep your machine ready for use for a long time and avoid early wear,
- will reduce downtimes and repairs,
- is a precondition for our warranty provisions.

- When carrying out service and maintenance work on the machine, additionally observe the information included in the following chapters:
  - "Operator's obligation", page 27,
  - "Qualification of operator", page 28,
  - "Basic safety instructions", page 31,
  - "Warning and instruction signs", page 40.

  Observance of these chapters serves your safety.
- Immediately replace worn or damaged components.
- Only use original spare parts.
- Observe environmental protection measures when carrying out service and maintenance work on the machine.
- Observe legal provisions when disposing of operating media such as oils and greases. These legal provisions also apply to parts having come into contact with those operating media.
- The time intervals, service hours and maintenance intervals specified in the enclosed sub-supplier documentation shall prevail.
- It is necessary to take protective measures such as covering power supply lines, hydraulic hose pipes, brake and feed lines or removal of such lines at particularly critical spots:
  - when carrying out welding, drilling and grinding work.
  - when carrying out work by means of cutoff wheels in the vicinity of these pipes and lines.
- Check brake lines, air pipes and hydraulic hose pipes with special care for visible defects.

- Special know-how is required for carrying out testing and maintenance work. This know-how is not imparted by these operating instructions.
- The maintenance intervals depend on the frequency of use of your machine. The maintenance plan has been tailored to medium axle loads and stress exerted on the brakes.

  In case of higher loads and amount of stress, maintenance work must be carried out at respectively shorter intervals. This shall in particular apply to the brakes and chassis.
- Modifications to the maintenance instructions shall be reserved!

Before carrying out work affecting the electrical system

Risk of material damage to the electronic system due to early disconnection of battery main switch

1. Switch the engine and all electrical loads off.
2. Wait for approx. 2 minutes, until the control lamp (2) is out.
3. Disconnect the battery main switch (1) to de-energize the electrical system.
4. As a basic principle, disconnect all electrical / electronic plug-in connections before carrying out welding work on the machine.

   In the fuse box behind the driver seat, both computers (BBX1 and BBX2) and the controller of the John Deere engine (both plug-in connections!) must be disconnected! The controller is mounted on the engine at the right-hand side.

Fig. 243

11.1 Operating media

Exclusively use the operating media specified in these operating instructions and in the included sub-supplier documentation!

The manufacturer will not assume any warranty or liability for damage on the machine caused by the use of non-approved operating media.

Filling-up point	Filling quantity	Liquid / Lubricant	Specification	Trade name (manufacturer)
Lubrication points	s. p. 242	Grease	Lithium-saponified multi-purpose grease	
Mixer gearbox	20 l	Gear lubricant oil	EP 80W-90, EP VG 220 (-30°C/+65°C)	EP B 80W-90 (Total) EP Plus SAE 80W-90 (Aral) MZ 80W (Avia) * Spirax A 90 LS (Shell)
Front steering axle	1.25 l + 1.25 l			
Front driving axle	0.75 l + 5.5 l + 0.75 l			
Rear steering axle (optional extra)	1.25 l + 1.25 l			
Rear driving axle	0.75 l + 5.5 l + 0.75 l			
Rear steering drive axle (optional extra)	0.75 l + 11 l + 0.75 l			

Filling-up point	Filling quantity	Liquid / Lubricant	Specification	Trade name (manufacturer)
Pump power divider gearbox	3.2 l	Gear lubricant oil	Synthetic oil CLP HC (PAO) (-25°C/+80°C)	Syntogear PE 220 (Avia) * Renolin Unisyn CLP HC 220 (Fuchs) Omala HD 220 (Shell)
Input stage of mixer gearbox, front, with mixing unit drive shaft	1.35 l	Gear lubricant oil	Synthetic oil CLP HC (PAO) (-25°C/+80°C)	Syntogear PE 220 (Avia) * Renolin Unisyn CLP HC 220 (Fuchs) Omala HD 220 (Shell)
Hydraulic oil tank	370 l	Hydraulic oil	Hydraulic oil according to HVLP DIN 51524 part 3	AVIA Fluid HVI 46 (Avia) * Mobil DTI 10EXEL46 (Mobil) and others
Air-conditioning system (optional extra)	0.95 kg	Refrigerant	R134a	
Fuel tank	200 l	Diesel fuel, low-sulphur (ULSD)	Observe the latest specifications of the engine manufacturer!	
Engine	19 l	Engine oil	Observe the latest specifications of the engine manufacturer!	
Engine cooling system	39 l	Coolant	Observe the latest specifications of the engine manufacturer (see enclosed separate instructions)! (Initially filled by the manufacturer with John Deere COOL-GARD II)	

* Initially filled by the manufacturer

** Initially filled by the manufacturer with running-in engine oil John Deere Break-in Plus **™ engine oil

11.2 Service and maintenance plan - Overview

For maintenance work to be exclusively carried out by an authorised workshop, please refer to the inspection booklet.

The maintenance intervals specified in the included sub-supplier documentation shall prevail.

Before first start-up and after longer downtimes

Check:

- the machine for visible defects.
- all functions of the machine, including the engine function.
- all liquid filling-up points for tightness.
- all wheel nuts for firm seat; retighten if necessary: M 20x1.5 at 450 Nm, M 22x1.5 at 650 Nm.
- all screwed connections of the chassis for firm seat.
- the hydraulic hoses and screwed connections for tightness and firm seat.
- the oil level of all gearboxes and axles.
- the tyre pressure (9 bar/130 psi).

Completely lubricate the machine.

Daily

Check:

- the machine for visible defects.
- all functions of the machine, including the engine function.
- the service brake and the parking brake for proper functioning and wear.
- the lighting system, horn (reversing signal) for proper functioning.
- the cutting knives of the mixing auger(s) for good fixture, wear, breakage and fodder piling up.
- the milling blades for good fixture, position (especially the outer milling blades), imbalance, wear, breakage and loss.
- the strippers of the elevator conveyor.
- all conveyor belts for conveyor tension, conveyor run and damage (fissures, raised corners).
- camera and mirrors for proper setting, functioning and damage.
- all liquid filling-up points for tightness.
- all screwed connections of the chassis for firm seat.
- the hydraulic hoses and screwed connections for tightness and firm seat.
- the tyre pressure (9 bar/130 psi).
- the tyres for damage and sufficient tread depth (minimum 2 mm).
- the level of the engine oil, coolant and hydraulic oil.

Clean:

- the air filter element.

- the cooling system for coolant, charge air, fuel (in case of difficult conditions even several times a day).
- the hydraulic oil cooler.
- the condenser of the air-conditioning system (optional extra) if regularly used.

Drain the compressed-air reservoir of the compressed-air suspension (optional extra).

Regularly

Check:

- the gear lubricant oil level of the mixer gearbox during the first 10 hours after commissioning or change of gear lubricant oil.
- all conveyor belts (outside and inside), conveyor drive components (driving rollers, carrying rollers and pulleys), conveyor cover strips, conveyor bearings and bearing housings for contamination (bumps in the conveyor belt!), damage, proper seat and functioning.
- the central lubrication (optional extra) for proper functioning: Do all lubrication points have a sufficient grease collar? Is sufficient grease available in the reservoir? Top up the reservoir before the minimum level is reached!
- the front and rear parabolic springs for breakage.
- electrical lines for damage and proper installation.
- batteries for sufficient charge.
- the distance between dosage gate and mixing container.
- the compressed-air system of the air suspension (optional extra) for tightness.
- the concentration of the anti-freezing agent in the coolant system (in winter).

Clean:

- the engine compartment interior by means of compressed air to prevent the risk of fire.
- Top up windscreen washing water.

Every 50 service hours

Check:

- all wheel nuts for firm seat; retighten if necessary: M 20x1.5 at 450 Nm, M 22x1.5 at 650 Nm.
- the hydraulic hoses and screwed connections for tightness and firm seat.

Lubricate:

- all lubrication points (except for upper mixing auger bearing(s)).
- universal joints and guard bearings of the propeller shaft with mixing unit drive shaft (optional extra)

Every 100 service hours

Check:

- the gear lubricant oil level of the mixer gearbox(es).
- the V-belt for proper tension, run and damage (once, then every 500 service hours).
- the joints of the steering rods for firm seat (240 Nm) and proper clearance (once, then every 500 service hours).
- the spring clamps (650 Nm) and link pins (M27 at 550 Nm, M30 at 750 Nm) for firm seat (once, then every 500 service hours).
- the cutter arm bearing for proper initial tension (520 Nm) (once, then every 500 service hours).

Clean:

- Fresh air filter and air circulation filter.

Every 500 service hours

Check:

- wheel hub bearing and steering bearing for proper clearance.
- the V-belt for proper tension, run and damage (the first time after 100 service hours).
- the hydraulic fan (radiator fan) for damage and proper run.
- the pressure of the hydraulic pressure accumulators.
- the synthetic oil level in the pump power divider gearbox.
- the milling drum for wear and imbalance.
- the mixing auger(s) for wear, breakage and fodder piling up.
- the cutter arm bearing for proper initial tension (520 Nm) (once).

Lubricate:

- the upper mixing auger bearing(s).

Clean:

- the ventilation filter of the hydraulic system.

Every 1000 service hours

Check:

- the front floating axle support for proper clearance.
- the joints of the steering rods for firm seat (240 Nm) and proper clearance (the first time after 100 service hours).
- the spring clamps (650 Nm) and link pins (M27 at 550 Nm, M30 at 750 Nm) for firm seat (the first time after 100 service hours).
- the level of the input stage of the mixer gearbox, front, with mixing unit drive shaft (optional extra) (once, then every 2000 service hours).

Every 2000 service hours, at least once a year

Replace fresh air filter and air circulation filter.

Check the level of the input stage of the mixer gearbox, front, with mixing unit drive shaft (optional extra) (the first time after 1000 service hours).

11.3 Working in engine compartment

DANGER

Risk of crushing when lowering the cutter arm or the engine cowling!

Secure the cutter arm against lowering by means of the mechanical support device.

Lift the engine cowling until it is held by the gas pressure spring.

Keep people and animals away from the machine.

DANGER

Risk of serious injuries due to hot service fluids and rotating or hot engine parts!

Never open the engine cowling when steam or cooling agent is escaping. Let the diesel engine cool down.

Never spill service fluids over hot engine parts.

Prevent your clothes or hair from becoming caught up in rotating engine parts: Roll up sleeves, tie up your hair!

Keep people and animals away from the machine.

WARNING

Risk of fire due to dirt accumulation in the engine compartment!

Due to the hot components in the engine compartment, deposits of dust, oil and grass may catch fire.

Always keep the engine compartment in a clean condition to prevent the risk of fire. Frequently check the machine and remove dirt accumulation particularly in case of the occurrence of a high amount of dust.

WARNING

Risk of injury when using compressed air for cleaning!

Risk of eye injuries or loss of sight due to flying parts when cleaning by means of compressed air.

Wear eye protectors.

Keep people away from the operating area.

Never aim the compressed air jet at people.

1. Lift the cutter arm as far as to allow the mechanical support device to be placed at the hydraulic cylinder of the cutter arm.
2. Switch the parking brake on.
3. Turn the diesel engine off.
4. Pull the ignition key out.
5. Unhook the spring hook (1) from the notch (2).

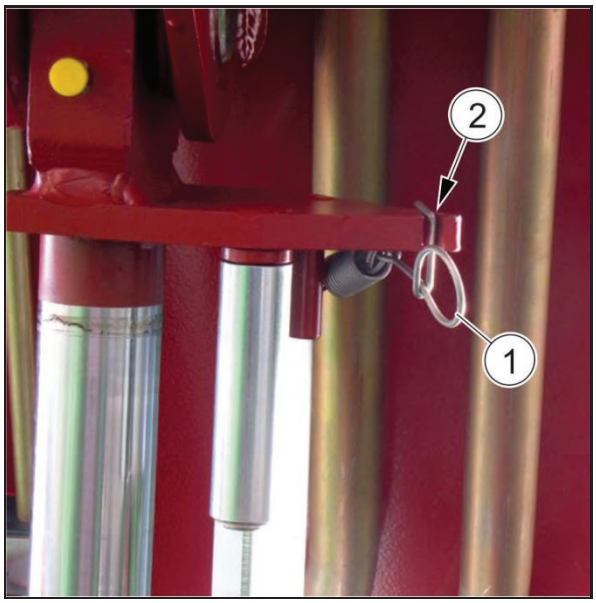


Fig. 244

6. Swivel the support (3) in direction "B" towards the hydraulic cylinder.

→ The mechanical support device is inserted. The cutter arm is secured against accidental lowering.

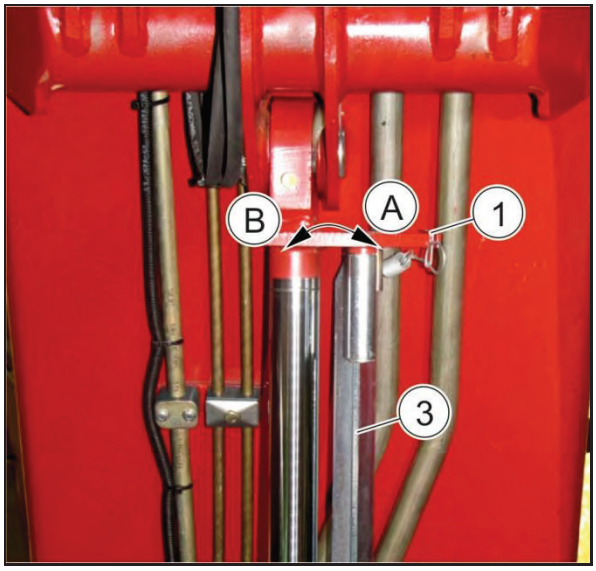


Fig. 245

7. Lift the engine cowling until it is held by the gas pressure spring.
8. After completion of the work in the engine compartment: Pull the engine cowling down until the force of the gas pressure spring has been overcome.
9. Let the engine cowling fall into the locking mechanism and completely engage.

