



Operating Instructions
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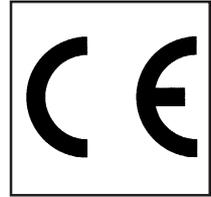
Self-propelled
High-Performance Mower-Conditioner
Big M II

(from serial no.602 000)





EC Declaration of Conformity
corresponding to the EC Directive 98/37/EC



We **Maschinenfabrik Bernard Krone GmbH**
Heinrich-Krone-Str. 10, D-48480 Spelle

declare in our sole responsibility that the product

Typ: Self-propelled Large-area Mower
Big M II

to which this declaration refers corresponds to the relevant basic safety and health requirements of the EC Directive 98/37/EC.

Spelle, 13.06.2005



(Dr.-Ing. Josef Hörstmann, Geschäftsführer)

Dear customer,

You have now received an operating manual for the KRONE product which you have purchased.

This operating manual contains important information for the proper use and safe operation of the machine.

If this operating manual should for any reason become wholly or partially unusable, you can obtain a replacement operating manual for your machine by stating the number given on the other side.

Dear Customer!

On buying the Self-Propelled High-Performance Mower-Conditioner „**Big M II**“ you have selected a quality product from KRONE.

We are grateful for the belief you have invested in us as a result of buying this machine.

It is important to read the operating instructions very carefully before you start operating the machine so that the Self-Propelled High-Performance Mower-Conditioner may be used to its maximum capacity.

The contents of this manual are laid out in such a way that you should be able to perform any task by following the instructions step by step. It contains extensive notes and information about maintenance, about how to use the machine safely, about secure working methods, special precautionary measures and the accessories which are available. It is essential, important and useful for the operational safety, reliability and durability of the Self-Propelled High-Performance Mower-Conditioner, that these notes and information are adhered to.

Please note:

Always keep this instruction manual behind the passenger seat in the driver's cabin as it is an integral part of your machine.

Only operate this machine after you have been trained to do so and according to these instructions.

It is essential to observe the safety instructions!

It is also necessary to observe the relevant accident prevention regulations and other generally recognised regulations concerning safety, occupational health and road traffic.

All information, illustrations and technical details in this instruction manual are the latest and most up to date at the time of going to press.

It is within our rights to modify the design at any time and without having to give reasons. Should you for any reason not be able to use this instruction manual either wholly or partially, it is possible to get a replacement instruction manual for your machine by quoting the number supplied overleaf.

We hope that you will be satisfied with your KRONE machine.

Machine factory Bernard Krone GmbH
Spelle

新达农机有限公司



Notes

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1 General Information

This operating manual contains basic instructions to follow for assembly, operation and maintenance. For this reason, these operating instructions must be read by operating personnel before commissioning and use, and need to be available for easy reference.

Follow both the general safety instructions contained in the section on safety and the specific safety instructions contained in the other sections.

1.1 Purpose

The Big M II self-propelled high performance mower-conditioner is a carrier vehicle for 3 disc mowers with a mowing conditioner. It is used for agricultural stem and leaf crop. 3 individual mowers allow the cutting width to be adapted. Integrated mowing conditioners accelerate the mowing material drying process.

1.2 Information on the Product

1.2.1 General Information

These operating instructions are valid for the **Big M II** self-propelled high-performance mower-conditioner from machine no. 502 000 on.

1.2.2 Manufacturer's Address

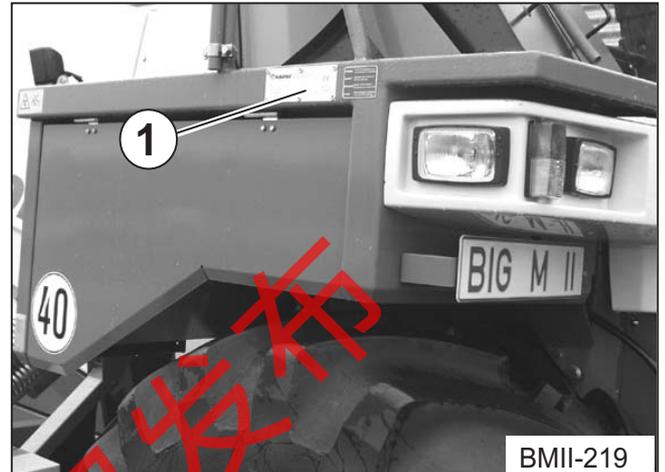
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 E-mail: info.ldm@krone.de

1.2.3 Certification

C Declaration of Conformity
 corresponding to the EC Directive
 See reverse side of title page

1.2.4 Identification

The machine data are listed on an identification plate (1). This is located on the right-hand side of the machine.



Type

Vehicle ID No.

Year



The entire identification plate represents a legal document and should not be altered or rendered illegible!

1.2.5 Data Required for Questions and Orders

When asking questions concerning the machine or ordering replacement parts, be sure to provide type designation, vehicle ID number and year of manufacture.



Genuine replacement parts and accessories authorized by the manufacturer help ensure safety. Use of other parts may void liability for damage which results.



1.2.6 Designated Use

The “**Big M II**” self-propelled high-performance mower-conditioner is designed for standard agricultural and of the same kind ones use only (intended use).

Any use of the machine for other purposes is deemed not to be in accordance with specifications. The manufacturer shall not be held liable for any damage which results from improper use, this is the sole responsibility of the operator.

Operation in accordance with intended use also includes observing the operating, maintenance and service instructions specified by the manufacturer.

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1.2.7 Technical Data

Technical Data / Vehicle

Power	{kW/hp}	260/354
Transport width/length/height	{mm}	3000 / 8090 / 4000
Weight	{approx. kg}	13.500
Weight distribution	approx.	8500 front / 5000 rear
Chassis		4 wheels direct drive provided by radial piston engines
Steering		rear axle steering
Tyres / Tyre pressure		front 750/65 R26 - 1,8 bar rear 580/70 R26 - 1,2 bar
Wheel nuts torque moment	Nm	630
Hydrostatic drive power	Level I Level II	0 to 17 km/h continuously variable (4 wheel drive) 0 to 40 km/h continuously variable (4 wheel drive) Switchable axle disengagement in level 1
Drive pump		max. delivery capacity 425 l/min; max. pressure 430 bar

Filling quantities	Filling quantities {l}	Raffined oils Type description	Bio-lubricants Type description
Diesel tank	approx. 700	see chapter "Engine"	
Engine oil	approx. 25,4	see chapter "Engine"	
Hydraulic oil	approx. 80	HLP 46	HE 46 *)
Coolant	approx. 44	see chapter "Engine"	
Auxiliary gearbox	approx. 6,0	gearbox oil synthetic DIN 51502-PGLP ISO VG 220	

*) **Note:** Filled with ESSO HE 46 ex works. Do not mix with other oils. Consult customer service before using other oils.



Technical Data / Mower BIG M II CV

Cutting width total/individual {mm}	9720 / 3140 front / 3520 side
Transport width {mm}	3000 mower
Number of mower discs	4 / side mower - 5 front mower
Number of mower drums	4 / side mower - 2 front mower
Conditioning system	V-shaped prong
Speed of conditioner {rpm}	700 / 1000

Technical Data / Mower BIG M II CRI

Cutting width total/individual {mm}	9000 / 3140
Transport width {mm}	3000 mower
Number of mower discs	5 / mower
Number of mower drums	2 / mower
Conditioning system	Rollers
Speed of conditioner {rpm}	760

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2 Safety

2.1 Identifying Safety Instructions in the Operating Manual

The safety instructions contained in this manual which could result in personal injury if not followed are identified by the general danger sign:



safety sign in accordance with DIN 4844 - W9

General function instructions are indicated as follows:



Instructions which are attached to the machine need to be followed and kept fully legible.

2.2 Personnel Qualification and Training

Persons who use, service or repair the **Big M II** mower must be trained in its use and instructed as to the risks connected with its operation. The operator must define spheres of responsibility and monitoring of personnel. Should personnel lack the required knowledge they must receive the required training and instruction. The operator must ensure that the contents of this operating manual have been fully understood by personnel.

Repair work not described in this operating manual should be completed by authorised service centres only.

2.3 Failure to Follow the Safety Instructions

Failure to follow the safety instructions could result in personal injury and environmental hazards as well as damage to the machine. Failure to follow the safety instructions could result in the forfeiture of any claims for damages.

Failure to follow the safety instructions could result, **for example**, in the following hazards:

- risk to persons by failure to secure the working area
- breakdown of important machine functions
- failure of prescribed methods for repair and maintenance
- risk to persons due to mechanical and chemical effects
- damage to the environment due to leaking hydraulic oil

2.4 Working in a Safety Conscious Manner

Follow the safety instructions included in this operating manual, existing accident prevention rules and any internal work, operating and safety rules set out by the operator.

The safety and accident prevention regulations of the responsible professional associations are binding.

Observe the applicable traffic laws when using public roads (for example, in Germany, the Road Traffic Type Approval Law and Road Traffic Law).

Be prepared for emergencies. Keep the fire extinguisher and first aid box within reach. Keep emergency numbers for doctors and fire brigade near the telephone.

2.5 Safety Instructions and Accident Prevention Regulations

1. Please follow all generally applicable safety and accident prevention regulations in addition to the safety instructions contained in this manual!
2. The attached warning and safety signs provide important information for safe operation. Pay attention to these for your own safety!
3. When using public roads, make sure to observe the applicable traffic regulations!
4. Make sure that you are familiar with all equipment and controls as well as their functions before you begin working with the machine. It is too late to learn this when you are operating the machine!
5. The user should wear tight fitting clothes. Avoid wearing loose or baggy clothing.
6. Keep the machine clean to prevent the danger of fire!
7. Before starting or moving the machine, make certain that nobody is in the vicinity of the machine! (Watch for children!) Make sure that you have a clear view!
8. Carrying passengers during operation and transport on the working implement is only permitted if they use the passenger seat provided.
9. Attach implements correctly! Attach and secure implements to specified devices only!
10. When attaching or removing implements, place the supporting devices in the correct positions!
11. Always attach ballast weights properly to the fixing points provided!
12. Observe permitted axle loads, gross weight and transport dimensions!
13. Check and attach transport equipment such as lighting, warning devices and any protective equipment!
14. Actuating mechanisms (cables, chains, linkages etc.) for remote controlled devices must be positioned in such a way that no movements are unintentionally triggered in any transport or working positions.
15. Ensure that implements are in the prescribed condition for on-road travel and lock them in place according to the manufacturer's instructions!
16. Never leave the driver's seat when the vehicle is moving!
17. Always drive at the correct speed for the prevailing driving conditions! Avoid sudden changes in direction when travelling uphill or downhill or across a gradient!
18. Attached implements and ballast weights effect the driving, steering and braking response of the machine. Make sure that you are able to brake and steer the machine as required!
19. Take into account the extension radius and/or inertia of an implement when turning corners!
20. Start up implements only when all protective devices have been attached and set in the required position!
21. Keep safety equipment in good condition. Replace missing or damaged parts.
22. Keep clear of the working range of the machine at all times!
23. Do not stand within the turning and slewing range of the implement!
24. Never operate the hydraulic folding frames if anyone is inside the slewing range!
25. Parts operated by external power (e.g. hydraulics) can cause crushing and shearing injuries!
26. Before leaving the mower, lower the frontmower onto the ground, firmly step on the parking brake pedal as the hydrostatic braking effect will be reduced after approx. 10 minutes. Switch off the engine and remove the ignition key!

2.6 Self-propelled Working Machine

1. The warning flashers and warning beacon must be used in accordance with local traffic laws when using public highways.
2. Switch on the lighting so the vehicle can be easily recognised.
3. Safety equipment
4. Always check the machine for driving and operational safety before use.
5. Hold the hand grip firmly when climbing in and out of the mower.
6. It is not permitted to transport people on the platform.
7. The ladder must be pushed in during travel.
8. The road safety switch must be in road position during road driving to ensure that all hydraulic functions - except for the steering and brakes - are deactivated.
9. Only drive the machine at the permitted speed.
10. Implements must be in transport position and locked according to the manufacturer's instructions for road driving.
11. If the engine is run in enclosed rooms, divert the exhaust fumes and ensure sufficient ventilation.
12. When using starting fluid, avoid ignition sources and naked flames. Keep starting fluid clear of batteries and electrical cables.
13. When driving around bends, always take the width of the front mower and the fact that the rear of the mower will swing out into consideration. Ground conditions influence the handling of the mower.
14. Beware of holes, ditches and obstacles, they could cause the mower to tip over. This is particularly important on slopes.

2.7 Implements

1. **Caution!** The flywheel will

continue to rotate for some time even after the drive has been disengaged! Keep clear of the implement during this time. Be sure that the machine has come to a complete stop before starting any maintenance work.

2. Disengage the drive, stop the engine and remove the ignition key before cleaning, lubricating and adjusting the PTO shaft driven implements or the PTO shaft!

2.8 Hydraulic System

1. The hydraulic system is pressurized!
2. When connecting hydraulic cylinders and engines, make sure that the hydraulic hoses are connected correctly!
3. Check the hydraulic hose lines at regular intervals and replace them if damaged or worn! The new hoses must fulfill the technical requirements set by the manufacturer of the implement!
4. When searching for leaks, use suitable aids to avoid the risk of injuries!
5. Liquids escaping under high pressure (hydraulic oil) can penetrate the skin and cause serious injury! Seek medical help immediately should injuries occur! Risk of infection!
6. Before working on the hydraulic system, lower the mower units, depressurise the system and switch off the engine!

2.9 Battery

1. Maintaining the battery requires sufficient knowledge and the availability of proper tools!
2. Keep naked flames, burning matches and spark sources clear of the battery. **Risk of explosion!**
3. Never check the charging level of the battery by connecting the two poles with a metal object. Use acid tester or voltmeter.

2.11 Tyres

1. When working on the tyres, make sure that the implement has safely lowered and been secured against rolling (wheel chocks).
2. Installing wheels and tyres requires adequate knowledge and suitable tools!
3. Repair work on the tyres and wheels should be done by specially trained personnel using appropriate installation tools only!
4. Check tyre pressure regularly! Inflate the tyres to the recommended pressures!
5. Check wheel nuts pressure regularly! Missing wheel nuts can lead to a wheel falling off and the machine tipping over.
8. When doing electrical welding on the self-propelled high performance mower-conditioner and attached implements, disconnect the power supply at the main battery switch.
9. Replacement parts must at least comply with the technical requirements set by the manufacturer of the implements! This is ensured by using genuine KRONE replacement parts!
10. Only use nitrogen for filling pneumatic accumulators - **Risk of explosion!**

2.12 Emergency Exit

An emergency hammer is located inside the cabin. In case of an emergency use this hammer to smash the right side-window.

2.13 Maintenance

1. Always make certain that the drive and the engine are switched off before doing any repairs, maintenance or cleaning!
- Remove the ignition key!
2. Regularly check that nuts and bolts are properly seated and tighten if necessary!
3. When carrying out maintenance work on a raised mower, always use suitable means to secure it against falling.
4. When replacing working tools with cutting edges, use suitable tools and gloves!
5. **Dispose of oils, greases and filters according to regulations!**
6. Always disconnect the power supply before working on the electrical system!
7. If protective devices and guards are subject to wear, check them regularly and replace them in good time!

2.14 Unauthorised Modification and Manufacture of Replacement Parts

Modifications to the machine are permitted only with the prior approval of the manufacturer. Genuine replacement parts and accessories authorized by the manufacturer ensure safe use. Use of other parts may void liability for damage which results.

2.15 Prohibited Modes of Operation

The operational safety of the machine is guaranteed only if it is used for its intended purpose in accordance with the General Information chapter of the operating manual. The limit values listed in the data charts should not be exceeded under any circumstances.

2.16 Safety Instructions on the Machine

The Big M II self-propelled high-performance mower-conditioner is equipped with all necessary safety devices (protective equipment). However, it is not possible to eliminate all potential hazards on this machine as this would impair its full functional capability. Corresponding danger notices attached to the machine warn against any dangers.

The safety instructions are provided in the form of so-called warning pictograms. Important information on the location of these safety signs and what they mean is given below!



Familiarise yourself with the meaning of these warning signs. The text beside them and their location on the machine indicates the machine's particularly dangerous areas.

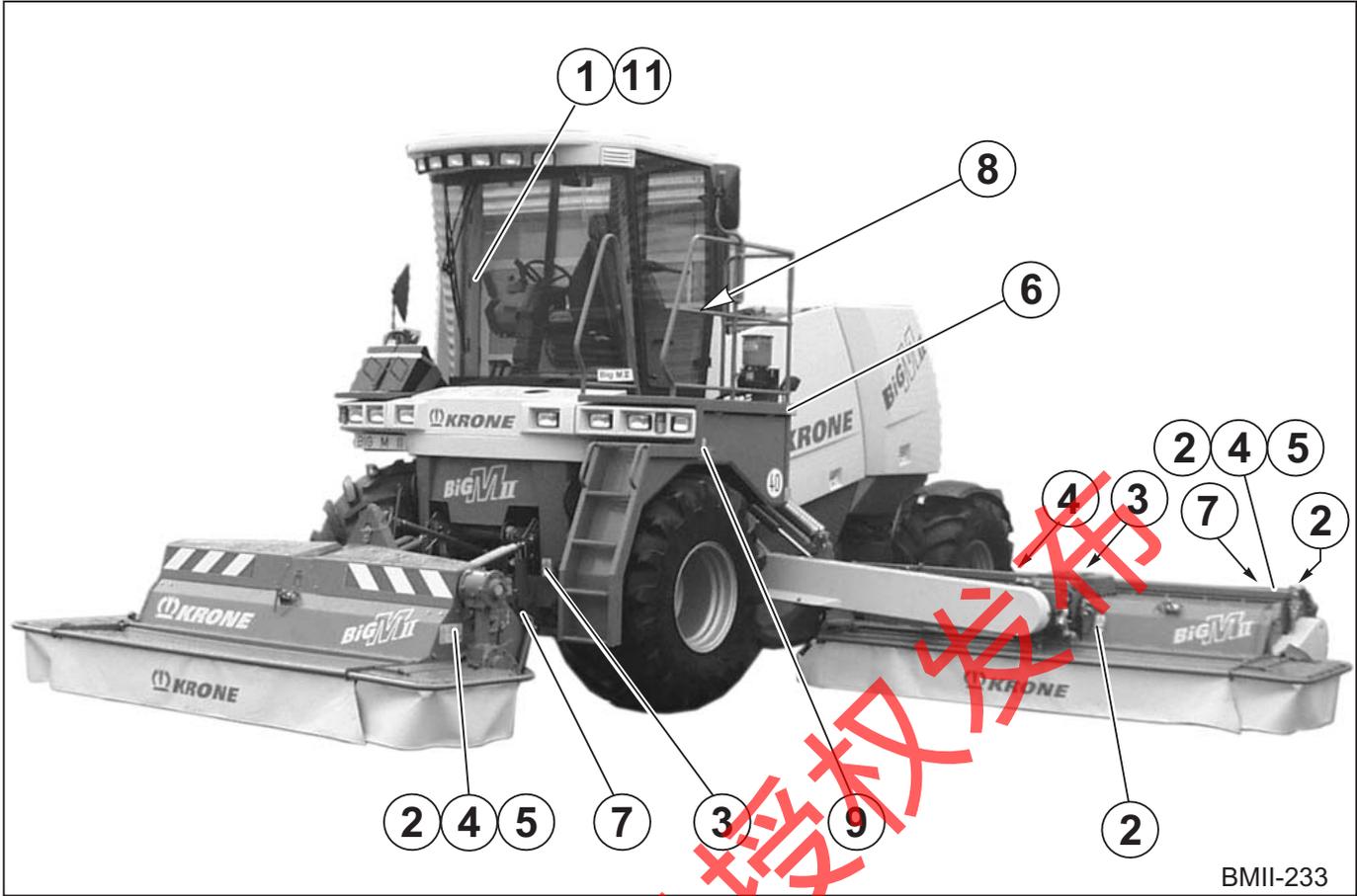
2.17 Working in the vicinity of power transmission lines

1. Always take great care when working under or in the vicinity of power transmission lines.
2. If there is any need to travel under overhead lines, the machine operator must request information on the rated voltage and the minimum height of the overhead lines from the overhead line operator.
3. Always keep the safety distances according to the table.

Rated voltage	Safe distance from overhead lines
kV	m
to 1	1
Above 1 to 110	2
Above 101 to 220	3
Above 220 to 380	4



2.16.1 Location of Safety Decals on the Machine



BMII-233

left side of the machine

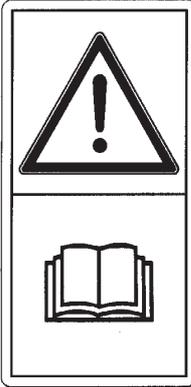


BMII-238

right side of the machine

①

Read and follow the operating instructions before initial operation.



Order no. 939 471-1 (1x)

②

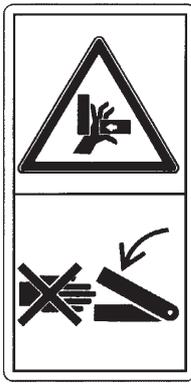
Maintain a safe distance while the engine is running.



Order no. 942 197-1 (8x)

③

Never put your hand into danger area with a risk of crushing as long as the parts are able to move.



Order no. 942 196-1 (4x)

④

Do not touch moving machine parts. Wait until they have come to a complete standstill.



Order no. 939 410-2 (6x)

⑤

Move guard into position



Order no. 939 572-0 (4x)

⑥

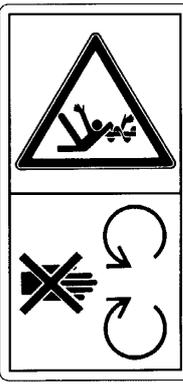
Do not stand within the slewing range!



Order no. 939 469-1 (2x)

⑦

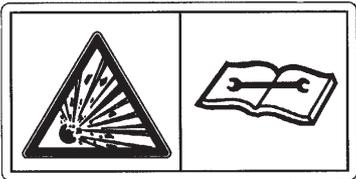
Danger rotating shaft.



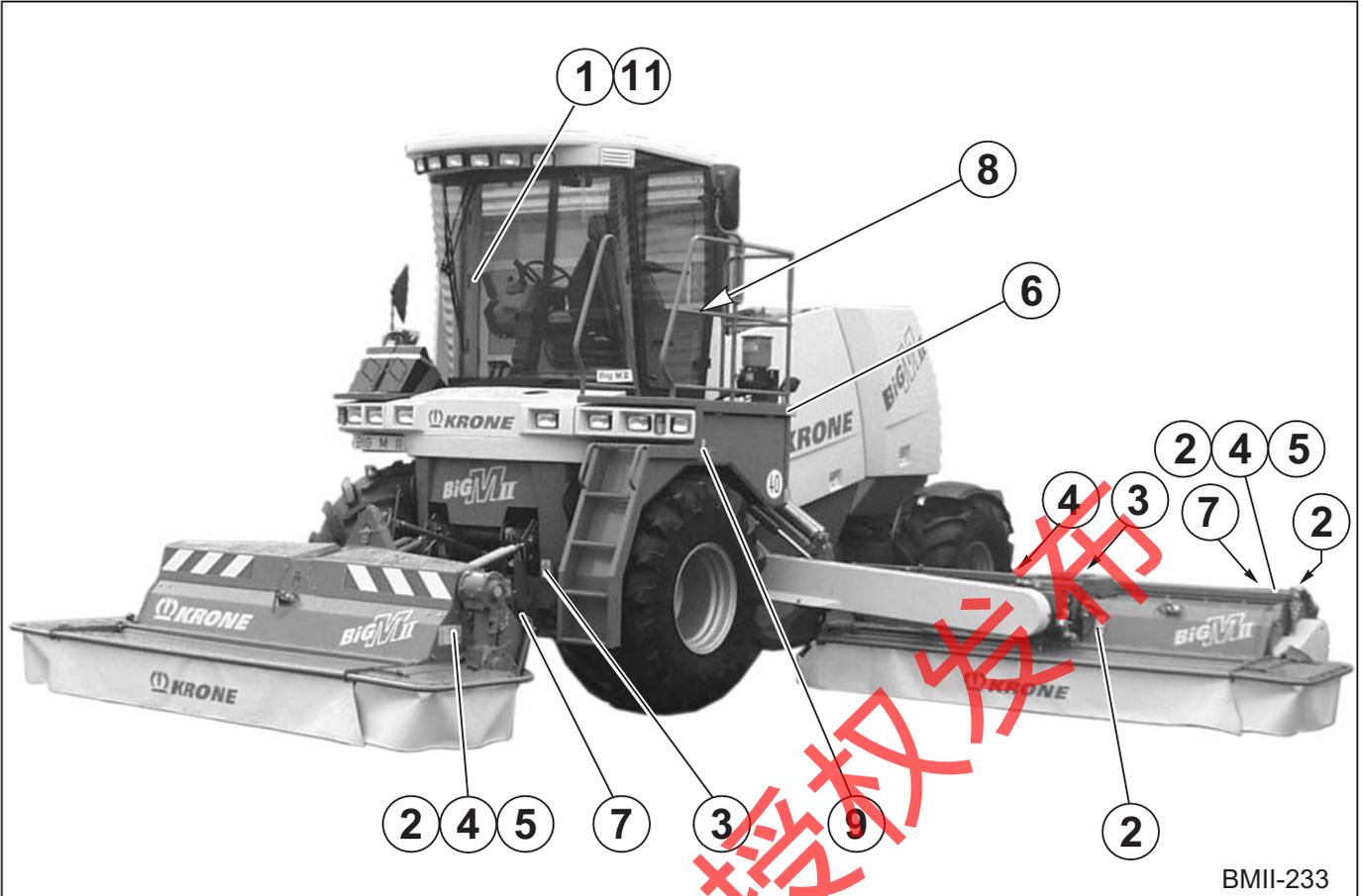
Order no. 939 520-1 (2x)
(with auger - option (4x))

⑧

The accumulator is subject to gas and oil pressure. Disassemble and repair in strict accordance with the instructions in the technical handbook.



Order no. 939 529-0 (2x)



BMII-233

left side of the machine

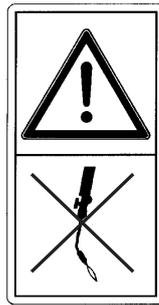


BMII-238

right side of the machine

9

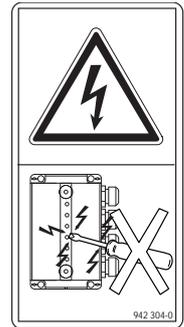
During repair work (welding) always turn off the engine
Disconnect battery main switch and remove both cable connectors from the unit pump (PLD) control unit at the engine.



Order no. 942 405-0 (1x)

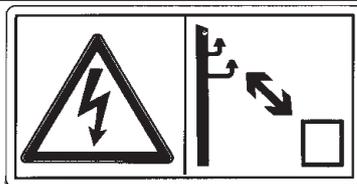
10

Attention:
No short-circuit produce



Order no. 942 304-0 (1x)

11

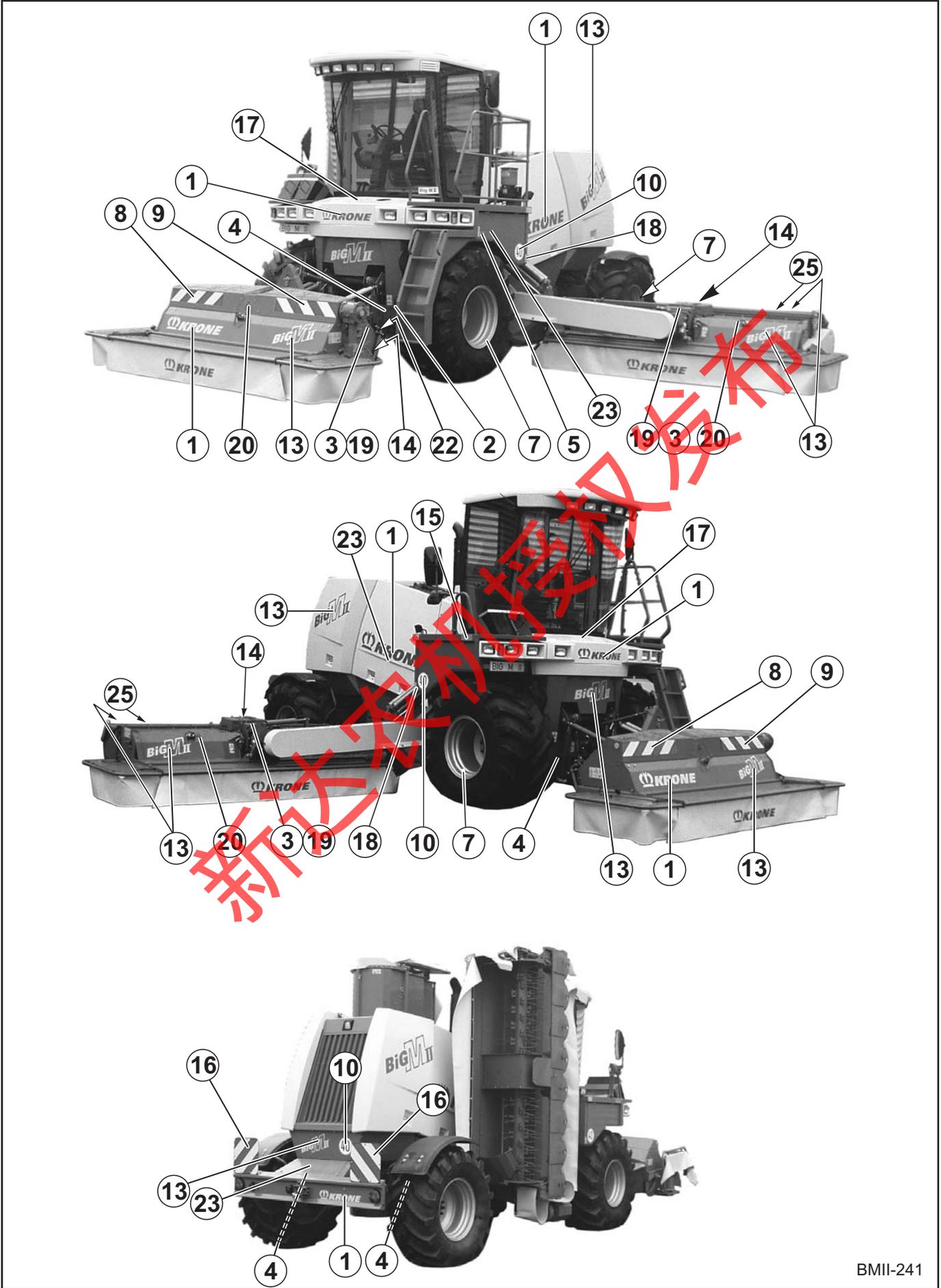


Keep the stipulated safe distance to power transmission lines.

Order No. 942 293-0 (1x)

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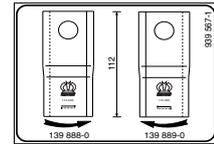
2.16.2 Location of General Information Labels on the Machine



BMII-241



D Absperrenhahn bei Transport schließen.
 E Bloquear el grifo de cierre antes del transporte.
 F Fermer le robinet d'arrêt avant le transport.
 GB Close valve when transporting or servicing machine.
 I Fermare la chiavetta d'arresto prima del trasporto.



- 1 942 341-0 (1x) 893 long beige
 942 243-0 (2x) 1400 long green
 942 320-0 (1x) 600 long beige
 942 323-0 (1x) 775 long green

- 2 939 180-2 (1x)

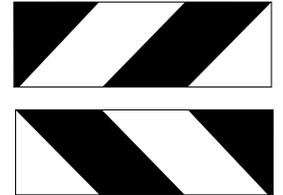
- 3 939 567-1 (3x)



D Radmuttern nach erstem Einsatz nachziehen.
 E Apretar las tuercas de fijación de ruedas después de la primera puesta en servicio.
 F Resserrer les écrous de fixation de roue après la première mise en service.
 GB Retighten wheel nuts after the first two hours operation.
 I Stringere i dadi di fissaggio delle ruote dopo il primo impiego.



1,2 bar



- 4 942 012-1 (4x)

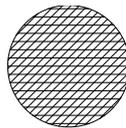
- 5 942 134-0 (1x)

- 6 939 451-1

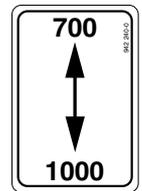
- 7 942 378-0 (4x) 1,2 bar
 942 377-0 (2x) 1,6 bar

- 8 924-625-0 (1x)

- 9 924-626-0 (1x)



BIG M II



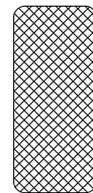
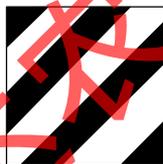
- 10 939-145-1 (3x)
 On 20 km/h
 version
 942-236-0 (3x)

- 11 924 634-0 (6x)
 Side light

- 13 942 375-0 (5x) - 473 long
 942 376-0 (2x) - 1000 long
 942 379-0 (1x) - 653 long
 942 380-0 (3x) - 566 long

- 14 942 240-0 (3x)

Achtung! Beide Unterlegkeile nur an der Vorderachse verwenden.
 Caution! Use both wheel chocks for the front axle only.
 Attenzione! Utilizzare i dadi di fissaggio delle ruote solo sull'asse anteriore.
 Let op! Beide wielwippen uitsluitend onder de vooras gebruiken.

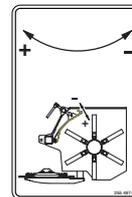
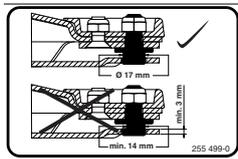
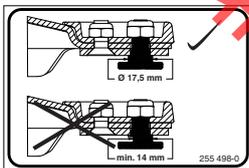


- 15 942 287-0 (1x)

- 16 924 569-0 (2x)

- 17 233 154-0 (1x)

- 18 942 729-0 (2x)

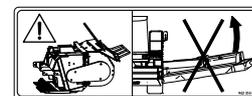


- 19 255 498 -0 (3x)
 with screw
 connection blades

- 19 255 499 -0 (3x)
 with quick-
 release blade

- 20 255 497-0 (3x)

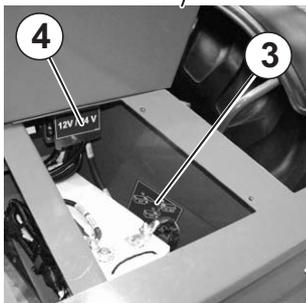
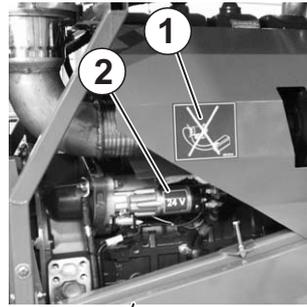
Bei Hangausgleich diese Position verwenden.
 Take this position by using levelling mechanism.

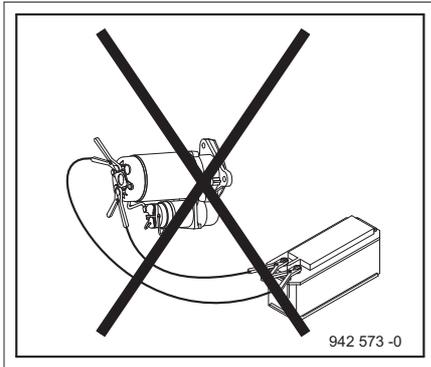


- 22 942 404-0 (1x)

- 23 942 412-0 (3x)

- 25 942 314-0 (2x)
 (Option with auger)

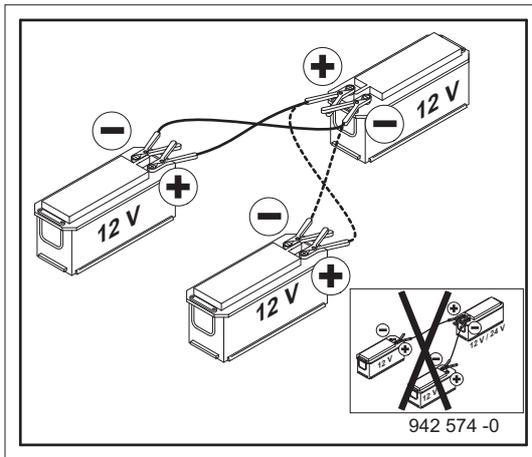




① 942573-0(1x)



② 942571-0(1x)



③ 942574-0(1x)



④ 942570-0(1x)

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3 Controls

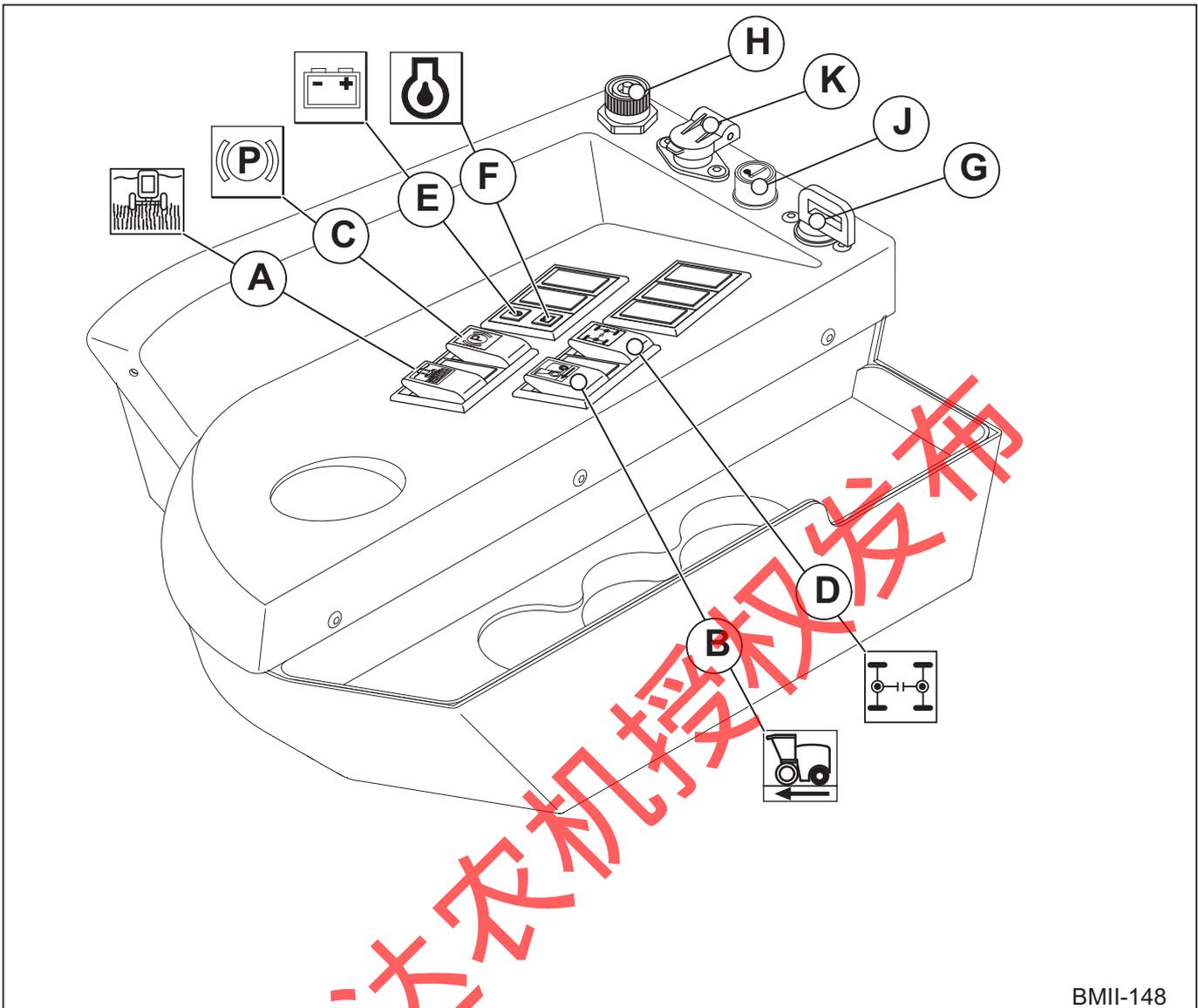
3.1 Overview



BMII-191

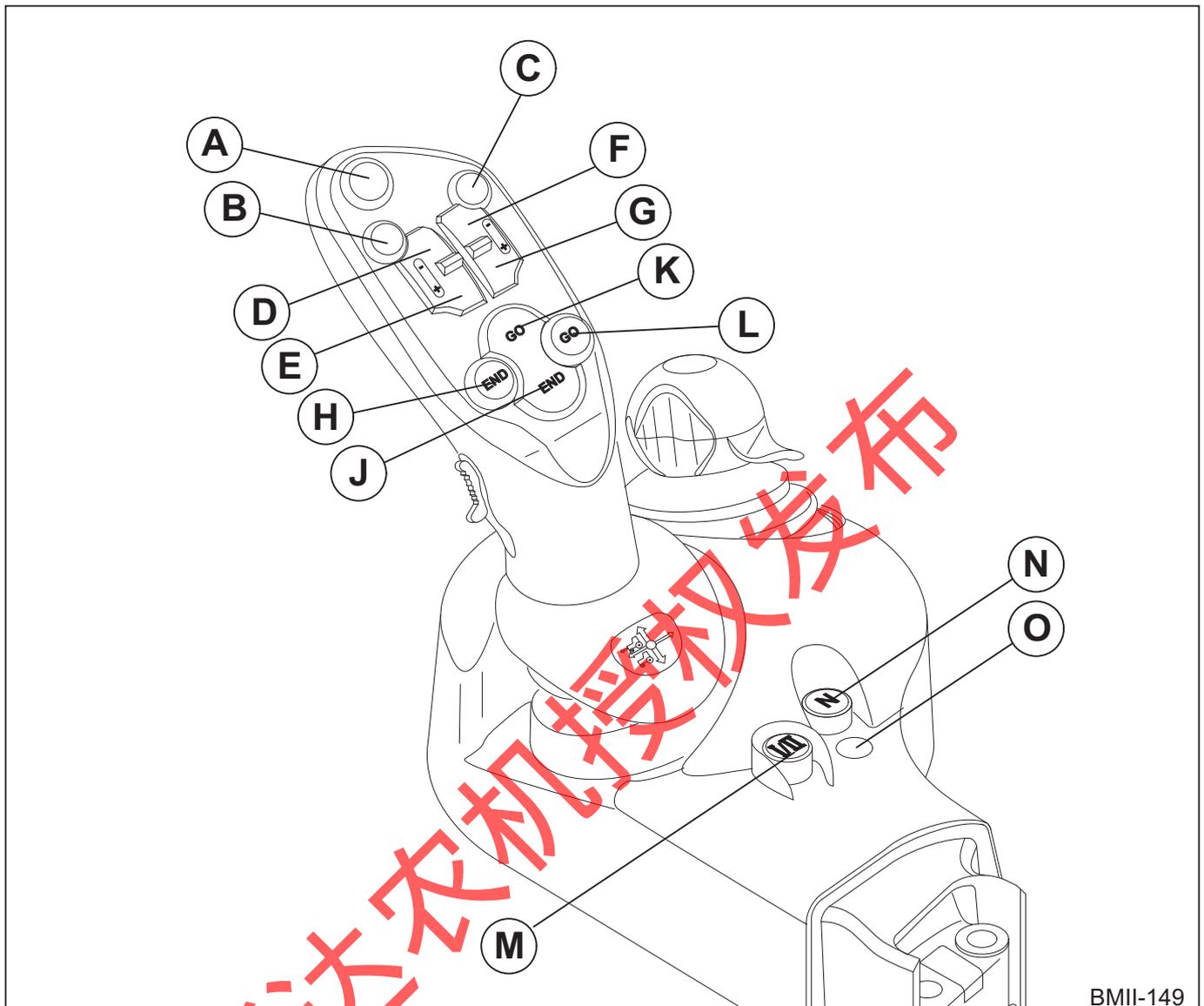
- A - Switch console
- B - Info-Centre
- C - Multifunction lever
- D - Roof console switch group
- E - Steering column
- F - Foot switch levelling mechanism

3.2 Switch consoles



- A - Road safety switch
- B - Release automotive drive
- C - Parking brake
- D - Axle separation
- E - Alternator charging indicator light
- F - Engine failure indicator light
- G - Ignition lock
- H - Diagnostic socket
- J - Cigarette lighter
- K - 12 volt socket

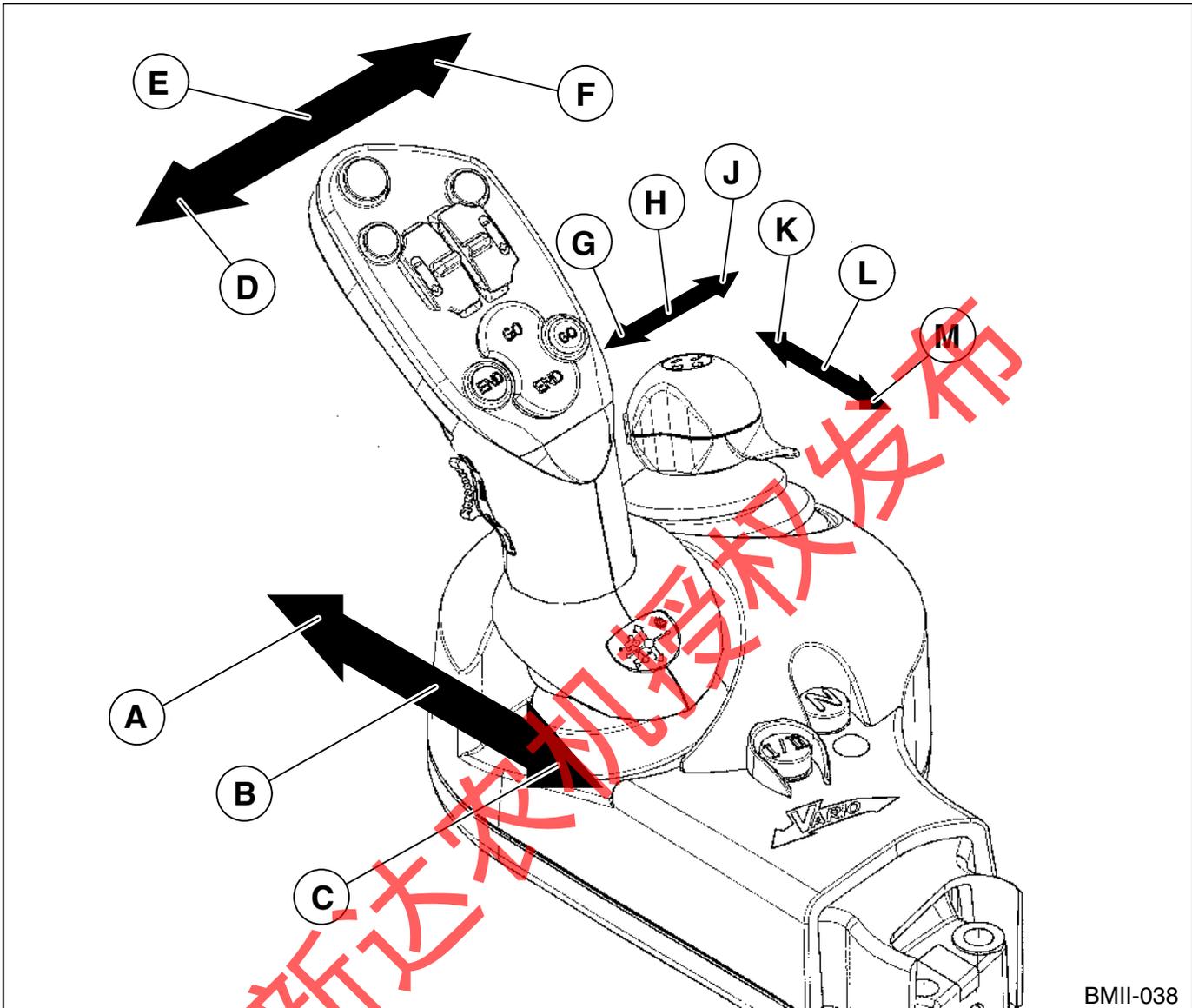
3.3 Multifunction lever



BMII-149

- A - All mowers off
- B - Retrieve pre-setting „I“ cutting height (optional)
- C - Retrieve pre-setting „II“ cutting height (optional)
- D - Lower left mower: with "M" key pressed from transport position to stand-by position
 without "M" key from stand-by position to mowing position.
- E - Lift left mower: without "M" key from mowing position to stand-by position
 with "M" key pressed from stand-by position to transport position
- F - Lower right mower: with "M" key pressed from transport position to stand-by position
 without "M" key from stand-by position to mowing position
- G - Lift right mower: without "M" key from mowing position to stand-by position
 with "M" key pressed from stand-by position to transport position
- H - Lift front mower
- J - Lift all mowers: Only from mowing position to stand-by position
- K - Lower all mowers: Only from stand-by position to mowing position
- L - Lower front mower
- M - Additional function for the "D to G" keys
- N - Semiautomatic (catching)
- O - LED lights Semiautomatic active
 LED does not light Semiautomatic not active

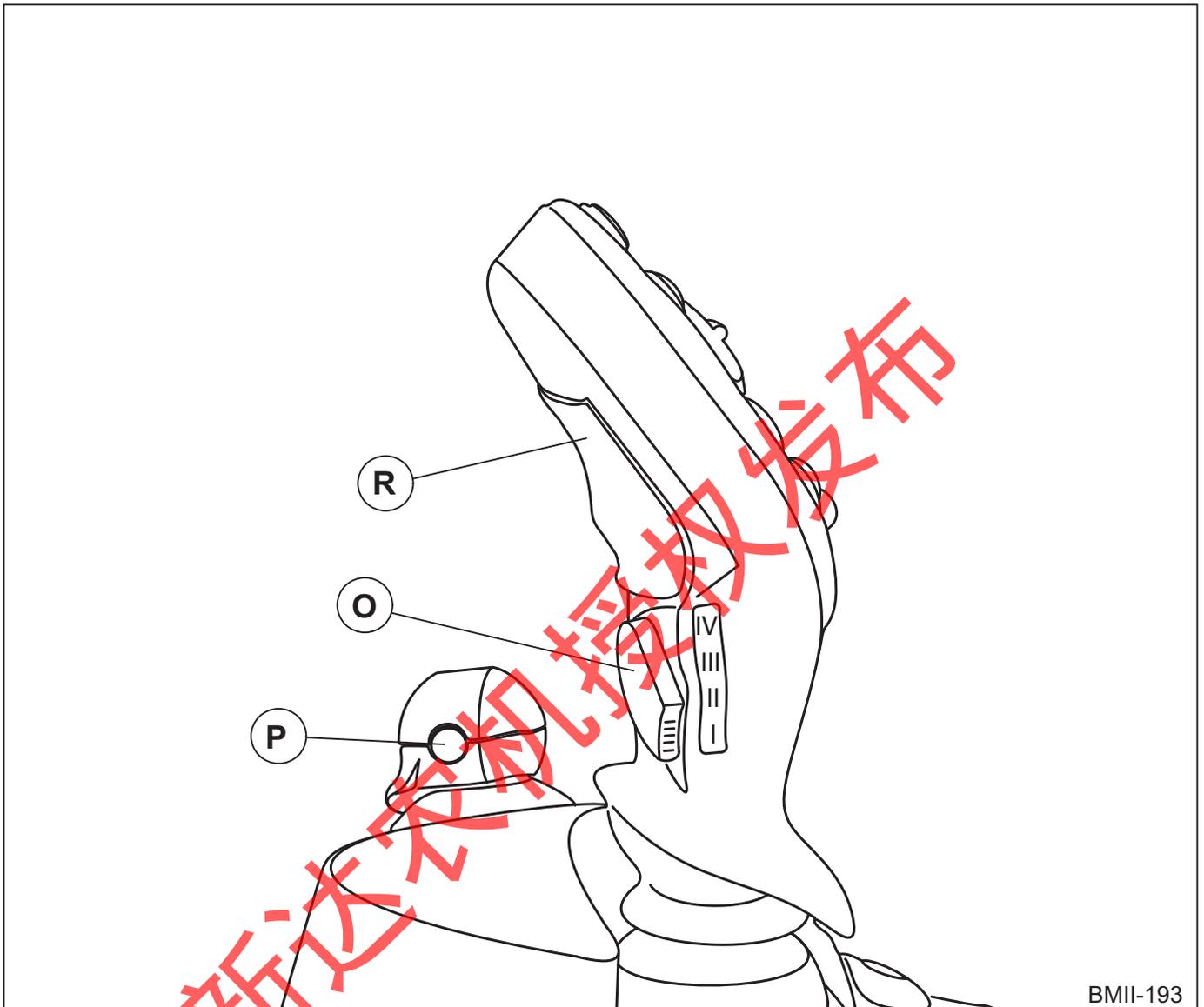
3.4 Multifunction lever (continued)



BMI-038

- A - Acceleration (while driving forwards) / Deceleration (while driving backwards) / Start automotive drive with pressed activation key "R"
- B - Driving joystick central position
- C - Acceleration (while driving backwards) / Deceleration (while driving forwards) / Start automotive drive with pressed activation key "R"
- D - Stop automotive drive / Change of direction (fast reversing with pressed activation key "R")
- E - Driving joystick central position
- F - Tempomat / with "R" = value store
- G - Left mower on with "P" / off without "P"
- H - Central position
- J - Right mower on with "P" / off without "P"
- K - Front mower on with "P" / off without "P"
- L - Central position
- M - All mowers on with "P" / off without "P"

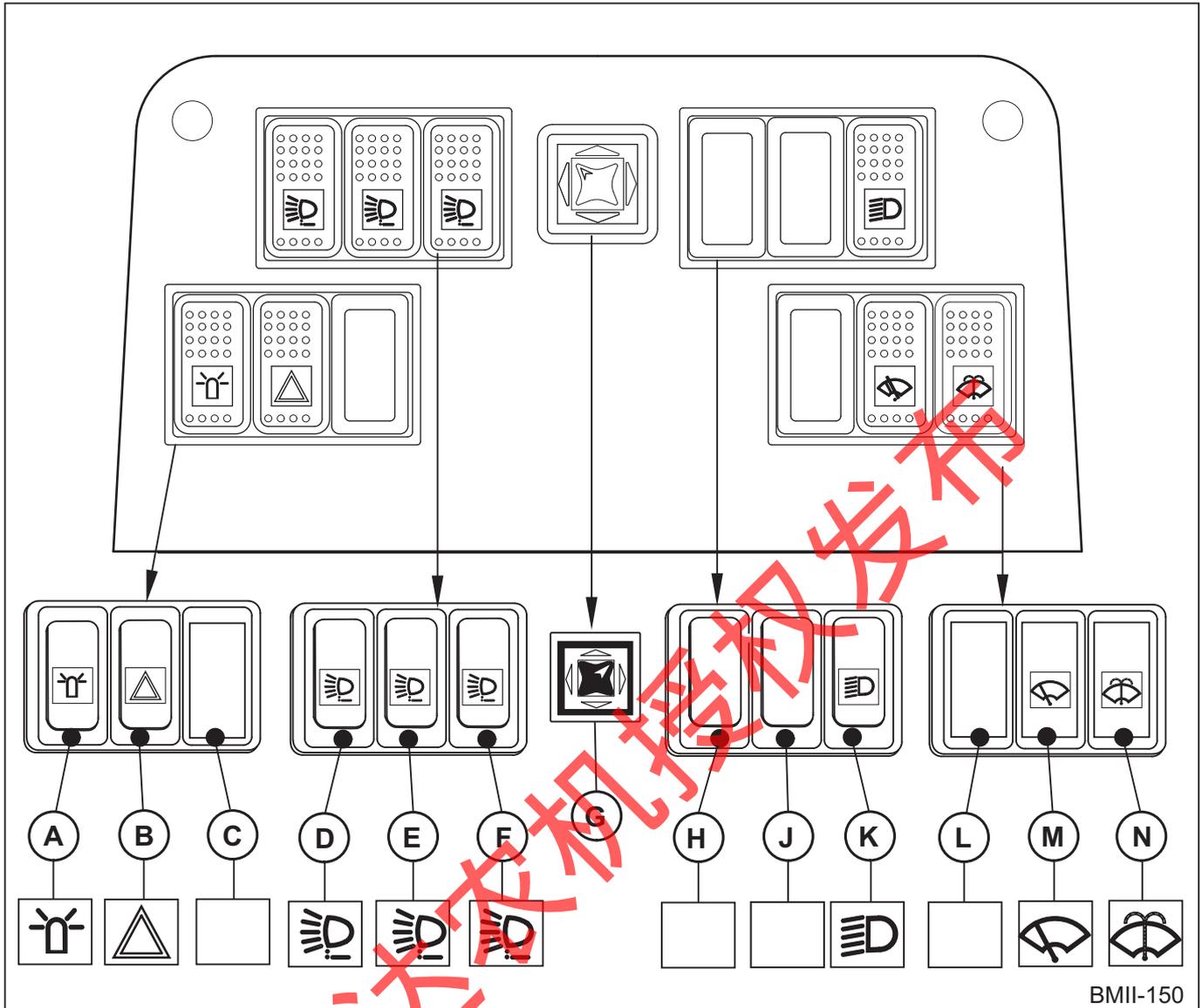
3.5 Multifunction lever (continued)



BMII-193

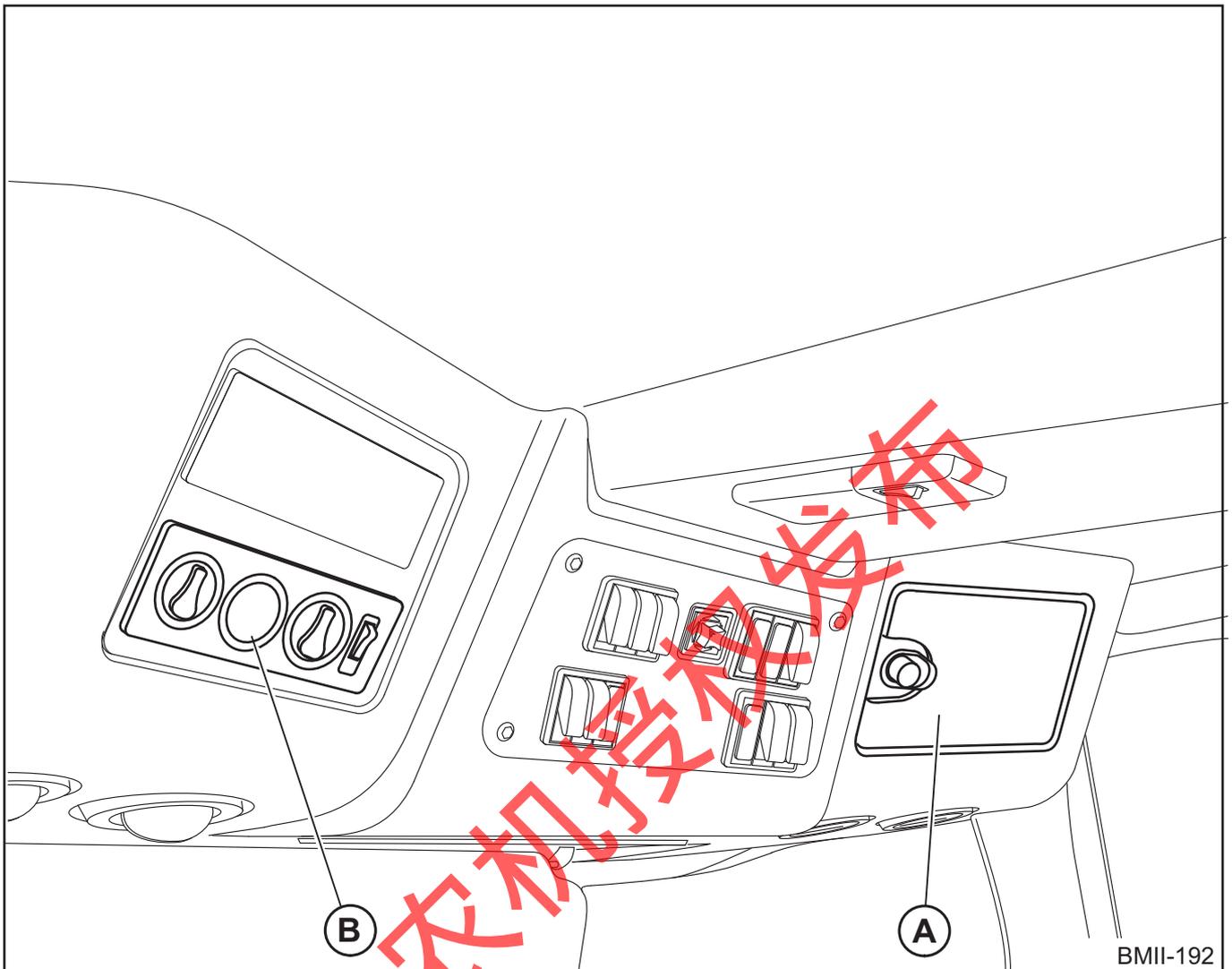
- O - Acceleration ramp selection
- P - Mower release
- R - Activation key

3.6 Roof Console Switch Group



- A - Warning beacon (optional)
- B - Warning flashers
- C - -Free-
- D - Work light laterally down and work light mower right and left hand side
- E - Work light cabin roof and tail
- F - -Free-
- G - Mirror adjustment
- H - -Free-
- J - -Free-
- K - Dipped beam
- L - -Free-
- M - Windscreen wiper
- N - Windscreen washer

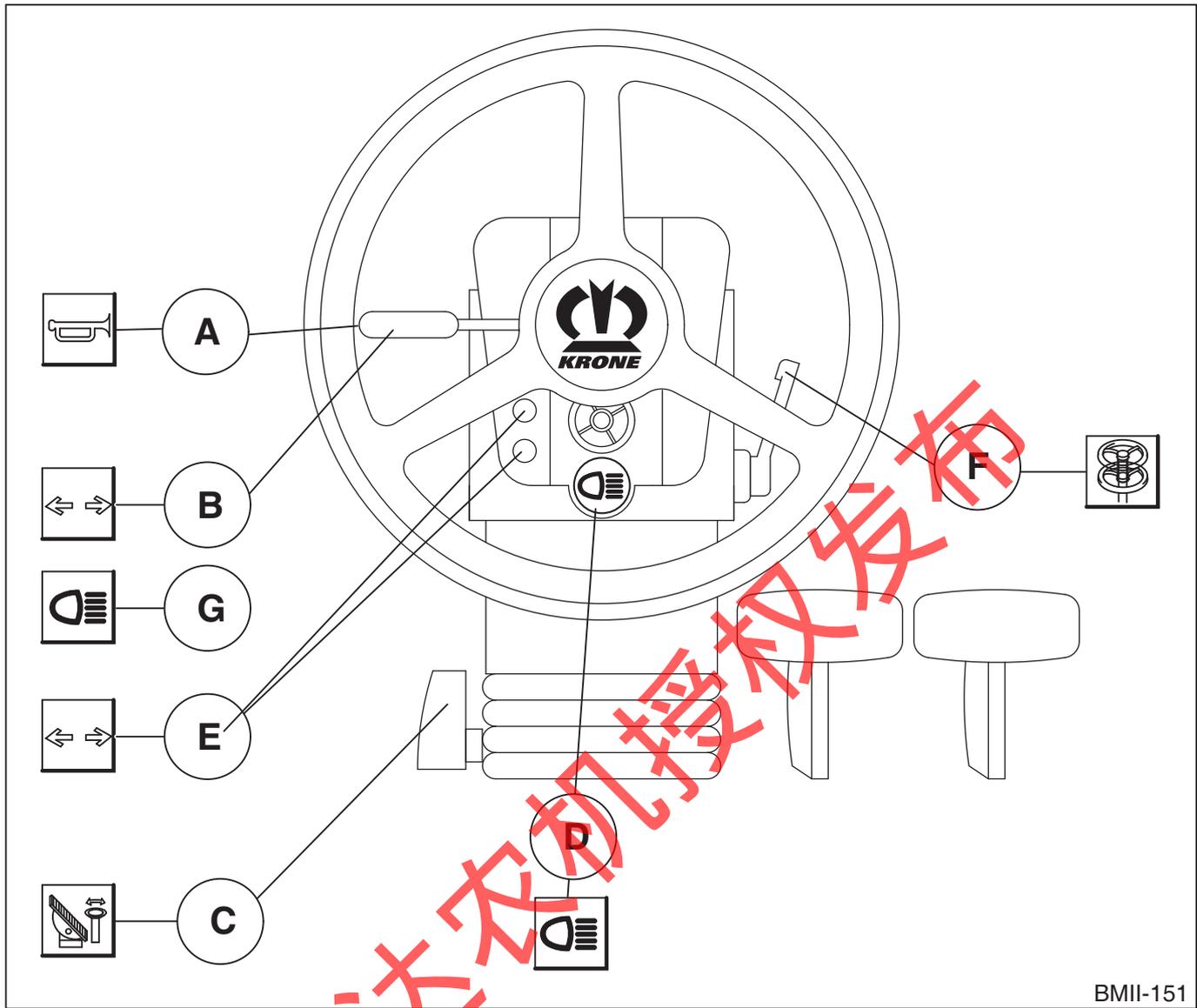
3.7 Roof Console



BMII-192

- A - Cooling compartment
- B - Air conditioning/heating

3.8 Steering Column



BMII-151

- A - Button for horn
- B - Indicator switch
- C - Unlock pedal for horizontal/vertical steering column adjustment
- D - Full beam indicator light
- E - Indicator indicator light
- F - Unlock pedal for vertical steering column adjustment
- G - Full beam

3.9 Release Switch: Automative Drive

Releases the automative drive (position I) when operated.



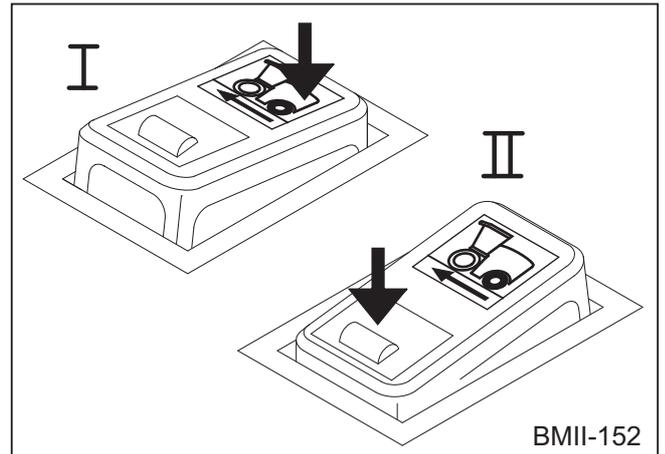
When the automative drive is switched off (position II), the mower cannot be switched on.



When operating automative drive switch nobody is allowed in the immediate hazard zone of the machine!



- Always remove the ignition key before leaving the cabin.
- To turn off the mower:
Operate the hand brake switch.
Set the automative drive switch into off position.

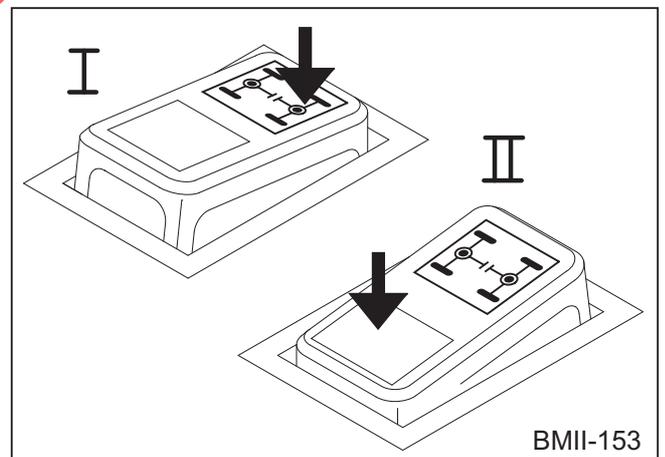


3.10 Enable button: Axle Separation

Switches on the axle separation when operated (position I).



The axle separation can only be activated for driving stage 1 (field position). When activating the axle separation, the maximum top speed is 14 km/h (instead of 17 km/h). If the axle separation is switched when travelling faster than 14 km/h, the electronics prevent the axle separation from being activated. Only after the speed has been reduced to below 14 km/h, are the electronics switches, the valves, and the axle separation activated.



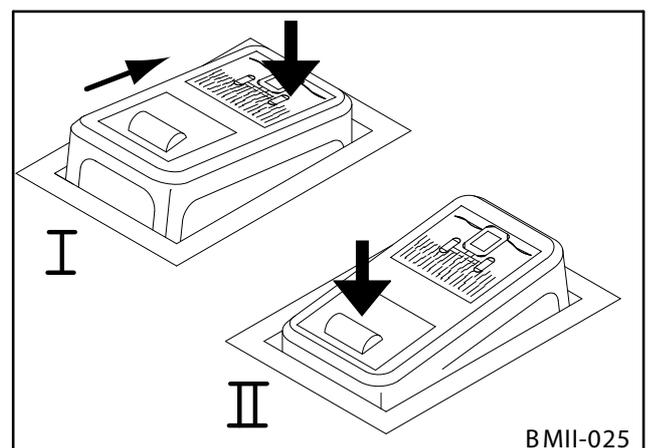
3.11 Road Safety Switch



The road safety switch must be in road position (II) when you drive on the road. Move the mowers to transport position beforehand.

This ensures that all hydraulic functions - apart from steering and brakes - are deactivated.

- I - Field position
- II - Road position



3.12 Parking Brake

1. Release parking brake
2. Engage parking brake

Releasing the parking brake:

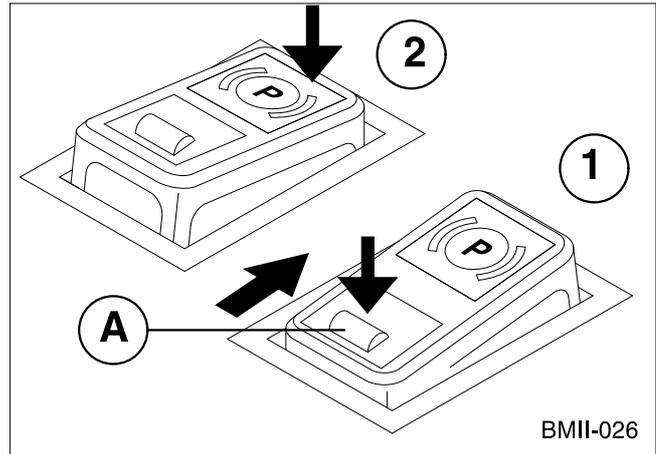
Set the switch to position (1).



Driving for a longer period of time with the parking brake applied will result in overheating of the brake.

Engaging the parking brake:

Move actuation lock (A) upwards and set the switch to position (2).

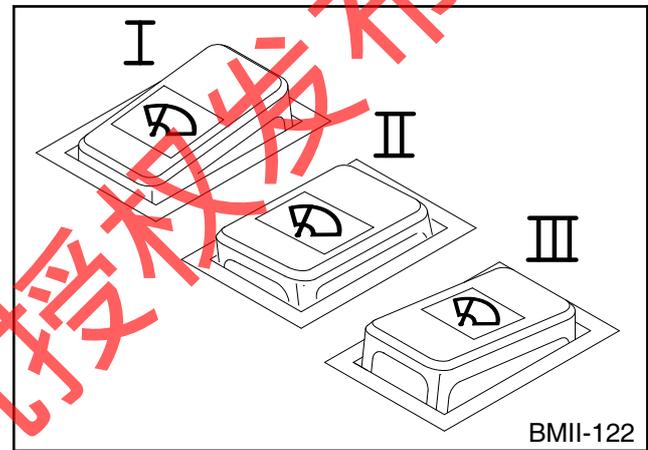


BMII-026

3.13 Windscreen Wiper Toggle Switch

The windscreen wiper can only be switched on when the ignition is turned on.

- I - Windscreen wiper off
- II - The windscreen wiper works in continuous operation
- III - Windscreen wiper interval

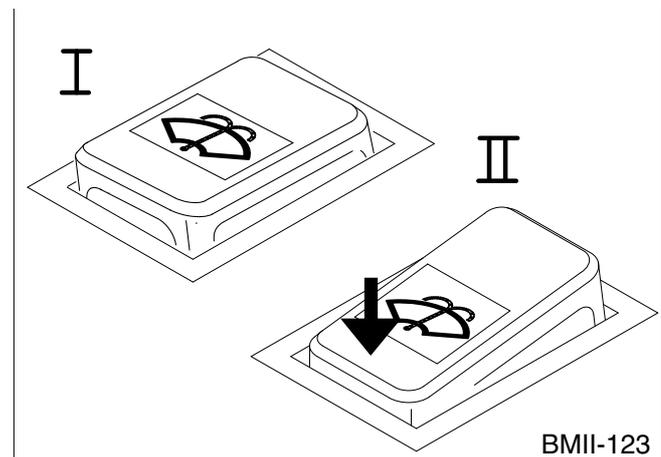


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3.14 Windscreen Washer Toggle Switch

The washer can only be switched on when the ignition is turned on.

- I - Washer off
- II - Washer on



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3.15 Air Conditioning/Heating Rotary Switch

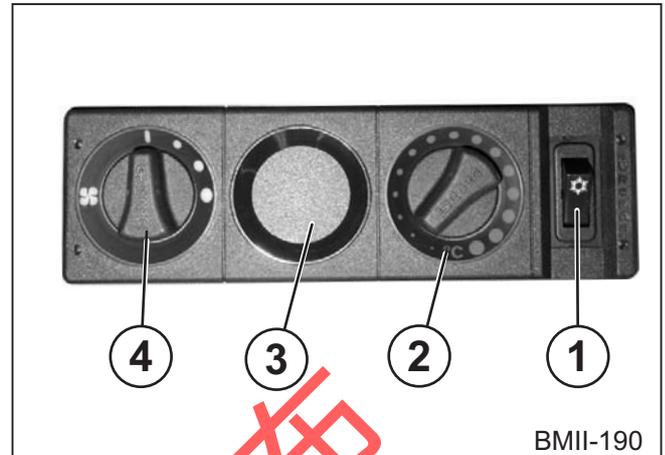
- (1) On/off switch for air condition
- (2) Heating control for setting the blow-out temperature of the heater
- (3) Free
- (4) Fan control

To activate the air condition/heating the fan switch (4) must be at least on fan stage 1. On fan stage 0 the air conditioning is without function.

Starting the air conditioning

To switch on the air conditioning the on/off switch (1) must be operated. This is indicated by a green lamp on the on/off switch (1).

The cooling effect is adjusted by turning the cooling control (4) clockwise.



 **Switch on the air conditioning several times a year -- even in colder seasons -- so the moving parts in the system are lubricated.**

Starting the heating

Turning the right-hand switch (2) clockwise opens the heating valve. The heating effect increases as you turn the switch (2) clockwise.

 **To achieve effective heating / cooling performance inside the cabin, at least fan stage 1 must be operated.**

 **The possibilities to adjust the cooling / heating control can also be combined, i.e. despite maximum cooling, the heating control can be operated to set the room temperature desired.**

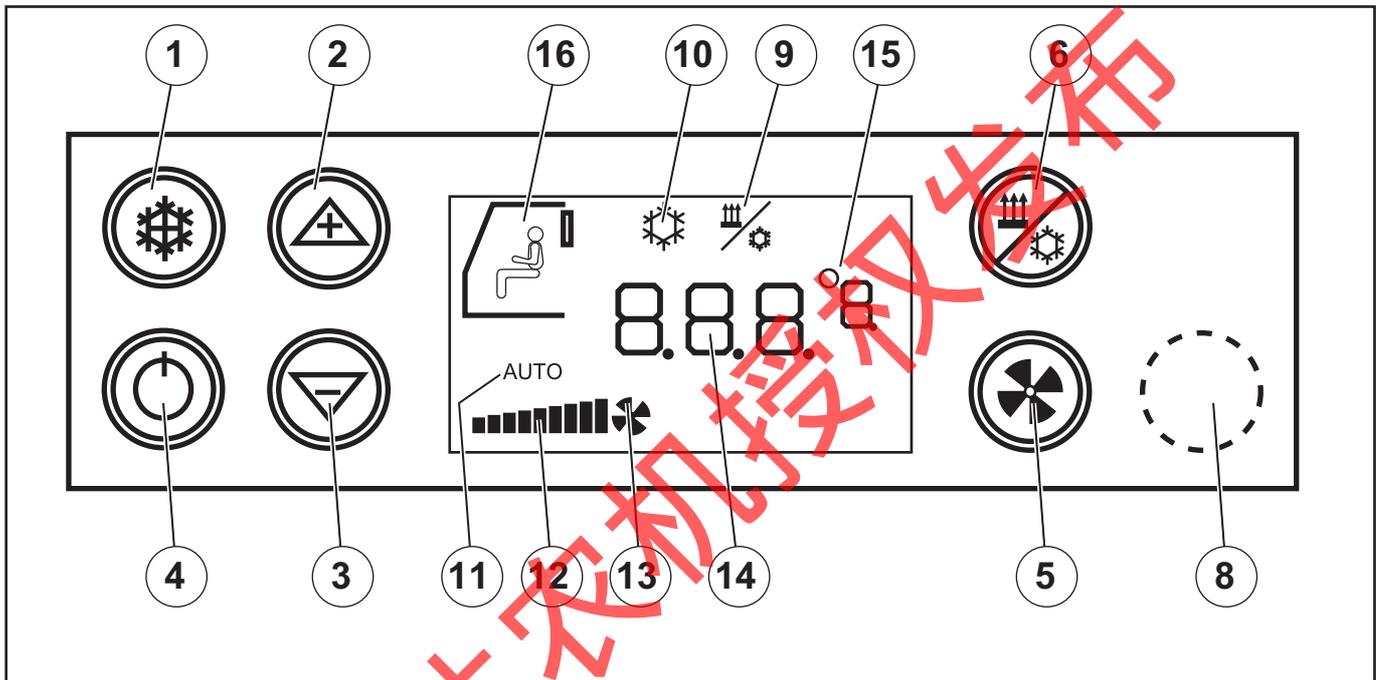
3.16 Climatronic / Heating

3.16.1 Control and indicator elements

The climatronic is a control unit for air conditioning and heating systems in modern vehicle cabins. The driver is being relieved from all tasks of the ideal air conditioning in the cabin by easy and clear controlling.



In case the power supply for the control unit is interrupted, the control unit accomplishes a self-testing after impressing power. After finishing the self-testing the last saved setting is displayed.



Key	Key function
1	Key for switching air conditioning on and off
2	Key for adjusting the desired cabin temperature up. Alternative: manual adjustments „up“
3	Key for adjusting the desired cabin temperature down. Alternative: manual adjustments „down“
4	Key for switching the control on and off
5	Shift-key evaporator fan speed manual/automatic
6	Key for switching REHEAT (dehumidify cabin air) on and off
7	
8	Blind key for switching the temperature display to ° Fahrenheit

LCD	Function of LCD-display
9	Symbol indicates REHEAT – operation on
10	Symbol indicates air conditioning on
11	Symbol indicates that fully automatic control is switched on
12	Bar indicates the fan speed during manual operation
13	Symbol indicates manual fan operation
14	4-digit seven segment display indicates set value or error code
15	Symbol indicates temperature unit (°)
16	Indicates symbol for the vehicle cabin

3.16.2 Control

3.16.3 Switch on system

Press key 



After switching on, the control accomplishes a self-testing, the software version is displayed for about 5 sec., e.g.:



Afterwards the hours of operation of the air conditioning system are displayed for about 5 sec.: (e.g. 6 hours of operation)

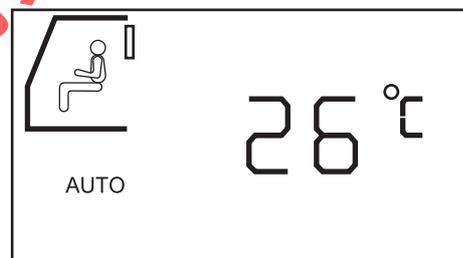


Afterwards the last saved setting is shown in the display.

3.16.4 Setting the desired cabin temperature

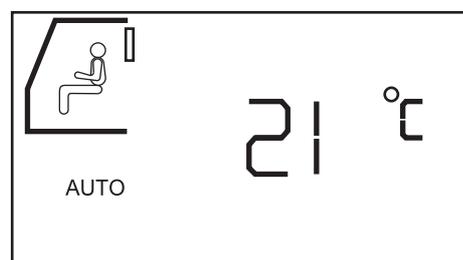
The adjusted cabin temperature in °C, e.g. 26°C is displayed.

The control is set on automatic operation.



For lowering the desired cabin temperature to e.g.

21°C press key  until the desired value is shown in the display. (press key 5 times)



3.16.5 Switching air conditioning operation on/off

Switching air conditioning on with the key .

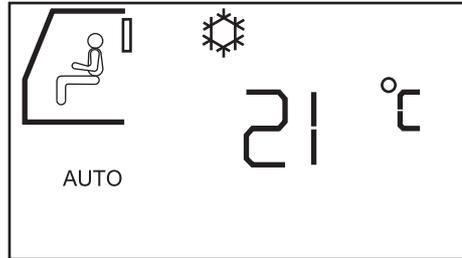
The air conditioning is now operating, this symbol  indicates the air conditioning operating.



