KRONE

Operating Instructions
150 000 052 00 EN

Self-propelled
Forage Harvester
BiG X

(Machine No. 600 601 or higher)

EU Declaration of conformity

corresponding to the EC Directive 98/37/EC

We **Maschinenfabrik Bernard Krone GmbH**

Heinrich-Krone-Str. 10, D-48480 Spelle, Germany

declare in sole responsibility that the product

Type: **Self-Propelled Forage Harvester BiG X**

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

Spelle, 01.04.04

(Dr.-Ing. Josef Horstmann, Managing Director)

(Wolfgang Ungruh, Quality Assurance Manager)

Dear Customer:

This manual provides you with the operating instructions for the KRONE product you have purchased.

These operating instructions contain important information on the correct use and safe operation of the machine.

If for some reason these operating instructions should have become unusable in whole or in part, you may obtain replacement instructions for your machine by quoting the number mentioned overleaf.

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Contents

1 General Aspects

These operating instructions contain fundamental instructions. These must be observed in operation and maintenance. For this reason, these operating instructions must be read by operating personnel before commissioning and use, and must 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 self-propelled forage harvester BiG X is used to harvest and chop blades and leaves, maize and similar crops, when provided with front attachments in the works of the manufacturer.

1.2 Information on the product

1.2.1 General Aspects

These operating instructions are valid for the self-propelled forage harvester BiG X.

1.2.2 Address of the manufacturer:

Maschinenfabrik Bernard Krone GmbH
Heinrich-Krone-Str. 10
D-48480 Spelle (Germany)
Telephone: 0 59 77/935-0
Fax: 0 59 77/935-339
E-mail: info.ldm@krone.de

1.2.3 Declaration

EC declaration of conformity corresponding to the EC directive
See reverse side of title page

1.2.4 Designation

Vehicle identification plate

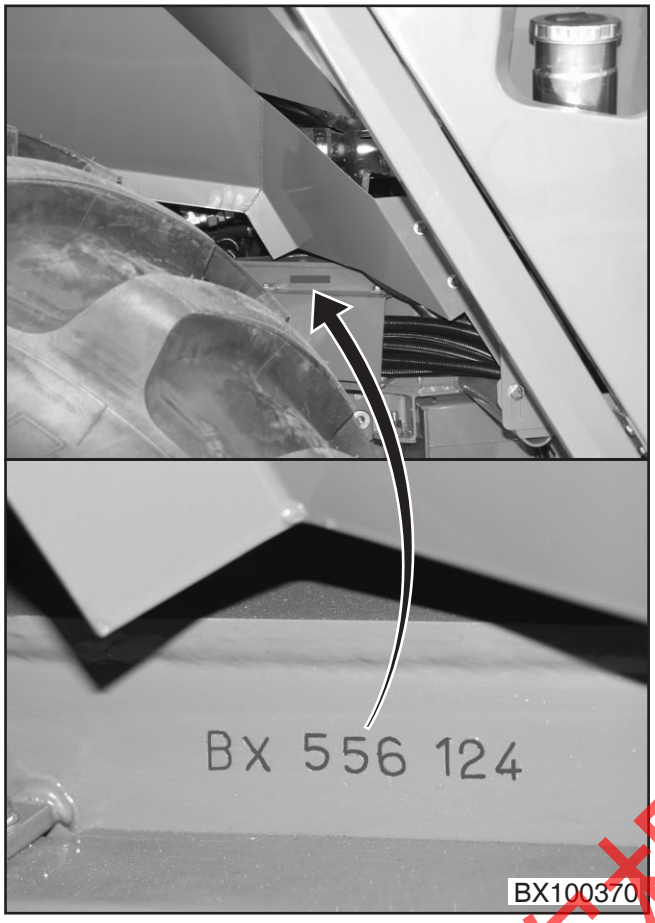
The machine data are rendered on a type plate (1), which is located on right front side of the machine.

Type	
Vehicle ID No.	
Year of construction	
Tank cover key number	

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

Vehicle frame number

The vehicle frame number is located in the wheel well of the right rear wheel.



1.2.5 Information for enquiries and orders

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

Original spare parts and accessories authorised by the manufacturer ensure safe use. Use of other parts may void the liability for any resulting damage.

1.2.6 Intended Use

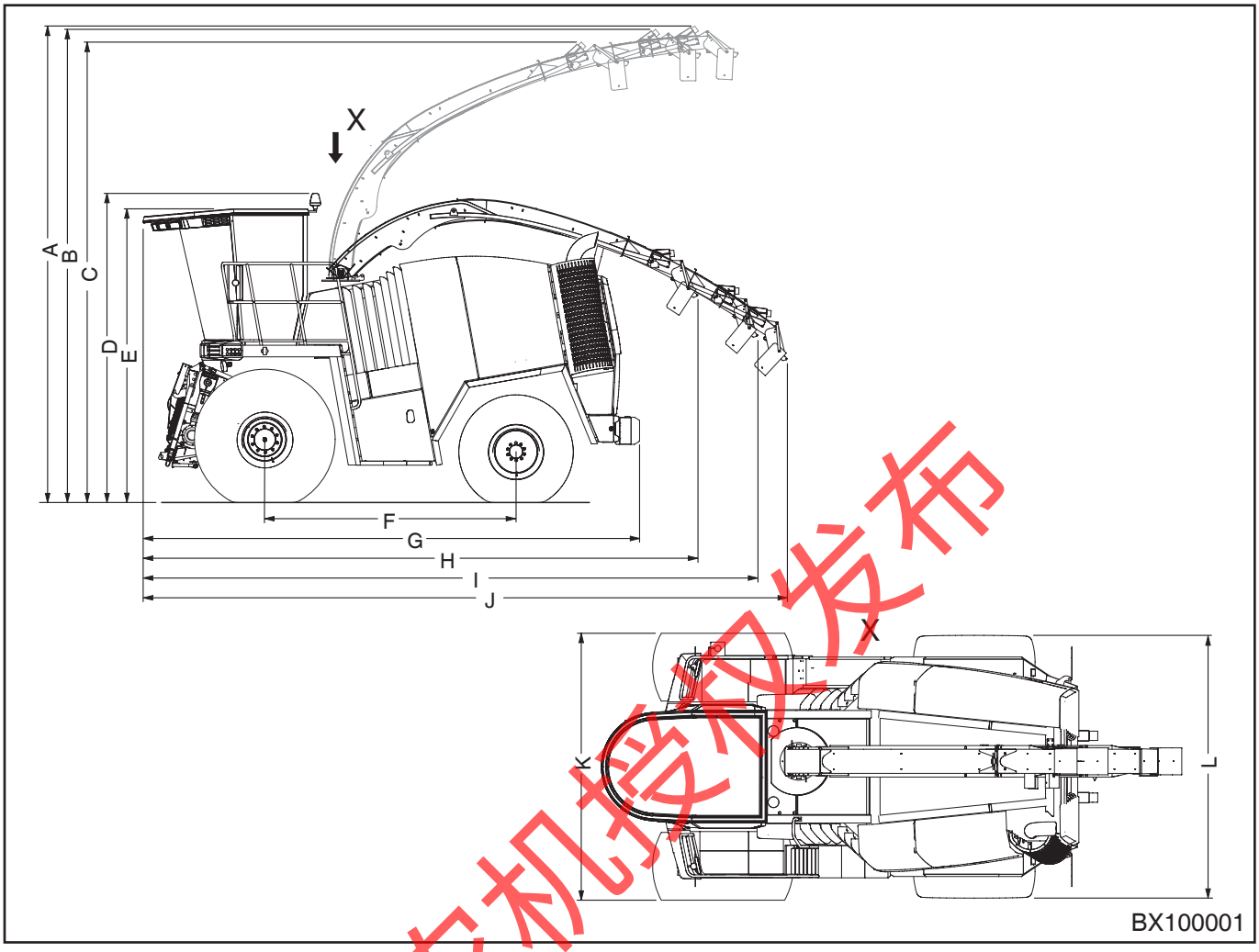
The self-propelled forage harvester "**BiG X**" is intended exclusively for the conventional use in agricultural or similar work (intended use).

Any use of the machine for other purposes is deemed not to be in accordance with specifications. The manufacturer shall not be liable for any resulting damage; the user alone shall bear the risk.

Use as intended includes compliance with the operating, maintenance and repair conditions specified by the manufacturer.

If unauthorised modifications are made to the machine, the manufacturer is released from liability for any resulting damage.

1.2.7 Technical Data



Tyres	650/19.5	710/600	800/600	900/710
A (mm)	6020	6080	6030	6080
B (mm)	5970	6030	5980	6030
C (mm)	5810	5870	5820	5870
D (mm)	3940	4000	3950	4000
E (mm)	3830	3890	3840	3890
F (mm)	3250	3250	3250	3250
G (mm)	6420	6420	6420	6420
H (mm)	7160	7160	7160	7160
I (mm)	7950	7950	7950	7950
J (mm)	8330	8330	8330	8330
K (mm)	3000	3200	3300	3460
L (mm)	3000	3200	3300	3400

Type		BiG X V8	BiG X V12
Motor manufacturer		Daimler-Chrysler	
Type of engine		OM 502LA	OM 444LA
Output at rpm	KW/HP	455/605	574/780
Cylinders		V-8	V-12
Stroke capacity	l	16	23.5
Harvesting attachment drive		Hydraulic, continuous	
Feed drive rollers/front baling rollers		6	
Feed drive rollers drive		Hydraulic	
Cutting length	mm	Continuous 4-22 mm	
Gathering drum width	mm	800	
Diameter	mm	660	
Speed	rpm	1,100	
Cutter arrangement/number of cutters		V-shaped 28	
Cuts/min		15,400	
Swivel range of discharge		210°	
Overload height	mm	approx. 6,000	
Travelling gear		Hydrostatic	
Vmax at engine speed 1600 rpm	km/h	40 km/h	
All-wheel drive		standard	
Spring-mounted steering axle		standard	
Comfort cab with driver information system		standard	
Air conditioning system		standard	
Air cushioned seat		standard	
Undercarriage		4 wheels	
Drive axle tyres Tread Michelin 650/65 R32		Direct drive provided by radial piston engines	
air pressure, refer to the section on Maintenance - Tyres		Michelin 800/65 R32TL Michelin 900/60 R32 TL Michelin 710/75 R34 TL	
Steering axle tyres air pressure, refer to the section on Maintenance - Tyres	Tread	Michelin 16.9 R28 Michelin 600/65 R28 TL Michelin 710/55 R30 TL	
Tightening torque for wheel nuts	Nm	485 drive axle/360 steering axle	
Hydrostatic travelling gear	Stage I Stage II Stage III	0 to13 km/h continuous (all-wheel drive) 0 to 17 km/h continuous 0 to 40 km/h continuous Connectable axle separation in stage I	
Drive pumps (double pump)		Absorption volume 105/75 ccm pressure 430 bar	
Wheel motors, front		Switchable 4250/1500 ccm	
Wheel motors, rear		Switchable 2099/1500 ccm	
Feed drive pump		Absorption volume 100 ccm pressure 430 bar	
Hydraulic engine feed drive		Absorption volume 75 ccm	
Front attachment pump		Absorption volume 75 ccm pressure 430 bar	
Hydraulic motor front attachment drive		Absorption volume 55 ccm	

1.2.8 Weights

1.2.9 Consumables

	Quantities Litres	Filtered oils Brand name	Bio-degradable lubricants Brand name
Diesel tank	Approx. 960	Diesel fuel (DIN EN 590) Please observe the operating instructions of the engine manufacturer!	
Engine oil OM 502	Approx. 35	Engine oil 5W40 Please observe the operating instructions of the engine manufacturer!	
Engine oil OM 444	Approx. 50	Engine oil 5W40 Please observe the operating instructions of the engine manufacturer!	
Hydraulic oil	Approx. 150	HLP 46	HE 46 (on request)
Coolant	Approx. 80	Anti-freeze (40L) / (40 L) water Mixing ratio 50:50 Please observe the operating instructions of the engine manufacturer!	
Gear of power takeoff	13.5 V8 13.0 V12	Gear oil PGLP DIN 51502	
Distributor gearbox	8.0	Gear oil PGLP DIN 51502	
Fan gear OM 502	1.7	Gear oil API-GL5-SAE85W-90	
Fan gear OM 444	1.7	Gear oil API-GL5-SAE85W-90	
Lower roller gear	5.0	Gear oil API-GL5-SAE85W-90	
Lower roller gear Upper tower	1.6	Gear oil API-GL5-SAE85W-90	
Upper roller gear	3.6	Gear oil API-GL5-SAE85W-90	
Compressor	0.2	Normal machine oil SAE20 or 20 W 40	
tower gearbox on the upper discharge chute	1,0	Gear oil API-GL5-SAE85W-90	

As a general rule, the oils listed in the chapter on maintenance/hydraulic can be used as well.

Do not mix different types of oil!
Viscosity class ISO VG 46.
Vegetable oil cannot be used.
Ask our after-sales department about the use of other oils.

1.2.10 Accompanying documents

- Engine operating instructions (DaimlerChrysler)
- Engine maintenance manual (DaimlerChrysler)
- Engine parts catalogue (DaimlerChrysler)
- Directives on consumables (DaimlerChrysler)
- List of spares parts BiG X (Krone)
- Operating instructions of the central lubrication system (Vogel)

All information, illustrations and technical data in this operating manual are in keeping with the latest state of technology at the point of publication. Design subject to modifications at any time without any stated reason.

2 Safety

2.1 Identifying important information in the Operating Instructions

Important safety instructions in the present operating instructions are identified with the general hazard symbol. Non-observance of these safety instructions may result in personal injury:

Safety symbol as per DIN 4844 - W9

General functional instructions are indicated as follows:

Instructions affixed directly to the machine must be complied with and kept in a completely legible condition by all means. If illegible, they must be replaced.

2.2 Safety instructions and accident prevention regulations

2.2.1 Personnel qualification and training

The self-propelled forage harvester BiG X may be used, maintained and repaired only by persons who are familiar with it and have been informed of the hazards involved. The operator must define areas of responsibility and arrange the monitoring of the personnel. Should personnel lack the required knowledge, they must receive the required training and instruction. The operator must ensure that the contents of these operating instructions have been fully understood by personnel.

Repair work not described in these operating instructions must only be carried out by authorised service centres.

2.2.2 Dangers in case of non-compliance with 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 comply with the safety instructions can lead to the forfeiture of any claims for damages.

If the safety instructions are not respected, this may result, **for example**, in the following hazards:

- Danger to persons through improperly safeguarded working areas
- Failure of important functions of the machine
- Failure of compulsory procedures for maintenance and repair
- Danger to persons due to detrimental mechanical and chemical effects
- Danger to the environment due to leaking hydraulic oil

2.2.3 Safety-conscious work practices

Always observe the safety instructions set out in these operating instructions, all existing accident prevention rules and any internal work, operating and safety rules issued by the operator.

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

The safety instructions of the vehicle manufacturer must be complied with.

Always 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. Always store the fire extinguisher and the first-aid kit close at hand. Always keep the numbers for emergency calls to physicians and the fire department ready at the telephone.

2.2.4 Safety and accident prevention regulations

1. In addition to the instructions in these operating instructions, you must comply with the generally applicable safety and accident prevention regulations!

2. The warning and safety signs affixed to the vehicle provide important information for safe operation. For your own safety always pay attention to these!

3. When using public roads, make sure that you 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. Users must wear close-fitting clothes. Avoid wearing loose or baggy clothing. Wear protective gloves when performing work in the vicinity of the crop conveying mechanisms.

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 out for children!) Make sure that you have a clear view!

8. You may carry passengers during operation and transport on the working implement only if they use the passenger seat provided.

9. Attach implements correctly! Only attach and secure implements to the prescribed devices!

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 (ropes, chains, rods, etc.) of remotely operated devices must be run so that they do not trigger unintended movements in any transport and working positions.

15. Ensure that implements are in the prescribed condition for road travel and lock them according to the instructions of the manufacturer!

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. Implements and ballast weights attached to the vehicle affect its driving, steering and braking response. For this reason, make sure that you are able to steer the machine and brake 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. Always keep the safety equipment in good working order. Replace missing or damaged parts.

22. Keep out of the working range of the machine at all times!

23. Do not stay in the swivel and ejecting range of the ejector!

24. Hydraulic hinged frames/lifting equipment may be operated only if no persons are in the swivel range!

25. Parts operated by external power (e.g. hydraulics) can cause crushing and shearing injuries!

26. Before leaving the forage harvester, lower the front attachments onto the ground, apply the holding brake, switch off the engine and remove the ignition key!

27. There must not be anyone between the forage harvester and the front attachment without the vehicle being secured against rolling off through the holding brake and/or wheel chocks!

2.2.5 Self-propelled work machine

1. When driving on public roads, the hazard warning lights or the revolving signal light and the excess width identification equipment must be used in compliance with the applicable national traffic regulations.

2. Switch on the lights so that the vehicle can be easily recognised.

3. Safety equipment.

4. Always check the machine for driving and operational safety before use.

5. Hold on to the hand grip when getting on and off the forage harvester.

6. It is not permitted to transport people on the platform.

7. The road safety switch must be in road position during road travel to ensure that all hydraulic functions - except for the steering and brakes – are deactivated.

8. Only drive the machine at the permitted speed.

9. Implements must be in transport position and locked in accordance with the manufacturer's instructions for road driving.

10. If the engine is running in an enclosed space, divert the exhaust fumes and ensure sufficient ventilation.

11. When using starting fluid, avoid ignition sources and naked flames. Keep starting fluid clear of batteries and electrical cables.

12. When passing through corners, always take into consideration the width of the front attachment and the fact that the rear of the forage harvester will swivel out. The condition of the ground influences the driving properties of the forage harvester.

13. Drive with care if you notice pits, ditches and obstacles; they can cause the forage harvester to overturn. This is particularly important on slopes.

2.2.6 Autopilot

1. The autopilot must only be used for its intended purpose. It must only be used in open fields, off public and semi-public roads, away from open areas frequented by people and far away from any persons that could be endangered. They must only be used for their intended purpose:
   - Automatic forage harvester guiding on a stalk-line row of plants.

2. Before placing autopilot in service, its full functionality must be verified and all its modules checked.
   To do this, the user should proceed as follows:
   - Check switching off of the autopilot when the steering wheel is moved and the door contact switch engages (open the door).
   - Check for proper operating condition - i.e. free of mechanical damages and leaks – row tracers, wheel angle transmitter as well as all visible hoses and wiring.

3. When the autopilot is in operation, there must be on one within 50 m of the forage harvester in any direction.

4. The operator is not permitted to leave the driver's cabin while the autopilot is in operation.

5. While the autopilot is in operation, the driver must regularly check the direction in which the machine is moving and its travel path to be able to take over manual control of the harvest forager immediately if obstructions or interruptions come up in the vehicle's path.

6. After the autopilot has been in operation and before leaving the field, the autopilot must always be switched off on the autopilot release switch on the console.

7. Manipulating safety-related elements of the autopilot is prohibited, as is making changes to the hydraulic, electrical or electronic components.

8. The autopilot should only be installed by an authorised service centre.

2.2.7 Implements

1. **Caution!** Once the drives have been switched off, a hazard remains from the flywheel which continues to turn by inertia! Keep away from the implement during this time. Be sure that the machine has come to a complete stop before starting any maintenance work!

2. Cleaning, lubricating and adjusting the implements must be carried out only when the drive is switched off, the engine switched off and the ignition key removed!

2.2.8 PTO operation

1. Only PTO shafts specified by the manufacturer may be used!

2. The protective tube and protective funnel of the PTO shaft as well as the PTO shield - also on the implement end - must be attached and in proper condition!

3. Make sure that the required tube covers for PTO shafts are in place in transport and working position!

4. Before installing or detaching PTO shafts, switch off the PTO shaft, turn the engine off and remove the ignition key!

5. When using PTO shafts with an overload or free-wheel coupling that is not covered by the protective equipment on the tractor, the overload or free-wheel couplings must be attached to the device!

6. Always make sure that the PTO shafts are mounted correctly and secured properly!

7. Secure the PTO shaft guard against turning by hooking in the chains!

8. Before switching on the PTO shaft, make sure that the selected PTO shaft speed of the tractor agrees with the permissible speed of the device!

9. Before switching on the PTO shaft make sure that no person is in the hazard area of the device!

10. Never switch on the PTO with the engine switched off!

11. While working with the PTO, nobody is permitted to stay in the range of the turning PTO or PTO shaft.

12. Always switch off the PTO in the case of excessive bending and if the PTO is not required!

13. **Caution!** After switching off the PTO, there is danger due to the inertia of the flywheel mass! Keep away from the implement during this time. Be sure that the machine has come to a complete stop before starting any maintenance work.

14. Cleaning, lubricating or adjusting PTO driven implements or the PTO shaft only with PTO disengaged, engine switched off and ignition key withdrawn!

15. Place the uncoupled PTO shaft on the holder provided!

16. After detaching the PTO shaft, fit the protective sleeve on the PTO stump!

17. Immediately repair any damage before working with the implement!

2.2.9 Hydraulic system

1. The hydraulic system is pressurised!

2. When connecting hydraulic cylinders and motors, make sure the hydraulic hoses are connected as specified!

3. When connecting the hydraulic hoses to the forage harvester hydraulics, take care that the hydraulic system is depressurised both on the tractor side and on the device side!

4. When functions are connected hydraulically between the forage harvester and the front attachment, coupling sleeves and plugs should be identified so that faulty operation is excluded! If the connectors are interchanged, the functions will be reversed (e.g. raising/lowering) - **Risk of accident!**

5. Check the hydraulic hose lines at regular intervals and replace them if damaged or worn! The replacement hose lines must meet the technical requirements of the device manufacturer!

6. When searching for leaks, use suitable aids to avoid the risk of injuries!

7. Liquids escaping under high pressure (hydraulic oil) can penetrate the skin and cause serious injury! In the case of injuries, seek medical assistance immediately. Risk of infection!

8. Before working on the hydraulic system, depressurise the system and switch off the engine!

2.2.10 Battery

1. Maintenance work on the batteries requires sufficient knowledge and mounting tools according to the instructions.

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 an acid tester or voltmeter.

4. Never charge a frozen battery. **Explosion hazard!** Warm the battery to 16 °C beforehand.

5. Battery acid can cause severe injuries by burning your skin and eyes. For this reason, wear suitable protective clothing.

2.2.11 Cooling system

A heated cooling system is pressurised – **Burning hazard**! For this reason, only remove the radiator cap with the engine switched off and after the engine has been able to cool.

2.2.12 Tyres

1. When working on the tyres, make sure that the device is in a safe position and has been secured against rolling (wheel chocks).

2. You must have adequate knowledge and the proper tools to undertake the work of fitting wheels and tyres!

3. Repair work on the tyres and wheels should only be carried out by specially trained personnel and only tools appropriate to the job should be used!

4. Check tyre pressure regularly! Inflate the tyres to the recommended pressures!

5. Check the wheel nuts periodically! Missing wheel nuts can result in a wheel falling off and the machine tipping over.

2.2.13 Emergency exit

There is an emergency hammer in the cab. In emergency situations, you can use it to smash the cabin window.

2.2.14 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. Please remember that during operation of the forage harvester, the overall height of 4 m is exceeded considerably due to the upper discharge chute.

3. 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.

4. Always keep the safety distances according to the table.

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

2.2.15 Fire prevention measures

1. Before starting to work, make sure the fire extinguisher is in a condition according to the regulations and familiarise yourself with how to use it.

2. The associated fire extinguisher must be serviced periodically. If it was used, it must always be refilled, even if you only used it very briefly.

3. To avoid fire hazards, always keep the forage harvester clean! In particular remove any crop wound around rotating parts.

4. The forage harvester is also used to process very dry crop (hay, straw), which constitutes an imminent fire hazard.

5. The fire hazard can be reduced by removing accumulated crop from the machine several times a day (interval depends on the type of crop) and checking the machine components for overheating. Check for oil leaks or exiting oil and take corrective action. Heed the lubricating instructions. Take special care when regrinding the cutting blades – fire hazard due to flying sparks! Before regrinding the blades, clear the vicinity of the machine of any crop/substances that may catch fire!

6. Frequently check the hydraulic oil lines thoroughly for proper condition and position with sufficient clearance to contact edges that may be sharp.

7. Check the vicinity of the hot zones of the engine, the exhaust system and pipes and the turbo charger, and remove crop residues.

8. Take great care when handling fuels. Never fill in fuel in the vicinity of unshielded flames or sparks that may cause ignition. Do not smoke when filling in fuel! Extreme fire hazard.

2.2.16 Maintenance

1. Always perform repair, maintenance and cleaning work as well as troubleshooting only when the drive is switched off and the engine stopped!
   - Remove the ignition key!

2. The audio coastdown alarm, which is sounded after the main drive is switched off, does not relieve the operator of the obligation to make certain the machine is at an absolute standstill before working on it.

3. Regularly check that nuts and bolts are properly seated and tighten them if necessary!

4. When performing maintenance work with the implement raised, always secure it with suitable supporting elements.

5. When replacing working tools with cutting edges, use suitable tools and gloves!

6. **Dispose of oils, greases and filters according to the regulations!**

7. Always disconnect the power supply before working on the electrical system!

8. If protective devices and guards are subject to wear, check them regularly and replace them in good time!

9. When performing repair and electric welding work on the forage harvester, always switch off the engine, disconnect the power supply via the battery power switch and disconnect the plug of the electric system from the PLD controller on the engine!

10. Replacement parts must, as a minimum, comply with the technical requirements set by the manufacturer of the implements!
    This is ensured by using genuine KRONE replacement parts!

11. Use only nitrogen for filling pneumatic accumulators - **Explosion hazard!**

2.2.17 Telephones and radio sets

Telephones and radio equipment not connected to an external antenna may cause malfunctions in the electronic system of the vehicle and thus jeopardising the operating safety of the vehicle.

2.2.18 Unauthorised conversion/ modification and manufacture of spare parts

Modifications to the machine are permitted only with the prior approval of the manufacturer. Original spare parts and accessories authorised by the manufacturer ensure safe use. The use of other parts may void the liability for any consequential damage.

2.2.19 Non-permissible modes of operation

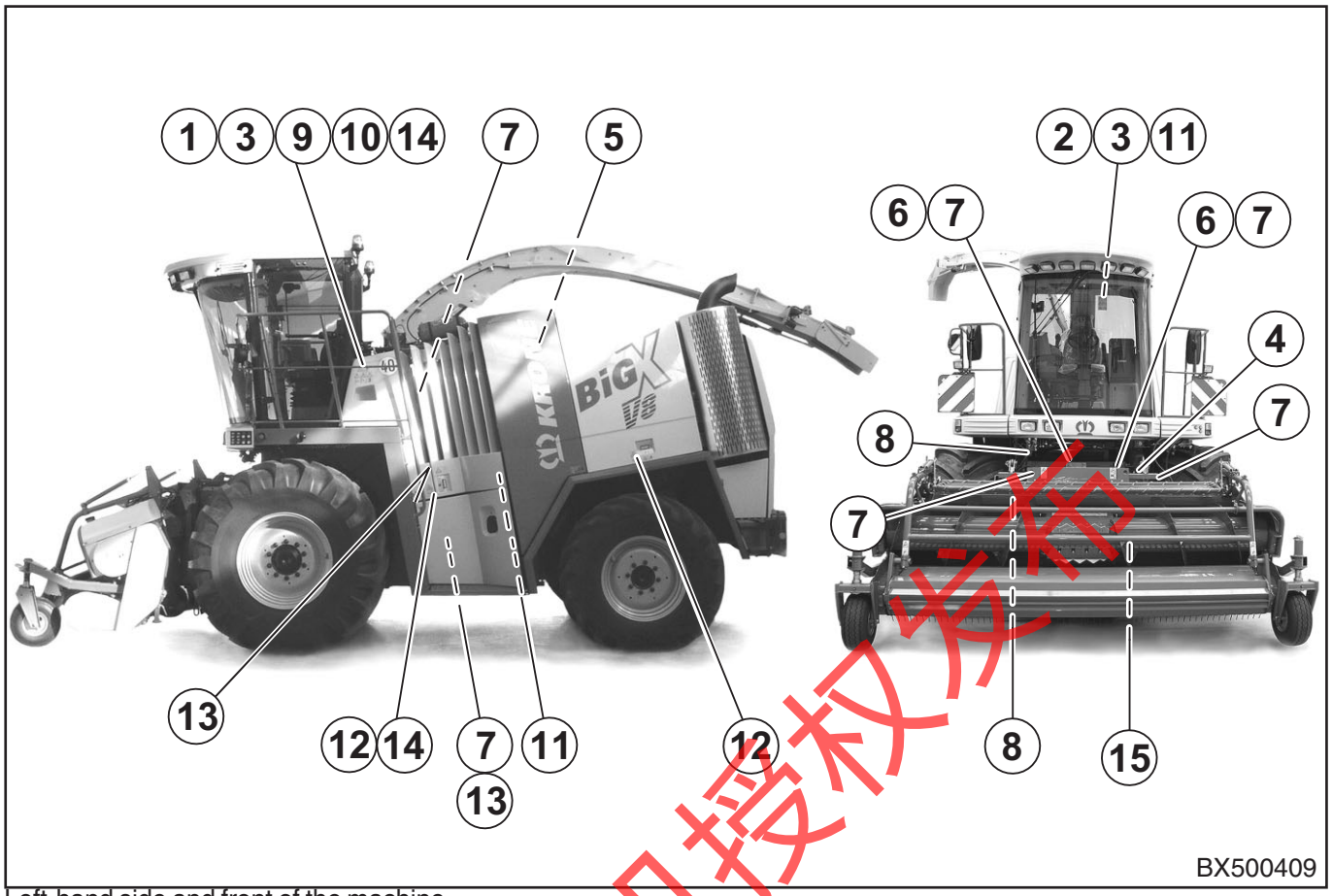
The operational safety of the machine is only guaranteed if it is used for its intended purpose in accordance with the Chapter "General Information" of these operating instructions. The limit values stated in the data sheets must not be exceeded under any circumstances.

2.3 Safety instructions on the machine

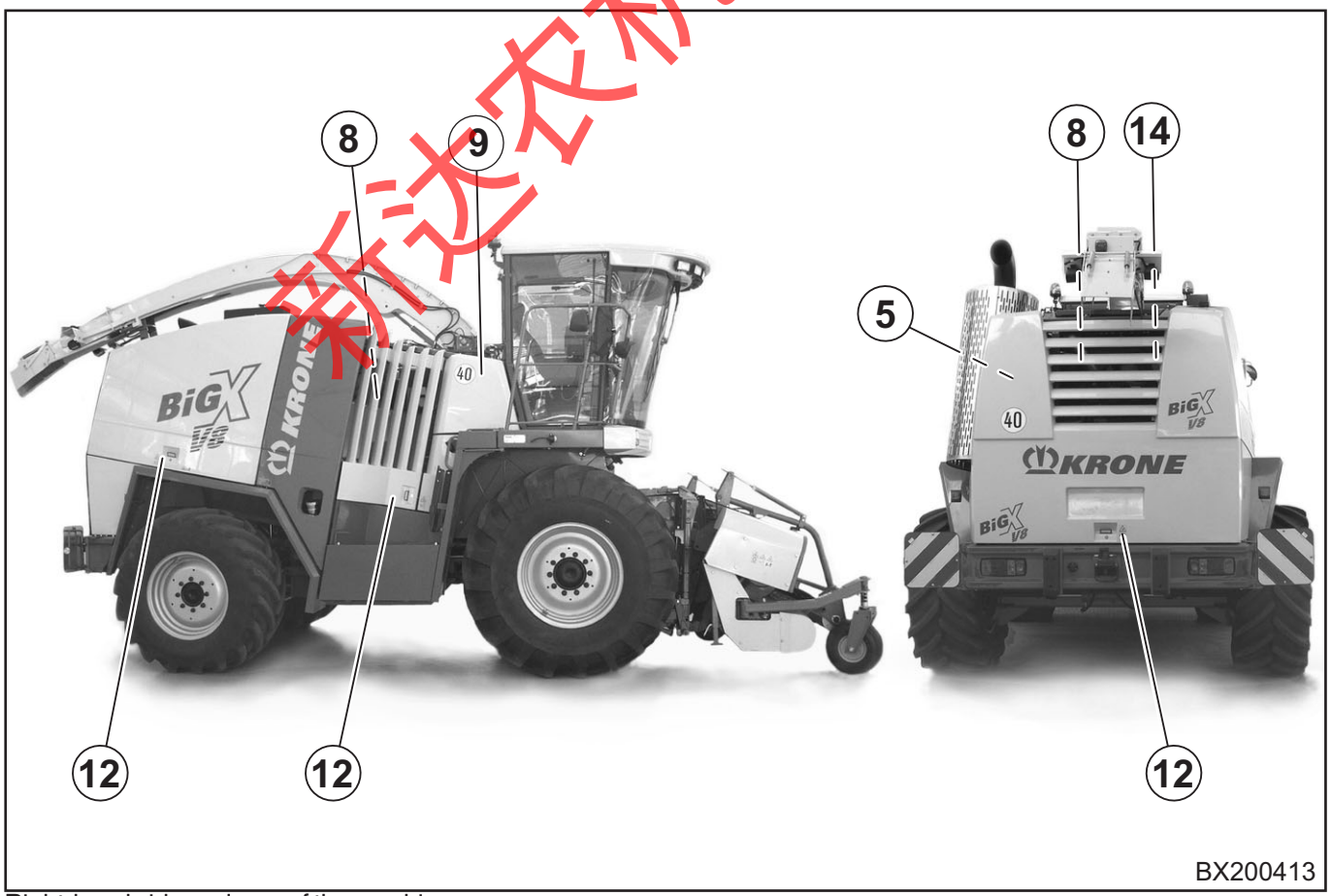
The self-propelled forage harvester BiG X is equipped with all the required safety equipment (protective devices). However, it is not possible to eliminate all potential hazards on this machine since to do so would impair its full functional capability. You will find corresponding hazard warnings on the machine that point out the residual risks.
We have implemented the hazard warnings in the form of warning pictograms.
In the following, you will find important information on the locations of these warning pictograms and an associated description/supplementation!

Familiarise yourself with the statement of the warning pictograms.
The adjacent text and the selected location on the machine provide information on the special danger spots on the machine.

2.3.1 Location of the warning pictograms on the machine

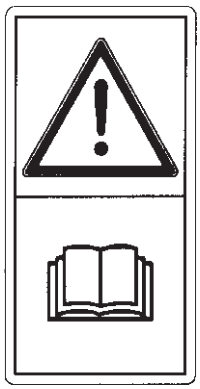


Left-hand side and front of the machine



Right-hand side and rear of the machine

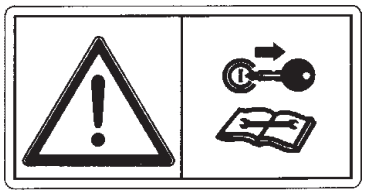
(1)



Before placing the machine into operation, read the operating instructions and safety instructions. Both must be heeded.

Order No. 939 471-1 (1x)

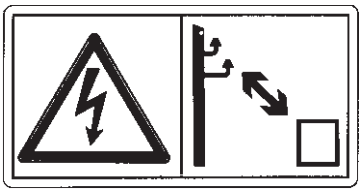
(2)



Before performing maintenance and repair work, switch off the engine and remove the ignition key.

Order No. 942 289-0 (1x)

(3)



Keep the stipulated safe distance to power transmission lines.

Order No. 942 293-0 (2x)

(4)

Keep sufficient distance to rotating machine parts.

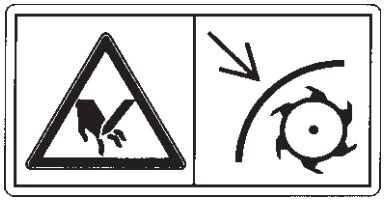
Order No. 942 200-1 (1x)

(5)

Burning hazard! Hot surface, keep sufficient distance.

Order No. 942 210-0 (2x)

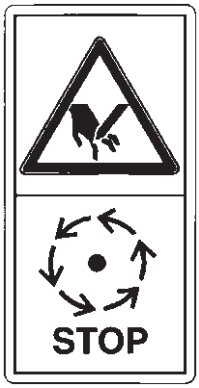
(6)



While performing grinding work, keep your distance. Close the protective cover once you have completed the grinding work.

Order No. 942 294-0 (2x)

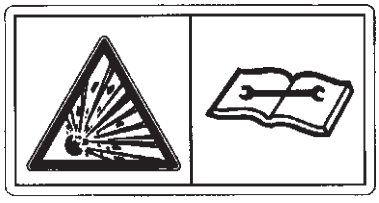
(7)



Never touch any moving machine parts.
Wait until they have come to a complete stop.

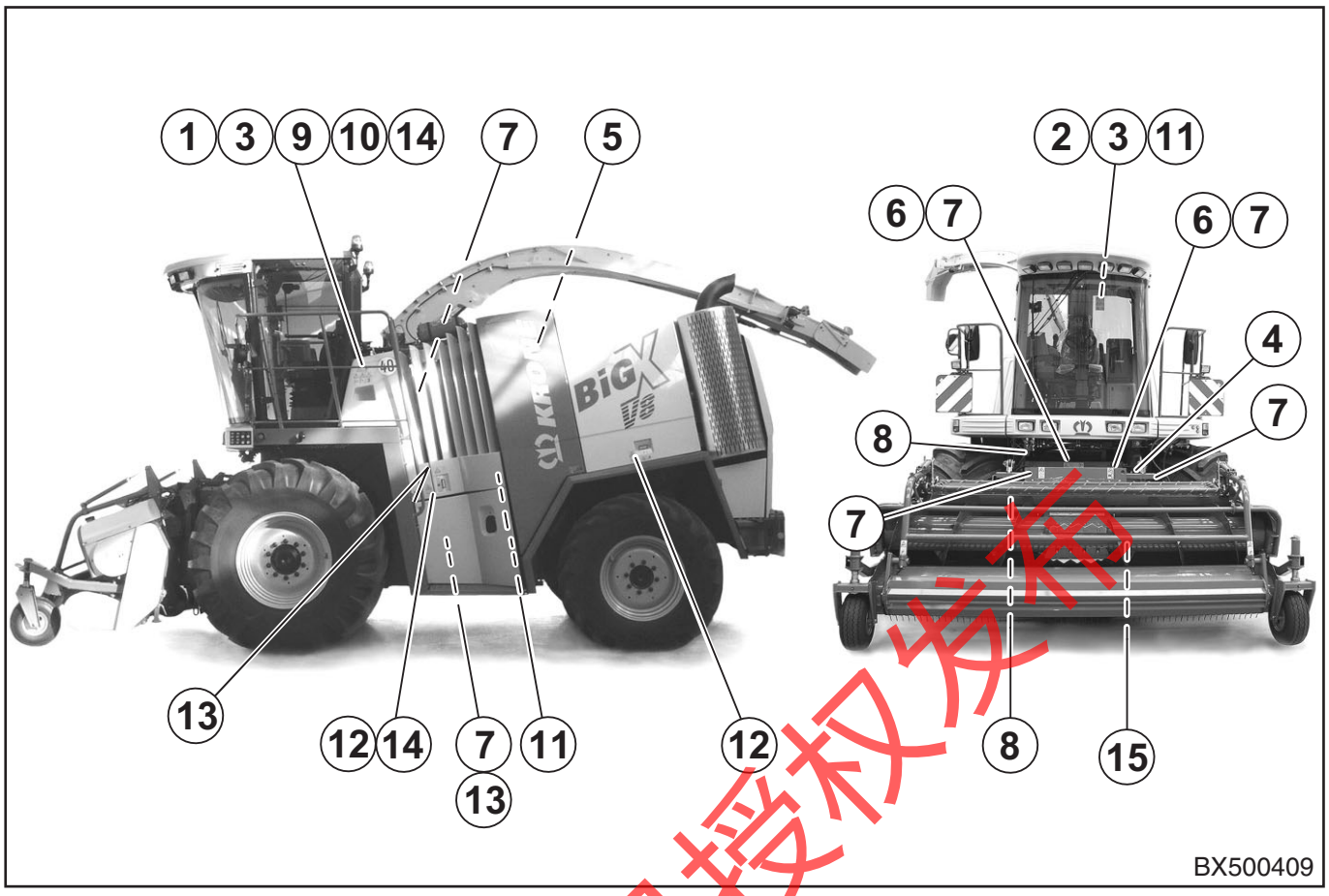
Order No. 939 410-2 (5x)

(8)

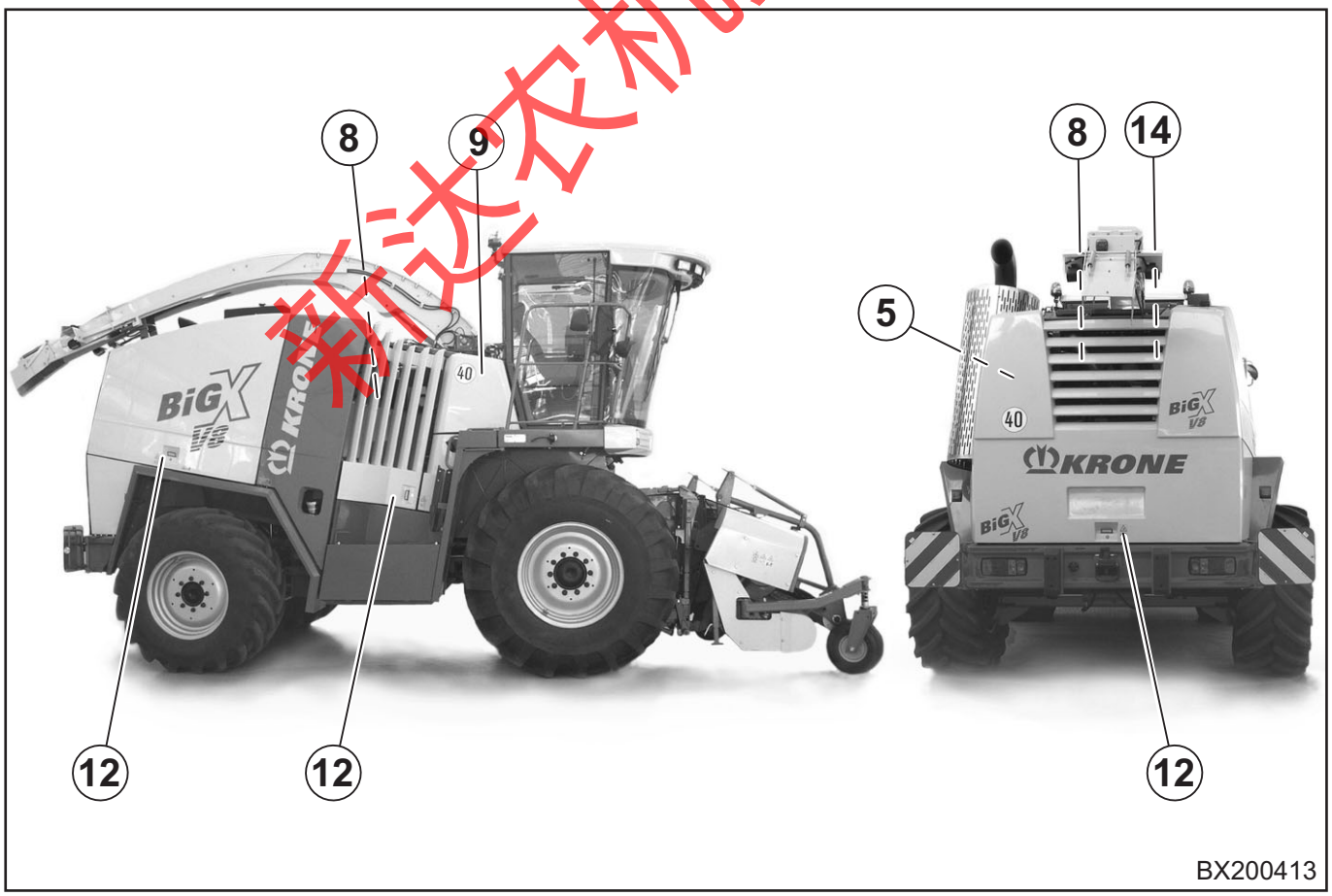


The pressure accumulator is under gas and oil pressure.
Always perform dismounting and repair work exclusively in compliance with the instructions in the technical manual.

Order No. 939 529-0 (3x)

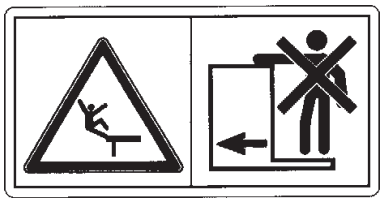


Left-hand side and front of the machine



Right-hand side and rear of the machine

9



It is impermissible to carry passengers on ladder steps or platforms.

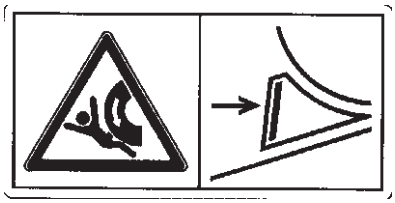
Order No. 942 291-0 (2x)

10

The machine may be taken into operation only when a suitable fire extinguisher is at hand.

Order No. 942 290-0 (1x)

11



Before parking the machine, secure it with wheel chocks against unintended rolling.

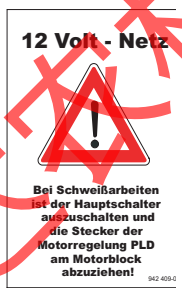
Order No. 942 250-0 (1x)

12

Do not open or remove the protective equipment when the engine is running.

Order No. 942 002-4 (5x)

13



When performing welding work, switch off the power switch and disconnect the plug of the PLD engine timer from the engine block!

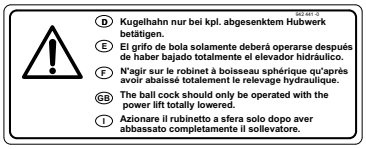
Order No. 942 409-0 (1x)

14

When performing welding work, switch off the power switch and disconnect the plug of the PLD engine timer from the engine block!

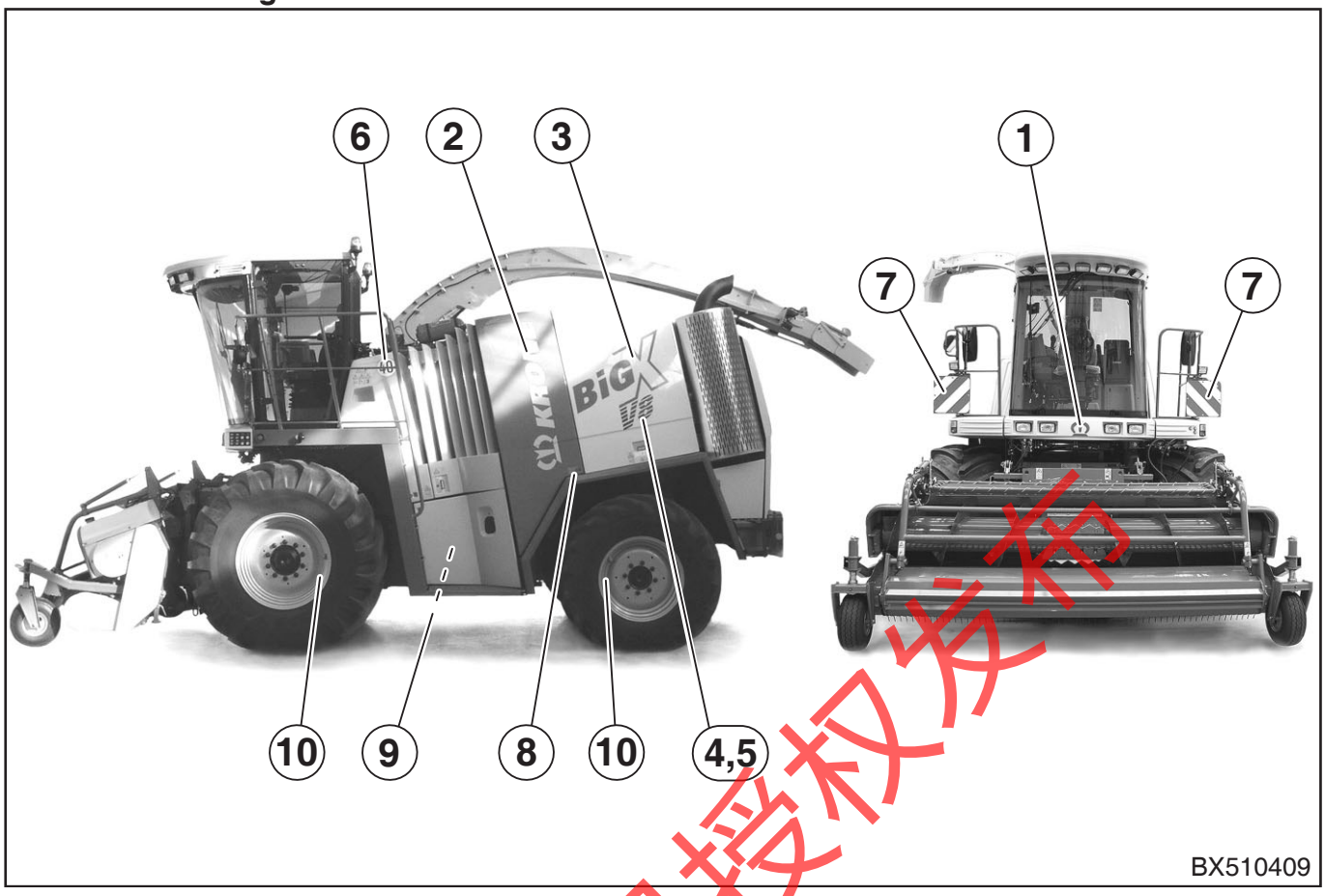
Order No. 942 408-0 (1x)

15

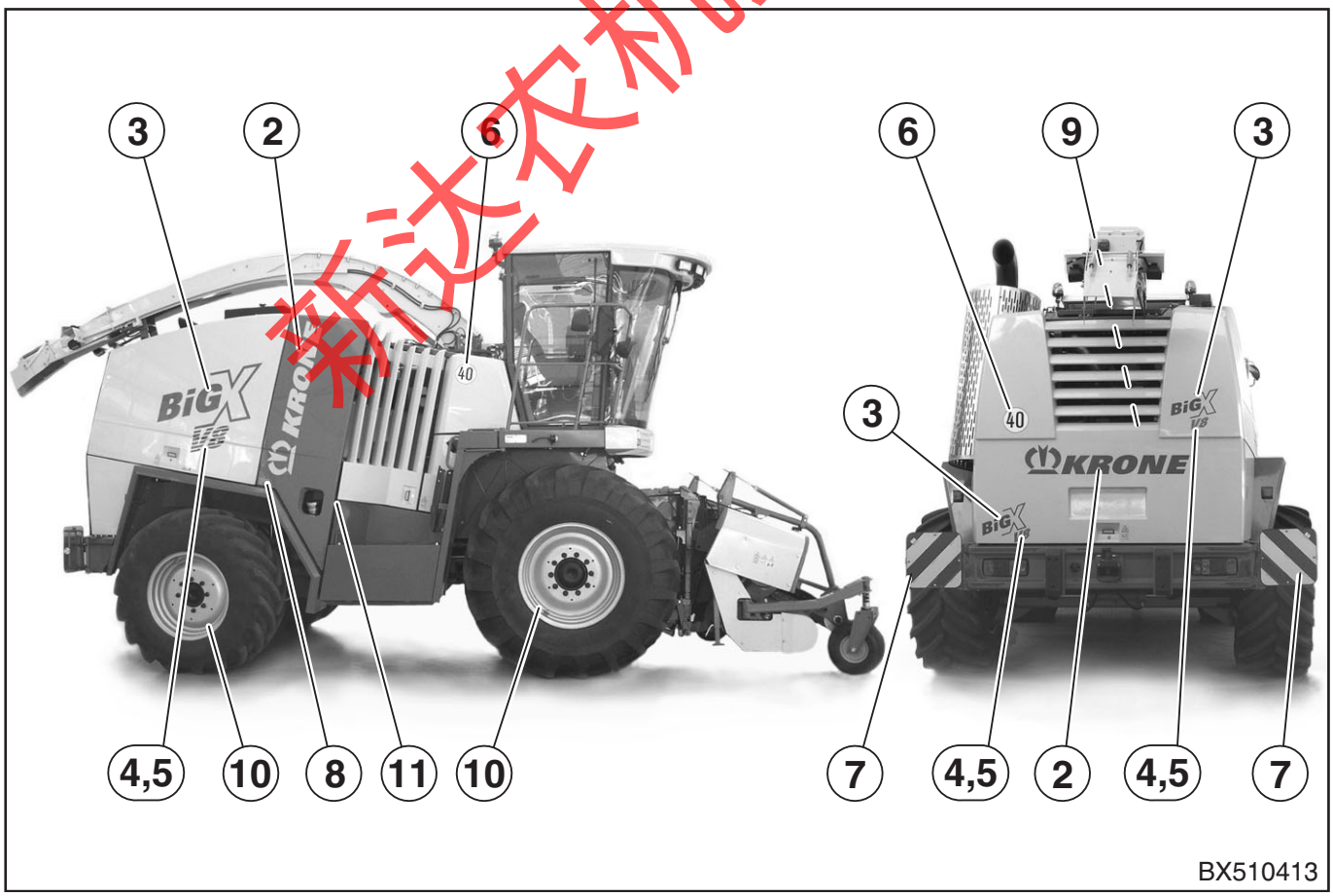


Order No. 942 441-0 (1x)

2.3.2 Location of general labels on the machine



Left-hand side and front of the machine



Right-hand side and rear of the machine

(1)

942 434 0 (1x)

(2)

942 393 0 (2x), length of 1400, beige
942 392 0 (2x), length of 1250, green

(3)

942 395 0 (2x), length of 1098, green
942 394 0 (2x), length of 395, green

(4)

942 398 0 (2x), length of 414, anthracite
942 396 0 (2x), length of 148, anthracite

(5)

942 399 0 (2x), length of 414, anthracite
942 397 0 (2x), length of 213, anthracite

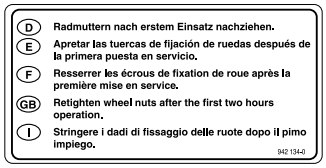
(6)

939 145 1 (3x)

(7)

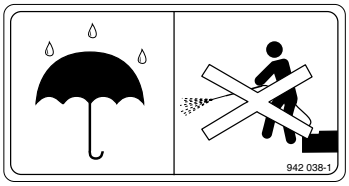
924 569 0 (4x)

(8)



942 134 0 (2x)

(9)

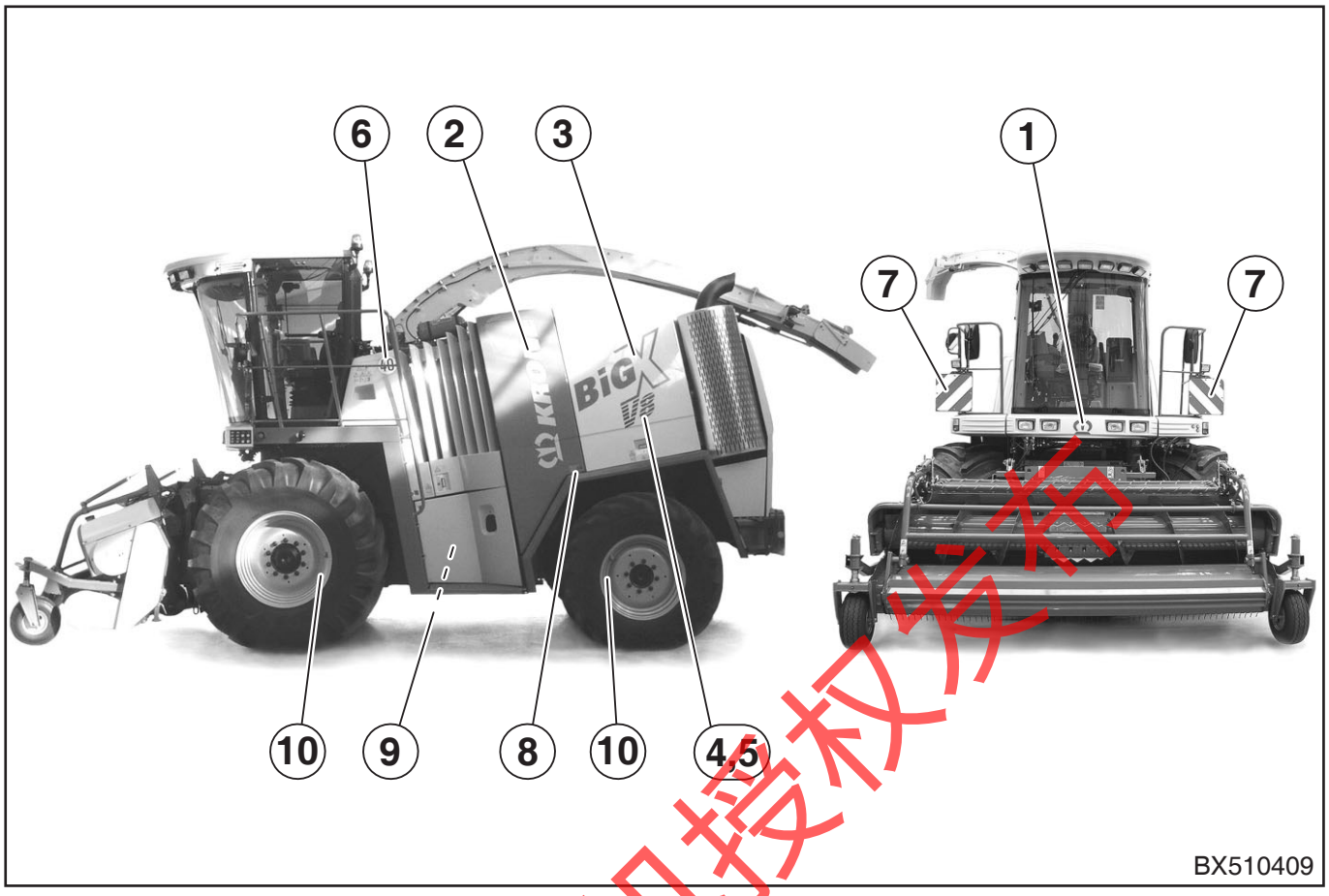


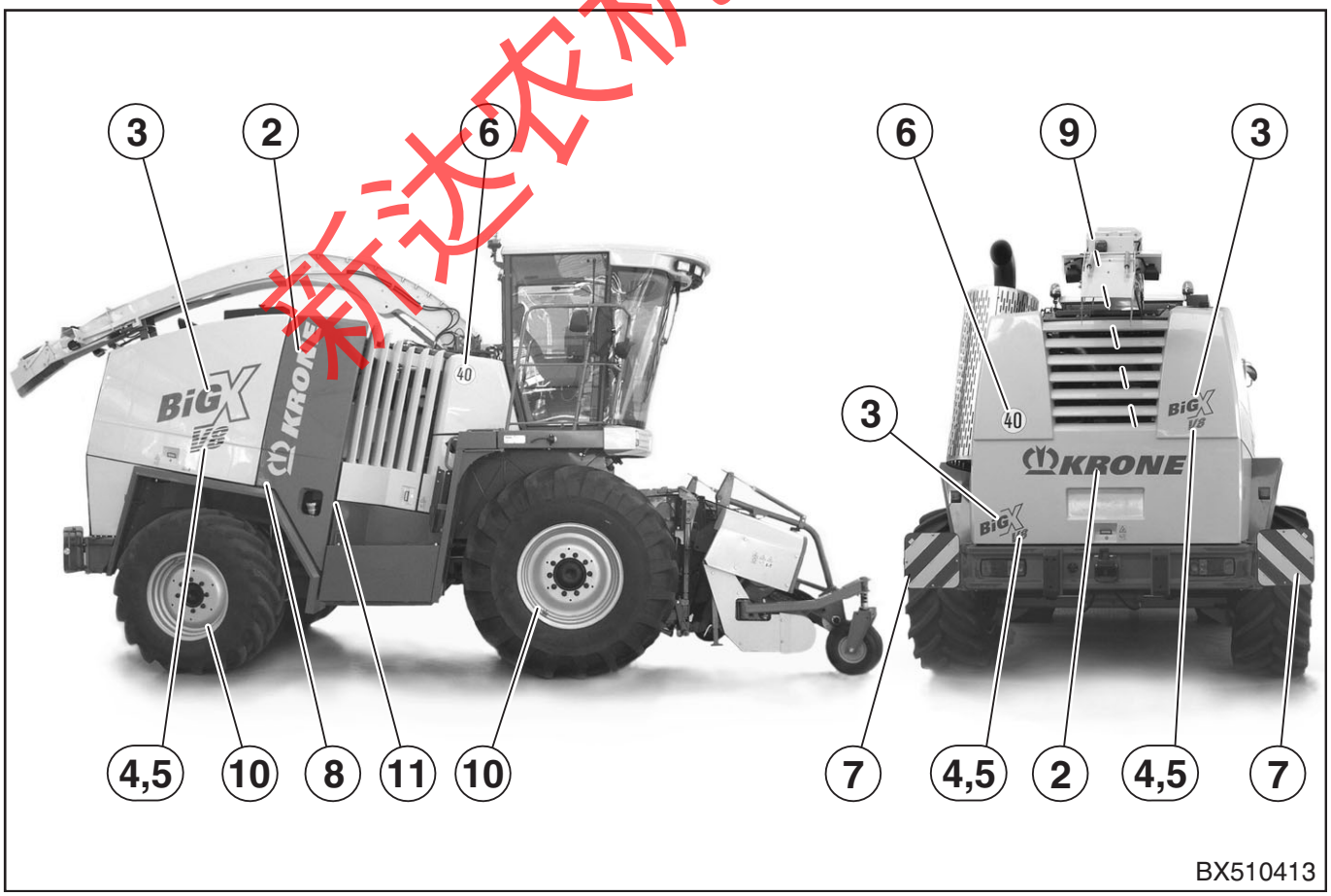
942 038 1 (4x)

(10)

942 377-0	1.6 bar
942 432-0	1.8 bar
939 170-1	2.0 bar
942 418-0	2.4 bar
942 233-0	2.7 bar
942 433-0	3.2 bar

(4x)
Also refer to
Technical Data


6
2
3
1
7
7
10
9
8
10
4,5
BX510409


3
2
6
6
9
3
3
4,5
10
8
11
10
7
4,5
2
4,5
7
BX510413

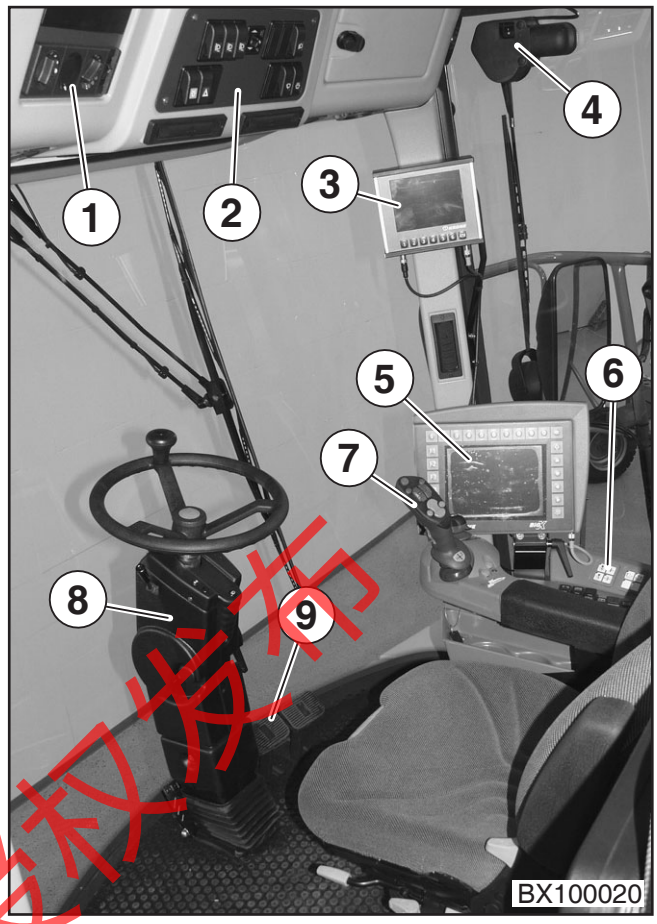
(11)

942 529-1 (1x)

BiG X V8			Reifenluftdruck Tyre pressure			BiG X V12	
Bereifungstyp wheel type	Achse axle	km/h	Easyflow 3000 (Solomaschine) (solo machine)	EasyCollect 6000	EasyCollect 7500	EasyCollect 9000 *	max. (bar)
710/75 R 34 178 A8	VA FA	40	1,6	2,4	3,2	1,7	3,2
		10	1,0	1,4	1,7	1,7	
600/65 R 28 154 A8	HA RA	40	2,4	2,4	2,1	2,4	2,4
		10	1,4	1,4	1,2	1,0	
800/65 R 32 172 A8	VA FA	40	1,2	2,4	2,4	1,6	2,4
		10	1,0	1,3	1,4	1,6	
600/65 R 28 154 A8	HA RA	40	2,4	2,1	2,1	2,4	2,4
		10	1,4	1,2	1,4	1,0	
900/60 R 32 176 A8	VA FA	40	1,2	2,0	2,4	1,4	2,4
		10	1,0	1,2	1,4	1,4	
710/55 R 30 153 A8	HA RA	40	1,6	1,6	1,6	1,6	1,6
		10	1,0	1,0	1,0	1,0	
942-529-1						* = Strassenfahrt ohne EasyCollect 9000 * = on road out of EasyCollect 9000	

3 Operators controls

3.1 Overview



1 - Switch group – air conditioning/heating

2 - Switch group – roof panel

3 - Camera monitoring system (optional)

4 - Side window wiper (right/left) (optional)

5 - Info Centre

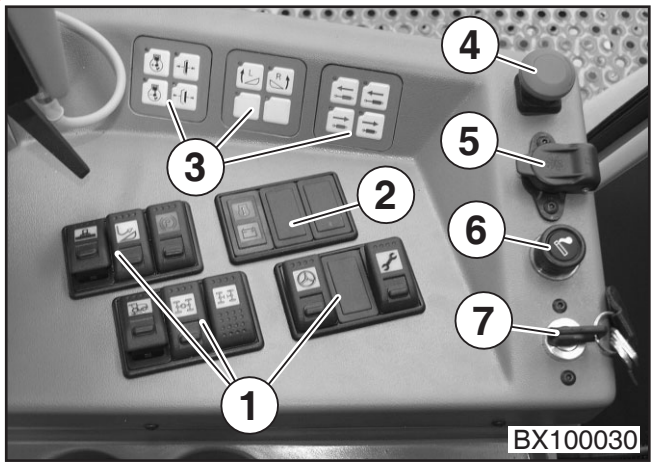
6 - Switch panel

7 - Multi-function lever

8 - Steering column

9 - Operating brake

3.2 Switch panel



1 - Panel switches

2 - Pilot lamps

3 - Keyboards

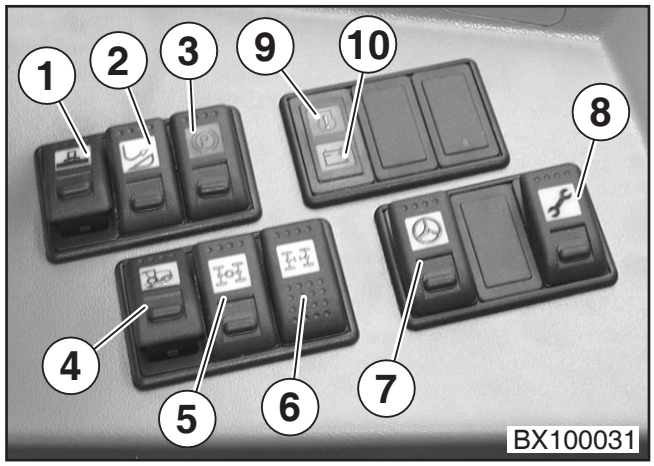
4 - Instantaneous stop switch

5 - 12-Volt socket

6 - Cigarette lighter

7 - Ignition lock

3.2.1 Panel switches and pilot lamps



1 - Release switch – road/field

2 - Release switch – feed drive/front attachment

3 - Release switch – holding brake

4 - Release switch – travelling gear

5 - Release switch – all-wheel drive

6 - Axle separation key

7 - Release switch – autopilot

8 - Release switch - maintenance

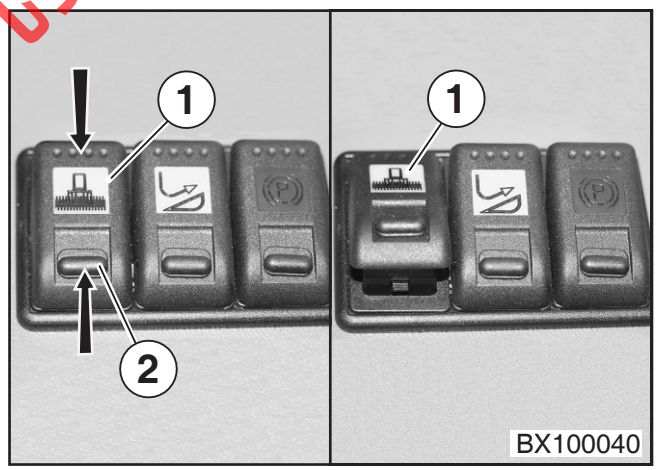
9 - Engine failure indicator light

10 - Charge indicator light

Actuating release switches

The release switches are locked against unintentional actuation.

- To actuate the release switches (1), push the lock (2) forward and press the release switch.

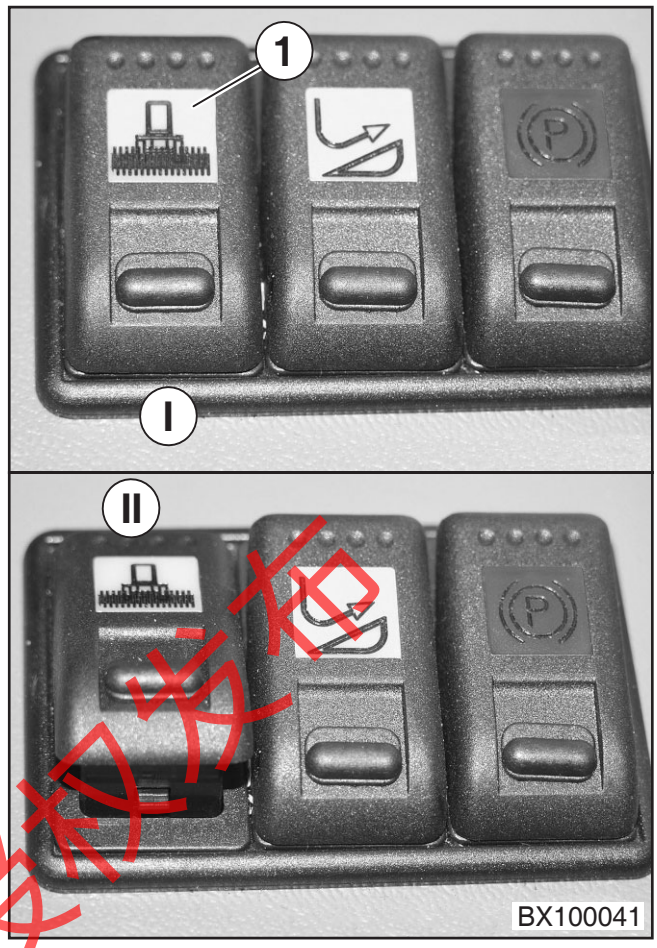


3.2.2 Release switch – road/field

When travelling on roads, the road/ field release switch must be set to the position "I".
This ensures that only the travelling gear, the steering mechanism and the brakes are active.

The road/field release switch (1) is used to switch from road travel to field operation and vice versa.

I - Road travel
II - Field operation

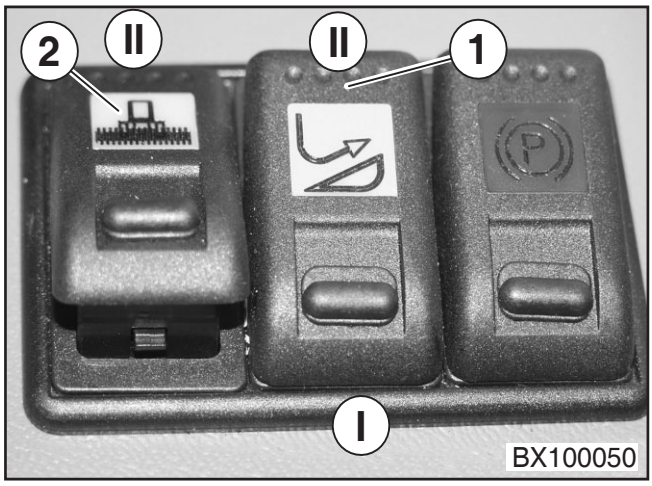


3.2.3 Release switch – feed drive/front attachment

Actuating the feed drive/attachment release switch (1) releases the feed drive rollers and the corresponding attachment.

- The road/field release switch (2) must be set to field operation (**II**).

I - Feed drive/front attachment off
II - Feed drive/front attachment on

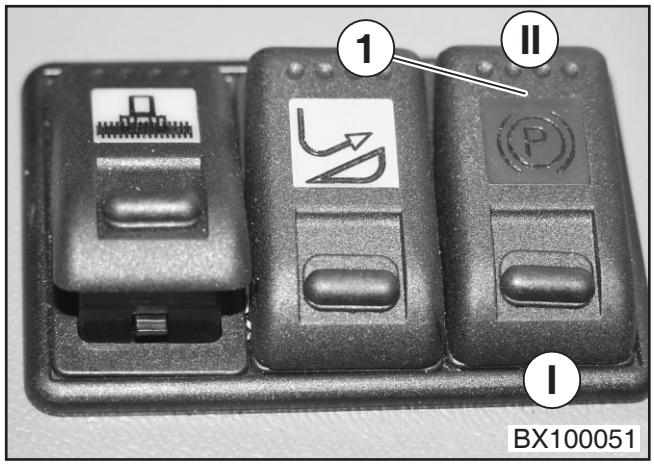


3.2.4 Release switch – holding brake

Driving for an extended period of time with the holding brake applied will result in overheating of the brake.

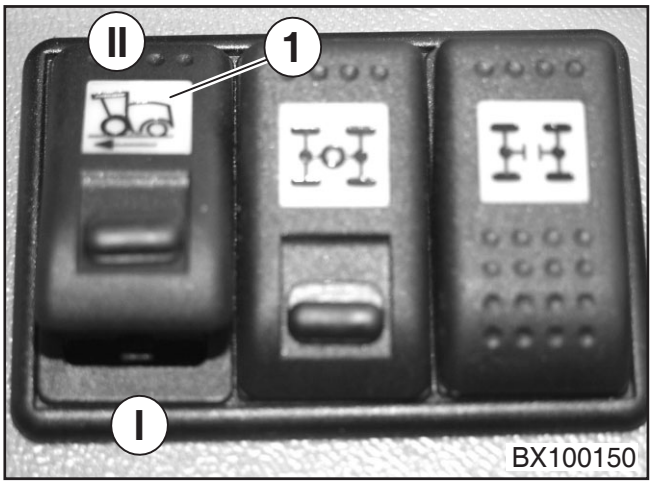
I - Holding brake released
II - Holding brake applied

The holding brake is applied automatically when the ignition is switched off.



3.2.5 Release switch – travelling gear

When the travelling gear release switch (1) is actuated, the travelling gear is released.



No persons may be present in the direct hazardous area of the machine when the travelling gear release switch is actuated!

Always remove the ignition key when leaving the driver's cab. To switch off the forage harvester, actuate the holding brake switch and set the travelling gear switch (1) to the off position (I).

I - Travelling gear off

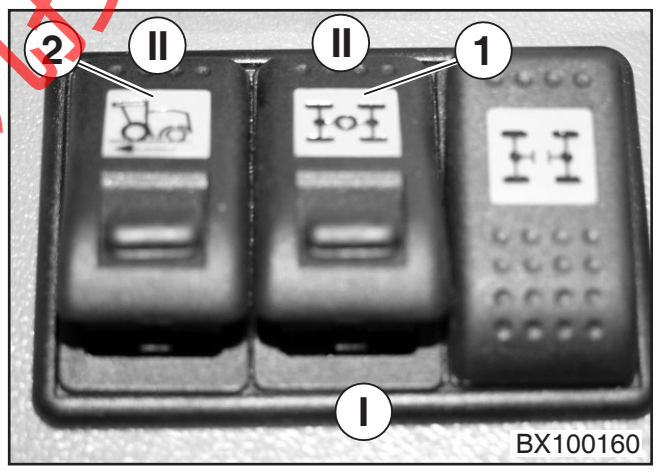
II - Travelling gear on

When the travelling gear is switched on (**II** position), the maintenance functions (manual operation on the left platform) are not released.

3.2.6 Release switch – all-wheel drive

Actuating the all-wheel drive release switch (1) connects all-wheel drive.

- The road/field release switch must be set to field operation.
- The travelling gear release switch (2) must be switched on (**II**) and the forage harvester must be at a standstill.

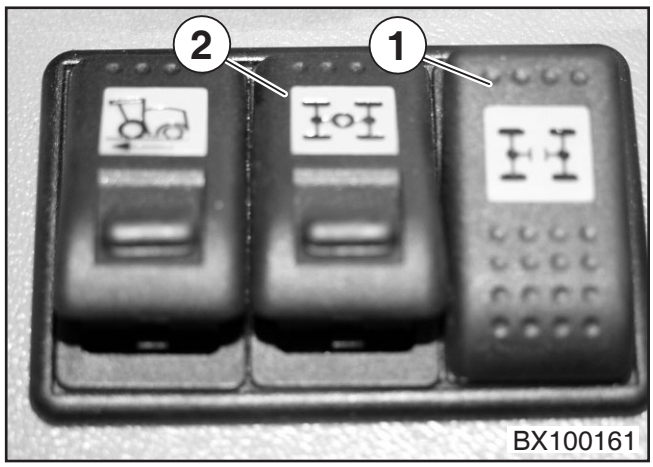


I - All-wheel drive switched off

II - All-wheel drive switched on

3.2.7 Axle separation key

Actuating the axle separation key switches axle separation on or off.



- The all-wheel drive release switch (2) must be switched on; the drive speed must be below 10 km/h.
- Actuate axle separation key (1) – axle separation switched on.
- Actuate axle separation key (1) again – axle separation switched off.

When all-wheel drive is switched off, axle separation is also switched off.

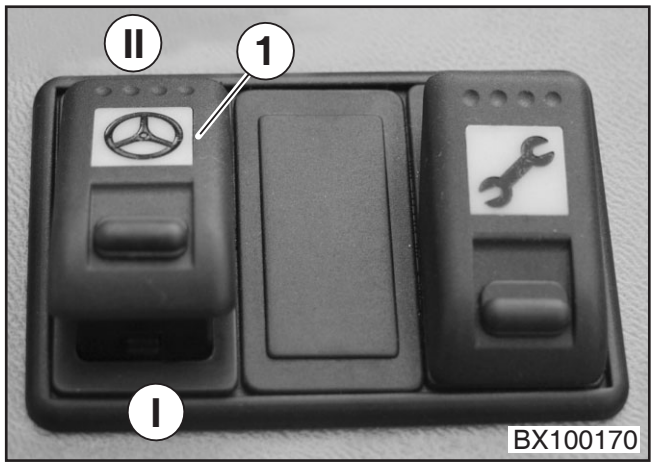
3.2.8 Release switch – autopilot

Actuating the autopilot release switch (1) releases the autopilot function.

The autopilot is available only in maize operation when the EasyCollect maize header has been attached.

- The road/field release switch must be active in field operation and the travelling gear release switch must be switched on.

I - Autopilot off
II - Autopilot on

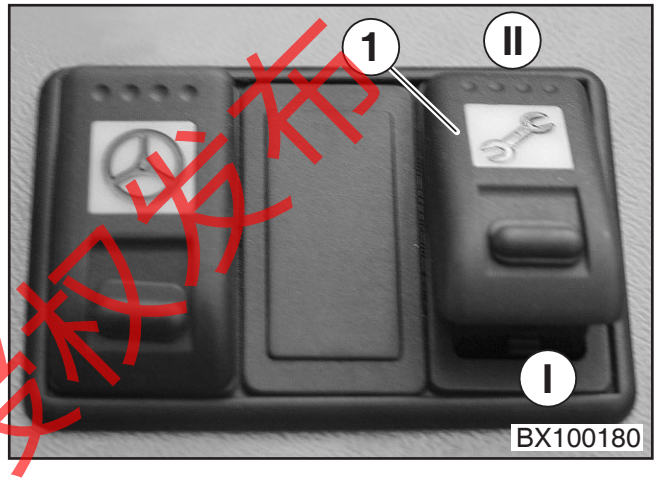


3.2.9 Release switch - maintenance

Actuating the maintenance release switch (1) releases all maintenance functions (manual operation on the left platform).

- The road/field release switch must be active in field operation and the travelling gear release switch must be switched off.

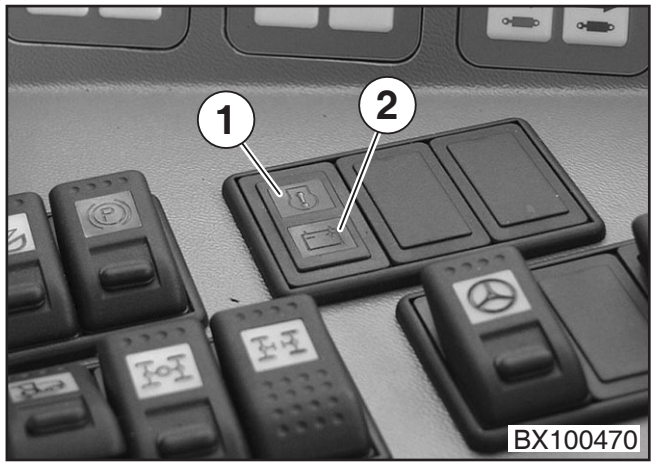
I - Maintenance off
II - Maintenance on



3.2.10 Engine failure indicator light

The engine pilot lamp (1) will light up as soon as a failure in the engine is detected.

Switch the engine off immediately. Rectify the fault.



3.2.11 Charge indicator light

The charge indicator light (2) will light up, if the output voltage of the three-phase generator is not sufficient to charge the batteries.

- Check the cables and connections on the three-phase generator and on the batteries. Check the V-belt on the three-phase generator.

3.2.12 Keyboards

1 - Increase engine speed (V8 only)

1a - Regulate engine speed (V12 only)

2 - Reduce engine speed (V8 only)
Both keys pressed at the same time = full throttle
Both keys pressed at the same time = idle

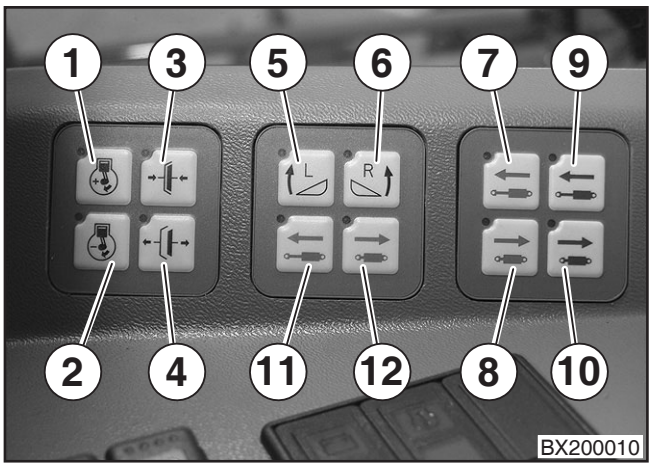
3 - Main coupling on
4 - Main coupling off

5 - Pendulum frame - swing up to the left
6 - Pendulum frame - swing up to the right

7 - (red) pick-up = lift roller-type crop guard
(red) maize header = retract
8 - (red) pick-up = lower roller-type crop guard
(red) maize header = fold out

9 - (blue) pick-up = swing in roller feelers
(blue) maize header = without function
10 - (blue) pick-up = extend roller feelers
(blue) maize header = without function

11 - optional for additional control
12 - optional for additional control



3.2.13 Ignition lock

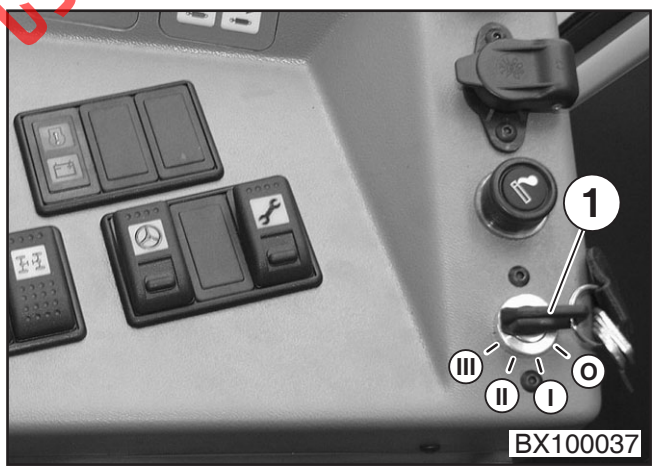
The ignition lock (1) has four positions:

0 - Off

I - Electric circuit for electronics is switched on

II - The ignition is switched on

III - Start position

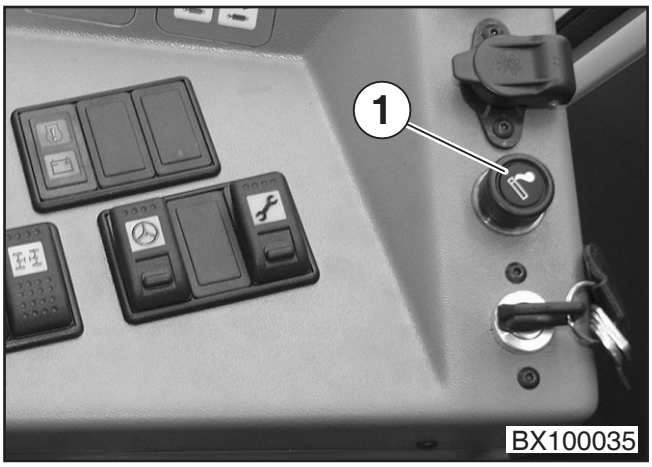


3.2.14 Cigarette lighter

In order to prevent damage and injury, never hold the cigarette lighter (1) in pressed position.

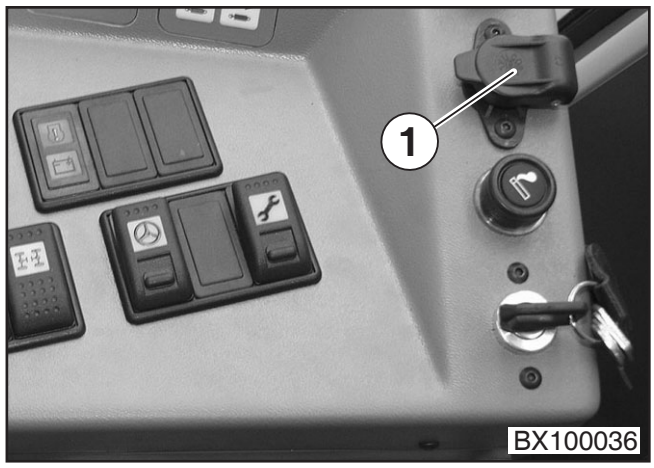
- Press the cigarette lighter (1) in; when the required temperature is reached the insert will come out by itself.

The socket of the cigarette lighter can be used to connect other power consumers with 12 volts and a maximum of 10 amps. When the engine has been switched off, the battery will be discharged. Use the specified plug to connect accessory units.



3.2.15 12-V socket

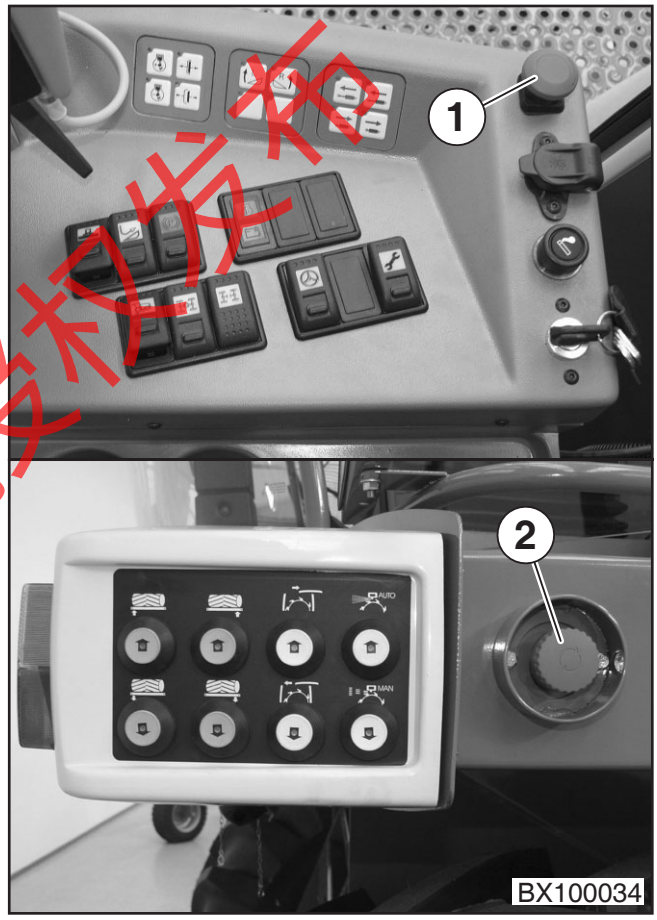
The 12-Volt socket can be used to connect accessory units.
Power consumers with a maximum of 15 amps can be connected.



3.2.16 Instantaneous stop switch

When the instantaneous stop switch (1) is actuated, the travelling gear is deactivated and the machine stops. All work functions are stopped.
When the instantaneous stop switch (2) is actuated, all work functions are stopped.

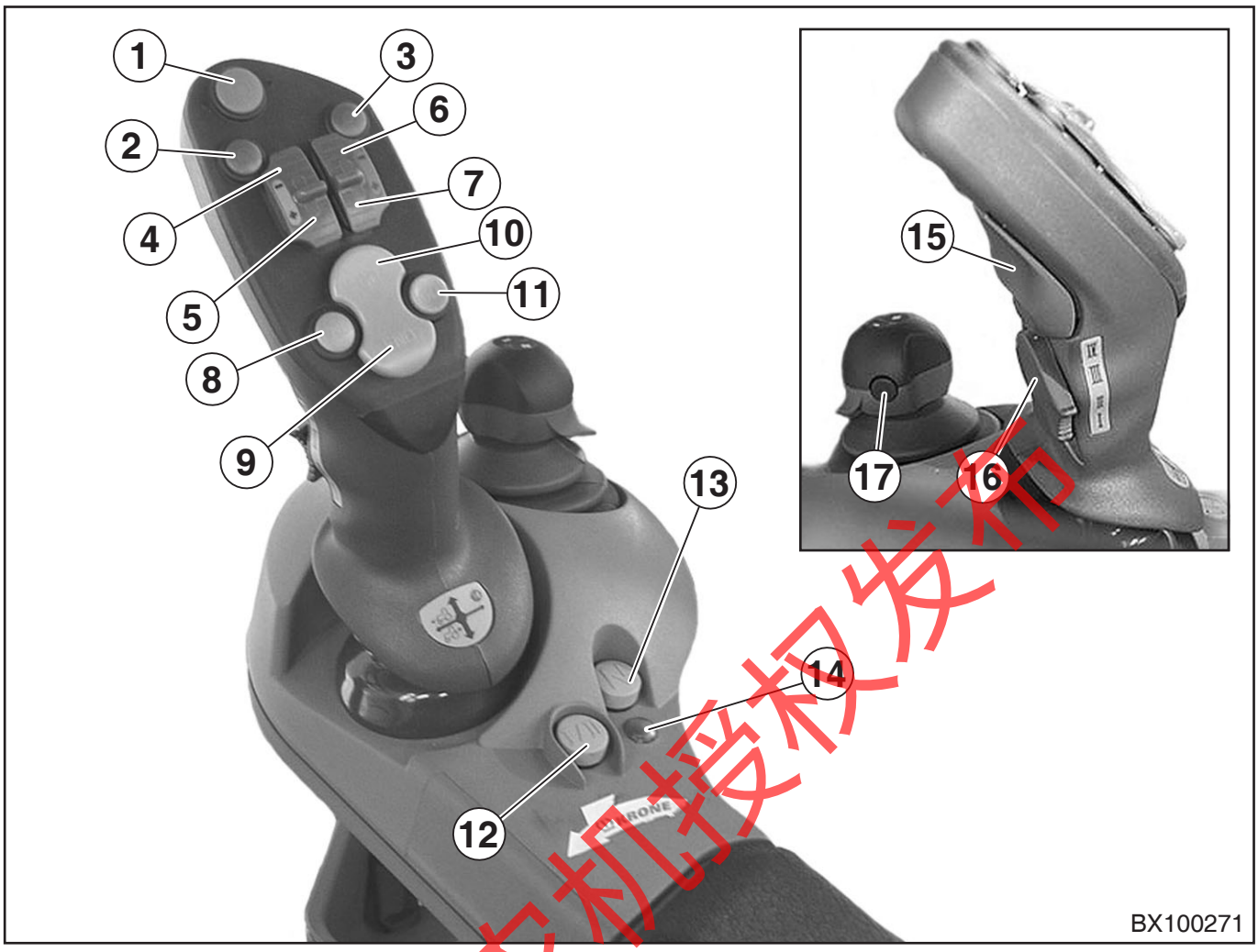
- Press the instantaneous stop switch (1 or 2) – the machine stops/work functions are stopped.
- In order to activate the machine, move the actuated instantaneous stop switch (1 or 2) to its initial position by turning it slightly to the right.



3.2.17 Diagnostics socket

- CAN interface (1)

3.3 Multi-function lever



1 - Autopilot (field operation of maize header only)

2 - Feed drive/front attachment on - off

3 - Reverse feed drive/front attachment

4 - Lower the lifting gear (sensing mode)

5 - Raise the lifting gear (sensing mode)

6 - Automatic header contour (step mode)

7 - Raise the lifting gear up to top (step mode)

8 - Rotate discharge chute left

9 - Ejector flap down

10 - Ejector flap up

11 - Rotate discharge chute right

12 - Mirror upper discharge chute (with main coupling switched on)
- Upper discharge chute in transport position (with main coupling switched off)

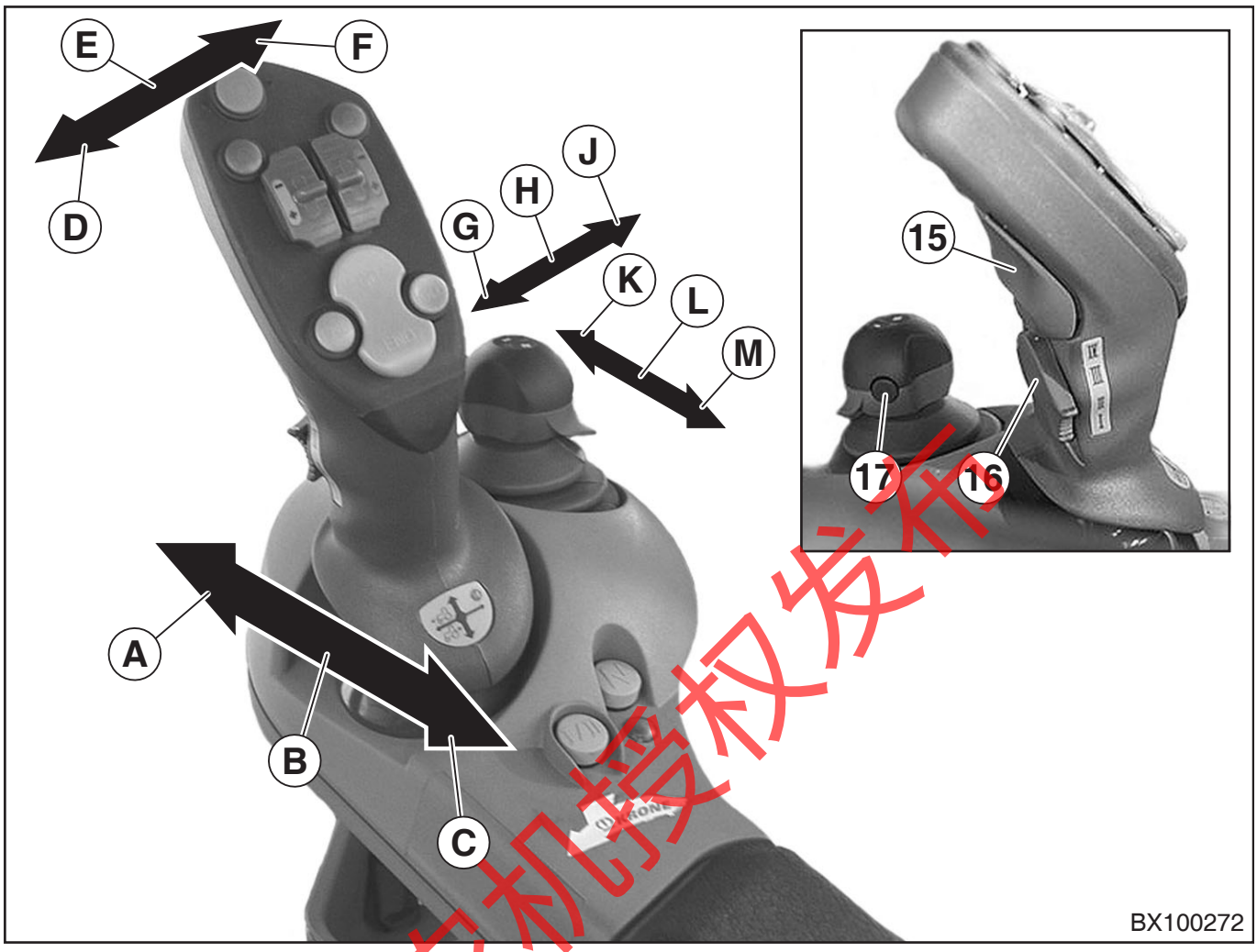
13 - Memory key for adjustment process – lifting gear

14 - Pilot lamp – travelling gear on

15 - Actuation key for travelling gear

16 - Selector switch – acceleration ramp

17 - Save the cutting length



A - Acceleration (in forward travel)
Deceleration (in reverse)
Start travelling gear with actuation key (15) pressed

B - Multi-function lever – centre position

C - Acceleration (in reverse)
Deceleration (in forward travel)
Start travelling gear with actuation key (15) pressed

D - Deceleration to 0 km/h
Fast reversing with actuation key (15) pressed (field operation only)

E - Multi-function lever – centre position

F - Switch on cruise control (in forward travel only)
Save present speed for cruise control – Press actuation key (15) and move multi-function level in direction F

G - Bring up cutting length value 1
If the 17 button is pressed and is past the action point, the cutting length is saved in the Info Centre (value 1)

H - Central position

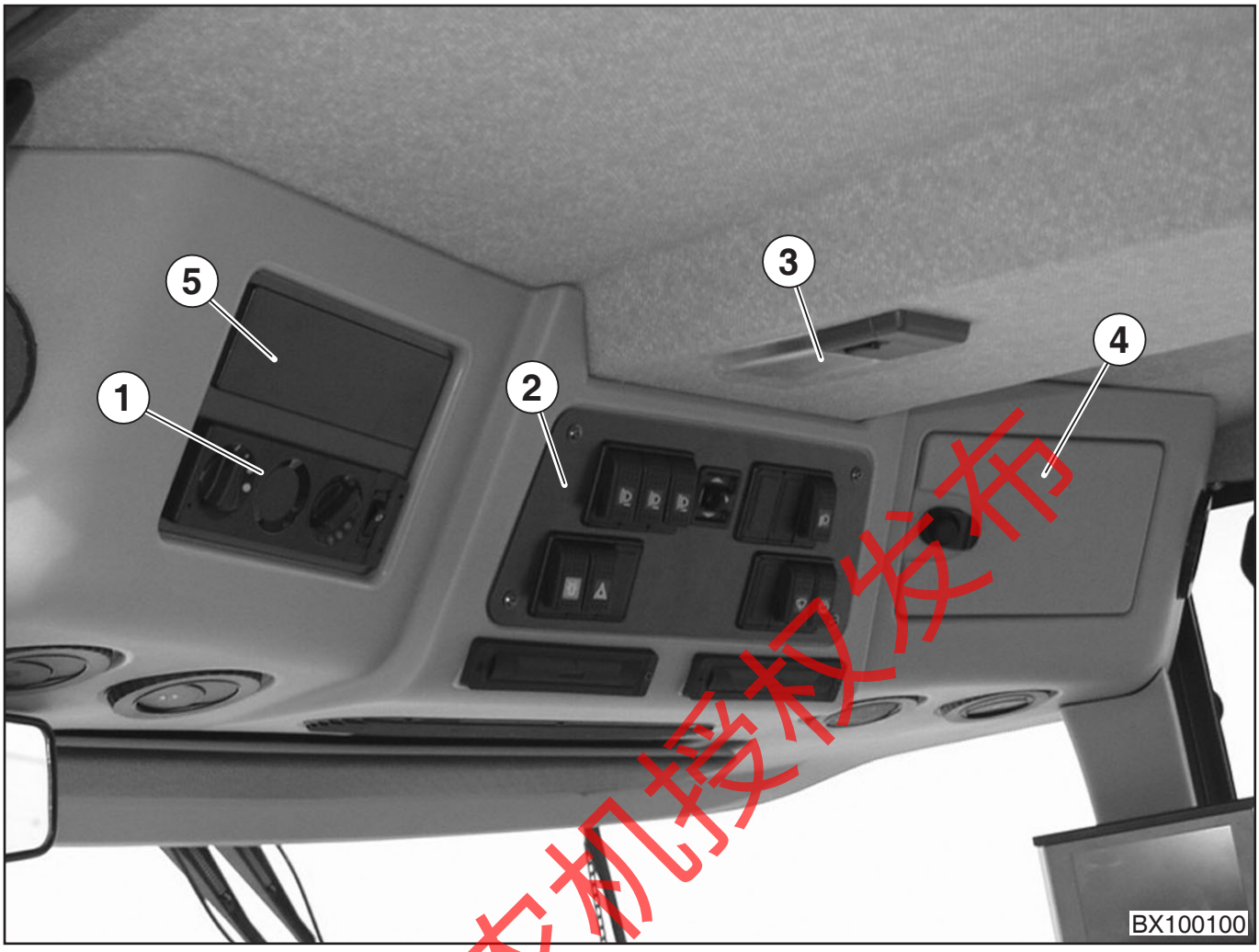
J - Bring up cutting length value 2
If the 17 button is pressed and is past the action point, the cutting length is saved in the Info Centre (value 2)

K - Lower upper discharge chute

L - Central position

M - Lift upper discharge chute

3.4 Roof console



1 - Switch – air conditioning/heating

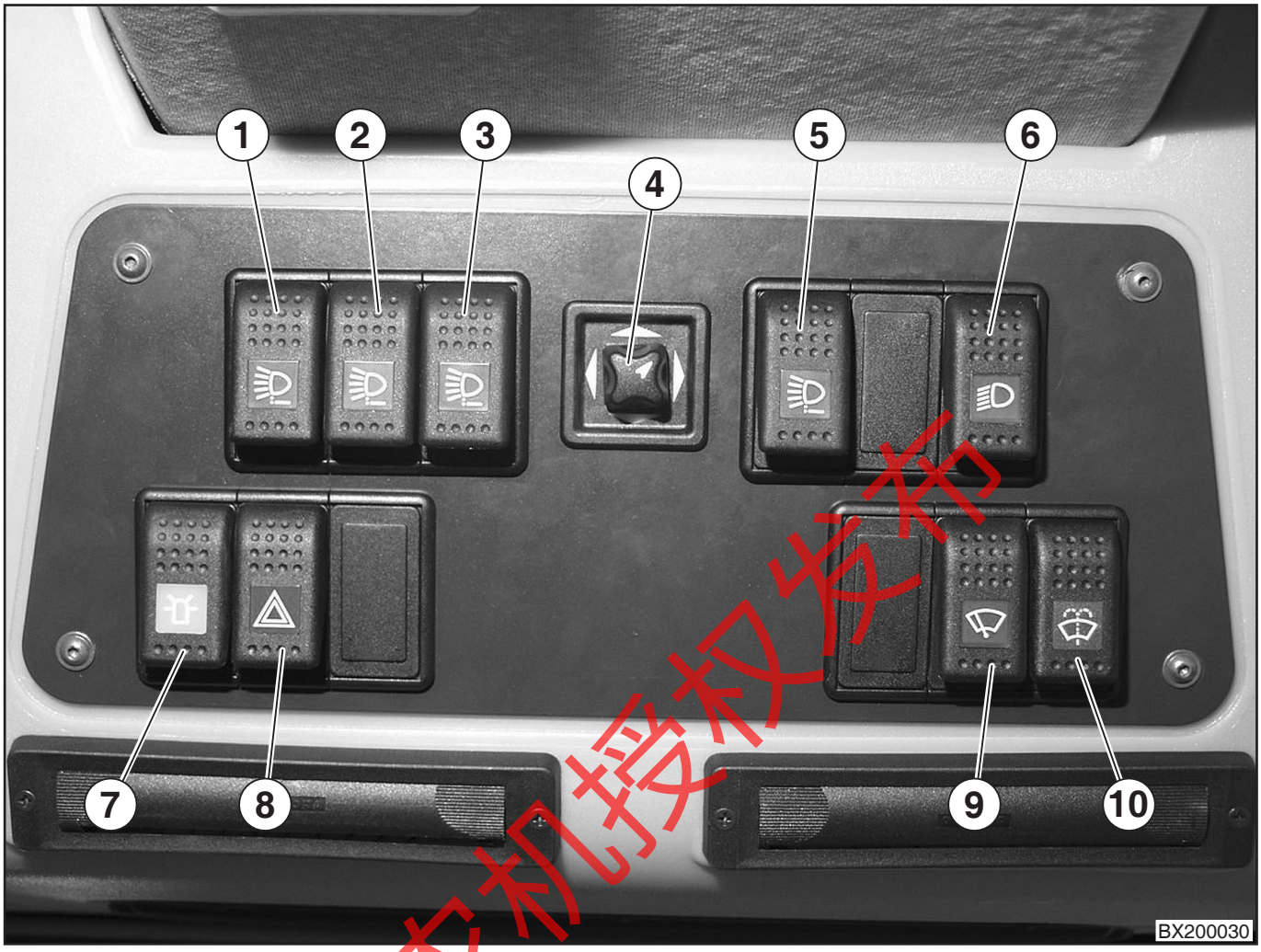
2 - Switch group – roof panel

3 - Interior lighting

4 - Cooling compartment

5 - ISO compartment for radio

3.5 Switch group – roof panel



1 - Working floodlight – side of cab

2 - Working floodlight – cab roof and upper discharge chute

3 - Working floodlight - front

4 - Mirror adjustment (right rear view mirror only)

5 - Rear working floodlights

6 - Side light/dipped beam

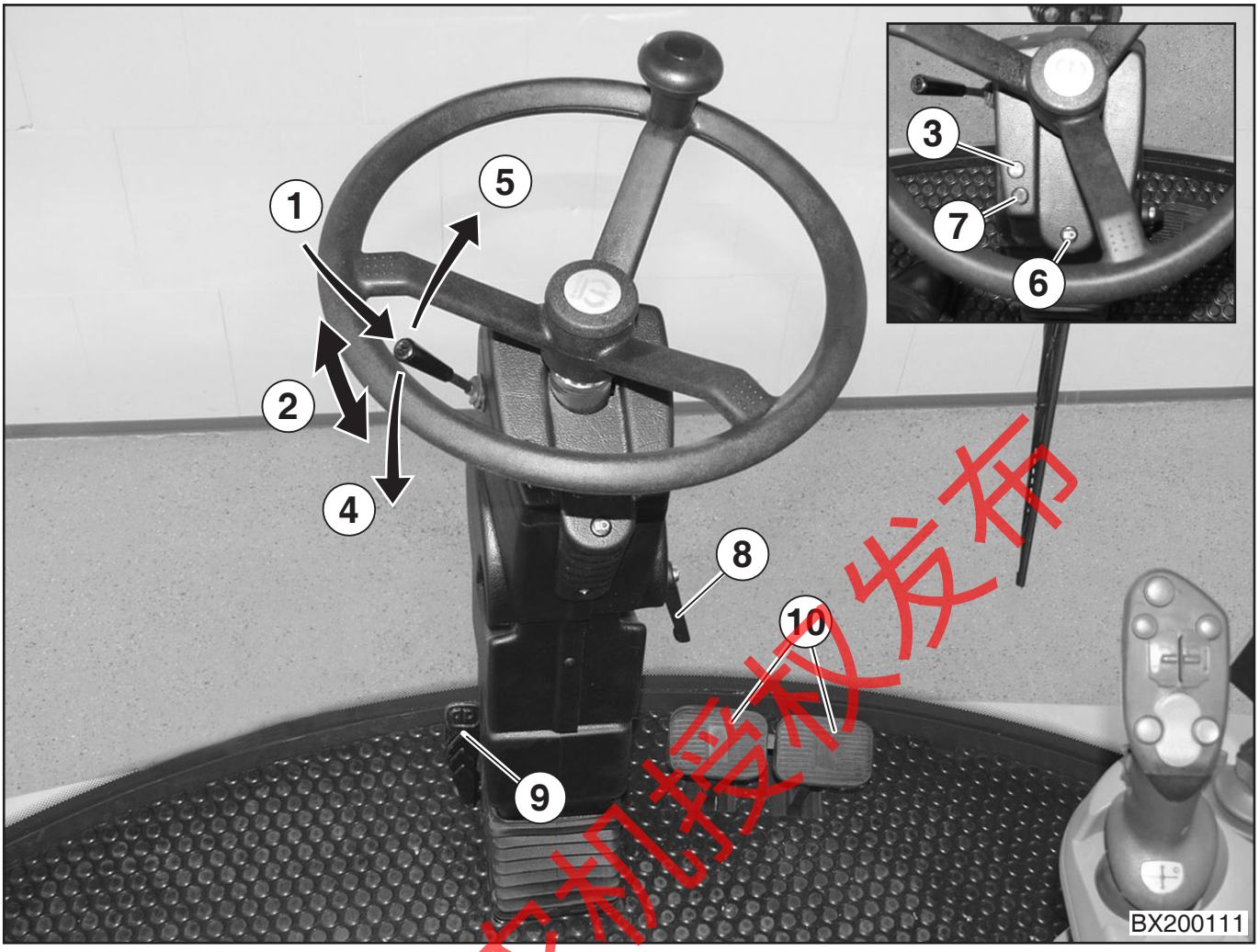
7 - Allround lights

8 - Warning flashers

9 - Windshield wipers

10 - Windshield washer unit

3.6 Steering column and foot pedals



1 - Button for horn

2 - Indicator switch

3 - Pilot lamp indicator

4 - Full beam

5 - Headlamp flasher

6 - Full beam indicator light

7 - Pilot lamp – trailer function

8 - Release lever for horizontal steering column adjustment

9 - Release lever for horizontal and vertical steering column adjustment

10 - Operating brake

3.6.1 Steering column adjustment

Adjust the steering column only when the machine is at a standstill.

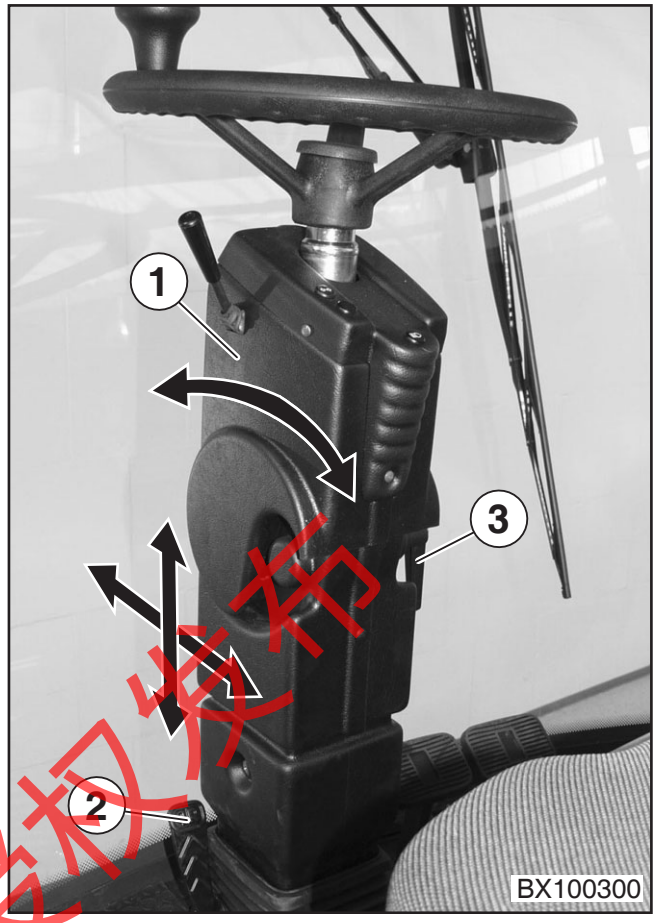
Horizontal and vertical steering column adjustment

The steering column (1) is held in vertical position by spring pressure. Before actuating the pedal (2), hold the steering wheel with both hands.

- Use the pedal (2) to release the steering column (1), and adjust to the desired position. After the pedal (2) has been released, the steering column (1) will be locked.

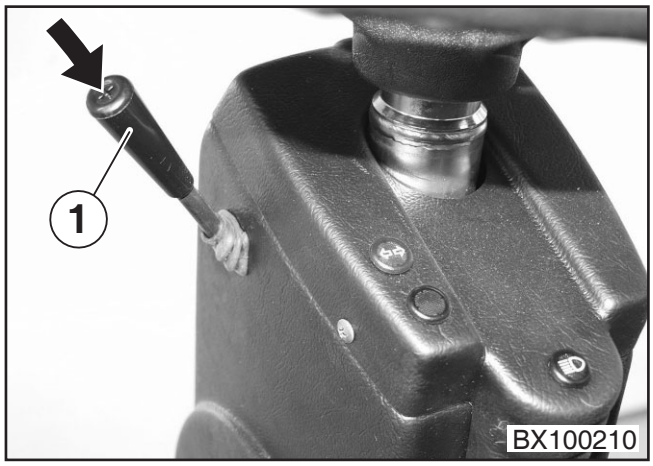
Horizontal steering column adjustment

- Loosen release lever (3). Move the steering column (1) into the requested position. Lock the release lever (3) again.



3.6.2 Horn

- When the push-button (1) is pressed, the horn is sounded.

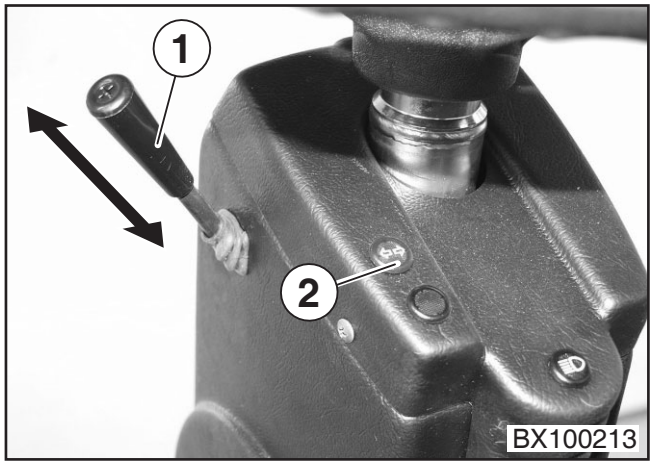


3.6.3 Indicator switch

In road traffic the change of travelling direction is indicated by a flashing light.

- Switch (1) forward – right indicator
- Switch (1) backward – left indicator
- Set the switch to neutral position by hand.

The indicator pilot lamp (2) will light up when the indicator has been switched on.

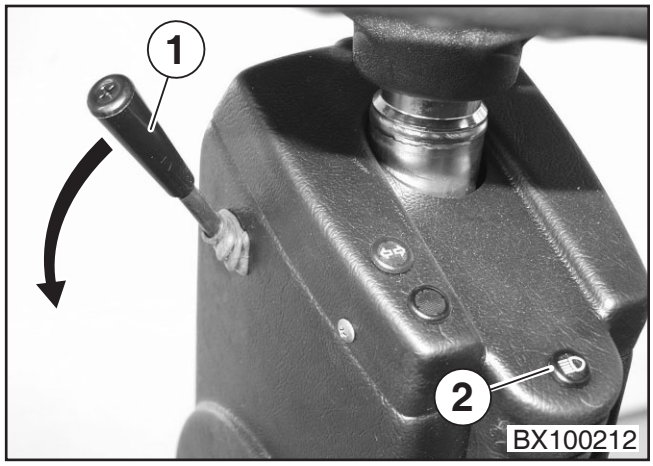


3.6.4 Full beam

High beam is operational only when the dipped beam has been switched on.
Switch off high beam when a vehicle approaches.

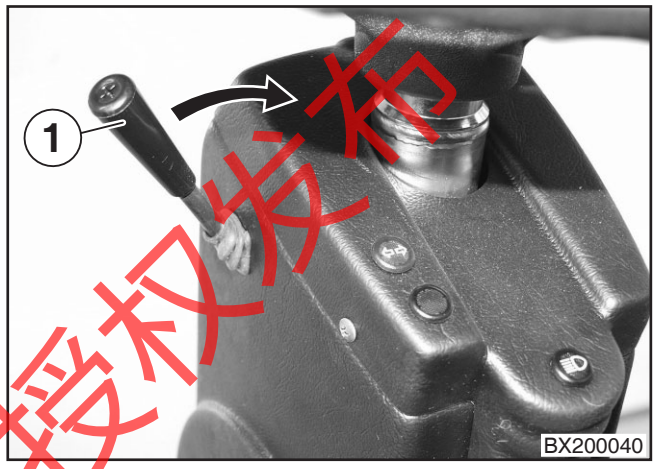
- Switching high beam on – press lever (1) down.
- Switching high beam off – press lever (1) up.

When high beam is switched on, the blue pilot lamp (2) will be lit.



3.6.5 Headlamp flasher

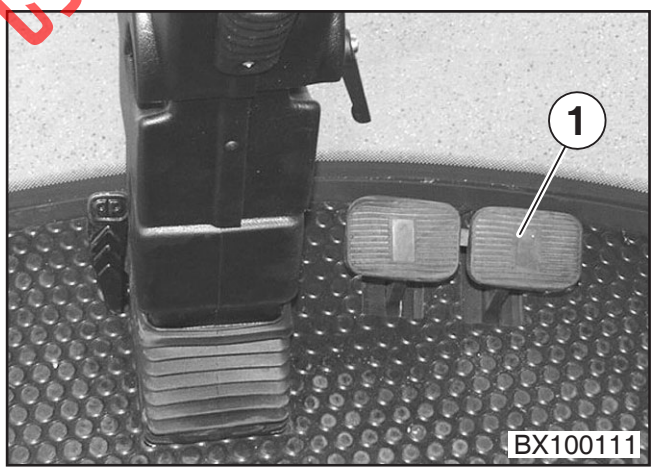
- Pull the headlamp flasher lever (1) up.



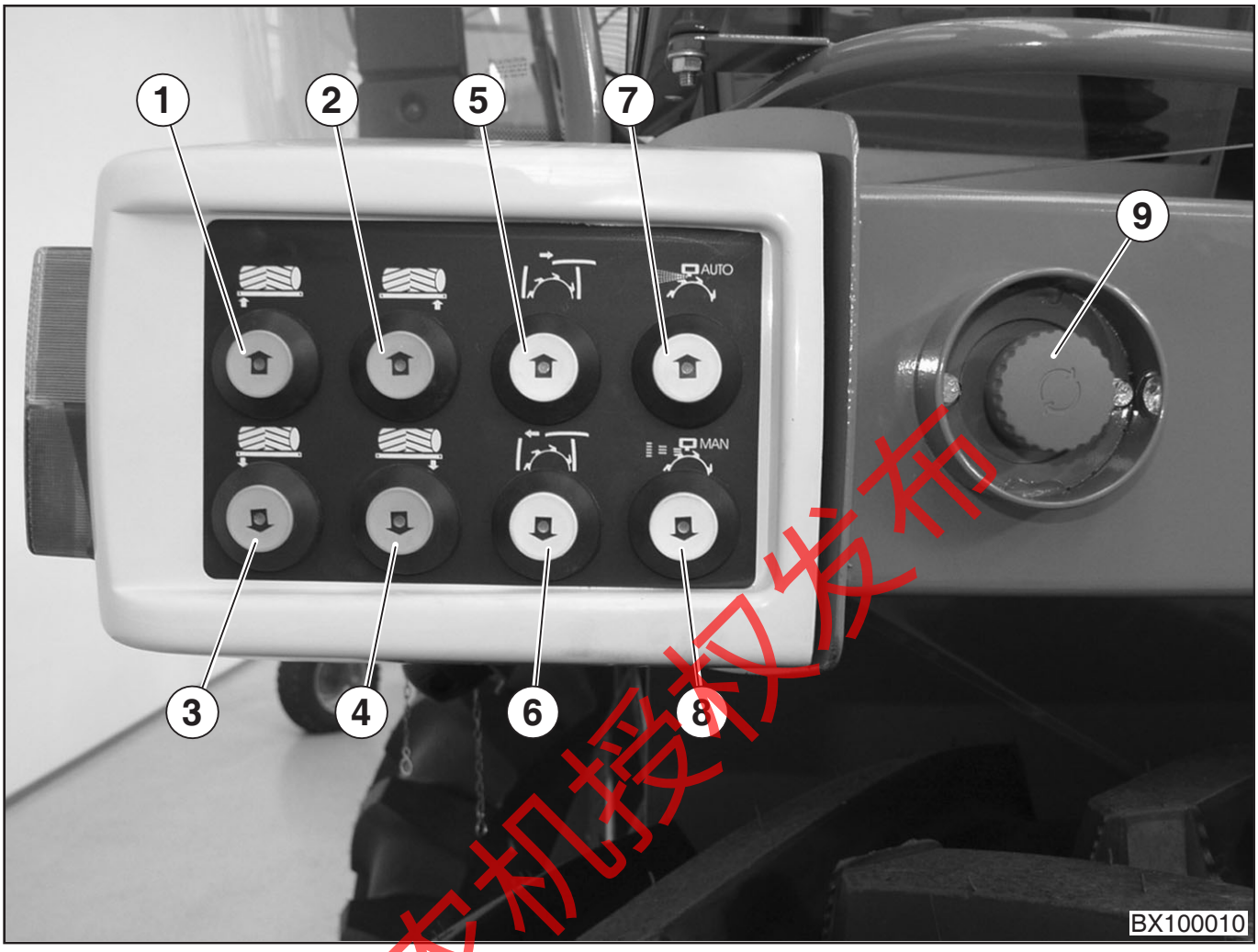
3.6.6 Using the operating brake

In road traffic

For reasons of traffic safety the brake pedals must be connected at all times.
No individual brake fitted.
Check the brake function prior to travel.



3.7 Manual operation on the platform



Activation of manual operation:

Road/field release switch in field operation position

Travelling gear release switch off

Maintenance release switch on

Main coupling on

1 - Move the left counterblade to blade drum

2 - Move the right counterblade to blade drum

3 - Move the left counterblade away from blade drum

4 - Move the right counterblade away from blade drum

5 - Open grinding flap

6 - Close grinding flap

7 - Automatic grinding operation

8 - Move grindstone by hand

9 - Instantaneous stop switch

Activation of manual operation:

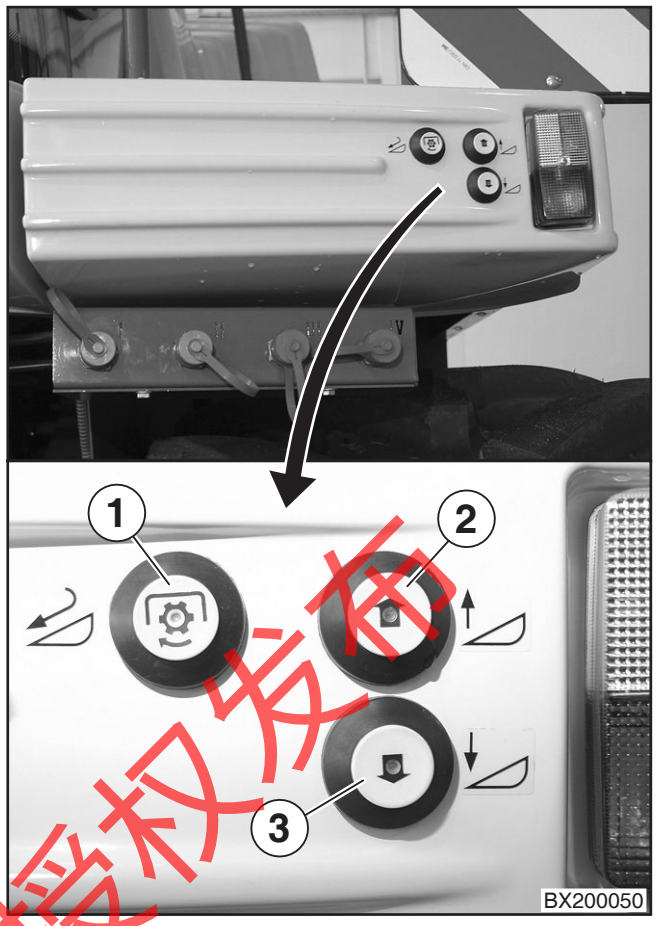
Road/field release switch in field operation position

Travelling gear release switch off

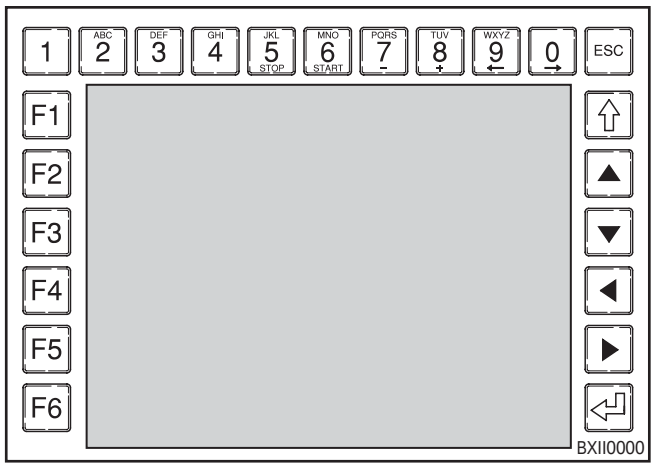
1 - Reverse feed drive/front attachment

2 - Raise lifting gear

3 - Lower lifting gear



4 Info centre "EasyTouch"



The Info centre renders information on the power actions and the present operating conditions of BiG X. The Info centre can be used to carry out settings in the machine as well as to start and stop actions.