   The engine cowling is firmly locked if it is flush with the surrounding frame parts.

Fig. 246

10. Swivel the mechanical support (3) at the hydraulic cylinder of the cutter arm to transport position "A".

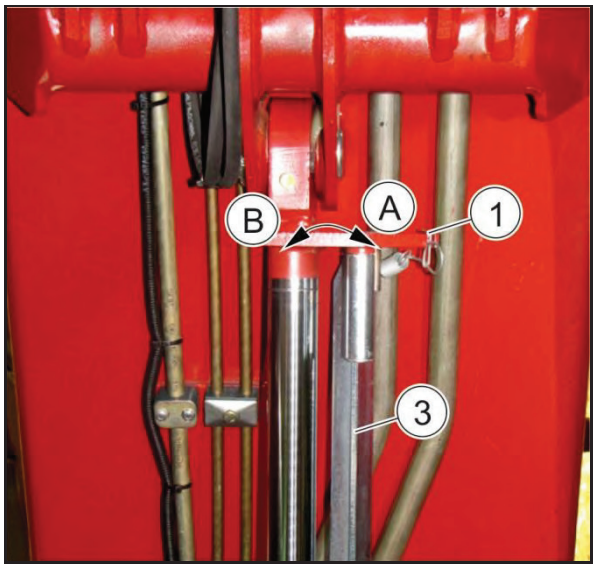


Fig. 247

11. Hook the spring hook (1) into the notch (2) to lock the mechanical support device.
12. The diesel engine can now be restarted and the cutter arm can be lowered.

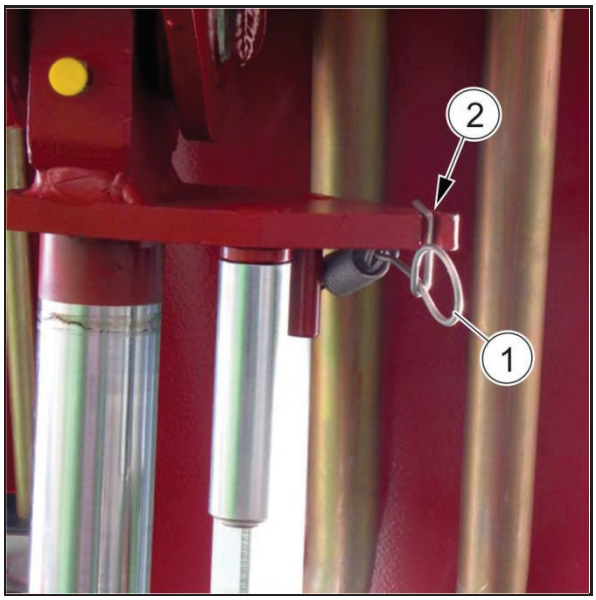


Fig. 248

11.4 Enter the mixing container

Shop work

Only an authorised workshop is allowed to carry out this work!

This work requires special know-how and/or specific technical equipment.

Otherwise, this work will impair your safety and the functional ability of the machine during and after its execution!

DANGER

Danger to life due to falling when climbing over the top edge of the mixing container without permission!

Only enter the mixing container through a discharge opening with the dosage gate completely lifted and secured against accidental lowering!

WARNING

Risk of injury due to slipping, stumbling or falling!

Only carry out work in an empty mixing container which is as clean and dry as possible!

Wear non-slip safety footwear!

Pay particular attention to the scraper(s) of the mixing auger(s) near the bottom!

WARNING 	**Risk of injury due to sharp cutting knives!** Rotate the mixing auger(s) such that the cutting knives are not directly pointed at the discharge opening through which you intend to enter the mixing container! Wear cut-resistant protective gloves! Cover the cutting knives by means of an edge protector!

DANGER 	**With magnetic system (optional extra): Danger to life to people with pacemakers and implanted defibrillators due to magnetic fields!** Keep sufficient distance to the magnets at the top and bottom at the mixing auger(s) if you wear a pacemaker or implanted defibrillator.

1. Rotate the mixing auger(s) such that the cutting knives are not directly pointed at the discharge opening through which you intend to enter the mixing container.
2. Completely open the discharge door of the discharge opening und secure it against accidental lowering.
3. Switch the parking brake on.
4. Turn the diesel engine off.
5. Pull the ignition key out.
6. Enter the mixing container through the open discharge opening.
7. Cover the cutting knives by means of the edge protector.
8. After completion of work in the mixing container: Clean the mixing container and remove loose components, tools etc. from the mixing container.
9. Leave the mixing container through the open discharge opening.

11.5 Cleaning of machine

- Regularly and thoroughly clean the machine! Dirt binds humidity thus causing rust formation.
- Observe the legal provisions for handling and disposal of cleaning agents.
- Never clean brake lines, air pipes and hydraulic hose pipes with benzine, benzol, paraffin or mineral oils.
- Lubricate the machine after cleaning, especially after cleaning by means of a pressure washer / steam blaster or fat-dissolving agents.

Cleaning by means of pressure washer / steam blaster

It is absolutely imperative to observe the following when using a pressure washer / steam blaster for cleaning.

- The maximum admissible injection pressure is 80 bar.
- The maximum admissible water temperature is 60°C.
- Do not clean electrical components such as control set, weighing rods, distributor boxes, weighing computer etc.
- Do not clean chromium-plated components.
- Never aim the cleaning nozzle jet of the pressure washer / steam blaster:
  - directly at lubrication points and bearings,
  - directly at hydraulic components.
  - directly at rubber gaskets.
- Always keep a minimum nozzle distance of 300 mm between the cleaning nozzle and the machine.
- Never aim the cleaning nozzle jet at the machine parts at right angles. The nozzle spray angle must at least be 25°.
- Do not use any chemical additives.
- Observe the safety instructions when handling pressure washers.

11.5.1 Diesel engine - Clean cooling system

(1) Intake air door with intake air grid

Fig. 249

1. Open the intake air door.
2. Use compressed air to blow out the intake air grid (1) and the ribs of the water cooler (2), charge-air cooler (3) and fuel cooler (4) from the inside to the outside.

Always aim the compressed air flow only vertically at the ribs, in order to avoid deformation.

Fig. 250

11.5.2 Clean hydraulic oil cooler

1. Open the intake air door.
2. Use compressed air to blow out the intake air grid (1) and the ribs of the hydraulic oil cooler (2) from the inside to the outside.
3. With air-conditioning system (optional extra): Open the condenser (3) and use compressed air to blow out the ribs from the inside to the outside.

Always aim the compressed air flow only vertically at the ribs, in order to avoid deformation.

Fig. 251

11.6 Lubrication of machine

Remove the dirt from the lubrication nipples before carrying out lubrication work.

Do not exceed the maximum lubrication pressure of 250 bar when using high-pressure grease guns! Damage to bearings, seals etc. may occur if the grease gun used is not equipped with a protective device.

Exclusively use lithium-saponified multi-purpose grease.

Use environmentally friendly, biodegradable oils and greases where lubricants may penetrate the fodder or the ground.

11.6.1 Lubrication points - Overview

Fig. 252

Item	Lubrication point	Number of lubricating nipples	Lubricant quantity per lubricating nipple (1 shot = 0.8-0.9 cm³)
(1)	Elevator conveyor bearing, bottom left and right	2	3 shots
(2)	Elevator conveyor bearing, top left and right Drive chain for elevator conveyor	3	3 shots
(3)	Milling drum bearing	1	3 shots
(4)	Crossover conveyor bearing	4	3 shots
(5)	Supporting roller, milling drum	2	3 shots
(6)	Hydraulic cylinder, cutter arm	2	3 shots
(7)	Hinge bearing, cutter arm	2	3 shots
(8)	Transport support	2	3 shots
(9)	Axle stubs Floating axle support Leaf spring, front	1	10-12 shots

Item	Lubrication point	Number of lubricating nipples	Lubricant quantity per lubricating nipple (1 shot = 0.8-0.9 cm^3)
(10)	Upper mixing auger bearing(s)	1 (2)	2 shots
(11)	Steering axle/Steering drive axle, rear (optional extra) Axle stubs	1	10-12 shots
(12)	Hydraulic counter-cutter (optional extra)	2	2 shots
(13)	Propeller shaft with mixing unit drive shaft (optional extra) Universal joint Guard bearing	4	as required

11.6.2 Central lubrication

Optional extra

The central lubrication

- supplies the lubrication points with grease for 4 minutes after a milling time of 30 minutes.

  Both times are only counted as long as the milling drum is running. Both times can be adjusted via the terminal.

- does not lubricate the upper mixing auger bearing(s), the hydraulic counter-cutters (optional extra) and the propeller shaft with mixing unit drive shaft (optional extra). Lubricate these lubrication points manually.

Regularly check the central lubrication for proper functioning:

- Do all lubrication points have a sufficient grease collar?
- Is sufficient grease available in the reservoir? Top up the reservoir before the minimum level is reached!

Also observe the operating instructions for the central lubrication!

Change lubrication interval / Switch central lubrication on / off

1. Select the "Parameter" menu. Observe the information in the chapter ""Parameter/ Diagnosis / Weighing device" menu", page 111.
2. Press the "Central lubrication" key.

→ The terminal displays the "Central lubrication " tab (Fig. 253).

3. Press the respective "Change entry data" key (5) to change the desired interval.

   (1)Active time of central lubrication in minutes

   (2)Active time of central lubrication in seconds

   (3)Break time of central lubrication in minutes

4. Press the "Perform" key (6) to switch the central lubrication on or off.

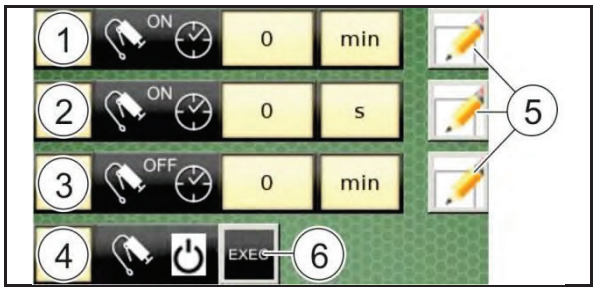


Fig. 253

11.7 Preservation/Longer downtimes

Preparing the machine for longer downtimes shall include:

- thorough cleaning of machine,
- lubrication and greasing of machine,
- touching up of paintwork.

11.7.1 Refuelling

Top up the fuel tank at the end of each working day, thus avoiding that water condenses and freezes in frosty conditions.

Use low-sulphur diesel (ULSD) according to the manufacturer's specifications. See separate instructions of the engine manufacturer.

DANGER

Burns due to igniting fuel or fuel vapours!

Only refuel with the diesel engine turned off and the ignition switched off.

Smoking and dealing with open fire are not allowed during refuelling.

Do not enter the driver's cabin during refuelling. The electrostatic charge may generate sparks!

The fuel tank (1) is mounted on the left-hand side of the machine directly behind the front wheel.

The fuel tank has a capacity of about 200 litres. The symbol "Fuel quantity" (Fig. 255) lights up red if there are approx. still 30 litres left in the tank.

1. Turn the diesel engine off.
2. Switch the ignition off.
3. Unlock the locking mechanism and swivel the ladder with the service cover (2) to the side such that the tank filler neck is easily accessible.
4. Unlock the tank cap (3).
5. Unscrew the tank cap to the left.
6. Put the tank cap onto a clean surface.
7. Top the fuel tank up.

Fig. 254

Fig. 255

8. Screw the tank cap onto the tank filler neck to the right as far as it will go.
9. Lock the tank cap (3).
10. Swivel the ladder with the service cover (2) back to its initial position until the locking mechanism noticeably engages.

    The ladder with the service cover is properly locked if it is flush with the surrounding frame parts.

Fig. 256

11.7.2 Diesel engine - Check / Top up oil level

WARNING

Risk of burns if engine oil comes into contact with hot surfaces and ignites!

Let the diesel engine cool down before filling in engine oil.

Top up engine oil carefully in small quantities and by means of a funnel if necessary.

The engine oil level of a cold diesel engine can be immediately checked. When checking the engine oil level of a warm diesel engine, wait approx. 5 minutes for the engine oil to flow back into the oil tray.

1. For safe working in the engine compartment: Prepare the machine as described in the chapter "Working in engine compartment", page 234.
2. Unscrew the cap (2) with the oil-level dipstick.
3. Wipe the oil-level dipstick (2) using a clean cloth.
4. Screw the cap (2) with the oil-level dipstick on again.
5. Unscrew the cap (2) with the oil-level dipstick again and read the oil level.

Do not top up engine oil if the engine oil level is at the upper marking (max.).

If the engine oil level is between the top and the bottom marking, engine oil can be topped up.

If the engine oil level is below the marking (min.), engine oil must be topped up.

6. Top up engine oil in small quantities until the engine oil level is between the top and the bottom marking.
7. Firmly screw the cap (2) with the oil-level dipstick back onto the filler neck.
8. Close the engine cowling.

11.7.3 Coolant

Also observe the specifications referring to coolants in the included diesel engine operating instructions!

11.7.3.1 Check / Top up coolant level

Only check the coolant level by opening the compensating reservoir if the terminal does not at all or not correctly display the coolant level.

Let the diesel engine cool down before topping up larger quantities of coolant to avoid engine damage.

WARNING

Scalds or burns due to hot coolant squirting out!

Open the cap of the coolant compensating reservoir only after the diesel engine has cooled down.

Use a thick cloth to generously cover the cap before opening.