If required, the compressor is switched on by the control.

By pressing this key  again the air conditioning is switched off.

(Compressor deactivated), symbol  is no longer shown.



3.16.6 Switching REHEAT - operation on and off

REHEAT-operation = (dehumidify cabin air)

Switching REHEAT- operation on with this key .

The following notice is shown in the display:
The REHEAT - operation is switched on now, this symbol  indicates REHEAT - operation.



**The compressor is constantly switched on. The evaporator fan speed is raised to 100%. If required, the control turns the heater on for keeping the room temperature on set value.
The REHEAT – operation is automatically limited to 10 minutes.**



By pressing this key  again, the REHEAT - operation is switched off.

This symbol  is no longer shown.

3.16.7 Manual adjustment of the evaporator fan speed

Switch on evaporator fan speed with

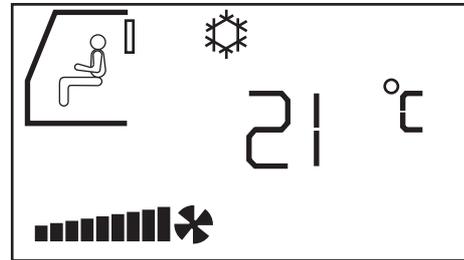
this key .

Manual setting of the fan speed is now active. The currently adjusted fan speed value is shown with this bar  (full bar = 100%).

The symbol **AUTO** is no longer shown.

Fan  flashes for 5 sec., during this time the fan speed can be raised in 10%-steps with the key 

or lowered with the key .



The lowest adjustable fan speed is 30% (three bars is shown).

By pressing the key  two times the AUTO - operation is reactivated, symbol **Auto** is shown, symbols  and  are no longer shown.

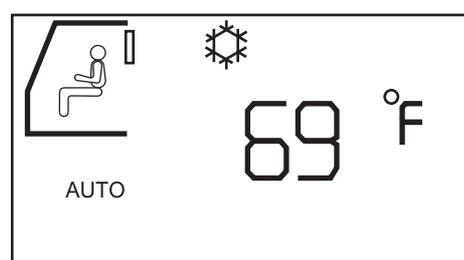
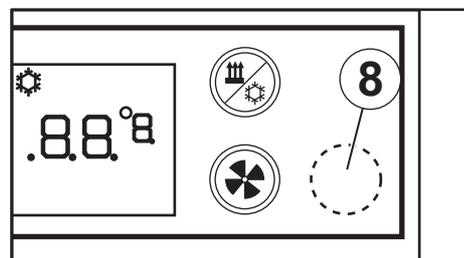
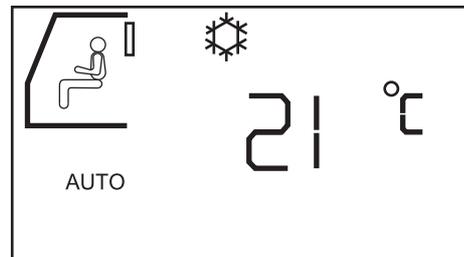
3.16.8 Switching the temperature display to ° Fahrenheit

The adjusted set temperature is shown in ° Celsius.

Keep blind key (8) pressed, **additionally** press key , display switches to ° Fahrenheit.

Adjusted set temperature is shown in ° Fahrenheit.

By pressing the key (8) and the key  again the display switches back to ° Celsius.



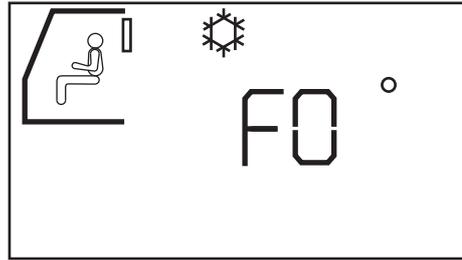
3.16.9 Showing errors on the display

Error code (F0)

Error room temperature sensor is shown with blinking display (F0) .



The control received an error of the room temperature sensor, the function is inoperable.



Cause of the sensor error:

Short circuit or interruption of the sensor line, plug connection on the sensor or control, temperature sensor damaged.

Only after eliminating the error, the control is operable again, the sensor error is no longer shown.



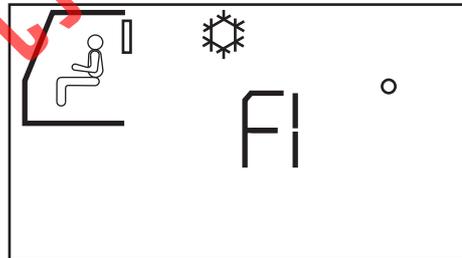
In case of an sensor error, the control keeps working with the setting which was in effect before receiving an error.

Error code (F1)

Error blow out-temperature sensor is shown with blinking display (F1).



The control received an error of the blow out-temperature sensor, the function is inoperable.



Cause of the sensor error:

Short circuit or interruption of the sensor line, plug connection on the sensor or control, temperature sensor damaged.

Only after eliminating the error, the control is operable again, the sensor error is no longer shown.

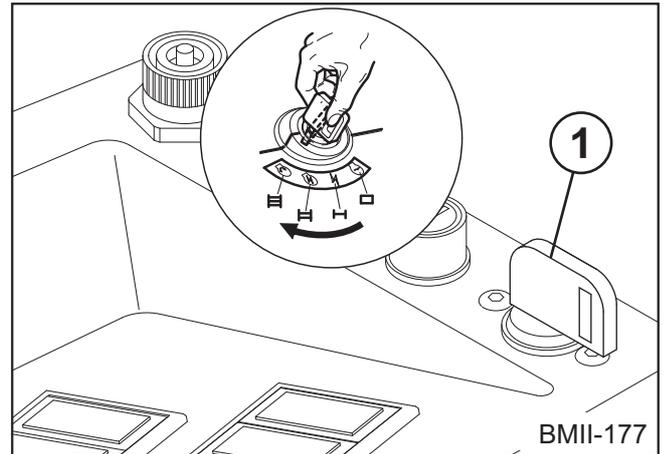


In case of an sensor error, the control keeps working with the setting which was in effect before receiving an error.

3.17 Ignition Switch

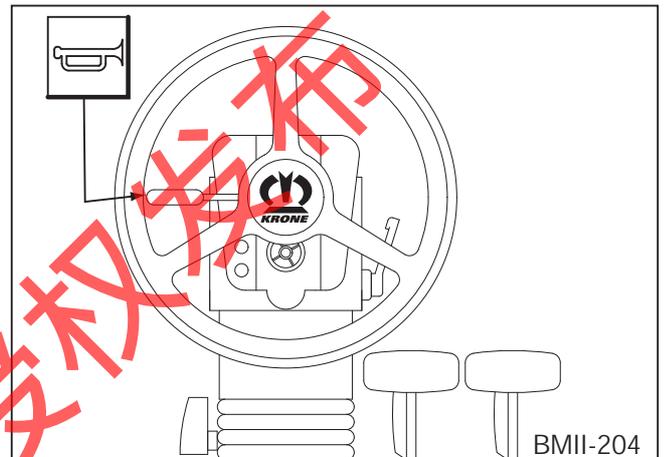
The ignition switch has 4 positions:

- 0 - Off
- I - Electrical circuit for electronics is switched on
- II - The ignition is switched on
- III - Start position



3.18 Horn

Horn sounds when the button is pressed.



3.19 Switches on Multifunction Hand- le

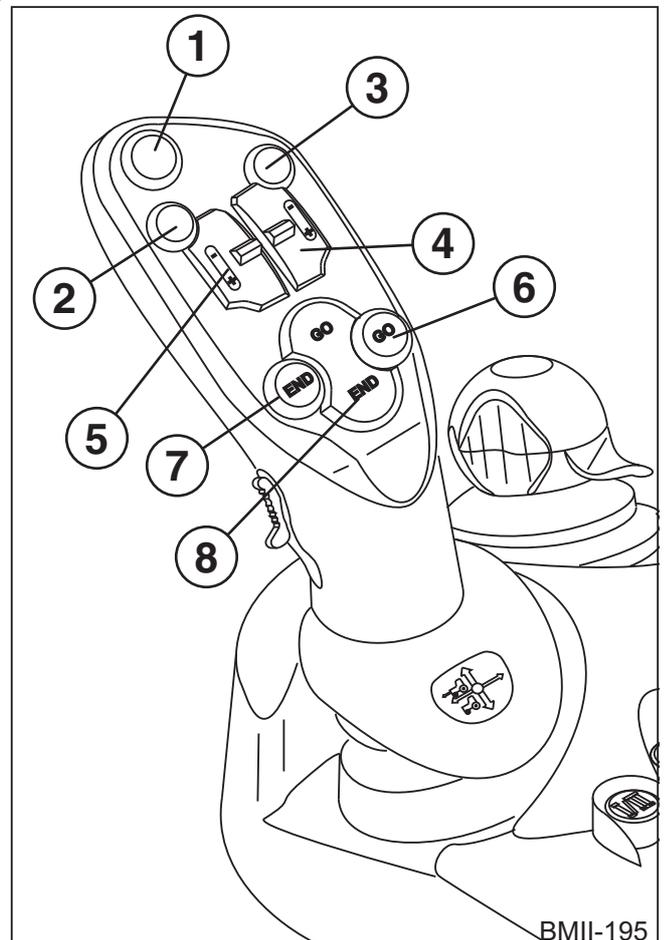
The switches 1 - 8 operate the mowers. The mowers can be raised or lowered together or individually. The switches only work when the mowers are in moving position or standby position.

- Switch (1) All mowers off
- Switch (2) pre-setting „I“ cutting height (optional)
- Switch (3) pre-setting „II“ cutting height (optional)
- Switch (4) Lift/lower right mower
- Switch (5) Lift/lower left mower
- Switch (6) Lower front mower
- Switch (7) Lift front mower
- Switch (8) Lift/lower all mowers

When the function "lift all" is activated, the mower units lift right and left after a delay of approx. 1 seconds.



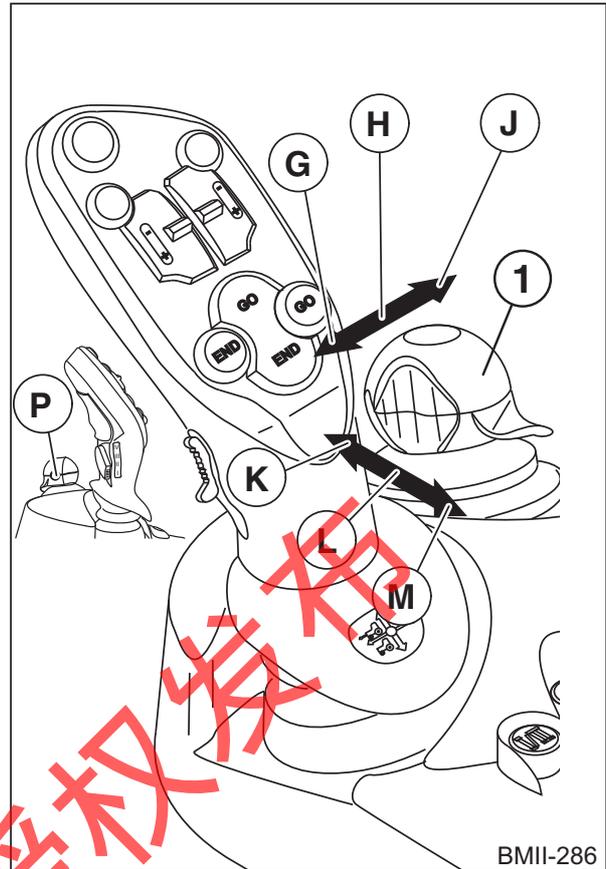
The "Lift all" function is designed for the full engine speed. If the engine speed is slower, the front cutter bar will not lift completely.



3.20 Switching the mower units

To switch the mower units, cross lever (1) must be moved in the desired direction up to the limit stop (G, J, K, M). At the same time push button „P“ must be pressed to switch on the units while cross lever (1) is moved to and fro.

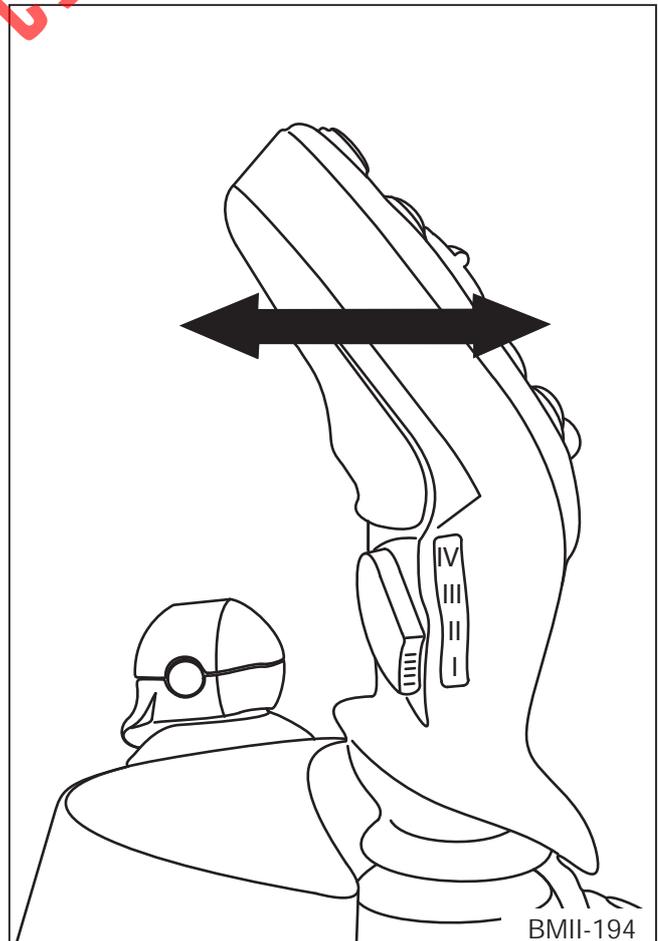
- G - Left mower on with "P" / off without "P"
- H - Central position
- J - Right mower on with "P" / off without "P"
- K - Front mower on with "P" / off without "P"
- L - Central position
- M - All mowers on with "P" / off without "P"



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3.21 Multifunction Handle as Driving Lever

The illustration shows the multifunction handle in zero position. When you push the grip forwards, the vehicle will drive forwards when a drive level is engaged. If you pull the lever backwards from the zero position the vehicle will drive backwards.



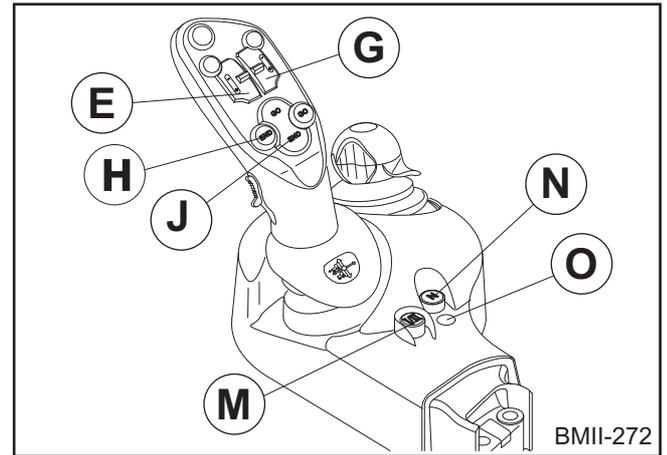
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3.22 Semi-automatic

In semi-automatic mode, the mower can be switched step by step from mowing position to standby position by using the keys (E, G, H).

With the semi-automatic switched off, when lifting, the mowers are automatically lifted from mowing position to standby position.

- The semi-automatic is activated by pressing the (N) key. (Control lamp (O) lights up.)
- By operating the (N) key again, the semi-automatic is exited and the control lamp (O) goes out.



When operating the Lift All Mowers key (J), it is not possible to lift the mowers step by step in semi-automatic mode. Even in semi-automatic mode, all mowers are automatically lifted from mowing position to standby position.

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4 Warning Devices and Monitors

4.1 Engine failure indicator light

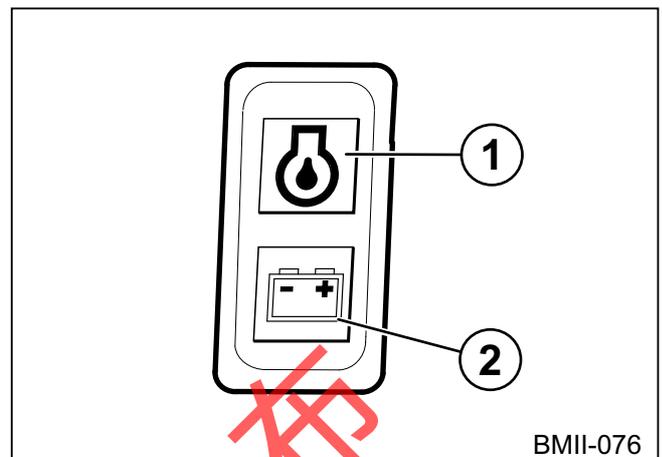
Engine failure indicator light illuminates, if trouble on the engine.

- Switch off engine immediately.
- Rectify fault.

4.2 Alternator Charging Indicator Light

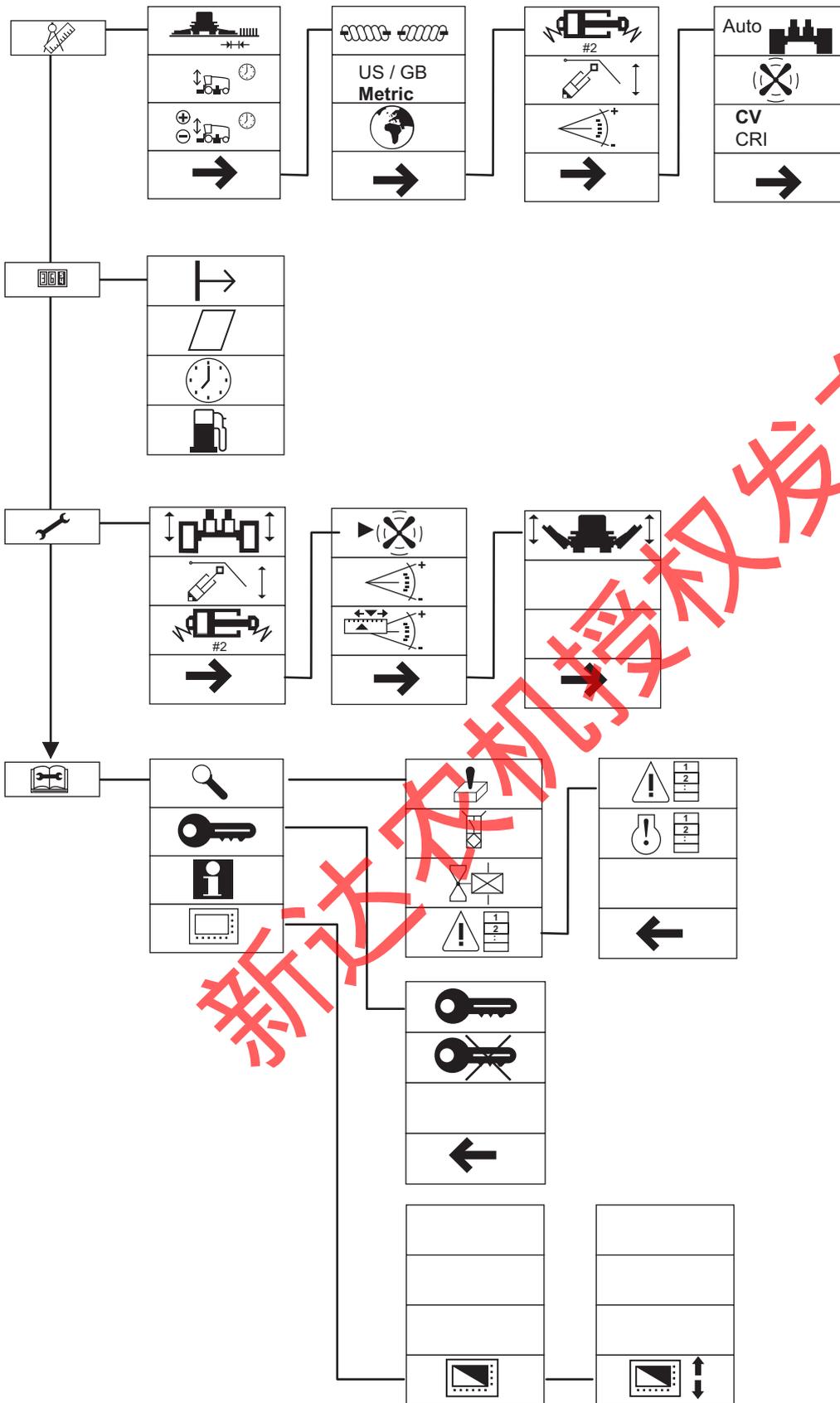
Alternator charging indicator light (2) illuminates when the output voltage from the generator is not sufficient to charge the batteries.

- Check the cables and connections on the generator and on the battery.
- Check the fan belt.



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4.3 Info Centre (Short View)

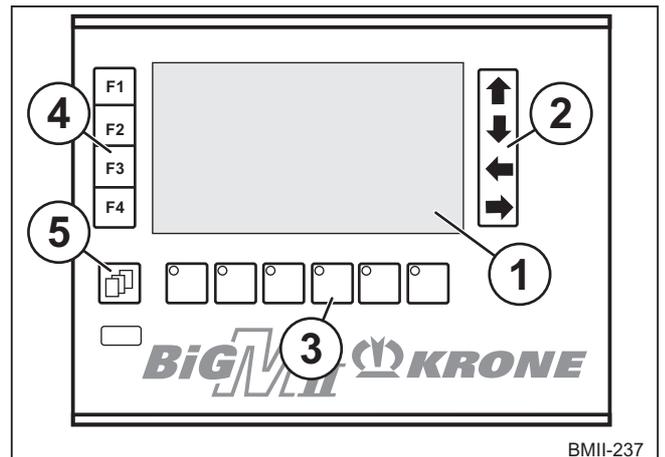


4.4 Info Centre

The Info Centre informs you of the current actions and the actual operating condition of the Big M II. Its main components are::

- 1 = Display
- 2 = Direction keys
- 3 = Selection keys
- 4 = Function keys with menu key
- 5 = Menu key / Hauptmenü ein aus

The direction keys (2) are used to influence the optional values.



4.5 Information Area

After the ignition has been switched on, the starting picture "Road driving", or "Field operation" will appear in the display.

4.5.1 Road Driving

- Forward speed (0 - 40 km/h)
- Driving direction

 = forwards
 = backwards

 40 = Stored rate for Tempomat

- Engine speed
- Cooling water temperature display
- Fuel gauge
- Lateral mower position display
- Drive level:

 = Emergency stop (allows the driver to drive the Big M out of the danger zone, even with severe drive problems.)

N = Automotive drive release switch not activated

 = Field operation stage (switch-over only after machine has come to a standstill)

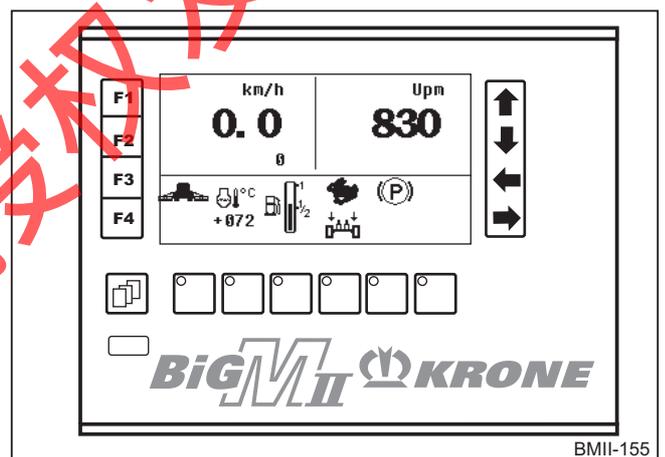
 = Road driving stage (switch-over only after machine has come to a standstill)

 = Parking brake is engaged

 = Failure message

 = Axle suspension (rapid access is by pressing a key)

 **When driving on roads the engine speed is controlled automatically by the driving computer-**



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4.5.2 Field Operation

- Forward speed (0 - 17 km/h)
- Driving direction:

 = forwards

 = backwards

 12 = Stored rate for Tempomat

- Mower speed
- Engine speed
- Cooling water temperature display
- Fuel gauge
- Lateral mower position display
- Drive level:
- Auger rotation speeds (optional)

 = Emergency stop (allows the driver to drive the Big M out of the danger zone, even with severe drive problems.)

N = Automotive drive release switch not activated

 = Field operation stage (switch-over only after machine has come to a standstill)

 = Road driving stage (switch-over only after machine has come to a standstill)

 = Parking brake is engaged

 = Axle separation is activated

 bar = Hydraulically adjustable lateral spring suspension activated, with 1 cylinder (linked on the side)
Spring compensation pressure display (optional)

 = Hydraulically adjustable lateral spring suspension activated, with 2 cylinders (separated on the side)
Spring compensation pressure display (optional)

 = Failure message

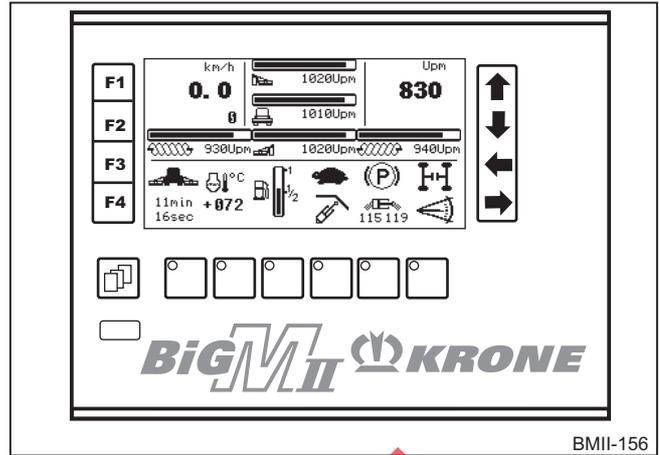
 = Hydraulically adjustable cutting height activated (optional)

 = Hydraulic auger hood activated (optional)

 = manual fan reversing

x min
x sec = Maximum time until the next fan reversal in automatic mode

 **During field operation the driver has the possibility to adjust the engine speed using the arrow up/down keys (2) in tapping operation.**



4.6 Function Area

The menu key (1) is used to access and close the main menu

The individual menu entries are:

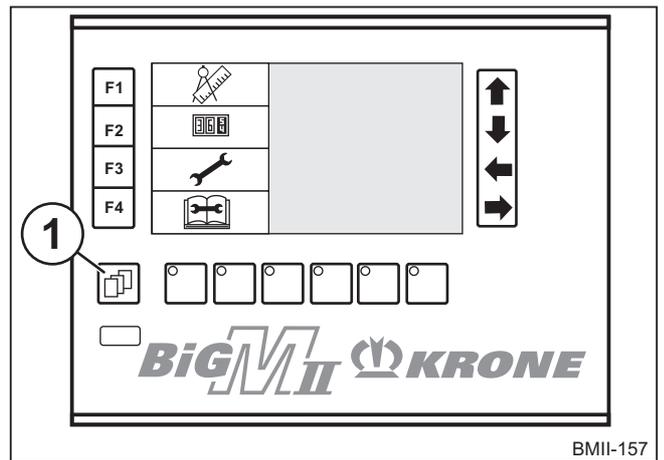
F1 = Settings

F2 = Meters

F3 = Manual operation

F4 = Service

called up using the function keys F1 - F4.



4.6.1 (F1) Settings

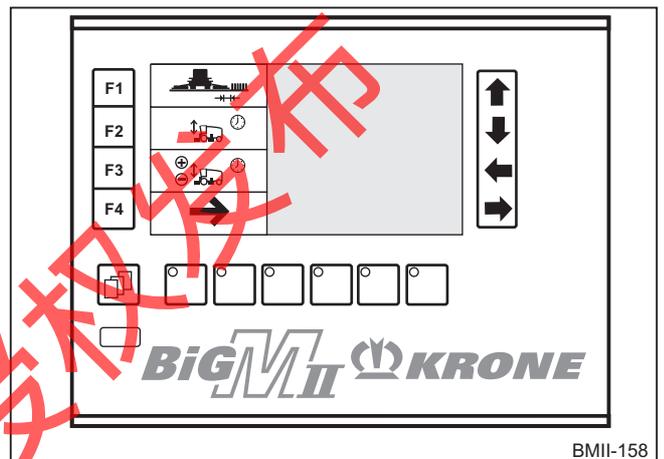
The settings are accessed using the function keys:

F1 = Set overcut

F2 = Select time/distance control (lift or lower all mowers)

F3 = Fine adjustment of the selected function (for F2)

F4 = Next page



4.6.1.1 (F1) Set overcut

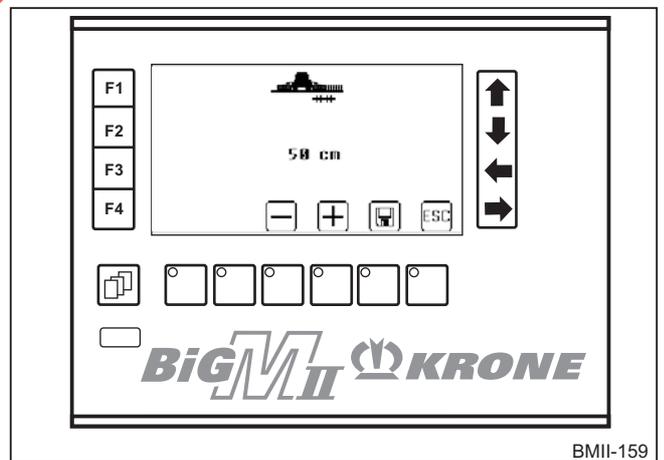
Display in cm

 = Increase overcut

 = Decrease overcut

 = Accept value and exit screen

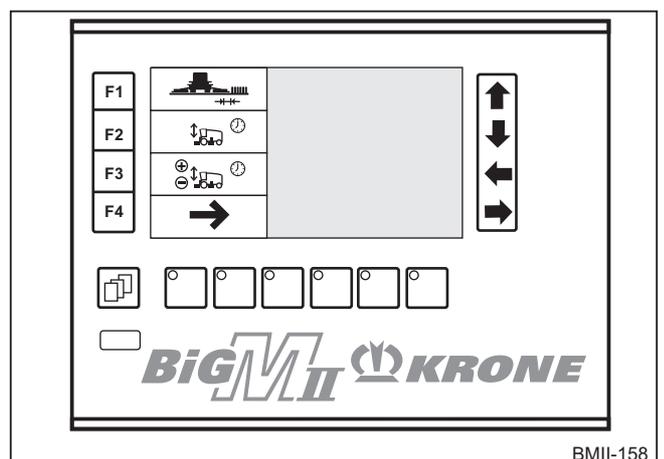
 = Discard change and exit screen



4.6.1.2 (F2) Select time/distance control

 = Distance control (lift / lower mowers)

 = Time control (lift / lower mowers)



4.6.1.3 (F3) Fine adjustment of the selected function (F2)

The (F3) function key is used for fine adjustment of the time/distance control.

Time control:

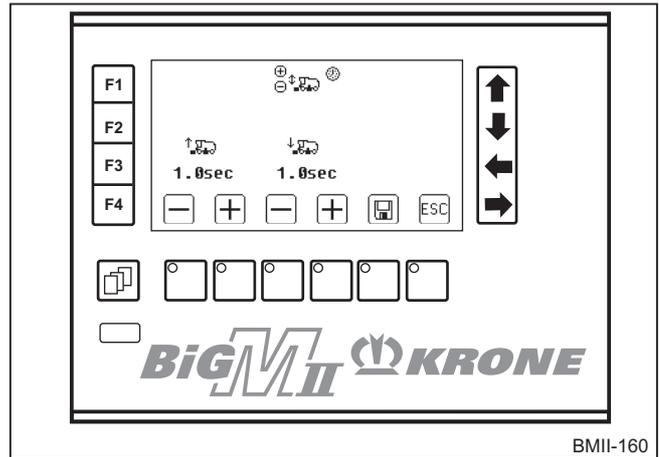
- = Increase/decrease time interval for lifting all mowers
- = Increase/decrease time interval for lowering all mowers

- = Accept value and exit screen
- = Discard change and exit screen

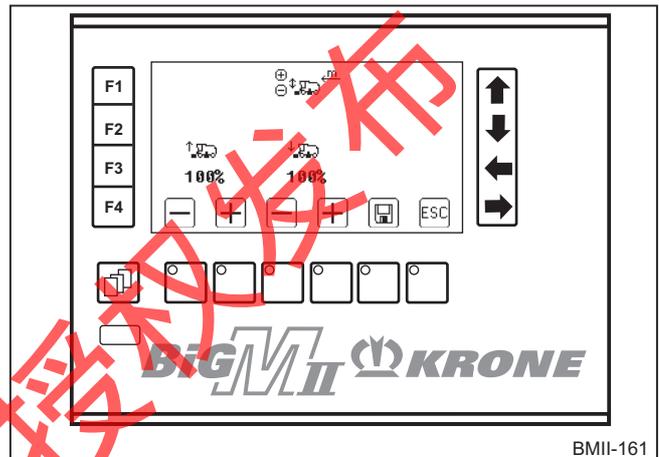
Distance control:

- = Increase/decrease distance for lifting all mowers
- = Increase/decrease distance for lowering all mowers

- = Accept value and exit screen
- = Discard change and exit screen



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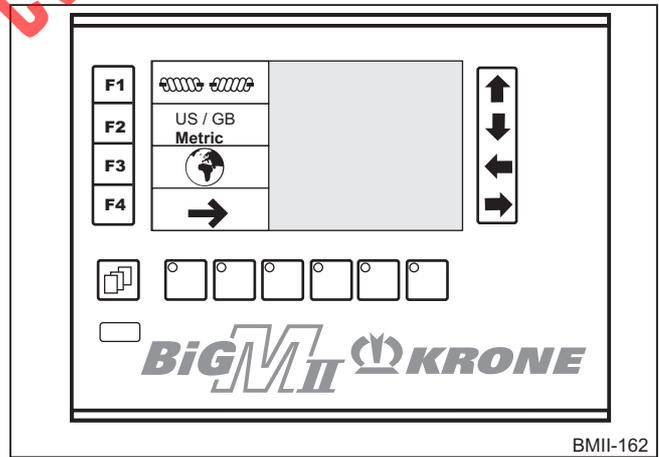
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4.6.1.4 (F4) Next page

The settings are accessed using the function keys:

4.6.1.5 (F1) Auger monitoring

- F1 = Both augers on
- Right auger on
- Left auger on
- Both augers off



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4.6.1.6 (F2) Select (US _ GB / Metric)

F2 = Select Metric

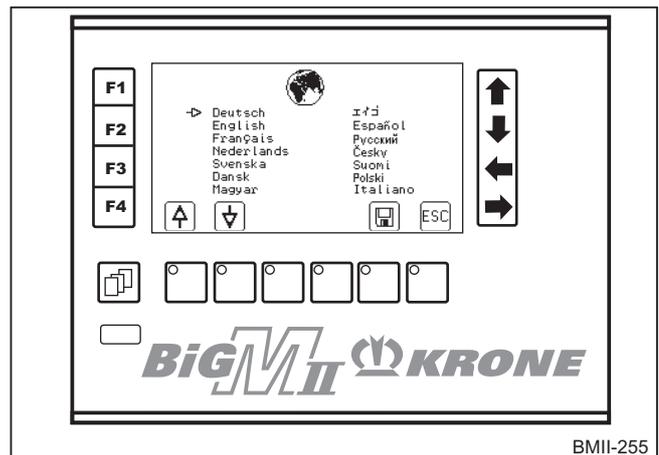
Select US / GB

4.6.1.7 (F3) Select language

F3 = Select language

Use the or selection keys to select the language desired.

- = Accept language and exit screen
- = Reject change and exit screen



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4.6.1.9 (F1) Hydraulically adjustable lateral spring suspension (optional)

You can use the (F1) function key to switch the spring suspension on or off.



= Hydraulically adjustable lateral spring suspension, switched on with 1 cylinder (linked on the side)



= Hydraulically adjustable lateral spring suspension activated, switched on with 2 cylinders (separated on the side)



= Hydraulically adjustable lateral spring suspension switched off.

4.6.1.10 (F2) Hydraulic auger hoods (optional)

You can use the (F2) function key to switch the auger hood on or off.



= Hydraulic auger hood switched on



= Hydraulic auger hood switched off

4.6.1.11 (F3) Hydraulically adjustable cutting height (optional)

You can use the (F3) function key to switch the cutting height on or off.

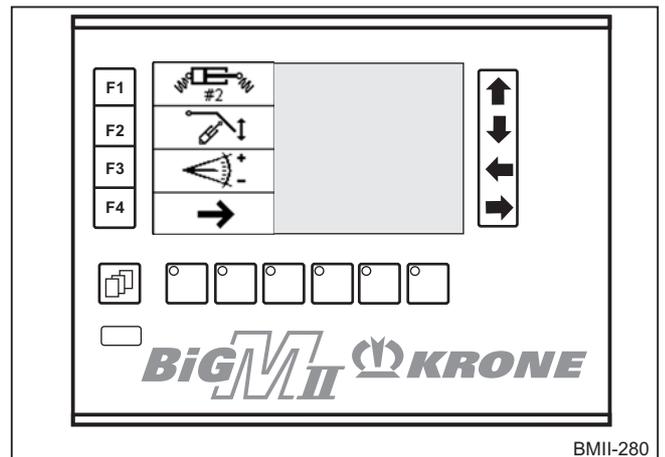


= Hydraulically adjustable cutting height switched on



= Hydraulically adjustable cutting height switched off

4.6.1.12 (F4) Next page



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4.6.1.13 (F1) Semi-autom. / autom. lifting mechanisms for front axle

The function button (F1) is used to switch on/off the automatic and semi-automatic lifting mechanisms for the front axle on the headland position.



= The semi-autom. and autom. lifting mechanisms for the front axle are switched off.



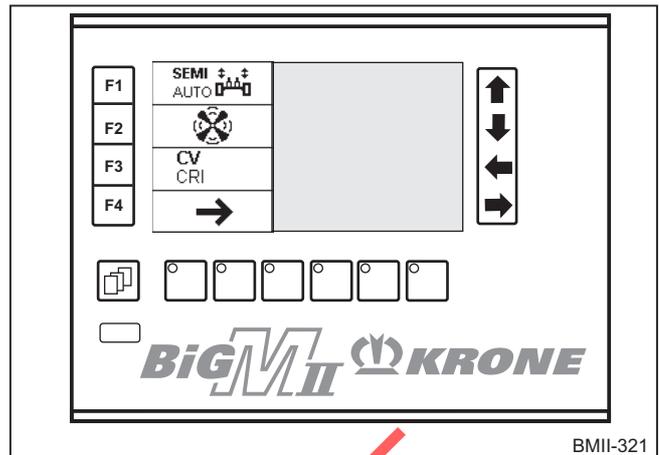
=The semi-autom. lifting mechanism for the front axle is switched on. The semi-automatic lifting mechanism moves the front axle into the operating position as soon as at least one mowing unit drive is connected.



= The autom. lifting mechanism for the front axle is switched on. The automatic lifting mechanism moves the front axle into the operating position:

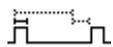
- as soon as at least one mowing unit drive is connected or
- a mowing unit is lowered from the headland position into the operating position.

In addition, the automatic lifting mechanism lifts the front axle again as soon as the „lift all mowing units“ function is actuated on the multi-function lever.

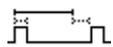


4.6.1.14 (F2) Adjust fan reversing

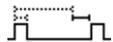
This option allows you to adjust the switch-on time of the compressor, the period time and the window time.



= Switch-on time of the compressor (how long the compressor will be controlled)



= Period time



= Window time

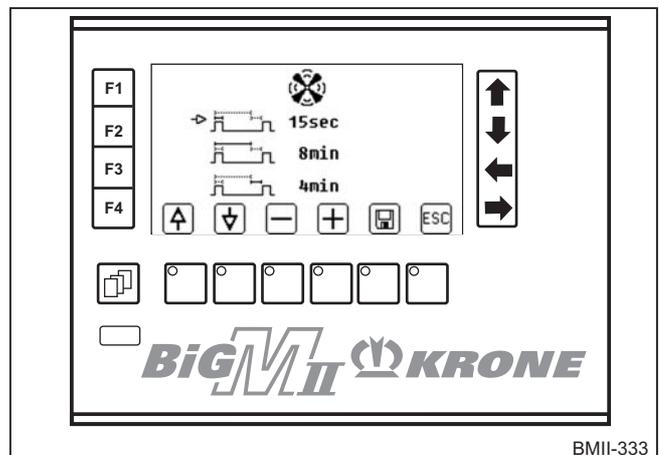
Use the  or  selection keys to jump to the desired line.

 = Increase time

 = Reduce time

 = Accept value and exit screen

 = Reject changes and exit screen

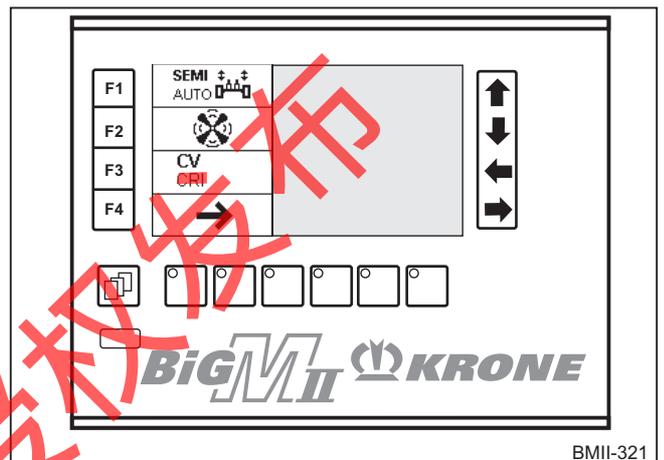




The amount of time until the compressor turns on is derived by combining the period time and the window time.
 If the „Lift mowers“ function is initiated within the window time, the compressor is controlled and the time interval starts again from the beginning.

4.6.1.15 (F3) Select (CV_CRI)

- F3 = CV
- CRI** Select CRI
- CRI**
- CV** Select CV



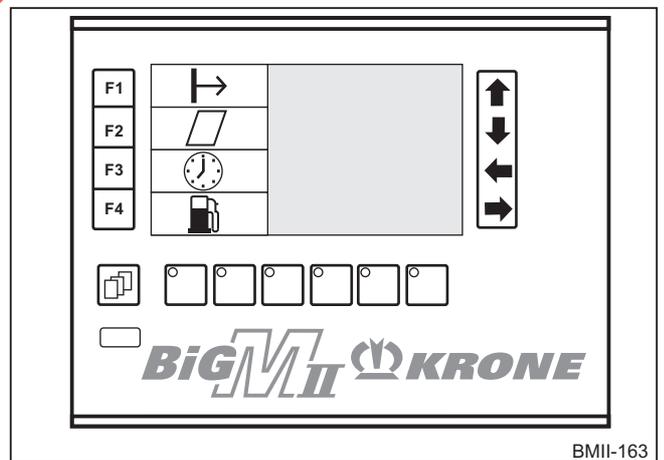
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4.6.1.16 (F4) Next page

4.6.2 (F2) Meters

The meters are accessed using the function keys.

- F1 = Odometer
- F2 = Acreage meter
- F3 = Hour meter
- F4 = Diesel consumption

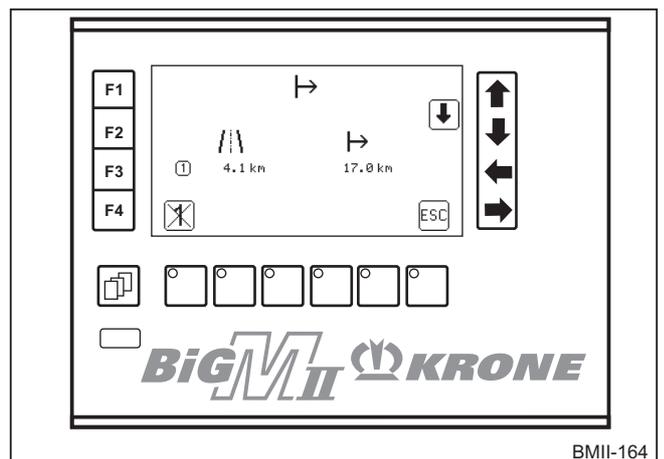


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4.6.2.1 (F1) Odometer

Display of the overall distance driven.

-  = Display of the total distance driven
-  = Displays the total number of road kilometres driven
-  = Reset road kilometres display
-  = Go to the acreage meter
-  = Exit screen

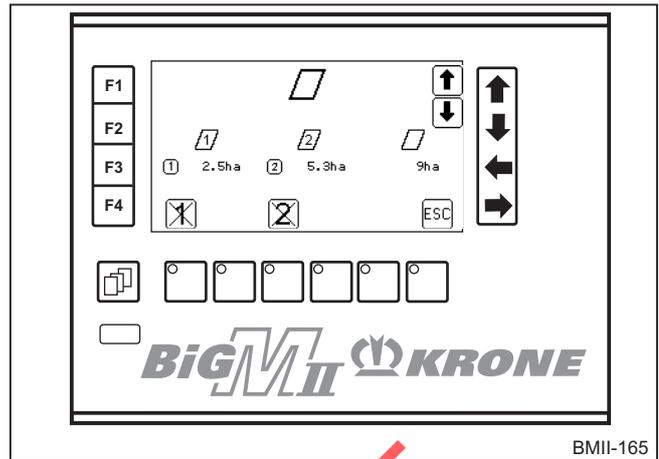


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4.6.2.2 (F2) Acreage meter

Displays the covered acreage for the day/cut/total.
The day and cut acreage can be reset.

-  = Go to odometer
-  = Go to hour meter
-  = Display day acreage
-  = Reset day acreage
-  = Display cut acreage
-  = Reset cut acreage
-  = Display total acreage
-  = Exit screen

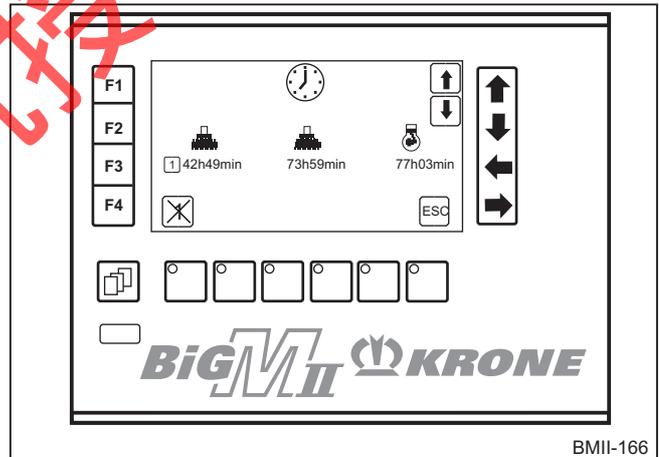


The acreage is only metered while the mower is lowered.

4.6.2.3 (F3) Hour meter

Display of day/working/operating hours.
The day's hours can be reset.

-  = Go to acreage meter
-  = Switch to Diesel Consumption
-  = Display working hours
-  = Reset day hours
-  = Display working hours
-  = Display operating hours
-  = Discard changes and exit screen.



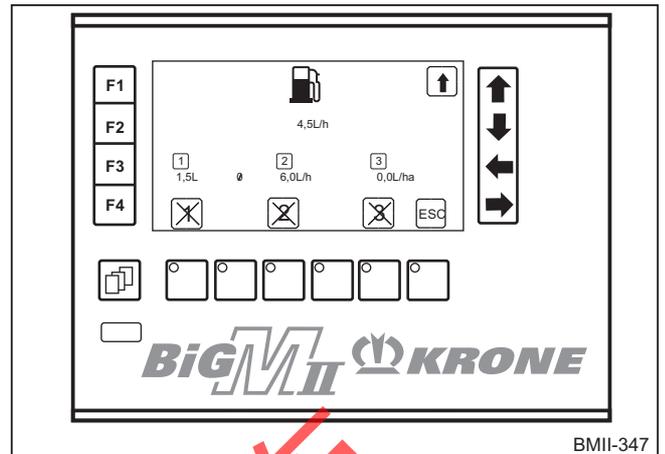
Operating hours are only metered while the engine is running.

Day and working hours are metered as soon as one or several mowers are operating.

4.6.2.4 (F4) Diesel Consumption

-  = Go to hour counter
 1 = Daily consumption in litres (can be deleted)
 2 = Average daily consumption in litres/hour (can be deleted)
 3 = Daily consumption in litres/hectare (can be deleted)

-  = Reset daily consumption in litres
 = Reset average daily consumption in litres/hour
 = Reset daily consumption in litres/hectare
 = Discard changes and exit screen.



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4.6.3 (F3) Manual operation

The settings are accessed using the function keys:

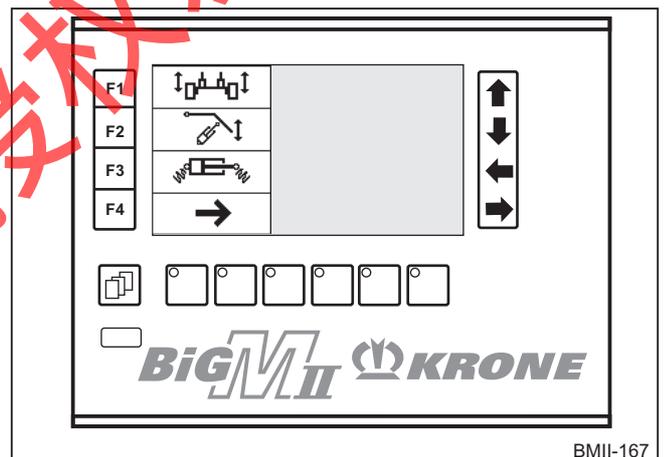
- F1 = Axle spring manual operation
 F2 = Auger hood manual operation (option)
 F3 = Spring compensation manual operation (option)
 F4 = next page

4.6.3.1 (F1) Manual mode - hydraulic axle suspension

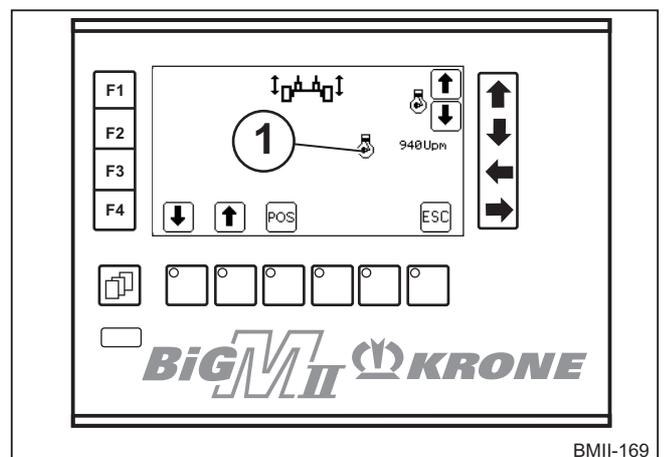
When driving on public roads, lower the front axle to achieve a transport height of max. 4 m.

- (1) = Display engine speed

-  = Increase engine speed
 = Reduce engine speed
 = Lower axle spring mounting
 = Raise axle spring mounting
 = Move to mowing position
 = Exit screen



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4.6.3.2 (F2) Manual operation- hydraulic auger hood (optional)

- (1) = Display engine speed
- = Increase engine speed
- = Reduce engine speed
- = Auger hood close
- = Auger hood open
- = Exit screen



Do not reach under the open auger hood!



When folding in the lateral mowers, the auger hoods are closed automatically to prevent a collision with the rear wheel.

Make sure that the auger hood closes correctly.

4.6.3.3 (F3) Manual mode - hydraulically adjustable spring suspension (optional)

- = Pressure reduce
- = Pressure increase
- = Exit screen

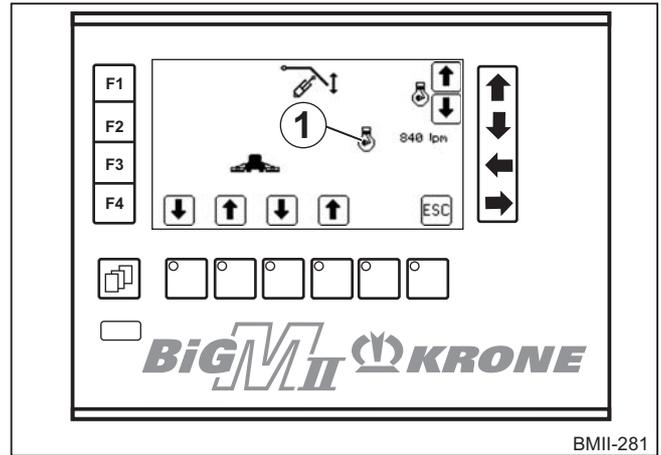


To set the pressure lower both lateral mowers to the ground and set the front axle to working position.

- = Retrieve pre-setting I
- = Save pre-setting I
- = Retrieve pre-setting II
- = Save pre-setting II

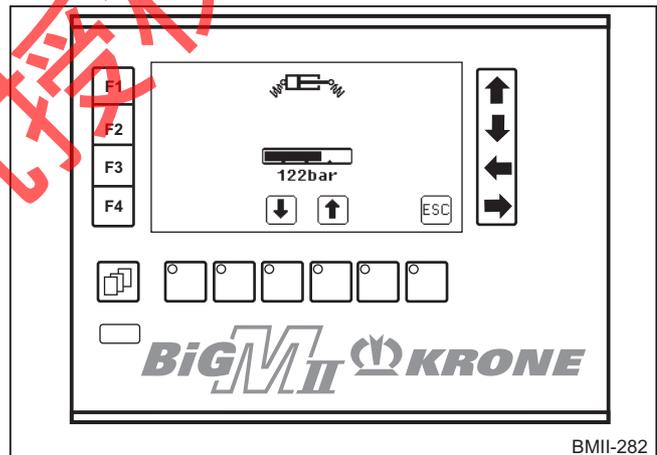


Different side mower weights for the CRI-BSS:
 The weight of the right Cri mowing unit including the auger is greater than the weight of the left Cri mowing unit including the auger. The reason for this has to do with the drive sequence. Because of this, the relief pressure must be set about 5 bar higher for the „adjustable lateral spring compensation“ option (2-cylinder relief) on the right.



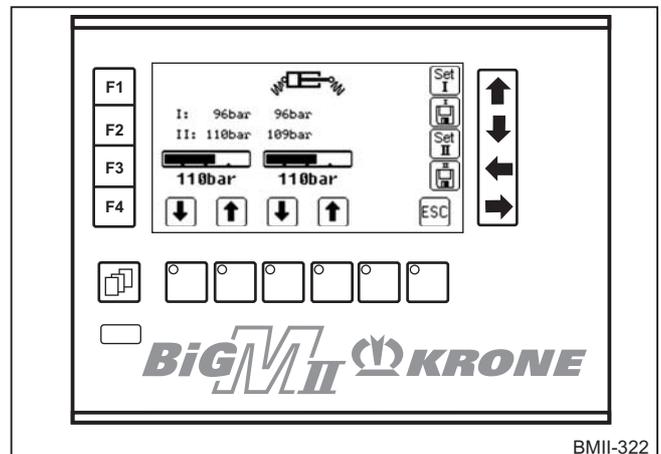
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linked on the side



BMII-282

separated on the side



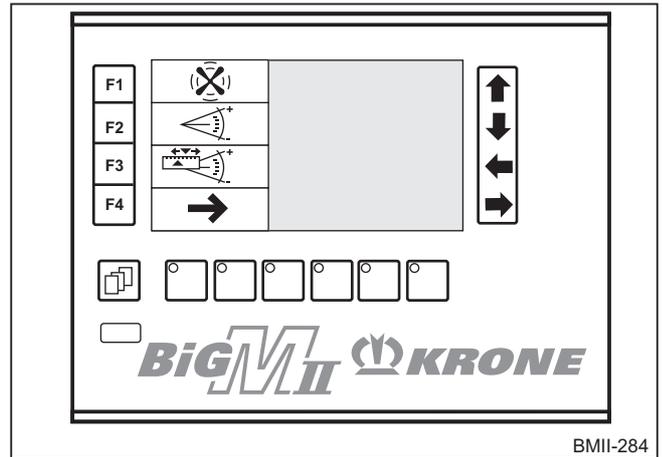
BMII-322

4.6.3.4 (F4) Next page

4.6.3.5 (F1) Fan reversal Manual mode

The fan reversal can be switched on manually.

- With major soiling it possible to clean the screen in between by switching on the fan reversal.
- Before driving on public roads the screen must be cleaned by swithcing on the fan reversal.



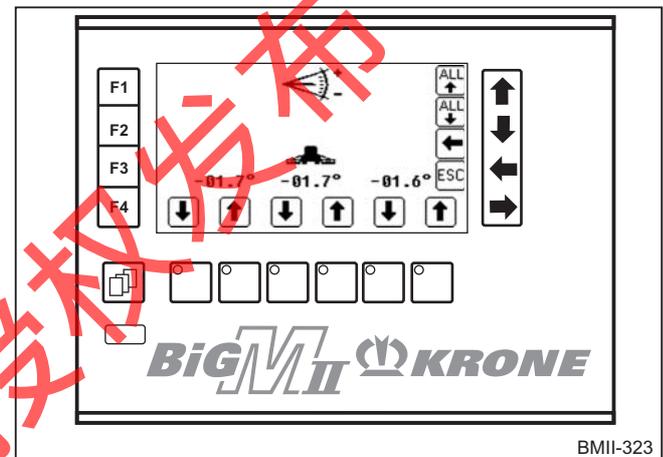
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4.6.3.6 (F2) Manual mode - hydraulically adjustable cutting height (optional)

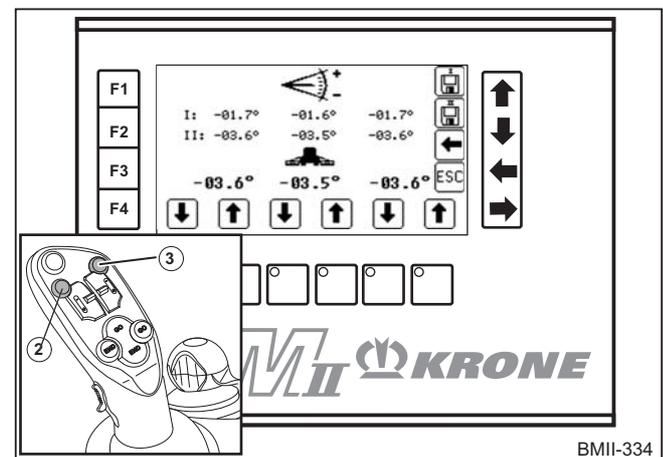
- = Reduce inclination (single mowing unit)
- = Increase inclination (single mowing unit)
- = Reduce inclination (all mowing units)
- = Increase inclination (all mowing units)
- = Exit screen

- = Change mode
- = Save pre-setting I cutting height
- = Save pre-setting II cutting height

Activating switches (2,3) on the multifunction lever retrieves the pre-settings for cutting height I or II



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4.6.3.7 (F3) Calibrating the Sensors

The sensors have been adjusted to record cutting height in the factory. Heavy demand and the setting of components may cause an offset in the cutting pattern of the right / left and front cutter bar. If this happens, the sensors must be recalibrated.

To do this:

- Move the hydraulic axle suspension into the mowing position.
- Move the 3 mowing units into work position (float setting)

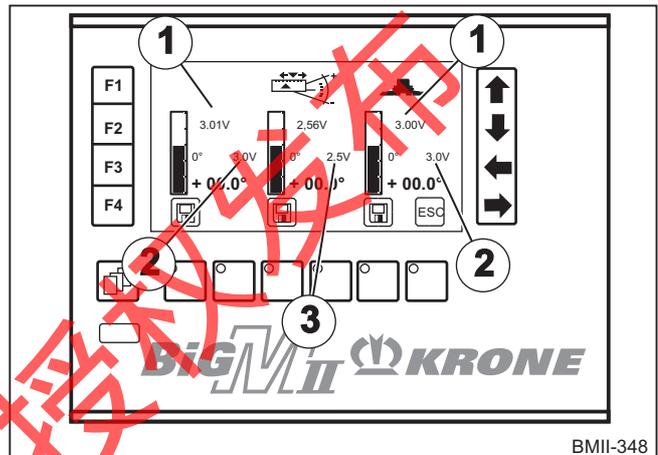
Adjust all cutter bars to 0°

To do this:

- Place a manual spirit level on the cutter bars and align the cutter bar horizontally with the display (cutting height).
- The angle of rotation sensors on the right and left mowing unit can be loosened and moved up and down in the slot. Do this until a value (1) of about 2.9 V to 3.1V appears in the display (calibration screen).
- Screw the angle of rotation sensors tightly into place.

Accept sensor value (2) for an inclination of 0°

Save the sensor value (3) for the front mowing unit (the sensor for the front mowing unit is adjustable).

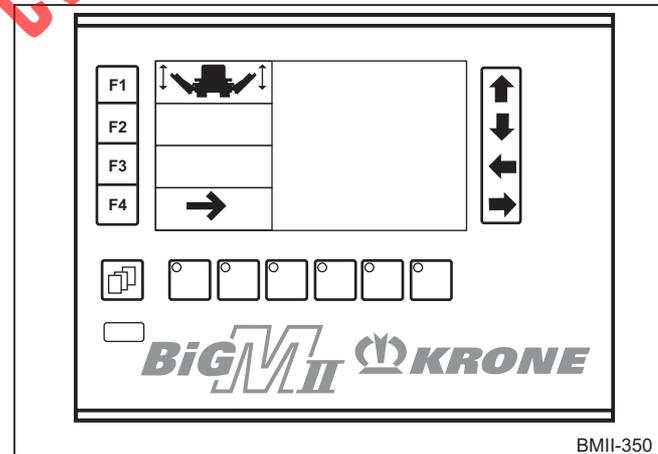


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4.6.3.8 (F1)Cutter bar manual operation

F1 = Cutter bar manual operation

F4 = Next page



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4.6.3.9 (F2) Cutter bar manual operation

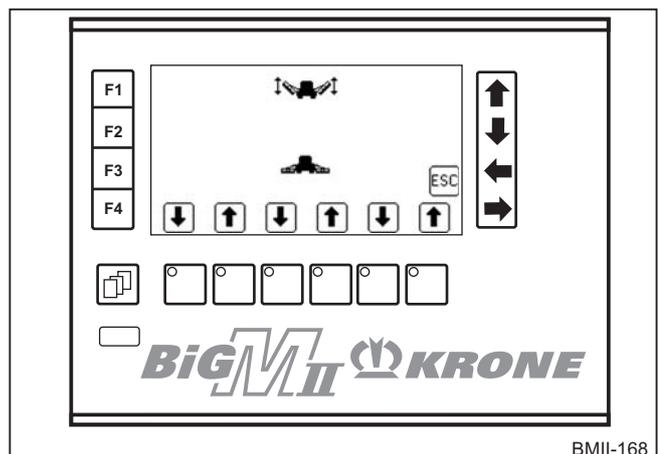
= Lower cutter bar

= Raise cutter bar

= Close screen

F4 = Back paging

Lifting/lowering the mowing arm is inching, in other words there is no float position for lower mower.



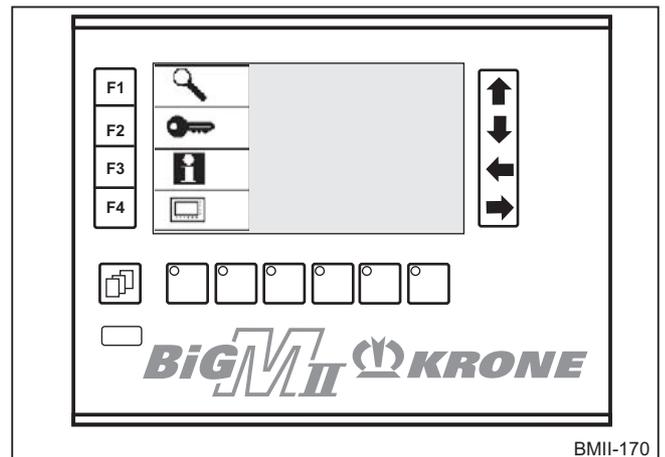
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4.6.3.10 (F4) Next page

4.6.4 (F4) Service

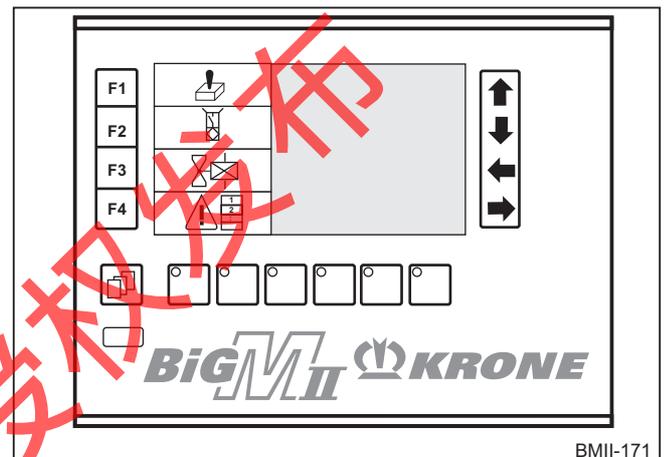
The Service menus are accessed using the function keys:

- F1 = Diagnose
- F2 = Krone-Service (protected)
- F3 = Info
- F4 = Terminal



4.6.4.1 (F1) Diagnosis

- F1 = Multifunctionlever test
- F2 = Sensor test
- F3 = Valve test
- F4 = Fault list



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4.6.4.1.1 (F1) Multifunction lever test

This menu item allows you to test the functions of the multi-function lever.



The multi function test can only be accessed when the automotive drive is switched off (position II) (see chapter 3.9).

Overview:

- (1) Driving lever, forwards / backwards
- (2) Driving lever, left / right
- (3) Mower drives lever, left / right
- (4) Mower drives lever, forwards / backwards
- (5) Start Automotive Drive toggle switch
- (6) Mower Release button
- (7) Acceleration Profile switch, stages I to IV

As long as a movement at the driving lever (1,2) or the mower drives lever (3,4) is being held, the corresponding switch condition indicator (1-4) on display of the multifunction lever test must appear highlighted with a black background, e.g.:

- Move driving lever forwards.

The arrow pointing upwards (1) must be highlighted with a black background.

At the same time, the rectangle displayed in the centre of the arrow cross changes from black to white.



If a fault has occurred, one of the following symbols appears on the display instead of the indicators with the black background.



Broken cable



Short circuit



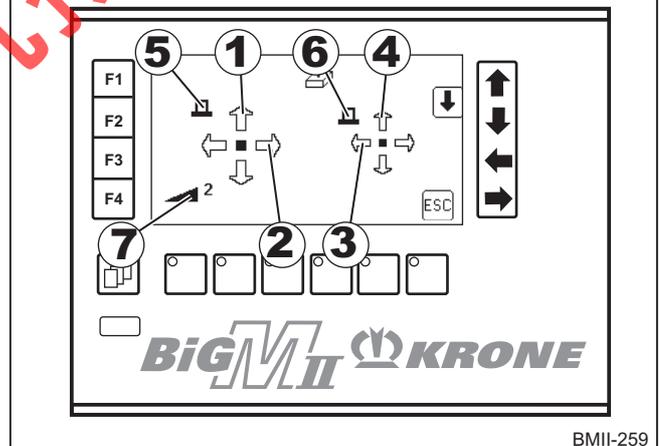
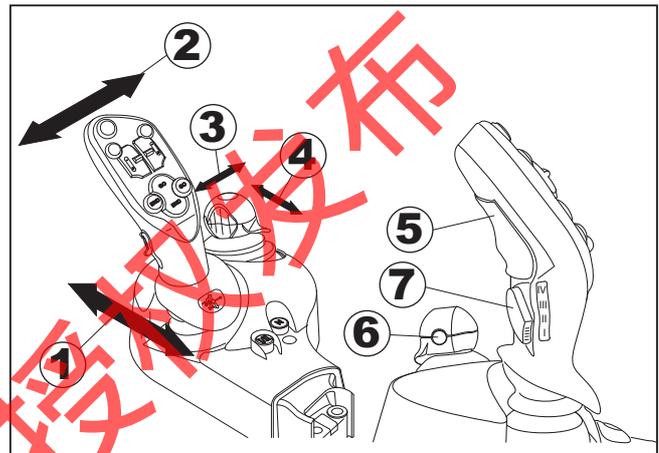
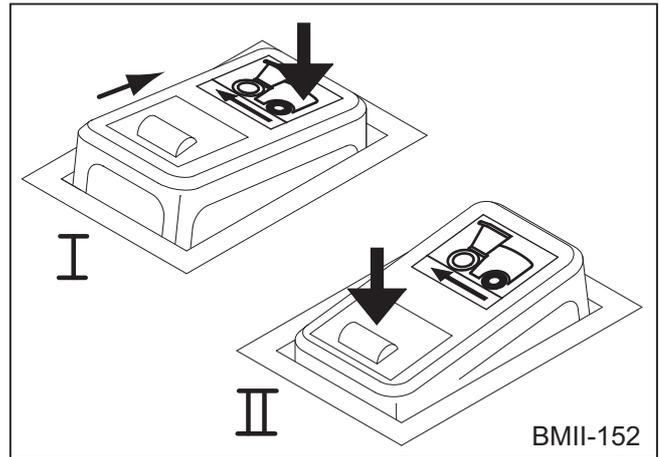
Because the mower drives lever has two steps, the indicators for the switch condition (the arrows) change from black to white in two steps.

Step 1 (←)

Step 2 (←)

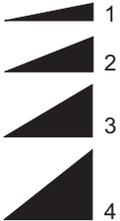
As long as the individual function (5,6) is being held at the driving lever, the corresponding switch condition indicator (5,6) on screen I of the multifunction lever test must appear highlighted with a black background.

- Start Automotive Drive toggle switch (5)
- Mower Release button (6)



- Step by step, operate the acceleration profile selection switch (7) on the rear of the driving lever from stage I to stage IV.

Depending on the acceleration profile selected, the triangle icon (7) must change its shape. To the right of the triangle the number of the selected acceleration profile is displayed.



Use the  key to go to the next screen.

Use the  key to back to the Road/Field main screen.

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This screen allows you to test the functions of the driving lever head and all other functions of the multi-function lever.

Overview:

- (1) All mowers off
- (2) Retrieve pre-setting I cutting height
- (3) Retrieve pre-setting II cutting height
- (4) Lift / lower left mower
- (5) Lift / lower right mower
- (6) Lift front mower
- (7) Lift / lower all mowers
- (8) Lower front mower
- (9) Additional function for buttons 4 and 5
- (10) Semi-automatic (locking)

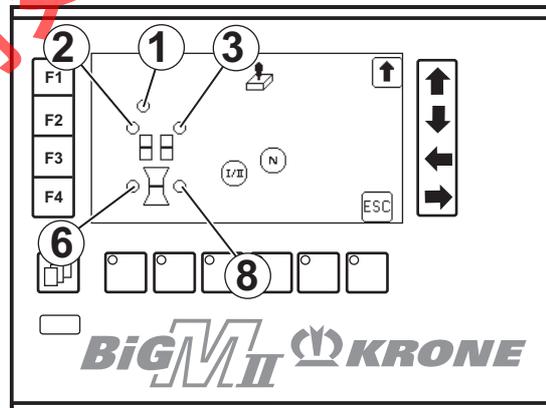
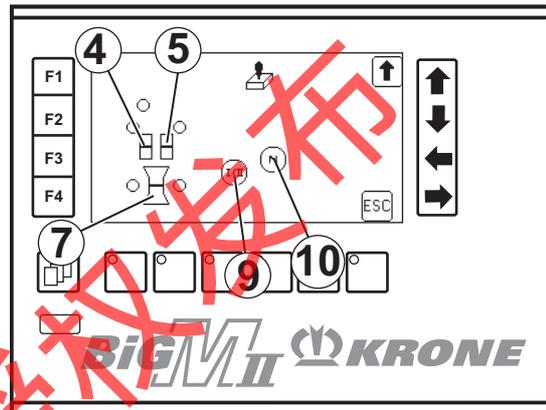
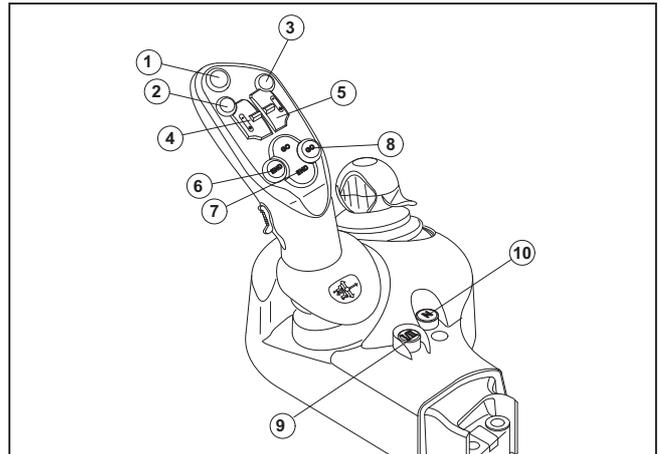
As long as the individual function is being held at the toggle buttons (4,5,7), the corresponding switch condition indicator (4,5,7) on the display must be highlighted with a black background, e.g.:

- Press the upper half of the Left Mower toggle button (4).

While the toggle button is pressed, the upper half of the indicator (4) must appear highlighted with a black background.

While the individual function is being held at the button (1-3, 6, 8-10), the corresponding switch condition indicator on screen II of the multifunction lever test must change to black, e.g.:

- Press All Mowers Off button (1)
While the button is pressed, the switch condition indicator (1) must change to black.
- One by one also press the other buttons (2, 3, 6 and 8-10) and check for correct change of colour!



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Use the  key to go to the previous screen.

Use the  key to back to the Road/Field main screen.

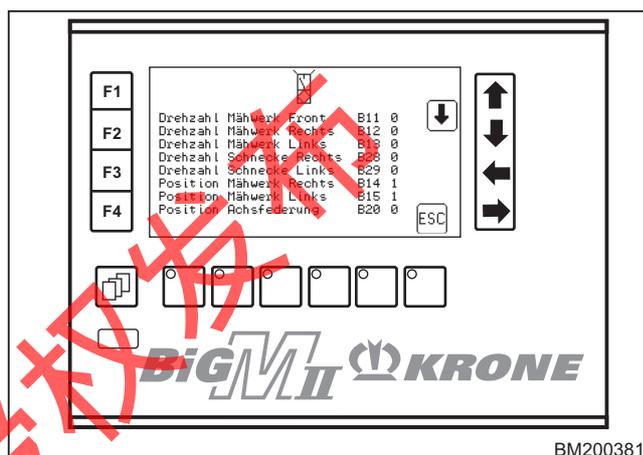
4.6.4.1.2 (F2) Sortertest

This screen allows you to test the functioning of all machine sensors.



If a fault has occurred, one of the following icons appears instead of the current state ("1", "0" or "ok"):

-  Broken cable
-  Short circuit
-  Other fault



BM200381

speed mower front	B11	0 or 1
speed mower right	B12	0 or 1
speed mower left	B13	0 or 1
speed merger right	B28	0 or 1 only if installed, otherwise broken cable icon
speed merger left	B29	0 or 1 only if installed, otherwise broken cable icon
position mower right	B14	0 (transport position); 1 (mowing position)
position mower left	B15	0 (transport position); 1 (mowing position)
position axle suspension	B20	0 (axle above sensor); 1 (axle below sensor)

Use the  key to go to the next screen

Use the  key to back to the Road/Field main screen.

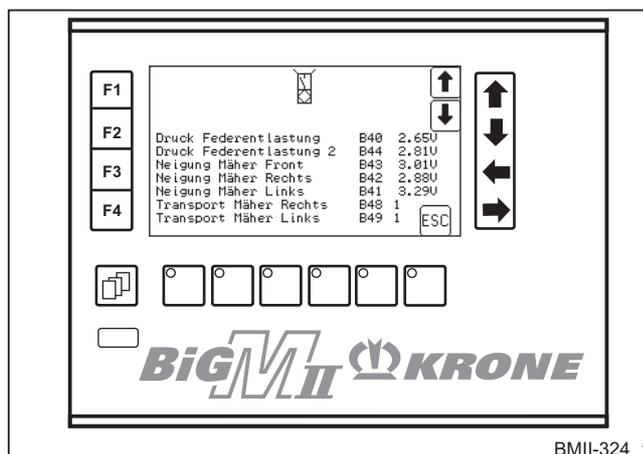
Pressure of spring relief mechanism (optinal*)	B40	1 - 5 V
Pressure of spring relief mechanism 2 (optinal*)	B44	1 - 5 V
Inclination of mower front (optinal*)	B43	0.8 – 5.2 V
Inclination of mower right (optinal*)	B42	0.8 – 5.2 V
Inclination of mower left (optinal*)	B41	0.8 – 5.2 V
Transport mower left	B48	0 oder 1
Transport mower right	B49	0 oder 1

• Only if attached, otherwise 0 V

Use the  key to go to the next screen.

Use the  key to go to the previous screen.

Use the  key to back to the Road/Field main screen.



BMII-324_1

		Engine running	Ignition only
brake accu. pressure	B25	0	0 or 1
brake pedal	B16	1	1
service brake pressure	B22		
parking brake pressure	B24	0 or 1	0 or 1

- The pressure value in the **Service Brake Pressure** display should be approximately between 0 and 120 bar.

Use the key to go to the next screen.

Use the key to go to the previous screen.

Use the key to back to the Road/Field main screen.

		Engine running	Ignition only
hydraulic oil level	B33	0	0
hydraulic oil temperature	B5	0	0
high pressure	B7		
Pump 1 Feedback	B38		
Pump 2 Feedback	B39		
charge pressure	B9	1	
filter pressure control	B10	0	0
Fault Central lubrication	BM9	0	0

- For the high-pressure sensor, the **High-Pressure** value should be approximately between 0 to 430 bar.
- The current value on the display for the Pump 1 Feedback and the Pump 2 Feedback must be in the range of between 2.49 and 2.51 volts.

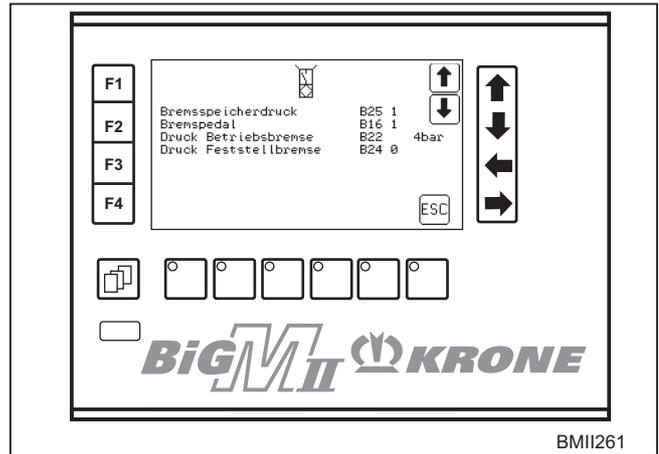


Only when the Automotive Drive Release switch is turned off (position II) (see chapter 3.9), are the current values of the pump feedback of the pumps 1 and 2 displayed, otherwise only a dummy value of 0 V is displayed.

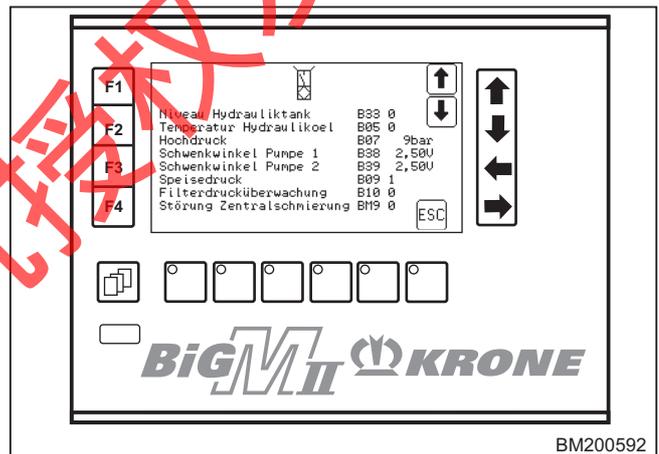
Use the key to go to the next screen.

Use the key to go to the previous screen.

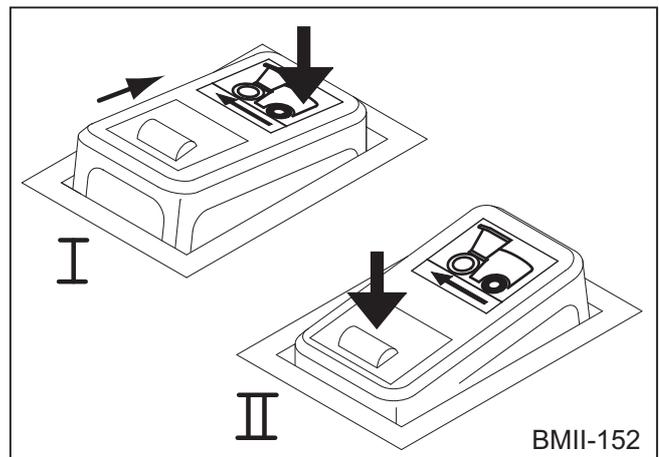
Use the key to back to the Road/Field main screen.