Its main components are:

Alphanumeric enter keys (0 – 9)
Use the alphanumeric keys to enter the numeric values and letters for names in the customer file.

Selection keys (▲ ▼)
The selection keys are used to select the individual menu fields in the settings section.

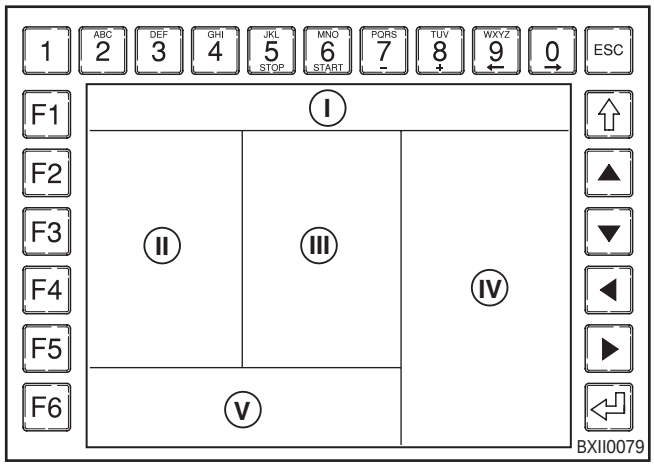
If no settings are made for a longer period (30 seconds), the cursor returns to the temporary working width.

Value changing keys (◀ ▶)
The value changing keys are used to change the values set in the settings section in the menu fields.

Enter key (⏎)
The enter key is used to call menu details and to acknowledge the entries.

Esc key (ESC)
The Esc key is used to exit submenu. After input of numeric values, the Esc key must be pressed for a somewhat longer period.

Function keys (F1 – F6)
The function keys F1 to F6 are used to display the function level.
The function key F1 to F4 are used to select the corresponding main menu.
By pressing the function key F5 twice, the display returns to the main display from all menus. The function key F6 is used to close the respective menu.

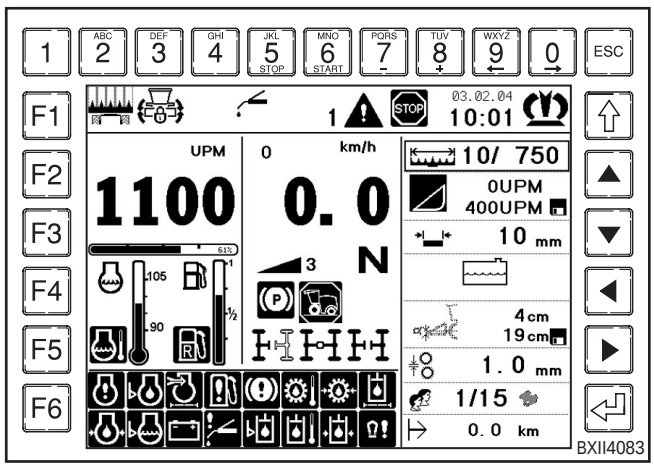


Display

The display is divided up into the following sections:

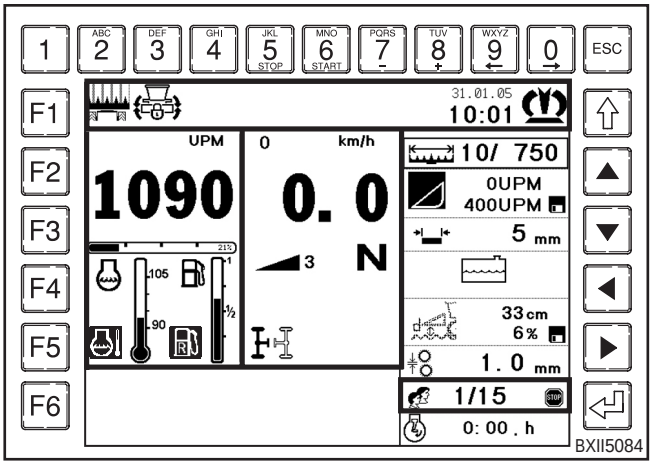
Status line (I): Basic setting (grass/maize), number of faults, fault display, rapid-action stop key actuated, date and time

Information section: Engine data (II)
Travelling gear data (III)
Power settings (IV)
Fault messages (V)



4.1 Information area

After the ignition has been switched on, the "Road traffic" or "Field operation" main display will appear.



4.1.1 Road travel

Status line (I)

- No symbol for road travel.

  The  symbol for pendulum frame appears in the middle. If the pendulum frame is not centred, and information message appears in the Settings info area.

-  /  = symbol for field operation – grass pick-up/maize header; travelling gear switched on; everything okay.

- If the  symbol appears in the status line, at least one fault has occurred; the number of power faults is rendered before the symbol. The classified fault message will be displayed in the information section of the fault messages.

- If the symbol  appears in the status line, one of the quick stop keys (console or manual operation) has been pressed.

Motor data (II) information section:

- Engine speed (0 to 1,700 rpm)
- Engine capacity in % (for V8 engine only)
- Temperature indicator – cooling water
  If the cooling water temperature reaches the critical point, the  symbol will be displayed in the motor data information section.
- Fuel tank indicator

  If the fuel level has dropped low, the  symbol will be displayed in the motor data information section.

Information section of the travelling gear data (III):

- 12 = symbol for cruise control is active; the figure in front of the symbol indicates the saved speed for cruise control operation in km/h.
- Travelling speed (0 to 40 km/h)
- Acceleration ramp:

  1 = low acceleration stage

  4 = highest acceleration stage
- Direction of travel:

  = forward travel

  N = neutral (standstill)

  = reverse travel
- If the holding brake has been applied, the (P) symbol will be displayed in the travelling gear information section.

Information section of settings (IV):

- The symbol is visible in the " Customer" menu field, when the customer counter is active.
- The STOP symbol is visible in the " Customer" menu field, when the customer counter is not active.

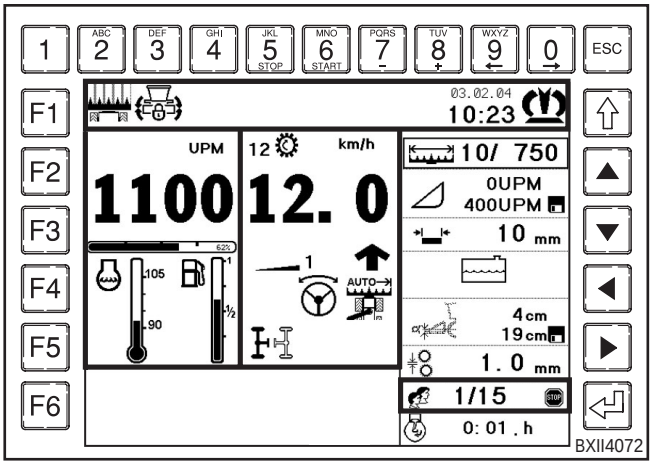
4.1.2 Field operation

Status line (I):

- = Field operation; grass pickup has been set.
- = Field operation; grass pickup has been set; Drive control has not acknowledged the mode, since there was a switch from street operation to field operation while driving

  or
- = Field operation; maize header has been set.
- = Field operation, maize header set, drive control has not acknowledged the mode, since there was a switch from street operation to field operation while driving.
- = Pendulum frame freely movable perpendicular to the direction of travel

  = Pendulum frame locked
- = Pendulum frame at an incline. Position of pendulum frame is as shown.
- = Pendulum frame at an incline. Position of pendulum frame is as shown.
- = Pendulum frame is positioned horizontally
- = Pendulum frame sensor is defective or not calibrated
- = Pendulum frame locked, position of pendulum frame as shown, facing in direction of travel
- = Pendulum frame locked, position of pendulum frame as shown, facing in direction of travel.
- = Pendulum frame locked, position of pendulum frame locked, position of pendulum frame unknown, since sensor is defective or not calibrated.
- = Pendulum frame free, position of pendulum frame as shown, facing in direction of travel



- = Pendulum frame free, position of pendulum frame as shown, facing in direction of travel.
- = Pendulum frame free, position of pendulum frame

The other displays correspond to the displays in road travel.

Motor data (II) information section:

- Engine speed (0 to 2100 rpm)
- All the other displays correspond to the displays in road travel.

Information section of the travelling gear data (III):

- 12 = symbol for cruise control is active; the figure in front of the symbol indicates the saved speed for cruise control operation in km/h.
- Travelling speed (0 to 17 km/h)
- Acceleration ramp:

  1 = low acceleration stage

  4 = highest acceleration stage
- Direction of travel:

  = forward travel

  N = neutral (standstill)

  = reverse travel

- Autopilot (only in maize header field operation, optional)

  = Autopilot switched on.
  and
  status of row tracer for the autopilot

  = The row tracer is evaluated on the left

  = The row tracer is evaluated on the right

  = The row tracer is determined automatically

  by the position of the upper discharge chute.
  Upper discharge chute lefts = row tracer left
  Upper discharge chute right = row tracer right

  =The row tracer is determined automatically

  by the mirrored position of the upper discharge chute.
  Upper discharge chuteleft = row tracer right
  Upper discharge chute right = row tracer left

- Type of drive (selectable for field operation only):

  = front wheel drive

  = all-wheel drive, can be activated only when stopped, driving speed 0 - 14 km/h

  = axle separation switched on; can only be switched on if all-wheel drive is switched on; activation at driving speed of < 10 km/h

- If the holding brake has been applied, the (P) symbol will be displayed in the travelling gear information section.

Information section of settings (IV):

- The symbol is visible in the "Customer" menu field, when the customer counter is active.
- The icon is shown in alternation In "Customer" menu field if the counter that is currently being displayed adds up the total.
- The STOP symbol is visible in the "Customer" menu field, when the customer counter is not active.
- All other data correspond to the power settings (cf. section 4.2 on "Settings").

4.2 Settings

4.2.1 Working width

The working width has to be set in order to be able to calculate the surface.

In grass pick-up mode, the settings (IV) information section displays the symbol  and the width set (swathed width) in cm.

In maize header mode, the settings (IV) information section displays the symbol  and the number rows set with the working width in cm resulting.

Setting the grass pick-up working width

Working width = swathed width

- Use the ▲ or ▼ selection key to select the working width menu field.
- Use the ↵ key to acknowledge the selection.

The "Set working width" sub-menu is opened and the present working width is displayed.

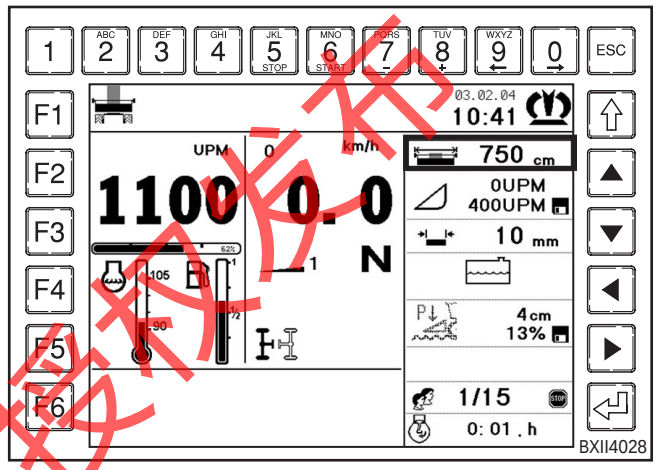
- Pressing the ▶ key increases the working width by 10 cm each; if the ▶ key is pressed for a longer period, the working width will increase faster.
- By pressing the ◀ key the working width is decreased by 10 cm each; if the ◀ key is pressed for a longer period, the working width will decrease faster.
- Use the ESC key to quit the "Set working width" sub-menu.

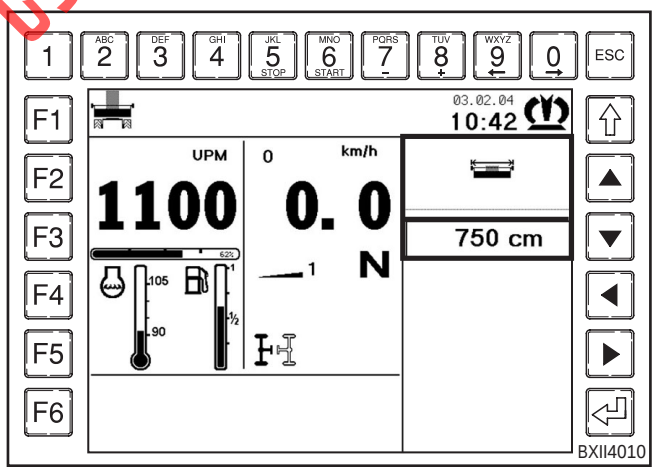
Temporary change of the grass pick-up working width

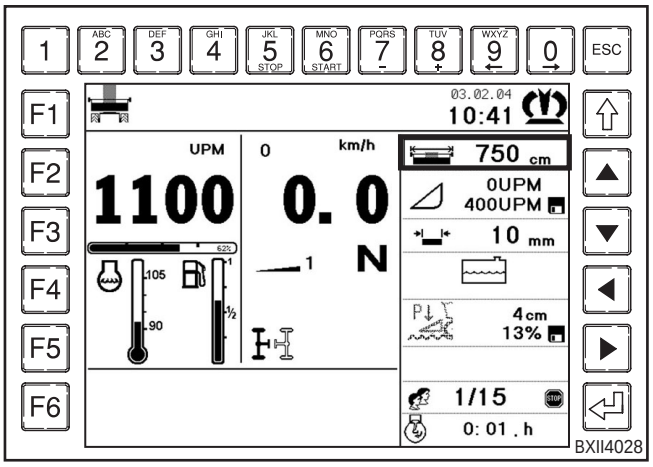
In field operation, the working width can be changed temporarily in the grass pick-up mode.

- Use the ▲ or ▼ key in the settings information section to select the working width.
- Use the ▶ or ◀ key to increase or decrease the width up to maximum width set.
  A brief horn sound is heard while the width is being adjusted.

When the pick-up is lifted above the working height, the base setting is reset automatically.



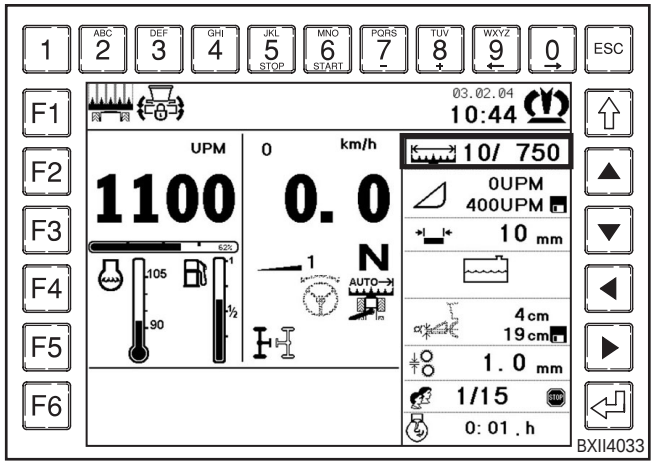




Set maize header working width/Row tracer selection, centre setting and response sensitivity of autopilot

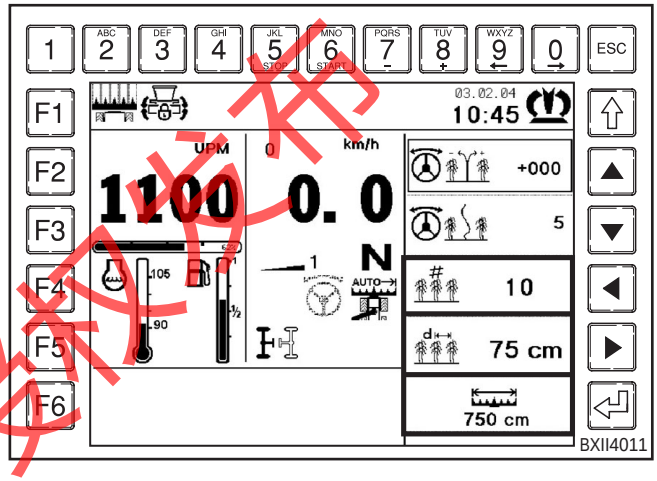
- Use the ▲ or ▼ selection key to select the working width menu field.
- Use the ↵ key to acknowledge the selection.

The "Set working width" submenu appears.
The centre setting and response sensitivity for controlling the autopilot and the currently set working width are displayed, along with the number of rows and space between rows.



Setting the maize header working width

- Use the ▼ key to select the menu field # (number of rows).
- Use the ▶ key to increase the number of rows.
- Use the ◀ key to decrease the number of rows.



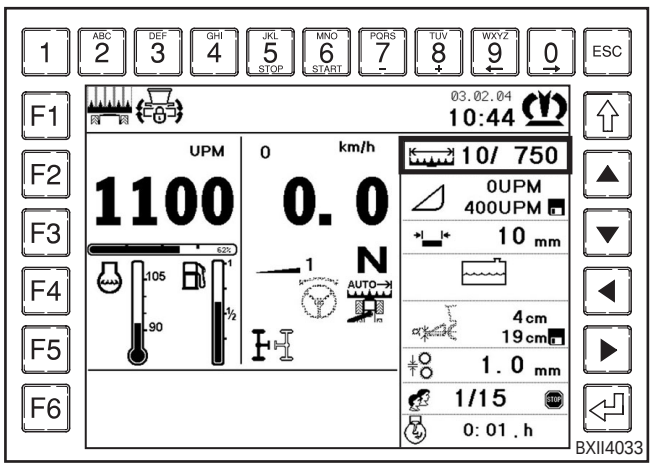
- Use the ▼ key to select the menu field d (row spacing).
- Pressing the ▶ key increases the row spacing by 1 cm each; if the ▶ key is pressed for a longer period, the distance will increase by 10 cm each.
- Pressing the ◀ key decreases the row spacing by 1 cm each; if the ◀ key is pressed for a longer period, the distance will decrease by 10 cm each.

The resulting working width will be calculated from the row spacing and the number of rows directly; the result will be displayed.

Temporary change of the working width of the maize header

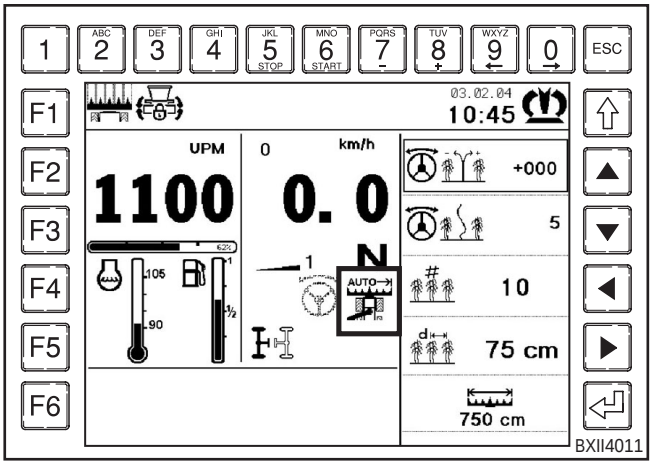
In field operation, the working width can be changed temporarily in the maize header mode.

- Use the ▲ or ▼ key in the settings information section to select the working width.
- Use the ▶ or ◀ key to increase or decrease the number of row (to the maximum number set). A brief horn sound is heard while the width is being adjusted.



When the maize header is lifted above the working height, the base setting is reset automatically.

Selecting the row tracer mode for autopilot

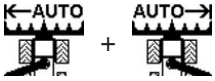


This mode determines which row tracer on the maize header will be evaluated for control of the autopilot. Chaffing should preferably be in row tracer mode left or right, with automatic row tracer mode for crops.

Mode:

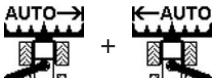
Row tracer left

Row tracer right



Row tracer automatic

The row tracer selection is made automatically based on the position of the upper discharge chute.
Upper discharge chute left = row tracer left
Upper discharge chute right = row tracer right



Row tracer mirrored automatically

The row tracer selection is made automatically based on the position of the upper discharge chute.
Upper discharge chute left = row tracer right
Upper discharge chute right = row tracer left

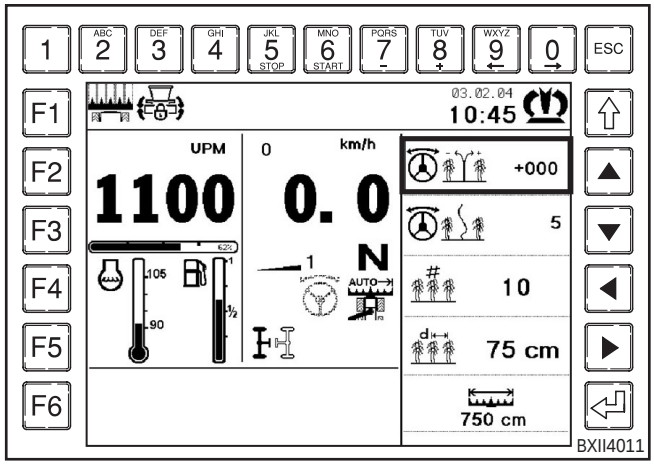
In "Row tracer automatic" and "Row tracer mirrored automatic" mode, if the upper discharge chute is not swivelled out, the "Upper discharge chute left" position is used as the basis

Setting the row tracer mode

- Press the 1 key for "row tracer left"
- Press the 2 ABC key for "row tracer right"
- Press the 3 DEF key for "row tracer automatic"
- Press the 4 GHI key for "row tracer mirrored automatic"

Setting the autopilot centre adjuster

The centre setting can be used to justify the side distance from the harvest forager to the crop edge queried by the row tracer.
If the lateral distance needs to be reduced, a negative number should be set. To increase it, set a positive value.

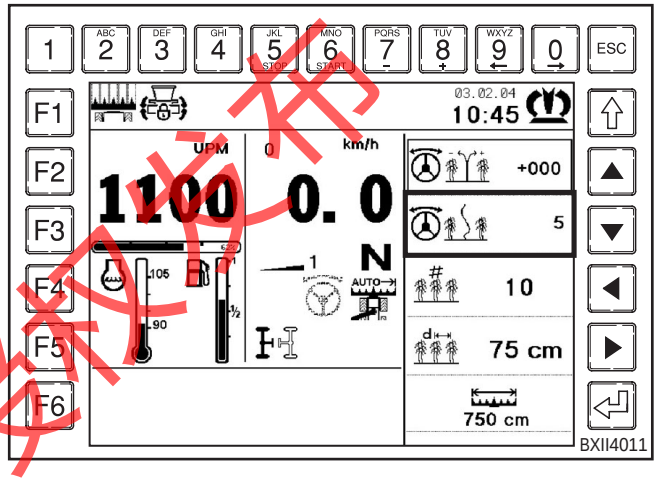


- Use the ▲ key or the ▼ menu box to select the centre adjuster

- The ▶ key increases the distance.
- The ◀ key decreases the distance.

Setting the response sensitivity of the autopilot

The response sensitivity can be used to adjust the response (delay) of the autopilot control system.
The response sensitivity must be adjusted to the specific combination of crop edge, driving speed and ground conditions.
With an even crop edge, slow driving speed and dry ground conditions, a low (slow) response sensitivity can be set.
With an uneven crop edge, faster driving speed and moist ground conditions, a higher (faster) response sensitivity should be set.
The setting must be made based on specific local factors and depends on the situation in question.
The setting can be changed during operation while driving.



Setting range: 1 (slow) - 10 (fast)

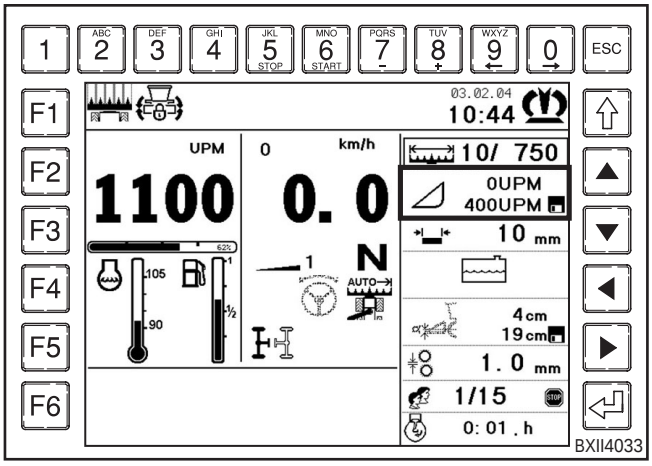
- Use the ▲ key or the ▼ menu box to select the response sensitivity

- The ▶ key increases the value.
- The ◀ key decreases the value.

- Use the ESC key to exit the "Set working width" sub-menu field.

4.2.2 Front attachment

During field operation, if the feed drive/front attachment release switch is turned on, the current actual speed and the set target speed of the front attachment are shown in the Settings (IV) info area.



Status display

- = the front attachment is active
- = the front attachment is not active; the front attachment/the feed drive cannot be switched on (a condition has not been fulfilled)
- = the front attachment forward is active
- = the front attachment reverse is active

- 1st value = actual speed in RPM
- 2nd value = target speed in RPM ( )

Setting the setpoint speed

- Use the ▼ key to select the front attachment menu field.
- Pressing the ▶ key increases the setpoint speed by 10 rpm each time.
- Pressing the ◀ key decreases the setpoint speed by 10 rpm each time.

Calibrating the front attachment

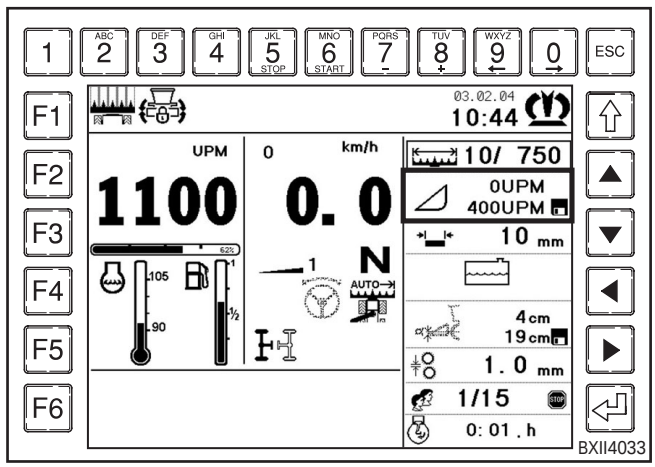
The front attachment should be calibrated only, when the actual speed massively deviated from the setpoint speed (by fitter or after replacement of the computer). After the front attachment is calibrated, the feed drive should also be calibrated.

Pre-requisites:

- Travelling gear release switch off
- Release switch for feed drive/front attachment on

The front attachment must be stopped. The engine speed must be 2000 RPM. If the front attachment does not come to a stop, please contact your KRONE service centre.

- Use the ▼ key to select the front attachment menu field.
- Use the ↵ key to acknowledge the selection.



The "Calibrating the front attachment/feed drive" sub-menu is active.

The symbol for the calibration is displayed in the information section of settings (IV).

- Use the ▶ key to select the front attachment .
- Use the ▼ key to select the STOP icon and the ◀ key to start calibration. The icon is displayed.

The Y7 valve "Front attachment forward" is activated. The front attachment should start to turn after a brief time.
The calibration process lasts up to 120 seconds. If the necessary data cannot be determined during this time, the calibration process is interrupted.

- Use the ESC or ▶ key to abort the calibration.

The progress bar indicates the status:

- STOP = calibration has been stopped.
- = calibration is running down.
- = calibration was successful.
- **mA** = current power consumption valve Y7 "Front attachment forward".
- **RPM** = power speed of the front attachment.

The calibration results are displayed as follows:

#1
- = calibration 1 is running.

#1
- = calibration 1 was successful.

#2
- = calibration 2 is running.

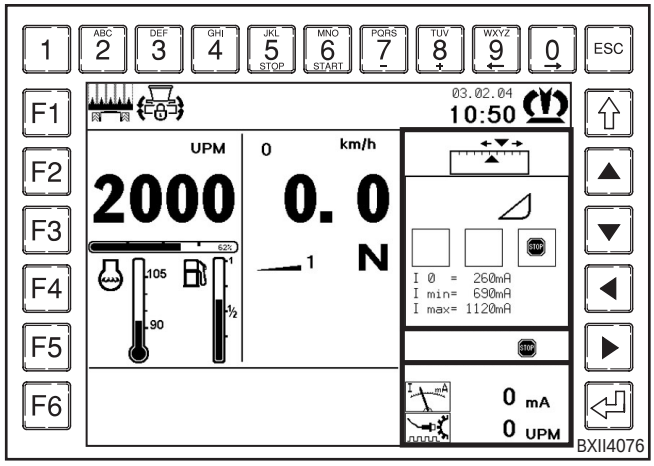
#2
- = calibration 2 was successful.

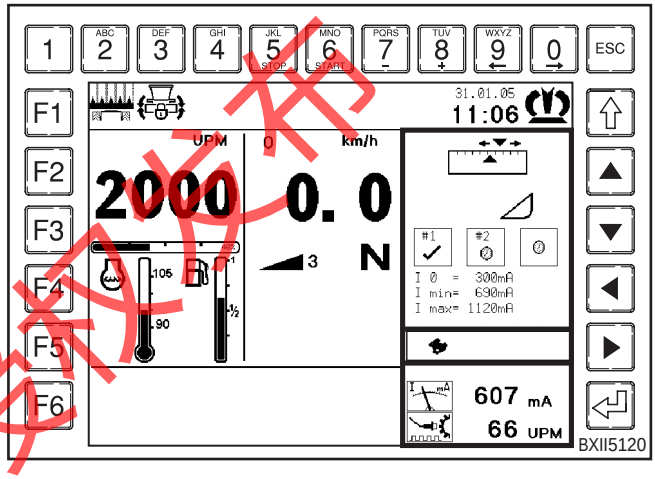
Display stopped; current power consumption and engine speed are at 0.
The calibration is complete.

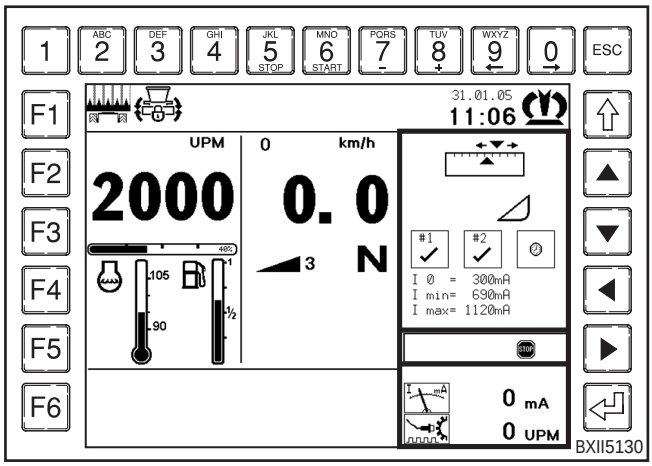
The power consumption display is updated:

- I 0 = Power consumption when turning is started.
- I min = Power consumption at minimum speed.
- I max = Power consumption at maximum speed.

- Use the ESC key to quit the "Calibrating front attachment/feed drive" sub-menu field.



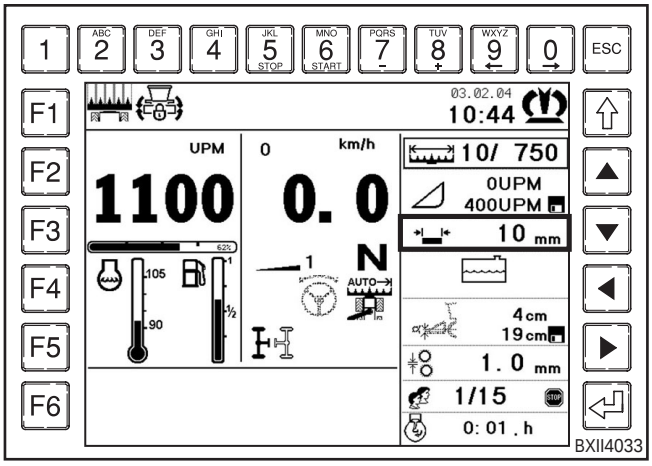




4.2.3 Feed drive

The cutting length is determined by the speed of the feed drive rollers.
In field operation, the current cutting length is displayed in the feed drive menu field in the information section of settings (IV).

- The cutting length display
  and the current cutting length in mm.
  Depending on the number of blades set, the cutting length can be set within a range from 3 – 62 mm.

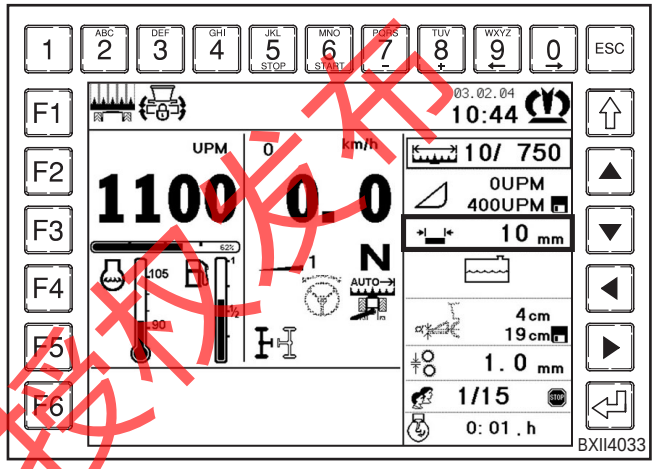


Setting the cutting length

- Use the ▼ key to select the feed drive menu field.
- By pressing the ▶ key the cutting length is increased by 0,5 mm each.
- By pressing the ◀ key the cutting length is decreased by 0,5 mm each.

The change is accepted immediately.

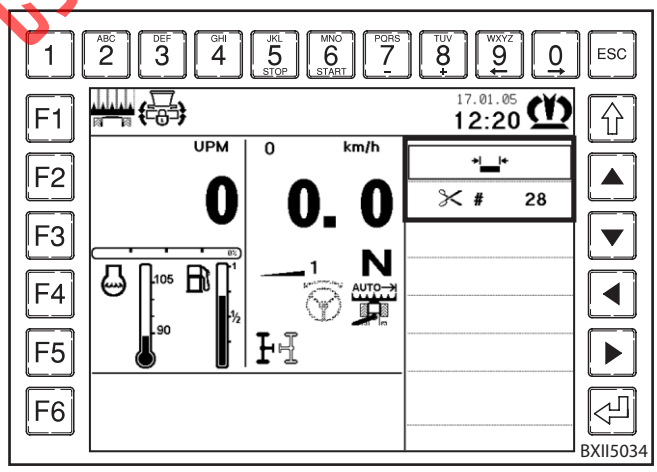
Two different cutting lengths (value 1/ value 2) can be saved and retrieved with the multifunction lever.



Setting the number of blades

After the number of blades has been changed (refer to the section on Maintenance – Working with half the number of cutting blades), the current number of blades must be set.
Setting the number of blades automatically adjusts the speed of the feed drive rollers to the cutting length that is set for the new number of cutting blades.

- Use the ▼ key to select the feed drive menu field.
- Use the ↵ key to acknowledge the selection.

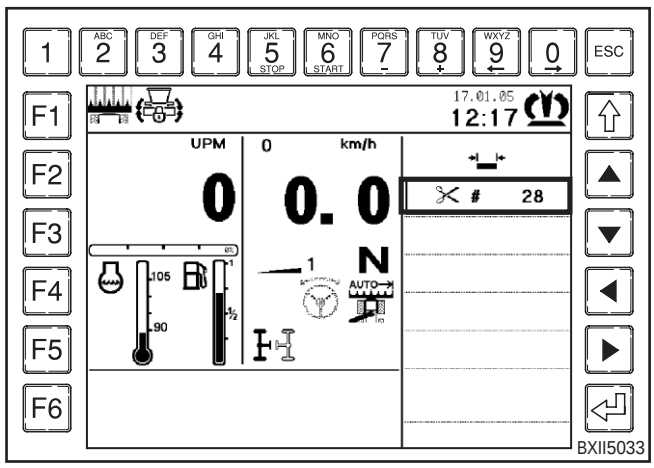


The submenu for setting the "Number of cutting blades" appears.

- Use the ▼ key to select the menu field for the number of cutting blades.

Depending on the design of the blade drum, settings of 28/14 or 40, 20/10 can be made.

- Press the ▶ key to perform the calibration.
- Pressing the ◀ key reduces the number of cutting blades.
- Use the ESC key to quit the "Number of cutting blades" sub-menu field.



Calibrating the feed drive
The feed drive should be calibrated together with the front attachment and should not be performed if the actual cutting length is different from the displayed cutting length.

Pre-requisites:

- Travelling gear release switch off
- Release switch for feed drive/front attachment on

The feed drive has to be at a standstill; the motor speed has to be 2,000 rpm.

- Use the ▼ key to select the front attachment menu field.
- Use the ⏎ key to acknowledge the selection.

The "Calibrating the front attachment/feed drive" sub-menu is active.

The symbol for the calibration is displayed in the information section of settings (IV).

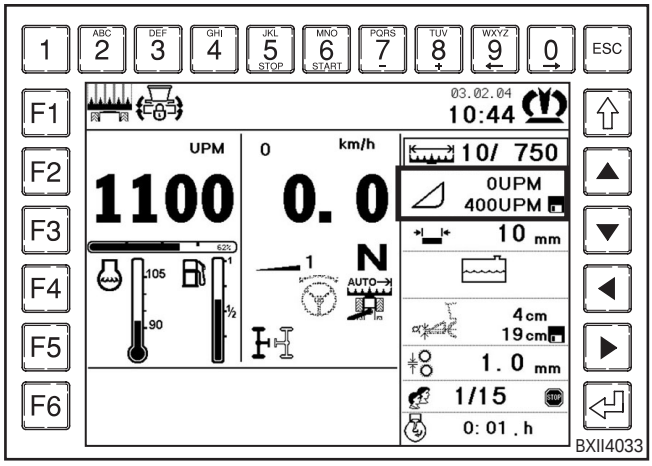
- Use the ◀ key to select the feed drive .
- Use the ▼ key to select the STOP icon and the ◀ key to start calibration. The icon is displayed.

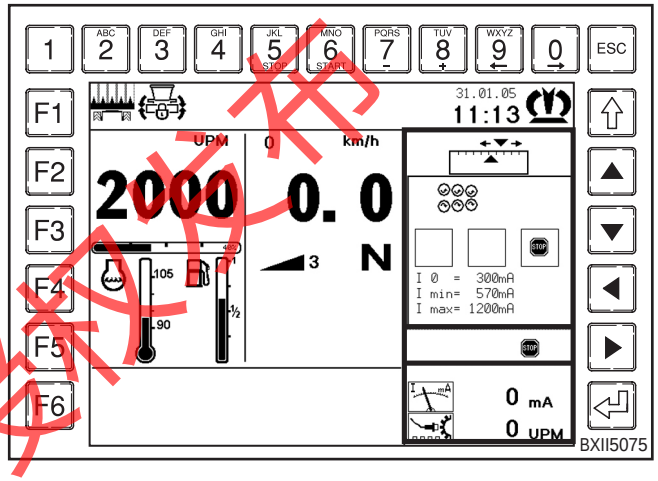
The Y5 valve "Feed drive forward" is activated. The front attachment should start to turn after a brief time. The calibration process lasts up to 120 seconds. If the necessary data cannot be determined during this time, the calibration process is interrupted.

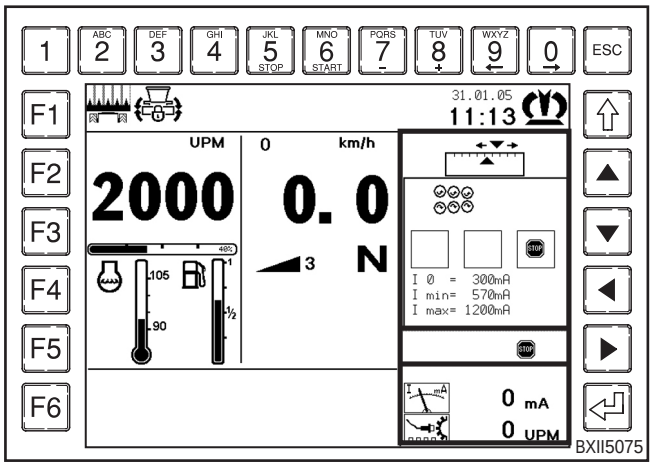
- Use the ESC or ▶ key to abort the calibration.

The progress bar indicates the status:

- STOP = calibration has been stopped.
- = calibration is running down.
- = calibration has been successful.
- **mA** = current power consumption valve Y5 "Feed drive forward".
- **RPM** = current speed of the feed drive.







The calibration results are displayed as follows:

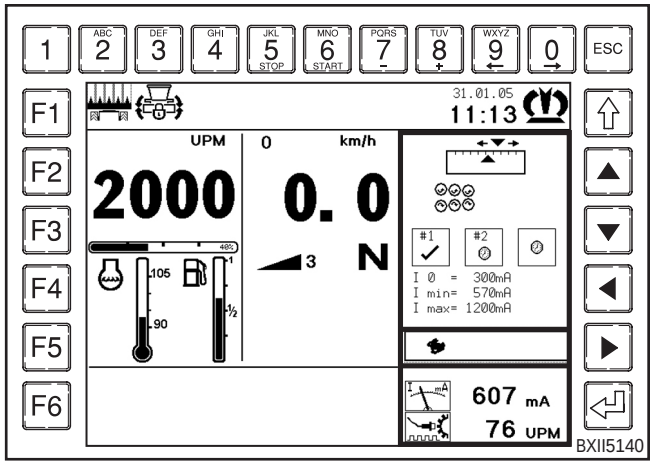
- #1 = calibration 1 is running.
- #1 = calibration 1 was successful.
- #2 = calibration 2 is running.
- #2 = calibration 2 was successful.

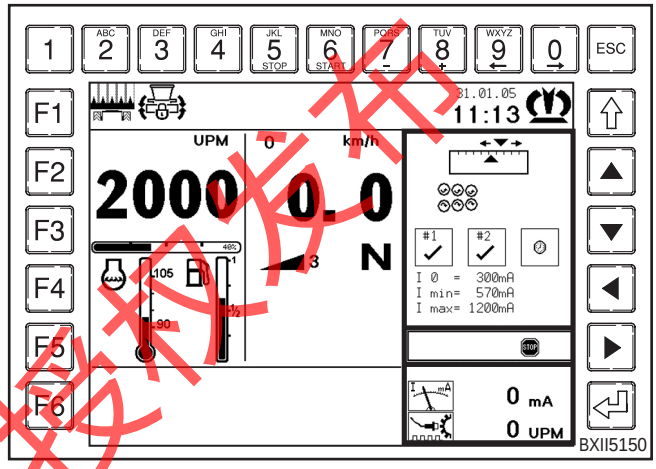
Display stopped; current power consumption and engine speed are at 0.
The calibration is complete.

The power consumption display is updated:

- I 0 = Power consumption when turning is started.
- I min = Power consumption at minimum speed
- I max = Power consumption at maximum speed

- Use the ESC key to quit the "Calibrating front attachment/feed drive" sub-menu field.





4.2.4 Metal detection

Activating or deactivating metal detection

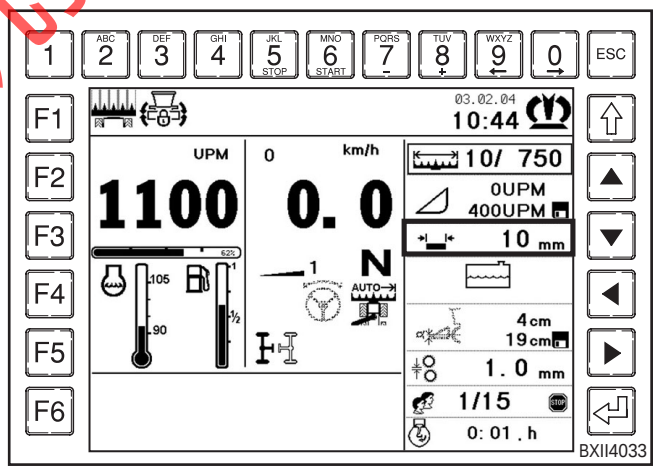
The "Metal detection" sub-menu is protected by password. It can be accessed only after input of the password.

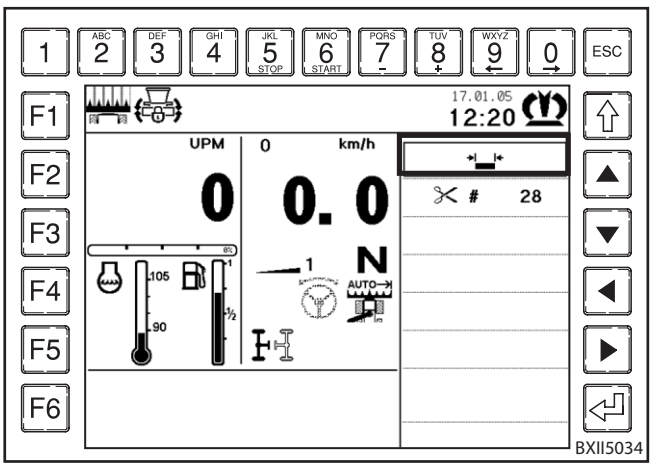
- Use the ▼ key to select the feed drive menu field.
- Use the ↵ key to acknowledge the selection.

The submenu for setting the "Number of cutting blades" appears.

- Use the ▲ or ▼ Menüfeld ⇥|▬|⇤ key to select the menu field and the ↵ key to confirm.

The password prompt appears.





4.2.5 Silage fodder addition

In field operation, the current setting is displayed in the silage fodder addition menu field in the information section of settings (IV).

Pre-requisite for switching on Automatic mode:

- Feed drive/front attachment switched on
- Main drive switched on
- Front attachment lowered
- Driving forward

Status display:

- A = automatic mode has been switched on; silage fodder addition is active
- A = automatic mode has been switched on; silage fodder addition is not active
- = silage fodder addition is deactivated
- = silage addition is always active

Switching on automatic operation

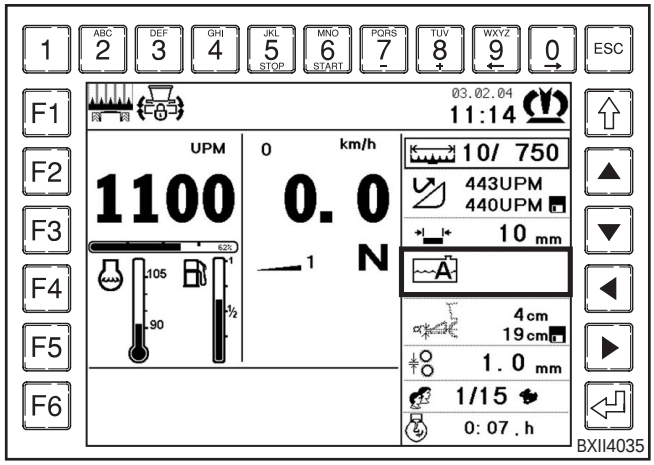
- Use the ▼ key to select the silage fodder addition menu field.
- Use the ◀ key to select "Automatic mode" A .

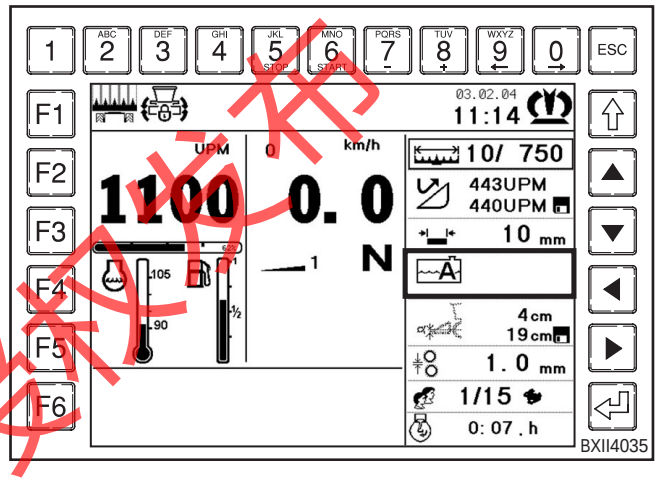
Deactivating silage fodder addition

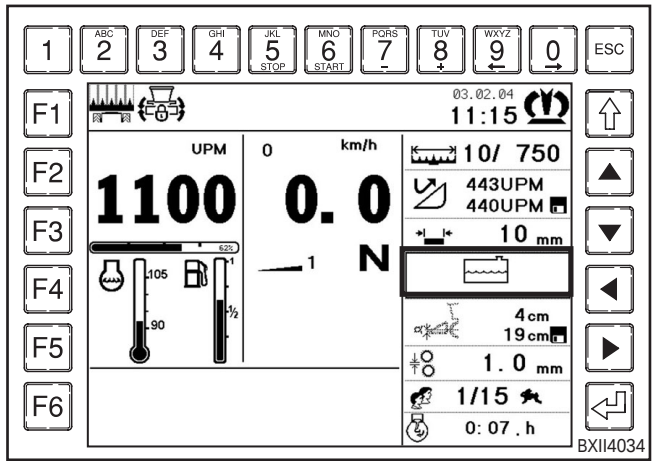
- Use the ▼ key to select the silage fodder addition menu field.
- Use the key ◀ or ▶ to select "Silage fodder addition deactivated" .

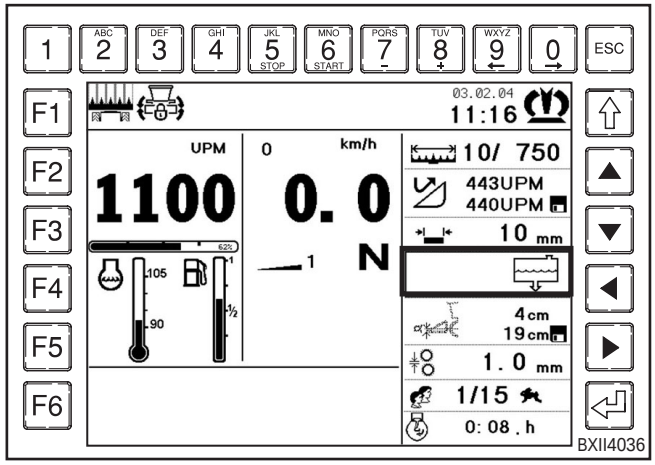
Activating silage fodder addition

- Use the ▼ key to select the silage fodder addition menu field.
- Use the ▶ key to select "Silage addition always active" .

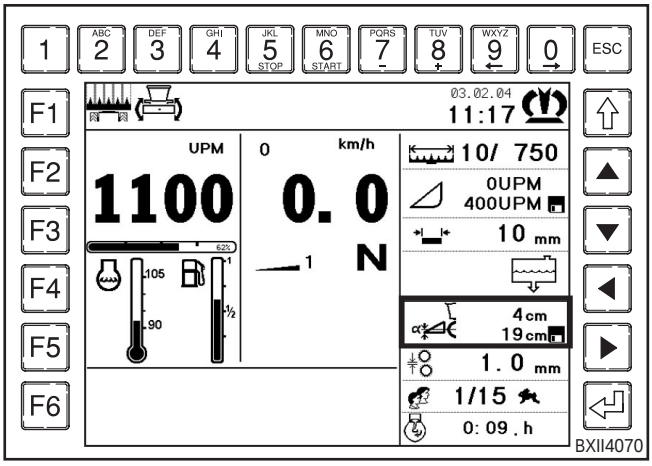








4.2.6 Lifting gear



In field operation, the current lifting gear control is displayed in the lifting gear menu field (IV) along with the actual height of the lifting gear and the corresponding setpoint pressure or the setpoint height.

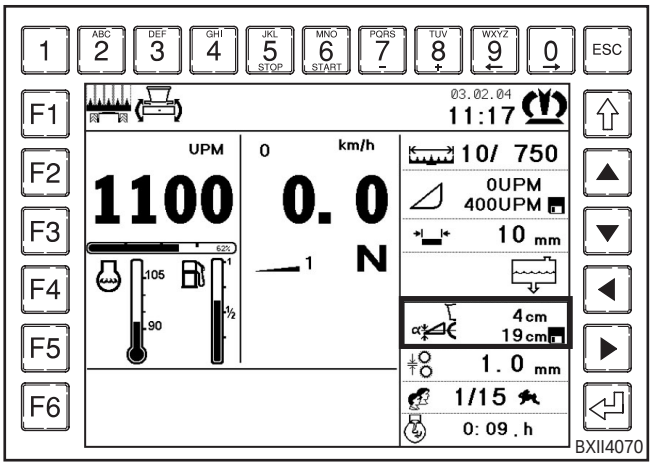
Status display:

- = Lifting gear pressure control; the control sets the pressure on the ground to a constant value. The control is active.
- = The lifting gear pressure control has been switched on. The control is still inactive.
- = Lifting gear position control; the control sets the height constant relative to the machine. The control is active.
- = The lifting gear position control has been switched on. The control is still inactive.
- = Lifting gear spacing control (optional, only in conjunction with spacing sensors); the control sets the height constant relative to the ground. The control is active.
- = The lifting gear spacing control has been switched on. The control is still inactive.
- 1st value = actual height of the lifting gear in cm
- 2nd value = setpoint pressure as a percentage value for the own weight of the front attachment ( ). It is adjustable between –6 % (front attachment sways above the ground) to a maximum of 70 % (front attachment presses on to the ground with 70 % of its own weight).
- 2nd value = target height in cm ( ).
- 2nd value = nominal height in cm ( ) or as a % if the lifting gear distance control is set.

Changing the setpoint pressure or setpoint height

- Use the [▼] key to select the lifting gear menu field.
- Use the key [◀] or [▶] to decrease or increase the setpoint value.

The setpoint pressure or setpoint height can also be modified and saved by means of the multi-function lever.

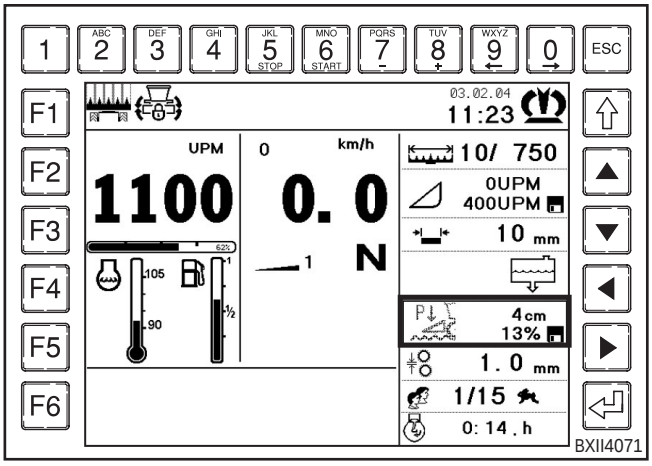


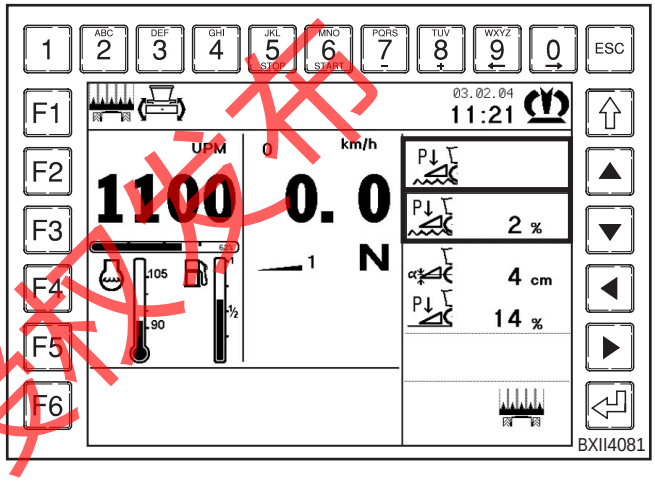
Setting the lifting gear top pressure control

- Use the ▼ key to select the lifting gear menu field.
- Use the ↵ key to acknowledge the selection.

The currently set control is displayed in the first field of the information section of settings (IV); the second field displays the appertaining setpoint value, and the third field the current value of height and of pressure, whilst the fifth field displays the selection of the field operation (grass pickup/maize header).

- Use the key ▼ or ▲ to select the first field.
- Use the key ◀ or ▶ to select the lifting gear top pressure control P↓.
- Use the ▼ key to select the the second field.
- Use the key ◀ or ▶ to decrease or increase the setpoint pressure.
- Use the ESC key to quit the "Lifting gear" sub-menu field.



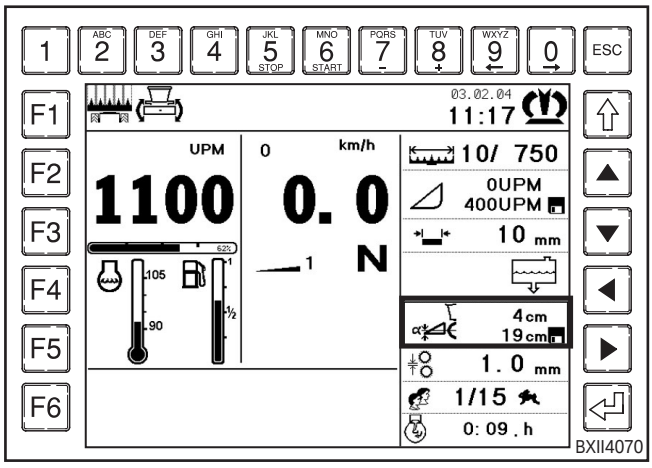


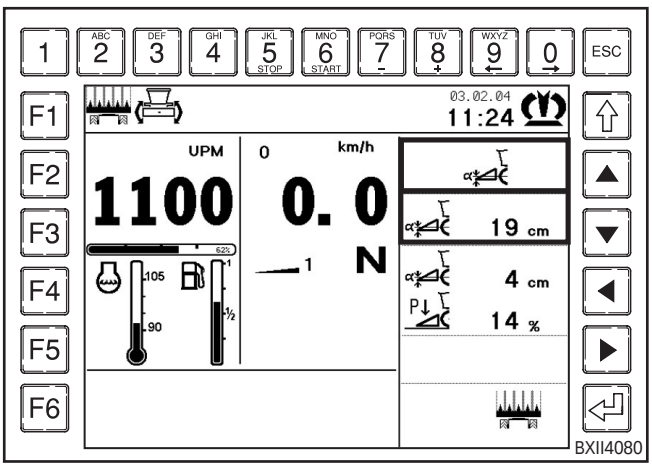
Setting the lifting gear position control

- Use the ▼ key to select the lifting gear menu field.
- Use the ↵ key to acknowledge the selection.

The currently set control is displayed in the first field of the information section of settings (IV); the second field displays the appertaining setpoint value, and the third field the current value of height and of pressure, whilst the fifth field displays the selection of the field operation (grass pickup/maize header).

- Use the key ▼ or ▲ to select the first field.
- Use the key ◀ or ▶ to select the lifting gear position control α↕.
- Use the ▼ key to select the the second field.
- Use the key ◀ or ▶ to modify the position of the lifting gear relative to the machine.
- Use the ESC key to quit the "Lifting gear" sub-menu field.





Setting the lifting gear spacing control (optional; only in conjunction with spacing sensors fitted)

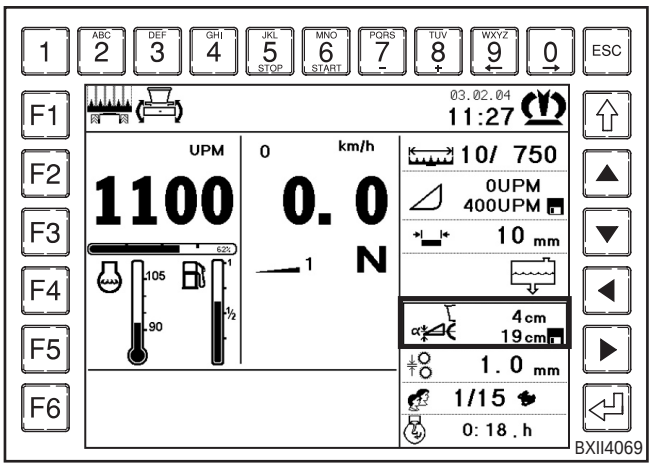
- Use the ▼ key to select the lifting gear menu field.
- Use the ↵ key to acknowledge the selection.

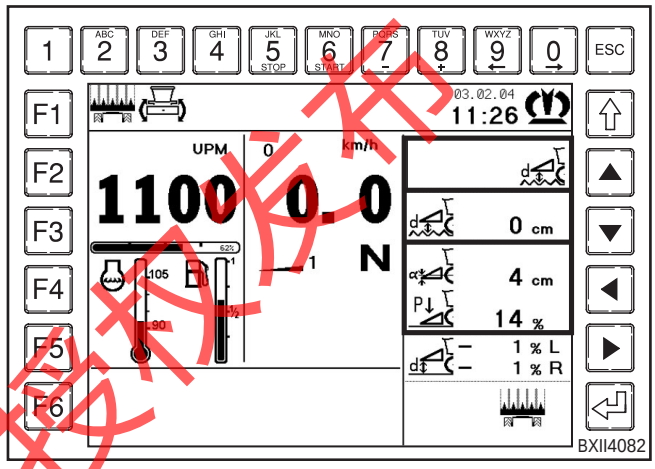
The currently set control is displayed in the first field of the information section of settings (IV); the second field displays the appertaining setpoint value, and the third field the current value of height and the fourth field the current value of the height of the spacing sensors fitted (left/right), whilst the fifth field displays the selection of the field operation (grass pick-up/maize header).
The displays in the third and fourth fields are for information only.

- Use the key ▼ or ▲ to select the first field.
- Use the key ◀ or ▶ to select the lifting gear spacing control .

If no spacing sensors have been fitted, a fault message will be displayed.

- Use the ▼ key to select the the second field.
- Use the key ◀ or ▶ to change height relative to the ground.
- Use the ESC key to quit the "Lifting gear" sub-menu field.





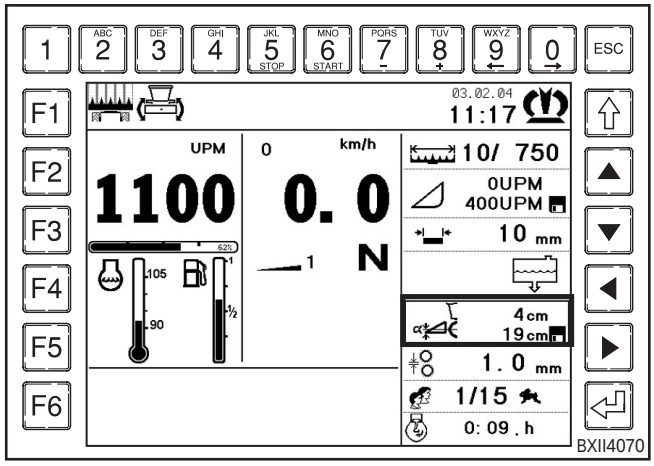
4.2.7 Setting the grass pick-up/maize header mode

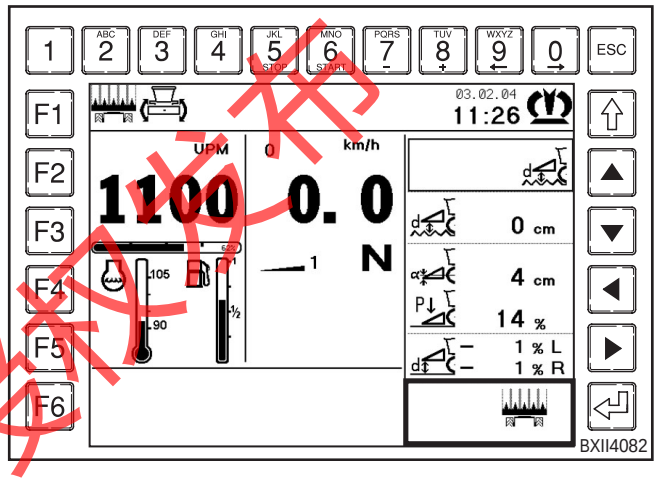
The mode (grass pick-up or maize header) can be set in the "Lifting gear settings" sub-menu.

- Use the ▼ key to select the lifting gear menu field.
- Use the ↵ key to acknowledge the selection.

The currently set control is displayed in the first field of the information section of settings; the second field displays the appertaining setpoint value, and the third field the current value of height and of pressure, whilst the fifth field displays the selection of the field operation (grass pick-up/maize header).

- Use the ▼ key to select the fifth field (grass pick-up/maize header selection).
- Use the key ◀ or ▶ to select the mode.
- Use the ESC key to quit the "Lifting gear" sub-menu field.





4.2.8 Adjusting the grain conditioner spacing

If the maize header mode has been set, the symbol and the current actual value of the grain conditioner spacing is displayed in the information section of settings (IV).

- Use the ▼ key to select the grain conditioner menu field .
- Use the ◀ or ▶ key to decrease or increase the grain conditioner distance.

Calibrating the grain conditioner

The grain conditioner should only be calibrated when the grain conditioner is being installed or if the actual value of the grain conditioner spacing is significantly different than the target value.

- Use the ▼ key to select the grain conditioner menu field .
- Use the ↵ key to acknowledge the selection.

The display of the information section of settings (IV) switches to the "Calibrate grain conditioner" sub-menu

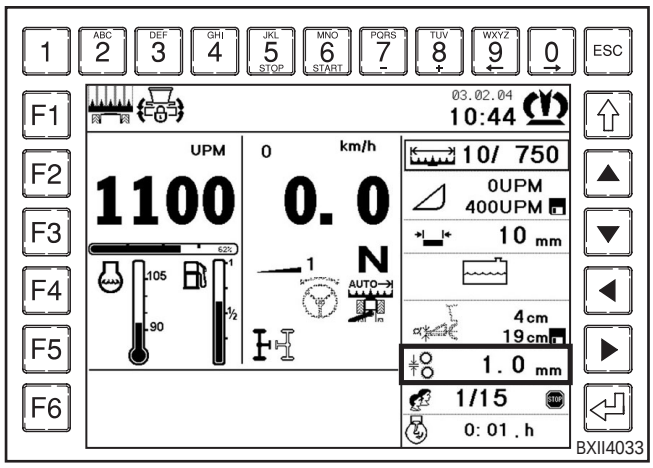
The first field shows the symbol for calibration .

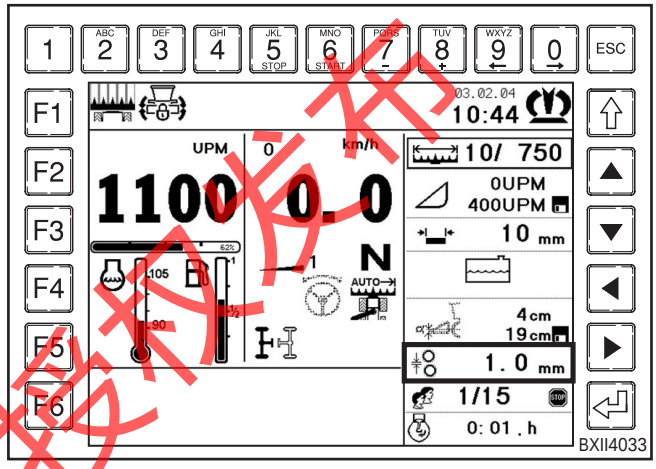
The second field displays the currently set distance in mm and the corresponding digital value.

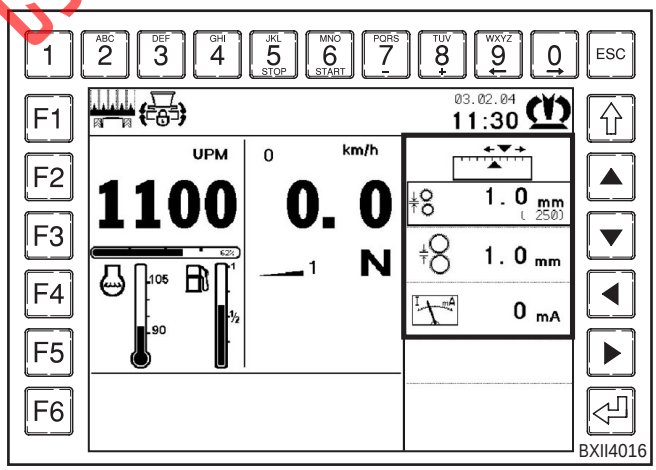
The third field is used to set the measured distance.

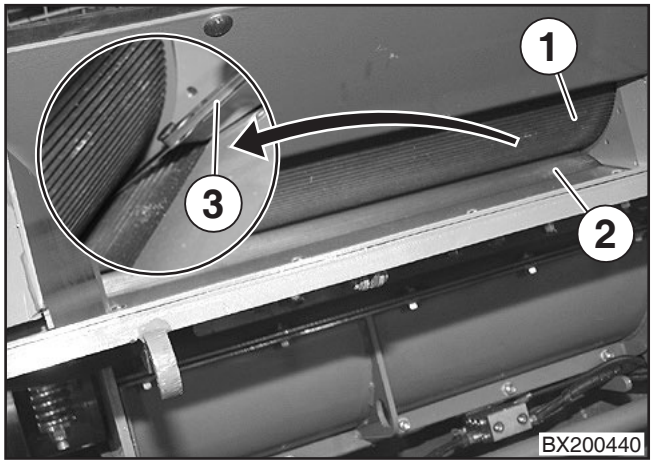
The current power consumption of the grain conditioner is displayed in the fourth field. It is required for diagnostic purposes by the KRONE service technicians.

To ensure exact calibration, it is important to determine the exact distance between the two rollers (1, 2) of the grain conditioner with a sensor gauge (3).





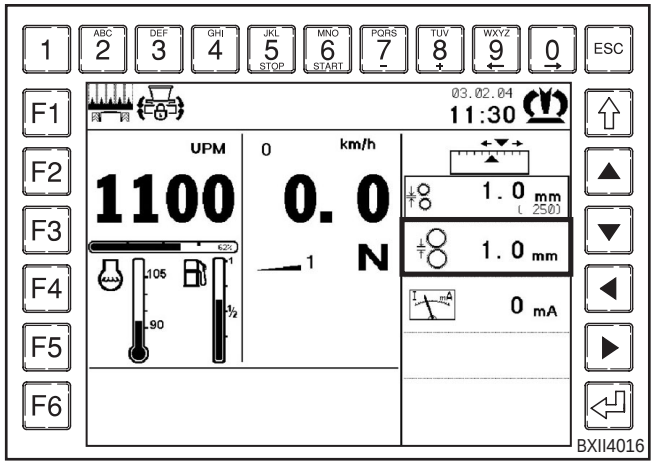




- Measure the grain conditioner distance on the machine (actual value).
- Use the key ▲ or ▼ to select the third field.
- Use the key ◀ or ▶ to set the distance to the actual value measured, and acknowledge the input with the ⏎ key .
  The actual value will be allocated to the digital value displayed in the second field.

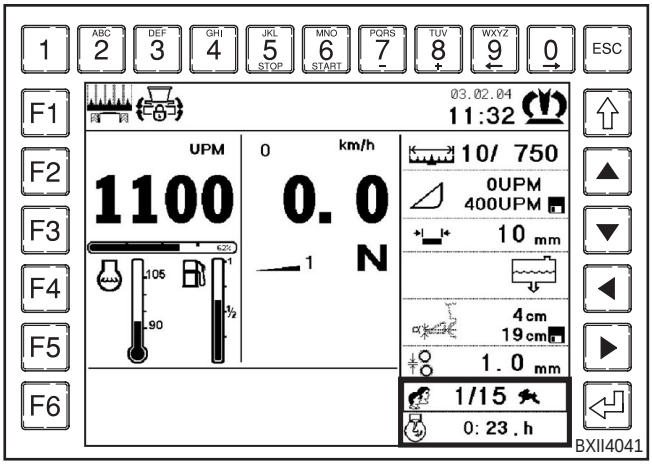
The programme will calculate the digital values for the other grain conditioner spacings on the basis of the new allocations of actual value and digital value.

- Use the ESC key to quit the sub-menu "Calibrate grain conditioner" sub-menu.



4.2.9 Customer data

The customer record currently set and the status are displayed in the customer menu of the information section of settings (IV).
The current type of display and the status of the counter is displayed in the counter menu.



Status display:

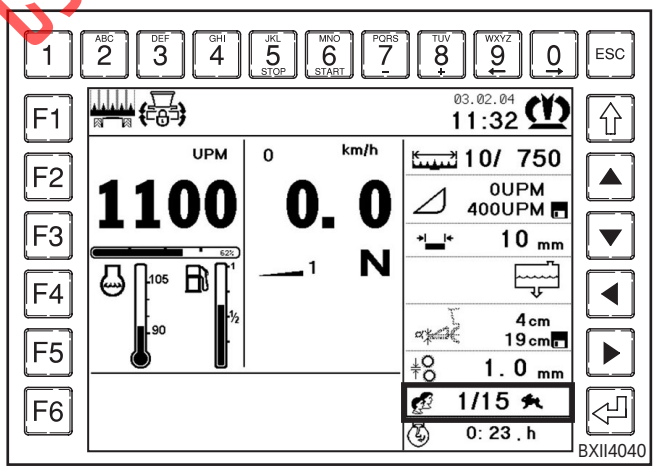
- STOP = counter is at a standstill
- = counter is activated
- = counter is running (the rabbit is moving)

Type of display:

- = operating hour counter (h)
- = working time counter (h)
- = surface counter (ha)
- = kilometre counter (km)
- = fuel consumption (l) (V8 only)

Switching the counter on or off

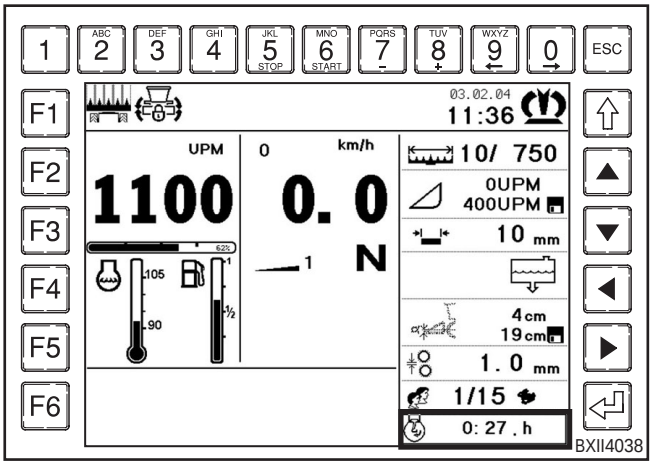
- Use the key ▲ and ▼ to select the customer menu field.
- Use the key ◀ or ▶ to switch the counter on or off STOP.



Changing the type of display of the counter

For types of display, please see above.

- Use the key ▲ and ▼ to select the counter menu field.
- Use the key ◀ or ▶ to select the type of display of the counter.



Editing customer records

The "Customer data" sub-menu is used to change the customer record, to erase the counter of customer, to change and create a new customer record.

- Use the key ▲ and ▼ to select the customer menu field.
- Use the ↵ key to acknowledge the selection.

The "Customer data" sub-menu is displayed in the information section of settings (IV).

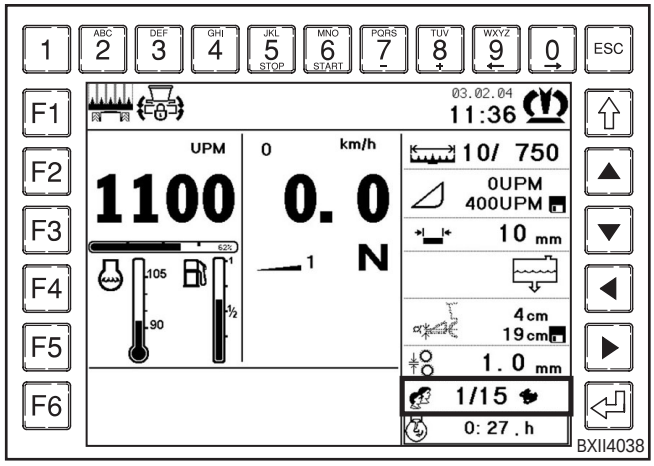
The first field is used to display the currently selected customer record.

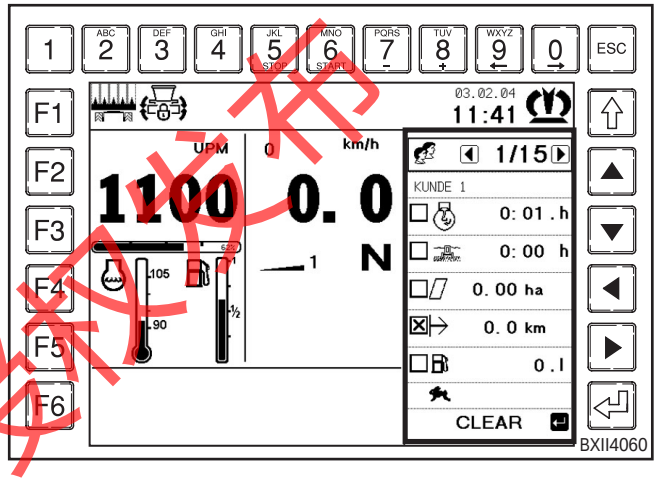
The second field is used to display the customer's name saved to the record.

Fields 3 to 7 display the current counter status of the customer selected. The counter marked by **X** is the display selected for the main display.

The eighth field displays the current status.

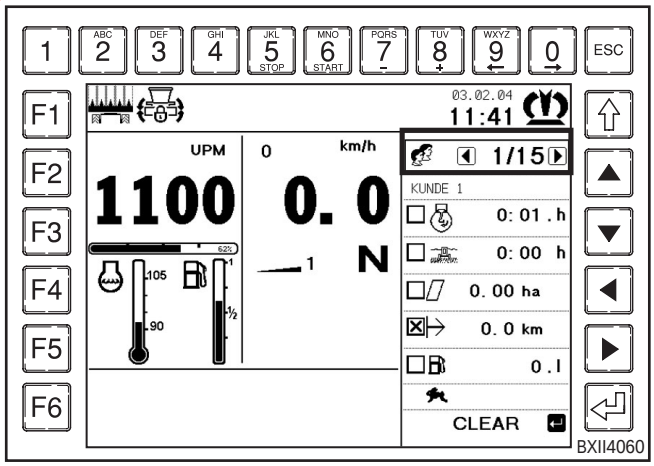
The ninth field "CLEAR" is used to delete the counter.





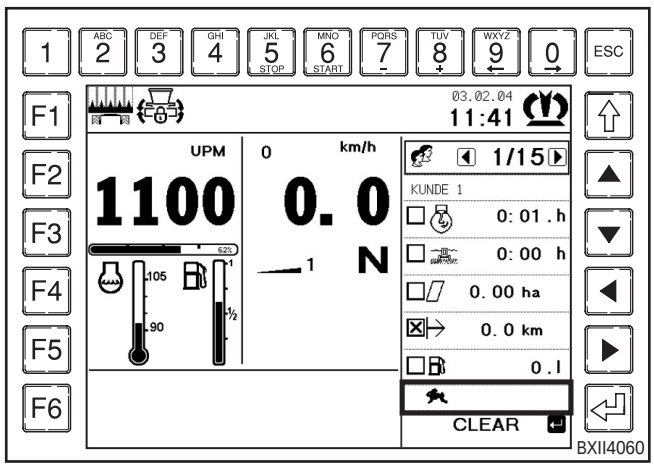
Selecting the customer record

- Use the key ▲ and ▲ to select the first field.
- Use the key ◀ or ▶ to select another customer record.
- Use the ESC key to quit the "Customer data" sub-menu.



Switching the counter on or off

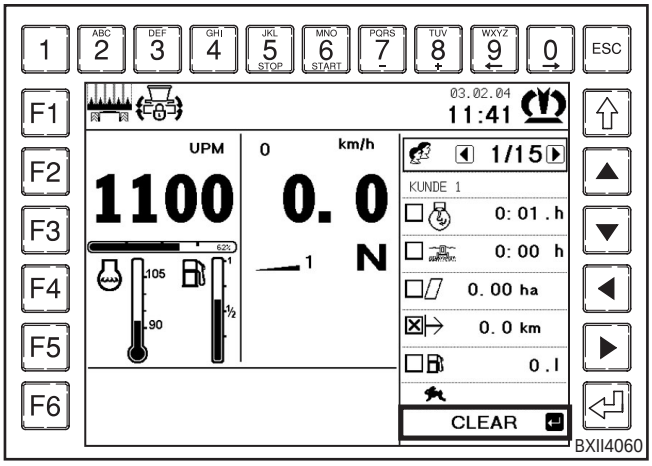
- Use the key ▲ and ▼ to select the "Customer data" sub-menu and the seventh field "Status display".
- Use the key ◀ or ▶ to switch the counter on or off STOP.



Erasing the counter

- Use the ▲ and ▼ keys to select the sub-menu "Customer data" and the ninth field "CLEAR".
- Use the ↵ key to confirm the selection (delete counter).

All five counters for the currently selected customer will be reset to 0.

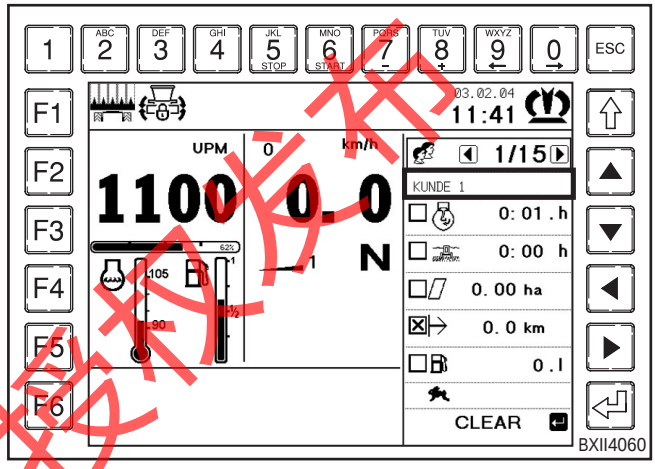


Modifying and/or creating customer record

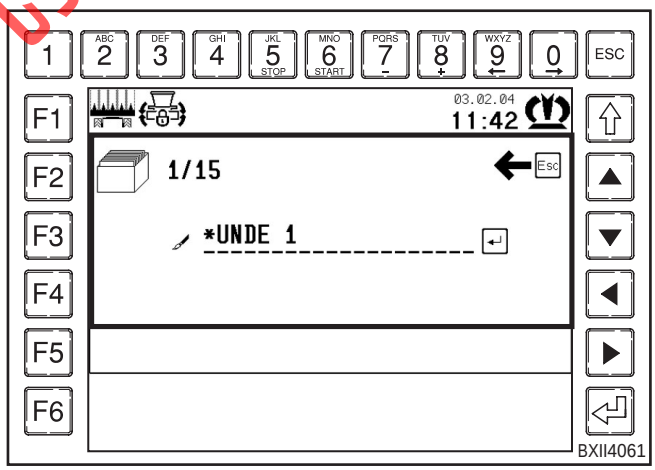
A total of fifteen customer records can be created. Select the customer record you want to modify; select a free customer record to create a new entry.

- Use the ▲ and ▼ keys to select the sub-menu "Customer data" and the second field "Customer name".
- Use the ↵ key to acknowledge the selection (customer name).

The display will show the selected customer record (here 1/15, for example).

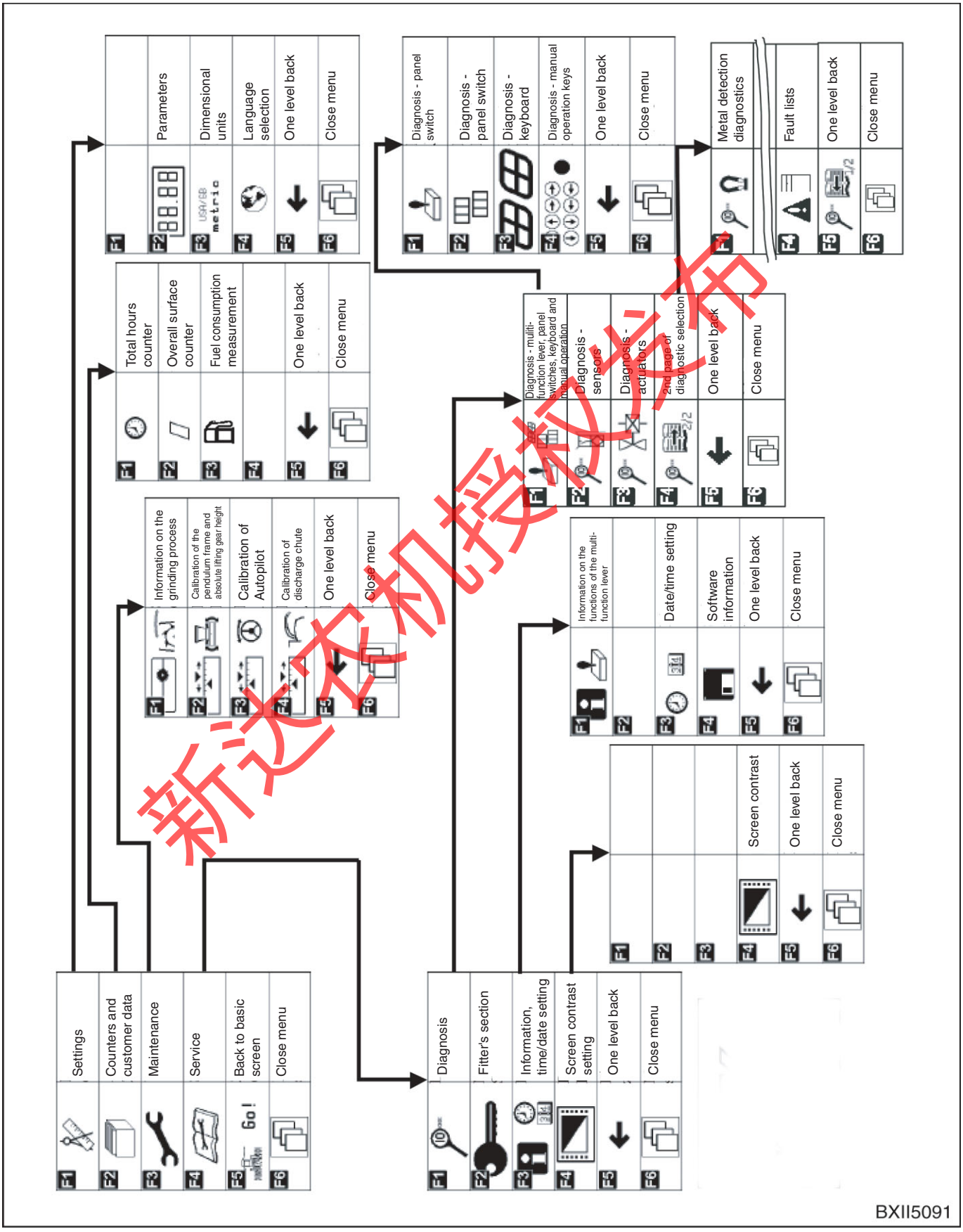


- Use the alphanumeric keys (0 to 9) to enter or modify the customer name.
  Spaces will be generated with the 0 key.
- Use the ◀ or ▶ keys for correction or for the entry to be corrected.
- Pressing the ESC key briefly aborts the entry.
- Confirm entry with the ↵ key. The customer name is accepted for the selected data record and the "Customer data" submenu closes.
  The display switches back to the basic screen.



4.3 Functional level

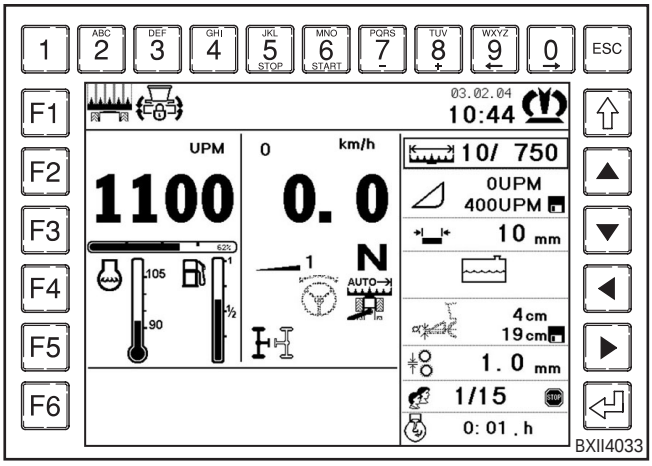
Overview



4.3.1 Calling the functional level

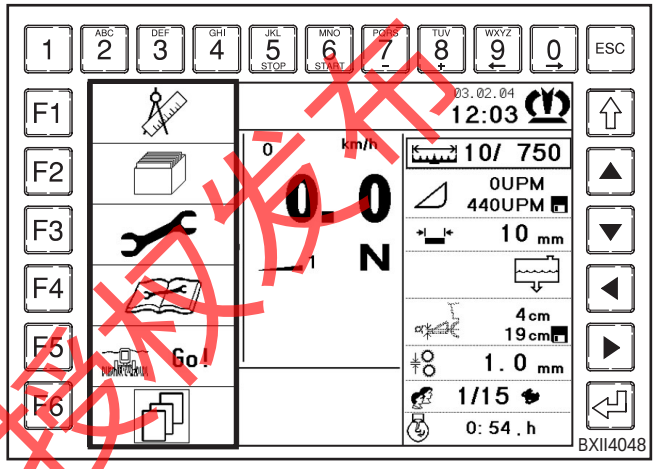
- Press the function key F1 .

The functional level is displayed in the information section of the engine data (II).



The functional level is divided up into four main menus:

- = Main menu F1 – "Settings"
- = Main menu F2 – "Counters and customer data"
- = Main menu F3 – "Maintenance"
- = Main menu F4 – "Service"
- The program F5 returns to the main display.
- Use F6 to close the menu.



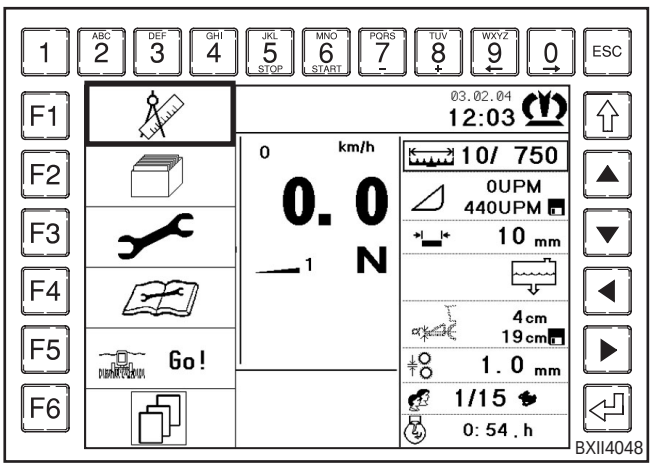
4.3.2 Main menu F1 "Settings"

Calling the main menu

The functional level is active.

- Press the function key F1 .

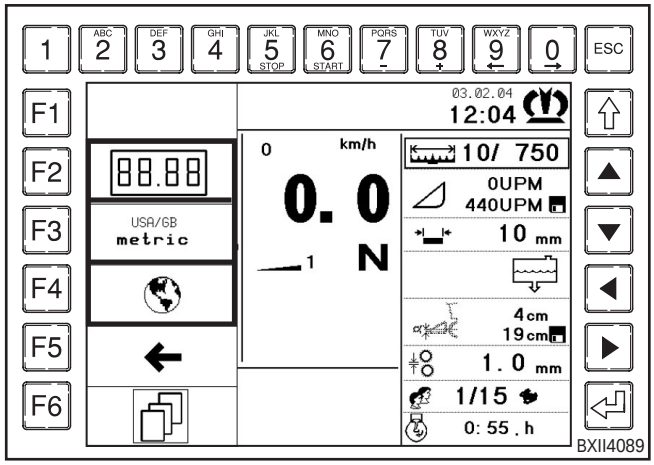
The "Settings" main menu level is displayed in the information section of the engine data (II).



The main menu, "Settings", is divided up into three menus:

- 88.88 = Menu F2 "Parameters"
- US/GB **Metric** = Menu F3 "Dimensional units"
- = Menu F4 "Language"

- Use F5 to return to the functional level.
- Use F6 to close the menu.

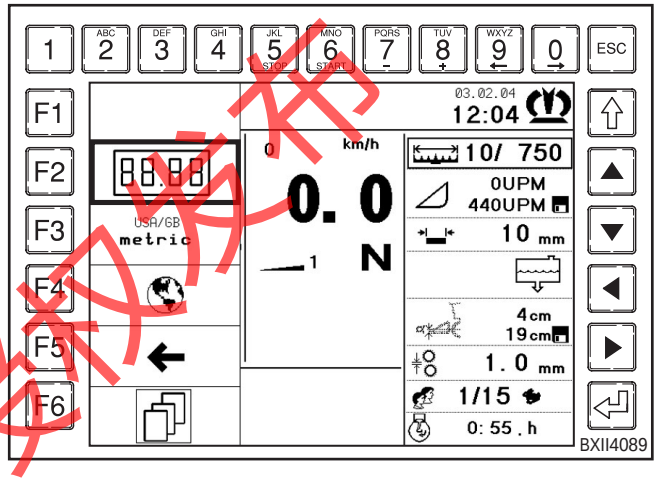


4.3.3 Menu F1 - F2 "Parameters"

The main menu "Settings" is active.

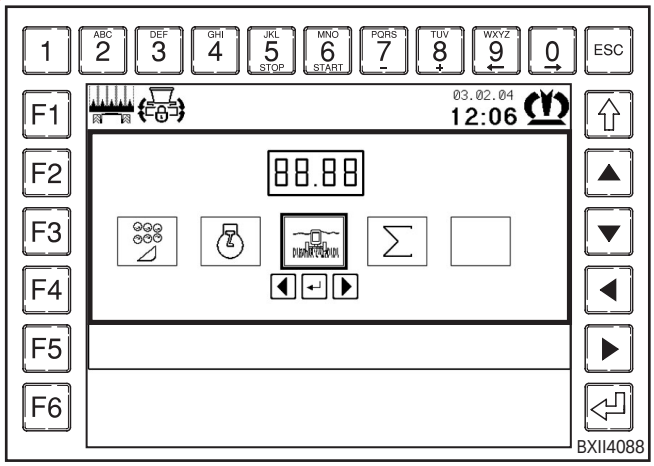
- Press the function key F2 .

The display shows the selection of groups for the adjustment of parameters.



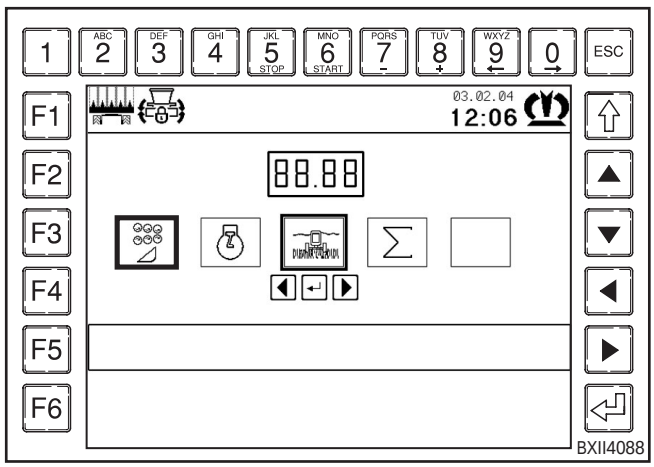
Groups:

- = group – feed drive/front attachment
- = group – grinding
- = group – engine
- = group – work
- = show all parameters

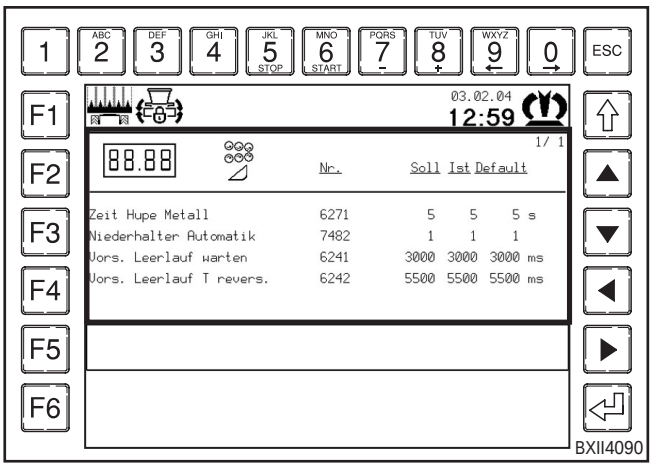


For other groups and their symbols, please refer to Section 4.4 titled "Overview of groups".

- Use the ◀ or ▶ key to select the group.
- Actuating the ↵ key will display the parameters of the group.



Entering parameters



- Use the ▲ or ▼ key to call the individual pages.
- Use the ◀ or ▶ key to switch between the individual entries.
- Numeric keys are used to enter the values.
- Use the ESC key to abort the entry.
- Use the ↵ key to acknowledge the value entered. If the value entered exceeds or remains under the threshold values, the respective threshold value is set.
- Pressing the ⇧ key longer causes the basic adjustment values to be accepted.
- Pressing the ESC key longer causes the display to return to the group selection.

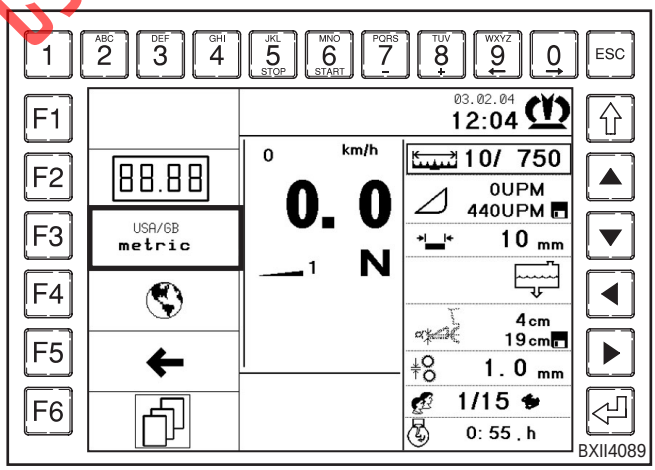
4.3.4 Menu F1 - F3 "Dimensional units"

The main menu "Settings" is active.

The selection of the dimensional units is displayed in the information section of the engine (II).
The currently set dimensional unit is displayed in bold print.

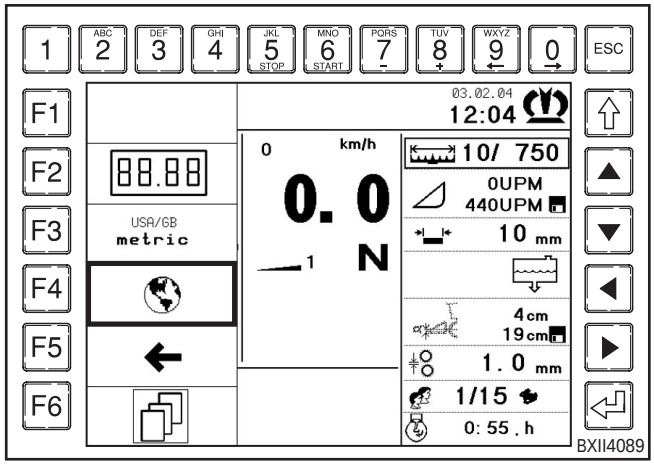
US/GB = Anglo-American units
Metric = metric SI units

Setting the measuring units



- Press the function key F3 to display the new measuring unit in bold.
- Use F5 to return to the functional level.
- Use F6 to close the menu.

4.3.5 Menu F1 - F4 "Language"

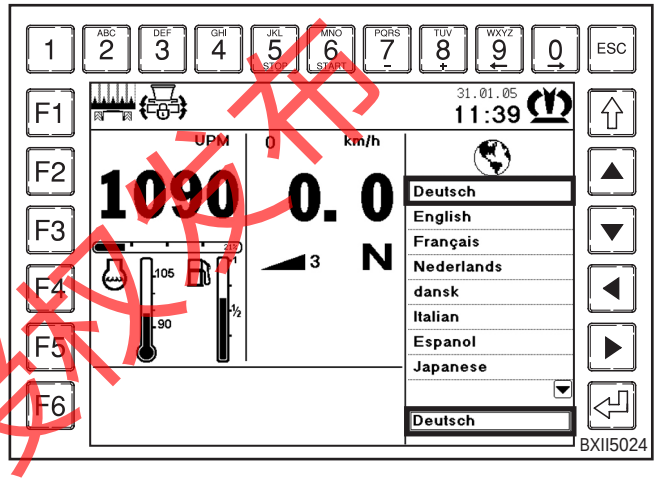


The main menu "Settings" is active.

- Press the function key F4 .

The selection of languages is displayed in the information section of settings (IV).

Language selection



- Use the ▲ or ▼ key to select the requested language.
- Use the ⏎ key to acknowledge the selection.
- Use the ESC key to exit the "Language selection" sub-menu.

The selected language will be active after the machine is restarted (ignition off and on again).

4.3.6 Main menu F2 "Counters and customer data"

Calling the main menu

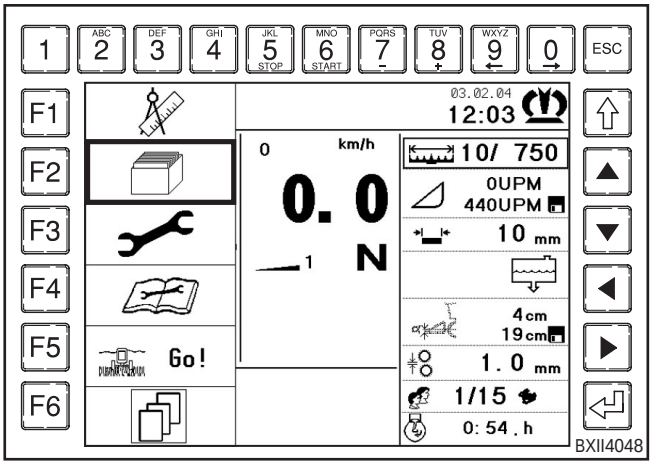
The functional level is active.

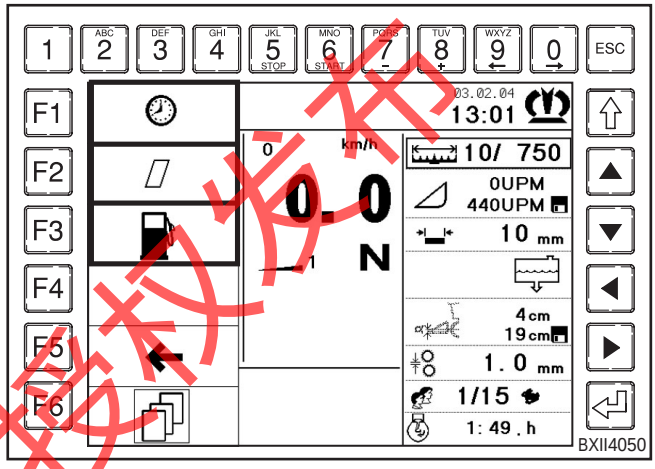
- Press the function key F2 .

The "Counters and customer data" main menu level is displayed in the information section of the engine data (II).

The "Counters and customer data" main menu is divided up into three menus:

- = total hours counter
- = overall surface counter
- = Fuel consumption measurement (V8 only)
- Use F5 to return to the functional level.
- Use F6 to close the menu.





4.3.7 Menu F2 - F1 "Total hours counter"

Call the "Counters and customer data" main menu.

- Press the function key F1 .

The total hour counter is displayed in the information section of settings (IV).

The first field displays the symbol for counters and the symbol for hours.

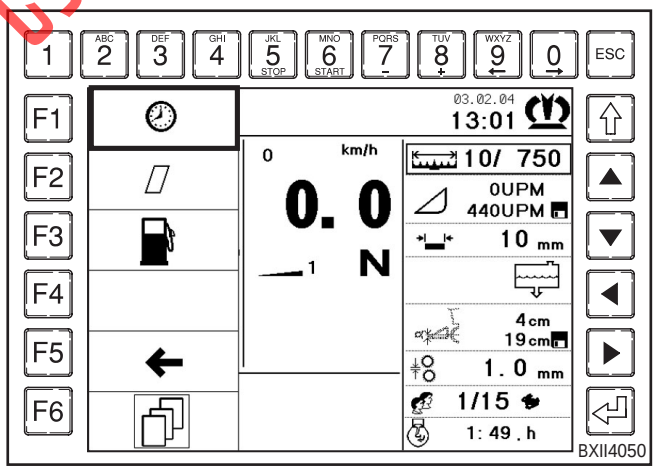
The second field displays the total operating hours of the machine (cannot be erased).

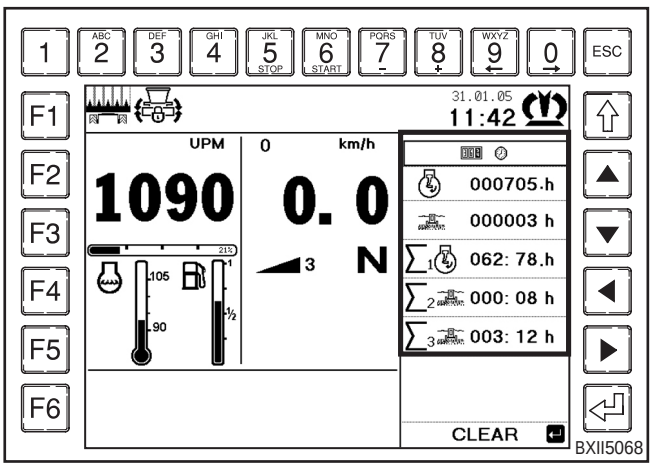
The third field displays the total working hours of the machine (cannot be erased).

The total operating hours counter in the forth field and the two working hours counters in the fifth and sixth field can be reset to zero.
The working hours counters (fields 5/6) can be used as weekly or daily counters, for example.

If a dot flashes behind the counter, the counter is active.

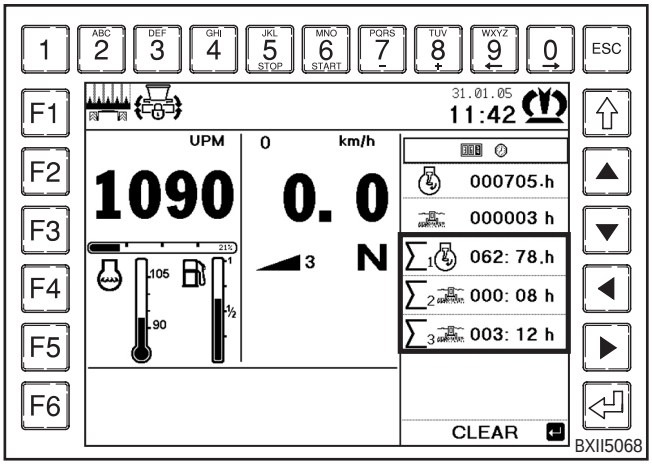
- Use the key to set a selected counter (fields 4 - 6) to zero.





Erasing the total hours counter

- Use the ▲ and ▼ keys and to select the counter (fields 4 to 6) which is to be reset to zero.
- Use the ↵ key to acknowledge the selection and to set the counter to zero.
- Use the ESC key to return to the main display.



4.3.8 Menu F2 - F2 "Overall surface counter"

The "Counters and customer data" main menu is active.

- Press the function key F2 .

The overall surface counter is displayed in the information section of settings (IV).

The first field displays the symbol for counters and the symbol for surface.

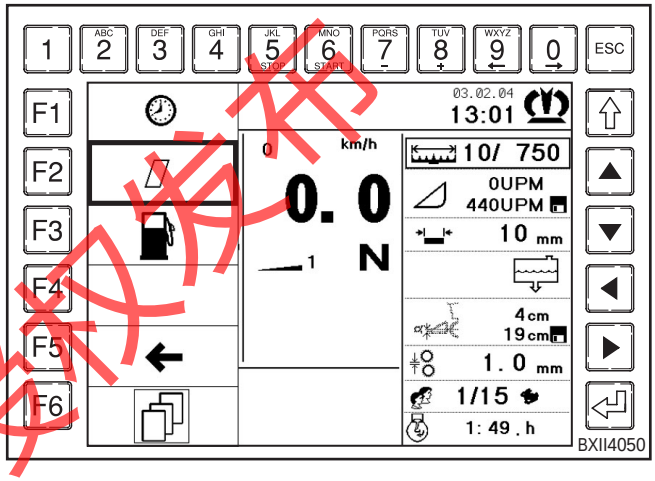
The second field displays the overall surface indicator of the machine (cannot be erased).

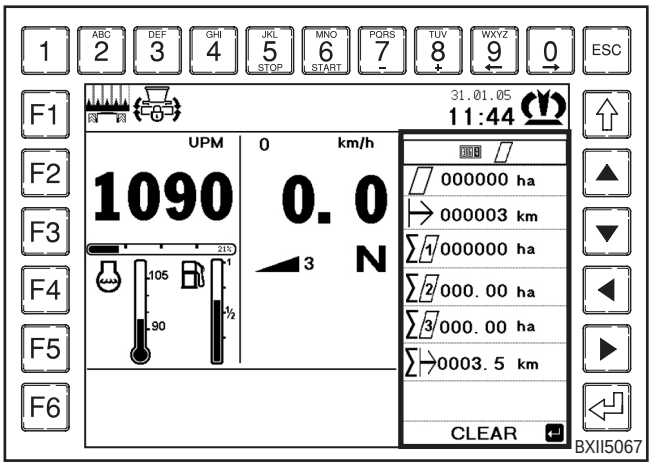
The third field displays the total distance travelled by the machine (cannot be erased).

The overall surface counters in the forth, fifth and sixth field as well as the total distance counter in the seventh field can be reset to zero.

The overall surface counters (fields 4/5/6) can be used as weekly, daily or cut surface counters, for example

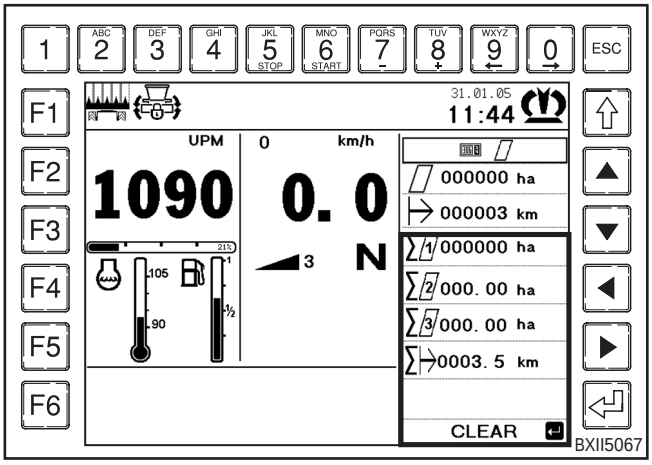
If a dot flashes behind the counter, the counter is active.





Erasing the overall surface counter

- Use the ▲ and ▼ keys and to select the counter (fields 4 to 7) which is to be reset to zero.
- Use the ↵ key to acknowledge the selection and to set the counter to zero.
- Use the ESC key to return to the main display.

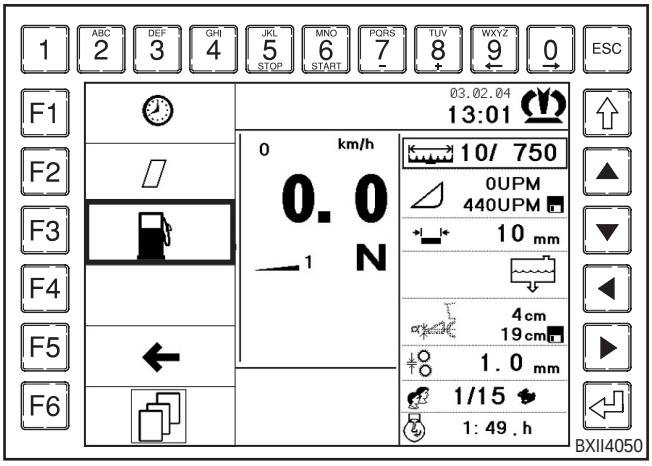


4.3.9 Menu F2 - F3 "Fuel consumption measurement (V8 only)"

The "Counters and customer data" main menu is active.

- Press the function key F3 .

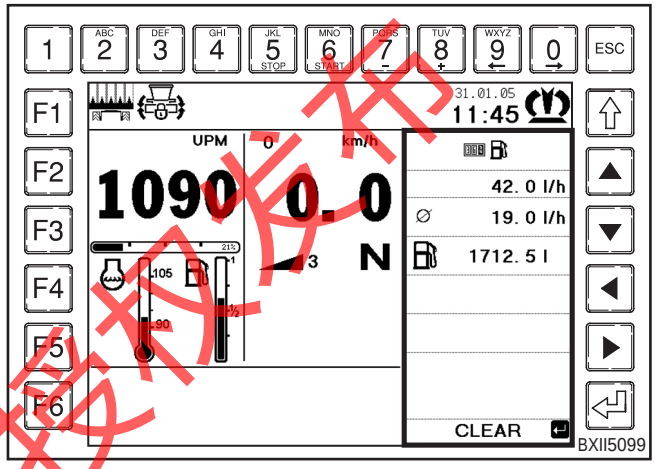
The fuel consumption measurement is displayed in the information section of settings (IV).



The first field displays the symbol for counters and the symbol for fuel consumption measurement.

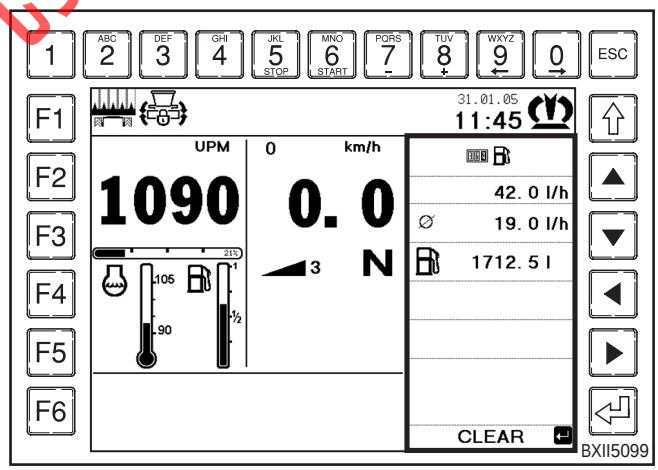
The current fuel consumption of the machine is shown in the second field in litres per hour (cannot be deleted).

The average consumption of the machine is shown in the third field in litres per hours. Total fuel consumption is shown in the fourth field in litres.
They can both be reset to zero.



Delete average fuel consumption/ total fuel consumption

- Use the key to set the displays for average fuel consumption and total fuel consumption to zero.
- Use the ESC key to return to the main display.



4.3.10 Main menu F3 "Maintenance"

Calling the main menu

The functional level is active.

- Press the function key F3 .

The "Maintenance" main menu level is displayed in the information section of the engine data (II).

When the maintenance switch in the basic screen is activated, the "Maintenance" main menu appears automatically

The main menu "Maintenance" is divided up into four menus:

- F1 = information on the grinding process
- F2 = calibration of the pendulum frame
- F3 = calibration of autopilot
- F4 = calibration of the upper discharge chute.
- Use F5 to return to the functional level.
- Use F6 to close the menu.

4.3.11 Menu F3 - F1 "Information on the grinding process"

The main menu "Maintenance" is active.

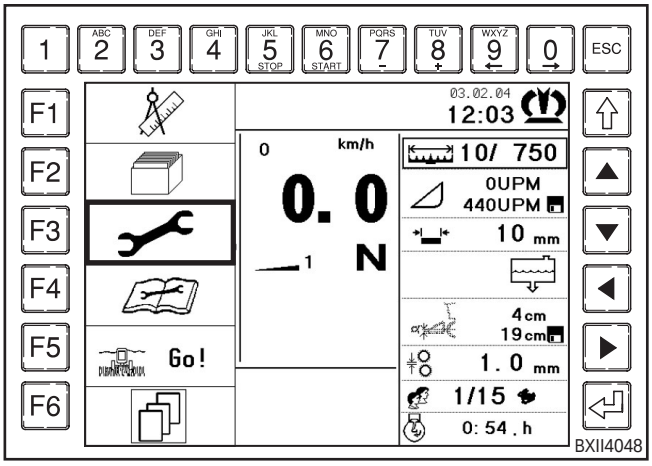
- Press the function key F1

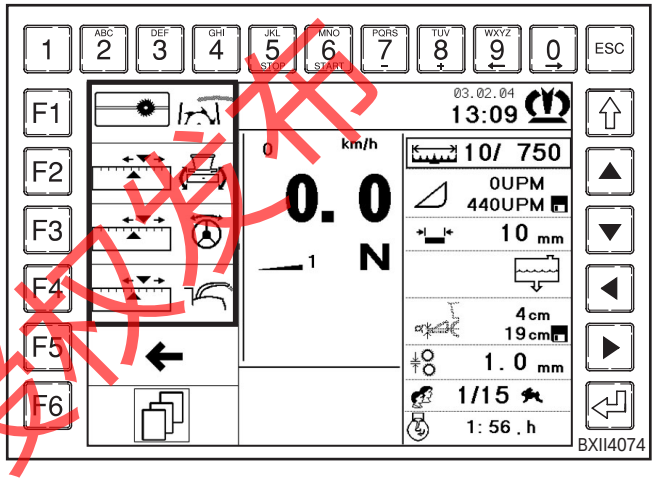
The information on the grinding process is displayed in the information section of settings (IV).

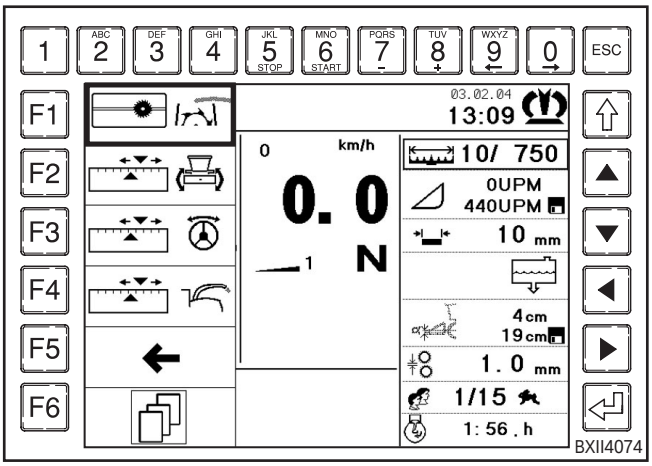
Warning notices appear in the travelling gear data info area (III) pointing out special dangers associated with grinding the cutting blade (refer to the section on Operation – grinding the cutting blade).

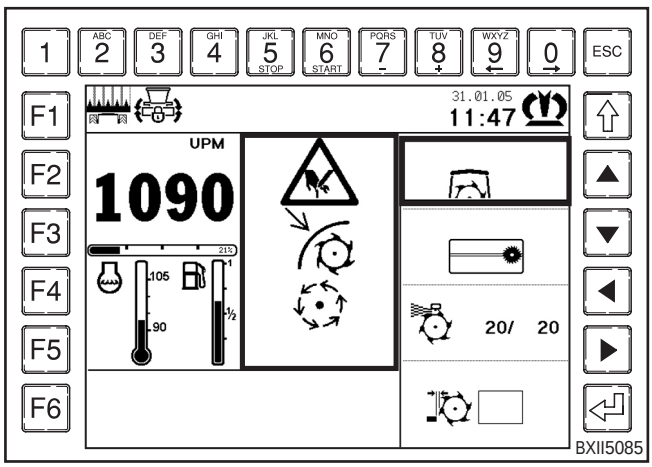
Status of the grinding flap:

- = grinding flap is open.
- = grinding flap sensors are both alive/ sensor is defect - FAULT.
- = grinding flap is in centre position.
- = grinding flap is closed.
- = grinding flap is open.
- = grinding flap has been stopped.
- = grinding flap is closed.

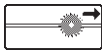
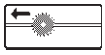
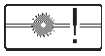
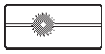


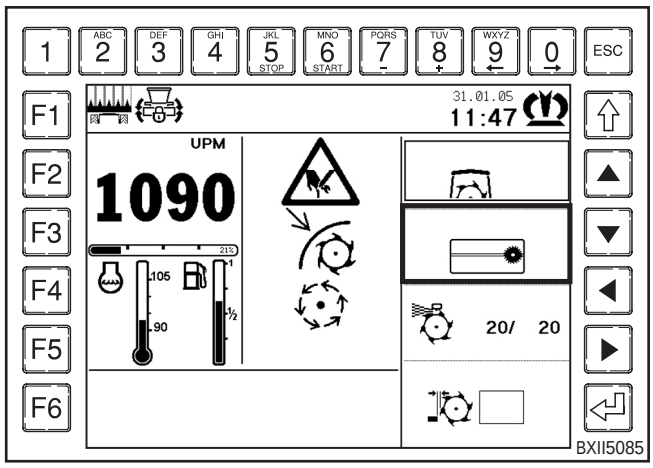






Status of the grindstone:

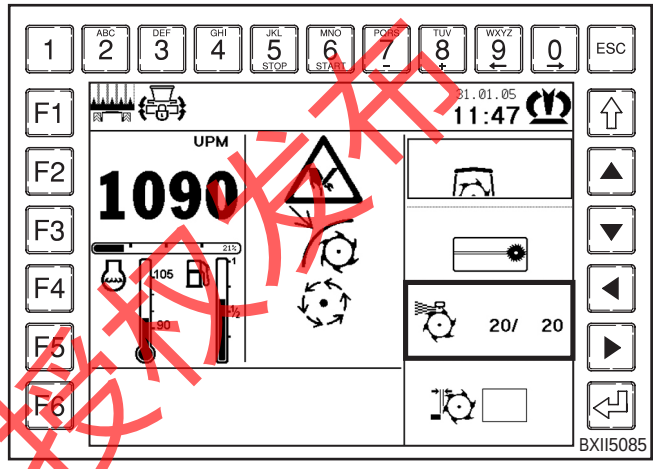
-  = grindstone moves to the right
-  = grindstone moves to the left
-  = grindstone sensors are both alive/sensor is defect - FAULT.
-  = grindstone is left
-  = grindstone is in centre
-  = grindstone is right



Status of the grinding operation:

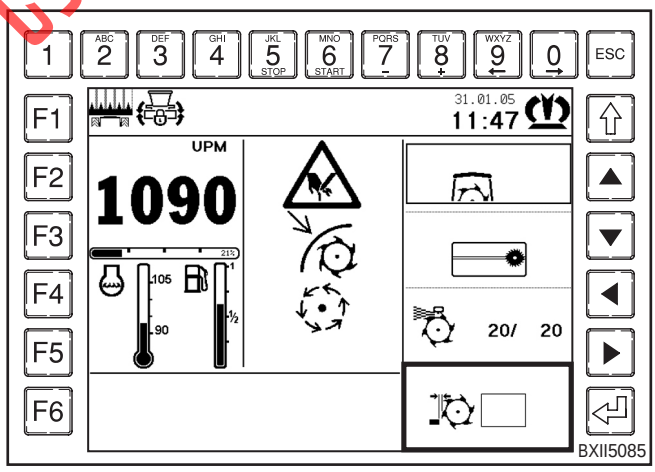
-  **36/36 =** cyclic grinding process; 1st figure = current grinding cycle, 2nd figure = number of setpoint grinding cycles.

One grinding cycle corresponds to a double stroke of the grinding stone (1 x left/1 x right)



Counterblade – status of the counterblade motors (data as seen in direction of travel):
Visual display if the counterblade will be moved manually.

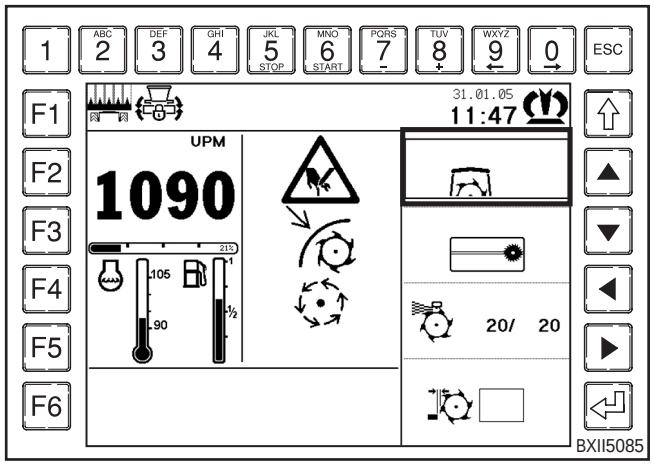
-  = counterblade
-  = counterblade right – increase distance
-  = counterblade right – decrease distance
-  = counterblade left – increase distance
-  = counterblade left – decrease distance
- Use the ESC key to return to the main display.



Opening or closing the grinding flap

Menu F3 - F4 "Information on the grinding process" is called.

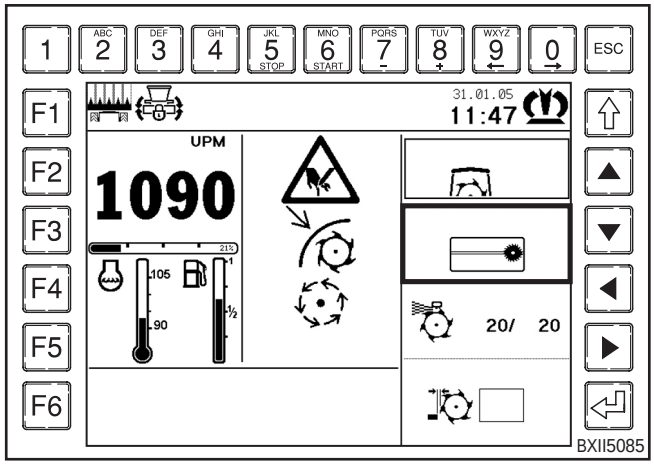
- Use the ▲ ▼ key to select the menu field  .
- Use the ◀ key to close the grinding flap and use the ▶ key to open.
- Use the ESC key to return to the main display.



