Original Operating Instructions

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BM105-14

Self-Propelled Mower Conditioner

BiG M 450 CV

From machine no.: 1012756

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Information for enquiries and orders

Type	
Vehicle identification number	
Year of manufacture	

Contact data of your dealer

1	**Information on This Document**	**11**
1.1	Validity	11
1.2	Re-ordering	11
1.3	Applicable documents	11
1.4	Target group of this document	11
1.5	How to use this document	11
1.5.1	Directories and references	11
1.5.2	Information on direction	12
1.5.3	Term “machine”	12
1.5.4	Figures	12
1.5.5	Scope of the document	12
1.5.6	Means of representation	12
1.5.7	Conversion table	14
2	**Safety**	**16**
2.1	Intended use	16
2.2	Reasonably foreseeable misuse	16
2.3	Service life of the machine	17
2.4	Basic safety instructions	17
2.4.1	Importance of operating instructions	17
2.4.2	Personnel qualification of the operating personnel	17
2.4.3	Personnel qualification of the technicians	18
2.4.4	Children in danger	18
2.4.5	Structural modifications on the machine	18
2.4.6	Additional equipment and spare parts	18
2.4.7	Jobs on the machine	19
2.4.8	Operational safety: Technically sound condition	19
2.4.9	Danger zones	20
2.4.10	Ensuring functionality of safety devices	22
2.4.11	Personal protective equipment	22
2.4.12	Safety markings on the machine	23
2.4.13	Road safety	23
2.4.14	Parking the machine safely	24
2.4.15	Consumables	24
2.4.16	Chemicals	25
2.4.17	Dangers arising from environment	25
2.4.18	Sources of danger on the machine	26
2.4.19	Dangers in connection with certain activities: climbing up and down	28
2.4.20	Dangers in connection with certain activities: Working on the machine	28
2.4.21	Dangers in connection with certain activities: checking and charging batteries	30
2.4.22	Dangers in connection with certain activities: working on wheels and tyres	30
2.4.23	Behaviour in dangerous situations and in case of accidents	30
2.5	Safety routines	31
2.5.1	Shutting down and safeguarding the machine	31
2.5.2	Securing raised machine and machine parts against lowering	31
2.5.3	Carrying out oil level check and oil and filter element changes safely	32
2.5.4	Running actuator test	32
2.6	Safety labels on the machine	32
2.7	Safety features	54
2.7.1	SMV emblem	56
2.7.2	Fire extinguisher	57
3	**Data memory**	**58**
4	**Machine Description**	**59**
4.1	Machine overview	59
4.1.1	Content of the storage compartments on the machine	60
4.2	Labelling	60
4.3	Function description	61
5	**Technical Data**	**62**
5.1	Consumables	64

5.1.1 Oils ... 65
5.1.2 Lubricating grease ... 66
5.1.3 Coolant ... 67
5.1.4 Refrigerant (air conditioning) ... 67
5.1.5 Fuel/urea ... 67
5.2 Tyres ... 68

6 Control and Display Elements ... 69

6.1 Overview of operating elements ... 69
6.2 Opening doors and windows of cabin ... 69
6.3 Control and display elements on the steering column ... 72
6.3.1 Steering column switch ... 72
6.3.1.1 Activating horn ... 72
6.3.1.2 Switching direction indicators on/off ... 73
6.3.1.3 Switching parking light/dipped beam on/off ... 73
6.3.1.4 Switching full beam on/off ... 74
6.3.1.5 Actuating headlamp flasher ... 75
6.3.1.6 Switching windshield wipers on/off ... 75
6.3.2 Warning lights ... 76
6.3.3 Switching the flashing warning light on/off ... 77
6.4 Actuating service brake ... 77
6.5 Lighting ... 78
6.5.1 Light control unit ... 78
6.5.1.1 Road travel lighting ... 79
6.5.1.2 Working lights ... 80
6.5.1.3 Switching and saving working lights via “Memory” key ... 81
6.5.1.4 Warning beacons ... 81
6.5.1.5 Ladder lighting ... 82
6.5.1.6 Maintenance lighting ... 83
6.5.1.7 Wiper on left/on right ... 84
6.5.1.8 Setting mirror ... 84
6.5.2 Interior lighting ... 86
6.6 Operating elements on control lever ... 87
6.7 Control and display elements on the keypad ... 89
6.8 Main mode switch ... 91
6.9 Quick-stop switch ... 92
6.10 Ignition lock ... 92
6.11 Automatic climate control ... 93
6.11.1 Overview of automatic climate control ... 93
6.11.2 Switching on automatic climate control ... 94
6.11.3 Setting cabin temperature ... 95
6.11.4 Switching air conditioning mode on/off ... 96
6.11.5 Switching REHEAT mode on/off ... 96
6.11.6 Manually setting the evaporator fan speed ... 97
6.11.7 Switching temperature display between degrees Celsius and degrees Fahrenheit ... 98
6.11.8 Malfunctions indicated on display ... 98
6.12 Sockets ... 100
6.12.1 Cigarette lighter 12 V/24 V socket ... 100
6.12.2 12 V sockets ... 100
6.12.3 Diagnostic socket ISOBUS/diagnostic socket KRONE ... 101
6.12.4 USB connection ... 101

7 Terminal ... 102

7.1 Display design ... 102
7.2 Description display ... 103
7.3 Navigation module ... 104
7.4 Input window ... 105
7.5 Selection window ... 107

8 Terminal machine functions ... 109

8.1 Status line ... 110
8.2 Malfunctions indicated on malfunction warning panel ... 113

8.2.1 Warning lights - Filling level urea tank ... 113
8.2.2 Indicator lamps - urea quality, errors or manipulation on the exhaust aftertreatment system ... 114
8.3 Keys in the title bar ... 115
8.3.1 “Counters” menu ... 115
8.3.2 “Error” menu ... 124
8.3.3 Main menu ... 128
8.4 Direct input “Field mode” ... 128
8.5 Information area ... 129
8.6 Engine and driving data display range ... 129
8.7 Traction drive indicator lights ... 130

9 Terminal – Menus ... 134

9.1 Menu structure ... 134
9.2 Bringing up menu level ... 140
9.3 Navigating in menus ... 141
9.3.1 Changing/saving parameter ... 142
9.4 “Diagnostics” menu explanation ... 142
9.5 Menu "key test" explanation ... 144

10 Initial operation ... 145

10.1 Checklist for initial operation ... 145
10.2 Mounting fire extinguisher ... 146
10.3 Mounting licence plate ... 146
10.4 Mounting guard cloths ... 146
10.5 Installing the blades ... 152
10.6 Mounting the anti-twist lock on the lighting module ... 153

11 Start-up ... 154

11.1 Check before start-up ... 154
11.2 Setting driver’s seat ... 155
11.2.1 Air-cushioned comfort seat ... 155
11.2.1.1 Operating air-cushioned comfort seat (for "Standard" version) ... 156
11.2.1.2 Operating air-cushioned comfort seat (for "ACTIVO" version) ... 158
11.2.2 Steering column adjustment ... 162
11.2.3 Setting the terminal ... 163
11.2.4 Monitor for camera monitoring ... 164
11.2.5 Sun visor ... 165
11.2.6 Adjustable air nozzles ... 165
11.2.7 Inside rear mirror ... 166
11.3 General aspects ... 166
11.3.1 Instructional seat ... 166
11.3.2 Cooling box (version with "Insulated thermobox") ... 167
11.3.3 Topping up fresh water ... 167
11.3.4 Drawer for first-aid kit and operating instructions ... 167

12 Commissioning – mowing operation ... 169

12.1 Connecting the front mounted mower ... 169
12.2 Decoupling the front mounted mower ... 172
12.3 Mounting the side mounted mowers ... 174
12.4 Dismounting the side mounted mowers ... 177
12.5 Mounting the standard swathing ... 180
12.6 Dismounting the standard swathing ... 182
12.7 Mounting the cross conveyor ... 185
12.8 Dismounting the cross conveyor ... 188