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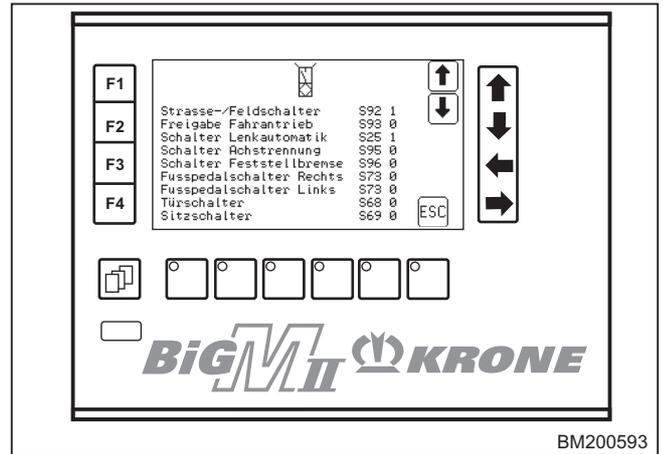
BM200592



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This screen checks the states of the switches in the console.

Switch	Activated	Not activated
road / field switch	S92 1	0
enable ground drive	S93 1	0
Automatic steering system switch	S25 1	0
parking brake switch	S96 1	0
axle separation switch	S95 1	0
right hand pedal switch	S73 1	0
left hand pedal switch	S73 1	0
door switch	S68 1	0
seat switch	S69 1	0



- With the ignition turned on, operate the switches one by one while observing the display.

Use the key to go to the next screen.

Use the key to go to the previous screen.

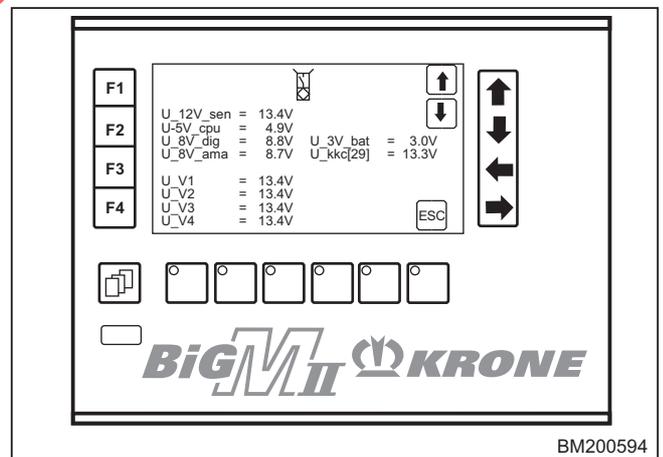
Use the key to back to the Road/Field main screen.

This screen shows the current voltages of the Big M II.

- The top four voltage displays should approximately reach the value indicated in the designation of the individual voltage, e.g.:

U_12V_sen should be close to 12 V!
 U_3V_bat should be close to 2.5 Volts!

- The voltages on U_V1 to U_V4 and U_KKC [29] should be in the range of 12 Volts!

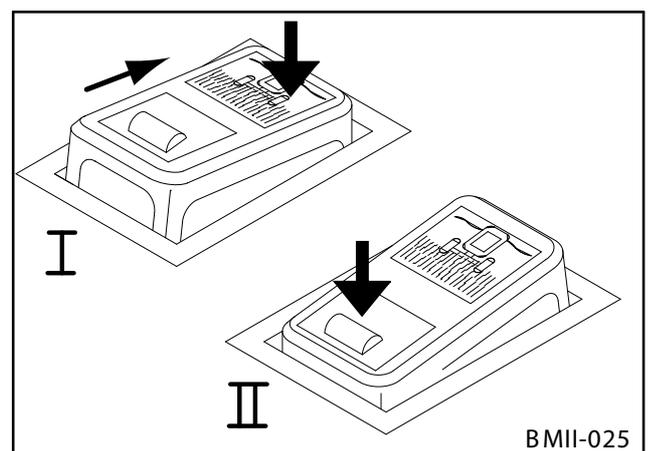


The output voltage values of the KMC computer are only displayed, if the Road Safety switch is in Field position (pos. I) (see chapter 3.11). Otherwise only a dummy value of 0 V will be displayed.

Use the key to go to the next screen.

Use the key to go to the previous screen.

Use the key to back to the Road / Field main screen

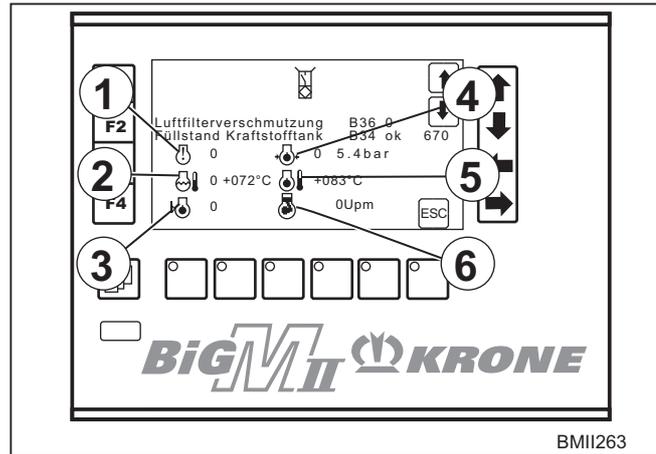


(Check sensors on engine)

This screen is used to tests the sensors of the engine.

Overview:

- (1) General engine failure
- (2) engine cooling water temperature
- (3) engine oil level
- (4) engine oil pressure
- (5) engine oil temperature
- (6) engine speed



The states of the switch indication symbols shown on the display (1-5) have the following meaning:

0 =	No fault!	Engine	Ignition
1 =	Fault	running	only
air filter contamination	B36	0	0

- For the fuel tank contents, the value of the **Fuel Tank Contents** display must be between 400 and 1000 (dummy value), otherwise a fault has occurred.

Use the  key to go to the previous screen.

Use the  key to go to the next screen.
(Diagnostic data for DIOS control)

Use the  key to back to the Road / Field main screen.

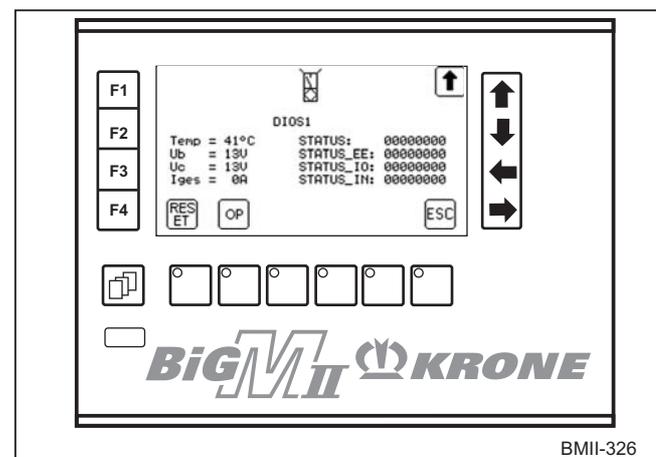
(Diagnostic data for DIOS control – optional)

 = Perform reset of DIOS control

 = Place DIOS control in operating state

Use the  key to go to the previous screen.

Use the  key to back to the Road / Field main screen.



More detailed error descriptions of displays: STATUS, STATUS_EE, STATUS_IO, STATUS_IN (refer to chapter: „Fault codes“)

4.6.4.1.3 (F3) Valve test



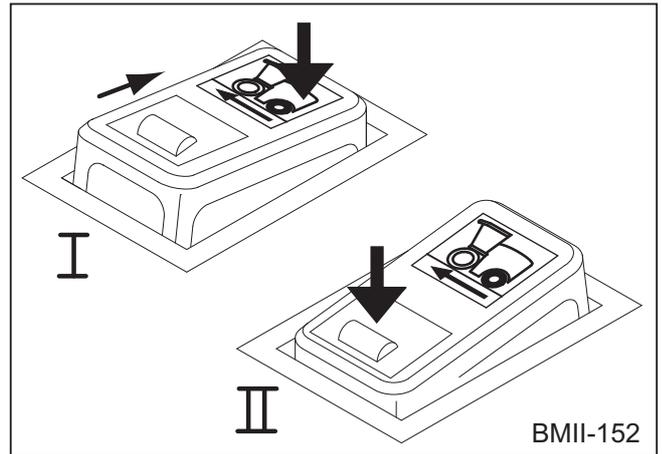
During the test, the valves are controlled electrically and consequently carry out their function. This can result in undesired reactions/movements of the Big M II, e.g. lowering of the wing due to its own weight.

Therefore:

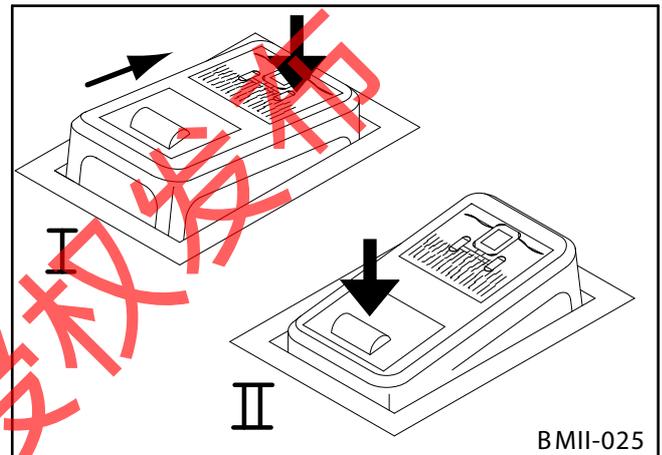
Set all mowers to working position, turn off the engine and apply the parking brake.



For diagnosis of the valve, the Automotive Drive Release switch (see chapter 3.9) must be switched off and the Road Safety switch must be switched to Field position (position I).



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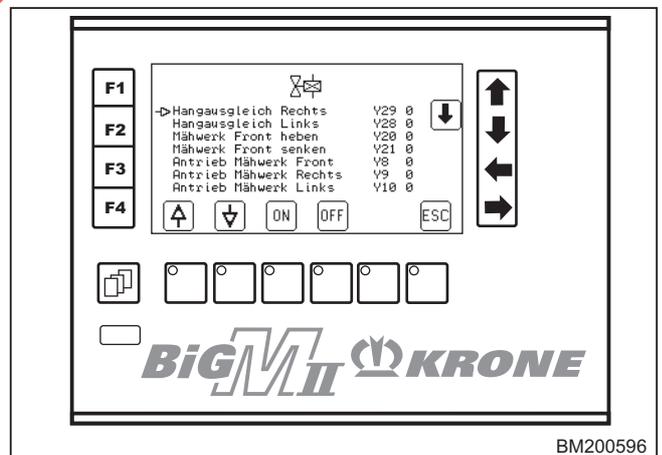
BMII-025

All valves in the list of valves shown on the display can be selected using the and selection keys positioned below.

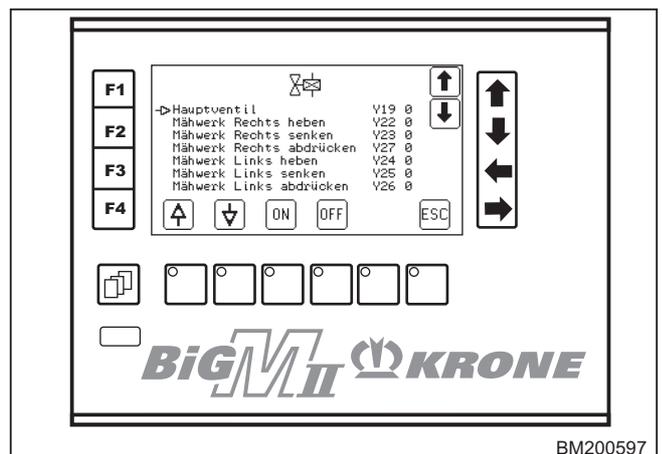
The valve previously selected can be switched on or off using the and selection keys.

Use the key to go to the next screen.

Use the key to back to the Road / Field main screen.



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BM200597

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All valves in the list of valves shown on the display can be selected using the and selection keys positioned below.

The valve previously selected can be can be switched on or off using the and selection keys.

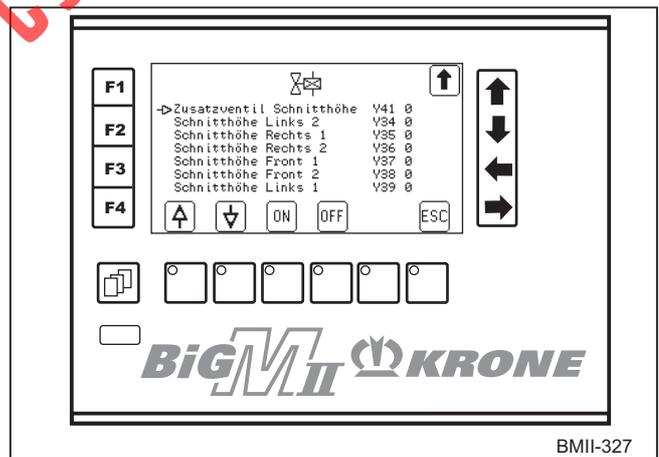
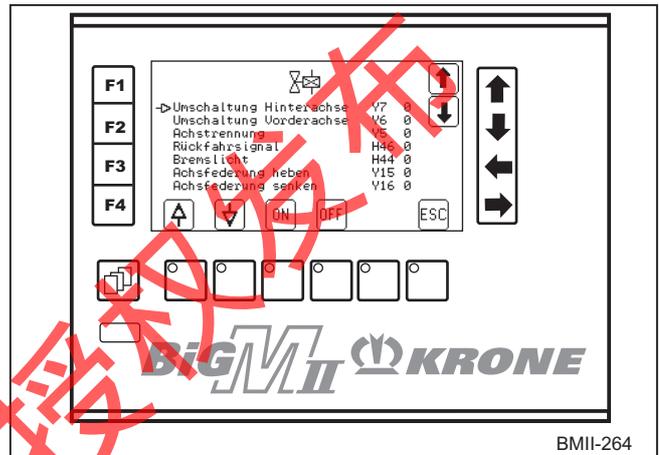
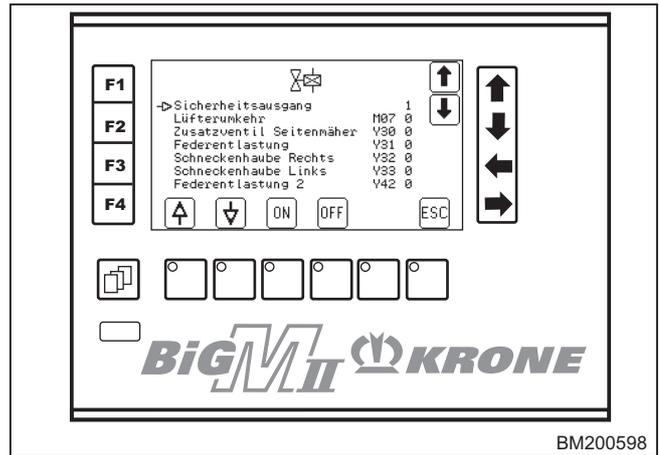
Use the key to go to the next screen.

Use the key to go to the previous screen.

Use the key to back to the Road/Field main screen.



The safety output cannot be switched during the valve test. It must however show the status 1.

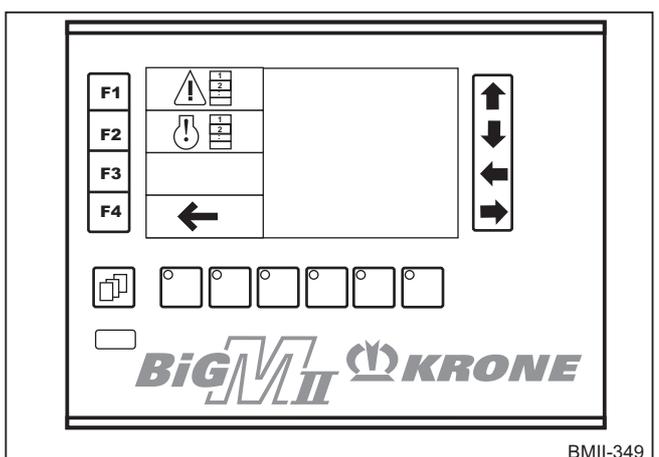


4.6.4.1.4 (F4) Error storage list

F1= General error storage list

F2= Engine storage list

F4= Next page



4.6.4.1.4.1 (F1) General error storage list

This screen is used to store and list the last faults occurred.

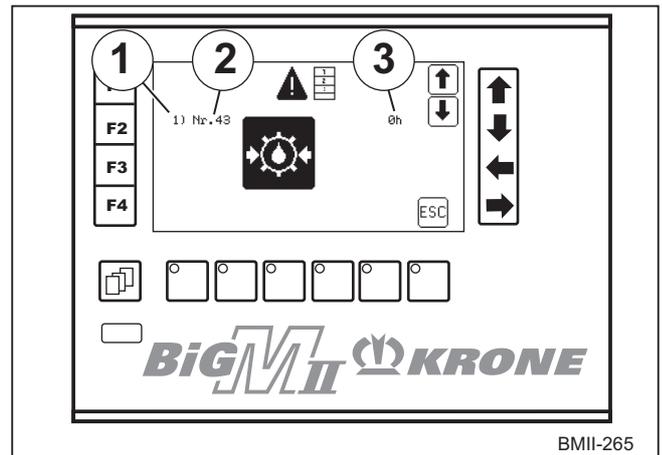
Overview

- (1) = Numbering of the stored fault
- (2) = Fault number (meaning see „Fault codes“ appendix, XII-19)
- (3) = Time difference of the faults recorded in operating hours

Use the  key to scroll forwards

Use the  key to scroll backwards

Use the  key to back to the Road /Field main screen.



4.6.4.1.4.2 (F2) Engine storage list

This screen is used to store and list the last faults occurred.

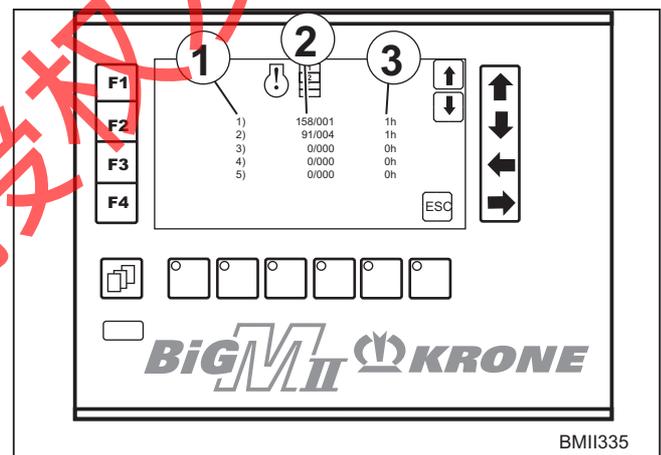
Overview:

- (1) Numbering of the stored fault
- (2) Error number - diesel engine
- (3) Time between faults recorded in operating hours

Use the  key to scroll forwards

Use the  key to scroll backwards

Return to screen with the  key (check sensors on engine)

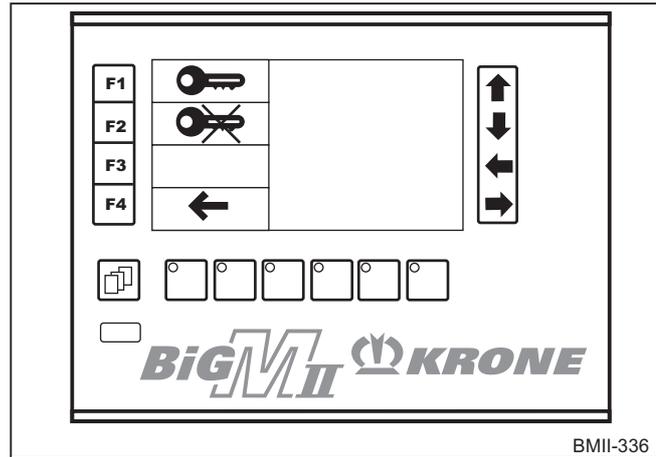


4.6.4.2 (F2) Krone-Service

F1 = This is a protected area, which allows KRONE specialist personnel to carry out adjustments to the machine.

F2 = This is a not protected area, for specialist personnel to carry out adjustments after modifications to the machine.

F4 = Previous page



4.6.4.2.1(F2) Operator's area of parameter

 = Increase parameter

 = Reduce parameter

 = Increase value

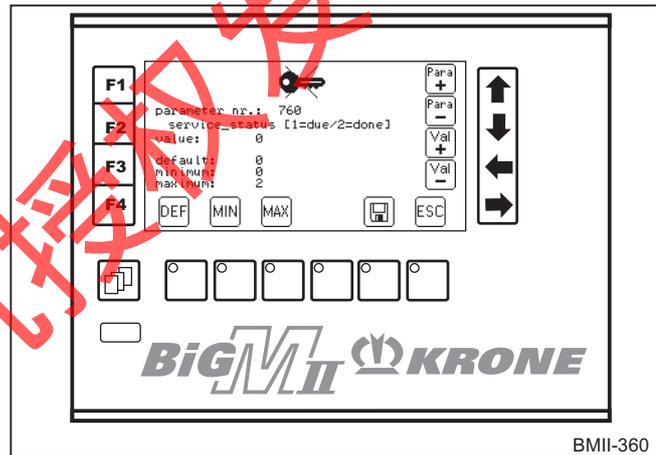
 = Reduce value

 = Reset value

 = Set value to minimum

 = Set value to maximum

 = Save current parameter

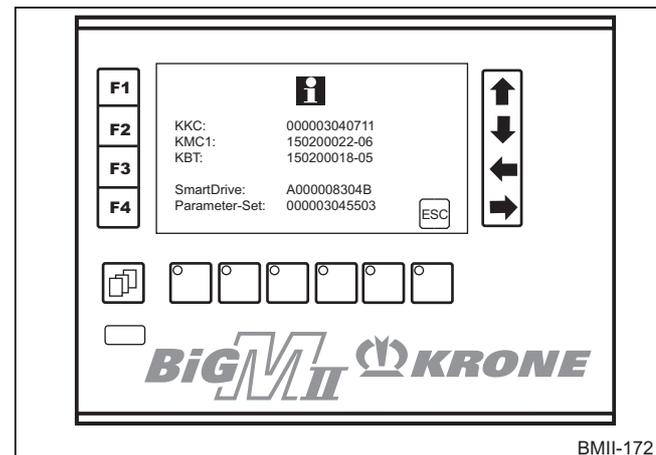


4.6.4.3 (F3) Info

Here the software versions are displayed.

- KKC = Krone Console Controller
- KMC = Krone Machine Controller
- KBT = Krone Control Terminal
- SmartDrive = driving computer
- parameter set = drive computer parameter set

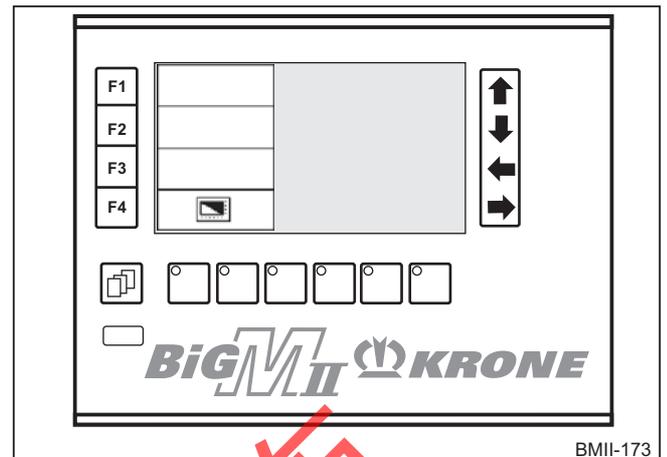
 = Exit screen



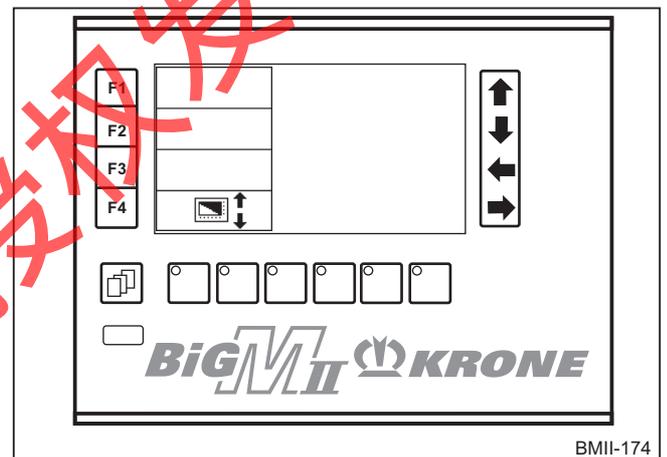
4.6.4.4 (F4) Terminal

In the Terminal service menu the contrast can be adjusted.

- To adjust the contrast the F4 function key must be pressed once again.



The contrast is adjusted by tapping on the arrow up/down keys.



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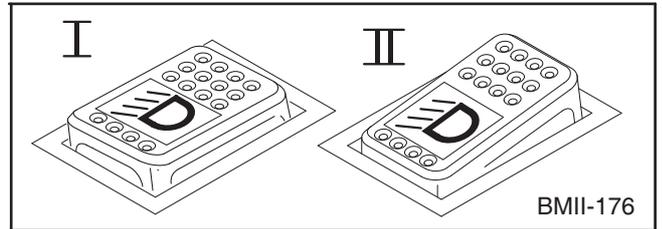


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5 Lights

5.1 Full Beam/Dipped Headlight Switch

- I- Dipped headlight off
- II- Dipped headlight on, only be switched on when the ignition is turned on

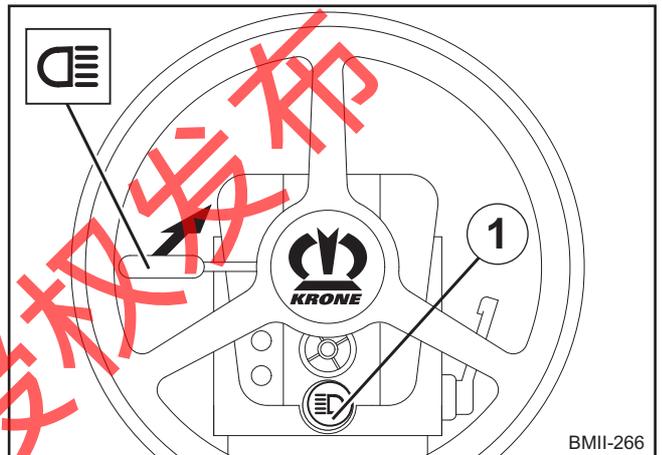


 Full beam on/off, only when dipped headlight switched on

Always dip your full beam in oncoming traffic.

Full beam indicator light

- Indicator lamp (1) lights up when the full beam is switched on.



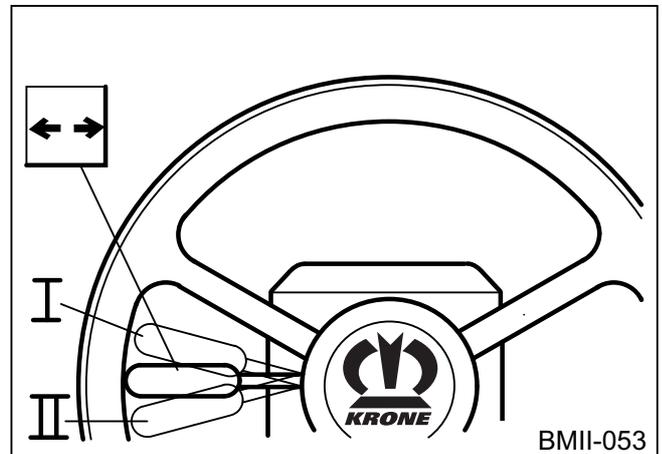
5.2 Indicator Switch

Use this switch when driving on public roads



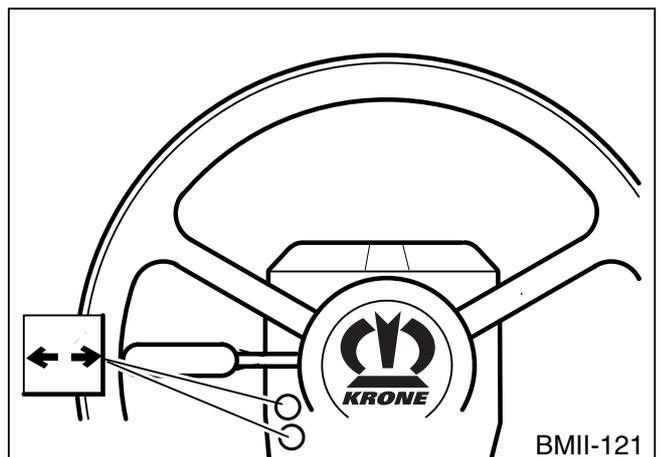
The switch must be set back manually to neutral position.

- I - Turning right
- II - Turning left



5.3 Indicator Lights

Light up after turning on the indicator switch.



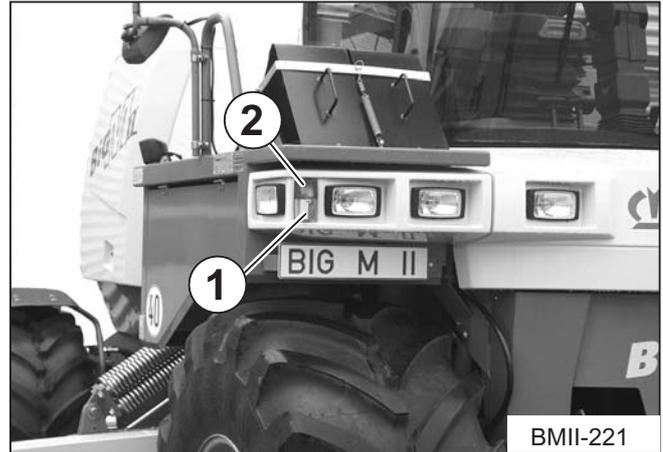
5.4 Indicator and Side Lights at Front

Side lights (1)

Always switched on when the side lights, dipped headlights or full beam lights are switched on.

Indicator lights (2)

Illuminate after the direction indicators or hazard warning lights are switched on.



5.5 Rear Indicators, Taillights and Brake Lights (1)

Indicator lights (1)

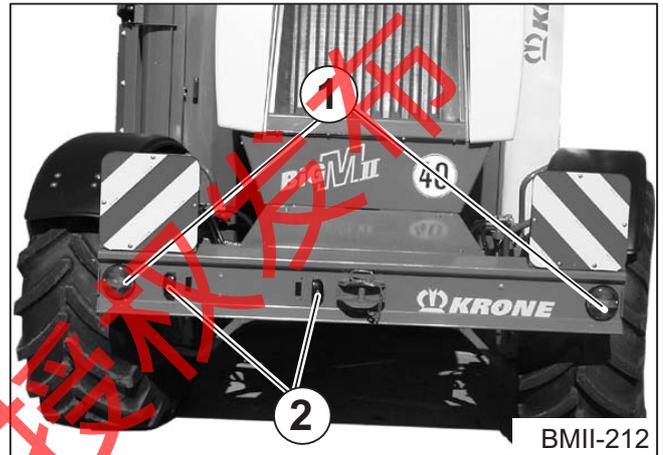
Illuminate when the direction indicators or hazard warning lights are switched on.

Taillights (1)

Always switched on when the side lights, dipped headlights or full beam lights are switched on.

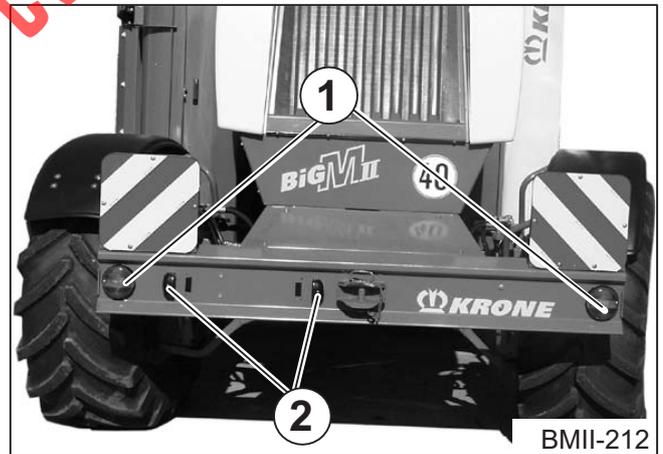
Brake lights (1)

They light up when the ignition is switched on if the operation brake is activated.



5.6 Number Plate Illumination (depending on country) (2)

Number plate illumination (2) always switched on when the side lights, dipped headlights or full beam lights are switched on.



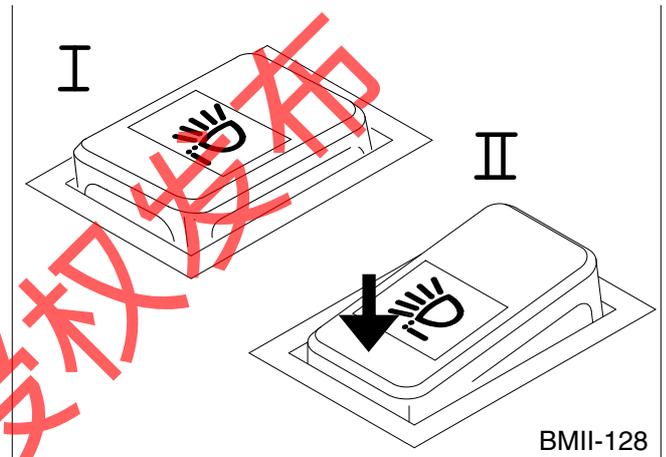
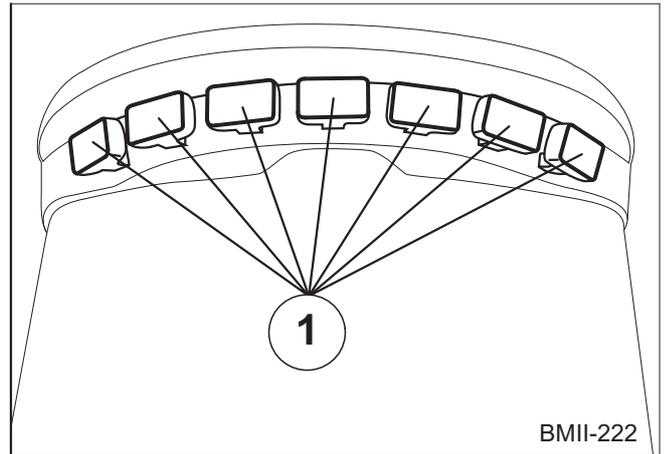
5.7 Work Light Toggle Switch Cabin



When driving on roads observe the type approval information.

The 7 work lights (1) on the cab roof and the work light (rear) can be switched on only when the parking light is switched on.

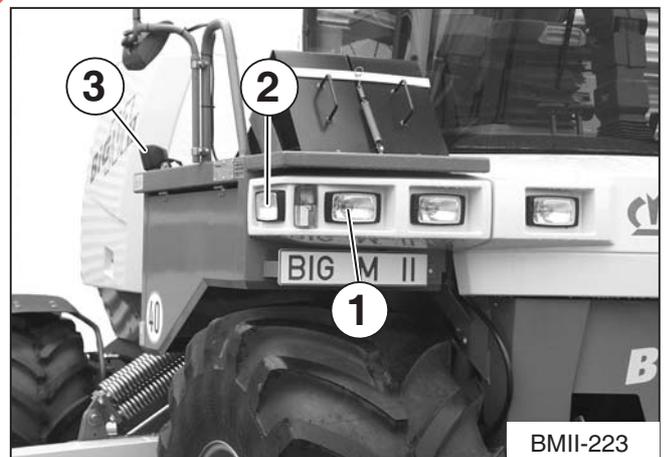
- I - Work light off
- II - Work light on



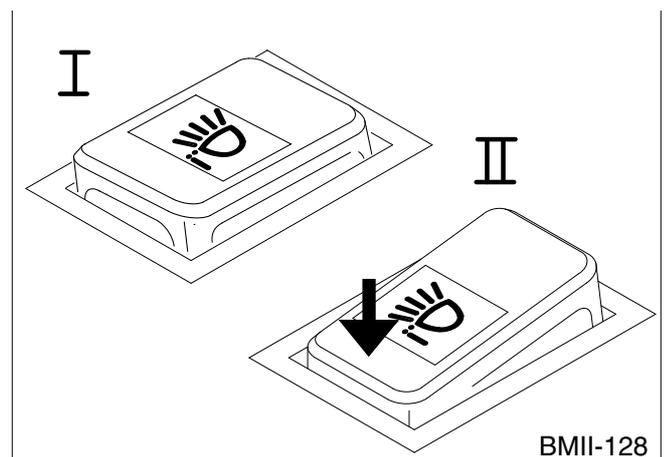
5.8 Work light front side

The 2 work lights in the light holder can be switched on only when the parking light is switched on.

- 1 Work footlight front (right and left)



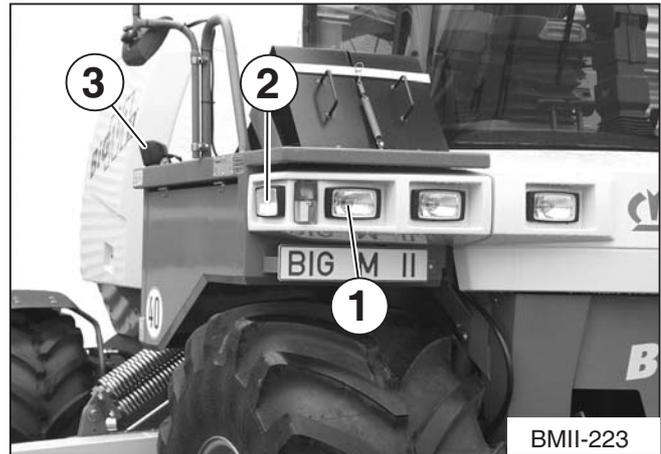
- I - Work lighth off
- II - Work lighth on



5.9 Work light front side

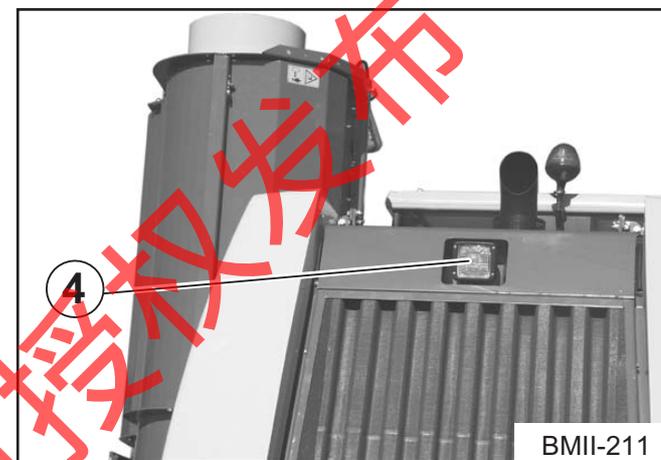
The 4 work lights in the light holder can be switched on only when the parking light is switched on.

- 2 Work light side (right and left)
- 3 Work light (Mower right and left)



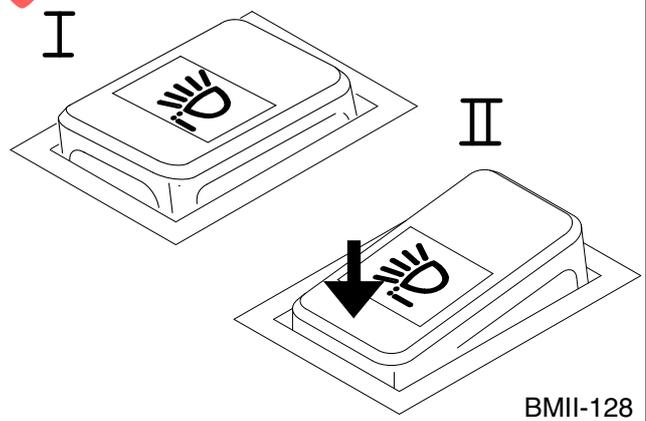
5.10 Work light rear

The work light rear (4) and the 7 work lights on the cabin roof can only be switched on when the motor is running and the sidelights switched on. This is only possible if the parking light is turned on.



- I - Work light off
- II - Work light on

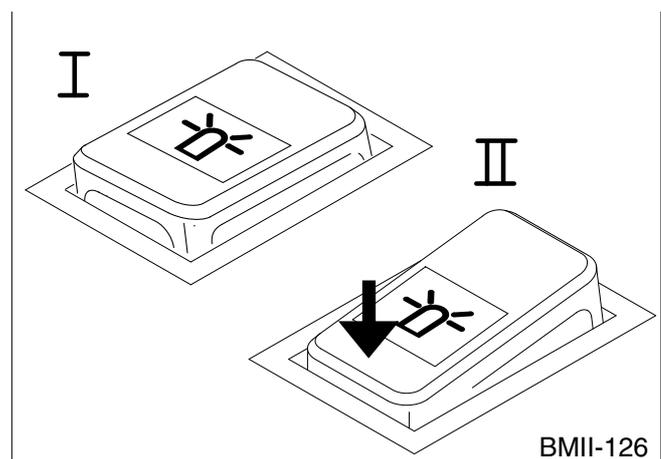
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5.11 Warning Beacon Toggle Switch

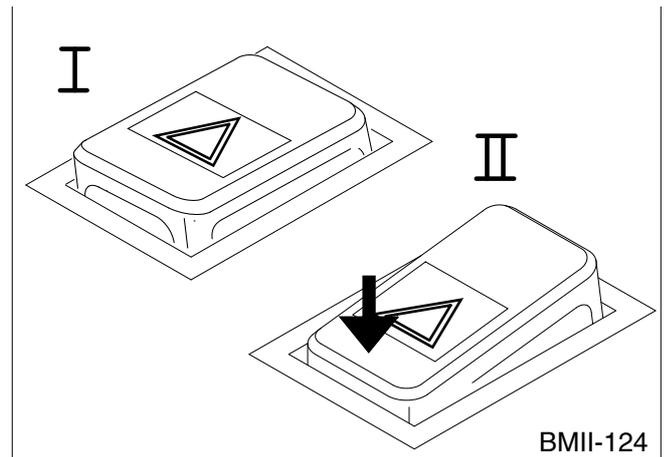
- I - Warning beacon off
- II - Warning beacon on, only when ignition turned on

In some countries it is necessary to switch on the warning beacon (1) for road transport.



5.12 Hazard Warning Lights Toggle Switch

- I - Hazard warning lights off
- II - Hazard warning lights on



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6 Cabin

6.1 Ladder to Driver's Cabin



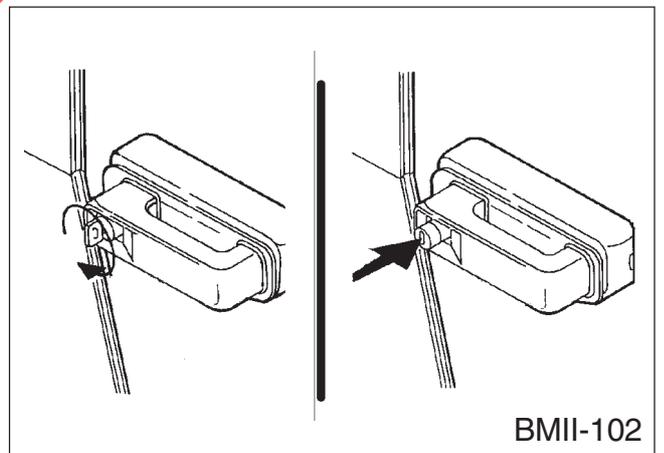
Do not climb up or down the ladder while the mower is moving.



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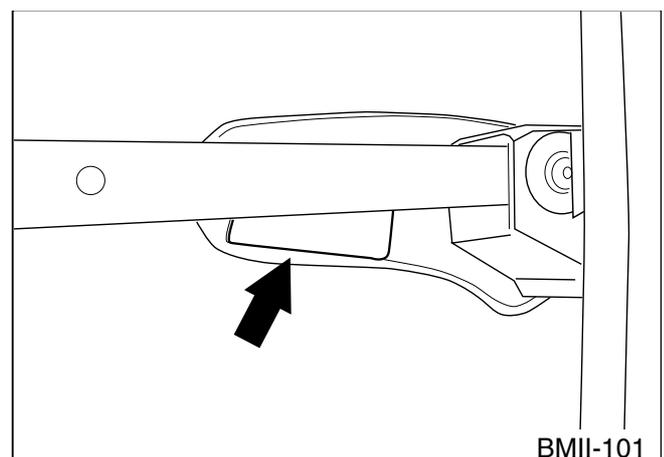
6.2 Open Cabin Door

- **From the outside:** unlock with the ignition key, press the button and open.



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- **From the inside:** lift the door opening lever.



BMII-101

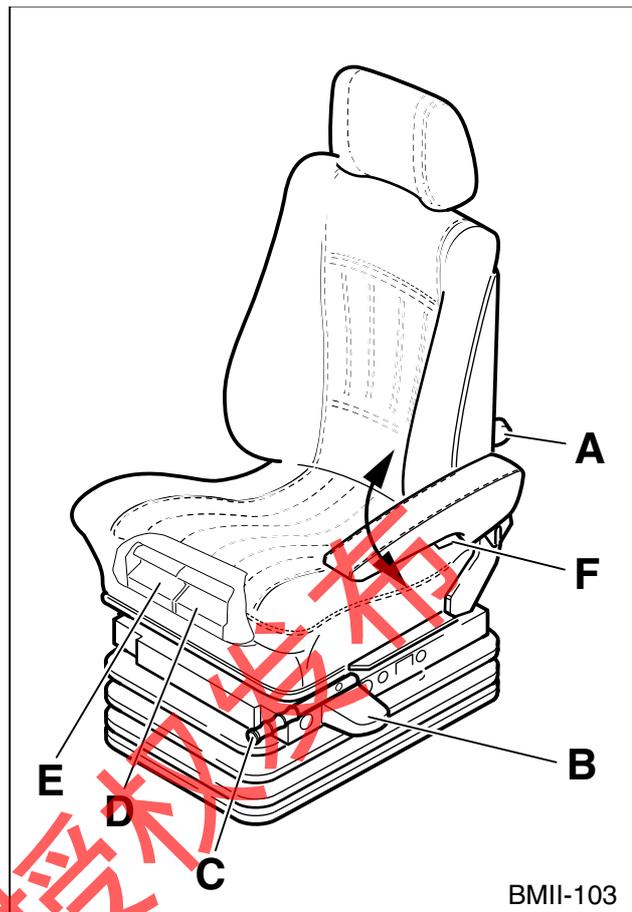
6.3 Adjusting Driver's Seat

- Push seat backwards or forwards. Lift the locking lever (C).

6.4 The air comfort seat

- The spring system of the seat can be adjusted from soft to hard using the lever (B).

- A – adjustment of lumbar support
- B – height and weight adjustment
- C – longitudinal adjustment
- D – higher adjustment of the seat
- E – longitudinal adjustment of the seat
- F – back rest adjustment
- G – safety belt (for USA)



6.5 Setting the Lumbar Support

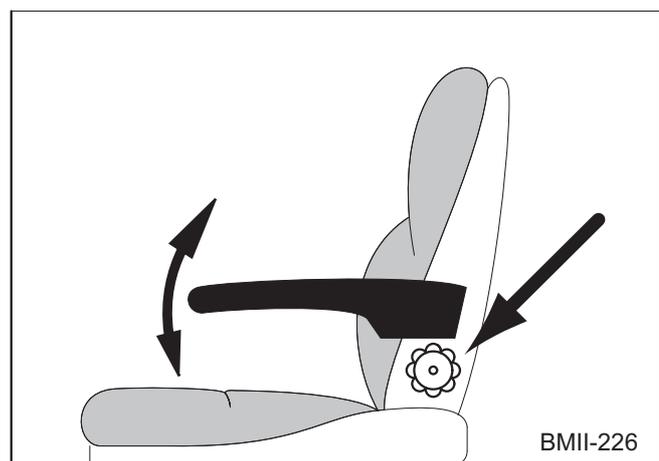
There is an adjustable lumbar support in the back rest of the driver's seat.

- Adjust the seat according to the driver's requirements using the hand wheel.



6.6 Height adjustment of the Right-hand Arm Rest

Move the arm rest into the desired position using the hand wheel (1).

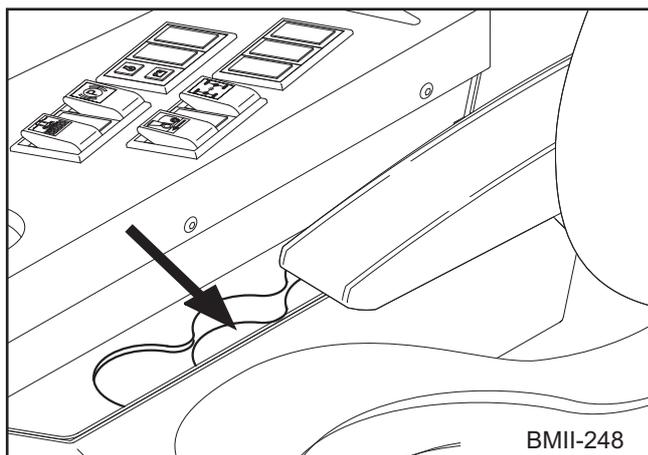


6.7 Drink Holder

The drink holder is located on the right-hand side next to the driver's seat.



Only insert suitable containers.

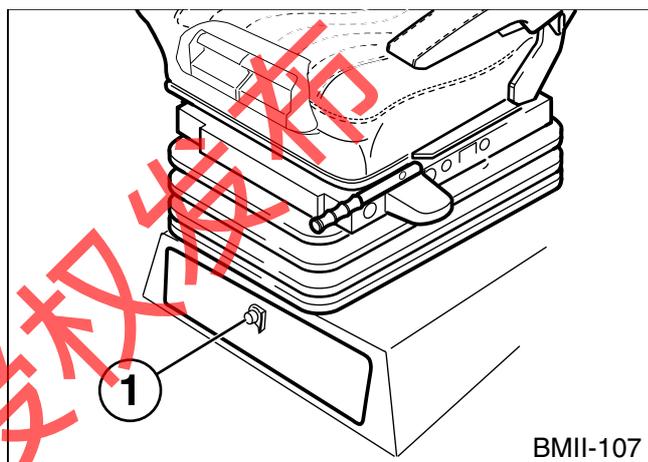


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6.8 Storage Compartment for the Operating Manual

This storage compartment is located under the driver's seat.

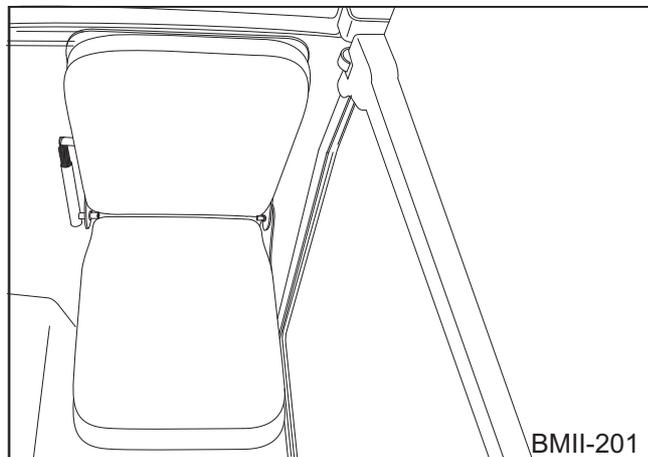
To open:
Press button (1).



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6.9 Passenger Seat

Only one other person in addition to the driver is allowed to stay in the cabin during operation.



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6.10 Steering Wheel Height and Tilt Adjustment



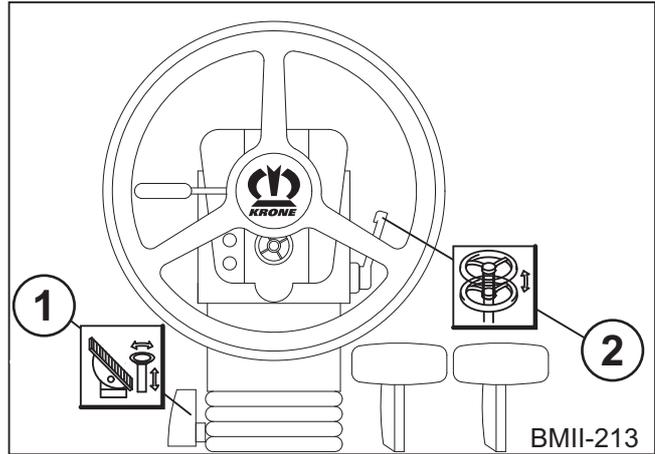
Only adjust the steering column when the machine has been shut down.

Unlocking pedal (1) = horizontal and vertical steering column adjustment

Unlocking lever (2) = vertical steering column adjustment

The steering column is held in the upright position by spring pressure. Therefore hold the steering wheel securely with both hands before pressing the pedal (1).

- Unlock the steering column with the pedal (1) and move it to the desired position. The steering column will be locked when you release the pedal (1).
- Loosen unlocking lever (2). Set steering wheel to the position desired, then re-tighten unlocking lever (2).

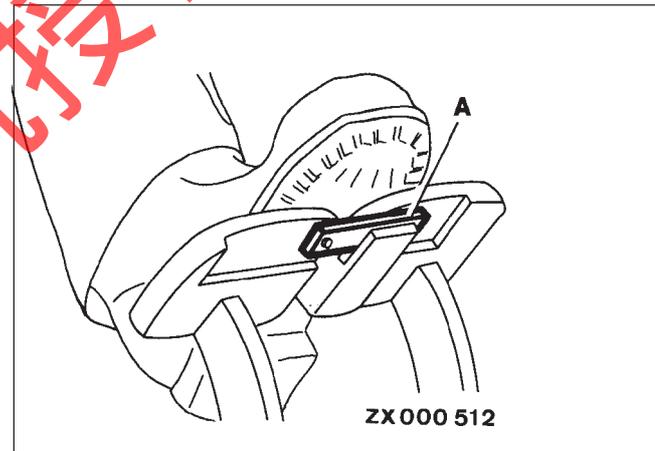


6.11 Parking Brake

For driving on roads.

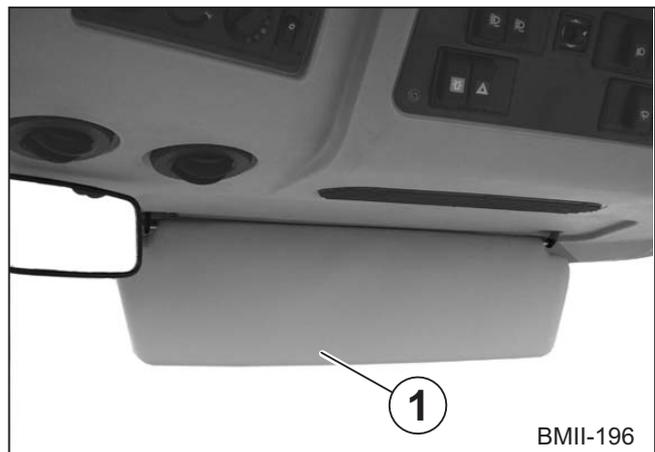


- For road safety reasons, the brake pedals must always be coupled by moving the locking lever (A).
- No individual wheel brake available
- Before the start of every trip check the brake function.



6.12 Sun Blind

Adjust the sun blind according to requirements.



6.13 Inside Mirror

Adjust the inside mirror manually.
Adjust the inside mirror according to requirements.



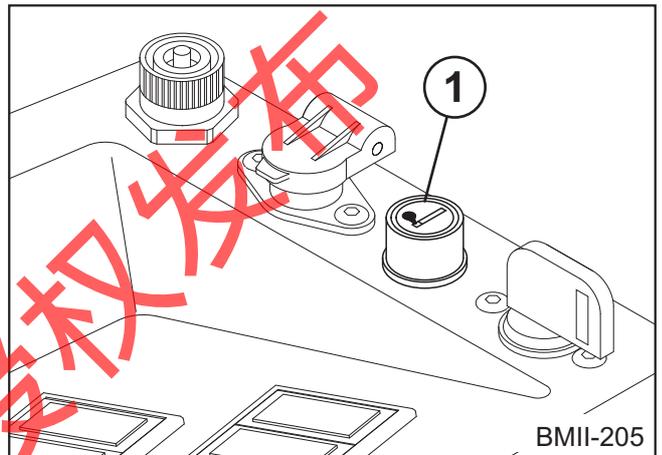
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6.14 Cigarette Lighter

- The cigarette lighter is located on the switch panel on the right-hand side of the driver.
- Push in cigarette lighter (1); it will pop out automatically, as soon as the spiral glows.



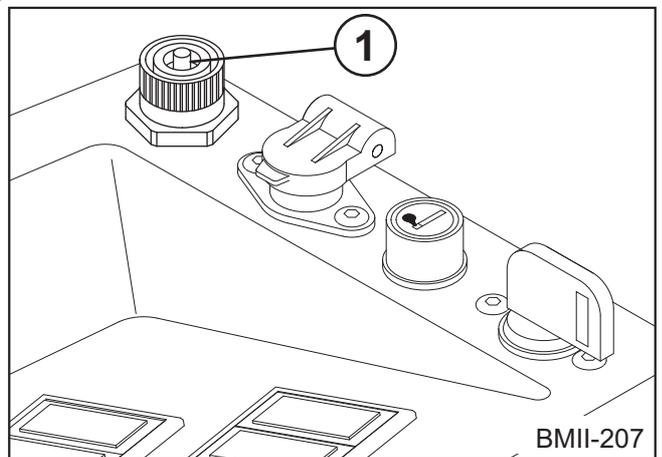
Danger of injury!
Only hold the hot cigarette lighter by the handle.



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6.15 Diagnostics Socket

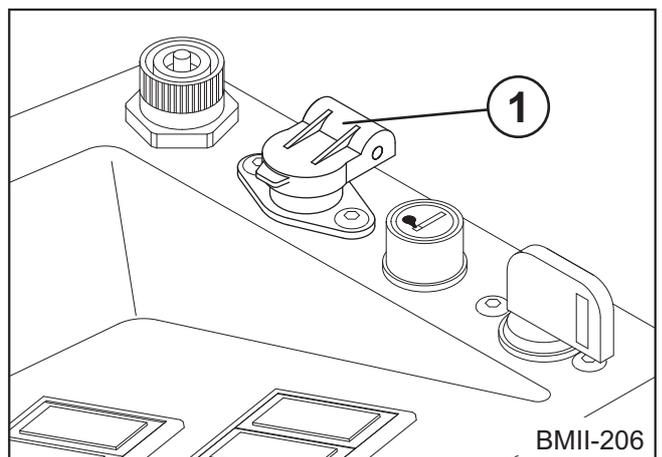
- CAN interface



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6.16 Socket

- The socket is located on the switch panel on the right-hand side of the driver.
- The socket can be used for accessories.
- Lift the flap.



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6.17 Adjustable Outside Mirror (Right-Hand Side Only)

The switch (1) is located on the ceiling panel.

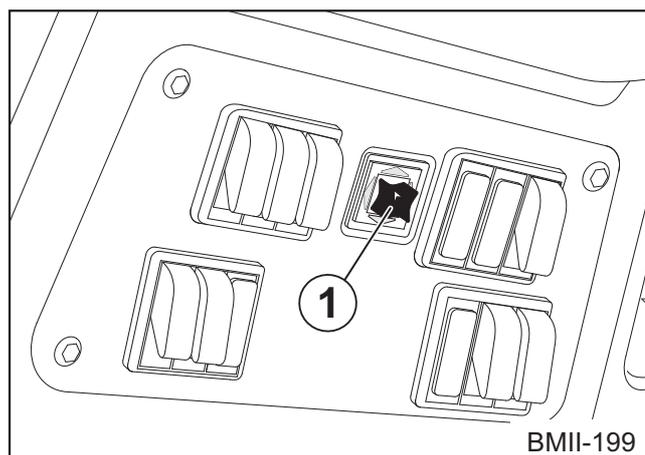
To set:

Arrow points to the left = set front vision mirror

Arrow points to the right = set right rear vision mirror

Operate switch (1) upwards, downwards or sideways.

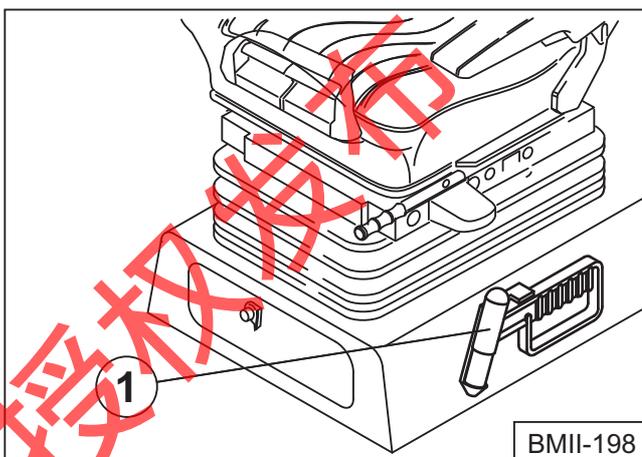
The left rear vision mirror is adjusted manually.



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6.18 Emergency Hammer

An emergency hammer (1) is located inside the cabin at the bottom left hand side at the driver's seat. In case of an emergency use this hammer to smash the right side-window



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6.19 Interior lighting

The interior lighting control (1) is located on the cab roof. It consists of a 3-level switch.

Overview:

I = Continuous lighting

0 = Lighting off

II = Delayed switch-off (after ignition stage II is turned off, interior lighting will stay on for the amount of time set on time relay (2))

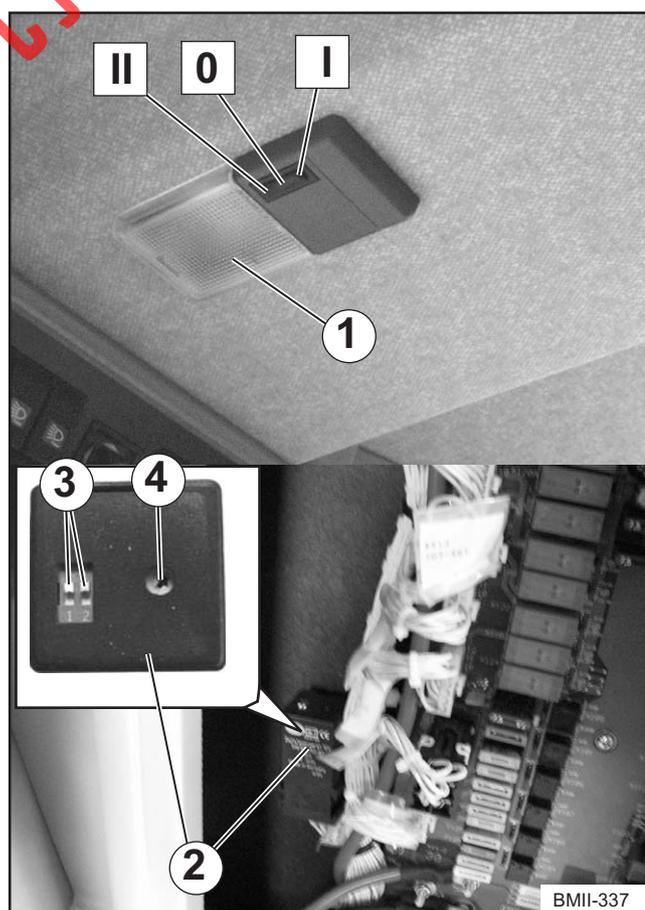
The time for switch-off delay can be adjusted with the time relay (2).

To do this:

- Open the cover on the left next to the driver's seat
- Move switch (3) S1 and S2 to the desired position (see table)

S1	S2	t(s)
off	off	110...900
on	on	14....110
on	off	2,5.. 14
off	on	0..... 2,5

Use a screwdriver to make fine adjustments to the speed potentiometer (4) of the time relay (2) that controls the switch-off delay (amount of time) to match time intervals t(s).

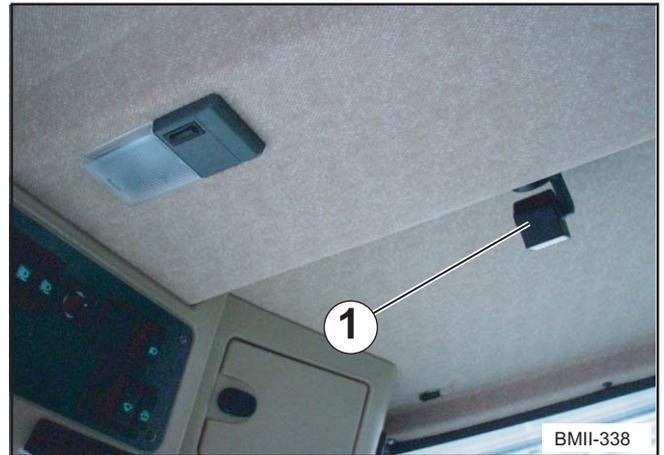


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6.20 Spotlight

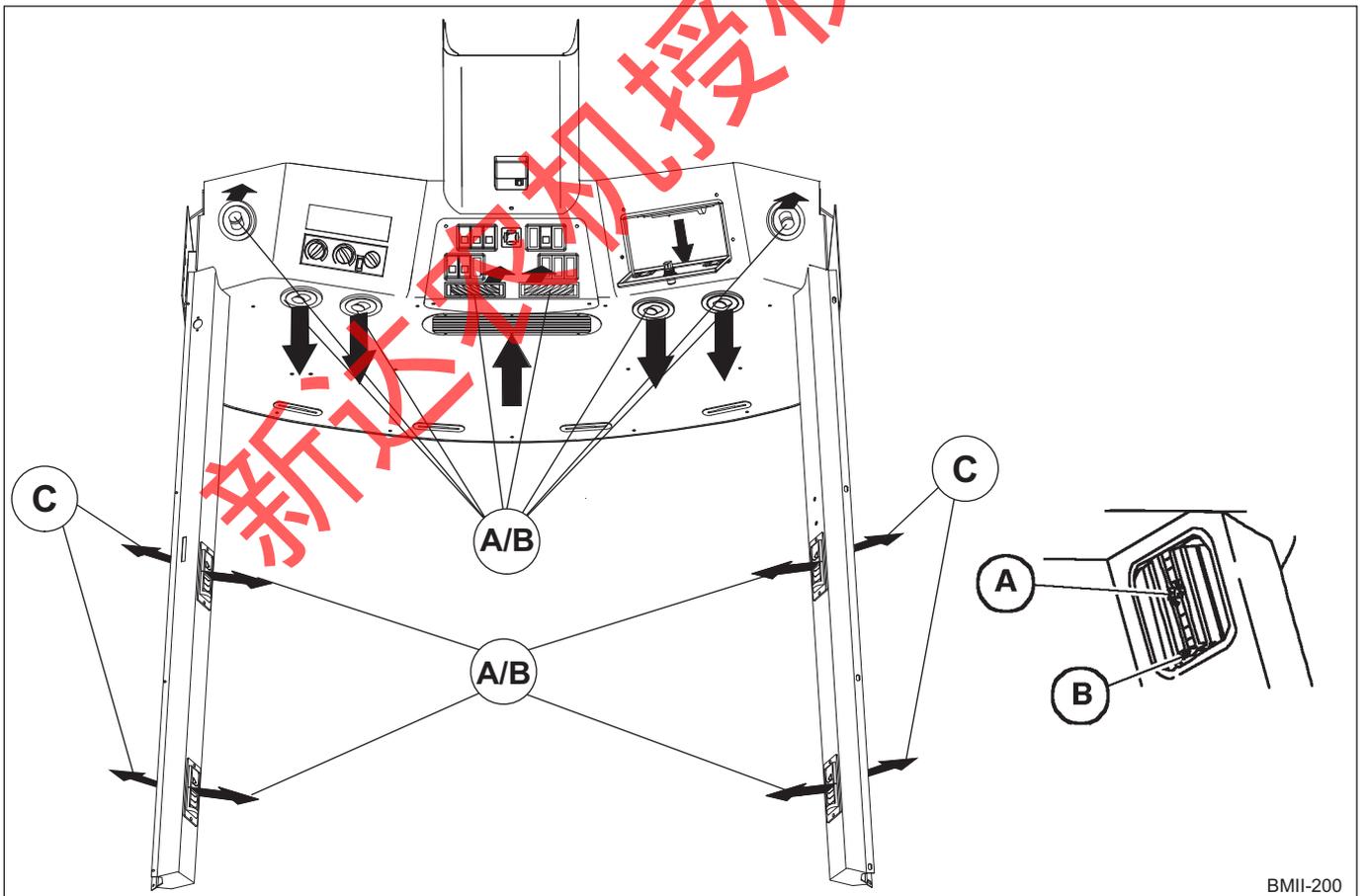
The spotlight (1) is on the cab roof.

- The spotlight can be turned on and off at any time by activating the switch built into it.



6.21 Adjustable Air Nozzles

Regulate the air nozzle blades to prevent the windows steaming up



- A - Knurled wheel to control the amount of air
- B - Adjustment of the air guiding grid
- C - Air slots

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7 Check before Start-up

7.1 Daily Checks

- Engine
- Hydraulic system
- Radiator sieve
- Cooling system
- Tyres
- Hydrostatic system
- Fuel system
- Indicator light test
- Light functions
- Brake

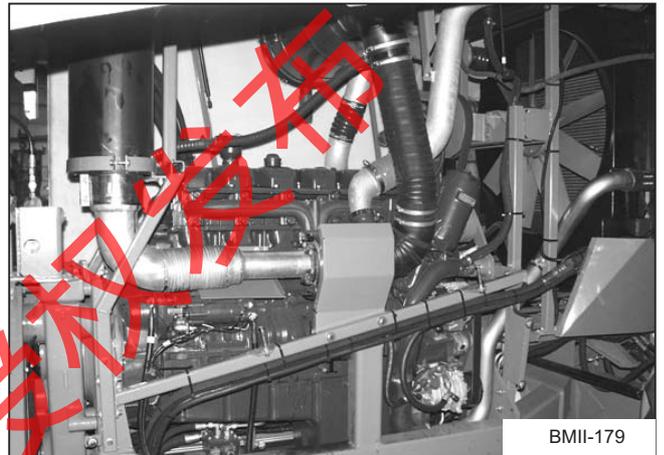
7.2 Soil Deposits in the Engine Bay



The build-up of dust, oil and grass inside the engine bay is combustible and presents an increased fire hazard.

Keep the engine and the engine bay clean at all times.

If required, blow off soiling and wipe off oil deposits.

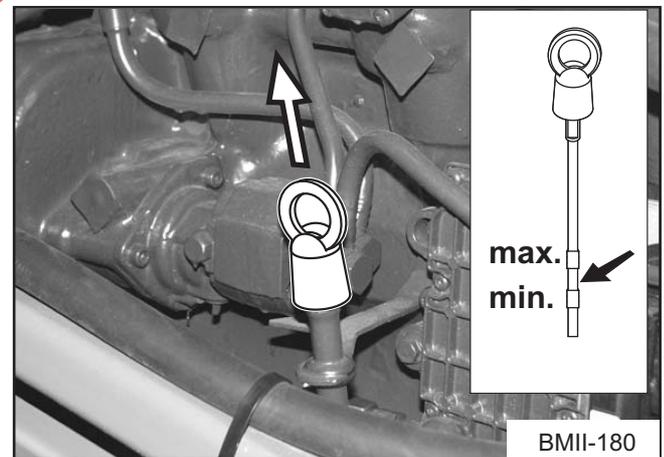


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7.3 Engine Oil Level

Do not start the engine if the oil level is below the lower mark on the oil level dipstick.

The oil level should always be between the lower and upper mark. The machine must be on level ground when you check the oil level.

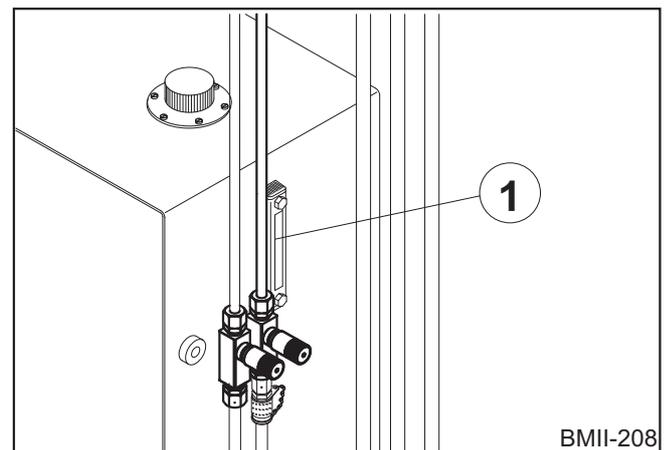


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7.4 Hydraulic Oil Level

Lower all mowers and stop the engine.

The oil must be visible in the window (1).

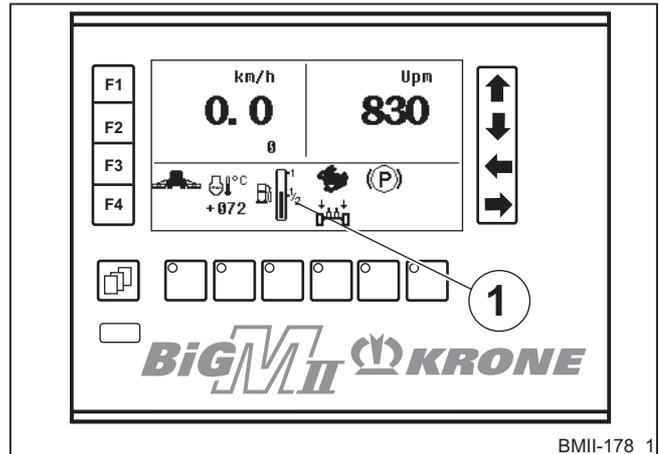


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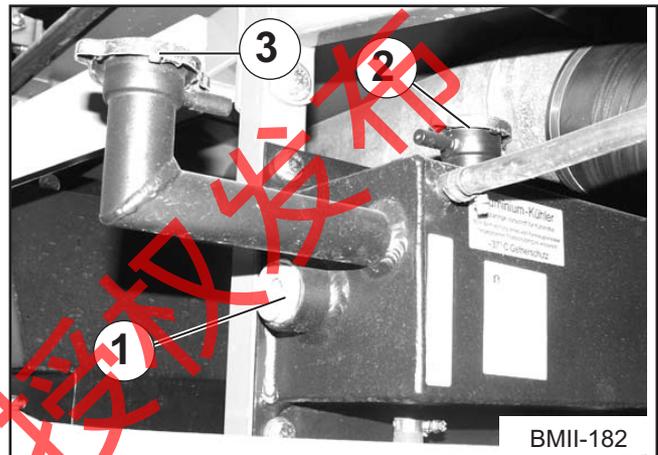
7.5 Fuel Level

Check the fuel level on the fuel gauge when the ignition is switched on.



7.6 Engine Coolant - Control

The engine coolant must always be visible in the inspection window. For further information refer to the (Maintenance - Engine chapter).



7.7 After a Long Standstill Period

Vent fuel system.



For further information please refer to the operating instructions of "Daimler Chrysler Engines" enclosed (chapter Venting the Fuel System).

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7.8 Tyres

Check the tyres daily for cuts or fractures and obviously low pressure.

Check the tyre pressure at least once per week with an accurate instrument.



7.9 Checks in the Cabin

Indicator light test and light functioning, see chapter "Lights".

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8 Engine Operation

8.1 Running In the Engine



Modifications to the engines not authorized by the manufacturer will result in the warranty being null and void.

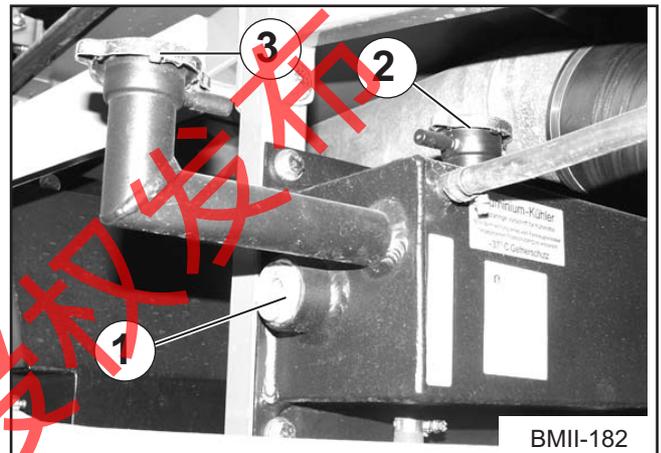
The engine is immediately ready for normal operating conditions; particular caution is required, however, in the first 100 operating hours.

Therefore observe the following:

- If the oil pressure is too low, an acoustic warning signal occurs. Turn off engine and establish cause.
- If the coolant temperature is too high, an acoustic warning signal occurs. Turn off engine immediately and let it cool down. Establish cause of overheating.



- **Never open the radiator cap while the engine is hot. Switch off the engine and wait until the engine has cooled down.**
- **Turn the cap (2) to the first notch and wait until the overpressure has been reduced.**
- **Then should you remove the sealing cap (3). (See “Maintenance – Engine”)**



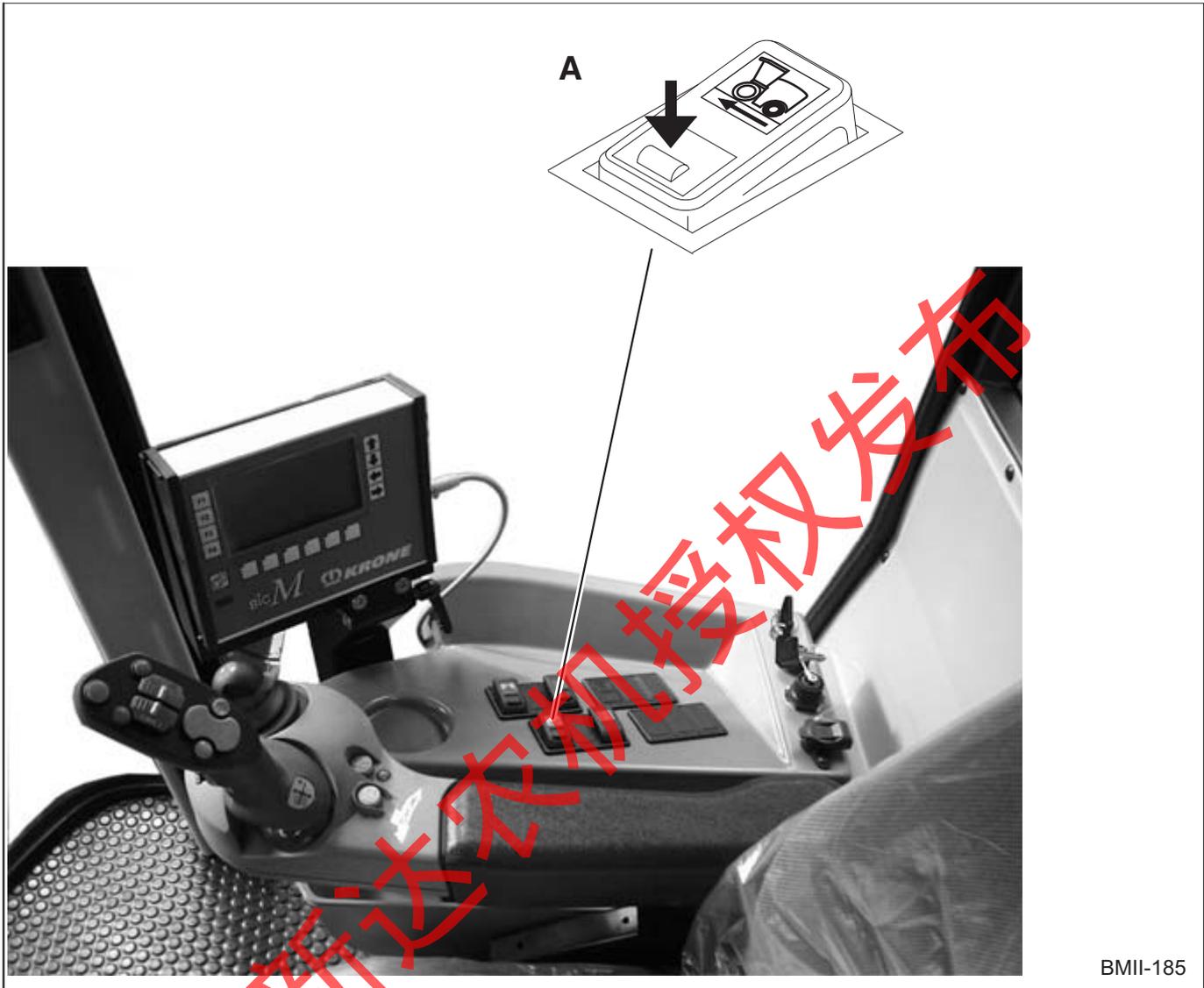
- Check the engine oil level at regular intervals (see “Maintenance – Engine”); watch out for leaks!
- Pay particular attention and be particularly aware until you have the required sense and ear for the engine and operating noises...
- Avoid high loading or idling of the engine for more than 5 minutes during the first 20 operating hours.