Wear appropriate protective clothing (protective goggles, protective gloves).

1. Park the machine on even ground and switch the parking brake on.
2. Turn the diesel engine off and let it cool down.
3. Unlock and open the rear part of the engine bonnet.
4. When the diesel engine is cold / has cooled down:
   - 4.1 Put a large, thick cloth as anti-scald protection onto the cap.
   - 4.3 Carefully unscrew the cap (1) and let the pressure escape.
   - 4.4 Only remove the cap (1) when a hissing noise is no longer heard.
5. Top up appropriate, new coolant if the coolant level is below the marking (min.).

Only top up coolant up to the marking (max.)!

Fig. 257

6. Firmly screw the cap (2) on again.

7. Close the rear part of the engine bonnet.
8. Check the locking mechanism of the engine bonnet for complete engagement.

   The engine bonnet is properly closed if it is flush with the surrounding frame parts.

11.7.4 Check radiator fan

1. For safe working in the engine compartment: Prepare the machine as described in the chapter "Working in engine compartment", page 234.
2. Check the belt position.

   Put an eccentric belt into central position.
3. Check the belt tension.

   Have the belt replaced if the distance "x" between the stops is less than 5 mm (shop work!).

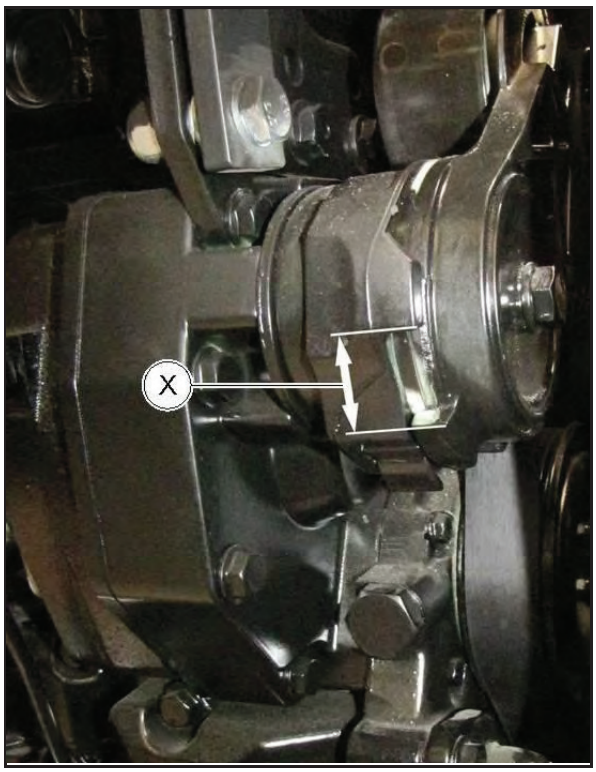


Fig. 258

11.7.5 Hydraulic oil

11.7.5.1 Check / Top up hydraulic oil level

To avoid damage on the hydraulic system,

- only use hydraulic oils approved for the machine.
- never mix hydraulic oils of different specification groups or mineral and bio oils.
- keep hydraulic oils free from contamination by foreign objects or other liquids.

WARNING

Risk of injury due to slipping or falling!

Keep the ladder and the machine platform free from oil.

Immediately remove fresh oil stains by means of binding agents.

1. Park the machine on even ground and switch the parking brake on.
2. Read the hydraulic oil level at the level indicator tube of the hydraulic oil tank.

   Top up hydraulic oil if the hydraulic oil level has dropped to minimum (4).
3. Turn the diesel engine off.
4. Pull the ignition key out.
5. Use the ladder to climb onto the machine platform.
6. Completely open the service cover (5) such that the locking mechanism (6) engages.
7. Unscrew the cap (7) of the filler neck for the hydraulic oil.

Fig. 259

8. Top up hydraulic oil up to just over half (1) of the level indicator tube.

   The level must not reach the maximum (3), as the hydraulic oil strongly expands when heated!
9. Firmly screw the cap (7) on again.
10. Unlock and close the service cover (5).

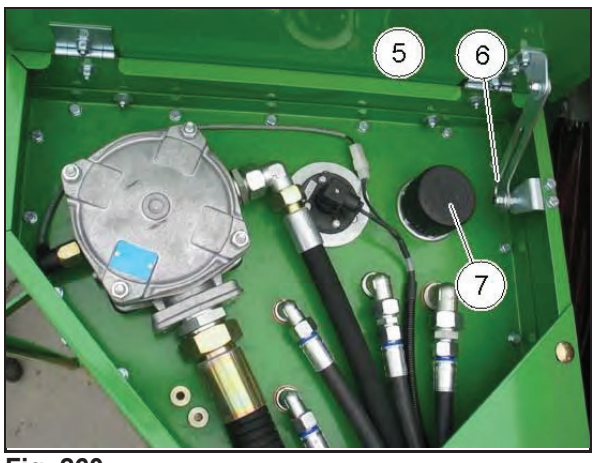


Fig. 260

11.7.5.2 Clean ventilation filter

1. Secure the machine against accidental starting and rolling.
2. Use the ladder to climb onto the machine platform.
3. Completely open the service cover (1) such that the locking mechanism (2) engages.
4. Thoroughly clean the area surrounding the ventilation filter (3).
5. Remove the ventilation filter (3) from the hydraulic oil filler neck.
6. Release the safety chain.
7. Use cleaning spray to clean the ventilation filter.
8. Use compressed air to blow out the ventilation filter.
9. Fix the ventilation filter again at the safety chain.
10. Firmly screw the ventilation filter on again.
11. Unlock and close the service cover.

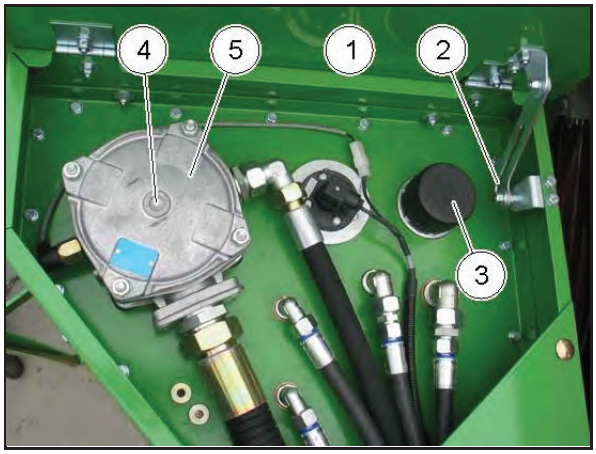


Fig. 261

11.7.5.3 Check radiator fan

1. Park the machine on even ground and keep the diesel engine running.
2. Switch the parking brake on.
3. Check with your flat hand whether an air flow is perceptible below the closed radiator grille door (1).

   Beware that the radiator fan starts in dependence of the temperature! The first fan starts at 35°C, the second fan at 50°C.

   Contact an authorised workshop in case of a malfunction or a rattling noise of the radiator fan!

Fig. 262

11.8 Top up windscreen washing water

Exclusively use specialist windscreen washing water (including antifreeze if necessary), in order to avoid damage to the windscreen washer, e.g. choked nozzles.

Never add radiator antifreeze or other additives!

The reservoir (1) for the windscreen washing water is mounted on the left-hand side behind the cabin, above the fuel tank.

1. Secure the machine against accidental starting and rolling.
2. Unlock the locking mechanism and swivel the ladder with the service cover (2) to the side.
3. Unscrew the cap (3) of the filler neck for the windscreen washing water.
4. Top up windscreen washing water.
5. Firmly screw the cap (3) on again.
6. Swivel the ladder with the service cover back to its initial position until the locking mechanism noticeably engages.

   The ladder and the service cover are properly locked if they are flush with the surrounding frame parts.

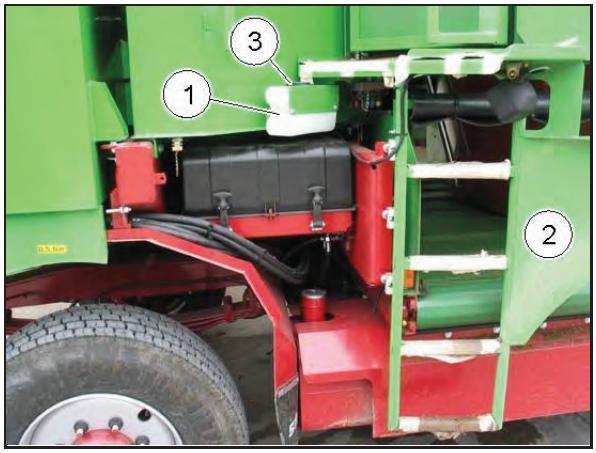


Fig. 263

11.8.1.1 Replace wiper blades

Lift the cutter arm and secure it against lowering as described in the chapter "Working in engine compartment", page 234, to replace the wiper blade at the right-hand side window.

1. Secure the machine against accidental starting and rolling.
2. Fold the wiper arm (1) off the windscreen.
3. Press and keep hold of the unlocking button (2) and simultaneously pull the wiper blade (3) in the direction of the arrow.
4. Slip a new wiper blade of the same length and design on until it engages.
5. Fold the wiper arm back to the windscreen.

Fig. 264

11.8.2 Clean air filter element

A clogged air filter reduces the engine performance and accelerates engine wear.

If the warning message "Air filter element clogged" (see page 115, control lamp e03) appears, have the air filter element replaced at the latest (shop work).

Only carry out maintenance work on the air filter after response of the maintenance reminder or according to the specifications of the maintenance plan.

The air filter (1) is mounted behind the intake air door (2) directly behind the diesel engine.

1. Switch the parking brake on.
2. Turn the diesel engine off.
3. Pull the ignition key out.
4. Unlock and open the intake air door (2).
5. Secure the intake air door against accidental closing by means of the locking bar (3).
6. Place a mobile service platform with ladder next to the machine such that the air filter is within easy reach.

Fig. 265

7. Unlock the four toggle-type fasteners (1) and fold them back to fix them in their maintenance position.
8. Remove the casing cover (2).

Fig. 266

Main filter element and secondary element

9. Pull the main filter element (1) out of the air filter casing.
   - Replace the main filter element every 500 service hours.
10. Check all parts for damage and wear, replace them if necessary.
11. CAUTION! Risk of eye injuries due to dust particles. Wear protective goggles. Use compressed air to carefully bleed (max. 5 bar) the main filter element from the clean side (seal side) until no more dust comes out.
    - During bleeding, dust must not access the clean side of the filter element.
    - The tip of the compressed air gun must not come into contact with the filter element.

Fig. 267

The secondary element must not be cleaned and may not be re-used after removal. Replace the secondary element if required or after 2000 service hours or 2 years at the latest.

12. Use the handle to pull the secondary element (6) out of the air filter casing.
13. Insert the new secondary element (Fig. 269/3) with the seal side ahead and push it along the frame in the direction of the clean side as far as it will go.
    - Ensure proper seat. Do not press the paper bellows, press the secondary element at the frame if necessary.
14. Use a damp cloth to thoroughly clean the air filter casing.
15. Carefully check the main filter element for damage to the filter paper and to the seals before installation.

Fig. 268

16. Insert the new main filter element (2) into the air filter casing.
    - The shape and the design of the filter element and the casing determine the mounting position.
17. Place the casing cover (1) in front of the air filter casing.
18. Push the casing cover into the guide as far as it will go.
19. Use the toggle-type fasteners to close the casing cover.

Fig. 269

Cyclone block

Clogged cyclone cells are inefficient. In order to achieve a long service life of the main filter elements, check the cyclone block and clean it if required.

ATTENTION! Damage to cyclone cells. Do not use any hard or sharp-edged tools.

20. Unscrew the four screws (2).
21. Disconnect the cyclone block (3) from the air filter casing.
22. Remove foreign objects and dust deposits from the cyclone block (3) and in the casing (1) manually or by means of a brush.
23. Loosen and remove tight dust deposits from the cyclone block by soaking with PA6 compatible cleaning agent and water jet.
24. Only use a damp cloth to clean the counterpart at the casing (cyclone block inside) – do not spray!
25. Blow the cyclone block dry, in order to prevent new adhesion of dust.
26. Firmly screw the cyclone block with screws and washers on again (Ma = 8 +/- 1 Nm).
27. Close the intake air door such that the locking mechanism of the intake air door completely engages.

    The intake air door is properly locked if it is flush with the surrounding frame parts.

Fig. 270

11.9 Clean / Replace air circulation and fresh air filter

Clean / Replace air circulation filter

The air circulation filter is mounted in the filter element (1) above the air circulation grid (2) in the cabin ceiling.

1. Support the filter element (1) from below while simultaneously turning the locks (3) clockwise by 90°.
2. Remove the filter element (1) out of the cabin ceiling by moving the element downwards.
3. Carefully beat out the air circulation filter or use compressed air to blow it out from the inside to the outside.

> Replace the air circulation filter if the performance of the heating and the air-conditioning system (optional extra) considerably decreases!

4. Reinsert the filter element (1) into the cabin ceiling.
5. Turn the locks (Fig. 271/3) anticlockwise by 90° to fix the filter element in the cabin ceiling.