13 Driving and Transport ... 191

13.1 Preparing the machine for road travel ... 191
13.1.1 Transport position ... 191
13.1.2 Checking lockings of lateral mowers ... 192
13.1.3 Checking side guards of lateral mowers ... 192
13.2 Starting engine ... 193
13.2.1 Observing warning lights ... 195
13.3 Behaviour after the engine has stalled ... 195

13.4	Starting up the machine	196
13.4.1	Setting the acceleration behaviour	196
13.4.2	Notices on driving the machine	197
13.4.3	Driving forwards and stopping	197
13.4.3.1	Cruise control	198
13.4.4	Driving backward and stopping	199
13.5	Stopping the machine	199
13.5.1	Stopping machine by using control lever	200
13.5.2	Stopping machine with the service brake	201
13.6	Applying parking brake	201
13.7	Switching off the engine	203
13.8	Wheel chocks	203
13.9	Main battery switch	204
13.10	Parking the machine	205
13.11	Recovering the Machine	205
13.11.1	Release the parking brake manually	206
13.12	Preparing the machine for shipment	207
13.12.1	Lashing points	207
13.12.2	Removing the machine wheels	207
14	**Operation**	**208**
14.1	Field Mode	208
14.1.1	Working position	208
14.1.2	Field mode on slopes	209
14.1.2.1	Moving front mounted mower into the central position	209
14.1.3	Operating mowers	210
14.1.4	Fast change of direction of travel (fast reversing)	211
14.1.5	Switching the mower drive on and off	212
14.2	Folding up/folding down side guards	213
14.3	Front guard	215
14.3.1	Folding up the front guard	215
14.3.2	Fold down the front guard	216
14.4	Operating support jack	216
14.4.1	Moving support jack into transport position	216
14.4.2	Moving support jack into support position	217
14.5	PowerSplit	217
15	**Settings**	**219**
15.1	Setting in the terminal	219
15.1.1	Manual settings	219
15.1.2	Setting cutting height	220
15.1.3	Setting the mower relief	221
15.2	Settings on front mounted mower	222
15.2.1	Adjusting the front mounted mower side guards	222
15.2.2	Set conditioner speed	223
15.2.3	Setting the degree of conditioning	224
15.2.4	Increasing cutting height at front mounted mower with high-cut skids	224
15.2.5	Setting wide spreading	224
15.2.6	Setting swath width	225
15.2.7	Checking deflector sheets	226
15.3	Settings on the side mounted mowers	226
15.3.1	Adjusting the side mounted mower side guards	226
15.3.2	Checking/setting locking of side guards	227
15.3.3	Setting the conditioner speed	228
15.3.4	Setting the auger speed	229
15.3.5	Adjusting the scraper sheet	231
15.3.6	Setting the degree of conditioning	231
15.3.7	Increasing the cutting height at the side mounted mowers by means of high-cut skids	232
15.3.8	Setting wide spreading	232
15.3.8.1	Setting wide spreading sheet	233
15.3.9	Impact damage protection system	233
15.3.10	Dismounting the bottom flap	234

16	**Maintenance - General Information**	**235**
16.1	Maintenance table	236
16.1.1	Maintenance – Before the season	236
16.1.2	Maintenance – After the season	237
16.1.3	Maintenance - once after 1 hour	237
16.1.4	Maintenance – 6 times after every 10 hours	237
16.1.5	Maintenance - Once after 50 hours	237
16.1.6	Maintenance – Once after 500 hours	238
16.1.7	Maintenance – Once after 1,000 km	238
16.1.8	Maintenance – at the beginning of the cold season	238
16.1.9	Maintenance - Every 10 hours, but at least once a day	238
16.1.10	Maintenance - Every 50 hours	239
16.1.11	Maintenance - every 100 hours	240
16.1.12	Maintenance - every 250 hours	240
16.1.13	Maintenance - Every 500 hours	241
16.1.14	Maintenance - every 1,000 hours but at least at the end of the season	242
16.1.15	Maintenance – Every 1,000 hours, but at least before the season	243
16.1.16	Maintenance – Every 2,000 hours	243
16.1.17	Maintenance – Every 2 years	243
16.1.18	Maintenance - as required	243
16.2	Tightening torques	244
17	**Maintenance - Engine**	**248**
17.1	Engine overview	249
17.2	Dirt deposits in engine compartment	249
17.2.1	Cleaning engine compartment with compressed air	249
17.3	Engine oil level	250
17.3.1	Checking engine oil level	250
17.3.2	Topping up engine oil	251
17.4	Cleaning fuel tank	251
17.5	Fuel prefilter/water separator	252
17.6	Refuelling	253
17.7	Urea filter	254
17.8	Topping up urea solution	255
17.9	Vent fuel filter	256
17.10	Engine coolant	257
17.11	Checking the engine coolant level	258
17.12	Checking engine piping	259
17.12.1	Checking pipework in the air conditioning and heating system	259
17.12.2	Check pipework of the engine cooling system and the charge air	260
17.12.3	Checking pipework of the air intake	260
17.12.4	Checking fuel lines	261
17.12.5	Check pipework of the exhaust aftertreatment system	261
17.12.6	Checking the profile clamp of the catalytic converter	262
17.13	Cleaning air filter	263
18	**Maintenance – Basic Machine**	**265**
18.1	Checking/refilling windscreen washer system	265
18.2	Maintaining air conditioning and heating	266
18.2.1	Components of air conditioning	266
18.2.2	Carrying out a visual inspection at the receiver/dryer	267
18.2.3	Checking the condition and filling quantity of refrigerant	268
18.2.4	Replacing/cleaning fresh air filter	269
18.2.5	Replacing/cleaning circulation filter	269
18.3	Cleaning cooler and cooler compartment	270
18.4	Maintaining chassis	271
18.4.1	Checking attachment of steering cylinder	271
18.4.2	Checking fitting of track rod	271
18.4.3	Checking the hub cover of the rear axle, with front wheel drive version	272
18.5	Maintaining belt drives	272
18.5.1	Checking kraftband	272
18.5.2	Checking pulley	272

18.5.3	Checking the belt tension	273
18.6	Maintaining tyres and wheels	274
18.6.1	Checking/maintaining tyres	274
18.6.2	Retighten wheel nuts	275
18.7	Tighten the screw connections on the central support/chassis	275
18.8	Re-adjust the transport lock	276
18.9	Checking the fire extinguisher	276
19	**Maintenance – mowing units**	**278**
19.1	Dismounting/mounting the conditioner drive guard	278
19.2	Dismounting/mounting the guard for the front mounted mower input gearbox	278
19.3	Dismounting/mounting the auger drive guard	279
19.4	Maintaining belt drives	279
19.4.1	Checking kraftband	279
19.4.2	Checking pulley	280
19.4.3	Checking/adjusting the belt tension of the front mounted mower conditioner drive	280
19.4.4	Tensioning/detensioning the conditioner drive belt tension front mounted mower	281
19.4.5	Checking/adjusting the belt tension of the auger drive	282
19.4.6	Tensioning/detensioning the auger drive belt drive	283
19.4.7	Changing kraftband “belt drive side mounted mowers”	284
19.4.8	Change kraftband "belt drive of front mounted mower"	287
19.5	Checking the tines on the tine conditioner	288
19.6	Cutterbar	288
19.6.1	Rotary hub	288
19.6.2	Replacing the shear bolt at the rotary hub	289
19.6.3	Check/change blades	291
19.6.3.1	Checking the blade for wear	291
19.6.3.2	Changing blades for the “blade screw connection” version	292
19.6.3.3	Changing blades for the “blade quick fastener” version	293
19.6.4	Checking/replacing retaining bolts	293
19.6.5	Checking/replacing blade carrier	295
19.6.6	Checking/replacing cutting discs/mower drums	296
19.6.6.1	Checking the wear limit on cutting discs/mower drums	297
19.6.7	Checking/replacing linings on cutterbar	297
19.6.8	Oil level inspection and oil change on the cutter bar	298
19.7	Check guard cloths	303
19.8	Vent friction clutch	304
20	**Maintenance - Lubrication**	**307**
20.1	Lubricating universal shafts	308
20.2	Lubricate the intermediate gear	309
20.3	Lubrication chart - machine	310
21	**Maintenance – Central Lubrication System**	**312**
21.1	Distributor blocks of central lubrication system	312
21.2	Lubricants	316
21.3	Filling the lubricant tank	318
21.4	Check filling level	319
21.5	Starting intermediate lubrication	319
21.6	Searching for the error in the central lubrication system	319
22	**Maintenance - Hydraulic System**	**320**
22.1	Pressure limiting valves	320
22.2	Hydraulic oil	321
22.3	Maintaining hydraulic oil tank	321
22.4	Changing high-pressure filter	324
22.5	Checking hydraulic hoses	324
23	**Maintenance – Electrics**	**325**
23.1	Batteries	325
23.1.1	Cleaning and maintaining batteries	326
23.1.2	Charging batteries	326
23.1.3	Replacing batteries	327