8.2 Before Starting the Engine



- **Always ensure that there is nobody in the area around the self-propelled high performance mower-conditioner; sound horn.**
- **Never allow the engine to run in closed rooms without an extraction unit.**
- **Ensure sufficient ventilation.**

8.3 Prerequisites for Starting the Engine



Settings:

- Drive release (A) to off

8.4 Switching on the Circuit for the Electronics

- I - Circuit for the electronics is switched on

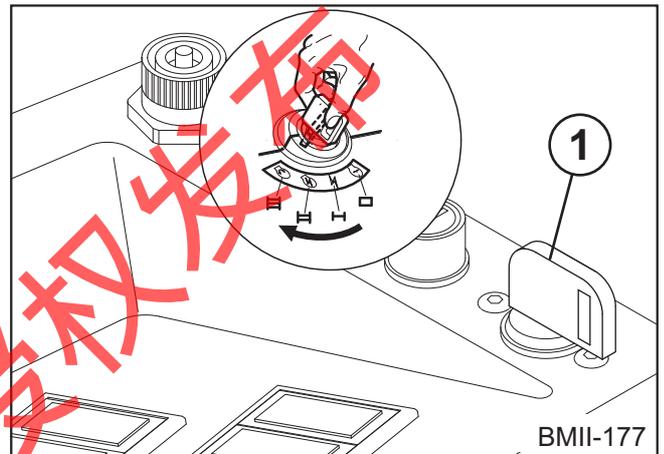
8.5 Switching On Ignition

- II - The ignition is switched on

The following **indicator lights** will illuminate:

- Engine failure indicator light (2) for approx. 2 seconds

Job computer carries out internal system check
The basic display appears



8.6 Starting Engine



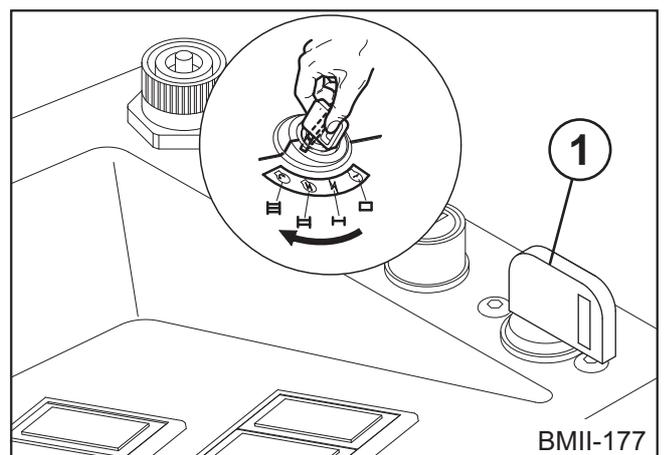
Only start the engine from the operator's seat.

- Turn the starter switch to position II. Release the key as soon as the engine starts. Never hold the key in the start position for longer than 20 secs.

If you turn the key switch to position I before the engine starts, wait until the engine has come to a standstill before attempting to start again.



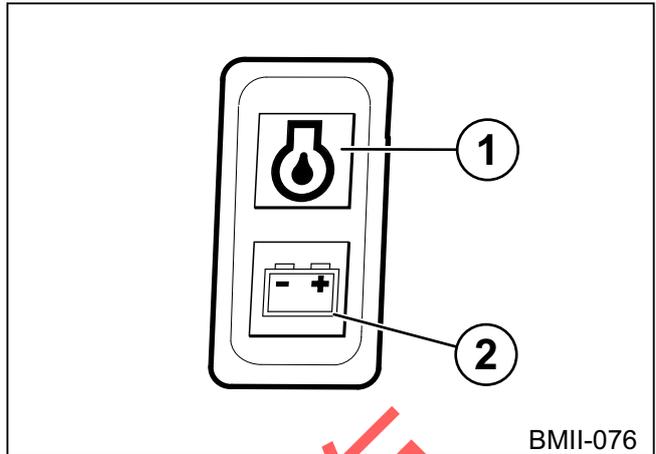
If the engine does not start within 20 secs., wait at least 2 min. before attempting to start again.



Job computer carries out an internal system check.
The standard display appears.

8.7 Engine Oil Pressure Indicator Light

After starting the engine check immediately whether this indicator light extinguishes, if not, stop the engine immediately and rectify the fault.



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8.8 Starting with an Auxiliary Battery

In cold operating conditions use a further 12 V battery parallel to the self-propelled high performance mower-conditioner batteries if necessary.



Leaking battery gas is highly explosive. Keep ignition sources and naked flames away from the battery. Always connect the battery poles correctly, the earth cable to the minus pole and the starter cable to the battery plus pole.



Not observing the correct polarity between the battery and alternator can cause serious damage to the electrical system. Always connect the plus pole first and then the minus pole!

8.9 Stopping the Engine

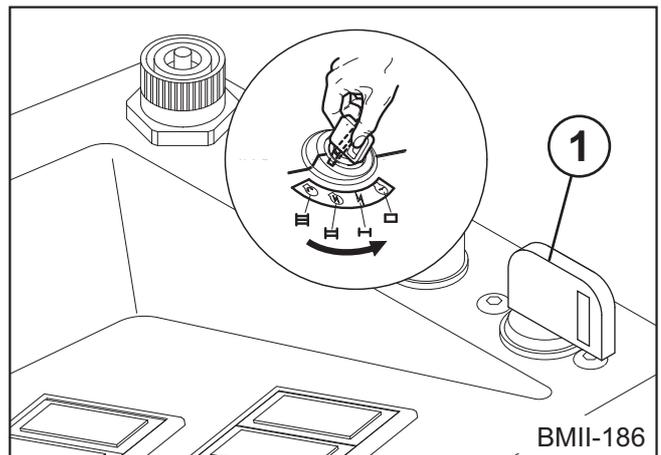


Before finally switching off allow the engine 1 - 2 min. to run in the lower idling range so all important parts of the engine can cool down.

- Turn the ignition key (1) to position "0".



- **Always remove the ignition key (1) before leaving the driver's cab. This automatically applies the parking brake.**



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8.10 Killing the Engine



If you kill the engine while it is at operating temperature, start immediately to avoid excessive heat build-up in important parts. Allow the engine to run for approx. 1 to 2 minutes before finally turning it off.

8.11 In Cold Weather

Fill the fuel tank completely at the end of each working day, especially at the end of a working season to prevent condensation forming.

Always use a so-called "winter diesel" fuel for operation in cold seasons at temperatures below 10 °C (50 °F).

See chapter "Engine Coolant" for mixing and use of the coolant.

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9 Driving and Transport

9.1 General on Driving

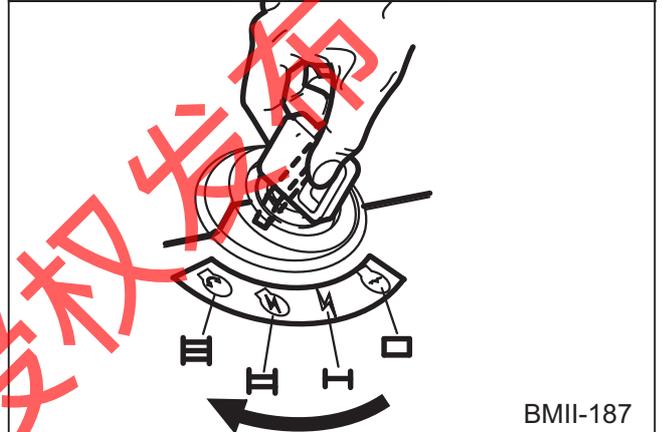
The following should be observed when the Big M is driven:

- Due to the rear wheel steering the handling of the Big M requires a certain time to get used to.
- the handling of the Big M is different in level I and II
- If an error message appears in the Info Centre stop immediately and rectify the fault. If you cannot rectify the fault inform the customer service or your KRONE dealer.
- Before setting off, always fasten safety belt (1) (for USA only).

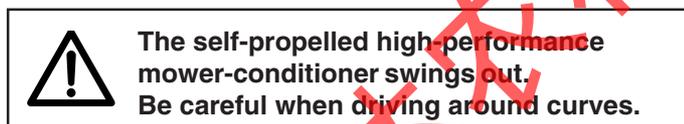


9.2 Starting Engine

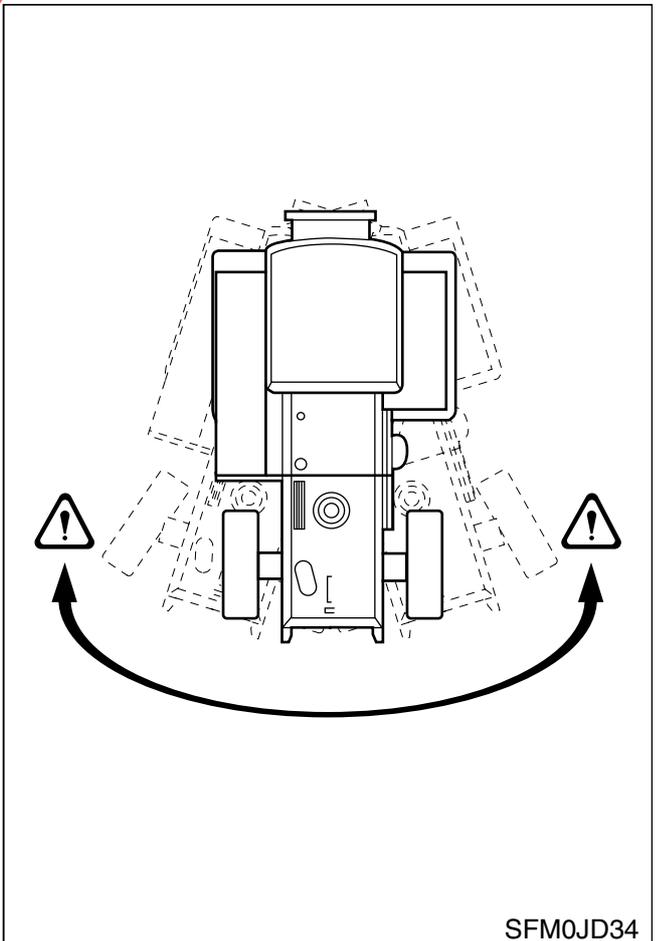
See chapter 8 “Engine Operation” for more details.



9.3 Driving and Steering



The steered wheels are at the rear of the self-propelled high-performance mower-conditioner! Familiarise yourself with the different steering performance.



9.4 Brakes



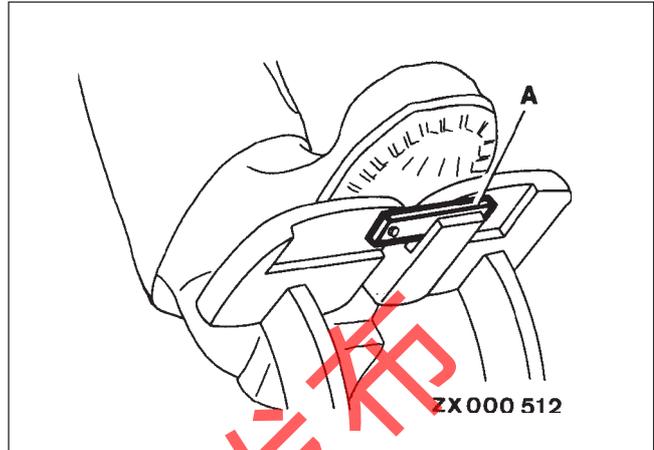
The brake function must be checked before the start of every trip.

9.4.1 Foot Brake (Road Driving)

By operating the foot brake the hydrostat decelerates automatically.



- For road safety reasons, the brake pedals must always be coupled by moving the locking lever.
- No individual wheel brake available.
- Before the start of every trip check the brake function.

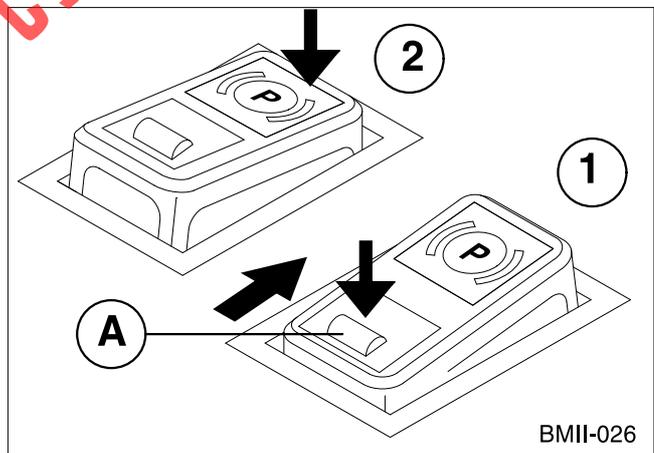


9.5 Disengaging Parking Brake

- To disengage the parking brake, the parking brake switch must be set to position I.



Driving for a longer period of time with the parking brake applied will result in overheating of the brake.



9.6 Road Safety Switch

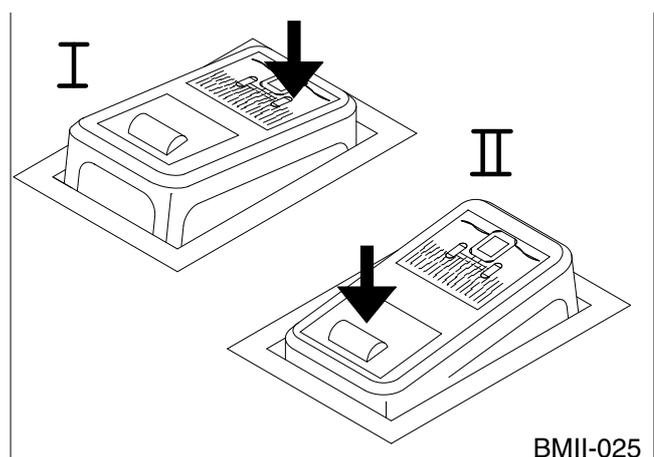
- Move the mowers to transport position.



The road safety switch must be in road position (II) when you drive on the road.

This ensures that all hydraulic functions - apart from steering and brakes - are deactivated.

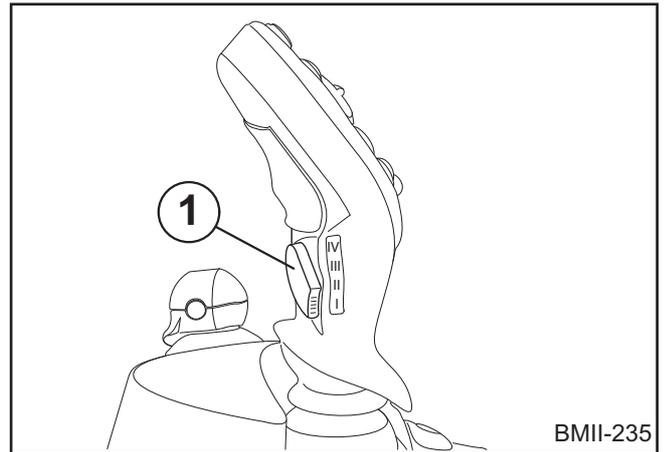
During road driving the engine speed is automatically controlled by the driving computer.



9.7 Setting the Acceleration Behaviour

Using the switch (1) is possible even while driving to select four different acceleration levels.

With constant operation of the driving lever into direction and with constant engine speed the driving speed increases the slowest in acceleration stage I and the fastest in acceleration stage IV.



9.8 Driving Forwards, Backwards

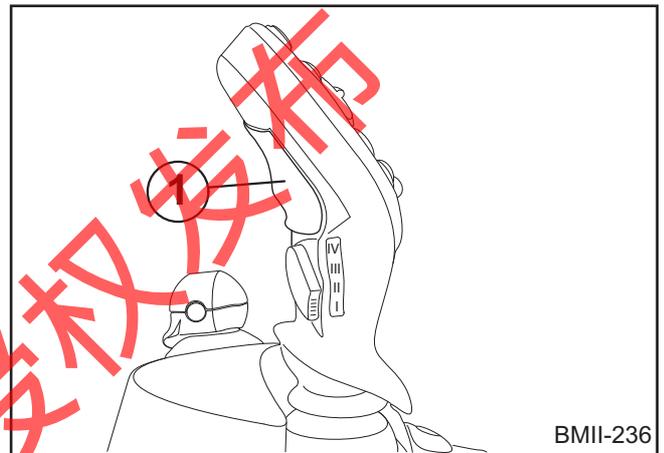


Always adapt the travelling speed of the self-propelled high-performance mower-conditioner according to the conditions on road and on field.

Driving forwards from standstill:

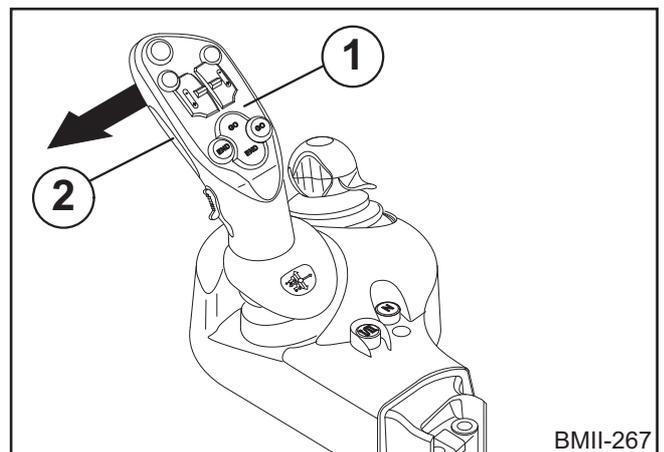
After starting the engine the gear box is in neutral position.

- Press activation button (1) at the rear side of the driving lever.
- Moving the driving lever forwards will cause the machine to move forwards and accelerate.
- If the lever is released it will return to its central position automatically. The speed remains constant.
- Moving the driving lever backwards will decelerate the machine. It is decelerated until it comes to a standstill by adherence.



9.9 Fast stop

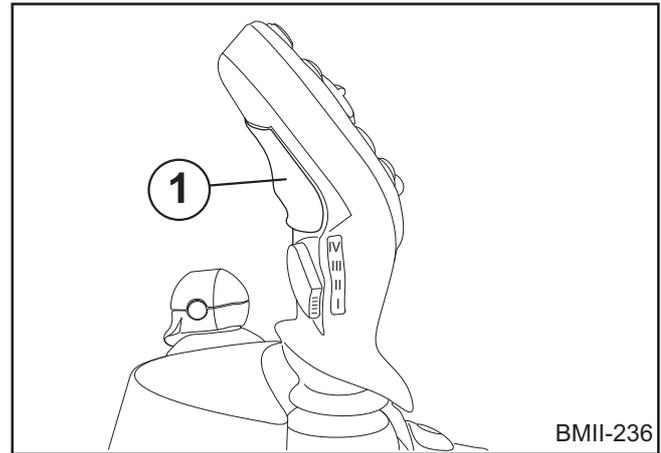
The Fast Stop is activated by operating the driving lever (1) to the left-hand side **without pressing the activation key (2)**. The Big M II is decelerated until it comes to a standstill.



9.10 Driving backwards from standstill

After starting the engine the gear box is in neutral position.

- Press activation button (1) at the rear side of the driving lever.
- Moving the driving lever backwards will cause the machine to move backwards and accelerate.
- If the lever is released it will return to its central position automatically. The speed remains constant.
- Moving the driving lever forwards while driving backwards will decelerate the machine until it comes to a standstill by adherence.



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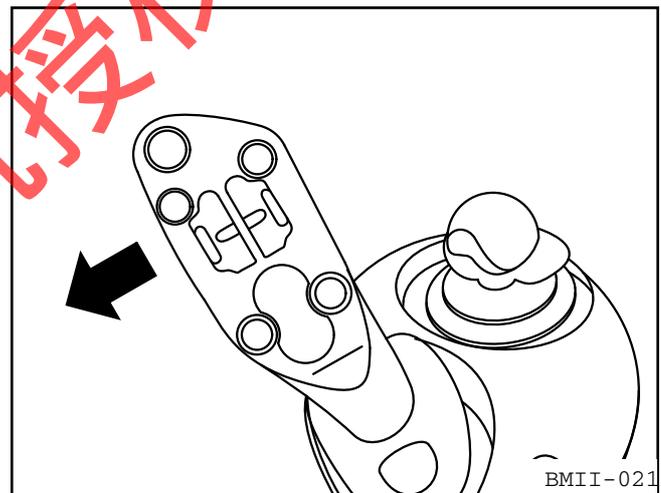
If the road safety switch is in field position a reversing alarm occurs when the driving lever is pulled backwards from neutral position (reversing).

9.11 Fast change of direction

(only possible during field operation (fast reversing))

The Big M II decelerates to a standstill, automatically lifts out all three mowers and accelerates in the opposite direction (approx. 70% of the previous driving speed).

- while driving tap the driving lever to the left and simultaneously press the activation button on the rear side of the driving lever.



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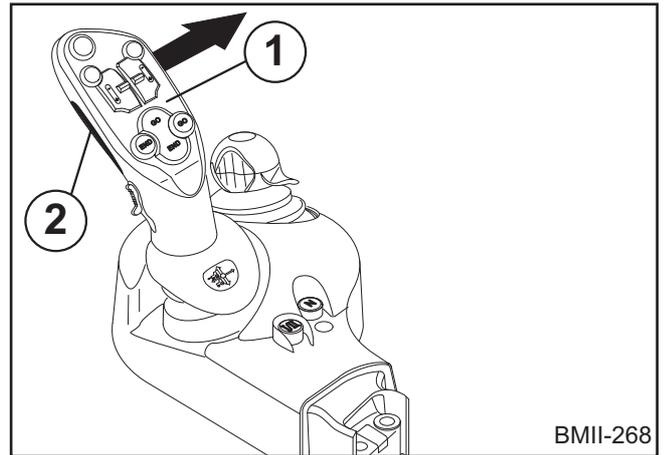
9.12 Cruise control

The cruise control allows you to automatically reach the saved speed.

Depending on which acceleration level is selected, the adaptation to the saved speed is carried out either slower or faster.

Saving the speed

- Accelerate to the speed desired.
- Save the speed by **pressing the activation key (2)** and simultaneously operating the driving lever (1) to the right-hand side. The saved speed (1) will appear in the display.

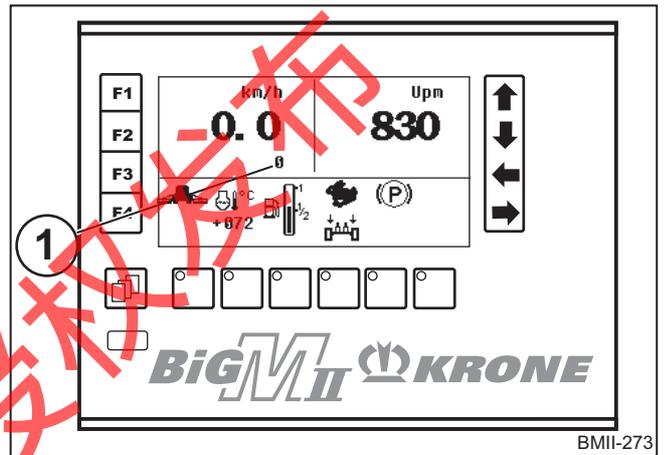


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Loading the speed

- The saved speed is reached by operating the driving lever (1) to the right-hand side **without pressing the activation key (2)**.

The vehicle speed changes with the engine speed. If the engine speed is increased, the vehicle speed is also increased. If the engine speed is reduced, the vehicle speed is also reduced.



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9.13 Preventing Overheating of the Hydrostat System

If the hydrostat system overheats an acoustic warning signal occurs and an optical warning symbol appears on the display. Turn off engine and establish cause of overheating.

Then improve the effectiveness of the hydrostatic ground drive by selecting a lower shift step this will reduce the oil temperature.



If the ground drive has been killed, never wait longer than 5 seconds to reset the drive lever to "Neutral", then select a lower gear.

The drive moment which acts on the drive wheels depends on the oil pressure in the hydrostatic drive system. If the pressure requirement becomes higher than the pressure in the hydrostat system, the pressure relief valve will open and the self-propelled high performance mower-conditioner will not move.

As soon as the required drive moment decreases (this is achieved by selecting a lower gear) the self-propelled high performance mower-conditioner will drive on again.

9.14 Transport Information



- To meet requirements for a sufficient spacing to electrical overhead lines the total height of the machine may not exceed 4 m (13 ft).
- When driving on public roads, lower the front axle to achieve a transport height of max. 4 m.
- Observe the appropriate traffic regulations when driving or towing on public roads. Use additional warning lamps and equipment available from your KRONE dealer.

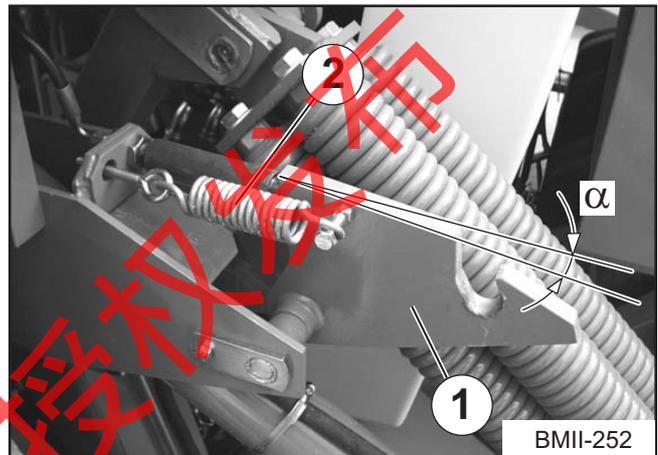


When transporting on a low-loader cover the exhaust pipe so the turbo loader cannot turn.

9.15 Transport Position



Before the lateral mower mechanisms are brought in transport position, a visual inspection of the mechanical safety devices to accomplish. The pawl (1) must itself, if the mower mechanisms are in working position in the shown position rule ($\alpha = \text{approx. } 5^\circ$). Pay attention to a normal position of the spring (2).



Moving the lateral mower units from working to transport position:
The lifting cylinders are fitted with a hydraulic cushion. That means the lateral mower units are slowed down before reaching locking pawl (1). It is therefore essential to keep the switch pressed until the lateral units are securely locked in engagement (see the „multifunction lever“ section for switch assignment).



In transport position the lateral mower mechanisms must be into the vertical position folded and mechanically locked. In addition the mower mechanisms up to the notice must be raised. Examine the position of the mower mechanisms after folding.



When „unfolding“ is activated, the lowering process starts with a small delay since locking pawl (1) must be first be released. It is therefore essential to keep the switch pressed until the respective mower unit starts moving and reaches the headland position

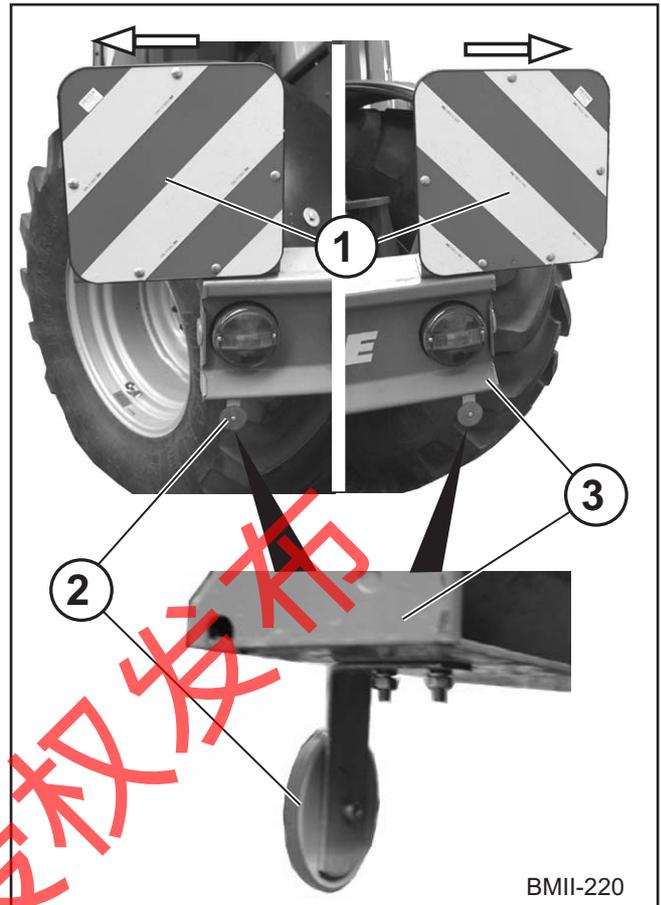


Before transport on public roads:

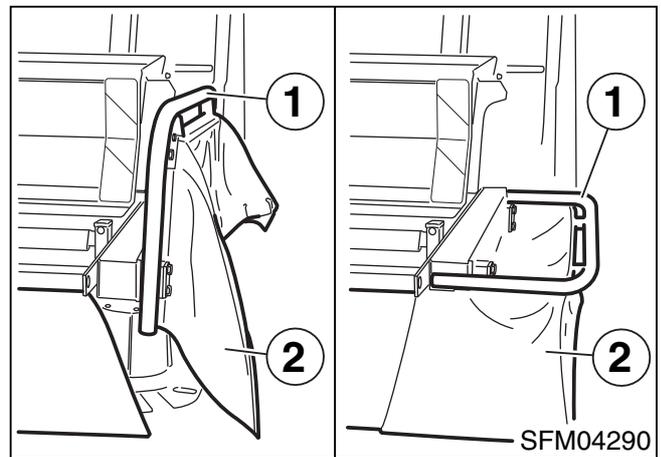
- Before transport on public roads, note that the rear warning signs are assembled in the outer positions. If they are not, change them.
- Mount the rear reflectors (2) on the lamp support (3)



The rear reflectors are on the left side of the machine in the storage compartment with the hardware required to mount them.

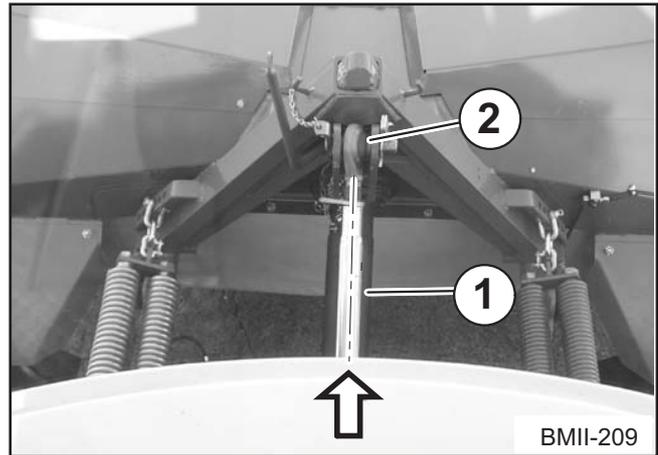


- Fold up the side guards (2) with the rail (1).
- Move the mowers into transport position.
- During transport it is prohibited to remain on the cabin platform.

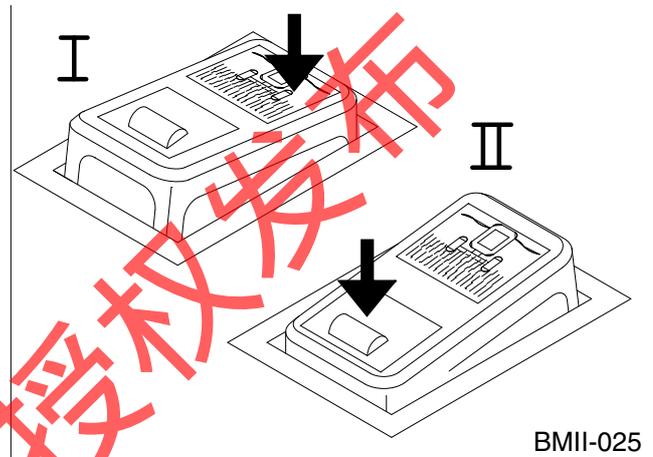


Move the front mower to the central position when employing the levelling mechanism option.

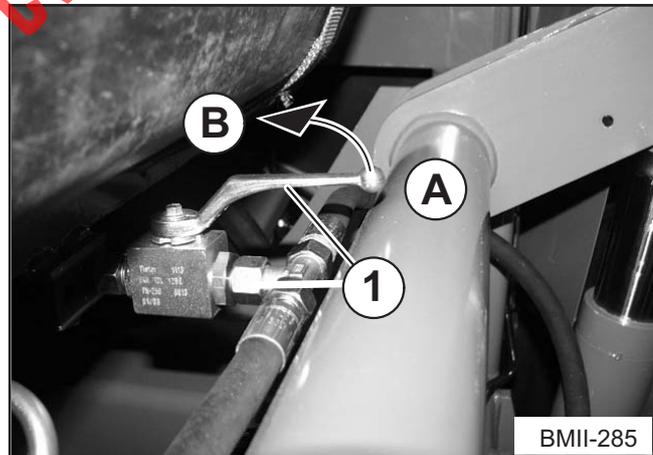
- The front mower is in central position, as soon as the arrow (1) is adjusted central to the top link (2).



- Set the road safety switch to "Road" position. (Position II)



- Set shut-off valve of front arm to shut position (position B).
The shut-off valve is located under the front guard.



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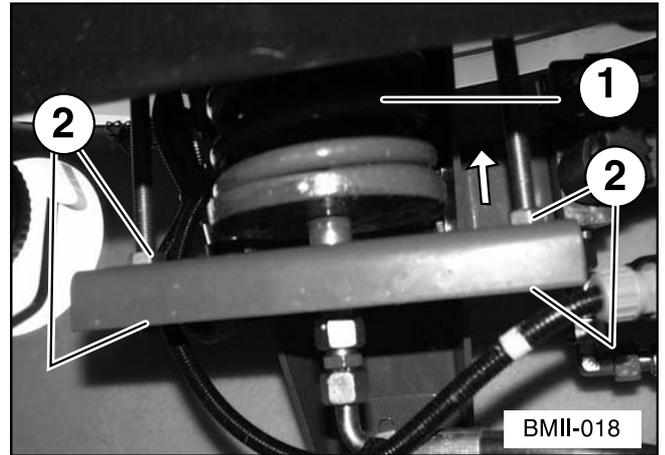
9.16 Emergency Disengagement of the Parking Brake



Only tow out of the danger area.
Never tow over long distances.

The spring is located at the spring storage cylinder below the front apron.

If the machine does not build up the oil pressure fir disengaging the parking brake, the parking brake can be disengaged manually. To do this the spring (1) must be set to Block.



- Loosen nuts (2).
- Set spring (1) to Block.
- Tighten nuts (2) fix by locknut.

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10 Mowers – General

10.1 Proper Use of the Mowers

The disc mowers are designed solely for normal agricultural use (use in accordance with specifications).

Any use of the machine for other purposes is deemed not to be in accordance with specifications. The manufacturer bears no responsibility for any resulting damage – such use is entirely at the operator's risk.

Use in accordance with specifications also includes observing the operating, maintenance and service instructions prepared by the manufacturer.

The disc mower must only be used, maintained and repaired by personnel who are acquainted with the machine and have been informed of the dangers involved.

The applicable accident prevention regulations and all other generally recognized safety, health and road traffic regulations must be observed.

Any unauthorized alterations to the machine render any liability for damage undertaken by the manufacturer null and void.



- To prevent an individual mower from overloading, when operating a single mower do not drive faster than you would operating all mowers simultaneously.
- The mowers are suitable for and intended for cutting crops growing on the ground!
- The mowers are **not** suitable for mowing embankments!
- Maintain an adequate safety distance to the cutting tools during operation.
- The support skids must rest on the ground before start-up and during work!
- Stones and similar objects can also be slung even when the mower is used correctly. Therefore no one may remain in the danger area! Special care should be taken while working near roads and buildings.
- Check the safety guards regularly. Worn or damaged safety guards should be replaced!
- The protective equipment on the mower, e.g. guards and guard plates, protects against flying stones and similar objects as well as prevents dangerous parts being accessed. They should therefore be brought into protection position before work starts.
- Keep clear of the slewing range of the mowers while they are mowed from transport into operating position and vice versa.
- The accident prevention regulations must be observed.

10.2 Adjusting the Mowers

10.2.1 Special Safety Instructions



- Maintenance, cleaning and repair work should be done only when the machine is at a standstill. Switch off the engine, remove the ignition key. Secure the machine from rolling away.
- After completing maintenance work reattach all protective devices properly. Avoid skin contact with oil and grease. Contact a doctor immediately if injuries are caused by escaping oil.
- The cutter blades can continue to rotate after the drive has been switched off. Only approach the machine once the work tools have come to a complete standstill!



The disc mowers are designed for forwards travel. If the road safety switch is in field position, the mowers are automatically lifted out during reversing.

10.2.2 Guards on the Mowers

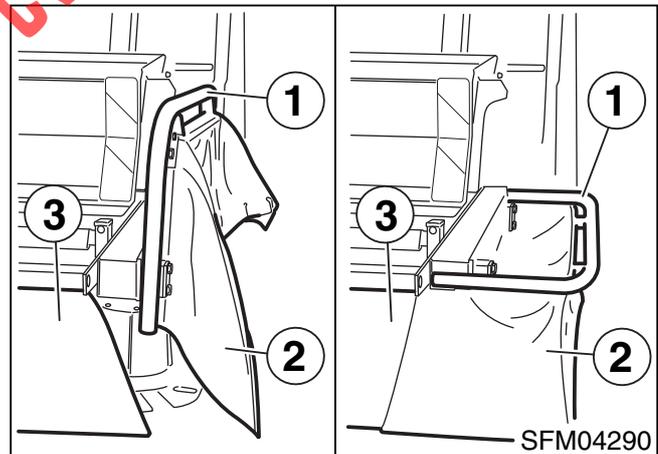


Fold down the side plates (1) before operation.

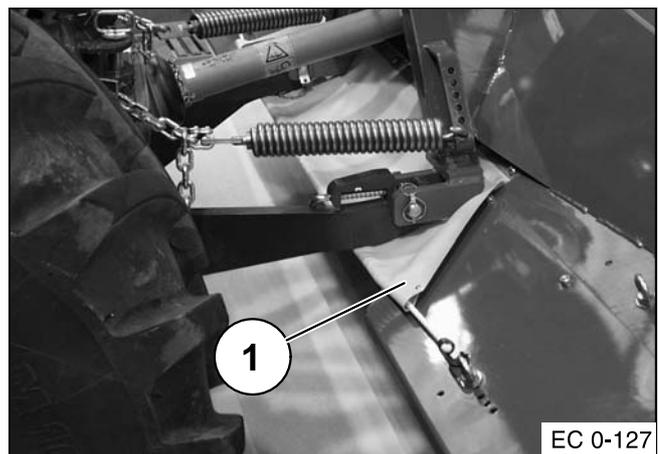
- Check the safety guards (2,3) regularly.
- Replace worn or damaged safety guards.



The protective equipment on the mowers, e.g. guards and guard plates, protects against flying stones and similar objects as well as prevents dangerous parts being accessed.



The protective canvas (1) must be tightened each time before using the mower so that it cannot be caught by the auger of the conditioner.



10.2.3 Setting the Cutting Height



Adjustments must always be made only when the drive is switched off and the tractor engine is at a standstill! Remove the ignition key! Secure the tractor against rolling away.

The cutting height is set individually for each mower:
The tilt of the disc mowers and thus the cutting height is adjusted via threaded spindles. There is an extension pipe in the tool box.



Before adjusting the cutting height, it is essential to move the front axle to „mowing position“ (see the section „manual operation of axle spring suspension“).

Front mower

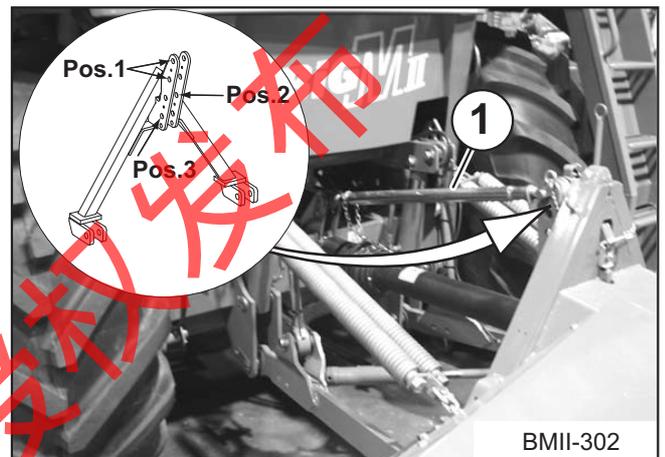
With the quick-coupling triangle (Weiste triangle), the front mower can be suspended in multiple positions, resulting in the front mower being able to be lifted more or less high.

- Upper position (1): Front mower is lifted higher
- Center position (2): Standard position
- Lower position (3): Front mower is lifted less high

Controlling the top link arm in the lower positions (2,3) of the Weiste triangle results in a smaller change of the front mower tilt, which results in the cutting height remaining constant during ground adaptations in extremely uneven terrain.

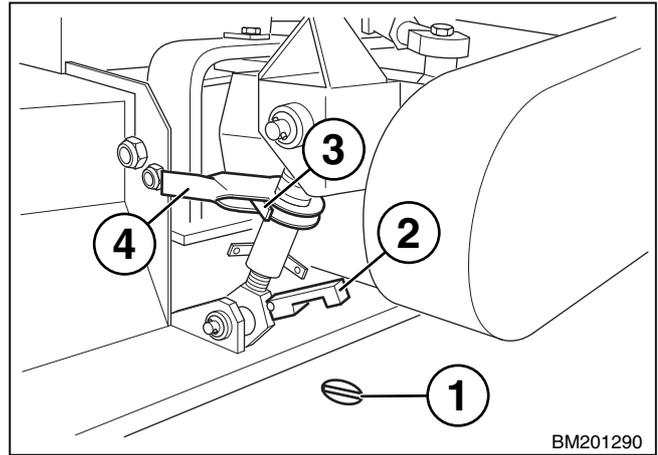
Cutting height can be varied by adjusting top link (1).

Longer top link arm = shorter cutting height
Shorter top link arm = longer cutting height

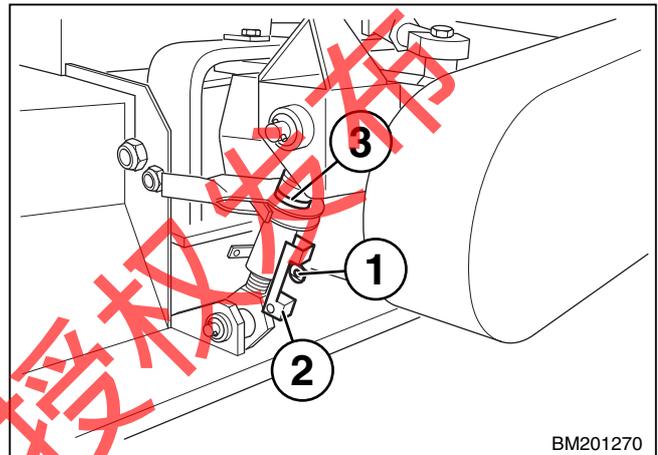


Side mowers

- Disassemble the lynch-pin (1).
- Remove the securing ring (2).
- Adjust the direction of adjustment ratchet (4) rotation on the lever (3).
- Lengthening the threaded spindle produces a smaller cutting height.
- Shortening the threaded spindle produces a greater cutting height.

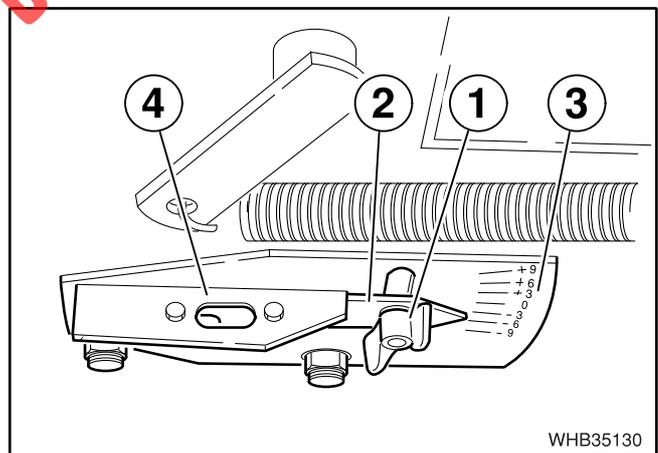


- Turn the threaded spindle (3) until the securing ring (2) can be inserted.
- Secure the securing ring (2) with the lynch-pin (1).



The desired cutting height can be adjusted and read off using the air level.

- Release wing nut (1).
- Move pointer (2) to the desired angle on the angle scale (3).
- Tighten the wing nut again.
- Adjust the mower using the setting ratchet until air bubble (4) becomes visible at the centre of the slotted hole.



One revolution on the top link sleeves of the lateral mowing units (12 ratchet steps) corresponds to approximately 4 revolutions on the top link sleeve of the front mowing unit.

 Additional high cut skids have to be installed.

Indication (z.B)	theoretical cutting height	Working conditions
+ 6°	ca. 11 cm	HighCut
+ 3°	ca. 8 cm	Arable forage crop moist and soft ground
+ 0°	ca. 6 cm	Arable forage crop normal conditions
- 3°	ca. 4cm	dry conditions
- 5°	ca. 3 cm	setting the mower to low risk of sward damage

10.2.4 Setting the Ground Pressure



Before adjusting the ground pressure, it is essential to move the front axle to „mowing position“ (see the section „manual operation of axle spring suspension“).

Front mower

The ground pressure of the cutterbars is adapted to the local conditions using compensation springs. In order to protect the turf the cutterbars should be relieved to such an extent that they do not jump during mowing and do not leave any marks on the ground.



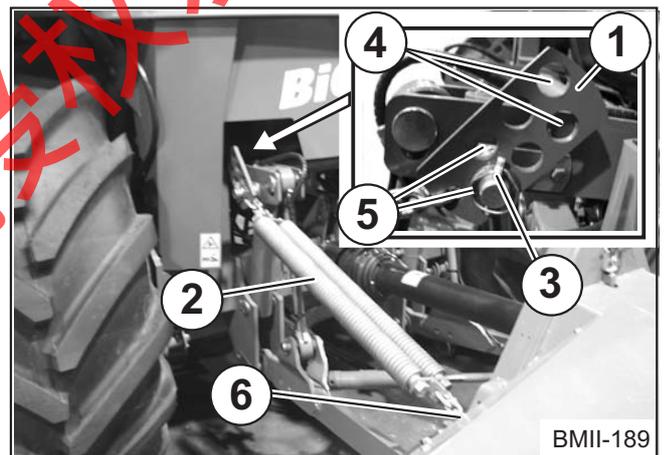
- The adjustment of the compensation springs must only be carried out when the front disc mower is in transport position. In working position, the compensation springs are under a high tension.

- Taking off the compensation springs when the mower is in working position can cause serious injury.
- The lower screw-in sections of the compensation springs must be completely screwed in.

- Before adjusting the adjustment piece (1) the front mower must be set to transport position.
- Undo lynch-pin (3).
- Unhook springs (2).
- Insert adjustment piece (1) into the hole desired.
- Hang springs (2) and secure with lynch-pin (3).
- On the mower side the springs are mounted in the top hole (6).

Adjustment piece (1) in top position (4) = lower spring tension = increased ground pressure

Adjustment piece (1) in bottom position (5) = higher spring tension = reduced ground pressure



For slope compensation the front mower must be in central position (see chapter 3.4, Multi-function Lever)

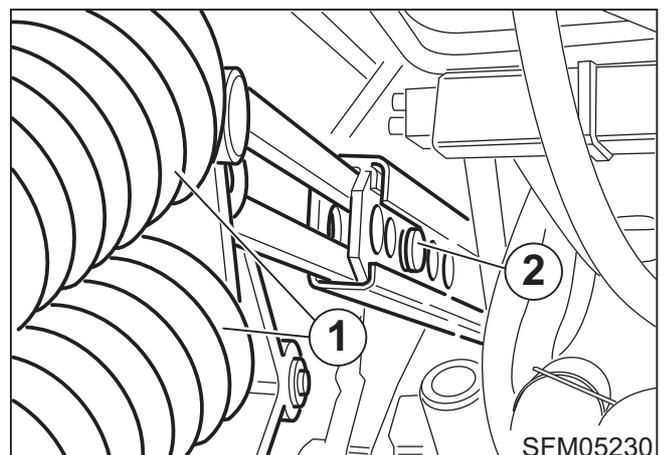
Side mowers

The side mowers are relieved via four extension springs (1) on the left-hand and right-hand arm. The ground pressure can be set by moving the pin (2).

- Raise the side mowers above the stand-by position so the compensation springs are relieved.
- First remove the lynch-pin and then pull out the pin (2).
- Pin further to the left: lower ground pressure
- Pin further to the right: higher ground pressure
- Insert pin (2) and secure with lynch-pin



Maximum relief when driving on the road. Mount bolts in stage 3 (medium bore).



10.2.5 Adjusting the Front Axle Height

The sensor for the height adjustment of the front axle is located at the front bottom left, at the frame next to the articulated drive shaft.

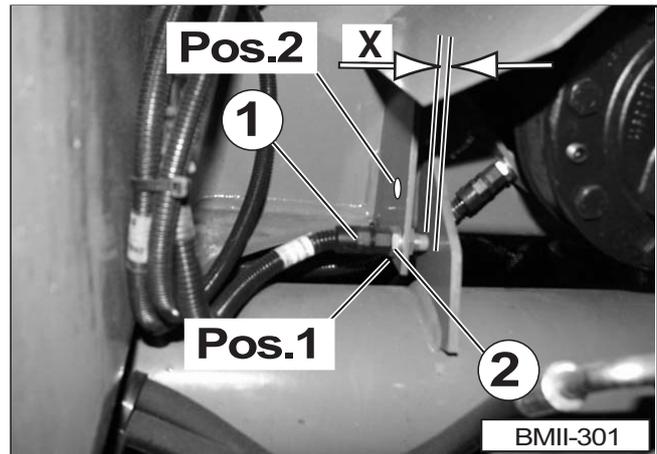
The sensor for the front axle height can be mounted at two different positions.

Pos. 1 (lower hole) = Standard

Mounting the sensor in the upper Pos. 2 results in a lower front frame position, to achieve extremely low cutting heights.

To do this:

- Undo the check-nut (2).
- Remove the sensor (1) from Pos. 1.
- Adjust sensor (1) in Pos. 2 until the distance X is set to 1.5–2 mm.
- Retighten the check-nut (2).



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10.2.6 Setting the Conditioner Speed (CV)

Two conditioner speeds can be set on the main gearbox. This influences the efficiency of the conditioner and power consumption.

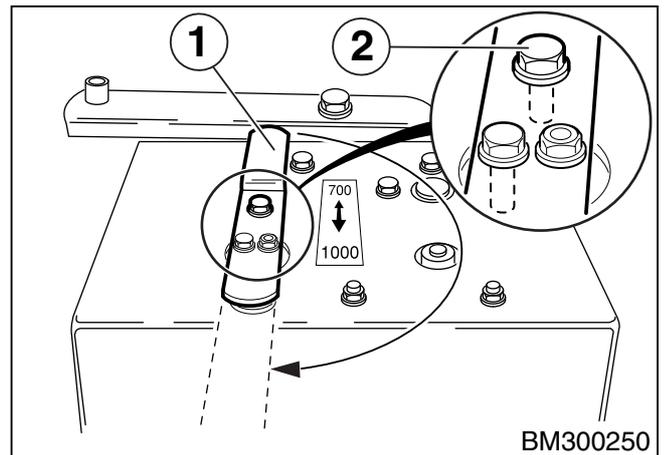
Normal operation: 700 r.p.m.

Maximum operation: 1000 r.p.m.

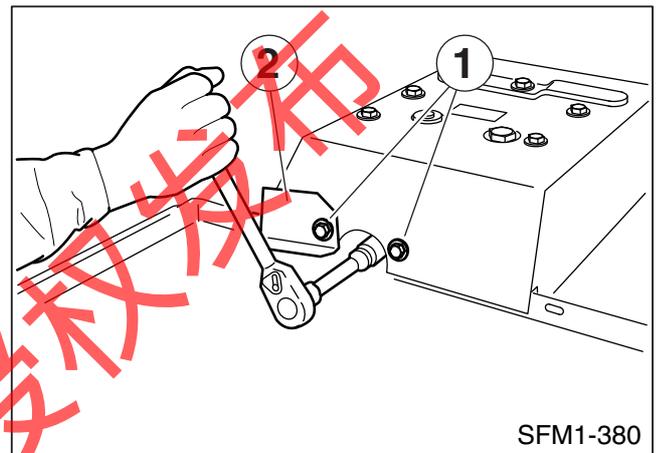
Only use the speed 700 r.p.m. during the running in phase of approx. 25 h.

- Remove the screw (2) on the shift lever (1).
- Turn the shift lever 180°.
- Secure the shift lever with the screw (2) again.

To synchronise the gearwheels, loosen the screws (1), open the flap (2) and turn the drive shaft with the adequate tools during the gear shift process.



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10.2.7 Setting the Conditioner Cover Plate on the Front Mower(CV)

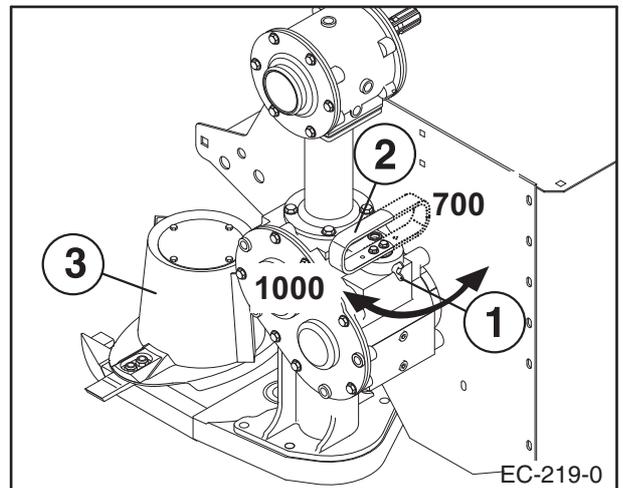
 **The conditioner speed must only be set with the engine turned off and the ignition key removed.**

Two conditioner speeds can be set on the Schaltgetriebe. This influences the efficiency of the conditioner and power consumption.

Normal operation: 700 r.p.m.

Maximum operation: 1000 r.p.m.

- Remove the wing screw (2) on the shift lever (1).
- Turn the shift lever 180° (the mowing auger (3) must be turned in such a way that the shift lever can be fully turned).
- Secure the shift lever with the wing screw (2) again.

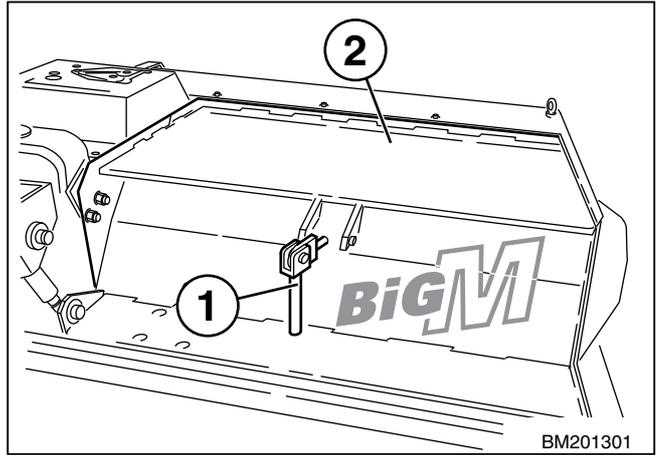


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10.2.8 Setting the Conditioner Cover Plate (Big M CV)

The conditioning effect of the mowing crop can be influenced by adjusting the conditioner cover plate using the screw (1). Turning clockwise increases the conditioner effect with an increase in power consumption. Turning the screw anticlockwise reduces the conditioning effect.

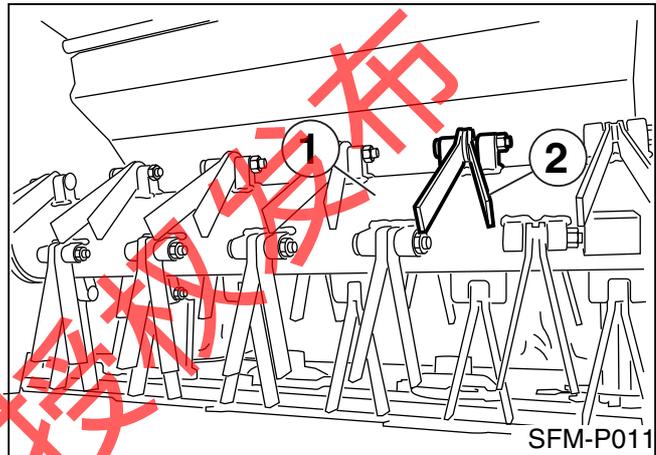
- Adjust the conditioner cover plate with the adjustment pin (1) in side mowers.



- Always check the conditioner roller (1) for damaged V-tines (2) before operation.
- Straighten bent tines.
- Replace broken tines.
- Check bearing pins and bushing on tine mountings. To avoid losing tines, replace bearing pins and bushings in good time!



The conditioner shaft turns at up to approx. 1000 r.p.m. Bent and broken tines cause unbalanced rotation. For this reason replace broken V-tines immediately.



10.2.9 Setting the Roller Conditioner (optional equipment)

General

The roller conditioner is intended for operation in legumes and other leaf vegetables.

The conditioner intensity is set using adjusting spindles (1) which are used to change the spacing and application force of the rollers. The minimum spacing between the rollers should always be at least 4 mm.

Setting the Roller Spacing

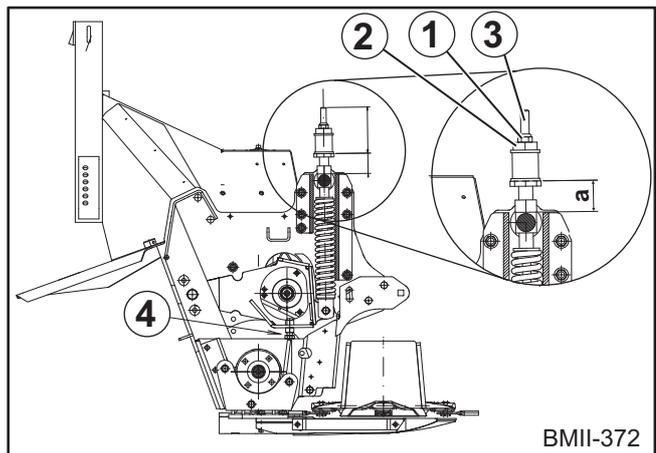
- Loosen the lock nut (1) with spanner (size 24).
- Turn the adjusting nut (2) with spanner (size 46) on the threaded spindle (3).

Turn clockwise: smaller spacing
Turn anticlockwise: larger spacing



Bolt (4) is block for minimal distance between the rollers of 4mm, measured between peak and tube.

- Tighten the lock nut again with spanner (size 24).



Setting the Roller Pressure

- Loosen the lock nut (2) with spanner (size 41).
- Turn the spindle on the screw head (1) with spanner (size 55).

Turn clockwise: greater application force
Turn anticlockwise lower application force

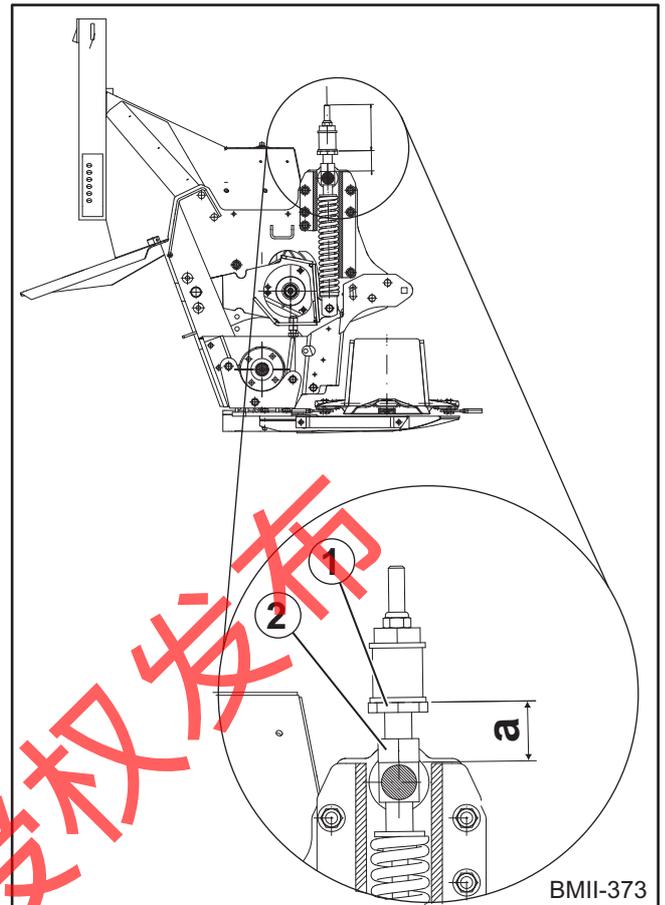
- Tighten the lock nut (1) again with spanner (size 41).



Dimension „a“ must be in range of 60-75mm. If a distance smaller than 60 mm is adjusted the roller gap cannot reach maximum.



Readjust the roller spacing after each adjustment.



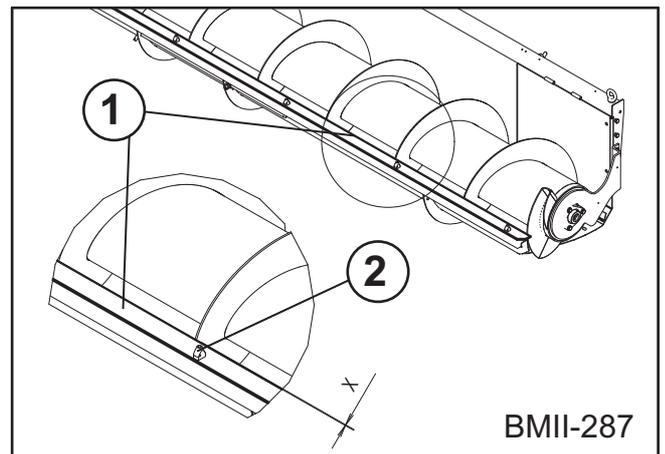
10.2.10 Adjustment of Stripper at Cross-Auger (Optional)

The stripper (1), at the cross-auger (right and left), is used to strip the stalks and prevent the cross-auger from clogging.

To achieve an optimum work result, the dimension X must be kept between 0 to 2 mm.

To adjust the scraper:

- Loosen the screw (1).
- Move the scraper along in the oblong hole until the dimension X=0-2 mm is reached.
- Tighten the screw (1) again.



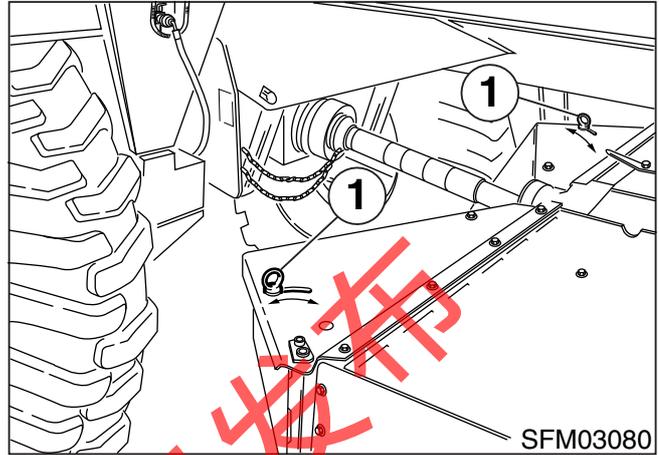
10.2.11 Setting the Swath Width

The swath width is adjusted using the swath board on the rear of the disc mowers.

Front mower

Adjust the swath width so that the track of the mower still remains free.

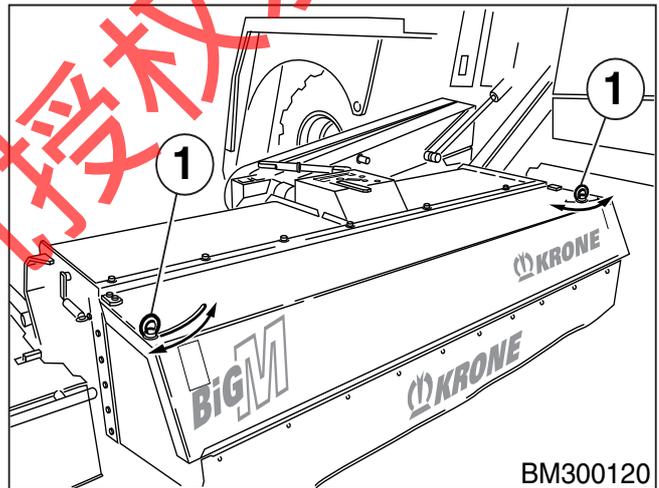
- Loosen ring nut (1).
- Set swath width.
- Tighten the ring nut (1) again.



Side mowers

Setting the swath width wide.

- Loosen ring nut (1).
- Set swath width.
- Tighten the ring nut (1) again.



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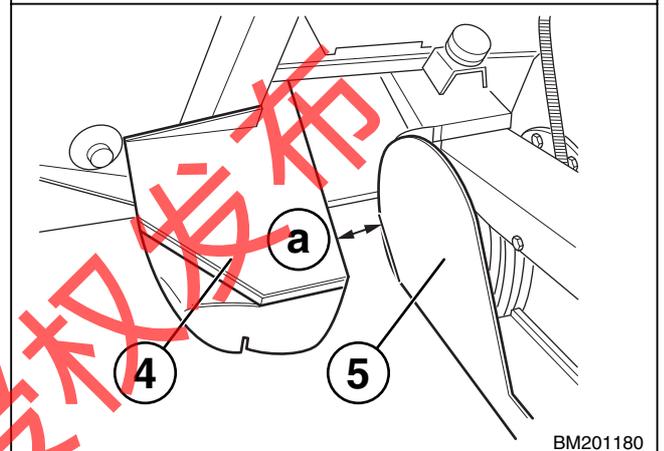
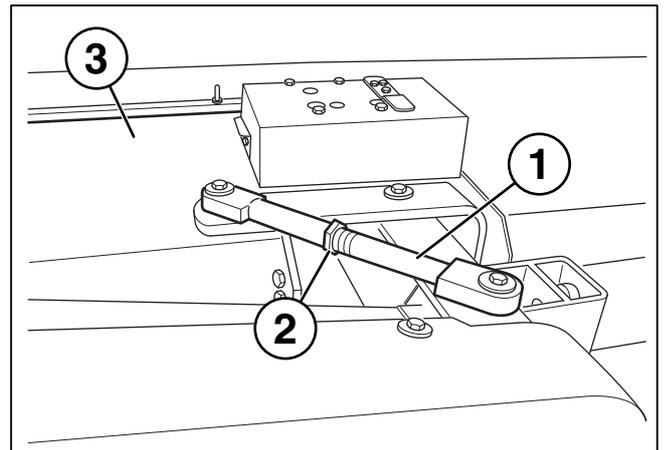
10.2.12 Setting the transverse link on side mowers

Use the transverse link (1) to orient side mowers (3).

- Loosen the lock-nut (2) on the transverse link (1).
- Adjust the transverse link (1) until the distance a between the side mower (4) and the extension arm (5) is set to 60 mm.
- Tighten the lock-nut (2) on the transverse link (1).



With a cutting height of 0°, the distance "a" between the side plate (4) and the extension arm (5) must not be less than 60 mm CV / 100 mm CRI.

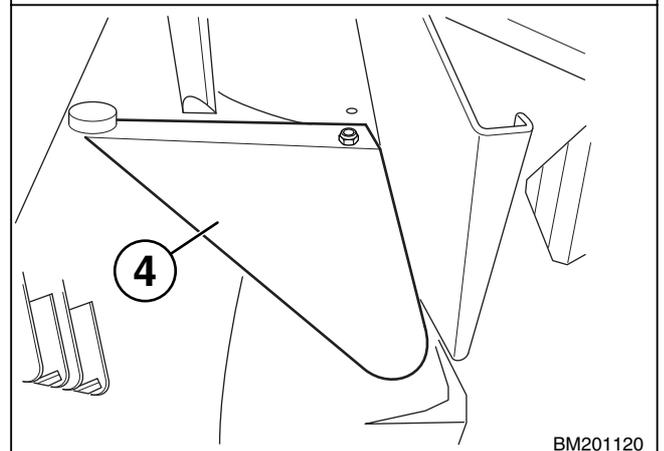
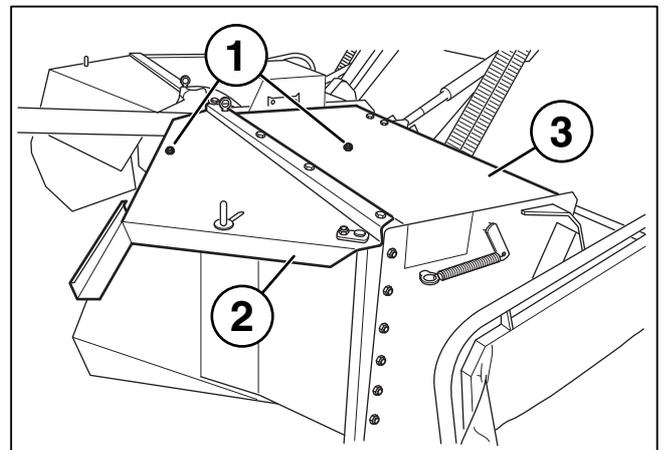


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10.2.13 Front mower guiding plates

There are guiding plates situated in front mowers (3) in the area of the swath former (2). These are fitted to the housing with fixture screws (1).

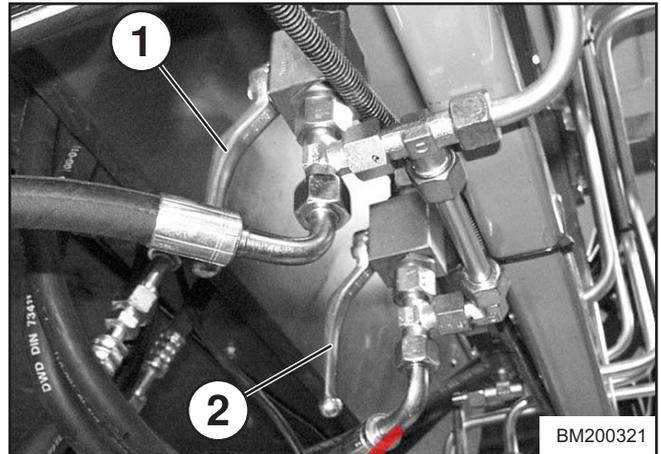
- If the swath is not deposited uniformly, check whether the guiding plates (4) are distorted and readjust if necessary.



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10.2.14 Deactivating the axle suspension

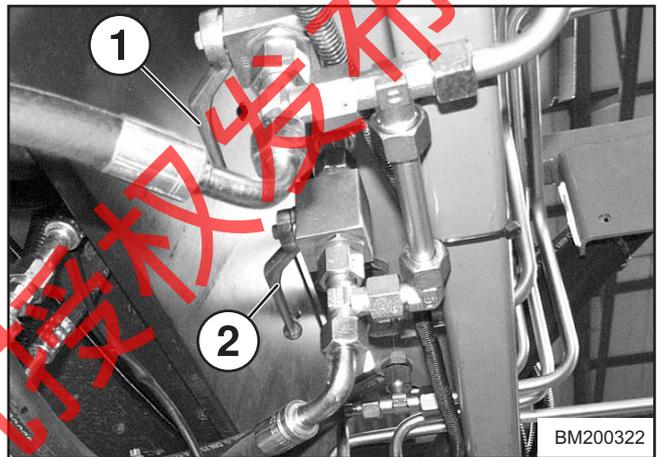
The Big M II front axle has a hydro-pneumatic suspension. If the front axle suspension is activated, the two ball valves (1) and (2) are open, as illustrated in the figure. The suspension of the front axle can be deactivated by shutting the ball valves.



The front axle suspension can be deactivated.

- To deactivate the front axle suspension, shut the ball valve (1) for the left hydraulic cylinder and the ball valve (2) for the right hydraulic cylinder .

The front axle can be moved both with activated and deactivated suspension.



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10.3 Maintenance of the Mowers

10.3.1 Special Safety Instructions

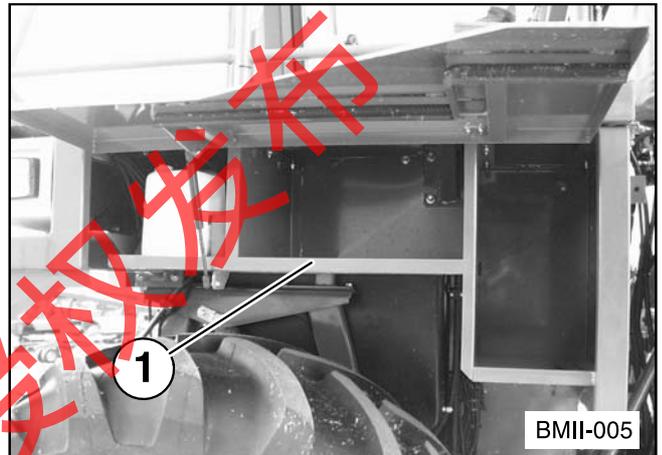


- Maintenance, cleaning and repair work should be done only when the machine is at a complete standstill.
- Shut down the engine and remove the ignition key.
- After completing maintenance work reattach all protective plates and protective devices properly.
- Avoid skin contact with oil and grease.
- With injuries caused by oil escaping under pressure, get the assistance of a doctor immediately.
- Follow all further safety instructions, to avoid accidents and injuries.

The tool supplied can be kept in the storage compartment (1).



Regularly check that nuts and bolts are tightly in place (approx. every 50 hours) and tighten them if necessary.



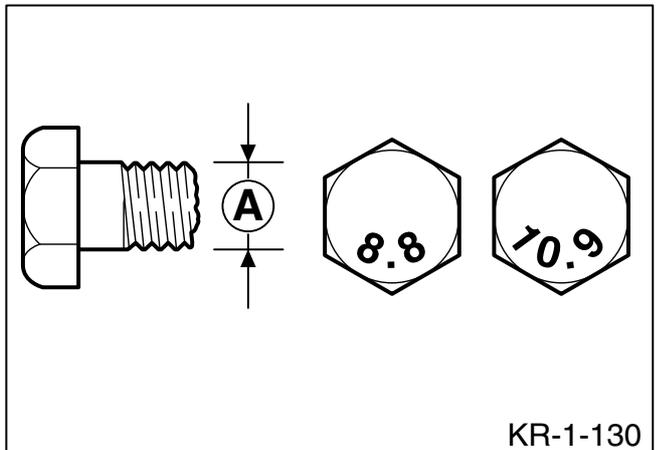
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10.3.2 General

A = thread size
(Resistance class is given on the bolt head)

Torque M_A in Nm (unless otherwise stated).

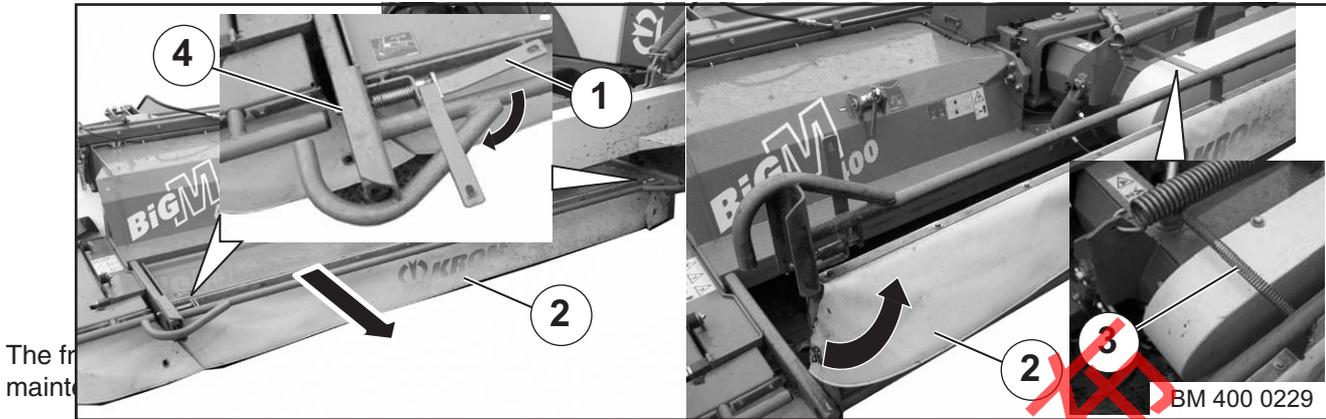
A Ø	5.6	6.8	8.8	10.9	12.9
	MA [Nm]				
M 4		2,2	3	4,4	5,1
M 5		4,5	5,9	8,7	10
M 6		7,6	10	15	18
M 8		18	25	36	43
M 10	29	37	49	72	84
M12	42	64	85	125	145
M14		100	135	200	235
M14x1,5			145	215	255
M 16		160	210	310	365
M16x1,5			225	330	390
M 20			425	610	710
M 20x1,5				640	
M 24			730	1050	1220
M 24x1,5	350				
M 24x2			800	1150	1350
M 27			1100	1550	1800
M 27x2			1150	1650	1950
M30			1450	2100	2450



KR-1-130

Screws / Nut	MA [Nm]
Nut for cutting disc flange	850
Bearing house for cutting disc	42
Bearing house for mowing drum	42

10.3.3 Opening the Front Guard



To do this:

- Use the special tool (1) (located in the tool box) to release the lock of the front guard (2).
- Push the front guard (2) as far forward as it will go and then swivel it up.
- Secure the front guard (2) against folding down with a tension spring (3).

Note After maintenance and repair work, fold down the front guard (2) and push it in until the interlocks (4) have engaged (right and left).



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10.3.4 Eliminating Blockages on the Cross Conveyor

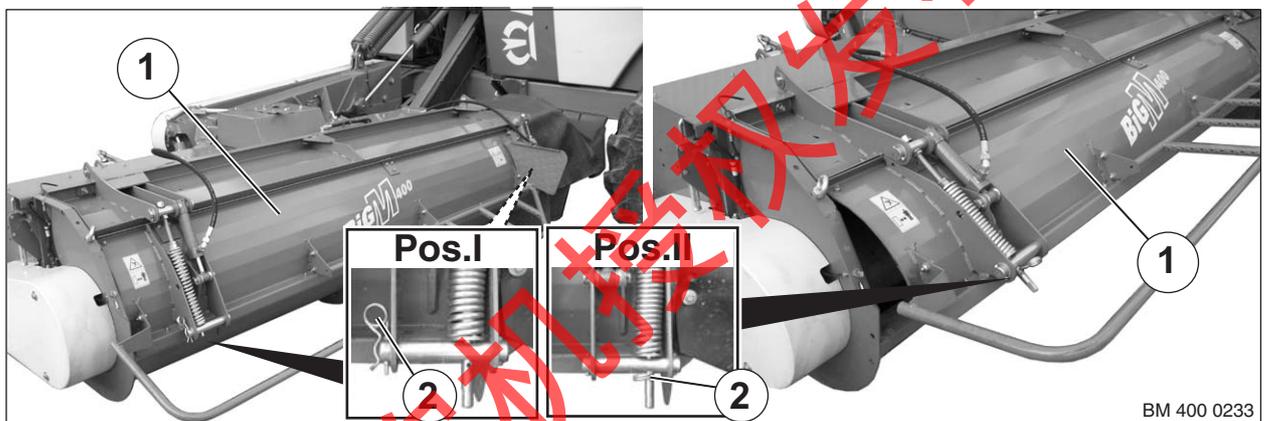


Danger!

Accidental start-up of the machine, moving parts of the machine and / or unexpected movement of the machine.

Effect: Danger to life, injuries or damage to the machine.

- Switch off the engine, apply the parking brake and remove the ignition key.
- Wait until machine parts that are still in motion have coasted down to a stop.
- Secure the machine against the possibility of rolling back by means of wheel chocks.



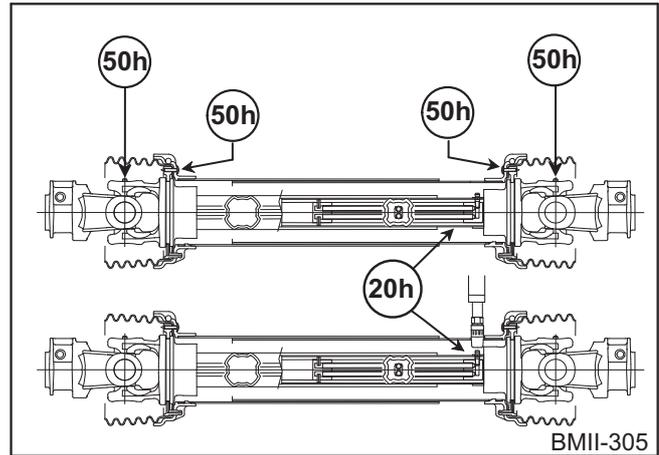
The hydraulic auger hood (1) must be secured against folding down during maintenance, cleaning and repair work on the augers by means of the spring cotter pins (2).