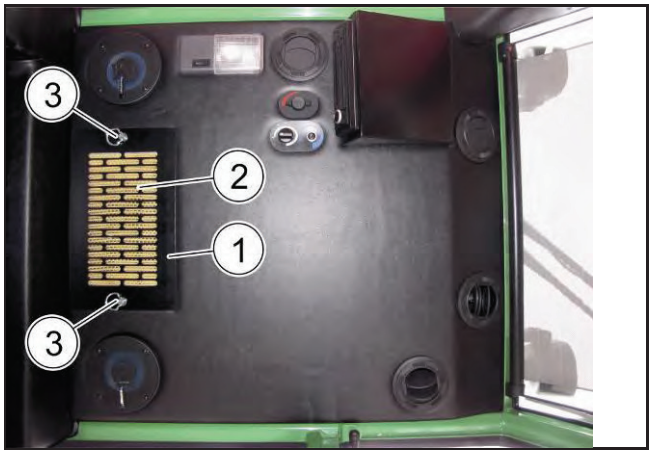


Fig. 271

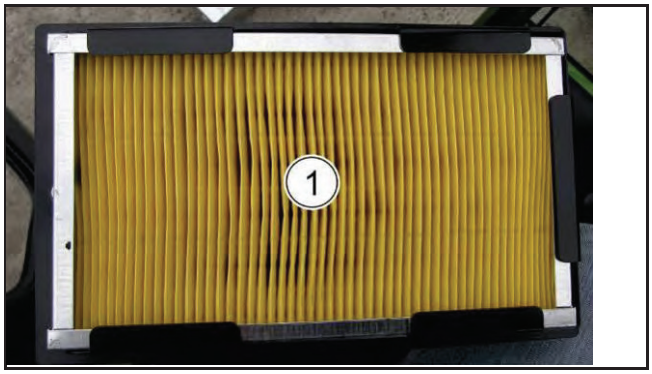


Fig. 272

Clean / Replace fresh air filter

The fresh air filter is mounted in the filter element in the cabin ceiling. Remove the filter element from the cabin's rear side.

1. Secure the machine against accidental starting and rolling.
2. Use the ladder to climb onto the machine platform or use a mobile service platform with ladder to access the fresh air filter.
3. Support the fresh air filter casing (1) from below while simultaneously unscrewing the star grip screws (2).
4. Remove the fresh air filter casing (1).
5. Remove the filter element to the rear from the cabin's back.

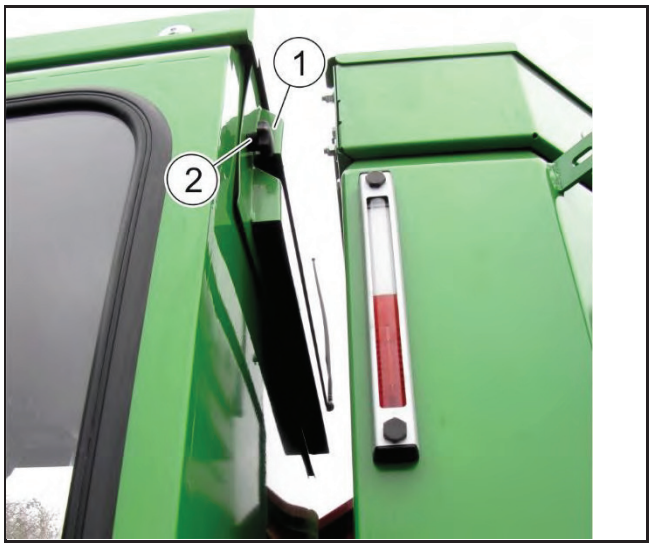


Fig. 273

6. Carefully beat out the fresh air filter or use compressed air to blow it out from the inside.

Replace the fresh air filter if the window panes steam up faster, if more dust settles in the cabin compartment or if the air smells bad!

7. Reinsert the filter element (1) into the cabin's rear side.
8. Screw the star grip screws in again to refasten the fresh air filter casing at the cabin's rear side

Fig. 274

11.10 Check / Top up gear lubricant oil

Check the gear lubricant oil level before starting the mixing process (optimum oil temperature: 0°C - 20°C). During the mixing process, the gear lubricant oil heats up and rises in the compensating reservoir.

Never mix synthetic oil with a mineral gear lubricant oil! This may damage the gearbox.

The approved gear lubricant oils are specified in the chapter "Operating media", page 229.

11.10.1 Filling-up points, axles and gearboxes

Fig. 275

Position	Filling-up point	Filling quantity
(1)	Mixer gearbox 2x (1x)	If there are no leakages, regular checking during inspection by an authorised workshop will suffice.
(2)	Pump power divider gearbox 1x	
(3)	(Steering) drive axle 1x (2x)	
	Steering drive axle (optional extra) 1x on Double	
(4)	Wheel bearing, driving axle 2x (4x)	
(5)	Wheel bearing, steering axle 1x	
(6)	With mixing unit drive shaft (optional extra): Input stage of mixer gearbox, front 1x	

11.10.2 Check / Top up oil in mixer gearbox

1. Check the oil level in the mixer gearbox via the lateral compensating reservoir (1).

   The oil level must be visible between the two filling level markings (2).

2. Top up gear lubricant oil if necessary after removal of the vent screw (3).

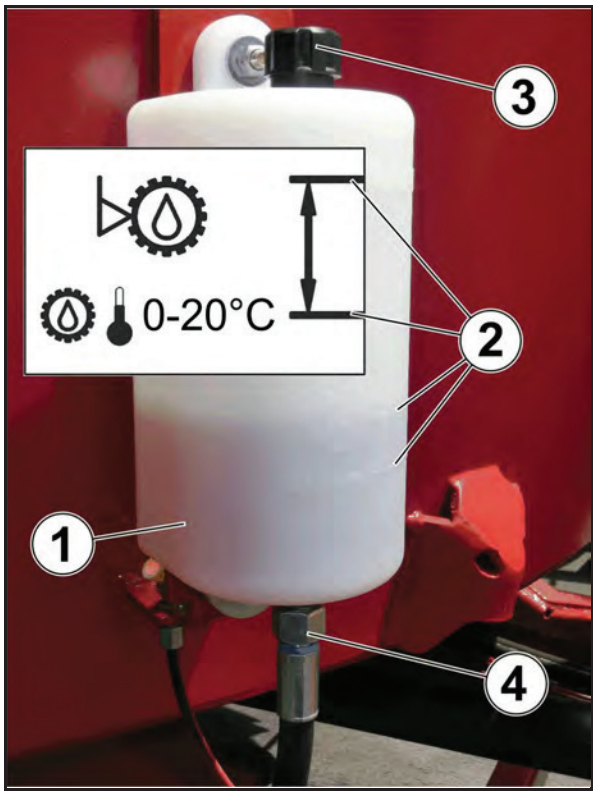


Fig. 276

11.11 Check / Adjust discharge door distance

1. Close the discharge door.
2. Secure the machine against accidental starting and rolling.
3. Measure the distance X between the discharge door and the mixing container. The distance must be approx. 5 mm.
4. Adjust the distance X if necessary:
   - 4.1 Unscrew the screws (1) at the L straps (2).
   - 4.2 Move the L straps (2) in the oblong holes such that the distance X is approx. 5 mm.
   - 4.3 Retighten the screws (1).

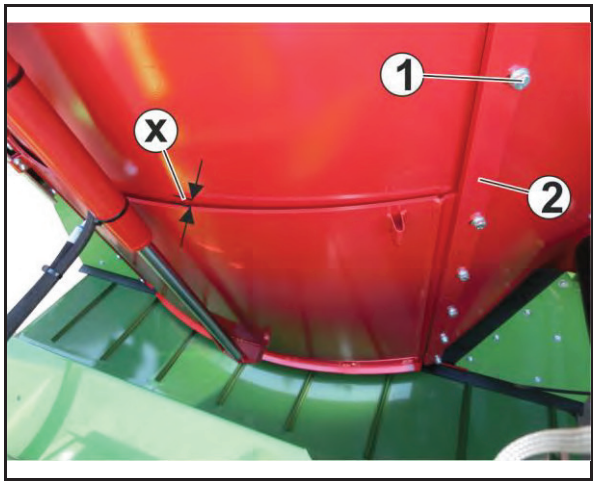


Fig. 277

11.12 Set deflector plate

WARNING

Risk of injury due to movements of the machine or its working tools!

Secure the machine against accidental starting, rolling and actuation!

1. Lower the dosage gate(s) completely.
2. Unscrew the nut (4).
3. Move the adjusting sheet (3)
   - up (1): the deflector plate (5) swivels out to its maximum extent when the dosage gate is lifted.
   - down (2): the deflector plate (5) swivels out to its minimum extent when the dosage gate is lifted.
4. Retighten the nut (4).

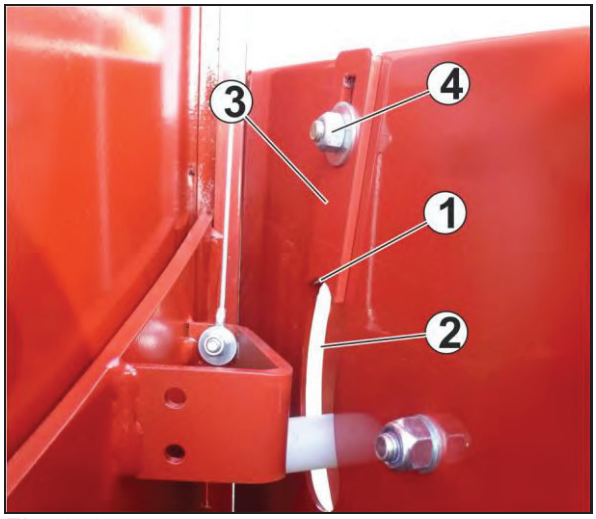


Fig. 278

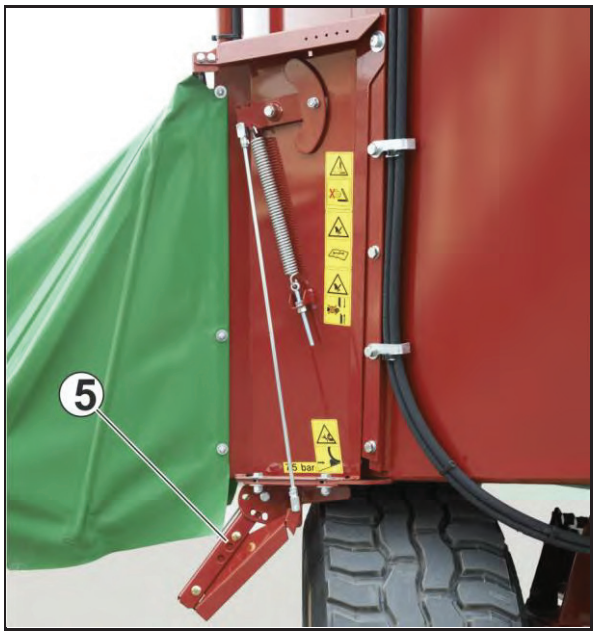


Fig. 279

11.13 Cutting knives of mixing auger(s)

- Only an authorised workshop is allowed to carry out work in the mixing container!
- Have the cutting knives of the mixing auger ground if necessary.

  Blunt cutting knives require a higher mixing auger power.
- Check the cutting knives from the service platform / the ladder for visible defects every day. Have damaged or worn cutting knives replaced in good time. Have broken-off cutting knife particles removed from the mixing container to avoid any damage resulting from conveyed cutting knife particles.

11.13.1 Grind cutting knives

Shop work

WARNING **Risk of eye injury due to blown-away abrasive particles!**

Wear protective goggles when carrying out grinding work!

Observe the safety instructions of your grinding machine!

- Use a right-angle grinder with a flap grinding wheel (Fig. 280) when grinding the cutting knives.
- Only grind the cutting knives on their smooth side, never on their corrugated side.
- Carefully regrind the cutting knives such that they do not heat up intensively (indicated by a discolouration). Heating-up will reduce the service life of the cutting knives.

1. **Acquaint yourself with the safety precautions for work in the mixing container, page** 237**! Only then are you allowed to carry out the following work!**
2. Carefully grind the cutting knives on their smooth side.
3. Then remove any foreign objects (tools etc.) from the mixing container. Clean the mixing container from grinding residues.

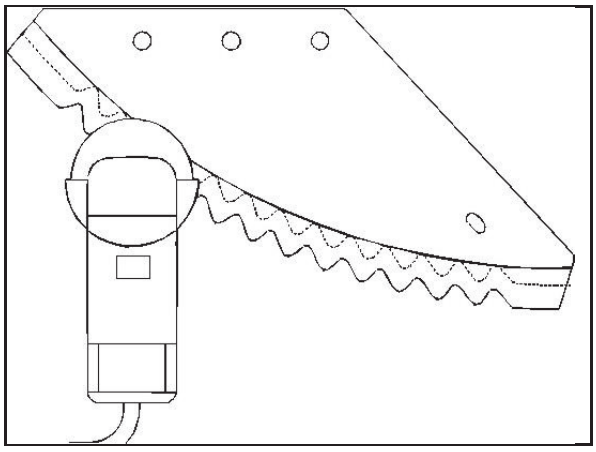


Fig. 280

11.13.2 Swivel / Replace cutting knives

Shop work

Some cutting knives can be mounted in 2 positions:

(1) **Retracted (factory setting):**

- Requires less driving power.
- Better undoing of bales.

(2) **Extended:**

- Requires higher driving power.
- Supports discharge of highly-structured mixtures at the discharge opening.
- An extended upper cutting knife can better pick up bale components and re-include them in the intensive mixing process.