23.2 Maintaining starter ... 329

24 Maintenance - Gearbox ... 331

24.1 Overview of gearboxes ... 331
24.2 Maintaining transfer gearbox ... 332
24.3 Maintaining input gearbox of front mounted mower ... 334
24.4 Maintaining main gearbox of front mounted mower ... 335
24.5 Maintain main gearbox of side mounted mowers ... 336
24.6 Maintaining wheel hub gearbox ... 337
24.6.1 Maintaining wheel hub gearbox front/right ... 337

25 Malfunction, Cause and Remedy ... 339

25.1 Electrical/electronic system fault ... 339
25.1.1 Overview of control units ... 339
25.1.2 Overview of fuses ... 339
25.1.3 Overview sensors ... 343
25.1.4 Overview of actuators ... 343
25.1.5 LED displays on the control units ... 345
25.1.5.1 LED display on KRONE SmartConnect ... 345
25.2 Emergency manual operation ... 347
25.2.1 Emergency unfolding of the side mounted mowers ... 347
25.2.2 Emergency unfolding of the side mounted mowers ... 350
25.3 External starting of the machine ... 354
25.4 Calibrate mower load relief ... 355
25.5 Calibrate traction drive ... 356
25.6 Calibrate rear axle straight-ahead position ... 356

26 Repairs, maintenance and settings by technicians ... 357

26.1 Setting the sensors ... 358
26.2 Jacking up the machine ... 359
26.3 Calibrating the front and rear axle ... 361
26.4 Maintaining the rear axle with front wheel drive version ... 366
26.4.1 Checking the hub bearing of the rear axle, with front wheel drive version ... 366
26.5 Change engine coolant ... 367
26.6 Change transfer gearbox filter ... 367
26.7 Setting the lifting height at the front mounted mower ... 368

27 Storage ... 370

28 Waste disposal ... 373

29 Appendix ... 374

29.1 CCI.Control Mobile ... 374
29.1.1 Device system requirements ... 374
29.1.2 iOS settings ... 374
29.1.2.1 General ... 374
29.1.2.2 Geofencing ... 375
29.1.2.3 Farmpilot ... 376
29.1.2.4 FMIS interface ... 376
29.1.2.5 FTP upload ... 377
29.1.2.6 Export ... 377
29.1.2.7 Automatic recording of the field ... 378
29.1.3 Start-up ... 378
29.1.3.1 Configure WLAN (WiFi) connection ... 378
29.1.3.2 Enter export data ... 380
29.1.4 Operation ... 380
29.1.4.1 Main menu ... 380
29.1.4.2 “Customer” menu ... 381
29.1.4.3 “Orders” menu ... 384
29.1.4.4 “Live View” menu ... 387
29.1.4.5 “Demo” menu ... 388
29.1.4.6 “Information” menu ... 389
29.1.5 Malfunction, cause and remedy ... 389

30 Index..... 392

1 Information on This Document

1.1 Validity

This document is valid for machines of type:

BM105-14 (BiG M 450 CV)
All information, illustrations and technical data in this document correspond to the latest state at the time of publication.

We reserve the right to make design changes at any time and without notification of reasons.

1.2 Re-ordering

If this document has become unusable in whole or in part, you can order a replacement, quoting the document number on the cover sheet. The document can additionally be downloaded via the KRONE Media Center http://www.mediathek.krone.de//.

1.3 Applicable documents

To ensure that the machine is used safely and as intended, observe the following further applicable documents.

- Operating instructions diesel engine, Liebherr Machines Bulle S.A.
- Circuit diagram, KRONE
- Spare parts list, KRONE

1.4 Target group of this document

This document aims at the operator of the machine who fulfills the minimum requirements of personnel qualification,*refer to page 17*.

1.5 How to use this document

1.5.1 Directories and references

Contents/headers

The contents and headers in this document ensure quick orientation in the chapters.

Index

The index contains catchwords in alphabetical order which enable to find information on a desired topic easily. The index can be found on the last pages of this document.

Cross references

Cross references to another place in the document or to another document are in the text with page number.

Examples:

- Check all screws on the machine for firm attachment,*refer to page 12*. (**INFORMATION**: If you use this document in electronic form, you get to the link to the stated page by clicking with the mouse.)
- For further information, refer to the operating instructions of the universal shaft manufacturer.

1.5.2 Information on direction

Directional information in this document, such as front, rear, right and left, applies in the direction of travel of the machine.

1.5.3 Term “machine”

Throughout the rest of this document, the “mower conditioner” will also be referred to as the “machine”.

1.5.4 Figures

The figures in this document do not always represent the exact machine type. The information that refers to the figure always corresponds to the machine type of this document.

1.5.5 Scope of the document

In addition to standard equipment, accessories kits and versions of the machine are described in this document. Your machine may deviate from this document.

1.5.6 Means of representation

Icons in the text

The following means of representation (icons) are used to present the text more clearly:

▶ This arrow characterizes an **action step**. Several arrows in a row identify a sequence of actions to be performed step by step.


This icon identifies a **prerequisite** that has to be fulfilled to perform an action step or a sequence of actions.

⇨ This arrow marks the **intermediate result** of an action step.

➡ This arrow identifies the **result** of an action step or sequence of actions.

- This bullet point identifies an **enumeration**. If the bullet point is intended, it identifies the second level of the enumeration.

Icons in figures

The following icons can be used in illustrations:

Icon	Explanation	Icon	Explanation
①	Reference sign for part	I	Position of a part (e.g. move from position I to position II)
X	Dimensions (e. g. also W = width, H = height, L = length)		Magnification of display detail
LH	Left side of machine	RH	Right side of machine
	Direction of travel		Direction of motion
——	Reference line for visible material	------	Reference line for covered material
-·-·-	Centre line	——	Cable routes
Nm	Tighten screws according to the tightening torque table	XXX Nm	Tighten screws to the specified tightening torque
	Open		Closed
	Apply liquid lubricant (e.g. lubricating oil)		Apply lubricating grease

Warning signs

Warnings of dangers are separated from the remaining text as warning signs and are identified with a danger sign and signal words.

The warning signs must be read and the measures must be observed in order to prevent personal injury.

Explanation of danger sign

This is the danger sign that warns of a risk of injury.

Please observe all notes marked with the danger sign in order to avoid injuries or death.

Explanation of signal words

⚠ *DANGER*
The signal word DANGER warns of a hazardous situation which will result in serious injuries or death if the warning sign is ignored.

⚠ *WARNING*
The signal word WARNING warns of a hazardous situation which will result in serious injuries or death if the warning sign is ignored.

⚠ *CAUTION*
The signal word CAUTION warns of a hazardous situation which will result in minor to moderate injuries if the warning sign is ignored.

Example of a warning sign:

⚠ WARNING

Eye damage caused by flying dirt particles

When cleaning with compressed air, dirt particles are ejected at high speed and could get into the eyes. Therefore eyes could be hurt.