To do this:

- Lower all mowing units to the ground.
- Open the hydraulic auger hoods (1).
- Secure the hydraulic auger hood (1) by moving the spring cotter pins (2) (right and left) from pos. I to pos. II.
- After the fault is eliminated, move the spring cotter pins (2) (right and left) back to their original positions (from pos. II to pos. I).
- Close the hydraulic auger hood.

10.3.3 Greasing the Universal Joint Shaft

All lubrication nipples on the universal joint shafts must be lubricated according to the adjacent illustration.

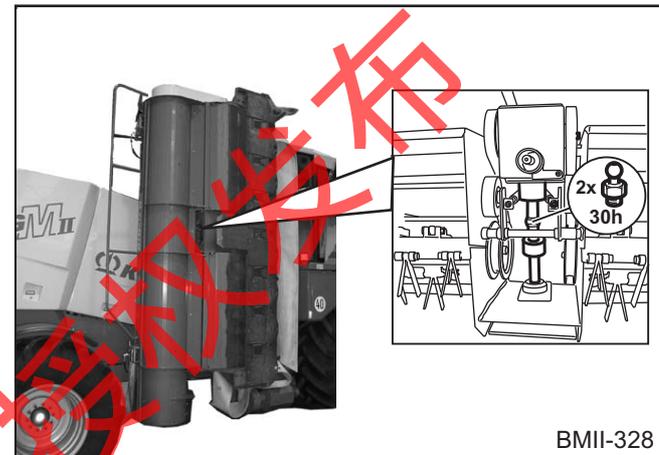


10.3.4 Lubricating the double joints on the main gearbox

All other grease nipples on the double joints must be lubricated as shown in the illustration to the side.



The lateral mowing units must be moved into the transport position first when using hydraulic auger hoods.



10.3.5 Required Quantities and Lubricant Designations for Gearboxes

	Required quantity [litres]	Oil typ Brand name	Biological lubricants Brand name
Main gearbox side mower	2 x 1,7 l	SAE90	on request
Angular drive / Front mower	1,7 l	SAE90	
Input gearbox / Front mower (CV/CRI)	0,7 l	SAE90	
2-speed gearbox / Front mower (CV)	1,7 l	SAE90	
Angular drive / Front mower (CRI)	0,9 l	SAE90	
Gearbox for top roller drive (optional)	0,3 l	SAE90	
Mowing beam / Front mower (CV / CRI)	7 l	SAE90	
Mowing beam / side mower	2 x 8 l	SAE90	

10.3.6 Oil level check and oil change intervals (gearboxes)



- First oil change of the cutter bar after 50 operating hours, then every 200 operating hours (but at least once a year).
- Check the oil level before every operation.
 - For biological lubricants, the oil change intervals must be strictly adhered to due to ageing of the oils.

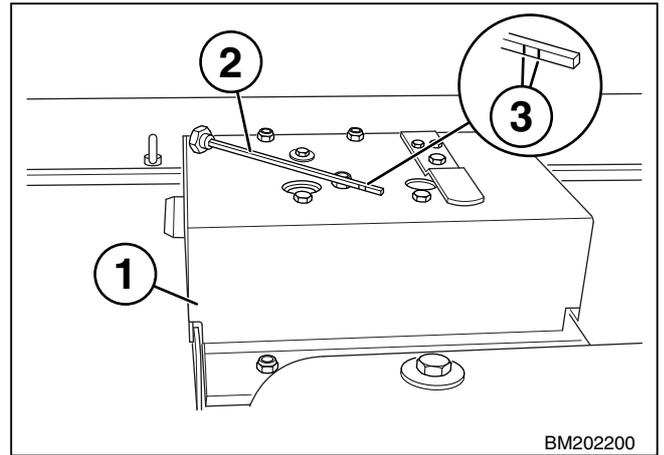
10.3.7 Main gearbox / side mower

Oil inspection:



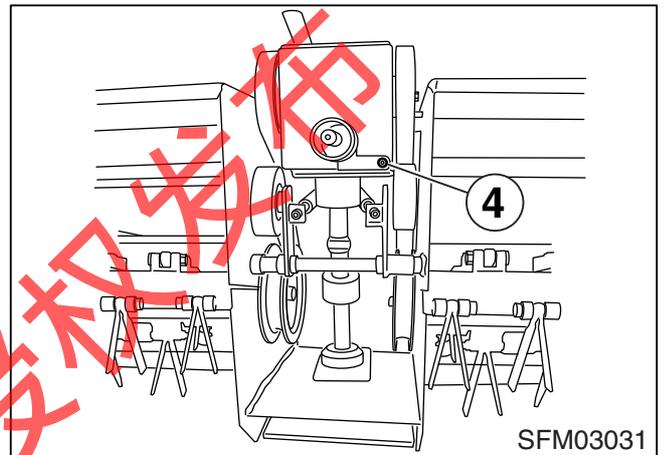
Intervals see section 10.3.6

- Screw the measuring rod (2) out of the main gear (1).
- Clean the measuring rod (2) with absorbent paper or cloth.
- Screw the measuring rod (2) completely back into the main gearbox (1).
- Screw the measuring rod (2) back out of the main gearbox (1).
- Check the oil level and check for abrasion. The oil level must be between the marks (3). If necessary, add more oil (SAE 90) through the measuring rod opening.
- Screw the measuring rod (2) back into the main gearbox (1)



Oil change:

- Unscrew measuring rod (2).
- Unscrew oil draining screw (4).
- Collect the oil in a suitable vessel.
- Fit oil draining screw with new seal.
- Refill oil from the top (measuring rod hole), Screw in measuring rod (2).



Oil quality: see section 10.3.5

Oil capacity: see section 10.3.5



The used oil must be correctly disposed of!

10.3.8 Angular drive / Front mower(CV+CRI)



Intervals see section 10.3.6

Oil inspection:

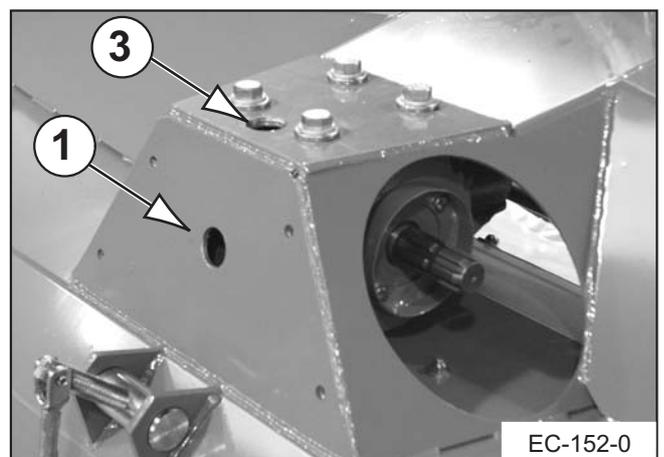
- Remove check screw (1)
- Oil level up to bore hole, if necessary, top up oil (SAE 90),
- Screw in check screw (1)

Oil change:

- Unscrew venting filter (3) and suck out oil.
- Collect the used oil in a suitable collection vessel.
- Refill oil from the top (oil level up to bore hole (1)).
- Screw the ventilation filter (3) back in.

Oil quality: see section 10.3.5

Oil capacity: see section 10.3.5



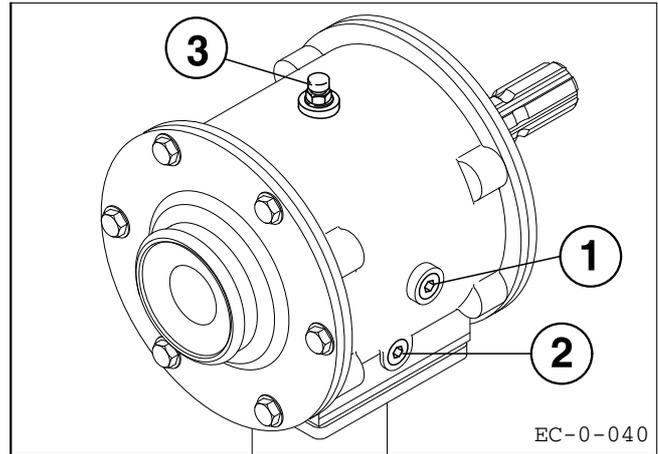
The used oil must be correctly disposed of!

10.3.9 Input gearbox / Front mower (CV+CRI)

- Oil inspection:**
- Intervals see section 10.3.6
 - Remove check screw (1)
 - Oil level up to bore hole
 - If necessary, top up oil (SAE 90), fit check screw

- Oil change:**
- Intervals see section 10.3.6
 - Unscrew the oil draining screw (2)
 - Collect the used oil in a suitable collection vessel.
 - Fit oil draining screw(2)
 - Fill oil through hole (3) (Oil level up to hole(1))

Oil quality: see section 10.3.5
Oil capacity : see section 10.3.5



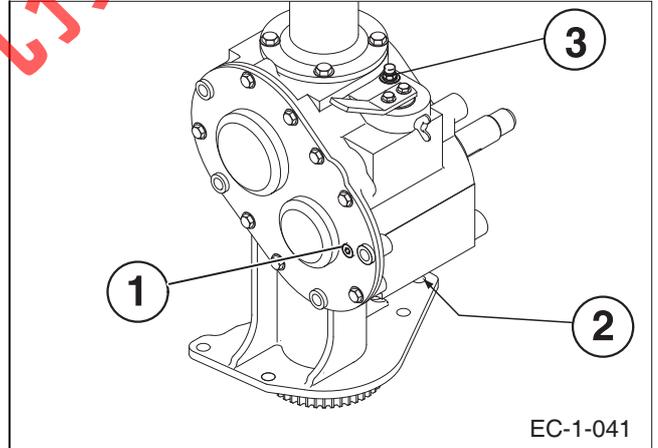
 **The used oil must be correctly disposed of!**

10.3.10 2-Speed-gearbox / Front mower (CV)

- Oil inspection:**
- Intervals see section 10.3.6
 - Remove check screw (1)
 - Oil level up to bore hole
 - If necessary, top up oil (SAE 90)

- Oil change:**
- Intervals see section 10.3.6
 - Unscrew the oil draining screw (2)
 - Collect the used oil in a suitable collection vessel.
 - Fit oil draining screw(2)
 - Fill oil through hole (3) (Oil level up to hole(1))

Oil quality: see section 10.3.5
Oil capacity : see section 10.3.5



 **The used oil must be correctly disposed of!**

10.3.11 Angular drive (CRI)

Oil inspection:

- Intervals see section 10.3.6
- Remove check screw (1)
- Oil level up to bore hole
- If necessary, top up oil (SAE 90)

Oil change:

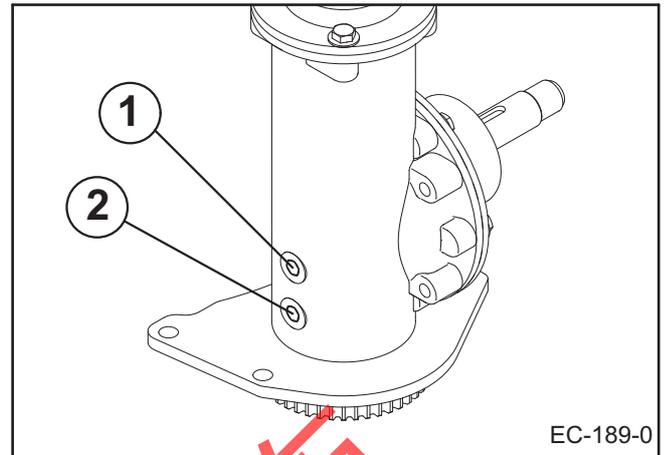
- Intervals see section 10.3.6
- Unscrew the oil draining screw (2)
- Collect the used oil in a suitable collection vessel.
- Fit oil draining screw (2)
- Fill oil (1) (Oil level up to hole (1))

Oil quality: see section 10.3.5

Tank capacity: see section 10.3.5



The used oil must be correctly disposed of!



10.3.12 Gearbox for top roller drive (optional)

Oil inspection:

- Intervals see section 10.3.6
- Remove check screw (1)
- Oil level up to bore hole
- If necessary, top up oil (SAE 90)

Oil change:

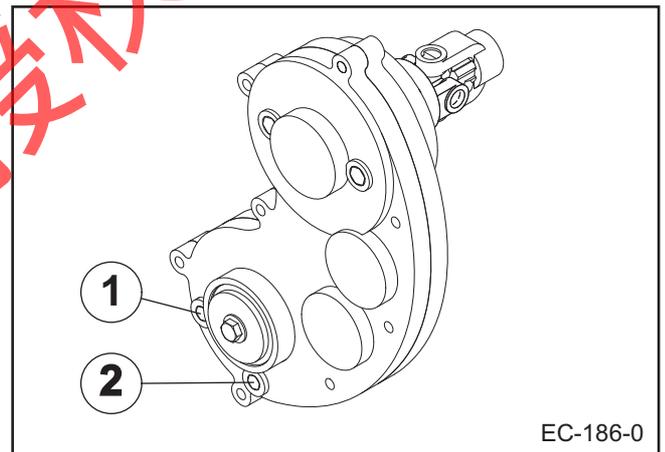
- Intervals see section 10.3.6
- Unscrew the oil draining screw (2)
- Collect the used oil in a suitable collection vessel.
- Fit oil draining screw (2)
- Fill oil (1) (Oil level up to hole (1))

Oil quality: see section 10.3.5

Tank capacity: see section 10.3.5



The used oil must be correctly disposed of!



10.3.13 Oil level inspection and oil change on the front cutterbar



Switch off engine. Remove ignition key.

Oil level check

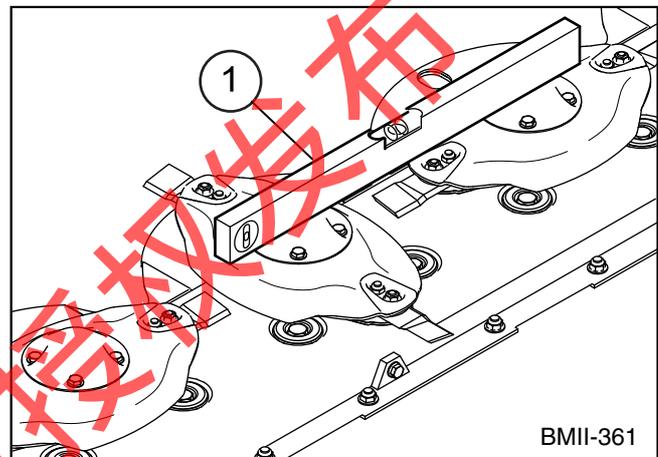
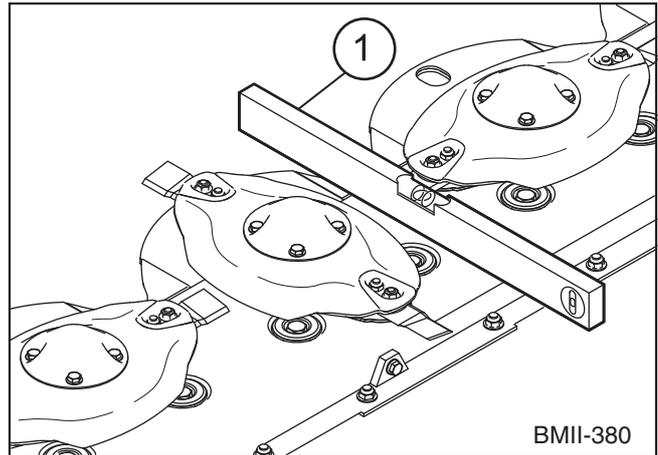
Align the cutterbar using a spirit level (1).

Crosswise

Lay the spirit level on the cutting disc hub parallel to the direction of travel.

Lengthwise

Lay the spirit level (1) on two cutting discs.



10.3.13.1 Carrying out oil check



Lower guards. Nobody should be in the danger zone around the machine.

Allow the machine to run briefly. Wait until the cutterbar has come to a standstill.



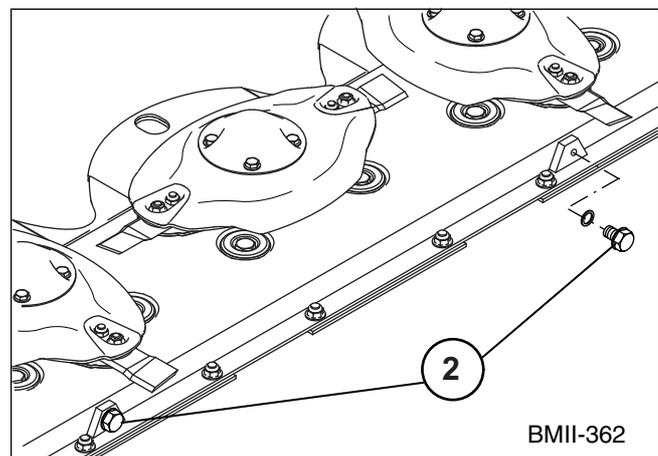
Switch off engine. Remove ignition key.



Check oil level before every operation

Remove one of the two oil check screws (2) on the cutterbar.

Oil level up to bore hole. If necessary, top up oil (SAE 90), fit check screw

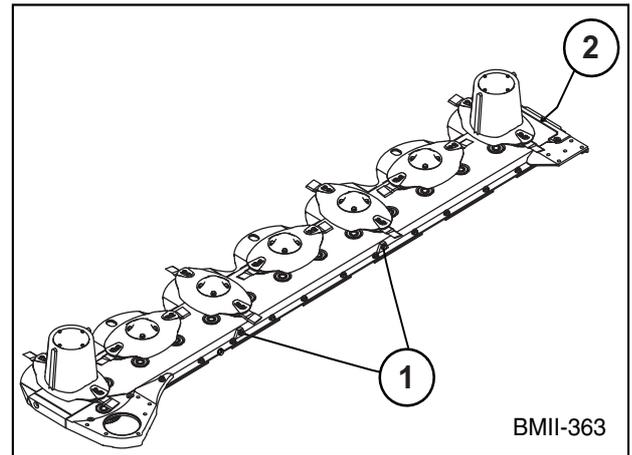


10.3.13.2 Oil change on the cutterbar

- Use a suitable collecting vessel
- Remove cover (2) at the cutterbar end.
- Lower the cutterbar on this side
- Drain oil
- Reinstall cover (2) with new seal.
- Fill oil through one of the two oil check screws (1).
- Align the cutterbar horizontally crosswise and lengthwise before checking the oil level (see Oil check).

Oil quality: see section 10.3.5

Tank capacity: see section 10.3.5



- **Dispose of used oil properly!**
- **Check the oil after any repair work on the cutterbar.**
- **First oil change of all gears after 50 operating hours, then every 200 operating hours (but at least once a**

10.3.14 Oil level inspection and oil change on the cutterbar of the side mowers



Switch off engine. Remove ignition key.

- Cutterbar of the side mowers (1) right/left lift up.

10.3.14.1 Carrying out oil check and oil change on the side mowers

Allow the machine to run briefly. Wait until the cutterbar has come to a standstill.

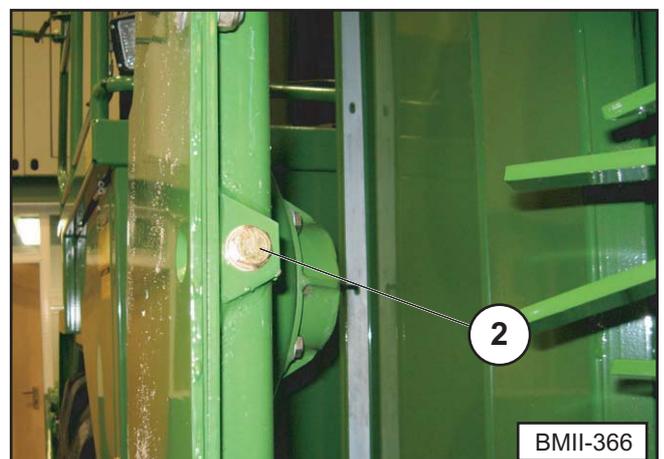


Switch off engine. Remove ignition key.



Check oil level before every operation

- The lower oil control screws (2) at the cutterbar of the side mower mechanisms right/left easily loosen. Footstep oil from the drilling, is the oil level correct. Otherwise oil (SAE 90) must be refilled.
- Oil control screws (2) again tighten.
- Cutterbar of the side mowers (1) fold down.



10.3.14.2 Oil change on the cutterbar of the side mower

- Cutterbar of the side mowers (1) right/left lift up.
- Cover (2) down at the cutterbar dismantle.
- Collect the oil in a suitable vessel.
- Cover (2) with new seal install.



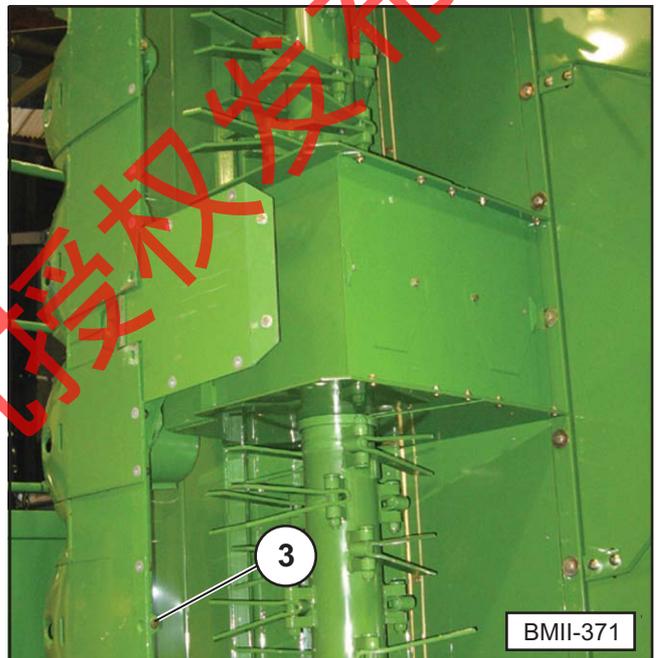
- Fill oil through lower screws (3).
- Check oil level (see section "Carrying out oil inspection")
- Cutterbar of the side mowers (1) fold down.

Oil quality: see section 10.3.5

Tank capacity: see section 10.3.5



- **Dispose of used oil properly!**
- **Check the oil after any repair work on the cutterbar.**
- **First oil change of all gears after 50 operating hours, then every 200 operating hours (but at least once a**



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10.4 Changing Blades on the cutterbars

10.4.1 Special Safety Instructions



The cutter blades can continue to rotate after the drive has been switched off. Only approach once the work tools have come to a complete standstill!

Only carry out work on the mower if the PTO shaft has been disengaged, the engine turned off and the ignition key removed! Secure the tractor against unintended start-up and against rolling.

Safe operation is only guaranteed if the cutter blades have been fitted properly!

Always check the mower for damaged, missing or worn cutter blades before operation, replace cutter blades if necessary! This applies for retaining components.

Only replace missing and damaged cutter blades in sets so there is no unbalanced rotation.

Never fit unevenly worn cutter blades on a drum/disc!

Also check retaining components each time you change the cutter blades and replace them if necessary!

DO NOT TAKE RISKS!
Only use original KRONE spare parts.

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10.5 Checking the Cutter Blades and Blade Holder

**Warning!**

Missing and damaged cutter blades and cutter blade retainers.

Effect: Danger to life, serious injuries or damage to the machine

- Check cutter blades at least once per day and
- check retaining bolts every time you change the blades or after contact with foreign objects.
- Immediately replace missing or damaged cutter blades and cutter blade retainers

10.5.1 Cutter Blades

The borehole on the cutter blades may spread due to wear.

**Danger!**

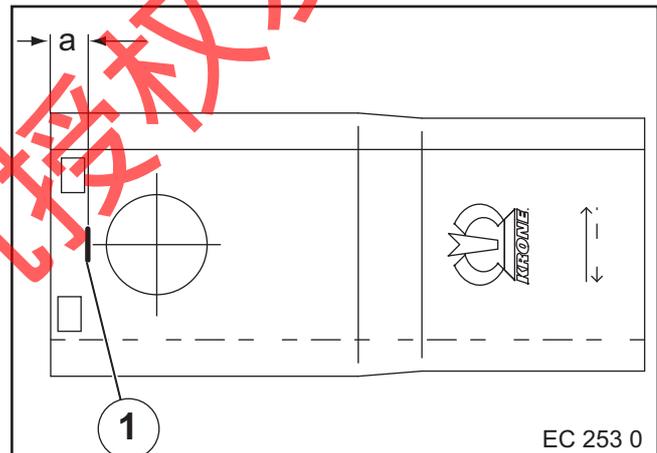
Insufficient thickness of material on the cutter blades. Effect: Danger to life or serious injuries.

- The cutter blades must be replaced at the latest when the wear limit is reached (see mark (1) on the cutter blade; dimension a less than or equal to 7 mm).

**Note**

The cutter blades can be turned around and used on both sides.

- When cutter blades are missing or damaged, they must be replaced as a complete set. This prevents dangerous unbalanced rotation



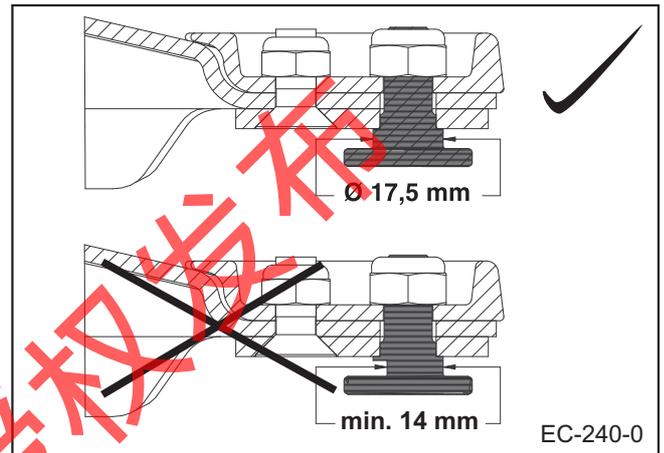
10.5.2 Blade screw connection



Danger!

Insufficient thickness of material on the retaining bolts. Effect: Danger to life or serious injuries.

- At every blade changing check the thickness of the holding bolts material.
- Damage or worn retaining bolts must always be replaced by sets on each cutting disc/blade drum!
- The material thickness of the retaining bolts must not be less than 14 mm at the weakest point.



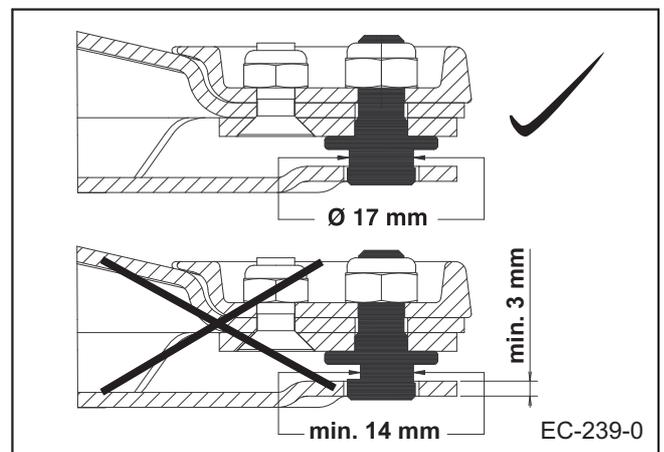
10.5.3 Blade Quick-Fit Device



Danger!

Insufficient thickness of material on the retaining bolts. Effect: Danger to life or serious injuries.

- At every blade changing check the thickness of the holding bolts material.
- Damage or worn retaining bolts must always be replaced by sets on each cutting disc/blade drum!
- The material thickness of the retaining bolts must not be less than 14 mm at the weakest point
- The material thickness of the leaf spring must not be less than 3 mm at the weakest point.

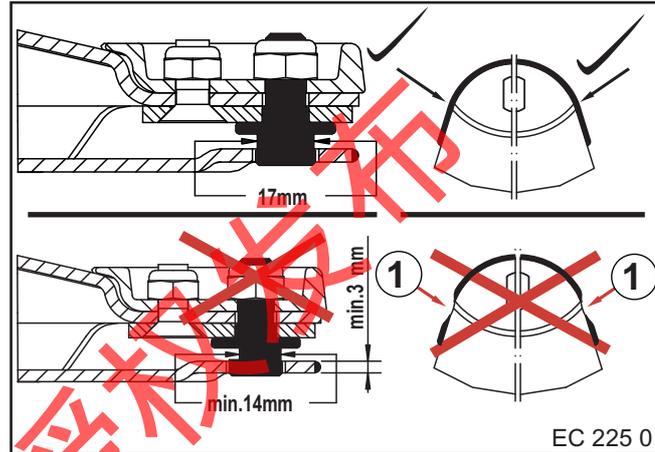


10.5.4 Periodical Inspection of the Leaf Springs

 **Danger!**
 Worn application seam on the leaf springs. Effect: Danger to life or serious injuries.

- Check the leaf springs for damages at least once a day or after contact with foreign objects.
- The abrasion limit of the leaf springs will be achieved if the application seam (1) is worn on one point.

 **Note**
Warranty claim
 Use only original Krone spare parts to replace the leaf springs.

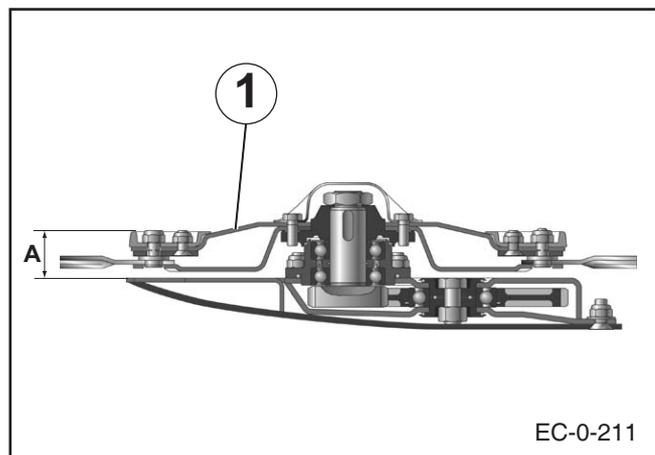


10.5.5 Periodical Inspection of the Cutting Discs / Blade Drums

 **Danger!**
 Deformed Cutting Discs / Blade Drums Effect: Danger to life or serious injuries.

- Check the cutting discs or blade drums for damages at least once per day or after contact with foreign objects.
- In case of deformed cuttings discs or drums, the dimension of A = 48 mm must never be exceeded.

 **Note**
Warranty claim
 The cutting discs or drums must be replaced by Original Krone spare parts only.



10.5.6 Abrasion Limit



Danger!

Abrasion on the cutting discs / blade drums Effect: **Danger to life or serious injuries.**

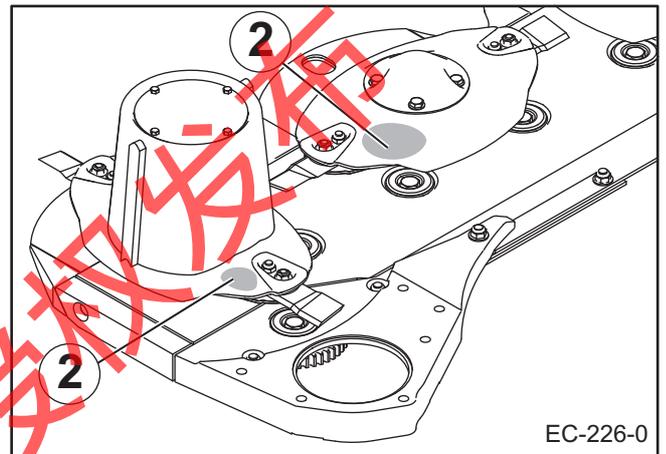
- The abrasion limit (2) will be achieved if the min. material thickness of 3 mm is no longer given.



Note

Warranty claim

If cutting discs or blade drums show deformations or wear in form of abrasions (2) or similar, these components have to be replaced by Original Krone spare parts .



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10.6 Blade Changing on Cutting Discs



Danger!

Rapidly rotating cutting discs/blade drums. Effect: Danger to life or serious injuries.

- Switch off the engine and remove the ignition key.
- The cutting discs/blade drums continue to run!
- Do not leave the driver's cab until the cutting discs/blade drums have come to a complete stop.

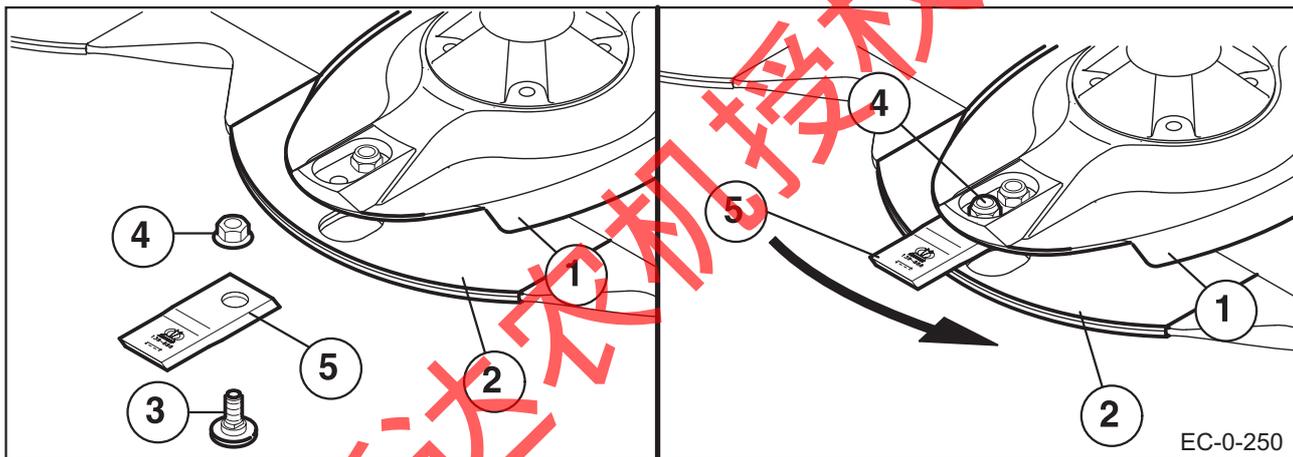


Danger!

Cutter blades coming loose. Effect: Danger to life or serious injuries.

- After changing the blades check that they fit perfectly and that they can move freely.
- Whenever a blade is changed, also inspect the fasteners and replace them, if necessary!
- Always replace missing and damaged blades in sets to prevent unbalanced rotation!
- Never mount unevenly worn blades on a drum/disc!

10.6.1 Blade Screw Connection



- Clean the area.
- Remove damaged or worn blades.
- To fit the blades, insert the blade (5) between the wear plate (2) and the cutting disc (1).
- Insert the retaining bolt (3) from below through the wear plate, the blade and the cutting disc.
- Place the hex nut (4) on the retaining bolt from above and tighten it firmly. (for tightening torque see chapter entitled „Torques“)
- Repeat this process for all blades, even on the blade drums.
- After fitting the blades, fold the protective device down again.



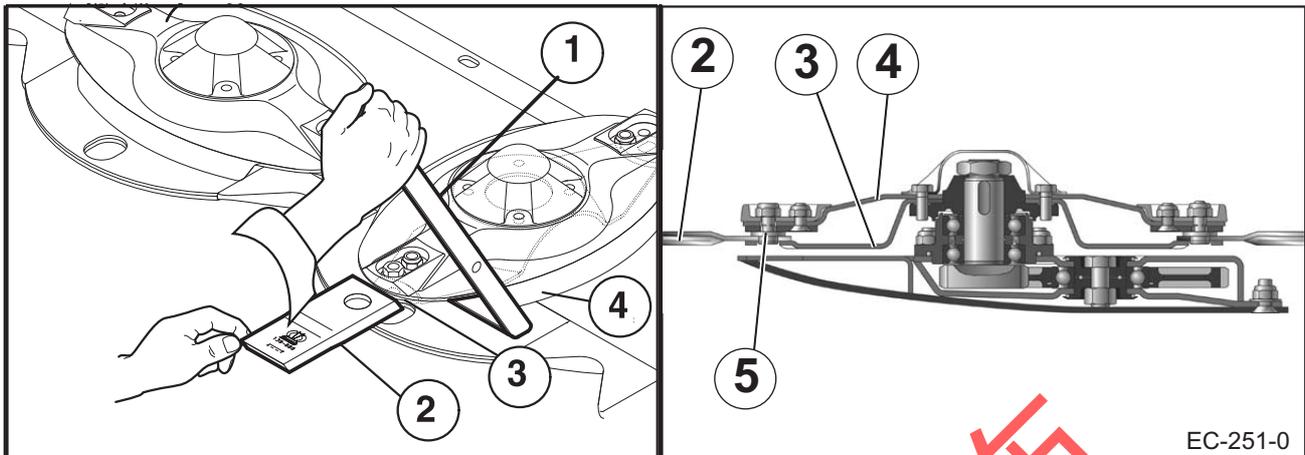
Note

- The cutter blades of anticlockwise rotating cutting discs / blade drums are different than those of clockwise rotating ones. Make certain the direction of rotation is correct when installing!
- The arrow on the cutter blades must match the direction of rotation of the corresponding cutting discs / blade drums.
- The hex nut (4) used to secure the retaining bolts must not be used more than once.

Order No. for clockwise rotating blade: 139-889

Order No. for anticlockwise rotating blade: 139-888

10.6.2 Blade Quick-Fit Device



- Clean the area.
- Remove damaged or worn blades.
- Push the special tool (1) {blade key} between the cutter disc (4) and leaf spring (3) and press down with one hand.
- Guide a new blade (2) onto the retaining bolt and allow the blade key to return upwards.
- After fitting the blades, fold the protective device down again.

Note



- The cutter blades of anticlockwise rotating cutting discs / blade drums are different than those of clockwise rotating ones. Make certain the direction of rotation is correct when installing!
- The arrow on the cutter blades must match the direction of rotation of the corresponding cutting discs / blade drums.
- The hex nut (4) used to secure the retaining bolts must not be used more than once.

Order No. for clockwise rotating blade: 139-889

Order No. for anticlockwise rotating blade: 139-888

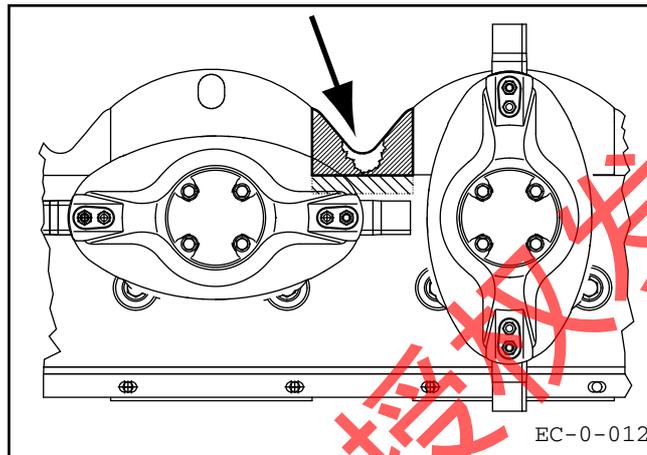
10.7 Replacing the linings



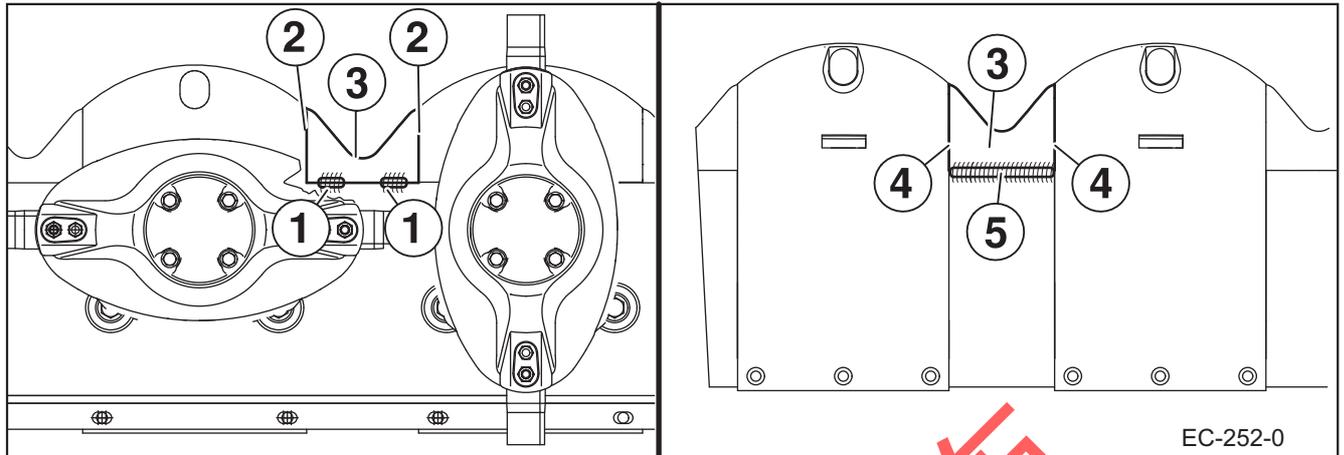
Caution!

If the linings are checked irregularly. Effect: Damage to the machine

- Always check the mowing unit for damaged linings prior to start-up and replace linings, if necessary!
- Adjust the welding current and the welding material to the cutter bar material and to the lining or carry out a trial welding if necessary.



- Open the welding seams of the old lining.
- Remove the lining
- Deburr the contact surface.



- Adapt the new lining (3).
- Weld short I seams on the **upper surface** of the cutter bar in the areas marked (1) (each should be approx. 30 mm).
- Do not weld the edges (2).
- On the **lower surface** of the cutter bar, weld the lining (3) to the cutter bar along the whole length in area (5).
- Do not weld the edges (4).

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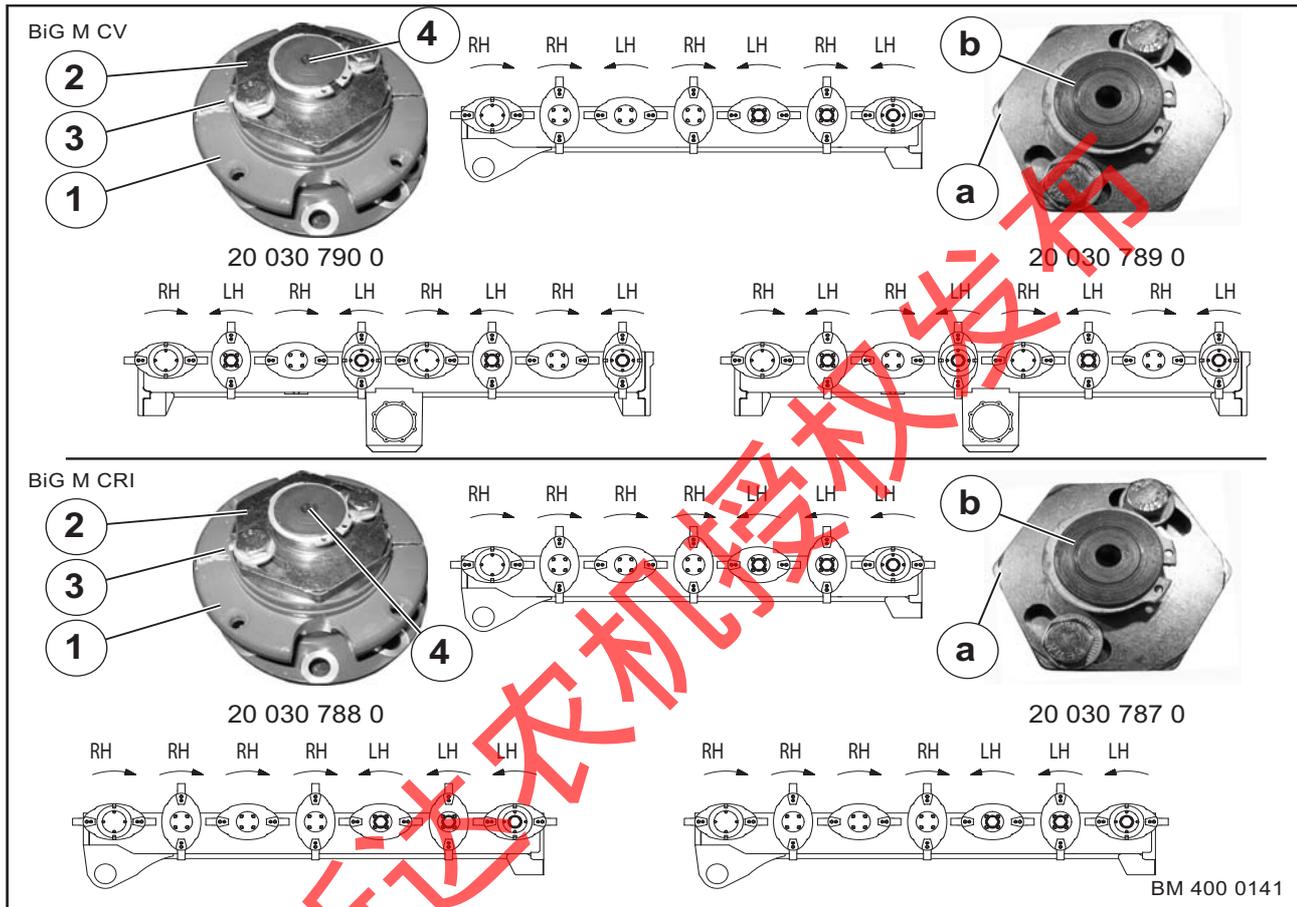
10.8 Rotary hub with shear protection



Danger!

Rapidly rotating cutting discs/blade drums. Effect: Danger to life or serious injuries.

- Switch off the engine and remove the ignition key.
- The cutting discs/blade drums continue to run!
- Do not leave the driver's cab until the cutting discs/blade drums have come to a complete stop.



For protection against overload on the mowing units, the rotary hubs (1) are secured with nuts (2) and shear pins (3).

If the machine strikes obstacles (for example stones), the 2 shear pins in the rotary hub will be sheared off. The rotary hub and nut turn upward on the pinion shaft.

- The cutting discs or drums which move the crop to the left (in direction of travel) have left-handed threading.
- The cutting discs or drums which move the crop to the right (in direction of travel) have right-handed threading.

To distinguish between right-hand (clockwise) rotation (RH) and left-hand (anti-clockwise) rotation (LH), the nuts (2) and pinion shaft (4) for left-hand rotation (LH) have a distinctive groove (a, b).

- Left-handed (LH) nuts (2) have distinctive grooves (a) on the bevel.
- Left-handed (LH) pinion shafts (4) have a distinctive groove (b) on the face.



Note

Continuation of work.

To be able to work again as quickly as possible after a shear fuse engages, you should order two left and two right bearing units from your dealer.

Bearing housing, left
BiG M CV
BiG M CRI

Bearing housing, right
Order No. 20 030 789 0
Order No. 20 030 787 0

Order No. 20 030 790 0
Order No. 20 030 788 0

10.8.1 After Shearing Off



Caution!

Correct installation position of the bearing housing not observed.

Effect: Damage to the machine

- Right-hand (RH) cutting discs and drums always have right-handed pinion shafts and nuts (no groove mark on the pinion shaft and nut).
- Left-hand (LH) cutting discs and drums always have left-handed pinion shafts and nuts (with groove mark on the pinion shaft and nut).

- Remove the cutting disc or drum.
- Completely remove the sheared off bearing housing.
- Install the replacement bearing housing after the cutter disc (BM 400 0141) is set up
- Install the cutting disc or mower drum.

10.8.2 Repairing the Sheared Off Bearing Unit

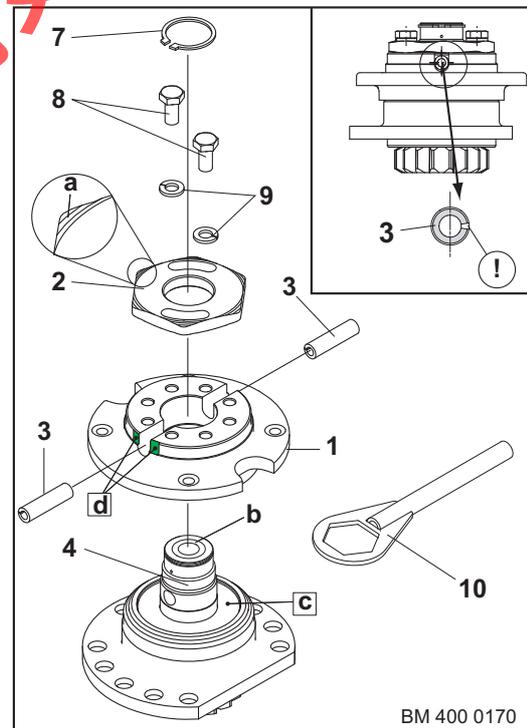
- Remove retaining ring (7).
- Unscrew the hexagon head bolt (8).
- Use the special key (10) included with delivery to remove the nut (2).
- Remove the hub (1).
- Remove the damaged shear pins (3).
- Check the nut and hub for damage.
- Fill the space above the taper roller bearing with grease (c).
- Place the hub on the pinion shaft.
- Drive the new shear pins (3) through the hub (1) and shaft (4).



Note

Note the position of the shear pins!

- Drive the shear pins (3) into the hole from outside until the end of the pin reaches the surface of the hub (d).
- The slots of the shear pins (3) must be mounted facing each other horizontally (see detail (l)).

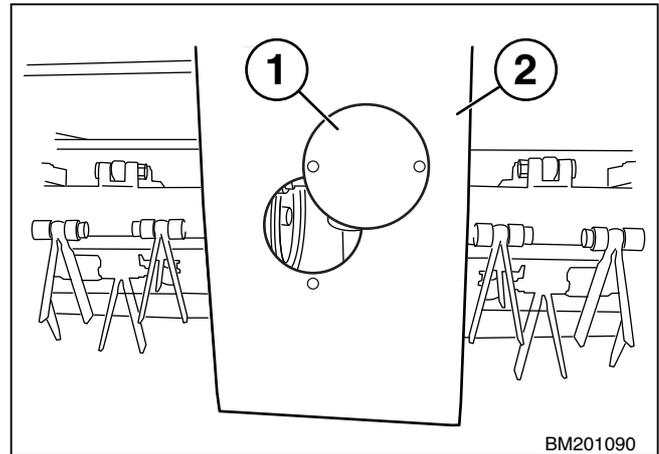


- Install the nut (2) using the special key (10) included with delivery (tighten to a tightening torque of 300 Nm).
- Install and tighten the hexagon head bolts (8) with detent edges.
- Install the retaining ring (7).

10.9 Conditioner Belt Drive (CV)

Clean the cover casing (2) of the belt drive at regular intervals.

- Push the cover plate (1) to one side and clean the cover casing (2) (air jet).
- Close the opening in the cover casing (2) again with the cover plate (1).

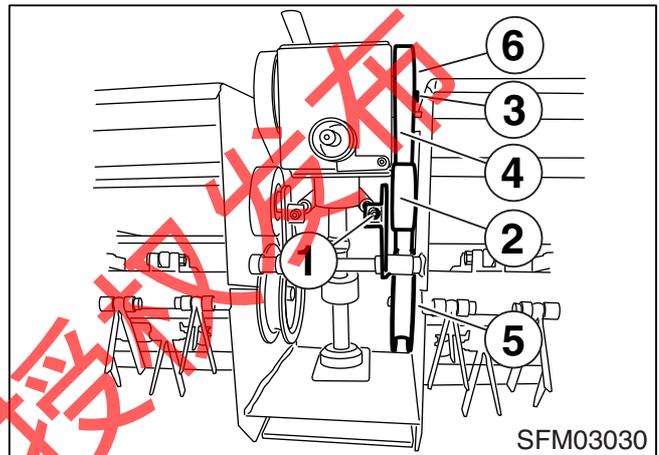


The belt is changed from the rear of the mower.



The rear protective hood does not have to be removed for this.

- Remove the rear cover plate from the gearbox shaft.
- Relieve the belt (4) by loosening the nuts (1) on the belt tensioner
- Fold the tensioning roller (2) back.
- Remove the screw (3) on the upper belt pulley (6).
- Remove the belt from the lower belt pulley (5) and then pull out towards the top.

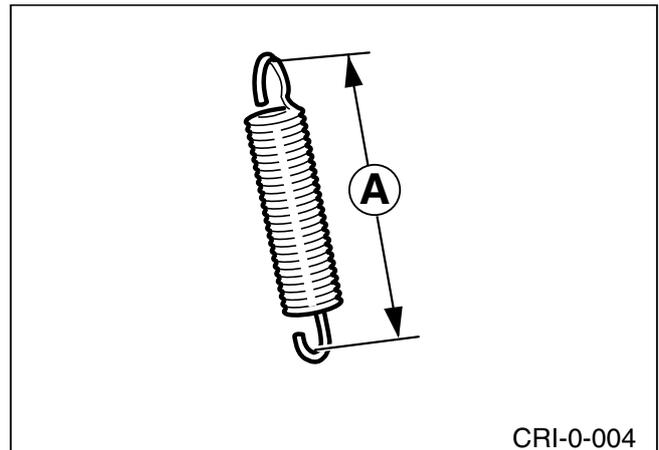


Reassemble in reverse order.

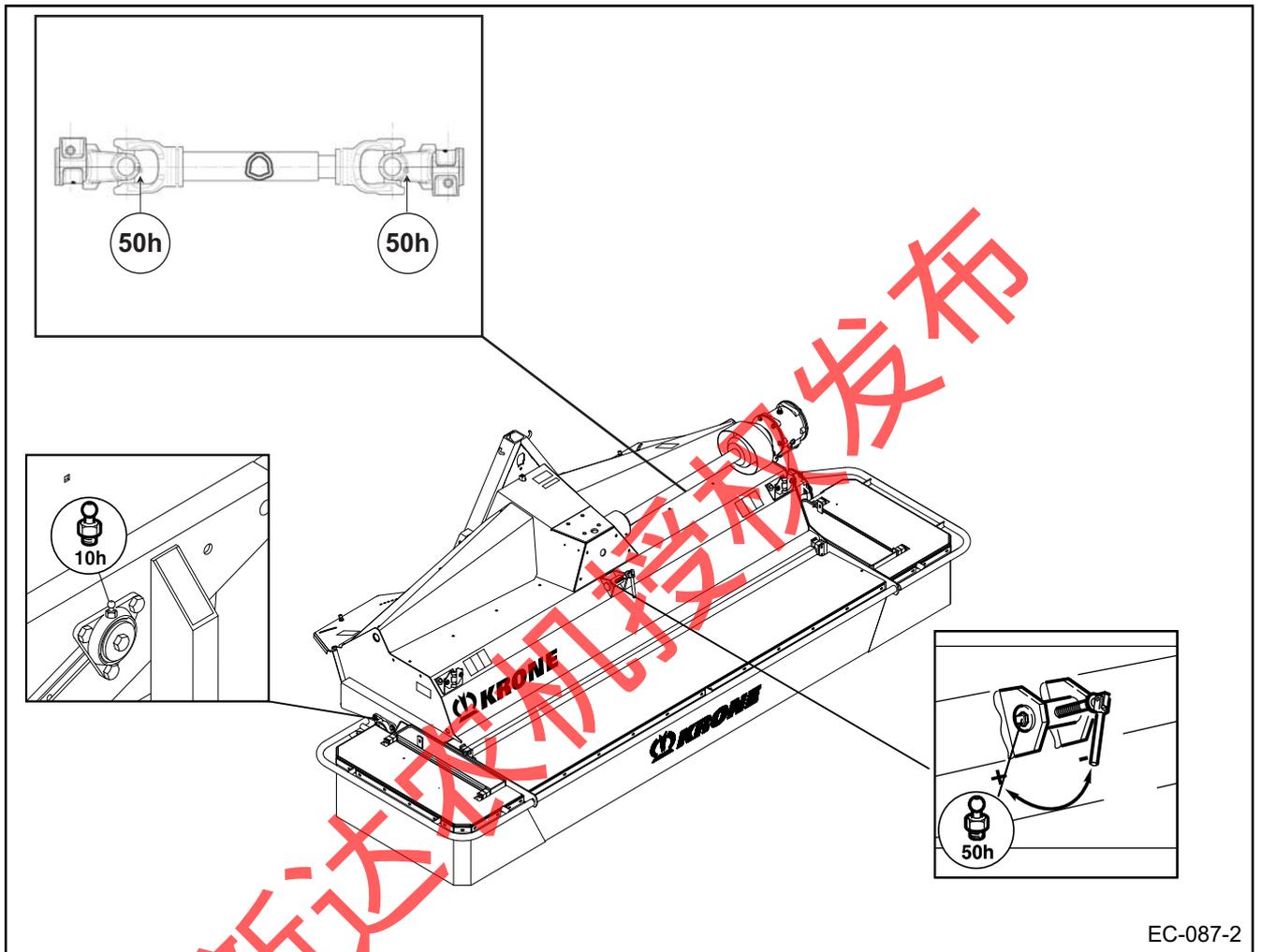


Damaged drums or discs lead to unbalanced rotation and thus to damage. Replace immediately!

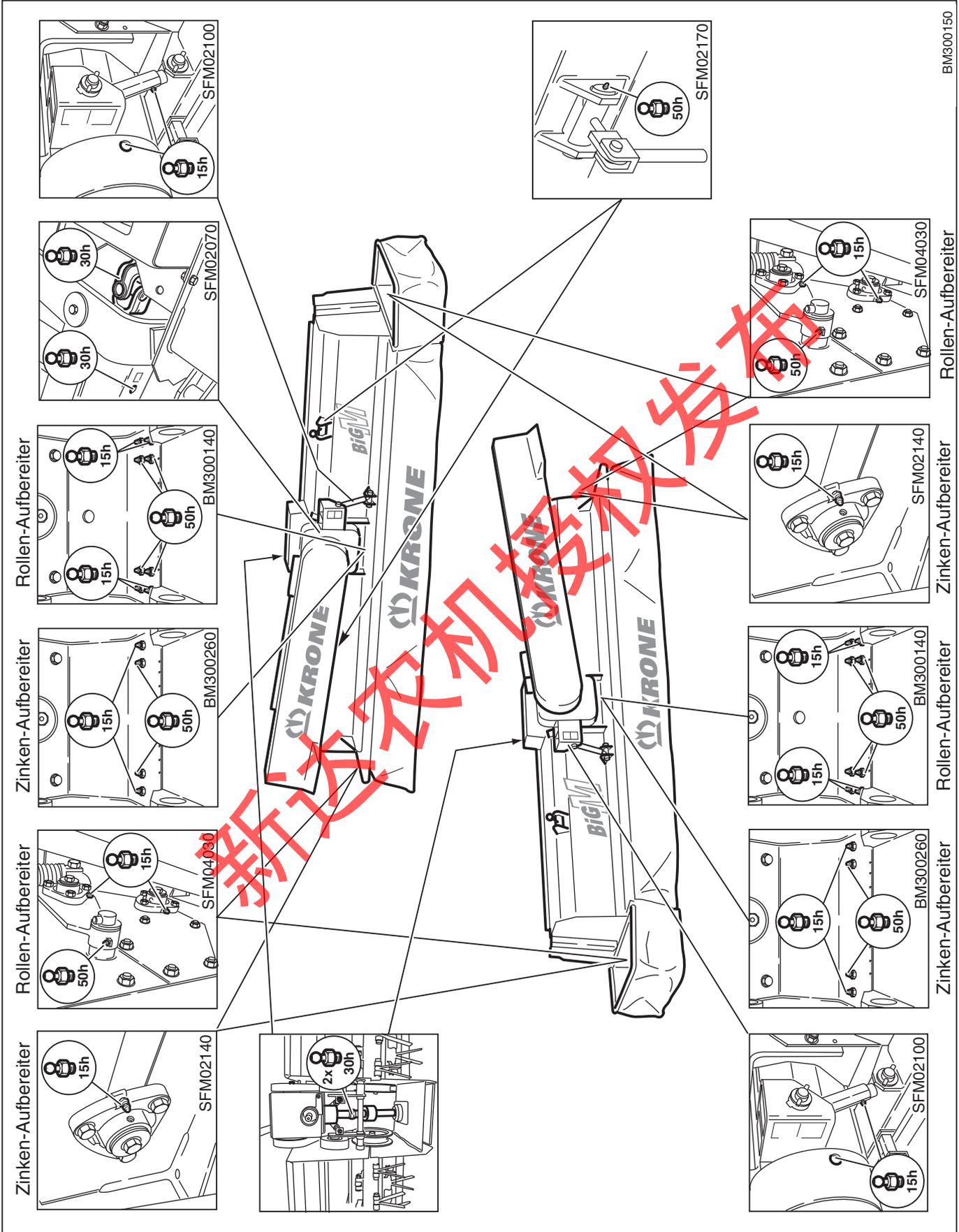
The tension spring for the belt should have a measurement of 215 mm.



10.10 Front Mower Lubrication Chart (CV)



10.11 Side Mower Lubrication Chart



10.12 Installation of the auger-type cross conveyor



- Maintenance, cleaning and repair work should be done only when the machine is at a complete standstill. Shut down the engine and remove the ignition key.
- After completing maintenance work reattach all protective plates and protective devices properly. Avoid skin contact with oil and grease. With injuries caused by oil escaping under pressure, get the assistance of a doctor immediately.
- The cutter blades can continue to rotate after the drive has been switched off. Only approach the machine once the work tools have come to a complete standstill!
- Only use appropriate and authorized lifting devices for the installation and removal of the auger-type cross conveyor (total weight of the conveyors = approx. 300 kg).



Danger!

Tedder deflector plate unit or auger-type cross conveyor unit not fitted.

Effect: Danger to life or serious injuries.

The machine must not be placed in operation until the tedder deflector plate unit or auger-type cross conveyor unit has been properly installed.

10.12.1 Removing the conditioner deflector plate

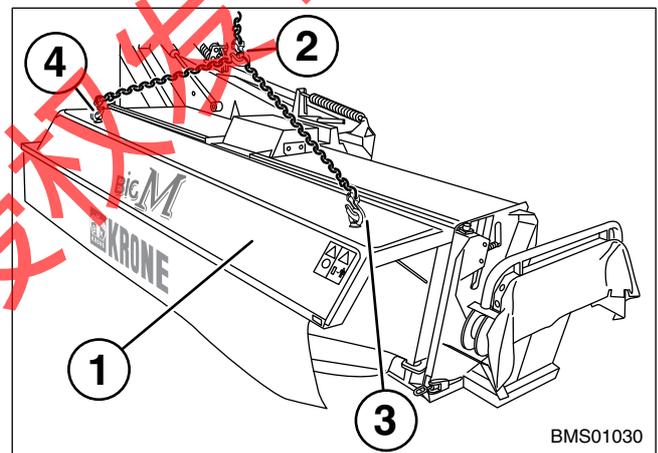
Installing the retaining chains

- Lower all lateral mowing units on a firm area.



Remove the ignition key and secure the mower so that it cannot start to move on its own.

Only use appropriate and authorized lifting devices for the installation and removal of the auger-type cross conveyor (weight of the auger-type cross conveyor = approx. 300 kg).

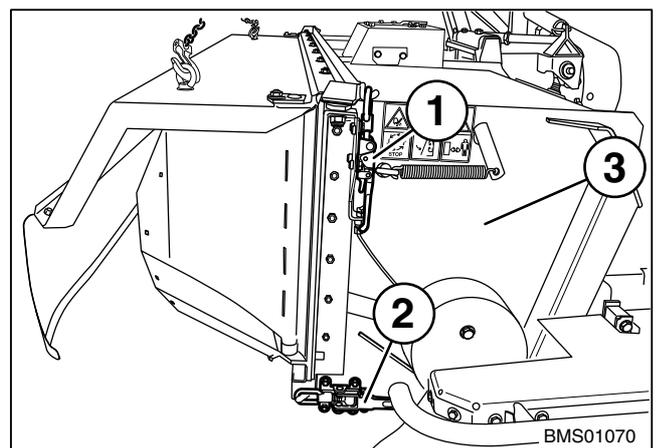


The following description shows the installation of the auger-type cross conveyor on the right hand mower side. The installation on the left hand mower side has to be carried out in an analogous way.

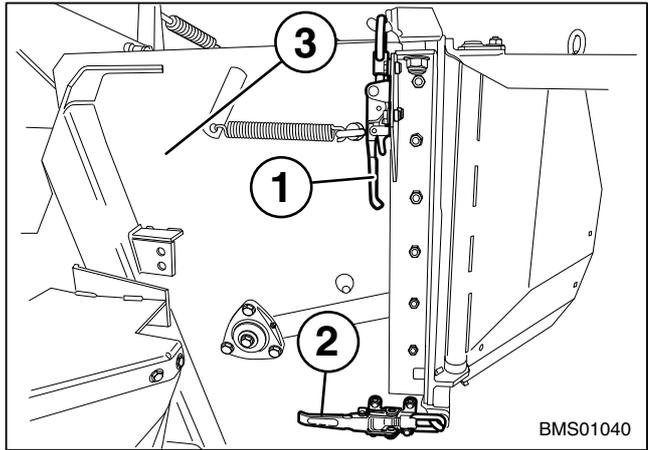
- Attach the retaining chains (2) to the ring bolts (3) and (4) of the conditioner deflector plate (1).

Releasing the clamping levers

- Release the clamping levers (1) and (2) located at the outer side of the mower (3).



- Release the inner clamping levers (1) and (2) of the mower (3).

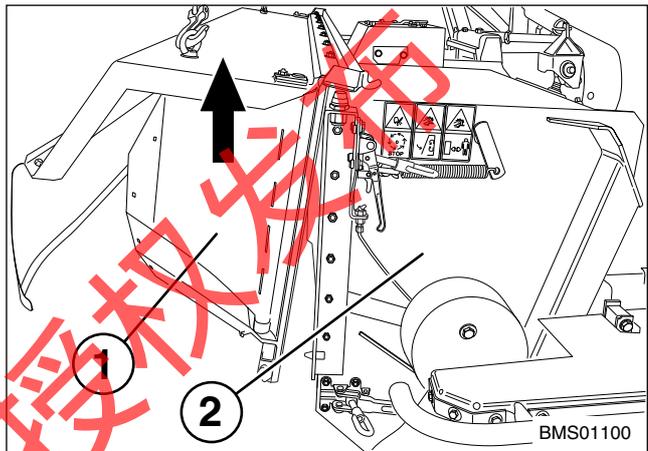


Removing the conditioner deflector plate

- Slightly raise the conditioner deflector plate (1) and remove it sideways from the mower (2).



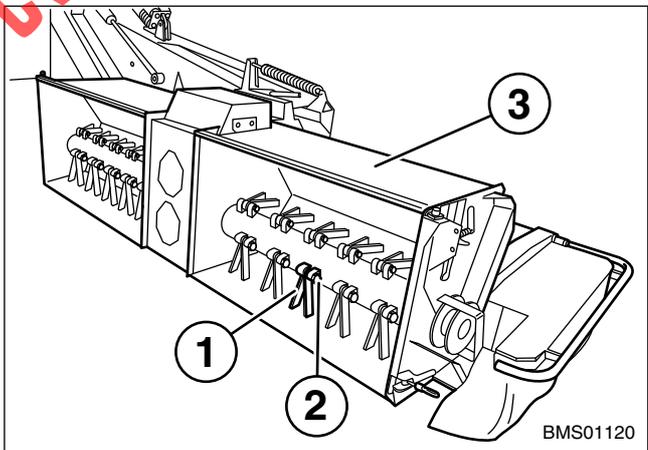
Store the conditioner deflector plate (1) at a secure and dry place.



- Check the V-shaped tines (1) and the retaining bolts (2) of mowing unit (3) for damage.

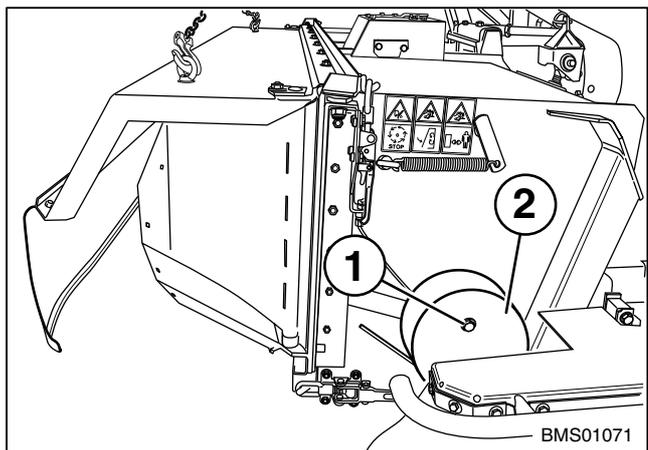


Check the retaining bolts and the V-shaped tines for damage. Damaged or missing retaining bolts and knives have to be replaced immediately.



Removing the guard

- Undo the hex. head bolts (1).
- Remove guard (2) and store it at a secure place.



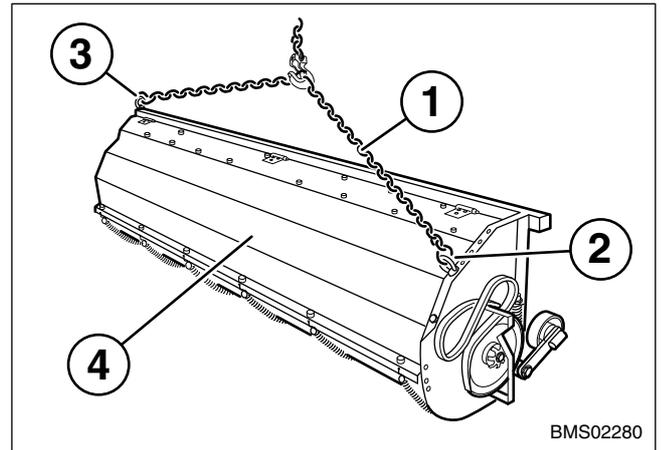
10.12.2 Installing the auger-type cross conveyor

Install the retaining chains

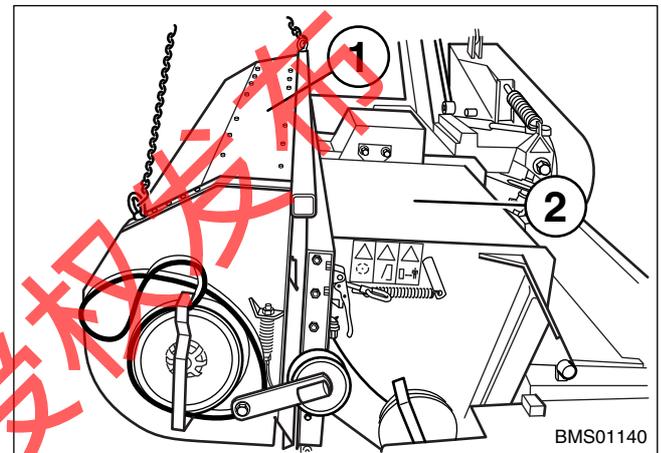
- Attach the retaining chains (1) to the ring bolts (2) and (3) of the auger-type cross conveyor.



Only use appropriate lifting devices to lift the auger-type cross conveyor (weight of the auger-type cross conveyor = approx. 300 kg).



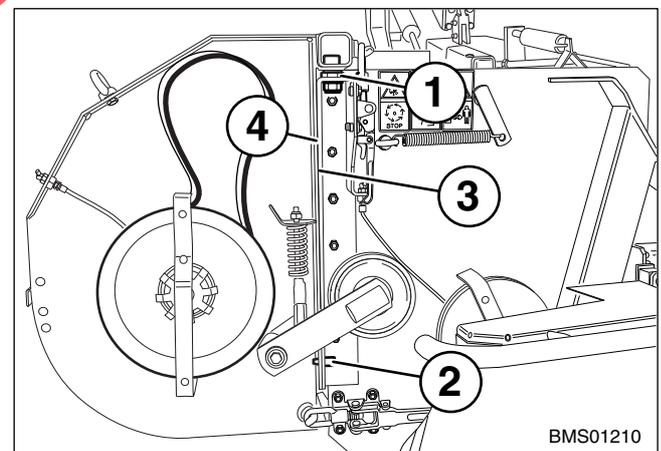
- Slowly lower the auger-type cross conveyor (1) onto the mower (2).



- At the end of the lowering process be sure to introduce the auger-type cross conveyor into the guide pins (1) and (2).



The surfaces (3) and (4) must be level with each other at either side of the mower.

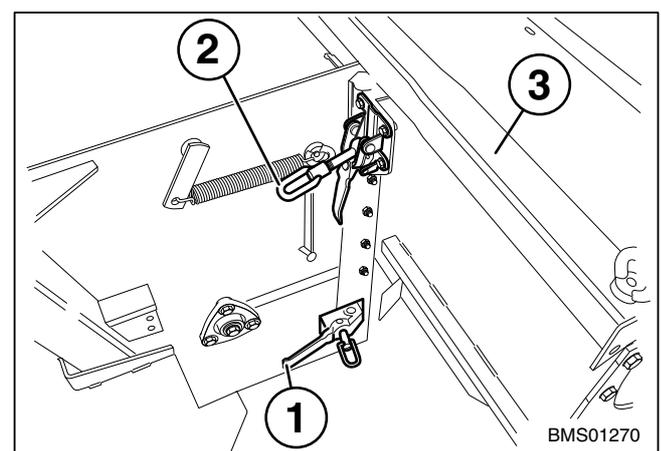


Locking the clamping levers

- Lock the clamping levers (1) and (2) located at the inner side of mower (3).



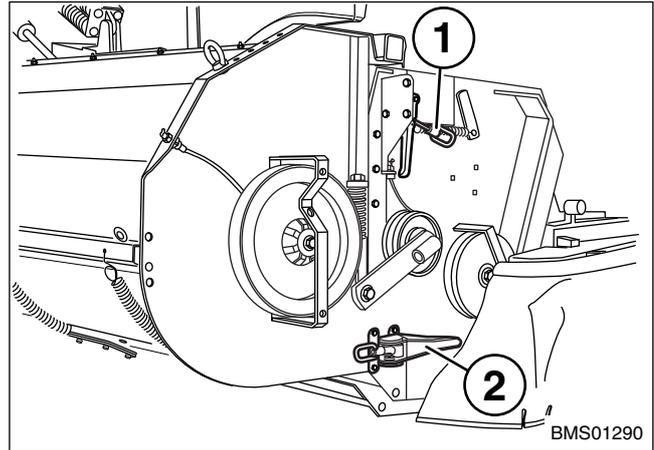
Be sure the clamping levers (1) and (2) are under tension when being locked. Retighten as required.



- Also lock the outer clamping levers (1) and (2).



Be sure the clamping levers (1) and (2) are under tension when being locked. Retighten as required.

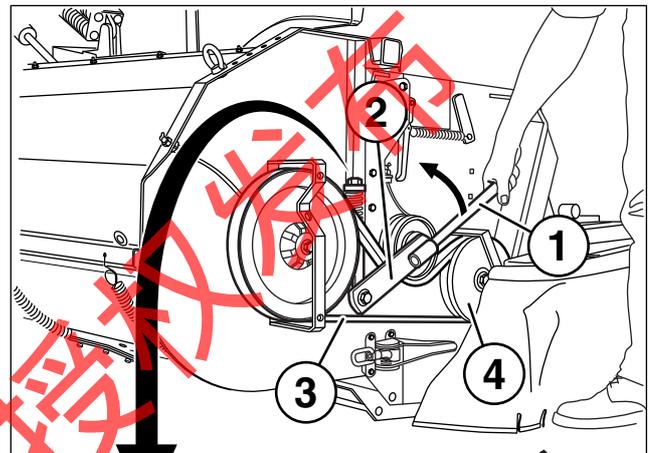


Tensioning the V-belts

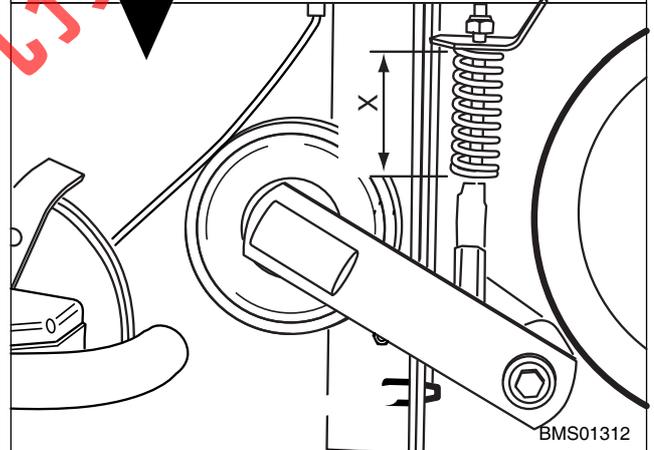


Use the mounting lever (1) supplied in the on-board tool box.

- Use mounting lever (1) to raise idler pulley (2).
- Place V-belt (3) onto pulley (4).
- Lower idler pulley (2) slowly and withdraw mounting lever (1).

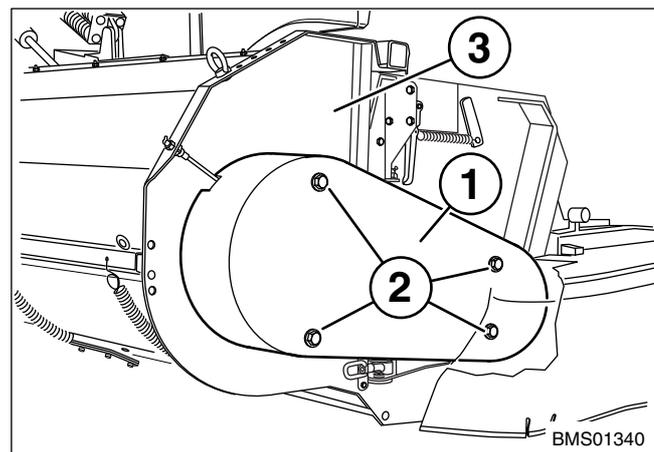


With V-belt under tension dimension X must be equal to approx. 80 mm.



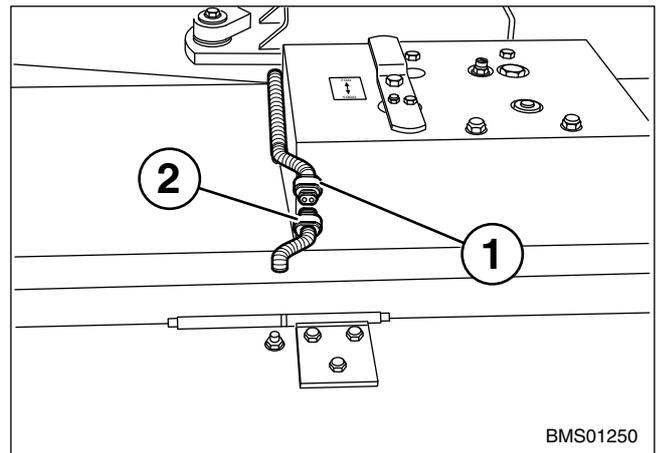
Installing the guard

- Install guard (1) onto mower (3) using the hex. head bolts (2).



Connecting the speed sensor

- Connect speed sensor wire (1) to speed sensor wire (2) of the auger-type cross conveyor.



10.12.3 Removing the floor plates

To prevent stones or other foreign bodies from accumulating inside the conveyor channel during the operation of the augers, the floor plates (1) and (2) of mower (3) can be removed as follows:

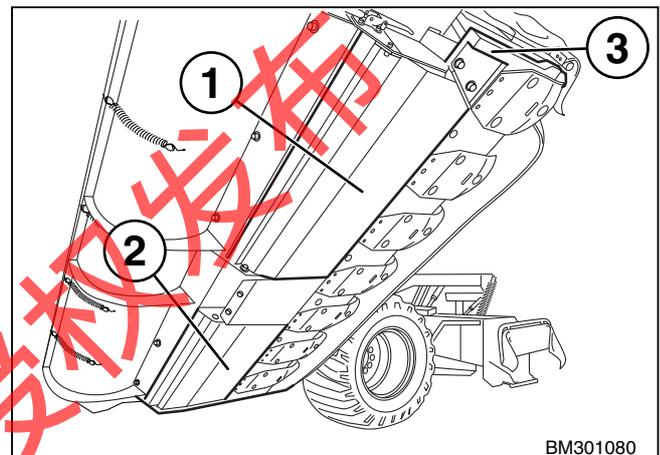


Before removing the floor plates (1) and (2) be sure that the ignition key is removed and the machine is secured so that it cannot start to move on its own.