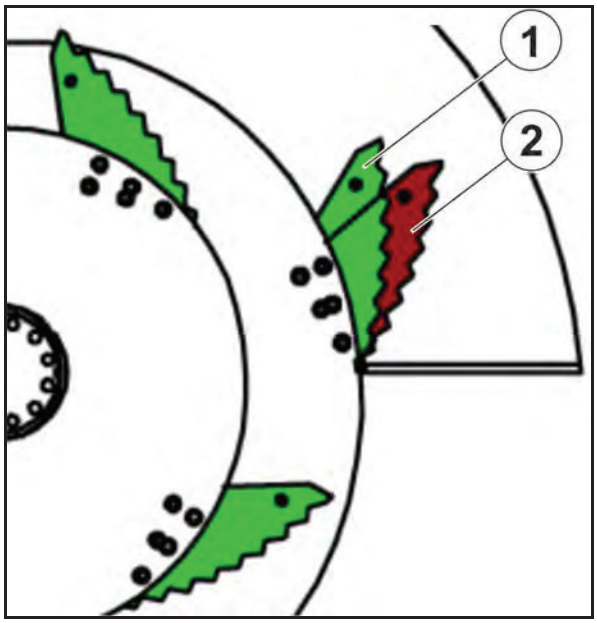


Fig. 281

DANGER

Risk of most serious injuries or even death due to movements of the machine or its working tools!

Secure the machine against accidental starting, rolling and actuation!

DANGER

Danger to life due to falling when climbing over the top edge of the mixing container without permission!

Only enter the mixing container through a discharge opening with the dosage gate completely lifted and secured against accidental lowering!

DANGER

With magnetic system (optional extra): Danger to life to people with pacemakers and implanted defibrillators due to magnetic fields!

Keep sufficient distance to the magnets at the top and bottom at the mixing auger(s) if you wear a pacemaker or implanted defibrillator.

WARNING

Risk of injury due to sharp cutting knives!

Rotate the mixing auger(s) such that the cutting knives are not directly pointed at the discharge opening through which you intend to enter the mixing container!

Wear cut-resistant protective gloves!

Cover the cutting knives by means of an edge protector!

WARNING

Risk of injury due to slipping, stumbling or falling!

Only carry out work in an empty mixing container which is as clean and dry as possible!

Wear non-slip safety footwear!

Pay particular attention to the scraper(s) of the mixing auger(s) near the bottom!

1. Remove the screws (2).
2. Swivel the cutting knife (1) or replace it.

   For the positions of the individual cutting knives, please refer to "Positions of cutting knives", page 267!

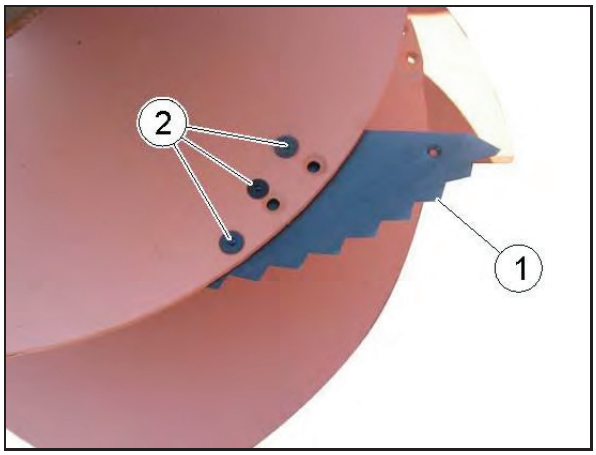


Fig. 282

Observe the fact that a knife supporting plate must be mounted beneath the top cutting knife of the mixing auger:

- a straight knife supporting plate (3) with the "Standard" and "Straw" set of knives.

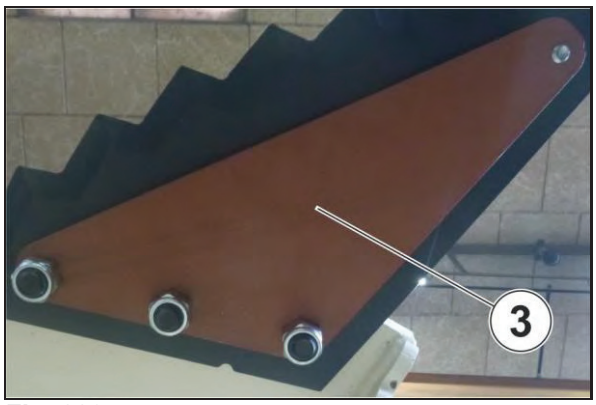


Fig. 283

- an angular bale knife supporting plate (5) with the "Bales" set of knives.

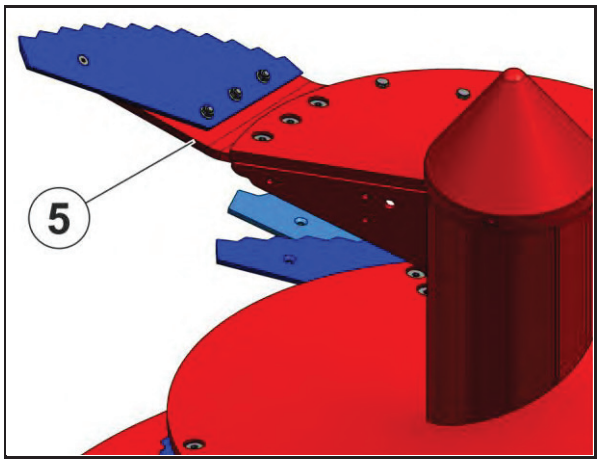


Fig. 284

3. Retighten the screws (2).
4. In addition to the cutting knives, a root crop knife (4) can be mounted onto the bottom end of the mixing auger.
5. Then remove all foreign objects (tools etc.) from the mixing container and thoroughly clean the container.

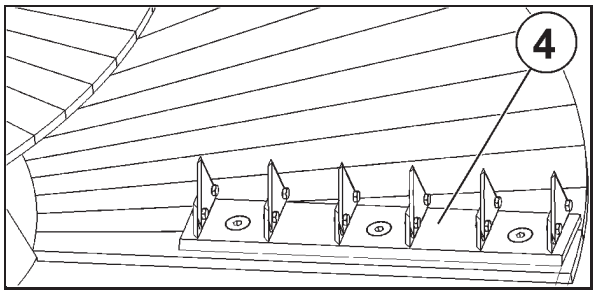


Fig. 285

Positions of cutting knives

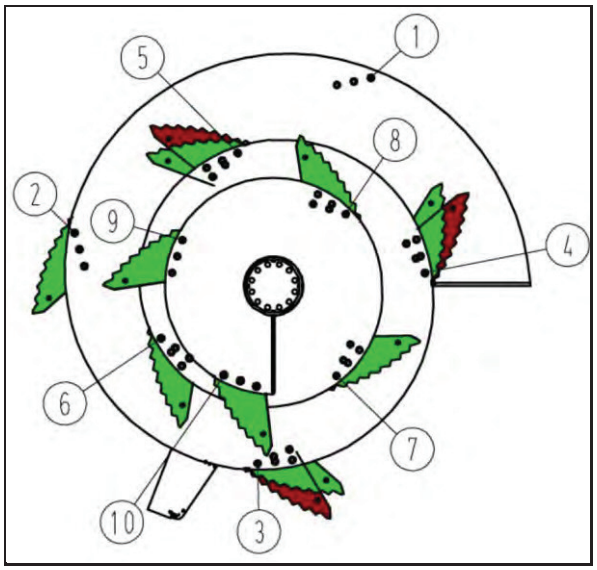


Fig. 286 Verti-Mix 1502 SF

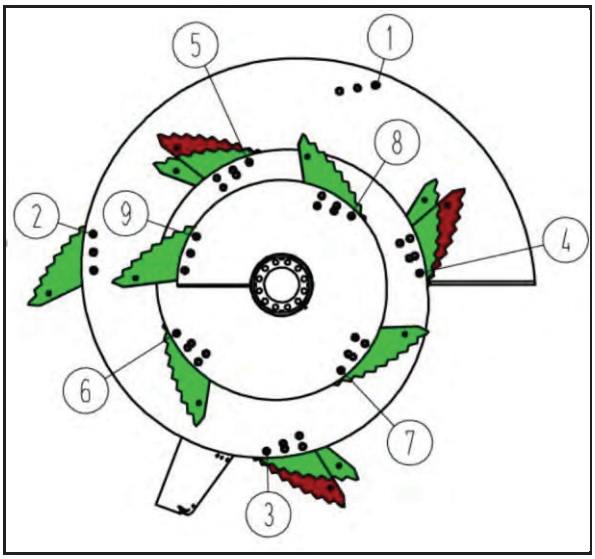


Fig. 287 Verti-Mix 1102 SF / 1302 SF / 2002 Double SF

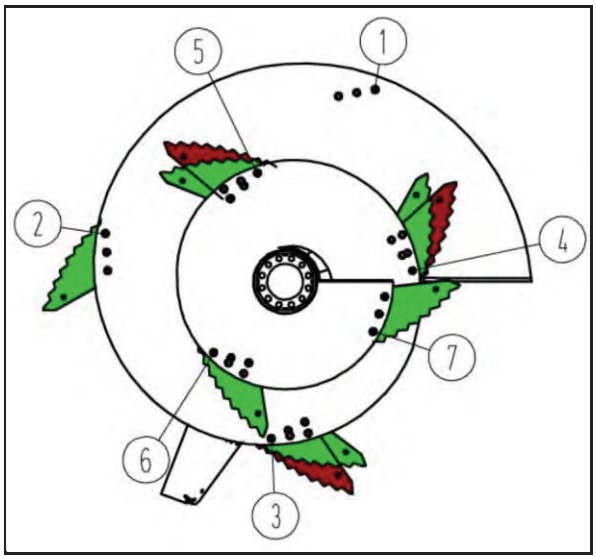


Fig. 288 Verti-Mix 1402 Double SF / 1702 Double SF

	Verti-Mix 1502 SF Verti-Mix 1102 SF / 1302 SF / 2002 Double SF Verti-Mix 1402 Double SF / 1702 Double SF									
Position **Set of knives**	**(1)**	**(2)**	**(3) ***	**(4) ***	**(5) ***	**(6)**	**(7)**	**(8)**	**(9)**	**(10)**
Standard	–									
Straw	–									
Bales	–									

short knife

long knife

* In these positions, extending of cutting knives is most effective.

11.14 Elevator conveyor

11.14.1 Check / Adjust stripper

The stripper prevents fodder components from accessing the pulley via the inner surface of the elevator conveyor.

Replace a worn stripper by a new one!

WARNING

Risk of losing fingers, hands or arms due to the running elevator conveyor!

Never reach into the cleaning apertures with the elevator conveyor running.

1. Lift the cutter arm such that the cleaning apertures (3) of the conveyor duct are within easy reach.
2. Secure the machine against accidental starting and rolling.
3. Secure the lifted cutter arm against accidental lowering by means of support trestles.
4. Check whether the stripper (1) properly rests on the elevator conveyor (2).
5. If the stripper does not rest on the elevator conveyor , adjust the distance:
   - 5.1 Unscrew the screws (4) until the stripper can be moved.
   - 5.2 Push the stripper down until it completely rests on the elevator conveyor again.
   - 5.3 Retighten the screws (4).

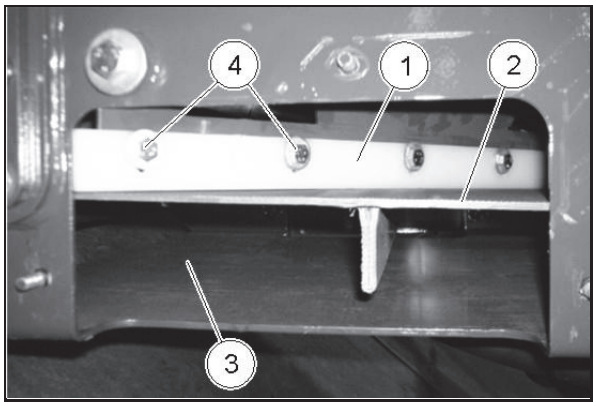


Fig. 289

11.14.2 Check tension of elevator conveyor

When checking the conveyor tension, the joint of the elevator conveyor must be on the tight side.

WARNING

Risk of losing fingers, hands or arms due to the running elevator conveyor!

Never reach into the cleaning apertures with the elevator conveyor running.

In case of cone-shaped conveyor duct

1. Lift the cutter arm such that the cleaning apertures (3) of the conveyor duct are within easy reach.
2. Secure the machine against accidental starting and rolling.
3. Secure the lifted cutter arm against accidental lowering by means of support trestles.
4. Remove one of the lateral protective devices of the cleaning apertures (3) of the conveyor duct.
5. Measure the distance (1) between the conveyor duct floor and the pushers of the elevator conveyor.

   The elevator conveyor is properly tightened if the distance (1) is 14-20 mm.

   If the distance (1) is less than 14 mm, have the elevator conveyor retightened (shop work).

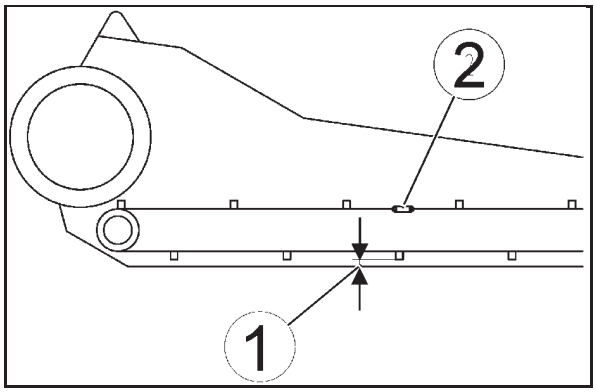


Fig. 290

In case of straight conveyor duct

1. Lift the cutter arm such that the control slit in the duct side wall can be seen from the driver seat.
2. Check the conveyor tension through the control slit:

   The elevator conveyor is sufficiently tightened if the slack side of the elevator conveyor is in the X area.

   If the slack side of the elevator conveyor is no longer in the X area, have it retightened (shop work).