- ▶ Keep people away from the working area.
- ▶ Wear personal protective equipment when performing cleaning work with compressed air (e.g. eye protection).

Warnings of property damage/environmental damage

Warnings of property/environmental damage are separated from the remaining text and marked with "Notice".

Example:

NOTICE

Gearbox damage due to low oil level

The gearboxes could be damaged when the oil level is too low.

- ▶ Check gear oil level at regular intervals and top up oil, if necessary.
- ▶ Check gear oil level approx. 3 to 4 hours after the machine has been switched off. Check oil level only when machine is in horizontal position.

Notes with information and recommendations

Additional information and recommendations for trouble-free and productive operation of the machine are separated from the remaining text and marked with “Information”.

Example:

INFORMATION

Each safety label is provided with an order number and can be ordered directly from the manufacturer or from the authorized specialist dealer.

1.5.7 Conversion table

The following table can be used to convert metric units into US units.

Size	SI units (metric)		Factor	Inch-pound units	
	Unit name	Abbrevi-ation		Unit name	Abbrevi-ation
Area	Hectare	ha	2.47105	Acre	acres
Volume flow	Litres per minute	L/min	0.2642	US gallons per minute	gpm
	Cubic metres per hour	m³/h	4.4029		
Force	Newton	N	0.2248	Pound force	lbf
Length	Millimetre	mm	0.03937	Inch	in.
	Metre	m	3.2808	Foot	ft.
Power	Kilowatt	kW	1.3410	Horsepower	hp

Size	SI units (metric)		Factor	Inch-pound units	
	Unit name	Abbrevi-ation		Unit name	Abbrevi-ation
Pressure	Kilopascal	kPa	0.1450	Pounds per square inch	psi
	Megapascal	MPa	145.0377		
	bar (non-SI)	bar	14.5038		
Torque	Newtonmeter	Nm	0.7376	pound-foot or foot-pound	ft·lbf
			8.8507	pound-inch or inch-pound	in·lbf
Temperature	Degrees Celsius	°C	°Cx1.8+32	Degrees Fahrenheit	°F
Velocity	Metres per minute	m/min	3.2808	Feet per minute	ft/min
	Metres per second	m/s	3.2808	Feet per second	ft/s
	Kilometres per hour	km/h	0.6215	Miles per hour	mph
Volumes	Litres	L	0.2642	US gallon	US gal.
	Millilitre	ml	0.0338	US ounce	US oz.
	Cubic centi-metre	cm^3	0.0610	Cubic inch	in^3
Weight	Kilogram	kg	2.2046	Pound	lbs

2 Safety

2.1 Intended use

This machine is a self-propelled mower conditioner with 3 disc mowers with integrated mower conditioners and is used to mow crops.

The crops designated for the intended use of this machine are stalk and leaf crops growing on the ground. This includes different live agricultural grasses and legume crops from early stage up to the end of the photosynthetic process.

The machine is designed exclusively for use in agriculture and may only be used when

- all safety installations specified in the operating instructions are present and in safety position;
- all safety information in the operating instructions are known and observed; this goes for those in the chapter "Basic safety information", *refer to page 17* as well as for those comprised directly in the chapters of the operating instructions.

The machine may be used only by people who satisfy the personnel qualification requirements designated by the machine manufacturer, see *refer to page 17*.

These operating instructions are part of the machine and must therefore be at hand when the machine is in use. The operation of the machine is permitted only after respective instruction and in compliance with these operating instructions.

If the machine is used for applications which are not described in these operating instructions, this may result in serious injuries or death and damage to the machine and other property.

Unauthorised modifications to the machine may affect the properties of the machine or disrupt the proper operation. For this reason, unauthorised modifications shall exclude any liability of the manufacturer for consequential damage.

Intended use also comprises compliance with the terms of operation, maintenance, and repair specified by the manufacturer.

2.2 Reasonably foreseeable misuse

Any use beyond the intended use*refer to page 16* is regarded as improper use and is therefore misuse according to the Machinery Directive. The manufacturer is not liable for damage resulting from this, the user alone bears the risk.

Such misuse is for example:

- Processing of crops which are outside the intended use of the machine,*refer to page 16*, such as:
  - Undergrowth or bushes
  - Dead plants such as straw or maize stalks
  - Woody or very fibrous plants such as trees, cotton stalks or sugar cane
- Transport of people
- Transport of goods
- Exceeding the permitted technical gross weight
- Non-compliance with the safety labels on the machine and safety notes in the operating instructions
- Performing troubleshooting, setting, cleaning, repair and maintenance work contrary to the information in the operating instructions
- Unauthorised modifications to the machine
- Attachment of unauthorised or unapproved additional equipment
- Use of spare parts which are not KRONE original spare parts
- Stationary operation of the machine

Unauthorised modifications to the machine may affect the properties of the machine or disrupt proper operation. For this reason, unauthorised modifications will exclude any liability of the manufacturer for consequential damage.

2.3 Service life of the machine

- The service life of this machine depends on its proper operation and maintenance as well as the operating and harvesting conditions.
- By heeding the instructions and information in these operating instructions, permanent operational readiness and a long service life of the machine can be achieved.
- After each operating season, inspect the entire machine for wear and other damage.
- Replace damaged and worn components before recommissioning the machine.
- Carry out a full technical inspection of the machine after five years of machine operation and make a decision on further machine usage taking the results of this inspection into account.
- Theoretically, the service life of this machine is unlimited as all worn or damaged components can be replaced.

2.4 Basic safety instructions

Non-compliance with the safety instructions and warnings

Non-compliance with the safety instructions and warnings may result in injuries and damage to the environment and property.

2.4.1 Importance of operating instructions

The operating instructions are an important document and a part of the machine. They are intended for the user and contain information relevant to safety.

Only the procedures indicated in the operating instructions are reliable. If the operating instructions are not followed, people may be seriously injured or killed.

- ▶ Before using the machine for the first time, read and follow all the "Basic safety instructions".
- ▶ Before working, also read and observe the respective sections in the operating instructions.
- ▶ Keep the operating instructions easily accessible for the machine user at all times.
- ▶ Hand over the operating instructions to subsequent users.

2.4.2 Personnel qualification of the operating personnel

If the machine is not used properly, people may be seriously injured or killed. To avoid accidents, each person who works with the machine must satisfy the following minimum requirements:

- He is physically capable of controlling the machine.
- He can work safely with the machine in accordance with these operating instructions.
- He understands the method of operation of the machine within the scope of his work and can identify and avoid the dangers associated with the work.
- He has read the operating instructions and can implement the information in the operating instructions accordingly.
- He is familiar with driving vehicles safely.
- For road travel he has adequate knowledge of the highway code and has the stipulated driving licence.

2.4.3 Personnel qualification of the technicians

If the work (assembly, conversion, modification, extension, repairs, retrofitting) is performed improperly on the machine, people may be seriously or fatally injured. To avoid accidents, everyone who performs work according to these instructions must meet the following minimum requirements:

- Qualified professional, with relevant training.
- Capable of assembling the (partially) disassembled machine according to the assembly instructions provided by the manufacturer.
- Capable of extending, modifying or repairing the function of the machine according to the relevant instructions provided by the manufacturer.
- Ability to perform the work safely according to these instructions.
- Understands the mode of operation of the work to be performed and the machine and is able to identify and avoid risk in carrying out the necessary work.
- Has read these instructions and is able to implement the information explained in these instructions accordingly.

2.4.4 Children in danger

Children are not in a position to assess dangers and behave unpredictably.

Thus children are particularly at risk.

- Children are especially at risk when climbing up and down the machine.
- There is no possibility to secure children sufficiently on the self-propelled machine.
- Vibrations can be particularly harmful to children's bodies.
- Children may initiate dangerous movements of the machine.

▶ Never take children on the self-propelled harvester.

▶ Keep children away from the machine.

▶ Keep children away from consumables.

▶ Make sure that there are no children in the danger zone, especially when starting and triggering machine movements.

2.4.5 Structural modifications on the machine

Structural changes and enhancements may impair the functionality and operational safety of the machine. People may be seriously injured or killed as a result.