Moving the grindstone

Menu F3 - F4 "Information on the grinding process" is called.

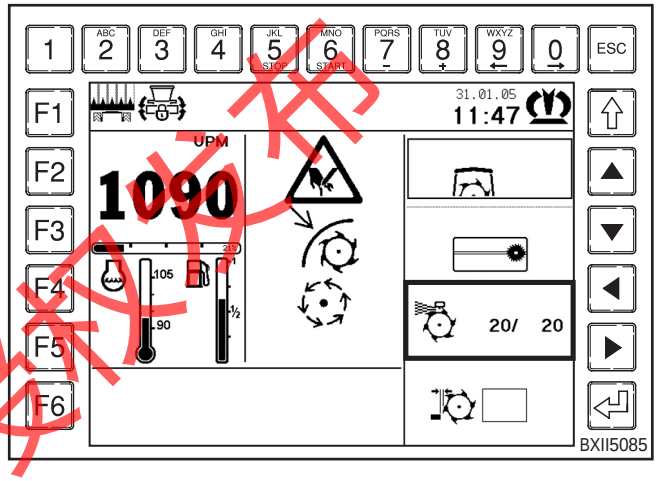
- Use the ▲ and ▼ keys to select the menu field  .
- Use the ▶ key to move the grindstone to the right (looking in the direction of travel).
- Use the ESC key to return to the main display.



Changing the number of grinding cycles

Menu F3 - F4 "Information on the grinding process" is called.

- Use the ▲ and ▼ keys to select the menu field  .
- Use the ◀ key to reduce the number of grinding cycles, and the ▶ key to increase the number of grinding cycles.
- Use the ESC key to return to the main display.



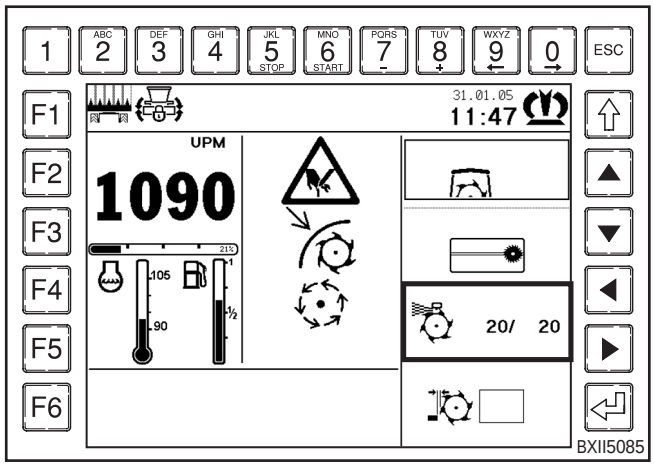
Starting the grinding cycle

Menu F3 - F4 "Information on the grinding process" is called.

- Use the ↵ key to start an automatic grinding cycle.
  The number of grinding cycles currently taken is displayed in the grinding mode status display.
  The automatic grinding cycle is completed when the number of target grinding cycles is reached.

Cancel the grinding cycle

- You can use the ESC key to stop the automatic grinding cycle immediately. The grinding stone remains standing in the current position.
- Use the ▶ key to move the grinding stone to its park position.
- When the ↵ key is pressed again, the number of current grinding cycles is reset to 0 and the automatic grinding cycle is restarted.



4.3.12 Menu F3 - F2 "Calibration of the pendulum frame and absolute lifting gear height"

During the calibration, components may move around, in particular the lifting gear and pendulum frame - danger of injury!

The pendulum frame only needs to be calibrated after work on the pendulum frame or after replacement of the electronic system.
Before calibrating the pendulum frame, adjust the lifting gear (see Sect. 7.5.5)

The main menu "Maintenance" is called.

- Press the function key F2 .

The "Calibrate pendulum frame and absolute lifting gear height" menu appears.

The first field shows the symbol for calibration, .

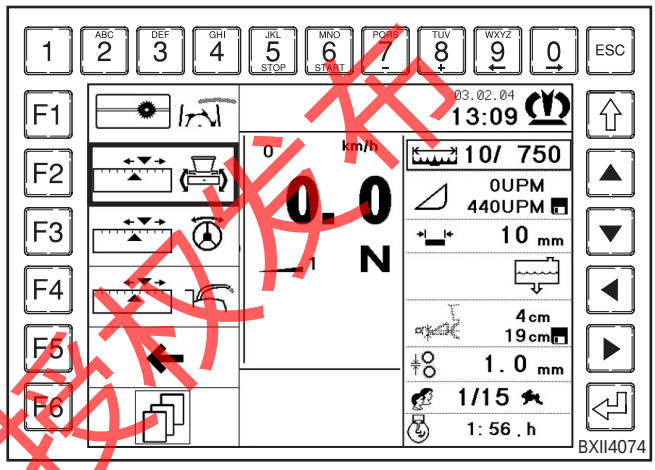
The second field displays the symbol for the pendulum frame and the current value of the sensor as a digital value.

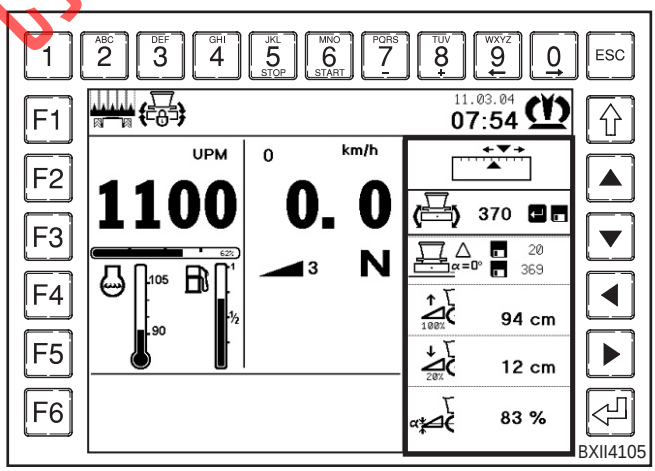
The third field shows the saved digital values for the maximum deviation and the digital value for the pendulum frame.
The digital value for the pendulum frame is updated during the calibration process.

The symbol and the absolute height of the lifting gear that is currently saved compared to 100% are both displayed in the fourth field.

The symbol and the absolute height of the lifting gear that is currently saved compared to 20 % are both displayed in the fifth field.

The symbol and the current lifting height as a % are both shown in the sixth field.





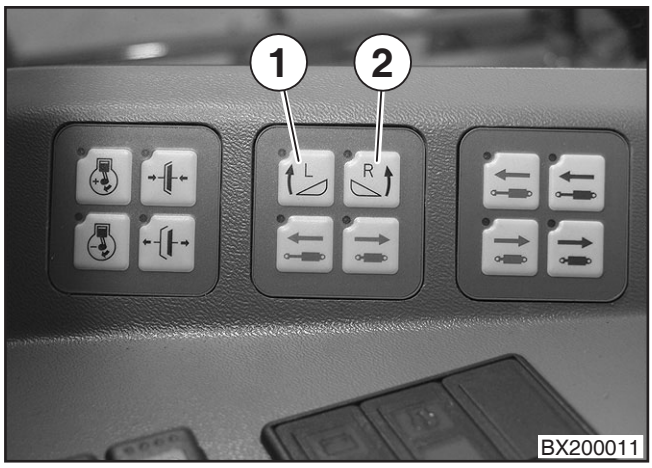
Calibration process for the pendulum frame

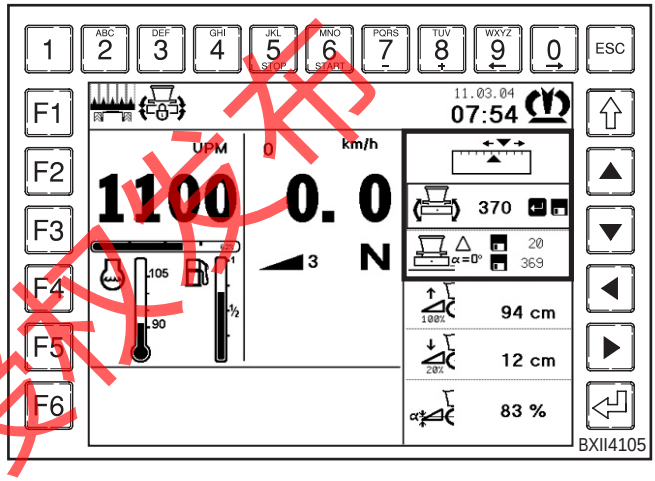
Pre-requisites:

- Field mode release switch turned on.
- Front attachment unit connected.
- The front attachment (with the maize header folded out) must be standing on the ground with a solid subsurface.
- Lower the lifting gear until the front attachment comes to rest on the ground.
- If the front attachment is not horizontal to the machine, align the pendulum frame exactly with the pendulum frame left (1) or pendulum frame right (2) buttons.
- Use the ▲ and ▼ keys to select the menu field .
- Press the key ⏎ to carry out the calibration.

The saved digital value for the pendulum frame is updated in the third field.

After the calibration is complete, information message (8209) appears stating "Pos. saved".





Calibration process for absolute lifting gear height

Calibration of the absolute lifting gear height is required so that the lifting gear height can be specified in absolute terms in the Info Centre.
The calibration values are stored separately for grass pickup and maize header.

Pre-requisites:

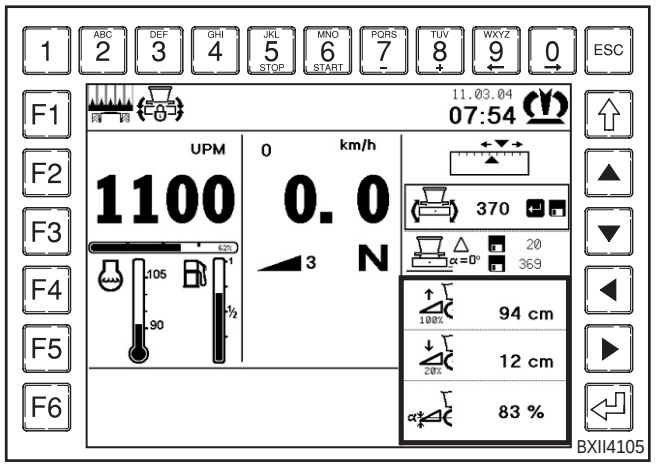
- Lifting gear adjusted (see Sect. 7.5.5).
- Field operation release switch off.
- Travelling gear release switch off.
- Front attachment unit connected.

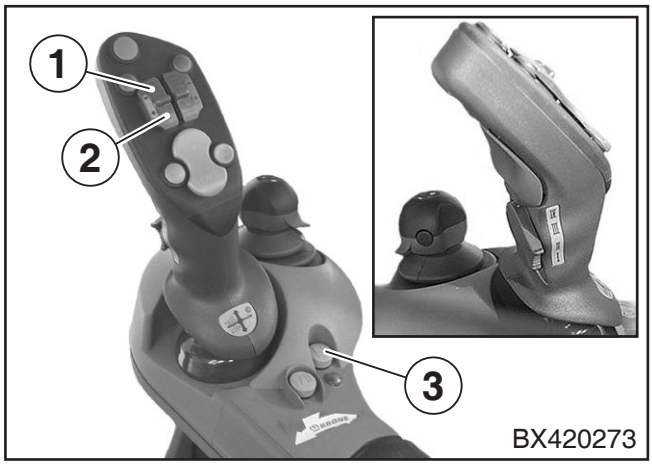
- Adjust the connected front attachment to match grass pickup or maize header mode as appropriate.

- The front attachment (with the maize header folded out) must be standing on the ground with a solid subsurface and are aligned horizontally.

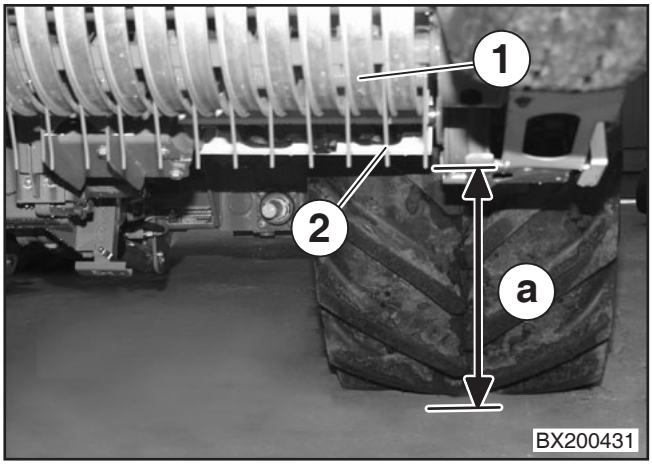
Calibrate the upper lifting gear height

- Press the Raise lifting gear button (2) and the save button for the lifting gear adjustment process (3) at the same time until the display of the current lifting gear height is 100 % in the sixth field.

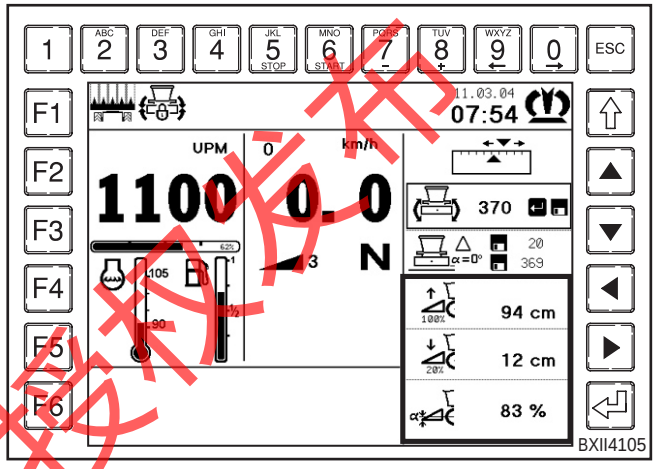




- For pickup (1), measure the distance "a" between the ground and the lowest point under spring tine (2).
  For the maize header, measure the distance between the ground and the cutter blade.



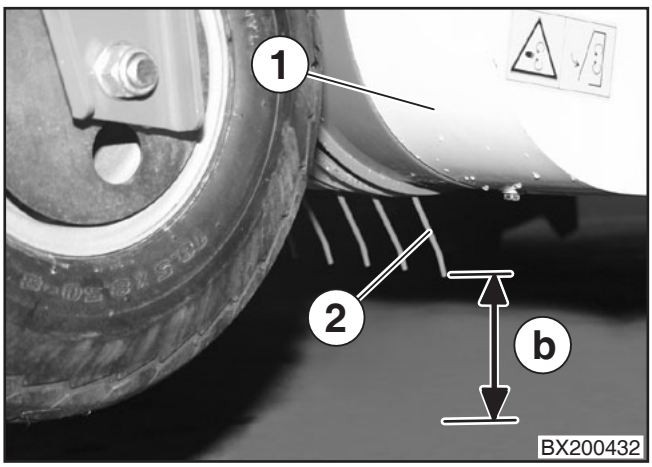
- Use the ▲ and ▼ keys to select the menu field .
- Use the ◀ and ▶ keys to enter the measured distance "a".



To calibrate the lower lifting gear height

- Raise (1) or lower (2) the lifting gear until the current lifting gear height displayed with the symbol in the sixth field is 20 %.

- For pickup (1), measure the distance "b" between the ground and the lowest point under spring tine (2).
  For the maize header, measure the distance between the ground and the cutter blade.

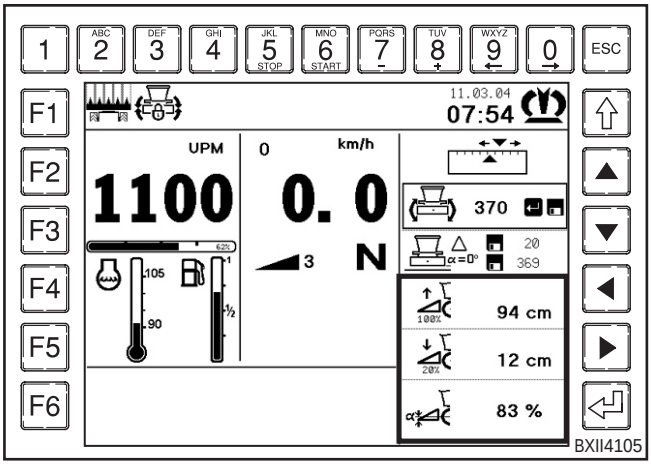


- Use the ▲ and ▼ keys to select the menu field  .

- Use the ◀ and ▶ keys to enter the measured distance "b".

The values are saved immediately after they are entered. They do not need to be confirmed.
The calibration process for "absolute lifting gear height" is complete.

- Use the ESC key to return to the main display.



4.3.13 Menu F3 - F3 "Calibration of autopilot"

Before using autopilot for the first time, the autopilot must be calibrated to ensure problem-free operation.

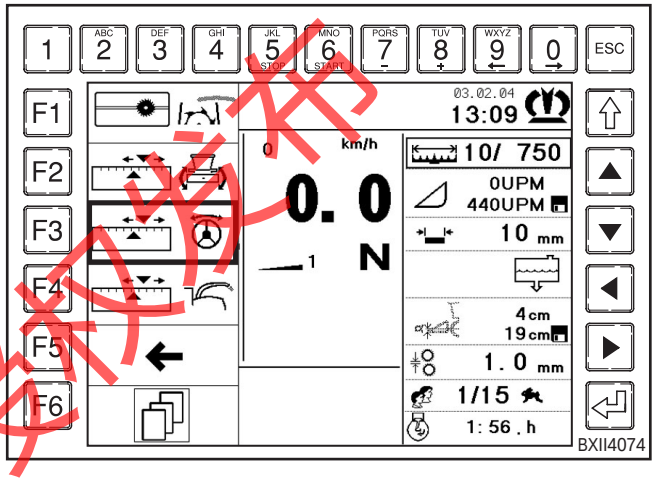
Pre-requisite:

- EASYCOLLECT maize header with row tracer attached.

The main menu "Maintenance" is called.

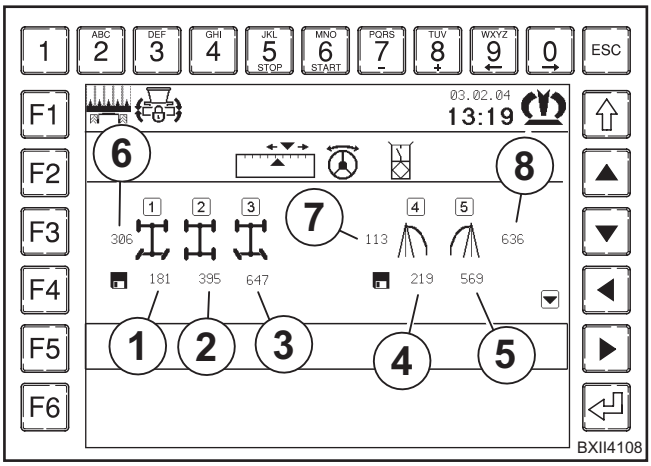
- Press the function key F3.

The "Calibrate autopilot" menu appears.



The display shows the "Calibration of autopilot sensors" menu.

1 - saved value of steering angle left max.
2 - saved value of steering angle centre
3 - saved value of steering angle right max.
4 - saved value of row tracer left min.
5 - saved value of row tracer right min.
6 - actual value of steering angle sensor
7 - actual value of row tracer left
8 - actual value of row tracer right

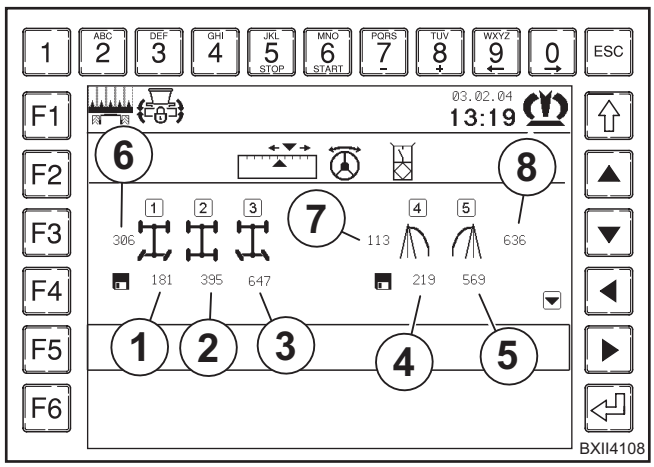


Calibrating the steering angle sensor:

Calibrate steering angle left max.

- Move the steering angle to the max. left position (move it to the left until the steering angle has gone as far as it can).
- Press the 1 key. The current actual value (6) is saved and appears in the display (1).

The actual value (6) must not be less than 50. If it is, readjust the sensor.



Calibrate straight-ahead driving

- Move the steering axle to its centre position (straight-ahead driving).
- Press the [2] key. The current actual value (6) is saved and appears in the display (2).

Calibrate steering angle right max.

- Move the steering angle to the max. right position (move it to the right until the steering angle has gone as far as it can).
- Press the [3] key. The current actual value (6) is saved and appears in the display (3).

The actual value (6) must not be greater than 950. If it is, readjust the sensor.

Calibrate the row tracer:

Calibrate row tracer left

The row tracer (1) must not be actuated in its basic position.

- Press the [4] key. The current actual value (7) is saved and appears in the display (4).

The actual value (7) must be in the range of 250 ±50. If necessary, readjust the sensor.

Calibrate row tracer right

The row tracer must not be actuated in its basic position.

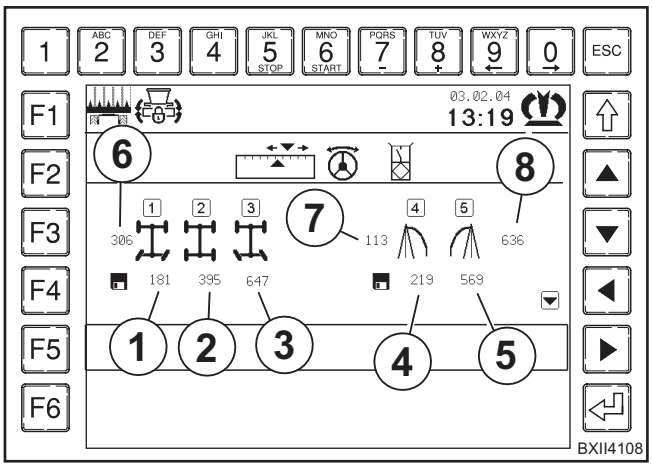
- Press the [5] key. The current actual value (8) is saved and appears in the display (5).

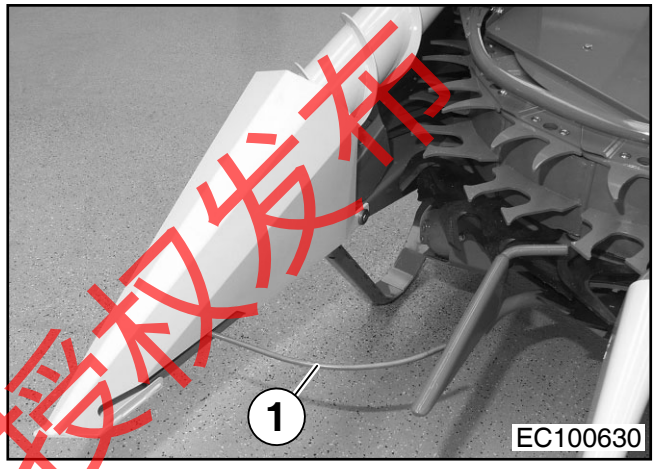
The actual value (8) must be in the range of 620 ±50. If necessary, readjust the sensor.

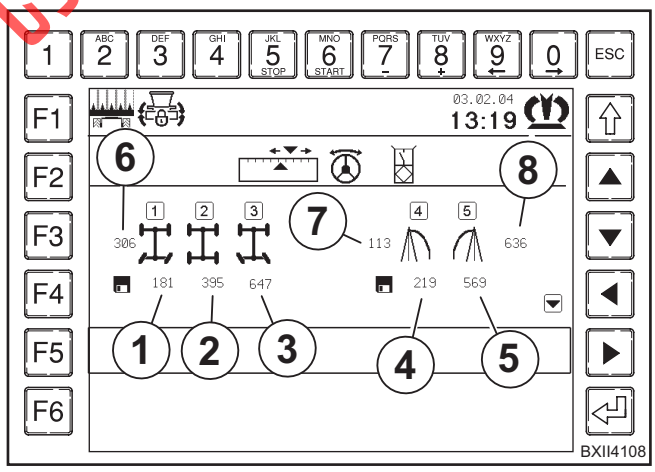
Bring up the "Calibration of autopilot actuators" menu

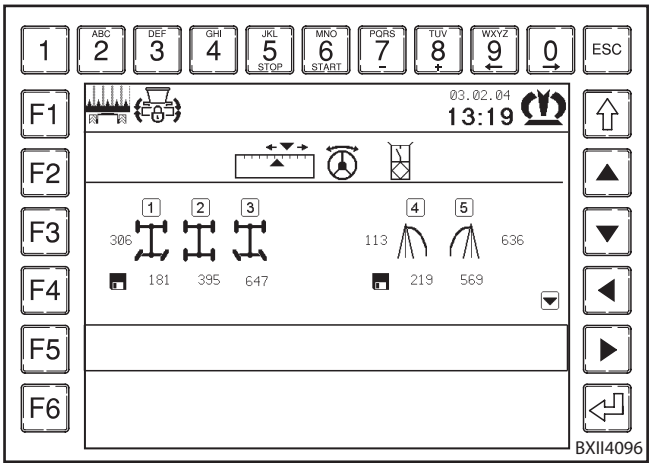
- Press the [▼] key.

The "Calibrate autopilot actuators" menu appears.

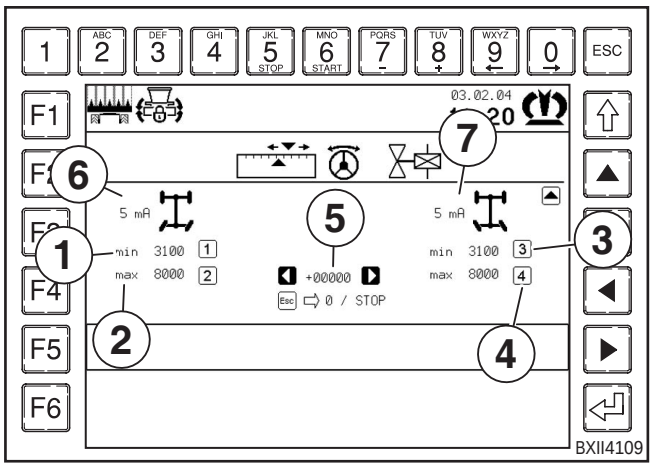








The display shows the "Calibration of autopilot actuators" menu.



1 - saved value of min. voltage valve left
2 - saved value of max. voltage valve left
3 - saved value of min. voltage valve right
4 - saved value of max. voltage valve right
5 - currently set valve voltage as 0.01 %
–10000 = 100 % valve left
+10000 = 100 % valve right
6 - actual current of valve left
7 - actual current of valve right

Calibration of the valve voltages for the autopilot

Calibration provides information to the autopilot control system about the minimum and maximum voltages of the left and right valve for steering.
– Min. voltage = voltage at which steering moves straight ahead.
– Max. voltage = voltage at which steering moves at maximum speed.

During calibration, make certain that the control is correct:

– Negative range – left valve is controlled – steering stop to the left
– Positive range – right valve is controlled – steering angle stop to the right

If control is reversed, it can be changed around the other way with parameter 9027 "Valves reversed". The value 0 or 1 can be set there.

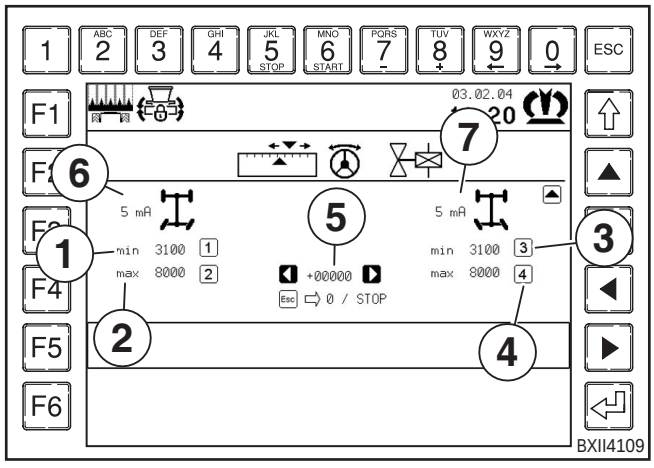
Pre-requisites:

- Move the steering axle to its centre position (straight-ahead driving).

Determine the min. voltage for the left valve

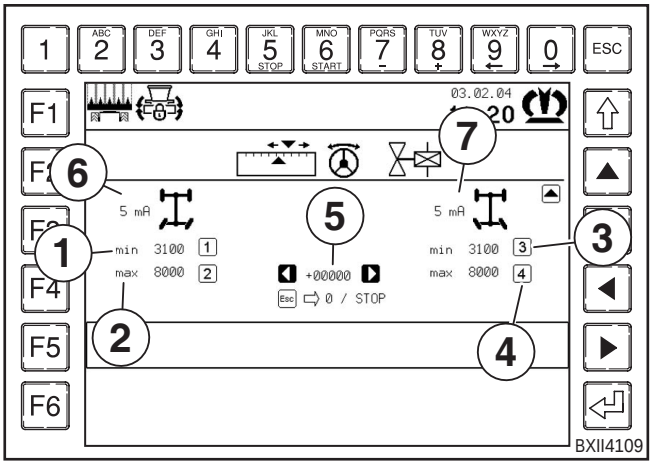
- Pressing the ◀ key increases the current value of the valve voltage (5) in the negative range until steering is moving straight forward.
  Pressing the ▶ key reduces it until steering no longer moves.

- Press the 1 key. The current value (5) is saved and appears in the display (1).



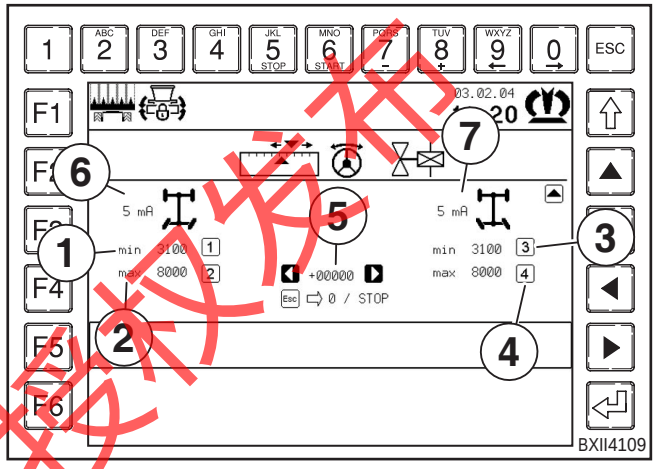
Set the maximum voltage to -8000 for the valve left.

- Pressing the ◀ key increases the current value of the valve voltage (5) in the negative range up to a value of -8000.
- Press the 2 key. The current value (5) is saved and appears in the display (2) without a sign (-).



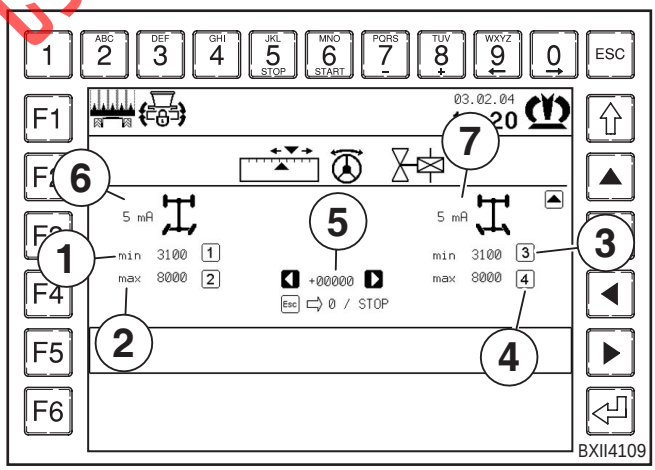
Determine the min. voltage for the right valve

- When you press the ESC key, the current value (5) is set to 0.
- Move the steering axle to its centre position (straight-ahead driving).
- Pressing the ▶ key increases the current value of the valve voltage (5) in the positive range until steering is moving straight forward.
  Pressing the ◀ key reduces it until steering no longer moves.
- Press the 3 key. The current value (5) is saved and appears in the display (2) without a sign (+).



Set the maximum voltage to +8000 for the valve right.

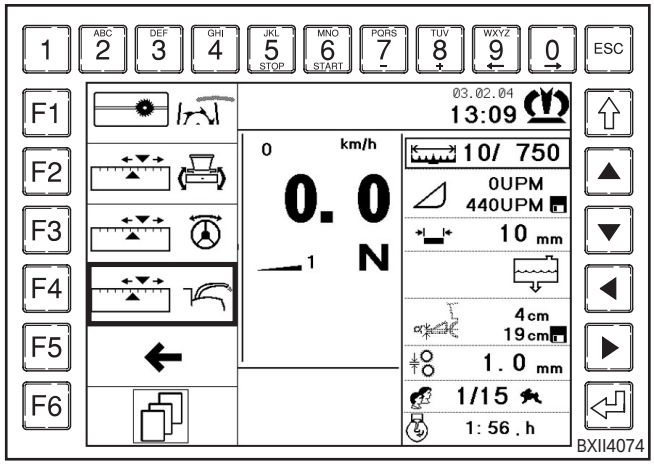
- Pressing the ▶ key increases the current value of the valve voltage (5) in the positive range up to a value of +8000.
- Press the 4 key. The current value (5) is saved and appears in the display (4).
- Press the ESC key. Calibration is complete.

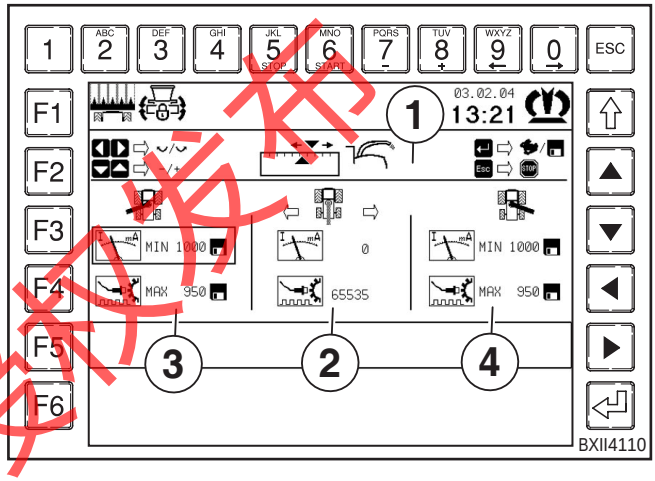


The values that are determined are not saved permanently in EEPROM until you exit calibration mode and press the F5 key twice.

- To save the values in EEPROM, press the F5 key twice.
  The basic screen appears in the display.

4.3.14 Menu F4 - F3 "Calibration of discharge chute"





During the calibration, components may move around, in particular the lifting gear and upper discharge chute - danger of injury!

Pre-requisites:
- The upper discharge chute must be raised.

The main menu "Maintenance" is called.
- Press the function key F4 .

The "Calibrate upper discharge chute" menu appears.

The display shows the "Calibration of upper discharge chute" menu.

The current key assignment is shown in the status line (1):
- ◀ = moving the discharge chute to the left
- ▶ = moving the discharge chute to the right
- ▼ = reduce value
- ▲ = increase value
- ⏎ = start calibration/store data
- ESC = calibration process is interrupted

Main window
- The current position of the upper discharge chute is displayed in the middle section (2) of the main window. The current valve current from the upper discharge chute for the instantaneous direction of motion and the current number of pulses are shown for the present side.

- The saved current for turning left in mA and the saved number of max. pulses for left are shown in the left section (3) of the main window.

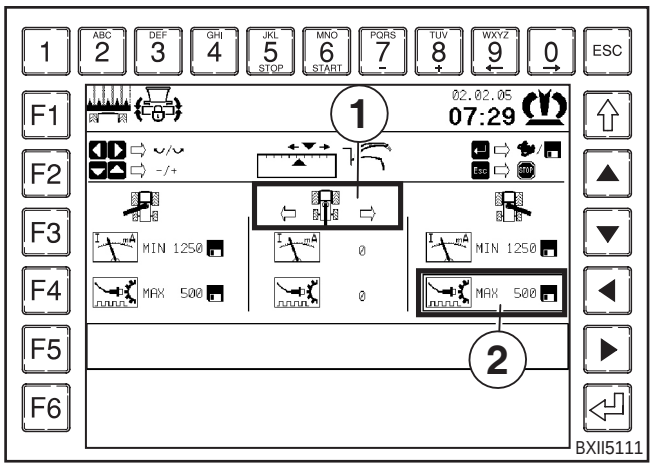
- The saved current for turning right in mA and the saved number of max. pulses for right are shown in the right section (4) of the main window.

Data requiring calibration

The maximum number of pulses must be determined for left and right.

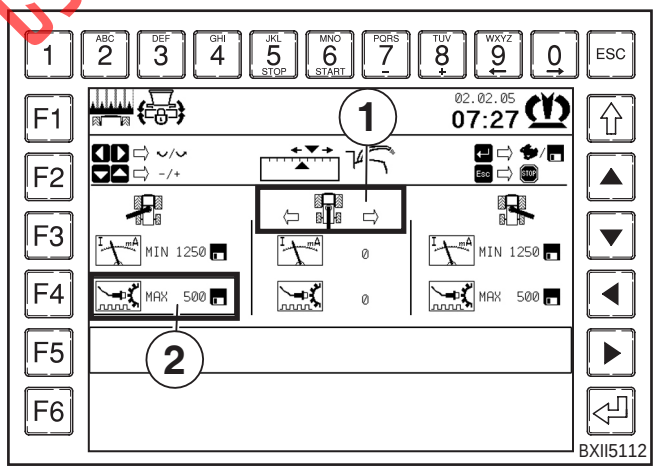
The individual calibration processes are interrupted by manually operating the upper discharge chute with the key on the multi-function lever and when the driver leaves the driver's seat!

Calibrating the maximum number of pulses to the right



- You can use the ▼ or ▲ key to select the field for the current position of the upper discharge chute (1).
- Move the upper discharge chute all the way to the right manually with the keys on the multifunction lever. The upper discharge chute stops when the maximum number of pulses for the side in question has been reached.
- If the discharge chute has not yet reached the stop, select the field for the current position of the upper discharge chute (1) again with the ▼ or ▲ key and continue turning by pressing the ▶ key.
  Turning is performed with the minimum current. Use the ▼ or ▲ key to decrease or increase the current.
- If the upper discharge chute is against the stop, stop the upper discharge chute by pressing the ESC key or actuating the multifunction lever.
- You can use the ▼ or ▲ key to select the field for the saved number of maximum pulses for right (2).
- Press the ⏎ key to save the current number of pulses as the maximum value for the right side.

Calibrating the maximum number of pulses to the left



- You can use the ▼ or ▲ key to select the field for the current position of the upper discharge chute (1).
- Move the upper discharge chute all the way to the left manually with the keys on the multifunction lever. The upper discharge chute stops when the maximum number of pulses for the side in question has been reached.
- If the discharge chute has not yet reached the stop, select the field for the current position of the upper discharge chute (1) again with the ▼ or ▲ key and continue turning by pressing the ▶ key.
  Turning is performed with the minimum current. Use the ▼ or ▲ key to decrease or increase the current.
- If the upper discharge chute is against the stop, stop the upper discharge chute by pressing the ESC key or actuating the multifunction lever.
- You can use the ▼ or ▲ key to select the field for the saved number of maximum pulses for left (2).
- Press the ⏎ key to save the current number of pulses as the maximum value for the right side.
- Press the F5 key twice.
  The basic screen appears in the display.

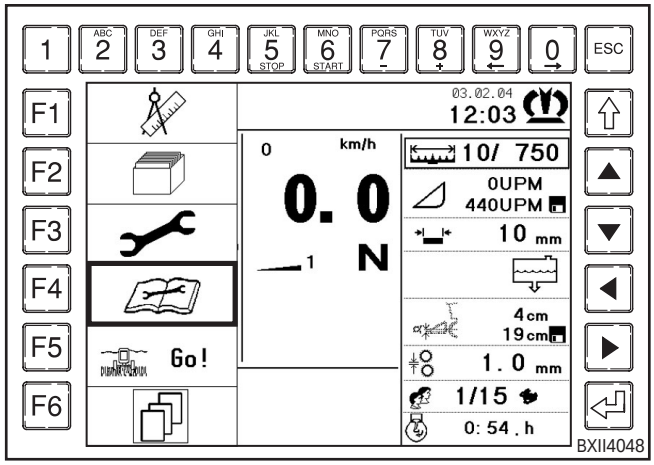
4.3.15 Main menu F4 "Service"

Calling the main menu

The functional level is active.

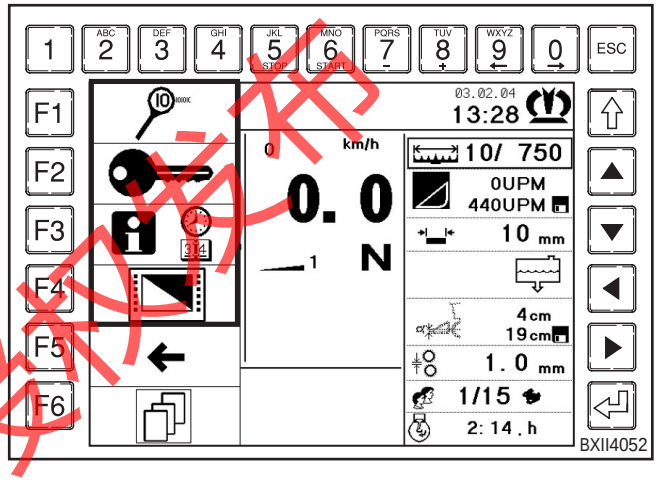
- Press the function key F4 .

The "Service" main menu level is displayed in the information section of the engine data (II).



The main menu "Service" is divided up into four menus:

- = Diagnosis
- = Fitter's section (protected by password)
- = Information, time/date setting
- = Screen contrast setting
- Use F5 to return to the functional level.
- Use F6 to close the menu.

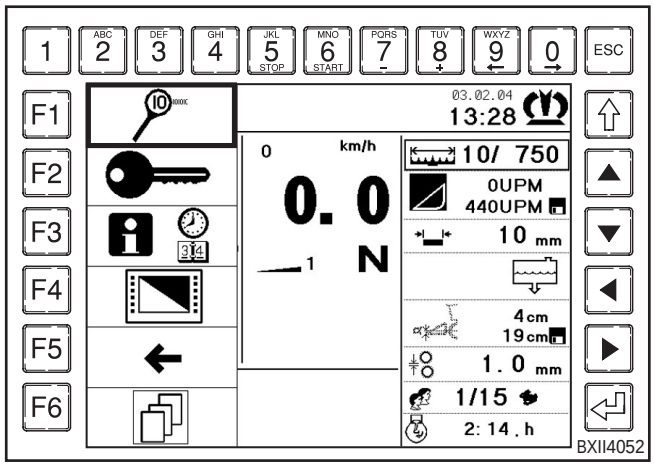


4.3.16 Menu F4 - F1 "Diagnosis"

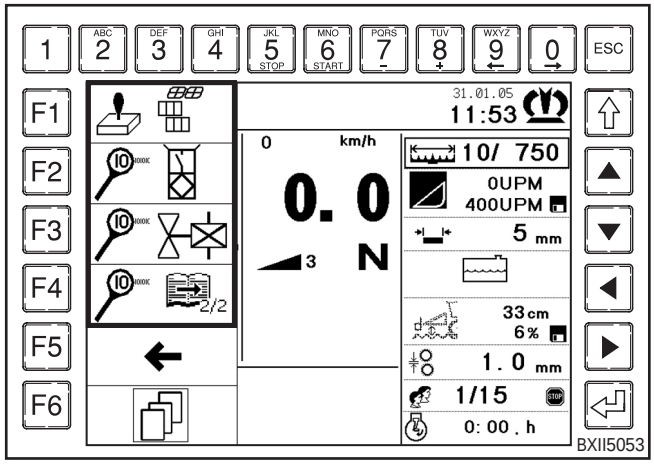
The main menu "Service" is active.

- Press the function key F1 .

The "Diagnosis" menu level is displayed in the information section of the engine data (II).



- F1 = Diagnosis – multi-function lever, panel switches, keyboard and manual operation
- F2 = Diagnosis – sensors
- F3 = Diagnosis – actuators
- F4 = Fault lists
- Use F5 to return to the functional level.
- Use F6 to close the menu.



4.3.17 Menu F4 - F1 - F1 "Diagnosis – multi-function lever, panel switches, keyboard and manual operation"

The diesel engine must be stopped when diagnostics for multi-function lever, panel switches, keyboard and manual operation are run.

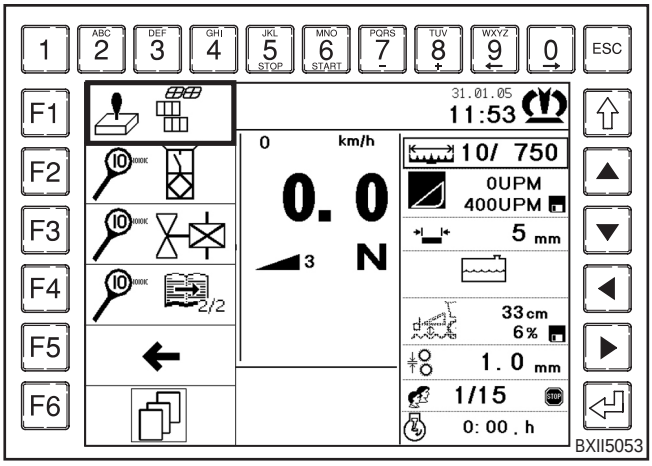
The "Diagnosis" menu is active.

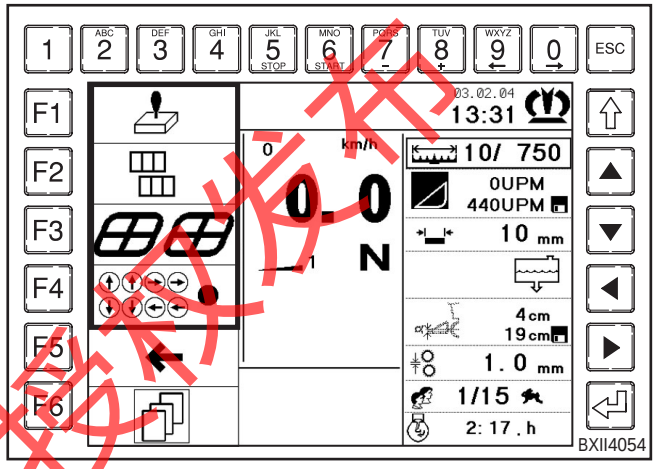
- Press the function key F1.

The "Multi-function lever, panel switch, keyboard and manual operation diagnosis" menu level is displayed in the information section of the engine data (II).

- F1 = Diagnosis – multi-function lever
- F2 = Diagnosis – panel switch
- F3 = Diagnosis – keyboard
- F4 = Diagnosis – manual operation keys

The active keys are shown in the display for fault finding (visualisation only).

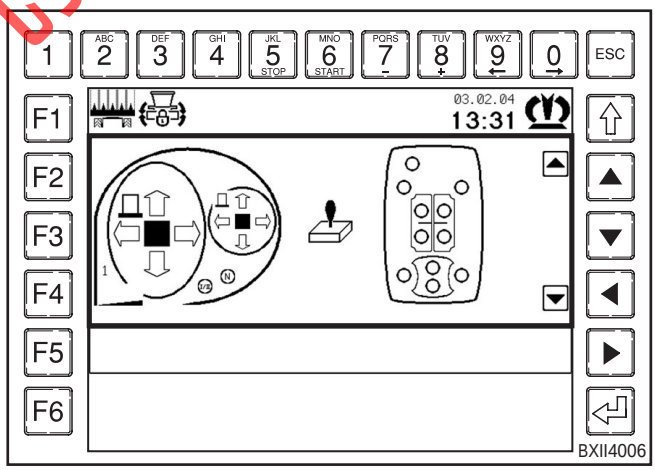




Diagnosis – multi-function lever

Menu F4 - F1 - F1 "Diagnosis – multi-function lever, panel switches, keyboard and manual operation" is active.

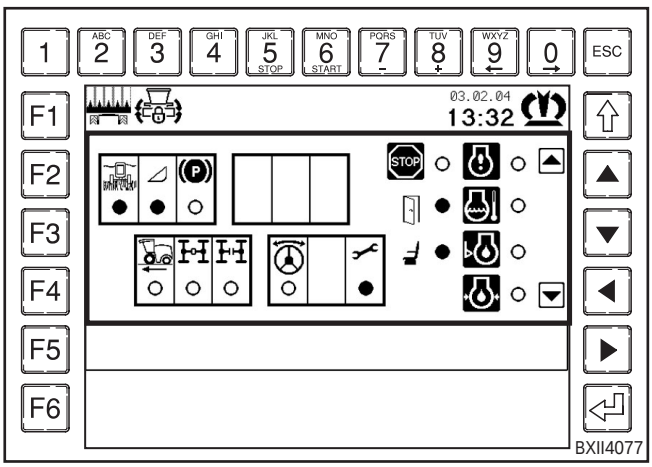
- Press the function key F1.
- Use the ▲ and ▼ keys to page the menu F4 - F1 - F1 "Diagnosis – multi-function lever, panel switches, keyboard and manual operation".
- Use the ESC key to exit the diagnosis of the multi-function lever.



Diagnosis – panel switches

Menu F4 - F1 - F1 "Diagnosis – multi-function lever, panel switches, keyboard and manual operation" is active.

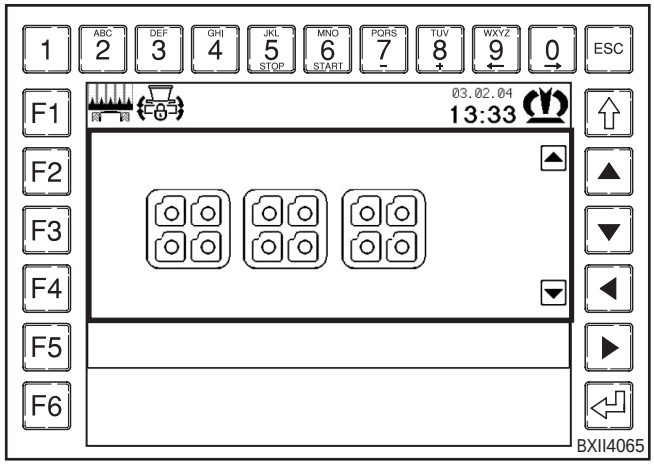
- Press the function key F2.
- Use the ▲ and ▼ keys to page the menu F4 - F1 - F1 "Diagnosis – multi-function lever, panel switches, keyboard and manual operation".
- Use the ESC key to exit the diagnosis of the panel switches.



Diagnosis – keyboard

Menu F4 - F1 - F1 "Diagnosis – multi-function lever, panel switches, keyboard and manual operation" is active.

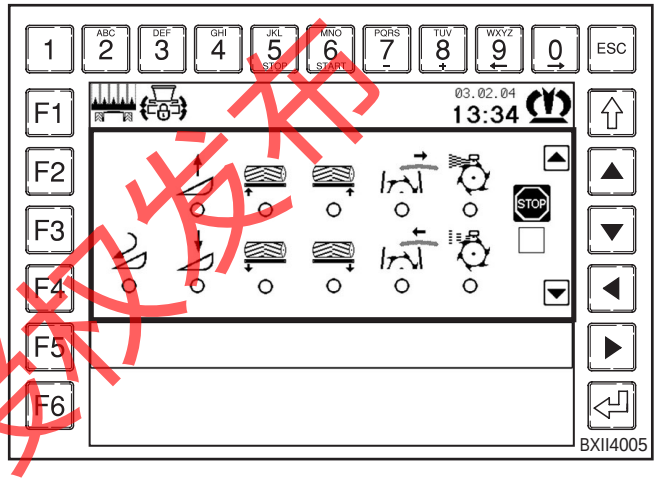
- Press the function key F3 .
- Use the ▲ and ▼ keys to page the menu F4 - F1 - F1 "Diagnosis – multi-function lever, panel switches, keyboard and manual operation".
- Use the ESC key to exit the keyboard diagnostics.



Diagnosis – manual operation keys

Menu F4 - F1 - F1 "Diagnosis – multi-function lever, panel switches, keyboard and manual operation" is active.

- Press the function key F4 .
- Use the ▲ and ▼ keys to page the menu F4 - F1 - F1 "Diagnosis – multi-function lever, panel switches, keyboard and manual operation".
- Use the ESC key to exit the diagnosis of the manual operation.

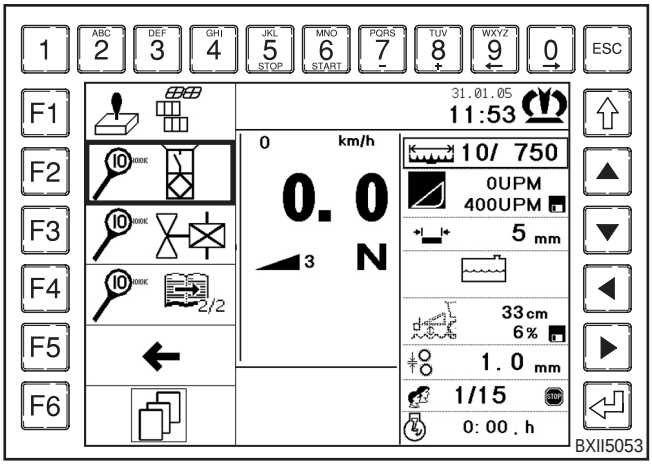


4.3.18 Menu F4 - F1 - F2 "Diagnosis – sensors"

The "Diagnosis" menu is active.

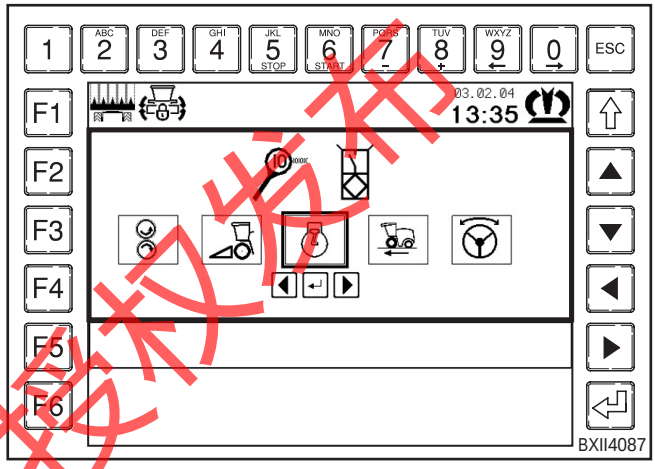
- Press the function key F2 .

The display shows the selection of groups for the diagnosis of sensors.



Groups:

- = group – counterblade
- = group – feed drive
- = group – lifting gear
- = group – diesel engine
- = group – travelling gear

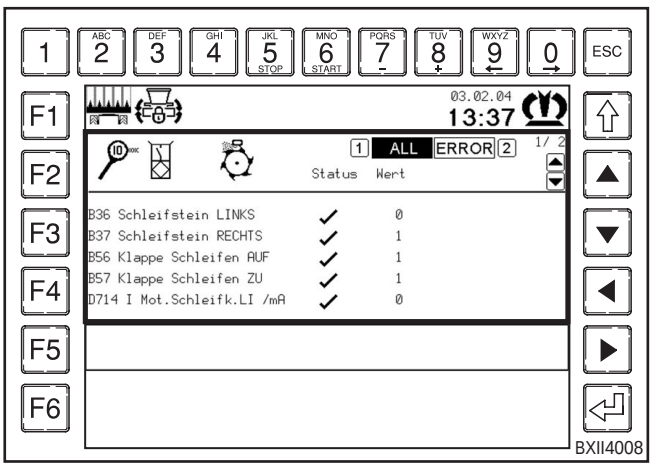


For other groups and their symbols, please refer to Section 4.4 titled "Overview of groups".

- Use the ◀ or ▶ key to select the group.
- Actuating the ↵ key will display the diagnosis of the sensors of the group.
- Use the ▲ or ▼ key to switch to the diagnosis of the actuators.

Diagnosis – sensors

- Use the ▲ or ▼ key to call the individual pages.
- Use the 1 key to display all sensors.
- Use the 2 key to display all faulty sensors.



The designation of the sensor, the status and the digital or analogue value is displayed.
0/1 or in parts 1/2 will be displayed for digital sensors; the analogue value will be shown for analogue sensors.

- Use the ESC key to exit the diagnosis of the sensors.

4.3.19 Menu F4 - F1 - F3 "Diagnosis – actuators"

The "Diagnosis" menu is active.

- Press the function key F3.

The display shows the selection of groups for the diagnosis of actuators.

Groups:

- = group – grinding operation
- = group – counterblade
- = group – feed drive
- = group – pendulum frame
- = group – travelling gear

For other groups and their symbols, please refer to Section 4.4 titled "Overview of groups".

- Use the ◀ or ▶ key to select the group.
- Actuating the ↵ key displays diagnostics for the actuators of the group.
- Use the ▲ or ▼ key to switch to the diagnosis of the sensors.

Diagnosis – actuators

- Use the ▲ or ▼ key to call the individual pages.

The designation of the actuator, the diagnosis result, the current (if current measuring input has been fitted) and the keys to switch the actuator are displayed. In order to be able to switch actuators, certain conditions must be met. These are shown in an information message in the display.
If the key used for switching is shown inversely, the actuator is active.

Diagnosis results:

✓ = actuator is okay

= examination not completed yet

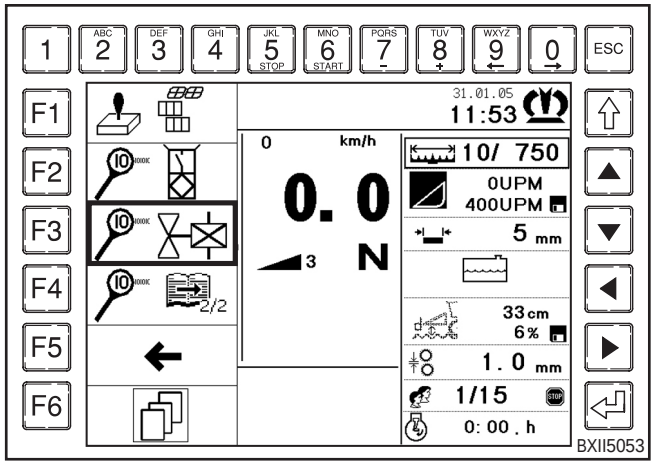
= output fault

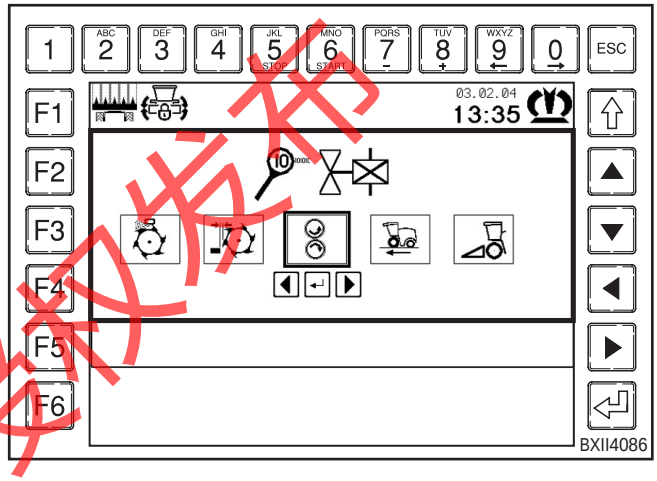
= internal electronics fault

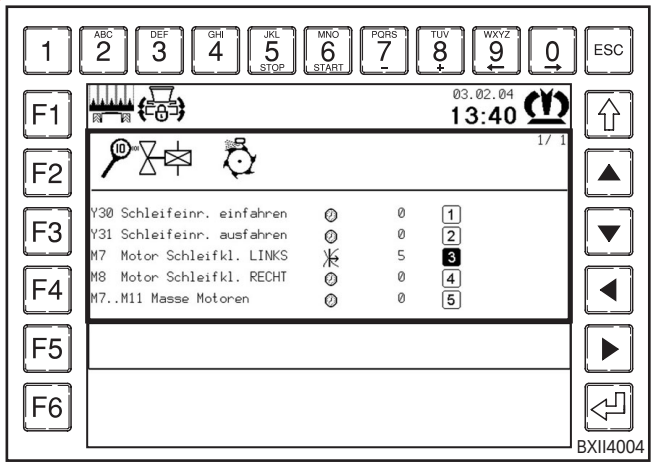
= broken cable

= short circuit

- Use the ESC key to exit actuator diagnostics.





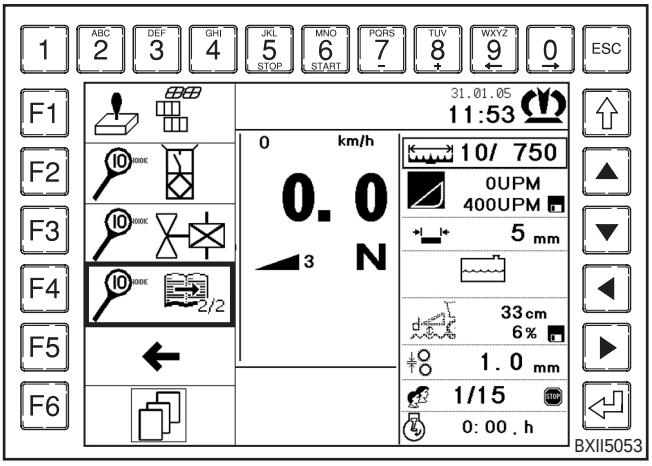


4.3.20 Menu F4 - F1 - F4 2nd page of diagnostic selection

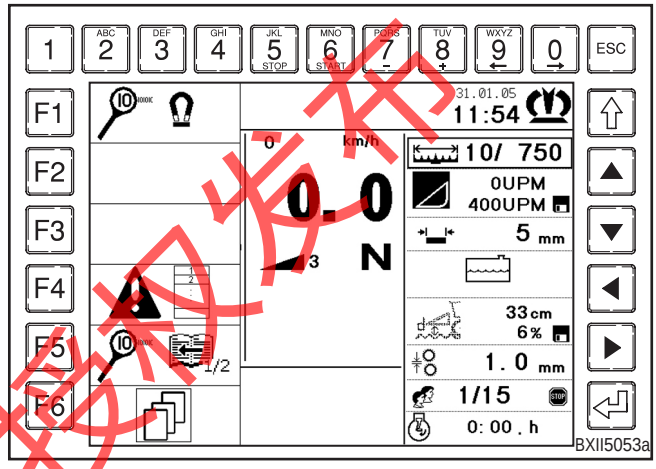
The "Diagnosis" menu is active.

- Press the function key F4.

The display shows the 2nd page of diagnostic selection.



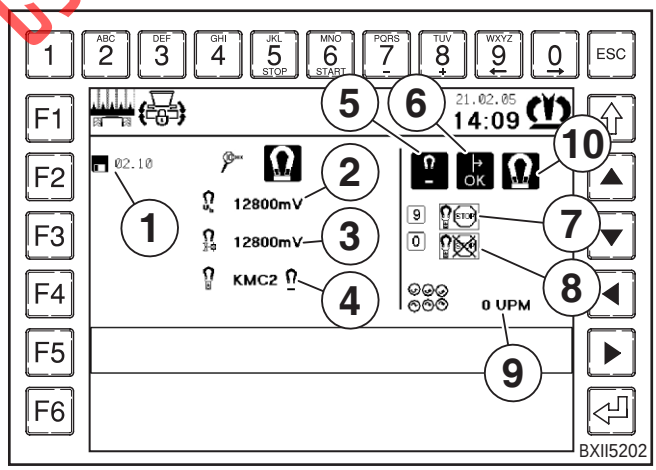
- F1 = Metal detection diagnostics.
- F4 = Fault lists.
- Use F5 to go to the 1st page of diagnostic selection.
- Use F6 to close the active menu.



Metal detection diagnostics

- Press the function key F1 .

The display shows diagnostics for metal detection.



1 = Software version of metal detection
2 = Operating voltage for metal detection in mV.
3 = Voltage of the stop valve in mV.
0 mV = Stop valve switched
Operating voltage = Stop valve not switched
4 = Status of the KMC2 input, which is also switched through the metal detection output.

= Metal in feed drive

= No metal in feed drive

5 = Status of the metal detection output

STOP = Metal in the feed drive, stop valve switched

= No metal in the feed drive, stop valve not switched

6 OK = The metal detection output is working properly

= The metal detection output is not working properly

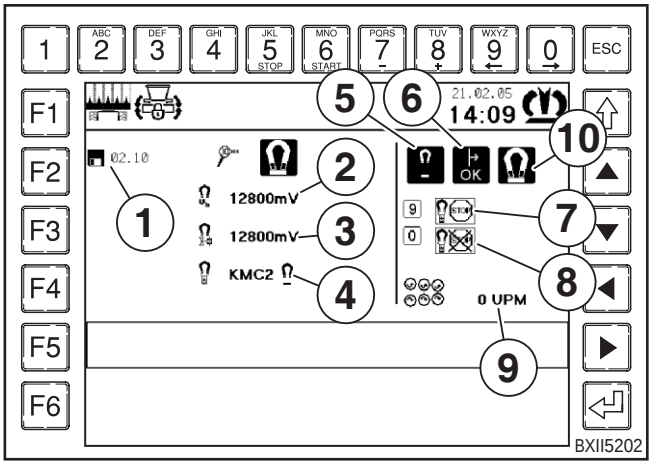
7 A test stop of metal detection is triggered when the [9] key is pressed.

8 Metal detection is enabled again when the [0] key is pressed.

9 The current speed of the feed drive is displayed. This makes it possible to check that the attachments have come to a complete stop.

10 Shows the error code if an error has occurred in metal detection.
Refer to Appendix A

- Use the [ESC] key to exit the metal detection diagnostics.



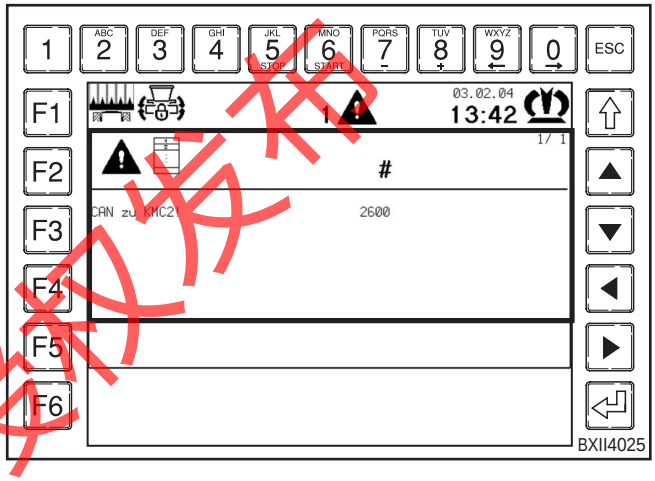
Fault lists

The menu for the "2nd page of diagnostics selection" is selected.

- Press the function key [F4].

The display shows the fault list with the current faults.

The fault list with the current fault is marked by the symbols ⚠ and ▤.
The fault message and the fault code are displayed.

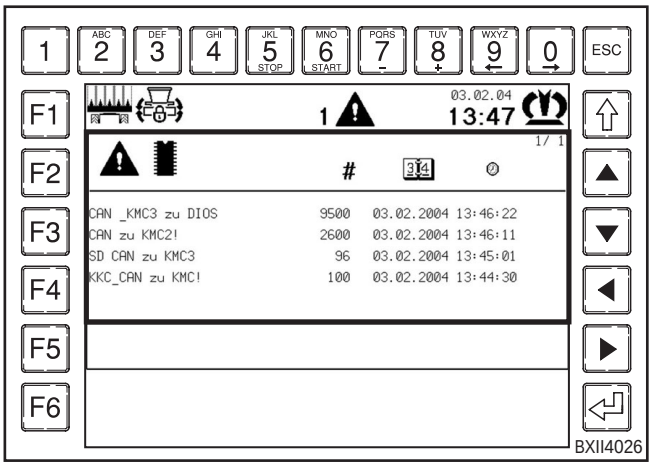


- Use the [▲] or [▼] key to call the individual pages.
- Eliminating the fault causes the error message to be deleted immediately.

- You can bring up the menu with the [▶] key .

Fault storage is marked by the symbols ⚠ and ▮.

Fault storage is arranged chronologically and cannot be erased.
The fault message and the fault code with the date and time of occurrence of the fault are displayed.



- Use the [▲] or [▼] key to call the individual pages.

- Use the [◀] key to bring up the fault list of the current faults.

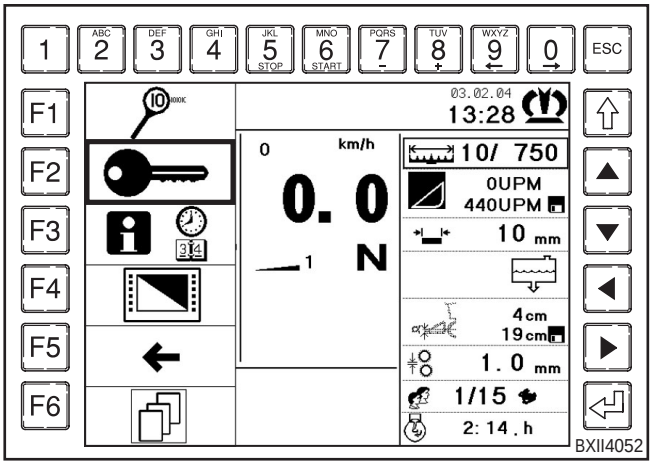
- Use the [ESC] key to exit the fault list.

4.3.21 Menu F4 - F2 - "Fitter's section"

The main menu "Service" is active.

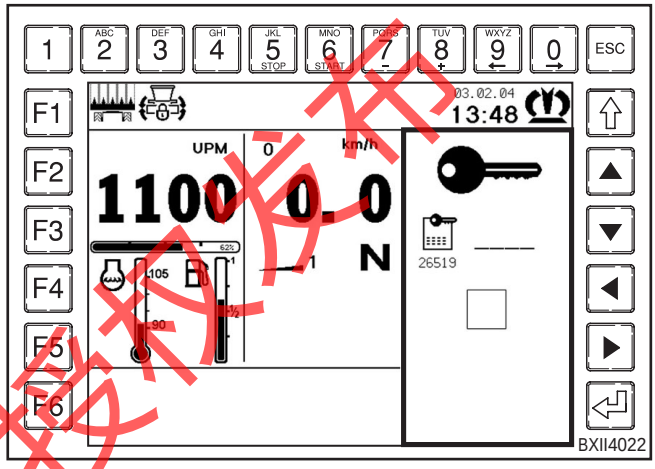
- Press the function key F2 .

The "Fitter's section" menu level is displayed in the information section of settings (IV).



The "Fitter's section" menu level is protected by a password and is accessible only to the Krone service staff.

- Use the ESC key to return to the main display.

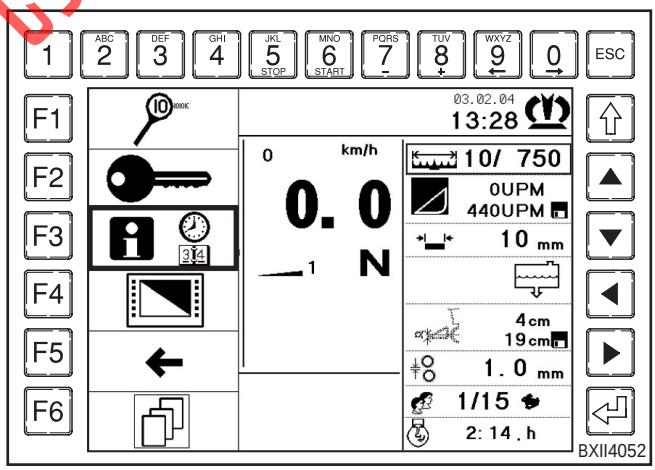


4.3.22 Menu F4 - F3 "Information, date/ time setting"

The main menu "Service" is active.

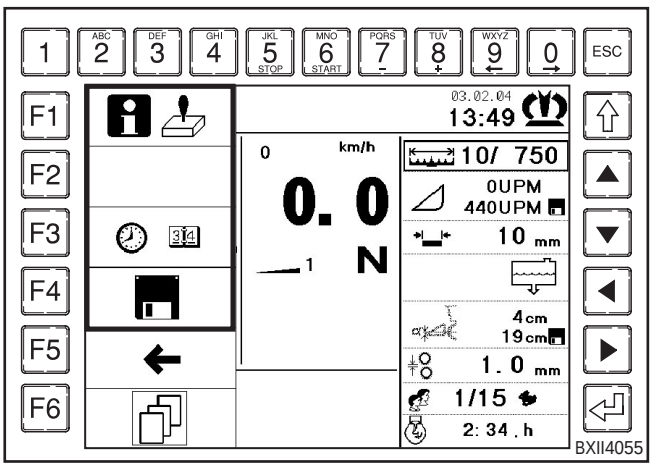
- Press the function key F3 .

The "Information, date/time setting" menu level is displayed in the information section of the engine data (II).



- F1 = information on the functions of the multi-function lever
- F3 = date/time setting
- F4 = software information

- Use F5 to return to the functional level.
- Use F6 to close the menu.



4.3.23 Menu F4 - F3 - F1 – information on the functions of the multi-function lever

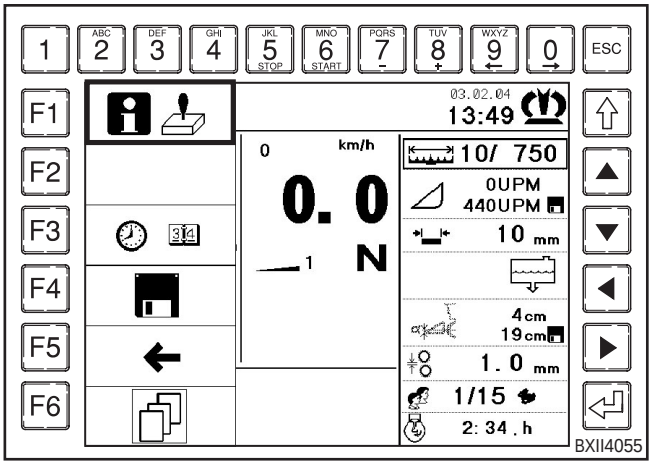
The diesel engine must be stopped when the information on the functions of the multi-function lever is called.

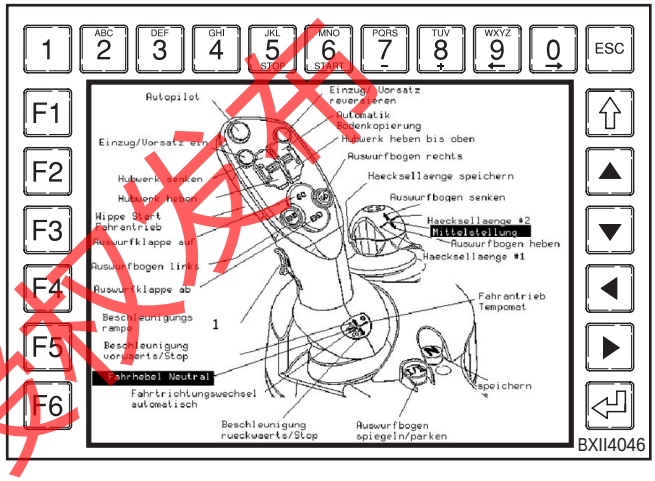
The "Information, date/time setting" menu is active.

- Press the function key F1.

The multi-function lever with the assigned functions is displayed.

- Pressing keys on the multifunction lever and moving it cause the corresponding function to be displayed in reverse video.
- Use the ESC key to return to the main display.



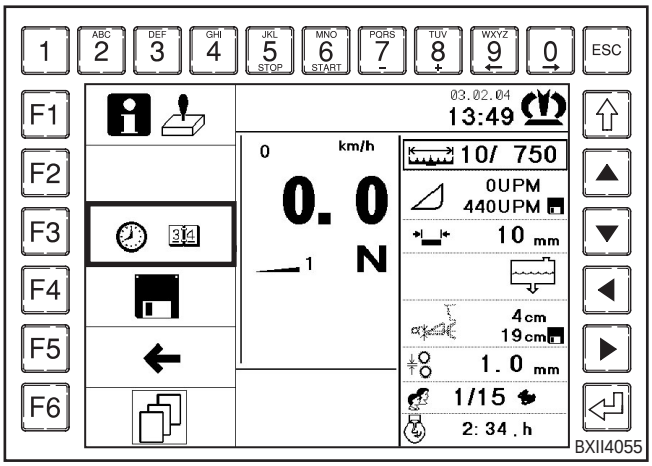


4.3.24 Menu F4 - F3 - F3 "Information, date/time setting"

The "Information, date/time setting" menu is active.

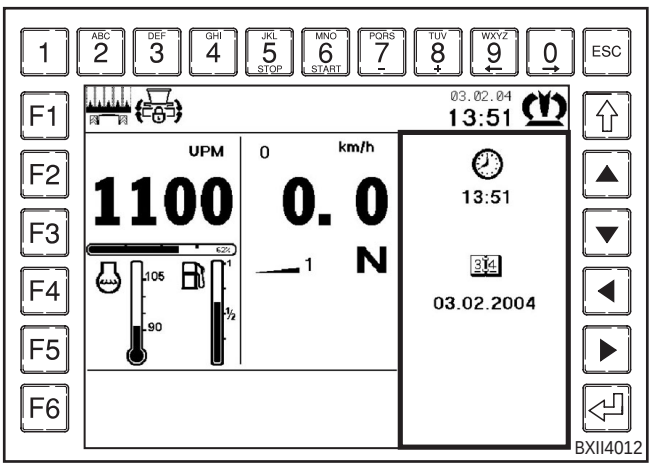
- Press the function key F3.

The time and date set is displayed in the information section of settings.



Setting time and date

- Use the ◀ or ▶ key to select the value to be set (time/date).
- Use the alpha-numeric keys to change the individual values, and acknowledge by pressing the ⏎ key.
- Use the ESC key to abort the entry.
- After acknowledging the values with the ESC key, return to the main display.



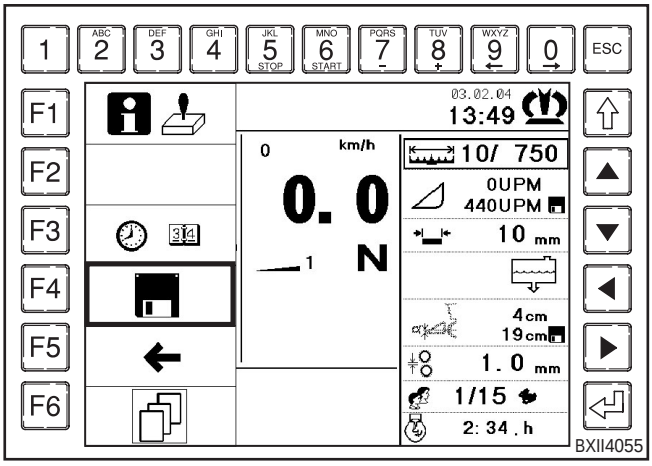
4.3.25 Menu F4 - F3 - F4 – software information

The "Information, date/time setting" menu is active.

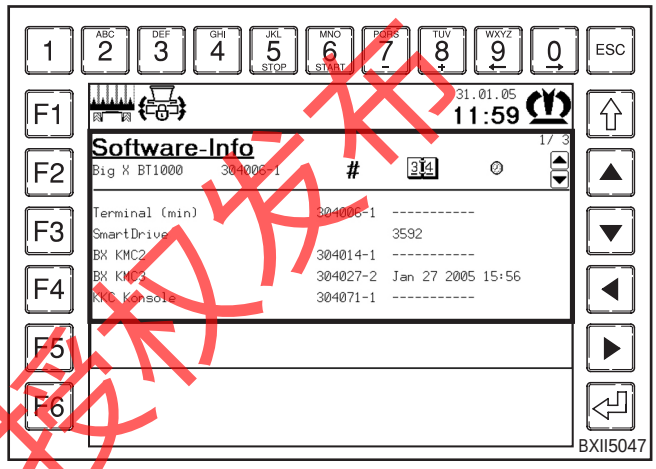
- Press the function key F4 .

Information on the software version that is loaded is displayed.

XXXXX-X
- Version No.
- Article No.



- Use the ▲ or ▼ key to call the individual pages.
- Use the ESC key to return to the main display.

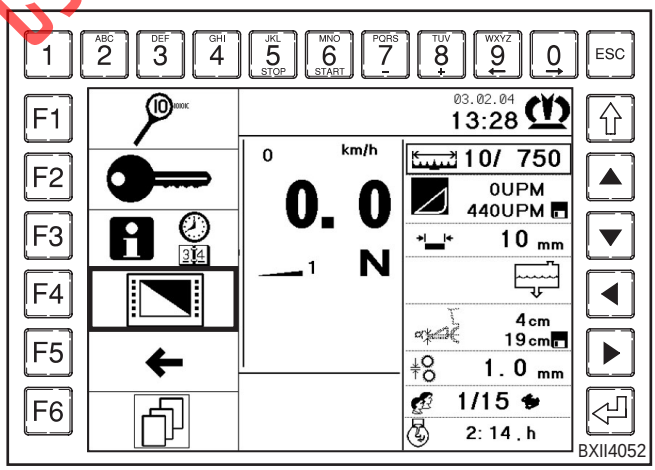


4.3.26 Menu F4 - F4 Screen contrast setting

The main menu "Service" is active.

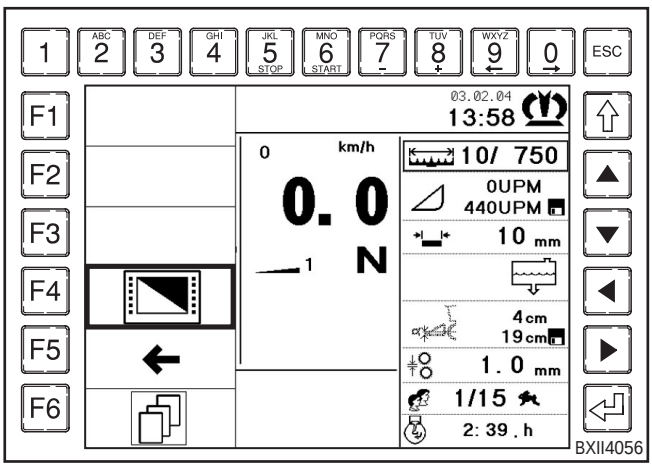
- Press the function key F4 .

The symbol for the screen contrast setting is displayed in the information section of the engine data (II).

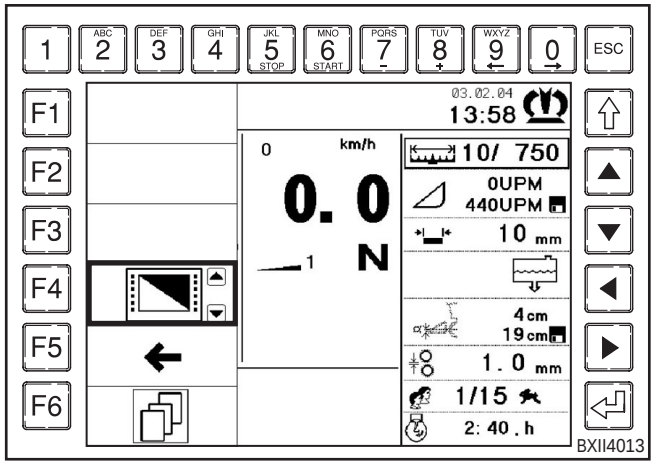


- Press the function key F4 .

The display switches to the menu for contrast setting.



- Use the ▲ or ▼ key to change the setting of the screen contrast.
- Use F5 to return to the functional level.
- Use F6 to close the menu.



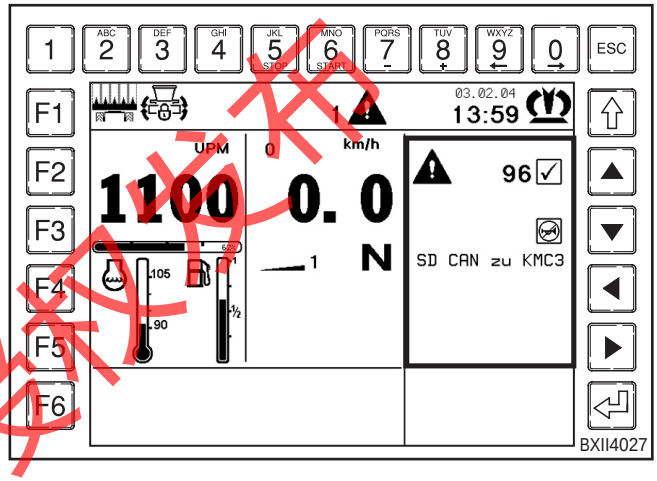
4.3.27 Fault message

If a fault occurs in the machine, the fault message will be displayed in the information section of settings (IV).

The fault message and the fault code are displayed.

Acknowledging the fault message

- Press the ▼ key; the acoustic signal will go off.
- Press the ▲ key to hide the message.



For a list of fault messages, fault description, potential fault reason and fault removal, please refer to Appendix A – Fault messages.

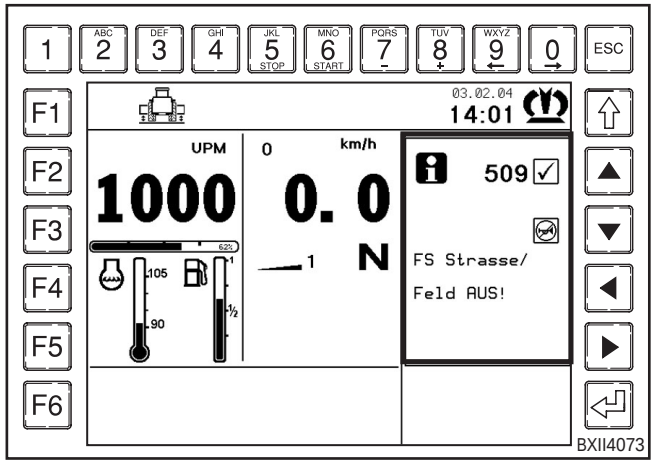
4.3.28 Information message

If one or several conditions are not met to carry out an action, the information message will be displayed in the information section of settings (IV).

The information message and the information code are displayed.

Acknowledging the information message

- Press the ▼ key; the acoustic signal will go off.
- Press the ▲ key to hide the message.



4.4 Overview of groups

-  = group – work
-  = group – upper discharge chute
-  = group – autopilot
-  = group – cracker
-  = group – diesel engine
-  = group – display
-  = group – feed drive/front attachment
-  = group – electronics
-  = group – travelling gear
-  = group – counterblade
-  = group – lifting gear
-  = group – pendulum frame
-  = group – grinding

4.5 Overview of error messages

-  = Engine failure!
-  = Diesel engine oil level!
-  = Air filter dirty
-  = Tank sensor defective
-  = SD pressure brake tank
-  = SD oil temperature too high
-  = SD supply pressure is too low
-  = Suction return filter fault
-  = Diesel engine oil pressure!
-  = Cooling water level!
-  = KMC3 error, electronics voltage
-  = Fault in central lubrication
-  = Hydraulic oil tank level
-  = Feed drive oil temperature!
-  = Feed drive charge pressure!
-  = Metal detection defective!

5 Driver's cab

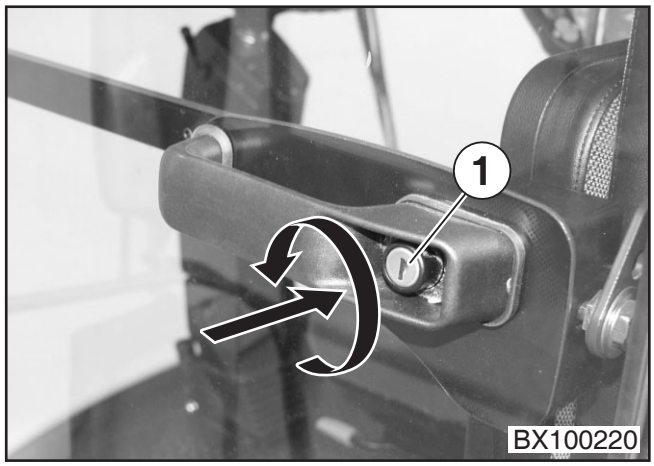
5.1 Ladder to driver's cabin

Do not ascend or descend on the ladder during travel.
Riding on the steps of the ladder or on the platforms is not permitted.

- Ladder (1) to the driver's cab.
- Steps (2) to the roof.

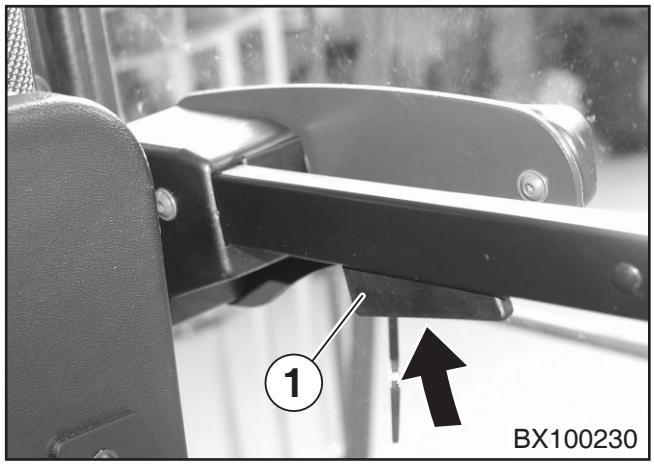
5.2 Opening the cabin door

- **From the outside:** Use the door key to unlock the door lock (1); press in the button (1) and open the door.



- **From the inside:** Lift the door opening lever (1) and open the door.

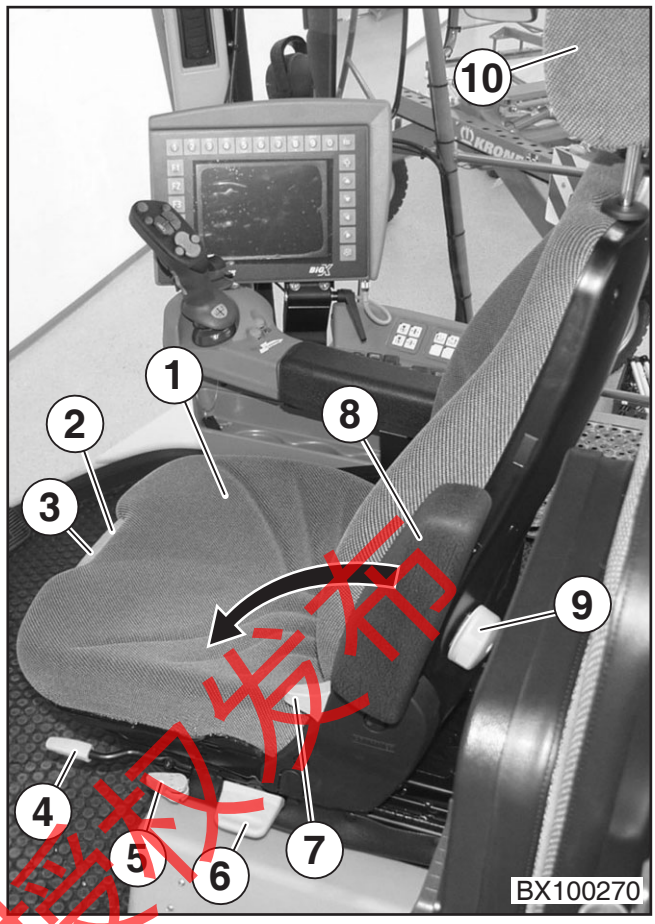
The cab door must be closed during operation.



5.3 The air comfort seat

The air-cushioned comfort seat (1) can be individually adapted to the requirements of the driver.

The adjustment devices of the driver's seat must not be actuated during the operation.



Weight adjustment

In order to prevent health problems, the individual driver's weight adjustment should be checked and adjusted prior to operation of the machine.
The adjustment should be carried out whilst sitting absolutely stationary.

- Pull the lever (6) upwards briefly (position I).

Height adjustment

The height can be adjusted continuously by means of the hydraulic system.
In order to prevent damage, actuate the compressor for a maximum of 1 minute.

- Pull the lever (6) upwards completely (position II) to move the driver's seat (1) up; press the lever (6) down completely (position II) to move the driver's seat (1) down. When the upper or lower end position of the height adjustment mechanism is made, the height will be adjusted automatically in order to ensure a minimum spring travel.

Horizontal suspension

The shock load in direction of travel through the driver's seat (1) is cushioned better by the horizontal suspension.

- Swing the lever (5) to the front - the horizontal suspension is active; swing the lever (5) back – the horizontal suspension is switched off.

Longitudinal adjustment

- Pull the locking lever (4) up, and push the driver's seat (1) forward or backward into the requested position. Permit the locking lever (4) to snap into place; after locking the driver's seat must not be movable into any other position.

Seat angle adjustment

- Pull the left key (3) up and at the same time set the angle of the sitting surface by increasing or decreasing the pressure on the seat surface.

Seat depth adjustment

- Pull the right key (2) up and at the same time bring the sitting surface into the required position by pushing forward and backward.

Headrest

Set the headrest in such a way that the upper edges of the head and the headrest are on the same height, if possible.

- Adjust the height of the headrest (10) by pulling out and pressing down across the noticeable snaps.

Lumbar support

- The height as well as the intensity of the arching in the backrest can be adapted individually by turning the hand wheel (9) to the left or right.

Adjustment of the backrest

- Pull the locking lever (7) up to set the inclination of the backrest. Permit the locking lever (7) to snap into place – after locking, the backrest must not move into a different position any more.

Setting the left armrest

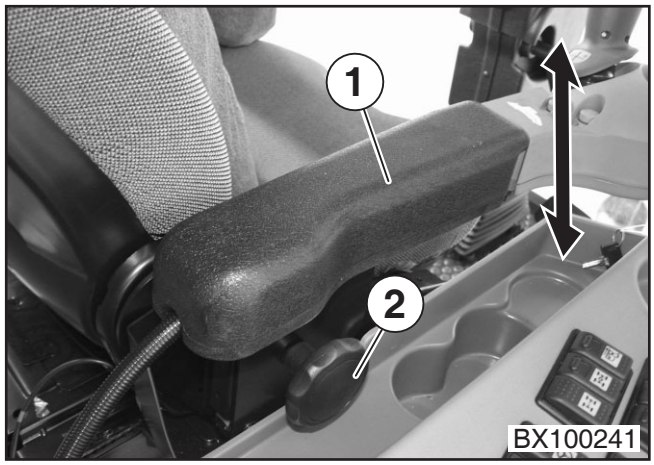
- Tilt the armrest (8) up or down as requested.
- Remove the cover cap (1) to adjust the height of the armrest.
- Undo the hexagon nut; move the armrest into the requested position and tighten the hexagon nut again. Press the cover cap (11) onto the hexagon nut again.

5.4 Right armrest

The right armrest (1) and the multi-function lever are one unit.

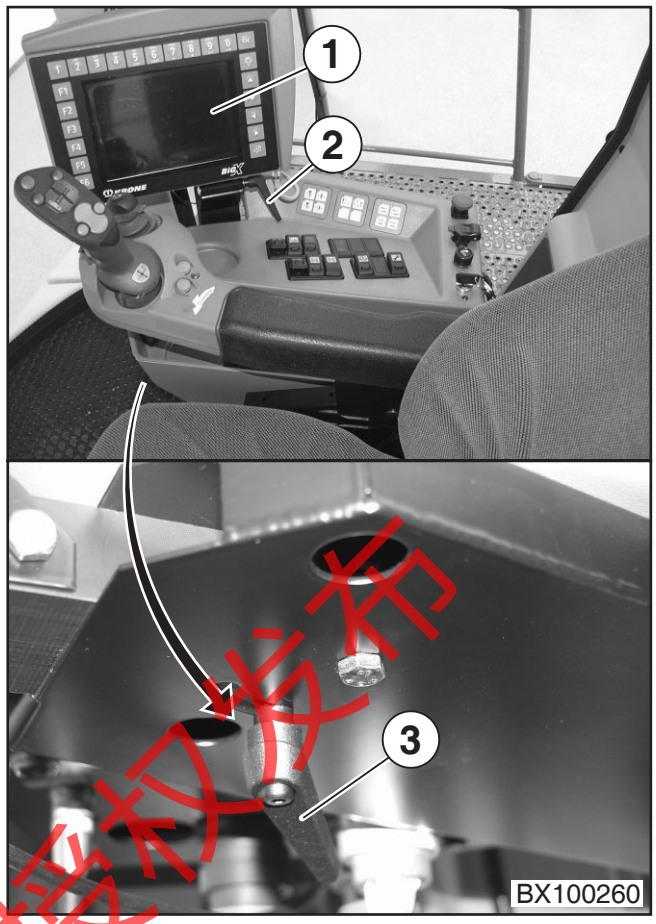
Setting the right armrest

- Undo the clamping screw (2); move the armrest (1) into the requested height and tighten the clamping screw (2) again.



5.5 Setting the horizontal and vertical inclination of the information centre

- Undo the lever (2) and move the information centre (1) into the requested vertical inclination; tighten the lever (2) again.
- Undo the lever (3) and move the information centre (1) into the requested horizontal inclination; tighten the lever (3) again.



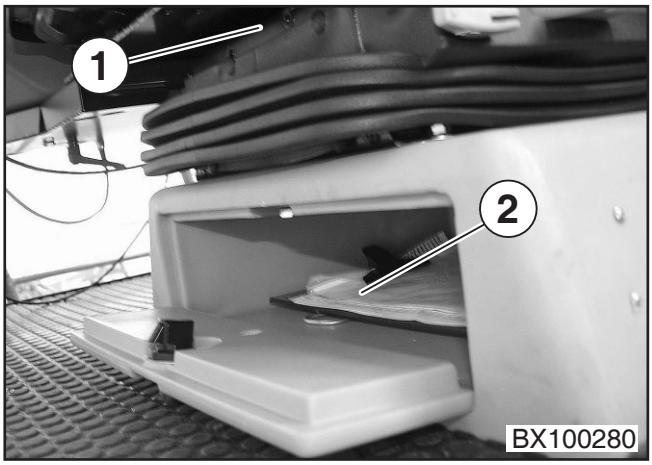
5.6 Drink holder

Beverage holder (1) to hold cans or bottles

Use suitable containers only.

5.7 Storage compartment for first-aid kit/operating instructions

The storage compartment for the first-aid kit and the operating instructions (2) are located below the front of the driver's seat (1).



5.8 Passenger seat (optional)

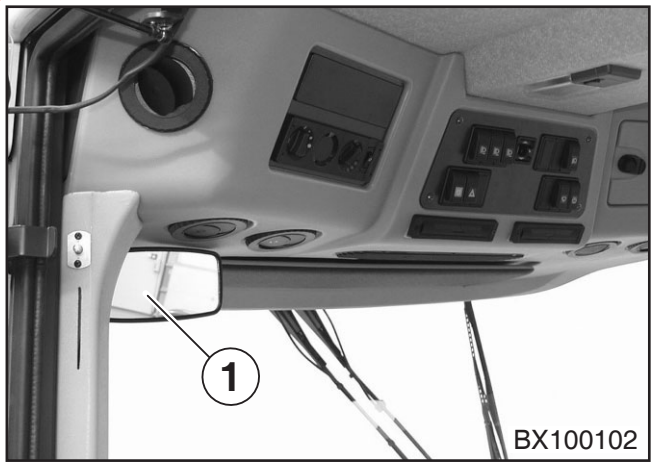
Apart from the driver, only one additional person may be present in the driver's cab during operation.

- Folding down the passenger's seat (1).

5.9 Inside mirror

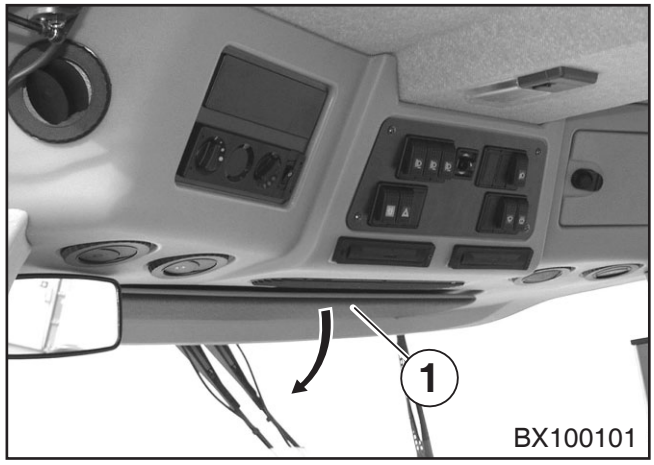
Set the interior mirror (1) according to the requirements of operation.

- Set the interior mirror (1) by hand.



5.10 Sun blind

- Set the sun visor (1) as required.



5.11 Outside mirrors

Left outside mirror

- Set the left outside mirror by hand.

Right outside mirror and anti-collision mirror

The right outside mirror (1) and the anti-collision mirror (2) are electrically adjustable. The switch (3) is located in the roof panel.

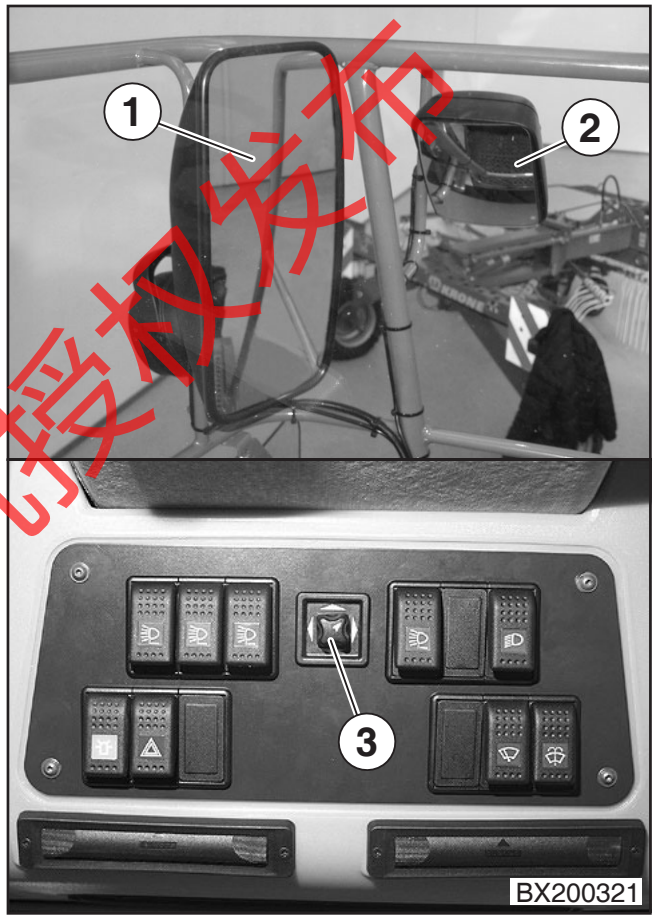
Setting the anti-collision mirror

Set the anti-collision mirror in such a way that the ground area next to the right front wheel can be checked prior to starting.

- Turn the switch (3) to the left (arrow to the left).
- Press the switch (3) up, down and to the side until the anti-collision mirror (2) is set correctly.

Setting the right outside mirror

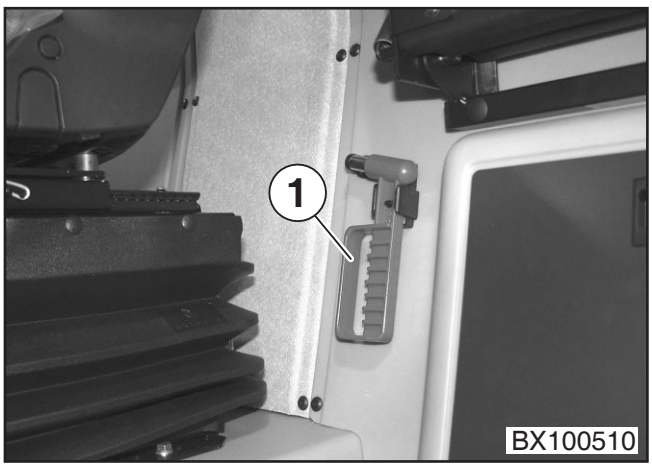
- Turn the switch (3) to the right (arrow to the right).
- Press the switch (3) up, down and to the side until the anti-collision mirror (1) is set correctly.



5.12 Emergency hammer

The emergency hammer (1) is located on the rear cab wall next to the driver's seat.

Use the emergency hammer (1) to smash the cab's panes only in case of an emergency.



5.13 Windshield wipers

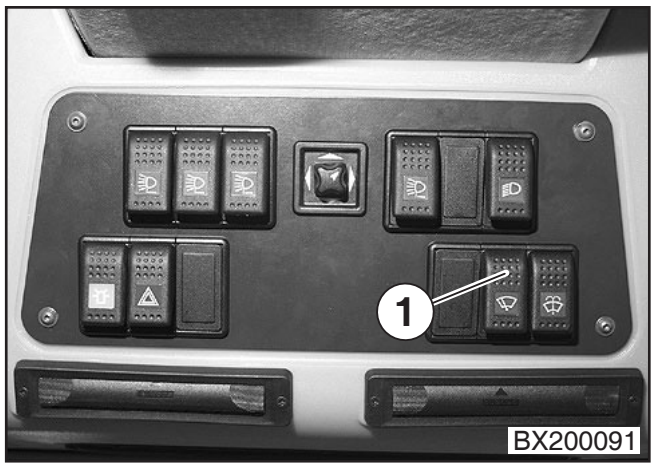
The rocker switch (1) for the windshield wipers is located in the roof panel.

The switch has three positions:

I	-	Off
II	-	Interval
III	-	Continuous operation

Switching on the windshield wipers

- Actuate the rocker switch (1).

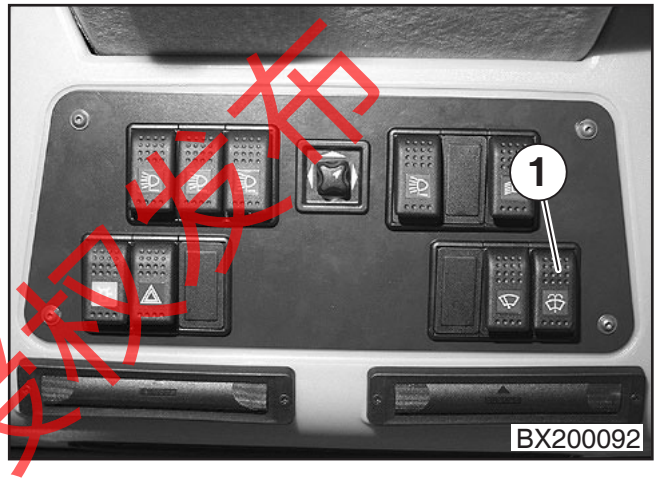


5.14 Washer system - windshield

The rocker switch (1) for the windshield washer system is located in the roof panel.

Switching on the windshield washer system

- Actuate the rocker switch (1).

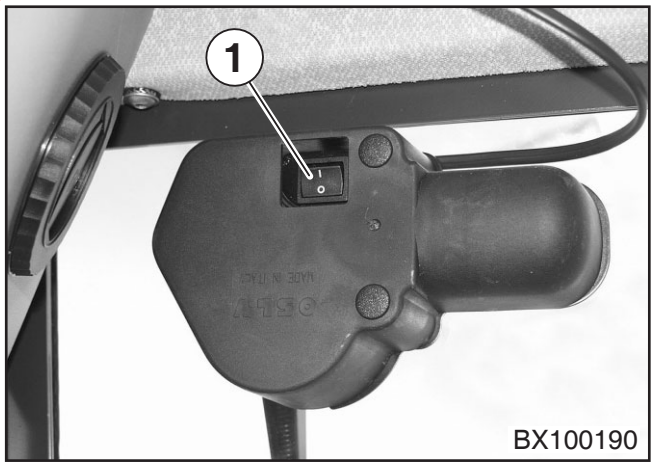


5.15 Side window washer (optional)

The switch (1) for the side window washer is located in the housing of the washer (right/left).

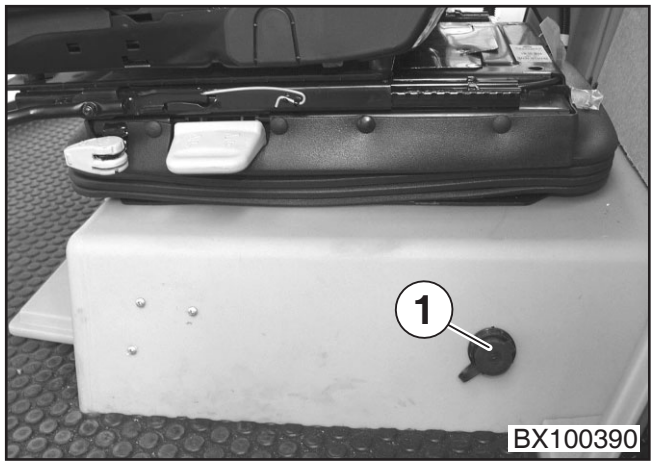
Switching on the side window washer

- Actuate the rocker switch (1) (right/left) as required.

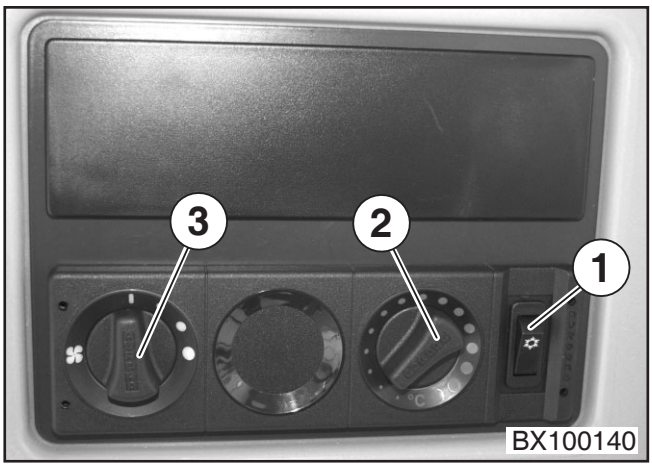


5.16 Diagnosis socket - motor

The diagnosis socket (1) of the motor is located on the left side of the driver's seat panel.
The socket is used to connect a Mercedes-Benz diagnostic unit. The diagnostic trouble code memory as well as the saved motor data can be retrieved with this unit.



5.17 Air conditioning system/ heating



1 - On/off switch of the air conditioning system

2 - Heating control for setting the blow-out temperature of the heater

3 - Fan controller

In order to activate the air conditioning system or the heating, the fan controller (3) has to be set to fan stage 1 at least. In fan stage 0 the air conditioning unit is not operational.

Starting the air conditioning system

The air conditioning system has to be switched on several times a year – even during the cooler season – so that the moveable parts of the system are lubricated.

- Actuate the on/off switch (1), and the green pilot lamp in switch (1) will light up when the air conditioning system is switched on.

- Use the fan controller (3) to set the cooling action.
  Fan controller in vertical position = off
  Fan controller set to the right = fan stages I to III
  Fan controller set to the left = circulating air

Starting the heating

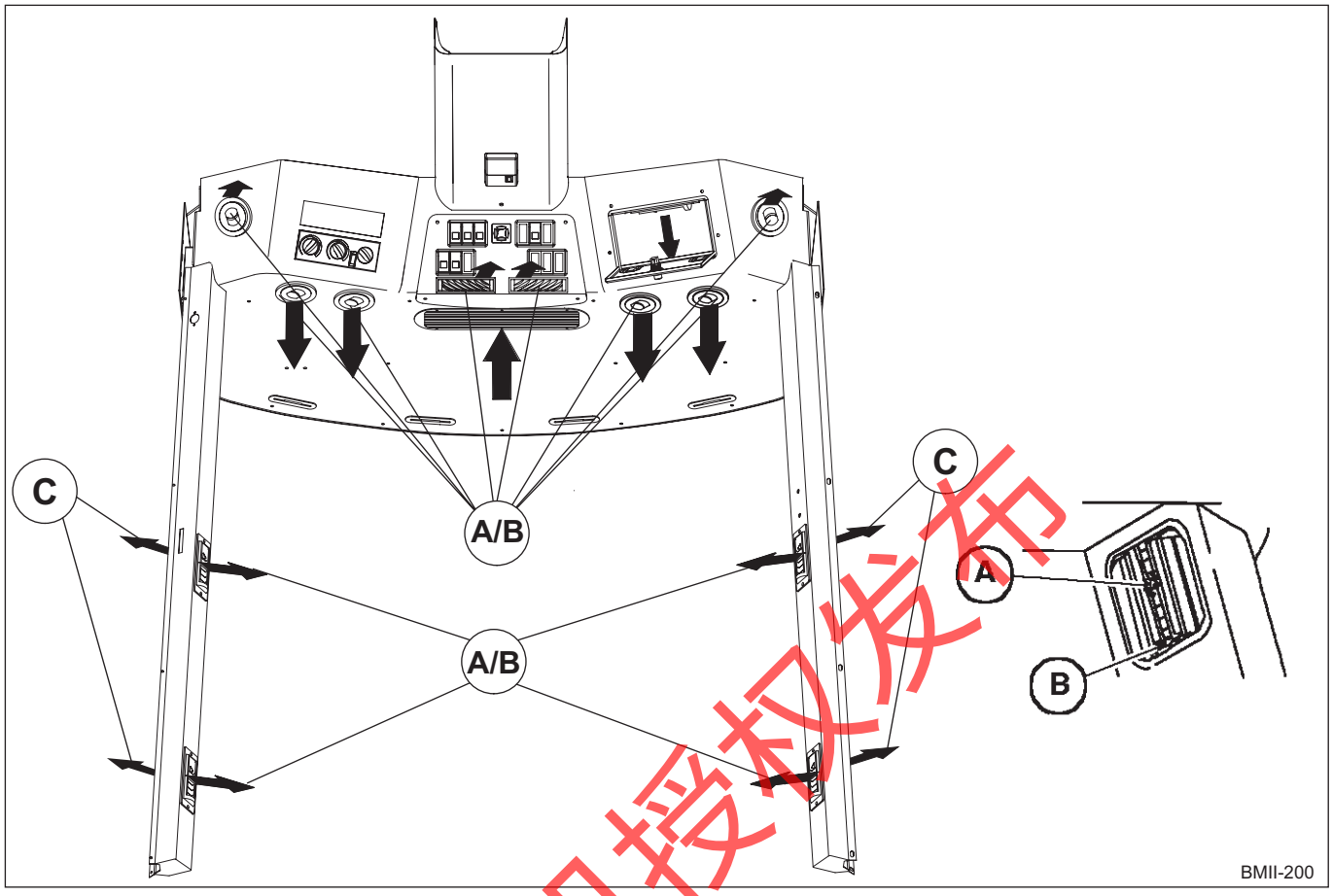
- Turn the heating controller (2) clockwise to the requested position – the further you turn, the higher the heating action.

The control options of the air conditioning system and the heating system can be carried out in combination, i.e. despite maximum cooling action the heating controller can be actuated to set the requested room temperature.

Demoisturising the cab air

- Switch on the air conditioning system and set the fan controller to circulating air.

5.18 Adjustable air jets



A - Knurled wheel to control the amount of air

B - Adjustment of the louvers

C - Air slots

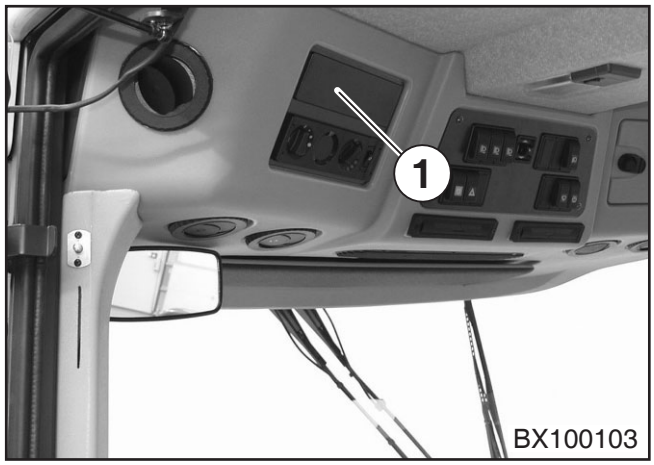
Set the louvers in such a way that the panes do not mist up.

5.19 Radio

1 ISO compartment for radio.

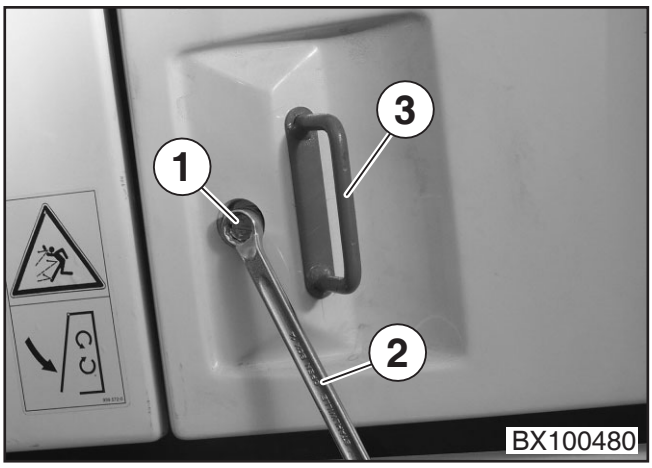
For data on the connections, please refer to circuit diagram in the chapter titled "Maintenance – electrical system".

Telephones and radio equipment not connected to the outside antenna may lead to functional troubles in the vehicle's electronic system, thus jeopardising the operational safety of the vehicle.



5.20 Ladders

5.20.1 Flaps with safety locks



Opening the flaps

- Use an open-jawed spanner or ring spanner (NW 13) or a screwdriver (2) to unlock the flap locks (1) by turning to the left. Open the flap with the handle (3).

Closing the flap

- Close the flap by pressing (without tools).

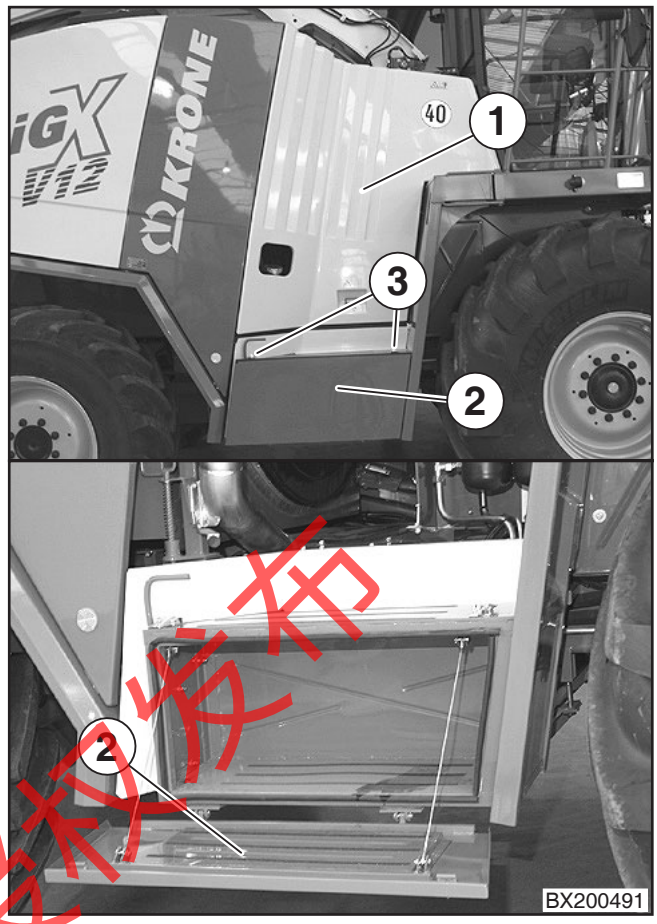
5.20.2 Ladder to the machine compartment

Left-hand side of the machine

- Open the flap (1).

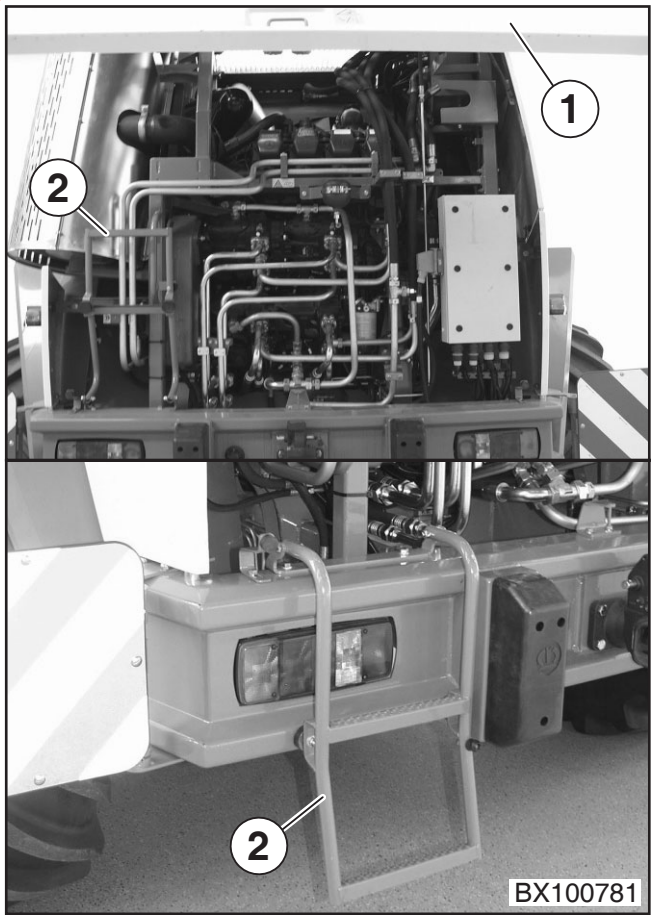
Right-hand side of the machine

- Rotate the flap (1) upward.
- Open the lock (3) of the tool box and fold down the lid (2).



5.20.3 Ladder to the motor compartment

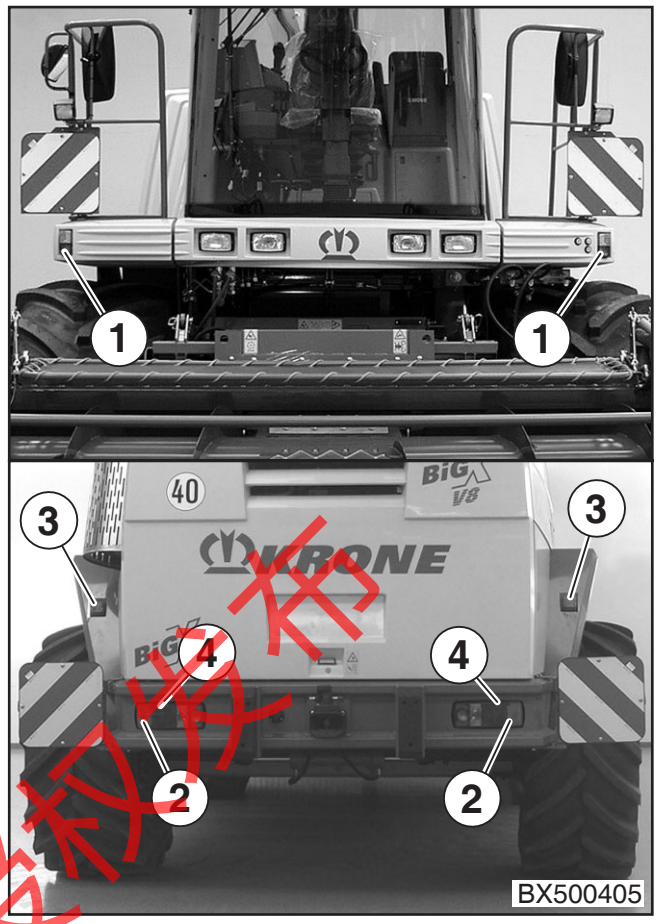
- Open the rear flap (1).
- Fold down the ladder (2).



6 Lighting

6.1 Indicator, hazard warning flasher and brake light

In road traffic indicate the change of travelling direction by means of the indicator.



Switching on the indicator

- Actuate the direction indicator on the steering wheel; the indicators (1, 2, 3) will flash on one side (right/left).

Hazard warning flasher

When the hazard warning flasher has been switched on, all indicators (1, 2, 3) will flash at the same time.

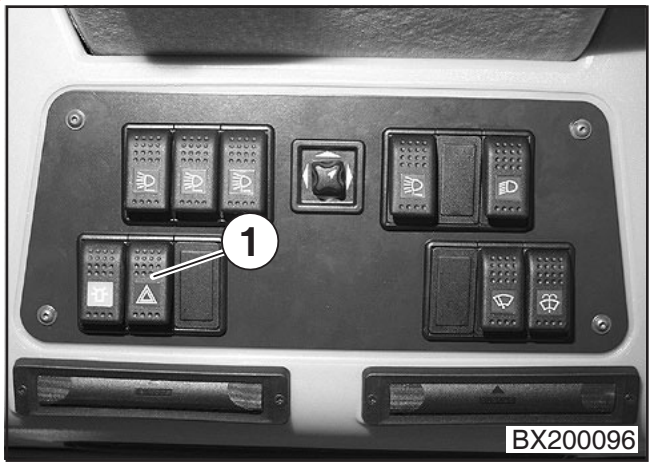
Brake light

When the ignition is switched on, the brake lights (4) will light up as soon as the operating brake is pressed.

Switching on the hazard warning flasher

The switch (1) for the hazard warning flasher is located in the roof panel switch group.

- Actuate the rocker switch (1). The red pilot lamp in the switch (1) will start flashing.