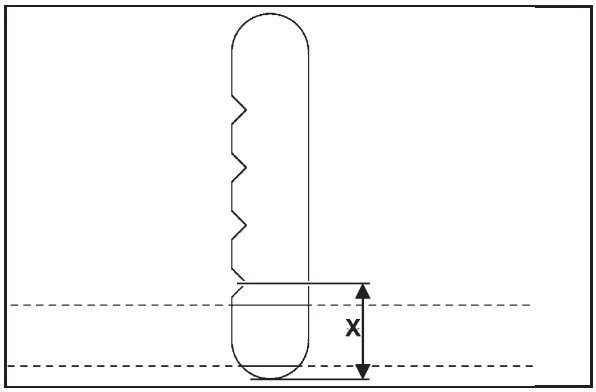


Fig. 291

11.15 Turn over / Replace milling blades of pick-up milling cutter

WARNING

Risk of injury due to sharp milling blades!

Wear cut-proof protective gloves when carrying out work on the milling blades.

Cover the milling blades by means of an edge protector.

Milling blades worn on one side can be turned over. Observe the fact that straight and curved milling blades are alternately mounted.

Replace milling blades which are worn on both sides:

- Only authorised and qualified staff is allowed to carry out the work specified below.
- The manufacturer will not assume any warranty and liability for material damage and personal injuries if the work is carried out by insufficiently qualified staff.
- Only use original Strautmann spare parts.

For the milling drums, a distinction is made between the version with full knife equipment and the version with angular knife equipment.

For the version with complete knife equipment, additional straight knives are mounted.

Fig. 292 Milling drum with full knife equipment

Fig. 293 Milling drum with angular knife equipment

The drum is divided into the left-hand vehicle side and the right-hand vehicle side. For illustration, the knife holders of the left-hand side are marked yellow and those of the right-hand side are marked blue in the following figures.

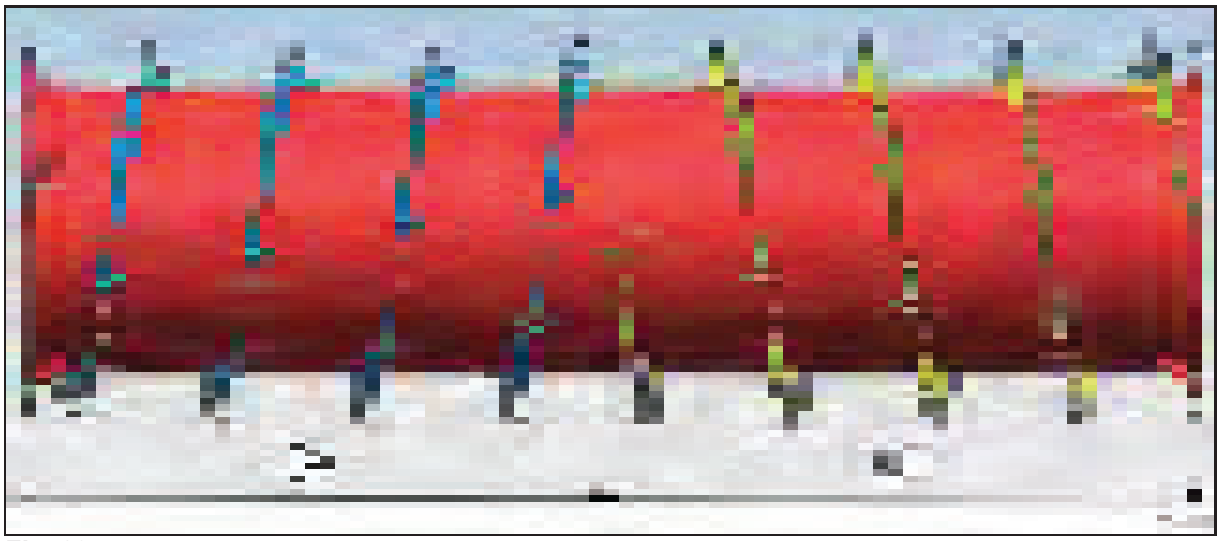


Fig. 294 View from the front onto the machine

(R)right-hand vehicle side (L)left-hand vehicle side

Both knife versions are fitted with two blades each, only one of which is in gear. If the active blade is blunt, the knives of the left-hand vehicle side may be interchanged with those of the right-hand vehicle side and vice versa.

Due to the installation on the other side of the milling drum, there is now a sharp blade in gear again at each knife.

If both blades per knife are already blunt, regrind or replace them with new knives.

Replace the locking nuts during each new installation of knives, as otherwise the locking effect of the nuts no longer exists.

1. Open the protective device of the pick-up milling cutter.
2. Secure the machine against accidental starting and rolling.
3. Carefully turn the milling drum by hand and check the condition of the milling blades.
4. Tighten the screwed connections of loose milling blades.
5. Turn over or replace worn milling blades as described below:

Fig. 295

The photo shows the position of the knives at the knife holder on the left-hand vehicle side:

(1) Knife holder
(2) Bent knife
(3) Straight knife (only existing with full knife equipment)

The knives are screwed with two round-head screws and two locking nuts each. The square holes in the knife holder serve as a counter-support for the square neck of the screws.

Observe the mounting position of the knives; mount the knife blades in the direction of the arrows.

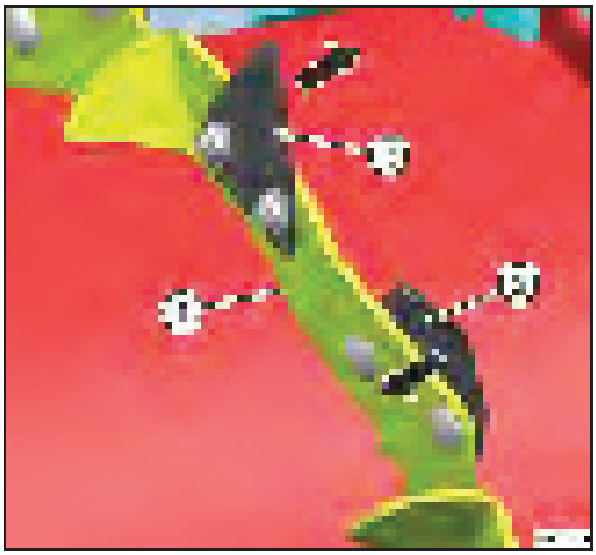


Fig. 296

For the knife holders at the ends of the milling drum, the knives are screwed from the outside. For this special case, round-head screws with slotted head are used.

6. Close the protective device after having completed the installation of the milling blades.

Fig. 297

11.16 Adjust scraper bar

The distance between the scraper bar and the ground should be approx. 5 mm.

1. Lift the cutter arm and open the protective device of the pick-up milling cutter.
2. Secure the machine against accidental starting and rolling.
3. Secure the lifted cutter arm against accidental lowering by means of support trestles.
4. Unscrew all screws (4) at the scraper bar (1).
5. Turn the scraper bar over if it is only worn on one side, and/or move the scraper bar:
   - forward (2) to reduce the distance to the ground.
   - backwards (3) to increase the distance to the ground.
6. Retighten all screws (4) at the scraper bar.

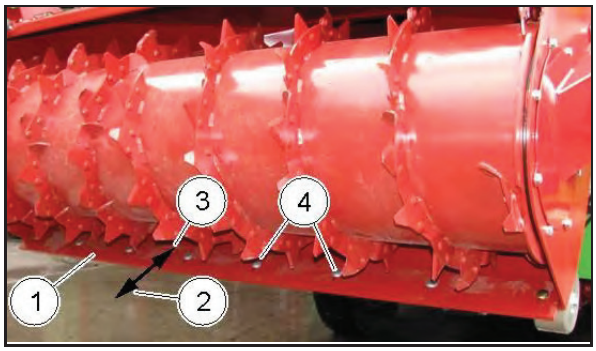


Fig. 298

11.17 Adjust supporting rollers

Adjust the supporting rollers such that the distance between the milling blades and the ground is approx. 15 mm.

1. Lift the cutter arm.
2. Secure the machine against accidental starting and rolling.
3. Secure the lifted cutter arm against accidental lowering by means of support trestles.
4. Unscrew the hexagon nut (4).
5. Unscrew the counter nuts (5).
6. Turn the nut (6) such that the supporting roller
   - moves forward (2) and the distance between the milling blades and the ground increases or
   - moves backwards (3) and the distance between the milling blades and the ground is reduced.
7. Retighten the counter nuts (5).
8. Retighten the hexagon nut (4) at a tightening torque of 400 Nm.
9. Carry out steps 4-8 at the second supporting roller.

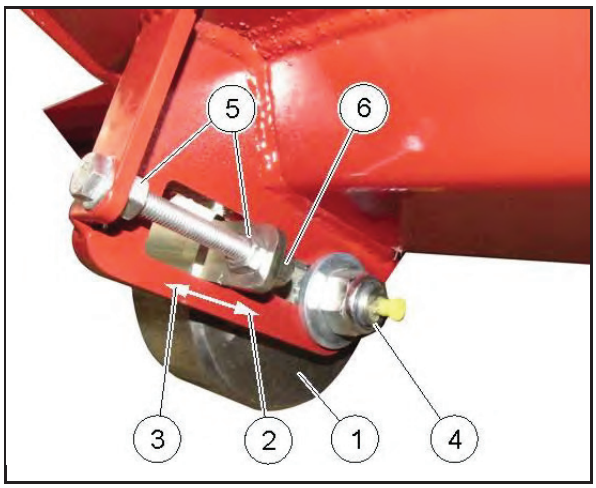


Fig. 299

11.18 Crossover conveyor, discharge conveyor or conveyor extension

11.18.1 Adjust /Tighten conveyor

1. Turn the diesel engine off.
2. Switch the parking brake on.
3. Pull the ignition key out.
4. Unscrew the counter nut (1) at the right-hand and left-hand radial insert ball bearing (2).
5. Equally turn the two clamping nuts (3):
   - such that the conveyor sags by approx. 10 to 15 mm in its centre,
   - such that the distance A between the square profiles (4) and the clamping housing (5) is equal on both sides of the conveyor.

     Only if the distance A is equal on both sides of the conveyor, does the conveyor run straight.
6. Carry out a test run to check whether the conveyor has an equal distance to the frame at the return rollers on both sides. If not, correct accordingly by turning the clamping nuts (3).
7. Retighten the counter nut (1) at the right-hand and left-hand radial insert ball bearing (2).

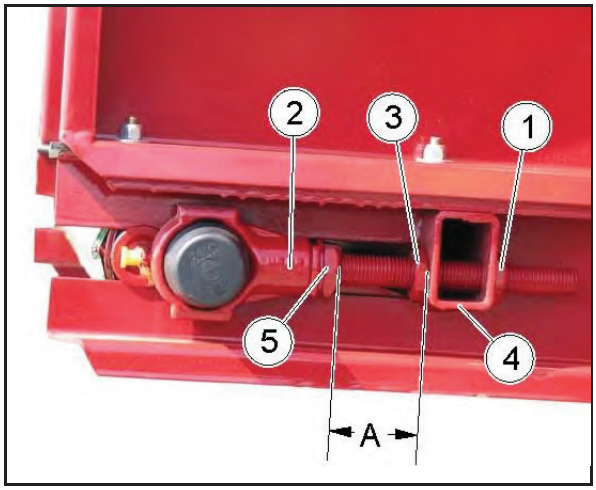


Fig. 300

11.19 Clean straw blower

Optional extra

WARNING

Risk of injury due to crushing, cuts and amputation caused by the accidentally starting or overrunning blower rotor!

Before open the straw blower:

- Turn the diesel engine off and secure the machine against accidental starting and rolling.
- Wait for the blower rotor to stop completely, even after turning the diesel engine off.

1. Close the discharge door.
2. Turn the diesel engine off and secure the machine against accidental starting and rolling.
3. Wait for the blower rotor to stop completely.
4. Remove 3 of the 4 screws (1) such that the blow-out pipe (2) can be swivelled around the remaining screw.
5. Swivel the blow-out pipe (2) to the side.

Make sure not to tear off electrical lines when swivelling the blow-out pipe!

6. Clean the blow-out pipe (2) and the blower casing (3).
7. Screw the blow-out pipe (2) again to the blower casing (3).
8. Remove the screws (4) and open the guard of the cleaning apertures.
9. Remove accumulated foreign objects, e.g. stones, through the cleaning aperture.
10. Screw the guard of the cleaning aperture on again.