Structural changes and enhancements are not permitted.

2.4.6 Additional equipment and spare parts

Additional equipment and spare parts that do not correspond to the requirements of the manufacturer may affect the operational safety of the machine and cause accidents.

▶ To ensure operational safety, use original parts or standard parts which correspond to the requirements of the manufacturer.

2.4.7 Jobs on the machine

Control of moving machine

The moving machine requires that the driver/operator is able to react quickly at any time. Otherwise, the machine may move uncontrollably and cause serious injuries and death.

- ▶ Start the engine from the driver's seat only.
- ▶ While the vehicle is travelling, never leave the driver's seat.
- ▶ Never climb in or out of the machine while the machine is moving.

Control of the machine during operation

While the machine is in operation, always ensure that the drivers/operators can intervene quickly at any time in the machine control. Otherwise, the machine may move in an uncontrolled manner and seriously injure or kill people.

When the machine is in operation, the driver/operator must be in the cabin.

On-board instructors when using the machine for work (passenger seat)

On-board instructors may fall and be injured due to movements of the machine.

- Never use the passenger seat for road travel.
- Use the passenger seat for instruction purposes during operation in the field only.

Passengers

Passengers can be seriously injured by the machine or fall from the machine and be overrun. Ejected objects may strike and injure passengers.

- ▶ As a result, make sure that no one except the operator is on the machine.

2.4.8 Operational safety: Technically sound condition

Operation is only allowed after proper start-up

The operational safety of the machine is not ensured when it is not started up properly according to these operating instructions. Thus accidents may be caused and persons may be seriously injured and killed.

- ▶ Only use the machine after proper start-up, *refer to page 154*.

Technically sound state of the machine

Improper maintenance and setting could influence the operational safety of the machine and cause accidents. Thus there is a risk of serious injuries or death.

- ▶ All maintenance and setting work must be performed according to the chapters “Maintenance and Setting”.
- ▶ Before performing any maintenance and setting work, shut down and safeguard the machine, *refer to page 31*.

Danger resulting from damage to the machine

Damage to the machine may impair the operational safety of the machine and cause accidents. As a result, people may be seriously injured or killed. The following parts of the machine are particularly important for safety:

- Brakes
- Steering
- Safety Devices
- Connecting devices
- Lighting
- Hydraulics
- Tyres
- Universal shaft

If there are doubts about the operational safety of the machine, for example due to an unexpected change to the operational behaviour, visible damage or leaking consumables:

- ▶ Shut down and safeguard the machine, *refer to page 31*.
- ▶ Immediately eliminate potential causes of damage, for example heavy soiling, or tighten slack screws.
- ▶ Determine the cause of damage according to these operating instructions and repair the damage, if possible, *refer to page 339*.
- ▶ In case of damage which may affect operational safety and cannot be repaired according to these operating instructions: Have damage repaired by a qualified service centre.

Technical limit values

If the technical limit values of the machine are not observed, the machine may be damaged. As a result, accidents may occur and people may be seriously injured or killed. Observance of the following technical limit values is particularly important for safety:

- Maximum permitted total weight
- Maximum permitted axle loads
- Maximum permitted transport height and width
- Maximum permitted speed

- ▶ Observe the limits, *refer to page 62*.

2.4.9 Danger zones

If the machine is switched on, its surrounding can present a danger zone.

Avoid entering the danger zone of the machine by observing the minimum safety distance.

If the safety distance is not observed, people may be seriously injured or killed.

- ▶ Do not switch on the drives and engine if the minimum safety distance has not been observed.
- ▶ If people fail to observe the minimum safety distance, switch off the drives.
- ▶ Switch the machine off in shunting and field mode.

The safety distance is:

For machine in shunting operation and field mode	
In front of the machine	30 m
Behind the machine	5 m
Laterally to the machine	3 m

For machine switched on without driving motion	
In front of the machine	3 m
Behind the machine	5 m
Laterally to the machine	3 m

The safety distances specified here are minimum distances in terms of intended use. If necessary, these safety distances must be increased according to the operating and ambient conditions.

- ▶ Before working in the danger zone of the machine: Shut down and secure the machine, *refer to page 31*. This also applies to brief inspection work.
- ▶ Consider the information in all relevant operating instructions:

- The operating instructions of the machine
- The operating instructions of the universal shaft

Danger zone universal shaft

People may become caught by the universal shaft, pulled in and seriously injured.

- ▶ Observe operating instructions of universal shaft.
- ▶ Ensure sufficient overlap of section tube and universal shaft guards.
- ▶ Make sure that the universal shaft guards are mounted and that they are fully functional.
- ▶ Allow the universal shaft locks to engage.
- ▶ Attach chains to prevent the universal shaft guards from rotating with the shaft.
- ▶ Make sure that there is no one in the danger zone of PTO shaft and universal shaft.
- ▶ Ensure that the selected rotational speed and direction of rotation of the PTO shaft of the self-propelled machine match the permitted rotational speed and direction of rotation of the mower.
- ▶ Switch off the PTO shaft when the angles between the universal shaft and the PTO shaft are too large. The machine may be damaged. Parts may be hurled up and cause injury to people.

Danger zone PTO shaft

People may be caught, pulled in and seriously injured by the PTO shaft and driven parts.

Before switching on the PTO shaft:

- ▶ Ensure that all protective devices are mounted and brought into protective position.
- ▶ Make sure that there is no one in the danger zone of PTO shaft and universal shaft.
- ▶ Switch off drives in case they are not needed.

Danger zone between mower conditioner and mowers

People situated between the mower conditioner and the mower may be seriously injured or killed if they are careless or if the machine rolls away or moves.

- ▶ Before working between mower conditioner and mower: Shut down and safeguard the machine, *refer to page 31*. This also applies to brief inspection work.
- ▶ If the lifting unit must be actuated, keep all people away from range of movement of machine parts to be raised.

Danger zone because objects may shoot out

Crops and foreign bodies may shoot out and injure or kill people.

- ▶ Before starting the machine, instruct all people to leave the danger zone of the machine.
- ▶ If people are in the danger zone of the machine, switch off drives and diesel engine immediately.

Danger zone when drive is switched on

When drive is switched on, there is danger to life caused by moving machine parts. People must not stay in the danger zone of the machine.

- ▶ Before starting the machine, instruct all persons to leave the danger zone of the machine.
- ▶ In case of dangerous situations, immediately switch off drives and instruct persons to leave the danger zone.

Danger zone due to trailing machine parts

If machine parts are trailing, people may be seriously injured or killed.

After the drives have been switched off, the following machine parts will trail:

- Universal shafts
- Drive belts
- Fan
- Sieve drum
- Cutting discs
- Conditioner
- Conveying devices

- ▶ Shut down and safeguard the machine, *refer to page 31*.
- ▶ Do not approach the machine until all machines parts have come to a complete stop.

2.4.10 Ensuring functionality of safety devices

If safety devices are missing or damaged, moving machine parts could seriously hurt or kill persons.

- ▶ Replace damaged safety devices.
- ▶ Mount dismounted safety devices and machine parts again before start-up and move them to protective position.
- ▶ When there are doubts whether all safety devices are functional and have been correctly installed, instruct a specialist workshop to check this.

2.4.11 Personal protective equipment

The wearing of personal protective equipment is an important safety measure. Missing or unsuitable personal protective equipment increases health risks and injuries.

Personal protective equipment is for example:

- Suitable protective gloves
- Safety boots
- Close fitting protective clothing
- Hearing protection
- Safety glasses

▶ Specify and provide personal protective equipment for the particular job.

▶ Use only personal protective equipment which is in proper condition and offers effective protection.

▶ Adjust personal protective equipment to the person, for example the size.

▶ Remove unsuitable clothing and jewellery (e.g. rings, necklaces) and cover long hair with a hairnet.

2.4.12 Safety markings on the machine

Safety labels on the machine caution against dangers at danger areas and represent an important part of the safety equipment of the machine. Missing safety labels increase the risk of serious and fatal injuries.