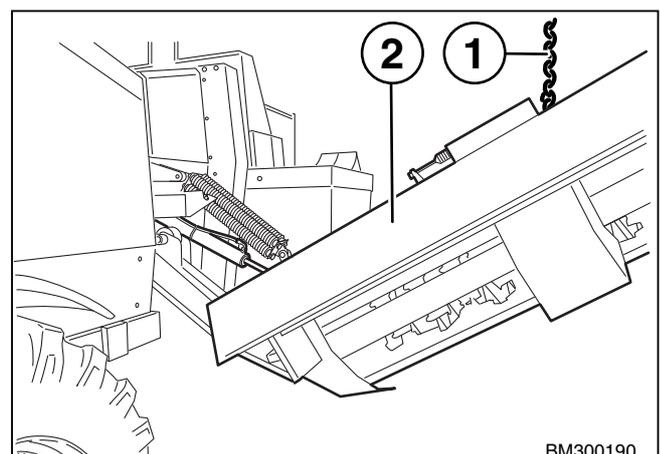
The following steps are described for the right hand mower side.

The removal of the floor plates located on the left hand mower side has to be carried out in an analogous way.



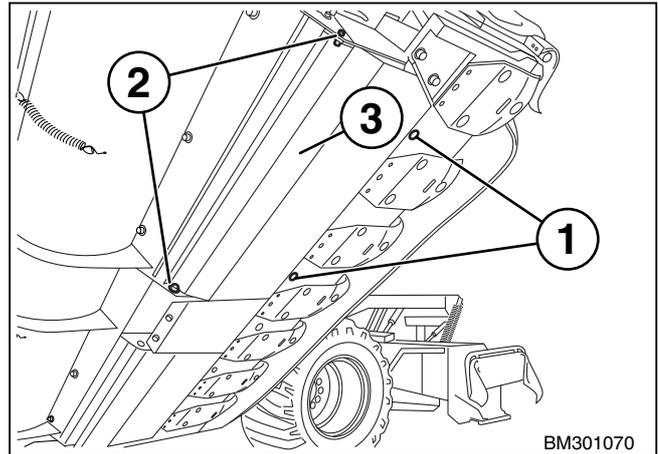
Lock the mowing units against lowering using appropriate securing chains.

- Raise lateral mowing unit (1).
- Fit securing chains (2) to lateral mowing unit (1).

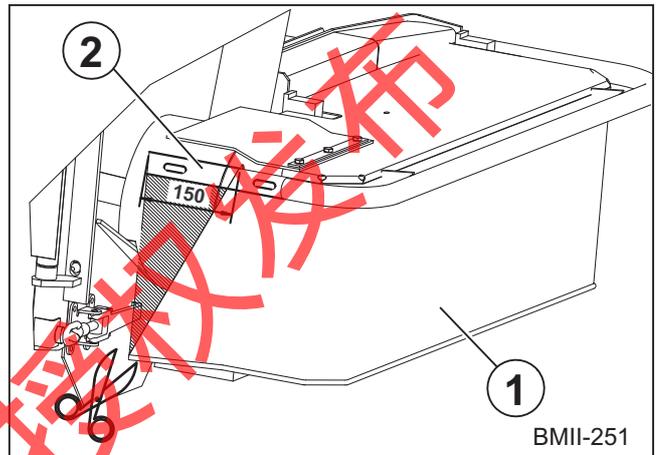


 **Lock the mowing units against lowering using appropriate securing chains.**

- Remove the hex. nuts from the bolts (1).
- Undo the connecting bolts (2).
- Carefully remove floor plate (3) to the rear.
- Store floor plates, bolts and nuts at a secure place.



Once the cross conveyor installed, the guard cloth (1) of the right and left hand mowing unit must be cut off as shown in the figure. Shortened the clamping strap (2) likewise accordingly.



10.12.4 Engaging the auger monitoring mode

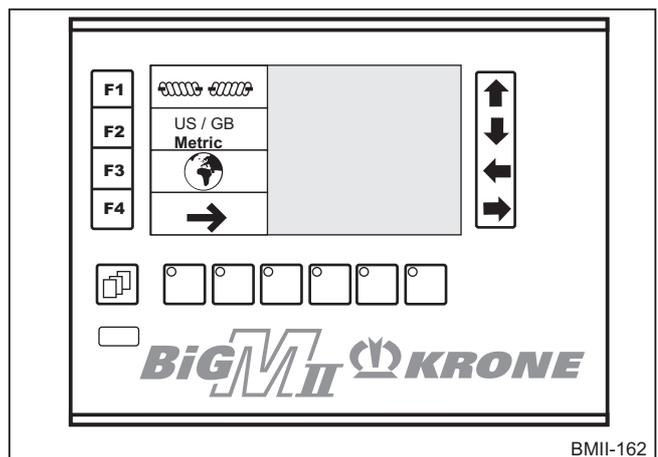
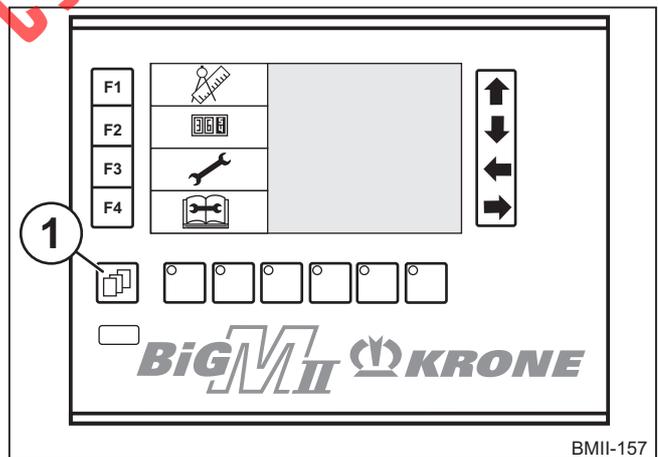
To engage the auger monitoring mode you must first activate it as follows at the Infocenter:

 **Before switching on the ignition be sure no persons are standing in the immediate vicinity of the machine.**

- Set ignition key to position I or II.
- Wait for the self test to run.

 **After the ignition has been switched on, the start screen "Road Driving or Field Operation" appears on the display.**

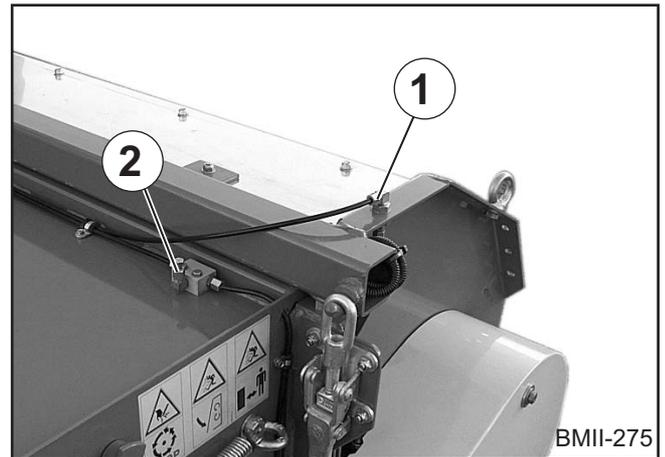
- Access the main menu by pressing the button (1).
- Press F1  Settings.
- Press F4  Next page.
- Activate F1  Auger monitoring.



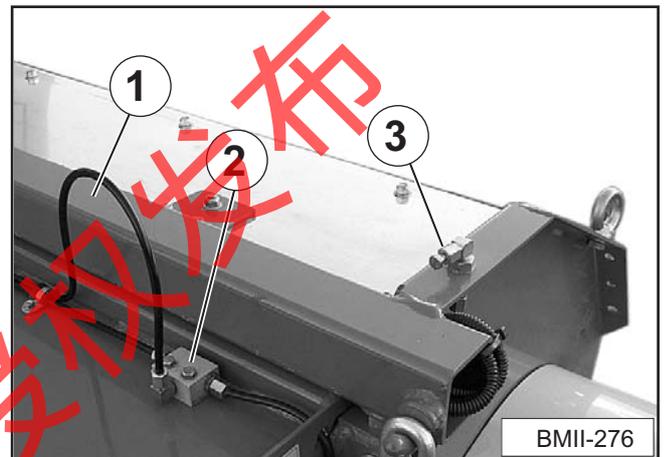
Removing the wide swath system (BSS) (with central grease lubrication system - option)

When modifying the Big M II from wide swath system (BSS) to wide spreading, the lubrication points must be modified as follows:

- Undo the lubrication connection (1) to the auger bearing (BSS).
- Undo the sealing screw (2) of the T-screw connection.



- Mount lubrication line (1) to the T-screw connection (2).
- Mount sealing screw (3) to the lubrication connection.

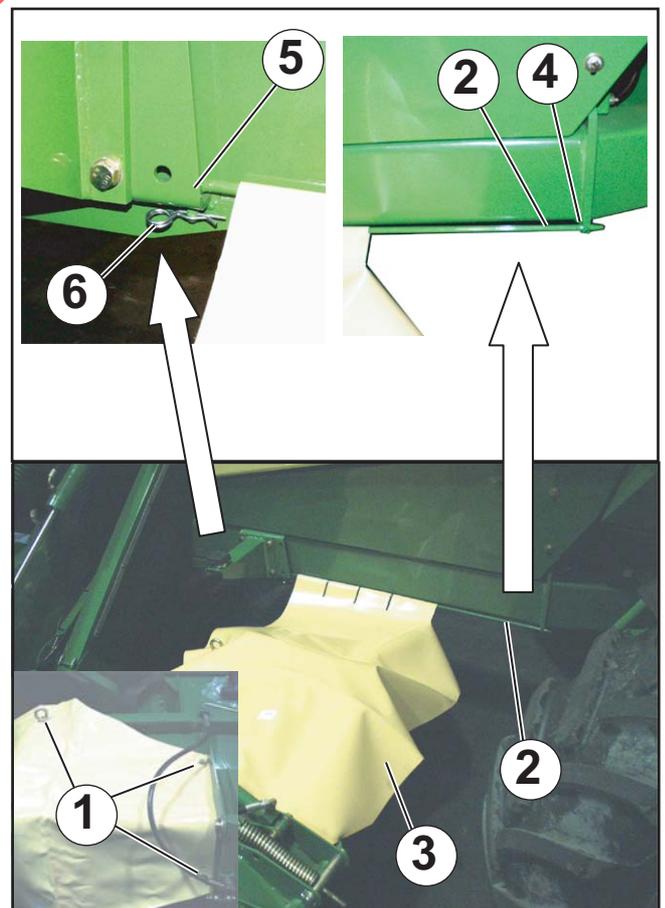


10.12.5 Assembly Instruction for the Fabric Cowlings of the Big MII with BBS

Mounting the fabric cowlings to the auger hoods (right and left) results in a reduction of soil in the cooling air.

Assembly instruction:

- The bulge bags must be securely screwed onto the auger hood (1). (Install the coach bolts from below.)
- Draw the bar (2) through the eyes of the bulge bag (3)
- Insert the rod (2) into the hole on the frame (4) from behind. In the front, insert the bar (2) into the hole on the mower support (5) from above and secure in place with the spring cotter pin (6).



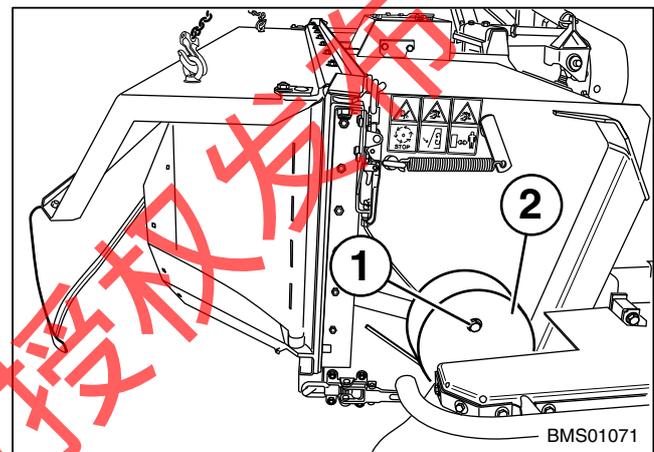
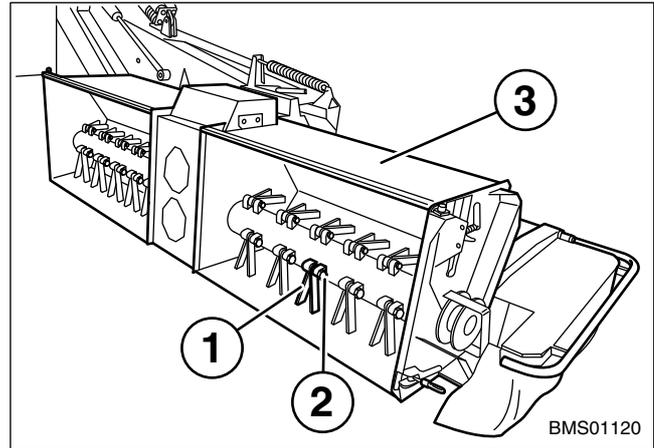
10.12.6 Removing the Cross-Auger



After removal of the cross-auger, the conditioner baffle plates must be remounted! (See section 10.8.2, however in reverse order). Otherwise the type approval will be null and void.



Danger!
Tedder deflector plate unit or auger-type cross conveyor unit not fitted.
Effect: Danger to life or serious injuries.
The machine must not be placed in operation until the tedder deflector plate unit or auger-type cross conveyor unit has been properly installed.



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10.13 Detaching the mowers



- Conversion and mounting jobs must only be performed when the machine is at a standstill. Switch off engine. Remove the ignition key. Prevent the machine from rolling away.
- After completing conversion and mounting work, reattach all protective plates and protective devices properly. Avoid skin contact with oil and grease. In the event of any injury caused by oil escaping under pressure, immediately seek the assistance of a doctor.
- The cutter blades can continue to rotate after the drive has been switched off. Only approach the machine once the work tools have come to a complete standstill!
- Only use appropriate and authorised lifting gear for the installation and removal of the mowing mechanisms (total weight = approx. 1,500 kg).

10.13.1 Detaching the front mowing mechanism



Remove the ignition key and secure the mower from rolling away.

The following pre-requisites should have previously been met for the Big MII:

- Travel gear release switch off (see section on Release switch: travelling gear)
- Road safety switch in field position (see the section on the Road safety switch)
- The front mowing mechanism is in its transport position

Detaching the protective fabric:

- Detach the protective cloth (1) with expander belt (2)



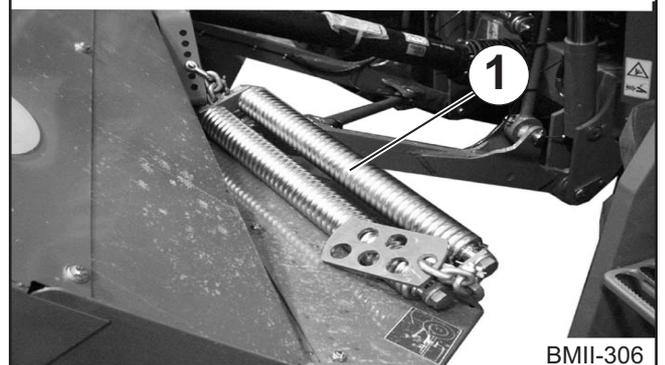
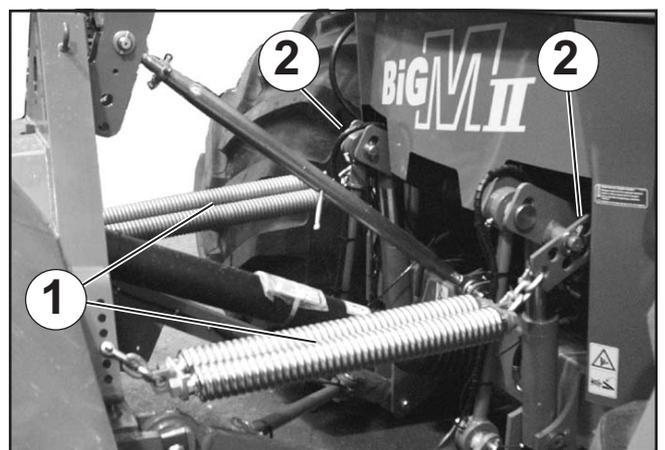
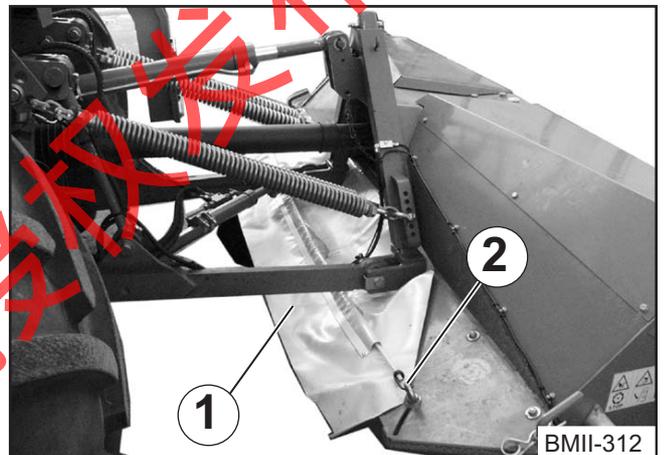
The compensation springs must only be detached in the transport position. The compensation springs are subject to high tensile stress in the working position. Severe injury can be caused if the compensation springs are removed while in the working position.



Detach the compensation spring (1) in transport position.

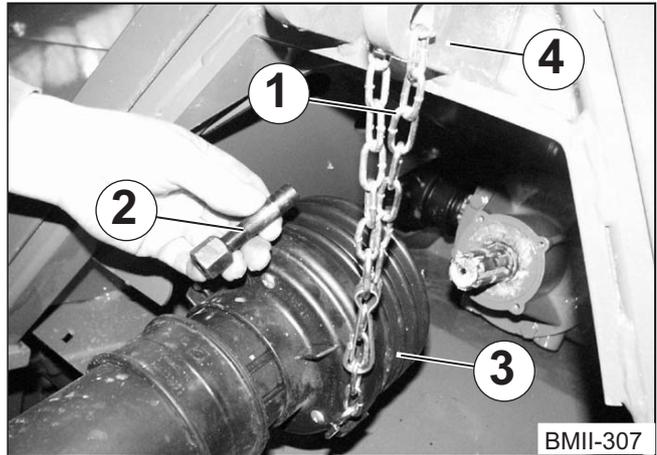
To do this:

- Loosen the hinged cotter pin (2)
- Detach the compensation springs (1) and set them down on the front mowing mechanism



Detaching the PTO shaft:

- Detach the support chain (1)
- Remove the screw (2) from the joint fork
- Remove the PTO shaft (3) from the front mower
- Detach the PTO shaft (3) with the support chain (1) on the 'Weiste' triangle (4).



With the centralised lubrication system option:

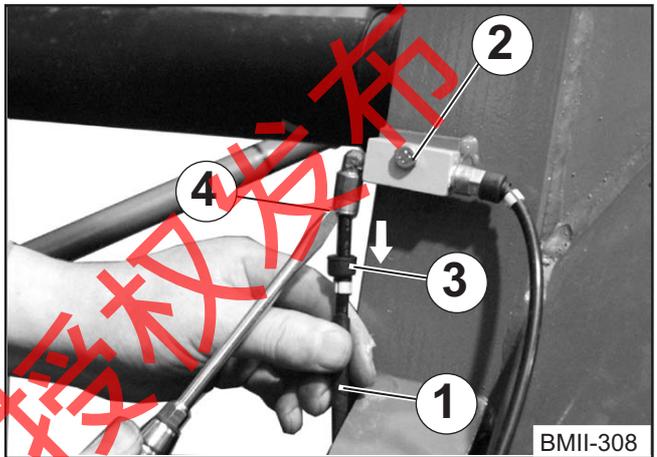
Disconnect the lubrication line (1) to the distributor (2)

To do this:

- Remove the cap (3)
- Push in on the cover (4) with a screwdriver and remove the line (1).



If the pressure is too high on the lubrication lines, loosen a lubricating point previously to reduce the pressure



Do not close off the line (1)! (grease under high pressure)

Detaching the 'Weiste' triangle:

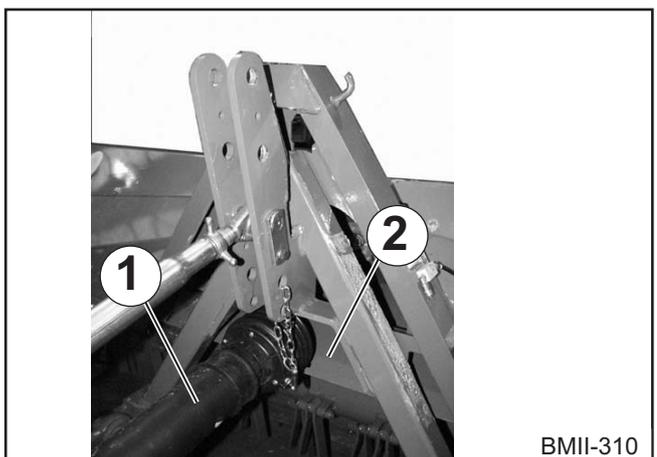
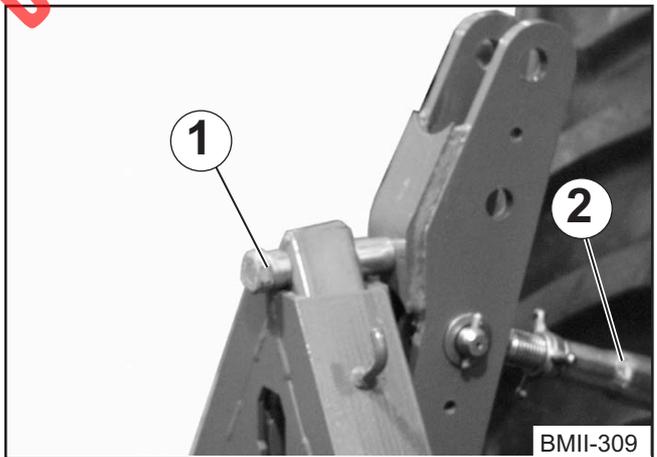
To continue disassembling the front mowing mechanism, the machine must be switched into semi-automatic mode. **(see the section on semi-automatic mode)**

- Raise the front lifting gear slightly to relieve tension on the locking bolt (1) of the 'Weiste' triangle
- Dismount or remove the locking bolt (1)
- Adjust the upper link (2) until it is free of tension

Lower the front lifting gear (1) slightly. To complete the lowering process, press the "Raise" key briefly (semi-automatic).



The PTO shaft (2) must be above the front mower plate and must move freely.

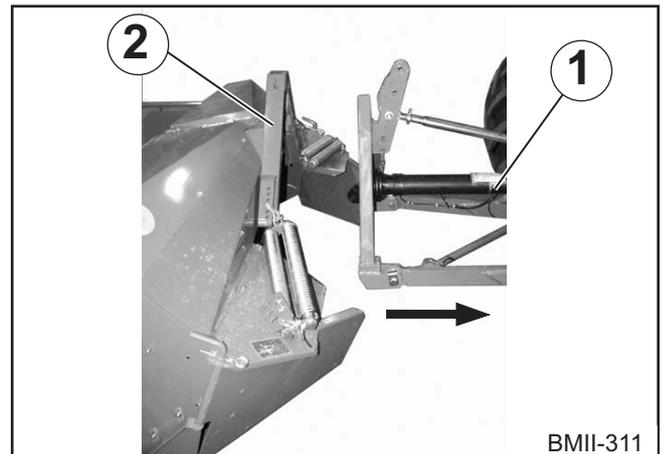


To continue disassembling the front mowing mechanism, the road safety switch must be switched into the road position. **(see the section on the Road safety switch)**

- In this position, move the 'Weiste' triangle out of the front mower.



Road mode is required here, since otherwise the front lifting gear will automatically be raised when the machine is driving backward.



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- Change the machine back to Road mode

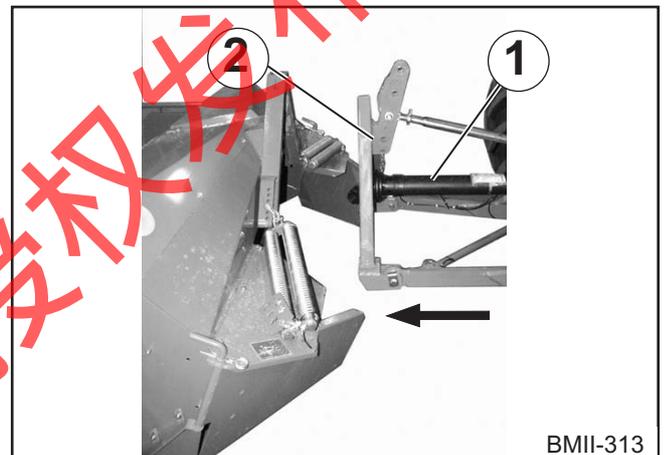
10.13.2 Attaching the front mowing mechanism

To reattach the front mowing mechanism, proceed in the opposite order.



The mowing mechanism should be raised in the "semi-automatic" mode

Suspend the PTO shaft (1) high on the 'Weiste' triangle (2) to prevent it from colliding with the front mower plate when it is retracted



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10.13.3 Removing the lateral mowing mechanism



- Conversion and mounting jobs must only be performed when the machine is at a standstill. Switch off engine. Remove the ignition key. Prevent the machine from rolling away.
- After completing conversion and mounting work, reattach all protective devices properly. Avoid skin contact with oil and grease. In the event of any injury caused by oil escaping under pressure, immediately seek the assistance of a doctor.
- The cutter blades can continue to rotate after the drive has been switched off. Do not approach the machine until the work tools have come to a complete standstill!
- Only use appropriate and authorised lifting gear for the installation and removal of the mowers (total weight = approx. 1,500 kg).

The following pre-requisites should have previously been met for the Big MII:

- Travel gear release switch off (see section on Release switch: travelling gear)
- Road safety switch in field position (see the section on the Road safety switch)



Remove the ignition key and secure the mower from rolling away.

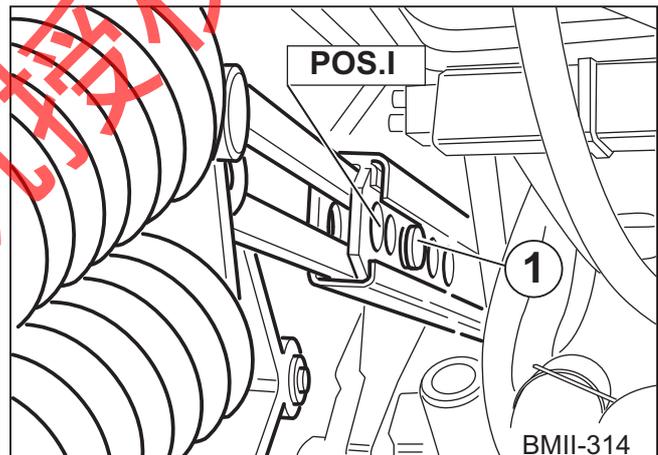
Adjust the spring relief mechanism to **Minimum**.
To do this:

Standard equipment:

Insert the socket pin (1) into **pos.I** for the longest coupling rod. (See the section entitled **Setting the ground pressure "lateral mowing mechanisms"**)



Move the front axle to the **working position (mowing position)**. (See the section on Axle spring manual operation)

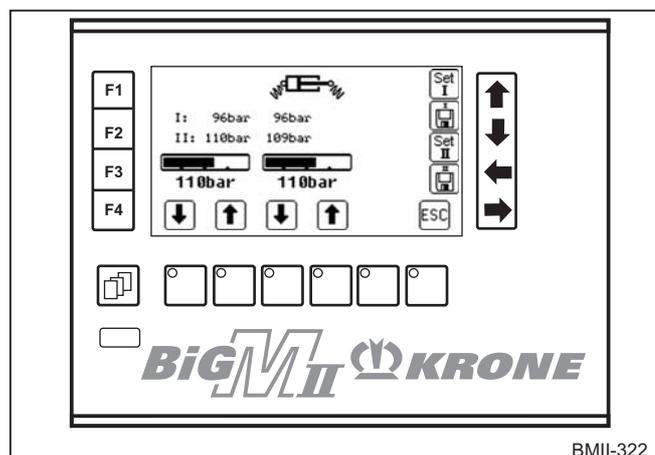


Hydraulic spring compensation (optional):

- Reduce the pressure in the terminal to 0 bar



To set the pressure, set both lateral mowing mechanisms down on the ground and move the front axle to working position (mowing position). (See the section on Axle spring manual operation)



- Lower the lateral mowing mechanism onto the ground
- Insert the clamping plate (1) (Item No. 233 505 0) into the spring assemblies (2) on the right and left from above



Both clamping plates (on the right and left) are required to release tension on the outrigger arm, even if you are only dismantling one mowing mechanism.

The spring assembly can also be detached on the outrigger arm instead of on the clamping plates.



The compensation springs must only be dismantled after the tension has been released on the springs. To do this, the lateral mowing mechanism must be lifted up above the headland position. In the working position the compensation springs are subject to high tensile stress. Severe injury can be caused if the compensation springs are removed while in the working position.

To do this:

- Lift the lateral mowing mechanism (1) above the headland position.
- Strike the clamping sleeve to remove it from the attachment bolt (2) and dismantle the attachment bolt (2).



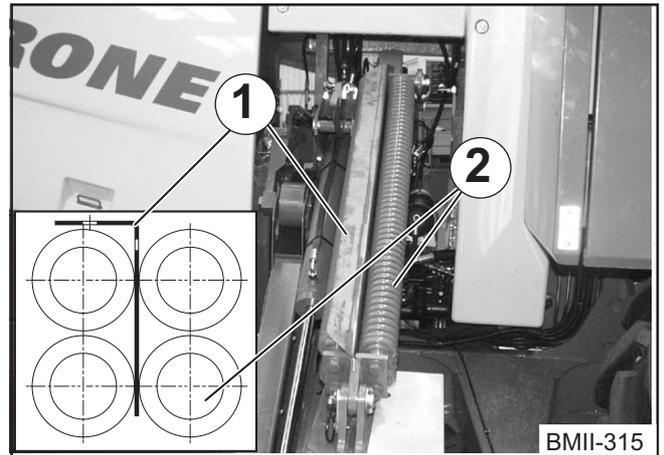
Remove the ignition key and secure the mower from rolling away. Only use appropriate and authorised lifting equipment for installing and removing the spring assemblies (the weight of spring assemblies is approx. 100 kg)

To proceed further with disassembly of the mowing mechanism, the mowing mechanism that is to be dismantled must be on the ground and the mowing mechanism above it must be in the headland position.

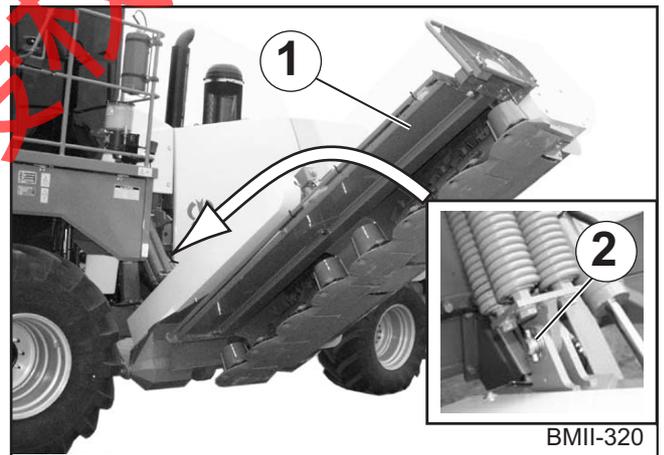


Remove the ignition key and secure the mower from rolling away. Only use appropriate and authorised lifting equipment for installing and removing the mowing mechanisms (the weight of mowing mechanism is approx. 1,500 kg)

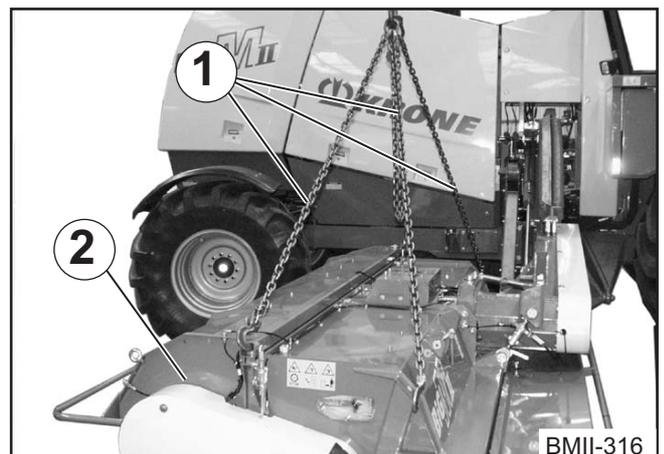
- Fasten the support chains (1) on the mowing mechanism (2)



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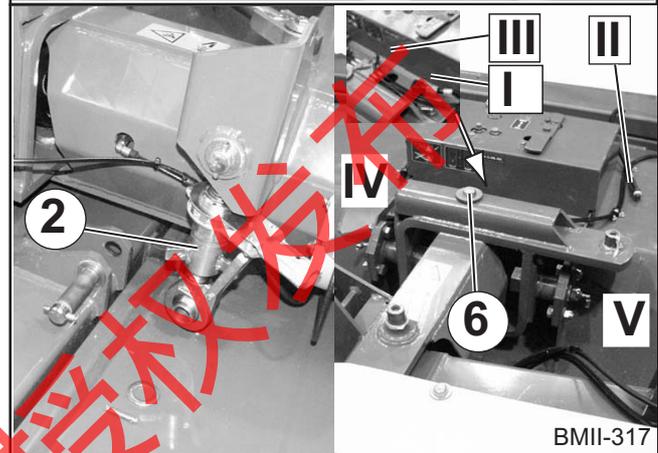
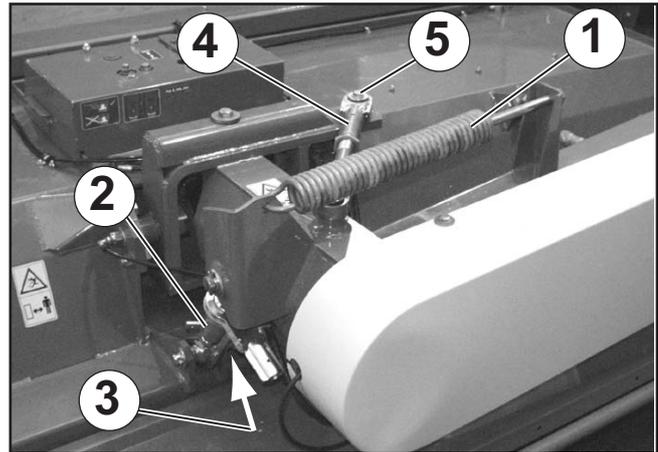


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- Dismount the spring (1) on the right outrigger arm
- Remove the upper link (2) for cutting height on the mowing mechanism. To do this, strike the clamping sleeve to remove it from the attachment bolt (3) and dismount the attachment bolt together with the washer.
- Remove the cable plug (I) for mower rotation speed
- For the BSS option remove the electrical line for rotation speed monitoring by disconnecting the plug connection (II).
- For the central lubrication option remove the line to the distributor (III) and the two lines to the bearing journals (IV and V).
- Expose all lines (lubrication lines and electrical lines) up to the Cardan support. To do this, disconnect the corresponding cable ties.
- Dismount the upper link (4) for the mower cross setting. To do this, unscrew the attachment bolts (5) and press the upper link (4) down off the bolts.
- Dismount the attachment bolt (6) on the Cardan clip - Cardan support.

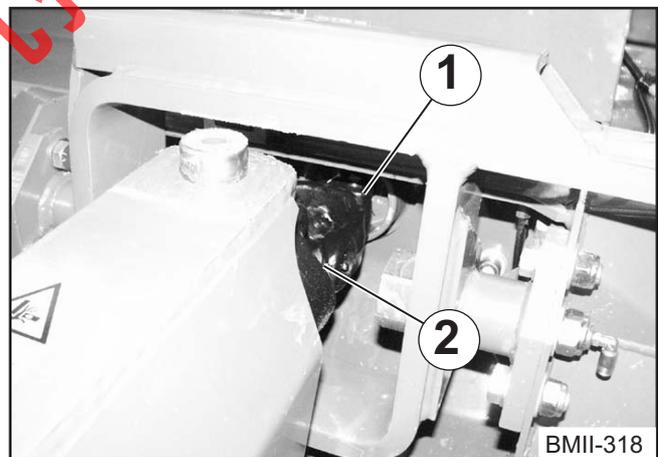


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- Align the double joint (2). To do this, turn the mowing mechanism manually on the external mower drum until the attachment bolt (1) of the double joint is standing up vertically.

 **The engine must be turned off**

- Raise the mowing mechanism slightly with the lifting equipment until the bolts of the Cardan support are raised up out of the Cardan clip.
- Move the mower unit back to guide the double joint down off the shaft.
- Move the mowing mechanism away from the machine with the lifting equipment and set it down safely.



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 **Do not lift the outrigger arms above the headland position with the clamping plates. Danger of breaking!**

10.13.4 Attaching the lateral mowing mechanism

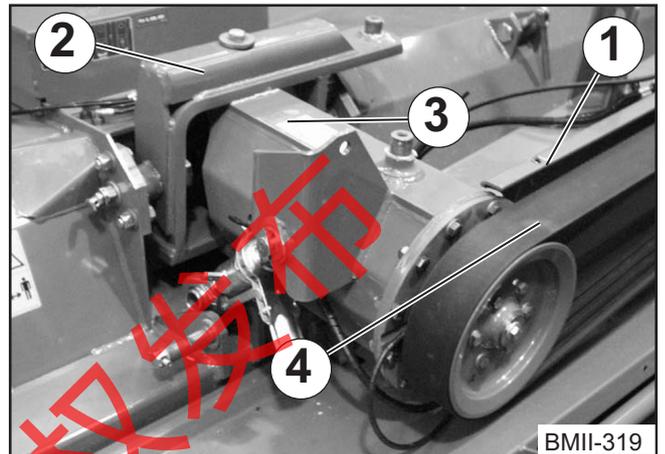
The following pre-requisites should have previously been met for the Big MII:

- Travel gear release switch off (see section on Release switch: travelling gear)
- Road safety switch in field position (see the section on the Road safety switch)



Remove the ignition key and secure the mower from rolling away. Only use appropriate and authorised lifting equipment for installing and removing the mowing mechanisms (the weight of mowing mechanism is approx. 1,500 kg)

- Dismount the belt guard (1) of the outrigger arm
- Insert the mowing mechanism into the support chains and guide onto the outrigger arm
- Align the Cardan clip (2) of the mowing mechanism to the Cardan support (3) of the outrigger arm.



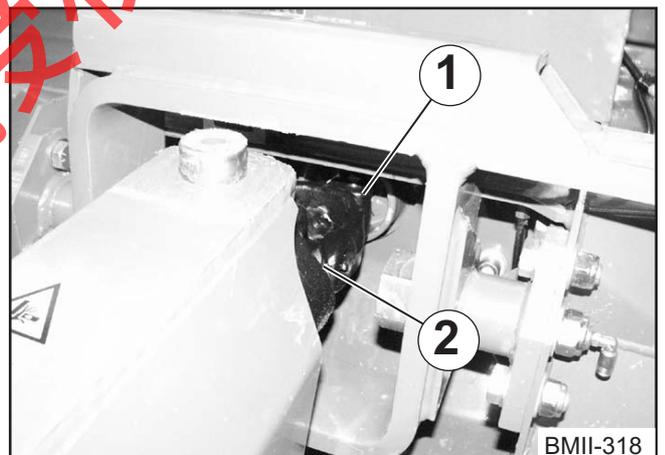
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- Align the double joint (2) until the attachment bolt (1) of the double joint is standing up vertically.
- Guide the double joint on the drive PTO shaft

To make it possible for the profile tooting to lock into place, the drive shaft can be turned on the outrigger arm by moving the force belt (4).



When inserting the double joint, make certain not to move the lifting equipment or change how it is adjusted. Only the fitter is permitted to move the mowing mechanism manually on the front protective tube. Elevated danger of crushing for the hands!!



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- Mounting the belt guard on the outrigger arm

The remainder of the mounting is in the opposite order to the dismantling procedure.

After the mowing mechanism has been attached, set it down on the ground and remove the two clamping plates on the right and left.



If the clamping plates are not removed, there is danger of them breaking!



10.14 Additional equipment

10.14.1 Mulching devices

Mulching devices can be used as additional equipment.
For information, please contact the supplier of the mulching devices.

Address:

Van Wamel BV

Energieweg 1

NL-6658 AE Beneden-Leeuwen



For information on how to operate, service and mounting or dismounting the mulching devices, please contact the manufacturer of the mulching devices.

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11 Maintenance - Engine

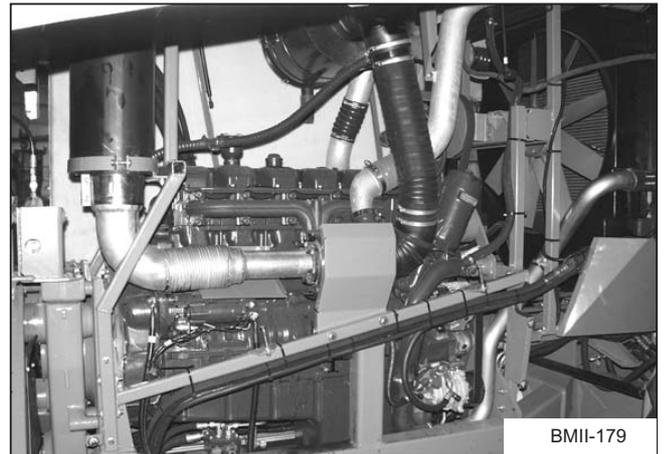
11.1 Soil Deposits in the Engine Bay



The build-up of dust, oil and grass inside the engine bay is combustible and presents an increased fire hazard.

Keep the engine and the engine bay clean at all times.

If required, blow off soiling and wipe off oil deposits.



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11.2 Engine Oil Level

So that the lubricating oil circuit is not interrupted in inclined position, a minimum oil level is required in the oilpan.

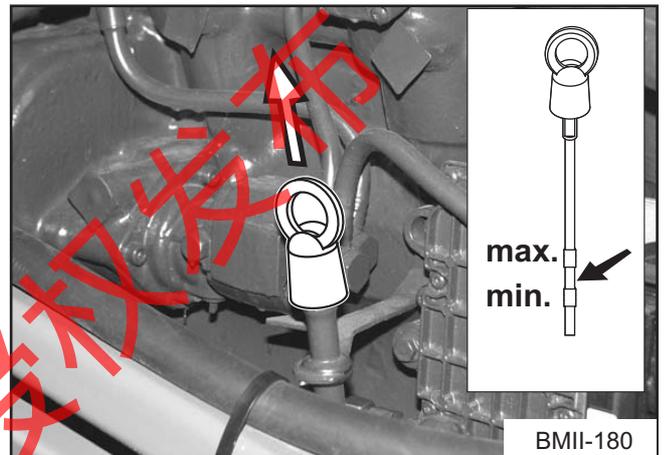


- Observing this oil level is vital for the life of the engine.
- Check oil level with the machine in horizontal position only.
- Do not start the engine if the oil level is below the lower mark of the oil dip stick.

Thoroughly clean the area around the oil dip stick before pulling it out.

When checking, the oil level must be between the lower and the upper mark of the oil dip stick.

After checking the oil level, plug the oil dip stick back in again.



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11.3 Engine Oil and Filter Replacement



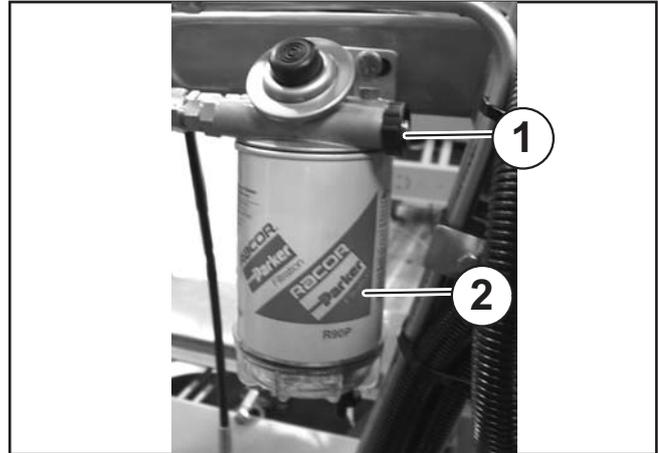
or further information please refer to the operating instructions for "Daimler Chrysler Engines" supplied (chapter Engine Oil and Filter Replacement)

11.4 Replacing the Fuel Filter

The shut-off valve (1) can be used to interrupt the fuel supply from the tank to the engine, e.g. for maintenance and repairs of the fuel system and for replacing the preliminary fuel filter.

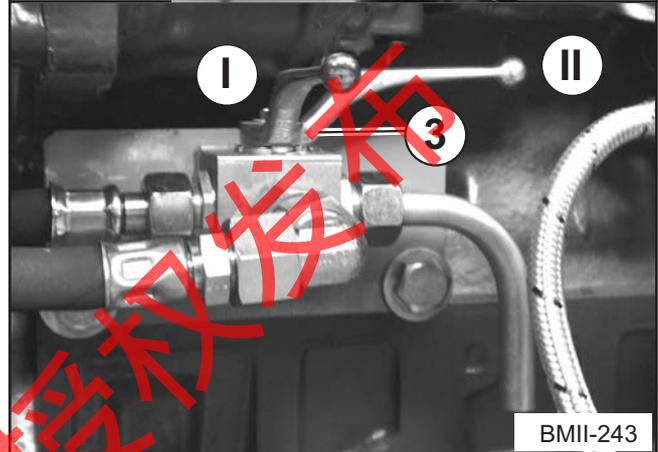


To shut off the fuel supply, turn the shut-off valve (1) to the left.
To open the fuel supply, turn the shut-off valve (1) to the right.

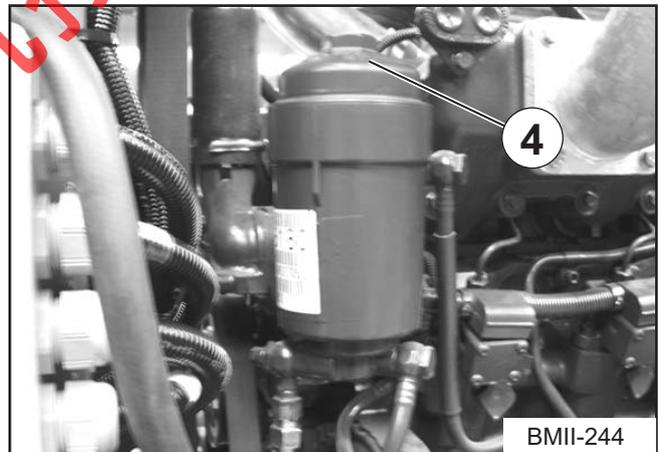


11.5 Replacing the Fuel Filter Element

- Close shut-off-valve (1) at the preliminary fuel filter (2).
- Set three-way cock (3) (right engine side in driving direction) to pos. II, so that the fuel runs out of the filter housing. Collect fuel with a suitable vessel.
- Unscrew screw cap (4) with the filter element.
- Replace filter element and sealing ring.
- Screw in and tighten screw cap (4) with filter element. Torque **25 Nm**.
- Set three-way cock (3) to pos. I, so that the return line is shut (as in initial position).
- Open shut-off valve (1) at the preliminary fuel filter.



For further information please refer to the operating instructions for "Daimler Chrysler Engines" supplied (chapter Replacing the Fuel Filter Insert).



After completing maintenance and repairs or replacing the fuel filter, the tree-way cock must be turned back to operating position, as with shut return line and running engine pressure will build up in this line which can cause the line to burst. This results in a fire hazard inside the engine bay.

11.6 Fuel



Never fill tank while the engine is running. No smoking!

Quality and pureness of the fuel are very important for constant performance and a long engine service life.

Fill tank daily after completing work to avoid formation of moisture and freezing up of the fuel system.

For further information please refer to:



- the operating instructions for "Daimler Chrysler Engines" supplied (chapter Fuels)
- the fuel regulation by "Daimler Chrysler" supplied

11.7 Filling Fuel

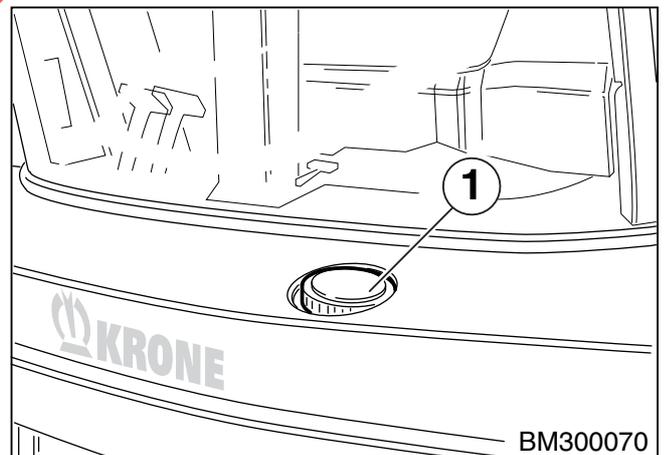


Handle fuel with care. Stop engine. Do not smoke.

- Stop engine when the machine is to be filled up.
- The filler neck is closed by the tank cap.
- The tank is vented by an orifice in the tank cap.
- Before removing the tank cap, clean its surrounding area from grass and dust.

Handle fuel with care; it is highly inflammable. Do not smoke while filling up the machine and make sure there are no naked flames or spark sources nearby.

Only fill up outdoors. Prevent fires by keeping the machine free of dirt and grease remains. Always wipe up spilt fuel.

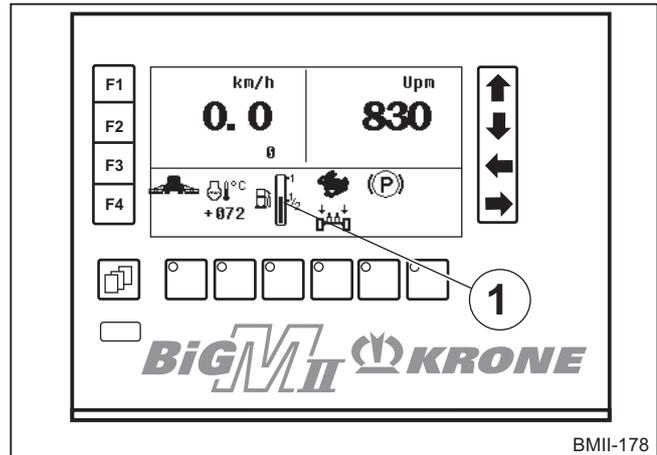


Fill tank daily after completing work to avoid formation of condensation and freezing up of the fuel system.

Capacity: approx. 700 l

11.8 Fuel Level

With the ignition switched on check the fuel level using the fuel gauge (1).



11.9 After a Long Standstill Period

Vent fuel system.

For further information please refer to :



- the operating instructions for "Daimler Chrysler Engines" supplied (chapter Venting the Fuel System)

11.10 Engine Coolant

The cooling system is filled with a special coolant ex works. This coolant protects against corrosion and provides frost protection up to 37° C



The cooling system must be always filled with John Deere COOL-GARD no matter what the season. Change the engine coolant every 3 years.

If there is no coolant available, depending on the season a mixture of 50 % ethylene glycol antifreeze/anticorrosion agent and 50 % clear, soft water must be used. This mixture also provides corrosion and freezing protection up to -37 ° C.

For further information please refer to:



the fuel regulation by "Daimler Chrysler" supplied (sheet 325.2)

Required quantity = 44 litres



Cooling system density additives may not be used.

11.11 Engine Coolant - Control



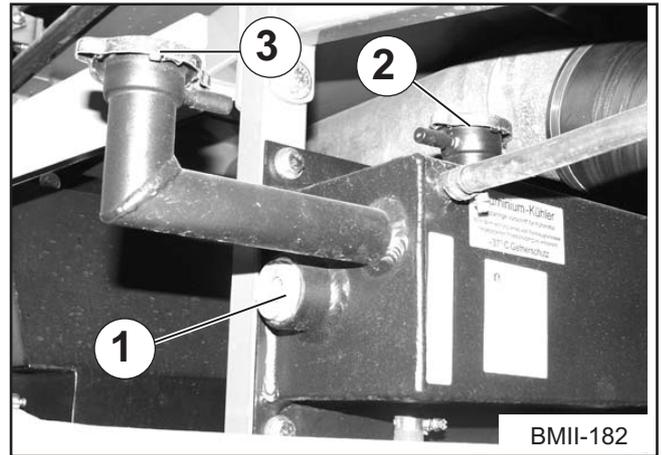
Never open the cap while the engine is hot. Switch off the engine and wait until the engine has cooled down.

Engine Coolant - Control:

- Check engine coolant level daily.
- The engine coolant level must be visible up to the middle of the inspection window.
- If necessary, top up engine coolant

To do this:

- Turn the cap (2) to the first notch and wait until the overpressure has been reduced.
- Fully open cap (3) and refill engine coolant to the middle of the inspection window.
- Close the caps (2) and (3).



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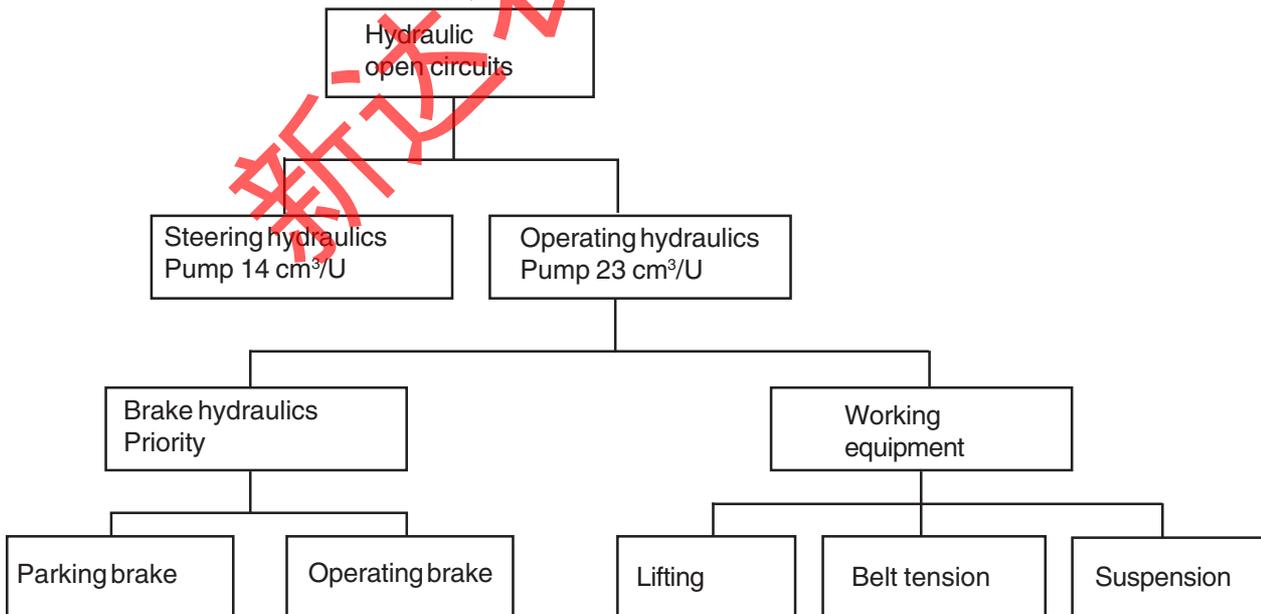
11.12 Maintenance - Hydraulic System

11.12.1 Caution with Leaking Lines



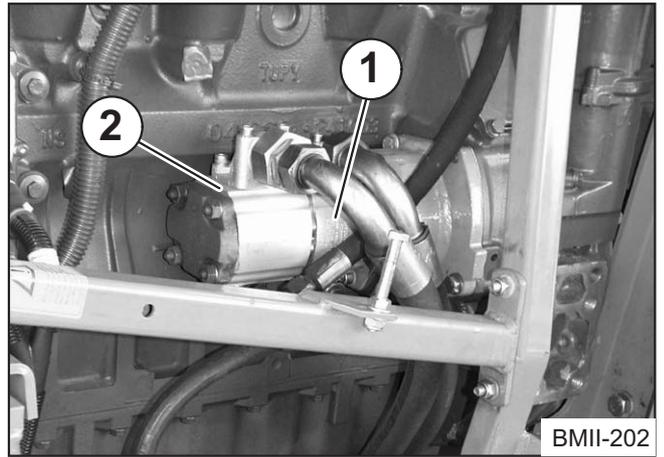
- Due to the risk of injury when searching for leaks use suitable tools and wear protective goggles.
- Escaping high-pressure fluids can penetrate the skin and cause serious injury. Therefore depressurise the system before disconnecting lines. Ensure that all line connections are tight before the pressure in the system is built up again.
- Hydraulic oil escaping from a small opening is very difficult to see therefore use a piece of cardboard when searching for leakages. Protect hands and body.
- If any fluid penetrates the skin, it must be removed immediately by a doctor who is familiar with this kind of injury; serious infections could otherwise result. Doctors who are not familiar with this kind of injury should obtain the corresponding information from a competent medical source.
- Regularly check hydraulic lines and replace if damaged or aged! The replacement lines must comply with the requirements of the device manufacturer.

11.13 System Description Operating and Brake Hydraulics



11.13.1 Pumps

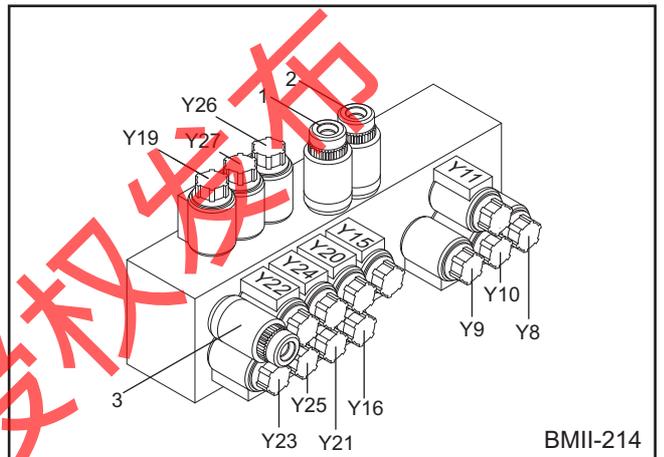
- 1 Steering pump
- 2 Brake hydraulics - Lifting



BMII-202

11.13.2 Main block

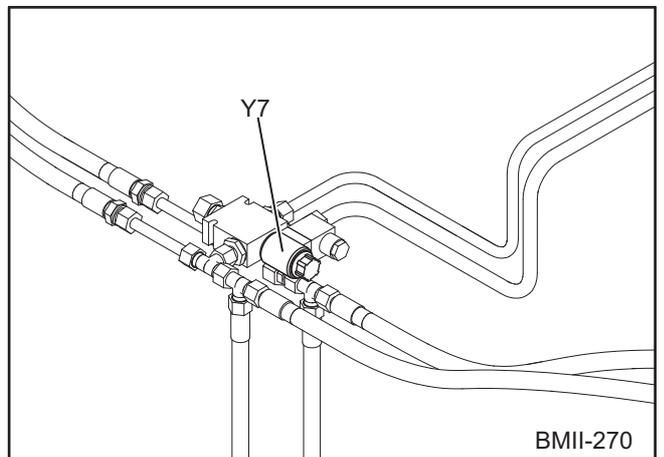
No.	Description
1	Suspension pressure control
2	Pressure control drive
3	Main valve pressure control
Y8	Front drive
Y9	Right drive
Y10	Left drive
Y11	Parking brake
Y15	List suspension
Y16	Lower suspension
Y19	main valve
Y20	Lift front
Y21	Lower front
Y22	Lift right
Y23	Lower right
Y24	Lift left
Y25	Lower left
Y26	Push off left
Y27	Push off rightb



BMII-214

Valve block Front / Rear axle

Y6	Change over front axle
Y7	Change over rear axle



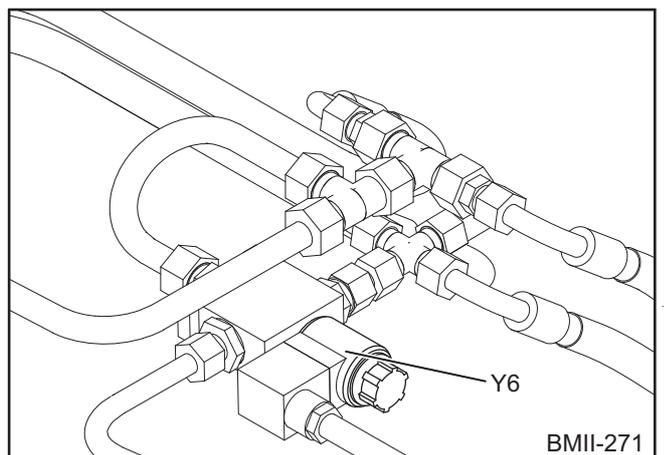
BMII-270

11.13.3 Pressure Relief Valve



Only allow customer service to carry out work on the pressure relief valve.

The valve blocks are equipped with pressure relief valves. These valves were set at the factory and may not be changed.

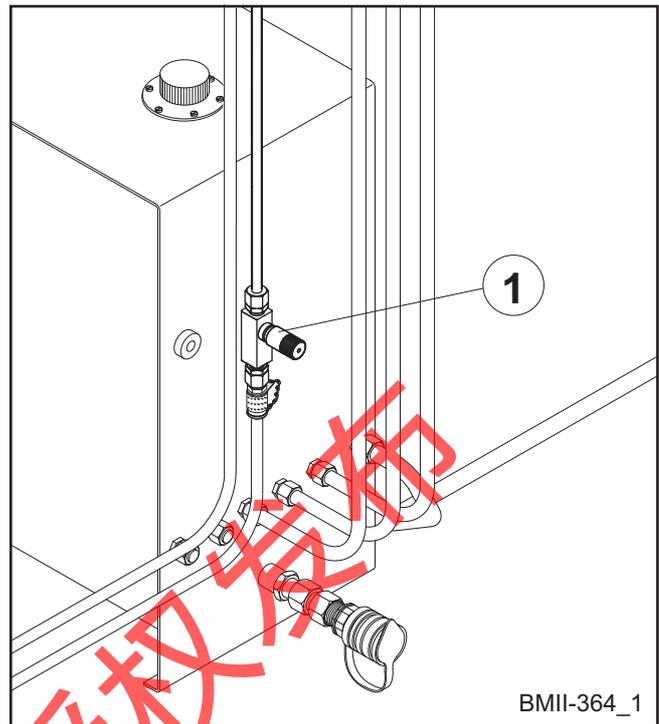


BMII-271

11.13.4 Adjustable Throttles

Speed of moving the front mower into operating position:

The adjustable throttle (1) for setting the speed of moving the front mower is located next to the hydraulic tank, on the left-hand side in driving direction.



11.14 Hydraulic Oil



Never mix different oils.
Before changing the type of oil consult
with the customer service.
Under no circumstances use engine oil.

11.14.1 List of Mineral Oils for the Hydraulic System

List of mineral oils of quality class HLP (HM) and environment-friendly, biologically fast degradable hydraulic fluids HEPG

ISO-viscosity class	HEPG VG 46	HLP VG 46
Manufacturer		
ADDINOL		Hydraulic oil HLP 46
AGIP		OSO 46
ARAL	BAF-46Vitam	Aral Vitam GF 46
ASEOL	Aqua VG 46	
AVIA	Avia Hydrosynth 46	AVILUB RSL 46 Avia Fluid ZAD 46
BECEM	Hydrostar UWF 46	
BP	Biohyd PEG 46	Energol HLP 46
CASTROL		HYSPIN AWS 46
COFRAN		Cofraline extra 46 S
DEA	Econa PG 46	Astron HLP 46
ELF		ELFOLNA 46 ELFOLNA DS 46
ENGEN		Engen TQH 20/46
ESSO	Hydraulic oil PGK 46	NUTO H 46
FINA	Hydraulic oil D3031.46	HYDRAN 46

ISO-viscosity class	HEPG VG 46	HLP VG 46
Manufacturer		
FRAGOL	Hydraulic TR 46	
FUCHS	Renolin PGE 46	RENOLIN MR 15 VG 46 RENOLIN B15 VG 46
Houghton	Syntolubric 46	
KLÜBER		LAMORA HLP 46
KUWAIT		Q8 Haydn 46 Holst 46 Hydraulic S46
LIQUI MOLY		HLP 46 ISO
MOBIL		Mobil DTE 25 Mobil Hydraulic Oil Medium
SHELL	Fluid BD 46	Shell Tellus oil 46 Shell Hydrol DO 46
Stuart-Theunissen	Hydrocor E 46 ISOCORE E46	Cofraline extra 46 S
TOTAL		Azolla ZS 46
TRIBOL		Tribol 772 Tribol ET 1140-46 Tribol 943 AW 46
VALVOLINE	Ultrasyn PG 46	
VERKOL		Vesta HLP 46
WINTERSHALL		WIOLAN HS 46 WIOLAN HX 4

11.15 Hydraulic oil level

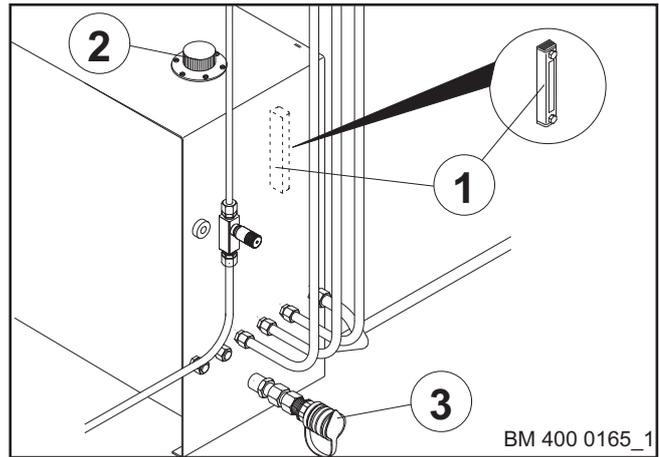
Lower all mowers and turn off engine.

Oil inspection

- Time interval: daily
- Oil must be visible in the inspection window (1).
- If necessary, top up oil (2)

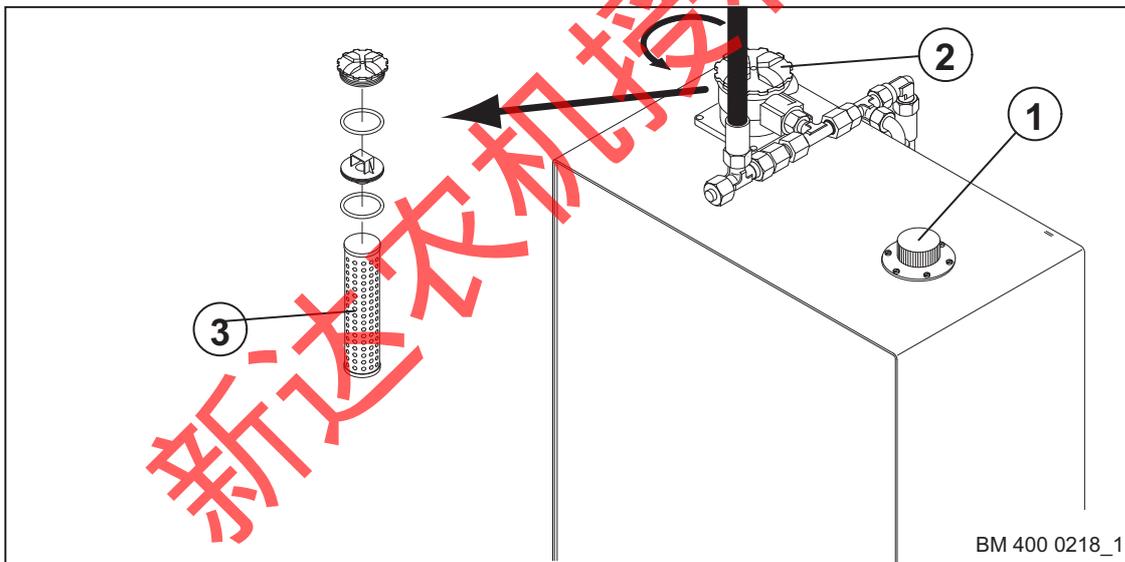
Oil change:

- Time intervals: every 500 h or at filter warning indicator, however at least once per year
- Drain oil with suitable hose via plug-in connection (3)
- Collect the used oil in a suitable collection vessel.
- Fill oil (2)
- Oil level (Oil must be visible in inspection window (1).)



Capacity: approx. 80 l (approx. 21 U.S. gal)

11.16 Replacing hydraulic oil filter



Observe absolute cleanliness when changing the filter

- Replace the filter element (3) the first time after 50 operating hours, then every 500 operating hours or after each mowing season (at the same time as changing the hydraulic oil)
- Loosen filter and unscrew.
- Replace the filter with a new filter.

Screw on new filter as follows:

- Wet sealing surface of filter with oil.
- Once the filter seal touches the sealing surface of the filter housing, tighten the filter by 3/4 to 1-1/4 turns by hand. Do not overtighten.
- Check filter for leaks while the engine is running and tighten if necessary.

11.17 Distribution Transmission

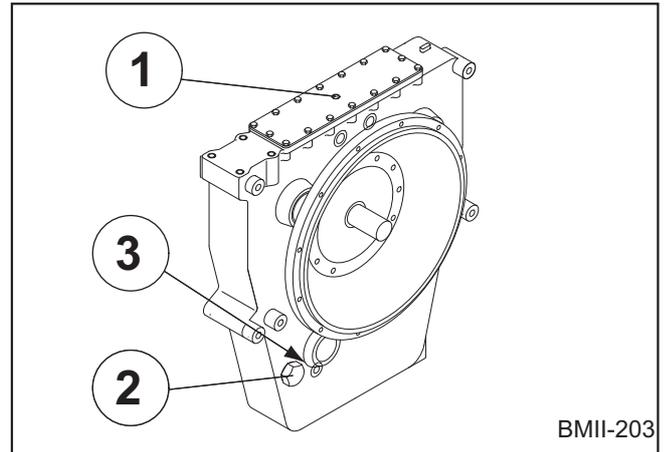
Capacity: 6.0 l

Oil inspection:

- Time interval: before every use
- Unscrew the oil check screw (2)
- Oil level up to bore hole
- If necessary, top up oil (synthetic DIN 51502-PGLP)
- Fit check screw (2).

Oil change:

- First oil change after the first 30 to 50 operating hours, then every 500 operating hours (but at least once a year)
- Unscrew the oil draining screw (3)
- Collect the used oil in a suitable collection vessel.
- Fit oil draining screw (3)
- Fill oil (1) (Oil level up to hole (2))



Only use gear lubricant oil (synthetic DIN 51502-PGLP)

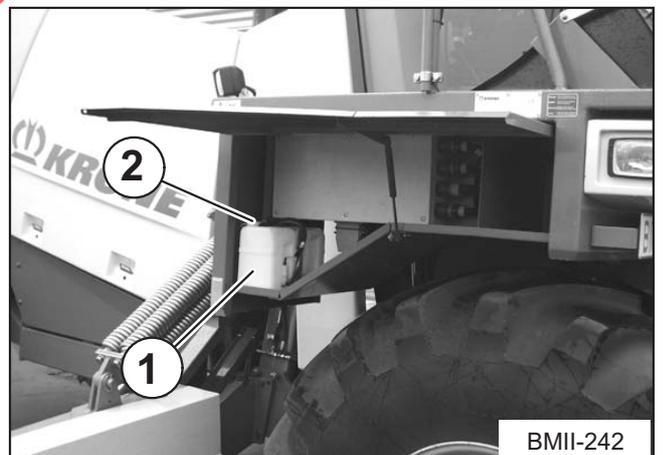
11.18 Windscreen Washer

- To fill the windscreen washer container (1) open cover (2).

To obtain better cleaning result add windscreen cleaner for washer.



In winter empty the washer or fill with special frost protection agent.



11.19 Checking and Maintaining Tyres

- Check the tyres daily for damage and correct pressure as the tyre service life depends on the tyre pressure.
- Repair cuts or tears in the tyres as soon as possible or change tyres.
- Do not expose tyres to oil, grease, fuel, chemicals or let them stand in the sunlight for long periods.
- Drive carefully; avoid driving over sharp stones or edges.
- Check the tyre pressure at least once per week with an accurate instrument. (see cap. 1.2.7)



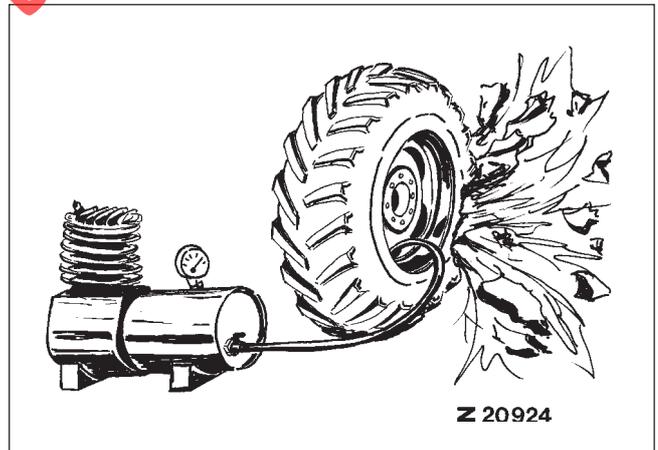
11.20 Fitting Tyres



- Fitting tyres requires sufficient knowledge and the availability of proper tools! Incorrect fitting can lead to the tyre bursting with an explosion when it is pumped up. This can cause serious injury. If you do not have sufficient experience of fitting tyres, the tyres should be fitted by the KRONE dealer or a qualified tyre specialist.
- When fitting tyres on the wheel rims, the maximum pressure given by the tyre manufacturer must not be exceeded. The tyre or even the wheel rim could burst with an explosion.
- If the tyre heels do not fit properly when the maximum permitted pressure is reached, let out the air, align tyres, lubricate tyre heels and pump up the tyre again.
- Detailed information on fitting tyres on agricultural machinery can be obtained from the tyre manufacturers.

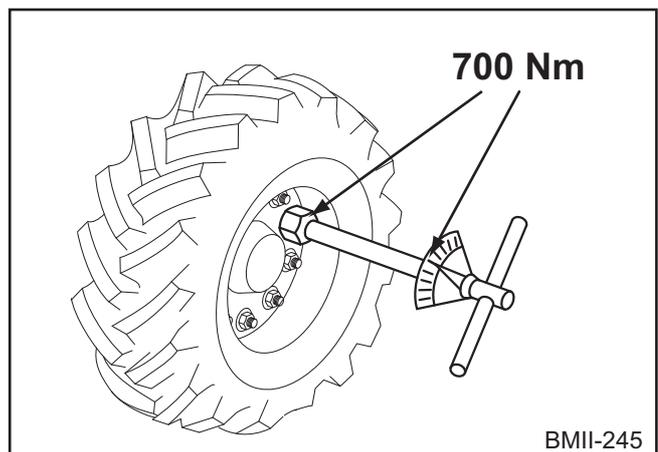


Never operate the self-propelled high performance mower-conditioner with the tyre pressure which is normal when the tyres are dispatched. Keep the valve caps fitted on the valves to keep dirt out. Check tyre pressure frequently!



11.21 Wheel Fixing

Tighten the wheel nuts after the first and then every 20 to 25 operating hours with 700 Nm.



12 Maintenance - Electrical System

12.1 Electrical System Specifications

Alternator power	14V /150	A
Number of batteries	2	
Battery voltage	12	V
Battery capacity	(2x) 135	AH

12.2 Batteries

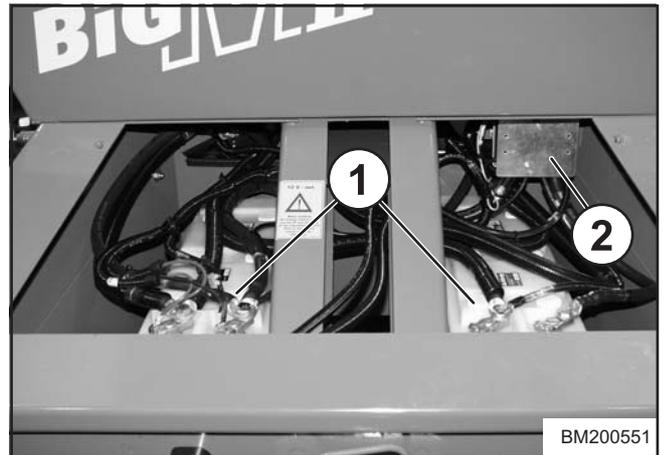
The Big M II is equipped with two batteries (1) of 12 V (135 Ah) each, which are connected in series (24 V) for starting.

A switching relay (2) is used to switch.

The operating voltage is only 12 V!



When jump-starting the battery, make certain that only a voltage of 12 V is connected to each battery!



BM200551



WHB35410

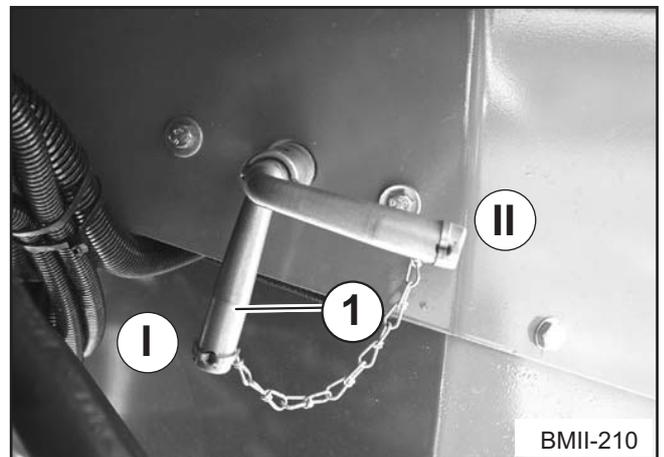
12.3 Battery Main Switch

There is an interrupter switch (1) for the battery minus cable at the rear left-hand side of the vehicle in case of repairs and emergencies.

- I - Switch pushed in and locked: battery is connected.
- II - Switch pulled out: battery is disconnected.



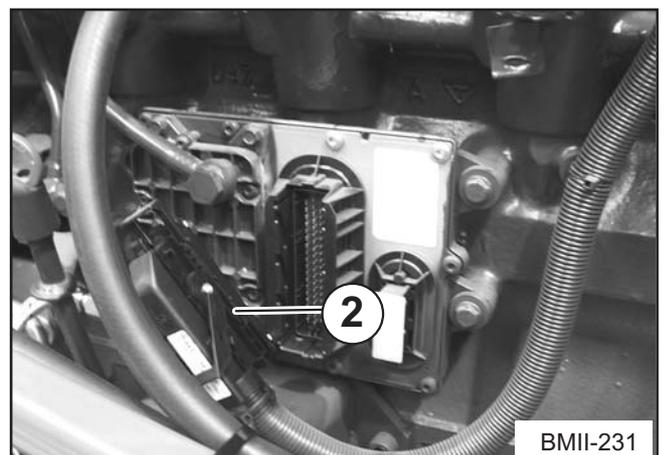
- **The battery is discharging when the ignition is in stage 1 or 2 even if the main battery switch is open (Position II).**
- **Before extended times with no usage, disconnect the main battery switch.**
- **Disconnect cables from battery terminal for winter storage (you may wish to charge or recharge the battery).**



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During repair work (welding) always switch off engine, set main battery switch (1) to pos. II and remove the cable plug from the unit pump (PLD) control unit at the engine!



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12.4 Battery - Dangers

General:



Always keep the battery clean of dust and chaff.

Batteries develop a highly explosive electrolyte gas. Avoid ignition sources and naked flames near the battery.

Before carrying out work on the electrical system or on the engine, always disconnect the earth cable or open the battery main switch.

Quick charging:

When quick charging the battery, disconnect the battery minus cable and open all battery cells to avoid damage to the electrical system.



Remove plastic covers from the battery to prevent highly explosive gases collecting.

Removing the battery:

Always disconnect the earth cable first and then the plus cable before removing the battery.

12.5 Clean Battery

- Clean the battery when necessary.
- Remove oxidation on the pole terminal with a brush.
- Apply battery grease to the battery poles and pole clamps.
- Keep the sealing plug ventilating holes open.