6.2 Parking light

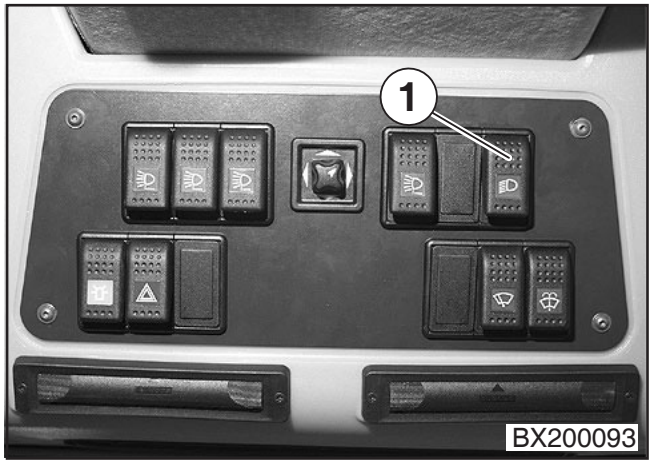
Switching on the parking light

The rocker switch (1) for the parking light and the dipped beam is located in the roof panel switch group.

The switch has three positions:

I	-	Off
II	-	Parking light
III	-	Dipped beam

- Set the rocker switch (1) to position II.

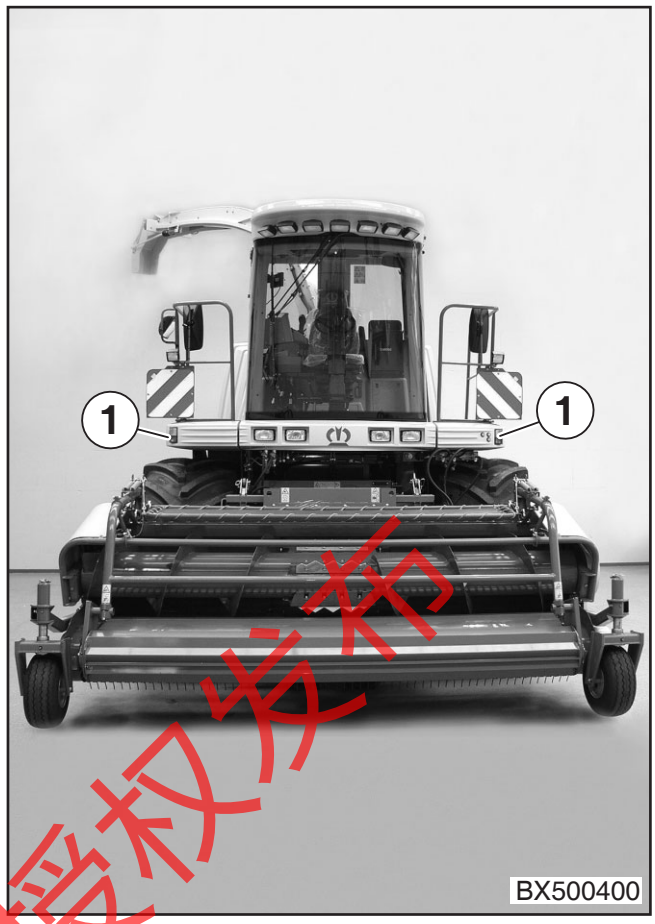


Lighting

The following lamps will light up when the parking light is switched on:

1 - Front side lamps.

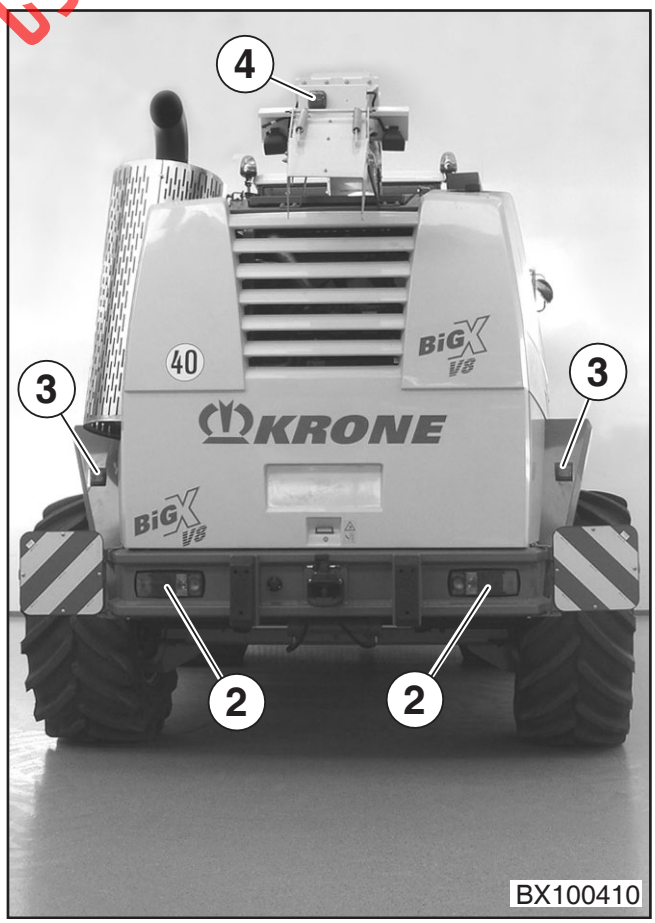
If the forage harvester has been fitted with tyres size 900-60 R32 on the driving axle, the additionally fitted side lamps on the two sides of the platform will also light up.



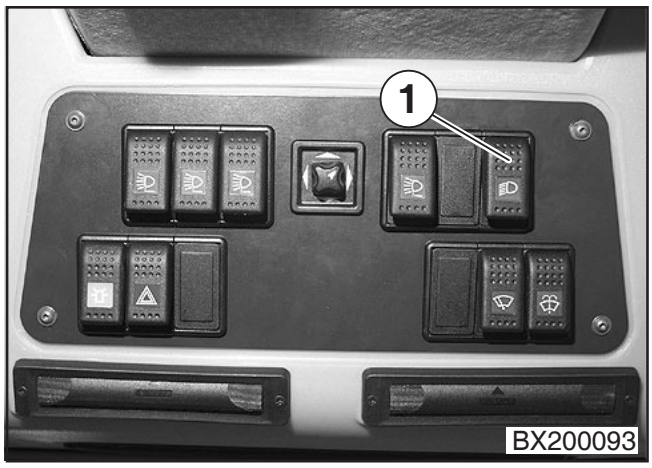
2 - Rear side lamps

3 - Side lamps

4 - Upper side lamp



6.3 Dipped beam



Switching on the dipped beam

The rocker switch (1) for the parking light and the dipped beam is located in the roof panel switch group.

The switch has three positions:

I - Off
II - Parking light
III - Dipped beam

The dipped beam can be switched on only when the ignition has been switched on.

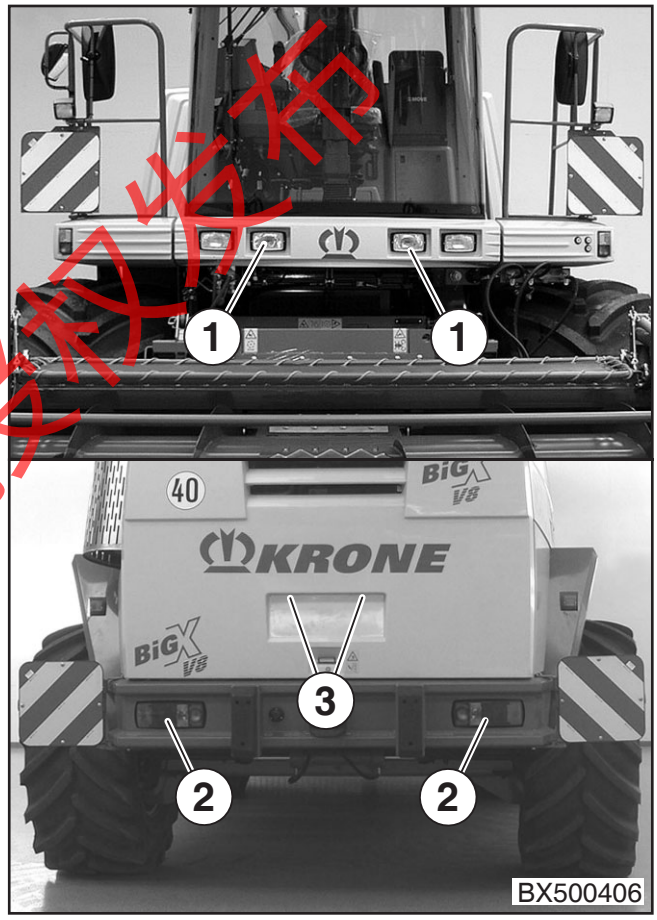
- Set the rocker switch (1) to position III.

When the parking light is on, the following lamps will light up:

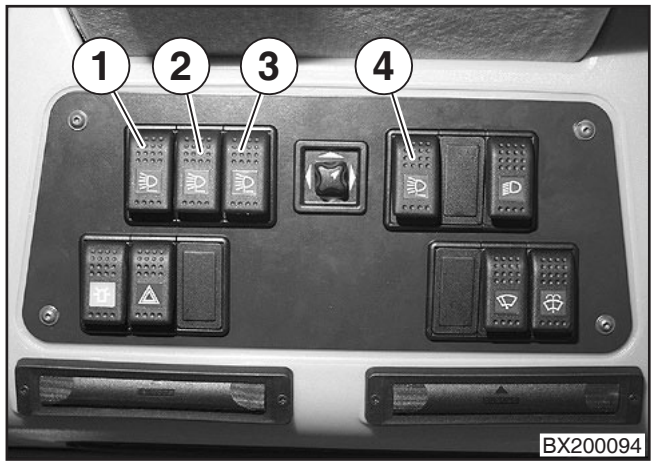
1 - Head lights

2 - Rear lights

3 - License plate lighting



6.4 Working floodlights



Switching on the working floodlights

The rocker switch (1, 2, 3) for the working floodlights is located in the roof panel switch group.

1 - Front working floodlights I

2 - Working floodlight cab roof and upper discharge chute

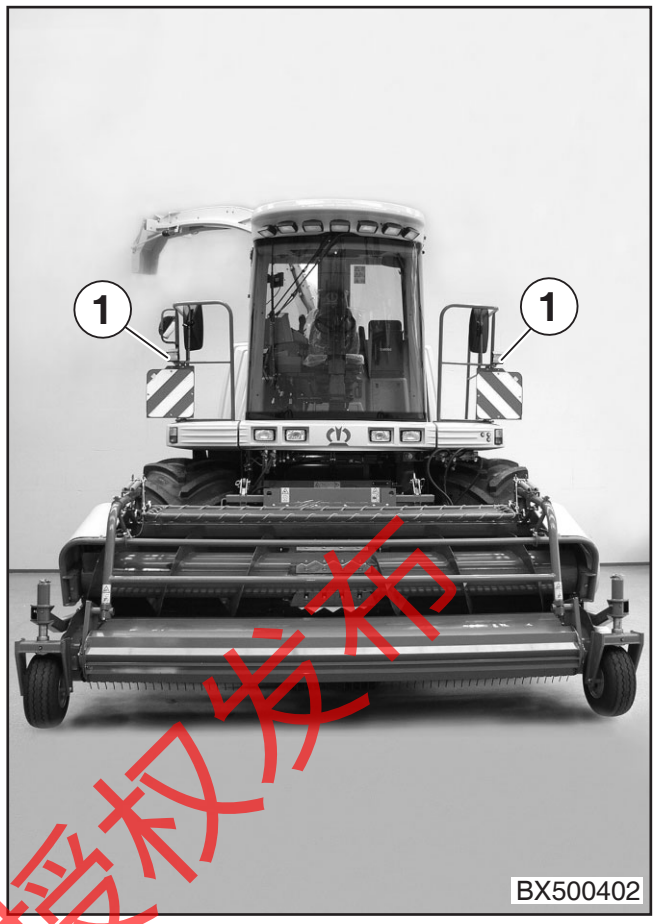
3 - Front working floodlights II

4 - Rear working floodlights

Front working floodlights I

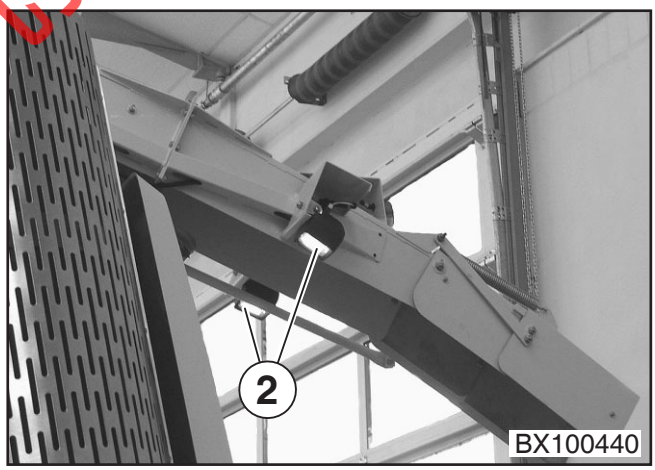
The front working floodlights I can be set by hand.
They have an on/off switch on the rear side.

1 - Front working floodlights I

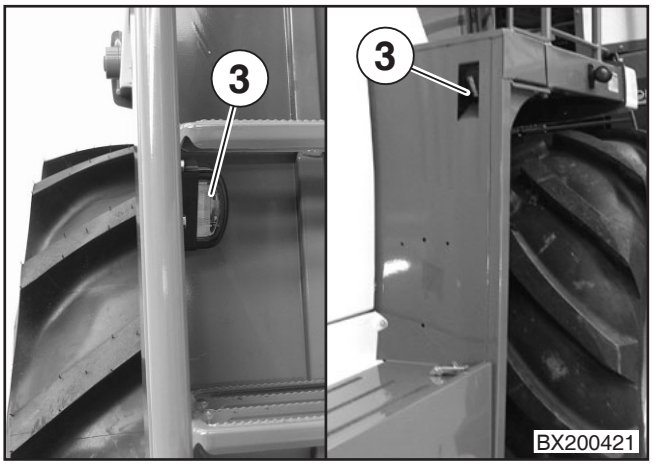


Working floodlight – cab roof and upper discharge chute

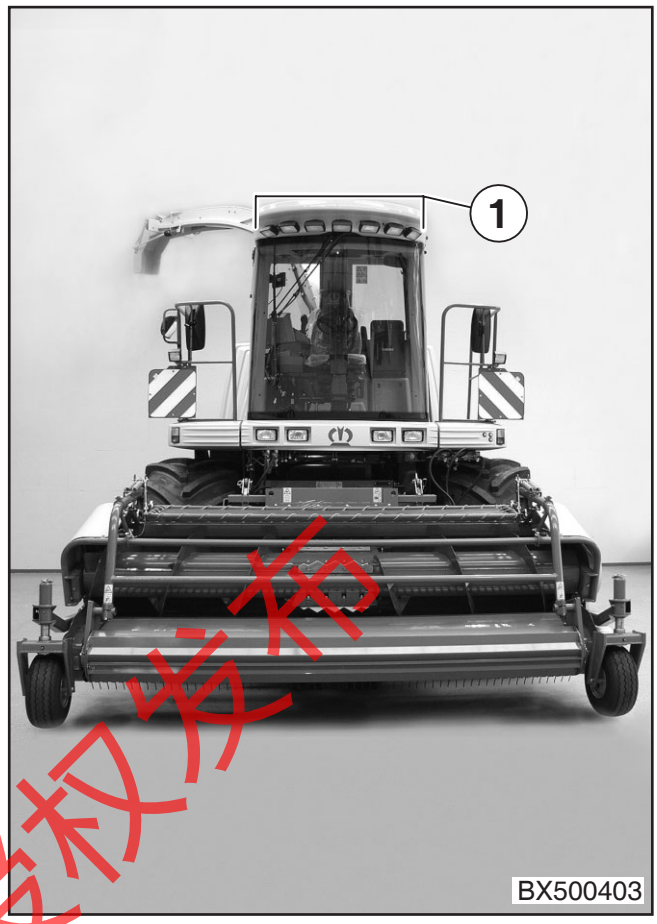
2 - Working floodlights of the ejector



3 - Right and left rear wheel lights

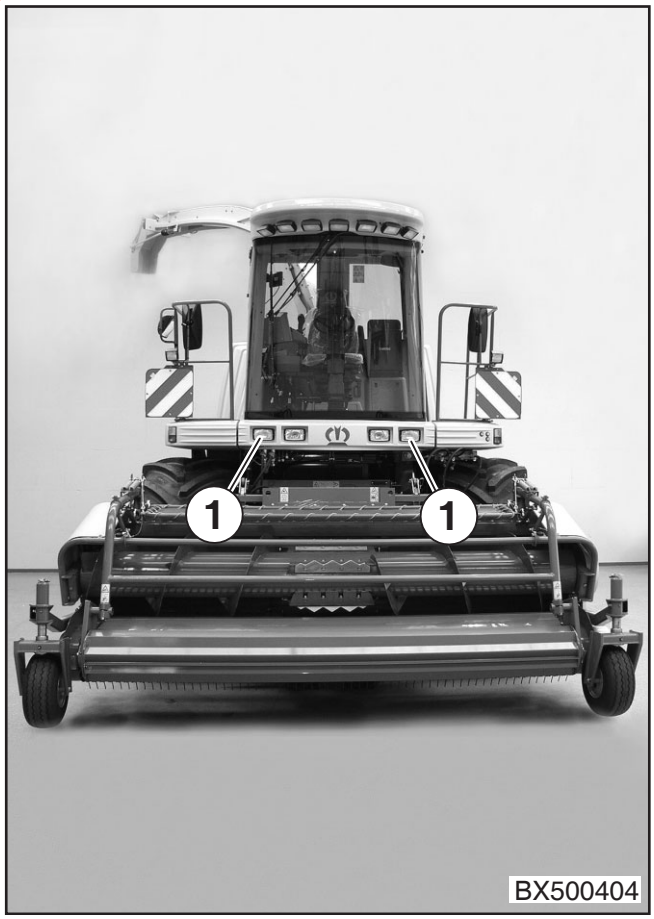


1 - Cab roof working floodlights



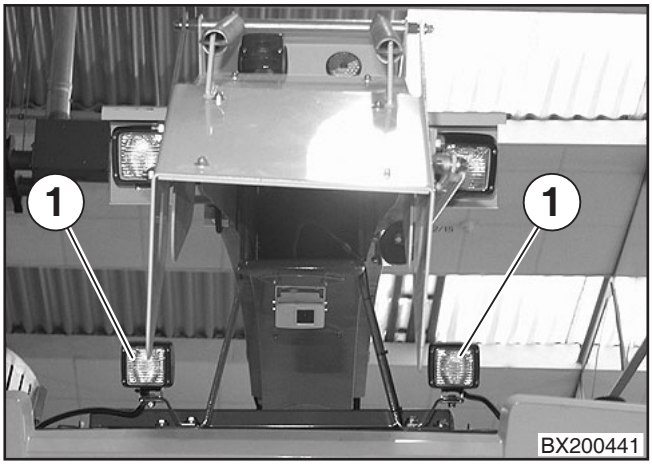
Front working floodlights II

1 - Front working floodlights II



Rear working floodlights

1 - Rear working floodlights



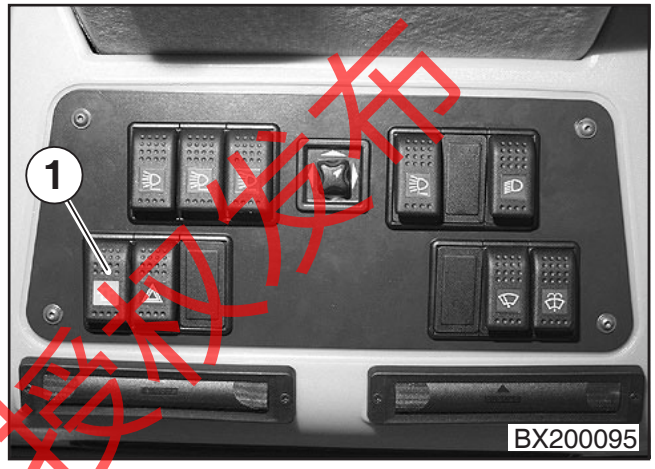
6.5 Allround lights

In some countries the allround lights must be switched on in road traffic.

Switching on the allround lights

The switch (1) for the allround lights is located in the roof panel switch group.

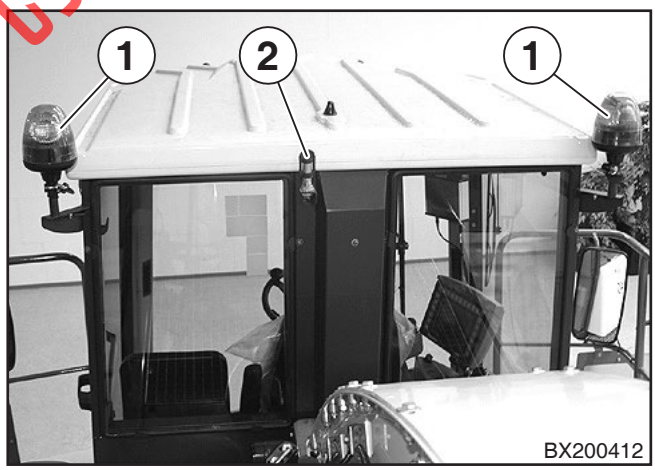
- Actuate the rocker switch (1). The orange pilot lamp in the switch (1) will light up.



Allround lights

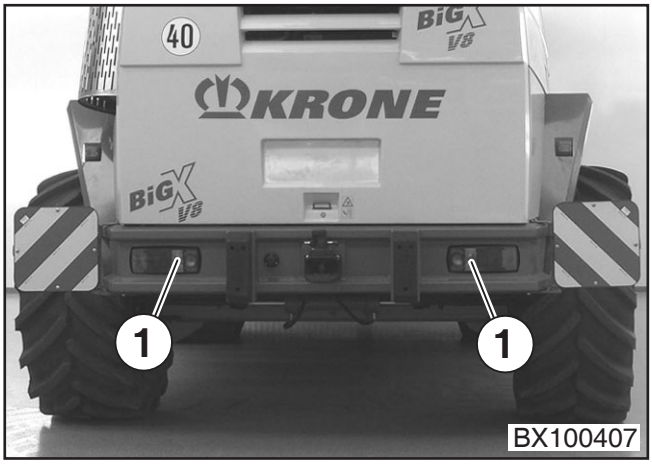
1 - Allround lights

If the allround lights (1) are not visible through the folded-in maize header for road driving, an allround light can be placed on the middle support (2).



6.6 Reversing lights

The reversing lights will light up when reversing, and at the same time an acoustic warning signal is sounded.



7 Start-up

7.1 Daily checks

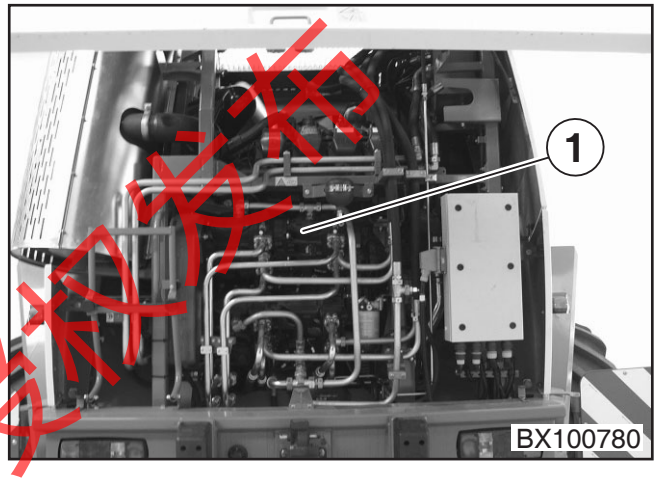
- Check machine for cleanliness, clean if necessary
- Engine oil level
- Hydraulic oil level, tightness of the system
- Coolant level, engine
- Central lubrication
- Tyres
- Light functions
- Brake

7.1.1 Dirt deposits in the engine and machine compartment

Engine compartment (1)

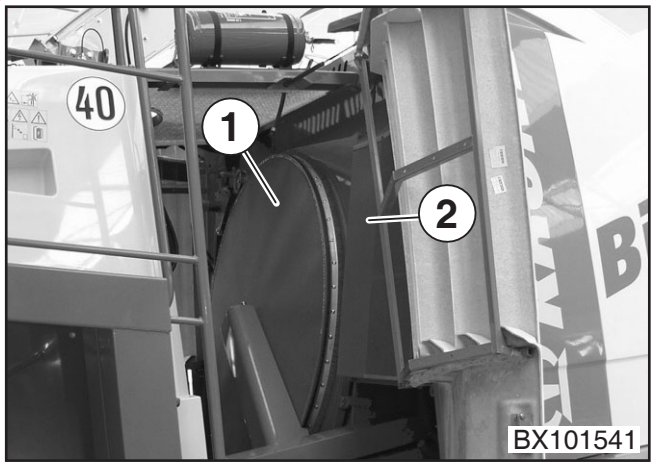
A mixture of dust, oil, grass and chaff in the engine compartment is a source of fire and means an increased fire hazard.

- Always keep the engine and engine compartment (1) clean.
- Blow off dirt with compressed air.
- Wipe off oil deposits.

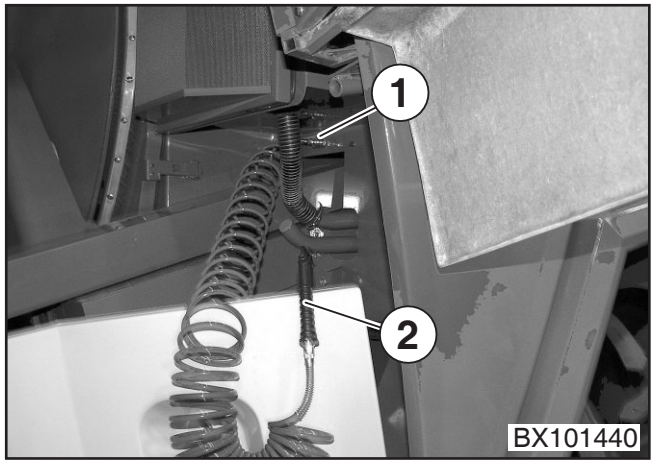


Machine compartment

- Always keep the radiator sieve (1) and air filter cover (2) clean.
- Blow off dirt with compressed air.



The compressed air connection (1) and compressed air gun (2) are in the machine compartment.



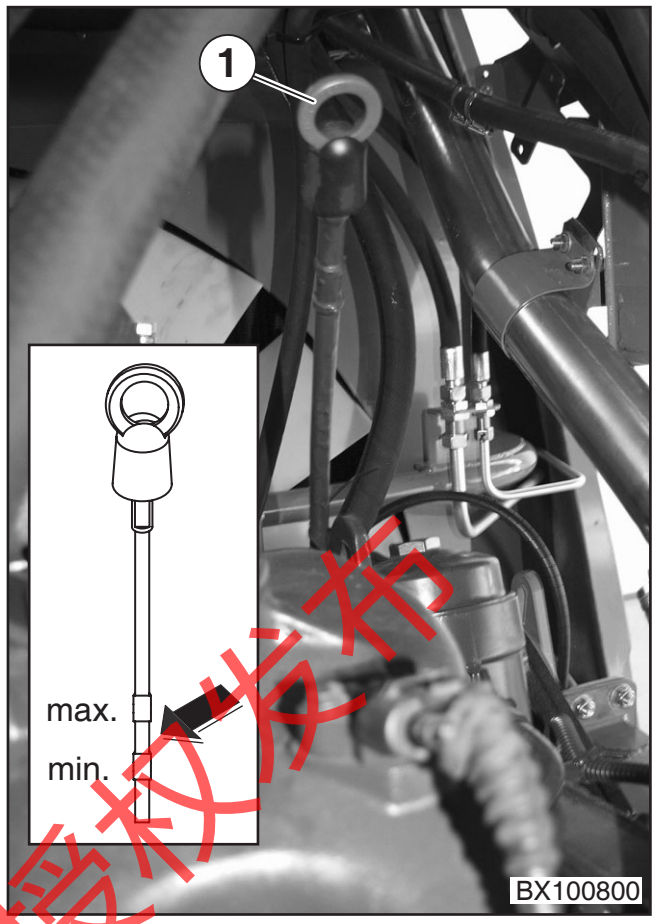
7.1.2 Engine - oil level check

Park the machine on level ground, perform an oil level check approx. 5 minutes after the engine has stopped.

- Pull out the oil dipstick.
- Clean the oil dip stick with a non-fibrous cloth and push it in completely.
- Pull the oil dipstick back out.

The oil level must lie between the min. and max. mark.

- If necessary refill engine oil (see engine maintenance section).



Engine OM 502 LA (V8)

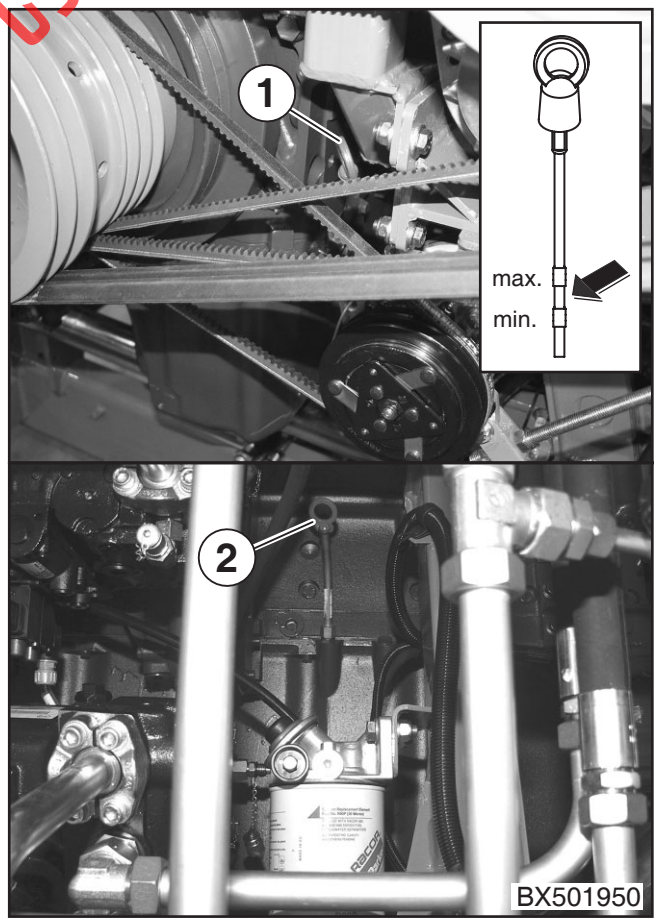
1 - Oil dipstick

Engine OM 444 LA (V12)

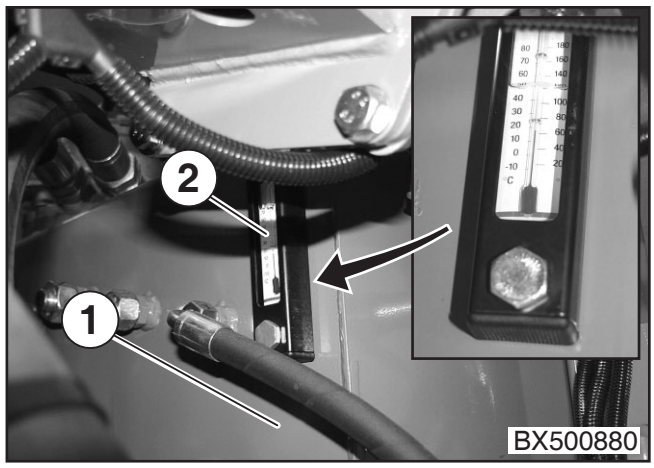
With engine OM 444 LA (V12), the engine oil check can be performed with oil dipstick 1 or oil dipstick 2.

1 - Oil dipstick (right-hand side of the machine)

1 - Oil dipstick (rear area)



7.1.3 Hydraulic oil level check

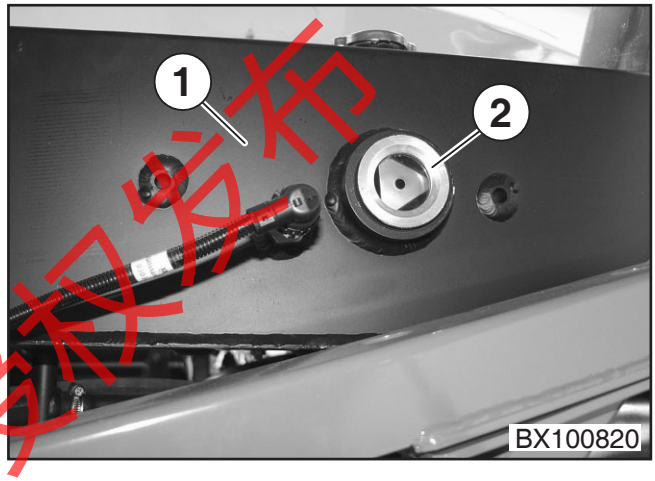


- Lower the lifting gear and switch off the engine.
- Check the hydraulic fluid level in the viewing glass (2) of the hydraulic fluid tank (1).

The hydraulic fluid must be visible in the viewing glass (2).

- If necessary refill hydraulic oil (see hydraulic maintenance section).

7.1.4 Checking the engine coolant level



- Check the coolant level in the overflow container (1) in the viewing pane (2).

The coolant level must reach up to the middle of the control eye (2).

- If necessary refill coolant (see section on engine maintenance).

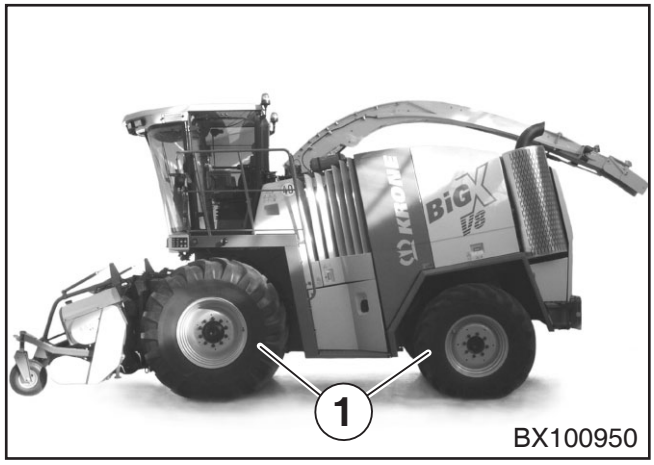
7.1.5 Checking the central lubrication system

- Perform visual filling level check at the lubricant tank (1).

The lubricant level must be above the min. mark.

- If necessary refill lubricant (see section Maintenance - Central lubrication system).

7.1.6 Tyres



- Check tyres (1) daily for damage and cracks and obviously low tyre pressure.
- Measure the tyre pressure with an accurately working test device at least 1x weekly.

For tyre pressure information, refer to the section on Maintenance - Tyres.
The tyre pressure data refer to cold tyres.

- Correct the tyre pressure if necessary.

7.1.7 Light functions

- Check the functioning of the lighting before the start of every journey.

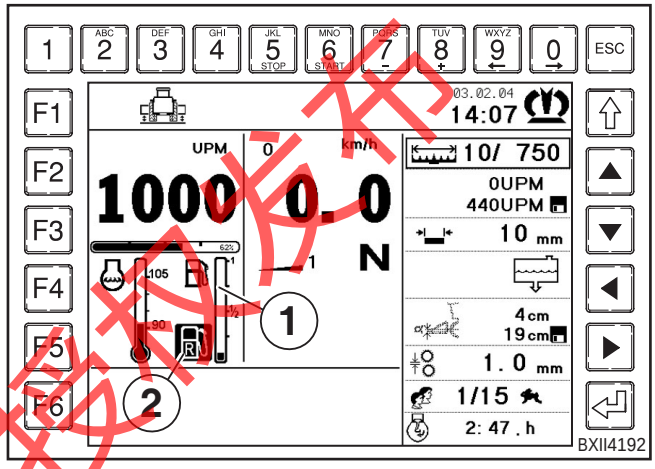
7.1.8 Brake

- Check the functioning of the operating brake before the start of every journey.

7.1.9 Fuel level

- With the ignition switched on, check the fuel level (1) in the display of the Info centre.

- If the symbol  (2) appears in the engine data info area, refuel without delay.



7.2 Fuel system

7.2.1 Fuel

Take care when handling fuel. Refuel only outdoors and with the engine switched off. No smoking.

The quality and cleanliness of the fuel are of critical importance for consistently good performance and a long service life for the engine.

Observe the data in the engine operating instructions, operating materials section (Daimler Chrysler) and the operating regulations (DaimlerChrysler).

For temperatures under 10 °C (50 °F), always use winter fuel.

7.2.2 Refueling

- Switch off the engine.
- Clean grass and dust from the area around the filler neck (1).
- Use only clean fuel in the tank. If necessary, filter the fuel before adding it to the tank.
- Capacity of the fuel tank approx. 960 l.
- Close and seal the tank after filling it.
- Dispose of spilled fuel.

Refuel the fuel tank daily after the end of work to avoid the formation of condensation in the fuel tank and freezing when cold.

7.2.3 Venting the fuel system

The fuel system must be vented if necessary after a lengthy standstill.
For more information, please refer to the operating instructions in the section on engine maintenance (DaimlerChrysler).

7.3 Engine operation

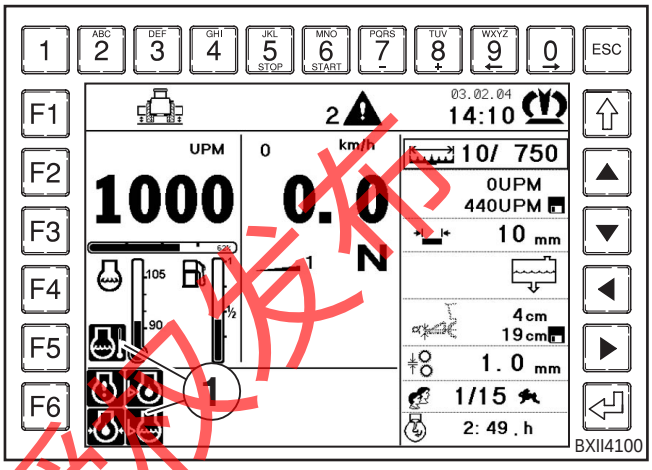
7.3.1 Running in the engine

Modifications to the engine not authorised by the manufacturer result in expiry of the warranty protection.

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

Observe the following notes:

- If one of the following error messages (1) appears in the display of the Info centre and at the same time an acoustic signal sounds, immediately switch off the engine and remedy the fault (see also Appendix A - Error messages).



- Engine fault!
- Diesel engine oil pressure!
- Diesel engine oil level!
- Cooling water temperature!
- Cooling water level!

- Check the engine oil level at regular intervals of time (see section 7.1.2 Engine oil level check), 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.

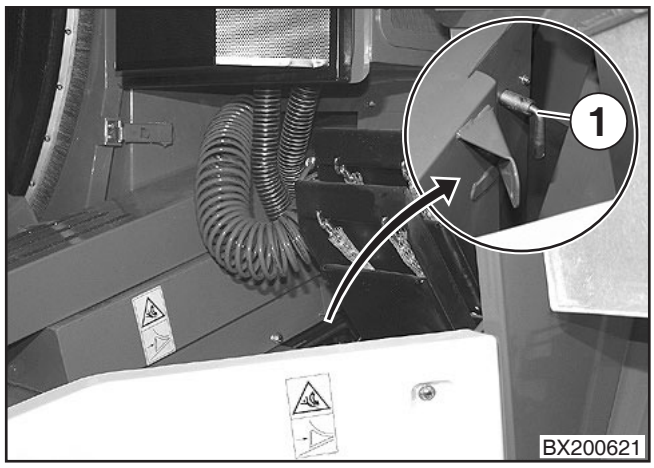
7.3.2 Before starting the engine

Always make sure there is no one in the vicinity of the forage harvester; sound horn.

Never let the engine run in closed rooms without extraction system.

Ensure sufficient ventilation.

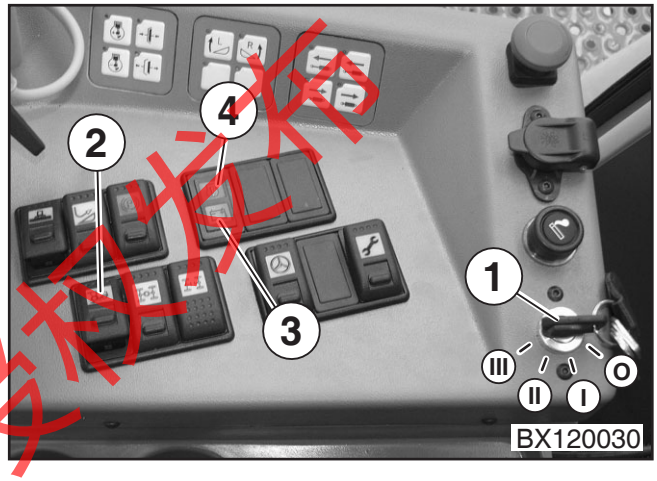
7.3.3 Starting the engine



Prerequisites

- Main battery switch (1) in closed position (vertically downwards).

- Travelling gear release switch (2) off.



Switching on the electronics circuit

- Turn the ignition key (1) to the **I** position.

Switching on the ignition

- Turn the ignition key (1) into the **II** position.

The charging pilot lamp (3) lights up. It must go out after the engine starts.
The engine fault pilot light (4) shines for approx. 2 seconds.

The task computer makes a system check internally, the main display appears in the display of the Info centre.

Starting the engine

Start the engine only from the driver's seat.

- Turn the ignition key (1) into the **III** position. Do not operate the starter too briefly, but not longer than 20 seconds. Immediately let go of the ignition key (1) after the engine starts.

If the engine does not start within the 20 seconds, wait for at least 2 minutes before trying to start it again.

After the engine is started the engine fault control light (4) shines briefly. Check that the pilot light goes out, if not immediately switch off the engine and remove the fault.

If the ignition key (1) is turned back into the **I** position before the engine starts, wait until the engine is at rest before trying to start it.

The task computer makes a system check internally, the main display appears in the display of the Info centre.

7.3.4 Starting at low temperatures

In the cold season let the engine run in the lower idling speed for a few minutes after the start.

If necessary use winter-grade fuel.

7.3.5 Starting with auxiliary battery

Under cold operating conditions use a further 12 V battery as required parallel with the batteries.

Leaking battery gas is highly explosive. Avoid spark formation and open flames in the vicinity of the battery. Always connect the battery with the correct polarity, the earth cable to the minus pole and starter cable to the plus pole of the battery. Never connect batteries in series, since otherwise excess voltages that damage the electronics can arise.

In the case of non-compliance of the correct polarity between battery and three-phase generator severe faults in the electrical system arise. Always connect the plus pole first and then the minus pole.

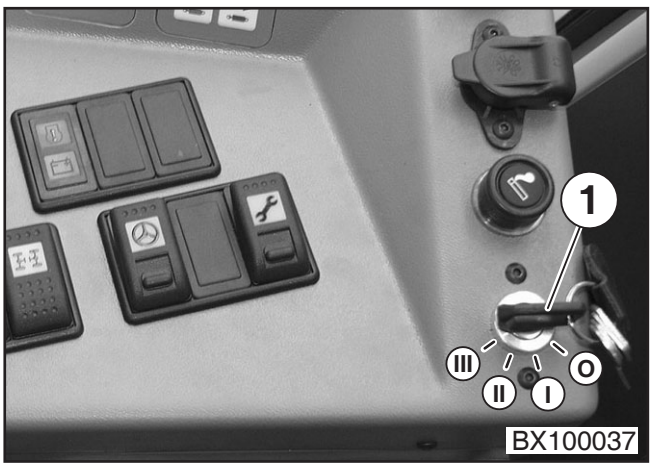
7.3.6 Killing the engine

If an engine at operating heat stalls, immediately restart the engine to avoid an excessive heat accumulation at functionally important parts. Before switching off the engine, let it run without load for 1-2 minutes in the lower idling range to let all important parts of the engine cool down.

7.3.7 Switching off the engine

- Let the engine run without load for 1-2 minutes in the lower idling range to let all important parts of the engine cool down.
- Turn the ignition key (1) into the **0** position.

Always pull out the ignition key (1) before leaving the driver's cab. The holding brake is applied automatically.



7.4 Driving

7.4.1 General aspects of driving

The following notes must be observed when driving the forage harvester:

- Handling the forage harvester requires a certain amount of practice because of the rear steering.
- Handling on the road and in the field differs.
- In the case of an error message in the Info centre immediately stop and remove the error.
  If this is not possible, inform the Krone customer service or your Krone dealer.

Handling characteristics

The handling characteristics of the forage harvester are influenced e.g. by the roadway and by the fitted front attachment.
Therefore the style of driving must be adapted to the relevant ground and soil conditions.
Special care is required when working and turning on a slope!

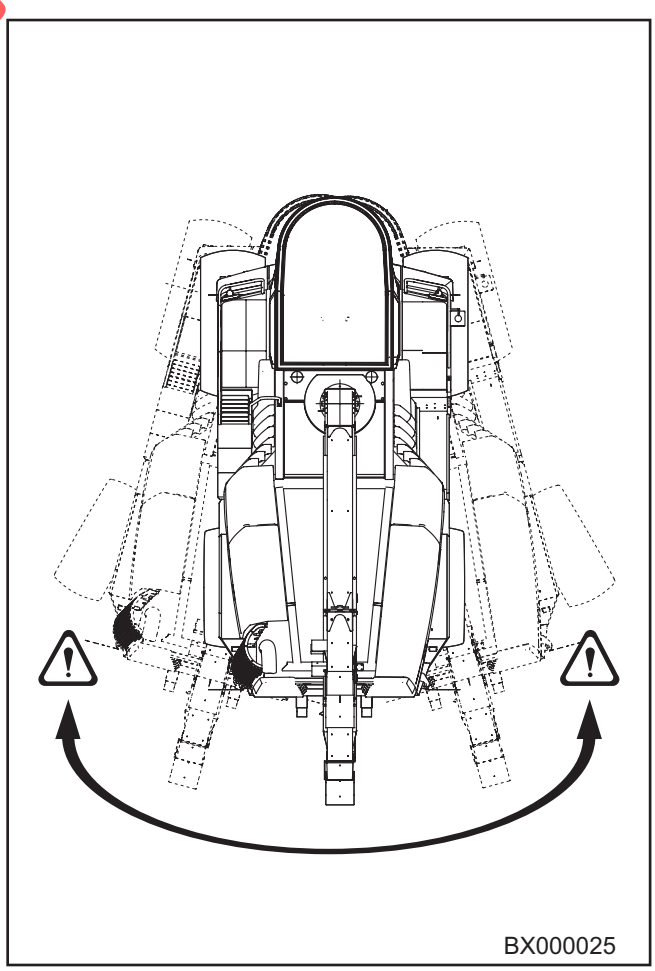
7.4.2 Steering

The forage harvester is easy to steer due to the hydrostatic steering with the rear axle.

Take care when driving on roads and tight corners, the forage harvester swings out at the rear!

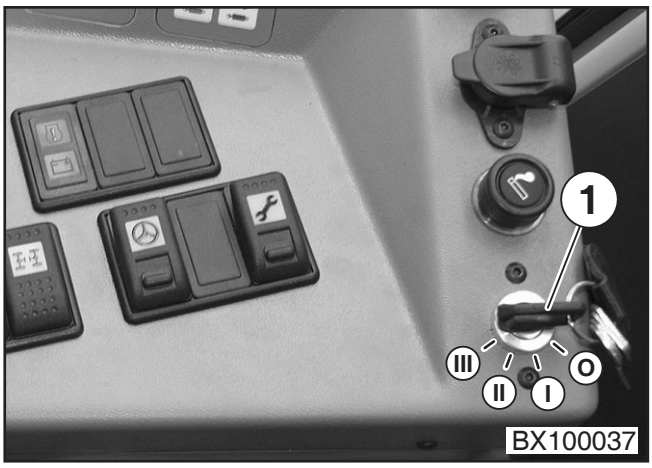
Emergency steering forces

The steering also operates when the engine has stopped. However, considerably more force must be applied.



7.4.3 Starting the engine

For details see section 7.3.3 Engine operation - Starting the engine.



7.4.4 Road/field mode

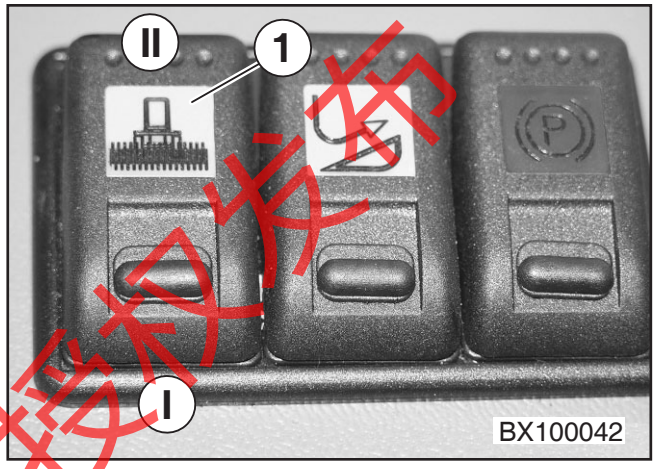
Road operating mode

- Bring the lifting gear into the transport position.

When travelling on roads, the road/field release switch (1) has to be set to the I position.
This ensures that only the travelling gear, the steering mechanism and the brakes are active.

Field mode

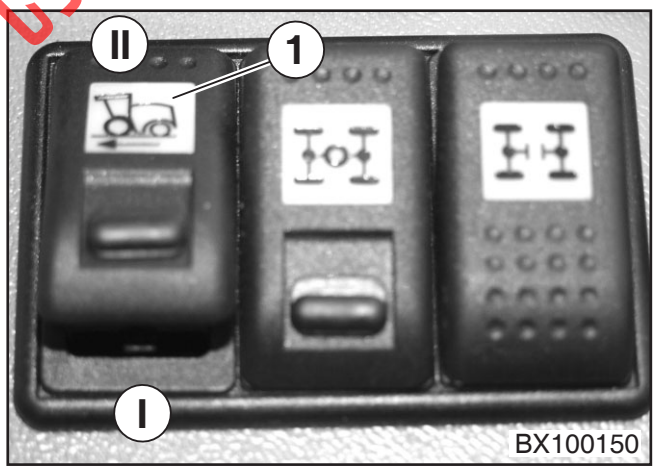
- Switch the road/field release switch into the **II** position.



7.4.5 Switching the travelling gear on

No persons may be present in the direct hazardous area of the machine when the travelling gear release switch is actuated!

- Set the travelling gear release switch (1) to position **II**.

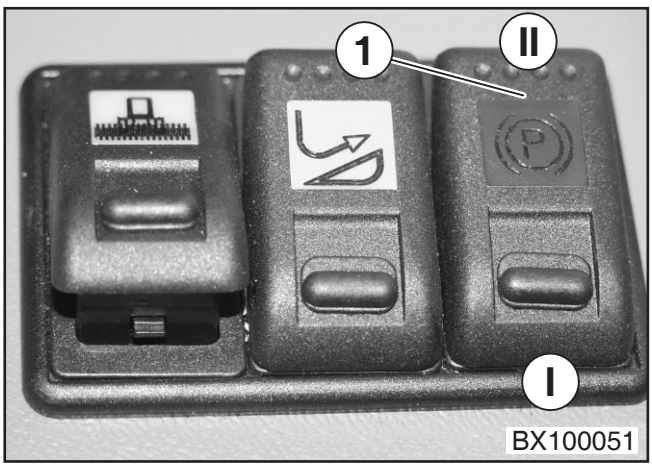


7.4.6 Release holding brake

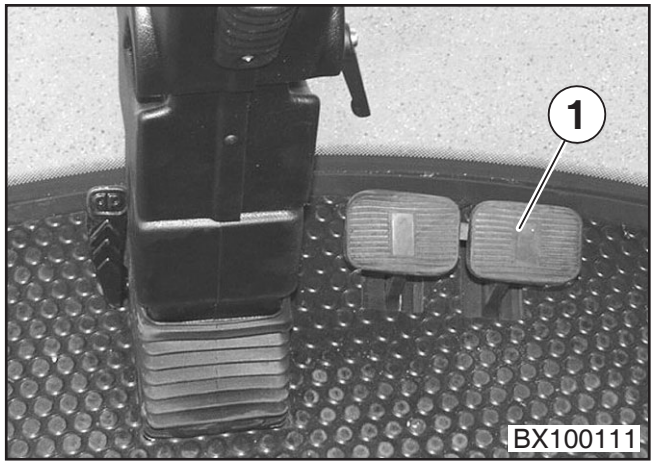
Driving for an extended period of time with the holding brake applied will result in overheating of the brake.

- Switch the holding brake release switch (1) into position **I**.

The holding brake is applied automatically when the ignition is switched off.



7.4.7 Operating brake

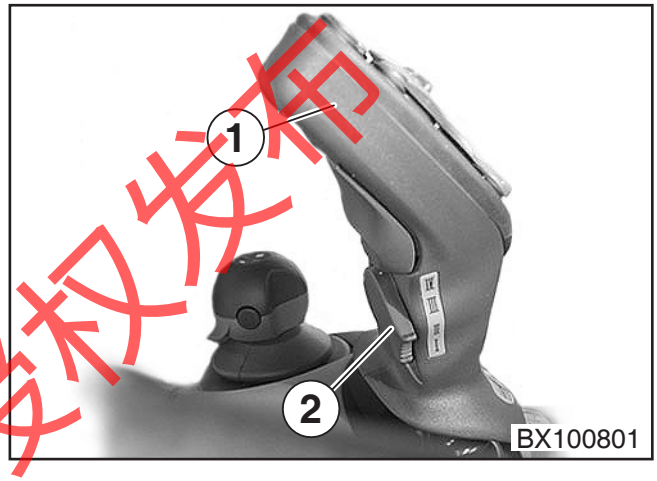


In road traffic

- The hydrostat decelerates automatically when the operating brake (1) is operated.

For reasons of traffic safety the brake pedals must be coupled.
No single brake fitted.
Check the brake function before every journey.

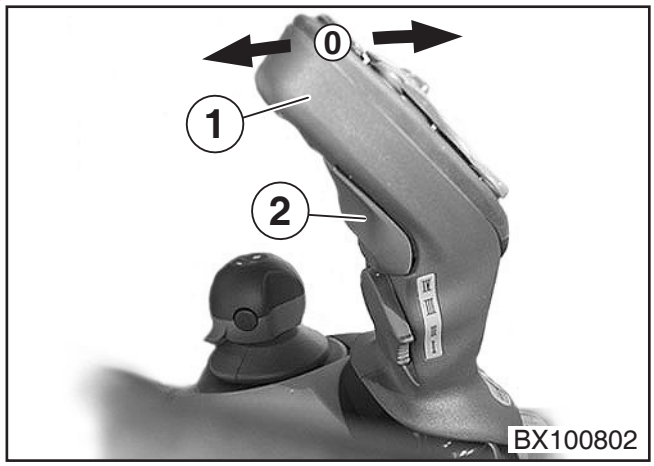
7.4.8 Setting the acceleration behaviour



Four different acceleration stages can be selected while driving with the selector switch acceleration ramp (2) attached to the multi-function lever (1).
With unchanging operation of the multi-function lever (1) in one direction and unchanging engine speed, the travelling speed increases the slowest in the acceleration stage I and the fastest in the acceleration stage IV.

- Switch the selector switch (2) into the desired acceleration stage.

7.4.9 Driving forwards



Always adapt the travelling speed of the forage harvester on road and field to the given conditions.

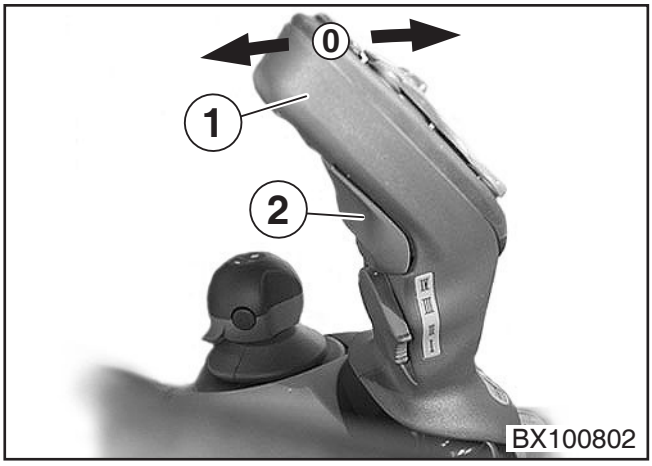
Starting forwards from standstill

After the engine is started and the travelling gear is released, the gearbox is in the neutral position.

- Press the activation button for the travelling gear (2) and keep it pressed.
- Move the multi-function lever (1) to the front, the forage harvester starts to move forwards and accelerates.
- If you release the multi-function lever (1), it returns automatically to the mid position (0). The speed remains constant.
- If you move the multi-function lever (1) to the rear while travelling, the forage harvester decelerates, it is braked until is comes to a stop by friction.

7.4.10 Reversing

An acoustic warning signal sounds when reversing.



Starting in reverse from standstill

After the engine is started and the travelling gear is released, the gearbox is in the neutral position.

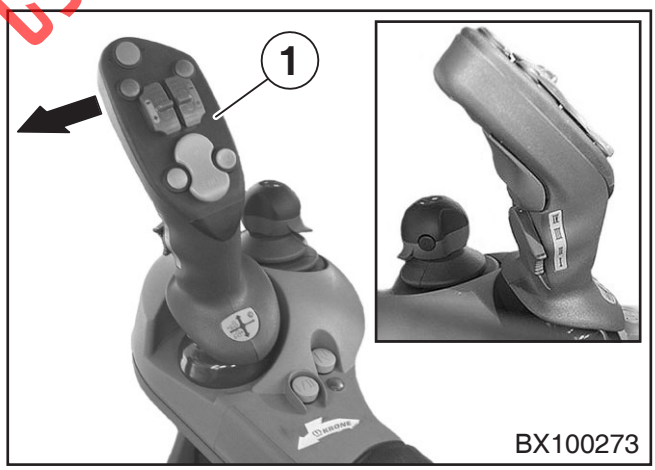
- Press the activation button for the travelling gear (2) and keep it pressed.
- Move the multi-function lever (1) to the rear, the forage harvester starts to move in reverse and accelerates.
- If you release the multi-function lever (1), it returns automatically to the mid position (0), the speed remains constant.
- If one moves the multi-function lever (1) to the front while travelling, the forage harvester decelerates, it is braked until is comes to a stop by friction.

7.4.11 Quick stop

Activating quick stop

- Move the multi-function lever (1) to the left while driving.

The forage harvester decelerates to a standstill.



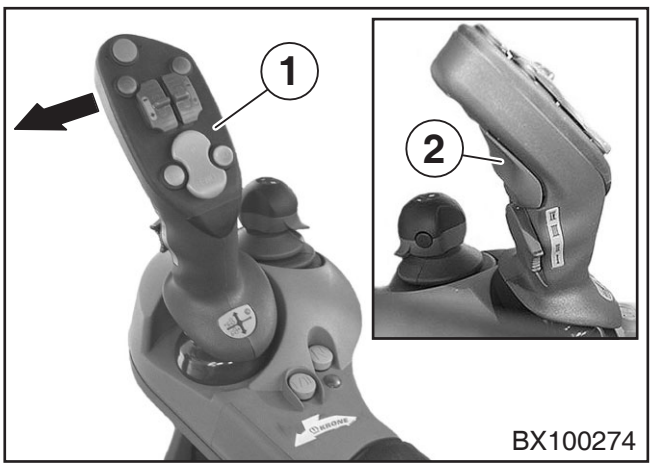
7.4.12 Fast direction change (fast reversing)

Fast reversing is possible only in the field mode.

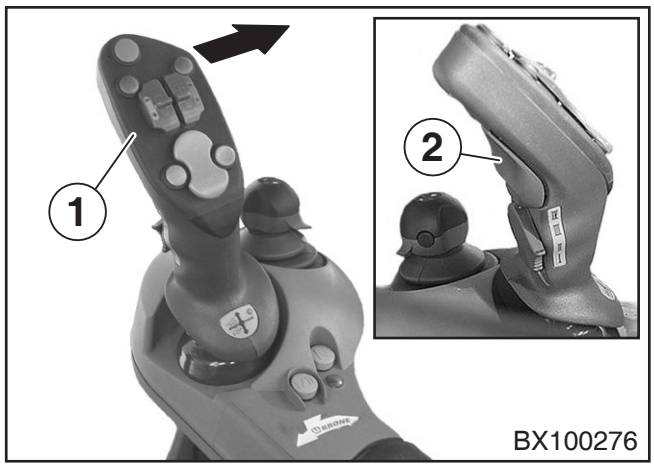
Activating fast reversing

- While travelling press the activation button for the travelling gear (2) and keep it pressed, move the multi-function lever (1) to the left and back to the middle position.

The forage harvester decelerates down to standstill and accelerates in the opposite direction to approx. 70 % of the previous travelling speed.



7.4.13 Cruise control



The cruise control can be activated only when travelling forwards. When the cruise control is activated, the forage harvester is accelerated or decelerated with the set acceleration stage to the speed stored for the cruise control mode.

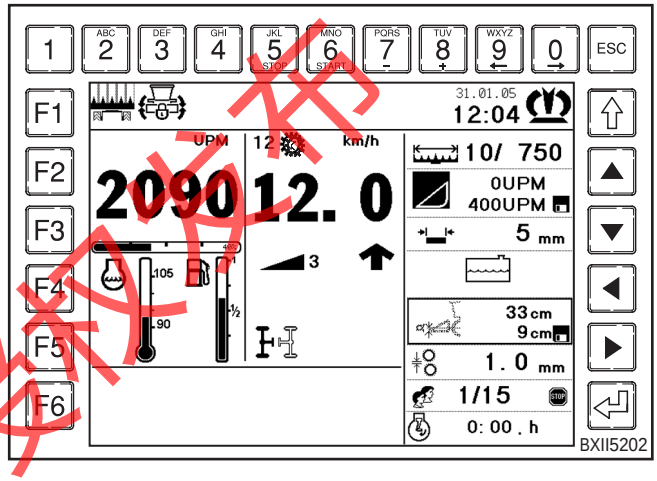
Storing the speed for the cruise control mode

The speed is saved for the operating mode (road/field) the machine is currently in.
One speed can be saved for road and field mode each.

- Accelerate the forage harvester to the desired speed.
- While travelling press the activation button for the travelling gear (2) and keep it pressed, move the multi-function lever (1) to the right and back to the middle position.

The momentary travelling speed is stored.

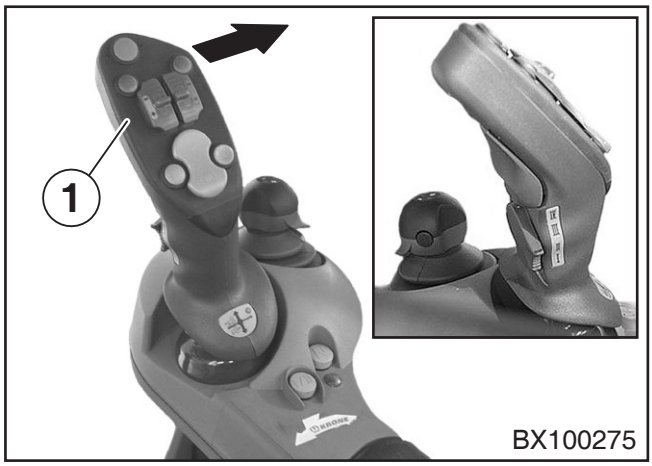
The stored speed (1) is displayed in the display of the Info centre in the travelling gear data Info area.



Activating cruise control

- Move the multi-function lever (1) to the right without the activation key while travelling.

The forage harvester goes to the saved speed, the symbol in the display of the Info centre is displayed for cruise control active.



Deactivating cruise control

- The cruise control is deactivated by overriding the multi-function lever, operating the operating brake and switching off the travelling gear.

If you switch into "Road/field" mode, the display switches to the value that is saved for the currently selected operating mode (field or road speed).

7.4.14 Autopilot

The autopilot is only available in the maize header mode with mounted maize header EasyCollect and autopilot equipment (optional).

Special safety instructions

Autopilot must only be used for its intended purpose. It must only be used in open fields, off public and semi-public roads, away from open areas frequented by people and far away from any persons that could be endangered. They must only be used for their intended purpose:

- **Automatic forage harvester guiding on a stalk-line row of plants.**

Before placing the autopilot in service, check the functionality of safety elements that can be checked and make a visual inspection of all the components.
To do this, the user should proceed as follows:

1. **Check switching off of the autopilot when the steering wheel is moved and the door contact switch engages (open the door).**
2. **Check for proper operating condition - i.e. free of mechanical damages and leaks – row tracers, wheel angle transmitter as well as all visible hoses and wiring.**

When the autopilot is in operation, no one must be within 50 m of the forage harvester in any direction.

The operator is not permitted to leave the driver's cabin while the autopilot is in operation.

While the autopilot is in operation, the driver must regularly check the direction in which the machine is moving and its travel path to be able to take over manual control of the harvest forager immediately if obstructions or interruptions come up in the vehicle's path.

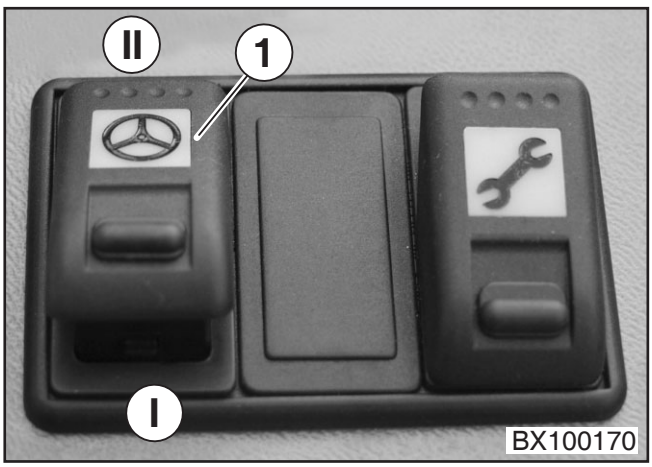
After the autopilot has been in operation and before leaving the field, the autopilot must always be switched off on the autopilot release switch on the console.

Manipulating safety-related elements of the autopilot is prohibited, as is making changes to the hydraulic, electrical or electronic components.

The autopilot should only be installed by an authorised service centre.

Prerequisites for activating the autopilot:

- The cab door must be closed.
- The driver's seat must be occupied.
- Road/field release switch must be in the field mode position.
- Travelling gear release switch must be switched on.
- The autopilot release switch (1) must be switched to position **II**.

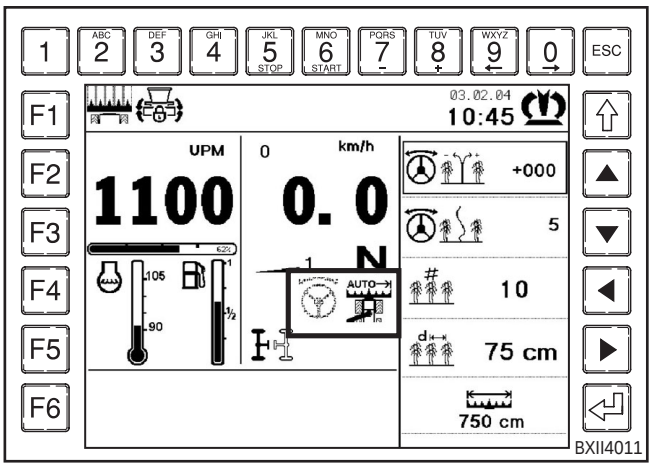


The icon appears in grey in the Info Centre display (autopilot inactive) along with the set mode for the row tracer.

Chaffing should preferably be in row tracer mode left or right, with automatic row tracer mode or automatic mirrored row tracer for crops.

Setting the row tracer mode (see also Sect. 4.2.1)

- Press the 1 key for "row tracer left"
- Press the 2 key for "row tracer right"
- Press the 3 key for "row tracer automatic"
- Press the 4 key for "row tracer mirrored automatic"



Activating the autopilot

- Move the forage harvester parallel to the rows of plants. Autopilot can be activated after about 1 meter.
- Activate the autopilot by pressing the button (1).

Autopilot now takes over the task of guiding the forage harvester along the row of plants with the selected row tracer on the maize header. In the case of short gaps in the maize crop the autopilot ensures straight-ahead travel of the forage harvester.

Deactivating the autopilot

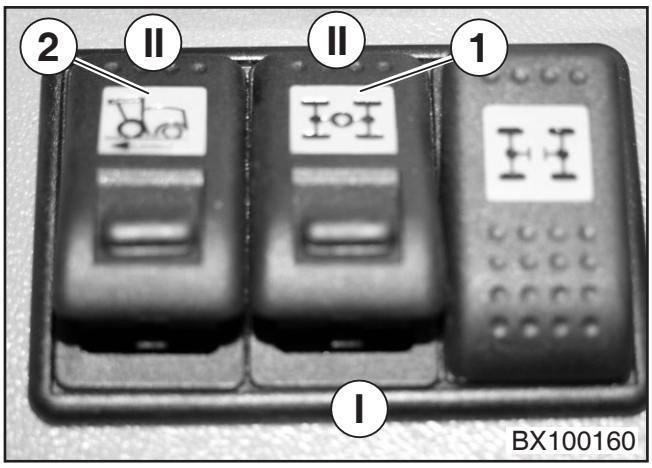
- If you move the steering wheel abruptly, the autopilot will be deactivated.

The autopilot is also automatically deactivated if:

- The driver leaves the driver's seat.
- The cab door is opened.
- The autopilot button (1) is pressed again.
- The autopilot release switch is switched off.
- The travelling gear release switch is switched off.
- Road/field release switch is switched to the road mode.
- One of the quick stop buttons is pressed.
- If there is an error in the autopilot system components.

After the autopilot is deactivated, take control of the forage harvester with the steering wheel.

7.4.15 All-wheel drive



All-wheel drive is possible only in the field mode.

Prerequisites for activating the all-wheel drive:

- Road/field release switch must be in the field mode position.
- The travelling gear release switch (2) must be switched on and the forage harvester must be at a standstill.

Switching in all-wheel drive

- Set the all-wheel drive release switch (1) to position **II**.

The symbol (all-wheel drive active) appears in the display of the Info centre.

Switching off all-wheel drive

- Set the all-wheel drive release switch (1) to position **I**.

The symbol (front wheel drive active) appears in the display of the Info centre.

7.4.16 Axle separation

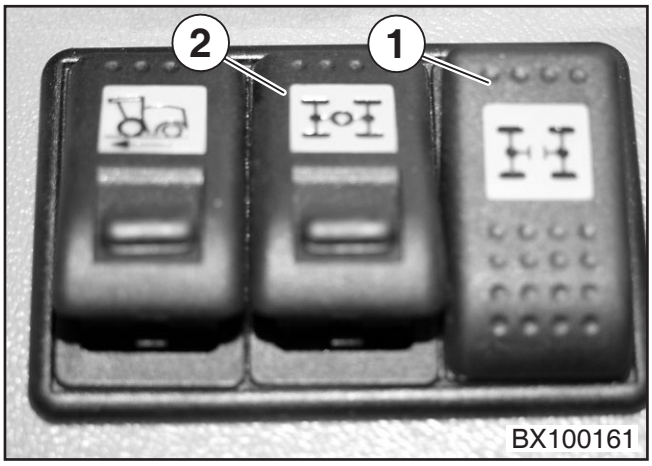
Prerequisites for activating the axle separation:

- Road/field release switch must be in the field mode position.
- Travelling gear release switch must be switched on.
- The all-wheel drive release switch (2) must be switched on; the travelling speed must be below 10 km/h.

Switching on the axle separation

- Actuate the axle separation button (1) – axle separation is switched on.

The symbol (axle separation active) appears in the display of the Info centre.



Switching off the axle separation

- Actuate the axle separation button (1) again.

The symbol (all-wheel drive active) appears in the display of the Info centre.

7.4.17 Hydrostat system

Avoid overheating of the Hydrostat system!
There is an acoustic warning signal if the Hydrostat system is overheated. Switch the engine off and determine the cause of overheating.
Driving speed is automatically reduced to about 25 km/h for road driving.

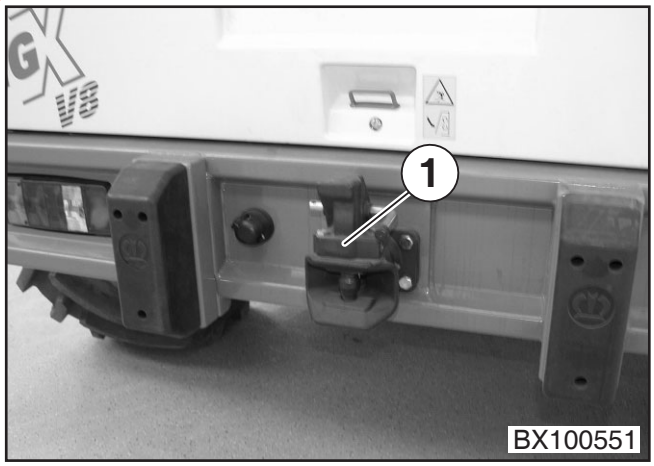
The drive torque acting on the front wheels depends on the oil pressure in the hydrostatic drive system. If the pressure requirement becomes higher than the pressure in the hydrostatic system, the pressure relief valve will open and the forage harvester will not move.
If appropriate, switch to all wheel drive.

7.4.18 Towing

Tow only out of the danger area. Never tow over longer distances.

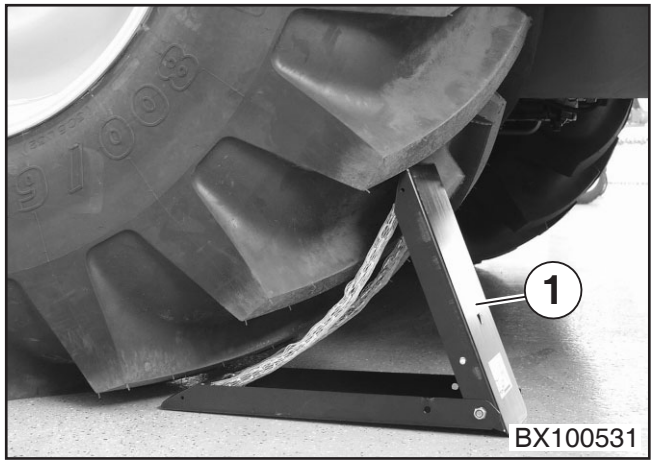
For towing choose either the hitch coupling (1) or according to fitted front attachment suitable towing points at the front of the forage harvester.

If the machine no longer builds up the necessary oil pressure for releasing the holding brake, then the holding brake must be released manually.



Releasing the holding brake manually

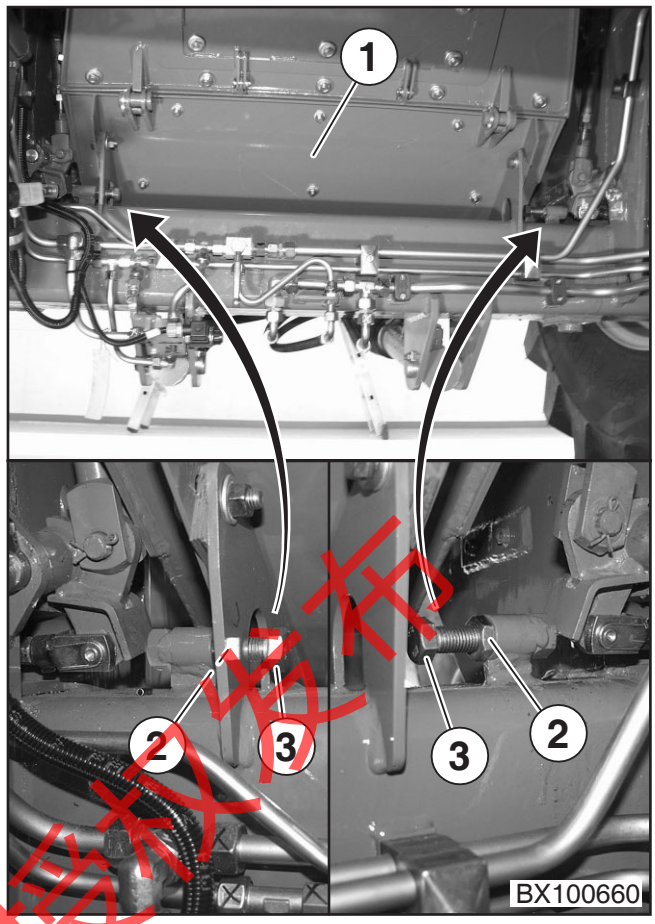
Remove the ignition key and secure the forage harvester from being placed in operation or rolling away unintentionally.



Fitting wheel chocks

- Place wheel chocks (1) on both sides in front of or behind (according to slope) the driving wheels (front axle).
- Always place the wheel chocks (1) so that the forage harvester cannot roll away.
- Fold the wheel chocks (1) open completely and place them close up against the drive wheels.

- To release the holding brake, in each case turn the counter nut (2) up to the head of the hexagonal head screw (3) and push in the hexagonal head screw (3) in completely on the right and left at the front axle of the forage harvester (1).



Notes on towing

- Switch on the ignition, so that the indicator (hazard warning flasher) and brake lights function.
- Switch the road/field release switch into the road traffic position.
- Increased steering and braking forces must be applied with the engine switched off.

Transporting on a low loader

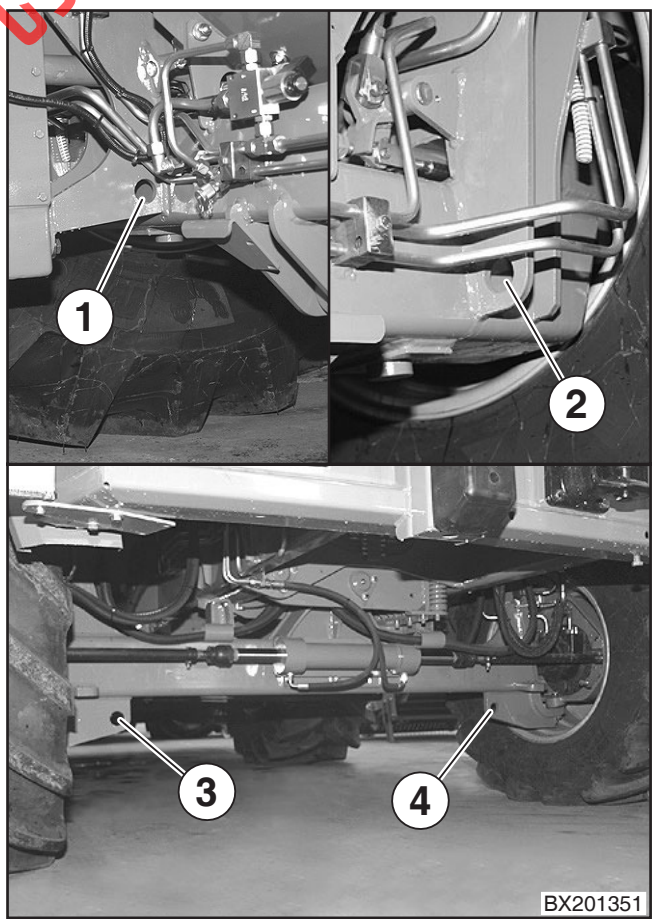
The forage harvester must be properly secured in place to be transported on a low loader.

1 - Lashing point left front

2 - Lashing point right front

3 - Lashing point left rear

4 - Lashing point right rear



7.5 Fitting attachments

Only attachments that are type tested by the manufacturer and approved for the use may be fitted. Fitting and operation of other attachments is considered as use not as intended. The manufacturer is not liable for damage resulting from this, the user alone bears the risk for this.

When a front attachment is operated the operating instructions supplied with the front attachment must be read before the use and the given instructions must be complied with.

The forage harvester is equipped for use with the grass pick-up.
The necessary conversion work on the forage harvester for use with the maize header is described in Section 7.6.

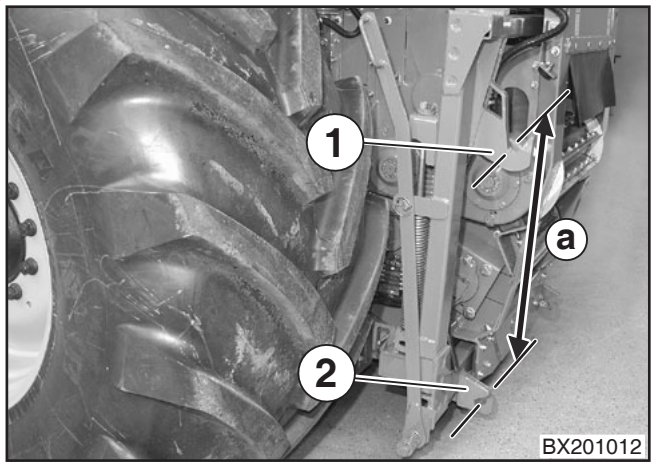
The attachments must be fitted and removed on a level surface with load bearing ground.
Sufficient space on the side for manoeuvring the forage harvester must be available.

Special care is required when fitting and detaching the attachment! The accident prevention regulations must be complied with absolutely.
The data in the operating instructions of the attachment must be observed.

7.5.1 Adjusting the adapter frame

Only for first fitting of the attachment.

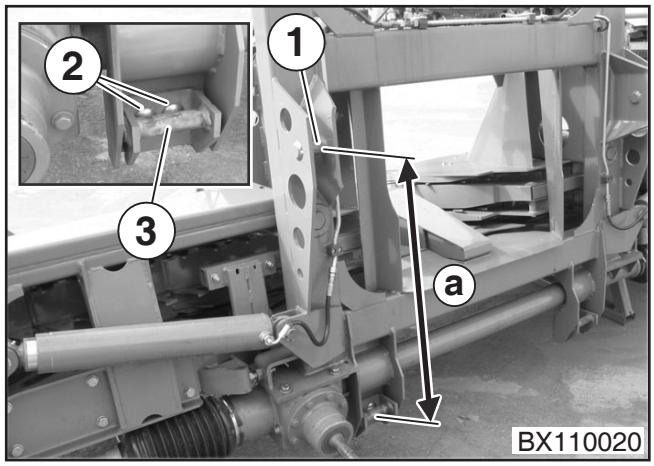
- Measure the axle base "a" between holding claw (1) and locking hook (2) on the pendulum frame of the forage harvester.



- Check the axle base "a" between the holding bolt (1, 3) of the adapter frame on the front attachment and if necessary adapt it to the size of the pendulum frame.

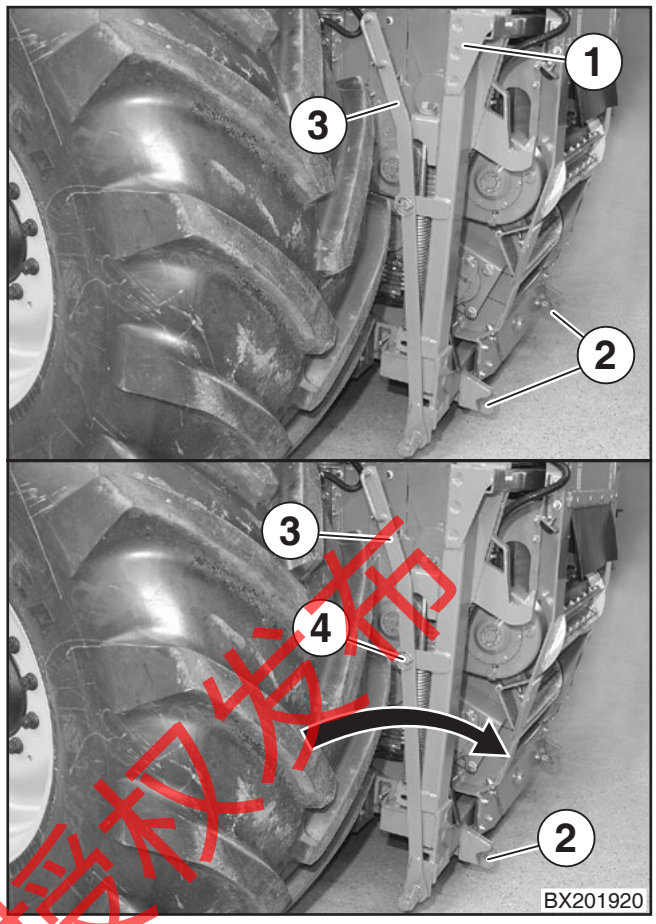
Make the adjustment equally on the right and left of the adapter frame.

- Loosen the screw connections (2) and shift the reciprocal frame holders (3) to the correct distance.
- Tighten the screw connections (2).



7.5.2 Pendulum frame

- Lower fully the feed drive with pendulum frame (1) of the forage harvester.
- Align the pendulum frame (1) of the forage harvester horizontally.

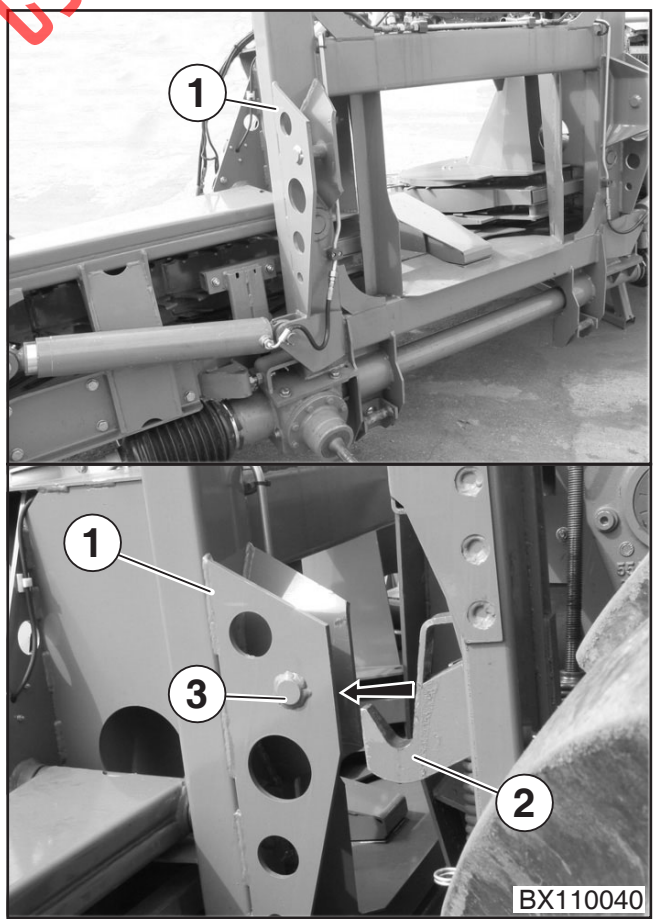


Open the locking hook (2)

- Remove the spring cotter pin (4).
- Pull the locking lever (3) off from the locking pin and swing it to the front.

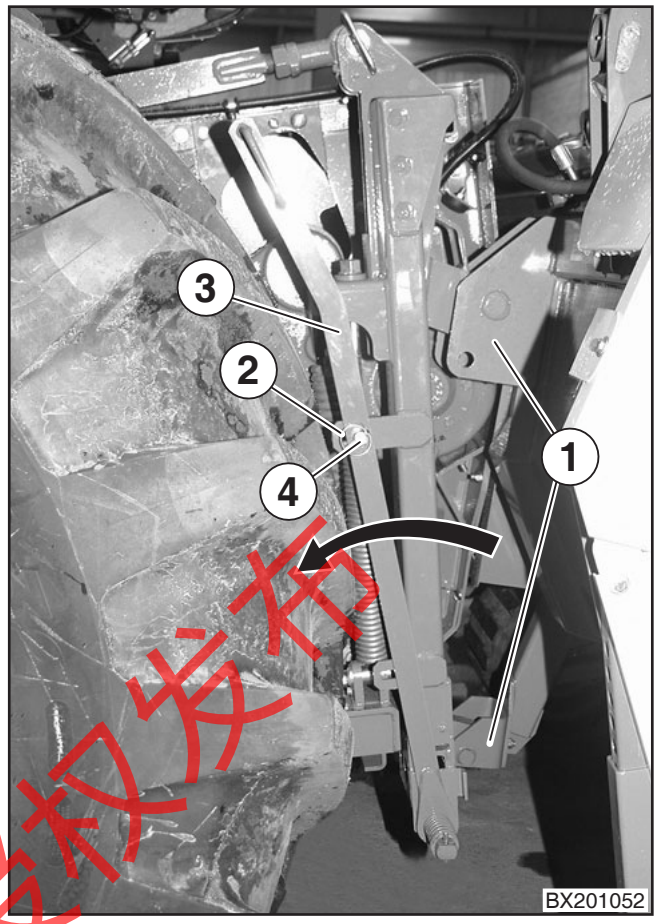
7.5.3 Coupling

- Drive the forage harvester up to the front attachment so that the pendulum frame stands just in front of the adapter frame (1) and the holding bolts (3) are located against the stop surfaces of the holding claws (2).
- Raise the feed drive with pendulum frame with lifting hydraulics until the locking hooks lie in the pendulum frame holder on the adapter frame.
- Stop the machine.



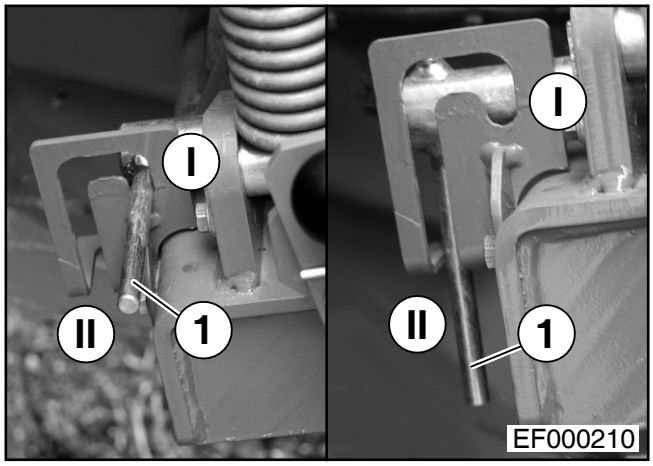
- Swing the locking lever (3) to the rear and engage it on the locking pin (4), secure with spring plug (2).

Check that the pendulum frame (1) hooks correctly into the holding bolts and the locking hooks on both sides.

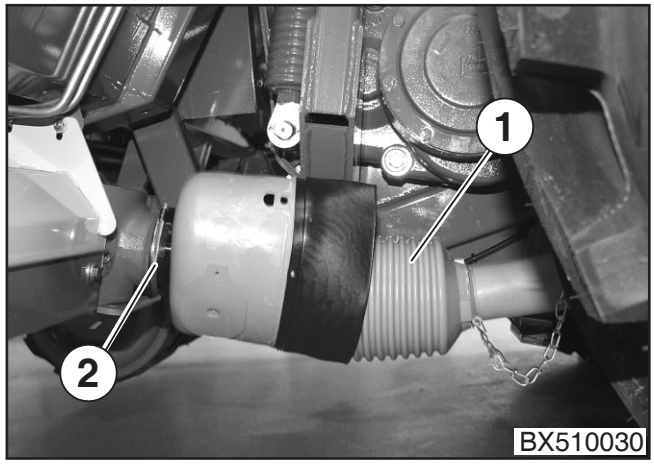


When attaching the grass pickup, unlock the pendulum frame

- Move the locking pin (1) from position I (locked) to position II (unlocked).



- Push the joint fork (1) onto the drive journal (2) of the main angular gear until the closure engages.



Connecting hydraulic hoses and electrical connection cables

The system should be without pressure on both sides when connecting the hydraulic hoses. Make sure the plugs and couplings are clean; clean them if necessary.

Grass pick-up

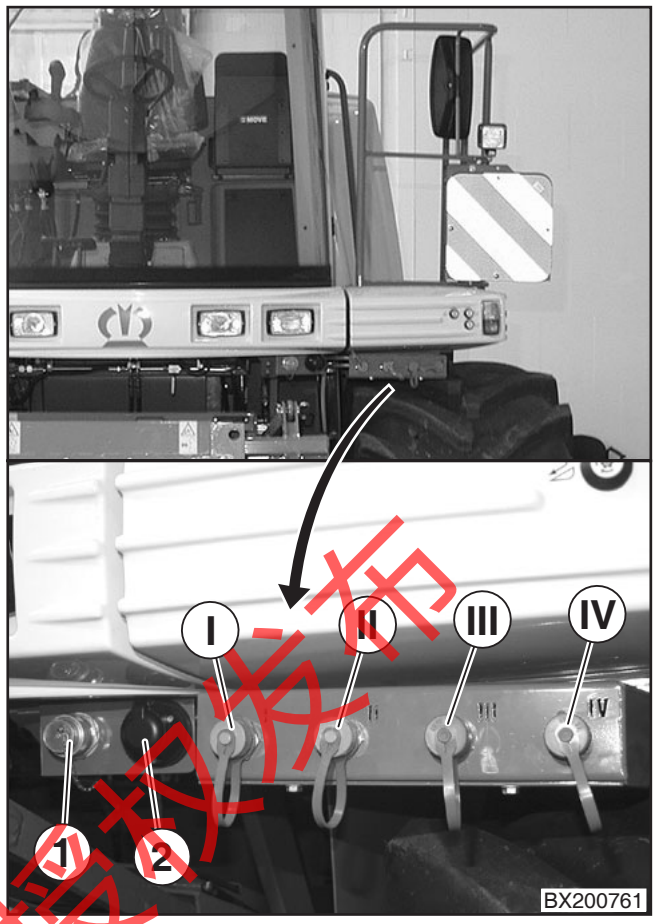
I - Extend roller feelers
II - Retract roller feelers
IV - Roller-type crop guard

Maize header

III - Folding out the maize header
IV - Folding in the maize header

1 - Maize header sensor connection
2 - Lighting cable

The identification of hydraulic connections (I - IV) is also on the hydraulic hoses of the attachment device.



7.5.4 Adjusting hydraulics of the forage harvester

Perform the adjusting work for the hydraulics of the forage harvester only with the machine at standstill and attachment set down.

Grass pick-up

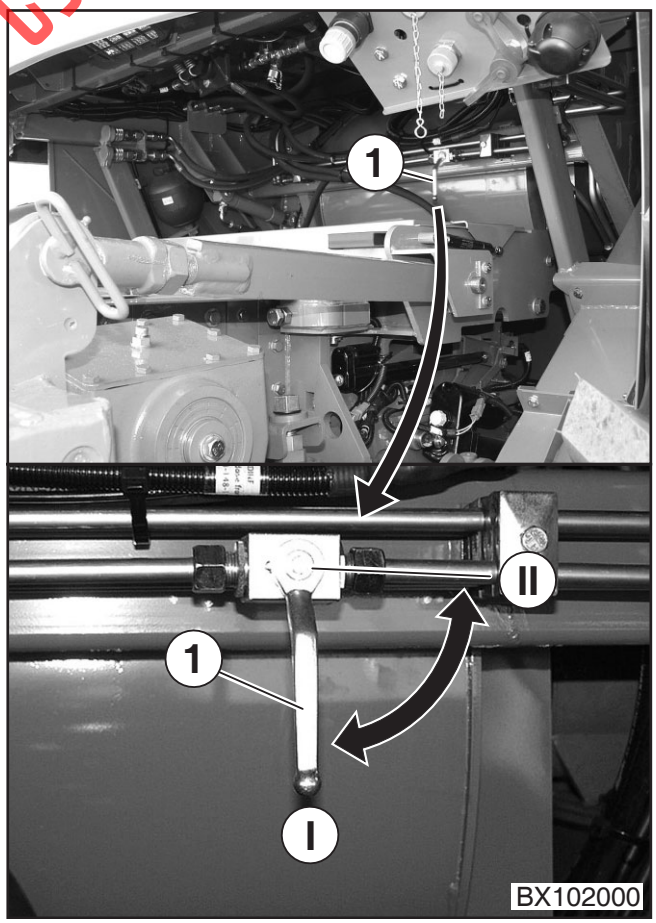
The shut-off valve (1) for the grain conditioner tensioning roller must be in position **I** (closed).

- If necessary close the shut-off valve (1) (**I** position).

Maize header

The shut-off valve for the grain conditioner tensioning roller (1) must be in position **II** (open).

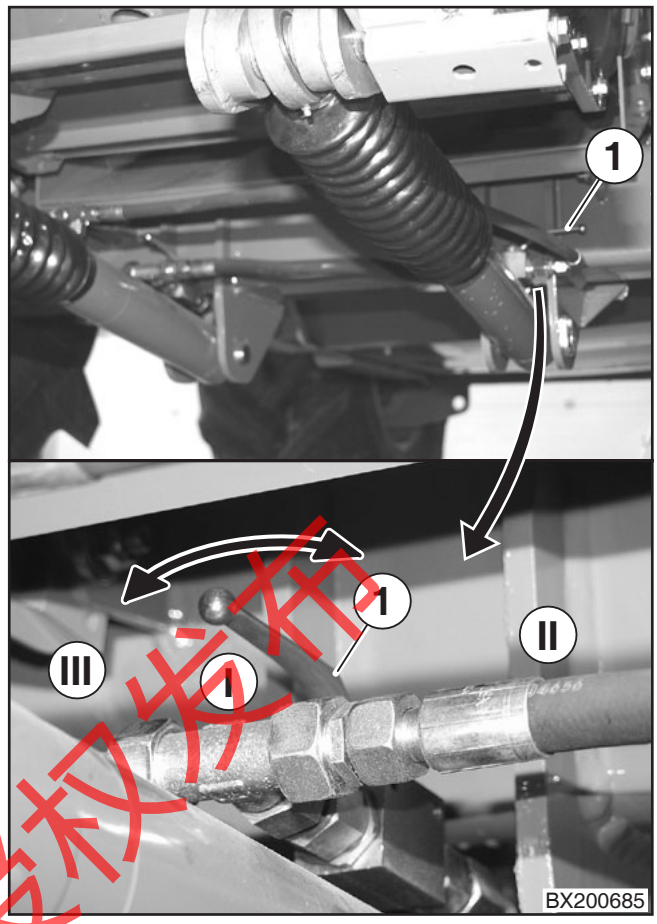
- If necessary open the shut-off valve (1) (position **II**).



Adjusting the lifting hydraulics

Operate only with the lifting gear lowered.

I - Lifting hydraulics locked
II - Lifting hydraulics in grass pick-up position
III - Lifting hydraulics in maize header position



Grass pick-up

The three-way valve (1) for the lifting hydraulics must be in position **II**.

- If necessary turn the three-way valve (1) into position **II**.

Maize header

The three-way valve (1) for the lifting hydraulics must be in position **III**.

- If necessary turn the three-way valve (1) to position **III**.

7.5.5 Adjusting the lifting gear

The adjustment of the lifting gear control EMR must be performed on the first fitting of the attachment and on changing the attachment, so that the lifting gear bearing pressure control, position control and distance control function reliably.

Prerequisites for adjusting the lifting gear:

- Engine is started.
- Road/field release switch must be in the road mode position.
- Travelling gear off.
- Maintenance release switch off.
- Pendulum frame must be horizontal.

Adjusting

During adjustments, components may move around, in particular the lifting gear – danger of injury!

The first adjustment procedure to be covered is number 3.

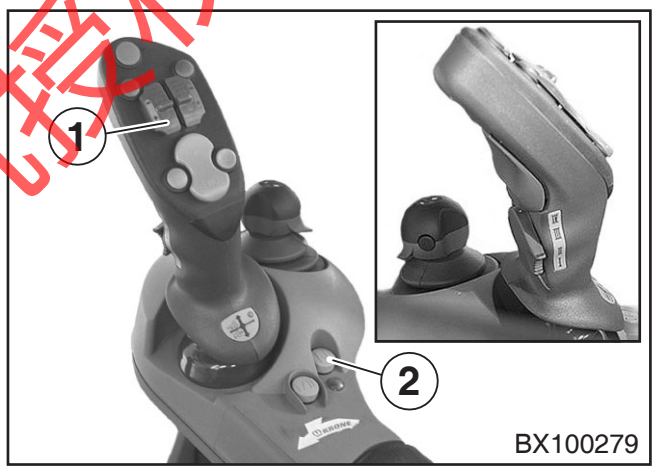
Adjusting procedure 3

Calibration of the upper height of the lifting gear.

The lifting gear is raised in the adjusting procedure.

- Keep the lifting gear raising (1) button and memory button for lifting gear adjusting procedure (2) pressed simultaneously for approx. 7 seconds.

After successful adjustment the message "**EMR adjusting procedure 3 OK**" appears in the status line of the Info centre.



Adjusting procedure 2

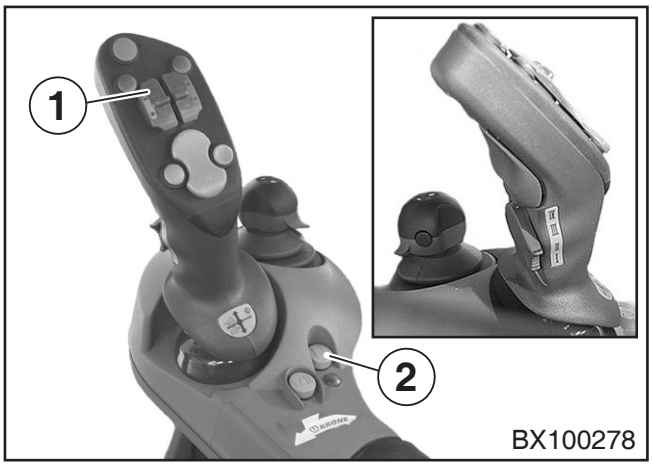
Calibration of the lifting gear pressure.

- Press the lifting gear button (1) until the front attachment unit is not touching the ground at all.

The lifting gear does not need to be raised to calibrate the lifting gear pressure. It does not move during calibration.

- Keep the memory button for lifting gear adjusting procedure (2) pressed for approx. 7 seconds.

After successful adjustment the message "**EMR adjusting procedure 2 OK**" appears in the status line of the Info centre.

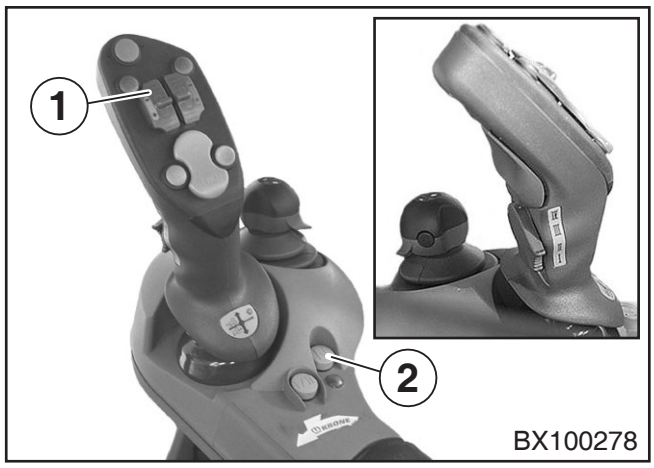


Adjusting procedure 1

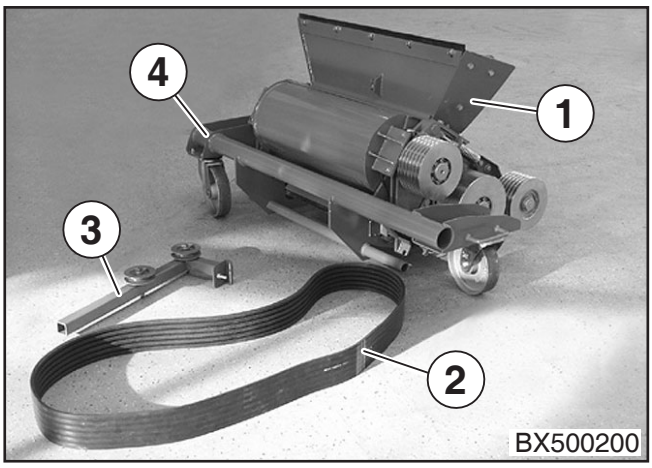
Calibration of the lower height of the lifting gear.

- Keep the lifting gear lowering (1) button and memory button for lifting gear adjusting procedure (2) pressed simultaneously for approx. 7 seconds.

After successful adjustment the mess ge "**EMR adjusting procedure 1 OK**" appears in the status line of the Info centre.



7.5.6 Converting the grass channel grain conditioner



Conversion kit

1 - Grain conditioner

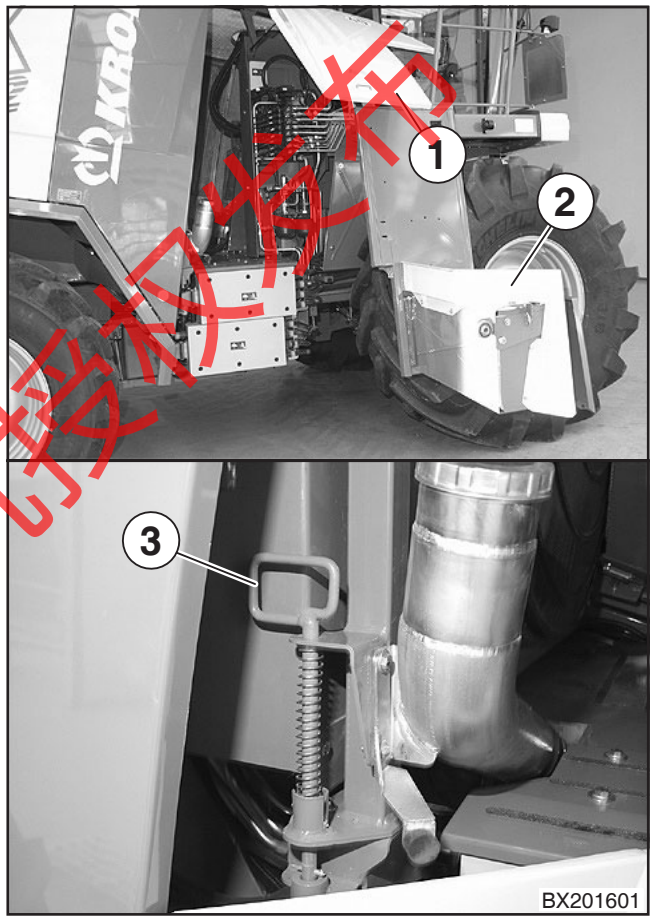
2 - V-belts

3 - Cable roller guide

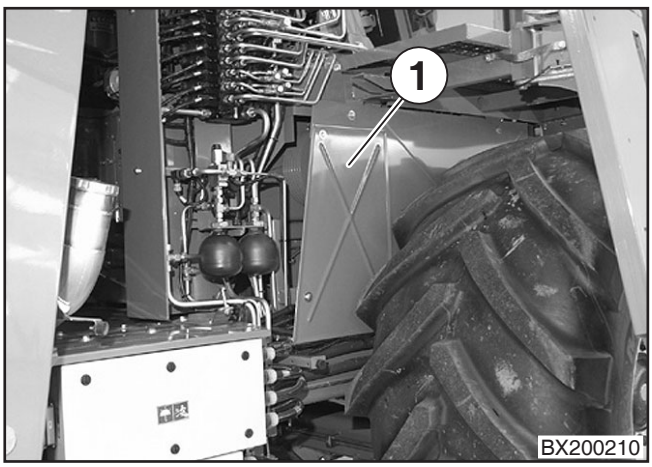
4 - Transport frame for grain conditioner

Preparations

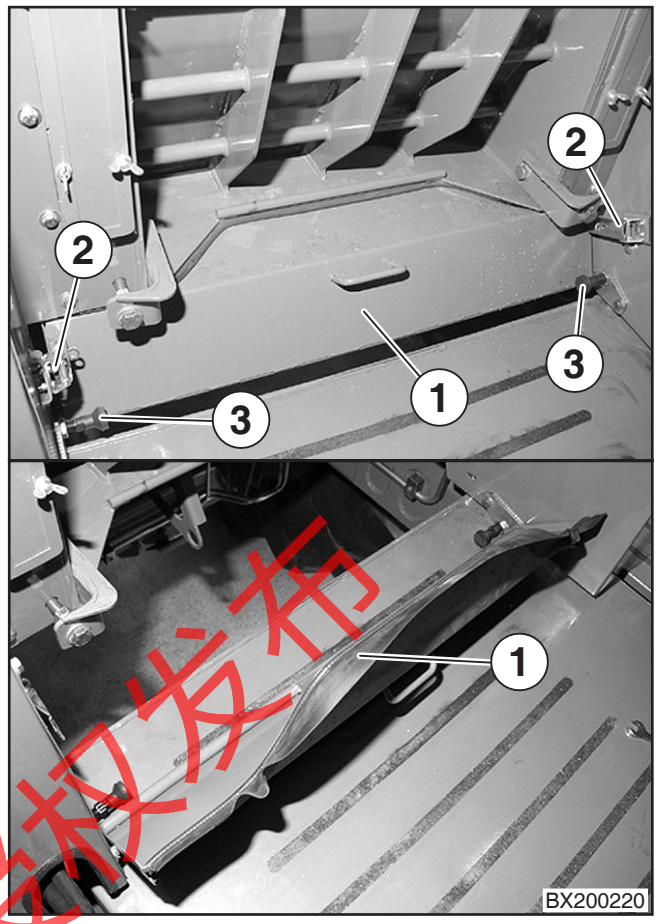
- Open the flap (1) to the machine compartment on the right hand side.
- Pull the catch (3) up, and swivel the tool box (2) open.



- Disassemble the cover (1).

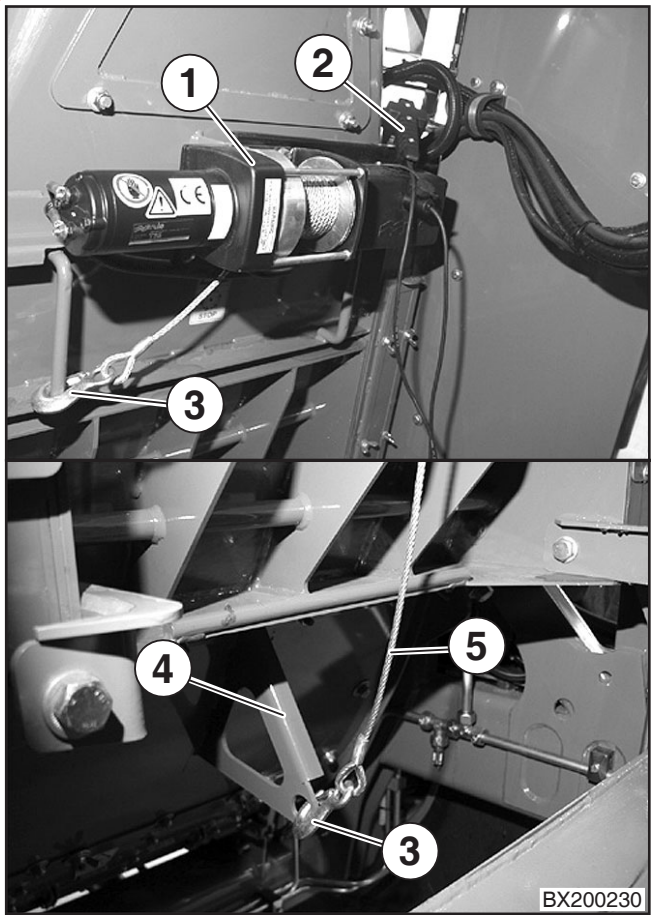


- The interlocks (2) of the maintenance flap (1) open under the discharge accelerator.
- Unlock the locking bolts (3) on either side and swing the maintenance flap (1) open.

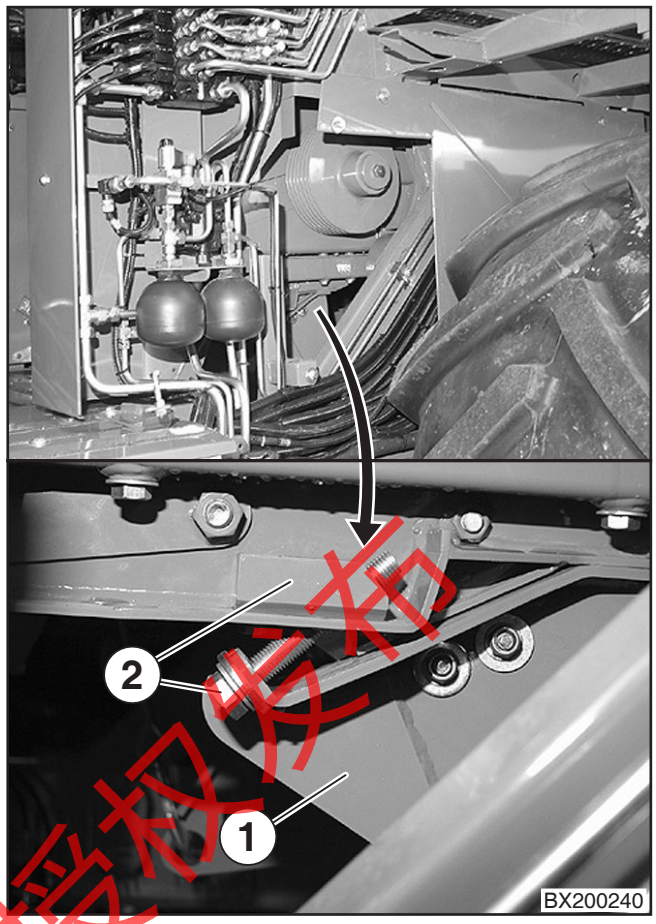


Disassembling the grass channel

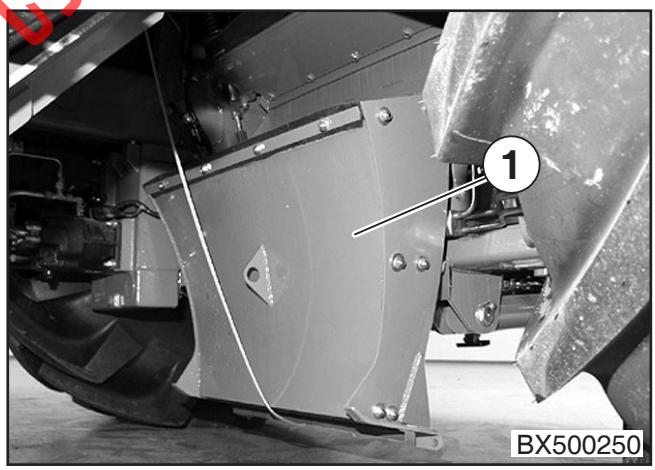
- Connect the remote control (2) to the cable winch (1).
- Catch the hook (3) of the cable winch (1) in the pivoted lever of the grass channel (4).
- Tighten the cable (5) to taut.



- Loosen the screw connection (2) on either side of the grass channel (1)

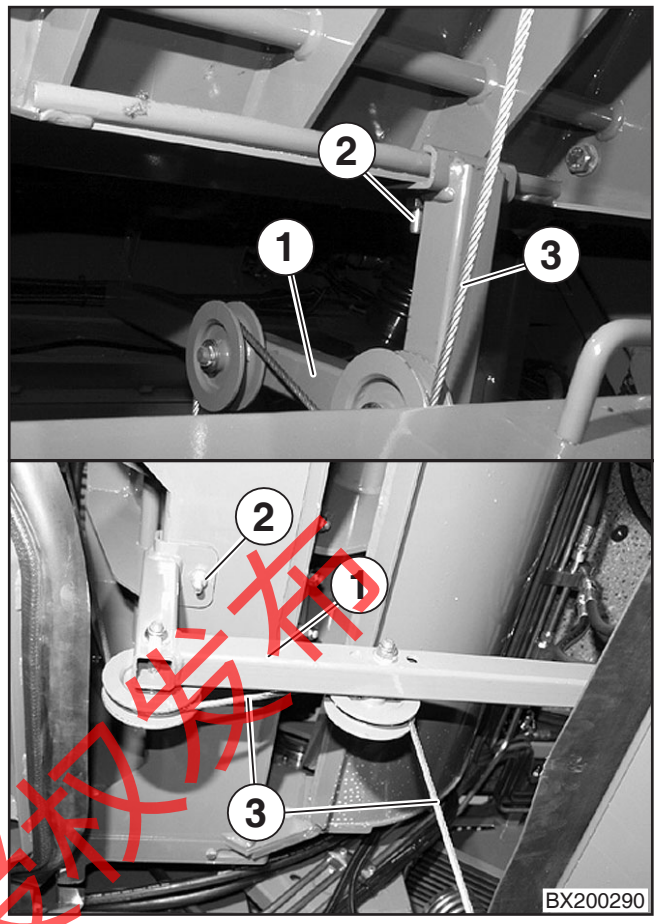


- Let out cable from the cable winch. The grass channel (1) swivels down.
- Unhook the hook from the cable winch.



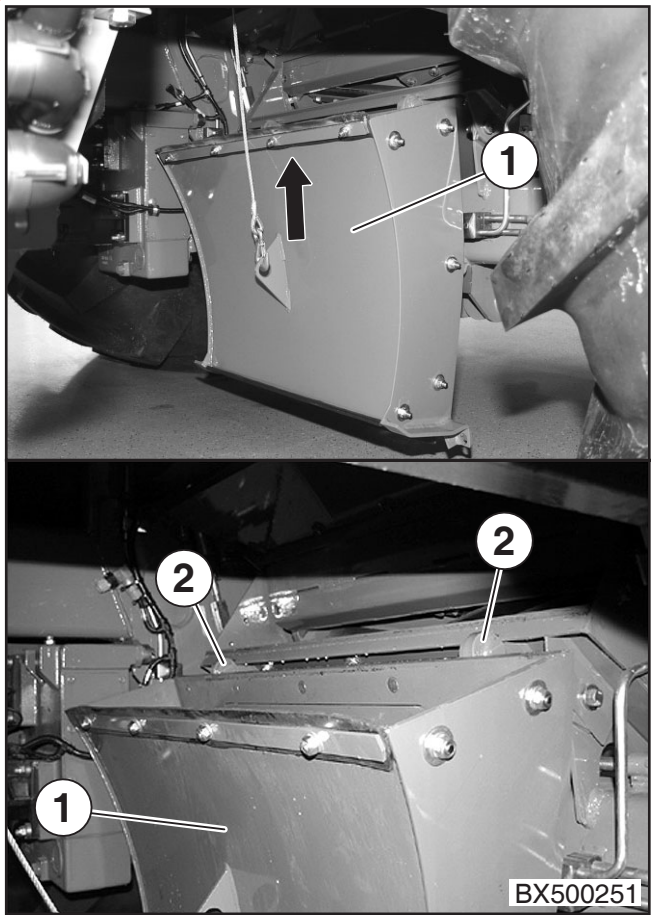
- Position the cable roller guide (1) as shown in the graphic and screw in place with the screw connection (2) on the lower cross brace of the rear wall of the discharge accelerator.

- Let out the cable from the cable winch (3) and guide it around the deflector rollers as shown in the diagram.

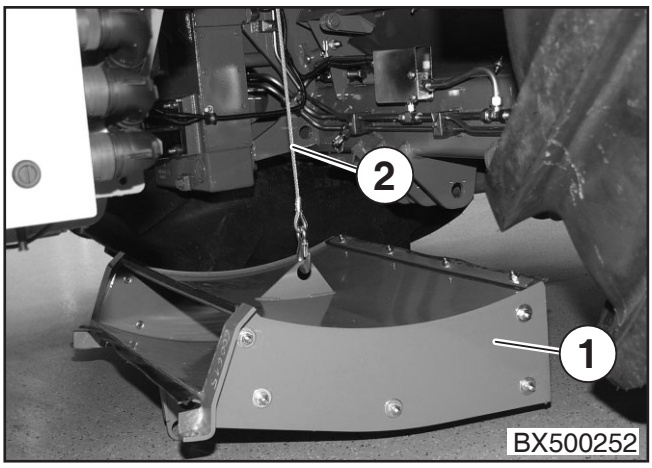


- Engage the cable winch hook on the grass channel (1)

- Raise the grass channel (1) with the cable winch until the grass channel receiving hooks (2) are above the receiving bolts on the transfer channel.

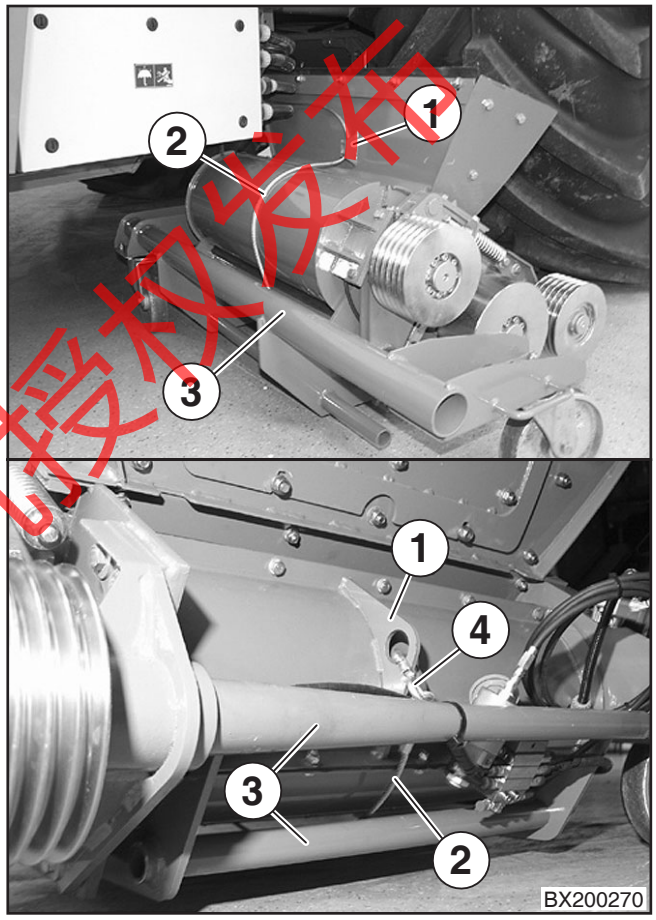


- Let out the cable (2) until the grass channel (1) is resting on the ground.
- Unhook the cable winch hook and set the grass channel (1) to the side.



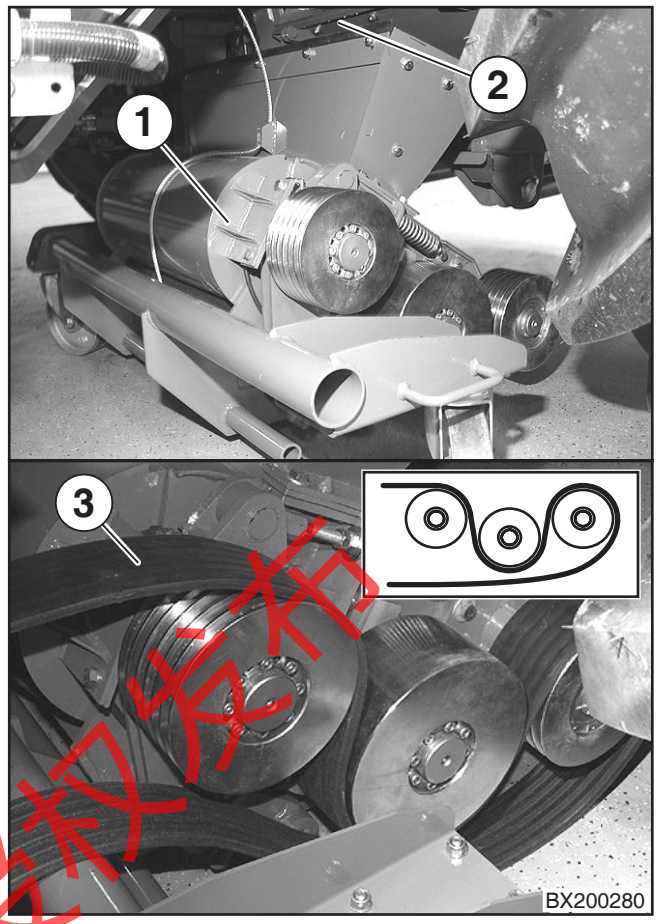
Mounting the grain conditioner

- Measure the spacing of the grain conditioner for calibration after installation (see Section 4.2.8).
- Push the grain conditioner with the transport frame (3) half way to the side under the forage harvester.
- Guide the cable (2) from the cable winch behind the hook of the grain conditioner (1), between the grain conditioner and the transport frame (3) and back to the front.
- Catch the hook (4) of the cable winch in the pivoted lever of the grain conditioner (1).



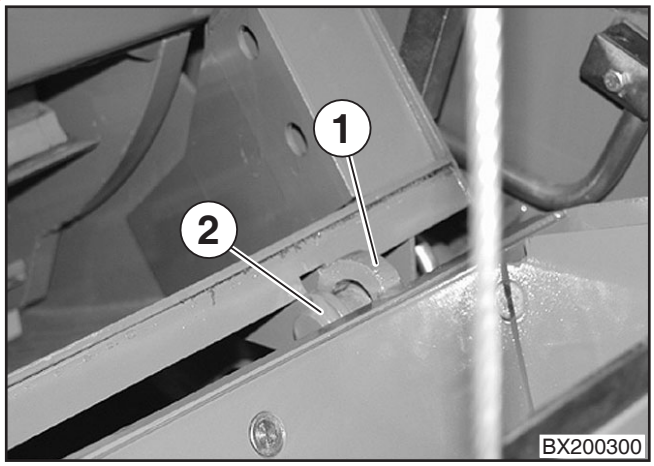
- Align the grain conditioner with the transport frame (1) under the forage harvester so that the receiving hook of the corn conditioner (2) is in front of the suspending holding bolts on the forage harvester.

- Put the V-belt (3) in place as shown in the diagram.