▶ Clean dirty safety labels.

▶ Make sure every time after cleaning the safety labels that they are complete and legible.

▶ Immediately replace missing, damaged and unrecognizable safety labels.

▶ Provide spare parts with intended safety labels.

Descriptions, explanations and order numbers of safety labels,*refer to page 32*.

2.4.13 Road safety

Dangers for road travel

If the machine exceeds the maximum dimensions and weights specified by national law and is not correctly lit when travelling on public roads, other road users may be endangered.

▶ Before driving on roads, ensure that the maximum permitted dimensions, weights and axle, drawbar and trailer loads are not exceeded which apply to driving on public roads according to national law.

▶ Before driving on roads, switch on the road travel lighting and ensure that it functions properly.

▶ Before driving on roads, move the main mode switch to the “road mode” position.

Danger when driving on road and field

The self-propelled machine has special driving properties which also depend on the operating state and on the ground. If changed handling characteristics are not considered, the driver may cause accidents.

▶ Observe measures for driving on road and field,*refer to page 191*.

Dangers if the machine is not prepared properly for road travel

If the machine is not prepared properly for road travel, serious accidents may occur with traffic.

▶ Before driving on roads, prepare the machine for road travel, *refer to page 191*.

Dangers when operating the machine on slopes

The machine may tilt when it is used on slopes. As a result, accidents may occur and people may be seriously injured or killed.

- Do not work and drive on a slope unless the ground of the slope is flat and the adhesion of the tyres to the ground is ensured.
- Turn the machine at low speed. Turn in a large arc.
- Avoid driving across a slope because the centre of gravity of the machine will be changed by payload and by executing machine functions.
- Avoid abrupt steering movements on slopes.
- Do not move the machine from working position to transport position or from transport position to working position as long as the machine is used across a slope.
- Do not park the machine on slopes.
- Observe procedures for operating the machine on slopes, *refer to page 209*.

2.4.14 Parking the machine safely

An incorrectly parked and insufficiently safeguarded machine can represent a danger for people, especially children, and can be set into motion or fall over in an uncontrolled manner. People may be injured or killed.

- Park the machine on a horizontal and level ground capable of bearing the load.
- Before adjusting, repairing, servicing and cleaning the machine, ensure that it is securely positioned.
- Observe section “Parking the Machine” in chapter Driving and Transport.*refer to page 205*
- Before parking: Shut down and safeguard the machine, *refer to page 31*.

2.4.15 Consumables

Unsuitable consumables

Consumables which do not comply with the requirements of the manufacturer may impair the operational safety of the machine and cause accidents.

- Use only consumables which comply with the requirements of the manufacturer.

For requirements on consumables, *refer to page 64*.

Fuel is harmful

Fuels are carcinogenic. If fuel is swallowed or fuel vapours inhaled, the fuel may cause organ damage.

- Do not inhale the vapours.
- Do not swallow the fuel.
- To prevent skin damage, avoid skin contact with the fuel.
- Wear suitable protective gloves and protective goggles.

Environmental protection and disposal

Consumables such as diesel fuel, brake fluid, antifreeze and lubricants (e.g. gearbox oil, hydraulic oil) may damage the environment and the health of people.

- ▶ Do not release consumables into the environment.
- ▶ Fill consumables in a liquid-tight labelled container and dispose of according to the official regulations.
- ▶ Absorb leaked consumables with an absorbent material, fill them in a liquid-tight labelled container and dispose of according to the official regulations.

2.4.16 Chemicals

Keep cabin free of chemicals

Harmful and aggressive chemicals will pollute the air in the cabin. Harmful and aggressive reactive substances are for example:

- Solvents
- Fuels
- Oils and greases
- Detergents
- Acids

These chemicals may stick to clothing and enter the cabin in this way. Gases and liquids may escape even from closed tanks. The chemicals may impair health and the ability to concentrate. As a result, accidents could be caused.

Electrical components could be damaged, for example control units and plug connections. This may result in fire and accidents caused by malfunctions, system failures or short circuits.

- ▶ Keep the inside of the cabin clean.
- ▶ Do not store or transport any harmful and aggressive chemicals in the cabin.
- ▶ Before entering the cabin, remove clothing which may be contaminated with harmful and aggressive chemicals.
- ▶ Before entering the cabin, remove soil and other substances from shoes or boots. The soil may be contaminated with chemicals.

2.4.17 Dangers arising from environment

Danger of fire

Flammable materials may accumulate in the machine due to operation or animals, for example rodents or nesting birds.

In case of dry usage conditions, dust, impurities and crop residues may inflame on hot parts and the resulting fire could seriously hurt people or kill them.

- ▶ Check and clean the machine every day before using it for the first time.
- ▶ Check and clean the machine regularly during the working day.
- ▶ Regularly check hydraulic oil lines for proper condition and position with sufficient clearance to sharp edges.
- ▶ Regularly check exhaust systems, tubes and turbocharger of engine system. Remove crop residues.
- ▶ While refuelling, do not smoke and do not place the machine near naked flames or explosive sparks.

Life-threatening electric shock from overhead lines

When the machine is in operation, it may reach the height of overhead lines. This may cause voltage to flash over to the machine and cause a fatal electric shock or fire.

- When folding the lateral mowers in and out, keep a safe distance from electric overhead lines.
- Never fold the lateral mowers in or out near pylons and overhead lines.
- Keep a safe distance from electric overhead lines.
- To avoid a potential electric shock caused by voltage flashover, never exit from or climb into the machine under overhead lines.

Behaviour in case of voltage flashover of overhead lines

Electroconductive parts of the machine could be subject to high electrical voltage caused by voltage flashover. A voltage drop where major voltage differences are present is created on the ground around the machine in case of voltage flashover. Due to major voltage differences in the ground, you could be killed by electric shocks when you make big steps, lay on the ground or support yourself with your hands.

- Do not leave the cabin.
- Do not touch any metal parts.
- Do not establish any conductive connection to the ground.
- Warn persons: Do not approach the machine. Electrical voltage on the ground may lead to severe electric shocks.
- Wait for help from professional rescue teams. The overhead line must be switched off.

If people have to leave the cabin despite the voltage flashover, for example because there is an imminent threat to life due to fire:

- Avoid simultaneous contact with machine and ground.
- Jump away from the machine. Jump into a safe standing position. Do not touch the machine from the outside.
- Move away from the machine with very small steps. In doing so, make sure that your feet are close to one another.

2.4.18 Sources of danger on the machine

Noise may damage your health

The noise development of the machine during operation may cause health damage such as hardness of hearing, deafness or tinnitus. When using the machine at high rotational speed, the noise level also increases.

- Before the machine is started up for the first time, assess the danger by noise. Depending on the ambient conditions, working hours and the working and operating conditions of the machine, specify and use suitable hearing protection.
- Specify rules for the use of hearing protection and for the working time.
- During operation keep windows and doors of cabin closed.
- Remove hearing protection for road travel.

Liquids under high pressure

The following liquids are under high pressure:

- Hydraulic oil
- Diesel fuel
- Engine coolant
- Refrigerant for the air conditioning system

Liquids escaping under high pressure may penetrate through the skin and cause severe injuries.

- ▶ Shut down and safeguard the machine and contact qualified specialist workshop upon suspicion of damaged hydraulic system.
- ▶ Never search for leaks with bare hands. Even a very pin-sized hole may lead to serious injuries.
- ▶ When searching for leaks, use suitable aids, e.g. a piece of cardboard to avoid injuries.
- ▶ Keep body and face away from leaks.
- ▶ If liquids penetrate the body, immediately consult a doctor. The liquid must be removed from the body as quickly as possible.

Hot liquids

If hot liquids are drained, people may burn and/or scald themselves.

- ▶ When draining hot consumables, wear personal protective equipment.
- ▶ Before performing any repair, maintenance or cleaning work, allow liquids and machine parts to cool off, if necessary.