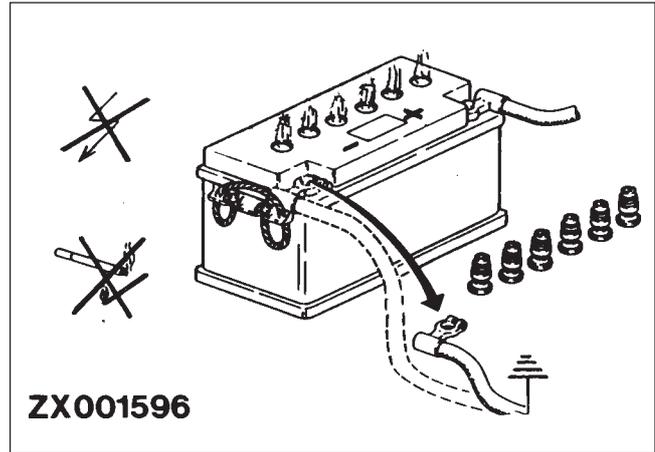
12.6 Battery - Checking Acid Level



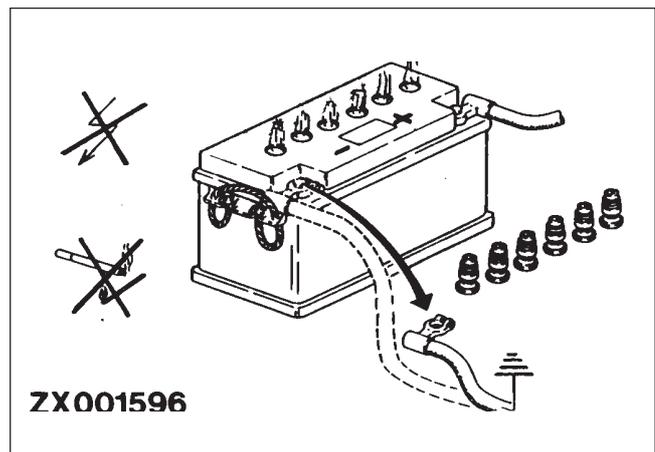
If you top up the distilled water in winter, allow the engine to run for approx. 30 minutes to mix the water and acid properly.

- Check the acid level every 250 operating hours. The acid should reach the marking above the plate upper edge.

Only use distilled water.



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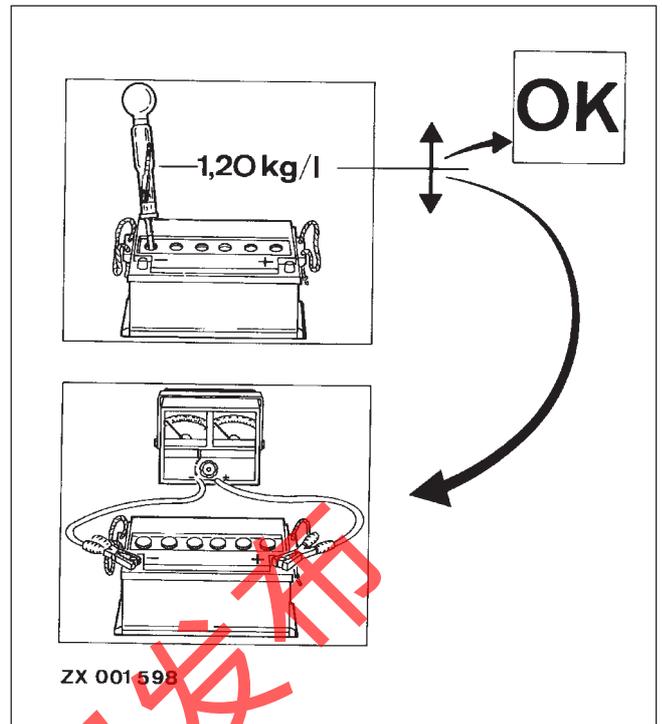


12.7 Battery - Measuring the Acid Density

- Measure the acid density of each battery cell with an acid tester.

A fully charged battery should have an acid density of 1.28 in normal climatic conditions.

- Recharge the battery when the density falls below 1.20.



12.8 Installing Batteries and Connecting Poles Correctly



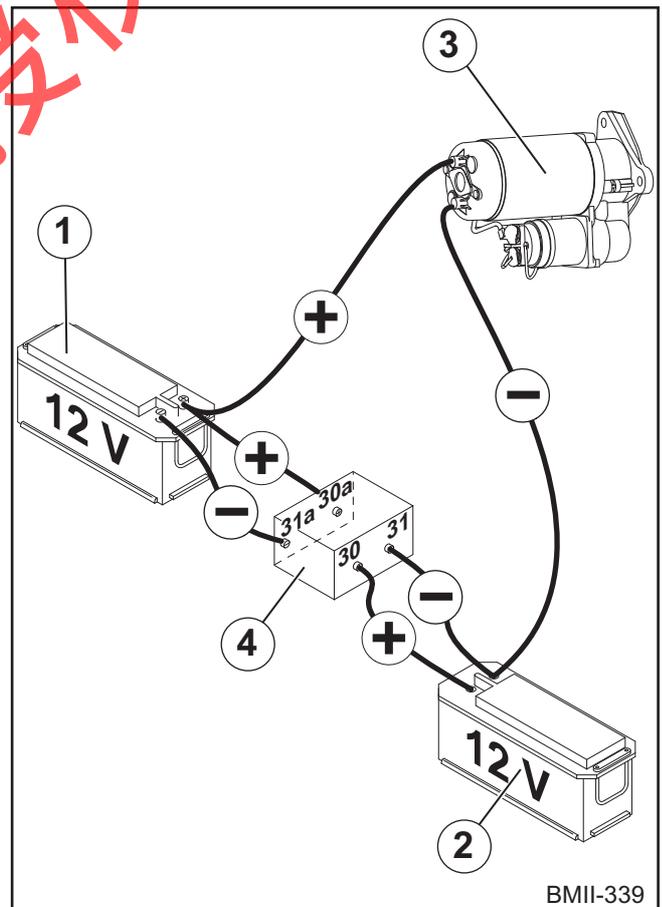
Always connect the battery poles correctly:

To do this:

- Connect the positive cable from the starter (3) to the positive pole of the battery (1).
- Connect the positive cable of the battery (1) with the positive pole (30a) of the battery changeover relay (4).
- Connect the negative cable of the battery (1) with the negative pole (31a) of the battery changeover relay (4).
- Connect the negative cable from the starter (3) to the negative pole of the battery (2).
- Connect the negative cable of the battery (2) with the negative pole (31) of the battery changeover relay (4).
- Connect the positive cable of the battery (2) with the positive pole (30) of the battery changeover relay (4).



Not observing the correct polarity between the batteries and alternators can cause serious damage to the electrical system.



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12.9 Alternator



Before carrying out work on the electrical system remove the plus cable at the batteries, in order to avoid damage. The cable contacts of the plus cable are to be protected against inadvertent contact with the battery contacts.



For further information please refer to the operating instructions for "DaimlerChrysler Engines" supplied (chapter Mounting/De-mounting V-Ribs)

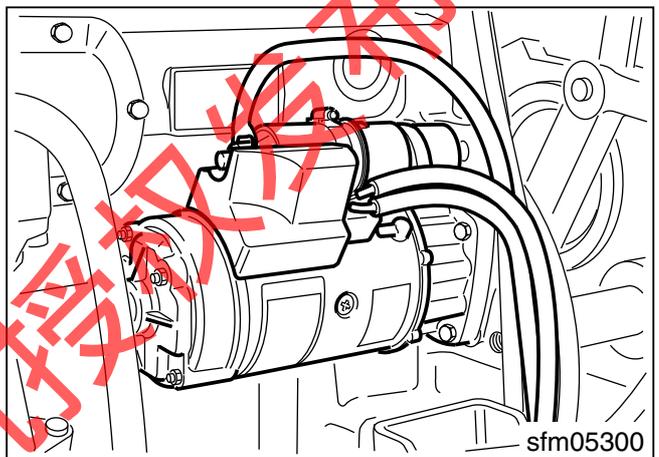


Have the alternator checked once per year at a specialist workshop.

12.10 Starter



Before carrying out work on the electrical system remove the plus cable at the batteries and the battery main switch disconnect, in order to avoid damage. Make certain as you do this there is still 12 V present on the starter even though the main battery switch is disconnected. The cable contacts of the plus cable are to be protected against inadvertent contact with the battery contacts.



If the starter fails or does not work properly, find the cause of the problem.

If the suggestions below do not solve the problem, contact your KRONE dealer. Have the starter checked thoroughly once per year at a specialist workshop.

Loose, dirty or corroded cable connections:

- clean and tighten cable connections on the starter.
- Clean the earthing wires on the motor and tighten the connection to the motor.

Battery power too weak:

- check electrolyte level as well as acid density, recharge battery if necessary.

Flat battery:

- Charge battery.

Use of incorrect engine oil viscosity:

- Always use the right engine oil according to the specifications.

Faulty starter safety relay:

- Replace relay.

12.11 Fuses

The fuses are located on the boards in the respective switch boxes.



Only allow Krone customer service or a dealer to carry out work on the electronics!

Fuse and relay designations can be found on the circuit board.

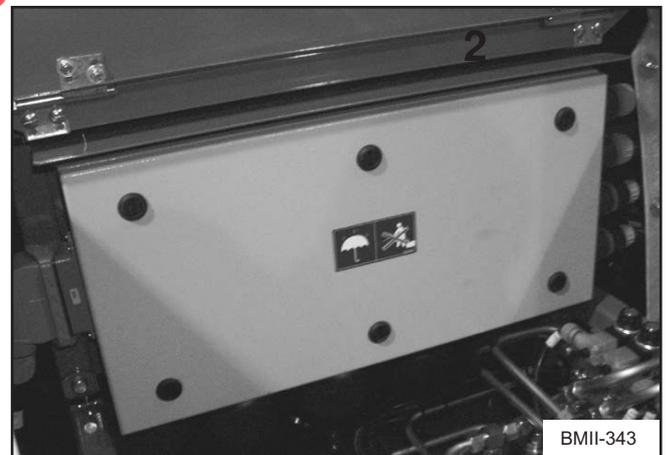
UV1 Subdistributor 1

Subdistributor 1 is located on the right front storage compartment over the front tyres.



UV2 subdistributor 2 and KMC1 Krone Machine Controller

Subdistributor 2 and the Krone Machine Controller are located behind the driver's cab under the upper valve protection cover.



Relay circuit board

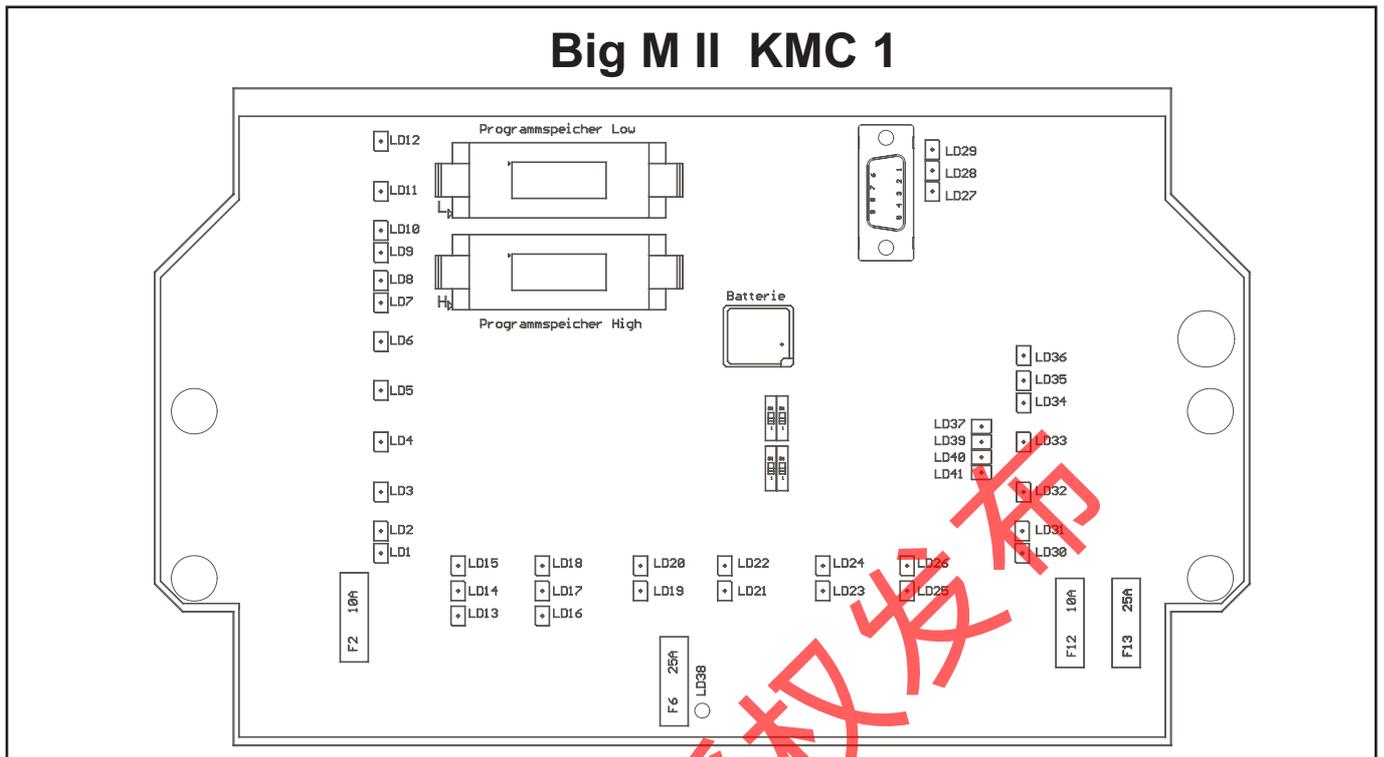
The relay circuit board is located in the driver's cab on the bottom left next to the driver's seat (facing in driving direction).





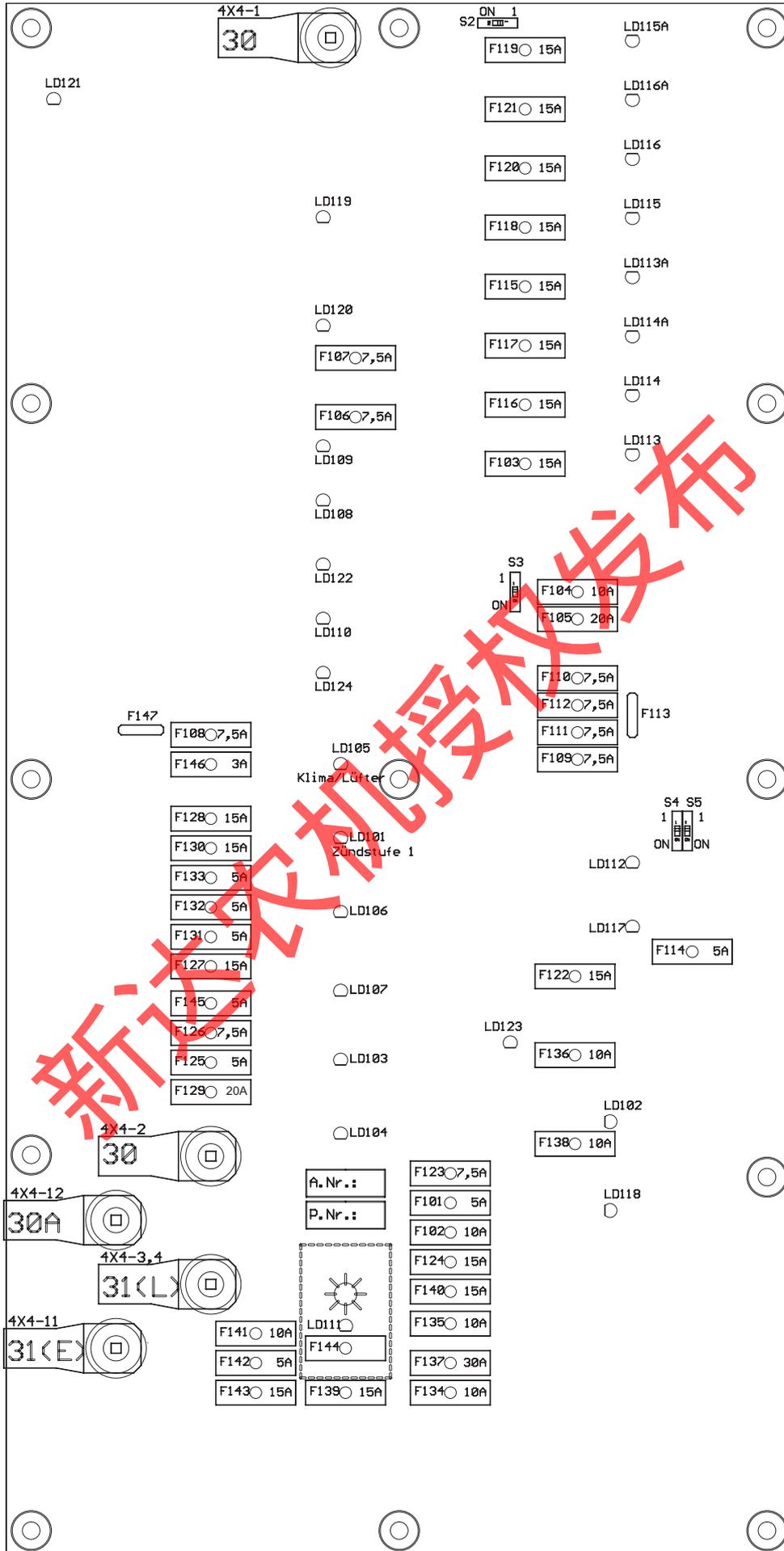
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12.12 Fuses and LED on Krone-Machine-Controller (KMC 1)



LED	Function	LED	Function	Fuses	Value	Function		
LD1	Lower mower front	Y20	LD22	Position mower left	B15	F2	10 A	Voltage supply (V4)
LD2	Safety exit		LD23	Free		F6	25 A	Voltage supply (V2)
LD3	Main valve	Y19	LD24	Axle suspension position	B20	F12	10 A	Voltage supply (V3)
LD4	Lower mower right	Y22	LD25	Auger speed right	B28	F13	25 A	Voltage supply (V1)
LD5	Lift mower right	Y23	LD26	Auger speed left	B29			
LD6	Push off left mower	Y27	LD27	+8V digital				
LD7	Levelling system right	Y29	LD28	+8V analog				
LD8	Levelling system left	Y28	LD29	+5V supply				
LD9	Lift mower front	Y21	LD30	Drive mower left	Y10			
LD10	Fan reversal	M07	LD31	Spring compensation	Y31			
LD11	Lift mower left	Y25	LD32	Addit. valve side mower	Y30			
LD12	Lower mower left	Y24	LD33	Push off right mower	Y26			
LD13	Rotation speed mower rh	B12	LD34	Drive mowe right	Y09			
LD14	Hydraulic tank level	B33	LD35	Drive mower front	Y08			
LD15	Free	LD36	Control input					
LD16	Rotation speed mower lh	B13	LD37	Voltage supply (V1)				
LD17	Filter pressure monitoring	B10	LD38	Free				
LD18	Rotation speed mower front	B11	LD39	Voltage supply (V2)				
LD19	Air filter soiling	B36	LD40	Voltage supply (V3)				
LD20	Free	LD41	Voltage supply (V4)					
LD21	Position mower right	B14						

Big M II cabin



12.13 Fuses of the cabin relay board (2006)

Fuses	Value	Function
F 101	5A	Ignition stage 1 + 2
F 102	10A	Ignition lock
F 103	15A	Light cabin roof centre
F 104	10A	air conditioning (Compressor)
F 105	20A	air conditioning (Lüfter)
F 106	7,5A	Light left
F 107	7,5A	Light right
F 108	7,5A	Back lighting
F 109	7,5A	Full beam light left
F 110	7,5A	Dipped light left
F 111	7,5A	Full beam light right
F 112	7,5A	Dipped light right
F 113	2A	Full beam light - control
F 114	5A	Engine starter signal
F 115	15A	Light cabin roof centre
F 116	15A	Light cabin roof left
F 117	15A	Light cabin roof right
F 118	15A	not engaged
F 119	15A	Light rear
F 120	15A	Side headlight left
F 121	15A	Side headlight right
F 122	15A	Work light bottom
F 123	7,5A	Indicator light

Fuses	Value	Function
F 124	15A	Hazard warning lights
F 125	5A	Interior light
F 126	7,5A	Radio / CB / GPS / GSM
F 127	15A	Radio / CB / GPS / GSM
F 128	15A	Seat compressor
F 129	20A	Warning light
F 130	15A	Windscreen wipers
F 131	5A	Windscreen washer
F 132	5A	Horn, Light horn
F 133	15A	Mirror adjustment / Change over full beam light
F 134	10A	Permanent plus (ADM2)
F 135	10A	Permanent plus diagnostics plug
F 136	10A	Ignition stage 2 diagnostics plug
F 137	30A	not engaged
F 138	10A	Ignition stage 2 (MR)
F 139	15A	Side windscreen wipers
F 140	15A	DIN-Socket
F 141	10A	Cigarette lighter
F 142	5A	Console
F 143	15A	not engaged
F 144		Fuse check
F 145	5A	Parking brake
F 146	3A	Generator charge control

12.13.1 LEDs on the cabin relay board (2006)

LED	Function
LD 101	Ignition stage 1
LD 102	Ignition stage 2
LD 103	Radio
LD 104	Monitor / console / windscreen wipers
LD 105	Air conditioning / Lüfter
LD 106	Seat compressor
LD 107	Headlight / horn etc.
LD 108	Light left
LD 109	Light right
LD 110	Back lighting
LD 111	Fuse check
LD 112	Change over dipped light / full beam light
LD 113	Light cabin roof centre
LD 113a	Light cabin roof centre

LED	Function
LD 114	Light cabin roof left
LD 114 a	Light cabin roof right
LD 115	not engaged
LD 115 a	Light rear
LD 116	Side headlight left
LD 116 a	Side headlight right
LD 117	Cabine bottom side
LD 118	Diesel stop relay
LD 119	Seat switch
LD 120	Door switch
LD 121	Free
LD 122	Street/field release
LD 123	Drive release
LD 124	Parking brake



12.14 Fuses of the cabin relay board (2007)

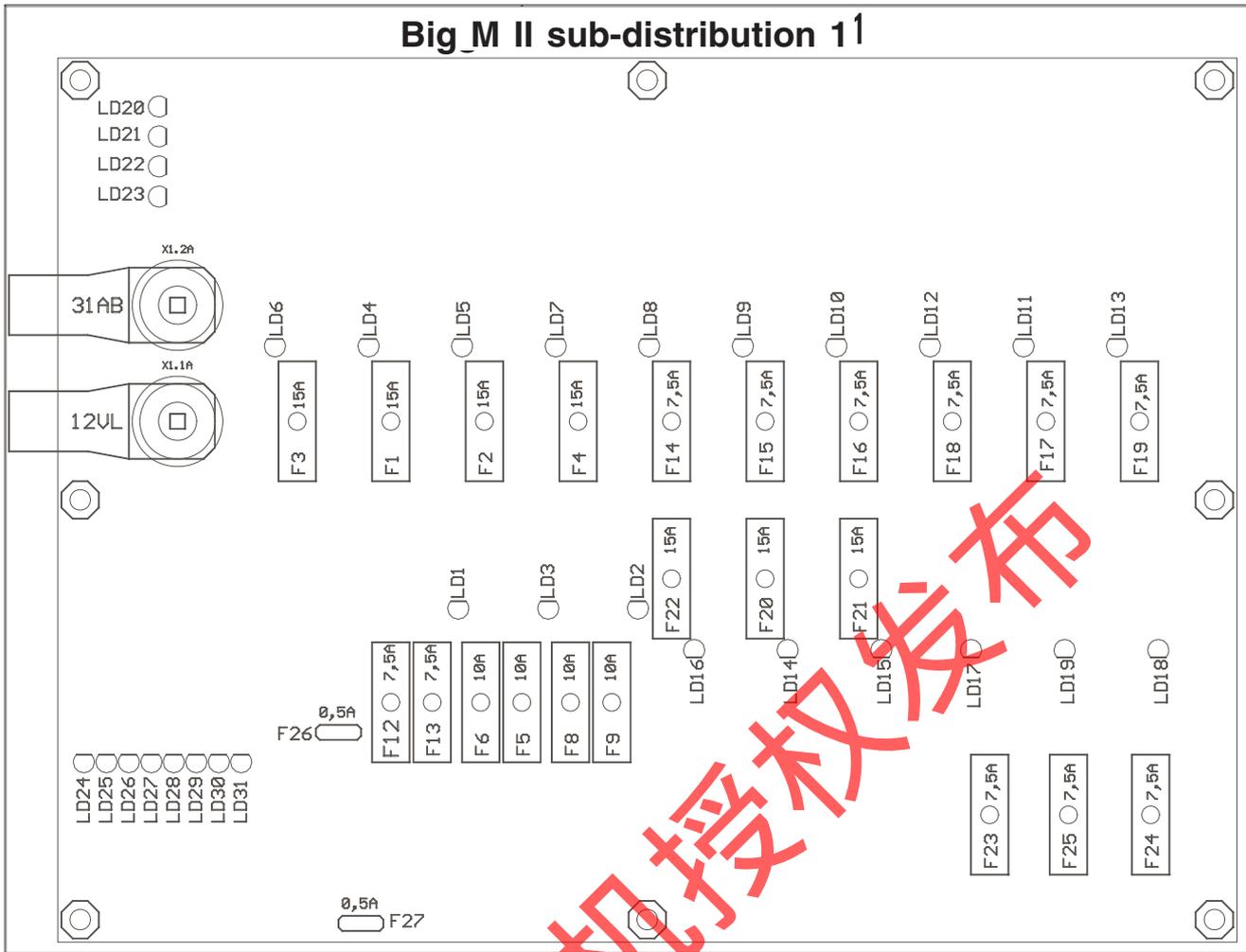
Fuses	Value	Function
F 101	5A	Ignition stage 1 + 2
F 102	10A	Ignition lock
F 103	15A	Light cabin roof centre
F 104	5A	air conditioning (Compressor)
F 105	5A	air conditioning (Control unit)
F 106	10A	Light left
F 107	10A	Light right
F 108	7,5A	Back lighting
F 109	7,5A	Full beam light left
F 110	7,5A	Dipped light left
F 111	7,5A	Full beam light right
F 112	7,5A	Dipped light right
F 113	2A	Full beam light - control
F 114	5A	Engine starter signal
F 115	15A	Light cabin roof centre
F 116	15A	Light cabin roof left
F 117	15A	Light cabin roof right
F 118	15A	not engaged
F 119	15A	Light rear
F 120	15A	Side headlight left
F 121	15A	Side headlight right
F 122	15A	Work light bottom
F 123	7,5A	Indicator light

Fuses	Value	Function
F 124	15A	Hazard warning lights
F 125	5A	Interior light
F 126	7,5A	Radio / CB / GPS / GSM
F 127	15A	Radio / CB / GPS / GSM
F 128	15A	Seat compressor
F 129	20A	Warning light
F 130	15A	Windscreen wipers
F 131	5A	Windscreen washer
F 132	5A	Horn, Light horn
F 133	15A	Mirror adjustment / Change over full beam light
F 134	10A	Permanent plus (ADM2)
F 135	10A	Permanent plus diagnostics plug
F 136	10A	Ignition stage 2 diagnostics plug
F 137	30A	not engaged
F 138	10A	Ignition stage 2 (MR)
F 139	15A	Side windscreen wipers
F 140	15A	DIN-Socket
F 141	10A	Cigarette lighter
F 142	5A	Console
F 143	30A	Air conditioning system, PWMmod.
F 144		Fuse check
F 145	5A	Parking brake
F 146	3A	Generator charge control

12.14.1 LEDs on the cabin relay board (2007)

LED	Function
LD 101	Ignition stage 1
LD 102	Ignition stage 2
LD 103	Radio
LD 104	Monitor / console / windscreen wipers
LD 105	Air conditioning / Lüfter
LD 106	Seat compressor
LD 107	Headlight / horn etc.
LD 108	Light left
LD 109	Light right
LD 110	Back lighting
LD 111	Fuse check
LD 112	Change over dipped light / full beam light
LD 113	Light cabin roof centre
LD 113a	Light cabin roof centre

LED	Function
LD 114	Light cabin roof left
LD 114 a	Light cabin roof right
LD 115	not engaged
LD 115 a	Light rear
LD 116	Side headlight left
LD 116 a	Side headlight right
LD 117	Cabine bottom side
LD 118	Diesel stop relay
LD 119	Seat switch
LD 120	Door switch
LD 121	Free
LD 122	Street/field release
LD 123	Drive release
LD 124	Parking brake



12.15 Fuses on the relay board of sub-distribution 1

Fuses	Value	Function
F1	15A	SmartDrive voltage
F2	15A	SmartDrive voltage
F3	15A	n.b
F4	15A	Autopilot/navigation computer voltage (V4)
F5	10A	n.b
F6	10A	n.b
F8	10A	n.b
F9	10A	+12V Socket
F12	7,5A	n.b
F13	7,5A	+12V Elektronik
F14	7,5A	1/2 rear suction volume
F15	7,5A	1/2 front suction volume

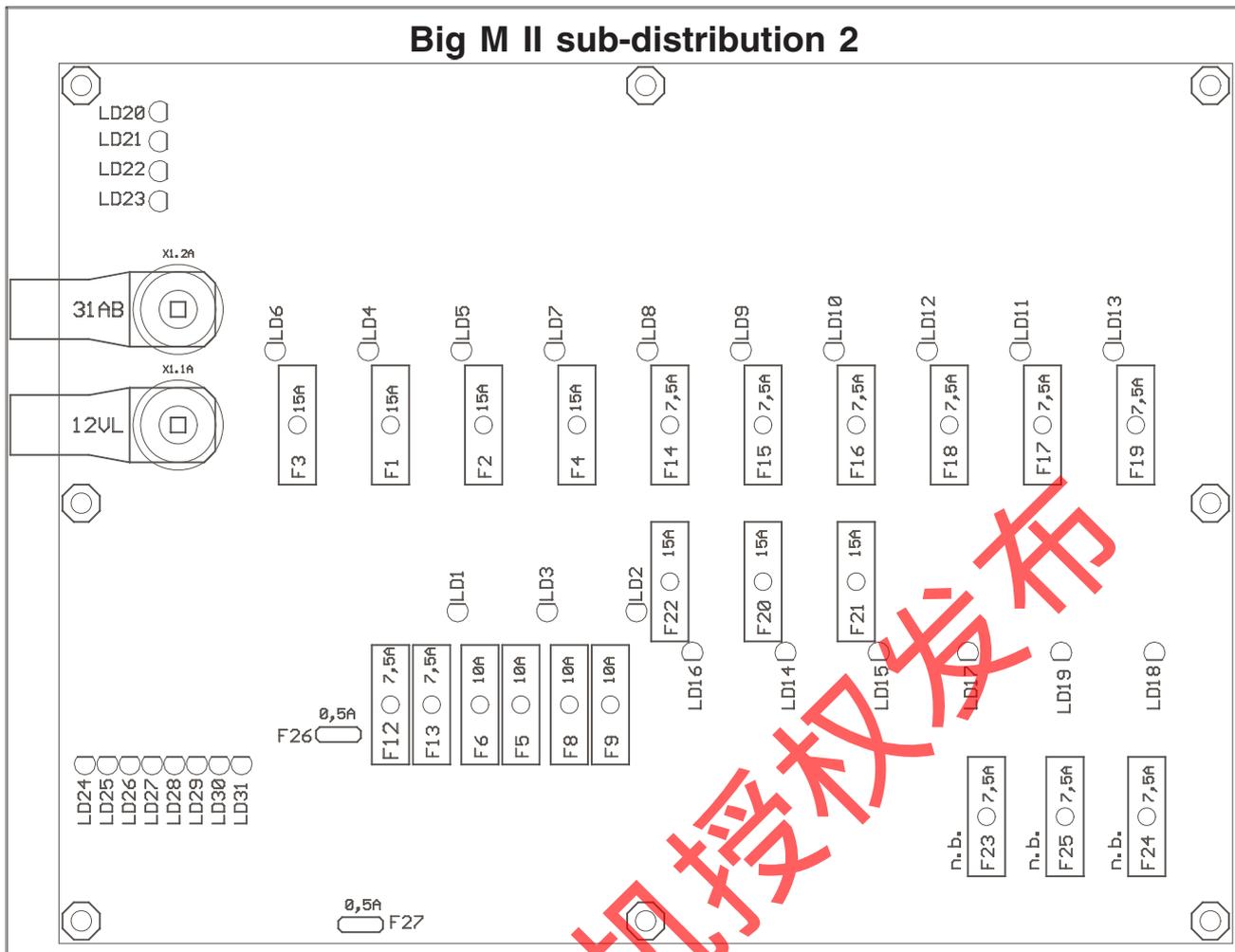
Fuses	Value	Function
F16	7,5A	Auger hood left
F17	7,5A	Axle disengagement
F18	7,5A	Reversing horn
F19	7,5A	Brake light
F20	15A	Lift axle suspension
F21	15A	Lower axle suspension
F22	15A	Auger hood right
F23	7,5A	n.b
F24	7,5A	n.b
F25	7,5A	n.b
F27	0,5A	Ignition stage 1

12.16 LEDs on the relay board of sub-distribution 1

LED	Function
LD1	Ignition stage 1 relay K1
LD2	Ignition stage 1 relay K2
LD3	Ignition stage 1 relay K3
LD4	SmartDrive voltage
LD5	SmartDrive voltage
LD6	Load F3
LD7	Autopilot navigation computer voltage (V4)
LD8	1/2 rear suction volume
LD9	1/2 front suction volume
LD10	Auger hood left (optional)
LD11	Axle disengagement
LD12	Reversing horn
LD13	Brake light
LD14	Lift axle suspension
LD15	Lower axle suspension
LD16	Auger hood right (optional)
LD17	Load F23
LD18	Load F24

LED	Function
LD19	Load F25
LD20	Lifesignal (driving computer)
LD21	Free
LD22	Free
LD23	Free
LD24	Street/field
LD25	Free
LD26	Automotive drive
LD27	Free
LD28	Free
LD29	Safety output (KMC1)
LD30	Free
LD31	Free

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12.17 Fuses on the relay board of sub-distribution 2

Fuses	Value	Function
F1	15A	Supply Voltage(V1)
F2	15A	Supply Voltage(V2)
F3	15A	Supply Voltage (V3)
F4	15A	Supply Voltage(V4)
F5	10A	Teleservice
F6	10A	+ 12 V DIOS output module
F8	10A	+ 12 V DIOS output module
F9	10A	+12V Socket
F12	7,5A	+12V electronic addition device
F13	7,5A	+12V Electronic
F14	7,5A	not engaged
F15	7,5A	not engaged

Fuses	Value	Function
F16	7,5A	not engaged
F17	7,5A	not engaged
F18	7,5A	not engaged
F19	7,5A	not engaged
F20	15A	Fan reversal
F21	15A	+12V Teleservice
F22	15A	Central lubrication
F23	7,5A	not engaged
F24	7,5A	not engaged
F25	7,5A	not engaged
F27	0,5A	Control voltage input

12.18 LEDs on the relay board of sub-distribution 2

LED	Function
LD1	Ignition stage 1 relay K1
LD2	Ignition stage 1 relay K2
LD3	Ignition stage 1 relay K3
LD4	Supply VoltageV1
LD5	Supply VoltageV2
LD6	Supply VoltageV3
LD7	Supply VoltageV4
LD8	Load F14
LD9	Load F15
LD10	Load F16
LD11	Load F17
LD12	Load F18
LD13	Load F19
LD14	Fan reversal
LD15	Teleservice + 12 V
LD16	Central lubrication
LD17	Load F23
LD18	Load F24

LED	Function
LD19	Load F25
LD20	Lifesignal (driving computer)
LD21	Free
LD22	Free
LD23	Free
LD24	Street /Field
LD25	Free
LD26	Automotive drive
LD27	Free
LD28	Free
LD29	Free
LD30	Free
LD31	Free

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12.19 Fault Codes

12.19.1 SmartDrive

No.	Image	Meaning	Possible cause / remedy	Limp Mode 
001		Error - Power supply voltage too high	<p>The dynamo controller is defective. <i>Remedy: Replace the dynamo.</i></p> <p>Dynamo defective <i>Remedy: Replace the dynamo.</i></p> <p>Internal fault in SmartDrive. <i>Remedy: Replace SmartDrive.</i></p>	
002		Error - Power supply voltage too low	<p>Battery dead <i>Remedy: Charge battery, check battery acid, replace battery.</i></p> <p>Charge indicator lamp defective <i>Remedy: Check the charge indicator lamp, check the wiring.</i></p> <p>Dynamo defective <i>Remedy: Check excitation voltage, check wiring, replace dynamo.</i></p> <p>Internal fault in SmartDrive. <i>Remedy: Replace SmartDrive.</i></p>	
003		Error - 12-volt sensor supply voltage too low	<p>Power supply voltage too low <i>Remedy: Check the power supply voltage on the SmartDrive. Charge the battery and check the wiring.</i></p> <p>Short circuit in the wiring to a sensor <i>Remedy: Check the wiring to the sensors for high pressure and brake pressure.</i></p> <p>Short circuit on sensor <i>Remedy: Check the sensors for high pressure and brake pressure and replace if necessary.</i></p> <p>Internal fault in SmartDrive. <i>Remedy: Replace SmartDrive.</i></p>	

No.	Image	Meaning	Possible cause / remedy	Limp Mode 
004		Error - 5-volt sensor supply voltage too low	<p>Power supply voltage too low <i>Remedy: Check the power supply voltage on the SmartDrive. Charge the battery and check the wiring.</i></p> <p>Short circuit in the wiring to a sensor <i>Remedy: Check the wiring to the sensors for the pivoting angle.</i></p> <p>Short circuit on sensor <i>Remedy: Check the sensors for the pivoting angle and replace if necessary.</i></p> <p>Internal fault in SmartDrive. <i>Remedy: Replace SmartDrive.</i></p>	
016		Error - EEPROM checksum	<p>No update of new parameters performed <i>Remedy: Load parameter file in SmartDrive.</i></p> <p>Wrong values in EEPROM. <i>Remedy: Load parameter file in SmartDrive and check parameters.</i></p> <p>EEPROM defective <i>Remedy: Replace SmartDrive.</i></p> <p>Internal fault in SmartDrive. <i>Remedy: Replace SmartDrive.</i></p>	
017		Error - Min/max parameter	<p>Incorrect parameter file downloaded <i>Remedy: Load parameter file in SmartDrive and check parameter file.</i></p> <p>Wrong values in EEPROM. <i>Remedy: Load parameter file in SmartDrive and check parameters.</i></p> <p>EEPROM defective <i>Remedy: Replace SmartDrive.</i></p> <p>Internal fault in SmartDrive. <i>Remedy: Replace SmartDrive.</i></p>	

No.	Image	Meaning	Possible cause / remedy	Limp Mode 
018		Error - E2PROM	<p>Hydraulic dirt that was discovered in the pump command (this fault may a consequence, but not a problem). <i>Remedy: Remove dirt.</i></p> <p>Internal fault in SmartDrive. <i>Remedy: Replace SmartDrive.</i></p>	
019		Error - Digital Pot	<p>Hydraulic dirt that was discovered in the pump command (this fault may a consequence, but not a problem). <i>Remedy: Remove dirt.</i></p> <p>Internal fault in SmartDrive. <i>Remedy: Replace SmartDrive.</i></p>	
020		Error - EV DAC	<p>Hydraulic dirt that was discovered in the pump command (this fault may a consequence, but not a problem). <i>Remedy: Remove dirt.</i></p> <p>Internal fault in SmartDrive. <i>Remedy: Replace SmartDrive.</i></p>	
021		Error - I2C bus	<p>Hydraulic dirt that was discovered in the pump command (this fault may a consequence, but not a problem). <i>Remedy: Remove dirt.</i></p> <p>Internal fault in SmartDrive. <i>Remedy: Replace SmartDrive.</i></p>	
030		<p>Error - Control loop pump 1</p> <p>Drive pump 1: Front axle (front/rear)</p>	<p>short circuit / broken cable in wiring for pump valves <i>Remedy: Check wiring to pump valves.</i></p> <p>Valve plug defective <i>Remedy: Check valve plug and replace if necessary.</i></p> <p>Coil of solenoid valves defective <i>Remedy: Replace coil.</i></p> <p>Solenoid valve defective <i>Remedy: Replace the solenoid valve.</i></p> <p>The supply pressure is too low. <i>Remedy: Check the supply pressure, replace the supply pressure valve if</i></p>	X

No.	Image	Meaning	Possible cause / remedy	Limp Mode 
			<p><i>necessary.</i></p> <p>The drive pump 1 is defective.</p> <p>Internal fault in SmartDrive. <i>Remedy: Replace SmartDrive.</i></p>	
031		<p>Error - Control loop pump 2</p> <p>Drive pump 2: (rear axle forward/reverse)</p>	<p>Short circuit / broken cable in wiring for pump valves <i>Remedy: Check wiring to pump valves.</i></p> <p>Valve plug defective <i>Remedy: Check valve plug and replace if necessary.</i></p> <p>Coil of solenoid valves defective <i>Remedy: Replace coil.</i></p> <p>Solenoid valve defective <i>Remedy: Replace the solenoid valve.</i></p> <p>The supply pressure is too low. <i>Remedy: Check the supply pressure, replace the supply pressure valve if necessary.</i></p> <p>The drive pump 2 is defective.</p> <p>Internal fault in SmartDrive. <i>Remedy: Replace SmartDrive.</i></p>	X
032		<p>Error - Pivoting angle pump 1 – signal out of range</p> <p>Drive pump 1: Front axle (front/rear)</p> <p>There must be a signal of approx. 2.5 volts present in neutral!</p>	<p>Calibration of the pivoting angle sensor is not correct <i>Remedy: Set the sensor pivoting angle (there must be a signal of approx. 2.5 volts present in neutral!).</i></p> <p>Short circuit / broken cable in wiring for pivoting angle sensors <i>Remedy: Check the wiring to the sensors for the pivoting angle.</i></p> <p>Sensor plug for pivoting angle defective <i>Remedy: Check sensor plug and replace if necessary.</i></p> <p>Pivoting angle sensor defective <i>Remedy: Replace and set the sensor</i></p>	X

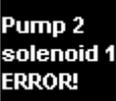
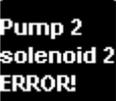
No.	Image	Meaning	Possible cause / remedy	Limp Mode 
			<i>pivoting angle (there must be a signal of approx. 2.5 volts present in neutral!).</i>	
033		<p>Error - Pivoting angle pump 2 – signal out of range</p> <p>Drive pump 2: (rear axle forward/reverse There must be a signal of approx. 2.5 volts present in neutral!</p>	<p>Calibration of the pivoting angle sensor is not correct <i>Remedy: Set the sensor pivoting angle (there must be a signal of approx. 2.5 volts present in neutral!).</i></p> <p>Short circuit / broken cable in wiring for pivoting angle sensors <i>Remedy: Check the wiring to the sensors for the pivoting angle.</i></p> <p>Sensor plug for pivoting angle defective <i>Remedy: Check sensor plug and replace if necessary.</i></p> <p>Pivoting angle sensor defective <i>Remedy: Replace and set the sensor pivoting angle (there must be a signal of approx. 2.5 volts present in neutral!).</i></p>	X
034		<p>Error - pump 1 dirty – pivoting angle changes too quickly</p> <p>Drive pump 1: Front axle (front/rear)</p>	<p>Dirt in the hydraulics (actuator valves, for example) <i>Remedy: Remove dirt.</i></p> <p>Calibration of the pivoting angle sensor is not correct <i>Remedy: Set the sensor pivoting angle (there must be a signal of approx. 2.5 volts present in neutral!).</i></p> <p>Short circuit / broken cable in wiring for pivoting angle sensors <i>Remedy: Check the wiring to the sensors for the pivoting angle.</i></p> <p>Sensor plug for pivoting angle defective <i>Remedy: Check sensor plug and replace if necessary.</i></p> <p>Pivoting angle sensor defective <i>Remedy: Replace and set the sensor pivoting angle (there must be a signal of approx. 2.5 volts present in neutral!).</i></p>	X

No.	Image	Meaning	Possible cause / remedy	Limp Mode 
035		<p>Error - pump 2 dirty – pivoting angle changes too quickly</p> <p>Drive pump 2: (rear axle forward/reverse)</p>	<p>Dirt in the hydraulics (actuator valves, for example) <i>Remedy: Remove dirt.</i></p> <p>Calibration of the pivoting angle sensor is not correct <i>Remedy: Set the sensor pivoting angle (there must be a signal of approx. 2.5 volts present in neutral!).</i></p> <p>Short circuit / broken cable in wiring for pivoting angle sensors <i>Remedy: Check the wiring to the sensors for the pivoting angle.</i></p> <p>Sensor plug for pivoting angle defective <i>Remedy: Check sensor plug and replace if necessary.</i></p> <p>Pivoting angle sensor defective <i>Remedy: Replace and set the sensor pivoting angle (there must be a signal of approx. 2.5 volts present in neutral!).</i></p>	X
036		<p>Error - Brake pressure sensor</p> <p>Signal voltage: 1–5 volts</p>	<p>Short circuit / broken cable in wiring for brake pressure sensor, brake pedal switch <i>Remedy: Check the wiring to the sensors for the brake pedal sensor and brake pedal switch.</i></p> <p>Sensor plug for brake pressure sensor, brake pedal switch defective <i>Remedy: Check sensor plug and replace if necessary.</i></p> <p>Brake pressure sensor defective <i>Remedy: Check brake pressure sensor and replace if necessary (signal voltage 1-5 volts!).</i></p> <p>Brake pedal switch defective <i>Remedy: Check the brake pedal switch and replace if necessary (check the distance and link!).</i></p> <p>Internal fault in SmartDrive. <i>Remedy: Replace SmartDrive.</i></p>	X

No.	Image	Meaning	Possible cause / remedy	Limp Mode 
			Brake pressure too high	
037		Error - Pump speed too slow	<p>Short circuit / broken cable in the wiring for the pump speed sensor <i>Remedy: Check the wiring to the sensors for the pump speed sensor.</i></p> <p>Sensor plug for pump speed defective <i>Remedy: Check sensor plug and replace if necessary.</i></p> <p>Sensor for pump speed defective <i>Remedy: Check sensor for pump speed and replace if necessary.</i></p> <p>Internal fault in SmartDrive. <i>Remedy: Replace SmartDrive.</i></p>	
038		Error - Brake tank pressure too low	<p>The brake tank pressure is too low. <i>Remedy: Start diesel engine so that the accumulator is filled.</i></p> <p>Accumulator charging valve defective <i>Remedy: Replace accumulator charging valve.</i></p> <p>Accumulator defective <i>Remedy: Replace accumulator.</i></p> <p>Short circuit / broken cable for brake tank pressure sensor <i>Remedy: Check the wiring in the brake tank pressure sensor.</i></p> <p>Sensor plug for brake tank pressure defective <i>Remedy: Check sensor plug and replace if necessary.</i></p> <p>Sensor for brake tank pressure defective <i>Remedy: Check sensor for brake tank pressure and replace if necessary.</i></p> <p>Internal fault in SmartDrive. <i>Remedy: Replace SmartDrive.</i></p>	

No.	Image	Meaning	Possible cause / remedy	Limp Mode 
039		Error - CAN bus communication	<p>Short circuit / broken cable in the wiring for the CAN bus <i>Remedy: Check wiring.</i></p> <p>CAN terminating resistors defective <i>Remedy: Check wiring. A resistance of approx. 60 Ohm must be measured between CAN high and CAN low for ignition level 0.</i></p> <p>Internal fault in SmartDrive. <i>Remedy: Replace SmartDrive.</i></p>	
040		<p>Error - High pressure signal out of range</p> <p>Signal voltage: 1–5 volts</p>	<p>Short circuit / broken cable in the wiring for the high pressure sensor <i>Remedy: Check the wiring to the high pressure sensor.</i></p> <p>Sensor plug, high pressure - defective <i>Remedy: Check sensor plug and replace if necessary.</i></p> <p>High pressure sensor defective <i>Remedy: Check high pressure sensor and replace if necessary (signal voltage 1-5 volts!).</i></p> <p>Internal fault in SmartDrive. <i>Remedy: Replace SmartDrive.</i></p>	
042		Error - Attempt to move against the parking brake	<p>Parking brake switch is actuated <i>Remedy: Switch off the parking brake switch.</i></p> <p>Short circuit in the wiring of the switch <i>Remedy: Check the wiring to the parking brake switch.</i></p> <p>Parking brake pressure sensor defective <i>Remedy: Check parking brake sensor and replace if necessary.</i></p> <p>Short circuit / broken cable in wiring for parking brake pressure sensor <i>Remedy: Check the wiring in the parking brake sensor.</i></p> <p>Internal fault in SmartDrive.</p>	

No.	Image	Meaning	Possible cause / remedy	Limp Mode 
			<i>Remedy: Replace SmartDrive.</i>	
043		<p>Error - Supply pressure too low Switch off the engine immediately and remedy the malfunction!</p> <p>Switch off the engine immediately and remedy the malfunction!</p>	<p>No engine speed or speed too slow <i>Remedy: Start engine or increase speed.</i></p> <p>Supply pressure valve defective <i>Remedy: Replace the supply pressure valve.</i></p> <p>Supply pump defective <i>Remedy: Replace supply pump.</i></p> <p>Hydraulic leak <i>Remedy: Remove the leakage.</i></p> <p>Short circuit / broken cable in wiring for supply pressure sensors <i>Remedy: Check the wiring to the sensors for the supply pressure sensor.</i></p> <p>Supply pressure sensor defective <i>Remedy: Check sensor for supply pressure and replace if necessary.</i></p> <p>Internal fault in SmartDrive. <i>Remedy: Replace SmartDrive.</i></p>	
044		Error - Oil temperature too high	<p>The hydraulic oil is too hot. <i>Remedy: Allow the machine to cool down.</i></p> <p>Radiator dirty <i>Remedy: Clean the radiator.</i></p> <p>Short circuit / broken cable in wiring for flush valve temperature sensor <i>Remedy: Check the wiring to the flush valve temperature sensor.</i></p> <p>Flush valve temperature sensor defective <i>Remedy: Check sensor for flush valve temperature and replace if necessary.</i></p> <p>Internal fault in SmartDrive. <i>Remedy: Replace SmartDrive.</i></p>	X

No.	Image	Meaning	Possible cause / remedy	Limp Mode 
045		Error - Attempt to move without drive release	Drive release switch is not actuated <i>Remedy: Switch on parking brake switch.</i> Short circuit / broken cable in the wiring of the switch <i>Remedy: Check the wiring to the drive release switch.</i> Internal fault in SmartDrive. <i>Remedy: Replace SmartDrive.</i>	X
046		Error - Actuator valve 1 – pump 1 Drive pump 1, actuator valve 1: front axle backward (in direction of travel: position on the rear drive pump, rear connector)	Short circuit / broken cable in the wiring for actuator valve 1 pump 1 <i>Remedy: Check wiring to actuator valve 1 pump 1.</i> Coil of solenoid valves defective <i>Remedy: Replace coil.</i> Internal fault in SmartDrive. <i>Remedy: Replace SmartDrive.</i>	
047		Error - Actuator valve 2 – pump 1 Drive pump 1, actuator valve 2: Front axle forward (in direction of travel: position on the front drive pump, front connectors)	Short circuit / broken cable in the wiring for actuator valve 2 pump 1 <i>Remedy: Check wiring to actuator valve 2 pump 1.</i> Coil of solenoid valves defective <i>Remedy: Replace coil.</i> Internal fault in SmartDrive. <i>Remedy: Replace SmartDrive.</i>	
048		Error - Actuator valve 1 – pump 2 Drive pump 2, actuator valve 1: Rear axle backward (in direction of travel: position on the front drive pump, rear connector)	Short circuit / broken cable in the wiring for actuator valve 1 pump 2 <i>Remedy: Check wiring to actuator valve 1 pump 2.</i> Coil of solenoid valves defective <i>Remedy: Replace coil.</i> Internal fault in SmartDrive. <i>Remedy: Replace SmartDrive.</i>	
049		Error - Actuator valve 2 – pump 2 Drive pump 2, actuator	Short circuit / broken cable in the wiring for actuator valve 2 pump 2 <i>Remedy: Check wiring to actuator valve 2 pump 2.</i>	

No.	Image	Meaning	Possible cause / remedy	Limp Mode 
		valve 2: Rear axle forward (in direction of travel: position on the front drive pump, front connector)	Coil of solenoid valves defective <i>Remedy: Replace coil.</i> Internal fault in SmartDrive. <i>Remedy: Replace SmartDrive.</i>	
050		Error - Driving lever – signal incorrect, faulty	Short circuit / broken cable in the wiring for the driving lever <i>Remedy: Check wiring from KKC to driving lever; check connector.</i> Driving lever defective <i>Remedy: Check driving lever and replace if necessary.</i> Internal fault of the KKC panel computer <i>Remedy: Replace KKC.</i> Internal fault in SmartDrive. <i>Remedy: Replace SmartDrive.</i>	X
095		Error - Brake valve	Brake valve is defective or jammed <i>Remedy: Check brake valve.</i> Brake pressure sensor defective <i>Remedy: Check Brake pressure sensor and replace if necessary.</i> Brake was applied continuously (for example braking pressure greater than 10 bar and longer than 3 min.) <i>Remedy: Remove foot from the brake.</i> Internal fault in SmartDrive. <i>Remedy: Replace SmartDrive.</i>	
096		Error CAN bus communication - SmartDrive to KMC1	No UV1 power supply (subdistributor 1) <i>Remedy: Check power supply voltage on SmartDrive and UV1. Check wiring.</i> Safety output for travelling gear from KMC1 faulty <i>Remedy: Check safety output LA_1 from KMC1 (the output is still active when the engine is switched off), LD29 in UV1 should be lit then as well.</i>	

No.	Image	Meaning	Possible cause / remedy	Limp Mode 
			<p><i>Otherwise check the wiring.</i></p> <p>Life signal from SmartDrive faulty <i>Remedy: Check power supply voltage on SmartDrive and UV1. Check wiring. The LD20s must be flashing at a rate of 10 Hz on the UV1 and UV2 subdistributor's circuit board.</i></p> <p>Short circuit / broken cable in the wiring for the CAN bus <i>Remedy: Check wiring.</i></p> <p>CAN terminating resistors defective <i>Remedy: Check wiring. A resistance of approx. 60 Ohm must be measured between CAN high and CAN low for ignition level 0.</i></p> <p>Internal fault in SmartDrive. <i>Remedy: Replace SmartDrive.</i></p>	

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No.	Image	Meaning	Possible cause / remedy	Limp Mode 
097		Error - Life signal – SmartDrive to KMC1	<p>No UV1 power supply (subdistributor 1) <i>Remedy: Check power supply voltage on SmartDrive and UV1. Check wiring.</i></p> <p>Short circuit / broken cable in the wiring of the life signal <i>Remedy: Check wiring. The LD20s must be flashing at a rate of 10 Hz on the UV1 and UV2 subdistributor's circuit board.</i></p> <p>Internal fault in SmartDrive. <i>Remedy: Replace SmartDrive.</i></p>	

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12.19.2 KKC

No.	Image	Meaning	Possible cause / remedy
100		Error CAN bus communication - KKC to KMC1	<p>No power supply for KKC <i>Remedy: Check power supply voltage on the KKC.</i></p> <p>Short circuit / broken cable in the wiring for the CAN bus <i>Remedy: Check wiring.</i></p> <p>CAN terminating resistors defective <i>Remedy: Check wiring. A resistance of approx. 60 Ohm must be measured between CAN high and CAN low for ignition level 0.</i></p> <p>Internal fault of the KKC panel computer <i>Remedy: Replace KKC.</i></p>
101		Error - Restart KKC	<p>No power supply on KKC panel computer <i>Remedy: Check power supply voltage on the KKC.</i></p> <p>Wiring faulty <i>Remedy: Check wiring and connector.</i></p> <p>Internal fault of the KKC panel computer <i>Remedy: Replace KKC.</i></p>
102		Error - +12V power supply KKC – voltage out of range	<p>The dynamo controller is defective. <i>Remedy: Replace the dynamo.</i></p> <p>Battery dead <i>Remedy: Charge battery, check battery acid, replace battery.</i></p> <p>Charge indicator lamp dynamo defective <i>Remedy: Check the charge indicator lamp, check the wiring.</i></p> <p>Dynamo defective <i>Remedy: Replace the dynamo.</i></p> <p>Internal fault of the KKC panel computer <i>Remedy: Replace KKC.</i></p>
103		Error +8.5 V joystick voltage KKC – voltage out of range	<p>The dynamo controller is defective. <i>Remedy: Replace the dynamo.</i></p> <p>Battery dead <i>Remedy: Charge battery, check battery acid, replace battery.</i></p>

No.	Image	Meaning	Possible cause / remedy
			<p>Charge indicator lamp dynamo defective <i>Remedy: Check the charge indicator lamp, check the wiring.</i></p> <p>Dynamo defective <i>Remedy: Replace the dynamo.</i></p> <p>Internal fault of the KKC panel computer <i>Remedy: Replace KKC.</i></p>
104		Error - Multifunction lever	<p>Multifunction lever defective <i>Remedy: Check multifunction lever and replace if necessary.</i></p> <p>Short circuit / broken cable in the wiring <i>Remedy: Check wiring from KKC to multifunction lever; check connector.</i></p> <p>Connector multifunction lever defective <i>Remedy: Check connector.</i></p> <p>Dynamo defective <i>Remedy: Replace the dynamo.</i></p> <p>Internal fault of the KKC panel computer <i>Remedy: Replace KKC.</i></p>

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12.19.3 Diesel engine

No.	Image	Meaning	Possible cause / remedy
200		<p>Error - Engine failure</p> <p>Switch off the engine immediately and remedy the fault!</p>	<p>The oil level is too low. <i>Remedy: Check the oil level and top up the oil, if and when necessary.</i></p> <p>The oil pressure is too low. <i>Remedy: Check the oil pump / circuit. Check the oil filter.</i></p> <p>The cooling water temperature is too high. <i>Remedy: Check the cooling water level and top up the cooling water if necessary. Check the cooling water circuit. Allow the machine to cool down.</i></p> <p>No power supply on the PLD engine control <i>Remedy: Check the power supply voltage on the PLD.</i></p> <p>Wiring faulty <i>Remedy: Check the wiring to the engine control.</i></p>
201		<p>Error - Engine pressure</p>	<p>The oil pressure is too low. <i>Remedy: Check the oil level and top up the oil, if and when necessary.</i></p> <p>Oil pump / circuit <i>Remedy: Check the oil pump / circuit. Check the oil filter.</i></p> <p>The oil pressure sensor is defective. <i>Remedy: Check the oil pressure sensor and replace if necessary.</i></p>
202		<p>Error - Engine oil level</p>	<p>Oil level too low or too high <i>Remedy: Check the oil level and top up the oil, if and when necessary. Check the oil pump / circuit. Check the oil filter.</i></p> <p>Oil level sensor defective <i>Remedy: Check oil level sensor and replace if necessary.</i></p>
203		<p>Error - Cooling water temperature</p>	<p>The cooling water temperature is too high. <i>Remedy: Allow the machine to cool down.</i></p> <p>Not enough cooling water <i>Remedy: Check the cooling water level and top up the cooling water if necessary.</i></p>

No.	Image	Meaning	Possible cause / remedy
			<p>The cooling water circuit is defective. <i>Remedy: Check the cooling water circuit.</i></p> <p>Temperature sensor defective <i>Remedy: Check the temperature sensor and replace if necessary.</i></p>
205		<p>Error - Air filter contamination</p>	<p>Air filter dirty <i>Remedy: Clean the air filter.</i></p> <p>Short circuit / broken cable in wiring for air filter contamination sensor <i>Remedy: Check wiring to air filter contamination sensor.</i></p> <p>Air filter contamination sensor defective <i>Remedy: Check air filter contamination sensor and replace if necessary.</i></p>
206		<p>Error - Tank sensor</p> <p>Signal voltage: Tank empty: Approx. 5 volts Tank full: Approx. 0 volts</p>	<p>Short circuit / broken cable in the tank sensor wiring <i>Remedy: Check wiring to tank sensor.</i></p> <p>Protective resistor defective <i>Remedy: Check the protective resistor. A resistance of about 60 Ohm must be measured.</i></p> <p>Tank sensor defective <i>Remedy: Check the tank sensor and replace if necessary. The resistance must be between 0 and up to 75 Ohms depending on the level of the floater.</i></p>
207		<p>Error - Tank reserve</p>	<p>Fuel quantity in reserve <i>Remedy: Fill with fuel.</i></p>

12.19.3.1 SAE J1939 SPN/FMI

No.	Image	Meaning	Possible cause/remedy
engine 100/1		Error - engine oil pressure	See diesel engine error list.
engine 100/2		Error – engine oil pressure sensor	See diesel engine error list.
engine 100/3		Error – engine oil pressure sensor	See diesel engine error list.
engine 100/4		Error – engine oil pressure sensor	See diesel engine error list.
engine 100/14		Error - engine oil pressure	See diesel engine error list.
engine 102/0		Error – charge cooling air pressure	See diesel engine error list.
engine 102/1		Error – charge cooling air pressure	See diesel engine error list.
engine 102/2		Error – charge cooling air pressure sensor	See diesel engine error list.
engine 102/3		Error – charge cooling air pressure sensor	See diesel engine error list.
engine 102/4		Error – charge cooling air pressure sensor	See diesel engine error list.
engine 102/13		Error – charge cooling air pressure	See diesel engine error list.
engine 105/0		Error – charge cooling air temperature	See diesel engine error list.
engine 105/3		Error – charge cooling air temperature sensor	See diesel engine error list.
engine 105/4		Error – charge cooling air temperature sensor	See diesel engine error list.
engine 110/0		Error – coolant temperature	See diesel engine error list.

No.	Image	Meaning	Possible cause/remedy
engine 110/3		Error – coolant temperature sensor	See diesel engine error list.
engine 110/4		Error – coolant temperature sensor	See diesel engine error list.
engine 110/14		Error – coolant temperature	See diesel engine error list.
engine 175/3		Error – engine oil temperature sensor	See diesel engine error list.
engine 175/4		Error – engine oil temperature sensor	See diesel engine error list.
engine 636/1		Error – crankshaft sensor	See diesel engine error list.
engine 636/3		Error – crankshaft sensor	See diesel engine error list.
engine 636/4		Error – crankshaft sensor	See diesel engine error list.
engine 636/7		Error – crankshaft sensor	See diesel engine error list.
engine 636/8		Error – crankshaft sensor	See diesel engine error list.
engine 636/14		Error – crankshaft sensor	See diesel engine error list.
engine 723/3		Error – camshaft sensor	See diesel engine error list.
engine 723/4		Error – camshaft sensor	See diesel engine error list.
engine 723/8		Error – camshaft sensor	See diesel engine error list.
engine 723/14		Error – camshaft sensor	See diesel engine error list.

12.19.4 KBT

No.	Image	Meaning	Possible cause / remedy
300	<p>No connection for KMC! Please test cord!</p> 	Error - No communication between KMC1 and KBT	<p>No power supply on KMC1 <i>Remedy: Check the power supply voltage on the KMC1.</i></p> <p>CAN terminating resistor defective <i>Remedy: Check wiring. A resistance of approx. 60 Ohm must be measured between CAN high and CAN low for ignition level 0.</i></p> <p>Short circuit / broken cable in the wiring for the CAN bus <i>Remedy: Check wiring.</i></p> <p>Internal error - KMC1 <i>Remedy: Replace KMC1.</i></p>
301	Input is too large!		<p>Internal fault in the terminal <i>Remedy: Switch the ignition off and on again.</i></p>
302	Input is too small!		<p>Internal fault in the terminal <i>Remedy: Switch the ignition off and on again.</i></p>
312	Set / Res / Duration		<p>Internal fault in the terminal <i>Remedy: Switch the ignition off and on again.</i></p>
316	Data record does not match the operating system!		<p>Internal fault in the terminal <i>Remedy: Switch the ignition off and on again.</i></p>
317	Storing configuration is wrong!		<p>Internal fault in the terminal <i>Remedy: Switch the ignition off and on again.</i></p>
318	At the end of diagnosis storage area - newest element!		<p>Internal fault in the terminal <i>Remedy: Switch the ignition off and on again.</i></p>
319	At the end of diagnosis storage area - oldest element!		<p>Internal fault in the terminal <i>Remedy: Switch the ignition off and on again.</i></p>

No.	Image	Meaning	Possible cause / remedy
320	Power supply problem!		Internal fault in the terminal <i>Remedy: Switch the ignition off and on again.</i>
321	No KMC connection! Please test cord! 	Error - No communication between KMC1 and KBT	No power supply on KMC1 <i>Remedy: Check the power supply voltage on the KMC1</i> CAN terminating resistor defective <i>Remedy: Check wiring. A resistance of approx. 60 Ohm must be measured between CAN high and CAN low for ignition level 0.</i> Short circuit / broken cable in the wiring for the CAN bus <i>Remedy: Check wiring.</i> Internal error - KMC1 <i>Remedy: Replace KMC1.</i>
324	Wrong answer of TN!		Internal fault in the terminal <i>Remedy: Switch the ignition off and on again.</i>
325	BUS TEST MODE	Error - Transient break in communication between KMC1 and KBT	CAN terminating resistor defective <i>Remedy: Check wiring. A resistance of approx. 60 Ohm must be measured between CAN high and CAN low for ignition level 0.</i> Short circuit / broken cable/intermittent contact in the wiring for the CAN bus <i>Remedy: Check wiring.</i>
326	TN reports unknown function!		Internal fault in the terminal <i>Remedy: Switch the ignition off and on again.</i>
327	KMC reports error no.		Internal fault in the terminal <i>Remedy: Switch the ignition off and on again.</i>
328	Read block is too large!		Internal fault in the terminal <i>Remedy: Switch the ignition off and on again.</i>

No.	Image	Meaning	Possible cause / remedy
329	<p>KBT has no connection to the KMC!</p> 	<p>Error - No communication between KMC1 and KBT</p>	<p>No power supply on KMC1 <i>Remedy: Check the power supply voltage on the KMC1.</i></p> <p>CAN terminating resistor defective <i>Remedy: Check wiring. A resistance of approx. 60 Ohm must be measured between CAN high and CAN low for ignition level 0.</i></p> <p>Short circuit / broken cable in the wiring for the CAN bus <i>Remedy: Check wiring.</i></p> <p>Internal error - KMC1 <i>Remedy: Replace KMC1.</i></p>
330	<p>Attempted access outside of the permissible field</p>		<p>Internal fault in the terminal <i>Remedy: Switch the ignition off and on again.</i></p>

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12.19.5 General Error Messages

No.	Image	Meaning	Possible cause / remedy
400		Error - Hydraulic oil tank level	<p>Hydraulic oil level too low <i>Remedy: Check hydraulics level and refill hydraulic fluid if necessary.</i></p> <p>Short circuit / broken cable in the wiring for the hydraulic oil level sensor <i>Remedy: Check wiring.</i></p> <p>Hydraulic oil level sensor defective <i>Remedy: Check the hydraulic oil level sensor and replace if necessary.</i></p>
401		Error - Suction return filter	<p>Suction return air filter dirty <i>Remedy: Clean the suction return filter.</i></p> <p>Short circuit / broken cable in the wiring for the suction return air filter sensor <i>Remedy: Check wiring.</i></p> <p>Suction return air filter sensor <i>Remedy: Check the suction return air filter sensor and replace if necessary.</i></p>
403		Error - Central lubrication	<p>Fault in the central lubrication system <i>Remedy: Check the central lubrication system.</i></p>

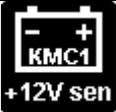
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12.19.6 General information messages

No.	Image	Meaning	Possible cause / remedy
511		Info switch Road/Field - wrong switch position	The Road/Field switch is in the wrong position <i>Remedy: Reverse the Road/Field switch.</i> Short circuit / broken cable in the wiring for the switch <i>Remedy: Check wiring.</i>
514		Info switch drive release - wrong switch position	Drive release switch is in the wrong position. <i>Remedy: Reverse the Field release switch.</i> Short circuit / broken cable in the wiring for the switch <i>Remedy: Check wiring.</i>
538		Service interval information.	Service is due. <i>Remedy: Perform service according to operating instructions and acknowledge service parameter on the display.</i>

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12.19.7 BiG M II messages

No.	Image	Meaning	Possible cause / remedy
600		Error - Power supply voltage for KMC1 (12V_sen)	<p>12-V sensor power supply is incorrect</p> <p>Short circuit in the wiring of a 12-V sensor <i>Remedy: Check wiring.</i></p> <p>Battery dead <i>Remedy: Charge battery, check battery acid, replace battery.</i></p> <p>Charge indicator lamp dynamo defective <i>Remedy: Check the charge indicator lamp, check the wiring.</i></p> <p>Dynamo defective <i>Remedy: Check excitation voltage, check wiring, replace dynamo.</i></p> <p>Internal error - KMC1 <i>Remedy: Replace KMC1.</i></p>
601		Error - Digital voltage (8V_dig)	<p>Digital voltage is incorrect</p> <p>Short circuit in the wiring of a digital sensor <i>Remedy: Check wiring.</i></p> <p>Battery dead <i>Remedy: Charge battery, check battery acid, replace battery.</i></p> <p>Charge indicator lamp dynamo defective <i>Remedy: Check the charge indicator lamp, check the wiring.</i></p> <p>Dynamo defective <i>Remedy: Check excitation voltage, check wiring, replace dynamo.</i></p> <p>Internal error - KMC1 <i>Remedy: Replace KMC1.</i></p>
602		Error - Analogue voltage (8V_ana)	<p>Analogue voltage is faulty</p> <p>Short circuit in the wiring of a analogue sensor <i>Remedy: Check wiring.</i></p> <p>Battery dead</p>

No.	Image	Meaning	Possible cause / remedy
			<p><i>Remedy: Charge battery, check battery acid, replace battery.</i></p> <p>Charge indicator lamp dynamo defective <i>Remedy: Check the charge indicator lamp, check the wiring.</i></p> <p>Dynamo defective <i>Remedy: Check excitation voltage, check wiring, replace dynamo.</i></p> <p>Internal error - KMC1 <i>Remedy: Replace KMC1.</i></p>
603		Error - Output voltage V1	<p>Output voltage V1 is faulty <i>Remedy: Check fuse F13 in KMC1. Check the GAL module on the UV circuit board.</i></p> <p>Battery dead <i>Remedy: Charge battery, check battery acid, replace battery.</i></p> <p>Charge indicator lamp dynamo defective <i>Remedy: Check the charge indicator lamp, check the wiring.</i></p> <p>Dynamo defective <i>Remedy: Check excitation voltage, check wiring, replace dynamo.</i></p> <p>Internal error - KMC1 <i>Remedy: Replace KMC1.</i></p>
604		Error - Output voltage V2	<p>Output voltage V2 is faulty <i>Remedy: Check fuse F6 in KMC1. Check the GAL module on the UV circuit board.</i></p> <p>Battery dead <i>Remedy: Charge battery, check battery acid, replace battery.</i></p> <p>Charge indicator lamp dynamo defective <i>Remedy: Check the charge indicator lamp, check the wiring.</i></p> <p>Dynamo defective <i>Remedy: Check excitation voltage, check wiring, replace dynamo.</i></p>

No.	Image	Meaning	Possible cause / remedy
			Internal error - KMC1 <i>Remedy: Replace KMC1.</i>
605		Error - Output voltage V3	<p>Output voltage V3 is faulty <i>Remedy: Check fuse F12 in KMC1. Check the GAL module on the UV circuit board.</i></p> <p>Battery dead <i>Remedy: Charge battery, check battery acid, replace battery.</i></p> <p>Charge indicator lamp dynamo defective <i>Remedy: Check the charge indicator lamp, check the wiring.</i></p> <p>Dynamo defective <i>Remedy: Check excitation voltage, check wiring, replace dynamo.</i></p> <p>Internal error - KMC1 <i>Remedy: Replace KMC1.</i></p>
606		Error - Output voltage V4	<p>Output voltage V4 is faulty <i>Remedy: Check fuse F2 in KMC1. Check the GAL module on the UV circuit board.</i></p> <p>Battery dead <i>Remedy: Charge battery, check battery acid, replace battery.</i></p> <p>Charge indicator lamp dynamo defective <i>Remedy: Check the charge indicator lamp, check the wiring.</i></p> <p>Dynamo defective <i>Remedy: Check excitation voltage, check wiring, replace dynamo.</i></p> <p>Internal error - KMC1 <i>Remedy: Replace KMC1.</i></p>
607		Error - Backup battery voltage	<p>Discharge the backup battery <i>Remedy: Replace the backup battery in KMC1.</i></p> <p>Internal error - KMC1 <i>Remedy: Replace KMC1.</i></p>

No.	Image	Meaning	Possible cause / remedy
610		Error - Slip, mower drive right	<p>V-belt not tightened <i>Remedy: Check the V-belt.</i></p> <p>Short circuit / broken cable in the wiring for speed sensor <i>Remedy: Perform sensor test, check wiring.</i></p> <p>Speed sensor defective <i>Remedy: Perform sensor test, check speed sensor and replace if necessary.</i></p> <p>Distance from sensor to metal <i>Remedy: Check distance.</i></p>
611		Error - Slip, mower drive front	<p>Short circuit / broken cable in the wiring for speed sensor <i>Remedy: Perform sensor test, check wiring.</i></p> <p>Speed sensor defective <i>Remedy: Perform sensor test, check speed sensor and replace if necessary.</i></p> <p>Distance from sensor to metal <i>Remedy: Check distance.</i></p>
612		Error - Slip, mower drive left	<p>V-belt not tightened <i>Remedy: Check the V-belt.</i></p> <p>Short circuit / broken cable in the wiring for speed sensor <i>Remedy: Perform sensor test, check wiring</i></p> <p>Speed sensor defective <i>Remedy: Perform sensor test, check speed sensor and replace if necessary.</i></p> <p>Distance from sensor to metal <i>Remedy: Check distance.</i></p>
613		Error - Slip, auger drive right	<p>Auger monitoring mode activated even though there is no auger present <i>Remedy: Deactivate auger monitoring mode in the display.</i></p> <p>V-belt not tightened <i>Remedy: Check the V-belt.</i></p> <p>Short circuit / broken cable in the wiring for</p>

No.	Image	Meaning	Possible cause / remedy
			<p>speed sensor <i>Remedy: Perform sensor test, check wiring.</i></p> <p>Speed sensor defective <i>Remedy: Perform sensor test, check speed sensor and replace if necessary.</i></p> <p>Distance from sensor to metal <i>Remedy: Check distance.</i></p>
614		<p>Error - Slip, auger drive left</p>	<p>Auger monitoring mode activated even though there is no auger present <i>Remedy: Deactivate auger monitoring mode in the display.</i></p> <p>V-belt not tightened <i>Remedy: Check the V-belt.</i></p> <p>Short circuit / broken cable in the wiring for speed sensor <i>Remedy: Perform sensor test, check wiring.</i></p> <p>Speed sensor defective <i>Remedy: Perform sensor test, check speed sensor and replace if necessary.</i></p> <p>Distance from sensor to metal <i>Remedy: Check distance.</i></p>
615		<p>Error - Pressure sensor for spring compensation – signal out of range</p> <p>Signal voltage: 1-5 volts</p>	<p>Spring compensation activated even though no hydraulic spring compensation is present <i>Remedy: Deactivate spring compensation in the display.</i></p> <p>Short circuit / broken cable in the pressure sensor wiring <i>Remedy: Check wiring.</i></p> <p>Pressure sensor defective <i>Remedy: Check the pressure sensor and replace if necessary.</i></p> <p>Internal error - KMC1 <i>Remedy: Replace KMC1.</i></p>
616		<p>Error - Pressure sensor for spring compensation 2 – signal out of range</p>	<p>Spring compensation 2 activated even though no second hydraulic spring compensation is present <i>Remedy: Deactivate spring compensation 2</i></p>

No.	Image	Meaning	Possible cause / remedy
		Signal voltage: 1–5 volts	<p><i>in the display.</i></p> <p>Short circuit / broken cable in the pressure sensor wiring <i>Remedy: Check wiring.</i></p> <p>Pressure sensor defective <i>Remedy: Check the pressure sensor and replace if necessary.</i></p> <p>Internal error - KMC1 <i>Remedy: Replace KMC1.</i></p>
619		Error - Mower position sensor right – mower not in work or ready position	<p>Mower has gone out of the "Mow/ready" setting.</p> <p>Setting for sensor or metal link <i>Remedy: Check distance.</i></p> <p>Position sensor <i>Remedy: Check position sensor and replace if necessary.</i></p> <p>Short circuit / broken cable in the wiring for position sensor <i>Remedy: Check wiring.</i></p>
620		Error - Mower position sensor left – mower not in work or ready position	<p>Mower has gone out of the "Mow/ready" setting.</p> <p>Setting for sensor or metal link <i>Remedy: Check distance.</i></p> <p>Position sensor <i>Remedy: Check position sensor and replace if necessary.</i></p> <p>Short circuit / broken cable in the wiring for position sensor <i>Remedy: Check wiring.</i></p>
621		Error - Mower position sensor right	<p>Short circuit / broken cable in the wiring for position sensor <i>Remedy: Perform sensor test, check wiring.</i></p> <p>Position sensor <i>Remedy: Perform sensor test, check position sensor and replace if necessary.</i></p>

No.	Image	Meaning	Possible cause / remedy
			Internal error - KMC1 <i>Remedy: Replace KMC1.</i>
622		Error - Mower position sensor left	Short circuit / broken cable in the wiring for position sensor <i>Remedy: Perform sensor test, check wiring.</i> Position sensor <i>Remedy: Perform sensor test, check position sensor and replace if necessary.</i> Internal error - KMC1 <i>Remedy: Replace KMC1.</i>
623		Error - Position sensor axle suspension	Short circuit / broken cable in the wiring for position sensor <i>Remedy: Perform sensor test, check wiring.</i> Position sensor <i>Remedy: Perform sensor test, check position sensor and replace if necessary.</i> Internal error - KMC1 <i>Remedy: Replace KMC1.</i>
624		Error - Speed sensor, mower drive right	Short circuit / broken cable in the wiring for speed sensor <i>Remedy: Perform sensor test, check wiring.</i> Speed sensor <i>Remedy: Perform sensor test, check speed sensor and replace if necessary.</i> Internal error - KMC1 <i>Remedy: Replace KMC1.</i>
625		Error - Speed sensor, mower drive front	Short circuit / broken cable in the wiring for speed sensor <i>Remedy: Perform sensor test, check wiring.</i> Speed sensor <i>Remedy: Perform sensor test, check speed sensor and replace if necessary.</i> Internal error - KMC1 <i>Remedy: Replace KMC1.</i>

No.	Image	Meaning	Possible cause / remedy
626		Error - Speed sensor, mower drive left	Short circuit / broken cable in the wiring for speed sensor <i>Remedy: Perform sensor test, check wiring.</i> Speed sensor <i>Remedy: Perform sensor test, check speed sensor and replace if necessary.</i> Internal error - KMC1 <i>Remedy: Replace KMC1.</i>
627		Error - Speed sensor, auger drive right	Short circuit / broken cable in the wiring for speed sensor <i>Remedy: Perform sensor test, check wiring.</i> Speed sensor <i>Remedy: Perform sensor test, check speed sensor and replace if necessary.</i> Internal error - KMC1 <i>Remedy: Replace KMC1.</i>
628		Error - Speed sensor, auger drive left	Short circuit / broken cable in the wiring for speed sensor <i>Remedy: Perform sensor test, check wiring.</i> Speed sensor <i>Remedy: Perform sensor test, check speed sensor and replace if necessary.</i> Internal error - KMC1 <i>Remedy: Replace KMC1.</i>
630		Error - position sensor transport, right mowing unit. Stop machine immediately and remedy the malfunction.	Transport monitoring activated even though there is no monitoring. <i>Deactivate parameter in the display.</i> Short circuit / broken cable in the wiring for position sensor. <i>Perform sensor test, check wiring.</i> Position sensor defective. <i>Perform sensor test, check position sensor and replace if necessary.</i> Internal error - KMC1. <i>Replace KMC1.</i>

No.	Image	Meaning	Possible cause / remedy
631		<p>Error - position sensor transport, left mowing unit.</p> <p>Stop machine immediately and remedy the malfunction.</p>	<p>Transport monitoring activated even though there is no monitoring. <i>Deactivate parameter in the display.</i></p> <p>Short circuit / broken cable in the wiring for position sensor. <i>Perform sensor test, check wiring.</i></p> <p>Position sensor defective. <i>Perform sensor test, check position sensor and replace if necessary.</i></p> <p>Internal error - KMC1. <i>Replace KMC1.</i></p>
632		<p>Error, right mowing unit not in transport position.</p> <p>Stop machine immediately and remedy the malfunction.</p>	<p>Transport monitoring activated even though there is no monitoring. <i>Deactivate parameter in the display.</i></p> <p>Mowing unit not in transport position. <i>Check locking and if necessary fold up until mowing unit is locked in transport position.</i></p> <p>Short circuit / broken cable in the wiring for position sensor. <i>Perform sensor test, check wiring.</i></p> <p>Position sensor defective. <i>Perform sensor test, check position sensor and replace if necessary.</i></p> <p>Internal error - KMC1. <i>Replace KMC1.</i></p>
633		<p>Error, left mowing unit not in transport position.</p> <p>Stop machine immediately and remedy the malfunction.</p>	<p>Transport monitoring activated even though there is no monitoring. <i>Deactivate parameter in the display.</i></p> <p>Mowing unit not in transport position. <i>Check locking and if necessary fold up until mowing unit is locked in transport position.</i></p> <p>Short circuit / broken cable in the wiring for position sensor. <i>Perform sensor test, check wiring.</i></p> <p>Position sensor defective. <i>Perform sensor test, check position sensor and replace if necessary.</i></p>