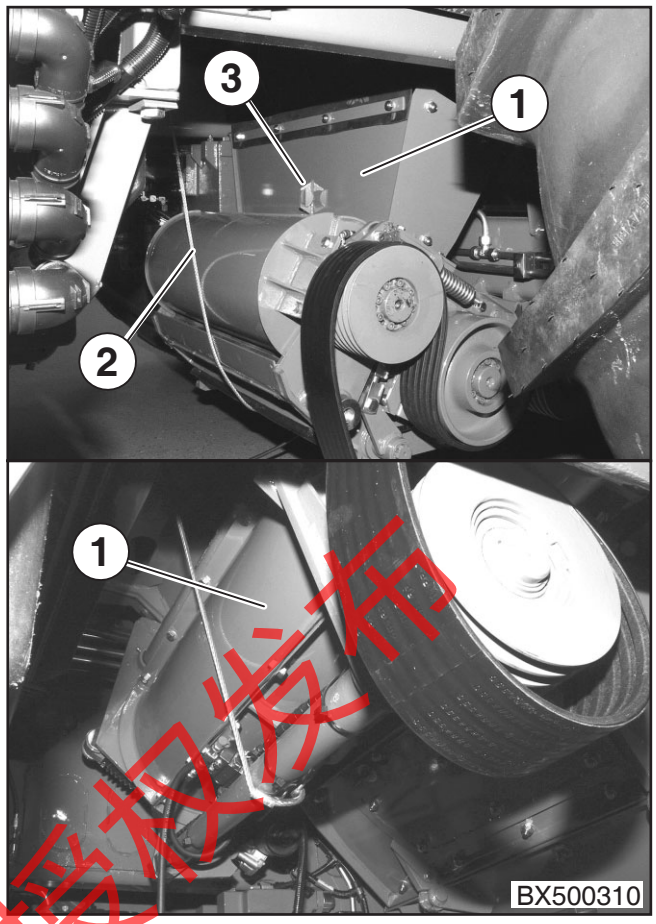


- Raise the grain conditioner with the cable winch until the receiving hook (1) of the grain conditioner is above the holding bolts (2) on the transfer channel.

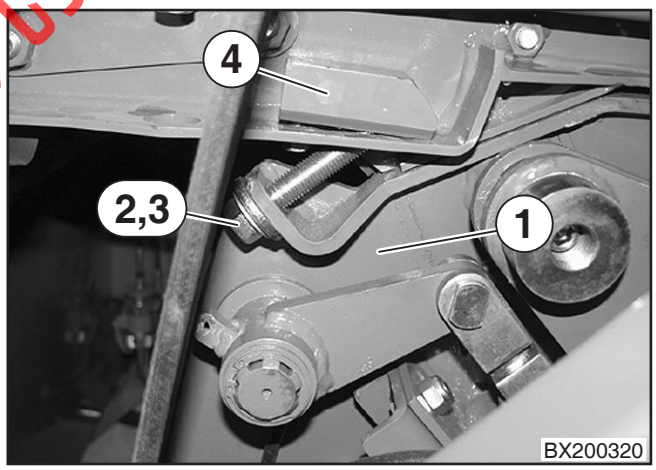
- Press the grain conditioner forward let out the cable and make certain that both receiving hooks (1) (left/right) hook into the holding bolts (2).



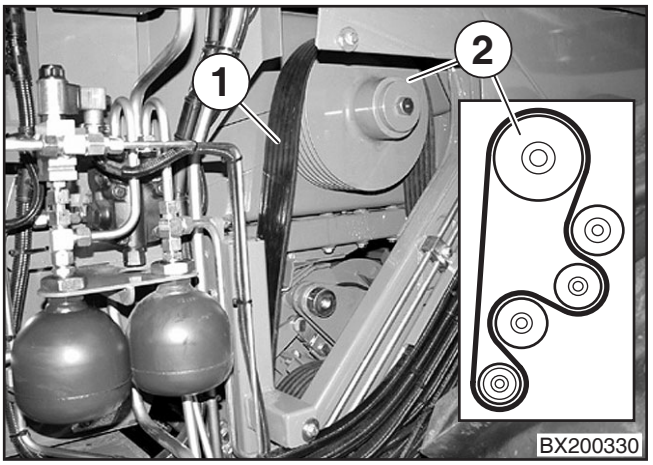
- Let out the cable (2) again and loosen it from the hook (3) of the grain conditioner (1).
- Remove the cable roller guide.
- Rotate the grain conditioner all the way up with the cable winch.



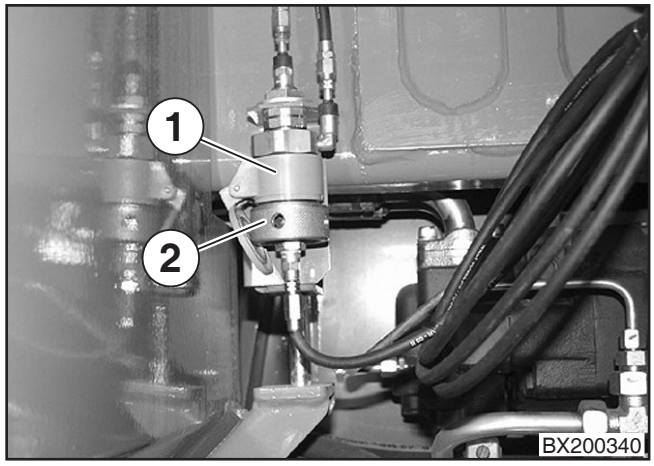
- Screw the grain conditioner (1) on both sides of the forage harvester frame with screw connection (2, 3, 4).
- Remove the transport frame, loosen the hook on the cable winch and bring the cable winch in all the way.



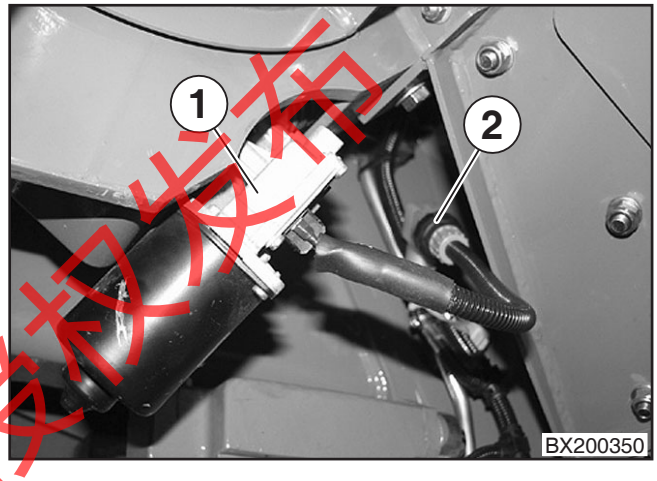
- Place the V-belt (1) on to the drive roller (2).



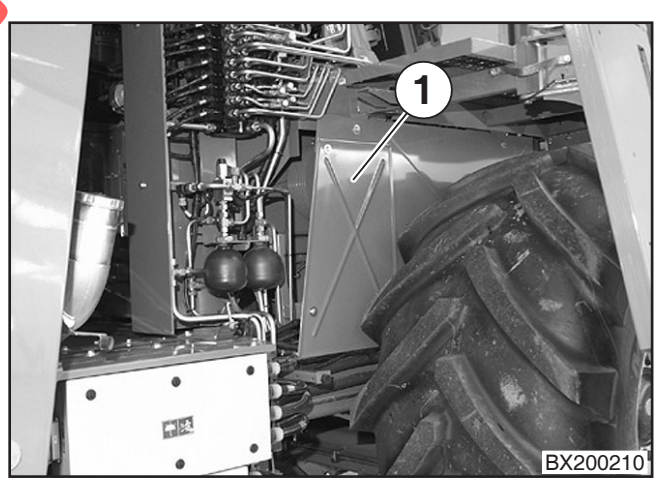
- Connect the central lubrication plug (2) of the grain conditioner onto the central lubrication coupling (1).



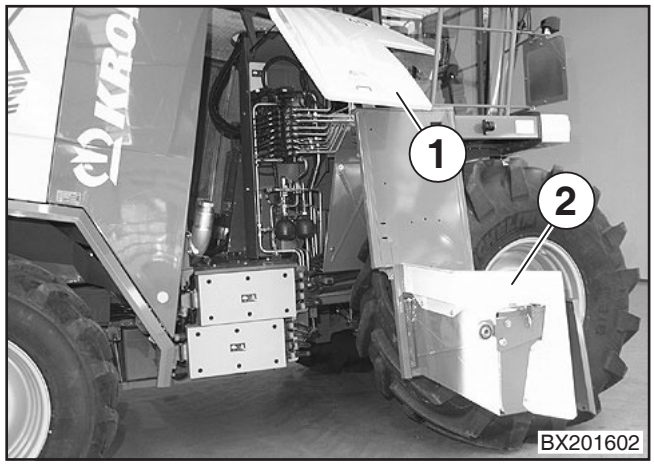
- Connect the connection line (1) of the control motor for roller spacing on the grain conditioner to the electrical system of the forage harvester (2).



- Install the cover (1).

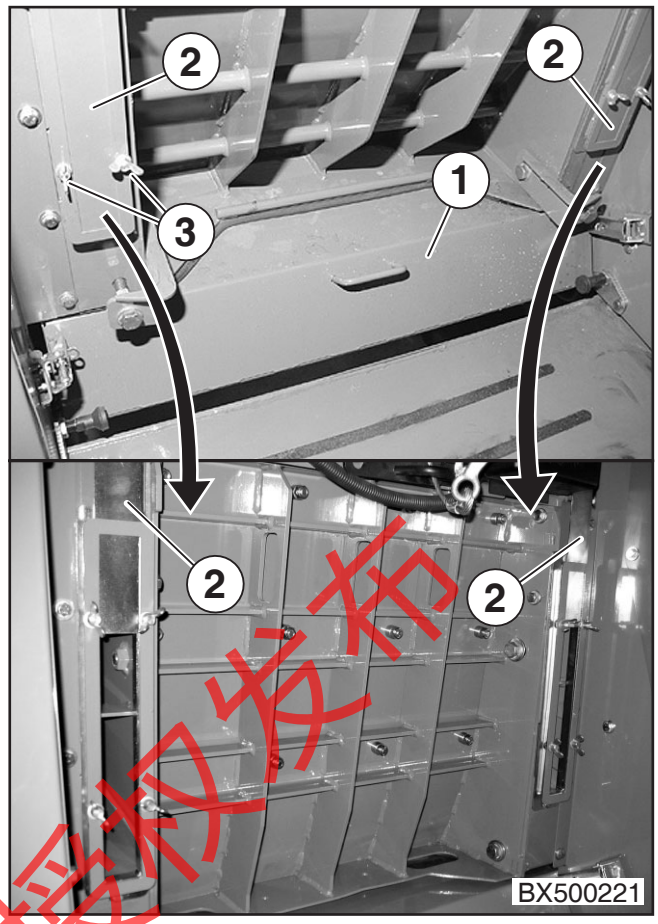


- Close the toolbox (2) and the flap (1) for the machine compartment on the right hand side.

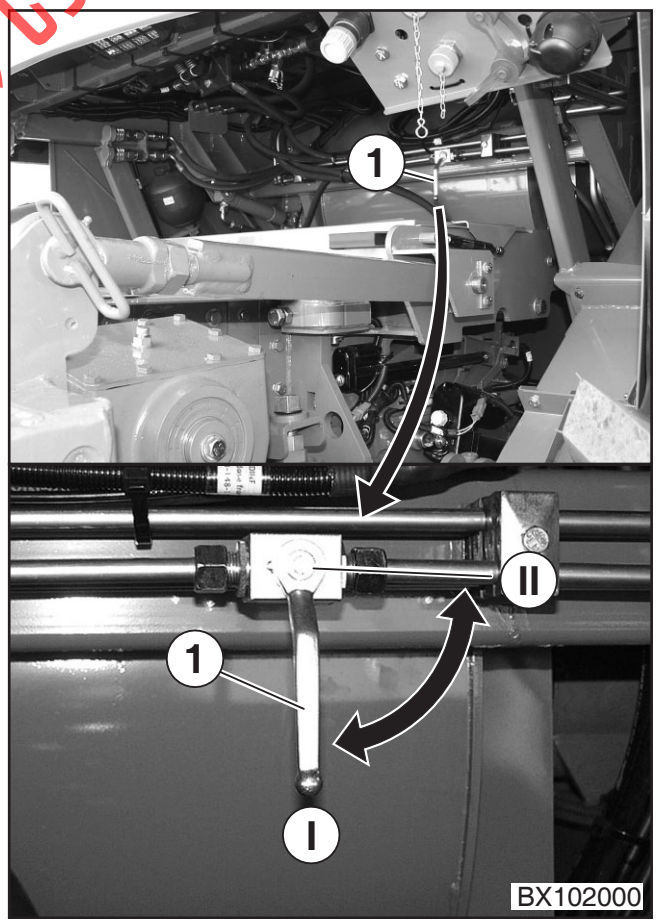


- Close and lock the maintenance flap (1).
- Loosen the wing nuts (3) and remove the covering plates (2) of the additional venting slots.

For further measures for optimising the crop route, see Section 8.2.4.



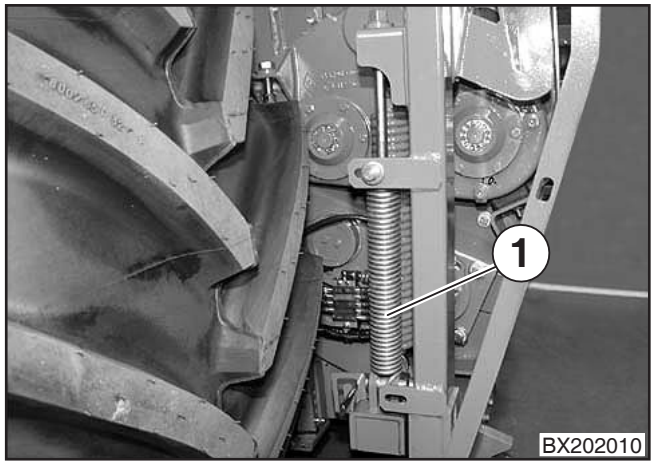
- Open the shut-off valve for the grain conditioner tensioning roller (1) (position **II**).



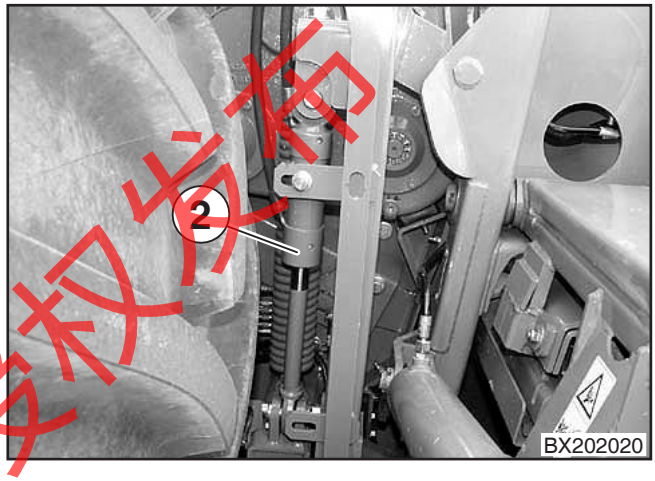
Refitting the pendulum frame cylinder

The compression spring (1) on the pendulum frame on the right must be exchanged for the hydraulic cylinder (2) for field operation with maize header.

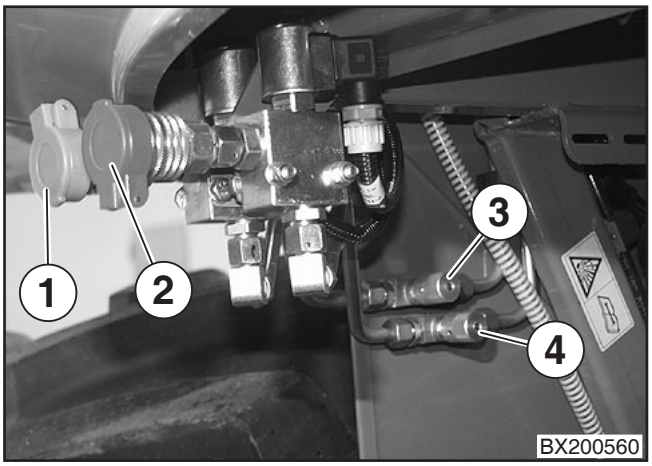
- Release the tension on the compression spring (1) and remove it.



- Dismount the hydraulic cylinder (2).



- Connect the hydraulic cylinder of the pendulum frame to the hydraulic connections (1, 2) according to the colour-coded hydraulic plugs.
- The response time of the pendulum frame can be adjusted with throttle valves (3, 4).



For further hydraulic adjustments of the forage harvester for field operation with maize header, see Section 7.5.4

Perform the following refitting jobs and make these settings:

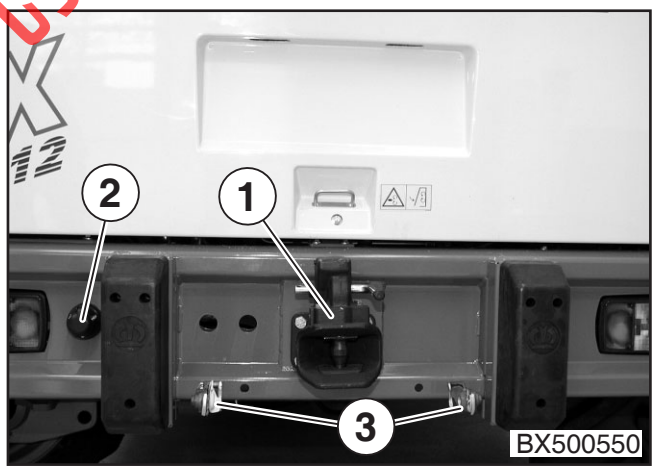
- Refitting the cutting blade - see Section 9.3.7
- Refitting the conveyor bars on the front baling rollers - see Sect. 9.3.10
- Adjusting the maize header mode - see Sect. 4.2.7
- Adjusting the working width - see Sect. 4.2.1
- Adjusting the lifting gear - see Sect. 4.2.6
- Adjusting the lifting gear - see Sect. 7.5.5

- Grain conditioner – Adjusting the distance - see Sect. 4.2.8
- Calibrate the pendulum frame and absolute lifting gear height - see Sect. 4.3.12
- Mount the upper discharge chute extension (EC 7500/EC9000 only)
- Adjust the rear wall of the discharge accelerator to a gap dimension of 2-4 mm
- Reset the shut-off valves to maize header mode (see Sect. 7.5.4)
- Place an allround light in the middle for maize header EC7500 (see Sect. 6.5)
- Adjust the tyres to the correct pressure

7.6 Trailer operation

The forage harvester is equipped as standard with a hitch coupling (1).

Trailers without their own brakes are not approved.
For trailers with supported load, make certain the approved rear axle load is not exceeded.
Attach trailers only to the intended mechanism.
Observe the data of the operating permission of the forage harvester.
Special care is required when coupling a trailer!



1 - Hitch coupling
2 - Power socket for lighting
3 - Compressed air connection (optional)

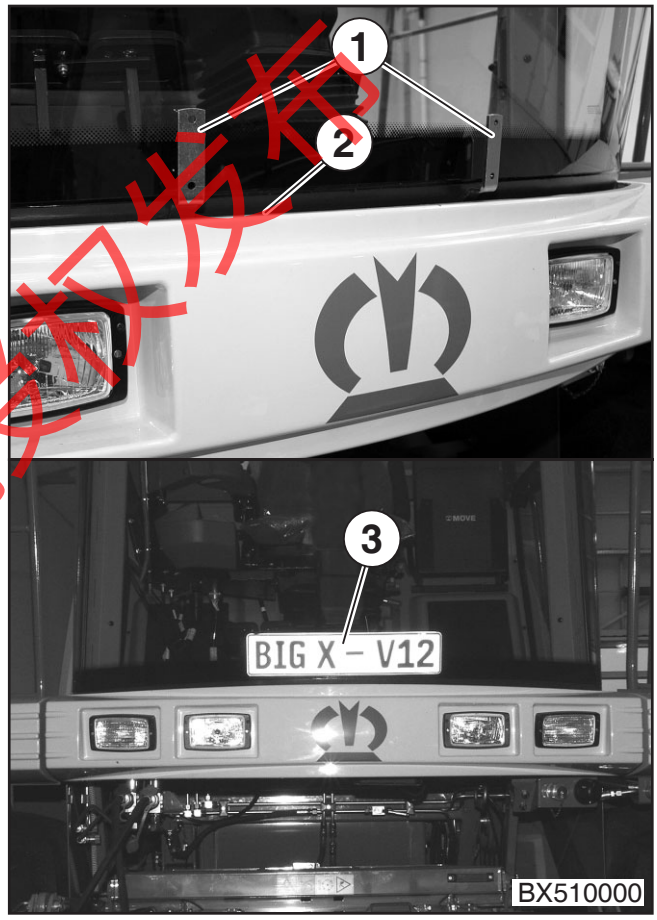
In road traffic connect the lighting of the trailer to the power socket (2) and check it for functioning.

Druckluftanschluß

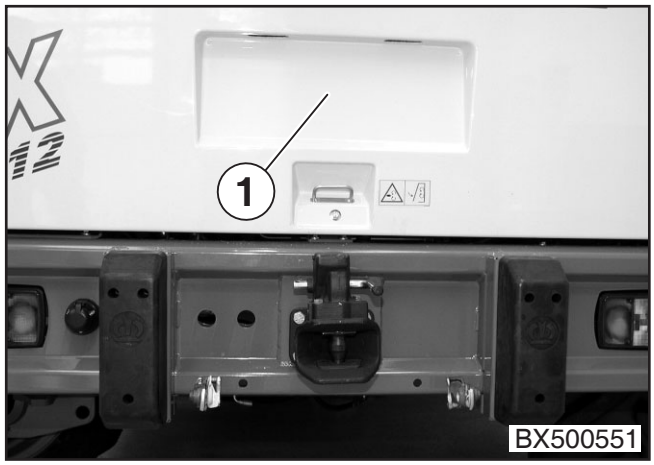
There is a risk of accident caused by the use of defective compressed air couplings.
Worn or damaged compressed air couplings have a negative effect on how the brakes work.
Make certain the couplings are working properly and there are no leaks. Replace defective rubber seals immediately.
Replace the coupling heads regularly depending on frequency of coupling, but in any case once or twice a year.
Make certain all compressed air connections are properly seated.

7.7 Registration plates

Set the front registration plate (3) in place by installing the two support brackets (1) on the front skirt (2) of the driver's cab.



To set the rear registration plates in place, use the recess (1) on the tailgate designed for that purpose



8 Operation

8.1 Road travel

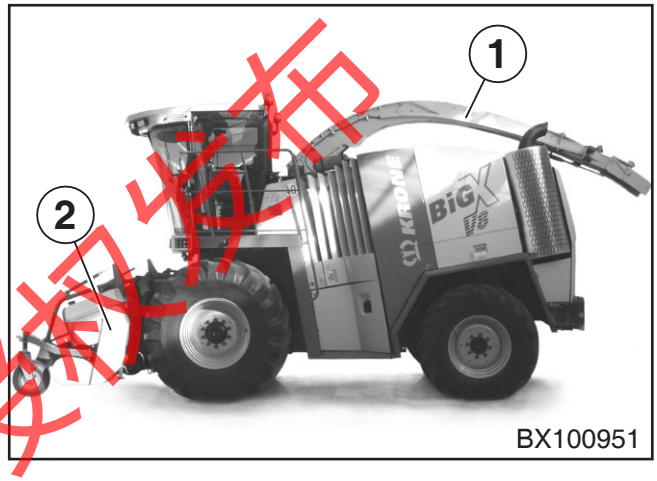
When driving on roads, the general requirements or special conditions of the Road Traffic Type Approval Law (StVZO) and the Road Traffic Law (StVO) must be observed.

The driving speed of the forage harvester must to be adapted to local conditions.

8.1.1 Transport position

In road traffic, the upper discharge chute (1) and the front attachment fitted must be in transport position.

- Moving the front attachment (2) into the transport position – cf. operating instructions of the front attachment.



Feed drive/front attachment in transport position

- Engine is started.
- Road/field release switch must be in the field mode position.

- Press the "Lower lifting gear" (1) push-button.
- Press the "Lift lifting gear" (2) push-button.

The lifting gear is lowered or lifted. During the first second of the actuation the lifting/lowering speed is very slow, but subsequently it will increase in speed.

When the maize header is retracted, the lifting height is limited to 60 % of the maximum lifting height; there is no limitation when the grass pick-up has been fitted.

If no control button is active, the position controller will keep the lifting gear on the current lifting height.

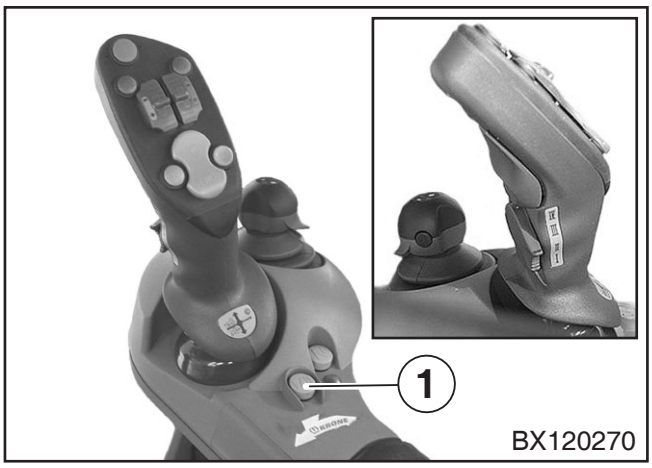
A vibration absorber is permanently active in road traffic. It is also active, if the push-button has not been pressed after the diesel engine has been switched on.

Swivelling the upper discharge chute into transport position

Pre-requisites:

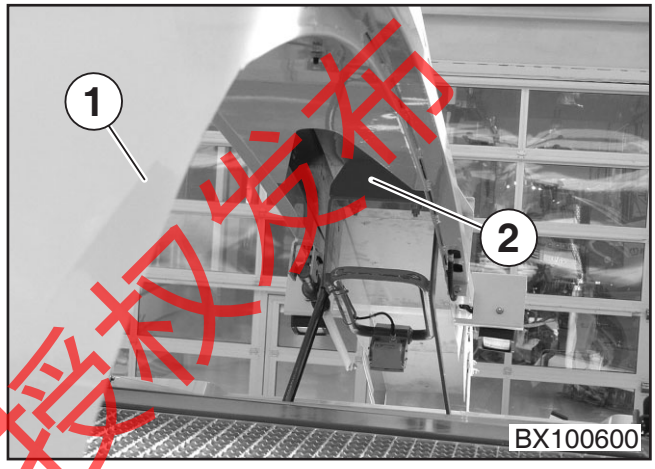
- The driver's seat must be occupied.
- Engine is started.
- Road/field release switch must be in the field mode position.
- Main coupling off.

- Press the "Upper discharge chute in transport position" (1) push-button.



The upper discharge chute travels automatically into the transport position.

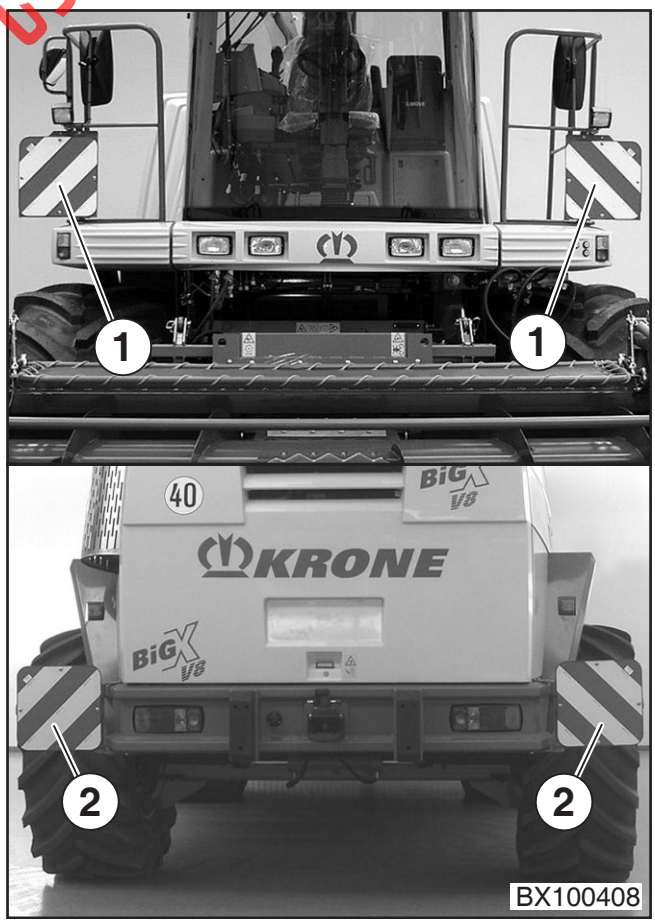
- Visually check the correct position of the upper discharge chute (1) on the support (2).
- If and when necessary, use the manual control to move the upper discharge chute into the correct position (cf. chapter on operating the upper discharge chute).



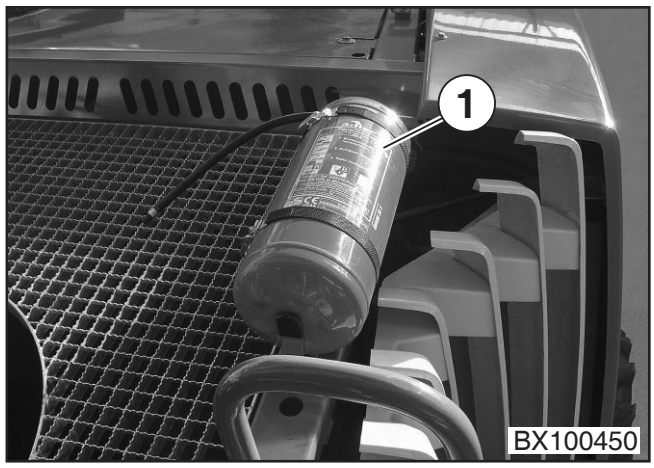
8.1.2 Prior to travel

- Prior to travelling on traffic routes, please ensure that the warning boards (1, 2) have been fitted and are located on the outermost positions.

- Check the brake and light functions.



- Check whether the fire extinguisher (1) is in a ready-to-use condition in the holder provided on the machine roof.



Have the operational readiness of the fire extinguisher checked annually, at the latest every two years. The manufacturing date or the date of the final inspection of the fire extinguisher shall be decisive. The testing intervals may vary from country to country. In this case, the instructions on the fire extinguisher of the respective countries shall be applicable.

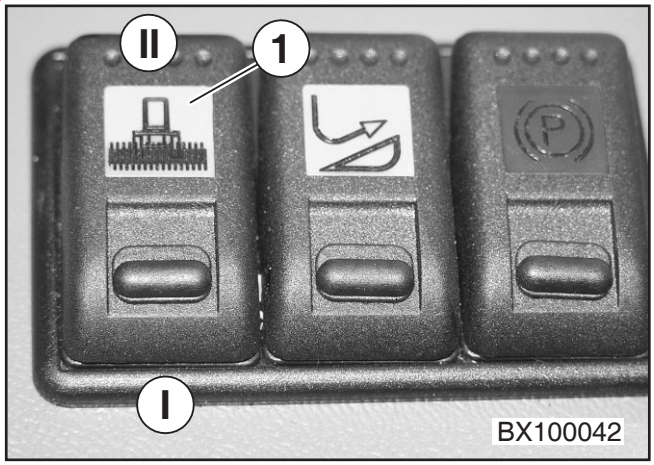
Two wheel chocks have to be ready to hand at all times.

- Check whether the wheel chocks (1) are in a ready-to-use condition in the holder provided on the left side of the machine.

8.1.3 Travel

When travelling on roads, the road/field release switch (1) has to be set to position I.
This ensures that only the travelling gear, the steering mechanism and the brakes are active.

For more information on road travel, please refer to chapter titled "Initial operation – road travel".



8.2 Field operation

For special instructions on the use of the respective front attachment fitted, please refer to the operating instructions of the front attachment.

Please refer to the chapter titled "Info Centre" for settings, such as mode of operation, working width, front attachment/feed drive, silage attachment, lifting gear, grain conditioner and customer data.

For information on drive operation, please refer to the chapter titled "Initial operation – drive operation".

Pre-requisites for field operation

- The engine is started.
- The road/field release switch (1) must be in field operation position.
- The maintenance release switch (2) must be set to off.

8.2.1 Lifting gear

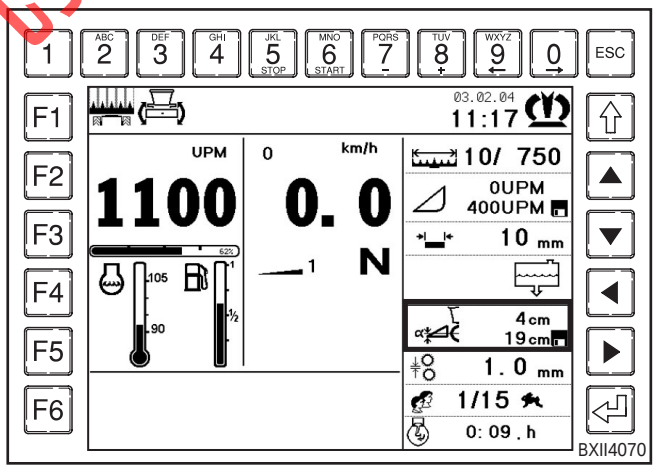
Please refer to the chapter titled "Info Centre – Settings Lifting Gear" for settings of the lifting gear control and setpoint pressure or height.

Activating the lifting gear position control

When the lifting gear position control is active, the control sets the height constant relative to the machine.

Pre-requisites:

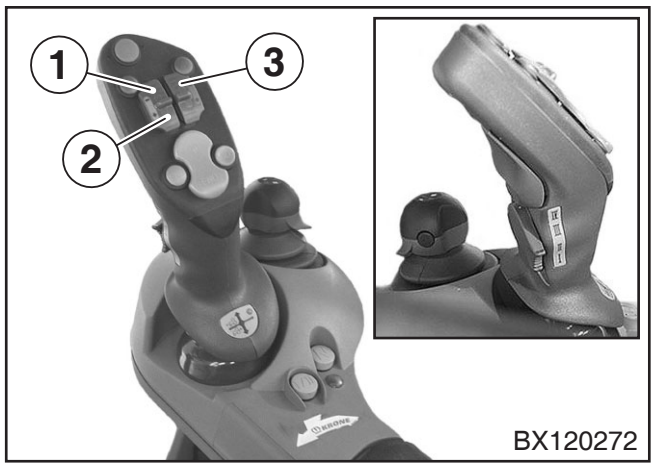
- The Info Centre is used to set the lifting gear position control; the icon along with the setpoint height in cm is displayed. The lifting gear position control is inactive.



- Press the "Lower lifting gear" (1) push-button.
- Press the "Lift lifting gear" (2) push-button.

The lifting gear is lowered or lifted. During the first second of the actuation the lifting/lowering speed is very slow, but subsequently it will increase in speed.

When the keys (1 or 2) are released, the current lifting height is measured and kept constant relative to the machine by the lifting gear position control until the lifting gear height is manually overdriven.



Modifying and saving the setpoint height at the multi-function lever

- Use the "Lift lifting gear" (2) or "Lower lifting gear" (1) push-buttons to move the unit to the new setpoint height.
- Keep the "Automatic adapting to ground contours" (3) push-button pressed for about 3 seconds.

The new setpoint height is saved and a corresponding information message will appear in the display of the Info Centre.

Activating the setpoint height adjusted

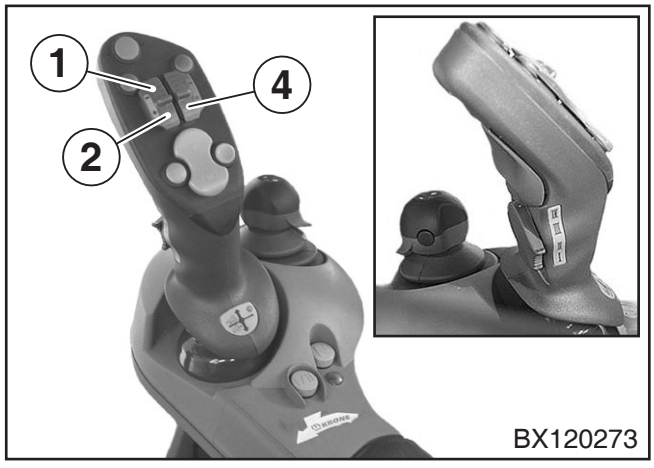
- Press the "Automatic adapting to ground contours" (3) push-button.

The lifting gear is lifted or lowered to the setpoint height set. The icon is used in the Info Centre to display the setpoint height set in cm. The lifting gear position control is active.

Setting and saving the lifting height for the headland

- Use the "Lift lifting gear" (2) or "Lower lifting gear" (1) push-buttons to move the unit to the lifting height.
- Keep the "Lift lifting gear to top" (4) push-button pressed for approx. 3 seconds.

The new lifting height is saved and a corresponding information message will appear in the display of the Info Centre.
Change the lifting height by new setting and saving.



Lifting the lifting gear right up – headland setting

By pressing the "Lift lifting gear to top" (4) push-button, the lifting gear is lifted to the saved value (headland setting).

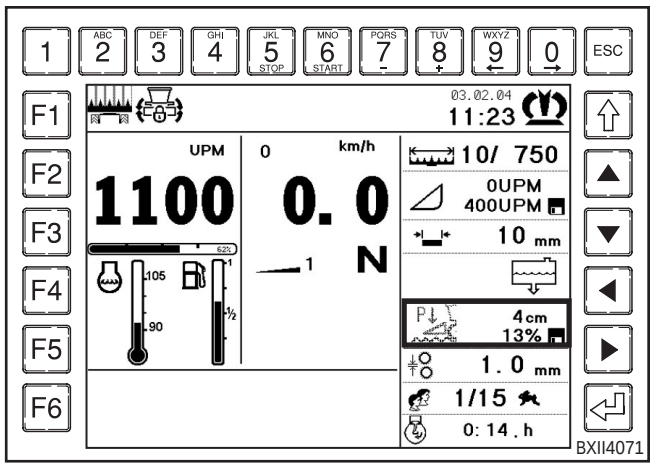
- Press the "Lift lifting gear to top" (4) push-button.

The lifting gear is lifted to the lifting height set.

Activating the lifting gear top pressure control

When the lifting gear top pressure control is active, the control sets the pressure of the lifting gear on the ground to a constant value.

The control is activated as follows: activate the setpoint pressure; use the multi-function lever to change the setpoint pressure; the saving process corresponds to the procedure used in the lifting gear position control.



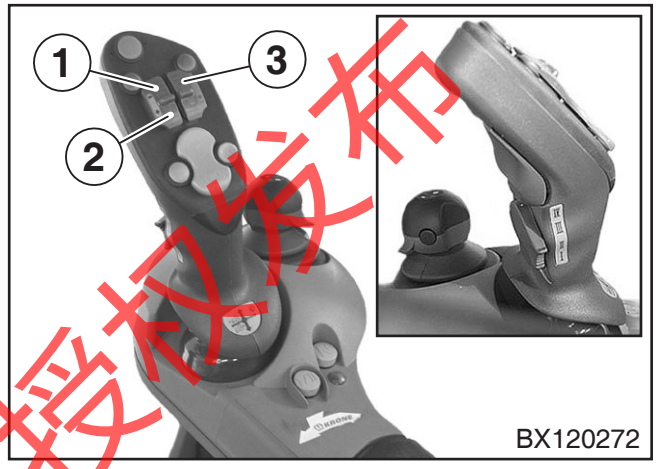
Lifting and lowering the lifting gear in case of lifting gear top pressure control

- Use the "Lift lifting gear" (2) or "Lower lifting gear" (1) push-buttons to move the unit.

After the key is released (1 or 2), a position controller will keep the lifting gear at a constant lifting height. In order to activate the lifting gear top pressure control press the "Automatic adapting to ground contours" (3) push-button.

- Press the "Automatic adapting to ground contours" (3) push-button.

The lifting gear is lowered to the ground and is automatically set to the lifting gear top pressure control.

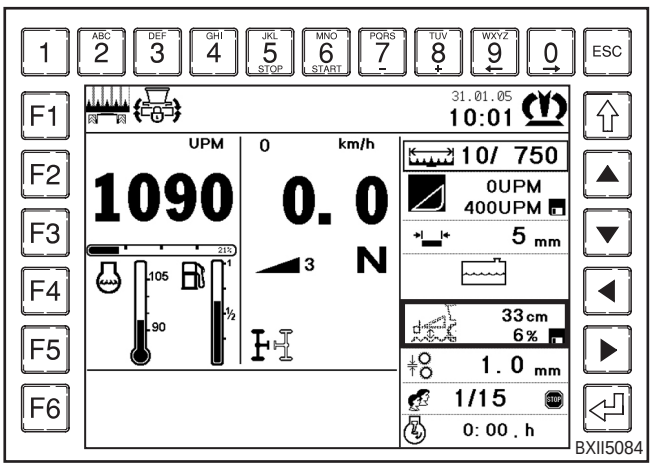


Activating the lifting gear spacing control (optional)

The lifting gear spacing control can be activated only if spacing sensor have been fitted on the maize header.

When the lifting gear spacing control is active, the control sets the height constant relative to the machine.

The control is activated as follows: activate the setpoint height; use the multi-function lever to change the setpoint height; the saving process corresponds to the procedure used in the lifting gear position control.



8.2.2 Feed drive/front attachment

For setting the setpoint speed of the feed drive and the cutting length, please refer to the chapter titled "Info Centre settings – feed drive/front attachment".

Switching the feed drive/front attachment on

In order to be able to switch on the feed drive/front attachment, the following conditions must be met:

- The driver's seat must be occupied.
- The engine is started.
- The road/field release switch (1) must be in field operation position.
- The maintenance release switch (2) must be set to off.
- The feed drive/front attachment release switch (4) must be set to on.
- Switch on the main coupling (3).

- Press the "Reverse feed drive/front attachment" button (2) briefly.
- Press the "Feed drive/front attachment on – off" (1) push-button.

The front attachment units and the feed drive rollers are switched on.

When the feed drive/front attachment is switched on for the first time, the infeed rollers and the front attachment will reverse for a short time to remove any potential soiling.

Switching the feed drive/front attachment off

- Press the "Feed drive/front attachment on – off" push-button (1) again.

The front attachment units and the feed drive rollers are switched off.

Reversing the feed drive/front attachment
When clogged and when faults are released by the metal detectors, the feed drive/front attachment can be reversed. If the (1) key is used, the **travelling gear release switch** must be **off**.

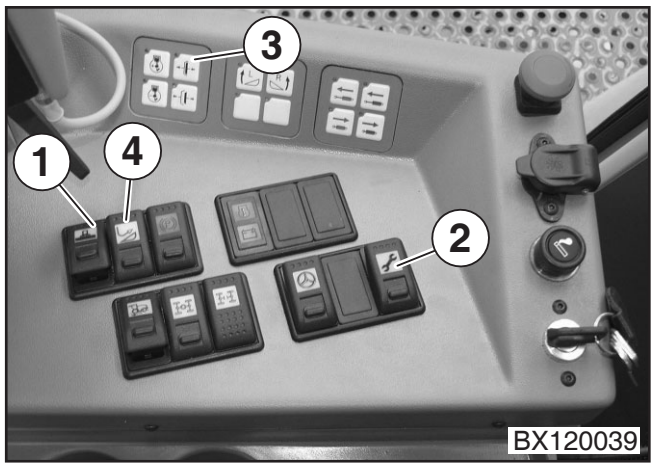
- Press the "Reverse feed drive/front attachment" key (2) on the multifunction lever and hold it down or press the manual mode key (1) on the platform.

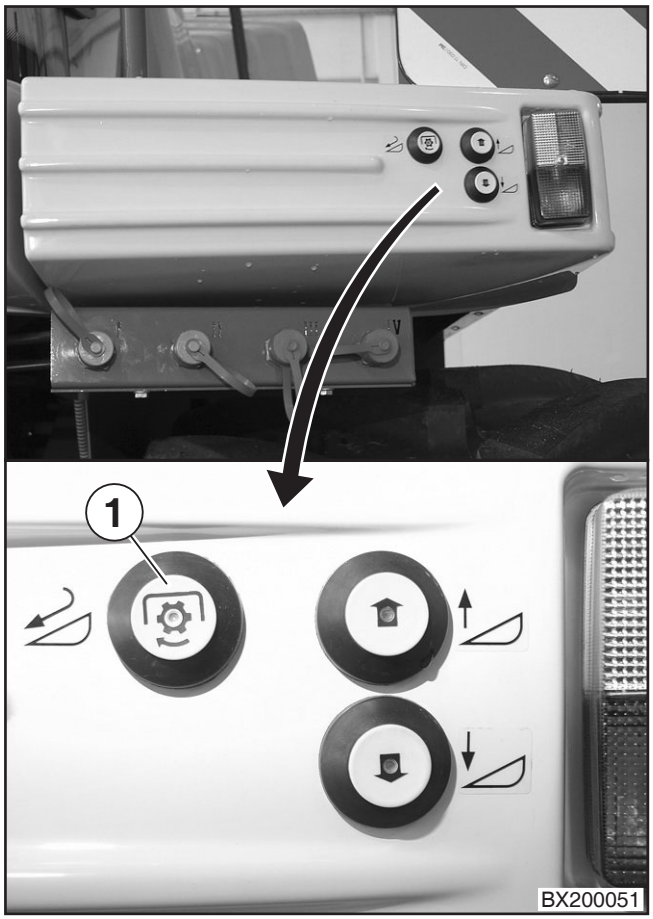
The front attachment units and the drive feed rollers will reverse for as long as the "Reversing the feed drive/front attachment" (2/1) push-button is pressed.

The "Reversing the feed drive/front attachment" (2) push-button can be pressed also, even if the feed drive/front attachment is switched on.
Subsequently the feed drive/front attachment must be switched on again.

Metal detection

When metal is detected, the feed drive/front attachment stops instantaneously.
- Acknowledge the fault message.
- Permit the feed drive/front attachment to reverse.
- Stop the machine. Remove the metal.

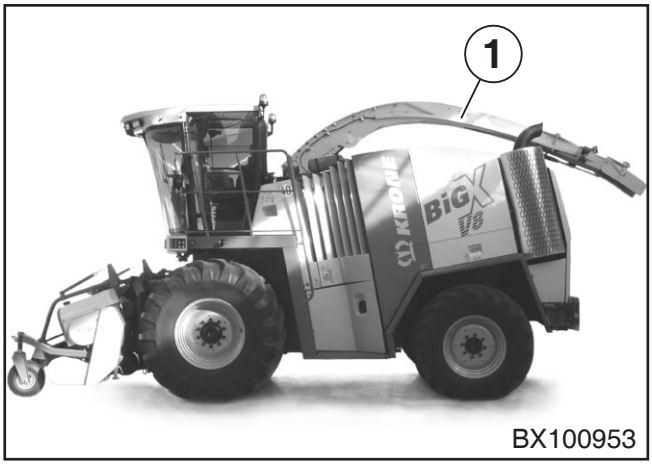


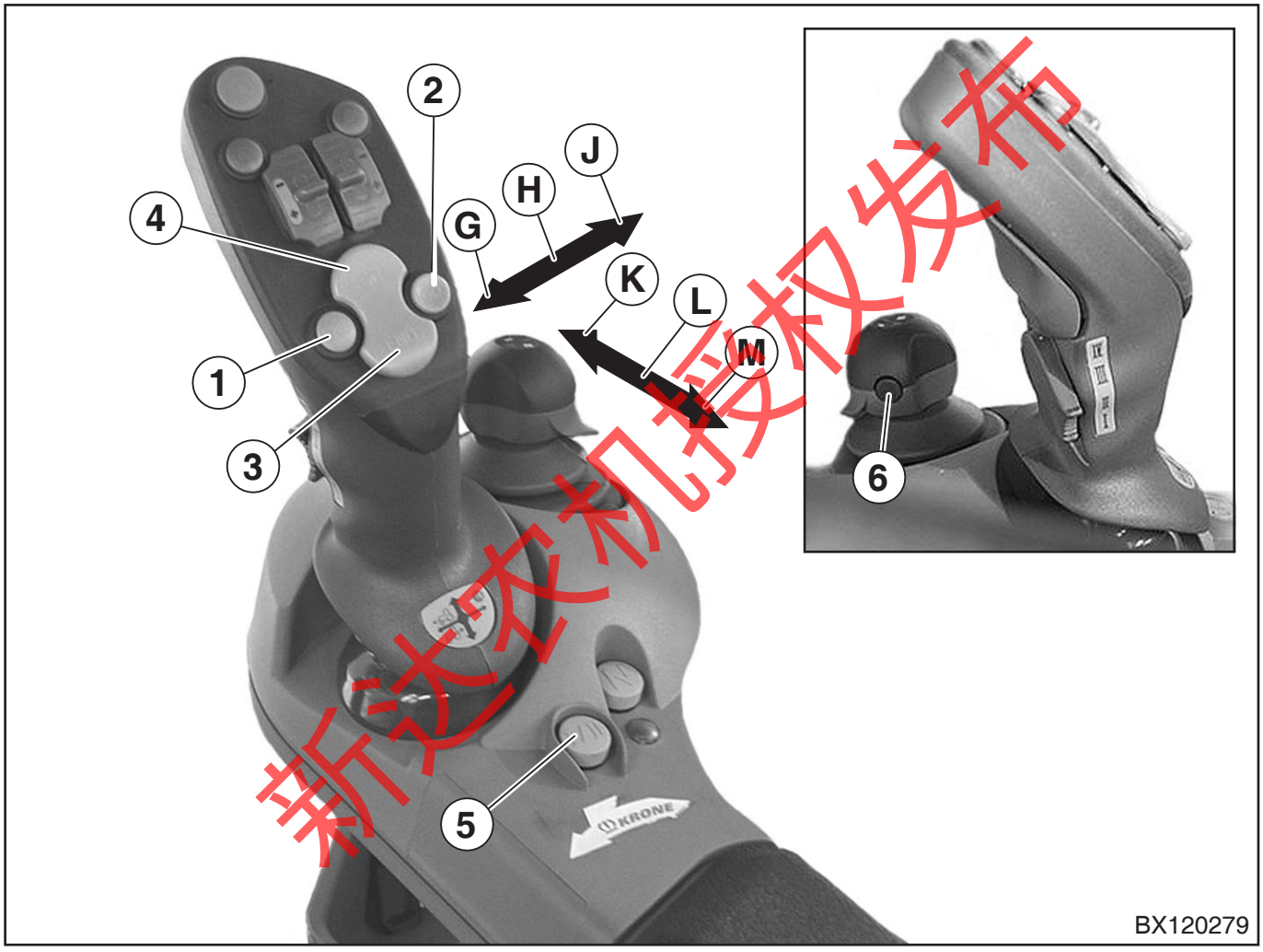


8.2.3 Cutting length and upper discharge chute

Two cutter lengths can be saved and brought up on the multifunction lever.

The shape and swivelling range of the upper discharge chute (1) have been designed in such a way that operation is possible with towing trailer as well as with forage trailers to the left and right.
The operation is controlled by the multi-function lever.
The ejector flap can also be set hydraulically.





1 - Rotate discharge chute left

2 - Rotate discharge chute right

3 - Ejector flap down

4 - Ejector flap up

5 - Mirror upper discharge chute (with main coupling switched on)

- Upper discharge chute in transport position (with main coupling switched off)

6 - Save the cutting length

G - Bring up cutting length value 1
If the button 6 is pressed and is past the action point, the cutting length is saved in the Info Centre (value 1)

H - Central position

J - Bring up cutting length value 2
If the 6 button is pressed and is past the action point, the cutting length is saved in the Info Centre (value 2)

K - Lower upper discharge chute

L - Central position

M - Lift upper discharge chute

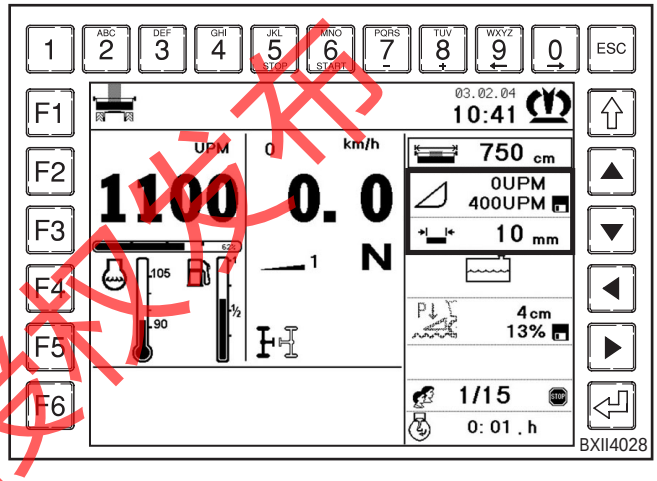
8.2.4 Tips for optimising crop flow

1. How attachment speed depends on cutting length

Long cutting lengths require a higher speed for the front attachment. If the speed is too low, the feed drive rollers will pull the crop in in clumps from the front attachment and the crop flow will separate off.
Short cutting lengths require a slower speed for the front attachment. If the speed is too high, the paddles of the grass pick-up will move the crop too far forward and there may be jams in the maize header.
Reduce the driving speed for the maize header if necessary.

Basic setting:

- Grass — Attachment speed 500 RPM at 10 mm cutting length
  Attachment speed 600 RPM at 18 mm cutting length
- maize — Attachment speed 450 RPM at 6 mm cutting length
  Attachment speed 550 RPM at 10 mm cutting length

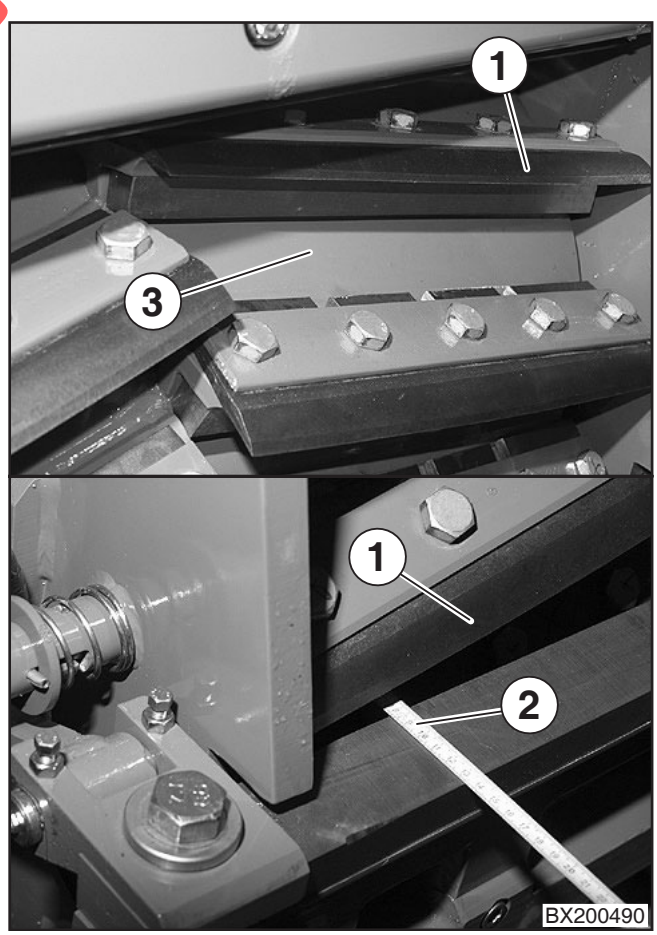


2. Discharge capacity of the machine

The cutting drum determines mainly the discharge capacity of the machine.
Depending on how far the cutter (1) extends beyond the blade carrier (3) there will be correspondingly more or less wind = discharge output.

Grinding off the cutters as well as dirt under the blades reduces the volume for which the discharge capacity is responsible.

Sharp tools – risk of injury!
Always wear gloves when working with the blade drum.



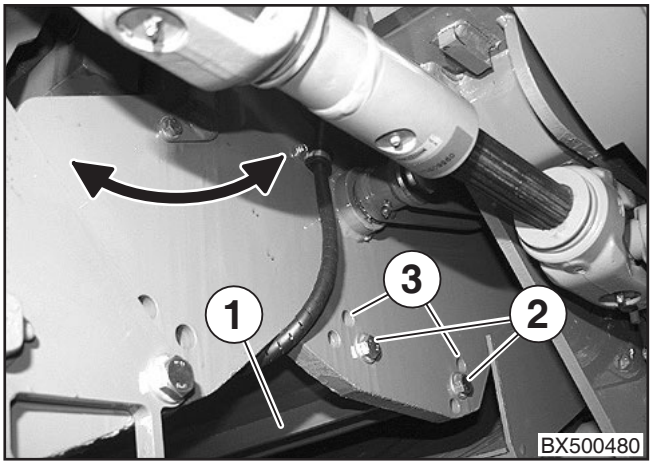
- Move the cutter (1) to its greatest possible overhang. The max. overhang is about 82 mm (2).
  Readjust the cutting blade frequently (refer to the section on Maintenance – Adjusting or replacing the cutting blade).
- Keep the open area under the cutter (1) and blade carrier (3) clean.

Base sheet setting

Another way to improve the discharge capacity is to fine-tune the setting of the base plate (1).

The factory setting is the middle position (2).
If the crop is dry, the upper position (3) should be used.

- Loosen the screws (2) on both sides, swivel the base plate (1) to the correct position and fasten with screws (2) on both sides.



Optimising the distance between the discharge scoop and the rear wall

Reducing or increasing the distance (a) between the discharge scoops (2) and the rear wall (1) may improve or reduce the discharge capacity depending on the crop.

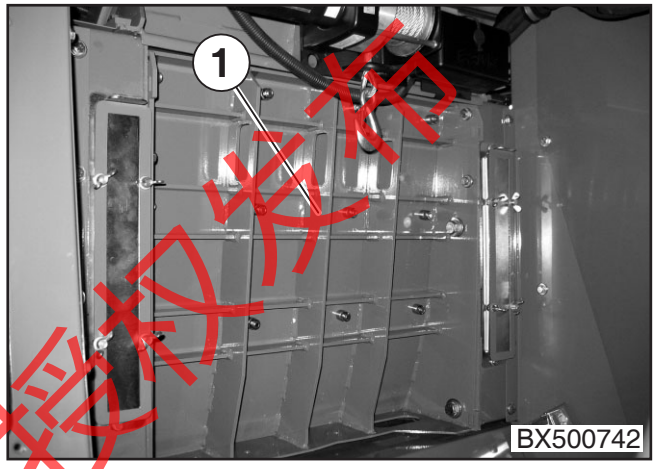
Basic factory setting:

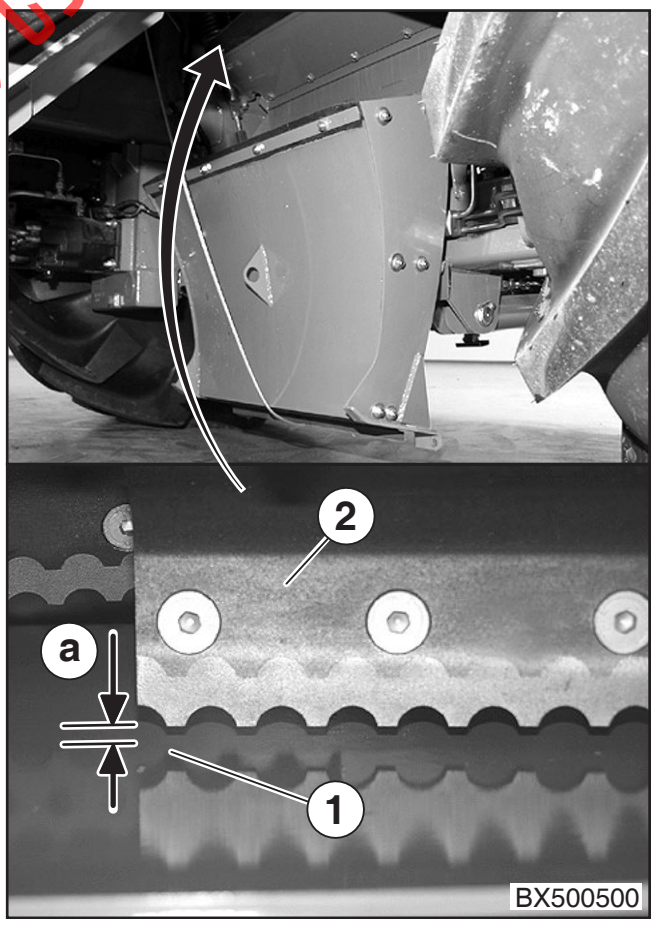
- grass 4 - 5 mm
- maize 2 - 4 mm

Setting the distance between the discharge scoop and the rear wall

Make the setting while switching from grass channel to grain conditioner.

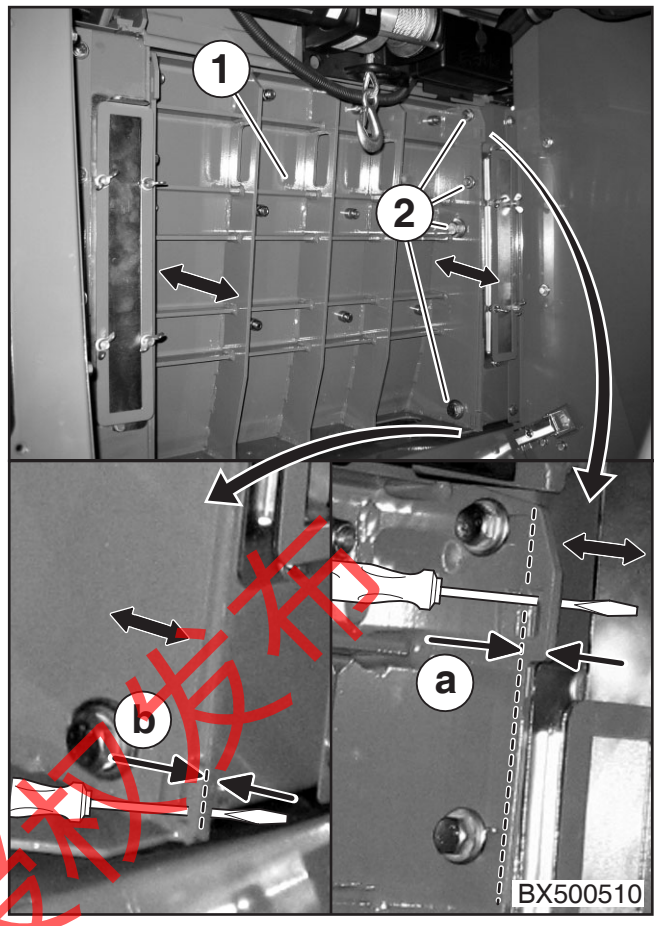
- Remove the ignition key and secure the forage harvester against being placed in operation unexpectedly or rolling away.
  Wait until all units have come to a standstill.
- Measure the distance "a" between the rear wall (1) and the discharge scoop (2).





- Loosen the screws (2) on either side and adjust the discharge accelerator rear wall (1) to the desired distance using a suitable tool as a lever (for example a screw driver).
  The setting must be made evenly.
  Check to make certain dimensions "a" and "b" are parallel left and right.

- Tighten the screws (2).



Adjusting the additional venting slots of the discharge accelerator

Additional air can be supplied to the crop flow through the two additional venting slots next to the rear wall of the discharge accelerator.

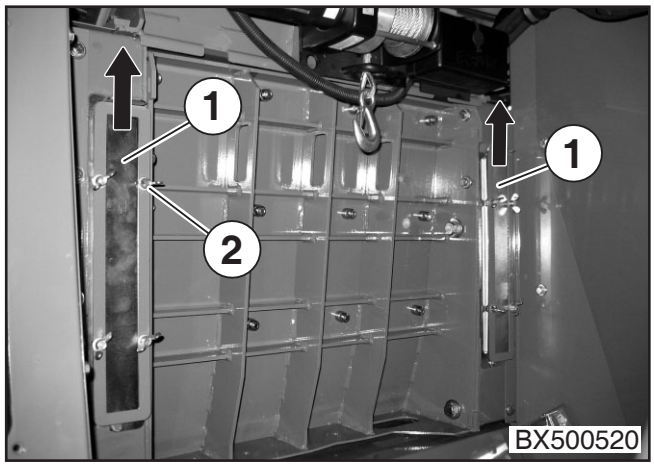
Basic factory setting:

- grass completely closed

Max. 25 % open left and right. (When the additional air slots are wide open, too much air is directed against the flow of air in the cutting drum and the discharge output is reduced.)

- maize completely open

(no air comes up through the grain conditioner to the discharge accelerator for maize)

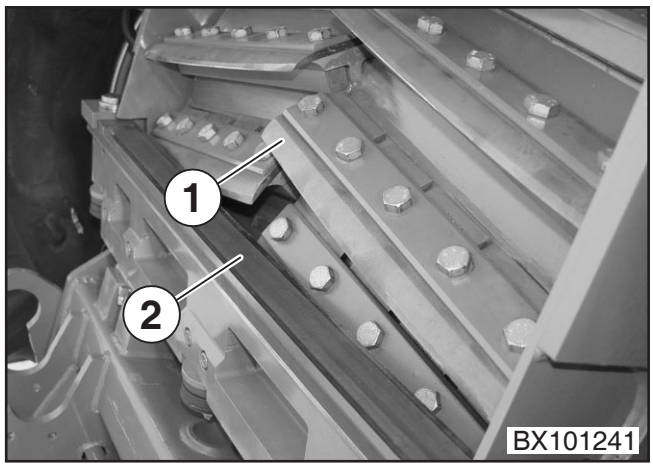


Opening the additional venting slots

- Loosen the wing nuts (2), pull the covering sheets (1) up to the desired position or remove completely.

- Tighten the wing nuts (2).

8.2.5 Grinding the cutting blade



Sharp tools - risk of injury!
Always wear gloves when working with the blade drum.

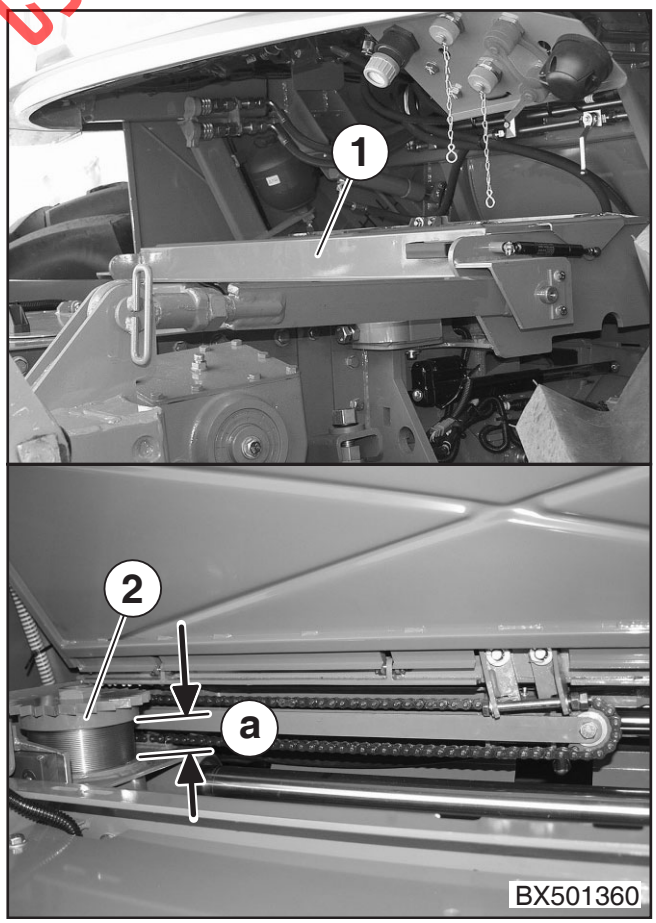
Dull cutting blades (1) and too great a distance between the cutting blades (1) and the counterblade (2) will result in an unnecessarily high requirement of force, poor chop quality and high wear and tear on the cutting elements.
Sharpening does not do any good unless the counterblade is readjusted as well.
The maize cutters sharpen themselves very effectively, so there is no need to "sharpen them till they shine" at every grinding interval.
Short grinding intervals with a brief grinding duration combined with readjusting the counterblades work better than long grinding intervals with long grinding times.

Checking and cleaning the grinding stone and grinding channel

Before the cutting blades are ground, the automatic readjustment of the grinding stone must be checked and all dirt and residue must be removed from the grinding channel.
A build-up of dust, grass and chaff in the grinding channel is combustible and poses an increased fire hazard. In addition, the accumulation prevents the grinding stone from working as effectively as possible.

- Remove the ignition key and secure the forage harvester from being placed in operation or rolling away unintentionally.

Before opening the covering hood (1) the blade drum must come to a complete stop.



- Open the covering hood (1) of the grinding mechanism (2).
- Clear out dirt and residue in the grinding channel (for example blow it out using compressed air)
- The visible length of threading on the grinding mechanism (dimension "a") must be at least 5 mm. If dimension "a" is less than 5 mm, the grinding stone must be readjusted or replaced (refer to section on Maintenance – Adjusting or replacing the grinding stone).
- Close the covering hood (1) of the grinding mechanism (2).

The "Grind cutting blade" process can only be performed with the engine turned on and the blade drum running.
Because of the nature of the process, not all moving parts of the blade drum and drive can be completely covered, especially during the grinding process.
Especially after opening the grinding flap, there is danger of touching sharp or rapidly rotating parts of the blade drum and drum drive.

To prevent serious injuries, all protective devices and maintenance openings must be closed during the grinding process.
In addition, there must be no one in the area of the blade drum. Do not reach into this area!

Operators should be inside the cab on the driver's seat or at the front left side next to the machine in the manual operation area on the platform while the grinding process is taking place!

Since the blade drum and following parts assigned to it may take longer to coast down to a stop, after switching off, do not open or remove any protective devices until the blade drum has come to a complete stop. Observe the warning signal!

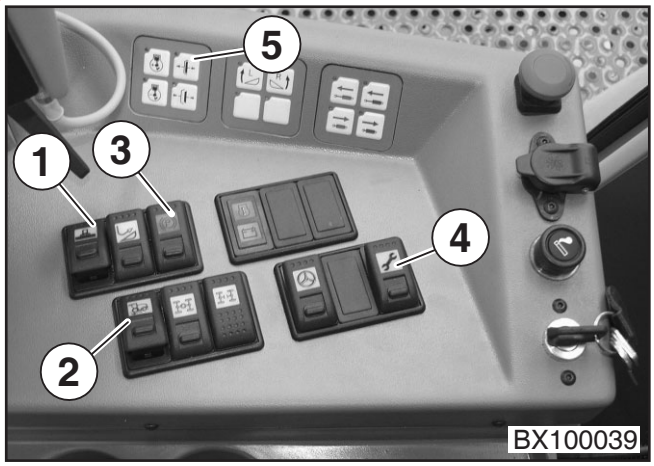
The forage harvester is equipped with an acoustic signalling device that continues to emit a warning signal after the main coupling (drum drive) is switched off as long as the blade drum is turning.

The audio coast-down alarm, which is sounded after the main coupling is switched off, does not relieve the operator of the obligation to make certain the machine is at an absolute standstill before working on it.

To reduce the amount of time it takes the blade drum to coast down, cut the engine speed to lower idle before switching off the main coupling.

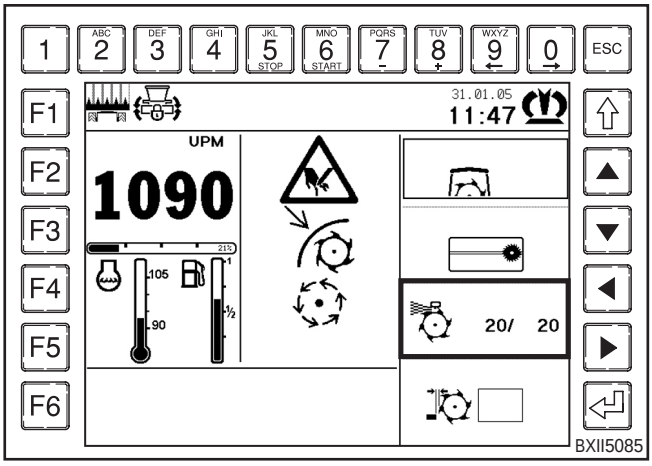
Activation of manual operation on the platform

- The forage harvester has been secured against rolling away with wheel chocks
- Engine started and running at idle
- Release switch for travelling gear (2) in the "Off" position
- Release switch for parking brake (3) in the "Applied" position.
- The road/field release switch (1) must be in "field operation" position.
- Front attachment unit lowered to the ground. Main coupling (5) switched on.
- Release switch - maintenance (4) in the "On" position.
  F3 Maintenance main menu appears in the Info centre display.
- Adjust the idle speed to 1100 rpms with the full number of blades or to 1300 rpms with half the number.



Adjusting the numbers of grinding circles (Factory setting 20)

- Bring up information on the grinding process with the function key F1 .
- Use the ▲ and ▼ keys to select the menu field .
- Use the ◀ key to reduce the number of grinding cycles, and the ▶ key to increase the number of grinding cycles.



Grinding operation

- Activate the "Open grinding flap" key (1)

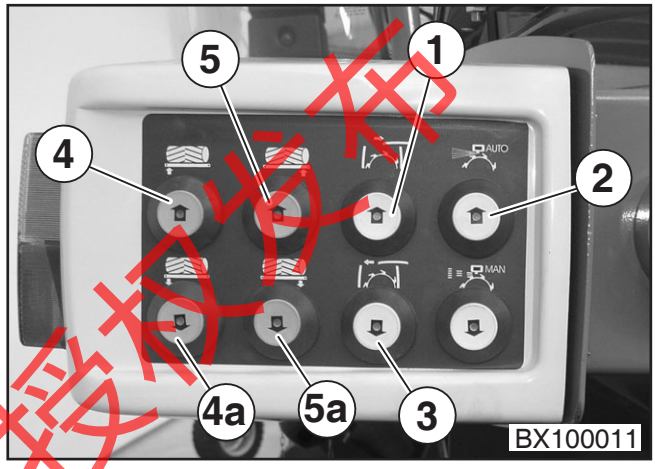
The grinding flap opens.

- Activate the "Automatic grinding operation" key (2).

The number of grinding cycles that was set is performed. After the end of the grinding process, the grinding stone moves to its parking position (the right side of the grinding mechanism).

- Activate the "Close grinding flap" key (3).

The grinding flap closes.



Blocking the counterblade

Once the grinding process is complete, the counter-blade must be blocked while the blade drum is running.

- Press the "Move counterblade right to blade drum" key (4) and then the "Move counterblade left to the blade drum" key (5), holding each one down for about 1 second.
- If there is a noise when you are adjusting one of the sides (right/left) (cutter hitting up against the counter blade!) let go of the key immediately and press the appropriate key "Move counterblade away from blade drum" (4a or 5a) for about 1 second.
- Block the counterblade on the other side using the same procedure.

After you have blocked the counter-blade, the blade drum must run without making any noise.

If there is no noise while the counterblade is being blocked, the cutters must be readjusted, or else worn cutters and cutters that can no longer be used must be replaced (refer to section on Maintenance - Adjusting or replacing cutters)

9 Maintenance

9.1 Special safety instructions

Repair, maintenance and cleaning tasks must only be performed while the engine is stopped!
Remove the ignition key and secure the forage harvester from being placed in operation or rolling away unintentionally.

The audio coastdown alarm, which is sounded after the main drive is switched off, does not relieve the operator of the obligation to make certain the machine is at an absolute standstill before working on it.

For repair, maintenance and cleaning jobs on a folded down or raised front attachment always secure it with suitable supporting pieces and close the shut-off valve (page IX - 7)!

Only perform tasks on the hydraulic system when all excess pressure has been released.
Liquid escaping under high pressure can penetrate through the skin and cause severe injuries! In the event of injuries, find a physician immediately. There is danger of infection.

After all repair, maintenance and cleaning tasks are complete, all protective coverings and safety devices must be put in place again.

9.2 General Aspects

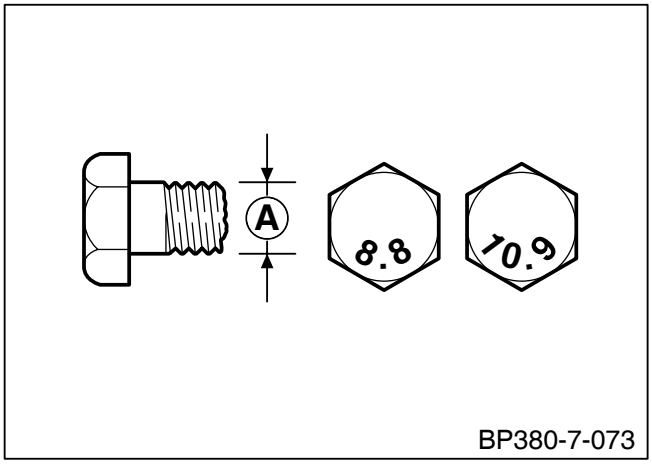
- Test nuts and screws regularly (about every 50 hours) for firm seat and tighten them according to the tightening torque tables if necessary! Deviating tightening torques are indicated separately in the text.

Self-locking nuts must always be replaced.

Tightening torque M_A

A Ø	5.6	6.8	8.8	10.9	12.9
			M_A (Nm)		
M 4		2,2	3,0	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
M 12	42	64	85	125	145
M 14		100	135	200	235
M 14x1,5			145	215	255
M 16		160	210	310	365
M 16x1,5			225	330	390
M 20			425	610	710
M 24			730	1050	1220
M 24x1,5	350				
M 24x2			800	1150	1350
M 27			1100	1550	1800
M 27x2			1150	1650	1950
M 30			1450	2100	2450

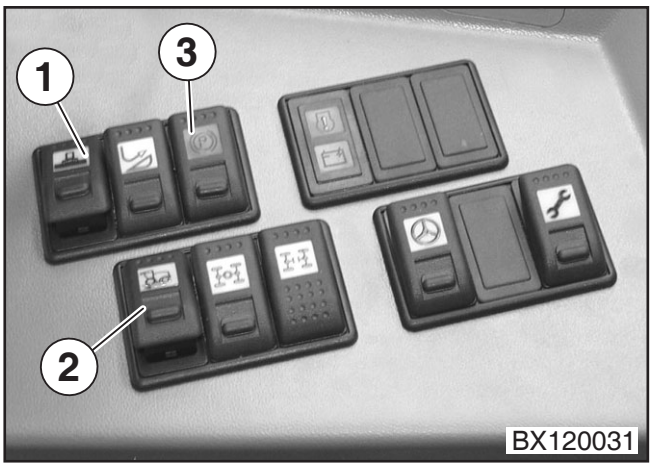
A = thread size
(stability class can be seen on the head of the screw).



BP380-7-073

For all maintenance tasks:

- The road/field release switch (1) must be in "field operation" position.
- Release switch for travelling gear (2) in the "Off" position.
- Release switch for the holding brake (3) in the "Applied" position.



9.3 Maintenance of the supply system

9.3.1 Detaching the feed drive housing

You can detach the feed drive housing with the front attachment connected. The maize header must be folded down as you do this.

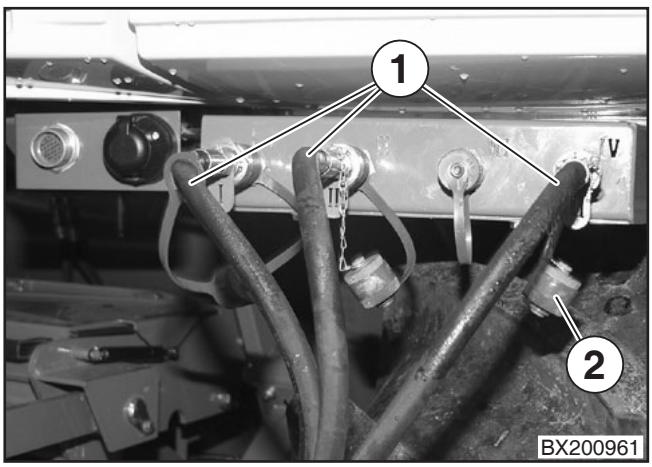
You should attach and detach the feed drive housing on a level surface with a sub-surface capable of bearing the load.
There must be sufficient space available for laying out the forage harvester.

- Set down the feed drive housing (1) with the front attachment on the ground.
- Remove the ignition key and secure the forage harvester from being placed in operation or rolling away unintentionally.

Front attachment connection lines
Left-hand side of the machine

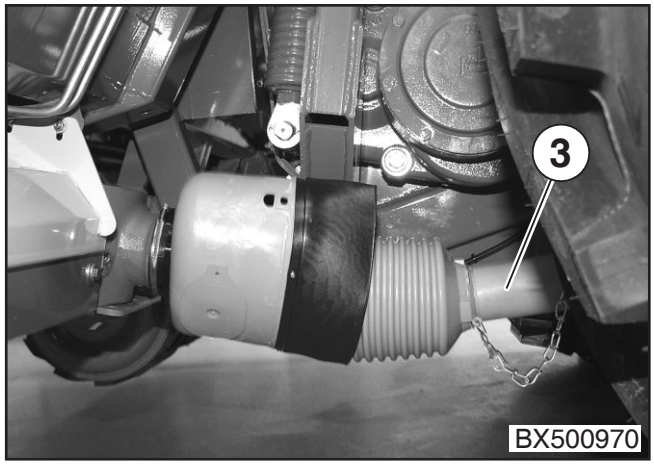
When removing the hydraulic lines (1) there should be no pressure in the system on either side.

- Disconnect the hydraulic lines (1) at the hydraulic couplings and close off with dust caps (2).
- Disconnect the lighting cable and connection line for the sensors (maize header front attachment).



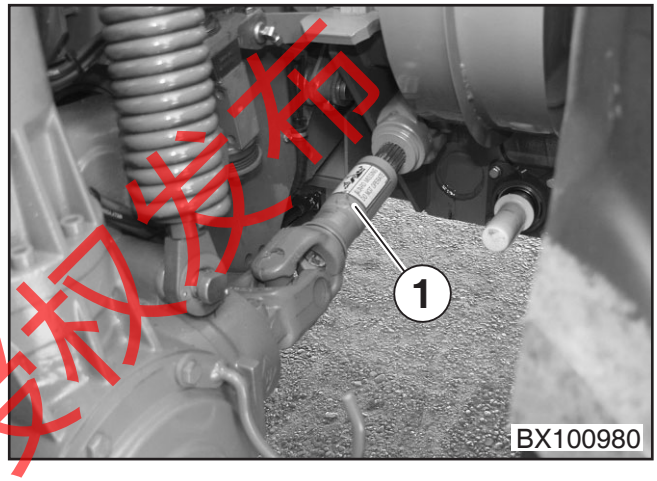
Front attachment for PTO shaft
Left-hand side of the machine

- Completely dismount the PTO shaft (3) for the front attachment drive.



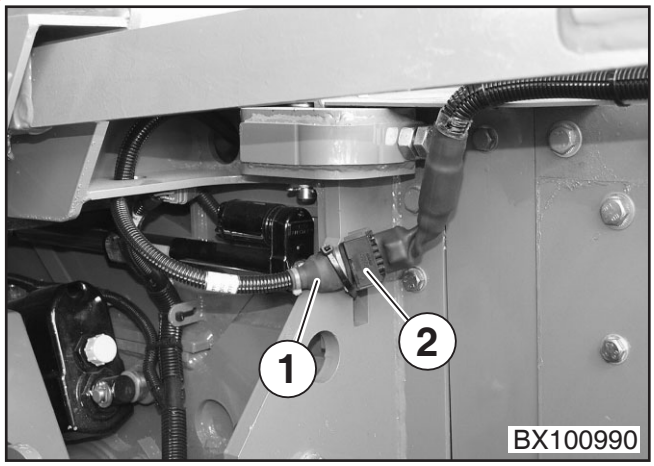
Feed drive PTO shaft
Left-hand side of the machine

- Completely dismount the PTO shaft (1) for the feed drive.



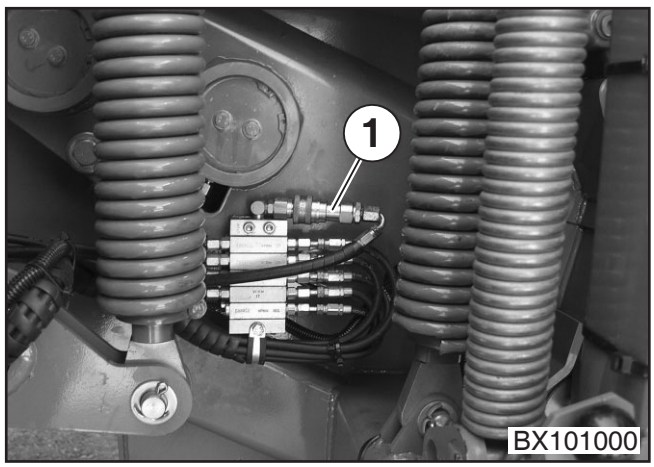
Connection of metal detection sensor and pendulum frame
right-hand side of the machine

- Remove the connection cable plug (1, 2) for the metal detection plug and pendulum frame.



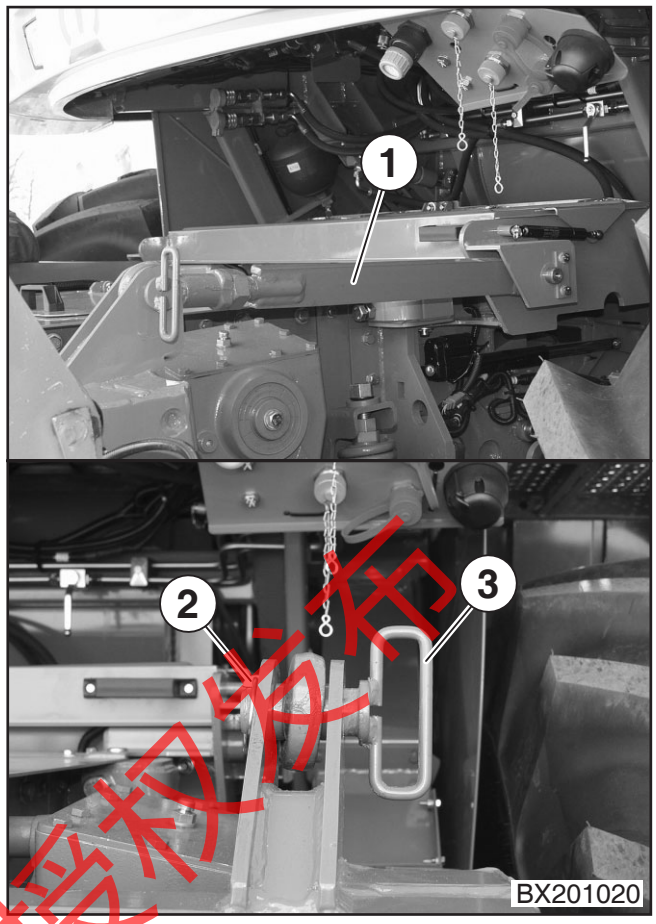
Connection line for central lubrication
right-hand side of the machine

- Loosen the connection line to the lubricant distributor (1).



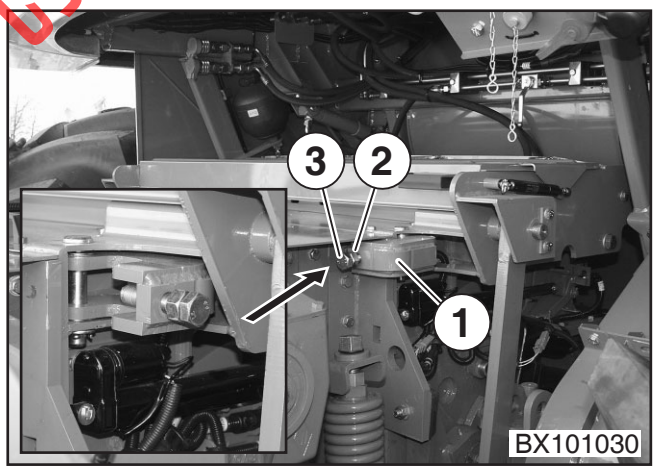
Coupling rods
Right and left side of the machine

- Loosen the hinged cotter pin (2) and dismount the bolts (3).
- Lift the coupling rod (1) out of the bearing and rotate it downward.



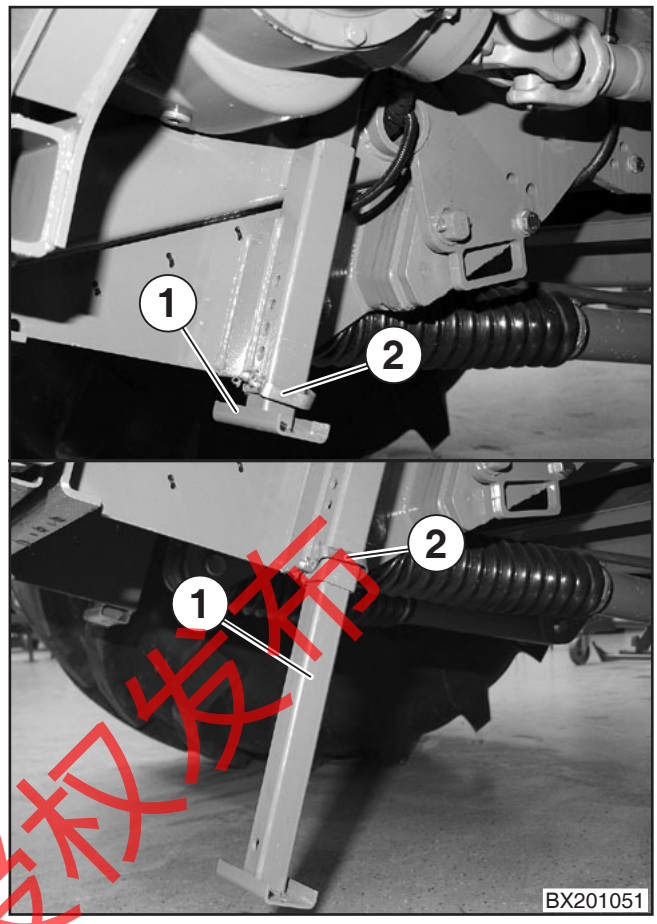
Interlocking claws up
Right and left side of the machine

- Loosen the counter nut (2) and turn back the hexagonal screw (3).
- Swivel open the interlocking claws (1).



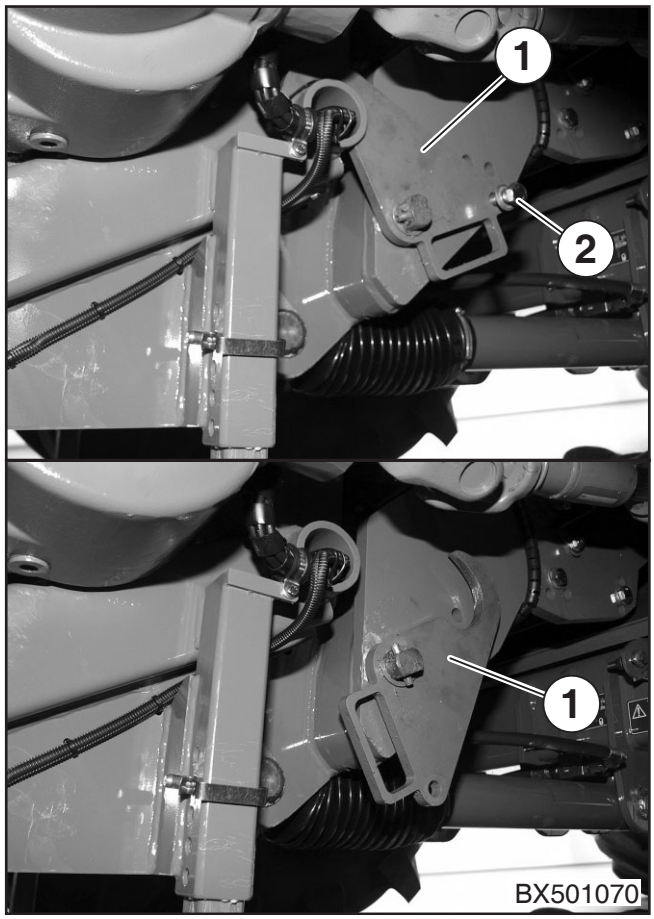
Support base

- Raise the lifting gear until the distance between the feed drive housing and the cutter drum housing is about 200 mm (see Section 9.3.4 Folding down the feed drive housing).
- Disassemble the locking bolts (2) of the support base (1), pull out the support base (1) to the ground and secure in place with locking bolts (2).

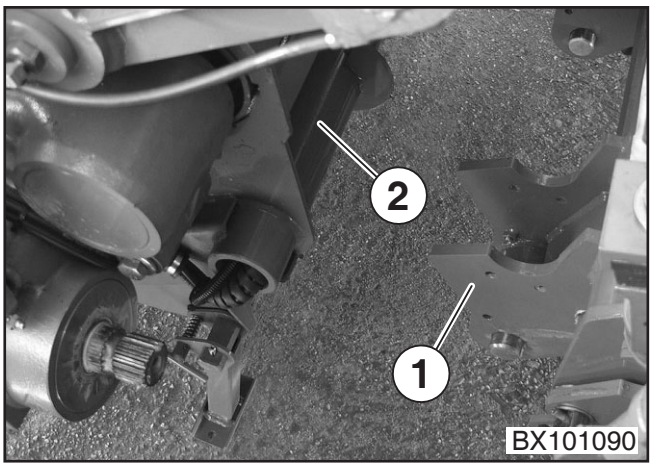


Interlocking down
Left side of the machine

- Screw out the hexagonal screw (2) and swivel the interlocking (1) back.



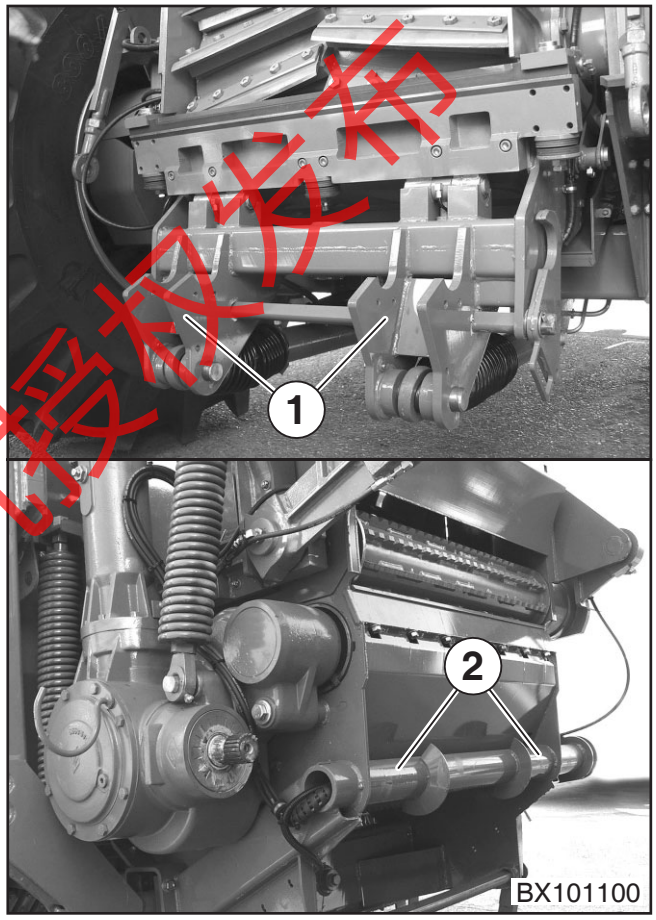
- Rotate the three-way valve to operating position **III** = maize header (see Section 9.3.4).
- Remove the wheel chocks on the forage harvester.
- Raise the lifting gear until the receiving claws (1) of the lifting mechanism are free under the receiving mechanism (2) of the feed drive housing.
- Carefully move the forage harvester back.



9.3.2 Attaching the feed drive housing

- Move the forage harvester onto the feed drive housing and lower the lifting mechanism until the receiving claws (1) of the lifting gear are parallel to the receiving mechanism (2) and are resting under the receiving mechanism (2) of the feed drive housing.

The procedure for attaching the feed drive housing is in the opposite order to detaching it.



9.3.3 Fold down the feed drive housing

The feed drive housing (1) can be folded down for maintenance tasks (such as checking the sharpness of the blade, the condition of the counterblade and scraper).

Perform the following dismounting steps (for specific details see the section on Maintenance - Detaching the feed drive housing):

- Front attachment connection lines
- Connection of metal detector sensor/pendulum frame
- Connection line for central lubrication
- Coupling rods
- Interlocking claws up

- Close the shut-off valve and three-way valve. (refer to Section 9.3.4 on Maintenance jobs on the lifting gear while it is folded down or raised).

The procedure for closing the feed drive housing is in the opposite order to folding it down.

9.3.4 Maintenance jobs on the lifting gear while it is folded down or raised

The shut-off valve (1) and the three-way valve (2) must be in position II (closed) for all maintenance tasks on the lifting gear when it is folded down and raised.
Open the tool box and make the changeover from behind.

Shut-off valve (1)

Operating position - position **I** = open
Maintenance jobs - position **II** = closed

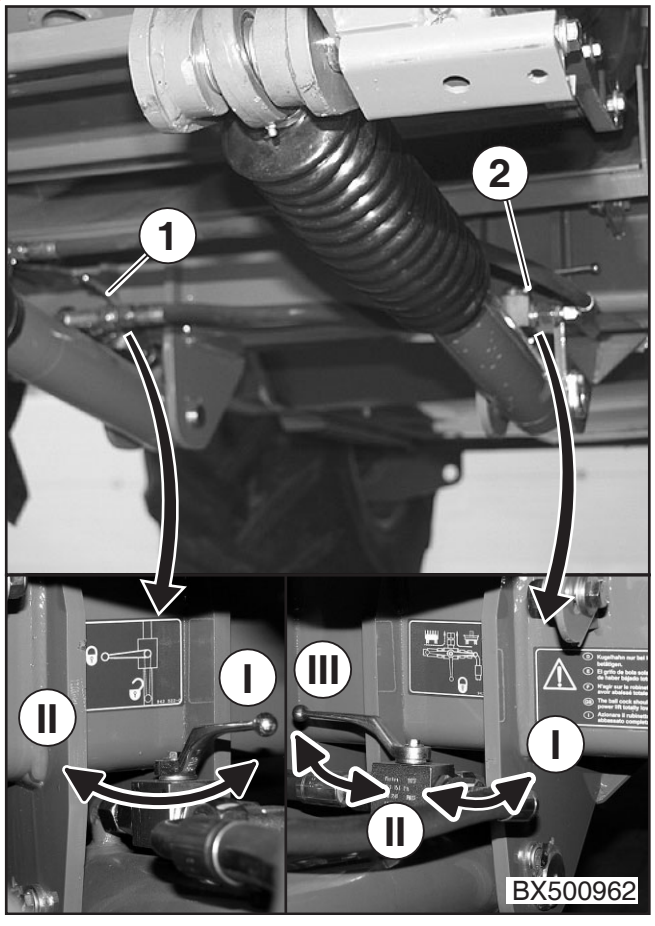
Three-way valve (2)

Operating position - position **I** = grass pick-up
Maintenance jobs - position **II** = closed
Operating position - position **III** = maize header

- Close the shut-off valve (1) and three-way valve (2) before performing maintenance tasks on the lifting gear when it is raised (position **II**).

- Open the shut-off valve (1) after completing maintenance tasks on the raised lifting gear (position **I**).

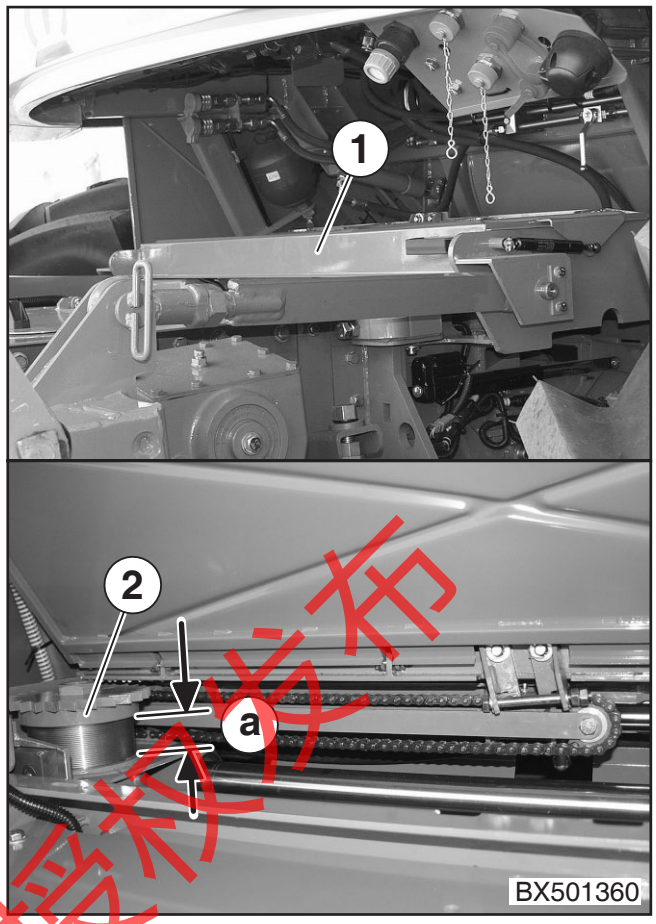
- Rotate the three-way valve (2) back to the appropriate operating mode after the maintenance work on the raised lifting gear is complete.



9.3.5 Adjusting or replacing the grindstone

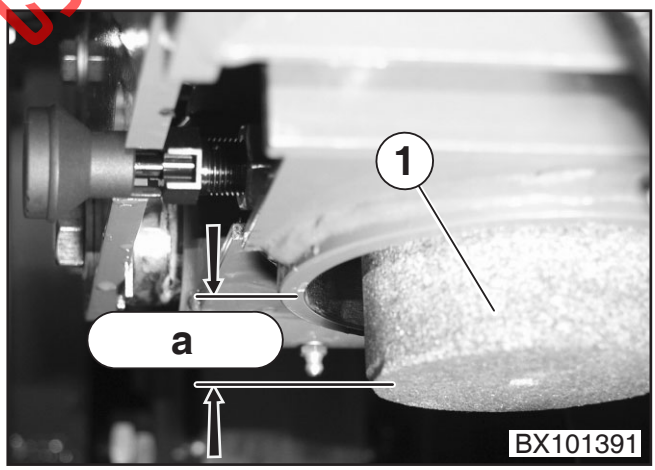
The grindstone must be adjusted if there will be no more automatic adjustment during the grinding process.
The grindstone can be adjusted approximately twice. After that the grindstone must be replaced.

- Remove the ignition key and secure the forage harvester from being placed in operation or rolling away unintentionally.

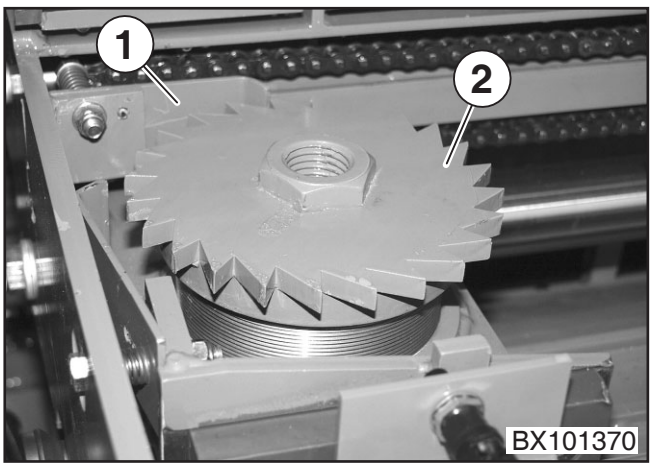


Before opening the covering hood (1) the blade drum must come to a complete stop.

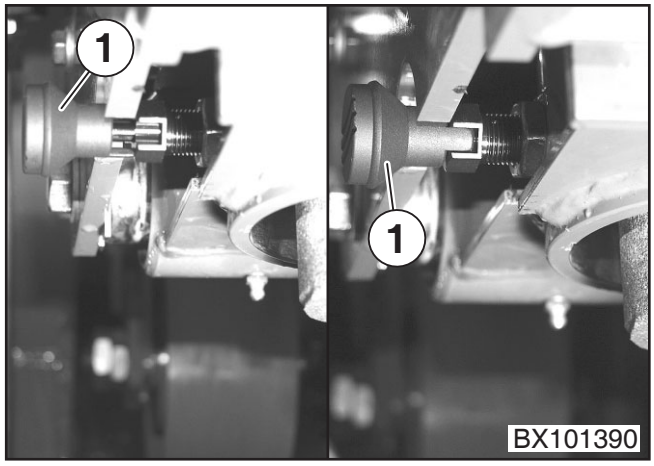
- Open the covering hood (1) of the grinding mechanism (2).
- Clear out dirt and residue in the grinding channel (for example blow it out using compressed air).
- The visible length of threading on the grinding mechanism (dimension "a") must be at least 5 mm. If dimension "a" is less than 5 mm, the grinding stone must be adjusted or replaced.
- Determine the distance "a" from the lower edge of the grindstone (1) to the upper edge of the grinding housing.



- Loosen the catch lock (1).
- Turn back the catch wheel (2) with an SW30 open face wrench.

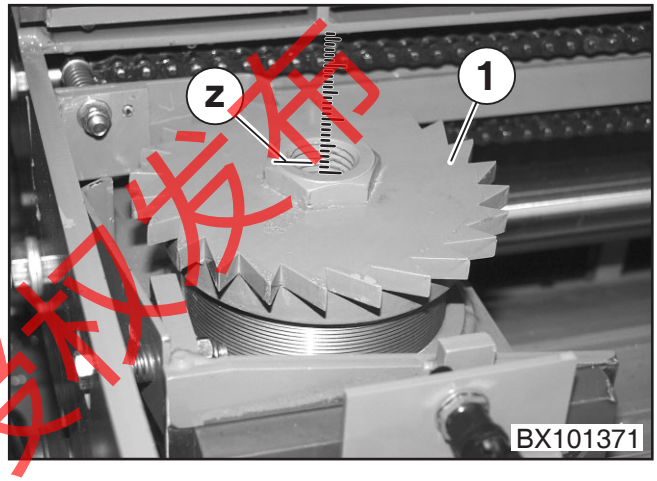


- Allow the locking bolt (1) to lock into place in the lower area by turning it 90°.
- Turn the catch wheel further back until the locking bolt (1) has completely engaged and the grindstone adjustment is locked in place.
- Loosen the grindstone clamp by turning the catch wheel further.



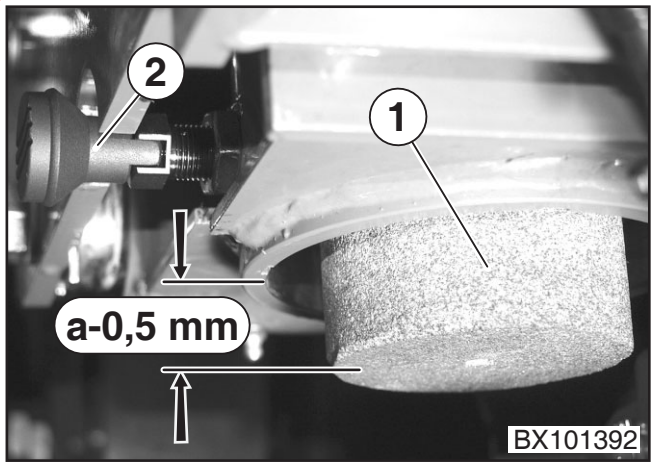
- Measure the distance "z" from the upper edge of the grindstone to the upper edge of the hexagonal nut on the catch wheel (1).

After the grindstone is adjusted the dimension must be "z < 100 mm". Otherwise replace the grindstone.



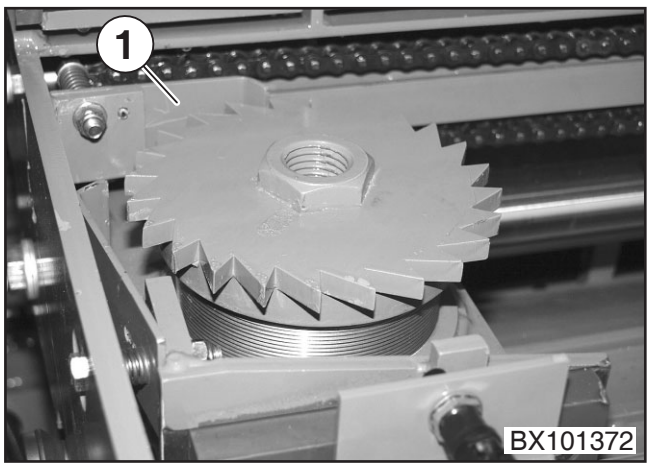
- To replace the grindstone, push the old grindstone down and out, completely unscrew the catch wheel (1) and place the new grindstone on from above. Then screw on the catch wheel.
- Push the grindstone down through the drill hole (d > 30 mm) in the catch wheel (1).

- Adjust the grindstone to the previously determined dimension "a - 0.5 mm".
- Tighten the grindstone clamping with the torque wrench.
  Tightening torque 170 Nm.
- Unscrew the locking bolt (2), rotate it 90° and lock it in this position.



- Fasten the catch lock (1).

- Close the grinding mechanism flap protection.

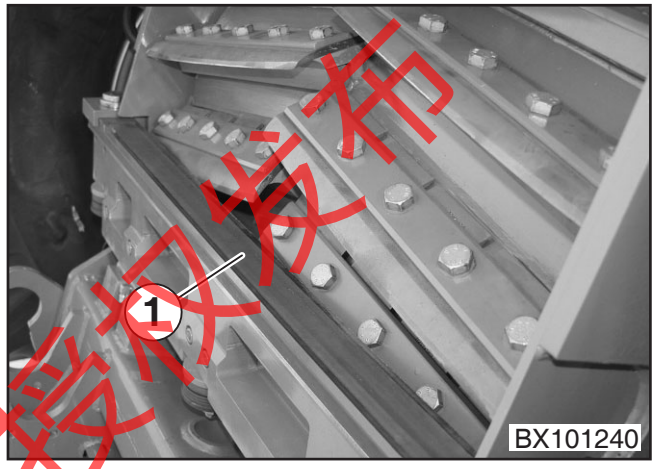


9.3.6 Adjusting or replacing the cutting blade

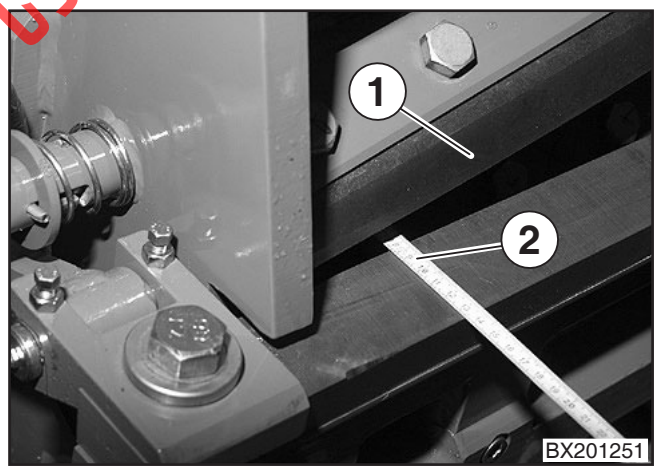
If the adjustment capabilities of the counterblade are no longer sufficient, the cutting blade must be readjusted.
Worn cutting blades and cutting blades that cannot be adjusted any further must be replaced.

To avoid imbalances in the cutting drum, cutting blades must always be replaced in pairs. The two cutters that go together are offset by 180° to each other on the cutting drum (for example blade 1 and blade 7, blade 1 and blade 5, blade 1 and blade 10).

- Detach or fold down the feed drive housing.
- Move the counterblade (1) away from the blade drum on both sides, using manual operation on the platform (see the section Maintenance - Grinding cutting blades).
- Remove the ignition key and secure the forage harvester from being placed in operation or rolling away unintentionally.



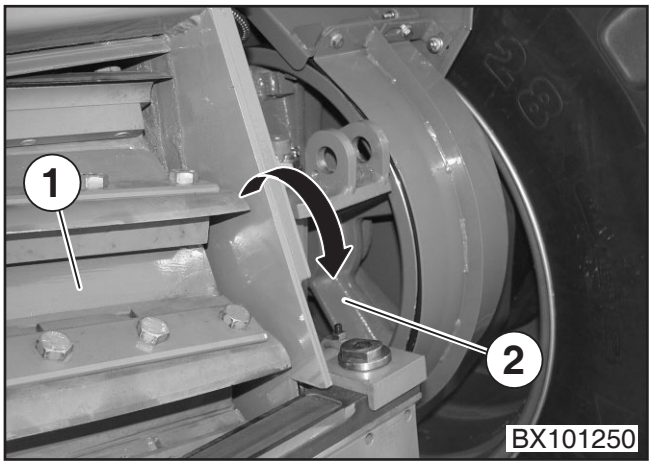
Since the discharge capacity of the machine depends primarily on the distance between the cutter (1) and the blade carrier, readjust the cutter to the max. overhang of about 82 mm.
As you do so, move the counterblade away parallel to the body of the cutting drum.
The measured dimension (2) must be the same on the left and right.
Readjusting the cutting blade



Turning the blade drum

When working on the blade drum, wear gloves.
Do not turn the blade drum directly.
Danger of injury!

- Turn the blade drum (1) by turning the pulley (2) clockwise.

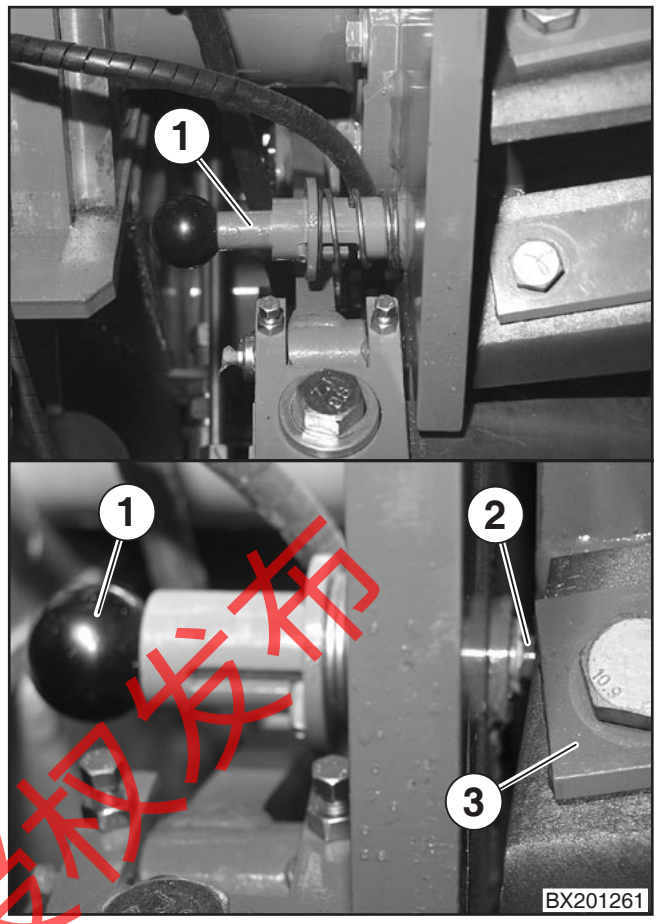


Fixing the blade drum in place

The locking mechanism is located on the right-hand side of the machine.

Lock the blade drum in place for all jobs on the blade drum.

- Rotate the blade drum (3) to the desired working position, push the fastening bolts (2) into the drill hole of the blade drum (3) and secure it in position by turning the fastening bolt (1) with the clamping sleeve (1).



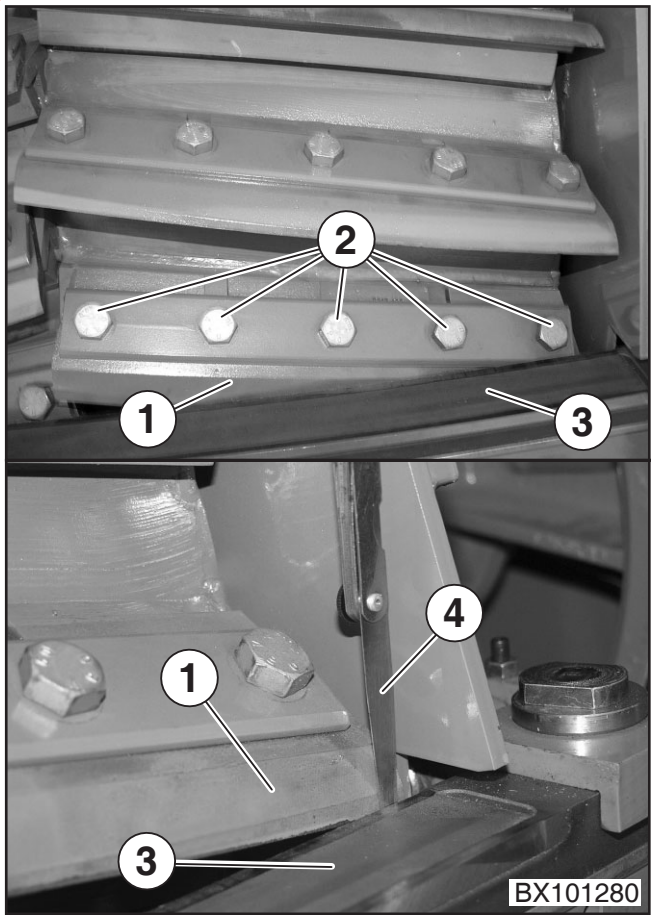
Adjusting the cutting blade

- Unscrew all hexagonal screws (2).
- Adjust the cutter (1) evenly to the counterblade (3) and check on both sides with the sensor gauge (4).
- Tighten all hexagonal screws (2) with the torque wrench
  (tightening torque min. 270 Nm).

- Loosen the blade drum locking, turn the blade drum one blade row further and lock it in place again.
- Adjust the next blade row.
- Continue in this manner until all blade rows of the blade drum are adjusted evenly.
- Loosen the locking of the blade drum.

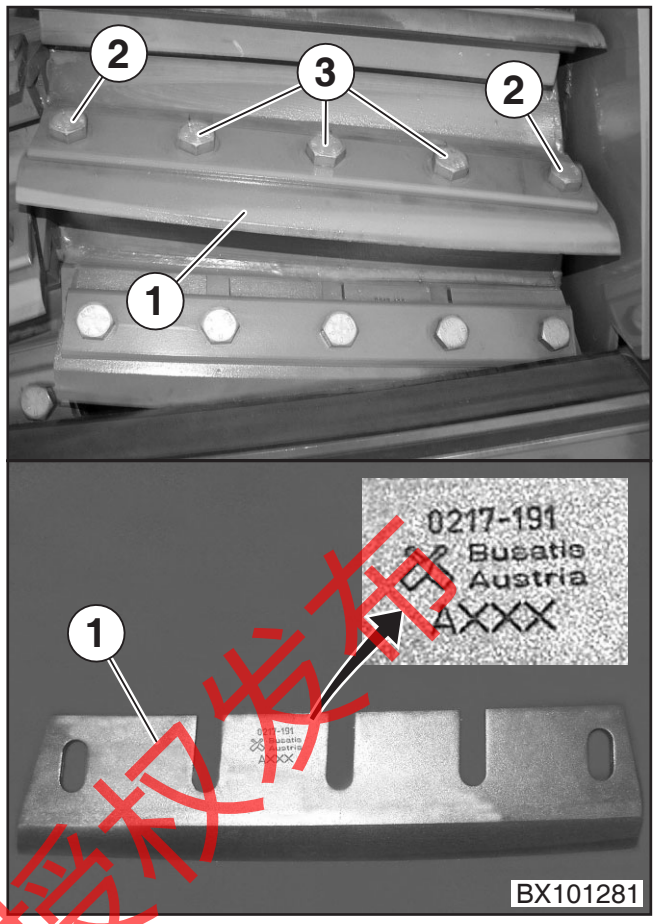
- Adjust the grindstone so that the dimension "a = 20 mm" (20 mm = basic setting of the grindstone). See the section entitled Maintenance - Adjusting or replacing the grindstone.

- Attach the feed drive housing and fold it in.
- Grind the cutting blade.
- Adjust the counterblade.



Replace the cutting blade

To avoid imbalances in the cutting drum, cutting blades must always be replaced in pairs. Two cutters that are on the cutting drum offset from each other by 180° (for example blade 1 and blade 7, blade 1 and blade 5, blade 1 and blade 10).
The blade drum must always be fitted with the same blades. Note the item number on the replacement blades (see also the spare parts list)!
Do not mount the new cutters on the blade holding surfaces and pressure plates until they are cleaned



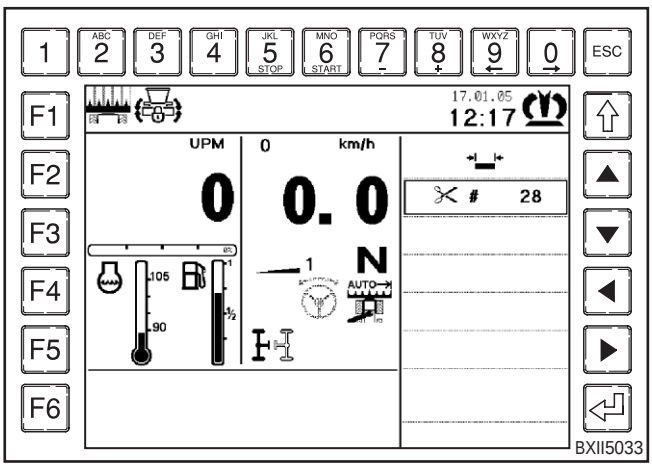
- Unscrew the three hexagonal screws (3).
- Unscrew the two outer hexagonal screws (2).
- Remove the cutting blade (1) towards the front.
- Clean the blade holding surface and pressure plate and set a new cutting blade in place.
- The remaining procedure is as described under the section on adjusting the cutting blade.

9.3.7 Working with half the number of cutting blades

The feed drive speed and number of cutting blades determine the cutting length.
If the cutting length is still too short because of the speed adjustment for the feed drive rollers, the number of cutting blades can be reduced to half.

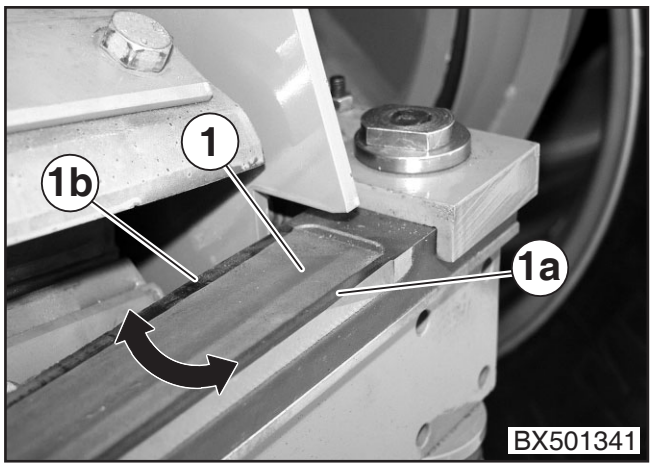
- For use with half the number of cutting blades on the two sides of the cutting drum, remove every other blade. In place of the cutters that have been removed, blind cutters included with delivery should be mounted to protect the blade carriers.
  The tightening torque of the hexagonal headed screws is min. 270 Nm.

- Set the appropriate number of blades in the Info Centre (refer to section on Info Centre – feed drive).



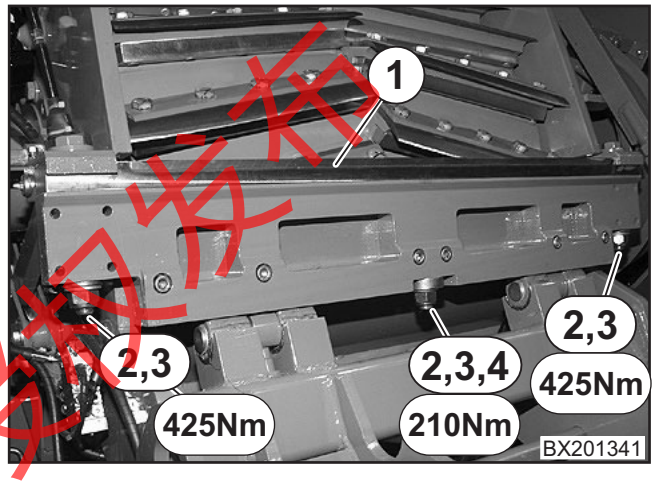
9.3.8 Turning or replacing the counterblade

The counterblade should not be turned or replaced until the satisfactory cutting quality can no longer be achieved even with the cutting gap correctly adjusted and with the blades intact.
The counterblade must not be mounted until the holding surface is cleaned. The holding surface must be flat. If necessary rework it or replace it to ensure that it is.
When turning the counterblade, clean the underside of the counterblade.

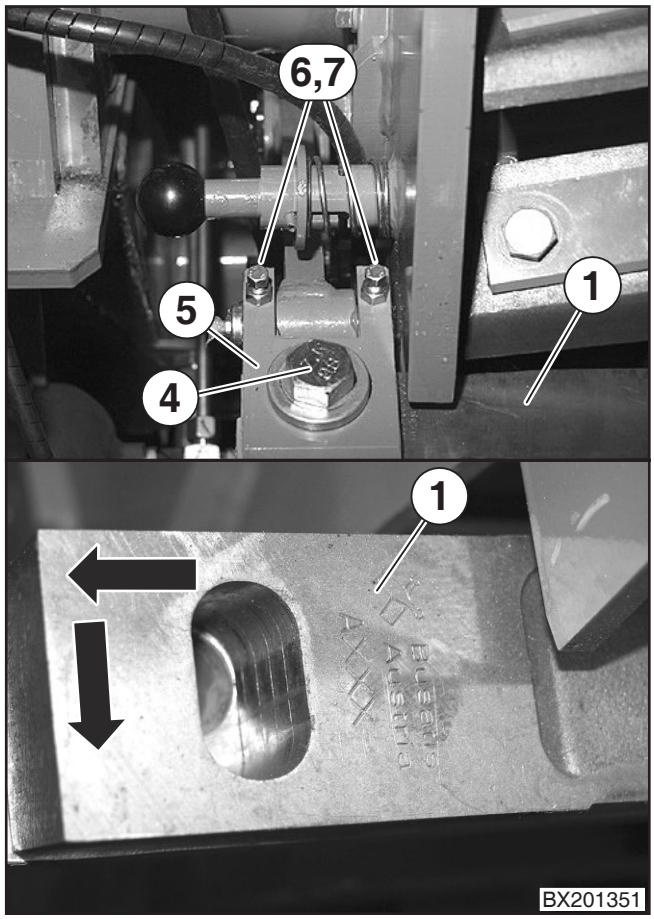


Both sides of the counterblade (1) can be used. If one or both sides (1a, 1b) of the counterblade (1) are worn, the counterblade must be turned or replaced.