Damaged compressor unit

Damaged compressed air hoses of compressor unit may tear off. Hoses that move uncontrollably may hurt people seriously.

- ▶ If it is suspected that the compressor unit is damaged, immediately contact a specialist workshop.
- ▶ Shut down and safeguard the machine, *refer to page 31*.

Damaged hydraulic hoses

Damaged hydraulic hoses may tear off, burst or cause oil leaks. As a result, the machine may be damaged and people may be seriously injured.

- ▶ Shut down and safeguard the machine, *refer to page 31*.
- ▶ If it is suspected that hydraulic hoses are damaged, immediately contact a service centre, *refer to page 324*.

Toxic exhaust gases

Exhaust gases may cause serious health problems or result in death.

- ▶ While the engine is running, provide adequate ventilation to prevent prolonged exposure to exhaust gases.
- ▶ Do not leave the engine running in a closed room unless there is a suitable extraction unit.

Hot surfaces

The following components may become hot during operation and may burn people:

- Engine
- Exhaust system
- Cooling hoses
- Hydraulic system
- Wheel hub gearbox
- Transfer gearbox
- Mower gearbox
- Belt gearbox

▶ Maintain a sufficient distance from hot surfaces.

▶ Leave machine parts to cool down and wear protective gloves.

2.4.19 Dangers in connection with certain activities: climbing up and down

Climbing up and down safely

People who behave carelessly when climbing up an down may fall off the ladder. People, who climb onto the machine without using the designated ladders, may slip, fall and seriously injure themselves.

Dirt as well as operating fluids and lubricants may impair surefootedness and stability.

▶ Always keep ladder steps and platforms clean and in proper condition so that you can step and stay safely.

▶ Never climb up and down while the machine is moving.

▶ Always climb up and down with the face towards the machine.

▶ When climbing up and down, maintain a three-point contact with the steps and hand rails (always two hands and one foot or two feet and one hand on the machine).

▶ When climbing up and down, never use operating elements as handles. Inadvertent activation of the operating elements may cause functions to be unintentionally actuated which could be hazardous.

▶ When climbing down, never jump off the machine.

▶ Climb up and down using only the steps and platforms designated in these operating instructions, *refer to page 54*.

2.4.20 Dangers in connection with certain activities: Working on the machine

Only perform work when the machine is at standstill

If the machine is not shut down and safeguarded, parts may move unintentionally or the machine may start moving. Thus there is a risk of serious injuries or death.

▶ Before carrying out any repair, maintenance and cleaning work on the machine, shutdown and safeguard it, *refer to page 31*.

Maintenance and repair work

Improper maintenance and repair work endanger operational safety. Thus there is a risk of accidents, serious injuries or death.

- Only perform work which is described in this operating instructions. Prior to any work, stop and safeguard the machine, *refer to page 31*.
- All other maintenance and repair work must only be performed by qualified specialist workshop.

Working at or on heights of the machine

There is a risk of falling when working at or on heights of the machine. As a result, accidents may occur and people may be seriously or fatally injured.

- Prior to any work, stop and safeguard the machine, *refer to page 31*.
- Make sure you stand securely.
- Use a suitable fall protection.
- Secure the area below the assembly point against falling objects.

Raised machine and machine parts

The raised machine and machine parts may fall or tilt unintentionally. People may be seriously injured or killed, as a result.

- Do not stay under the raised machine or machine parts which are not safely supported, *refer to page 31*.
- Prior to all work on raised machines or machine parts, lower the machine or machine parts.
- Before performing any work under raised machines or machine parts, secure the machine or machine parts with rigid safety support or with hydraulic shut-off device or by supporting against lowering.

Danger associated with welding work

Improper welding work will endanger the operational safety of the machine. As a result, accidents may occur and people may be seriously or fatally injured.

- Never perform welding work on the following components:

- Engine
- Gearbox
- Components of the hydraulics
- Components of the electronics
- Frame or supporting components
- Running gear

- Before carrying out welding work on the machine, obtain consent by KRONE customer service and, if required, identify alternatives.
- Before performing welding work on the mowers, detach them from the machine.
- Welding work must only be performed by experienced qualified personnel.
- Attach the earthing of the welding device near the welding points.
- Caution when performing welding work near electric and hydraulic parts, plastic parts and pressure accumulators. The parts may be damaged, endanger people or cause accidents.

Before performing welding work on the forage harvester:

- Switch off main battery switch.
- Pull engine control plug out of the engine block.
- Disconnect batteries.
- Connect positive and negative cables of the machine by an electrical connection.

2.4.21 Dangers in connection with certain activities: checking and charging batteries

If the battery is handled incorrectly, e.g. inadvertent connection of the battery poles to a metal object, excessive charging in conjunction with a spark, the battery may explode. People may be injured or burnt by the explosion or burnt by spraying battery acid.

- Use a suitable voltmeter to check the condition of the battery.
- Charge the battery only in well ventilated rooms with the battery compartment cover open.
- To charge the battery, follow these operating instructions, *refer to page 325*.
- Keep fire, sparks and naked flames away from the battery.
- To prevent acid from leaking, transport the battery in the installation position only.

2.4.22 Dangers in connection with certain activities: working on wheels and tyres

Improper assembly or disassembly of wheels and tyres will endanger the operational safety. As a result, accidents may occur and people may be seriously injured or killed.

The fitting of wheels and tyres requires adequate knowledge and approved mounting tools.

- If there is a lack of knowledge, have the wheels and tyres fitted by the KRONE dealer or by a qualified tyre service.
- When fitting tyres on the rims, never exceed the maximum permitted pressure specified by KRONE, otherwise the tyre or even the rim may explode, *refer to page 62*.
- When mounting the wheels, mount the wheel nuts with the specified tightening torque, *refer to page 274*.

2.4.23 Behaviour in dangerous situations and in case of accidents

Any measures not taken or incorrect measures in dangerous situations can make it difficult or impossible to rescue exposed persons. Due to the impeded conditions of rescue, the chances to help and heal injured people deteriorate.

- As a matter of principle: Park the machine.
- Get an overview of the existing danger and identify the reason.
- Secure the accident site.
- Save persons from the danger zone.
- Leave danger zone and do not enter it again.
- Alarm rescue workers and seek help, if possible.
- Carry out immediate lifesaving actions.

2.5 Safety routines

2.5.1 Shutting down and safeguarding the machine

⚠ WARNING

Risk of injury due to movement of the machine or machine parts

If the machine has not been shut down, machine or machine parts may move unintentionally. As a result, people may be seriously injured or killed.

- ▶ Before leaving the operating position: Shut down and safeguard the machine.

To shut down and safeguard the machine:

- ▶ Park the machine on a stable, horizontal and level ground.
- ▶ Switch off the drives and wait until coasting parts have come to a complete stop.
- ▶ Secure the self-propelled machine against rolling away by applying the parking brake.
- ▶ Switch off the engine, remove the ignition key and take it with you.
- ▶ Switch off the main battery switch, *refer to page 204*.
- ▶ Use wheel chocks to secure the self-propelled machine against rolling away.

2.5.2 Securing raised machine and machine parts against lowering

⚠ WARNING

Crushing hazard due to movement of machine or machine parts

If the machine or machine parts are not secured against lowering, the machine or machine parts may roll, fall or sag. Thus people could be squeezed or killed.

- ▶ Lower the raised machine parts.
- ▶ Shut down and safeguard the machine, *refer to page 31*.
- ▶ Before working on or under raised machine parts: Secure machine or machine parts against lowering by means of hydraulic shut-off device (e.g. stop cock) on machine side.
- ▶ Before working on or under raised machine parts: Safely support machine or machine parts.

In order to safely support the machine or machine parts:

- ▶ To support, only use suitable and sufficiently dimensioned materials that do not break or yield.
- ▶ Bricks and hollow blocks are not suitable for safely supporting the machine and machine parts. Therefore they must not be used.
- ▶ Car jacks are also not suitable for safely supporting the machine and machine parts. They must not be used, as well.