No.	Image	Meaning	Possible cause / remedy
			Internal error - KMC1. <i>Remedy: Replace KMC1.</i>
655	 <p>B42</p>	Error - Cutting height inclination sensor right – signal out of range Signal voltage: 1–5 volts	Hydr. cutting height activated even though there is no hydr. cutting height present <i>Remedy: Deactivate hydr. cutting height in display.</i> Short circuit / broken cable in the wiring for inclination sensor <i>Remedy: Check wiring.</i> Inclination sensor defective <i>Remedy: Check the inclination sensor and replace if necessary.</i> Internal error - KMC1 <i>Remedy: Replace KMC1.</i>
656	 <p>B43</p>	Error - Cutting height inclination sensor front – signal out of range Signal voltage: 1–5 volts	Hydr. cutting height activated even though there is no hydr. cutting height present <i>Remedy: Deactivate hydr. cutting height in display.</i> Short circuit / broken cable in the wiring for inclination sensor <i>Remedy: Check wiring.</i> Inclination sensor defective <i>Remedy: Check the inclination sensor and replace if necessary.</i> Internal error - KMC1 <i>Remedy: Replace KMC1.</i>

No.	Image	Meaning	Possible cause / remedy
657		<p>Error - Cutting height inclination sensor left – signal out of range</p> <p>Signal voltage: 1–5 volts</p>	<p>Hydr. cutting height activated even though there is no hydr. cutting height present <i>Remedy: Deactivate hydr. cutting height in display.</i></p> <p>Short circuit / broken cable in the wiring for inclination sensor <i>Remedy: Check wiring.</i></p> <p>Inclination sensor defective <i>Remedy: Check the inclination sensor and replace if necessary.</i></p> <p>Internal error - KMC1 <i>Remedy: Replace KMC1.</i></p>
660		<p>Error - Min/max parameter</p>	<p>Wrong values in EEPROM. <i>Remedy: Check parameters.</i></p> <p>EEPROM defective <i>Remedy: Replace KMC1.</i></p> <p>Internal error - KMC1 <i>Remedy: Replace KMC1.</i></p>

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12.19.8 DIOS/DIOM

No.	Image	Meaning	Possible cause / remedy
9500		Error - CAN bus communication – DIOS1 to KMC1	<p>DIOS power supply <i>Remedy: Check the DIOS power supply and check the wiring.</i></p> <p>Short circuit / broken cable in the wiring for the CAN bus <i>Remedy: Check wiring.</i></p> <p>CAN terminating resistors <i>Remedy: Check wiring. A resistance of approx. 60 Ohm must be measured between CAN high and CAN low for ignition level 0.</i></p> <p>Internal fault in DIOS. <i>Remedy: Perform reset of DIOS and set "OP" mode in operation. Replace DIOS if necessary.</i></p>
9510		<p>Error status DIOS1</p> <p>STATUS: xxxxxxxx BIT8, BIT7 ... BIT1</p>	<p>BIT1 = CPU error, CAN error <i>Remedy: Perform reset of DIOS and set "OP" mode in operation. Replace DIOS if necessary.</i></p> <p>BIT2 = UB voltage malfunction <i>Remedy: Check power supply on DIOS and replace DIOS if necessary.</i></p> <p>BIT3 = UC voltage malfunction <i>Remedy: Check power supply voltage on DIOS. Perform reset of DIOS and set "OP" mode in operation. Replace DIOS if necessary.</i></p> <p>BIT4 = 7.5 volt malfunction <i>Remedy: Check power supply voltage on DIOS. Perform reset of DIOS and set "OP" mode in operation. Replace DIOS if necessary.</i></p> <p>BIT5 = Temperature too high <i>Remedy: Check the temperature and allow to cool off if necessary.</i></p> <p>BIT6 = Relay defective <i>Remedy: Perform reset of DIOS and set "OP" mode in operation. Replace DIOS if necessary.</i></p>

No.	Image	Meaning	Possible cause / remedy
			<p><i>necessary.</i></p> <p>BIT7 = Overall current too great <i>Remedy: Check wiring and current to valves. Perform reset of DIOS and set "OP" mode in operation. Replace DIOS if necessary.</i></p> <p>BIT8 = Slave error <i>Remedy: Perform reset of DIOS and set "OP" mode in operation. Replace DIOS if necessary.</i></p>
9511		CPU error, CAN error	<p>CPU error, CAN error <i>Remedy: Perform reset of DIOS and set "OP" mode in operation. Replace DIOS if necessary.</i></p>
9512		UB voltage malfunction	<p>UB voltage malfunction <i>Remedy: Check power supply on DIOS and replace DIOS if necessary.</i></p>
9513		UC voltage malfunction	<p>UC voltage malfunction <i>Remedy: Check power supply voltage on DIOS. Perform reset of DIOS and set "OP" mode in operation. Replace DIOS if necessary.</i></p>
9514		7.5 volt malfunction	<p>7.5 volt malfunction <i>Remedy: Check power supply voltage on DIOS. Perform reset of DIOS and set "OP" mode in operation. Replace DIOS if necessary.</i></p>
9515		Temperature too high	<p>Temperature too high <i>Remedy: Check the temperature and allow to cool off if necessary.</i></p>
9516		Relay defective	<p>Relay defective <i>Remedy: Perform reset of DIOS and set "OP" mode in operation. Replace DIOS if necessary.</i></p>
9517		Overall current too great	<p>Overall current too great <i>Remedy: Check wiring and current to valves. Perform reset of DIOS and set "OP" mode in operation. Replace DIOS if necessary.</i></p>

No.	Image	Meaning	Possible cause / remedy
9518		Slave error	Slave error <i>Remedy: Perform reset of DIOS and set "OP" mode in operation. Replace DIOS if necessary.</i>
9520		Error status DIOS1 – EEPROM STATUS_EE: xxxxxxxx BIT8, BIT7 ... BIT1	BIT1 = Read error <i>Remedy: Perform reset of DIOS and set "OP" mode in operation. Replace DIOS if necessary.</i> BIT2 = Write error <i>Remedy: Perform reset of DIOS and set "OP" mode in operation. Replace DIOS if necessary.</i> BIT3 = STW data <i>Remedy: Perform reset of DIOS and set "OP" mode in operation. Replace DIOS if necessary.</i> BIT4 = Diagnostic data <i>Remedy: Perform reset of DIOS and set "OP" mode in operation. Replace DIOS if necessary.</i> BIT5 = Configuration data <i>Remedy: Perform reset of DIOS and set "OP" mode in operation. Replace DIOS if necessary.</i> BIT6 = CAN data <i>Remedy: Perform reset of DIOS and set "OP" mode in operation. Replace DIOS if necessary.</i> BIT7 = Object directory Communication <i>Remedy: Perform reset of DIOS and set "OP" mode in operation. Replace DIOS if necessary.</i> BIT8 = Object directory of application <i>Remedy: Perform reset of DIOS and set "OP" mode in operation. Replace DIOS if necessary.</i>
9530		Error status of DIOS1 – current too great	BIT1 = Channel 1 <i>Remedy: Check wiring and current to valves. Perform reset of DIOS and set "OP"</i>

No.	Image	Meaning	Possible cause / remedy
		STATUS_IO: xxxxxxxx BIT8, BIT7 ... BIT1	<p><i>mode in operation. Replace DIOS if necessary.</i></p> <p>BIT2 = Channel 2 <i>Remedy: Check wiring and current to valves. Perform reset of DIOS and set "OP" mode in operation. Replace DIOS if necessary.</i></p> <p>BIT3 = Channel 3 <i>Remedy: Check wiring and current to valves. Perform reset of DIOS and set "OP" mode in operation. Replace DIOS if necessary.</i></p> <p>BIT4 = Channel 4 <i>Remedy: Check wiring and current to valves. Perform reset of DIOS and set "OP" mode in operation. Replace DIOS if necessary.</i></p> <p>BIT5 = Channel 5 <i>Remedy: Check wiring and current to valves. Perform reset of DIOS and set "OP" mode in operation. Replace DIOS if necessary.</i></p> <p>BIT6 = Channel 6 <i>Remedy: Check wiring and current to valves. Perform reset of DIOS and set "OP" mode in operation. Replace DIOS if necessary.</i></p> <p>BIT7 = Channel 7 <i>Remedy: Check wiring and current to valves. Perform reset of DIOS and set "OP" mode in operation. Replace DIOS if necessary.</i></p> <p>BIT8 = Channel 8 <i>Remedy: Check wiring and current to valves. Perform reset of DIOS and set "OP" mode in operation. Replace DIOS if necessary.</i></p>
9540		Error status of DIOS1 – outputs STATUS_IN: xxxxxxxx	BIT1 = Output 1 <i>Remedy: Check wiring and current to valves. Perform reset of DIOS and set "OP" mode in operation. Replace DIOS if</i>

No.	Image	Meaning	Possible cause / remedy
		BIT8, BIT7 ... BIT1	<p><i>necessary.</i></p> <p>BIT2 = Output 2 <i>Remedy: Check wiring and current to valves. Perform reset of DIOS and set "OP" mode in operation. Replace DIOS if necessary.</i></p> <p>BIT3 = Output 3 <i>Remedy: Check wiring and current to valves. Perform reset of DIOS and set "OP" mode in operation. Replace DIOS if necessary.</i></p> <p>BIT4 = Output 4 <i>Remedy: Check wiring and current to valves. Perform reset of DIOS and set "OP" mode in operation. Replace DIOS if necessary.</i></p> <p>BIT5 = Output 5 <i>Remedy: Check wiring and current to valves. Perform reset of DIOS and set "OP" mode in operation. Replace DIOS if necessary.</i></p> <p>BIT6 = Output 6 <i>Remedy: Check wiring and current to valves. Perform reset of DIOS and set "OP" mode in operation. Replace DIOS if necessary.</i></p> <p>BIT7 = Output 7 <i>Remedy: Check wiring and current to valves. Perform reset of DIOS and set "OP" mode in operation. Replace DIOS if necessary.</i></p> <p>8BIT8 = Output 8 <i>Remedy: Check wiring and current to valves. Perform reset of DIOS and set "OP" mode in operation. Replace DIOS if necessary.</i></p>
9550		Error CAN bus communication – DIOS2 to KMC1	<p>DIOS power supply <i>Remedy: Check the DIOS power supply and check the wiring.</i></p> <p>Short circuit / broken cable in the wiring for</p>

No.	Image	Meaning	Possible cause / remedy
			<p>the CAN bus <i>Remedy: Check wiring.</i></p> <p>CAN terminating resistors <i>Remedy: Check wiring. A resistance of approx. 60 Ohm must be measured between CAN high and CAN low for ignition level 0.</i></p> <p>Internal fault in DIOS. <i>Remedy: Perform reset of DIOS and set "OP" mode in operation. Replace DIOS if necessary.</i></p>
9560		<p>Error status DIOS2</p> <p>STATUS: xxxxxxxx BIT8, BIT7 ... BIT1</p>	<p>BIT1 = CPU error, CAN error <i>Remedy: Perform reset of DIOS and set "OP" mode in operation. Replace DIOS if necessary.</i></p> <p>BIT2 = UB voltage malfunction <i>Remedy: Check power supply on DIOS and replace DIOS if necessary.</i></p> <p>BIT3 = UC voltage malfunction <i>Remedy: Check power supply voltage on DIOS. Perform reset of DIOS and set "OP" mode in operation. Replace DIOS if necessary.</i></p> <p>BIT4 = 7.5 volt malfunction <i>Remedy: Check power supply voltage on DIOS. Perform reset of DIOS and set "OP" mode in operation. Replace DIOS if necessary.</i></p> <p>BIT5 = Temperature too high <i>Remedy: Check the temperature and allow to cool off if necessary.</i></p> <p>BIT6 = Relay defective <i>Remedy: Perform reset of DIOS and set "OP" mode in operation. Replace DIOS if necessary.</i></p> <p>BIT7 = Overall current too great <i>Remedy: Check wiring and current to valves. Perform reset of DIOS and set "OP" mode in operation. Replace DIOS if necessary.</i></p>

No.	Image	Meaning	Possible cause / remedy
			BIT8 = Slave error <i>Remedy: Perform reset of DIOS and set "OP" mode in operation. Replace DIOS if necessary.</i>
9561		CPU error, CAN error	CPU error, CAN error <i>Remedy: Perform reset of DIOS and set "OP" mode in operation. Replace DIOS if necessary.</i>
9562		UB voltage malfunction	UB voltage malfunction <i>Remedy: Check power supply on DIOS and replace DIOS if necessary.</i>
9563		UC voltage malfunction	UC voltage malfunction <i>Remedy: Check power supply voltage on DIOS. Perform reset of DIOS and set "OP" mode in operation. Replace DIOS if necessary.</i>
9564		7.5 volt malfunction	7.5 volt malfunction <i>Remedy: Check power supply voltage on DIOS. Perform reset of DIOS and set "OP" mode in operation. Replace DIOS if necessary.</i>
9565		Temperature too high	Temperature too high <i>Remedy: Check the temperature and allow to cool off if necessary.</i>
9566		Relay defective	Relay defective <i>Remedy: Perform reset of DIOS and set "OP" mode in operation. Replace DIOS if necessary.</i>
9567		Overall current too great	Overall current too great <i>Remedy: Check wiring and current to valves. Perform reset of DIOS and set "OP" mode in operation. Replace DIOS if necessary.</i>
9568		Slave error	Slave error <i>Remedy: Perform reset of DIOS and set "OP" mode in operation. Replace DIOS if necessary.</i>

No.	Image	Meaning	Possible cause / remedy
9570		<p>Error status DIOS2 – EEPROM</p> <p>STATUS_EE: xxxxxxxx BIT8, BIT7 ... BIT1</p>	<p>BIT1 = Read error <i>Remedy: Perform reset of DIOS and set "OP" mode in operation. Replace DIOS if necessary.</i></p> <p>BIT2 = Write error <i>Remedy: Perform reset of DIOS and set "OP" mode in operation. Replace DIOS if necessary.</i></p> <p>BIT3 = STW data <i>Remedy: Perform reset of DIOS and set "OP" mode in operation. Replace DIOS if necessary.</i></p> <p>BIT4 = Diagnostic data <i>Remedy: Perform reset of DIOS and set "OP" mode in operation. Replace DIOS if necessary.</i></p> <p>BIT5 = Configuration data <i>Remedy: Perform reset of DIOS and set "OP" mode in operation. Replace DIOS if necessary.</i></p> <p>BIT6 = CAN data <i>Remedy: Perform reset of DIOS and set "OP" mode in operation. Replace DIOS if necessary.</i></p> <p>BIT7 = Object directory Communication <i>Remedy: Perform reset of DIOS and set "OP" mode in operation. Replace DIOS if necessary.</i></p> <p>BIT8 = Object directory of application <i>Remedy: Perform reset of DIOS and set "OP" mode in operation. Replace DIOS if necessary.</i></p>
9580		<p>Error status of DIOS2 – current too great</p> <p>STATUS_IO: xxxxxxxx BIT8, BIT7 ... BIT1</p>	<p>BIT1 = Channel 1 <i>Remedy: Check wiring and current to valves. Perform reset of DIOS and set "OP" mode in operation. Replace DIOS if necessary.</i></p> <p>BIT2 = Channel 2 <i>Remedy: Check wiring and current to</i></p>

No.	Image	Meaning	Possible cause / remedy
			<p><i>valves. Perform reset of DIOS and set "OP" mode in operation. Replace DIOS if necessary.</i></p> <p>BIT3 = Channel 3 <i>Remedy: Check wiring and current to valves. Perform reset of DIOS and set "OP" mode in operation. Replace DIOS if necessary.</i></p> <p>BIT4 = Channel 4 <i>Remedy: Check wiring and current to valves. Perform reset of DIOS and set "OP" mode in operation. Replace DIOS if necessary.</i></p> <p>BIT5 = Channel 5 <i>Remedy: Check wiring and current to valves. Perform reset of DIOS and set "OP" mode in operation. Replace DIOS if necessary.</i></p> <p>BIT6 = Channel 6 <i>Remedy: Check wiring and current to valves. Perform reset of DIOS and set "OP" mode in operation. Replace DIOS if necessary.</i></p> <p>BIT7 = Channel 7 <i>Remedy: Check wiring and current to valves. Perform reset of DIOS and set "OP" mode in operation. Replace DIOS if necessary.</i></p> <p>BIT8 = Channel 8 <i>Remedy: Check wiring and current to valves. Perform reset of DIOS and set "OP" mode in operation. Replace DIOS if necessary.</i></p>
9590		<p>Error status of DIOS2 – outputs</p> <p>STATUS_IN: xxxxxxxx BIT8, BIT7 ... BIT1</p>	<p>BIT1 = Output 1 <i>Remedy: Check wiring and current to valves. Perform reset of DIOS and set "OP" mode in operation. Replace DIOS if necessary.</i></p> <p>BIT2 = Output 2 <i>Remedy: Check wiring and current to valves. Perform reset of DIOS and set "OP" mode in operation. Replace DIOS if necessary.</i></p>

No.	Image	Meaning	Possible cause / remedy
			<p><i>mode in operation. Replace DIOS if necessary.</i></p> <p>BIT3 = Output 3 <i>Remedy: Check wiring and current to valves. Perform reset of DIOS and set "OP" mode in operation. Replace DIOS if necessary.</i></p> <p>BIT4 = Output 4 <i>Remedy: Check wiring and current to valves. Perform reset of DIOS and set "OP" mode in operation. Replace DIOS if necessary.</i></p> <p>BIT5 = Output 5 <i>Remedy: Check wiring and current to valves. Perform reset of DIOS and set "OP" mode in operation. Replace DIOS if necessary.</i></p> <p>BIT6 = Output 6 <i>Remedy: Check wiring and current to valves. Perform reset of DIOS and set "OP" mode in operation. Replace DIOS if necessary.</i></p> <p>BIT7 = Output 7 <i>Remedy: Check wiring and current to valves. Perform reset of DIOS and set "OP" mode in operation. Replace DIOS if necessary.</i></p> <p>BIT8 = Output 8 <i>Remedy: Check wiring and current to valves. Perform reset of DIOS and set "OP" mode in operation. Replace DIOS if necessary.</i></p>

13 Maintenance - Air Conditioning and Heating

13.1 Special Safety Instructions



- Maintenance, cleaning and repair work should be done only when the machine is at a complete standstill. Shut down the engine and remove the ignition key.
- Repair, maintenance, service and cleaning must only be carried out by authorised specialists.
- When carrying out repair, maintenance, service and cleaning of the coolant circuit, coolant emissions can occur, both liquid or gaseous, which pose a hazard for man and environment. Take suitable protective measures (wear protective goggles and protective gloves).
- In case of coolant burns a doctor must be consulted and the data sheet (see page XIII - 2) must be taken with you.
- Ensure adequate ventilation when working on the cooling system.
- During refill and repair do not let coolants escape but dispose of in recycling container.
- The spare parts used must comply with the technical requirements of the machine manufacturer. Therefore only use KRONE original spare parts.

13.2 Air Conditioning Components

A Compressor

On engine at the left-hand side of the vehicle, driven via V-belt

B Condenser

Behind the radiator unit, accessible from the left and right

C Drier/collector

Behind the radiator unit at the left-hand side of the vehicle

D Evaporator

in cab roof

E Pressure switch

on drier, behind the radiator unit at the left-hand side of the vehicle

F Expansion valve

at the intake of the evaporator

G Air conditioning/heating rotary switch

in cab, roof console

13.3 Coolant data sheet R 134a (Excerpt)

Coolant R 134a:	
Chemical name	1,1,1,2-tetrafluoroethene
Chemical formula	CH ₂ FCF ₃
Molecular weight	102,0 g/mol
Boiling point (at 1,013 bar)	-26.1 °C
Freezing point	-101.0 °C
Critical temperature	-101.0 °C
Critical pressure	40.60 bar
Density (liquid at +25 °C)	1206 kg/m ³
Inflammability limits in air	non inflammable

Environmental data	
CFC 134a:	
ODP - Ozonolysis potential	ODP = 0
CLP - Chlorbelastungs potential	CLP = 0
HGWP - Green house effect	HGWP = 0,26
PCR - Photochemical reactivity	PCR = 0,5

13.4 Technical Data

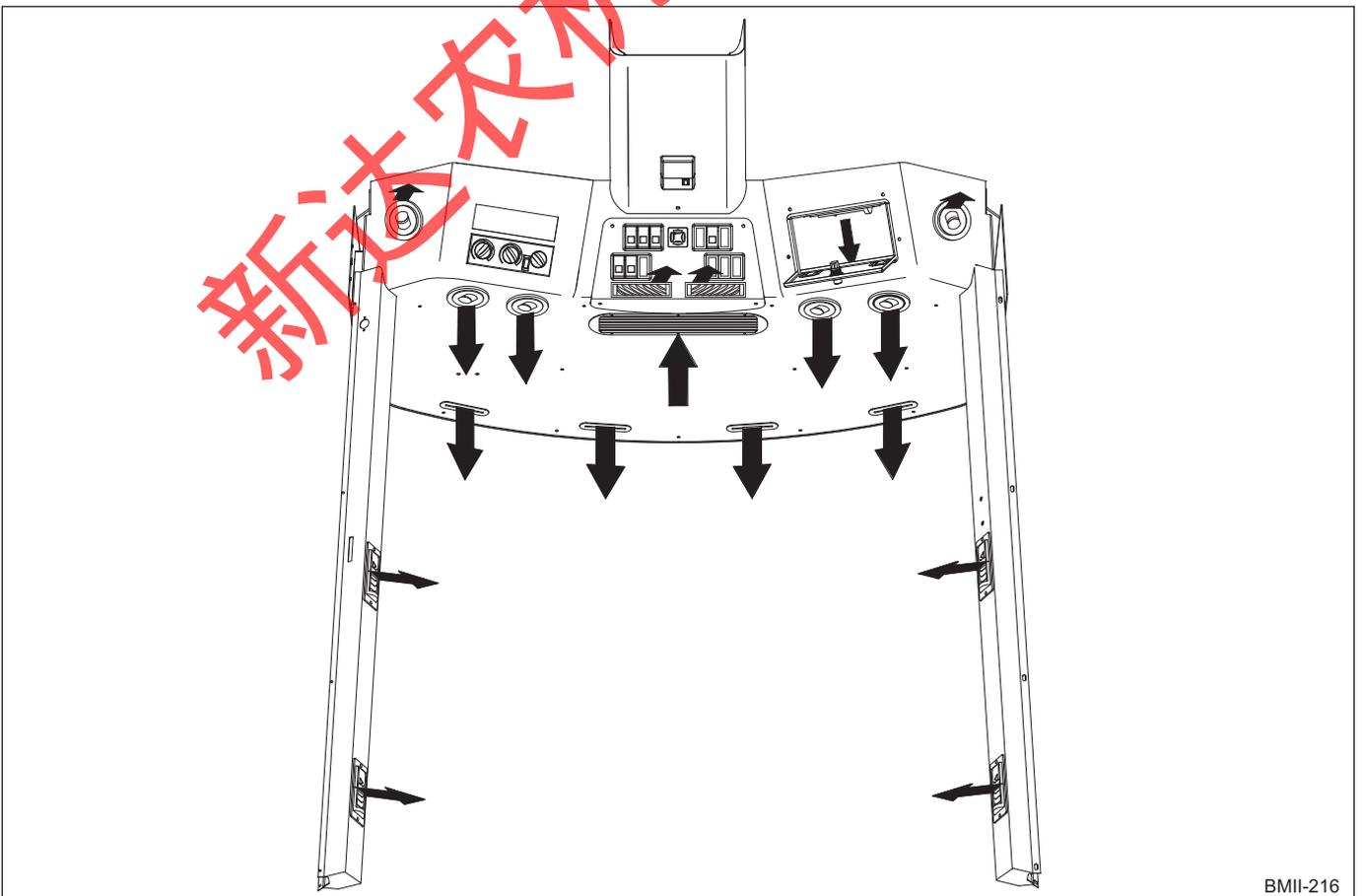
Technical Data	
Component	Performance data
Evaporator	Cooling capacity* 5,200 Watt*
Heater	Heating capacity 4,000 Watt
Fan	1000 m ³ /h freiblasend
Voltage	12 Volts
Current consumt.	15 Amperes
Coolant	R 134a (FCKW-frei)

*measured at +30°C ambient temperature
(manufacturer's data)

13.5 Air Intake and Distribution



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13.6 Refrigerant



The air conditioning system is operated with 2000 g of refrigerant R134a (tetrafluoroethane). This substance does not contain any chlorine atoms, and thus is inoffensive to the ozone in the atmosphere of the environment.



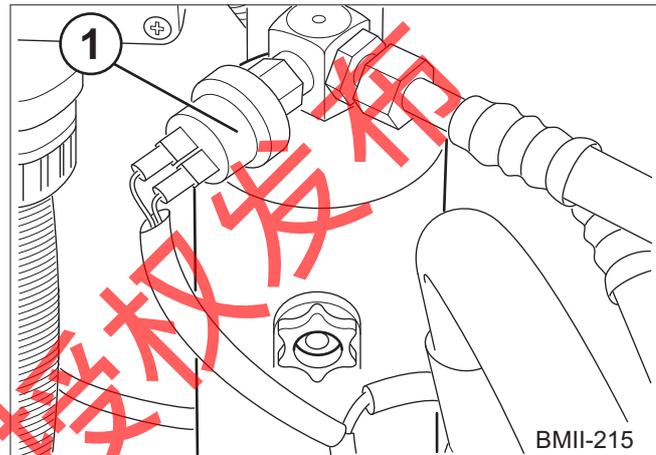
Nonetheless, the refrigerant must not be drained; it must be collected at a recycling plant. For this reason do not sever any connecting pipes. Have maintenance and repair work on the air conditioning system carried out only by your Krone dealer with a suitable disposal and recycling equipment.

13.7 Manometric switch



When the fan speed is at the highest still pleasant performance, set the cooling performance of the air conditioning system to an average value. Let the air conditioning system not operate at the lowest fan speed and highest cooling performance.

The air conditioning system has been fitted with a manometric switch (2) which shuts down the system in case of over or under pressure (at the drier behind the all-purpose cooler on the left-hand side in driving direction)



13.8 Fresh air fan and circulation mode (cabin)

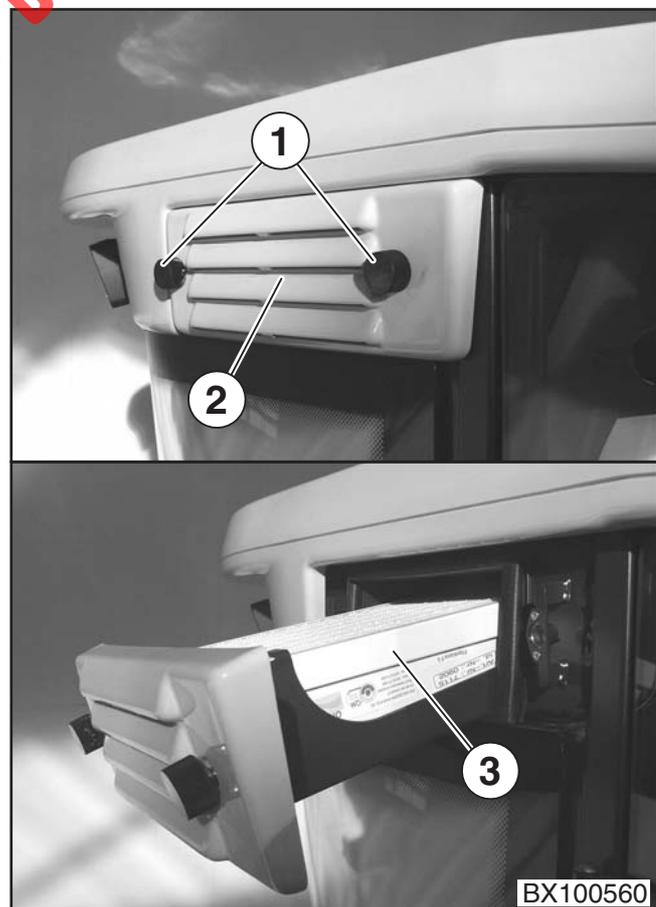
Fresh air fan

A fresh air filter (3) in the form of a wedge filter cell is located in the upper cab area behind the gill screen (2) on the left hand side in direction of travel. This filter (3) protects the driver in the cab against dust or airborne dirt, which is outside the cab. Check the filter for soiling prior to any operation.



If filters are not properly maintained they may become very soiled, no longer ensuring that sufficient fresh air is passed into the cab.

- Open the closing device (1) by turning 90° clockwise.
- Pull the gill screen (2) out; check the wedge filter cell (3) for soiling and clean, if and when necessary.
- Shake out the filter (3); never use compressed air. In case of severe soiling, the filter (3) has to be replaced.

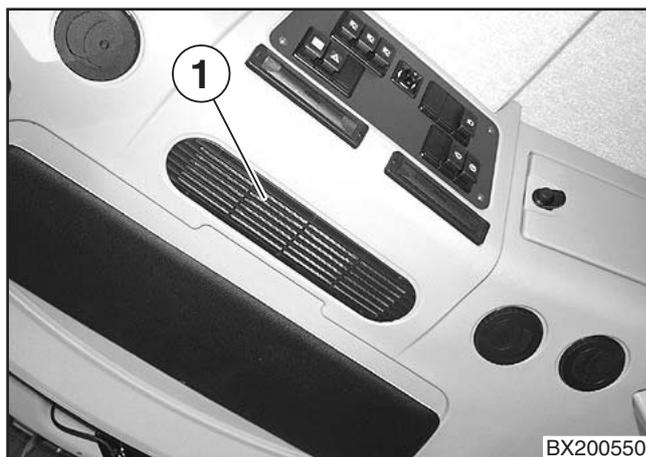


Circulation filter



If the circulating air filter (1) is very dirty, the output of the air conditioning system may be reduced and it may heat up.

- Clean the circulating air filter (1) regularly.



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13.9 Collector / Drier

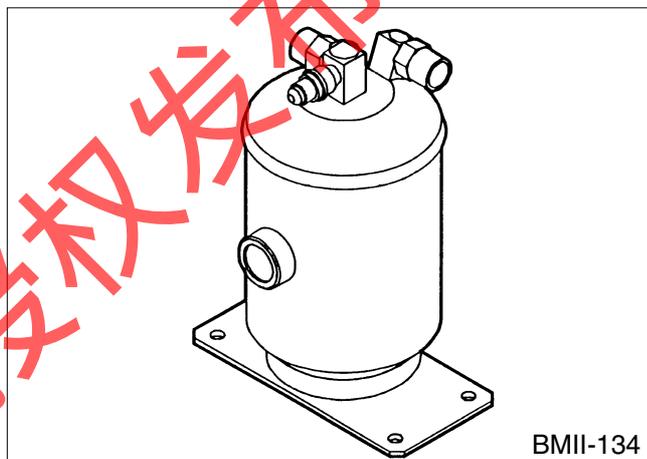


The ambient temperature must be above the set thermostat temperature (usually $+1^{\circ}\text{C}$) for the compressor to switch on.

Since an operating over-pressure is present inside the coolant collector its manufacturing and testing is subject to the Druckbehälterverordnung (pressure vessel code).

In this code the pressure vessels are classified according to the permissible operating over-pressure p in bar, its capacity in liters and the pressure capacity product $p \times l$ into test group II.

According to § 10 of the Druckbehälterverordnung (pressure vessel code) these pressure vessels are subject to a recurring examination by an expert according to § 32. In this case, recurring examinations consists of external checks, usually at vessels which are in operation. The coolant collector must be checked visually twice a year in connection with the inspection. Particular attention must be given to corrosion and mechanical damage. If the vessel is not in proper condition, it must be replaced for safety reasons, to make sufficient provision for the protection of operators and others due to the danger during handling or operation of pressure vessels.



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13.10 Checking State and Filling Amount of the Coolant



Use the white float to check the amount of coolant.

Some loss of coolant through the hoses in the climate control system is unavoidable. Check the refrigerant level every 200 hours. To do this, keep the engine running and the climate control system switched on (and turned to maximum cooling) and check the inspection window (2) in the desiccator (1).

- If the white float is at the top, the coolant level is O.K.
- If the white float is at the bottom, you must top up the coolant (specialised workshop)



Use the blue indicator bead to check the moisture saturation.

Moisture in the coolant circuit is collected in the filter desiccator.

With delivery for series 2006, the dryer (1) is included with 2 different coloured indicator pearls (blue or orange).



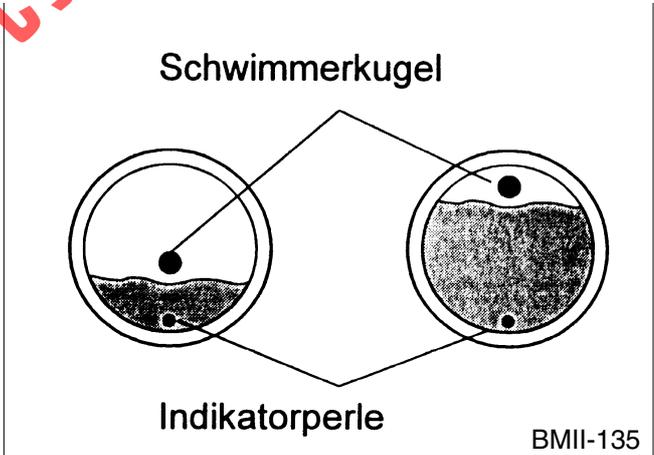
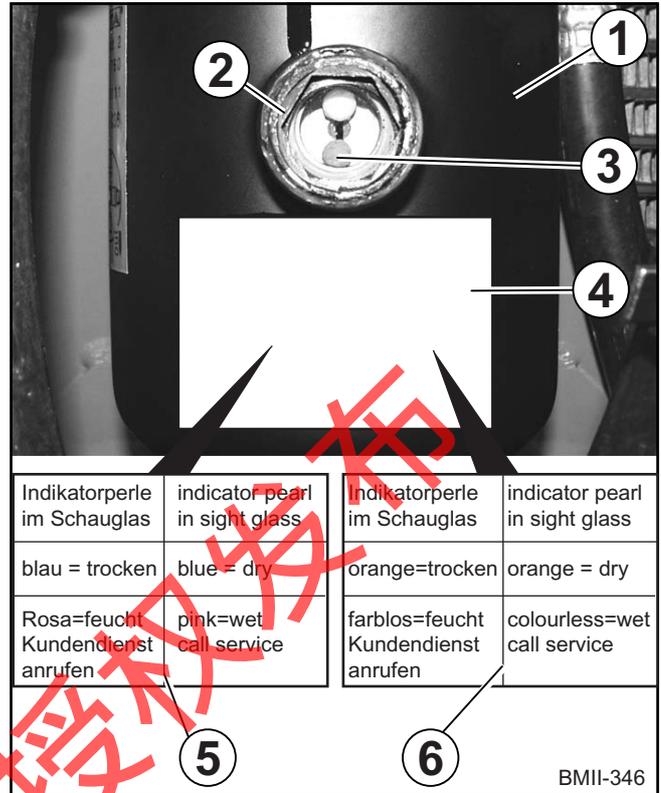
Observe the notice on the sticker (4) on the dryer (1).

Dryer with sticker (5):

- If the indicator pearl (3) is blue, the degree of moisture is okay.
- If the indicator pearl (3) has turned pink, the collector unit of the dryer must be replaced (specialist workshop)

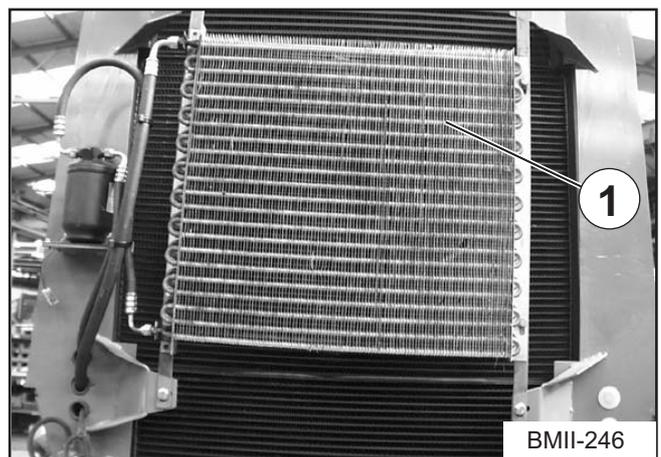
Dryer with sticker (6):

- If the indicator pearl (3) is orange, the degree of moisture is okay.
- If the indicator pearl (3) has turned colourless, the collector unit of the dryer must be replaced (specialist workshop)



13.11 Check the condenser

- Check the condenser component (in front of the cooler) for soiling.
- Clean the condenser block depending on its degree of soiling, however at least once per month.
- Blow through the condenser block with compressed air from the inside to the outside, making sure that the fins are not damaged.



14 Storage

14.1 At the End of the Harvest Season

- If possible, park the self-propelled high-performance mower-conditioner in a protected and dry place.
- Clean the self-propelled high-performance mower-conditioner on the inside through the maintenance openings and on the outside. Chaff and dirt attract moisture causing steel parts to rust.



If a high pressure washing device is used, do not direct the water jet into the bearings or electrical/electronic parts.

- Lubricate the self-propelled mower according to the lubrication chart. Grease the threads of adjusting screws and similar parts; relieve springs. Transport locking catch for lateral mowers: Grease the bolt.
- Grease the blank piston rods of all hydraulic cylinders and retract as far as possible.
- Wet all lever joints, cutterbar and bearing points without lubrication with oil.

Write down all maintenance work which has to be carried out before the next harvest and send order in good time. Your KRONE dealer can carry out servicing work and any necessary repairs outside the harvesting time.

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14.2 At the End of the Harvest Season – Engine



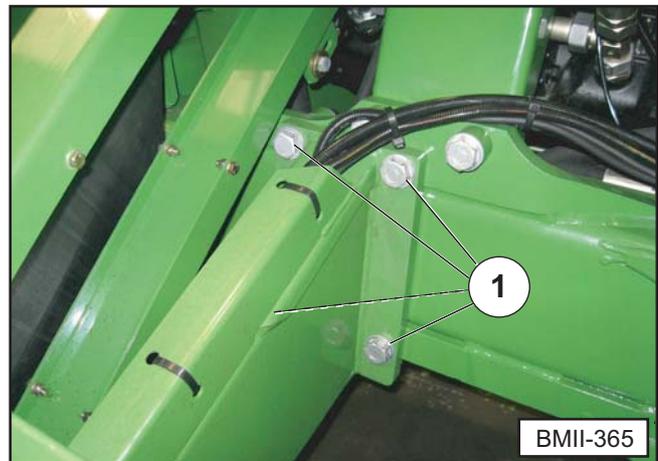
For further information please refer to the operating instructions for "Daimler Chrysler Engines" supplied (chapter Cleaning, Preservation)

14.3 Before the Start of a New Season

The self-propelled high-performance mower-conditioner should be inspected thoroughly before the start of the new season. If the self-propelled high-performance mower-conditioner is in perfect working order, costly breakdowns can be avoided during the harvest season.

The self-propelled high-performance mower-conditioner should be cleaned on the inside and outside unless you have already done so at the end of the last season.

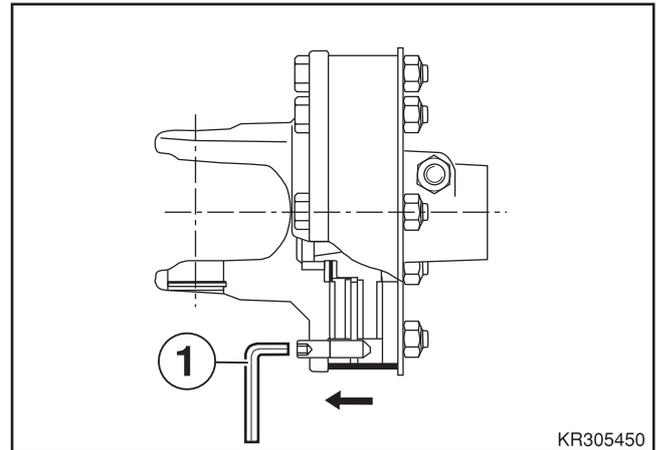
- Fit any belts and V-belts which may have been removed and check the belt tension.
- Remove covers from engine openings.
- Lubricate the machine completely according to the lubrication chart.
- Check whether all pins have been tightened and all split pins are fitted.
- Check all seals as well as the quantities in the cooling system. The frost and corrosion protection agent must also be used in the cooling system during the summer months as it protects the system against corrosion.
- Check batteries. Check the charging level and acid level; if necessary, recharge batteries.
- Check the tyre pressure.
- Allow the self-propelled high-performance mower-conditioner to run for approximately an hour at half speed. Now check all bearings for overheating.
- Retighten (annually) the four fastening bolts (1) on the frame arms to a tightening torque of 640 Nm.



14.4 Overload clutch -ByPy

Totally release the four hex. socket head cap screws (2). The thread does not extend over the full length of the screws, so they cannot be turned out of the clutch.

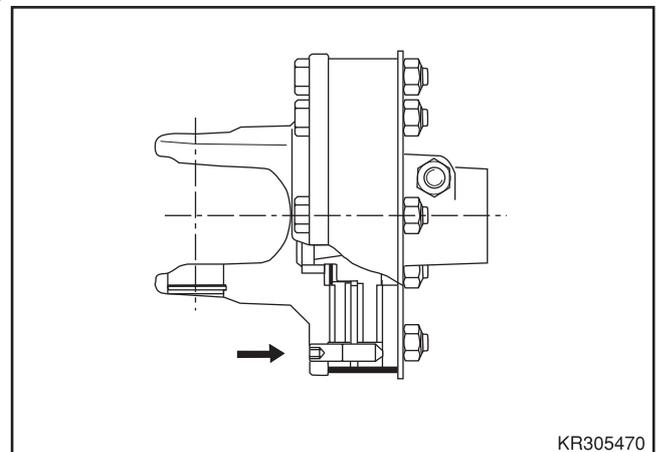
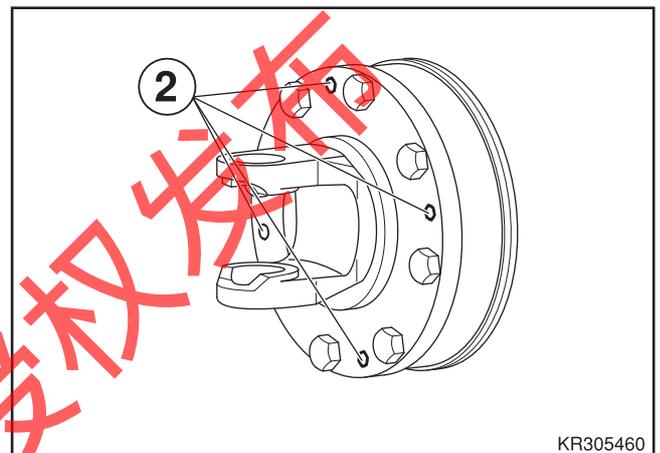
The clutch is now ready for use.



14.4.1 Bleeding the oveload clutch of the universal joint drive shaft

Firmly tighten the hexagon socket head cap screws (2) of the overload clutch at the start of the idle period. This will release the clutch linings from the pressure of the cup springs and minimise the risk of sticking. The disc clutch is bled.

At the start of the next operation proceed as described above (chap 14.4).



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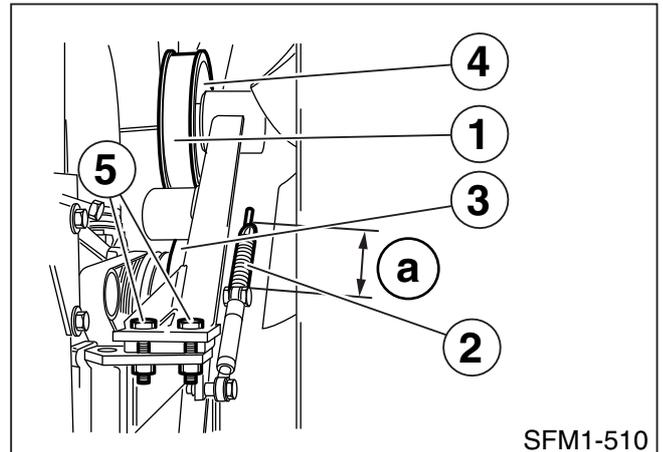
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15 Belt drive

15.1 Ventilation wheel drive

Replacing the V-belts (1):

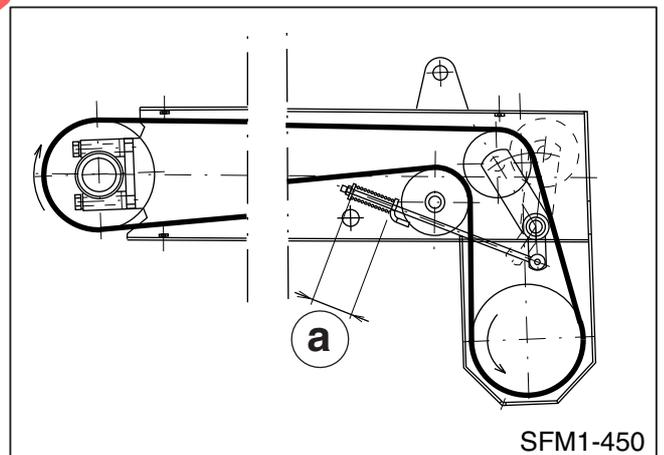
- Relax the spring (2) of the tension pulley (3).
- Remove the V-belt.
- The belt pulleys (4) have to be exactly aligned.
- Adjust the belt pulleys (4), if necessary using screws.
- Apply new V-belts. Tighten the tension pulley spring to $a = 200$



Make sure the fan blade is in a central position in the radiator cover.

15.2 Deployments arms

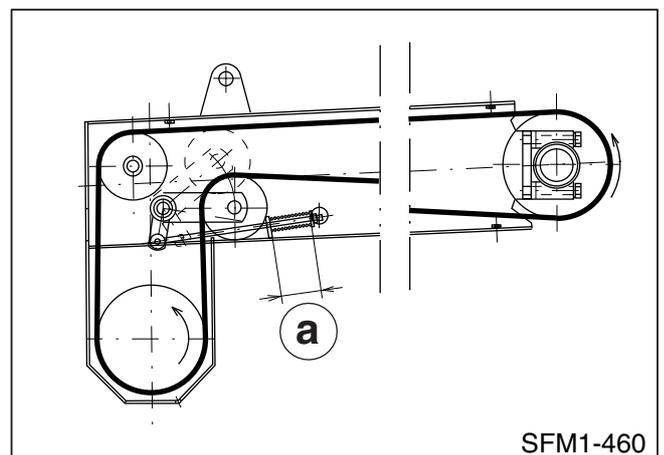
When the deployment arm is on the right, the loaded length of spring should be $a = 95 \text{ mm}$



When it is on the left, the loaded length of spring should be $a = 95 \text{ mm}$.



Tightener on the left and on the right only so far tighten, until the distance tube fit in the spring. (do not span!)



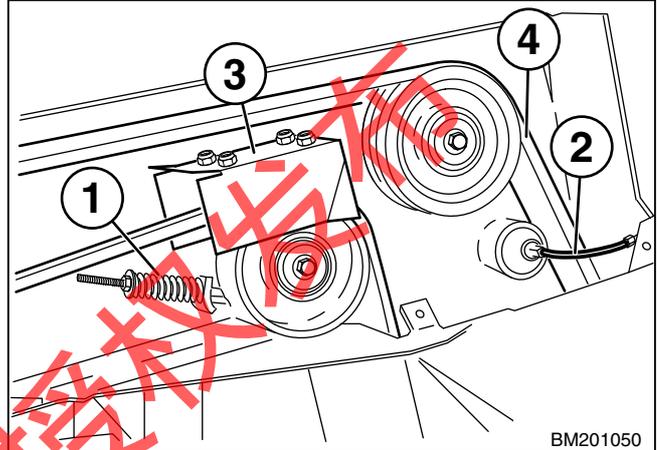
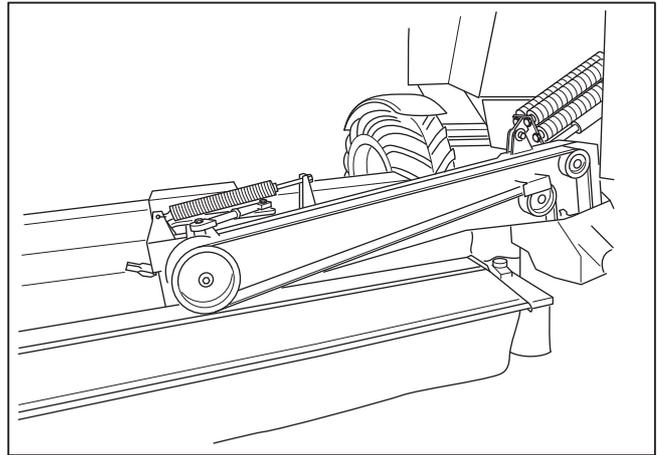
Replacing the V-belt on deployment arms.

- Dismantle the belt covers.
- Relax the spring (1) on the tension pulley.



Dismantle the cover (3) on the right-hand side.

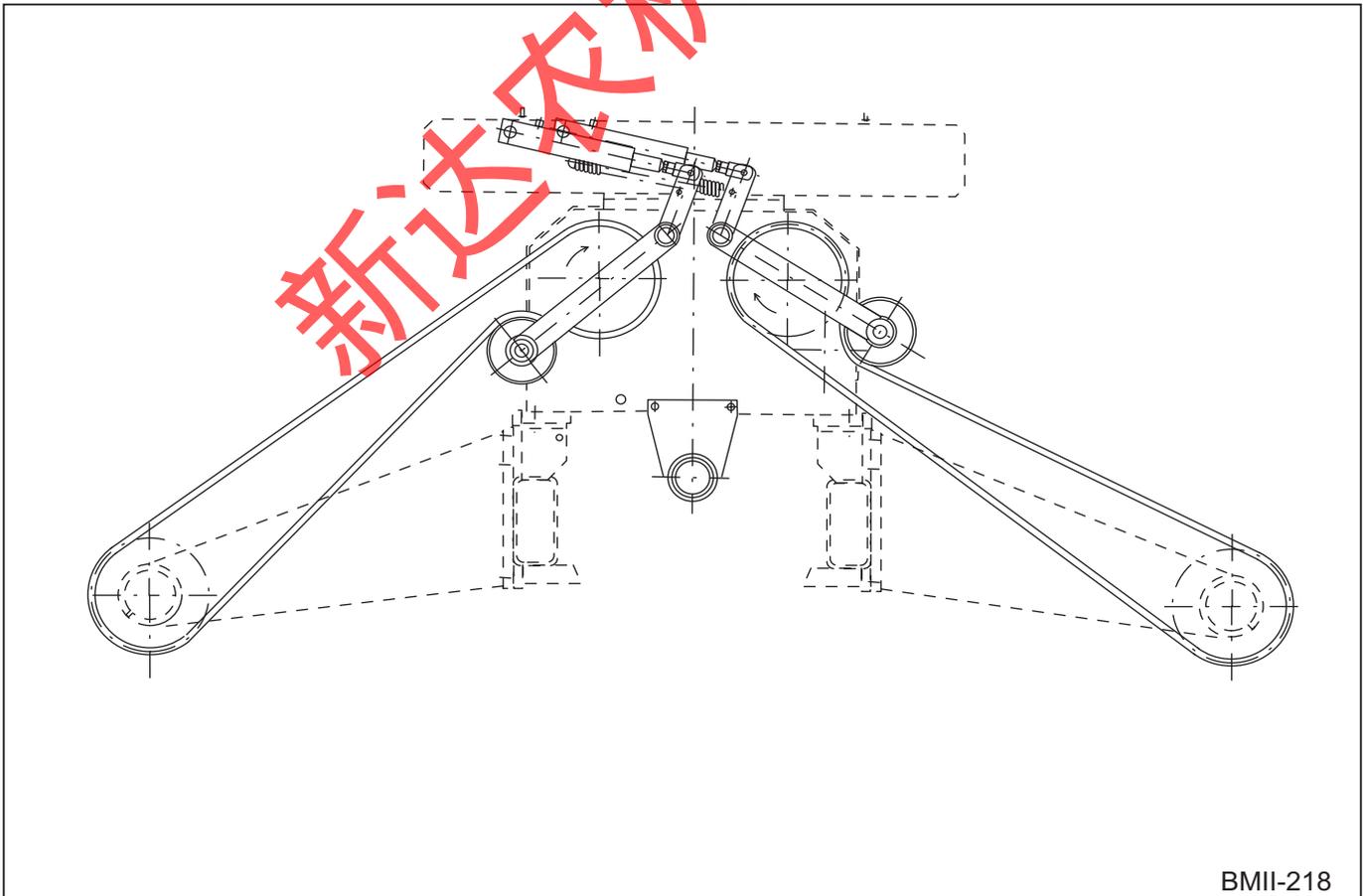
- Loosen the lubrication wire (2).
- Exchange the belt (4) and test that they are in the correct position.
- Stretch spring (1) to a length of 90 mm.
- Mount the cover (3) on the right-hand side.
- Mount the belt covers.



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15.3 Mower drive

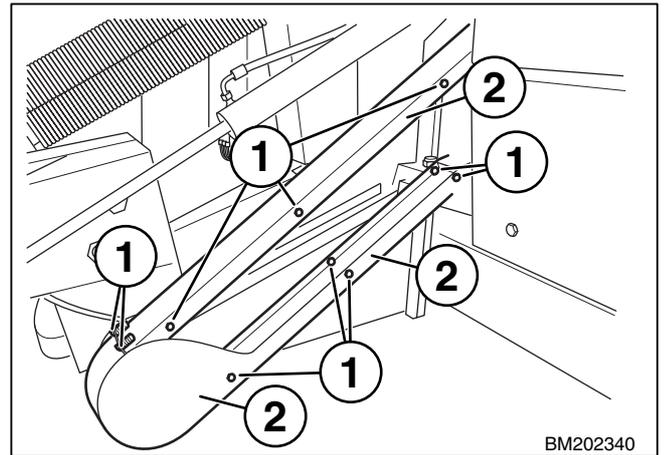
- Belt tension is generated using the hydraulic cylinder (pressure 50 bar).
Reset the single action cylinder using the springs.



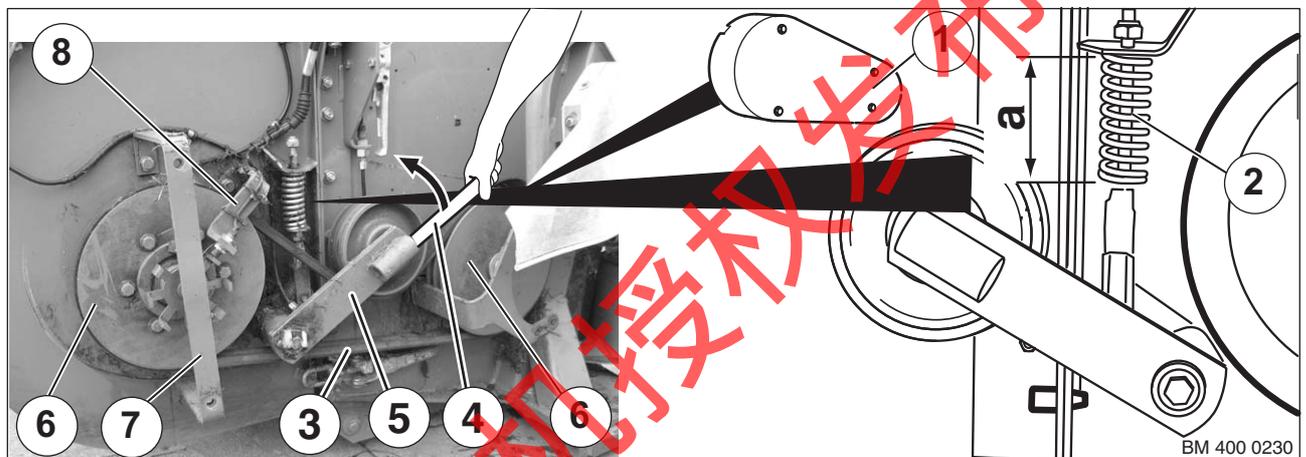
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Drive belt: side mowers

- Remove the fixture screws (1) of the belt covers (2) on both sides.
- Remove the belt covers (2).
- Replace the belt and check that it is in the correct position.
- Reattach the belt covers (2).



15.4 Cross Conveyor Drive



Check belt tension

Length of spring under tension a = approx. 80 mm

Correcting the belt tension:

- Remove the guard (1)
- Increase or reduce the spring tension of the tension spring (2) until distance a = approx. 80 mm is set.
- Install the guard (1)

To replace belt (3):

- Remove the guard (1)
- Remove the protective strut (7) and sensor holder (8).
- Use the mounting lever (4) to raise the idler pulley (5).
- Remove the old belt (3).
- Place the new belt (3) onto the pulleys (6).
- Lower the idler pulley (5) slowly and withdraw the mounting lever (4).

With the V-belt under tension, dimension a must be equal to approx. 80 mm. Correct the belt tension as necessary

- Install the protective strut (7) and sensor holder (8).
- Install the guard (1)



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16 Lubrication chart – Periodical Maintenance

16.1 Maintenance during the Running-in Time

During the first 100 operating hours

- Carry out maintenance daily or every 10 operating hours (see this section and “Fuels and Quantities”).
- Do not allow the engine to idle unnecessarily.
- Constantly check the coolant temperature.
- Check the engine oil and coolant level regularly. Look for signs of leaks.
- If you have to top up the engine oil during the running-in time, the oil viscosity should be chosen according to the seasonal requirements and the instructions in the section “Fuels and Quantities”.
- Check that the hoses and hose clips on the air intake system are secure.
- Check the drive belt and adjust if necessary.

16.2 Every 10 Operating Hours

- Engine – check oil level
- Hydraulic system – check oil level
- Tyres
- Indicator light test
- Light functions
- Lubricate according to the lubrication chart (fill grease until it escapes from the lubrication point)

16.2.1 Until the First 10 Operating Hours

- Tighten the mounting bolts on the steering cylinder armature on the rear axle.
- Tighten the mounting bolts on the steering cylinder armature on the wheel hubs.
- Tighten the mounting bolts on the track rod.
- Retighten the fastening screws of the outriggers on the frame.

16.2.2 Until the First 50 Operating Hours have been Reached

- Tighten the front wheel nuts and rear wheel hub mounting bolts with 700 Nm (518 lb-ft).

16.3 Every 200 Operating Hours

- Drain the engine oil from the crankcase. Change the engine oil and engine oil filter.
- Other ranges see the **Operating instruction** of the engine
- Check or adjust drive belt tension.
- Check that the hoses and hose clips on the air intake and cooling system are secure.
- Tighten wheel nuts with 700 Nm (518 lb-ft).
- Replace fuel filter.
- Drain engine oil from crank case, fill with new oil.
- Replace engine oil filter.
- Check the battery acid density, recharge the battery if necessary and top up distilled water.
- Check fuel injection lines for loose connections.
- Clean valve cover ventilation.
- Check the cooling system antifreeze mixture, top up antifreeze mixture if necessary.
- Check foot brake setting.
- Adjust parking brake Bowden cable if necessary.
- Check that turbo charger screw connections and hose connections are fitted properly.
- Clean the paper filter elements in the cab.
- Check the oil level in the central gearbox.
- Check the oil level on the cutterbar
- Tighten the mounting bolts on the steering cylinder armature on the rear axle.
- Tighten the mounting bolts on the steering cylinder armature on the wheel hubs.
- Tighten the mounting bolts on the track rod.



For precise maintenance recommendations for the engine, see the separate maintenance instructions "Daimler Chrysler Wartungsheft".

16.4 Every 500 Operating Hours / every year

- Drain oil from the hydraulic system and replace with new oil.
- Replace hydraulic oil filter.
- Clean the mechanical fuel pump.
- Change central gearbox oil.
- Tighten the mounting bolts on the steering cylinder armature on the rear axle.
- Tighten the mounting bolts on the steering cylinder armature on the wheel hubs.
- Tighten the mounting bolts on the track rod.

16.5 Every 1500 Operating Hours

- Replace dry air filter element and air filter safety element.
- Check the pressure filters listed below:
 - Steering pump pressure filter
 - Leakage oil pipe for wheel motors pressure filter,
 - Work pump pressure filter
 - Supply pump pressure filter

16.6 Whenever Necessary

- Replace both air filter elements.
- Change cab air filter.
- Clean pre-filter.
- Change hydraulic oil filter.
- Change fuel filter..
- Clean batteries.

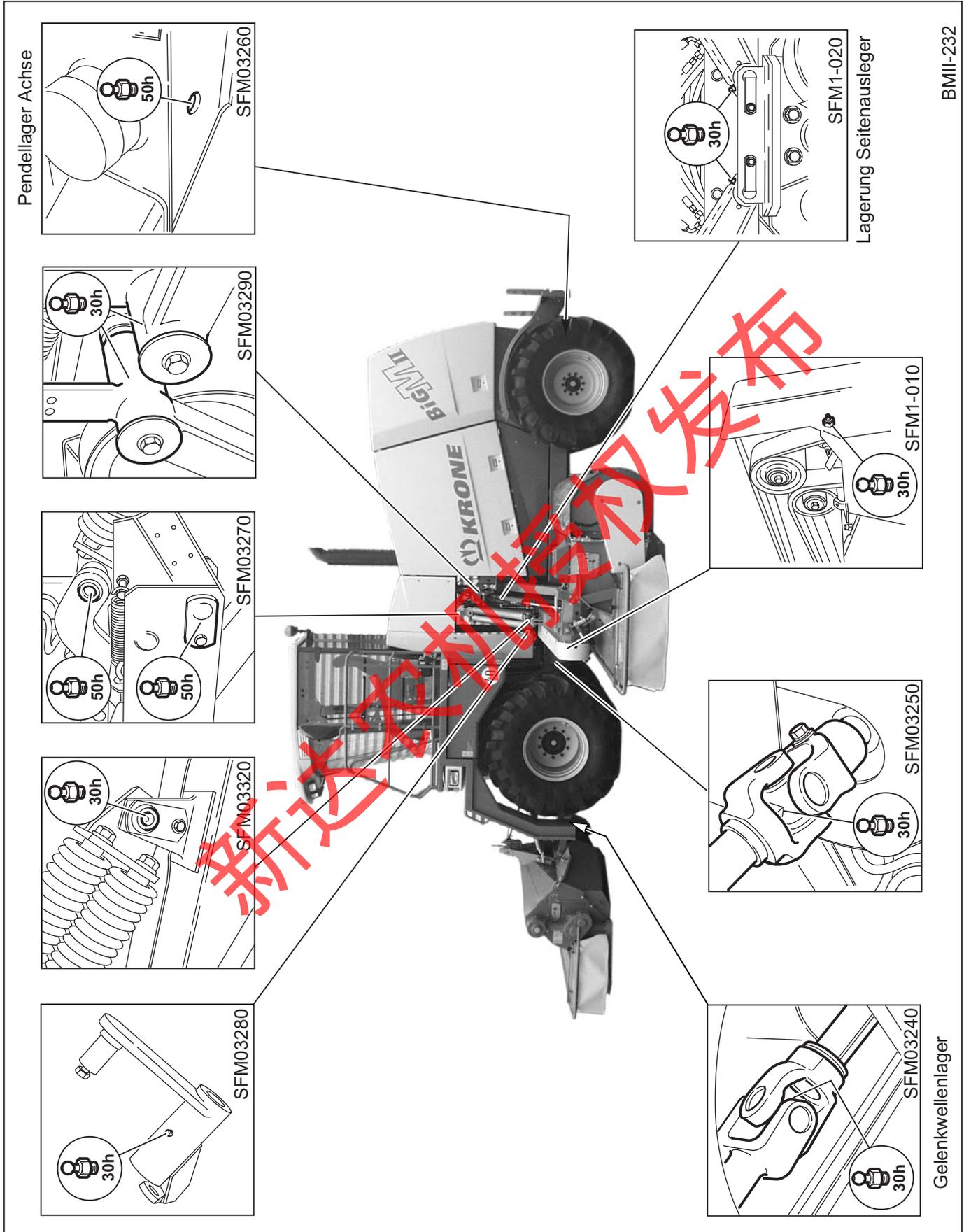
16.7 Every Year

- Have starter checked.
- Have alternator checked.
- Check hose connections on the air intake system.
- Check the air conditioning.

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16.8 Basic Machine Lubrication Chart



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16.9 Overview of Maintenance Schedule

Seq. No.	Name	Maintenance interval					Amount of con-sammable / fuel, etc.	Designation	Check point
		Before beginning of season	10 h or daily	First time after 50 h	200 h, at least once a year	500 h, at least once a year			
Oil level check									
1	Hydraulic tank	x	x				As needed	Hydraulic oil HLP 46 *	Viewing glass
2	Engine crankcase housing	x	x				Observe manufacturer's specifications for consumables, fuels, etc.	Measuring rod	
3	Transfer gearbox	x	x				As needed	Filling level screw	
4	Main gearbox of side mower CV	x	x				As needed	Measuring rod	
5	Front mower angular gearbox CV + CRi	x	x				As needed	Filling level screw	
6	Front mower input gearbox CV + CRi	x	x				As needed	Filling level screw	
7	Front mower speed gearbox (CV)	x	x				As needed	Filling level screw	
8	Angular gearbox CRi	x	x				As needed	Filling level screw	
9	Gearbox for top roller drive CRi (optional)	x	x				As needed	Filling level screw	
10	Front mower cutter bar CV + CRi	x	x				As needed	Filling level screw	
11	Cutter bar of side mower CV	x	x				As needed	Filling level screw	
Oil change									
1	Hydraulic tank				x	x	80 l	Hydraulic oil HLP 46 *	Viewing glass
2	Engine crankcase housing				x		25.4 l	Observe engine manufacturer's maintenance manual	Measuring rod
3	Transfer gearbox			x		x	6.0 l	Gear oil PGLP DIN 51502	Filling level screw
4	Main gearbox of side mower CV			x	x		2x 1.7 l	Gear oil SAE 90	Measuring rod
5	Front mower angular gearbox CV + CRi			x	x		1.7 l	Gear oil SAE 90	Filling level screw
6	Front mower input gearbox CV + CRi			x	x		0.7 l	Gear oil SAE 90	Filling level screw
7	Front mower speed gearbox (CV)			x	x		1.7 l	Gear oil SAE 90	Filling level screw
8	Angular gearbox CRi			x	x		0.9 l	Gear oil SAE 90	Filling level screw
9	Gearbox for top roller drive CRi (optional)			x	x		0.3 l	Gear oil SAE 90	Filling level screw
10	Front mower cutter bar CV + CRi			x	x		7.0 l	Gear oil SAE 90	Filling level screw
11	Cutter bar of side mower CV			x	x		2x 8.0 l	Gear oil SAE 90	Filling level screw

* Do not mix with other oils. Consult customer service before using other oils.



Lubrication Chart - Periodical Maintenance

Seq. No.	Name	Maintenance interval					Amount of con-sumable / fuel, etc.	Designation	Check point
		Before beginning of season	10 h or daily	First time after 50 h	200 h, at least once a year	500 h, at least once a year			
	Filter change								
1	Engine oil filter			x					
2	Hydraulic oil filter				x				
3	Air filter – main cartridge					x			
4	Air filter – safety cartridge								
5	Fuel filter				x				
6	Preliminary fuel filter				x				
7	Cab fresh air filter				x				
	Diesel engine								
1	Ribbed V-belt				x			Check condition	
2	Inspection of seal and general condition				x				
3	Check valve play, adjust as needed				x			Every 400 hours after first maintenance	
	Cooling system								
1	Coolant check		x				As needed	Ratio of antifreeze / water 50:50	Viewing glass on overflow container
2	Coolant change					x	44 l	Ratio of antifreeze / water 50:50	Viewing glass on overflow container
3	Clean radiator and radiator screen							Depends on how fast dirt accumulates	
	Air conditioning system								
1	Refrigerant check				x			Must be refilled by specialist workshop	Viewing glass on drier
2	Check the air conditioning system					x	7000g	R134a, specialist workshop must perform charge	
3	Cleaning the capacitor							Depends on how fast dirt accumulates	
4	Clean cab fresh air filter							Depends on how fast dirt accumulates	
5	Clean cab circulation air filter							Depends on how fast dirt accumulates	
	Gears								
1	Fan mode				x			Check belt tension	
2	Outrigger arms				x			Check belt tension	
1									
2									
3									



Seq. No.	Name	Maintenance interval					Amount of consumable / fuel, etc.	Designation	Check point
		Before beginning of season	10 h or daily	First time after 50 h	200 h, at least once a year	500 h, at least once a year			
	Air filter system								
	Check hose connections		x			x			
	Clean intake sieve (optional with pre-separator)		x						
	Clean main cartridge								When warning message appears
	Battery								
	Check voltage; recharge if necessary	x							
	Tyres								
1	Check battery for cuts and breaks		x						
2	Inspect tyre air pressure visually		x						
3	Measure tyre air pressure with instrument: weekly								
	Mowing units								
1	Inspect cutter, replace if necessary	x	x						
2	Inspect cutter fastening parts, replace if necessary	x	x						
3	Check for any damage and repair as necessary	x	x						
4	Check for any imbalance and remedy as necessary	x	x						

Lubricate according to lubrication charts
 Regularly check that nuts and bolts are properly seated and tighten if necessary.



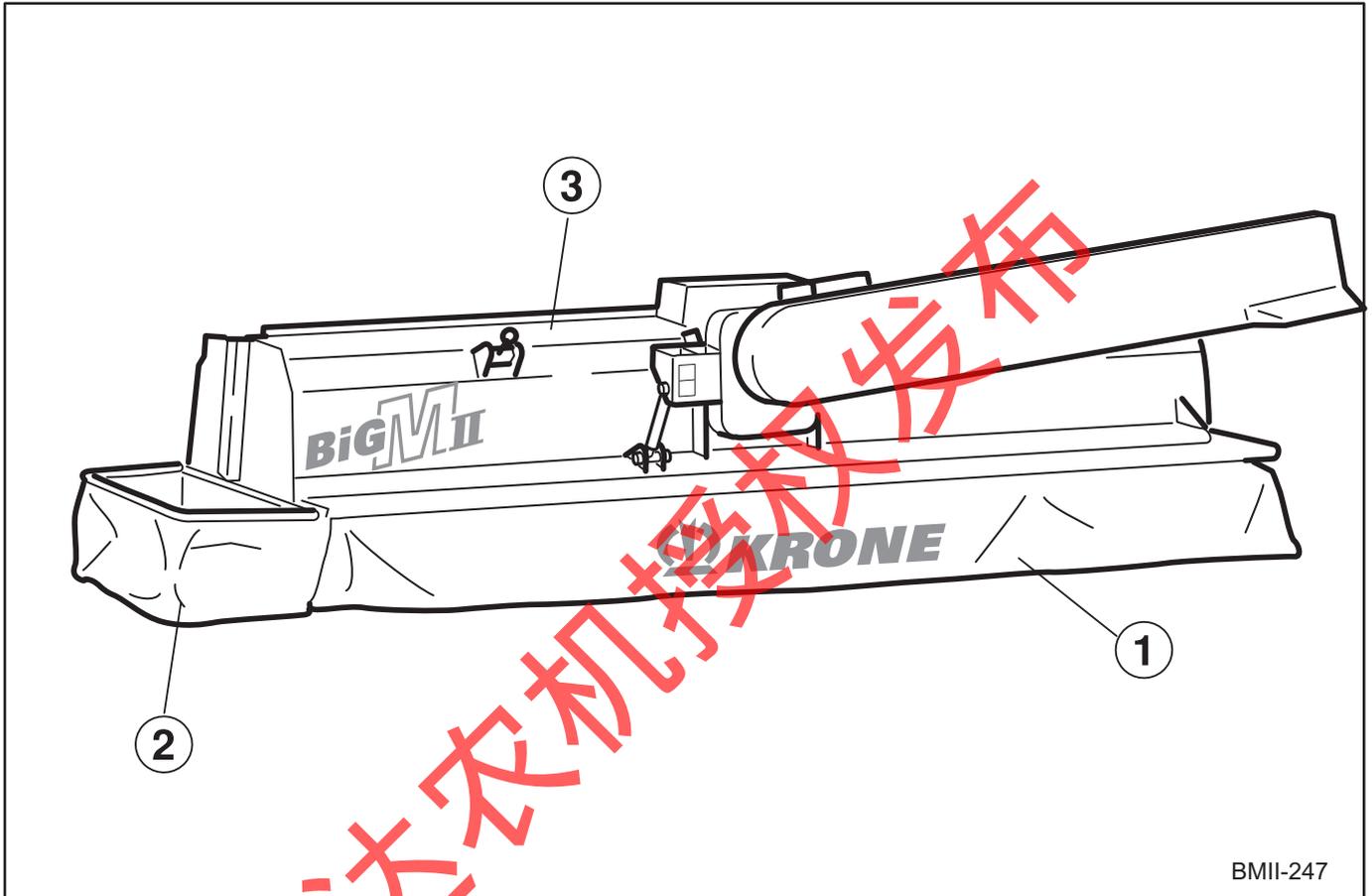
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A 1 Commissioning



- Before the first use of the high-performance mower-conditioner, all guard cloths supplied must be fitted to the front mower and to the lateral mowers.

A 1.1 Installing the guard cloths



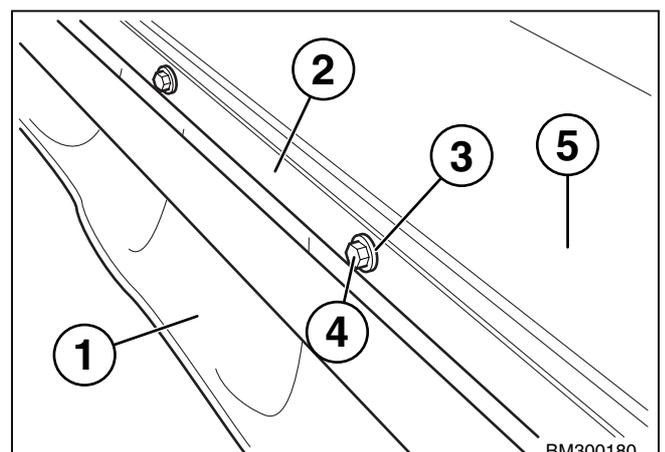
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- 1 - Lateral guard cloths
- 2 - Front guard cloths
- 3 - Mowing unit

- Fit guard cloths (1) to mowing unit (5) using the enclosed strips (2), washers (3) and bolts (4).

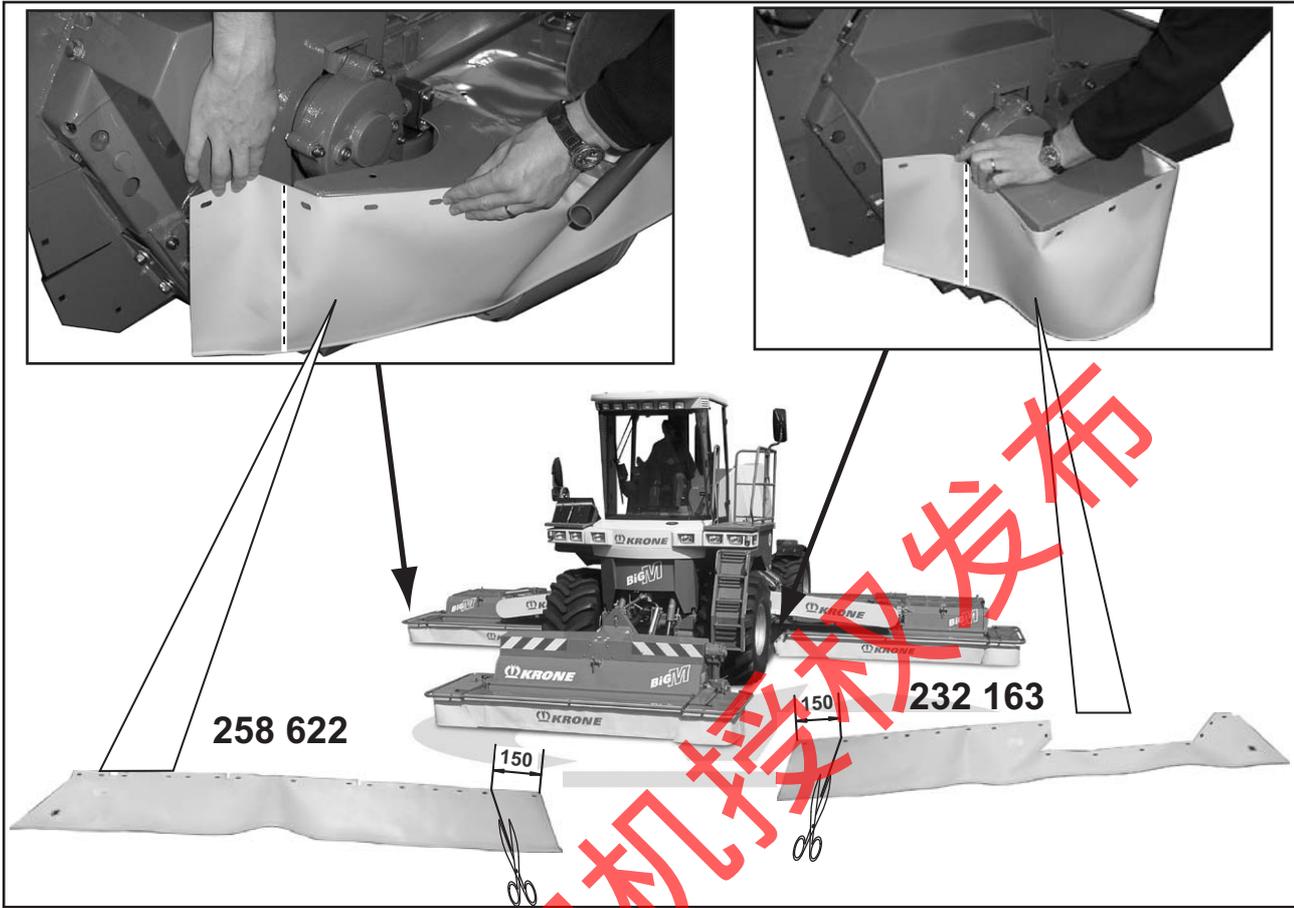


The hem of the guard cloths should always face the inside.



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A 1.2 Guard cloths (CRI with top roller drive)



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A 1.3 Parameters

Setting the fold down time

From series 2004:

No.	Parameters	Min.	Max.	Default	Value	Level	Meaning
713	time_unlock_mower [sec]	0	5	1	1	Driver	Fold down time During the "fold down" time, first the "Lift" + "Force off" valves are actuated together. Only after this time does the "Lower" valve replace the "Lift" valve. Therefore, the ratchet mechanism can be released more simply.

Series 2001-2003:

No.	Parameters	Min.	Max.	Default	Value	Level	Meaning
713	time_unlock_mower [sec]	0	5	1	3	Driver	Fold down time During the "fold down" time, first the "Lift" + "Force off" valves are actuated together. Only after this time does the "Lower" valve replace the "Lift" valve. Therefore, the ratchet mechanism can be released more simply.

Setting the diesel tank

From series 2004:

No.	Parameters	Min.	Max.	Default	Value	Level	Meaning
719	fuel_volume [1=560/0=700]	0	1	0	0	Driver	Specifications of the fuel tank volume.

Series 2001-2003:

No.	Parameters	Min.	Max.	Default	Value	Level	Meaning
719	fuel_volume [1=560/0=700]	0	1	0	1	Driver	Specifications of the fuel tank volume.

Setting the hydraulic cutting height adjustment

From series 2007:

No.	Parameters	Min.	Max.	Default	Value	Level	Meaning
745	cut_high_sensor [1=rel/0=abs]	0	1	1	1	Driver	Specification of the sensors 0=absolute, i.e. with inclination sensors. 1=relative, i.e. with distance measurement cylinder (front) and angle sensors (side).

Series 2001-2006:

No.	Parameters	Min.	Max.	Default	Value	Level	Meaning
745	cut_high_sensor [1=rel/0=abs]	0	1	1	0	Driver	Specification of the sensors 0=absolute, i.e. with inclination sensors. 1=relative, i.e. with distance measurement cylinder (front) and angle sensors (side).

Setting the diesel consumption

From series 2005:

No.	Parameters	Min.	Max.	Default	Value	Level	Meaning
742	fuel_consumption [1=ON/0=OFF]	0	1	1	1	Driver	Diesel consumption measurement.

Series 2001-2004:

No.	Parameters	Min.	Max.	Default	Value	Level	Meaning
742	fuel_consumption [1=ON/0=OFF]	0	1	1	0	Driver	Diesel consumption measurement.

Setting the service

No.	Parameters	Min.	Max.	Default	Value	Level	Meaning
760	service_status [1=due/2=done]	0	2	0	0	Driver	Service interval status 0=Service interval still not reached. 1=Service interval reached. 2=Service has been carried out.

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