- Disconnect the feed drive housing.
- Move the counterblade (1) away from the blade drum on both sides, using manual operation on the platform (Refer to the section on Operation – grinding the cutting blade).
- Remove the ignition key and secure the forage harvester from being placed in operation or rolling away unintentionally.



- Replace the self-locking nuts (2) and remove the washers.
- Remove the attachment bolts (4).
- Dismount the holder (5) on one side by loosening the counter nuts (6) and unscrewing the screws (7).
- Remove the counterblade (1) from the other support on the side first.
- Rotate the support (5) back.
- Pull the counterblade to the side out of the second support.
- Clean the holding surface and underside of the counterblade.
- Turn or replace the counterblade.



- Installation is in the reverse order to removal.

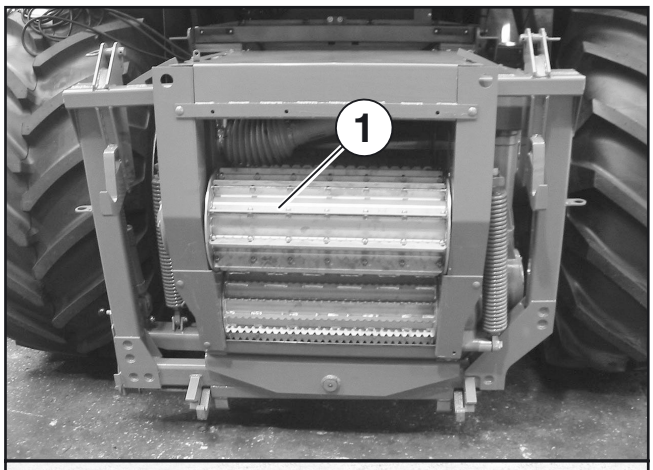
Use only new self-locking nuts.

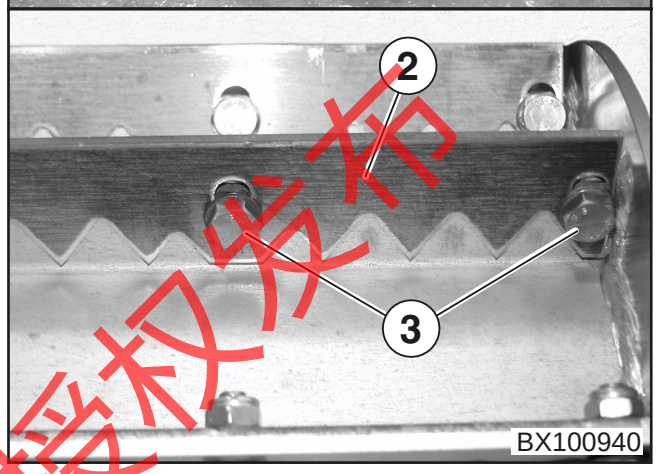
- Attach the feed drive housing.
- Adjust the counterblade. (Refer to the section on Operation – grinding the cutting blade).

9.3.9 Conveyor bars of the front baling roller

The front baling roller (1) is equipped with conveyor bars that can be used on alternating sides.
One of the sides of the conveyor bar is smooth, while the other is designed with teeth.

Experience shows that the smooth side works well for use in grass silage while the toothed side works well with maize.





Turning the conveyor bars around

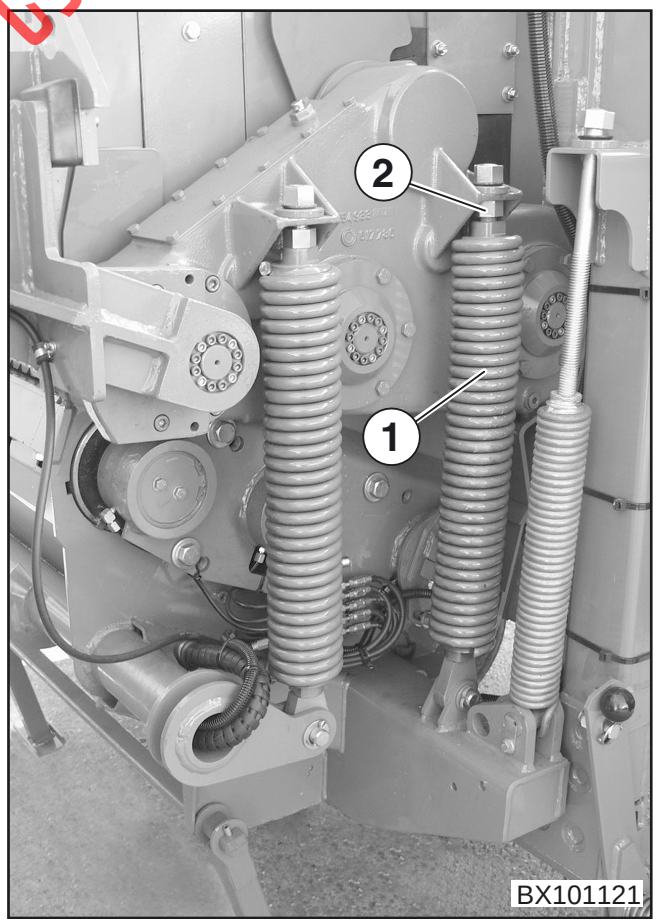
- Disconnect the front attachment.
- Remove the ignition key and secure the forage harvester from being placed in operation or rolling away unintentionally.
- Unscrew the fastening screws (3) on the conveyor bar (2).
- Turn the conveyor bar (2) around and mount it. (Tightening torque 35 Nm)

Because of metal detection, only fastening materials made of antimagnetic steel can be used.
The screws should only be tightened with an impact wrench (magnetising effect).

9.3.10 Adjusting the scraper - smooth roller

The adjustment should be made when the feed drive housing is folded down or disconnected.

The scraper should be adjusted as gap-free as possible over the entire width of the smooth roller.
Distance from scraper to smooth roller = 0 - 0.3 mm.



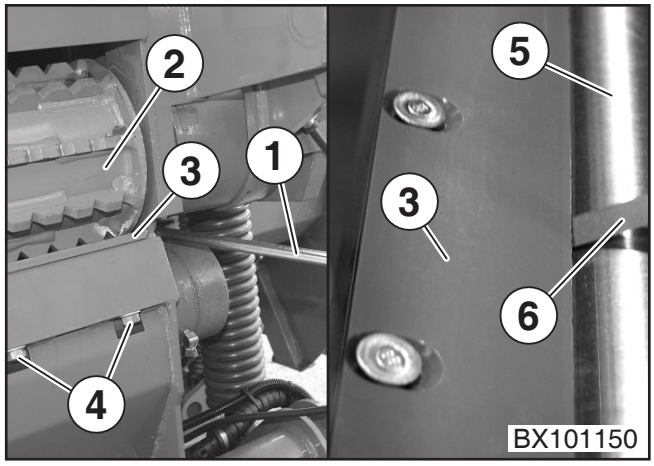
Adjust the scraper so that in is not exerting any pressure on the smooth roller.
Otherwise the scraper may overheat, which will result in damage to the scraper and the smooth roller.

- Release the tension on the compression springs (1) on both sides of the feed drive housing by loosening the counter nuts (2).

Adjust the distance from the scraper to the smooth roller

- Unscrew all hexagonal nuts (4).
- Press the baling roller (2) upward with the mounting lever (1).
- Check the distance (nominal dimension 0 - 0.3 mm) between the scraper (3) and the smooth roller (5) using a sensor gauge (6).
- If necessary, adjust the scraper (3) evenly along the entire width.
- Tighten all hexagonal screws (4).

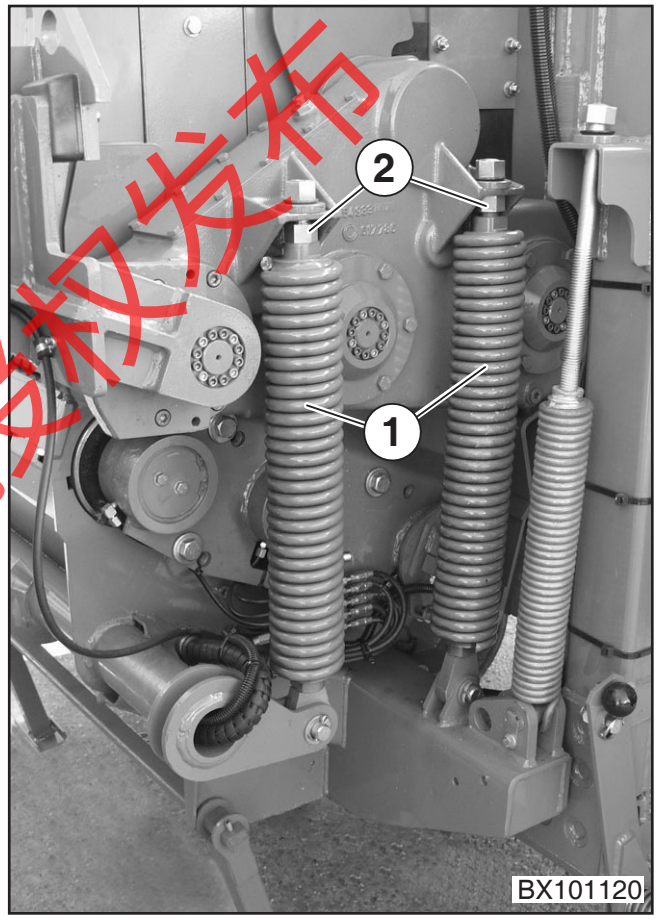
- Pre-tension the compression springs on both sides (see section Maintenance - Adjusting the feed drive housing compression springs)



9.3.11 Adjusting the baling roller - scraper

The adjustment should be made when the feed drive housing is folded down or disconnected.

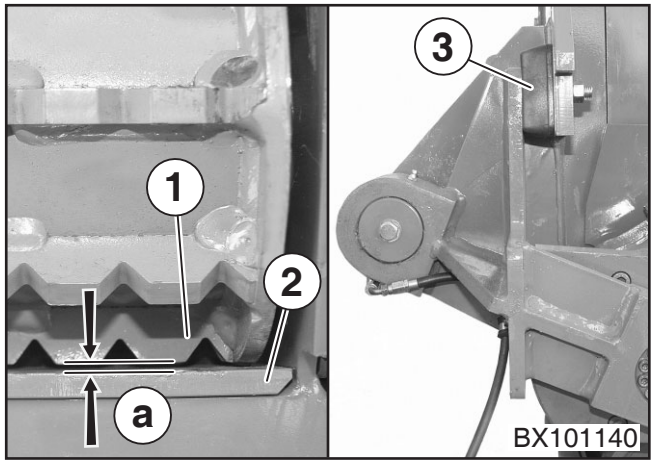
- Release the tension on the compression springs (1) on both sides of the feed drive housing by loosening the counter nuts (2).



Adjusting the distance from the baling roller to the scraper

- The distance between the baling roller (1) and the scraper (2) should be "a = 2 - 5 mm".
- If necessary, adjust the distance evenly along the entire width by placing disks under the stopper pads (3) on the feed drive housing.

- Pre-tension the compression springs on both sides (see section Maintenance - Adjusting the feed drive housing compression springs)

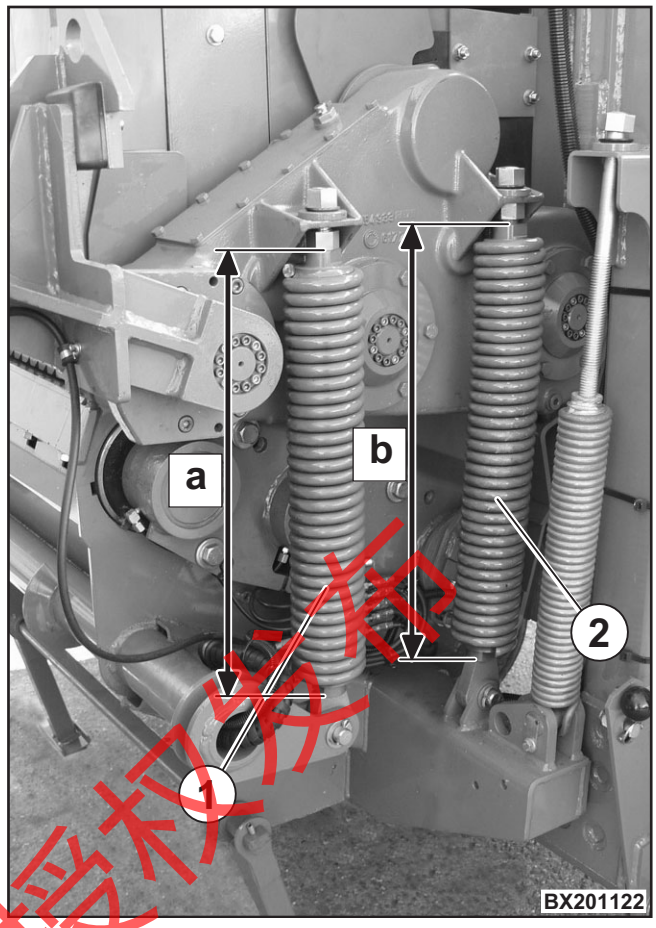


9.3.12 Adjusting the feed drive housing compression springs

The compression springs (1, 2) must be pre-tensioned on both sides of the feed drive housing.

Adjusting the pretension

- Adjust the two rear compression springs (1) to a distance of „a = 490+5 mm“.
- Adjust the two front compression springs (2) to a distance of „b = 530+5 mm“.



9.4 Crop track

9.4.1 Access points to the crop track

The maintenance flaps can be used to clear blockages in the crop track.

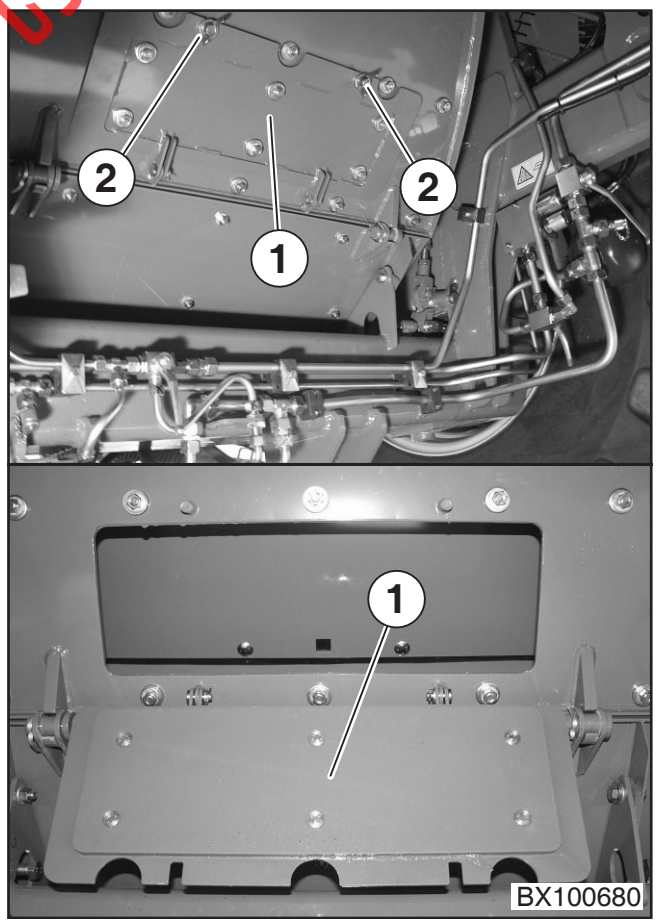
Before opening the maintenance flaps

- Remove the ignition key and secure the forage harvester from being placed in operation or rolling away unintentionally.

After the main drive is switched off, the blade drum and blower continue to coast down and an audio alarm is sounded!
For all tasks and when eliminating malfunctions, always be absolutely certain to wait until the units have come to a complete stop - danger of accident!

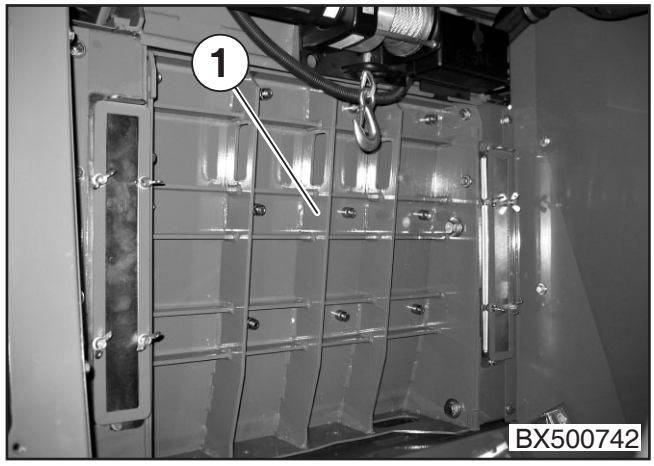
Maintenance flap in the transfer channel

- Unscrew the wing nut (2).
- Fold down the maintenance flap (1).



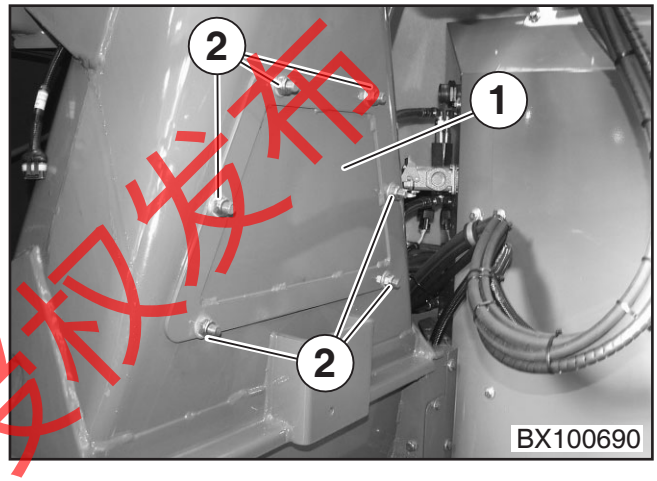
Rear wall in the output shaft of the blower

- Unscrew all 6 side fastening nuts.
- Remove the rear wall (1).



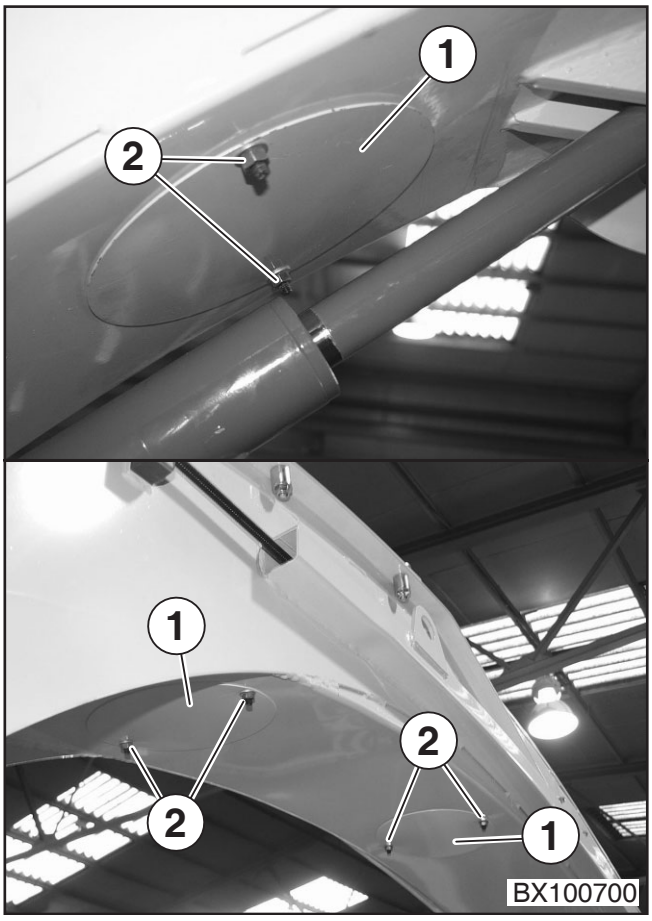
Maintenance flap in the channel support

- Unscrew the hexagonal nut (2).
- Dismount the maintenance flap (1).



Maintenance flaps in the upper discharge chute

- Unscrew the hexagonal nut (2).
- Dismount the maintenance flap (1).



9.5 Engine maintenance

9.5.1 Overview of maintenance (DaimlerChrysler) Excerpt

This maintenance overview is intended to provide a quick orientation. Information in it is **non-binding**.
For definitive information, please refer to the specifications in the operating instructions and maintenance manuals.
Only operating materials approved in the DaimlerChrysler materials operating specifications may be used.

The scope and frequency of maintenance tasks is based first of all on differing operating conditions and the quality of the oil that is used. The DaimlerChrysler maintenance system offers a choice of three maintenance groups with different maintenance intervals for engines of the 900, 450, 400 and 500 model lines.

Maintenance groups

Maintenance group A

Intermittent operation with low load.

Maintenance group B

Intermittent operation, primarily in the medium speed and load range.

Maintenance group C

Operation primarily in the upper speed and load range.

Application examples (maintenance group C):

Vehicles:	Machine carrying heavy load
Agricultural devices:	harvester threshers, maize threshers, **forage harvesters**, sugar cane harvester, beet root harvesters, potato harvesters
Construction machines:	bulldozers, gripper-ditchers, dump lorries, road milling machines
Work machines:	Drilling equipment, compressor units, pulverisers, snowplough built-in engines, rock crushers, road sweeper built-in engines

Oil change intervals BR 500/OM 457 LA Euro 3/Euromot 2/BR 400

Maintenance group C	Oil qualities
400 h	228.5
200 h	228.2/3
200 h	228.0/1

BiG X V8 forage harvester:
For oil change intervals, see table.

BiG X V12 forage harvester:
The first oil change must be performed after the first 100 operating hours.
For subsequent oil change intervals, see table.

Maintenance services

General determinations:

The maintenance service must be performed at least once a year.
If the sulphur content of the fuel is higher than 0.3 % by weight, all maintenance intervals should be reduced by half.
If another oil quality is used to correct the filling level of the engine oil, the lesser quality applies to the maintenance interval.

9.5.2 Important maintenance instructions

Repair, maintenance, and cleaning jobs or eliminating malfunction must always be performed with the drive turned off and the engine completely stopped- remove the ignition key!

For jobs on the engine, always switch off the main battery switch!

Store lubricants and fuels in suitable containers and ensure they are disposed of properly.

Exercise caution when draining hot oil - danger of burns!

Cooling water and air intake hoses

Check the condition and fastening of cooling water and air intake hoses every 50 operating hours. Replace cooling water hoses and non-metallic parts on the air intake system every 2 years.

Check the engine, water cooler and exhaust system daily to ensure it is clean. Clean it if necessary.

Coolant

The engine cooling system is filled with a mixture of corrosion protection fluid and antifreeze in the factory. The coolant consists of 50 % corrosion protection and antifreeze and 50 % water.

Protection against freezing is ensured to approximately -37 °C. See also the engine manufacturer's specifications.

Belts

All belts must be kept continuously under the proper tension.

For new belts, check the tension after the first 2 to 3 operating hours. If necessary, retighten.

Cleanliness

To protect against the danger of fire, clean the engine area and especially the exhaust system as well as the areas surrounding the brakes and gearbox, etc.
If the material being harvested is very dry and there is a lot of dust, check the spots listed above more frequently for accumulations of dirt and clean if necessary.

9.5.3 Fuel system

Fuel

**Exercise caution when working with fuel.
Only add fuel outdoors and with the engine turned off.
Do not smoke.**

The quality and cleanliness of the fuel are of critical importance for consistently good performance and a long service life for the engine.

Follow the specifications in the engine operating instructions in the section on fuels (Daimler Chrysler) and requirements for operating materials (DaimlerChrysler).

For temperatures under 10 °C (50 °F), always use winter fuel.

Tanks

- Switch off the engine.
- Clean grass and dust from the area around the filler neck (1).
- Use only clean fuel in the tank. If necessary, filter the fuel before adding it to the tank.
- Close and seal the tank after filling it.
- Dispose of spilled fuel.

Fuel tank

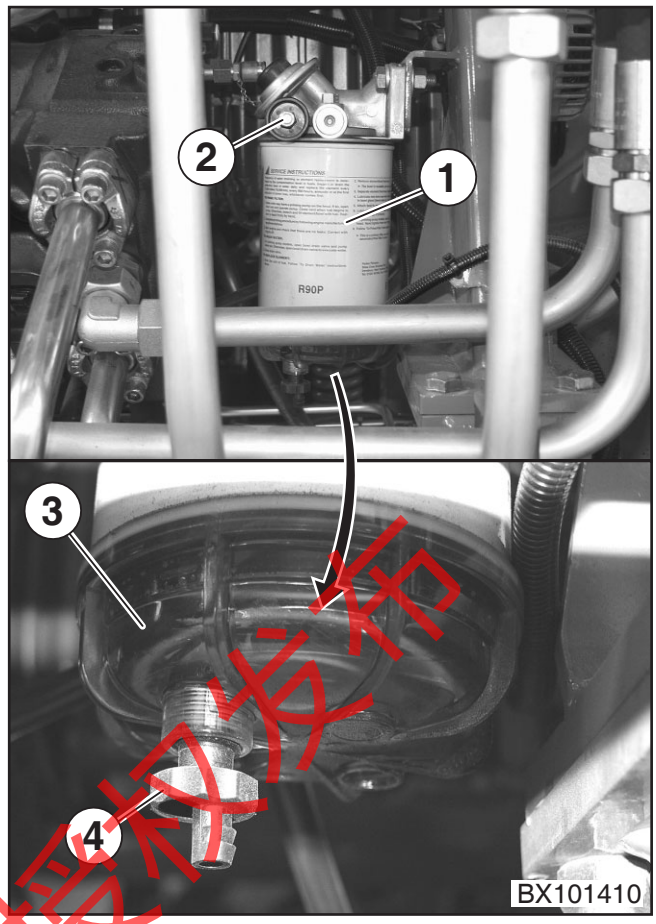
- For the filling quantity of the fuel tank, see the section entitled GeneralAspects- Technical Data.
- Monitor tank filling on the fuel gauge in the Info Centre display.
- Close and seal the fuel tank each time after filling it.
- Fuel drain screw (2). Tightening torque 30 Nm.

Fill the fuel tank daily after finishing operation to prevent condensation water from forming in the tank and freezing in cold weather.

Venting the fuel system

After the engine has not been operated for a long time, the fuel system may need to be vented.
For more information, please refer to the operating instructions of the engine in the chapter titled "Maintenance" (DaimlerChrysler).

9.5.4 Fuel filter/water separator



Replacing the fuel filter

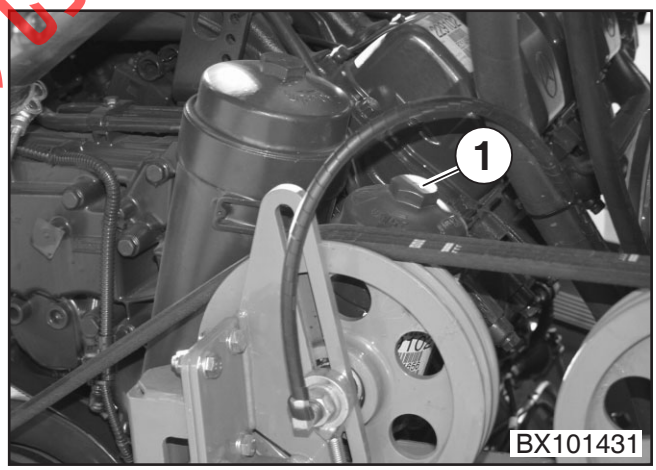
- Open the fuel supply valve (2) (turn to the right). .
- Unscrew the filter pan (1).
- Clean the filter pan and filter insert, if there is a heavy accumulation of dirt or damage, replace the filter insert.
- Check the seal ring for the filter pan and replace it if necessary.
- Wet the seal ring with diesel fuel and set it in place.
- Place the filter insert in the filter pan and screw the filter pan (1) on the filter housing.
- Close the fuel supply valve (2) (turn to the left).

Empty the water separator

- The water that is present in the fuel is collected in the inspection glass (3).
- Drain the collected water by loosening the drain screw (4) and capture it in a container.

- Dispose of used filters and remaining fuel properly.

9.5.5 Fuel filter

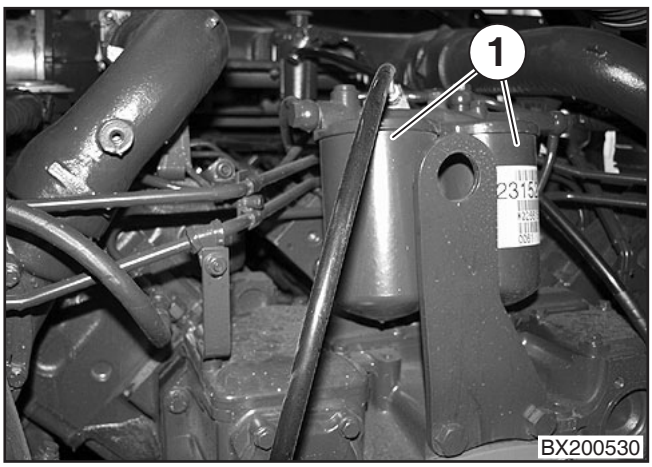


The fuel filter (1) removes even the finest pieces of dirt from the fuel.

V8 1 fuel filter (top graphic)
V12 2 fuel filters (bottom graphic)

Replacing the fuel filter insert

- Open the cover to prevent excess pressure from forming in the fuel tank.
- Unscrew the screw cover with filter insert (1) and unscrew a piece from the filter housing. Allow the fuel to run out.
- Remove the screw cover with the filter insert. Replace the filter insert and seal ring.
- Wet the seal ring with diesel fuel and set it in place.
- Screw on the screw cover with the filter insert and tighten it; tightening torque 25 Nm.
- Vent the fuel system.



For more information, please refer to the operating instructions of the engine in the chapter titled "Maintenance" (DaimlerChrysler).

9.5.6 Engine oil

The specifications in the operating instructions of the engine manufacturer (DaimlerChrysler) must be observed.

Engine - oil level check

- Check the engine oil level daily about 5 minutes after shutting off the engine.
  See the Section on Commissioning – Engine oil check.

Changing the engine oil

Exercise caution when draining hot oil - danger of burns!
Dispose of drained oil properly.

For the specified types of oil and changing intervals, please refer to the maintenance table.

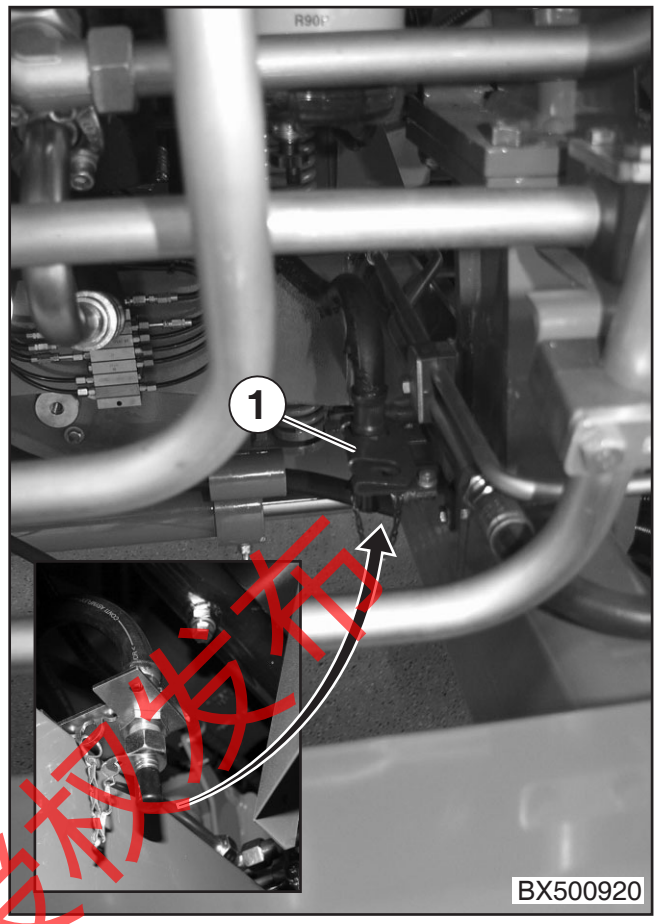
- Remove the oil filter (see Replacing the oil filter).
- Only change the engine oil when it is hot.
- Insert a suitable hose on the drain pipe (1). Loosen the nut somewhat and capture the old oil in a sufficiently large container.
- Screw on the oil filter (see Replacing the oil filter).
- Tighten the nut on the drain pipe (1) securely. Remove the hose.

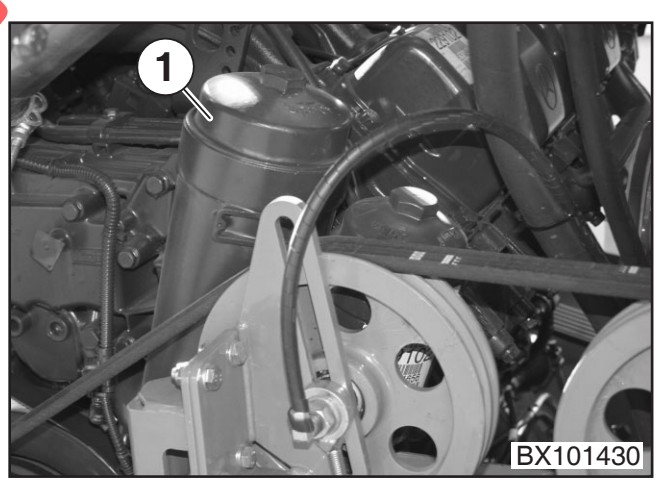
Replacing the oil filter

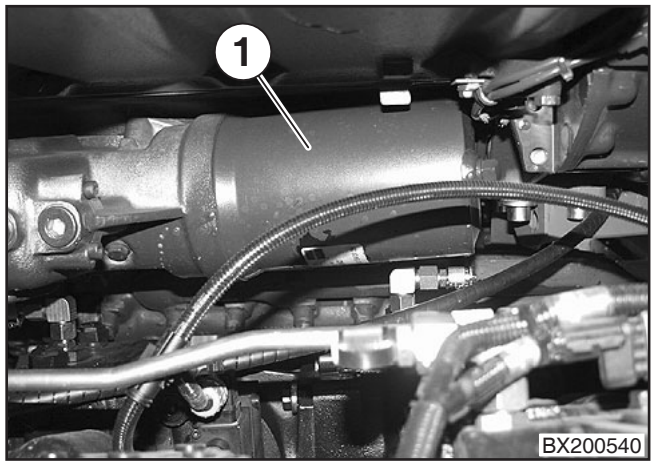
V8 (top graphic)
V12 (bottom graphic)

Replace the filter insert and seals each time you change the oil.

- Unscrew the screw cover on the oil filter (1) and allow the oil to flow out of the filter housing.
- Take off the screw cover with filter insert and remove the filter insert and seal.
- Wet the new seal with oil.
- Insert a seal and filter insert in the screw cover.
- Screw on the screw cover on the oil filter housing and tighten it; tightening torque 40 Nm.

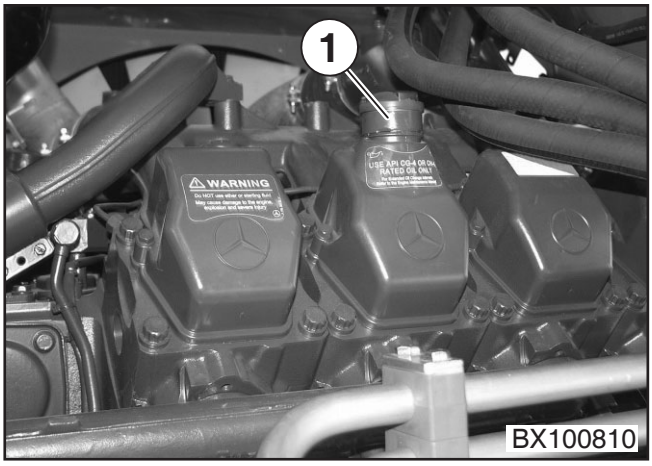






Filling with engine oil

- Lift the cover (1) off the oil filling pipe.
- Fill with engine oil up to the maximum mark of the oil dip stick.
- Unscrew the cover (1) off the oil filling pipe.
- Allow the engine to run at low idle for a short time. Switch off the engine and check it, including the oil filter to make sure there are no leaks.
- After about 5 minutes, check the oil level in the engine again and fill up with engine oil to the maximum mark if necessary.



9.5.7 Cooling system

Coolant

The specifications in the operating instructions of the engine manufacturer (DaimlerChrysler) must be observed.

The engine cooling system is filled with a mixture of corrosion protection fluid and antifreeze in the factory. The coolant consists of 50 % corrosion protection and antifreeze and 50 % water.
Protection against freezing is ensured to approximately -37 °C.

- Before the beginning of winter, always check the capacity of the antifreeze.

If coolant is not available, no matter what time of year it is, a mixture consisting of 50 % ethylene glycol antifreeze/corrosion protectant and 50 % clear soft water must be used. This mixture also offers corrosion protection and protection against freezing to -37 °C.

No cooling system sealing additives may be used.

- Replace all cooling water hoses on the engine every two years.

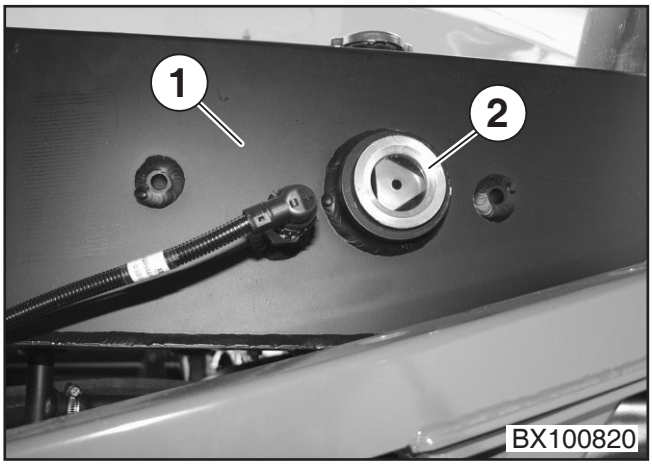
Checking the coolant level and engine

- Check the coolant level daily.

- Check the coolant level in the overflow container (1) in the viewing pane (2).

The coolant level must reach up to the middle of the control eye (2).

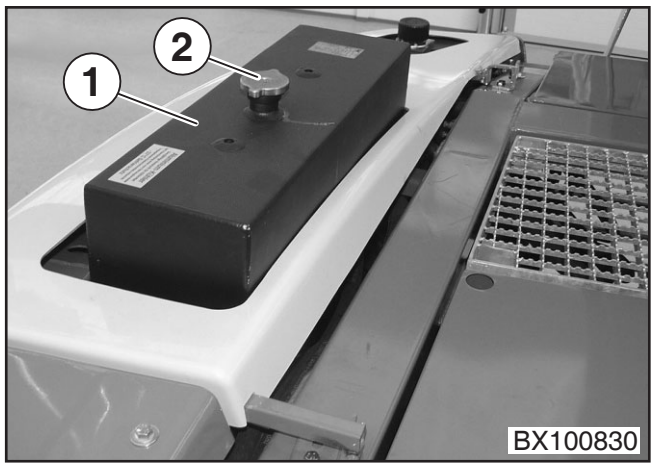
- Top off with coolant if necessary.



Filling with coolant

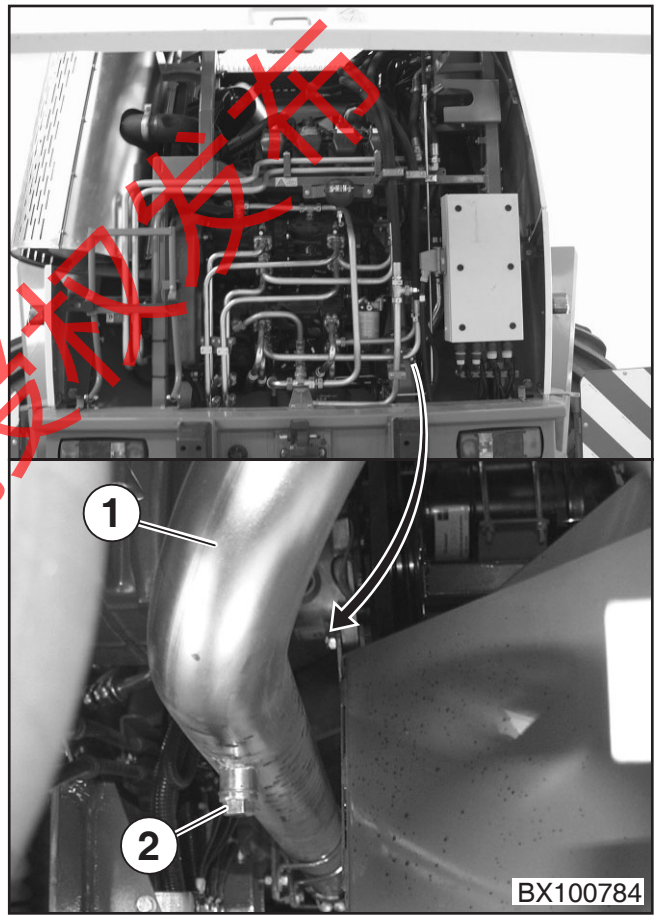
Never open the cover (2) of the overflow container while the engine is hot. Switch off the engine and wait until the engine has cooled off - danger of burns!

- Turn the cover (2) on the overflow container to the right catch point and allow residual pressure to escape slowly.
- Open the cover (2) completely and fill with engine coolant up to the middle of the viewing pane.
- Close the cover again.



Draining off coolant

The drain screw (2) for coolant is located on the cooling water pipe in the back of the engine compartment.



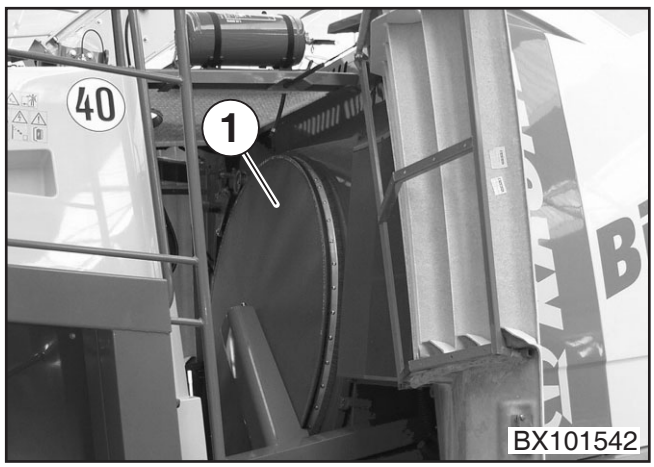
Water cooler, oil cooler and charging air cooler

The water cooler, oil cooler and charging air cooler are located behind the radiator sieve (1) in the engine compartment.

If possible, clean the radiator cooler while the engine is cold.

- Check all cooler units regularly to ensure they are clean and blow them off with compressed air if necessary. Do not damage the blades!

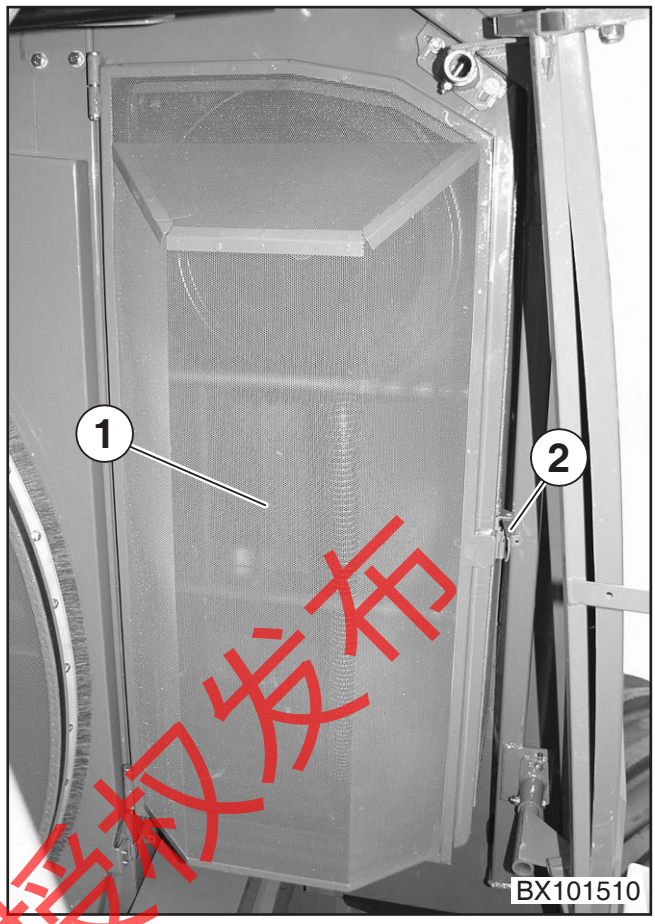
- Blow out radiators with compressed air from the outside to the inside.



9.5.8 Air filter

Perform air filter maintenance regularly, but at least when the error message for a dirty air filter appears in the Info Centre Display.

The air filter (1), which is 2 pieces for the BiG X V12 forage harvester, is located in the engine compartment behind the air filter intake sieve (1).



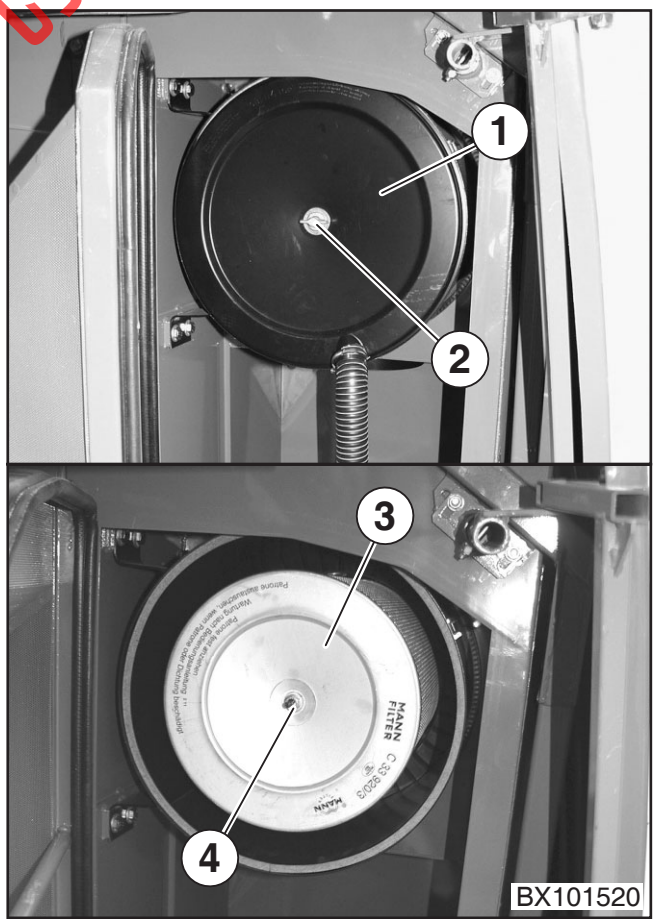
Cleaning the air filter intake sieve

Check the air filter intake sieve (1) regularly, especially when there is a heavy accumulation of dirt, and clean it only when the engine is stopped.

- Open the cover (2) of the air filter intake sieve (1).
- Rotate the air filter intake sieve (1) and blow it out from the inside to the outside with compressed air.

Cleaning the air filter

- Unscrew the nut (2) and remove the cover (1).
- Unscrew the nut (4) and carefully remove the filter insert (3).
- Clean the interior area and the seal surfaces of the filter housing.
- Blow out the filter insert with compressed air (max. 5 bar) from the inside to the outside.
- Replace filter inserts that are excessively dirty or damaged. Filter inserts that were installed more than 4 years ago must also be replaced.
- Install the filter insert again.
- Mount the cover (1).
- Close the air filter intake sieve.



9.6 Hydraulics maintenance

9.6.1 Special safety instructions

Use suitable aids when searching for leaks because of the risk of injury and wear safety goggles.

Liquids escaping under high pressure can penetrate the skin and cause severe injuries. Therefore, you must depressurise the system before disconnecting lines. Ensure that all line connections are tight before the pressure in the system builds up again.

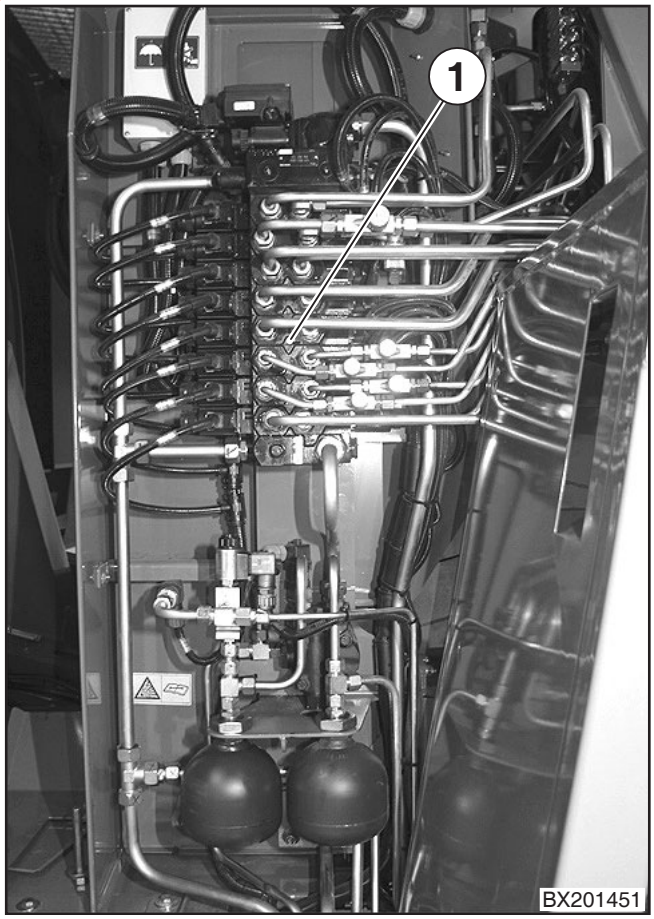
Hydraulic oil escaping from a small opening can barely be seen. Because of this you should use a piece of cardboard or something similar when searching for leaks. Protect your hands and body.
If any fluid penetrates the skin, it must be removed immediately by a doctor who is familiar with this kind of injury; serious infections could otherwise result. Physicians who are not familiar with this area should consult appropriate information from a competent medical source.

Check hydraulic hose lines regularly and replace them if they are damaged or show signs of ageing!
Replacement lines must meet the technical requirements of the device manufacturer.

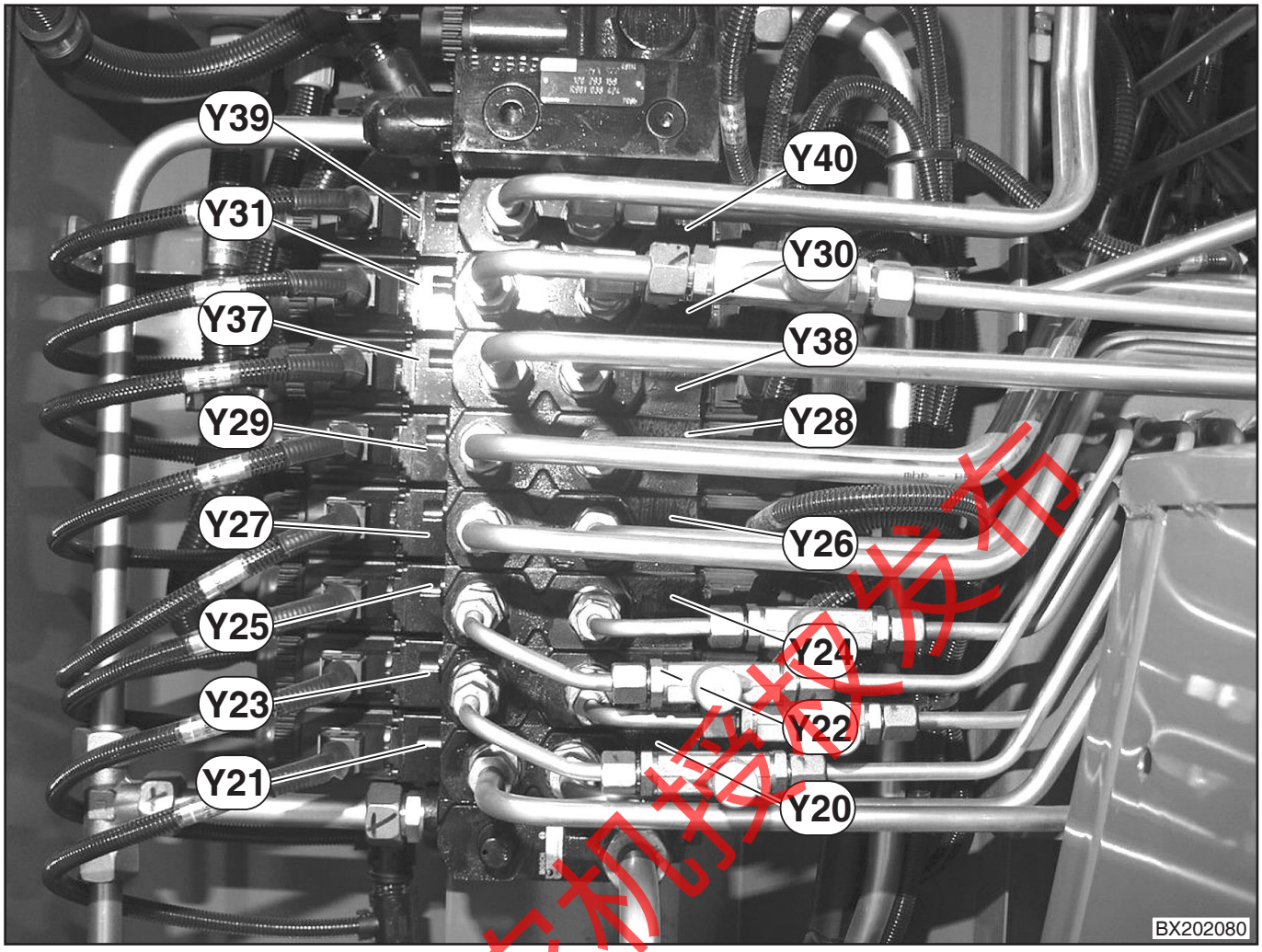
9.6.2 System layout of work and brake hydraulics

For the hydraulics circuit diagram, refer to section on "Maintenance" (explanation of the hydraulics circuit diagram).

The main valve block (1) is located behind the access flap on the right-hand side of the machine.



Main valve block



Y20 - Turn discharge "left"
Y21 - Turn discharge "right"
Y22 - "Raise" ejector flap
Y23 - "Lower" ejector flap
Y24 - "Raise" upper discharge chute
Y25 - "Lower" upper discharge chute
Y26 - Fold in front attachment "Transport"
Y27 - Fold out front attachment "Work"
Y28 - Retract supporting wheels/swivel in feed drive
Y29 - Extend supporting wheels/swing out feed drive
Y30 - Grinding device "Cylinder in"
Y31 - Grinding device "Cylinder out"
Y37 - Pendulum frame "rotate left"
Y38 - Pendulum frame "rotate right"
Y39 - Steering left
Y40 - Steering right

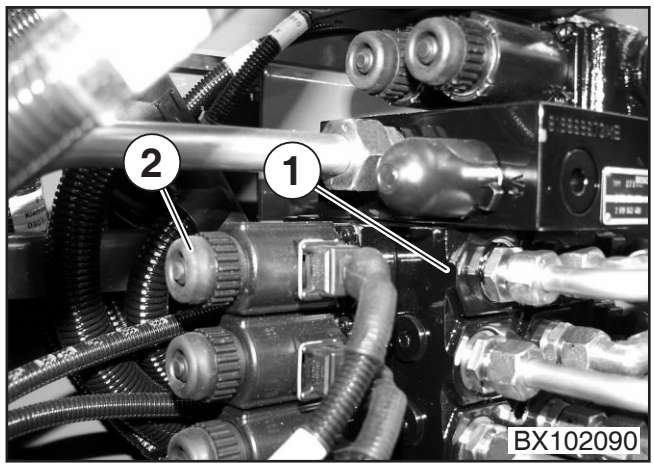
Pressure control valve

The valve blocks have been equipped with pressure control valves. These valves were set at the factory and must not be changed.

Work on the over-pressure valve must be carried out only by the customer service department.

Triggering functions manually

There is a push button (2) on the individual valves (1) on either side that can be used to perform the function of the valve manually if the electronic control system fails.



Adjustable throttle valves

1a - "Extend" throttle non-return valve for grinding mechanism

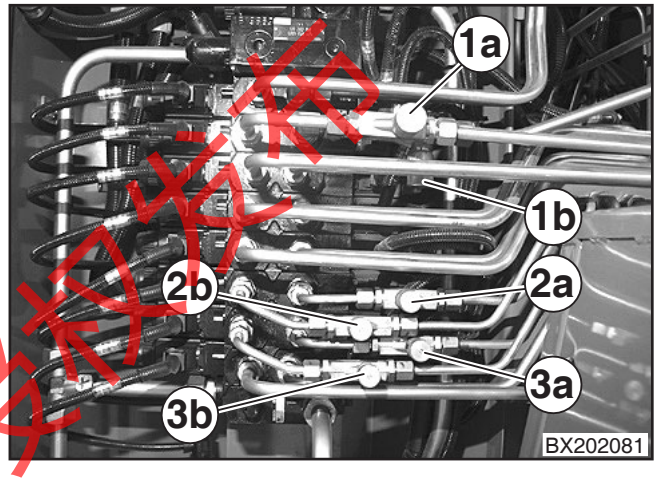
1b - "Retract" throttle non-return valve for grinding mechanism

2a - "Raise" upper discharge chute throttle valve

2b - "Lower" upper discharge chute throttle valve

3a - Throttle non-return valve to "raise" ejector flap

3a - Throttle non-return valve for "lower" ejector flap

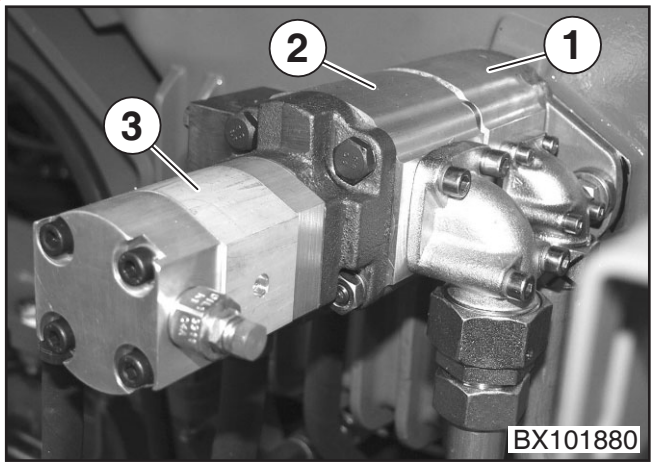


Pumps

1 - Steering pump

2 - Work hydraulics

3 - Sieve drive



9.6.3 Hydraulic tank

Hydraulic oil

Caution, never mix different types of fluid.
Before changing the type of fluid, consult with our customer service department.
Never use engine oil.

List of mineral oils of quality class HLP (HM) and environmentally friendly HEPG pressure fluids that decompose quickly.

ISO viscosity Class / Manufacturer	HEPG VG 46	HLP VG 46
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
BECHEM	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 / Manufacturer	HEPG VG 46	HLP VG 46
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 ISOCOR 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

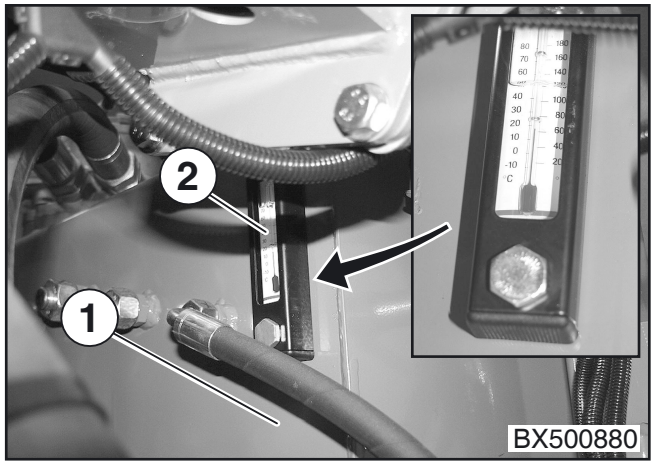
Checking the hydraulic fluid level

Check the hydraulic fluid level every 50 operating hours.

- Lower the lifting gear and switch off the engine.
- Check the hydraulic fluid level in the viewing glass (2) of the hydraulic fluid tank (1).

The hydraulic fluid must be visible in the viewing glass (2).

- Top off with hydraulic fluid if necessary.

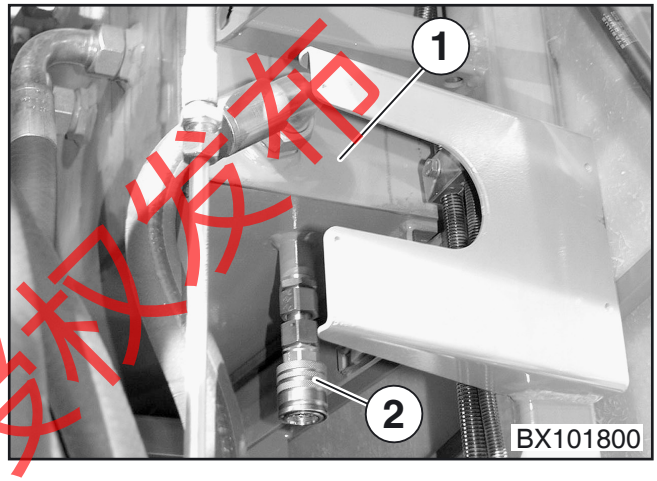


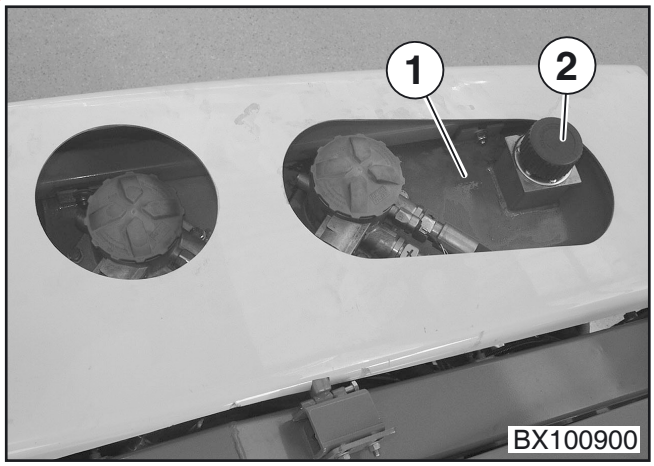
Changing the hydraulic fluid

Exercise caution when draining hot oil or fluid - danger of burns!
Dispose of drained fluid properly.
Before changing fluid, consult with the KRONE customer service department.

Change hydraulic fluid after every 500 operating hours.

- Connect a suitable hose with a clamping connector on the discharge pipe (2) of the hydraulic fluid tank (1) and capture the old oil in a suitably large container.
- Remove the hose.
- Fill with hydraulic oil through the filling pipe (2) on the hydraulic fluid tank (1) until it is visible in the viewing glass of the hydraulic fluid tank.
- Allow the engine to run at low idle speed for about 10 seconds.
  Turn off the engine.
  Check the hydraulic fluid level and top off with hydraulic fluid as necessary.
  Repeat the procedure until the fluid level no longer goes down.



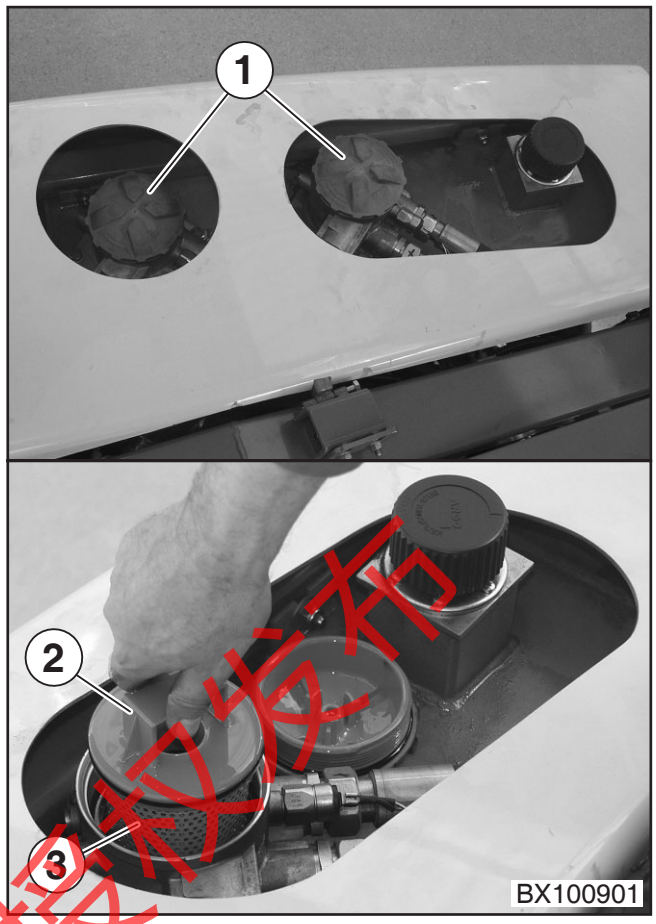


Replacing the hydraulic fluid filter

Change the hydraulic fluid filter if the error message

Suction return filter 1 or filter 2 appears in the Info Centre display, but at least once after each season.

- Unscrew the screw cover (1).
- Lift the filter insert (2) and allow hydraulic fluid to drip out.
- Remove the filter insert and dispose of it properly.
- Moisten the seal surface of the new filter insert with fluid and set it in place.
- Screw on the screw cover manually. Do not fasten it too tightly.
- Allow the engine to run at low idle speed for about 10 seconds.
  Turn off the engine.
- Check the hydraulic fluid filter to make sure there are no leaks.



For the hydraulic circuit diagram see the title page

9.6.4 Captions for the hydraulic circuit diagram:

Y1 - Front axle forward (105 ccm coil pump RIGHT)
Y2 - Front axle rear (105 ccm coil pump LEFT)
Y3 - Rear axle forward (77 ccm coil pump RIGHT)
Y4 - Rear axle rear (77 ccm coil pump LEFT)
Y5 - Feed drive forward (100 ccm pump in travel direction rear coil)
Y6 - Feed drive rear (100 ccm pump in travel direction front coil)
Y7 - Front attachment forward (55 ccm pump in travel direction rear coil)
Y8 - Front attachment rear (55 ccm pump in travel direction front coil)
Y9
Y10 - Axle separation
Y11 - Intake volume circuit rear axle
Y12 - Main coupling valve
Y13 - All-wheel
Y14 - Intake volume front axle
Y15
Y16
Y17
Y18 - Release holding brake
Y19
Y20 - Turn discharge "left"
Y21 - Turn discharge "right"
Y22 - "Raise" ejector flap
Y23 - "Lower" ejector flap
Y24 - "Raise" upper discharge chute
Y25 - "Lower" upper discharge chute
Y26 - Fold in front attachment "Transport"
Y27 - Fold out front attachment "Work"
Y28 - Retract supporting wheels/swivel in feed drive
Y29 - Extend supporting wheels/swing out feed drive
Y30 - Grinding device "Cylinder in"
Y31 - Grinding device "Cylinder out"
Y32 - "Raise" lifting gear
Y33 - "Lower" lifting gear
Y34 - Valve storage switching valve
Y35 - Quick-stop valve (metal alarm)
Y36
Y37 - Pendulum frame "rotate left"
Y38 - Pendulum frame "rotate right"
Y39 - Steering left
Y40 - Steering right

9.7 Gearbox maintenance

- Unless there is some indication to the contrary, after 1000 operating hours for all gear, but at least after the end of every season.
- Check the oil level before the beginning of the season and then every 100 operating hours.
- Check all gears daily for any leaks and check the oil level if necessary.

Perform oil level checks and change the oil while the forage harvester is in a horizontal position!

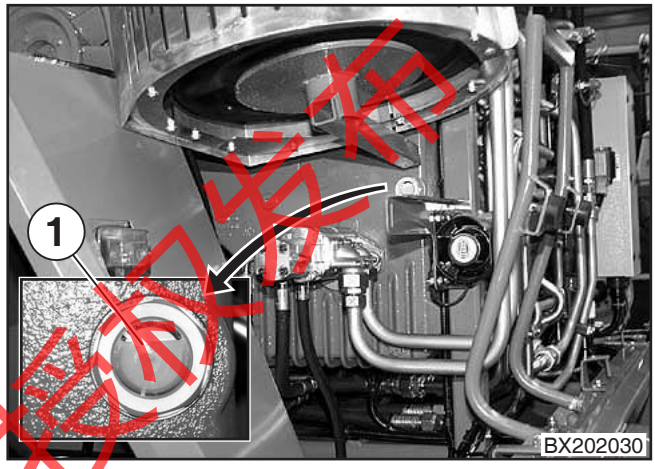
Dispose of old oil properly!

For filling quantities and descriptions of lubricants for gearboxes, see the section entitled "General Aspects – Technical Data").

9.7.1 Checking the oil level and changing oil on the gearbox engine power drive

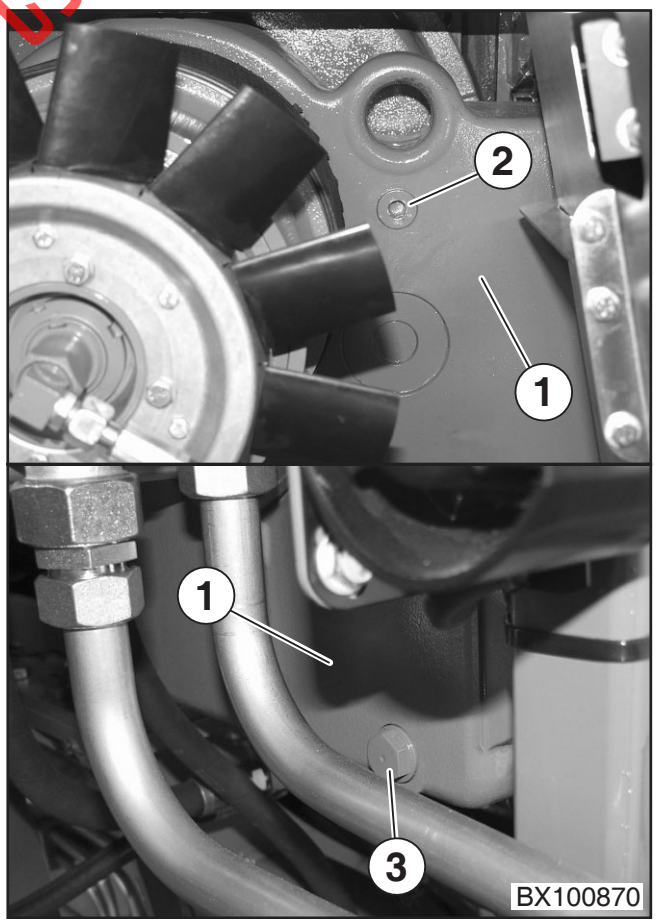
Checking the oil level

- The oil level must reach up to 3/4 the control eye (1) for continuous operation. If necessary top off with (see Changing oil).

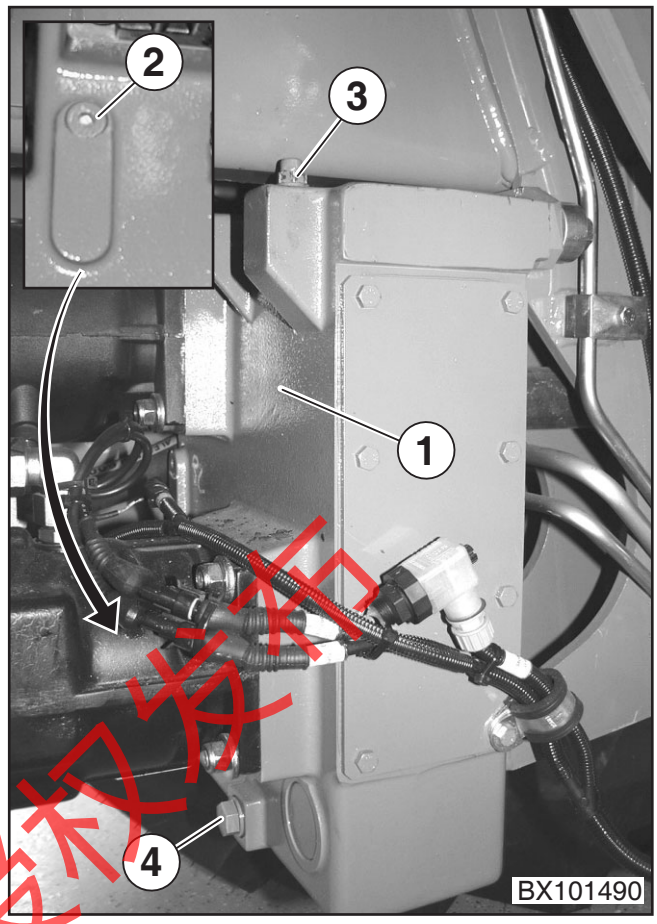


Changing the oil

- Unscrew the oil drain screw (3) on the engine drive (1) gearbox. Collect the oil in a suitable container.
- Screw on the oil drain screw (3) again.
- Unscrew the cover screw (2) on the engine drive (1) gearbox.
- Add oil.
- Screw in the cover screw (2) again.



9.7.2 Checking the oil level and changing the oil on the distributor gearbox



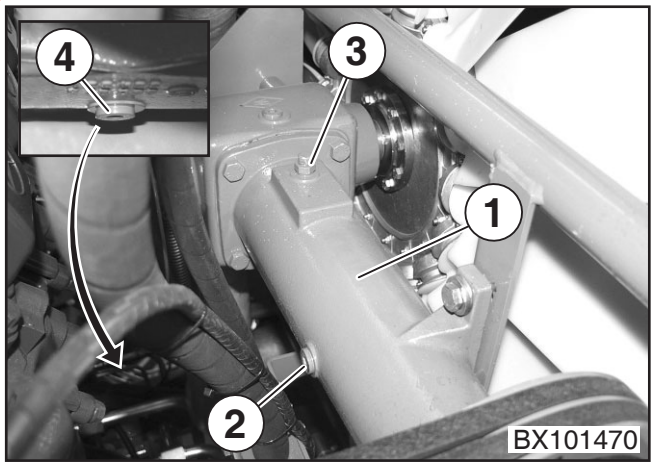
Checking the oil level

- Unscrew the oil level control screw (2) on the distributor gearbox (1).
- The oil level must reach up to the control hole. If necessary, top off the oil (see Changing the oil).
- Screw on the oil level cover screw (2) again.

Changing the oil

- Unscrew the oil drain screw (4) on the transfer gearbox (1). Collect the oil in a suitable container.
- Screw on the oil drain screw (4) again.
- Unscrew the cover screw with the ventilation filter (3) on the distributor gearbox (1).
- Add oil.
- Screw in the cover screw (3) again.

9.7.3 Checking the oil level and changing the oil on the OM 502/OM 444 fan gearbox



Checking the oil level

- Unscrew the oil level control screw (2) on the fan gearbox (1).
- The oil level must reach up to the control hole. If necessary, top off the oil (see Changing the oil).
- Screw on the oil level cover screw (2) again.

Changing the oil

- Unscrew the oil drain screw (4) on the fan gearbox (1). Collect the oil in a suitable container.
- Screw on the oil drain screw (4) again.
- Unscrew the cover screw with the ventilation filter (3) on the distributor gearbox (1).
- Add oil.
- Screw in the cover screw (3) again.

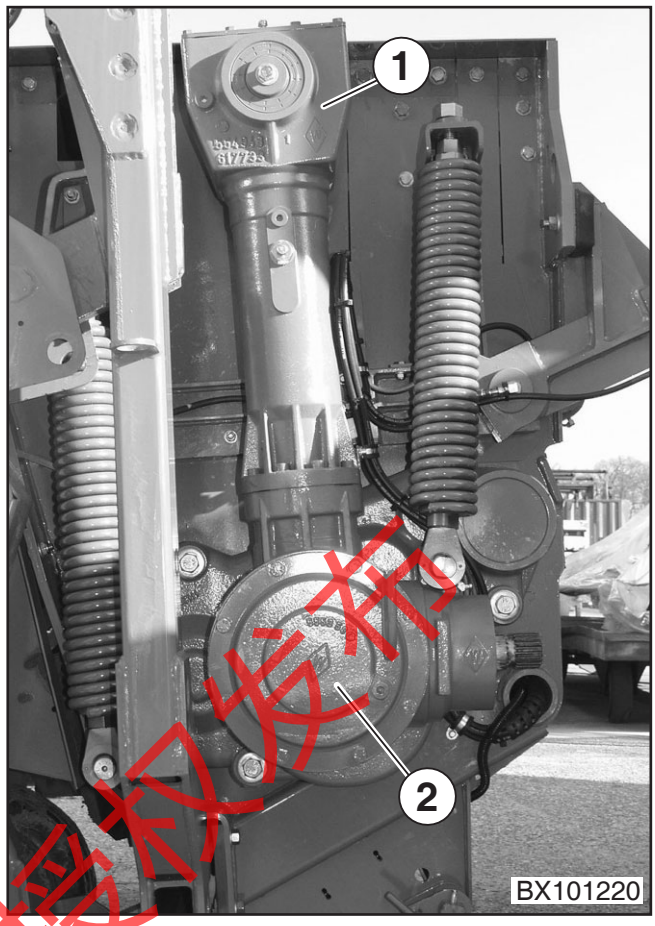
9.7.4 Checking the oil level and changing the oil on the lower roller gearbox

Perform oil level check and change the oil while the forage harvester is in a horizontal position!

The roller gearbox on the left side of the feed drive housing is divided into two parts.

1 - Roller gearbox below, tower above

2 - Lower roller gear

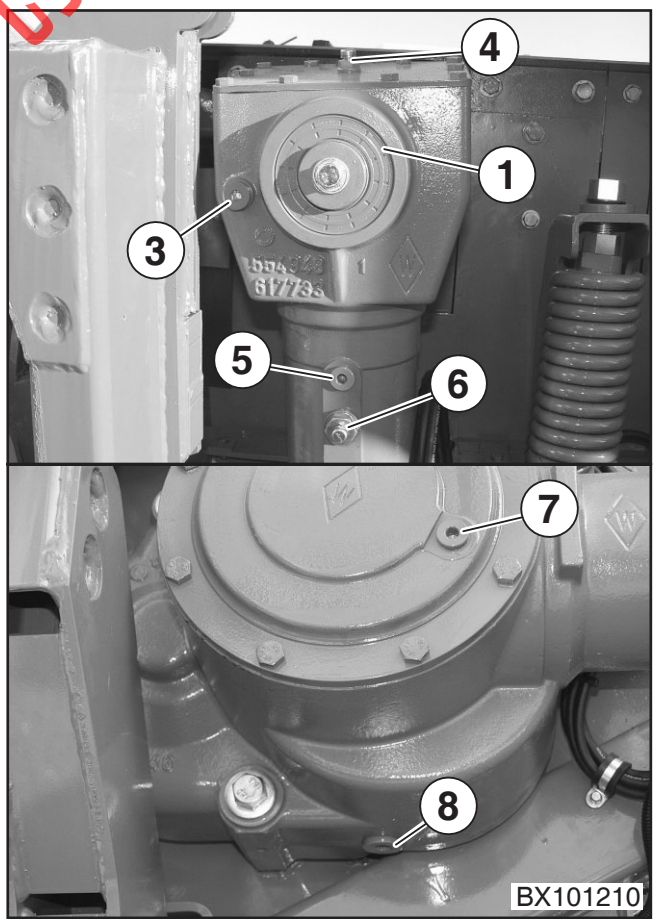


Checking the oil level

- Unscrew the oil level control screw (3) on the lower roller gearbox, upper tower (1) or oil level control screw (7) lower roller gearbox (2).
- The oil level must reach up to the control hole. If necessary, top off the oil (see Changing the oil).
- Screw on the oil level cover screw (3 or 7) again.

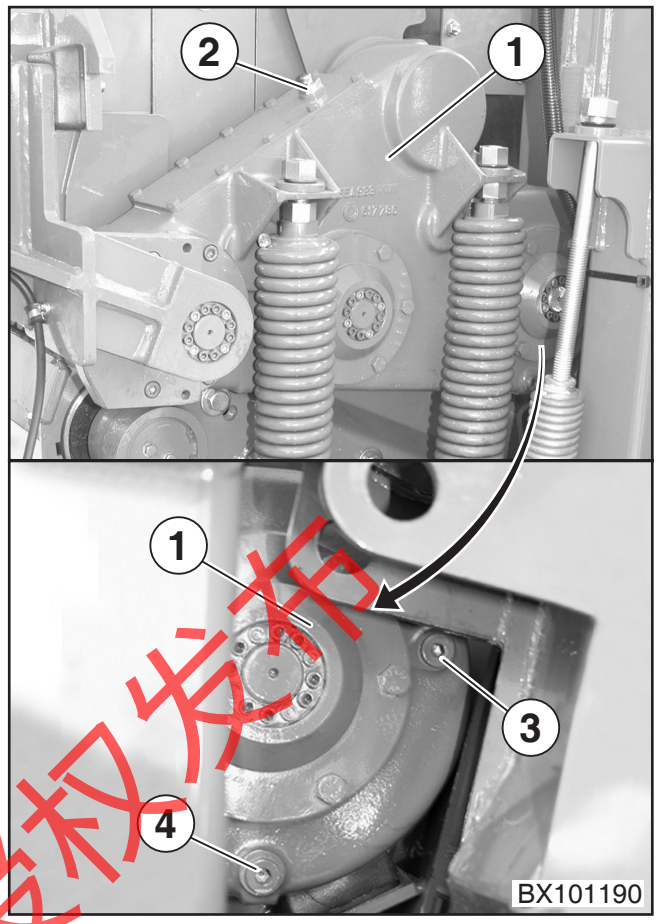
Changing the oil

- Unscrew the oil drain screw (5) on the lower roller gearbox, upper tower (1) or oil drain screw (8) on the lower roller gearbox (2).
  Capture old oil in a suitable container.
- Screw on the oil drain screw (5 or 8) again.
- Screw off the cover screw with ventilation filter (4 or 6) on the appropriate gearbox.
- Add oil.
- Screw on the cover screw (4 or 6) again.



9.7.5 Checking the oil level and changing the oil on the upper roller gearbox

Perform oil level check and change the oil while the forage harvester is in a horizontal position!



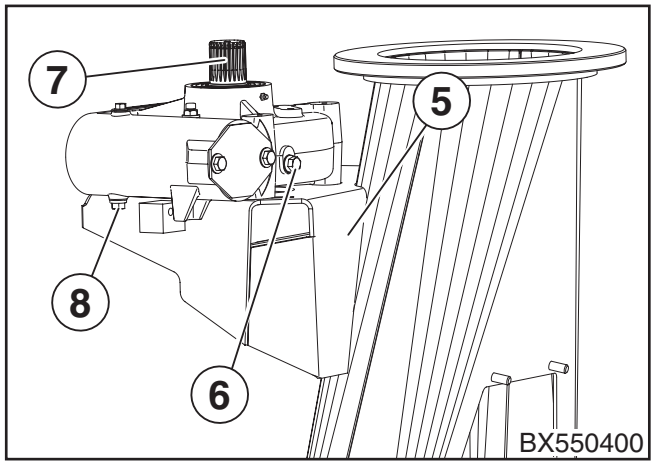
Checking the oil level

- Unscrew the oil level control screw (3) on the upper roller gearbox (1).
- The oil level must reach up to the control hole. If necessary, top off the oil (see Changing the oil).
- Screw on the oil level cover screw (3) again.

Changing the oil

- Unscrew the oil drain screw (4) on the upper roller gearbox (1). Collect the oil in a suitable container.
- Screw on the oil drain screw (4) again.
- Unscrew the cover screw with the ventilation filter (2) on the upper roller gearbox (1).
- Add oil.
- Screw in the cover screw (2) again.

9.7.6 Oil level check and oil change on the tower gearbox of the upper discharge chute



Oil level check

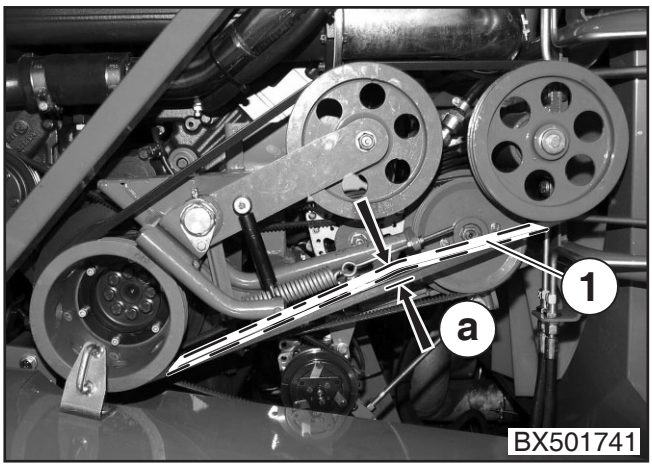
- Unscrew the oil level control screw (6) on the tower gearbox (5).
- The oil level must reach up to the control hole. If necessary, top up the oil (see Oil change).
- Screw on the oil level control screw (6) again.

Oil change

- Remove the protective cover and unscrew the ventilation filter (7).
- Unscrew the oil drain plug (8). Collect the used oil in a suitable container.
- Screw in the oil drain plug (8) again.
- Fill in oil. The oil level must reach up to the control hole (6).
- Screw in the ventilation filter (8) again and reinstall the protective guard.

9.8 Maintenance - Belt drives

Check the tension and condition of drive belts for all belt drives after the first 10 operating hours, and after that every 100 operating hours.
Replace damaged or worn drive belts.



Check the drive belt tension

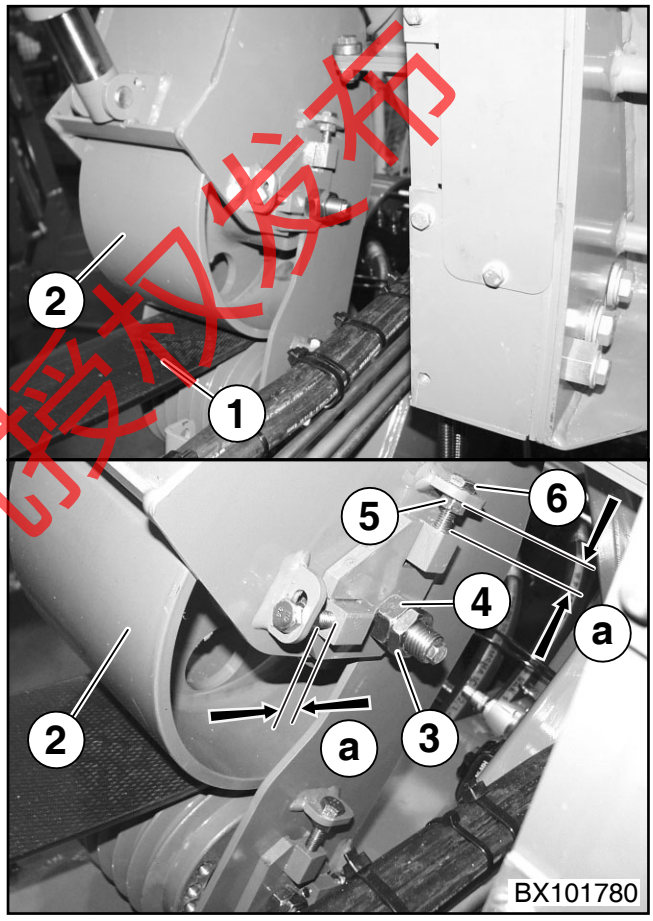
- Check the belt tension in the middle by pressing in (pressing force about 50 N) on the belt. If the depth of pressing in is "a ≥ approx. 20 mm", the tension is correct. Otherwise correct.

9.8.1 Main belt drive

Belt tension over the hydraulic cylinder.

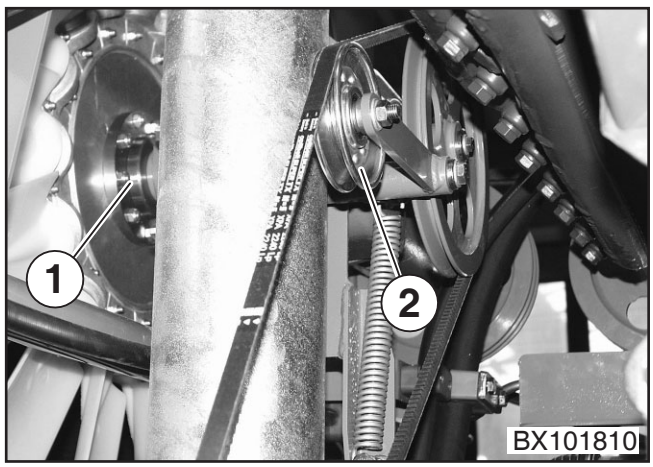
Correcting belt motion

- Check to make certain the belt is running in the guides of the v-notch pulley (1) with no problems.
- If necessary, correct the belt motion by changing the position of the tension roller (2).
- Loosen the counter nut (3) and loosen the hexagonal nut (4) somewhat.
- Loosen the counter nut (5) and adjust the change of position with the hexagonal headed screw (6).
- Tighten the counter nut (5) again.
- Tighten the hexagonal nut (4) and counter nut (3) again.



9.8.2 Suction blower drive

Belt tension of the suction blower drive (1) via spring-loaded tensioning roller (2).



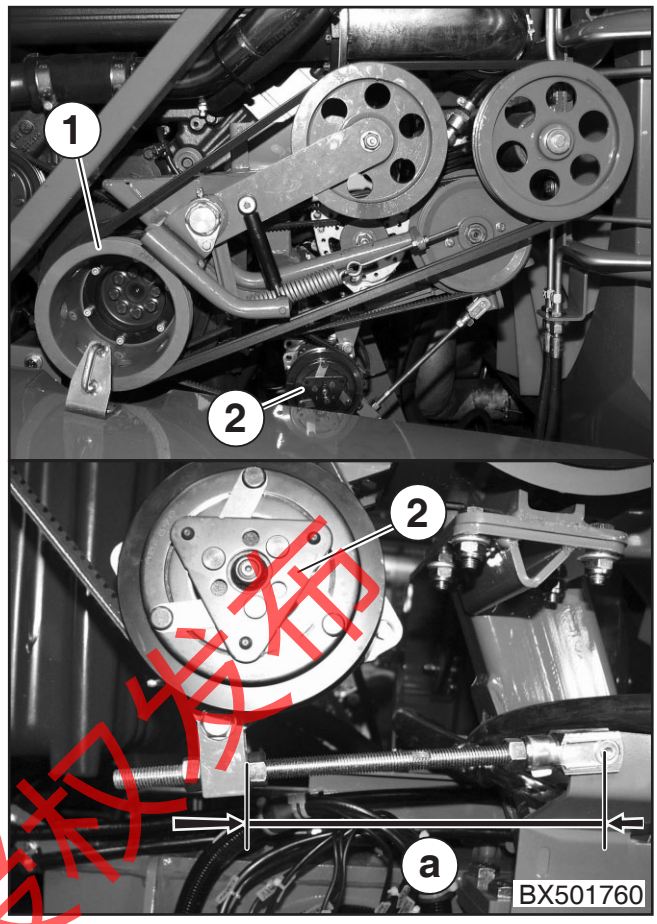
9.8.3 Air conditioning compressor

1 - Power takeoff pulley - engine

Belt tension of the air conditioning compressor drive (1) by means of adjustment spindle on the air conditioning compressor (2)

Correcting the belt tension

- Shorten or extend the distance "a" by means of the adjustment spindle.



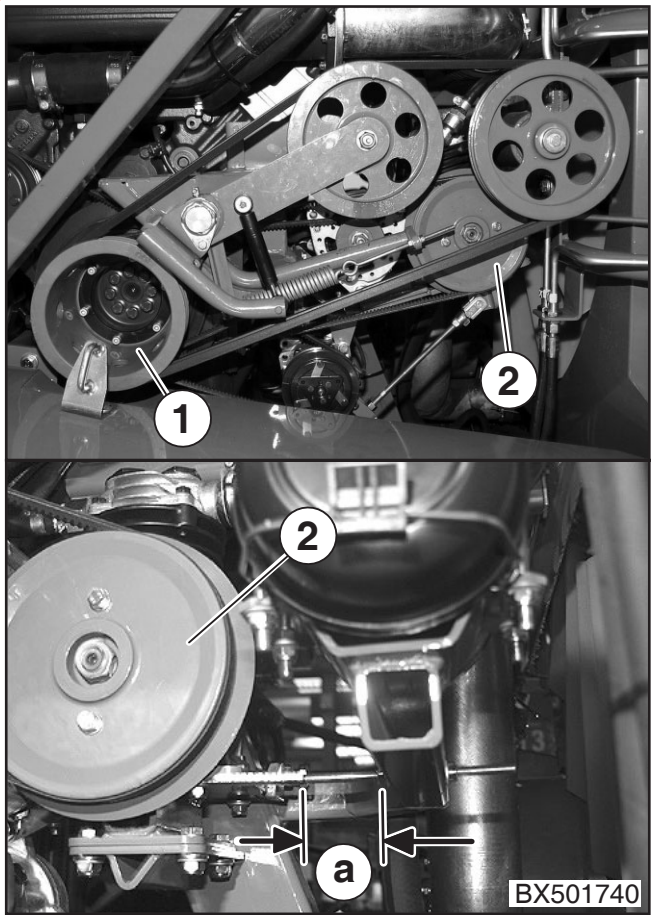
9.8.4 Compressed air compressor (BiG X V12 forage harvester only)

1 - Power takeoff pulley - engine

Belt tension of the compressed air compressor drive (1) by means of adjustment spindle on the compressed air compressor (2)

Correcting the belt tension

- Shorten or extend the distance "a" by means of the adjustment spindle.



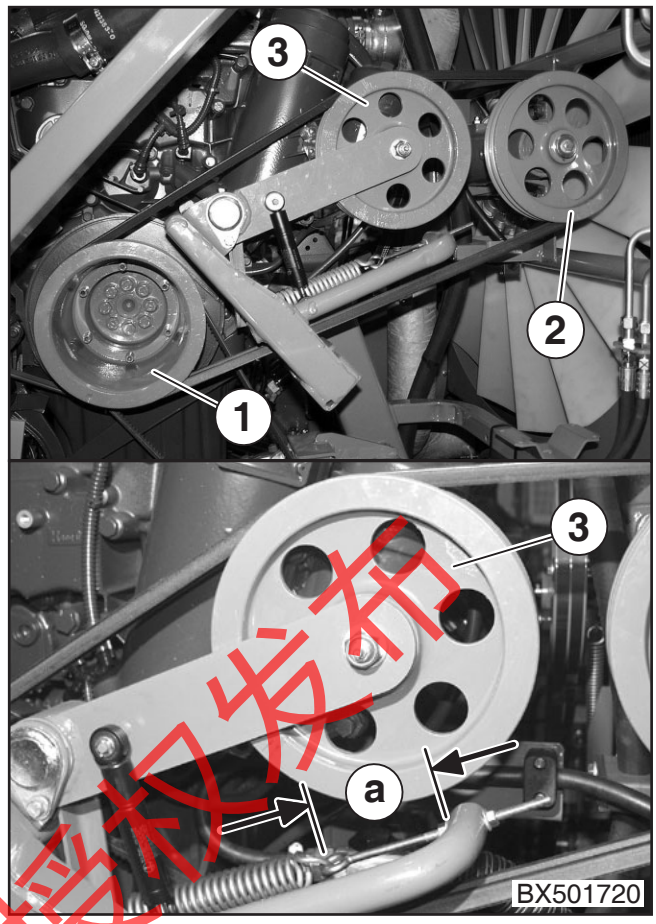
9.8.5 Fan drive

1 - Power takeoff pulley - engine
2 - Drive pulley – fan gear

Belt tension of the fan drive (1) by means of tension spring on the tensioning roller support (3).

Correcting the belt tension

- To increase or reduce the tension of the tension spring, reduce or increase the distance "a" accordingly on the adjustment spindle.



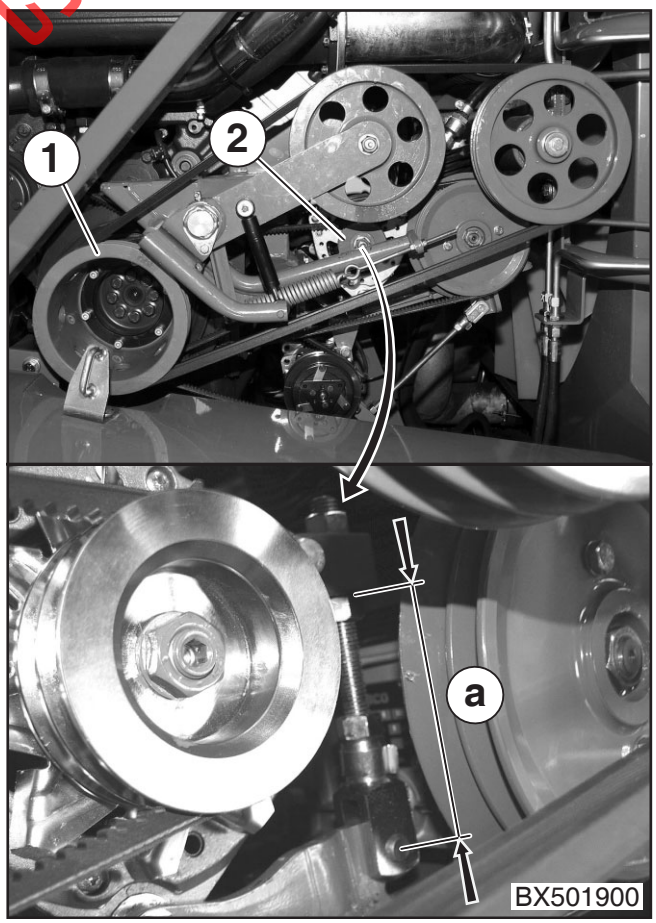
9.8.6 Additional three-phase generator Forage harvester BiG X V 12 only

1 - Power takeoff pulley - engine
2 - Additional three-phase generator

Belt tension of the three-phase generator drive by means of adjustment spindle on the three-phase generator (2).

Correcting the belt tension

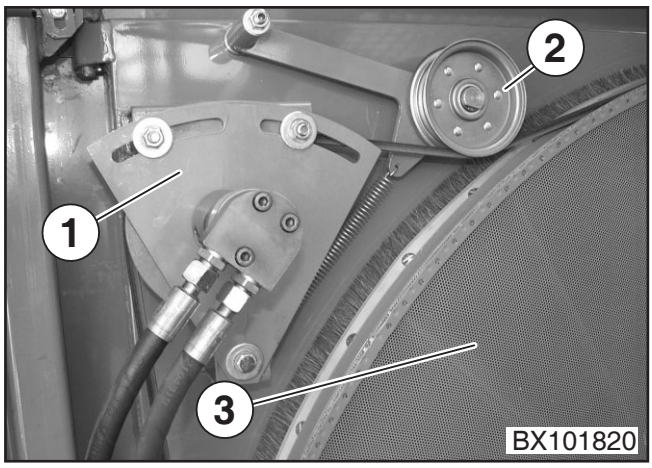
- Shorten or extend the distance "a" by means of the adjustment spindle.



9.8.7 Screen drum drive

1 - Power take-off – screen drum
3 - Screen drum

Belt tension of the screen drum drive via spring-loaded tensioning roller (2).

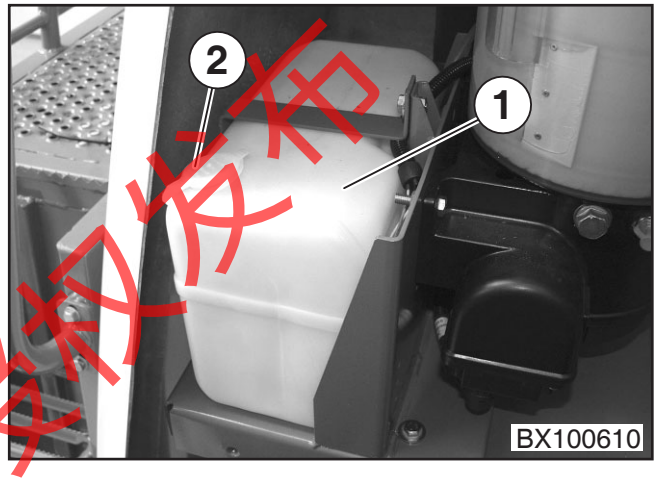


9.9 Windscreen washer system

The tank (1) for the water of the windscreen washer system is located in the machine compartment.

- Open the lid (2) to fill the tank (1).
- In order to obtain a better cleaning action, add some detergent for washer systems to the water.

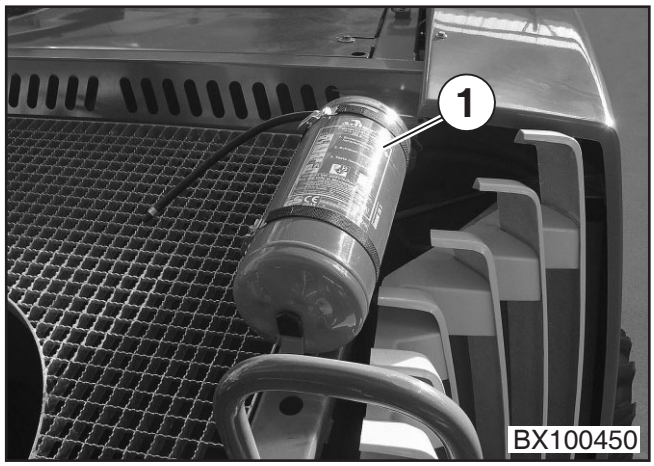
Empty the windscreen washer system in winter or fill a special anti-freeze agent.



9.10 Fire extinguisher

Have the operational readiness of the fire extinguisher (1) checked annually, at the latest every two years. The manufacturing date or the date of the final inspection of the fire extinguisher (1) shall be decisive.

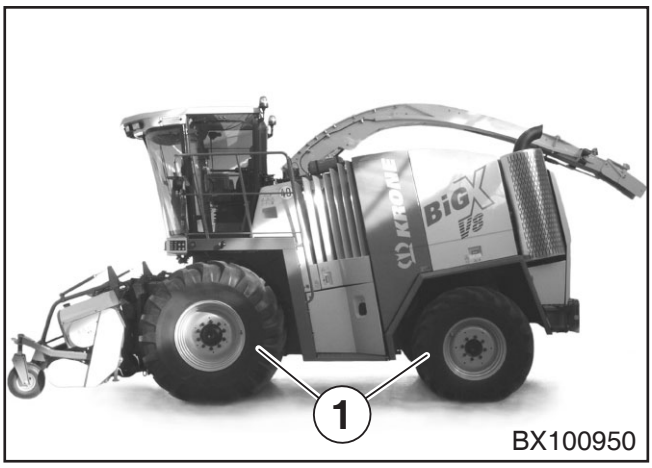
The inspection intervals may differ from one country to another. In this case, the instructions on the fire extinguisher (1) of the respective countries shall be applicable.



9.11 Tyres

9.11.1 Checking and servicing the tyres

- Check the tyres for damage and air pressure every day as the service life of tyres depends on the air pressure.
- Repair any cuts or tears in the tyres as soon as possible or change the tyres.
- Do not expose tyres to oil, grease, fuel, or chemicals; nor should you 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.



BiG X V8 — **Reifenluftdruck / Tyre pressure** — **BiG X V12**

Bereifungstyp wheel type	Achse axle	km/h	Easyflow 3000 (Solomaschine) (solo machine)	EasyCollect 6000	EasyCollect 7500	EasyCollect 9000 *	max. (bar)
710/75 R 34 178 A8	VA FA	40	1,6	2,4	3,2	1,7	3,2
		10	1,0	1,4	1,7	1,7	
600/65 R 28 154 A8	HA RA	40	2,4	2,4	2,1	2,4	2,4
		10	1,4	1,4	1,2	1,0	
800/65 R 32 172 A8	VA FA	40	1,2	2,4	2,4	1,6	2,4
		10	1,0	1,3	1,4	1,6	
600/65 R 28 154 A8	HA RA	40	2,4	2,1	2,1	2,4	2,4
		10	1,4	1,2	1,4	1,0	
900/60 R 32 176 A8	VA FA	40	1,2	2,0	2,4	1,4	2,4
		10	1,0	1,2	1,4	1,4	
710/55 R 30 153 A8	HA RA	40	1,6	1,6	1,6	1,6	1,6
		10	1,0	1,0	1,0	1,0	

942-529-1

* = Strassenfahrt ohne EasyCollect 9000
* = on road out of EasyCollect 9000

9.11.2 Fitting tyres

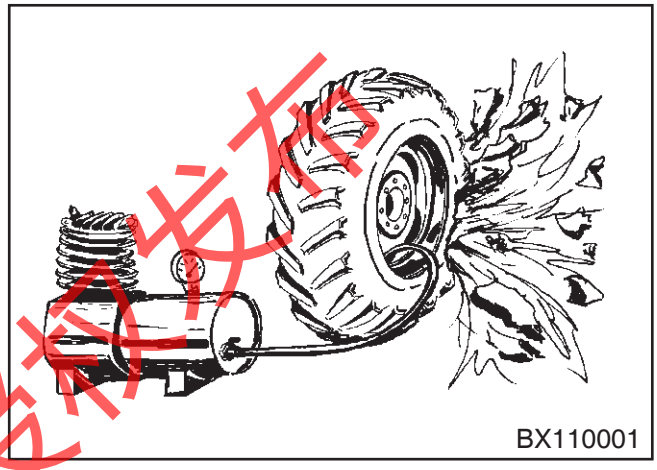
Fitting the tyres requires sufficient knowledge and suitable mounting tools. If tyres are not correctly fitted, it could explode when pumped up. This can cause serious injury. If you do not have sufficient experience of fitting tyres, have tyres fitted by the KRONE dealer or a qualified tyre specialist.

When mounting the tyre on the wheel rim never exceed the highest permissible pressure stated by the tyre manufacturer, otherwise the tyre or even the wheel rim may explode.

If the tyre bead is not located properly when the highest permissible pressure is achieved, deflate the tyre, align the tyre, grease the tyre bead, and inflate the tyre again.

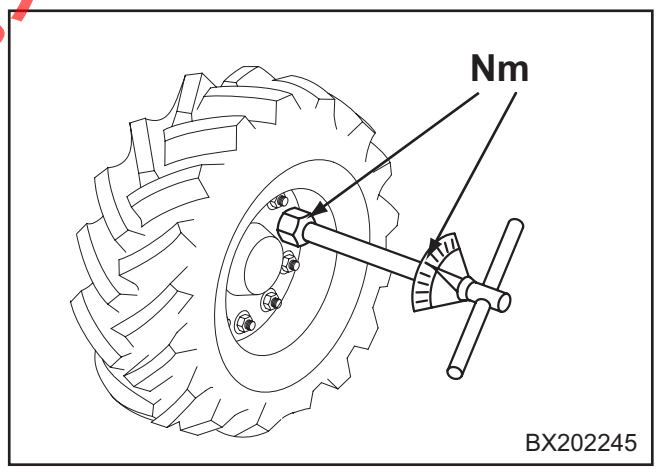
The tyre manufacturers can provide extensive informative material on how to fit tyres on agricultural vehicles.

Never operate the forage harvester at the tyre pressure usual for transport of the tyres. Keep the valve caps fitted on the valves to keep dirt out.
Check the tyre pressure frequently!


BX110001

9.11.3 Wheel mounting

- After the first and then after 20 to 25 hours of operation, retighten the wheel lug nuts.
  Tightening torque of the drive axle wheel lug nuts = 485 Nm
  Tightening torque of the steering axle wheel lug nuts = 360 Nm



BX202245

9.11.4 Fitting different tyres

When the tyre size is changed, the software of the Info Centre has to be adapted correspondingly.

9.12 Maintenance – electrical system

9.12.1 Electrical equipment – technical data

Performance of the generator ..... 12 V/150 A

Number of batteries 2

Battery voltage ..... 12 V

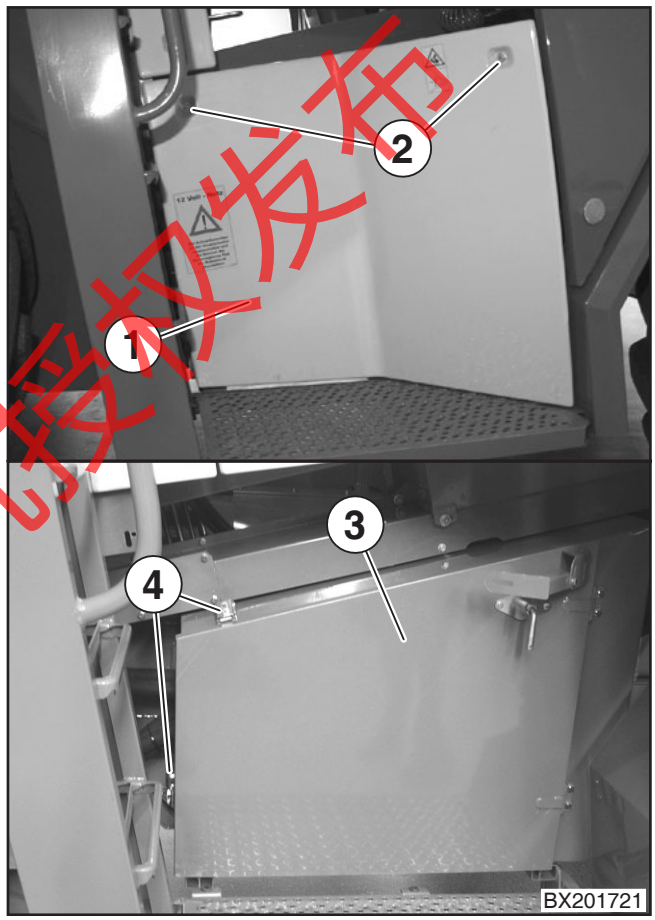
Battery capacity ..... (2x) 135 AH

9.12.2 Batteries

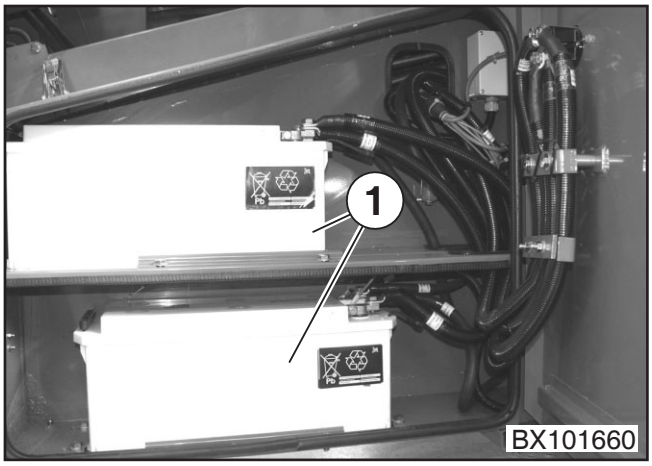
The battery compartment is located on the left-hand side of the machine behind the cover (1).

Opening the battery compartment

- Unscrew the hexagon head cap screws (2) of the cover (1) and remove it.
- Open the bracket (4) and swing the battery cover (3) aside.



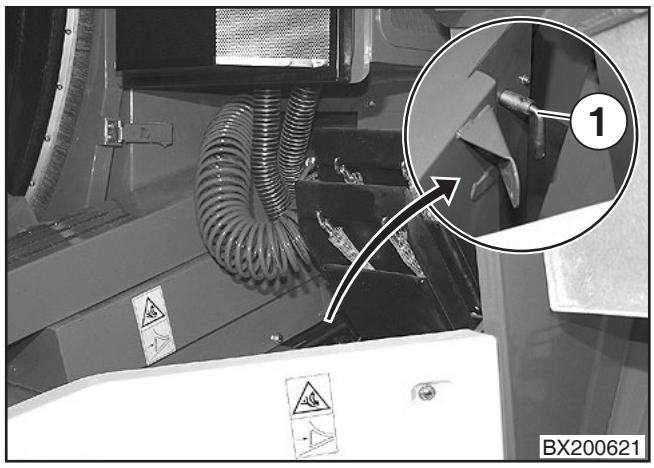
The forage harvester has been fitted with two batteries (1) of 12 V (135 AH) each.
The batteries are parallel connected.



Never connect the batteries in series as otherwise excessive voltage may occur which may damage the electronic system.

Before wintering the forage harvester, charge the batteries and re-charge them every six weeks or have them serviced at a battery service station.

9.12.3 Main battery switch



The main battery switch (1) is located on the battery cover.

The main battery switch (1) can be used to separate the positive pole of the batteries.

- Main battery switch (1) in vertical position – electric circuit closed.
- Main battery switch (1) in horizontal position – electric circuit open.

Do not switch off the main battery switch (1) with the engine running.

For repairs, in emergencies and at the end of use, set the main battery switch (1) into the open position.

- Switch off the engine
- Set the main battery switch (1) to off by turning to the left into horizontal position.

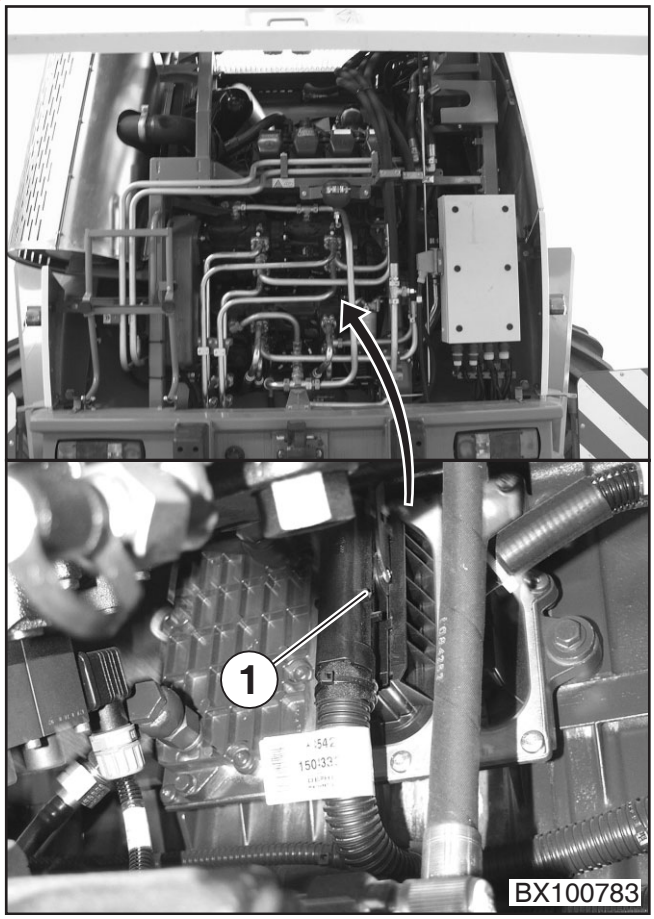
The battery is discharged, when the ignition is set to step I or step II, even when the main battery switch (1) has been switched off.

Always switch off the engine during repair work (welding work); set the main battery switch to the open position (horizontal to left), and remove the socket connector (1) from the control unit (MR control device).

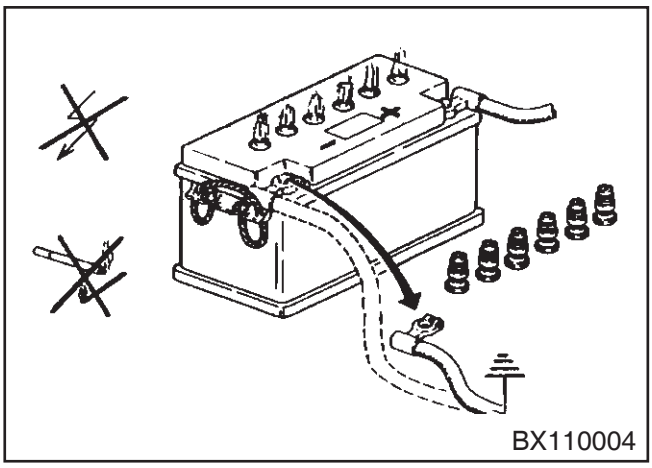
Removing the socket connector (1) from the control unit (MR control device).

- Switch off the engine
- Set the main battery switch to off by turning to the left into horizontal position.
- Release the safety and disconnect the socket connector (1) on the MR control device by swivelling.

- When fitting the socket connector (1) swivel the safety bracket upwards and lock into place.



9.12.4 Battery – hazards when handling


BX110004

General aspects:

Keep the battery clean of dust and chaff.

Batteries develop a highly explosive electrolytic gas. Avoid sparks or open flames in the vicinity of batteries.

When working on the electric system or on the engine, always disconnect the earth cable or open the main battery switch.

Quick charge:
When carrying out a quick charge, disconnect the minus cable from the battery and open all battery cells in order to prevent damage to the electric system.

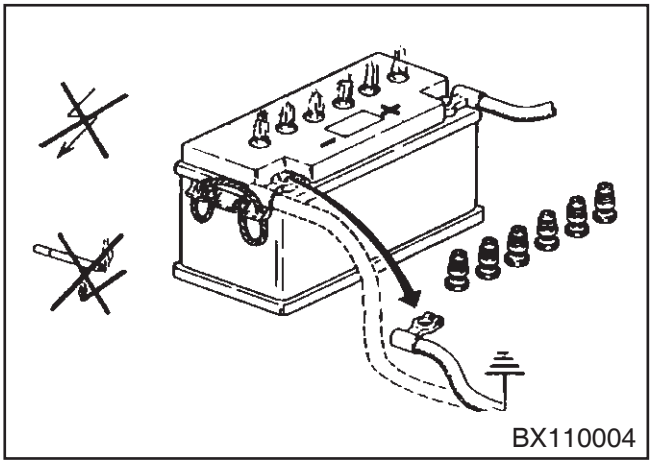
Remove the plastic covers of the battery in order to prevent highly explosive gas from gathering.

Removing the battery:
When removing the battery, first of all disconnect the earth cable, and then remove the positive cable from the battery.

9.12.5 Cleaning the battery

- Wipe the battery clean as and when necessary.
- Use a brush to remove any oxidation on the pole terminals.
- Use pole grease on the battery poles and the pole terminals.
- Keep the venting holes of the plugs open.

9.12.6 Battery – checking the acid level


BX110004

If you top up the distilled water during the winter, allow the engine to run for about 30 minutes to ensure a better mixture of water and acid.

- Check the acid level every 250 operating hours. The acid level should be at the mark above the upper plate edge.

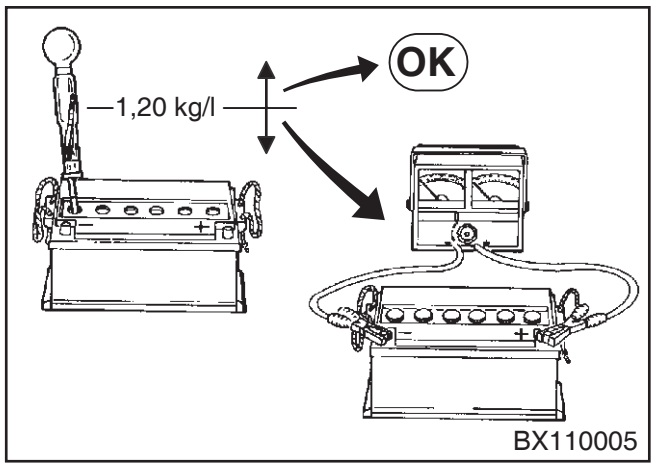
Use distilled water only.

9.12.7 Battery – measuring the acid density

- Use an acid tester to measure the acid density of each battery cell.

Under normal climatic conditions, a fully charged battery should have an acid density of 1.28.

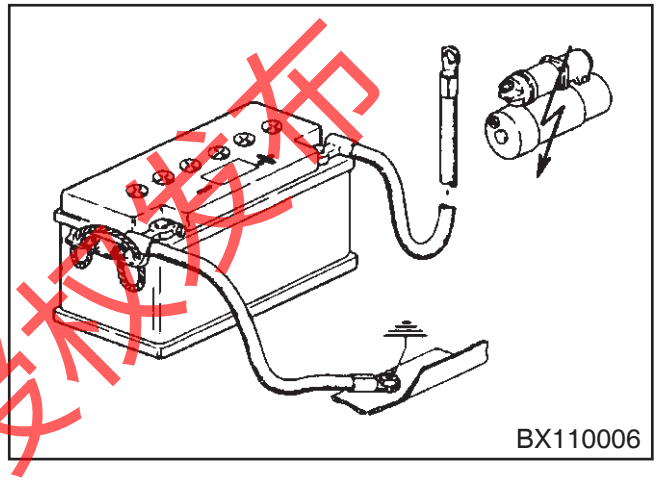
- Recharge the battery, if the density drops below 1.20.



9.12.8 Fitting the batteries and connecting the poles correctly

Always connect the poles correctly: The positive cable (coming from the starter) has to be connected to the positive pole, whereas the negative cable (coming from earth) have to be fitted to the negative poles.

Severe damage will be caused if the correct polarity between batteries and three-phase generator is not observed.



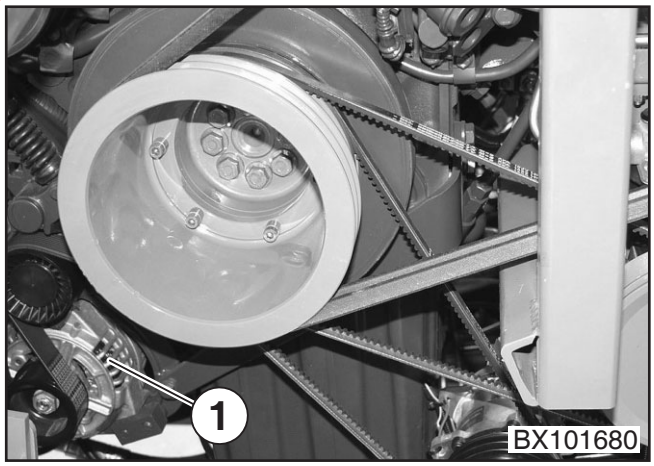
9.12.9 Three-phase generator

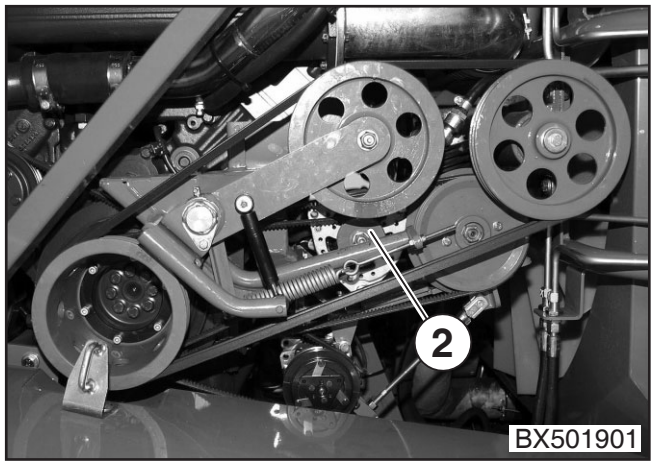
When working on the electrical system, always remove the positive cables from the batteries to avoid damage.
The cable contacts of the positive cables have to be protected against unintentional contact to the battery contacts.

For more information, please refer to the operating instructions of the engine in the Section on "Maintenance" (DaimlerChrysler).

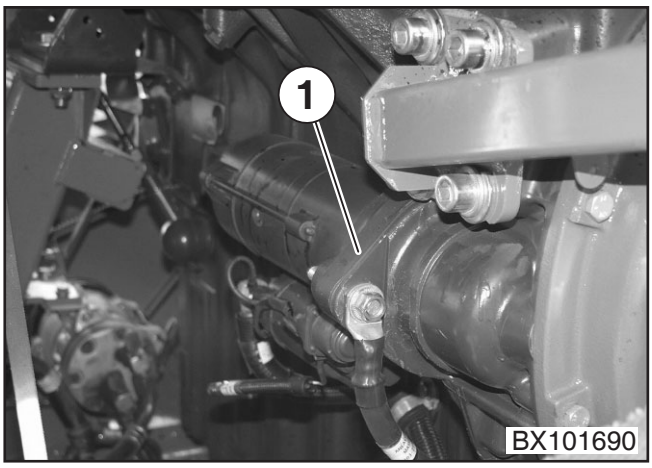
- Have a specialist workshop check the three-phase generator (1) once a year.

- Have a specialist workshop check the additional three-phase generator (2) (forage harvester BiG X V12 only).





9.12.10 Starter



When working on the electrical system, always remove the positive cables from the batteries and switch off the main battery switch to avoid damage.
The cable contacts of the positive cables must be protected against unintentional contact to the battery contacts.

- If the starter (1) fails or does not work satisfactorily, determine the reason for the damage.

If the suggestions listed below do not remove the damage, please seek the advice of your KRONE dealer. Have a specialist workshop check the starter (1) thoroughly once a year.

Loose, soiled or corroded cable connections:

- Clean the cable connections on the starter and tighten the connections.
- Clean the earth cable on the engine and tighten the connection to the engine.

Battery performance too low:

- Check the electrolyte as well as acid density, and recharge the battery, if and when necessary.

Discharged battery:

- Charge the battery.

Use of a wrong engine oil viscosity:

- Always use the right engine oil according to the specification.

Starter safety relay is defective:

- Replace the relay.