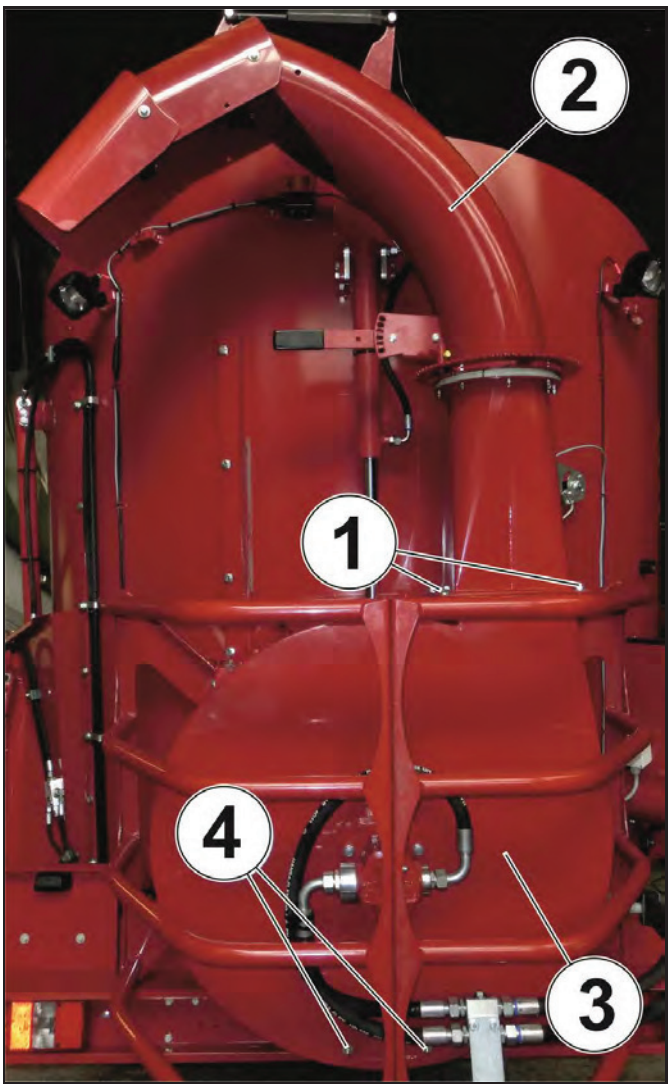


Fig. 301

11.20 Check hydraulic hose pipes

The marking on the fitting provides the following information:

(1) Identification of the hydraulic hose pipe manufacturer (A1HF)

(2) Date of manufacture of the hydraulic hose pipe (16/07 = year/month = July 2016)

(3) Maximum admissible operating pressure (210 bar)

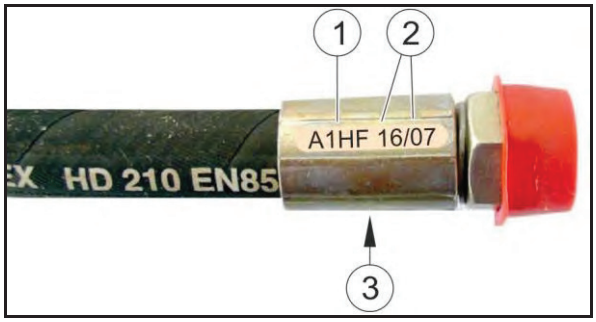


Fig. 302

For your own safety:

Immediately have hydraulic hose pipes replaced (shop work) as soon as you detect any of the following defects:

- Damaged outer layer down to the liner (e. g. due to chafing points, cuts, fissures).
- Embrittled outer layer (visible by cracking of hose material).
- Unnatural deformations of the hydraulic hose pipe in depressurized as well as in pressurized state or when bent (e. g. separation of layers, blistering, pinches, kinks).
- Leaks.
- Damaged, deformed or leaking fitting. Small surface damage is no reason for replacement.
- Hose slipping out of the fitting.
- Corroded fitting which may affect the function and the strength.
- Improperly laid hydraulic hose pipes, e. g. ignored bending radii, laying over sharp edges.
- The period of use of 6 years has been exceeded.

11.21 Chassis suspension

11.21.1 Drain compressed-air reservoir

Optional extra

The machine is equipped with 2 (Verti-Mix Double SF) or 3 (Verti-Mix SF) compressed-air reservoirs. The compressed-air reservoirs are mounted at the right-hand front below the mixing container.

1. Secure the machine against accidental starting and rolling.
2. Take the ring (2) and pull the drain valve at compressed-air reservoir (1) down.

→ The water pours out of the compressed-air reservoir.

3. Release the ring of the drain valve as soon as the water stops pouring out.

→ The drain valve returns to its initial position.

4. Take the ring (4) and pull the drain valve at the regenerating reservoir (3) down.

→ The water pours out of the regenerating reservoir.

5. Release the ring of the drain valve as soon as the water stops pouring out.

→ The drain valve returns to its initial position.

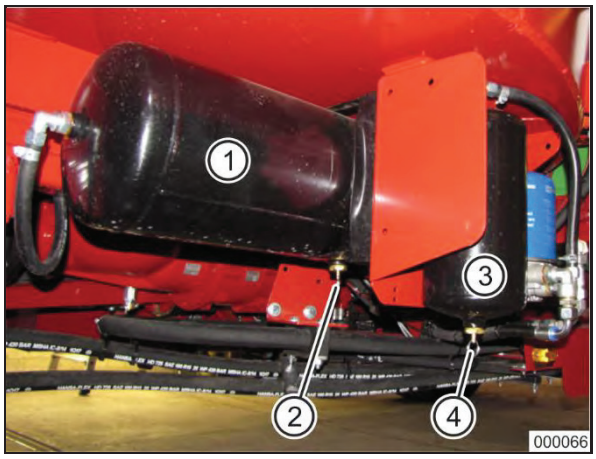


Fig. 303

11.22 Wheel change

WARNING

Risk of crushing due to the lifted machine accidentally coming down!

Only lift the machine on firm, even ground. Use load-distributing supports if necessary.

1. Secure the machine against accidental starting and rolling.
2. Lift the machine at one of the marked application points (Fig. 304).
3. Secure the machine against accidental lowering by means of support trestles.
4. Remove the wheel nuts.
5. Remove the defective wheel and mount the new wheel.

   Tighten the wheel nuts crosswise at the required tightening torque.

   M 20 x 1.5 – 450 Nm
   M 22 x 1.5 – 650 Nm
6. Check the wheel nuts for tightness after 10 service hours. Retighten wheel nuts if necessary

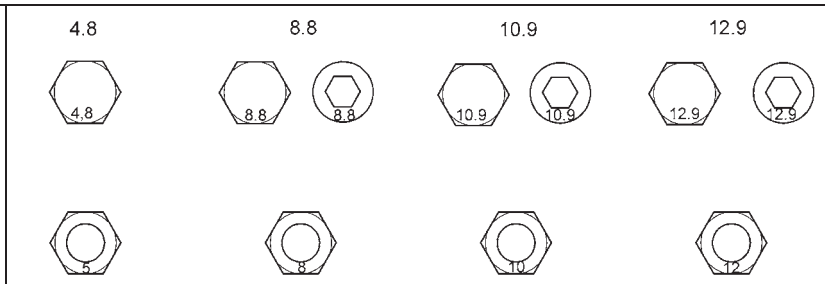
Fig. 304

11.23 Tightening torques for screwed connections

These tightening torques are reference values. Differing data specified elsewhere in the operating instructions or the included sub-supplier documentation shall always prevail!

- Regularly check the screwed connections for tightness.
- Always replace screws and nuts by parts of the same quality.
- Tighten counter nuts with plastic insert and bordered steel counter nuts at approx. 50% of the “dry” value specified in the table.
- Tighten gear or crown nuts at full torque.
- Shear bolts are designed such that they shear off (break) at a certain stress. Only use bolts of equal quality when replacing shear bolts.

Grade and marking of screw heads	

Grade and marking of nuts	

Size	Grade 4.8				Grade 8.8				Grade 10.9				Grade 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

* "Lubricated“ means that the screws are treated with a lubricant such as e.g. engine oil, or that phosphatized or oiled screws are used.

** "Dry" means that normal or galvanized screws without any lubrication are used.

12 Malfunctions and remedy

12.1 List of malfunctions Diesel engine

It is imperative to observe the included diesel engine operating instructions.

Malfunction	Cause	Remedy
Engine is turned but does not start to run	No fuel in tank	Check fuel level in tank
	Fuel filter clogged or filled with water	Replace fuel filter or drain water from filter
	No fuel is led into the injection pump or air in fuel system	Contact engine sales partner or service partner
	Injection pump or injection nozzles defective	
Engine struggles to start or does not start at all	No fuel in tank	Check fuel level in tank
	Air in fuel line	Bleed fuel line
	Cold weather	Use cold-start aid
	Engine oil too viscous	Use oil of appropriate viscosity, see instructions of engine manufacturer
	Unsuitable fuel	Ask fuel supplier; use suitable fuel for operating conditions
	Water, dirt or air in fuel system	Empty, flush, fill and bleed system
	Clogged fuel filter	Replace filter element
	Injection nozzles soiled or defective	Contact engine sales partner or service partner
	Defective glow plugs (starting in cold weather)	
	Problem, electronic fuel system	
Unusual engine sound	–	Contact engine sales partner or service partner
Engine runs unevenly or frequently stalls	Clogged fuel filter	Replace fuel filter element
	Water, dirt or air in fuel system	Empty, flush, fill and bleed system
	Coolant temperature too low	Contact engine sales partner or service partner
	Injection nozzles soiled or defective	Contact engine sales partner or service partner
	Problem, electronic fuel system	
Engine temperature too low	Defective thermostat	Contact engine sales partner or service partner
	Temperature display or sensor defective	

Malfunction	Cause	Remedy
	Poor fuel quality	Change to better fuel quality, see instructions of engine manufacturer
Engine output too small	Engine overloaded	Reduce load
	Air inlet clogged	Clean engine air filter
	Clogged fuel filter	Replace filter elements
	Unsuitable fuel	Use suitable fuel
	Engine overheated	See "Engine overheated"
	Operating temperature of engine too low	Contact engine sales partner or service partner
	Exhaust filter clogged	Carry out exhaust filter cleaning process
	Fuel hose clogged	Clean or replace fuel hose
Oil pressure too low	Oil level too low	Top up oil
	Wrong type of oil	Empty crankcase and fill it with oil of appropriate viscosity and quality, see instructions of engine manufacturer
High oil consumption	Oil in crankcase too thin	Use oil of appropriate viscosity, see instructions of engine manufacturer
	Oil leakage	Check whether leakage exists on lines, seals and drain plug
Engine emits smoke	Unsuitable fuel	Use suitable fuel
	Engine temperature too low	Bring engine to normal operating temperature
	Defective thermostat	Contact engine sales partner or service partner
	Injection nozzles defective or soiled	
	Defective glow plugs	
	Air filter clogged or soiled	Clean engine air filter
	Engine overloaded	Reduce load
	Problem, electronic fuel system	Contact engine sales partner or service partner
	Turbocharger does not work	
Engine overheated	Coolant remains at high temperature	Check for dirt at the cooling unit front
	Engine overloaded	Reduce load
	Coolant level too low	Top up radiator up to the correct level; check radiator and hoses for loose connections and leakage points
	Radiator cap defective	Contact engine sales partner or service partner
	Stretched V-belt or defective belt tensioner	
	Engine oil level too low	Check oil level. Top up oil as required

Malfunction	Cause	Remedy
	Flush cooling system	Contact engine sales partner or service partner
	Defective thermostat	
	Temperature display or sensor defective	
	Wrong fuel quality	Use suitable fuel
High fuel consumption	Unsuitable fuel	Use suitable fuel
	Air filter clogged or soiled	Clean engine air filter
	Engine overloaded	Reduce load
	Injection nozzles soiled	Contact engine sales partner or service partner
	Problem, electronic fuel system	
	Turbocharger defective	
	Engine temperature too low	

Tab. 5

12.2 List of malfunctions, electrical system

Malfunction	Cause	Remedy
Electrical system discharged	Overload of electrical system due to additional equipment	Remove additional equipment or mount stronger three-phase generator
	Excessive idle mode	Increase engine speed if high electrical output is required
	Defective electrical connections at battery, ground strap, starter or three-phase generator	Check and clean as required
	Battery defective	Check battery
	Defective three-phase generator	Check charging system
Batteries are not charged	Loose or corroded connections	Clean and tighten connections
	Sulphated or used batteries	Contact engine sales partner or service partner
	Stretched V-belt or defective belt tensioner	
Starter does not turn	Loose or corroded connections	Clean and tighten connections
	Low battery output voltage	Contact engine sales partner or service partner
	Defective starter relay	
	Blown main system fuse	Replace fuse
Starter turns slowly	Low battery voltage	Contact engine sales partner or service partner
	Engine oil too viscous	Use oil of appropriate viscosity, see instructions of engine manufacturer
	Loose or corroded connections	Clean and tighten connections

Malfunction	Cause	Remedy
Starter and service hours counter work, all other elements of the electrical system do not work	Fuse defective	Replace fuse
Entire electrical system does not work	Defective battery connections	Clean and tighten connections
	Sulphated or used batteries	Contact engine sales partner or service partner
	Battery main switch disconnected or without function	Throw or check switch
	Blown main system fuse	Replace fuse

Tab. 6

12.3 Machine

Malfunction	Cause	Remedy
Machine does not start	Hydraulic oil below minimum level	Top up hydraulic oil
	Level switch (on hydraulic tank) defective or not working	Check level switch / Check plug-in connections / Check pressure switch Oil Feed Pressure
	Pedal does not work	Check pedal / Check plug-in connections
	Proportional solenoids of the traction drive pump do not work	Check plug-in connections / Check proportional solenoids
	Pressure switch Parking Brake does not work	Check plug-in connections / Check switch
	Manual throttle lever not in idle position.	Set manual throttle lever to idle position
Mixing auger does not start	Discharge door open	Close discharge door
Hydraulic oil temperature too high	Level in hydraulic oil tank too low	Top up hydraulic oil
	Oil cooler soiled	Clean oil cooler
	Fan for oil cooler failed	Check fuses F5 / F 32 / plug-in connections
	Hydraulic oil temperature sensor does not work	Check plug-in connections / Check sensor
Cutter arm moves jerkily when being lifted	Hydraulic pressure accumulator above LS pump defective	Replace hydraulic pressure accumulator (shop work!)
Cutter arm moves jerkily when being lowered	Hydraulic pressure accumulator below control block defective	Check pressure, replace hydraulic pressure accumulator if necessary (shop work!)