9.12.11 Lights

Lamp overview (voltage/capacity and type of lamp):

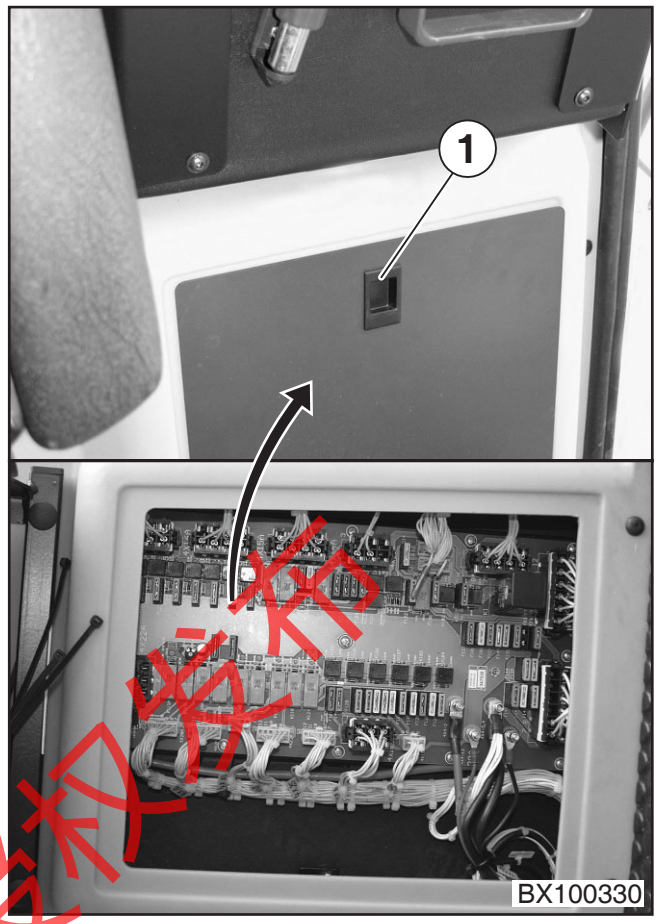
licence plate lamp	12 V/5 W		cab roof floodlights	12 V/55 W	H3
rear lamps	12 V/10 W		floodlights - upper discharge chute	12 V/55 W	H3
rear lamps - fender	12 V/5 W		cab roof working floodlights	12 V/55 W	H3
clearance lamps - front	12 V/5 W		working floodlights – front lamp carrier	12 V/55 W	H3
rear wheel light	12 V/5 W		rear working floodlights	12 V/55 W	H3
lamps - tyres	12 V/5 W		lighting – grinding device	12 V/55 W	H3
rear lamp – upper discharge chute	12 V/10 W		indicator – fender/rear/front	12 V/21 W	
dipped/high beam	12 V/55/60 W	H4	reversing lights	12 V/21 W	
			brake lights – rear/upper discharge chute	12 V/21 W	
			allround lights	12 V/55 W	H1

9.12.12 Switch boxes and fuses

The fuses are located on the boards in the respective switch boxes.

Have work on the electronic system carried out by KRONE after-sales service or KRONE dealer only!

The designations of the fuses and relays are rendered on the board.



KKC Krone cab controller and ADM engine control

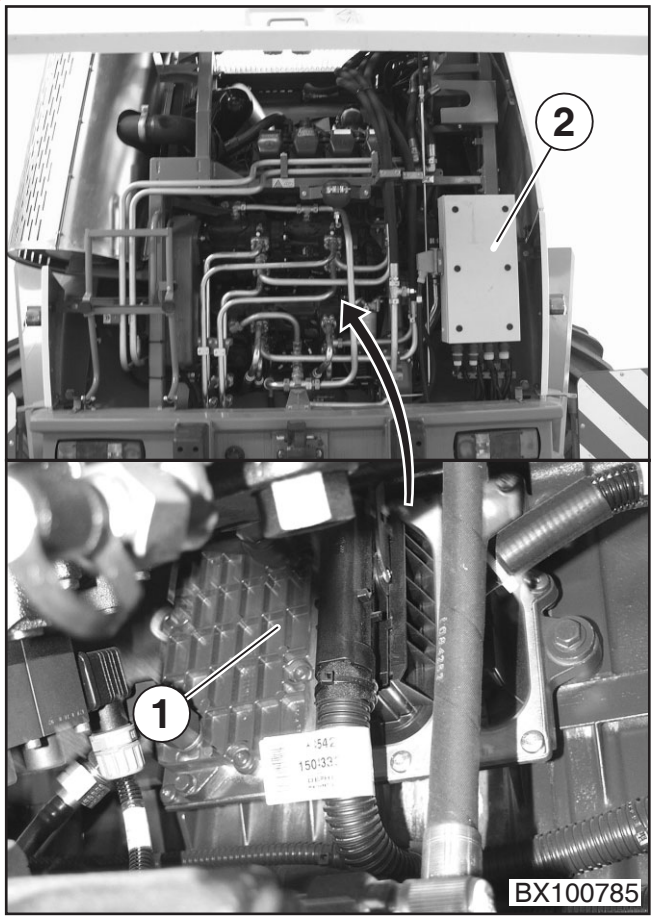
The switch box of the KKC Krone cab controller and the ADM engine control (1) are located on the rear cab wall behind the cover.

Circuit diagram – cf. page IX - 53

PLD engine control and SmartDrive (travelling gear)

The switch box of the PLD engine control (1) and the SmartDrive (travelling gear) (2) is located in the rear of the forage harvester.

PLD engine control (1). For more information, please refer to the operating instructions of the engine (DaimlerChrysler).



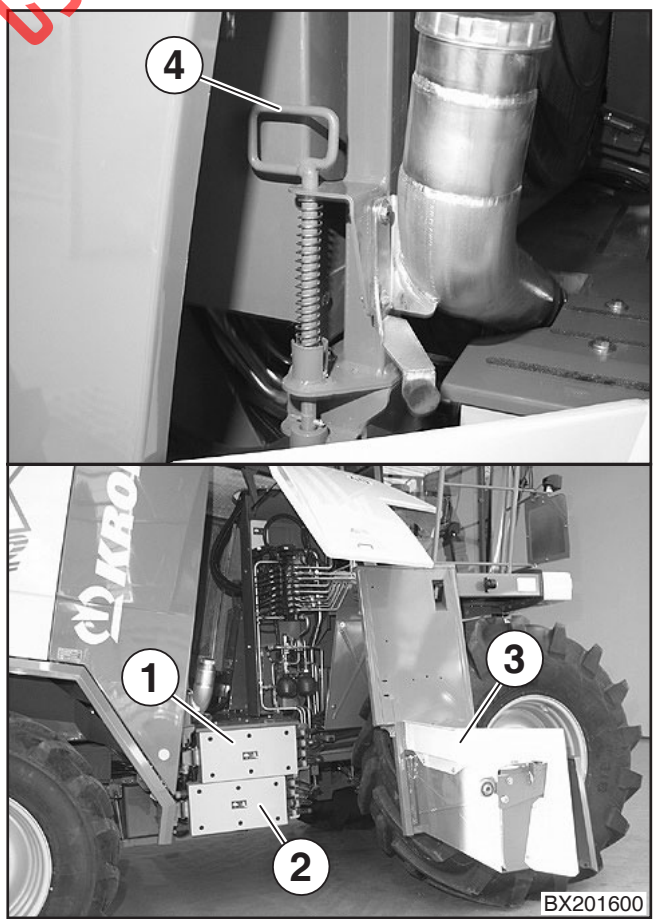
Switch box of SmartDrive (travelling gear) (2) and sub-distributor 1.

Circuit diagram – cf. page IX - 54

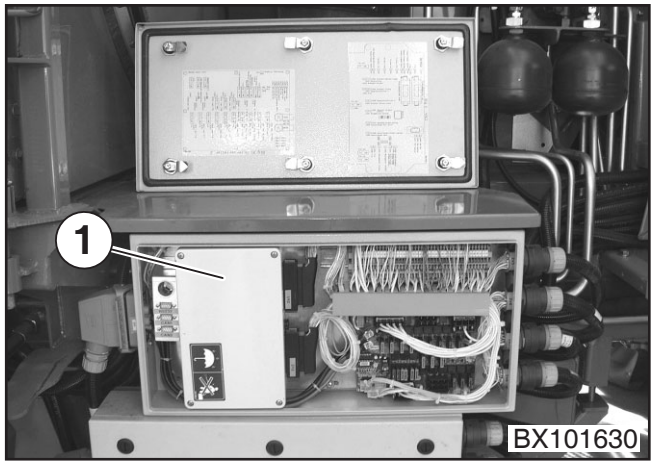
KMC2 Krone machine controller and KMC3 Krone machine controller

The switch box of the KMC2 Krone machine controller (1) and of the KMC3 Krone machine controller (2) is located on the right hand side of the machine behind the tool box (3).

- Open the flap to the machine compartment on the right hand side.
- Pull the catch (4) up, and use the handle to swivel the tool box (3) open.

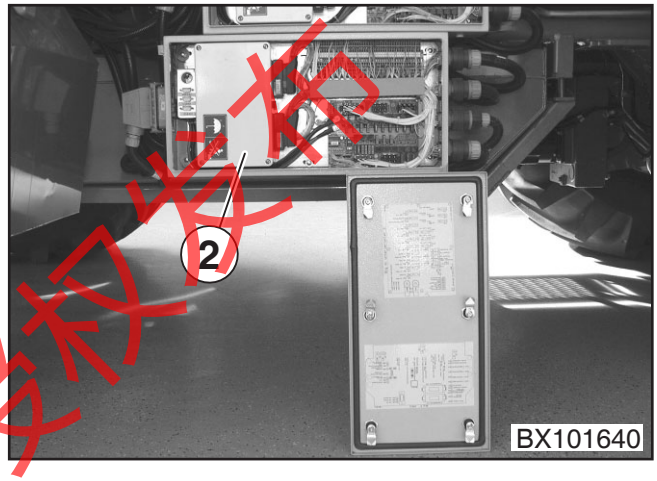


KMC2 Krone machine controller (1) and sub-distributor 2.



Circuit diagram KMC2 Krone machine controller (1) – cf. page IX - 55
Circuit diagram sub-distributor 2 – cf. page IX - 56

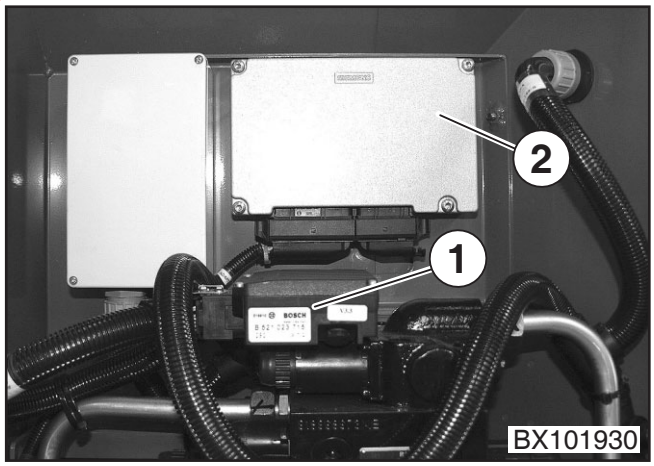
KMC3 Krone machine controller (1) and sub-distributor 3



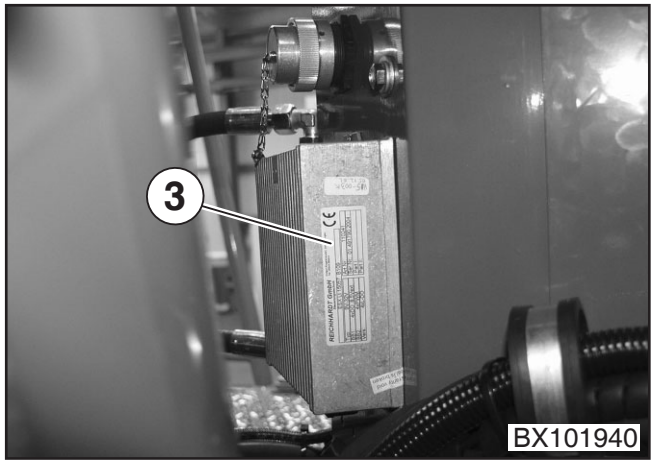
Circuit diagram KMC3 Krone machine controller (1) – cf. page IX - 55
Circuit diagram sub-distributor 3 – cf. page IX - 57
Circuit diagram sub-distributor 3 V12 – cf. page IX -58

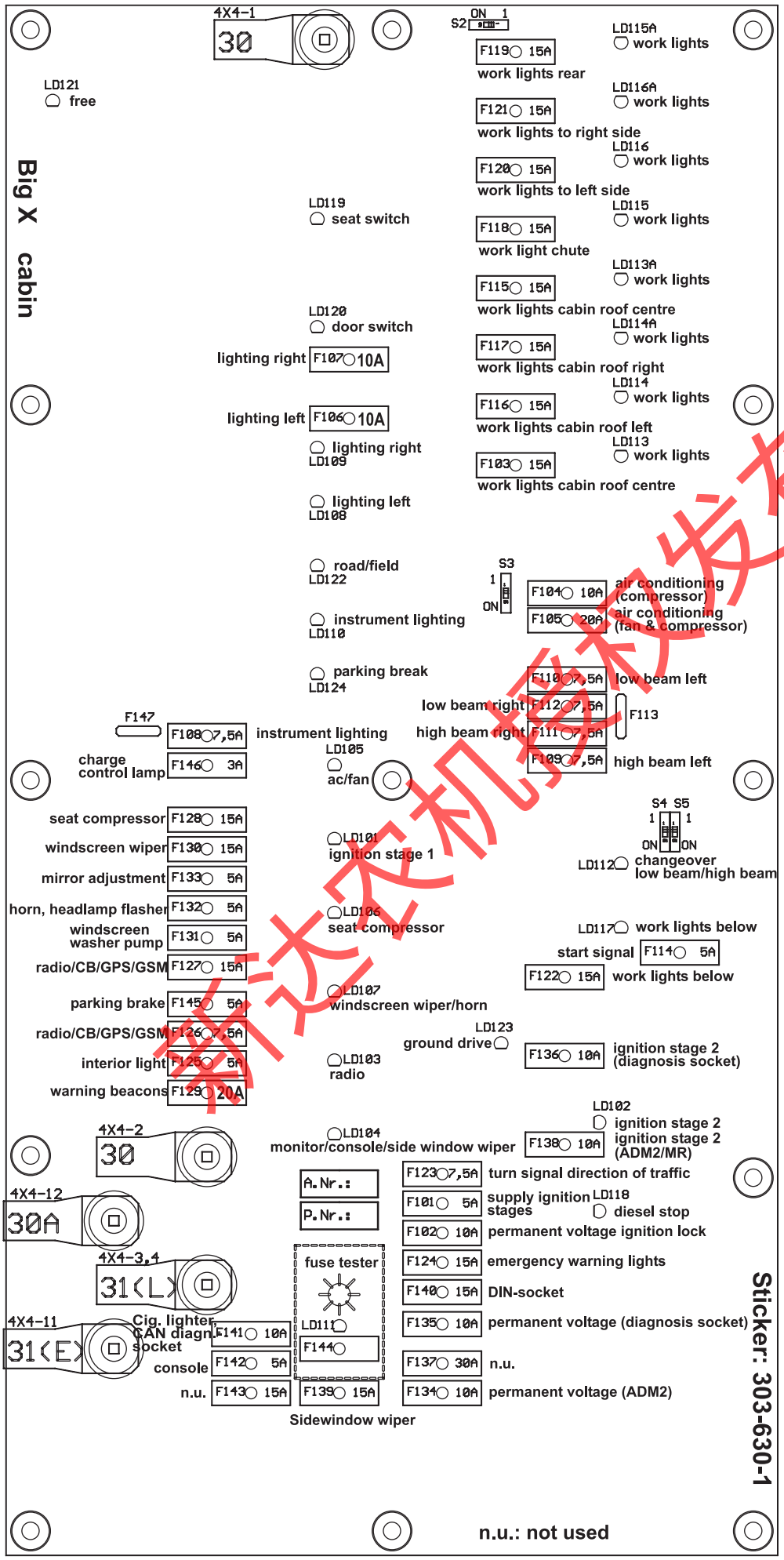
EMR lifting gear control, RMC teleservice and autopilot

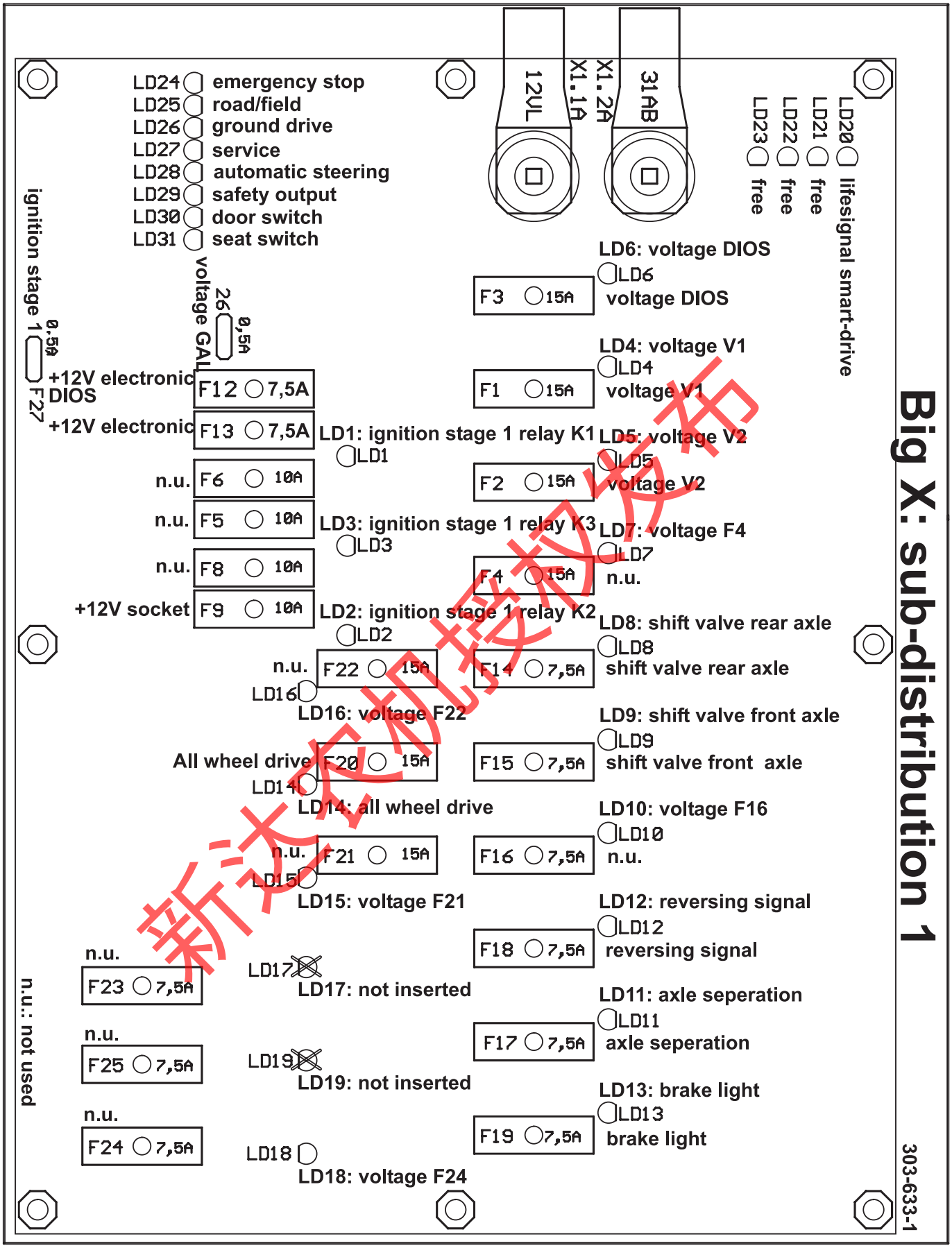
The EMR lifting gear control (1), the RMC teleservice (2) (optional) and the autopilot (3) (optional) are located above the main valve block.

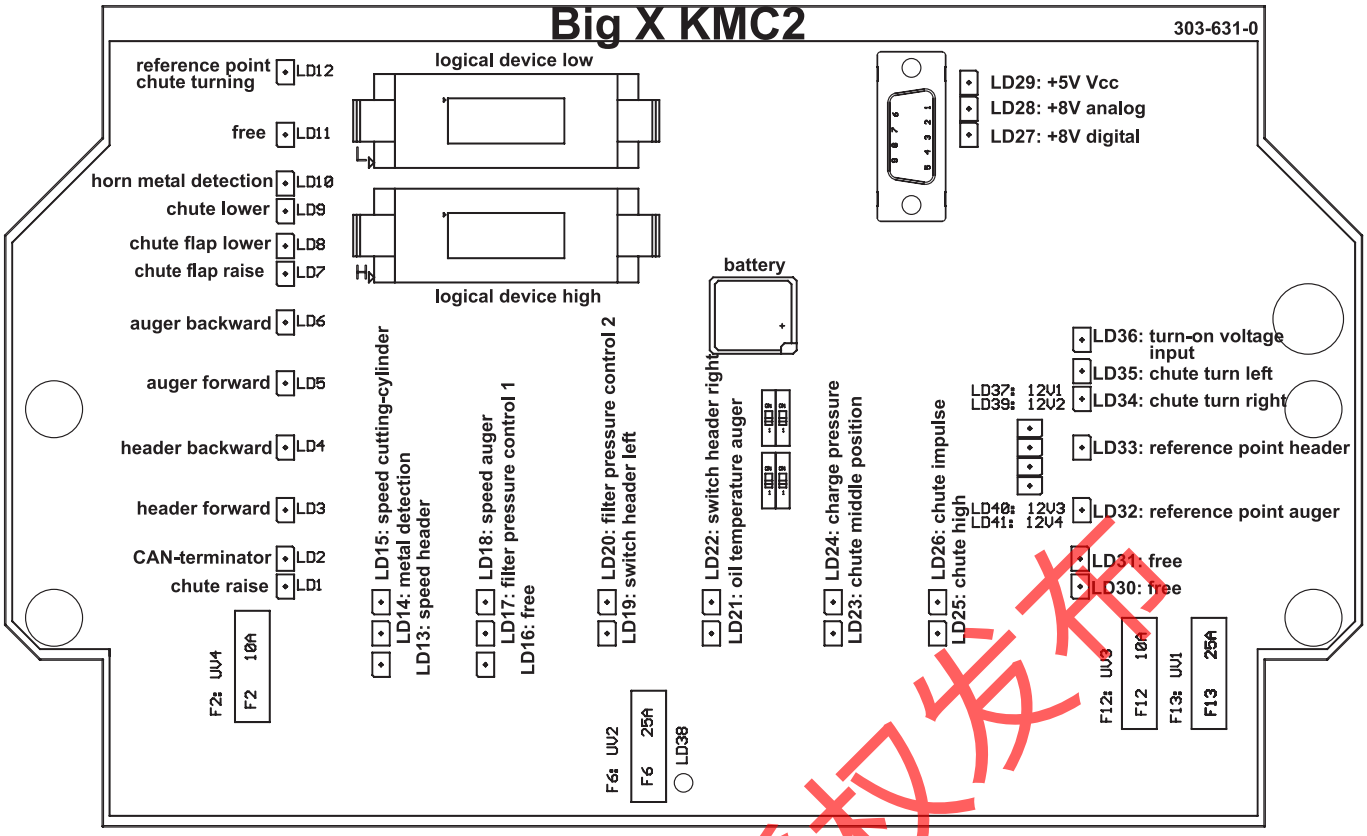


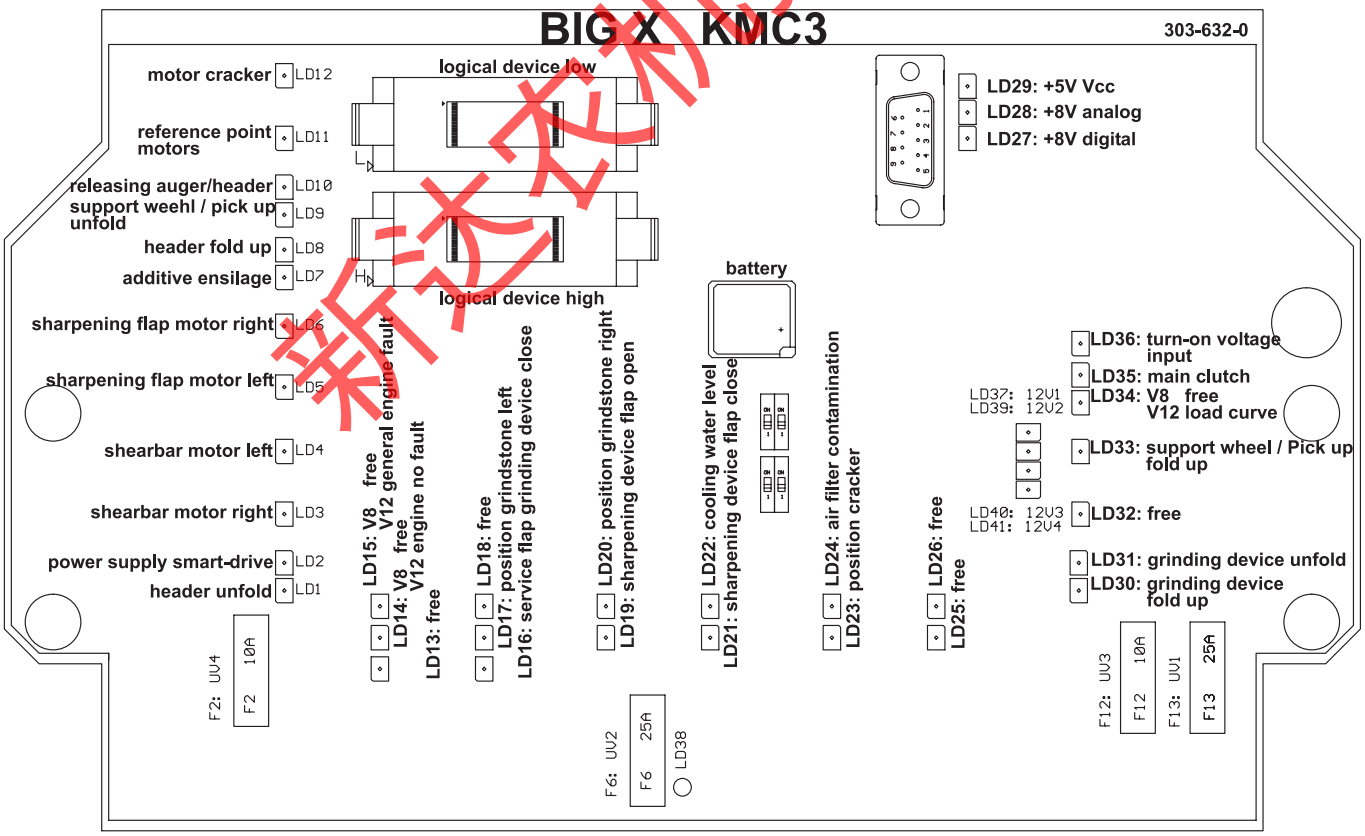
Autopilot (3) (optional).

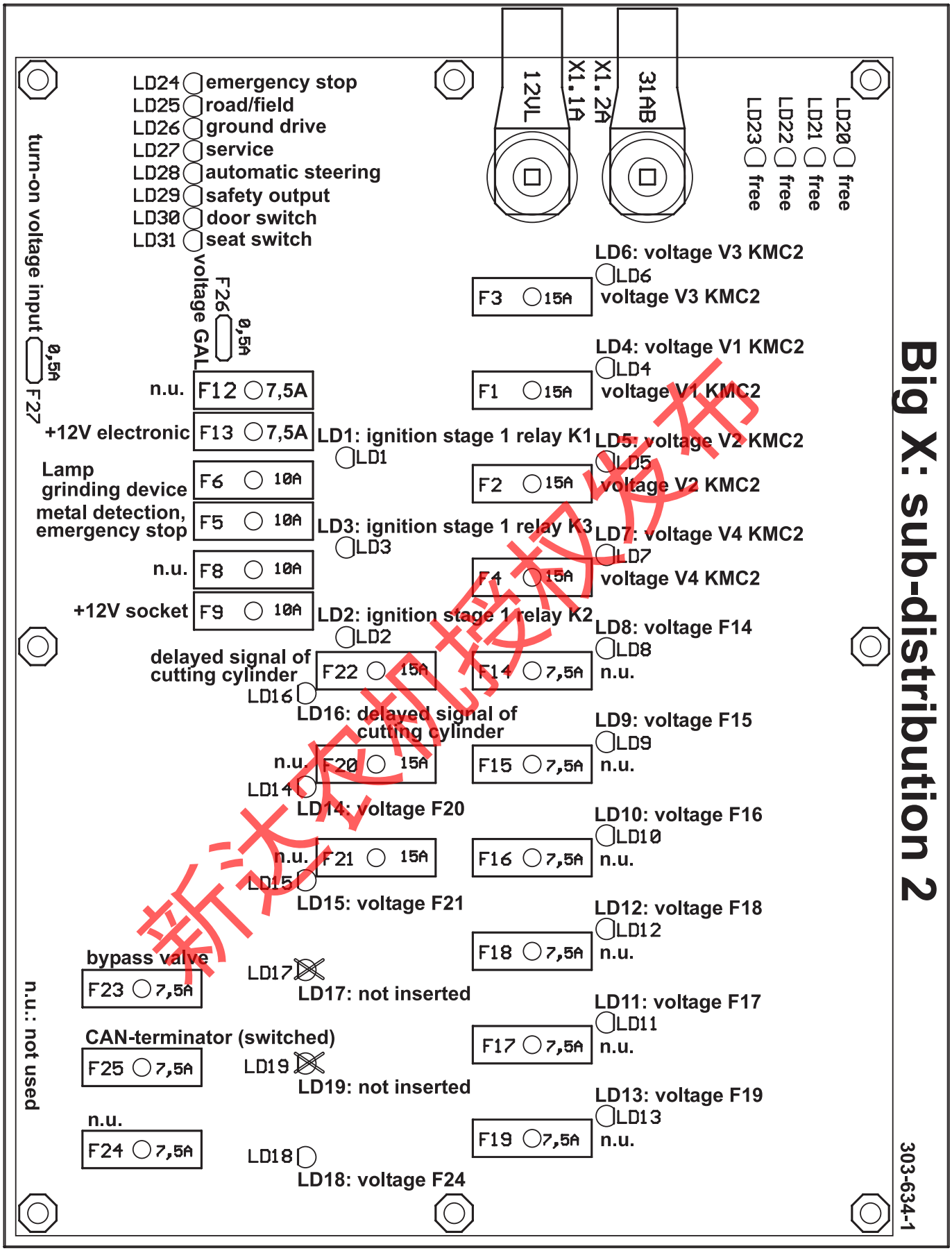


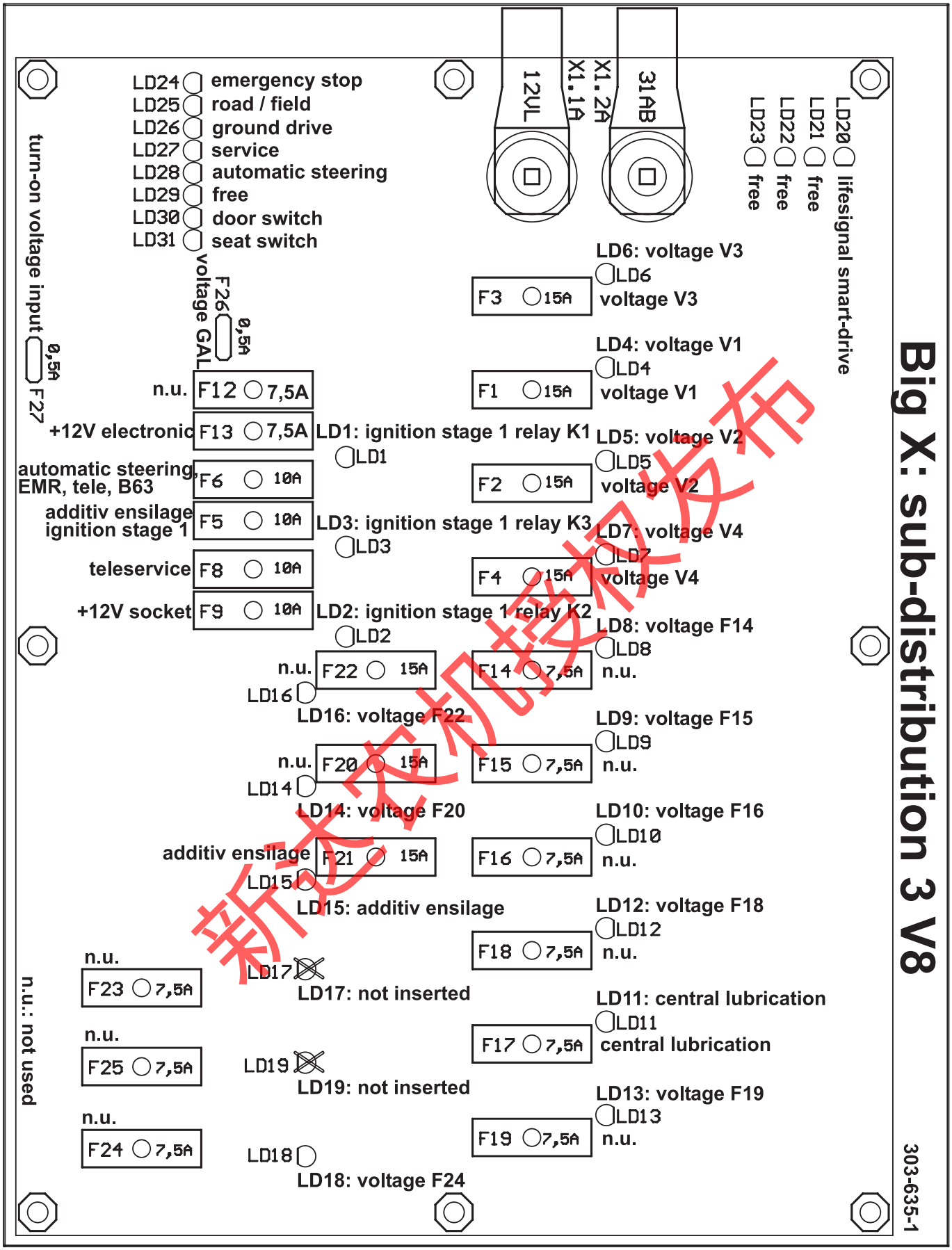

Big X cabin
4X4-1
30
LD121
free
S2 ON 1
F119 15A
work lights rear
LD115A
work lights
LD116A
work lights
F121 15A
work lights to right side
LD116
work lights
F120 15A
work lights to left side
LD119
seat switch
LD115
work lights
F118 15A
work light chute
LD113A
work lights
F115 15A
work lights cabin roof centre
LD120
door switch
LD114A
work lights
F117 15A
work lights cabin roof right
lighting right F107 10A
LD114
work lights
F116 15A
work lights cabin roof left
lighting left F106 10A
LD113
work lights
F103 15A
work lights cabin roof centre
lighting right
LD109
lighting left
LD108
road/field
LD122
S3
1
ON
F104 10A
air conditioning (compressor)
F105 20A
air conditioning (fan & compressor)
instrument lighting
LD110
parking break
LD124
F110 7,5A
low beam left
low beam right F112 7,5A
F113
high beam right F111 7,5A
F109 7,5A
high beam left
F147
F108 7,5A
instrument lighting
charge control lamp
F146 3A
LD105
ac/fan
S4 S5
1
ON
LD112
changeover low beam/high beam
seat compressor F128 15A
windscreen wiper F130 15A
LD101
ignition stage 1
mirror adjustment F133 5A
horn, headlamp flasher F132 5A
LD106
seat compressor
LD117
work lights below
windscreen washer pump F131 5A
start signal F114 5A
radio/CB/GPS/GSM F127 15A
F122 15A
work lights below
parking brake F145 5A
LD107
windscreen wiper/horn
radio/CB/GPS/GSM F126 7,5A
LD123
ground drive
interior light F125 5A
LD103
radio
F136 10A
ignition stage 2 (diagnosis socket)
warning beacons F129 20A
LD102
ignition stage 2
ignition stage 2 (ADM2/MR)
4X4-2
30
LD104
monitor/console/side window wiper
F138 10A
A.Nr.:
P.Nr.:
F123 7,5A
turn signal direction of traffic
4X4-12
30A
F101 5A
supply ignition stages
LD118
diesel stop
F102 10A
permanent voltage ignition lock
4X4-3,4
31(L)
fuse tester
F124 15A
emergency warning lights
F140 15A
DIN-socket
4X4-11
31(E)
Cig. lighter, CAN diagn. socket
LD111
F135 10A
permanent voltage (diagnosis socket)
F141 10A
F144
console F142 5A
F137 30A
n.u.
n.u. F143 15A
F139 15A
F134 10A
permanent voltage (ADM2)
Sidewindow wiper
Sticker: 303-630-1
n.u.: not used

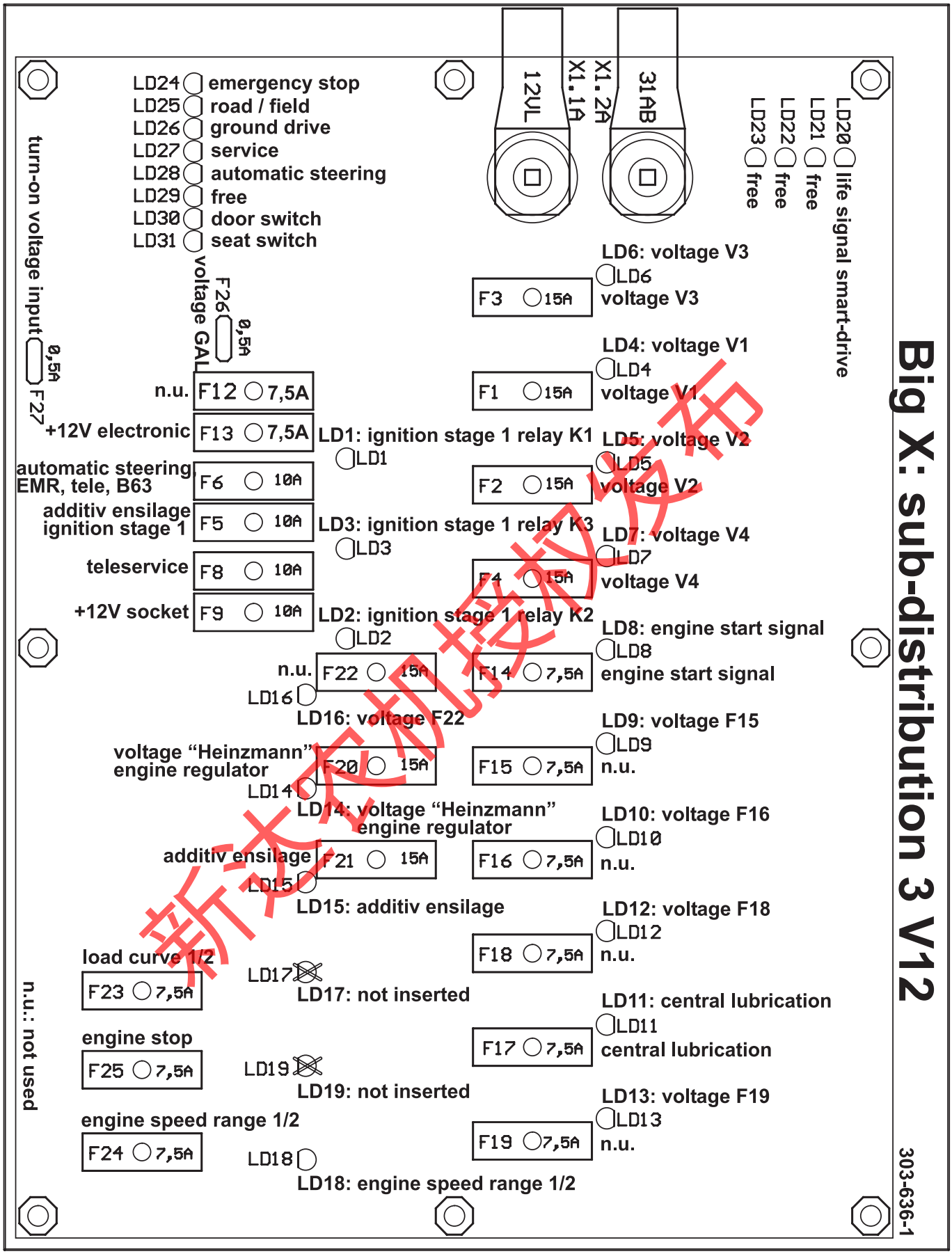

Big X: sub-distribution 1
12VL
X1.1A
X1.2A
31AB
LD24 emergency stop
LD25 road/field
LD26 ground drive
LD27 service
LD28 automatic steering
LD29 safety output
LD30 door switch
LD31 seat switch
LD20 lifesignal smart-drive
LD21 free
LD22 free
LD23 free
ignition stage 1
0,5A
F27
voltage GAL
26
0,5A
+12V electronic DIOS
F12 7,5A
+12V electronic
F13 7,5A
n.u.
F6 10A
n.u.
F5 10A
n.u.
F8 10A
+12V socket
F9 10A
LD1: ignition stage 1 relay K1
LD1
LD3: ignition stage 1 relay K3
LD3
LD2: ignition stage 1 relay K2
LD2
n.u.
F22 15A
LD16
LD16: voltage F22
All wheel drive
F20 15A
LD14
LD14: all wheel drive
n.u.
F21 15A
LD15
LD15: voltage F21
n.u.
F23 7,5A
LD17
LD17: not inserted
n.u.
F25 7,5A
LD19
LD19: not inserted
n.u.
F24 7,5A
LD18
LD18: voltage F24
n.u.: not used
F3 15A
LD6: voltage DIOS
LD6
voltage DIOS
F1 15A
LD4: voltage V1
LD4
voltage V1
F2 15A
LD5: voltage V2
LD5
voltage V2
F4 15A
LD7: voltage F4
LD7
n.u.
F14 7,5A
LD8: shift valve rear axle
LD8
shift valve rear axle
F15 7,5A
LD9: shift valve front axle
LD9
shift valve front axle
F16 7,5A
LD10: voltage F16
LD10
n.u.
F18 7,5A
LD12: reversing signal
LD12
reversing signal
F17 7,5A
LD11: axle seperation
LD11
axle seperation
F19 7,5A
LD13: brake light
LD13
brake light
303-633-1


Big X KMC2
303-631-0
reference point chute turning LD12
free LD11
horn metal detection LD10
chute lower LD9
chute flap lower LD8
chute flap raise LD7
auger backward LD6
auger forward LD5
header backward LD4
header forward LD3
CAN-terminator LD2
chute raise LD1
logical device low
logical device high
battery
LD29: +5V Vcc
LD28: +8V analog
LD27: +8V digital
LD15: speed cutting-cylinder
LD14: metal detection
LD13: speed header
LD18: speed auger
LD17: filter pressure control 1
LD16: free
LD20: filter pressure control 2
LD19: switch header left
LD22: switch header right
LD21: oil temperature auger
LD24: charge pressure
LD23: chute middle position
LD26: chute impulse
LD25: chute high
LD36: turn-on voltage input
LD35: chute turn left
LD37: 12V1
LD39: 12V2
LD34: chute turn right
LD33: reference point header
LD40: 12V3
LD41: 12V4
LD32: reference point auger
LD31: free
LD30: free
F2: UV4 F2 10A
F6: UV2 F6 25A LD38
F12: UV3 F12 10A
F13: UV1 F13 25A


BIG X KMC3
303-632-0
motor cracker LD12
reference point motors LD11
releasing auger/header support weehl / pick up unfold LD10
LD9
header fold up LD8
additive ensilage LD7
sharpening flap motor right LD6
sharpening flap motor left LD5
shearbar motor left LD4
shearbar motor right LD3
power supply smart-drive LD2
header unfold LD1
logical device low
logical device high
battery
LD29: +5V Vcc
LD28: +8V analog
LD27: +8V digital
LD15: V8 free
V12 general engine fault
LD14: V8 free
V12 engine no fault
LD13: free
LD18: free
LD17: position grindstone left
LD16: service flap grinding device close
LD20: position grindstone right
LD19: sharpening device flap open
LD22: cooling water level
LD21: sharpening device flap close
LD24: air filter contamination
LD23: position cracker
LD26: free
LD25: free
LD36: turn-on voltage input
LD35: main clutch
LD37: 12V1
LD39: 12V2
LD34: V8 free
V12 load curve
LD33: support wheel / Pick up fold up
LD40: 12V3
LD41: 12V4
LD32: free
LD31: grinding device unfold
LD30: grinding device fold up
F2: UV4 F2 10A
F6: UV2 F6 25A LD38
F12: UV3 F12 10A
F13: UV1 F13 25A

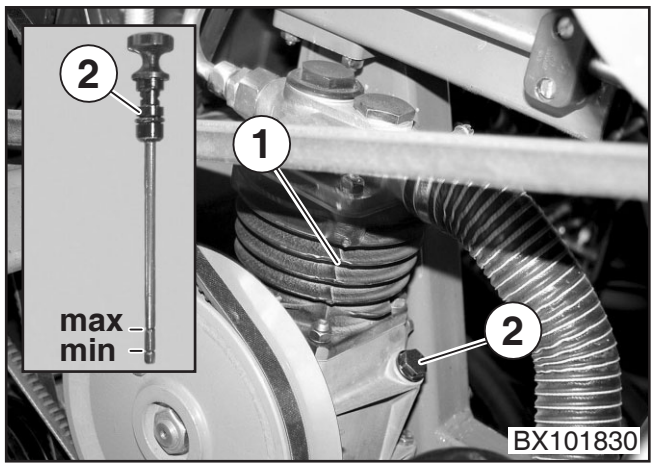

Big X: sub-distribution 2
12VL
X1.1A
X1.2A
31AB
LD20 free
LD21 free
LD22 free
LD23 free
LD24 emergency stop
LD25 road/field
LD26 ground drive
LD27 service
LD28 automatic steering
LD29 safety output
LD30 door switch
LD31 seat switch
turn-on voltage input
F27 0,5A
voltage GAL
F26 0,5A
n.u. F12 7,5A
+12V electronic F13 7,5A
Lamp grinding device F6 10A
metal detection, emergency stop F5 10A
n.u. F8 10A
+12V socket F9 10A
delayed signal of cutting cylinder F22 15A
LD16
LD16: delayed signal of cutting cylinder
n.u. F20 15A
LD14
LD14: voltage F20
n.u. F21 15A
LD15
LD15: voltage F21
bypass valve F23 7,5A
LD17
LD17: not inserted
CAN-terminator (switched) F25 7,5A
LD19
LD19: not inserted
n.u. F24 7,5A
LD18
LD18: voltage F24
LD1: ignition stage 1 relay K1
LD3: ignition stage 1 relay K3
LD2: ignition stage 1 relay K2
F3 15A
LD6: voltage V3 KMC2
voltage V3 KMC2
F1 15A
LD4: voltage V1 KMC2
voltage V1 KMC2
F2 15A
LD5: voltage V2 KMC2
voltage V2 KMC2
F4 15A
LD7: voltage V4 KMC2
voltage V4 KMC2
F14 7,5A
LD8: voltage F14
n.u.
F15 7,5A
LD9: voltage F15
n.u.
F16 7,5A
LD10: voltage F16
n.u.
F18 7,5A
LD12: voltage F18
n.u.
F17 7,5A
LD11: voltage F17
n.u.
F19 7,5A
LD13: voltage F19
n.u.
n.u.: not used
303-634-1


Big X: sub-distribution 3 V8
12VL
X1.1A
X1.2A
31AB
LD20 lifesignal smart-drive
LD21 free
LD22 free
LD23 free
LD24 emergency stop
LD25 road / field
LD26 ground drive
LD27 service
LD28 automatic steering
LD29 free
LD30 door switch
LD31 seat switch
turn-on voltage input
F27 0,5A
voltage GAL
F26 0,5A
n.u. F12 7,5A
+12V electronic F13 7,5A
automatic steering, EMR, tele, B63 F6 10A
additiv ensilage ignition stage 1 F5 10A
teleservice F8 10A
+12V socket F9 10A
LD1: ignition stage 1 relay K1
LD3: ignition stage 1 relay K3
LD2: ignition stage 1 relay K2
n.u. F22 15A
LD16
LD16: voltage F22
n.u. F20 15A
LD14
LD14: voltage F20
additiv ensilage F21 15A
LD15
LD15: additiv ensilage
n.u. F23 7,5A
LD17
LD17: not inserted
n.u. F25 7,5A
LD19
LD19: not inserted
n.u. F24 7,5A
LD18
LD18: voltage F24
n.u.: not used
F3 15A
LD6: voltage V3
LD6
voltage V3
F1 15A
LD4: voltage V1
LD4
voltage V1
F2 15A
LD5: voltage V2
LD5
voltage V2
F4 15A
LD7: voltage V4
LD7
voltage V4
F14 7,5A
LD8: voltage F14
LD8
n.u.
F15 7,5A
LD9: voltage F15
LD9
n.u.
F16 7,5A
LD10: voltage F16
LD10
n.u.
F18 7,5A
LD12: voltage F18
LD12
n.u.
F17 7,5A
LD11: central lubrication
LD11
central lubrication
F19 7,5A
LD13: voltage F19
LD13
n.u.
303-635-1


Big X: sub-distribution 3 V12
303-636-1
12VL
X1.1A
X1.2A
31AB
LD20 life signal smart-drive
LD21 free
LD22 free
LD23 free
LD24 emergency stop
LD25 road / field
LD26 ground drive
LD27 service
LD28 automatic steering
LD29 free
LD30 door switch
LD31 seat switch
turn-on voltage input
F27 0,5A
voltage GAL
F26 0,5A
n.u. F12 7,5A
+12V electronic F13 7,5A
automatic steering, EMR, tele, B63 F6 10A
additiv ensilage ignition stage 1 F5 10A
teleservice F8 10A
+12V socket F9 10A
LD1: ignition stage 1 relay K1
LD3: ignition stage 1 relay K3
LD2: ignition stage 1 relay K2
n.u. F22 15A
LD16
LD16: voltage F22
voltage "Heinzmann" engine regulator F20 15A
LD14
LD14: voltage "Heinzmann" engine regulator
additiv ensilage F21 15A
LD15
LD15: additiv ensilage
load curve 1/2 F23 7,5A
LD17
LD17: not inserted
engine stop F25 7,5A
LD19
LD19: not inserted
engine speed range 1/2 F24 7,5A
LD18
LD18: engine speed range 1/2
F3 15A
LD6: voltage V3
voltage V3
F1 15A
LD4: voltage V1
voltage V1
F2 15A
LD5: voltage V2
voltage V2
F4 15A
LD7: voltage V4
voltage V4
F14 7,5A
LD8: engine start signal
engine start signal
F15 7,5A
LD9: voltage F15
n.u.
F16 7,5A
LD10: voltage F16
n.u.
F18 7,5A
LD12: voltage F18
n.u.
F17 7,5A
LD11: central lubrication
central lubrication
F19 7,5A
LD13: voltage F19
n.u.
n.u.: not used

9.13 Maintenance – compressed air system

9.13.1 Oil level check – compressed air compressor (BiG X V12 forage harvester only)



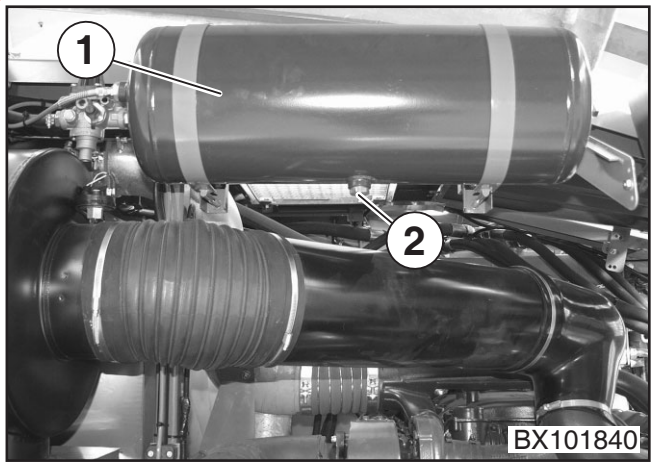
The oil level in the compressor (1) has to be checked daily prior to use by means of the dip rod (2).

- Turn out the dip rod (2).
- Use a lint-free cloth to clean the dip rod (2), and turn it back in again completely.
- Turn the dip rod (2) out again.

The oil level must lie between the min. and max. mark.

- if and when necessary, top up the oil (filling amount and designation of lubricant – cf. chapter titled "General aspects – technical data").
- Turn the dip rod (2) in again.

9.13.2 Compressed air storage tank



Condensation water settles in the compressed air storage tank (1). The condensation water may cause malfunctions.
Drain the condensation water once a week.

- Use the drain valve (2) to drain the condensation water collected in the compressed air storage tank (1) into a container.

9.14 Maintenance – Air conditioning system and heating

9.14.1 Special warnings

Carry out repair, maintenance and cleaning work only when the machine is at a standstill. Switch off the engine. Remove the ignition key. Secure the machine against the possibility of rolling back.

Repair, maintenance and cleaning work may be carried out by authorised specialists only.

In case of repair, maintenance and cleaning work on the refrigerant circuit, refrigerant emissions may occur; these emissions may be liquid or gaseous and are a hazard for man and the environment. Take suitable protective measures (wear protective goggles and protective gloves).

It is imperative that you seek medical advice in case of refrigerant burns; take the data sheet (cf. page IX - 61) along.
Ensure sufficient ventilation when working on the refrigerating system.

Do not permit the refrigerant to escape during filling or repair work; use a recycling container for disposal.

The spare parts used have to meet the technical requirements defined by the machine manufacturer. For this reason, use KRONE original spare parts only.

9.14.2 Components of the air conditioning system

A Compressor
on the right-hand side on the engine in direction of travel, driven by V belt

B Capacitor
behind the radiator screen in the machine compartment

C drier/collector
behind the radiator screen in the machine compartment – bottom right

D Evaporator
in the cab roof

E Manometric switch
on drier

F Expansion valve
at the evaporator inlet

G Air conditioning/heating rotary switch
in cab, roof panel

9.14.3 Data sheet of refrigerant R134a (extract)

Refrigerant R 134a:	
Chemical designation:	1,1,1,2-tetrafluorethane
Chemical formula:	$CH_2F\,CF_3$
Molecular weight:	102.0 g/mol
Boiling point (at 1.013 bar):	-26.1°C
Freezing point:	-101.0°C
Critical temperature:	-101.1°C
Critical pressure:	40.60 bar
Density (liquid at +25 ° Celsius):	1,206 kg/m³
Flammability limits in air:	not flammable

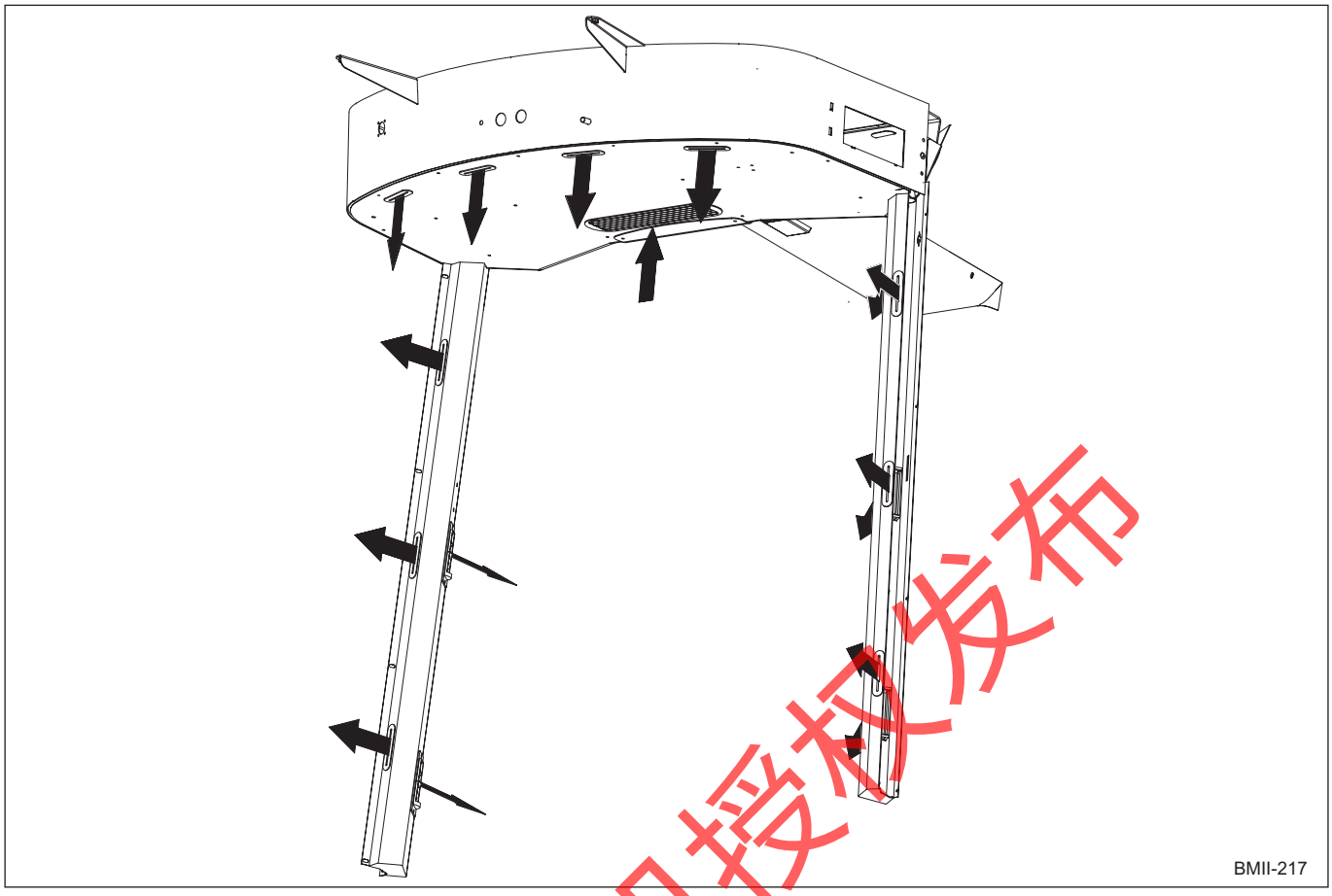
Environmental data		
FKW 134a:		
ODP	- ozonolysis potential	ODP = 0
CLP	- chlorine load potential	CLP = 0
HGWP	- greenhouse effect	HGWP = 0.26
PCR	- photo-chemical reactivity	PCR = 0.5

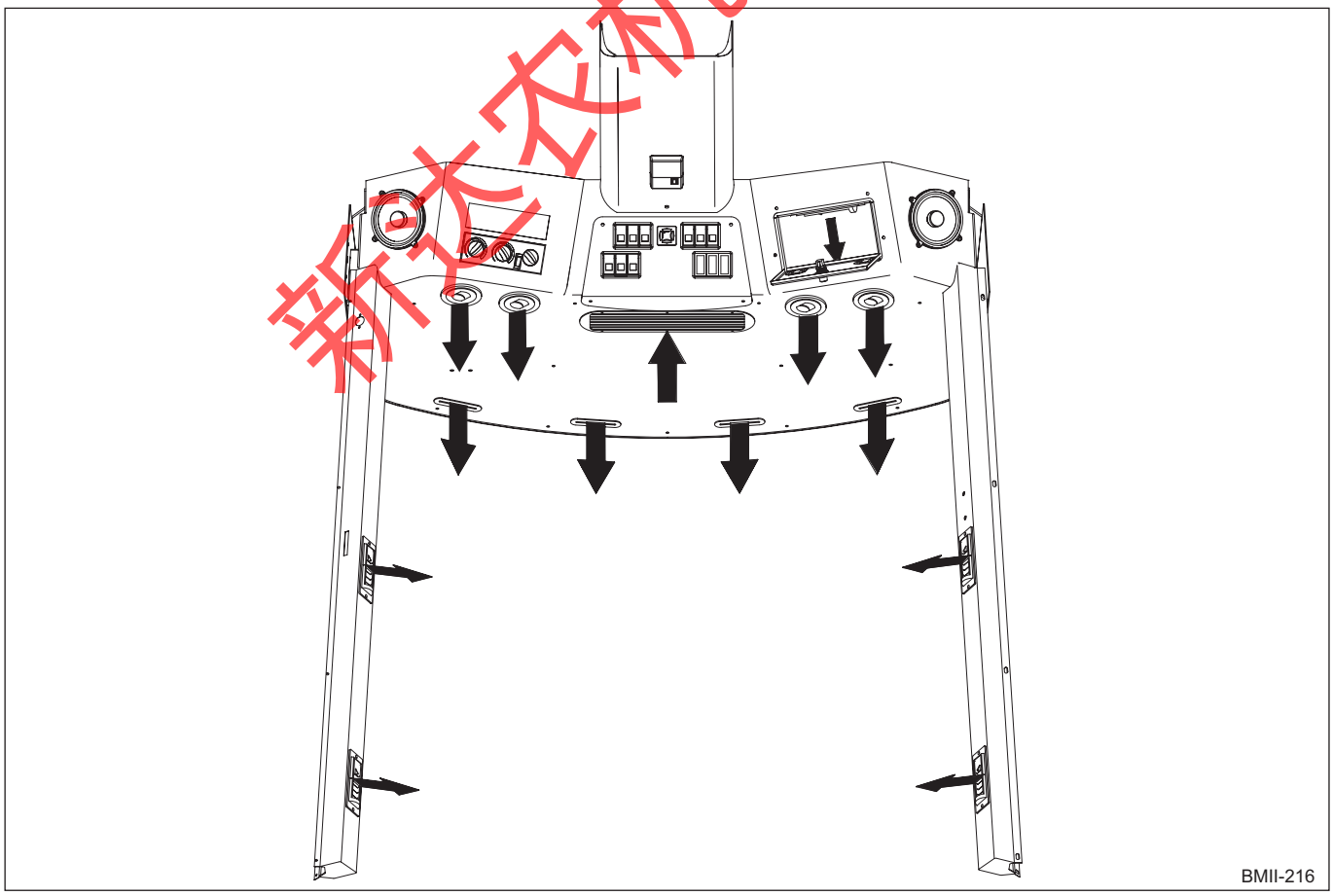
9.14.4 Technical Data

Technical Data	
Component	**Performance data**
Evaporator	refrigerating capacity* 5,200 Watt*
Heater	heating capacity 4,000 Watt
Fan	1000 m³/h free blowing
Voltage	12 Volt
Current consumption	15 amperes
Refrigerant	R 134a (CFC free)

*measured at +30 ° Celsius ambient temperature
(data rendered by the manufacturer)

9.14.5 Air intake and distribution





9.14.6 Refrigerant

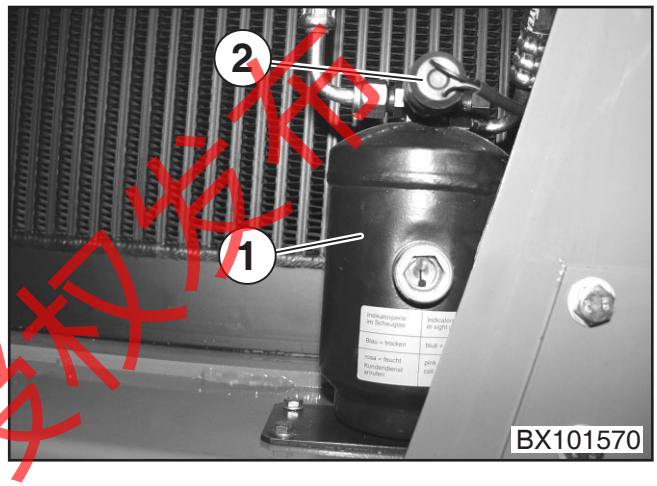
The air conditioning system is operated with 2200 g of refrigerant R134a (tetrafluoroethane). This substance does not contain any chlorine atoms, and thus is inoffensive to the ozone in the atmosphere of the environment.

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.

9.14.7 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 (on the collector/drier (1) behind the combined radiator on the left hand side in direction of travel).



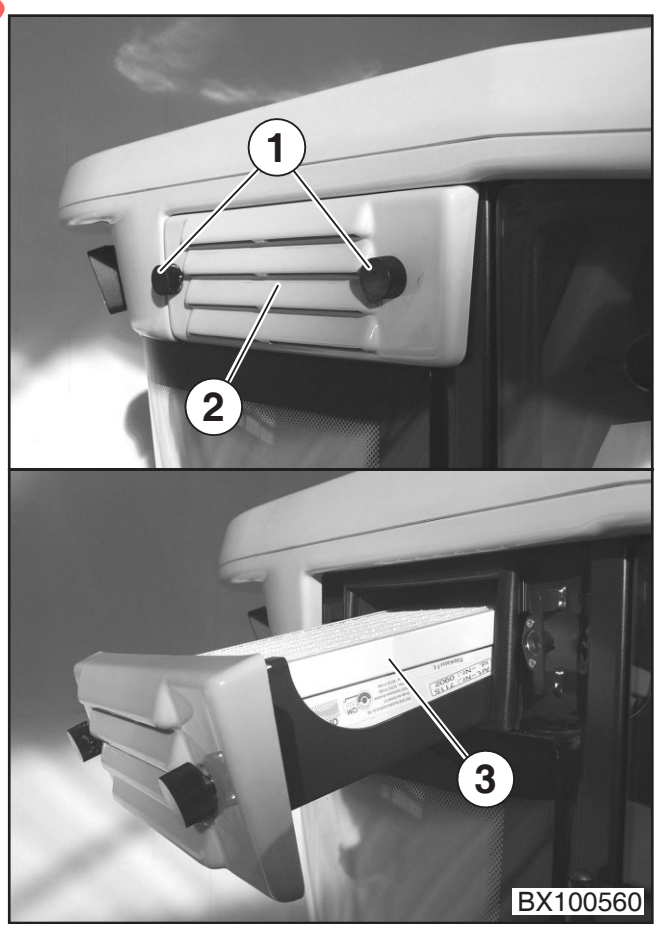
9.14.8 Fresh air fan and circulation mode (cabin)

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.

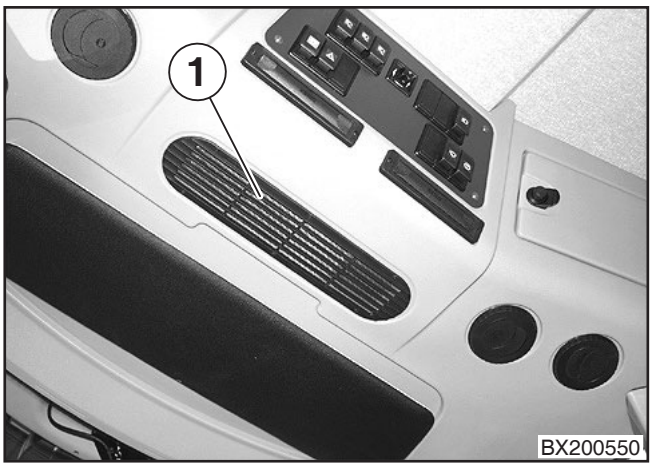
- Open the closing device (1) by turning 90° clockwise.
- Pull the gill screen (2) out; check the wedge filter cell (3) for soiling and clean, if and when necessary.
- Shake out the filter (3); never use compressed air. In case of severe soiling, the filter (3) has to be replaced.



Circulation filter

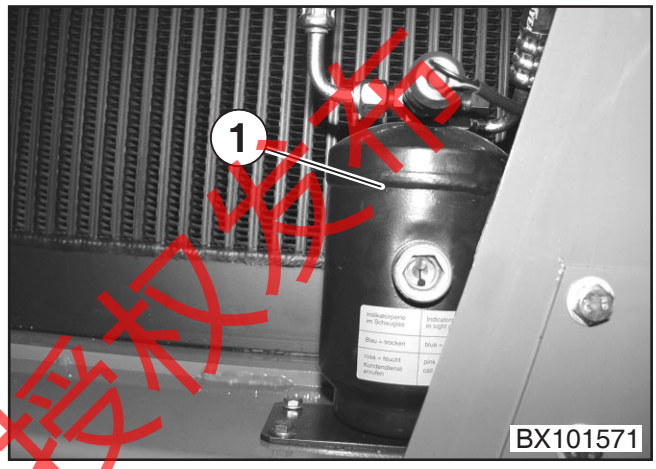
If the circulating air filter (1) is very dirty, the output of the air conditioning system may be reduced and it may heat up.

- Clean the circulating air filter (1) regularly.



9.14.9 Collector/Drier

The ambient temperature must exceed the temperature set at the thermostat (generally +1 ° Celsius) for the compressor to switch on.



Since the refrigerant collector is pressurised, it is subject to the pressurised container regulations during production and testing.
According to this regulation the pressurised tank is classified as test group II in accordance with the permissible overpressure p in bar, the volume l in litres and the pressure product p x l.

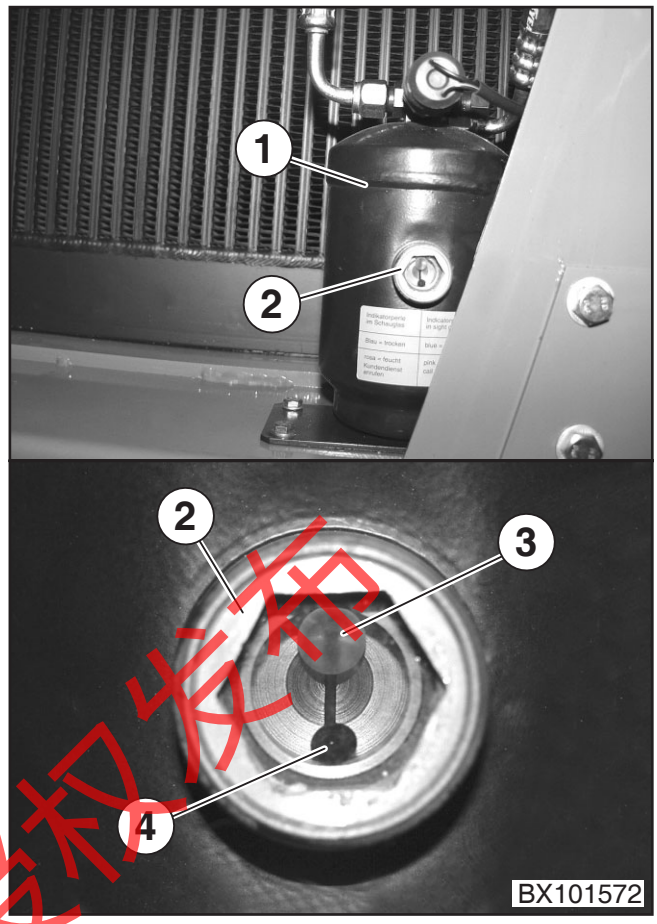
In keeping with section 10 of the Pressure Vessel Regulations these pressure tanks have to be subjected to recurrent tests by an expert in keeping with section 32. In this case the recurring tests consist, as a rule, of external inspections of the tank in use. In combination with the inspection the refrigerant collector must be subjected to a visual inspection twice a year. Special attention shall be given to corrosion and mechanical damage. If the container is not in a correct state, for safety reasons it must be replaced to ensure sufficient protection to the user and third parties due to the hazard which may be caused in handling or operating pressurised containers.

9.14.10 Checking the state of the refrigerant and the fill

Checking the refrigerant volume

Loss of refrigerant through hoses in the air conditioning system is unavoidable. Check the level of the refrigerant every 100 hours.

- Check the window (2) of the drier (1) with the engine running and with the air conditioning system switched on (set to highest cooling action).
- If the white float (3) is at the top, the volume of refrigerant is okay.
- If the white float (3) is at the bottom, the refrigerant must be topped up (specialist workshop).



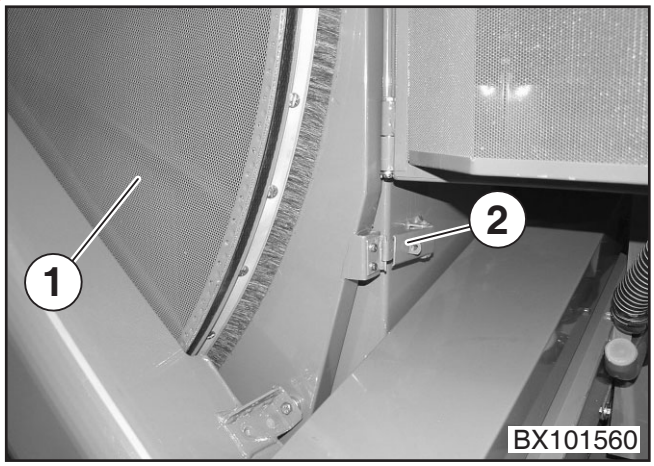
Checking the moisture saturation

The moisture in the refrigerant circuit is collected in the filter drier (1).

- If the indicator pearl (4) is blue, the degree of moisture is okay.
- If the indicator pearl (4) has discoloured to pink, the collector unit of the drier (1) must be replaced (specialist workshop).

9.14.11 Capacitor

The capacitor is located in the engine compartment behind the radiator screen (1).
Regularly check the capacitor for cleanliness; clean the unit depending on the degree of soiling, however, at least once a month.

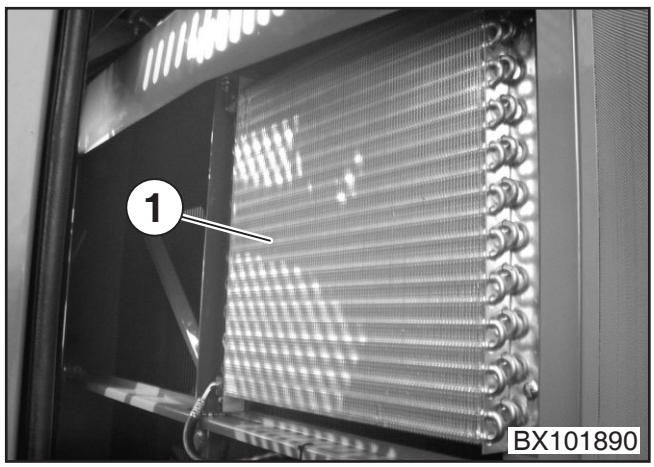


Opening the radiator screen

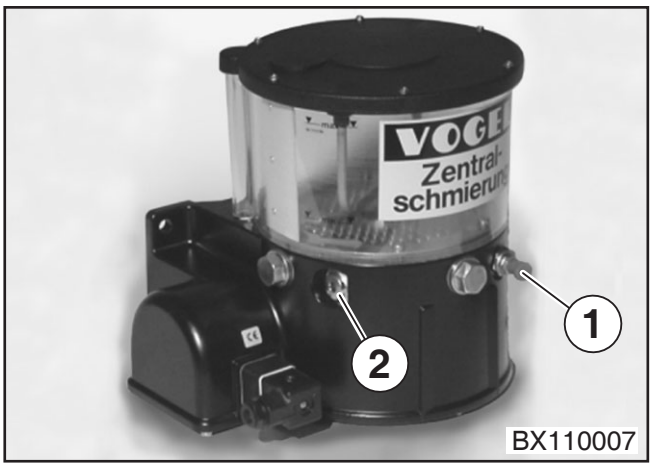
- Open the catch (2) and swing the radiator screen (1) aside.

Cleaning the capacitor

- Blow the capacitor (1) out from the inside to the outside with compressed air. Do not damage the blades.



9.15 Maintenance – central lubrication system



Lubricant fill

Hydraulic-type lubricating nipple

The lubricant is filled through the hydraulic-type lubricating nipple DIN 71412-AM10x1 by means of a commercially available grease gun.

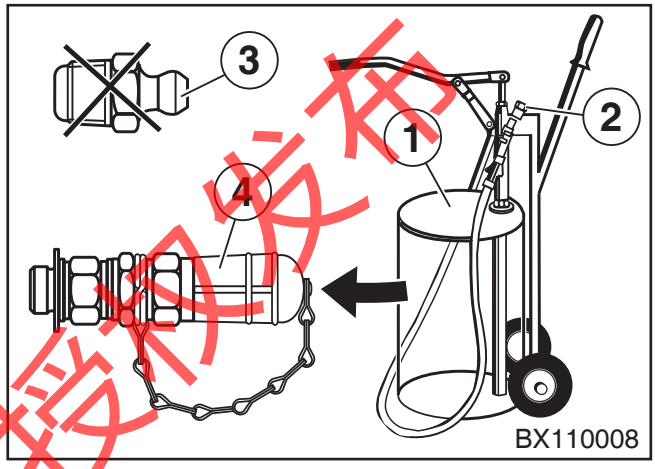
1 - Hydraulic-type lubricating nipple
2 - Mounting connection

The hydraulic-type lubricating nipple can be screwed to position 2. As an alternative, connection 2 can be used to mount potential lubricant return systems.

Fill coupling (fluid grease)

For spare parts, please refer to Vogel brochure 1-9430, page 51.

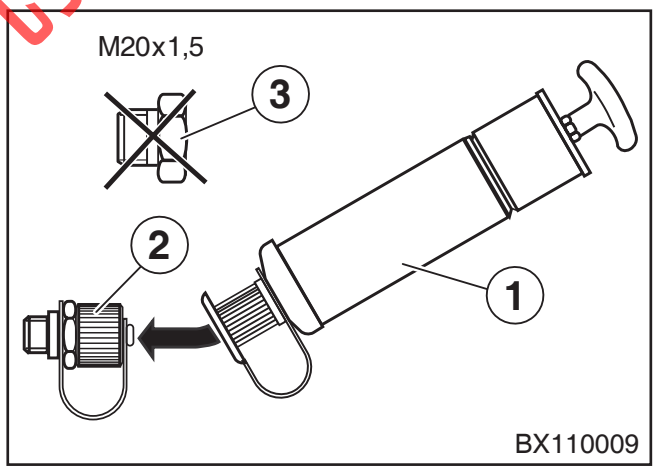
- Remove the lubricating nipple (3) and replace by filler neck 995-000-705 (4).
- The coupling box 995-001-500 (2) must be fitted to the filling pump (1).



Filling cylinder

For spare parts, please refer to Vogel brochure 1-9430, page 15.

- Remove the M20x1.5 closure screw (3) and replace by filler socket 169-000-170 (2).
- For filling remove the protective cap on the socket (2) and the filling cylinder 169-000-171 (1).



Hinged lid

For the KFG3-5, KFG5, KFG3-5 and KFGS5-5 series, a lubricant filling method has been provided through a special hinged lid as an optional feature.

Use clean lubricant with a suitable tool only! Soiled lubricants will lead to severe system failures!

Lubricant

To ensure continuous problem-free operation of the central lubrication system, we recommend using the following greases that we have tested. (Greases with sodium soap must not be used in either the on-road or off-road area because they are soluble in water.)

To ensure the system works properly, be careful no impurities enter the system when refilling lubricant. Dirt will cause malfunctions in the central lubrication system and will damage or destroy parts an friction points.

Grease can be changed from conventional grease to bio-degradable greases (and vice-versa) for the products listed here without resulting disadvantage.

Standard commercial greases or greases recommended by the manufacturer of the vehicle or grease should be used as **lubricants**. Greases should still exhibit adequate suction and flowing behaviour at –25 °C (max. flow pressure 700 mb).

They must not have a tendency to bleed out, since this can result in blockages during extended operation. MoS2 greases (up to 5 % molybdenum disulphide) can be distributed and pumped with VOGEL progressive pumps.

Grease types, NLGIClass 2

Manufacturer	Type designation	With soap	Minimum operating temperature [°C]
AGIP	Autol Top 2000	Spez. Ca	–10
ARAL	Long-term grease H	Li	–25
BECHEM	High–Lub L4742	Li	–20
BP	Energrease LS EP 9346	Li	–25
	Energrease LS EP2	Li	–20
CASTROL	Spheerol EP L2	Li	–20
ESSO	Exxon Multi-purpose grease	Li	–20
ELF	ELF Multi 2	Li	–20
FINA	Multi-purpose grease EP	Li	–20
FUCHS	LZR 2	Li	–25
KROON OIL	Lithep Grease	Li	–10
MOBIL	Mobilux EP 2	Li	–15
Mobilgrease	MB 2	Li	–20
MOGUL	LV 1 EP	Li	–25
ÖMV	ÖMV Signum M283	Li/Ca	–25
OPTIMOL	Olit EP 2	Li	–25
SHELL	Retinax EP L2	Li	–20
TEXACO	Multifak EP2	Li	–15
TOTAL	Multis EP2	Li	–20
Zeller &Gmelin	Divinol Multi-purpose grease 2	Li	–20

Lubrication greases with fast bio-degradable times

ARAL	BAB EP 2	Li/Ca	–20
AVIA	Syntogrease	Li	–25
BECHEM	UWS VE 42	Li/Ca	–25
DEA	Dolon E EP2	Li/Ca	–20
FINA	Biolical EP S2	Li/Ca	–25
FUCHS	Plantogel 0120S	Li	–25
LUBRITECH	Stabyl Eco EP2	Li/Ca	–20
ÖMV	ÖMV ecodur EP2	Ca	–25
TEXACO	Starfak 2	Ca	–20
Zeller & Gmelin	Divinol E2	Li	–25

Checking the fill level

Visual

The transparent lubricant tank permits a visual inspection of the fill. For safety reason, this inspection should take place in regular intervals.

If the tank level has dropped to below the "min." mark, the entire system must be deaerated.

Switching conditions for central lubrication

Central lubrication is only turned on is the feed drive rollers are turning.
To reprogram the central lubrication system (lubrication intervals) and start central lubrication, make the following required setting manually:

- Turn on the ignition (ignition key position II)
- Bring up in the "Calibrate feed drive" in the info centre.

  Select the Front Attachment menu box ▼ .
- Use the ↵ key to acknowledge the selection.

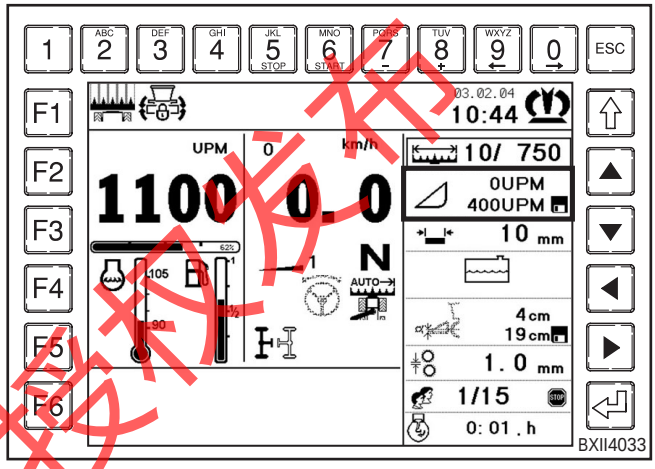
The "Calibrating the front attachment/feed drive" sub-menu is active.

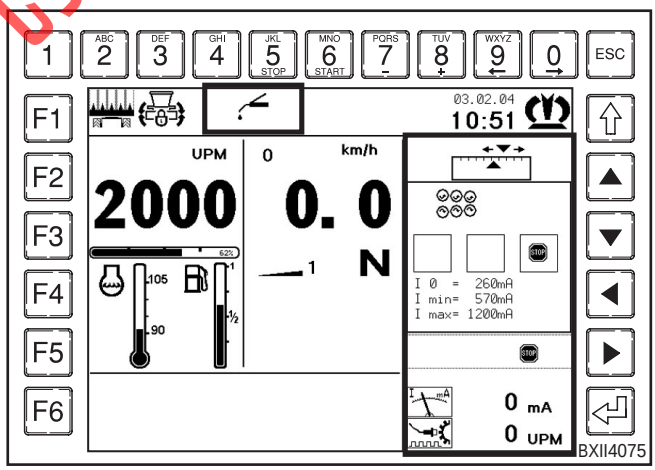
The symbol for the calibration is displayed in the information section of settings (IV).

- Use the ◀ key to select the feed drive .

Central lubrication is switched on.

The icon appears in the status line while lubrication is in progress.





Deaerating the system

- Dismount the main pipes on the unit.
- Pump until bubble-free lubricant penetrates from the screw top.
- Mount the main pipes again.

- Dismount the main pipe on the main distributor. Pump until no air is trapped in the pipe anymore. Mount the main pipe again.

- Dismount the side pipe on the main distributor.
- Pump until bubble-free lubricant penetrates from all connections of the main distributor. Mount the side pipes again.

- Subsequently deaerate the side lines, side distributors, lubricating pipes and lubricating nipples and check for correct function.

Changing the times of the lubricating interval

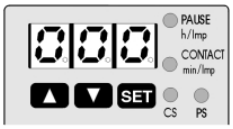
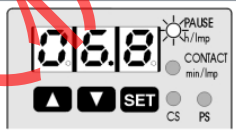
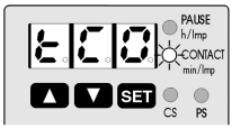
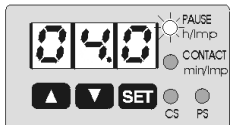
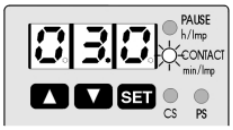
- Carry out step 1 to 2.

Basic setting upon delivery:

Pause time: 30 min
Lubrication time: 14 min

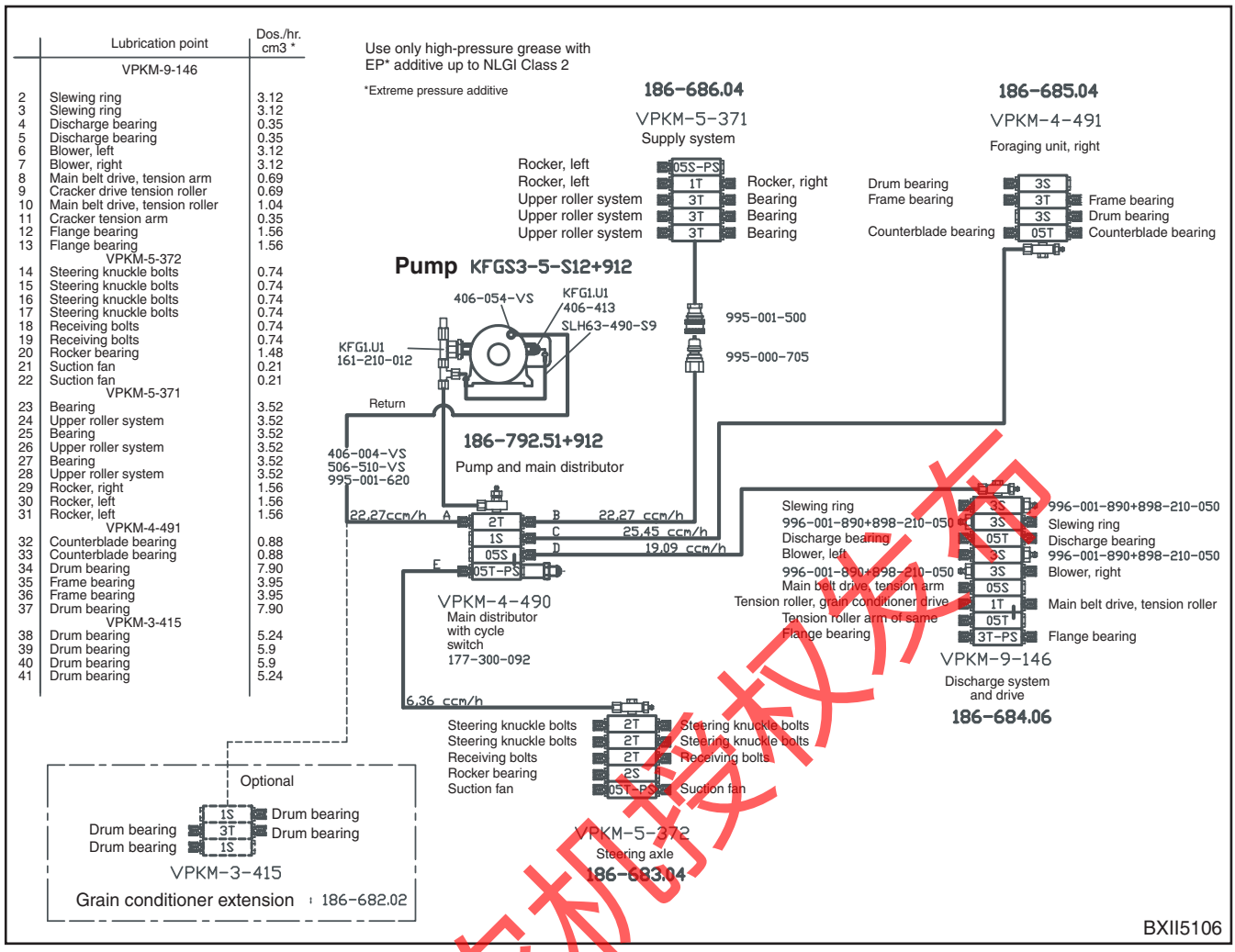
Note on step 2:

If the works code 000 has been changed already, use the ▲ ▼ keys to select the changed code, and use the SET key to acknowledge.

Step	Key	Display	
1	SET Press more than 2 sec		000 flashing (code 000 = factory adjustment)
2	SET Press briefly to acknowledge the code		Automatic display of 1st parameter "stop period in timer mode" Stop LED flashing
3	SET Press briefly		Stop period 1 h (factory adjustment)
4	▲ ▼		Set new value Example: 6.8 h = 6 hours 48 minutes
5	SET Press briefly to acknowledge the new value		Display of next parameter "pump running period in timer mode" Contact LED flashing
6	SET Press briefly		Pump running period: 4 min (factory adjustment)
7	▲ ▼		Set new value Example: 3 min
8	SET	Press briefly to acknowledge the new value	
9	SET	Press more than 2 sec	Modified values are stored and the display goes out.

For more information on the maintenance of the central lubricating system, please refer to the operating instructions on the central lubricating system (Vogel).

Overview of central lubrication



Jam in the system or at a connected lubricating point

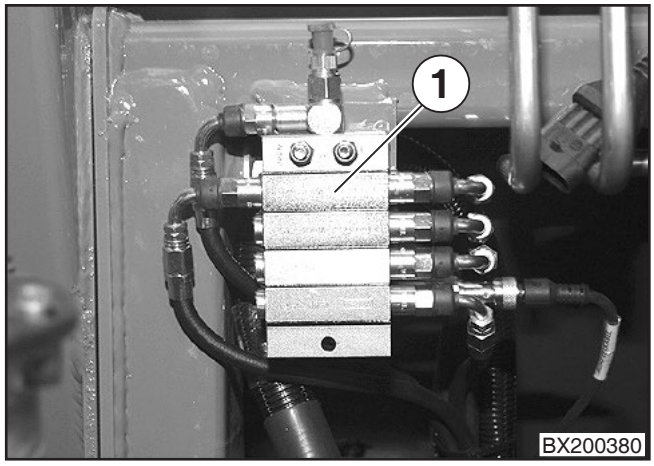
Troubleshooting

- Unscrew the outlet screw connections from the main distributor to the subdistributor one after the other.
  If lubricant suddenly exits under pressure when loosening one of the outlet screw connections, the connected subdistributor is blocked.
  If lubricant does not exit from any of the outlet screw connections, the main distributor is blocked.
  Clean the main distributor or replace it.
- Reinstall the outlet screw connections.

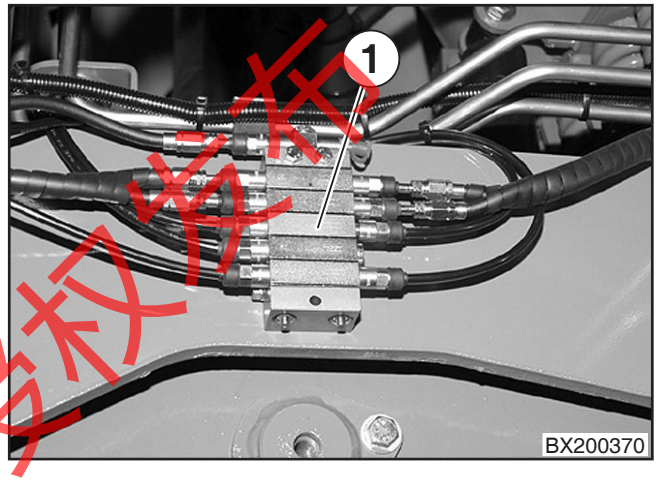
- Unscrew the outlet screw connections of the blocked subdistributor.
  If lubricant suddenly exits under pressure when unscrewing one of the outlet screw connections, the connected lubricating point is blocked.
  If lubricant does not exit from any of the outlet screw connections, the main distributor is blocked.
  Clean the blocked subdistributor or replace it.

- Remove the blockage at the lubricating point.

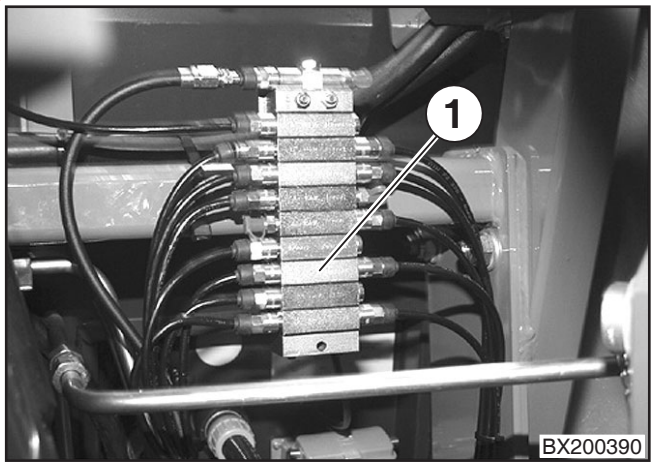
Main distributor (1)



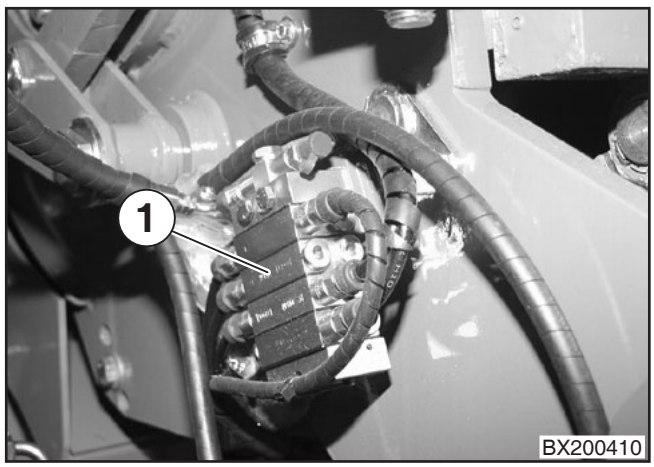
Auxiliary distributor, left steering axle (1)



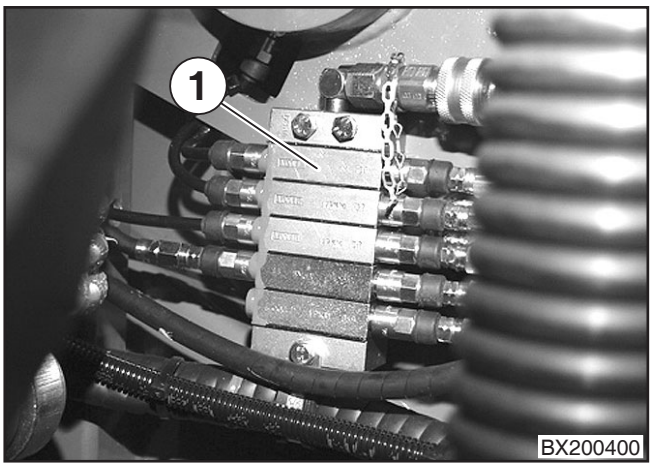
Auxiliary distributor for discharge system and drive (1)



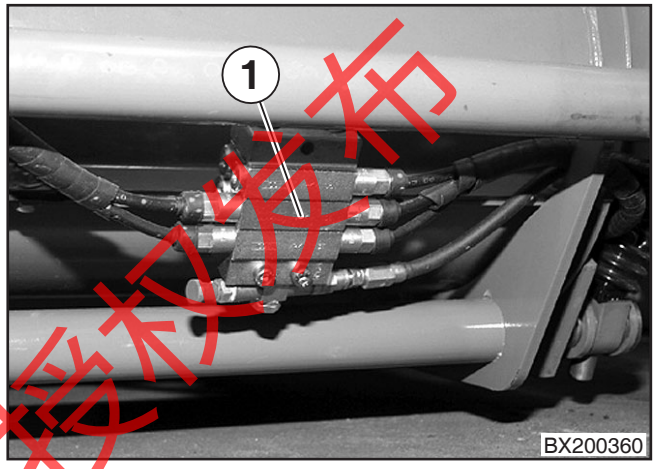
Auxiliary distributor, right foraging unit (1)



Auxiliary distributor, supply system (1)



Auxiliary distributor, grain conditioner (1)



Emergency lubricating points for use if the central lubricating system fails

Auxiliary distributor, discharge system (1)

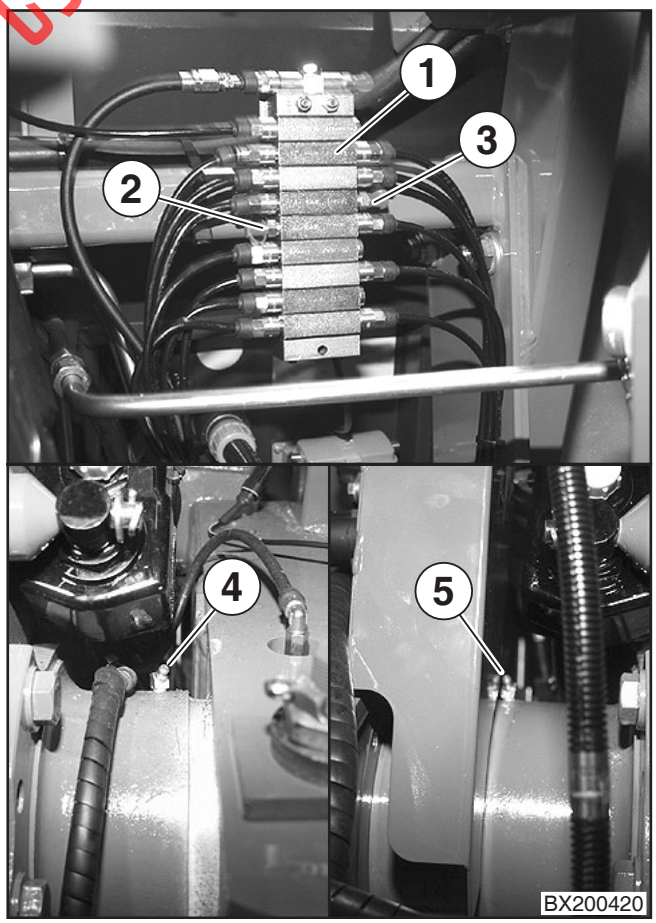
1 - Discharge accelerator – right bearing

2 - Discharge accelerator – left bearing

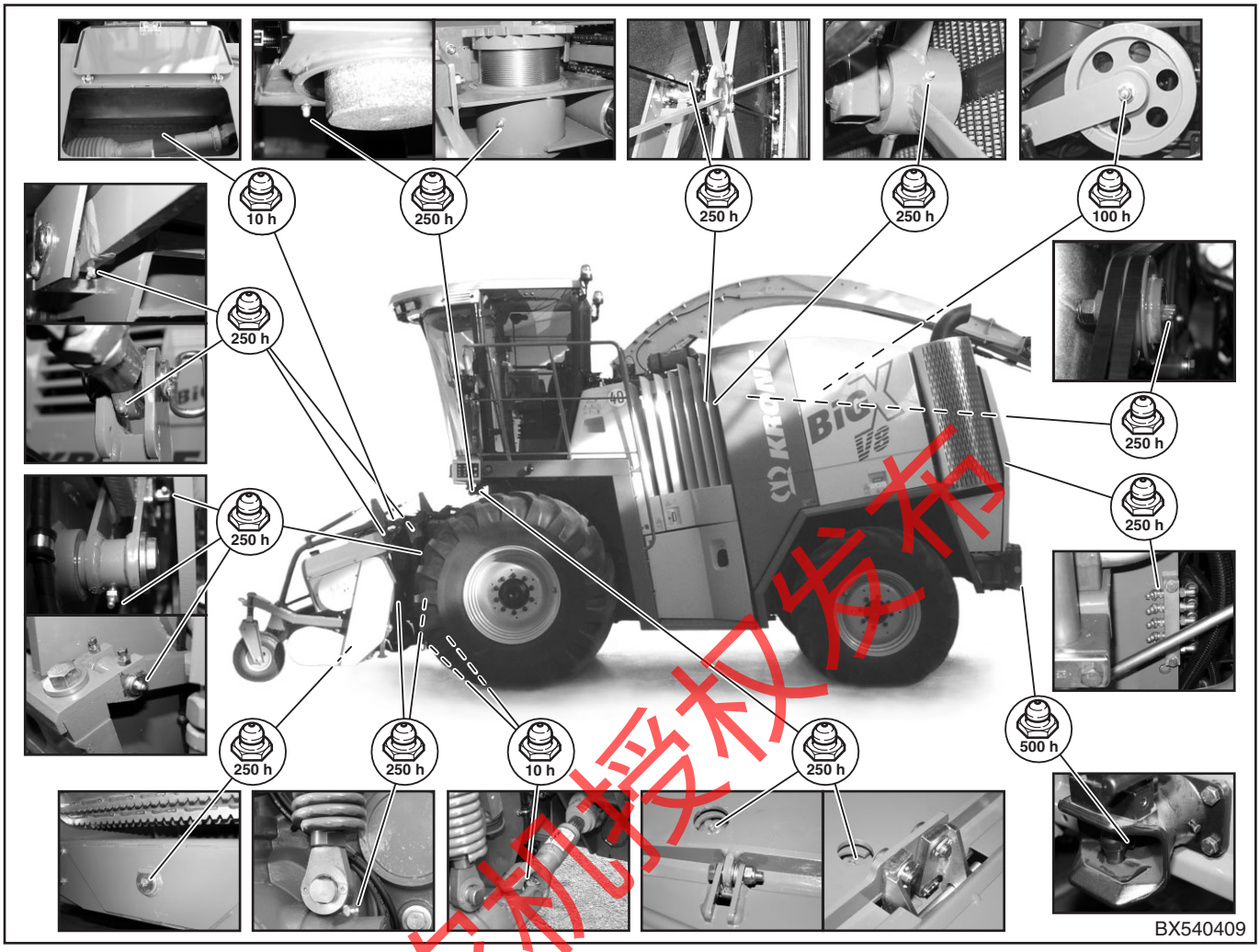
and

3 - Discharge accelerator – cutting drum

4 - Cutting drum – left bearing



9.16 Lubrication chart



Lubricating points

- The lubricating points mentioned must be lubricated according to specified number of operating hours.

PTO shafts

- All propeller shafts have to be lubricated after 250 operating hours in keeping with the data in the operating instructions of the manufacturer of the propeller shaft.

Components	Subgroup/Part	Number of lubrication points	Lubrication intervals Operating hours
Drive system	PTO shaft W 2500 (VS)	3	10
	PTO shaft W 2500 (ZW)	3	10
Fan mode	Tension roller, cpl.	1	100
Cooling system	Flange bearing	1	250
Screen drum	Flange bearing	1	250
Supply system	PTO shaft	3	10
	Pendulum frame	1	250
	Tension springs, bottom left	2	250
Counterblade adjustment	Tension anchor	2	250
	Point of rotation of swinging arm	2	250
	Coupling rods	4	250
Grinding device	Chain slide	2	250
	Slide	2	250
	Grinding stone	1	250
Full floating axle		5	250
Hitch coupling		1	500

9.17 Periodic maintenance

9.17.1 Maintenance during the running-in period

During the first 100 operating hours

- Carry out maintenance daily or after every ten operating hours (please refer to this chapter and to "Consumables and filling quantities").
- Do not unnecessarily operate the engine in idle run.
- Make continuous checks on the temperature of the refrigerant.
- Check the engine oil and refrigerant frequently. Watch for signs of leaks.
- If and when it is necessary to top up the engine oil during the running-in period, the oil viscosity has to be selected according to the annual requirements and the instructions rendered in the chapter titled "Consumables and fill quantities" of DaimlerChrysler.
- Check that the hoses and hose clamps in the air suction system are tightly fitting.
- Check the drive belts and adjust as and when necessary.

9.17.2 Every 10 operating hours

- engine oil level check
- hydraulic system level check
- tyres
- check of the pilot lamps
- light functions
- lubrication in keeping with the lubricating chart (fill lubricating grease until it penetrates at the lubricating point).

9.17.3 After the first ten operating hours only

- Tighten the fastening screws of the guide cylinder anchor on the rear axle.
- Tighten the fastening screws of the guide cylinder anchor on the wheel hubs.
- Tighten the fastening screws of the track rod.

9.17.4 Up to the first fifty operating hours

- Retighten the wheel lug nuts.
  Tightening torque for wheel lug nuts of the drive axle = 483 Nm
  Tightening torque for wheel lug nuts of the steering axle = 360 Nm

9.17.5 After the first 100 operating hours

Carry out all maintenance work listed in the chapter titled "Every ten operating hours".

- Change the engine oil and filters.
- Other intervals, please refer to the **operating instructions** for the engine.
- Check and/or set the tension of the drive belt.
- Check hoses and hose clamps of the air suction and cooling system for tight fit.
- Check the coolant level.
- Check the fuel injection pipe for loose connections.
- Change the gear oil of the central gear.

9.17.6 Every 250 operating hours

Includes the work listed under "Every ten operating hours".

- Retighten the wheel lug nuts.
  Tightening torque for wheel lug nuts of the drive axle = 483 Nm
  Tightening torque for wheel lug nuts of the steering axle = 360 Nm
- Tighten the fastening screws of the steering cylinder.
- Tighten the fastening screws on the track rod.
- Check the acid density of the battery; charge the battery, if and when necessary, and top up with distilled water.
- Clean the valve lid vents.
- Check the anti-freeze in the radiator; top up with anti-freeze, if and when necessary.
- Check the foot brake setting.
- Check the turbo charger screw connections and hose connections for tight fit.
- Clean the paper filter elements in the cab.
- Check the oil level of the central gear.

9.17.7 Every 400 operating hours

- Replace the fuel filter.
- Drain the engine oil from the crankcase, and fill new engine oil.
- Replace the engine oil filter.
- Replace the oil separator of the engine.

For detailed maintenance instructions, please refer to the operating instructions rendered in the "DaimlerChrysler Maintenance Manual" (chapter on maintenance work).

9.17.8 Every 500 operating hours

Includes the work listed under "Every ten operating hours".

- Drain the fluid of the hydraulic system and replace with new fluid.
- Replace the hydraulic fluid filter.
- Clean the mechanical fuel delivery pump.

9.17.9 Every 1500 operating hours

- Replace the dry air filter insert and the safety element of the air filter.

9.17.10 As required

- Replace both air filter elements.
- Replace the cab air filter.
- Clean the preliminary filter.
- Replace the hydraulic fluid filter.
- Replace the fuel filter.
- Clean the batteries.

9.17.11 Annually

- Have the starter checked.
- Have the three-phase generator checked.
- Check the hose connections on the air suction system.
- Check the air conditioning system.

9.17.12 Every two years

- Have the coupling elements of the main drive train checked.

Seq. No.	Name	Maintenance interval						Quantity of consumables	Designation	Check point
		Before beginning of harvest	After 10 h or daily	After 100 h	After 500 h	After the harvest or 1000 h	After every 3rd season			
	Check oil level									
1	oil tank		x					As needed	Hydraulic oil HLP 46	Inspection glass/ on-board computer
2	engine crankshaft housing OM 502	x	x					As needed	Follow the operating instructions of the engine manufacturer	Measuring rod
3	engine crankshaft housing OM 444	x	x					As needed	Follow the operating instructions of the engine manufacturer	Measuring rod
4	gear of power take-off	x		x				As needed	as needed, transmission oil PGLP DIN 51502	Viewing glass
5	transfer gearbo	x		x				As needed	as needed, transmission oil PGLP DIN 51502	Filling level screw
6	fan gear OM 502	x		x				As needed	Gear oil API-GL5-SAE85W-90	Filling level screw
7	Fan gear OM 444	x		x				As needed	Gear oil API-GL5-SAE85W-90	Filling level screw
8	lower roller gear	x		x				As needed	Gear oil API-GL5-SAE85W-90	Filling level screw
9	lower roller gearbox, upper tower	x		x				As needed	Gear oil API-GL5-SAE85W-90	Filling level screw
10	upper roller gear	x		x				As needed	Gear oil API-GL5-SAE85W-90	Filling level screw
11	tower gearbox on the upper discharge chute	x		x				As needed	Gear oil API-GL5-SAE85W-90	Filling level screw
	Changing the oil									
1	oil tank				x			approx. 150 l	Hydraulic oil HLP 46	Viewing glass
2	Engine crankshaft housing OM 502 see Sect. 9.6									Measuring rod
3	engine crankcase housing OM 444 see Sect. 9.6									Measuring rod
4	gear of power take-off					x		approx. 13,5 l	Gear oil PGLP DIN 51502	Viewing glass
5	transfer gearbox					x		approx. 8,0 l	Gear oil PGLP DIN 51502	Filling level screw
6	fan gear OM 502					x		approx. 1,7 l	Gear oil API-GL5-SAE85W-90	Filling level screw
7	fan gear OM 444					x		approx. 1,7 l	Gear oil API-GL5-SAE85W-90	Filling level screw
8	lower roller gear					x		approx. 5,0 l	Gear oil API-GL5-SAE85W-90	Filling level screw
9	lower roller gearbox, upper tower					x		approx. 1,6 l	Gear oil API-GL5-SAE85W-90	Filling level screw
10	upper roller gear					x		approx. 3,6 l	Gear oil API-GL5-SAE85W-90	Filling level screw
11	tower gearbox					x		approx. 1,0 l	Gear oil API-GL5-SAE85W-90	Filling level screw
	Coolant check									
1	Engine cooling system		x					As needed	Anti-freeze/water Mixing ratio 50:50	Viewing glass, overflow container, on-board computer
	Coolant change									
	Engine cooling system						x	As needed	Anti-freeze/water Mixing ratio 50:50	overflow container

Seq. No.	Name	Maintenance interval						Quantity of consumables	Designation	Check point
		Before beginning of harvest	After 10 h or daily	After 100 h	After 500 h	After the harvest or 1000 h	After every 3rd season			
	Air conditioning system									
1	coolant check			x					Refilling by specialist workshop	viewing glass on the drier
2	coolant change							According to sep. requirement	To be changed by specialist centre	
	Drives									
1	fan drive			x					check belt tension	
2	screen drum drive			x					check belt tension	
3	drive air conditioning system			x					check belt tension	
4	drive suction system			x					check belt tension	
5	drive dynamo			x					check belt tension	
6	drive compressor			x					check belt tension	
	Air filter system									
1	Replace all non-metal parts in the suction system and charge cooling						x			
2	Clean air intake screen							as needed		
3	Clean main cartridge								if the warning system engages	
4	Replace main cartridge					x	x			
5	Replace safety cartridge						x		after the main cartridge has been cleaned 5 times	
	Battery									
1	check voltage, recharge if necessary	x								
	Compressed air system									
1	Drain out water from condensation	x				x				water discharge valve
2	Clean air filters	x						as needed		

Error messages for BiG X 2004 as of 02.12.2004

Fault no.	Screen / message	Fault description	Potential cause of fault	Remedy of fault
1	SmartDrive_over-volt.	The supply voltage to SmartDrive (drive control) is too high.	The controller of the dynamo is defective.	Replace the dynamo.
			The battery change-over relay is defective (V12 only).	Replace the relay.
			Internal fault in SmartDrive.	Replace SmartDrive.
2	SmartDrive_under-volt.	The supply voltage to SmartDrive (drive control) is too low.	The battery voltage is too low.	Charge the batteries.
				Check the battery acid.
				Replace the batteries.
			The dynamo is defective.	Check excitation voltage – Is F146 on the relay PCB in the cab correct? Is the pilot lamp in the panel correct ? (This must be lit in ignition stage 2, if the diesel engine is not running.).
				Check the cables to the dynamo.
				Replace the dynamo.
			The cabling is defective.	Check relay PCB, harness and plug connector.
			Internal fault in SmartDrive.	Replace SmartDrive.
3	SD 12V sensor_volt. error	The 12 Volt supply voltage to SmartDrive (drive control) is too low.	Short circuit in a sensor which is supplied with voltage.	Check the sensors and replace, if and when necessary.
			Short circuit in the cables to the sensors of the travelling gear.	Check the wiring to the sensors, and repair, if and when necessary.
			The supply voltage to SmartDrive (drive control) is too low.	Cf. fault No. 2.
			Internal fault in SmartDrive.	Replace SmartDrive.
4	SD 5V sensor_volt. error	The 5 Volt supply voltage to	Cf. fault No. 3.	Cf. fault No. 3.
16	SD CS_para error	SmartDrive fault: checksum in EEPROM is	Wrong values in EEPROM.	Install SmartDrive parameters again.
			EEPROM in SmartDrive is	Replace SmartDrive.
17	SD para_min/max error	SmartDrive fault: a parameter is outside of the permissible range.	Wrong values in EEPROM.	Install SmartDrive parameters again.
			EEPROM in SmartDrive is defective.	Replace SmartDrive.
18	SD_EEPROM error	SmartDrive fault: EEPROM defective	Internal fault in SmartDrive.	Replace SmartDrive.
19	SD digital _ot. error	SmartDrive fault: digital potentiometer.	Dirt in the hydraulic pump control.	Remove dirt.
			Internal fault in SmartDrive.	Replace SmartDrive.
20	SD EV DAC_error	SmartDrive fault: EV DAC	Internal fault in SmartDrive.	Replace SmartDrive.
21	SD I2C_bus error	SmartDrive fault: I2C Bus	Internal fault in SmartDrive.	Replace SmartDrive.
30	SD Error Pump1 Contr. Loop 	SmartDrive fault in the drive pulse of the drive pump 1 (front axle fwd/back).	Short circuit / cable rupture in the cables to the valves Y1/Y2.	Check harness and plug connectors:
			Valve plug on the pumps (XY1 / XY2) is defective.	Check the valve plugs on the drive pumps
			Solenoid valve coil of the pumps (Y3/Y4) is defective.	Replace the solenoid valves.
			The supply pressure is too low.	Cf. fault No. 43.
			"Supply pressure" sensor B9 is defective.	Cf. fault No. 43.
			Short circuit / cable rupture in the cables to the "Pivoting angle pump VA" sensor B38 of the pump.	Check harness and plug connectors. cf fault No. 32 as well.
			"Pivoting angle pump VA" sensor B38 is defective.	Replace the sensor. cf fault No. 32 as well.
			The temperature is too low.	
			The drive pump 1 is defective.	Replace the drive pump 1.
			Check the drive parameters.	
			Internal fault in SmartDrive.	Replace SmartDrive.
31	SD Error Pump2 Contr. Loop 	SmartDrive fault in the drive pulse of the drive pump 2 (rear axle fwd/back).	Short circuit / cable rupture in the cables to the valves Y3/Y4.	Check harness and plug connectors:
			Valve plug on the pumps (XY3 / XY4) is defective.	Check the valve plugs on the drive pumps
			Coil of solenoid valve of the pumps (Y3/Y4) is defective.	Replace the solenoid valves.
			The supply pressure is too low.	Cf. fault No. 43.
			"Supply pressure" sensor B9 is defective.	Cf. fault No. 43.
			Short circuit / cable rupture in the cables to the "Pivoting angle pump RA" sensor B39 of the pump.	Check harness and plug connectors. cf fault No. 32 as well.
			"Pivoting angle pump RA" sensor B39 is defective.	Replace the sensor. cf fault No. 32 as well.

Error messages for BiG X 2004 as of 02.12.2004

Fault no.	Screen / message	Fault description	Potential cause of fault	Remedy of fault
			The temperature is too low.	
			Check the drive parameters.	
			Internal fault in SmartDrive.	Replace SmartDrive.
32	SD feedback_sensor 1 error 	SmartDrive fault: Value of pivoting angle sensor 1 is outside of the permissible range.	The pivoting disk pump FA" has not been calibrated.	Calibrate the sensor. With the machine at a standstill, the pivoting disk has to be in centre position. The signal voltage supplied by the sensor has to be approx. 2.5 Volt.
			The "Pivoting angle pump RA" sensor B38 is defective.	Replace the sensor.
			The 5V sensor supply voltage of the SmartDrive is defective.	Cf. fault No. 4.
			Internal fault in SmartDrive.	Replace SmartDrive.
33	SD feedback_sensor 2 error 	SmartDrive fault: Value of pivoting angle sensor 2 is outside of the permissible range.	The pivoting disk pump RA" has not been calibrated.	Calibrate the sensor. With the machine at a standstill, the pivoting disk has to be in centre position. The signal voltage supplied by the sensor must be approx. 2.5 Volt.
			The "Pivoting angle pump RA" sensor B39 is defective.	Replace the sensor.
			The 5V sensor supply voltage of the SmartDrive is defective.	Cf. fault No. 4.
			Internal fault in SmartDrive.	Replace SmartDrive.
34	SD feedback_sen 1 too high 	SmartDrive fault: The pivoting angle sensor 1 supplies value outside of the permissible range in standstill.	Dirt in the hydraulic pump control.	Remove dirt.
			The "Pivoting angle pump FA" sensor B38 supplies a faulty signal.	Cf. fault No. 32.
35	SD feedback_sen 2 too high 	SmartDrive fault: The pivoting angle sensor 2 supplies value outside of the permissible range at standstill.	Dirt in the hydraulic pump control.	Remove dirt.
			The "Pivoting angle pump RA" sensor B39 supplies a faulty signal.	Cf. fault No. 32.
36	SD Brake Pressure sen error 	SmartDrive fault: The signal of the brake pressure sensor is outside of the permissible range.	The "Pressure service brake" sensor B16 is defective.	Replace the brake pressure sensor.
			The "Brake pedal switch" sensor B40 is defective.	Replace the brake pedal switch.
			The cables to the "Pressure service brake" sensor B16 are defective.	Check the harness and plug connectors.
			The 12 Volt sensor supply voltage of the SmartDrive is defective.	Cf. fault No. 9.
			Brake pressure too high and the brake pedal switch is not indicating that the brake is on.	Adjust the brake pedal switch.
			The SmartDrive has wrong parameters.	Install parameters again.
			Internal fault in SmartDrive.	Replace SmartDrive.
37	SD Pump_speed too low	SmartDrive fault: The speed of the pump is wrong.	The cabling to "Speed drive pump " sensor B11 is defective.	Check the harness and plug connectors.
			The "drive pump speed" sensor B11 is defective.	Replace the sensor.
			Internal fault in SmartDrive.	Replace SmartDrive.
38	SD Brake Reserve too low 	SmartDrive fault: The brake tank pressure is too low.	The diesel engine is not operating.	Start the diesel engine.
			The tank pressure is too low.	
			The cables to the "Brake tank pressure" sensor B18 are defective.	Check the harness and plug connectors.
			The "Brake tank pressure" sensor B18 is defective.	Replace the sensor.
			The 12 Volt sensor supply voltage of the SmartDrive is defective.	Cf. fault No. 3.
			Internal fault in SmartDrive.	Replace SmartDrive.
39	SD CAN-bus error	The SmartDrive cannot establish any communication via the CAN bus.	One of the two CAN bus dummy loads is defective.	Measure resistance between CAN high and CAN low; the setpoint value is 60 ohm.
			The metal detection has not been connected and the resistance is not passed through the relay PCB to the UV2.	Check the F25 fuse on the relay PCBs in UV2.
				Check UV2-K19 relay, and replace, if and when necessary.

Error messages for BiG X 2004 as of 02.12.2004

Fault no.	Screen / message	Fault description	Potential cause of fault	Remedy of fault
			No CAN messages from the KKC panel computer.	Check the function of KKC and the cables to the KKC.
			No CAN messages from the	Check the function of KMC3 and the cables to the KMC3. See
			Internal fault in KMC3.	Replace the KMC3.
			External bus user is blocking the CAN bus.	Disconnect the bus user.
			Internal fault in SmartDrive.	Replace SmartDrive.
40	SD High Pressure sensor error	SmartDrive fault: The signal of the high pressure sensor is outside of the permissible range.	The high pressure is too high.	
			The cables to the "High pressure 1" sensor B13 are defective.	Check harness and plug connectors.
			The "High pressure 1" sensor B13 is defective.	Replace the sensor.
			The 12 Volt sensor supply voltage of the SmartDrive is defective.	Cf. fault No. 3.
			Internal fault in SmartDrive.	Replace SmartDrive.
42	SD Parking brake Active 	SmartDrive fault: An attempt was made to drive with the parking brake switched on.	The parking brake is switched on (switch S96).	Switch off the parking brake using S96.
			Short circuit in "Parking Brake" switch S96.	Replace switch S96.
			The cables from the "Parking brake" switch S96 to the KKC panel computer are defective.	Check the cables to the panel computer.
			The KKC panel computer is defective.	Cf. fault No. 100.
			The "Pressure parking brake"	Check sensor B17, and replace, if and when necessary.
			The cables of the "Pressure parking brake" sensor B17 are defective.	Check the cables.
			The 12 Volt sensor supply voltage of the SmartDrive is defective.	Cf. fault No. 3.
			Internal fault in SmartDrive.	Replace SmartDrive.
43	SD Charge press. too low 	SmartDrive fault: The supply pressure for the drive is too low.	The diesel engine is not operating.	Start the diesel engine.
			The engine speed is too low.	Increase the speed.
			Leakage in the hydraulic system.	Remove the leakage.
			Cable rupture / short circuit in the "Sensor supply pressure" cables B9.	Check the harness and plug connectors.
			"Supply pressure" sensor B9 is	Replace the sensor.
			The hydraulic pump is defective.	Replace the hydraulic pump.
			The 12 Volt sensor supply voltage of the SmartDrive is defective.	Cf. fault No. 3.
			Internal fault in SmartDrive.	Replace SmartDrive.
44	SD Oil Temp. too high 	SmartDrive fault: The hydraulic fluid is too hot.	The hydraulic fluid is too hot.	Allow the machine to cool down.
			Cable rupture / short circuit in the cables to the "Temperature flush valve" sensor B14.	Check the harness and plug connectors.
			The "Temperature Flush valve" B14 is defective.	Replace the sensor.
			The 12 Volt sensor supply voltage of the SmartDrive is defective.	Cf. fault No. 3.
			Internal fault in SmartDrive.	Replace SmartDrive.
45	SD FS Transmission 	SmartDrive fault: The travelling gear release has not been switched on on. An attempt was made to drive without release of driven.	The "Release travelling gear" switch S93 has not been switched.	Switch on the "Release travelling gear" switch S93.
			The "Release travelling gear" switch S93 is defective.	Replace the "Release travelling gear" switch S93.
			Fault in the cables to the "Release travelling gear" switch S93.	Check the harness and plug connectors.
			Internal fault in SmartDrive.	Replace SmartDrive.
46	SD pump #1_solenoid 1 err	SmartDrive fault: Pump 1, coil 1. Front axle forwards	The cables to "Valve pump FA forward" valve Y1 are defective (Front axle).	Check the harness and plug connectors.
			The "Valve pump FA forward" solenoid valve Y1 is defective (front axle)	Replace the solenoid valve.
			Overtemperature.	Allow the machine to cool down.
			Internal fault in SmartDrive.	Replace SmartDrive.
47	SD pump #1_solenoid 2 err	SmartDrive fault: Pump 1, coil 2. Front axle backwards	The cables to "Valve pump FA forward" valve Y2 are defective (front axle)	Check the harness and plug connectors.

Error messages for BiG X 2004 as of 02.12.2004

Fault no.	Screen / message	Fault description	Potential cause of fault	Remedy of fault
			The "Valve pump FA forward" solenoid valve Y2 is defective (front axle).	Replace the solenoid valve.
			Overtemperature.	Allow the machine to cool down.
			Internal fault in SmartDrive.	Replace SmartDrive.
48	SD pump #2_solenoid 1 err	SmartDrive fault: Pump 2, coil 1. Rear axle forwards	The cables to "Valve pump RA forward" valve Y3 are defective (rear axle)	Check the harness and plug connectors.
			The "Valve pump FA forward" solenoid valve Y3 is defective (rear axle)	Replace the solenoid valve.
			Overtemperature.	Allow the machine to cool down.
			Internal fault in SmartDrive.	Replace SmartDrive.
49	SD pump #2_solenoid 2 err	SmartDrive fault: Pump 2, coil 2. Rear axle backwards	The cables to "Valve pump FA forward" valve Y4 are defective.	Check the harness and plug connectors.
			The "Valve pump FA forward" solenoid valve Y4 is defective (rear axle).	Replace the solenoid valve.
			Overtemperature.	Allow the machine to cool down.
			Internal fault in SmartDrive.	Replace SmartDrive.
50	SD Joystick_error 	SmartDrive fault: The driving lever signal is wrong.	Cable rupture / short circuit in the driving lever.	Replace the driving lever.
			Cable rupture / short circuit in the cables from the KKC panel computer to the driving lever.	Check the cable harness, the plug connector and the adapter PCB, and repair / replace.
			The power supply of the KKC panel computer is too low, and thus supplies a cable rupture signal.	Check the power supply of the KKC panel computer. See also faults nos. 2,3, 102 and 103. If faults 2, 3, 102 or 103 are also indicated, then first check the power supply/dynamo!!!
			Internal fault of the KKC panel computer.	Replace the panel computer.
95	SD brake-valve error	Brake pressure has been measured for a long period, indicating a value present without the brakes being actuated. See also parameters 7461 and 7462	The brake pedal is constantly depressed.	Remove your foot from the brake when you do not wish to brake.
			The signal from the "operating brake pressure" B16 sensor is incorrect, because the sensor is defective.	Replace the brake pressure sensor.
			The cables to the "Pressure service brake" sensor B16 are defective (e.g. short circuit in power supply)	Check the harness and plug connectors.
			The 12 Volt sensor supply voltage of the SmartDrive is defective.	Cf. fault No. 9.
			The parameter settings are incorrect.	Set parameters 7461 and 7462 in the Travelling Gear group (only installation engineers should do this).
96	SD CAN to_KMC3 error	SmartDrive fault: No CAN communication to KMC3.	The diagnosis of the actuators is shown in the display.	Quit actuator diagnosis.
			The SmartDrive power supply is missing.	Check the power supply on the SmartDrive.
				The safety output of KMC3 has not been switched; LD2 in KMC3 has to be lit; check the KMC3 voltage, replace the KMC3, if and when necessary.
				Check LD29 on the UV1 relay PCB; has to be lit, if LD2 is lit in KMC3; check the cables / plug connectors, if and when necessary.
				LD4, LD5, LD6, LD7 on UV1 relay PCB have to be lit, if LD29 is lit on the relay PCB. Check fuses F1, F2, F3, F4 on the UV1 relay PCB. If the fuses are okay, check the GAL component; replace, if and when necessary.
				Check the relay PCB and replace, if and when necessary.
				There is no toggle signal from the SmartDrive; cf. fault No. 97 (evaluation only when the diesel engine is running !!), so the KMC3 swtiches off the voltage supply to the SmartDrive.
			CAN bus is defective.	Check the CAN bus; cf. fault No. 39 and 3601.
			Internal fault in SmartDrive.	Replace SmartDrive.
97	SD Switch_signal error	The KMC3 is not receiving a toggle signal from the SmartDrive.	The diagnosis of the actuators is shown in the display.	Quit actuator diagnosis.
			The toggle output on the SmartDrive is not switched. LD20 on the UV1 relay PCB has to flash (approx. 10x per second).	No power supply to SmartDrive. See also fault numbers 2 and 96.
				Check the cabling/plug connectors in UV1. Check SmartDrive and replace if necessary.
			The toggle signal from the SmartDrive does arrive at KMC3 in UV3.	Check the cable harness and the plug connectors from UV1 to UV3. LD20 on the relay PCB in UV3 has to be flashing, if LD20 on the relay PCB in UV1 is flashing as well.
				Check the relay PCB and replace, if and when necessary.

Error messages for BiG X 2004 as of 02.12.2004

Fault no.	Screen / message	Fault description	Potential cause of fault	Remedy of fault
				Internal fault in KMC3; replace KMC3, if and when necessary.
98	SmartDrive_general error	The SmartDrive transmits unknown fault.	The SmartDrive transmits unknown fault.	Use the hand terminal or Phases to read out the list of faults of the SmartDrive.
				Check the program version for the SmartDrive and KMC3 and update if necessary.
99	Restart_SmartDrive	The SmartDrive has been restarted during the current operation.	The power supply of the SmartDrive is defective (loose contact, et cetera).	Check harness and plug connectors.
				See also faults Nos. 2, 96 and 97.
				After the actuator diagnosis screen was quit, the power supply
100	KKC_CAN to KMC3!	The CAN communication from the KKC panel computer to KMC3 is defective. Note: See also Appendix A for CAN faults.	KMC3 is not receiving CAN messages from the KKC panel computer.	Check the cables / plug connector from the KKC panel computer to the UV3/KMC3. See also fault no. 3601.
			KKC panel computer is faulty, the LED on the KKC must flash.	Check the voltage supply to the KKC, and repair if necessary. If the voltage supply is OK, then check the KKC and if necessary, replace it.
			Internal fault in KMC3.	Replace the KMC3.
101	KKC_restart!	The KKC panel computer has been restarted during the current operation.	The power supply of the KKC panel computer is defective (loose contact, etc).	Check harness and plug connectors.
			The battery voltage is too low; the panel computer is not operating. Faults 2, 3, 102 and possibly also 103 are also indicated.	Charge the batteries.
				Check the battery acid.
				Replace the batteries.
			The dynamo is defective.	Check excitation voltage – Is F146 on the relay PCB in the cab correct? Is the pilot lamp in the panel correct ? (This must be lit in ignition stage 2, if the diesel engine is not running.).
				Check the cables to the dynamo.
				Replace the dynamo.
			The cabling is defective.	Check relay PCB, harness and plug connector.
			Internal fault of the KKC panel computer.	Replace the panel computer.
102	KKC_12V error!	The power supply of the KKC panel computer is faulty (less than 10.5 V).	The power supply of the KKC panel computer is defective (loose contact, et cetera).	Check harness and plug connectors.
			The battery voltage is too low (less than 10.5 V).	Charge the batteries.
				Check the battery acid.
				Replace the batteries.
			The dynamo is defective.	Check excitation voltage – Is F146 on the relay PCB in the cab correct? Is the pilot lamp in the panel correct ? (This must be lit in ignition stage 2, if the diesel engine is not running.).
				Check the cables to the dynamo.
				The charge indicator light is defective; check.
				Replace the dynamo.
			The cabling is defective.	Check relay PCB, harness and plug connector.
			Internal fault of the KKC panel computer.	Replace the panel computer.
103	KKC_8.5V error!	The power supply of the KKC panel computer is faulty (less than 8 V).	Fault no. 102 is also indicated. Cf. fault No. 102.	
104	Joystick_defective!	The KKC panel computer has detected a fault in the driving lever.	Cable rupture / short circuit in the driving lever.	Replace the driving lever.
			Cable rupture / short circuit in the cables from the KKC panel computer to the driving lever.	Check the cable harness, the plug connector and the adapter PCB, and repair / replace.
			The power supply of the KKC panel computer is too low, and thus supplies a cable rupture signal.	Check the power supply of the KKC panel computer. Cf. fault No. 102/103 as well.
			Internal fault of the KKC panel computer.	Replace the panel computer.
105	Switch Panel_defective!	The KKC panel computer has detected a fault in the switches of the manual operating unit.	The cables to one of the switches of the manual operating unit are defective.	Use the manual operation diagnosis mode to determine which cables and/or plug connectors are defective and then check them.
			A switch of the manual operating unit is defective.	Use the joystick diagnosis mode to determine which switch is defective and replace the switch, if and when necessary.
106	Button Panel_defective!	The KKC panel computer has detected a fault in the keyboards of the panel.	The cables to one of the push-buttons of the panel are defective.	Use the panel push-button diagnosis mode to determine which cables and/or plug connectors are defective and then check them.

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Fault no.	Screen / message	Fault description	Potential cause of fault	Remedy of fault
			A keyboard of the panel is defective.	Use the panel push-button diagnosis mode to determine which keyboard is defective and replace the switch, if and when necessary.
200	Engine Problem! 	General engine failure. Switch off the engine	The oil level is too low.	Check the oil level and top up the oil, if and when necessary.
			The oil level is too high.	Check the oil level and if necessary, drain off some oil.
			The oil pressure is too low.	Check the oil pump and the oil circuit.
				Check the oil filter.
			The cooling water temperature is too high.	Check the cooling water level and top up the water, if and when necessary.
				Check the cooling water circuit.
				Allow the machine to cool down.
201	Engine Oil Pressure ! 	The oil pressure of the diesel engine is not correct.	The oil level is too low.	Check the oil level and top up the oil, if and when necessary.
			The oil pump / circuit is	Check the oil pump and the oil circuit.
			The oil pressure sensor is defective.	Check the oil pressure sensor and replace, if and when necessary.
202	Engine Oil Level! 	The oil level of the diesel engine is not correct.	The oil level is too low.	Check the oil level and top up the oil, if and when necessary.
			The oil pump / circuit is defective.	Check the oil pump and the oil circuit.
			The oil level sensor is defective.	Check the oil level sensor and replace, if and when necessary.
203	Coolant Temp! 	The cooling water temperature is too high / defective	The cooling water temperature is too high.	Allow the machine to cool down.
			The cooling water level is too low.	Check the cooling water level, and top up, if and when necessary.
			The cooling water circuit is defective.	Check the cooling water circuit.
			The temperature sensor of the cooling water is defective.	Check the cooling water temperature sensor and replace if, if and when necessary.
204	Coolant! 	The cooling water level is too low / not correct.	The cooling water level is too low.	Check the cooling water level, and top up, if and when necessary.
			The cooling water circuit is defective.	Check the cooling water circuit.
			The "Cooling water level" sensor B45 is defective.	Check sensor B45, and replace if necessary.
			The cables to the "Cooling water level" sensor B45 are defective.	Check the cable harness / plug connectors.
			The 8 Volt power supply to the analogue KMC3 sensors is defective.	Check the power supply.
			Internal fault in KMC3.	Replace the KMC3.
205	Air filter Dirty 	The air filter(s) is / are soiled.	The air filter(s) is/are soiled (V12 engine has two filters).	Cleaning the Air Filter
			The cables to the "air filter	Check harness and plug connectors.
			The "air filter contamination" sensor is defective B46 (V12:	Check the sensor and replace it, if and when necessary.
206	Fuel tank_sensor defective ! 	The tank sensor supplies a wrong signal.	The cables to the "Fuel level" sensor B44 are defective.	Check harness and plug connectors.
			The multiplier resistor of the tank sensor is defective.	Check the multiplier resistor of the tank sensor and replace it, if and when necessary. The multiplier resistor has to have 84 ohm.
			The tank sensor is defective.	Check the tank sensor. Depending on the float level, the sensor has a resistance of 1 ohm (tank full) to 82 ohm (tank empty).
207	Fuel Tank Reserve! 	The fuel level is in the reserve-level range.	The fuel level in the fuel tank is too low.	Fill with fuel.
209	Service!	Maintenance rate has expired. Service works must be accomplished.	Maintenance rate has expired. Service works must be accomplished.	Get service in contemplated shop accomplished and let them reset service-requests.
211	Engine elect._defective!	KMC3 cannot establish a CAN communication to the ADM engine control (V8 only)	The ignition key is set to ignition stage 1.	The power supply of the engine electric system is active in ignition stage 2 only, thus set to ignition stage 2.
			The power supply of the ADM engine control is defective.	Check the F134 fuse on the relay PCB in the cab.
				Check the harness and plug connectors.
			CAN2-Bus faulty line resistance	Check the terminating resistors; the line resistance has to be approx. 60 ohm.
				Check the harness and plug connectors.
			The CAN2 bus is defective (cable rupture / short circuit).	Check the harness and plug connectors.
			The ADM is defective.	Replace the ADM
			Internal fault in KMC3.	Replace the KMC3.
212	Engine Model_not set!	The engine type has not been set yet.	First system start-up or the job computer has been replaced, thus the type of engine is unknown.	Set the type of engine in the parameters. 1=V8 2=V12

Error messages for BiG X 2004 as of 02.12.2004

Fault no.	Screen / message	Fault description	Potential cause of fault	Remedy of fault
			The message appears every time the ignition is switched on.	The parameters could not be saved because the EEPROM, for example, is defective: Replace the KMC3 job computer.
213	Minor Engine_fault!	In V12 engines, the Heinzmann engine control indicates a slight fault.	Use the Heinzmann diagnostic unit to read out the fault.	
214	Major Engine_fault!	In V12 engines, the	Use the Heinzmann diagnostic	
215	Coolant Sensor Level!	The cooling water level signal sensor is defective.	The cooling water level is too low.	Check the cooling water level, and top up, if and when necessary.
			The cooling water circuit is defective.	Check the cooling water circuit.
			The "Cooling water level" sensor B45 is defective.	Check sensor B45, and replace if necessary.
			The cables to the "Cooling water level" sensor B45 are defective.	Check the cable harness / plug connectors.
			The 8 Volt power supply to the analogue KMC3 sensors is defective.	Check the power supply.
			Internal fault in KMC3.	Replace the KMC3.
300	No Communication To KMC! 	No CAN communication between terminal and KMC3. No CAN connection possible to KMC2 and KMC3; the connection to the KKC panel computer is OK.. Note::See also Appendix A for CAN faults.	The power supply of KMC3 is defective.	Check the F12 and F13 fuses on the relay PCB in UV3.
				Check the harness and plug connectors.
			The terminal receives no CAN messages from the KMC3 job computer.	Check the cables / plug connectors from the terminal to the KMC3.
				Check the program version of KMC3 and update, if and when necessary.
			CAN bus is defective.	Cf. fault No. 100.
			Program is not running in KMC3.	Check LED between X1 and X2 of KMC3. See also fault no. 3601.
			Internal fault in KMC3.	
301	Input Is Too Large!	An excessively high value has been entered in the terminal.	Internal fault in the terminal.	Switch the ignition off and on again.
302	Input is too low!	An excessively small value has been entered in the terminal.	Internal fault in the terminal.	Switch the ignition off and on again.
312	Set / Reset / Duration		Internal fault in the terminal.	Switch the ignition off and on again.
316	Data record does not fit the operation system		Internal fault in the terminal.	Switch the ignition off and on again.
317	Storing Configuration Is Wrong!		Internal fault in the terminal.	Switch the ignition off and on again.
318	Error at the End of memory - newest element!		Internal fault in the terminal.	Switch the ignition off and on again.
319	Error at the End of memory - oldest element!		Internal fault in the terminal.	Switch the ignition off and on again.
320	Voltage Supply Disturbed!		Internal fault in the terminal.	Switch the ignition off and on again.
321	No Communication To KMC! 	The terminal cannot establish a CAN connection. Note: See also Appendix A for CAN faults.	The CAN cables between the terminal and the panel computer are defective.	Check the cables and plug connectors between the terminal and the KKC panel computer.
			No job computer registers through CAN.	Check job computer and its voltage supply.
324	Wrong Answer Of TN!		Internal fault in the terminal.	Switch the ignition off and on again.
325	BUS Test Mode!	For a short time, the terminal has received no CAN messages from KMC3.	Cables of the CAN bus defective (cable rupture and/or short circuit, loose contacts).	Check harness and plug connectors.
326	TN: Reports Unknown Function!		Internal fault in the terminal.	Switch the ignition off and on again.
327	KMC Reports Fault Number:		Internal fault in the terminal.	Switch the ignition off and on again.
328	Read block is too large DW from DW max. DW		Internal fault in the terminal.	Switch the ignition off and on again.
329	No Communication To KMC! 	No CAN communication between terminal and KMC3. Note: See also Appendix A for CAN faults.	Cf. faults Nos. 300 and 3601.	
330	Attempted access outside of the permissible field!		Internal fault in the terminal.	Switch the ignition off and on again.
400	Hydraulic oil_level error	The hydraulic fluid level is wrong (working hydraulics).	The hydraulic fluid level is too low.	Top up hydraulic fluid.

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Fault no.	Screen / message	Fault description	Potential cause of fault	Remedy of fault
			The oil pump / circuit is defective.	Check the oil pump and the oil circuit.
			The cables to the "Filling level oil tank" sensor B43 are defective.	Check harness and plug connectors.
			The "Filling level oil tank" sensor B43 is defective.	Replace the sensor B43.
			The 8 Volt power supply to the analogue KMC3 sensors is defective.	Check the power supply.
			Internal fault in KMC3.	Replace the KMC3.
401	Suction return_filter 1 	The signal of the "Suction return filter 1" sensor indicates a fault.	The suction return filter 1 is dirty.	Clean the suction return filter 1 or replace the cartridge.
			The cables to the "Suction return filter 1" sensor B20 are defective.	Check harness and plug connectors.
			The cables to the "Suction return filter 1" sensor B20 are defective.	Replace the sensor B20.
			The 8 Volt power supply to the analogue KMC2 sensors is defective.	Check the power supply.
			Internal fault in KMC2.	Replace KMC2
402	Suction return_filter 2 	The signal of the "Suction return filter 2" sensor indicates a fault.	The suction return filter 2 is dirty.	Clean the suction return filter 2 or replace the cartridge.
			The cables to the "Suction return filter 2" sensor B21 are defective.	Check harness and plug connectors.
			The cables to the "Suction return filter 2" sensor B21 are defective.	Replace the sensor B21.
			The 8 Volt power supply to the	Check the power supply.
			Internal fault in KMC2.	Replace KMC2
403	Malfunction central lubrication 	There is a malfunction present in the central lubrication	No more grease present.	Add grease as described in the BiG-X operating instructions Section 9.15 "Maintenance central lubrication system"
			Jam in the system or in a connected lubrication point	Subsequently loosen the outlet screw connections on the main distributor to the subdistributors. If lubricant suddenly comes under pressure when an outlet screw connection is loosened, the connected subdistributor is jammed. If lubricant does not exit from any of the outlet screw connections, the main distributor is blocked. Clean the main distributor and replace it if necessary. - Remount the outlet screw connections. - Loosen the outlet screw connections of the jammed subdistributor. If lubricant suddenly comes under pressure when an outlet screw connection is loosened, the connected lubrication point is jammed. If lubricant does not exit from any of the outlet screw connections, the subdistributor is blocked. Clean jammed subdistributors and replace if necessary. – Eliminate the jam at the lubrication point.
410	Joystick Layout!	No button allocation has been set.	The push-buttons of the multi-function lever have not been allocated yet.	Allocate the push-buttons; fitter required. Set value 1!
411	Joystick Stop_Switch on 	The stop button of the manual operating unit has been pressed.	The stop button of the manual operating unit has been pressed.	Set the stop button of the manual operation system to off.
			The cables to the stop button of the manual operation system are defective ("Quick stop manual operation" S9).	Check harness and plug connectors.
		The KKC panel computer is reading a wrong signal. The DIG_8 input is not receiving 12 V.	The F142 fuse on the cab relay PCB is defective.	Replace the F142 fuse on the cab relay PCB.
			The stop button of the manual	Replace the stop button of the manual operation system.
			The cab relay PCB is defective.	Check the relay PCB and replace, if and when necessary.
			The KKC panel computer has wrong parameters.	Carry out initial setting of KKC.
			Internal fault of the KKC panel computer.	Replace the panel computer.
412	Console Stop_Switch on 	The stop button of the panel was pressed.	The stop button of the panel was pressed.	Set the stop button of the manual operation system to off.
			The cables to the stop button of the manual operation system are defective ("Quick stop 2" S90).	Check harness and plug connectors.

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Fault no.	Screen / message	Fault description	Potential cause of fault	Remedy of fault
		The KKC panel computer is reading a wrong signal. The DIG_7 input is not receiving 12 V.	Cf. fault No. 411.	
413	Hydraulic oil Level Sensor!	The signal for the hydraulic fluid level is wrong (working hydraulics).	The hydraulic fluid level is too low.	Top up hydraulic fluid.
			The oil pump / circuit is defective.	Check the oil pump and the oil circuit.
			The cables to the "Filling level oil tank" sensor B43 are defective.	Check harness and plug connectors.
			The "Filling level oil tank" sensor B43 is defective.	Replace the sensor B43.
			The 8 Volt power supply to the analogue KMC3 sensors is defective.	Check the power supply.
			Internal fault in KMC3.	Replace the KMC3.
537	Engine speed_too high!	The speed of the diesel engine is too high.	The speed is too high when the main coupling cuts in.	Decrease the engine speed.
		The engine speed cannot be set.	V12: The setpoint value potentiometer supplies a wrong signal for the engine speed.	V12: Check the setpoint value potentiometer for the engine speed.
				V12: Check the harness and plug connectors.
				V12: The Heinzmann control is defective: austauschen
			V8: The panel push-button for the speed adjustment is defective.	V8: Replace the panel push-button for the speed adjustment. Check multi-function lever / panel buttons in diagnostic routine.
			V8: The ADM is defective.	Replace the ADM
			V8: The PLD is defective	Replace PLD
		The engine speed can be set, but the speed is not displayed correctly.	Wrong engine type; cf. fault No. 212.	
			V12: "Factor RPM diesel" parameter is not correct.	Change the parameters.
				V12: Check the harness and plug connectors.
				V12: The Heinzmann control is defective: austauschen
			V8: The panel push-button for the speed adjustment is defective.	V8: Replace the panel push-button for the speed adjustment. Check multi-function lever / panel buttons in diagnostic routine.
			V8: The ADM is defective.	Replace the ADM
			V8: The PLD is defective	Replace PLD
1300	Header LIFT_valve defect!	Fault in "Lift lifting gear" valve Y32.	"Lift lifting gear" valve Y32 is defective.	Check the coil on the valve Y32 during actuation with a solenoid valve tester. If the valve is actuating, then clean or replace the valve.
			Internal fault in EMR.	Replace the EMR
1301	Header LOWER_valve defect!	Fault in "Lower lifting gear" valve Y33.	"Lower lifting gear" valve Y33 is defective.	Check the coil on the valve Y33 during actuation with a solenoid valve tester. If the valve is actuating, then clean or replace the valve.
			Internal fault in EMR.	Replace the EMR
1302	EMC voltage_error!	The power supply of the EMR is defective (< 10 V).	The F6 fuse on the cab relay UV3 is defective.	Replace the fuse.
			The cabling is defective.	Check harness and plug connectors.
			LD3 on the UV3 relay PCB has to be lit.	The relay PCB in UV3 is defective; replace the relay PCB
			The power supply of ignition	Check the F101 and F102 fuses on the cab relay PCB, and
1303	EMC/OBE NOT_active!	For at least one minute, the EMR has received no CAN messages, or it has been deactivated..	The KMC3 control has been switched off manually (plug has been removed, for example).	Place the plug and switch the ignition off and on again.
			The maintenance switch has been switched on.	Switch off the maintenance switch.
			Fault in the cables of the CAN2 bus.	Check the harness and plug connectors.
				Check the terminating resistors; the line resistance has to be approx. 60 ohm.
			KMC3 was restarted but not the EMR.	Switch the ignition off and on again.
			Internal fault in KMC3.	Replace the KMC3.
			Internal fault in EMR.	Replace the EMR
1304	Header Position sen.def.	The "Position lifting gear" sensor B50 supplies a wrong signal.	The "Position lifting gear" sensor	Carry out adjustment. If the lifting gear is right down, the digital
			The cables to the "Position lifting gear" sensor B50 are defective.	Check the harness and plug connectors.
			The power supply to the "Position lifting gear" sensor B50 is defective.	Check the harness and plug connectors.
				Internal fault in EMR; replace the EMR.
			The "Position lifting gear" sensor B50 is defective.	Replace the sensor B50.
			Internal fault in EMR.	Replace the EMR

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Fault no.	Screen / message	Fault description	Potential cause of fault	Remedy of fault
1305	Header Pressure sen.def.	The "Pressure lifting gear" sensor B49 supplies a wrong signal.	The cables to the "Pressure lifting gear" sensor B49 are defective.	Check the harness and plug connectors.
			The power supply to the "Position lifting gear" sensor B49 is defective.	Check the harness and plug connectors.
				Internal fault in EMR; replace the EMR.
			The "Pressure lifting gear" sensor B49 is defective.	Replace the sensor B49.
			Internal fault in EMR.	Replace the EMR
1306	Header Contour sen.LEFT	The "Height of left lifting gear" sensor B47 supplies a wrong signal.	The "Height of left lifting gear" sensor B47 has not been fitted because the grass pick-up has been fitted, or no skids are present.	Deactivate the spacing adjustment if no skids are fitted, or switch the machine to maize operation on the display, if the ground skids are fitted.
			The front attachment plug has not been fitted or not correctly.	Check the front attachment plug.
			The "Height lifting gear" sensor B47 has not been adjusted properly.	Adjust sensor B47 (lifting gear adjustment).
			The cables to the "Height lifting gear" sensor B47 are defective.	Check harness and plug connectors.
			The power supply of the sensor is defective.	Check harness and plug connectors.
				Internal fault in EMR; replace the EMR.
			The "Height of left lifting gear"	Replace the sensor B47.
			Internal fault in EMR.	Replace the EMR
1307	Header Contour sen.RIGHT	The "Height of right lifting gear" sensor B48 supplies a wrong signal.	The "Height of right lifting gear" sensor B48 has not been fitted because the grass pick-up has been fitted, or no skids are present.	Deactivate the spacing adjustment if no skids are fitted, or switch the machine to maize operation on the display, if the ground skids are fitted.
			The front attachment plug has not been fitted or not correctly.	Check the front attachment plug.
			The "Height of right lifting gear" sensor B48 has not been adjusted properly.	Adjust sensor B48 (lifting gear adjustment).
			The cables to the "Height of right lifting gear" sensor B48 are defective.	Check harness and plug connectors.
			The power supply of the sensor is defective.	Check harness and plug connectors.
				Internal fault in EMR; replace the EMR.
			The "Height of right lifting gear" sensor B48 is defective.	Replace the sensor B48.
			Internal fault in EMR.	Replace the EMR
1308	Header Frame LE Valve cab br	Fault in "Turn left pendulum frame" valve Y37.	Cable to "Turn left pendulum frame" valve Y37 is broken.	Check the harness and plug connectors.
			The solenoid coil of valve Y37 is defective.	Replace the solenoid valve.
			Internal fault in EMR.	Replace the EMR
1309	Header Frame RI Valve cab br	Fault in "Turn right pendulum frame" valve Y38.	Cable to "Turn right pendulum frame" valve Y38 is cut.	Check the harness and plug connectors.
			The solenoid coil of valve Y38 is	Replace the solenoid valve.
			Internal fault in EMR.	Replace the EMR
1310	Header Frame LE valve err	Impermissible current on "Turn left pendulum frame" valve Y37.	Short circuit in the cables to the "Turn left pendulum frame" valve Y37.	Check harness and plug connectors.
			The solenoid coil of valve Y37 is defective.	Replace the solenoid valve.
			Internal fault in EMR.	Replace the EMR
1311	Header Frame RI valve err	Impermissible current on "Turn right pendulum frame" valve Y38.	Short circuit in the cables to the "Turn right pendulum frame" valve Y38.	Check harness and plug connectors.
			The solenoid coil of valve Y38 is defective.	Replace the solenoid valve.
			Internal fault in EMR.	Replace the EMR
1320	CAN-bus to KMC3 error	The power supply of the EMR is defective.	Cf. fault No. 1302.	
		KMC3 cannot establish a CAN communication to the EMR lifting gear control.	Fault in the cables of the CAN2 bus.	Check the harness and plug connectors.
				Check the terminating resistors; the line resistance has to be approx. 60 ohm.
			Internal fault in KMC3.	Replace the KMC3.
			Internal fault in EMR.	Replace the EMR
2000	Oil Temp._InTake 	The signal of the "Oil temperature of feed drive" sensor B24 supplies a wrong signal.	The oil temperature of the working hydraulic system (feed drive, front attachment and upper discharge chute) is too high.	Allow the machine to cool down.
			Short circuit in the cables to the "Oil temperature of feed drive" sensor B24.	Check harness and plug connectors.

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Fault no.	Screen / message	Fault description	Potential cause of fault	Remedy of fault
			The "Oil temperature of feed drive" sensor B24 is defective.	Replace the sensor.
			Internal fault in KMC2.	Replace KMC2
2001	InTake Charge_Pressure 	The feed pressure of the working hydraulic system (feed drive and front attachment) is too low.	The oil level of the working hydraulic system is too low.	Top up hydraulic fluid.
			The suction return filter is dirty.	Clean the suction return filter.
			The oil pump / circuit is defective.	Check the oil pump and the oil circuit.
		The signal from the "Supply pressure for attachment " sensor B19 is defective.	Short circuit in the cables to the "Feed pressure of feed drive" sensor B19.	Check harness and plug connectors.
			The "Attachment supply pressure" sensor B19 is defective.	Replace the sensor.
			Internal fault in KMC2.	Replace KMC2
2101	KMC2 supply_volt.too low	The distribution voltage of the KMC2 control is too low.	The battery voltage is too low.	Charge the batteries.
				Check the battery acid.
				Replace the batteries.
			The dynamo is defective.	Replace the dynamo.
			The cabling is defective.	Check harness and plug connectors.
			Internal fault in KMC2.	Replace KMC2
2102	KMC2 supply_volt.too high	The distribution voltage of the KMC2 control is too high.	The controller of the dynamo is defective.	Replace the dynamo.
			V12 engine: The battery change-over relay is defective.	Replace the relay.
			Internal fault in KMC2.	Replace KMC2
2103	KMC2 voltage_V1 error (KMC2 voltage supply V1 faulty)	The on-load voltage supply V1 of KMC2 is incorrect or one of the conditions have not been fulfilled. The conditions:	The F1 fuse on the relay PCB in UV2 is defective (LD4 on the relay PCB must be lit).	Replace fuse F1 on relay circuit board UV2.
			The F13 fuse (25A, colour white, the top fuse) in job computer KMC2 is defective (LD37 in job computer KMC2 must be lit)	Replace fuse F13 in job computer KMC2
		- Quickstop not on	The cables of the quick stop switch are defective (2X15.1b = 12 V; LD24 has to be lit).	Check the switch, harness and plug connector.
		- Field switch ON	The cables of the road / field switch S92 are defective (2X15.1b = 12 V; LD25 has to be lit).	Check the switch, harness and plug connector.
		- Maintenance switch OFF	The cables of the maintenance switch S24 are defective (2X15.4.b = 0 V; LD27 must not be lit).	Check the switch, harness and plug connector.
		- Safety input feed drive/front attachment ON	The cables of the release feed drive switch S70 are defective.	Check the switch, harness and plug connector.
		- Main coupling ON	The cables of the feed drive / front attachment safety input are defective (2X15.6b = 12 V; LD29 has to be lit).	Check the switch, harness and plug connector.
		- Feed drive/front attachment enable switch ON	Safety output for feed drive/front attachment on KMC does not switch on the voltage ((LD10 in KMC3 in UV3 must be lit).	Check whether the feed drive / front attachment safety output on KMC3 is switched.
		- Feed drive/front attachment with reverse button enabled.	GAL component is wrong.	Relay PCB mixed up (of UV3 installed, for example); interchange the relay PCB.
			The cables from the battery to the UV2 are defective.	Check the harness and plug connectors.
		The LEDs and fuses in the descriptions are located on the relay circuit board in UV2 or in the KMC2 job computer.	The battery voltage is too low.	Check the battery acid.
				Charge the batteries.
				Replace the batteries.
			The dynamo is defective.	Cf. fault No. 2.
		The on-load voltage supply V1 of KMC2 is smaller than 11 Volt, however LD4 on the UV2 relay PCB is lit.	The cables from the relay PCB to the KMC2 are defective.	Check harness and plug connectors.
			Internal fault in KMC2.	Replace KMC2

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Fault no.	Screen / message	Fault description	Potential cause of fault	Remedy of fault
2104	KMC2 voltage_V2 error	The on-load voltage supply V2 of KMC2 is incorrect or one of the conditions have not been fulfilled. The conditions:	The F2 fuse on the relay PCB in UV2 is defective (LD5 on the relay PCB must be lit).	Replace fuse F2 on relay circuit board UV2
	(KMC2 voltage supply V2 faulty)		The F6 fuse (25 A, colour white, between the two connectors) in job computer KMC2 is defective (LD39 in job computer KMC2 must be lit)	Replace fuse F6 in job computer KMC2
		- Quickstop not on	The cables of the quick stop switch are defective (2X15.1b = 12 V; LD24 has to be lit).	Check the switch, harness and plug connector.
		- Field switch ON	The cables of the road / field switch S92 are defective (2X15.1b = 12 V; LD25 has to be lit).	Check the switch, harness and plug connector.
			GAL component is wrong.	Relay PCB mixed up (of UV3 installed, for example); interchange the relay PCB.
		The LEDs and fuses in the descriptions are located on the relay circuit board in UV2 or in the KMC2 job computer.	The cables from the battery to the UV2 are defective.	Check the harness and plug connectors.
			The battery voltage is too low.	Check the battery acid. Charge the batteries. Replace the batteries.
			The dynamo is defective.	Cf. fault No. 2.
		The on-load voltage supply V2 of KMC2 is smaller than 11 Volt, however LD5 on the UV2 relay PCB is lit.	The cables from the relay PCB to the KMC2 are defective.	Check harness and plug connectors.
			Internal fault in KMC2.	Replace KMC2
2105	KMC2 voltage_V3 error	The on-load voltage supply V3 of KMC2 is incorrect or one of the conditions have not been fulfilled. The conditions:	The F3 fuse on the relay PCB in UV2 is defective (LD6 on the relay PCB has to be lit).	Replace fuse F3 on relay circuit board UV2.
	KMC2 voltage supply V3 faulty)		The fuse F12 (10 A, colour red, 2nd fuse from the top on connector 2X1) in job computer KMC2 is defective (LD40 in job computer KMC2 must be lit)	Replace fuse F12 in job computer KMC2
		- Quickstop not on	The cables of the quick stop switch are defective (2X15.1b = 12 V; LD24 has to be lit).	Check the switch, harness and plug connector.
		- Field switch ON	The cables of the road / field switch S92 are defective (2X15.1b = 12 V; LD25 has to be lit).	Check the switch, harness and plug connector.
			GAL component is wrong.	Relay PCB mixed up (of UV3 installed, for example); interchange the relay PCB.
		The LEDs and fuses in the descriptions are located on the relay circuit board in UV2 or in the KMC2 job computer.	The cables from the battery to the UV2 are defective.	Check the harness and plug connectors.
			The battery voltage is too low.	Check the battery acid. Charge the batteries. Replace the batteries.
			The dynamo is defective.	Cf. fault No. 2.
		The on-load voltage supply V3 of KMC2 is smaller than 11 Volt, however LD6 on the UV2 relay PCB is lit.	The cables from the relay PCB to the KMC2 are defective.	Check harness and plug connectors.
			Internal fault in KMC2.	Replace KMC2
2106	KMC2 voltage_V4 error	The on-load voltage supply V4 of KMC2 is incorrect or one of the conditions have not been fulfilled. The conditions:	The F4 fuse on the relay PCB in UV2 is defective (LD7 on the relay PCB must be lit).	Replace fuse F4 on relay circuit board UV2.
	(KMC2 on-load voltage supply V4 is faulty)		The fuse F2 (10 A, colour red, lowest fuse on connector 2X2) in job computer KMC2 is defective (LD41 in job computer KMC2 must be lit)	Replace fuse F2 in job computer KMC2
		- Quickstop not on	The cables of the quick stop switch are defective (2X15.1b = 12 V; LD24 has to be lit).	Check the switch, harness and plug connector.
		- Field switch ON	The cables of the road / field switch S92 are defective (2X15.1b = 12 V; LD25 has to be lit).	Check the switch, harness and plug connector.

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Fault no.	Screen / message	Fault description	Potential cause of fault	Remedy of fault
			GAL component is wrong.	Relay PCB mixed up (of UV3 installed, for example); interchange the relay PCB.
		The LEDs in the operating instructions are located on the relay PCB in UV2.	The cables from the battery to the UV2 are defective.	Check the harness and plug connectors.
			The battery voltage is too low.	Check the battery acid.
				Charge the batteries.
				Replace the batteries.
			The dynamo is defective.	Cf. fault No. 2.
		The on-load voltage supply V4 of KMC2 is smaller than 11 Volt, however LD7 on the UV2 relay PCB is lit.	The cables from the relay PCB to the KMC2 are defective.	Check harness and plug connectors.
			Internal fault in KMC2.	Replace KMC2
2107	KMC2 12V_dig. error	The 12V power supply of the KMC3 sensors is defective.	The cables to the sensors are defective (short circuit) so that the voltage collapses.	Check harness and plug connectors.
			Short circuit in one / several sensor(s) which are supplied with voltage.	Disconnect all sensors which are supplied with voltage; subsequently connect them again one after the other and observe when the voltage collapses with one of the sensors. Replace the defective sensors.
			Internal fault in KMC2.	Replace KMC2
2108	KMC2 8V_dig. error	The 8V power supply of the KMC2 digital sensors is defective.	The cables to the sensors are defective (short circuit) so that	Check harness and plug connectors.
			Short circuit in one / several sensor(s) which are supplied with voltage.	Disconnect all sensors which are supplied with voltage; subsequently connect them again one after the other and observe when the voltage collapses with one of the sensors. Replace the defective sensors.
			Internal fault in KMC2.	Replace KMC2
2109	KMC2 8V_ana. error	The 8V power supply of the KMC2 analogue sensors is defective.	The cables to the sensors are defective (short circuit) so that the voltage collapses.	Check harness and plug connectors.
			Short circuit in one / several sensor(s) which are supplied with voltage.	Disconnect all sensors which are supplied with voltage; subsequently connect them again one after the other and observe when the voltage collapses with one of the sensors. Replace the defective sensors.
			Internal fault in KMC2.	Replace KMC2
2110	KMC2 batt._volt.too low	The voltage of the battery in the KMC2 job computer (round cell) is too low.	The voltage of the battery in the KMC2 job computer (round cell) is too low.	Replace the battery. When placing the battery, please make sure that you do not touch the flap sides of the battery with your fingers.
2111	KMC2_CAN to KKC	There is no CAN communication between the cf fault No. 39 as well.	One of the two CAN bus dummy loads is defective.	Measure resistance between CAN high and CAN low; the setpoint value is 60 ohm.
			The metal detection has not been connected and the resistance is not passed through the relay PCB to the UV2.	Check the F25 fuse on the relay PCBs in UV2.
				Check UV2-K19 relay, and replace, if and when necessary.
			The cables leading to the KMC3 are defective.	Check the cables to the KMC3.
			Internal fault in KMC3.	Replace the KMC3.
			External bus user is blocking the CAN bus.	Disconnect the bus user.
2112	KMC2 CAN_to Metal Det.!	The KMC2 control is receiving no CAN messages from the metal detection system.	One of the two CAN bus dummy loads is defective.	Measure resistance between CAN high and CAN low; the setpoint value is 60 ohm.
			The metal detection has not been connected and the resistance is not passed through the relay PCB to the UV2.	Check the F25 fuse on the relay PCBs in UV2.
				Check UV2-K19 relay, and replace, if and when necessary.
			The cables leading to the KMC2 are defective.	Check the cables to the KMC3.
			Internal fault in KMC2.	Replace the KMC2.
			External bus user is blocking the CAN bus.	Disconnect the bus user.
			The metal detection system is defective.	Cf. fault No. 4300.
2113	KMC2 Error 1/13!	Not assigned so far.		
2114	KMC2 Error 1/14!	Not assigned so far.		
2115	KMC2 Error 1/15!	Not assigned so far.		
2201	InTake (IN)_valve cable br	The minimum current of the "Feed drive forward" valve Y5 set has been underrun.	The cables to the "Feed drive forward" valve Y5 are defective.	Check harness and plug connectors.
		In the sensors diagnostic routine, check for flow of current while operating in the feed drive/attachment group.	The valve is defective.	Replace the valve.

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Fault no.	Screen / message	Fault description	Potential cause of fault	Remedy of fault
			Wrong parameter value for the minimum Feed drive forward current.	Check the parameters.
			Internal fault in KMC2.	Replace KMC2
2202	InTake (OUT)_valve cable br	The minimum current of the "Feed drive backward" valve Y6 set has been underrun. In the sensors diagnostic routine, check for flow of current while operating in the feed drive/attachment group.	The cables to the "Feed drive backward" valve Y6 are defective.	Check harness and plug connectors.
			The valve is defective.	Replace the valve.
			Wrong parameter value for the minimum Feed drive backwards current.	Check the parameters.
			Internal fault in KMC2.	Replace KMC2
2203	InTake Valve_short circuit	The maximum current of the "Feed drive forward" valve Y5 or "Feed drive backward" valve Y6 set has been exceeded. In the sensors diagnostic routine, check for flow of current while operating in the feed drive/attachment group.	The cables to the "Feed drive forward" valve Y5 or "Feed drive backward" valve Y6 are defective.	Check harness and plug connectors.
			One of the valves is defective.	Replace the valve.
			Wrong parameter value for the maximum Feed drive forward / backward current.	Check the parameters.
			Internal fault in KMC2.	Replace KMC2
2204	Header (IN)_valve cable br	The minimum current of the "Front attachment forward" valve Y7 set has been underrun. In the sensors diagnostic routine, check for flow of current while operating in the feed drive/attachment group.	The cables to the "Front attachment forward" valve Y7 are defective.	Check harness and plug connectors.
			The valve is defective.	Replace the valve.
			Wrong parameter value for the minimum Feed drive forward current.	Check the parameters.
			Internal fault in KMC2.	Replace KMC2
2205	Header (OUT)_valve cable br	The minimum current of the "Front attachment backward" valve Y8 set has been underrun. In the sensors diagnostic routine, check for flow of current while operating in the feed drive/attachment group.	The cables to the "Front attachment backward" valve Y8 are defective.	Check harness and plug connectors.
			The valve is defective.	Replace the valve.
			Wrong parameter value for the minimum Feed drive backwards current.	Check the parameters.
			Internal fault in KMC2.	Replace KMC2
2206	Header Valves_short circuit	The maximum current of the "Front attachment forward" valve Y7 or "Front attachment backward" valve Y8 set has been exceeded.	The cables to the "Front attachment forward" valve Y7 or "Front attachment backward" valve Y8 are defective.	Check harness and plug connectors.
	(short circuit in attachment valves	In the sensors diagnostic routine, check for flow of current while operating in the feed drive/attachment group.	One of the valves is defective.	Replace the valve.
			Wrong parameter value for the maximum Feed drive forward /	Check the parameters.
			Internal fault in KMC2.	Replace KMC2
2207	Rot. Scr.valve_cable br.	A cable rupture has been detected at the output of the "Silage agent" valve Y60 of the KMC3.	The cables to the "Silage agent" valve Y60 are defective.	Check harness and plug connectors.
	(cable to silage agent valve broke		The "Silage agent" valve Y60 is defective.	Replace the valve.
			The on-load voltage supply V4 is defective.	Cf. fault No. 3106.

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Fault no.	Screen / message	Fault description	Potential cause of fault	Remedy of fault
			Internal fault in KMC3.	Replace the KMC3.
2208	Rot. Scr.valve_short circuit	A short circuit has been detected at the output of the "Silage agent" valve Y60 of the KMC3.	The cables to the "Silage agent" valve Y60 are defective.	Check harness and plug connectors.
	(Short circuit in silage agent valve		The "Silage agent" valve Y60 is defective.	Replace the valve.
			The on-load voltage supply V4 is defective.	Cf. fault No. 3106.
			Internal fault in KMC3.	Replace the KMC3.
2209	Chute LEFT valve_cable br.	The minimum current of the "AWB turn left" valve Y20 set has been underrun. In the sensors diagnostic routine, check for flow of current while operating in the upper discharge chute group.	The cables to the "AWB turn left" valve Y20 are defective.	Check harness and plug connectors.
			The valve is defective.	Replace the valve.
			Wrong parameter value for the minimum AWB turn current.	Check the parameters.
			Internal fault in KMC2.	Replace KMC2
2210	KMC2_Error 2/10!	Not assigned so far.		
2211	KMC2_Error 2/11!	Not assigned so far.		
2212	KMC2_Error 2/12!	Not assigned so far.		
2213	KMC2_Error 2/13!	Not assigned so far.		
2214	KMC2_Error 2/14!	Not assigned so far.		
2215	KMC2_Error 2/15!	Not assigned so far.		
2301	Chute valves_short circuit	The maximum current of the "AWB turn left" valve Y20 set has been exceeded. In the sensors diagnostic routine, check for flow of current while operating in the upper discharge chute group.	The cables to the "AWB turn left" valve Y20 are defective.	Check harness and plug connectors.
			The valve is defective.	Replace the valve.
			Wrong parameter value for the minimum AWB turn current.	Check the parameters.
			Internal fault in KMC2.	Replace KMC2
2302	Chute RIGHT valve cable br.	The minimum current of the "AWB turn right" valve Y21 set has been underrun. In the sensors diagnostic routine, check for flow of	The cables to the "AWB turn right" valve Y21 are defective.	Check harness and plug connectors.
	(Turn AWB left)		The valve is defective.	Replace the valve.
			Wrong parameter value for the minimum AWB turn current.	Check the parameters.
			Internal fault in KMC2.	KMC2 tauschen
2303	Chute valves_short circuit	The maximum current of the "AWB turn right" valve Y21 set has been exceeded.In der Diagnose Sensoren, Gruppe Auswurfbogen den fließenden Strom im laufenden Betrieb prüfen.	The cables to the "AWB turn right" valve Y21 are defective.	Check harness and plug connectors.
			The valve is defective.	Replace the valve.
			Wrong parameter value for the minimum AWB turn current.	Check the parameters.
			Internal fault in KMC2.	Replace KMC2
2304	Chute LIFT_valve def.!	The drive of the "Lift AWB" valve Y24 has recognised a fault.	The cables to the "Lift AWB" valve Y24 are defective.	Check harness and plug connectors.
			The valve is defective.	Replace the valve.
2305	Chute LOWER_valve def.!	The drive of the "Lower AWB" valve Y25 has recognised a fault.	The cables to the "Lower AWB" valve Y25 are defective.	Check harness and plug connectors.
			The valve is defective.	Replace the valve.
2306	Chute Flap_LIFT valve def!	The drive of the "Lift ejector flap" valve Y22 has recognised a fault.	The cables to the "Lift ejector flap" valve Y22 are defective.	Check harness and plug connectors.
			The valve is defective.	Replace the valve.
2307	Chute Flap_LOWER valve def!	The drive of the "Lower ejector flap" valve Y23 has recognised a fault.	The cables to the "Lower ejector flap" valve Y23 are defective.	Check harness and plug connectors.
			The valve is defective.	Replace the valve.
2308	KMC2_Error 3/8!	Not assigned so far.		
2309	KMC2_Error 3/9!	Not assigned so far.		
2310	KMC2_Error 3/10!	Not assigned so far.		
2311	KMC2_Error 3/11!	Not assigned so far.		
2312	KMC2_Error 3/12!	Not assigned so far.		
2313	KMC2_Error 3/13!	Not assigned so far.		
2314	KMC2_Error 3/14!	Not assigned so far.		
2315	KMC2_Error 3/15!	Not assigned so far.		

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Fault no.	Screen / message	Fault description	Potential cause of fault	Remedy of fault
2400	Chute NOT in_parking pos.	The upper discharge chute was not in parking position when the travelling gear was set to road traffic.	The upper discharge chute is not in parking position.	Move the upper discharge chute into parking position.
			One of the sensors "Upper discharge chute – centre position" B28 or "Upper discharge chute – bottom position" B29 has not been set correctly.	Check the setting of the sensors and correct, if and when necessary.
			The cables to one of the sensors "Upper discharge chute – centre position" B28 or "Upper discharge chute – bottom position" B29 are defective.	Check harness and plug connectors.
			One of the sensors "Upper discharge chute – centre position" B28 or "Upper	Replace the sensor.
			Internal fault in KMC2.	Replace KMC2
2401	Middle Chute_sen.cable br.	Cable rupture fault on the "Upper discharge chute – centre position" sensor B28.	The cables to the "Upper discharge chute – centre position" sensor B28 are defective.	Check harness and plug connectors.
	upper discharge chute – centre po		The "Upper discharge chute – centre position" sensor B28 is defective.	Replace the sensor.
			Internal fault in KMC2.	Replace KMC2
2402	Middle Chute_sen.short-circ	Cable rupture fault on the "Upper discharge chute – centre position" sensor B28.	The cables to the "Upper discharge chute – centre position" sensor B28 are defective.	Check harness and plug connectors.
	(short circuit in "upper discharge c		The "Upper discharge chute – centre position" sensor B28 is defective.	Replace the sensor.
			Internal fault in KMC2.	Replace KMC2
2403	Top chute_sen.cable.br	Cable rupture fault on the "Upper discharge chute – lower position" sensor B29.	The cables to the "Upper discharge chute – lower position" sensor B29 are defective.	Check harness and plug connectors.
			The "Upper discharge chute – lower position" sensor B29 is defective.	Replace the sensor.
			Internal fault in KMC2.	Replace KMC2
2404	Top chute_sen.short-circ	short circuit fault on the "Upper discharge chute – lower position" sensor B29.	The cables to the "Upper discharge chute – lower position" sensor B29 are defective.	Check harness and plug connectors.
			The "Upper discharge chute – lower position" sensor B29 is defective.	Replace the sensor.
			Internal fault in KMC2.	Replace KMC2
2405	Chute imp._sen.cable.br	Cable rupture to "discharge chute moment of momentum" sensor B30.	The cables to the "Upper discharge chute – moment of momentum" sensor B30 are defective.	Check harness and plug connectors.
			The "Upper discharge chute – moment of momentum" sensor B30 is defective.	Replace the sensor.
			Internal fault in KMC2.	Replace KMC2
2406	Chute imp._sen.short-circ	Short circuit in to "discharge chute – moment of momentum" sensor B30.	The cables to the "Upper discharge chute – moment of momentum" sensor B30 are defective.	Check harness and plug connectors.
			The "Upper discharge chute – moment of momentum" sensor B30 is defective.	Replace the sensor.
			Internal fault in KMC2.	Replace KMC2
2407	Sens speed feed drive defective	The KMC2 control reports a fault in measuring the speed of the feed drive by means of	The feed drive is rotating, however the "Speed of feed drive" sensor B26 does not	Check the sensor setting and correct if necessary. Turn the sensor up to stop and then turn back by about half a turn and counter.
			The cables to the "Speed of the feed drive" sensor B26 are defective.	Check harness and plug connectors.

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Fault no.	Screen / message	Fault description	Potential cause of fault	Remedy of fault
		Note: This fault message is displayed only when the diesel engine is running!	The "Speed of the feed drive" sensor B26 is defective.	Replace the sensor.
			A current passes through the "Feed drive forward" valve and the diesel engine is running, but the feed drive is not running.	Check the current of the feed drive in the diagnosis mode of the actuators, group feed drive / front attachment. Clean the valves "Feed drive forward" Y5 and "Feed drive backward" Y6.
				Check the parameters for the feed drive in the KMC2.
				Check the feed pressure for feed drive / front attachment. cf fault No. 400 as well.
			Internal fault in KMC2.	Replace KMC2
2408	Header RPM_sensor def.!	The KMC2 control reports a fault in measuring the speed of the feed drive by means of the "Speed of front	The feed drive is rotating, however the "Speed of front attachment" sensor B27 does not receive any pulses.	Check the sensor setting and correct if necessary. Turn the sensor up to stop and then turn back by about half a turn and counter.
	(Attachment RPM_sensor defective)		The cables to the "Speed of the front attachment" sensor B27 are defective.	Check harness and plug connectors.
		Note: This fault message is displayed only when the diesel engine is running!	The "Speed of the front attachment" sensor B27 is defective.	Replace the sensor.
			A current passes through the "Front attachment forward" valve and the diesel engine is running, but the feed drive is not running.	Check the current of the feed drive in the diagnosis mode of the actuators, group feed drive / front attachment. Clean the valves "Front attachment forward" Y7 and "Front attachment backward" Y8.
				Check the parameters for the front attachment in the KMC2.
				Check the feed pressure for feed drive / front attachment. cf fault No. 400 as well.
			Internal fault in KMC2.	Replace KMC2
2409	Fault, cutting drum sensor	The KMC2 control reports a fault in measuring the speed of the gathering drum by means of the "Speed of gathering drum" sensor B22.	The "Speed of gathering drum" sensor B22 had not been adjusted properly.	Check the position, and correct, if and when necessary.
			Internal fault in KMC2.	Replace KMC2
2410	Broken cable cutting drum sens.	Cable rupture to "gathering drum speed" sensor B22.	The cables to the "Speed of gathering drum" sensor B22 are	Check harness and plug connectors.
			The "Speed of gathering drum" sensor B22 is defective.	Replace the sensor.
			Internal fault in KMC2.	Replace KMC2
2411	Short circuit, cut. drm. sens.	Short circuit in "gathering drum speed" sensor B22.	The cables to the "Speed of gathering drum" sensor B22 are defective.	Check harness and plug connectors.
	(short circuit in gathering drum sensor)		The "Speed of gathering drum" sensor B22 is defective.	Replace the sensor.
			Internal fault in KMC2.	Replace KMC2
2412	KMC2 Metal_detector def.	The KMC2 control reports that the metal detection is defective.	Cf. faults Nos. 4300 and 4302.	
2413	Fault centre upper discharge chute sensor	During parking or mirroring of the upper discharge chute the maximum time was exceeded, in which the "Upper discharge chute – centre position" sensor B28 has to be switched.	The "Upper discharge chute – centre position" sensor B28 has not been positioned correctly.	Check the position, and correct, if and when necessary.
			The cables to the "Upper discharge chute – centre position" sensor B28 were damaged during the mirroring or parking.	Check harness and plug connectors.
			The "Upper discharge chute – centre position" sensor B28 was damaged during the mirroring or parking.	Replace the sensor.
			More pulses to one side were counted than permitted.	Check parameter 6224 "AWB max pulses left" and 6225 "AWB max pulses right" and correct if necessary.
			Internal fault in KMC2.	Replace KMC2
2414	Fault, lower upper discharge chute sensor	The "Upper discharge chute – lower position" sensor B29 has not been switched in the attempt to park or mirror the upper discharge chute.	The upper discharge chute is not in the upper position.	Move the upper discharge chute into upper position.
			The "Upper discharge chute – centre position" sensor B29 has not been positioned correctly.	Check the position, and correct, if and when necessary.
			Internal fault in KMC2.	Replace KMC2
2415	Fault, upper discharge chute sensor pulse	The "Upper discharge chute – moment of momentum" sensor B30 does not supply pulses for parking or	The valve is receiving current, but the upper discharge chute is not turning because the valve is dirty.	Check that current is flowing in the sensor diagnostic routine, upper discharge chute group. Check for dirt in the valve. If necessary clean it or replace the valve.

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Fault no.	Screen / message	Fault description	Potential cause of fault	Remedy of fault
		mirroring within the defined period of time.	The valve is receiving current, but the upper discharge chute is not turning because the mechanics are sluggish and the set current does not open the valve sufficiently to turn the discharge chute.	Check that current is flowing in the sensor diagnostic routine, upper discharge chute group. Calibrate the upper discharge chute.
			The "Upper discharge chute – moment of momentum" sensor B30 does not supply any pulses, even though the upper discharge chute is rotating.	Check the position, and correct, if and when necessary.
			The cables to the "Upper discharge chute – moment of momentum" sensor B30 are defective.	Check harness and plug connectors.
			The "Upper discharge chute – moment of momentum" sensor B30 is defective.	Replace the sensor.
			Internal fault in KMC2.	Replace KMC2
2501	InTake Stop_Field Switch!	Whilst the feed drive / front attachment were switched on, the field release switch was detected as being switched off.	The field release switch has been switched off.	Switch on the release switch.
			The cables from the field release switch to the KKC panel	Check harness and plug connectors.
			Internal fault in KMC2.	Replace KMC2
			Internal fault on the KKC panel computer.	Replace the panel computer.
2502	InTake Stop_Emerg. stop!	Whilst the feed drive / front attachment were switched on, one of the quick stop switches was detected as being actuated.	A quick stop switch has been actuated.	Switch off the quick stop switch.
			The cables from the field release switch to the KKC panel computer are defective. Cf. faults Nos. 4011 and 412.	Check harness and plug connectors.
			Internal fault in KMC2.	Replace KMC2
			Internal fault on the KKC panel computer.	Replace the panel computer.
2503	InTake Stop_METAL FOUND!	Whilst the feed drive / front attachment were switched on, metal has been detected in the feed drive, but KMC3 has not received this message.	Metal has been detected in the feed drive.	Remove the metal and subsequently reverse feed drive / front attachment.
			The cables from the "Quick stop" valve Y35 to the "Metal detection" input on KMC2 are defective.	Check harness and plug connectors.
			Internal fault in KMC2.	Replace KMC2
			The metal detection system is defective.	Cf. faults Nos. 4012 and 4013.
2504	InTake Stop_metal det. error	The metal detector has recognised and reported a fault.	Cf. faults Nos. 4000 to 4303.	
2505	KMC2_Error 5/5!	Not assigned so far.		
2506	KMC2_Error 5/6!	Not assigned so far.		
2507	KMC2_Error 5/7!	Not assigned so far.		
2508	KMC2_Error 5/8!	Not assigned so far.		
2509	KMC2_Error 5/9!	Not assigned so far.		
2510	KMC2_Error 5/10!	Not assigned so far.		
2511	KMC2_Error 5/11!	Not assigned so far.		
2512	KMC2_Error 5/12!	Not assigned so far.		
2513	KMC2_Error 5/13!	Not assigned so far.		
2514	KMC2_Error 5/14!	Not assigned so far.		
2515	KMC2_Error 5/15!	Not assigned so far.		
2600	CAN to KMC2!	KMC3 cannot establish a CAN communication to the KMC2 control. See also the KMC2 and	The power supply of KMC2 is defective.	Check the F12 and F13 fuses on the relay PCB in UV2.
				Check the harness and plug connectors.
			KMC3 receives no CAN messages from the KMC2 job computer.	Check the cables / plug connectors from the KMC2 job
				Check the program version of KMC2 and update, if and when necessary.
			CAN bus is defective.	Cf. fault No. 100.
			Program is not running in KMC2.	Check the LEDs between X1 and X2 of KMC2, which should be flashing in a seconds cycle.
			Internal fault in KMC2.	Replace KMC2
2601	KMC2 restart!	The KMC2 has been restarted during the current operation.	The power supply of KMC2 is defective.	Check the F12 and F13 fuses on the relay PCB in UV2.
				Check the harness and plug connectors.
			Program is not running in KMC2.	Check the LEDs between X1 and X2 of KMC2, which should be flashing in a seconds cycle.
			Internal fault in KMC2.	Replace KMC2
2602	InTake Stop_Field Switch!	Whilst the feed drive / front attachment were switched on, the field release switch	The field release switch has been switched off.	Switch on the release switch.

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Fault no.	Screen / message	Fault description	Potential cause of fault	Remedy of fault
		was detected as being switched off.	The cables from the field release switch to the KKC panel computer are defective.	Check harness and plug connectors.
			Internal fault in KMC2.	Replace KMC2
			Internal fault on the KKC panel computer.	Replace the panel computer.
2603	InTake Stop_Emerg. stop!	Whilst the feed drive / front attachment were switched on, one of the quick stop switches was detected as being actuated.	A quick stop switch has been actuated.	Switch off the quick stop switch.
			The cables from the field release switch to the KKC panel computer are defective. Cf.	Check harness and plug connectors.
			Internal fault in KMC2.	Replace KMC2
			Internal fault on the KKC panel computer.	Replace the panel computer.
2604	KMC2_CAN to KKC!	The KMC2 control is receiving no CAN messages from the KKC panel computer.	Cf. fault No. 100.	
3100	KMC3 Electr._volt. error 	The distribution voltage of the KMC3 control is wrong.	The battery voltage is too low.	Charge the batteries.
				Check the battery acid.
				Replace the batteries.
			The dynamo is defective.	Replace the dynamo.
			The cabling is defective.	Check harness and plug connectors.
			The relay PCB in UV3 is defective.	Replace the relay PCB.
			Internal fault in KMC3.	Replace the KMC3.
3101	KMC3 Supply_volt. too low 	The distribution voltage of the KMC3 control is too low.	The battery voltage is too low.	Charge the batteries.
				Check the battery acid.
				Replace the batteries.
			The dynamo is defective.	Check excitation voltage – Is F146 on the relay PCB in the cab correct? Is the pilot lamp in the panel correct ? (This must be lit in ignition stage 2, if the diesel engine is not running.).
				Check the cables to the dynamo.
				Replace the dynamo.
			The cabling is defective	Check harness and plug connectors.
			The relay PCB in UV3 is defective.	Replace the relay PCB.
			Internal fault in KMC3.	Replace the KMC3.
3102	KMC3 supply_volt.too high	The distribution voltage of the KMC3 control is too high.	The controller of the dynamo is defective.	Replace the dynamo.
			V12: The battery change-over relay is defective.	Replace the relay.
			Internal fault in KMC3.	Replace the KMC3.
3103	KMC3 voltage_V1 error KMC3 voltage supply faulty	The on-load voltage supply V1 of KMC3 is incorrect or one of the conditions have not been fulfilled. The conditions:	The F1 fuse on the relay PCB in UV3 is defective (LD4 on the relay PCB has to be lit).	Replace the F1 fuse on the repay circuit in UV3
			The F13 fuse (25 A, colour white, the top fuse) in job computer KMC3 is defective (LD37 in job computer KMC2 must be lit).	Replace fuse F13 in job computer KMC3
		- Quickstop not on	The cables of the quick stop switch are defective (3X15.1 = 12 V; LD24 must be lit).	Check the switch, harness and plug connector.
		- Maintenance switch ON	The cables of the maintenance switch S24 are defective (3X15.4 = 0 V; LD27 must not be lit).	Check the switch, harness and plug connector.
		- Travelling gear enable OFF	GAL component is wrong.	Relay PCB mixed up (of UV2 installed, for example); interchange the relay PCB.
			The cables from the battery to the UV3 are defective.	Check the harness and plug connectors.

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Fault no.	Screen / message	Fault description	Potential cause of fault	Remedy of fault
		The LEDs and fuses in the descriptions are located on the relay circuit board in UV3 or in the KMC3 job computer.	The battery voltage is too low.	Check the battery acid.
				Charge the batteries.
				Replace the batteries.
			The dynamo is defective.	Cf. fault No. 2.
		The on-load voltage supply V1 of KMC3 is smaller than 11 Volt, however LD5 on the UV2 relay PCB is lit.	The cables from the relay PCB to the KMC3 are defective.	Check harness and plug connectors.
			Internal fault in KMC3.	Replace the KMC3.
3104	KMC3 voltage_V2 error	The on-load voltage supply V2 of KMC3 is incorrect or one of the conditions have not been fulfilled. The conditions:	The F2 fuse on the relay PCB in UV3 is defective (LD5 on the relay PCB has to be lit).	Replace the fuse F2.
	(KMC2 voltage supply V2 faulty)		The F6 fuse (25 A, colour white, between the two connectors) in job computer KMC3 is defective (LD39 in job computer KMC2 must be lit)	Replace fuse F6 in job computer KMC3
		- Quickstop not on	The cables of the quick stop switch are defective (3X15.1 = 12 V; LD24 must be lit).	Check the switch, harness and plug connector.
		- Field switch ON or maintenance switch ON	The cables of the road / field switch S92 are defective (3X15.1 = 12 V; LD25 must be lit).	Check the switch, harness and plug connector.
			The cables of the maintenance switch S24 are defective (3X15.4 = 0 V; LD27 must not be lit).	Check the switch, harness and plug connector.
		The LEDs and fuses in the descriptions are located on the relay circuit board in UV3 or in the KMC3 job computer.	GAL component is wrong.	Relay PCB mixed up (of UV2 installed, for example); interchange the relay PCB.
			The cables from the battery to the UV3 are defective.	Check the harness and plug connectors.
			The battery voltage is too low.	Check the battery acid.
				Charge the batteries.
				Replace the batteries.
			The dynamo is defective.	Cf. fault No. 2.
		The on-load voltage supply V2 of KMC3 is smaller than 11 Volt, however LD5 on the UV3 relay PCB is lit.	The cables from the relay PCB to the KMC3 are defective.	Check harness and plug connectors.
			Internal fault in KMC3.	Replace the KMC3.
3105	KMC3 voltage_V3 error	The on-load voltage supply V3 of KMC3 is incorrect or one of the conditions have not been fulfilled. The conditions:	The F3 fuse on the relay PCB in UV3 is defective (LD6 on the relay PCB has to be lit).	Replace the F3 fuse on the repay circuit in UV3.
	KMC3 voltage supply faulty)		The fuse F12 (10 A, colour red, 2nd fuse from the top on connector 2X1) in job computer KMC3 is defective (LD40 in job computer KMC3 must be lit).	Replace fuse F12 in job computer KMC3.
		- Quickstop not on	The cables of the quick stop switch are defective (3X15.1 = 12 V; LD24 must be lit).	Check the switch, harness and plug connector.
		- Field switch ON or maintenance switch ON	The cables of the road / field switch S92 are defective (3X15.1 = 12 V; LD25 must be lit).	Check the switch, harness and plug connector.
			The cables of the maintenance switch S24 are defective (3X15.4 = 0 V; LD27 must not be lit).	Check the switch, harness and plug connector.
		The LEDs and fuses in the descriptions are located on the relay circuit board in UV3 or in the KMC3 job computer.	GAL component is wrong.	Relay PCB mixed up (of UV2 installed, for example); interchange the relay PCB.
			The cables from the battery to the UV3 are defective.	Check the harness and plug connectors.
			The battery voltage is too low.	Check the battery acid.

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Fault no.	Screen / message	Fault description	Potential cause of fault	Remedy of fault
				Charge the batteries.
				Replace the batteries.
			The dynamo is defective.	Cf. fault No. 2.
		The on-load voltage supply V3 of KMC3 is smaller than 11 Volt, however LD6 on the UV3 relay PCB is lit.	The cables from the relay PCB to the KMC3 are defective.	Check harness and plug connectors.
			Internal fault in KMC3.	Replace the KMC3.
3106	KMC3 voltage_V4 error (KMC2 on-load voltage supply V4 is faulty)	The on-load voltage supply V4 of KMC4 is incorrect or one of the conditions have not been fulfilled. The	The F4 fuse on the relay PCB in UV3 is defective (LD7 on the relay PCB must be lit).	Replace the F4 fuse on the relay circuit in UV3.
			The fuse F2 (10 A, colour red, lowest fuse on connector 2X2) in job computer KMC2 is defective (LD41 in job computer KMC3 must be lit).	Replace fuse F2 in job computer KMC3.
		- Quickstop not on	The cables of the quick stop switch are defective (3X15.1 = 12 V; LD24 must be lit).	Check the switch, harness and plug connector.
		- Field switch ON	The cables of the road / field switch S92 are defective (3X15.1 = 12 V; LD25 must be lit).	Check the switch, harness and plug connector.
			GAL component is wrong.	Relay PCB mixed up (of UV2 installed, for example); interchange the relay PCB.
		The LEDs and fuses in the descriptions are located on the relay circuit board in UV3 or in the KMC3 job computer.	The cables from the battery to the UV3 are defective.	Check the harness and plug connectors.
			The battery voltage is too low.	Check the battery acid.
				Charge the batteries.
				Replace the batteries.
			The dynamo is defective.	Cf. fault No. 2.
		The on-load voltage supply V4 of KMC3 is smaller than 11 Volt, however LD7 on the UV3 relay PCB is lit.	The cables from the relay PCB to the KMC3 are defective.	Check harness and plug connectors.
			Internal fault in KMC3.	Replace the KMC3.
3107	KMC3 12V_dig. error	The 12V power supply of the KMC3 sensors is defective.	The cables to the sensors are defective (short circuit) so that the voltage collapses.	Check harness and plug connectors.
			Short circuit in one / several sensor(s) which are supplied with voltage.	Disconnect all sensors which are supplied with voltage; subsequently connect them again one after the other and observe when the voltage collapses with one of the sensors. Replace the defective sensors.
			Internal fault in KMC3.	Replace the KMC3.
3108	KMC3 8V_dig. error	The 8V power supply of the KMC3 digital sensors is defective.	The cables to the sensors are defective (short circuit) so that the voltage collapses.	Check harness and plug connectors.
			Short circuit in one / several sensor(s) which are supplied with voltage.	Disconnect all sensors which are supplied with voltage; subsequently connect them again one after the other and observe when the voltage collapses with one of the sensors. Replace the defective sensors.
			Internal fault in KMC3.	Replace the KMC3.
3109	KMC3 8V_ana. error	The 8V power supply of the analogue sensors of KMC3 is defective.	The cables to the sensors are defective (short circuit) so that the voltage collapses.	Check harness and plug connectors.
			Short circuit in one / several sensor(s) which are supplied with voltage.	Disconnect all sensors which are supplied with voltage; subsequently connect them again one after the other and observe when the voltage collapses with one of the sensors. Replace the defective sensors.
			Internal fault in KMC3.	Replace the KMC3.
3110	KMC3 batt._volt.too low (KMC3 battery power too low)	The voltage of the battery in the KMC3 job computer (round cell) is too low.	The voltage of the battery in the KMC3 job computer (round cell) is too low.	Replace the battery. When placing the battery, please make sure that you do not touch the flap sides of the battery with your fingers.
3200	Cracker motor_short circuit	When the "Cracker" motor M11 is actuated the current is too high.	The "I motor cracker max" parameter No. 7603 has been set incorrectly.	Check the parameters, and increase the current, if and when necessary.
			The cables to the "Cracker" motor M11 are defective.	Check harness and plug connectors.
			The "Cracker" motor M11 is defective.	Replace the motor.
			The mechanics of the cracker are tight, thus requiring impermissibly high current.	Remove the dirt; grease the mechanics.
			Internal fault in KMC3.	Replace the KMC3.
3201	Cracker motor_cable broken	When the "Cracker" motor M11 is actuated the current is too low.	The "I motor cracker min" parameter No. 7602 has been set incorrectly.	Check the parameters, and decrease the current, if and when necessary.
			The cables to the "Cracker" motor M11 are defective.	Check harness and plug connectors.

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Fault no.	Screen / message	Fault description	Potential cause of fault	Remedy of fault
			The "Cracker" motor M11 is defective.	Replace the motor.
			The on-load voltage supply V1 or V2 of KMC3 is defective.	Cf. faults Nos. 3103 and 3104.
			Internal fault in KMC3.	Replace the KMC3.
3202	Cracker ZERO_pos. reached	Whilst the cracker gap is reduced, the current is checked and the zero position of the cracker rollers has been reached. The current has a value between the normal and the impermissibly high current.	The zero position of the cracker has been reached.	Acknowledge the fault message. Everything okay.
			Wrong parameter for the cracker.	Carry out initial setting of the parameters of the cracker group.
			The cables to the "Cracker" motor M11 are defective.	Check harness and plug connectors.
			Internal fault in KMC3.	Replace the KMC3.
3203	Cracker Sensor error	The KMC3 control has recognised a fault in the "Position Cracker" sensor B42.	The power supply of the KMC3 analogue sensors is defective.	Cf. fault No. 3109.
			The cables to the "Cracker position" sensor B42 are defective.	Check harness and plug connectors.
			The "Cracker position" sensor B42 is defective.	Replace the sensor.
			Internal fault in KMC3.	Replace the KMC3.
3250	Max curr.LEFT_Shearbar mot.	During the excitation of the "Counterblade left" motor M9, the maximum permissible current was exceeded.	Wrong parameter for the counterblade.	Carry out initial setting of the parameters of the counterblade group.
			The mechanics of the counterblade are tight, thus requiring impermissibly high current.	Remove the dirt; grease the mechanics.
			The cables to the "Counterblade left" motor M9 are defective.	Check harness and plug connectors.
			The "Counterblade left" motor M9 is defective.	Replace the motor.
			The on-load voltage supply V1 or V2 of KMC3 is defective.	Cf. faults Nos. 3103 and 3104.
			Internal fault in KMC3.	Replace the KMC3.
3251	Short circ.LE_Shearbar motor	During the excitation of the "Counterblade left" motor M9, the maximum permissible current was exceeded.	Cf. fault No. 3250.	
3252	Cable.br. LE_Shearbar motor	During the excitation of the "Counterblade left" motor M9, the minimum permissible	Cf. fault No. 3250.	
3253	Max curr. RI_Shearbar motor	During the excitation of the "Counterblade right" motor M10, the maximum permissible current was exceeded.	Wrong parameter for the counterblade.	Carry out initial setting of the parameters of the counterblade group.
			The mechanics of the counterblade are tight, thus requiring impermissibly high current.	Remove the dirt; grease the mechanics.
			The cables to the "Counterblade right" motor M10 are defective.	Check harness and plug connectors.
			The "Counterblade left" motor M10 is defective.	Replace the motor.
			The on-load voltage supply V1 or V2 of KMC3 is defective.	Cf. faults Nos. 3103 and 3104.
			Internal fault in KMC3.	Replace the KMC3.
3254	Short circ. RI_Shearbar mot.	During the excitation of the "Counterblade right" motor M10, the maximum permissible current was exceeded.	Cf. fault No. 3253.	
3255	Cable.br. RI_Shearbar motor	During the excitation of the "Counterblade right" motor M10, the maximum permissible current was exceeded.	Cf. fault No. 3253.	
3270	Sharp.Flap mot short circ	During the excitation of the grinding flap motors, the maximum permissible current was exceeded.	Wrong parameter for the grinding flap.	Carry out initial setting of the parameters of the grinding flap group.
			The mechanics of the grinding flap are tight, thus requiring impermissibly high current.	Remove the dirt; grease the mechanics.
			The cables to the "Grinding flap left" motor M7 and the "Grinding flap right" motor M8 are defective.	Check harness and plug connectors.

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Fault no.	Screen / message	Fault description	Potential cause of fault	Remedy of fault
			The "Grinding flap left" motor M7 or the "Grinding flap right" motor M8 is defective.	Replace the motor.
			Internal fault in KMC3.	Replace the KMC3.
3271	Sharp.Flap mot cable br.	During the excitation of the grinding flap motors, the minimum permissible current was underrun.	The grinding flap sensors (B56, B57, B66) are not set correctly and are not alive in the stop positions of the grinding flap.	Adjust the sensors of the grinding flap correctly so that they will also be alive in the stop positions of the grinding flap.
			Wrong parameter for the grinding flap.	Carry out initial setting of the parameters of the grinding flap group.
			The cables to the "Grinding flap left" motor M7 and the "Grinding flap right" motor M8 are defective.	Check harness and plug connectors.
			The "Grinding flap left" motor M7 or the "Grinding flap right" motor M8 is defective.	Replace the motor.
			The on-load voltage supply V1 or V2 of KMC3 is defective.	Cf. faults Nos. 3103 and 3104.
			Internal fault in KMC3.	Replace the KMC3.
3272	Sharp.Flap senOPEN short cir	The KMC3 control reports a short circuit fault on the "Flap grinding unit – open" sensor B56.	The cabling to the "Flap grinding unit – open" sensor B56 is defective.	Check harness and plug connectors.
			The "Flap grinding unit – open" sensor B56 is defective.	Replace the sensor.
			The power supply of the KMC3 digital sensors is defective.	Cf. fault No. 3108.
			Internal fault in KMC3.	Replace the KMC3.
3273	Sharp.Flap senOPEN cable br.	The KMC3 control reports a cable rupture fault on the "Flap grinding unit – open" sensor B56.	The cabling to the "Flap grinding unit – open" sensor B56 is defective.	Check harness and plug connectors.
			The "Flap grinding unit – open" sensor B56 is defective.	Replace the sensor.
			The power supply of the KMC3 digital sensors is defective.	Cf. fault No. 3108.
			Internal fault in KMC3.	Replace the KMC3.
3274	Sharp.Flap senCLOSE short ci	The KMC3 control reports a short circuit fault on the "Flap grinding unit – closed" sensor B57.	The cables to the "Flap grinding unit – closed" sensor B57 are defective.	Check harness and plug connectors.
			The "Flap grinding unit – open" sensor B57 is defective.	Replace the sensor.
			The power supply of the KMC3 digital sensors is defective.	Cf. fault No. 3108.
			Internal fault in KMC3.	Replace the KMC3.
3275	Sharp.Flap senCLOSE cable br	The KMC3 control reports a cable rupture fault on the "Flap grinding unit – closed" sensor B57.	The cables to the "Flap grinding unit – closed" sensor B57 are defective.	Check harness and plug connectors.
			The "Flap grinding unit – open" sensor B57 is defective.	Replace the sensor.
			The power supply of the KMC3 digital sensors is defective.	Cf. fault No. 3108.
			Internal fault in KMC3.	Replace the KMC3.
3280	Grindst.sens_LEFT short circ	The KMC3 control reports a short circuit fault on the "Position grindstone – left" sensor B36.	The cables to the "Position grindstone – left" sensor B36 are defective.	Check harness and plug connectors.
	(Short circuit in grindstone – left s		The "Position grindstone – left" sensor B36 is defective.	Replace the sensor.
			The power supply of the KMC3 digital sensors is defective.	Cf. fault No. 3108.
			Internal fault in KMC3.	Replace the KMC3.
3281	Grindst.sens_LEFT cable br.	The KMC3 control reports a cable rupture fault on the "Position grindstone – left" sensor B36.	The cables to the "Position grindstone – left" sensor B36 are defective.	Check harness and plug connectors.
			The "Position grindstone – left" sensor B36 is defective.	Replace the sensor.
			The power supply of the KMC3 digital sensors is defective.	Cf. fault No. 3108.
			Internal fault in KMC3.	Replace the KMC3.
3282	Grindst.sens_RIGHT short cir	The KMC3 control reports a short circuit fault on the "Position grindstone – right" sensor B37.	The cables to the "Position grindstone – right" sensor B37 are defective.	Check harness and plug connectors.
			The "Position grindstone – right" sensor B37 is defective.	Replace the sensor.
			The power supply of the KMC3 digital sensors is defective.	Cf. fault No. 3108.

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Fault no.	Screen / message	Fault description	Potential cause of fault	Remedy of fault
			Internal fault in KMC3.	Replace the KMC3.
3283	Grindst.sens_RIGHT cable br.	The KMC3 control reports a cable rupture fault on the "Position grindstone – right" sensor B37.	The cables to the "Position grindstone – right" sensor B37	Check harness and plug connectors.
			The "Position grindstone – right" sensor B37 is defective.	Replace the sensor.
			The power supply of the KMC3 digital sensors is defective.	Cf. fault No. 3108.
			Internal fault in KMC3.	Replace the KMC3.
3290	Header sens_LEFT short circ	The KMC3 control reports a short circuit fault on the "Switch of front attachment – left" sensor B55.	The cables to the "Switch of front attachment – left" sensor	Check harness and plug connectors.
			The "Switch of front attachment – left" sensor B55 is defective.	Replace the sensor.
			The power supply of the KMC2 digital sensors is defective.	Cf. fault No. 2108.
			Internal fault in KMC2.	Replace KMC2
3291	Header sens_LEFT cable br.	The KMC2 control reports a This message is displayed only in spacing mode.	The cables to the "Switch of	Check harness and plug connectors.
			The "Switch of front attachment – left" sensor B55 is defective.	Replace the sensor.
			The power supply of the KMC2 digital sensors is defective.	Cf. fault No. 2108.
			Internal fault in KMC2.	Replace KMC2
3292	Header sens_RIGHT short circ	The KMC2 control reports a short circuit fault on the "Switch of front attachment – right" sensor B25.	The cables to the "Switch of front attachment – right" sensor B25 are defective.	Check harness and plug connectors.
			The "Switch of front attachment – right" sensor B25 is defective.	Replace the sensor.
			The power supply of the KMC2 digital sensors is defective.	Cf. fault No. 2108.
			Internal fault in KMC2.	Replace KMC2
3293	Header sens_RIGHT cable br.	The KMC2 control reports a cable rupture fault on the "Switch of front attachment – right" sensor B25. This message is displayed only in spacing mode.	The cables to the "Switch of front attachment – right" sensor B25 are defective.	Check harness and plug connectors.
			The "Switch of front attachment – right" sensor B25 is defective.	Replace the sensor.
			The power supply of the KMC2 digital sensors is defective.	Cf. fault No. 2108.
			Internal fault in KMC2.	Replace KMC2
3294	Header Frame_sens Error	The KMC3 control reports a cable rupture fault on the "Transversal inclination position" sensor B52.	The "Transversal inclination position" sensor B52 had not been adjusted properly.	Check the position, and correct if necessary. Then calibrate the pendulum frame
			The cables to the "Transversal inclination position" sensor B52 are defective.	Check harness and plug connectors.
			The "Transversal inclination position" sensor B52 is defective.	Replace the sensor.
			The power supply of the KMC3 analogue sensors is defective.	Cf. fault No. 3109.
			Internal fault in KMC3.	Replace the KMC3.
3295	B59 Sen Maint. Flap short cir	The KMC3 control reports short circuit fault on "maintenance flap", B59.	The sensor"maintenance flap", B59 is not correctly positioned.	Check position and correct if necessary. Then calibrate the pendulum frame.
			The cables to the sensor"maintenance flap", B59 are defective.	Check the harness and plug connectors.
			The sensor "maintenance flap", B59 is defective.	Replace sensor
			The power supply of the analouge sensors of KMC3 is defective.	Cf. Fault no. 3109.
			Internal fault in KMC3	Replace the KMC3
3296	B59 Sen Maint. Flap cable br	The KMC3 control reports cable rupture fault on the sensor "maintenance flap", B59.	The sensor "maintenance flap", B59 had not been adjusted properly.	Check position and correct if necessary. Then calibrate the pendulum frame.
			The cables to the sensor "maintenance flap", B59 are defective.	Check the harness and plug connectors.
			The sensor "maintenance flap", B59 iis defective.	Replace sensor
			The power supply of the analouge sensors of KMC3 is defective.	Cf. Fault no. 3109.
			internal fault in KMC3	Replace the KMC3
3600	KMC3-defective!	No connection could be established to KMC3. See also fault no. 3601, appendices A and B.	The power supply of KMC3 is defective.	Check the F12 and F13 fuses on the relay PCB in UV3.
				Check the harness and plug connectors.
			The job computer receives no CAN messages from the KMC3	Check the cables / plug connectors from the KKC panel computer to the KMC3.

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Fault no.	Screen / message	Fault description	Potential cause of fault	Remedy of fault
			job computer.	Check the program version of KMC3 and update, if and when necessary.
			CAN bus is defective.	Cf. fault No. 100.
			Program is not running in KMC3.	Check the LEDs between X1 and X2 of KMC3, which should be flashing in a seconds cycle.
			Internal fault in KMC3.	Replace the KMC3.
3601	CAN Error! Display Control by KMC2!	KMC3 is not actuating the display; KMC2 has taken over control of the display. See also appendices A and B!	The power supply of KMC3 is defective.	Check the F12 and F13 fuses on the relay PCB in UV3.
				Check the harness and plug connectors.
			CAN bus is defective.	Cf. fault No. 100.
			Program is not running in KMC3.	Check the LEDs between X1 and X2 of KMC3, which should be flashing in a seconds cycle.
			Internal fault in KMC3.	Replace the KMC3.
4001	Metal det.under_volt. <10V	The distribution voltage for the metal detection is too low (lower than 10 V).	The battery voltage is too low.	Charge the batteries.
				Check the battery acid.
				Replace the batteries.
			The dynamo is defective.	Check excitation voltage – Is F146 on the relay PCB in the cab correct? Is the pilot lamp in the panel correct ? (This must be lit in ignition stage 2, if the diesel engine is not running.).
				Check the cables to the dynamo.
				Replace the dynamo.
			The cabling is defective	Check relay PCB, harness and plug connector.
			Internal fault in metal detection system.	Replace the metal detection system.
4002	Metal det.under_volt. <8V	The distribution voltage for the metal detection is too low (lower than 8 V).	The battery voltage is too low.	Charge the batteries.
				Check the battery acid.
				Replace the batteries.
			The dynamo is defective.	Check excitation voltage – Is F146 on the relay PCB in the cab correct? Is the pilot lamp in the panel correct ? (This must be lit in ignition stage 2, if the diesel engine is not running.).
				Check the cables to the dynamo.
				Replace the dynamo.
			The cabling is defective	Check relay PCB, harness and plug connector.
			Internal fault in metal detection system.	Replace the metal detection system.
4010	M.D. Stop valve_cable br.	The metal detection system reports a cable rupture on the "Quick stop" valve Y35.	The cables to the "quick stop" valve Y35 are defective.	Check harness and plug connectors.
			The "quick stop" valve Y35 is defective.	Replace the valve.
			Internal fault in metal detection system.	Replace the metal detection system.
4011	M.D. Stop valve_short circ.	The metal detection system reports a short circuit in the "Quick stop" valve Y35.	The cables to the "quick stop" valve Y35 are defective.	Check harness and plug connectors.
			The "quick stop" valve Y35 is defective.	Replace the valve.
			Internal fault in metal detection system.	Replace the metal detection system.
4012	M.D. Stop valve_overload	The metal detection system is reporting overload in the "Quick stop" valve Y35.	The cables to the "quick stop" valve Y35 are defective.	Check harness and plug connectors.
			The "quick stop" valve Y35 is defective.	Replace the valve.
			Internal fault in metal detection system.	Replace the metal detection system.
4013	M.D. Stop valve_def.	The metal detection system reports a fault on the output to the "Quick stop" valve Y35.	The parameter of the metal detection system is wrong.	Set the works settings of the metal detection system in the diagnostic mode of the metal detection system.
			The output of the metal detection system is defective; internal fault.	Replace the metal detection system.
4032	Metal det._auto zero 1	The metal detection system has recognised an internal fault.	The parameter of the metal detection system is wrong.	Set the works settings of the metal detection system in the diagnostic mode of the metal detection system.
			Internal fault in metal detection system.	Replace the metal detection system.
4033	Metal det._auto zero 2	The metal detection system has recognised an internal fault.	The parameter of the metal detection system is wrong.	Set the works settings of the metal detection system in the diagnostic mode of the metal detection system.
			Internal fault in metal detection system.	Replace the metal detection system.
4034	Metal det._auto zero 3	The metal detection system has recognised an internal fault.	The parameter of the metal detection system is wrong.	Set the works settings of the metal detection system in the diagnostic mode of the metal detection system.
			Internal fault in metal detection system.	Replace the metal detection system.
4048	Metal det._meas.ch. 1 def.	The metal detection system has recognised an internal fault.	The parameter of the metal detection system is wrong.	Set the works settings of the metal detection system in the diagnostic mode of the metal detection system.
			Internal fault in metal detection system.	Replace the metal detection system.
4049	Metal det._meas.ch. 2 def.	The metal detection system has recognised an internal	The parameter of the metal detection system is wrong.	Set the works settings of the metal detection system in the diagnostic mode of the metal detection system.

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Fault no.	Screen / message	Fault description	Potential cause of fault	Remedy of fault
		fault.	Internal fault in metal detection system.	Replace the metal detection system.
4050	Metal det._meas.ch. 3 def.	The metal detection system has recognised an internal fault.	The parameter of the metal detection system is wrong.	Set the works settings of the metal detection system in the diagnostic mode of the metal detection system.
			Internal fault in metal detection system.	Replace the metal detection system.
4220	Metal det._EEP-CAN error	The metal detection system has recognised an internal fault.	The parameter of the metal detection system is wrong.	Set the works settings of the metal detection system in the diagnostic mode of the metal detection system.
			Internal fault in metal detection system.	Replace the metal detection system.
4222	Metal det._EEP-para error	The metal detection system has recognised an internal fault.	The parameter of the metal detection system is wrong.	Set the works settings of the metal detection system in the diagnostic mode of the metal detection system.
			Internal fault in metal detection system.	Replace the metal detection system.
4000	Metal det._deactivated!!!	The metal detection system has been switched off.	No fault.	Acknowledge the fault message. Everything okay.
4003	Metal det._activated!!!	The metal detection system has been switched on.	No fault.	Acknowledge the fault message. Everything okay.
4300	Metal CAN to_KMC3 error!!!	The KMC3 control cannot establish a CAN connection to the metal detection system.	The metal detection system power supply is defective.	Cf. faults Nos. 4001 and 4002.
			The CAN bus cables to the metal detection system are defective.	Cf. fault No. 2112.
4301	METAL DETECTED!!!	The metal detection system has detected metal in the feed drive.	There is metal in the feed drive.	Remove the metal and subsequently reverse feed drive / front attachment.
4302	Metal det._error!	There is a metal detection fault. An additional icon will be displayed with the metal detection fault message.	An additional icon will appear with the metal detection fault message in the display.	Refer to the corresponding error message.
			Incorrect default setting.	Set the works settings of the metal detection system in the diagnostics mode of the metal detection system (fitter section).
			Internal fault in metal detection system.	Replace the metal detection system.
		The KMC2 job computer has not detected the test stop after changing over from road to field operation. (No additional fault message is displayed as an icon by metal detection).	The "quick-stop" metal detection output is switched (refer to the illustration in "Metal detection diagnostics". When the output is switched, the voltage on the output must be 0 V. When not switched, it must be approx. 13 volts. There is **no current** to the **quick stop valve**, however.	Check the wiring from the metal detection to subdistributor 2.
				Internal error in job computer KMC2 ==> replace job computer.
			The "quick-stop" metal detection output is switched (refer to the illustration in "Metal detection diagnostics". When the output is switched, the voltage on the output must be 0 V. When not switched, it must be approx. 13 volts. There is **current** to the **quick stop valve**, however.	Check the wiring for metal detection in subdistributor 2 (from the terminal bar to job computer KMC2).
				Internal error in job computer KMC2 ==> replace job computer.
			The metal detection "quick stop" output is not switching. (Refer to "Metal detection diagnostics" in the illustration. When the output is switched, the voltage on the output must be 0 V. When not switched, it must be approx. 13 volts. There is no current to the quick stop valve either.	Metal detection output defective. Replace the metal detection system.
			Incorrect default setting in metal detection.	Set the works settings of the metal detection system in the diagnostics mode of the metal detection system (fitter section).
			Internal fault in metal detection system.	Replace the metal detection system.
4303	Restart Metal_det.	The CAN connection to the metal detection system is defective.	The cables to the metal detection system are defective.	Cf. fault No. 2112.
		The metal detection system has been restarted during the current operation.	The power supply of the metal detection system is defective.	Cf. faults Nos. 4001 and 4002.
			The parameter of the metal detection system is wrong.	Set the works settings of the metal detection system in the diagnostic mode of the metal detection system.

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Fault no.	Screen / message	Fault description	Potential cause of fault	Remedy of fault
			Internal fault in metal detection system.	Replace the metal detection system.
4400	B63 Pres.Sen Autop. < MIN	Broken cable in steering wheel pressure sensor.	The cables to the Pressure sensor - steering wheel sensor – B63 is faulty.	Check harness and plug connectors.
	(Steering wheel pressure sensor B63 < MIN)		The "steering wheel pressure sensor" B63 is faulty.	Replace the sensor.
			The power supply to the autopilot sensors is defective.	Cf. fault No. 4412.
			Internal fault in the autopilot.	Replace the autopilot.
4401	B63 Pres.Sen Autop > MAX.	Short circuit in steering wheel pressure sensor.	The cables to the Pressure sensor - steering wheel" B63 is faulty.	Check harness and plug connectors.
	(Steering wheel pressure sensor B63 > MAX)		The "steering wheel pressure sensor" B63 is faulty.	Replace the sensor.
			The power supply to the autopilot sensors is defective.	Cf. fault No. 4412.
			Internal fault in the autopilot.	Replace the autopilot.
4402	B64 Steer.axle.Sen Autop<MIN	Broken cable in leading axle angle sensor.	The cables to the "leading axle sensor" sensor B64 are defective.	Check harness and plug connectors.
			The "leading axle sensor" B64 is defective.	Replace the sensor.
			The power supply to the autopilot sensors is defective.	Cf. fault No. 4412.
			Internal fault in the autopilot.	Replace the autopilot.
4403	B64 Steer.axle.Sen Autop>MAX	Short circuit in leading axle angle sensor.	The cables to the "leading axle sensor" sensor B64 are defective.	Check harness and plug connectors.
			The "leading axle sensor" B64 is defective.	Replace the sensor.
			The power supply to the autopilot sensors is defective.	Cf. fault No. 4412.
			Internal fault in the autopilot.	Replace the autopilot.
4404	B65 row-tracer. le.Autop<MIN	Broken cable in row tracer sensor left.	The cables to the "row tracer" sensor B65 are defective.	Check harness and plug connectors.
	(B65 row tracer left)		The "row tracer left" sensor B65 is defective.	Replace the sensor.
			The power supply to the autopilot sensors is defective.	Cf. fault No. 4412.
			Internal fault in the autopilot.	Replace the autopilot.
4405	B65 row-tracer. le.Autop>MAX	Short circuit in row tracer sensor left.	The cables to the "row tracer left" sensor B65 are defective.	Check harness and plug connectors.
	(B65 row tracer left > MAX)		The "row tracer left" sensor B65 is defective.	Replace the sensor.
			The power supply to the autopilot sensors is defective.	Cf. fault No. 4412.
			Internal fault in the autopilot.	Replace the autopilot.
4406	B61 row-tracer. ri.Autop<MIN	Broken cable in row tracer sensor right.	The cables to the "row tracer" right sensor B61 are defective.	Check harness and plug connectors.
			The "row tracer right" sensor B61 is defective.	Replace the sensor.
			The power supply to the autopilot sensors is defective.	Cf. fault No. 4412.
			Internal fault in the autopilot.	Replace the autopilot.
4407	B61 row-tracer. ri.Autop>MAX	Short circuit in row tracer sensor right.	The cables to the "row tracer" right sensor B61 are defective.	Check harness and plug connectors.
	(B61 row tracer left > MAX)		The "row tracer right" sensor B61 is defective.	Replace the sensor.
			The power supply to the	Cf. fault No. 4412.
			Internal fault in the autopilot.	Replace the autopilot.
4408	Y39 Autop.cable-bro.Valve Le	Cable break in leading axle valve left	The cables to the "leading axle" valve Y39 are defective.	Check harness and plug connectors.
			The valve is defective.	Replace the valve.
			Internal fault in the autopilot.	Replace the autopilot.
4409	Y39 Autop.Short.cir.Valve Le	Short circuit in leading axle valve left	The cables to the "leading axle left" valve Y39 are defective.	Check harness and plug connectors.
			The valve is defective.	Replace the valve.
			Internal fault in the autopilot.	Replace the autopilot.
4410	Y40 Autop.cable-bro.Valve Ri	Cable break in leading axle valve right	The cables to the "leading axle right" valve Y40 are defective.	Check harness and plug connectors.
			The valve is defective.	Replace the valve.
			Internal fault in the autopilot.	Replace the autopilot.

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Fault no.	Screen / message	Fault description	Potential cause of fault	Remedy of fault
4411	Y40 Autop.Short.cir.Valve Ri	Short circuit in leading axle valve right	The cables to the "leading axle right" valve Y40 are defective.	Check harness and plug connectors.
			The valve is defective.	Replace the valve.
			Internal fault in the autopilot.	Replace the autopilot.
4412	Autop. Elek.Spg. Error	Under- or over-voltage is being applied to the autopilot control system.	The F6 fuse on the cab relay UV3 is defective.	Replace the fuse.
			The cabling is defective	Check harness and plug connectors.
			LD3 on the UV3 relay PCB has to be lit.	The relay PCB in UV3 is defective; replace the relay PCB
			The power supply of ignition stage 1 is defective.	Check the F101 and F102 fuses on the cab relay PCB, and replace, if and when necessary.
4413	Autop. Sensor-Spg. Error	An internal fault or cable break/ short circuit in a sensor.	The cables to the sensors are defective (short circuit) so that the voltage collapses.	Check harness and plug connectors.
			Short circuit in one / several sensor(s) which are supplied with voltage.	Disconnect all sensors which are supplied with voltage; subsequently connect them again one after the other and observe when the voltage collapses with one of the sensors. Replace the defective sensors.
			Internal fault in the autopilot.	Replace the autopilot.
4414	Autop. Error 0/14	Not assigned so far.		
4415	Autop. Error 0/15	Not assigned so far.		
4432	CAN to_Autopilot	The field, travelling gear and autopilot enable switches are ON, but KMC3 is not receiving any CAN messages from the autopilot.	KMC3 is not receiving CAN messages from the autopilot.	Check the cables / plug connector from the autopilot to the UV3/KMC3. See also fault no. 3601.
		See also Appendix A for CAN faults.	The power supply to the autopilot is defective.	Check the voltage supply to the autopilot, and repair if necessary. If the voltage supply is OK, then check the autopilot and if necessary, replace it.
			Internal fault in the autopilot.	Replace the autopilot.
4433	Autopilot_Restart	The autopilot has been restarted during the current operation.	The F6 fuse on the cab relay UV3 is defective.	Replace the fuse.
	Autopilot_Restart		The cabling is defective	Check harness and plug connectors.
			LD3 on the UV3 relay PCB has to be lit.	The relay PCB in UV3 is defective; replace the relay PCB
			The power supply of ignition stage 1 is defective.	Check the F101 and F102 fuses on the cab relay PCB, and replace, if and when necessary.
4434	Electronic Autopilot active!	A minimum of the field, travelling gear and autopilot enable switches are OFF, but KMC3 is still receiving CAN messages from the autopilot.	The power supply to the autopilot should be switched off.	Check the voltage supply to the autopilot, and repair if necessary. If the voltage supply is OK, then check the autopilot and if necessary, replace it.
4435	FS AutoPilot ON!	The Autopilot enable switch is still switched on but should be switched off.		Switch off the Autopilot enable switch!
10000	Engine failure!	Unknown diesel engine error (only with V8).	Read additional errors with Minidiag.	
9500	CAN_ KMC3 to DIOS	Error CAN-bus-communication - DIOS 1 to KMC3	Power supply on DIOS 1 is defective.	Check power supply on DIOS 1 , check wiring.
			Short circuit/broken cable in CAN-bus 1 wiring.	Check wiring CAN-bus 1 .
			CAN bus terminating resistors are defective.	Check cabling CAN-Bus 1 , a resistance of about 60 Ohm must be measured on ignition stage 0.
			Internal fault on DIOS 1.	Turn ignition off and on again, exchange DIOS if necessary.
9501	Restart_DIOS	DIOS 1 restarted during operation	Power supply on DIOS 1 is defective.	Check power supply on DIOS 1 , check wiring.
			Short circuit/broken cable in cabling CAN-bus 1.	Check cabling CAN-bus 1 .
			CAN bus terminating resistors are defective.	Check cabling CAN-Bus 1 , a resistance of about 60 Ohm must be measured on ignition stage 0.
			Internal fault on DIOS 1.	Turn ignition off and on again, exchange DIOS if necessary.
9510	DIOS_statuserror	Status error on DIOS.	Internal fault on DIOS 1.	Turn ignition off and on again, exchange DIOS if necessary.
9511	DIOS_CAN-error	CPU-error, CAN-error	Short circuit/broken cable in cabling CAN-bus 1.	Check cabling CAN-bus 1 .
			CAN bus terminating resistors are defective.	Check cabling CAN-Bus 1 , a resistance of about 60 Ohm must be measured on ignition stage 0.
			Internal fault on DIOS 1.	Zündung aus- und wieder einschalten, ggf. die DIOS
9512	DIOS Volt.Ub_error	Power supply on DIOS 1 is defective.	Power supply on DIOS 1 is defective.	Check power supply on DIOS 1 , check wiring.
			Internal fault on DIOS 1.	Turn ignition off and on again, exchange DIOS if necessary.
9513	DIOS Volt.Uc_error		Power supply on DIOS 1 is defective.	Check power supply on DIOS 1 , check wiring.
			Internal fault on DIOS 1.	Turn ignition off and on again, exchange DIOS if necessary.
9514	DIOS Volt.7,5V_error		Power supply on DIOS 1 is defective.	Check power supply on DIOS 1 , check wiring.
			Internal fault on DIOS 1.	Turn ignition off and on again, exchange DIOS if necessary.
9515	DIOS Temp._to high	Temperature of DIOS 1 is too high.	Temperature is too high	Check temperature, let cooldown if necessary

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Fault no.	Screen / message	Fault description	Potential cause of fault	Remedy of fault
9516	DIOS Relais_error	Relay of DIOS 1 is defective.	Relay is defective.	Exchange DIOS
			Internal fault on DIOS 1.	Turn ignition off and on again, exchange DIOS if necessary.
9517	DIOS Current_to high	Overall current of DIOS is too high.	Short circuit in one of the valves, sensors or the wiring	Check wiring, sensors and valves/motors.
			Internal fault on DIOS 1.	Turn ignition off and on again, exchange DIOS if necessary.
9518	DIOS_Slave-error	Internal fault on DIOS 1.	Internal fault on DIOS 1.	Turn ignition off and on again, exchange DIOS if necessary.
9520	DIOS Eep_general error	Internal fault on DIOS 1.	Internal fault on DIOS 1.	Turn ignition off and on again, exchange DIOS if necessary.
9521	DIOS Eep_read error			
9522	DIOS Eep_write error			
9523	DIOS Eep_ STW-Data			
9524	DIOS Eep_ Diag-Daten			
9525	DIOS Eep_ Konf.Daten			
9526	DIOS Eep_ CAN-Daten			
9527	DIOS Eep_ Obj.Commun.			
9528	DIOS Eep_ Obj.Applic.			
9530	DIOS_ IO-error	A in-/output of DIOS causes error.	Short circuit in one of the valves, sensors or the wiring	Check wiring, sensors and valves/motors.
			Internal fault on DIOS 1.	Turn ignition off and on again, exchange DIOS if necessary.
9531	DIOS Ch._1 I zu high	Error on channel 1 on DIOS. Voltage is too big.	Short circuit in one of the valves, sensors or the wiring	Check wiring, sensors and valves/motors.
			Internal fault on DIOS 1.	Turn ignition off and on again, exchange DIOS if necessary.
9532	DIOS Ch._2 I zu high	Error on channel 2 on DIOS. Voltage is too big.	Short circuit in one of the valves, sensors or the wiring	Check wiring, sensors and valves/motors.
			Internal fault on DIOS 1.	Turn ignition off and on again, exchange DIOS if necessary.
9533	DIOS Ch._3 I zu high	Error on channel 3 on DIOS. Voltage is too big.	Short circuit in one of the valves, sensors or the wiring	Check wiring, sensors and valves/motors.
			Internal fault on DIOS 1.	Turn ignition off and on again, exchange DIOS if necessary.
9534	DIOS Ch._4 I zu high	Error on channel 4 on DIOS. Voltage is too big.	Short circuit in one of the valves, sensors or the wiring	Check wiring, sensors and valves/motors.
			Internal fault on DIOS 1.	Turn ignition off and on again, exchange DIOS if necessary.
9535	DIOS Ch._5 I zu high	Error on channel 5 on DIOS. Voltage is too big.	Short circuit in one of the valves, sensors or the wiring	Check wiring, sensors and valves/motors.
			Internal fault on DIOS 1.	Turn ignition off and on again, exchange DIOS if necessary.
9536	DIOS Ch._6 I zu high	Error on channel 6 on DIOS. Voltage is too big.	Short circuit in one of the valves, sensors or the wiring	Check wiring, sensors and valves/motors.
			Internal fault on DIOS 1.	Turn ignition off and on again, exchange DIOS if necessary.
9537	DIOS Ch._7 I zu high	Error on channel 7 on DIOS. Voltage is too big.	Short circuit in one of the valves, sensors or the wiring	Check wiring, sensors and valves/motors.
			Internal fault on DIOS 1.	Turn ignition off and on again, exchange DIOS if necessary.
9538	DIOS Ch._8 I zu high	Error on channel 8 on DIOS. Voltage is too big.	Short circuit in one of the valves, sensors or the wiring	Check wiring, sensors and valves/motors.
			Internal fault on DIOS 1.	Turn ignition off and on again, exchange DIOS if necessary.
9540	DIOS Ch._ general Status	A in-/output of DIOS causes error.	Short circuit/broken cable in one of the valves, sensors or the wiring	Check wiring, sensors and valves/motors.
			Internal fault on DIOS 1.	Turn ignition off and on again, exchange DIOS if necessary.
9541	DIOS Ch. 1_ Status	A in-/output of DIOS causes error.	Short circuit/broken cable in one of the valves, sensors or the wiring	Check wiring, sensors and valves/motors.
			Internal fault on DIOS 1.	Turn ignition off and on again, exchange DIOS if necessary.
9542	DIOS Ch. 2_ Status	A in-/output of DIOS causes error.	Short circuit/broken cable in one of the valves, sensors or the wiring	Check wiring, sensors and valves/motors.
			Internal fault on DIOS 1.	Turn ignition off and on again, exchange DIOS if necessary.
9543	DIOS Ch. 3_ Status	A in-/output of DIOS causes error.	Short circuit in one of the valves, sensors or the wiring	Check wiring, sensors and valves/motors.
			Internal fault on DIOS 1.	Turn ignition off and on again, exchange DIOS if necessary.
9544	DIOS Ch. 4_ Status	A in-/output of DIOS causes error.	Short circuit in one of the valves, sensors or the wiring	Check wiring, sensors and valves/motors.
			Internal fault on DIOS 1.	Turn ignition off and on again, exchange DIOS if necessary.
9545	DIOS Ch. 5_ Status	A in-/output of DIOS causes error.	Short circuit/broken cable in one of the valves, sensors or the wiring	Check wiring, sensors and valves/motors.
			Internal fault on DIOS 1.	Turn ignition off and on again, exchange DIOS if necessary.
9546	DIOS Ch. 6_ Status	A in-/output of DIOS causes error.	Short circuit/broken cable in one of the valves, sensors or the wiring	Check wiring, sensors and valves/motors.
			Internal fault on DIOS 1.	Turn ignition off and on again, exchange DIOS if necessary.
9547	DIOS Ch. 7_ Status	A in-/output of DIOS causes error.	Short circuit/broken cable in one of the valves, sensors or the wiring	Check wiring, sensors and valves/motors.
			Internal fault on DIOS 1.	Turn ignition off and on again, exchange DIOS if necessary.
9548	DIOS Ch. 8_ Status	A in-/output of DIOS causes error.	Short circuit/broken cable in one of the valves, sensors or the wiring	Check wiring, sensors and valves/motors.
			Internal fault on DIOS 1.	Turn ignition off and on again, exchange DIOS if necessary.
9550	DIOS error voltage Ub	Output power supply voltage of DIOS too low	The battery voltage is too low.	Charge the batteries.
				Check the battery acid.
				Replace the batteries.

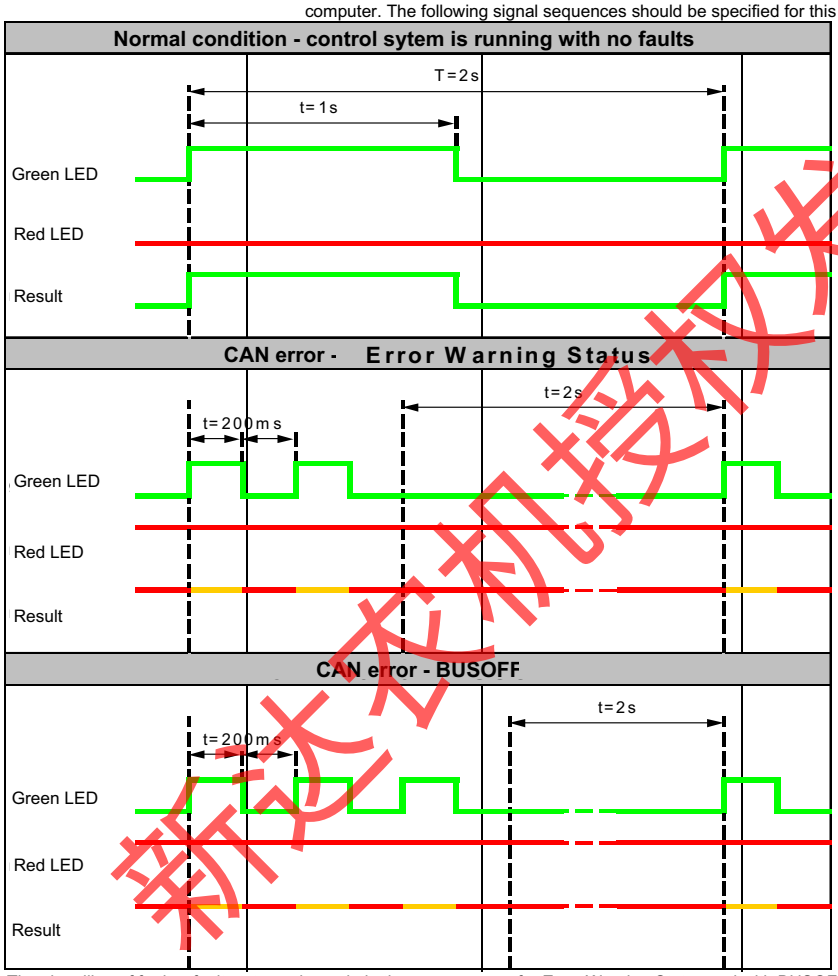
Error messages for BiG X 2004 as of 02.12.2004

Fault no.	Screen / message	Fault description	Potential cause of fault	Remedy of fault
			The dynamo is defective.	Check excitation voltage – Is F146 on the relay PCB in the cab correct? - Is the pilot lamp in the console (console-HLade1) correct? (This must be lit in ignition stage 2, if the diesel engine is not running.).
				Check the cables to the dynamo.
				Replace the dynamo.
			The cabling is defective.	Check relay circuit, harness and plug connector.
			Internal fault in DIOS.	Replace DIOS.
		Output power supply voltage of DIOS too high	The controller of the dynamo is defective.	Replace the dynamo.
			The battery change-over relay is defective (V12 only).	Replace the relay.
			Internal fault in DIOS.	Replace DIOS.
9551	DIOS error voltage Uc	Error in DIOS electrical power supply	Refer to error 9550	Refer to error 9550.
9552	DIOS error voltage 7.5V	Error in DIOS electrical power supply.	Refer to error 9550.	Refer to error 9550.
9560	DIOS temperature too high	Internal temperature of DIOS too high	Temperature too high	Allow the DIOS to cool down.
			Overload on outputs	Check whether the outputs are overloaded or have a short circuit (measure the internal resistances of consumers).
			Internal fault in DIOS.	Replace DIOS.
9561	DIOS error on communication	DIOS has discovered an error in CAN communication	Refer to error 9511.	refer to error 9511.
9600	CAN KMC3 to CANcom	CAN connection to CANCom module interrupted/faulty	Short circuit/broken cable in the wiring for CAN bus 1	Check CAN bus 1 wiring.
			CAN terminating resistors faulty.	Check CAN bus 1 wiring. A resistance of approx. 60 Ohms must be measured at ignition stage 0.
			Internal fault in DIOS 1.	Switch the ignition off and back on. Replace DIOS if necessary.
9601	Restart CanCom	CANCom module has restarted	Intermittent contact in electrical power supply from CANCom	Check wiring
			internal fault from CANCom	Replace CANCom
"Engine fault" message with several different fault numbers		One of the ADM or PLD engine controls has indicated a fault. The fault must be read out on a manual device; see Mercedes documentation for a description of the fault.		

Error messages for BiG X 2004 as of 02.12.2004

Fault no.	Screen / message	Fault description	Potential cause of fault	Remedy of fault
	Appendix			

A) It should be possible to carry out an initial diagnosis of the status of a job compute from the various LED signal sequences between plugs X1 and X2 of a job computer. The following signal sequences should be specified for this purpose.



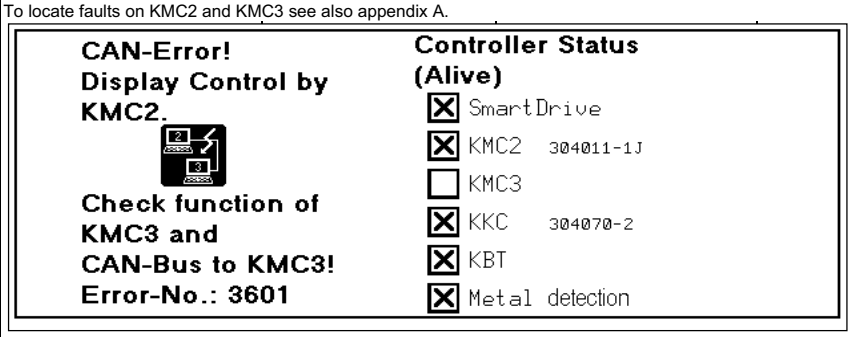
The signalling of further fault statuses is made in the same way as for Error Warning Status and with BUSOFF. A certain number of pulses are sent (200 ms ORANGE, 200 ms RED), then a pause of 2 seconds (RED).

Below is a list showing how number of pulses is assigned to the faults.

Number of pulses	Error status
2	CAN-error – No Acknowledge
3	CAN-error – Error Warning Status
4	CAN-error – BUSOFF
5	Job computer undervoltage
6	Job computer overvoltage
7	Job computer (+) and (-) voltage supply reversed
8	CAN connection to terminal is faulty
9	CAN connection to KKC panel computer is faulty
10	CAN connection to multi-purpose lever is faulty

Error messages for BiG X 2004 as of 02.12.2004

Fault no.	Screen / message	Fault description	Potential cause of fault	Remedy of fault
B)	When message 3601 is indicated, KMC2 has taken over control of the display. That means that the CAN connection between KMC2 and the terminal is OK, but that KMC3 is not sending any messages to the CAN bus (so the KMC3 could be faulty). If, instead of this message one of faults 321, 325 or 329 is displayed, then it is not possible to establish a CAN connection either to KMC3 or to KMC2. - Fault no. 321: The CAN connection between the terminal and the KKC is faulty, because no bus users are acknowledging the CAN messages.. - Fault no. 325: The CAN connection was interrupted briefly. - Error no. 329: The CAN connection between KMC3 and the KKC is faulty. To locate faults on KMC2 and KMC3 see also appendix A.			



BiG X information messages

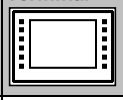
Infomeldungen des Big X 2004 - Stand 28.10.2004		
No.	**Message**	**Description**
500	FS Console_Emerg.Stop OFF	Quickstop is switched off at the panel and should be switched on.
501	FS Console_Emerg.Stop ON!	Quickstop is switched on at the panel and should be switched off.
502	FS Console_Emerg.Stop!	The quickstop is at the incorrect switch setting on the panel.
503	Joystick_Emerg.Stop OFF	Quickstop is switched off at the manual operation device and should be switched on.
504	Joystick_Emerg.Stop ON!	Quickstop is switched on at the manual operation device and should be switched off.
505	FS Joystick_Emerg.Stop!	The quickstop is at the incorrect switch setting on the manual operation device.
506	FS Maintenance_Switch OFF!	The maintenance switch is switched off and should be switched on.
507	FS Maintenance_Switch ON!	The maintenance switch is switched on and should be switched off.
508	FS Maintenance_Switch!	The maintenance switch is at the wrong switch position.
509	FS Road/_Field OFF!	The field switch is switched off and should be switched on.
510	FS Road/_Field ON!	The field switch is switched on and should be switched off.
511	FS Road/_Field!	The field switch is at the wrong switch position.
512	FS Trans-_mission OFF!	The travelling gear enable switch is switched off and should be switched on.
513	FS Trans-_mission ON!	The travelling gear enable switch is switched on and should be switched off.
514	FS_Transmission!	The travelling gear enable switch is at the wrong switch position.
515	FS AutoPilot_OFF!	The autopilot enable switch is switched off and should be switched on.
516	FS AutoPilot_ON!	The autopilot enable switch is switched on and should be switched off.
517	FS_AutoPilot!	The autopilot enable switch is at the wrong switch position.
518	FS Center_Diff OFF!	The axle separation enable switch is switched off and should be switched on.
519	FS Center_Diff ON!	The axle separation enable switch is switched on and should be switched off.
520	FS_CenterDiff!	The axle separation enable switch is at the wrong switch position.
521	FS Parking_Brakes OFF!	The holding brake enable switch is switched off and should be switched on.
522	FS Parking_Brakes ON!	The holding brake enable switch is switched on and should be switched off.
523	FS Parking_Brakes!	The holding brake enable switch is at the wrong switch position.
524	Machine_Driving!	The vehicle is moving and must be at standstill.
525	Machine_NOT_Driving!	The vehicle is at standstill and should be moving.
526	Criuse Control Active!	Automotive drive is active (road operation, V8)
527	Driver NOT_on seat!	No-one is on the driver's seat.
528	Driver_ON Seat!	The driver's seat is occupied.
529	Door open!	The cabin door is open, but should be closed.
530	Door closed!	The cabin door is closed, but should be open.
531	Engine NOT_running!	The diesel engine is not operating.
532	Engine_running!	The diesel engine is operating.
533	Engine NOT_at low idle!	The diesel engine is not operating at low idle, but should be operating at low idle.
534	Engine NOT_a 2000 RPM	The diesel engine is not operating at 2000 rpm as it should be.
535	Out of range_set to MIN!	A value has been entered that is smaller than the minimum permitted value; it has been set to the minimum permitted value.
536	Out of range_set to MAX!	A value has been entered that is greater than the maximum permitted value; it has been set to the maximum permitted value.
537	Engine RPM_too high!	The engine speed is too high for a specific action; it must be reduced.

BiG X information messages

Infomeldungen des Big X 2004 - Stand 28.10.2004		
No.	**Message**	**Description**
8000	Header Control_NOT Active	The lifting gear control is not active.
8001	EMR Adjustment_1...	Adjustment process 1 on the lifting gear control is active.
8002	EMR Adjustment_2...	Adjustment process 2 on the lifting gear control is active.
8003	EMR Adjustment_3...	Adjustment process 3 on the lifting gear control is active.
8004	EMR Adjustment_1 OK	Adjustment process 1 on the lifting gear control successfully carried out.
8005	EMR Adjustment_2 OK	Adjustment process 2 on the lifting gear control successfully carried out.
8006	EMR Adjustment_3 OK	Adjustment process 3 on the lifting gear control successfully carried out.
8007	Auto Header_Control Active	An automatic function on the lifting gear control is active.
8008	Distance Mode_EMR Active	Spacing control on the lifting gear control is active.
8009	Header Housing_Too High	The lifting gear is too high to start an action.
8010	Header Housing_Too Low	The lifting gear is too low to start an action.
8011	Distance Mode_EMR deactiv.	The lifting gear control spacing mode should be switched off.
8012	Header Housing_Pos. Saved	The current position of the lifting gear has been saved.
8050	FS Main Drive_Clutch ON!	The main coupling is switched off and should be switched on.
8051	FS Main Drive_Clutch OFF!	The main coupling is switched on and should be switched off.
8052	FS Main Drive_Clutch!	The main coupling is not switched on/off.
8053	Cutting Cyl._NOT Turning!	The cutting drum is not turning, but should be.
8054	Cutting Cyl._IS Turning!	The cutting drum is turning, but should not be.
8055	Main Drive_Clutch NOT Turni.	The main coupling is at a standstill, but should be turning.
8056	Main Drive_Clutch IS Turnin.	The main coupling is turning, but should be at a standstill.
8057	FS InTake_Header OFF!	The draw-in / attachment enable switch is switched off and should be switched on.
8058	FS InTake_Header ON!	The draw-in / attachment enable switch is switched on and should be switched off.
8059	FS InTake_Header!	The draw-in/attachment enable switch is at the wrong switch position.
8200	Header NOT_Folded IN!	The attachment is not folded up, but should be.
8201	Header NOT_Folded OUT!	The attachment has not folded down, but should have folded down.
8202	Header_Raised!	The attachment is up, but should be down.
8203	Header_Lowered!	The attachment is down, but should be up.
8204	Header_NOT Turning!	The attachment is at a standstill, but should be turning.
8205	Header_IS Turning!	The attachment is turning, but should be at a standstill.
8206	InTake_NOT Turning!	The draw-in is at a standstill, but should be turning.
8207	InTake_IS Turning!	The draw-in is turning, but should be at a standstill.
8208	Header Frame_NOT Horizontal	The pendulum frame, and thus the attachment, are not horizontal to the machine, but should be in a horizontal position.
8209	Position_Saved	The position has been saved.
8220	Chute in_Park Position	The upper discharge chute is parked, but should not be.
8221	Chute NOT_in Park Pos.	The upper discharge chute is not parked, but it should be.
8222	The discharge chute is not up	The discharge chute is not up, but it should be.
8300	Shearbar_Auto OK!	An automatic function on the counterblade is indicating OK.
8301	Shearbar_OK!	A manual function on the counterblade is indicating OK.
8302	Shearbar Adj._in operation	The counterblade is active just now (is being actuated), but this should not be so to carry out another function.
8303	Cracker motor_in Zero Pos.	The Cracker has reached zero position.
8304	Sharpen Flap_CLOSED	The grinding flap is closed, but should be open.
8305	Sharpen Flap_OPEN	The grinding flap is open, but should be closed.
8306	Sharpening_in Operation!	The grindstone is operating, but should be in the park position.
8307	Sharpening_Stone Parked!	The grindstone is in park position, but should not be in that position.
8400	ERR-INIT Released!	An initialise operation was carried out (no significance for driver).

Parameter list for BiG X - as of 06.01.2005 (304027-0)									
Nr.	***Description***	***Unit***	***Min.***	***Max.***	***Default***	***Recommended step width***	***Effect when value increased***	***Effect when value decreased***	***Description***
	Feed drive/front attachment 								
7476	Min. front attachment speed dynamic	rpm	0	1000	100		The attachment speed increases if speed > set speed in the terminal	The attachment speed decreases if speed > set speed in the terminal	The attachment speed is adjusted to the driving speed. “Min Spd. Dynamic Front Attachment” is the speed of the attachment at 0 km/h. If the set speed on the terminal is greater than this, the set speed is actuated on the terminal.
7477	Delta front attachment speed/km/h dyn	rpm	0	750	50		The speed change per km/h is increased if speed > set speed in the terminal	The speed change per km/h is decreased if speed > set speed in the terminal	For every 1 km/h the attachment speed increases by the set value. If the speed set in the terminal is greater, the speed set at the terminal is actuated.
7478	Drz. Dynamic front attachment is active		0	3	1				The dynamic attachment speed actuation function can be deactivated. 1 = dynamic attachment speed active 2 = dynamic attachment speed not active è only the speed set at the terminal will actuate.
6271	Time horn Metal	s	0	20	5	1	The actuation of the horn on metal alarm is lengthened	The actuation of the horn on metal alarm is shortened	The time in seconds that the horn is actuated when the metal detection system locates metal in the feed drive
7482	Holding-down device-Auto		1	2	1				The automatic lift setting for the holding-down device on the pickup when reversing the feed drive and front attachment: 1=automatic switched on 2= automatic switched off
7500	Delay time, lower holding-down device	s	0	30	0	1	The time up to lowering is increased.	The time up to lowering is decreased.	Delay time of the holding-down device before it is automatically lowered after the travel drive is started. 0 = Automatic deactivated
7501	Holding-down device lowering time	s	0	30	10	1	The duration of lowering is increased.	The duration of lowering is decreased.	The time during which the holding-down device will be controlled during automatic lowering.
6241	attachment idle delay	ms	0	20000	3000	500	The waiting time is increased.	The waiting time is decreased.	The system waits for this amount of time after the “lifting gear up” key is pressed, until the feed drive and the front attachment go to reduced idle run.
6242	attachment idle reverse time	ms	0	20000	5500	500	The duration of reversing is increased.	The duration of reversing is decreased.	The period during which the front attachment reverses in the maize after the wait time has elapsed.
	Grinding 								

Parameter list for BiG X - as of 06.01.2005 (304027-0)									
Nr.	*Description*	*Unit*	*Min.*	*Max.*	*Default*	*Recommended step width*	*Effect when value increased*	*Effect when value decreased*	*Description*
7473	# of Sharpening Cycles		1	100	20	1	The number of grinding cycles is increased.	The number of grinding cycles is decreased.	The number of grinding cycles currently set.
	Lifting gear 								
7516	Lift lifting gear automatically		0	2	2				Setting as to whether the lifting gear is to be lifted automatically during reversion of the travelling gear. 1 = lifting gear is lifted up automatically on reversing 2 = Lifting gear is not automatically raised
7636	Pendulum frame Delta middle	digi	0	1023	20	2	The "Pendulum frame is horizontal" area is increased.	The "Pendulum frame is horizontal" area is decreased.	The difference by which the digital value on the rotation angle encoder on the pendulum frame is allowed to deviate from the “pendulum frame – central” without an error message or information message appearing, and certain actions being stopped.
7508	Fold in front attachm. Automat	digi	0	2	1				Setting to determine whether the front attachment can be retracted automatically or not. 1=automatic possible 2=automatic not possible
7509	Pendulum frame automatic	digi	0	2	1				Setting as to whether the pendulum frame is automatically enabled when the “adapt to header contours” function is active. (Switched on and off by pressing the “lateral levelling” right and left keys at the same time, or by manual override.
7504	Pendulum frame autom. horizontal.	digi	0	2	1				Setting as to whether the pendulum frame is automatically set to horizontal position when the “lifting gear to up” function is triggered.
7518	disable Lateral	digi	1	2	1				Setting as to whether active lateral levelling is active when sensor hooks are attached. 1= lateral levelling not active (passive adaptation with the float setting) 2= Lateral levelling active (sensor hooks actuate adaptation to ground contours)
7520	Lifting gear pos., grass work	%	20	70	40	5	The maximum working position is increased.	The maximum working position is decreased.	If the lifting gear is below this position (in percentage terms), it means that the machine is cutting. This is used for the automatic silage material unit. This parameter is only valid in grass mode.

Parameter list for BiG X - as of 06.01.2005 (304027-0)									
Nr.	*Description*	*Unit*	*Min.*	*Max.*	*Default*	*Recommended step width*	*Effect when value increased*	*Effect when value decreased*	*Description*
7550	Lifting gear pos., maize work	%	20	70	40	5	The maximum working position is increased.	The maximum working position is decreased.	If the lifting gear is below this position (in percentage terms), it means that the machine is cutting. This is used for the automatic silage material unit. This parameter is only valid in maize mode.
	Diesel engine 								
7541	Nominal-RPM Field Grass	rpm	1500	2100	2100	50	The nominal speed is increased.	The nominal speed is decreased.	This diesel engine speed is delivered when both RPM buttons are activated at the same time and the machine is not turning at nominal speed. The value applies to field operation grass.
7543	Increment RPM Field Grass	rpm	1	200	50	25	The step width is increased	The step width is decreased.	The change to RPM in the diesel engine when the RPM- or RPM+ buttons are pressed in field operation grass.
7571	Nominal-RPM Field Maize	rpm	1500	2100	2100	50	The nominal speed is increased.	The nominal speed is decreased.	This diesel engine speed is delivered when both RPM buttons are activated at the same time and the machine is not turning at nominal speed. The value applies to field operation maize.
7573	Increment RPM Field Maize	rpm	1	200	50	25	The step width is increased	The step width is decreased.	The change to RPM in the diesel engine when the RPM- or RPM+ buttons are pressed in field operation maize.
	Terminal 								
7505	Time change selected menu	s	0	1000	30	5	The time is increased.	The time is decreased.	The time after which the marking in the basic screen reaches the top position with no activation of the arrow keys. 0 = Menu does not change
	General work 								
7463	Time Buzzer sound Information messages	0.1s	0	50	2	1	Buzzer sound is prolonged	Buzzer sound is prolonged	The length of the buzzer sound if an information message is combined with a buzzer sound.

Parameter list for BiG X

Parameter list for BiG X - as of 06.01.2005 (304027-0)

Nr.	Description	Unit	Min.	Max.	Default	Recommended step width	Effect when value increased	Effect when value decreased	Description
7456	Information messages		1	2	1				Setting as to whether information messages should be displayed or not. 1=displayed 2=not displayed

KRONE

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28-Sep-2005