Malfunction	Cause	Remedy
Mixing augers of Verti-Mix Double run jerkily	Hydraulic pressure accumulator below mixing container defective	Check pressure, replace hydraulic pressure accumulator if necessary (shop work!)
Crossover conveyor runs jerkily	Hydraulic pressure accumulator next to control block defective	Check pressure, replace hydraulic pressure accumulator if necessary
Power requirement too high	Cutting knives blunt	Sharpen cutting knives
	Long stalks have wrapped around the auger front end or the scraper	Clean mixing auger
	Screwed connection of the mixing auger has loosened	Retighten screwed connection
Machine does not mix well	Fodder is piling up in front of counter-cutter	Extend and retract counter-cutter
Crossover conveyor does not start	Operating error	First switch on crossover conveyor, open discharge door / tighten crossover conveyor only then
Non-uniform discharge	All knives of the mixing auger retracted	Extend lower knives

Tab. 7

12.4 Weighing device

Malfunction	Cause	Remedy
Weighed value varies	Weighing device	Pull the terminal box plug out of the terminal and reinsert.
	Terminal box	Pull out the plugs of all weighing rods, the terminal box being plugged into the weighing computer. Reinsert plugs. If the weight varies, a cable and/or the terminal box is defective.
	Weighing rods	Always plug only one weighing rod into the terminal box at a time. If the weight varies, the cable or the weighing rod is defective. Test another weighing rod. If the weight varies again, the cable is defective. If the weight remains constant, the first weighing rod is defective.
Scales display wrong weighed value	Weighing rods not properly installed	Always plug only one weighing rod at a time into the terminal box or directly into the terminal. The displayed value must increase when load is applied. Always test all rods!
	Weighing system misadjusted	Readjust scales (see operating instructions of scales)

Tab. 8

13 Circuit diagrams

13.1 List of fuses

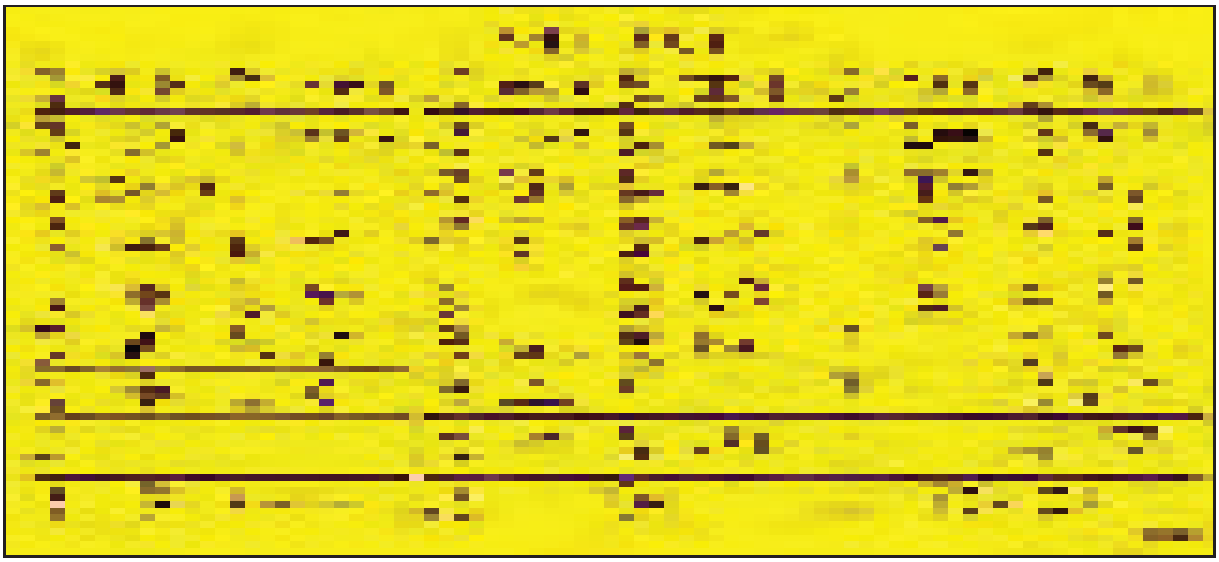


Fig. 305

No.	function	Current [A]
F1	Sensors 1	7.5
F2	Scale, terminal, video system	7.5
F3	Rear axle / Optional extra	15
F4	Side window wiper	10
F5	Hydraulic oil cooler	15
F6	Remote maintenance modem	2
F7	Ventilating fan, ventilator, heating	10
F9	Machine control BBX 1_1	10
F10	Machine control BBX 1_2	10
F11	Dosage gate switching-over	10
F12	Windscreen wiper, horn	10
F13	Reversing lights	7.5
F14	Switch supply, four-wheel steering / parking brake	7.5
F15	Air-conditioning system	7.5
F17	Machine control BBX 2_1	10
F18	Machine control BBX 2_2	10
F19	Engine control unit	20
F20	Mirror heating	7.5
F21	Driver seat	10
F22	Additional fan Clean Fix	7.5
F23	Crossover conveyor	10

F24	Warning beacon	10
F25	Sensors II	10
F26	Right-hand outside mirror	7.5
F27	Central lubrication	7.5
F28	Indicator system	7.5
F29	Brake light	7.5
F30	Optional extra	10
F32	Hydraulic oil cooler	15
F33	Socket, cabin	10
F34	Cabin lighting / Radio	7.5
F35	Engine control unit	20
F36	Regeneration, engine	7.5
F37	Warning lights	7.5
F41	Parking lights, left	7.5
F42	Parking lights, right	7.5
F43	Dimmed headlights, left	7.5
F44	Dimmed headlights, right	7.5
F45	Full headlights	10
F46	Work light, front	10
F47	Work lights, crossover conveyor	10
F48	Work lights, rear	10
F49	Diesel engine, intake air preheating	100
F50	Ignition lock	50
F51	Engine control unit	40

13.2 List of relays

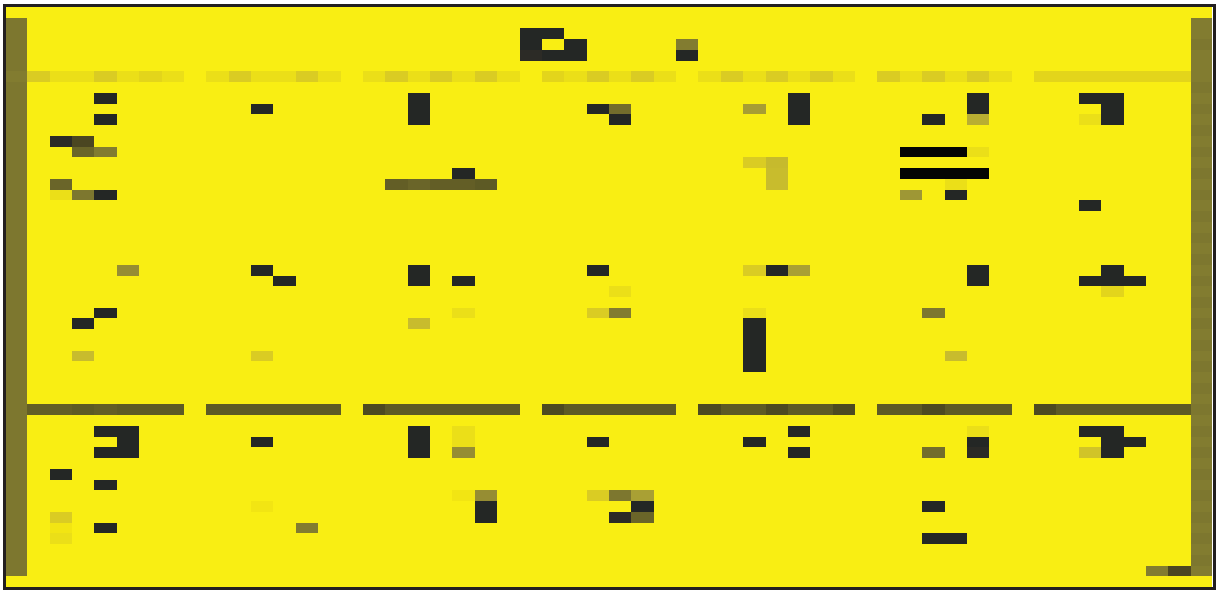


Fig. 306

No.	function
X1	Supply
X2	Ignition positive
X3	Ground
K1	Machine control BBX 1_1
K2	Machine control BBX 1_2
K3	Machine control BBX 2_1
K4	Machine control BBX 2_2
K5	Light
K6	Parking light
K7	Flashlight relay
K8	Air-conditioning system
K9	Brake light
K10	Wiping / Washing interval
K11	Bottom windscreen wipers
K13	Radio
K14	Central lubrication
K15	Reversing lights
K16	Timer

13.3 Weighing device

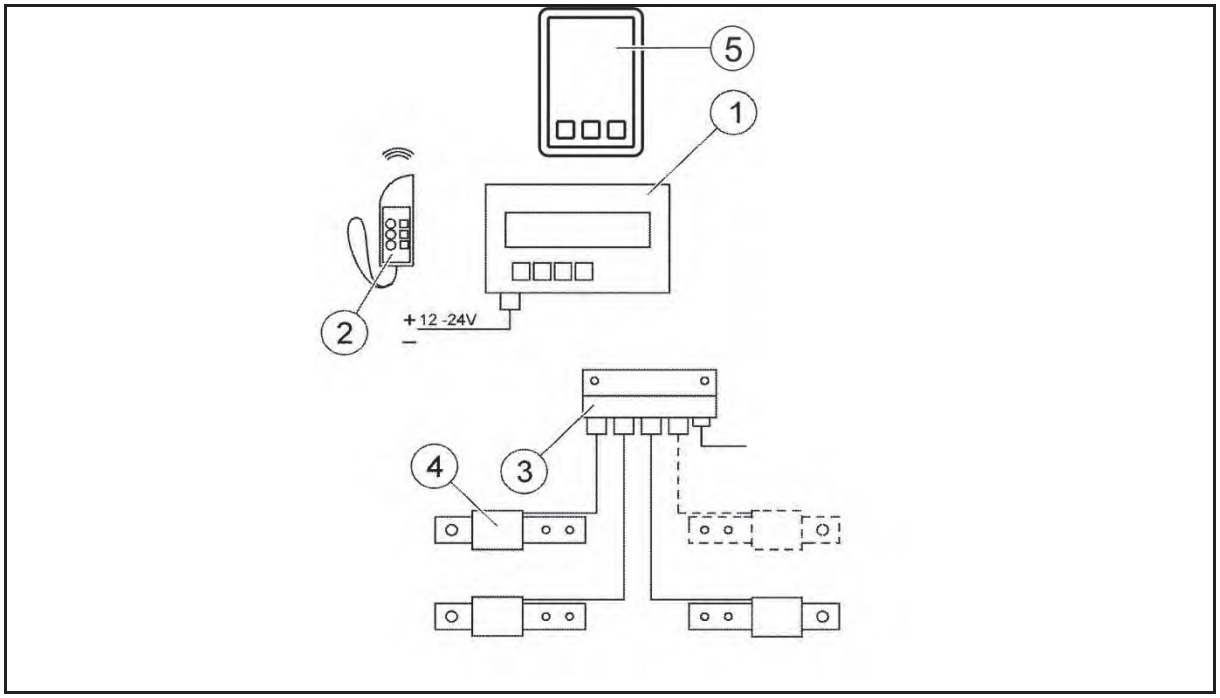


Fig. 307

(1) Weighing computer

(2) Radio remote control and display (optional extra)

(3) Connection box

(4) Weighing rod

(5) Display

(1) Weighing computer

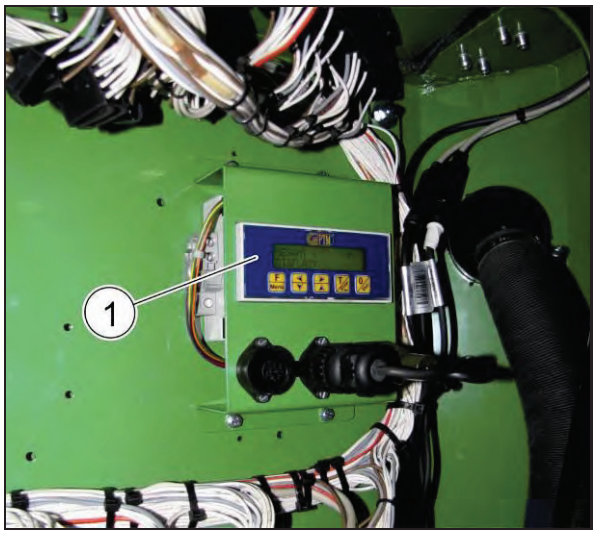


Fig. 308

(2) Radio remote control and display

Fig. 309

(3) Connection box

Fig. 310

(4) Weighing rod

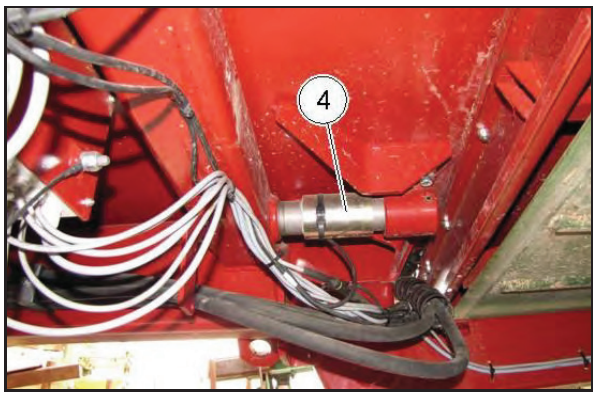


Fig. 311

13.3.1 External weighing device (optional extra)

An external weighing device is available as an optional extra. In this case, please observe the enclosed sub-supplier documentation !

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Verfasser	Freigeber	Freigabedatum	Sprache
VdL	VdL	18.08.2017	englisch

Zuordnung	
PG	Selbstfahrender Futtermischwagen
WG	Verti-Mix SF, Verti-Mix Double SF
Modell	Verti-Mix 1102 / 1302 / 1502 SF, Verti-Mix 1402 / 1702 / 2002 Double SF