2.5.3 Carrying out oil level check and oil and filter element changes safely

⚠ WARNING

Carrying out oil level check and oil and filter element changes safely

If oil level check and oil and filter element changes are not carried out safely, the operational safety of the machine may be impaired. This may result in accidents.

- ▶ Carry out oil level check and oil and filter element changes safely.

To carry out oil level check, oil and filter element changes safely:

- ▶ Lower raised machine parts or secure them against falling, *refer to page 31*.
- ▶ Shut down and safeguard the machine, *refer to page 31*.
- ▶ Observe the intervals for oil level check, oil and filter element changes, *refer to page 236*.
- ▶ Use only the oil grades and quantities specified in the consumables table, *refer to page 64*.
- ▶ Clean the area around the parts (for example gearbox, high-pressure filter) and make sure that no foreign objects get into the parts or the hydraulic system.
- ▶ Check existing seal rings for damage and replace them, if necessary.
- ▶ Collect leaking or waste oil in a container designated for the purpose and dispose of it properly, *refer to page 25*.

2.5.4 Running actuator test

⚠ WARNING

Run actuator test safely

When actuators are energised, functions are carried out directly and without a safety prompt. This may cause the unintentional movement of machine parts, trapping and seriously or fatally injuring persons.

- ✓ Only persons familiar with the machine are permitted to perform the actuator test.
- ✓ The person performing the test must know which machine parts are activated by controlling the actuators.
- ▶ Run the actuator test safely.

To run the actuator test safely:

- ▶ Lower raised machine parts or secure them against falling, *refer to page 31*.
- ▶ Shut down and secure the machine, *refer to page 31*.
- ▶ Cordon off the danger zone of the actuated moving machine parts in a clearly visible manner.
- ▶ Ensure that there is nobody in the danger zone of the actuated moving machine parts.
- ▶ Switch on the ignition.
- ▶ The actuator test must only be performed from a safe position outside the area that is affected by machine parts moved by the actuators.

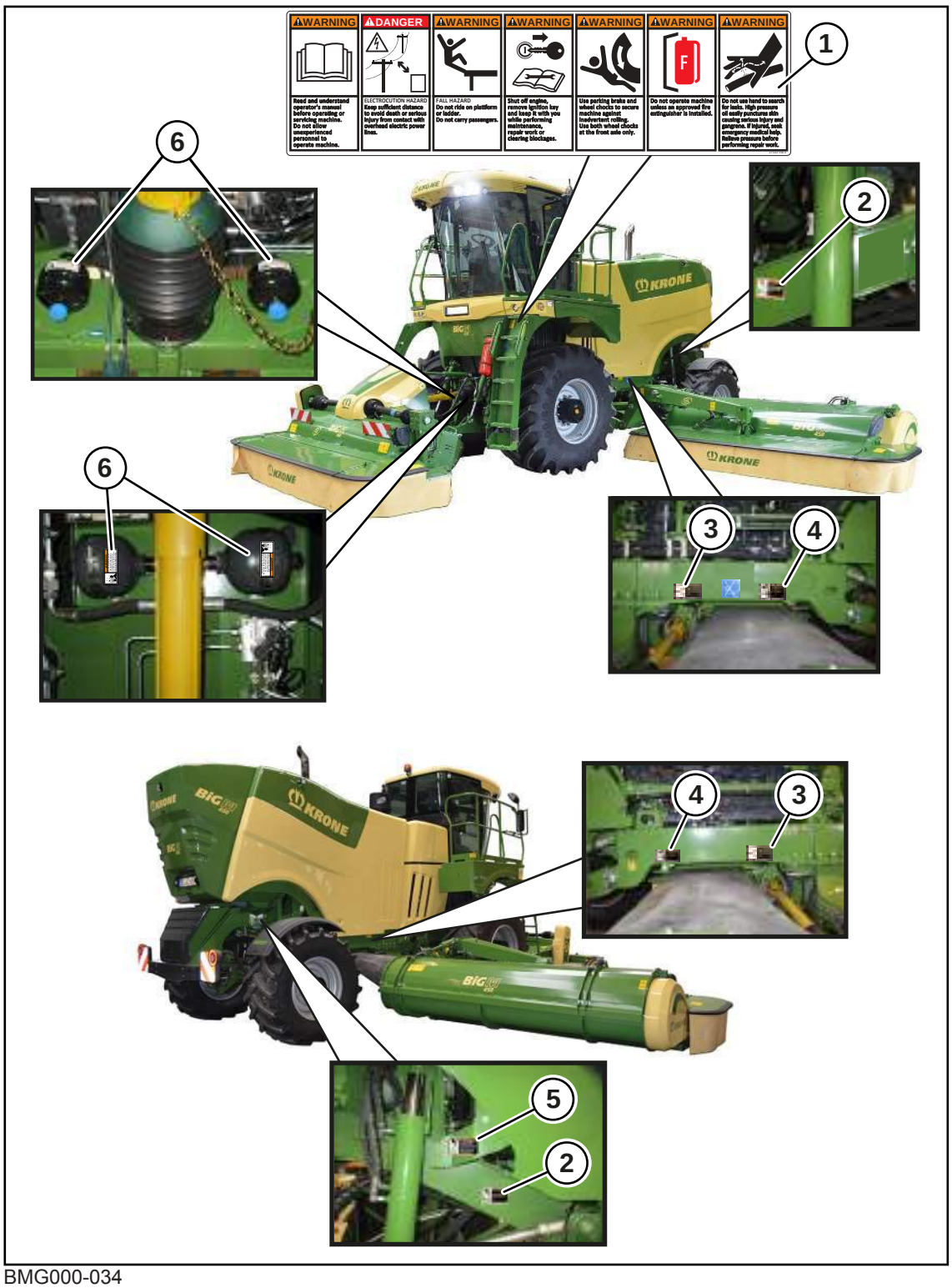
2.6 Safety labels on the machine

Every safety label is provided with an order number and can be ordered directly from the authorised KRONE dealer. Immediately replace missing, damaged and unrecognisable safety labels.

When attaching safety labels, the contact surface on the machine must be clean and free of dirt, oil and grease to ensure optimum adhesion of the labels.

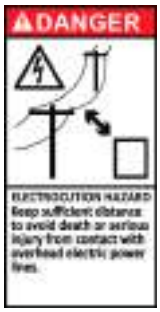
Position and meaning of safety labels

Overview 1



BMG000-034

1. Order No. 27 022 558 0 (1x)

	This safety label includes the following warnings:
	**WARNING** • Read and understand operator´s manual before operating or servicing machine. • Do not allow inexperienced personnel to operate machine.
	**DANGER** **ELECTROCUTION HAZARD** Keep sufficient distance to avoid serious injury or death from contact with overhead electric power lines.
	**WARNING** **FALL HAZARD** To avoid serious injury or death: - Do not ride on platform or ladder. - Do not carry passengers. - Keep riders and children off machine.
	**WARNING** To avoid serious injury or death, shut off engine, remove ignition key and keep it with you while performing maintenance, repair work or clearing blockages.
	**WARNING** To avoid serious injury or death, use parking brake and wheel chocks to secure machine against inadvertent rolling. Use both wheel chocks at front axle only.

	**WARNING** Do not operate the machine unless an approved fire extinguisher is installed.
	**WARNING** Do not use hand to search for leaks. High pressure oil easily punctures skin causing serious injury and gangrene. If injured, seek emergency medical help. Relieve pressure before performing repair work.

2. Order No. 27 002 057 0 (2x)

	**WARNING** **To avoid personal injury.** Never put your hand into the danger area as parts may be moving.

3. Order no. 27 006 964 0 (2x)

	WARNING! **To avoid Possible injury.** Close the protective equipment before placing the machine in operation !

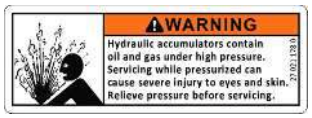
4. Order No. 27 014 825 0 (2x)

	**WARNING** **Hot surfaces** -Keep sufficient distance from hot surfaces. -Allow to cool before servicing.

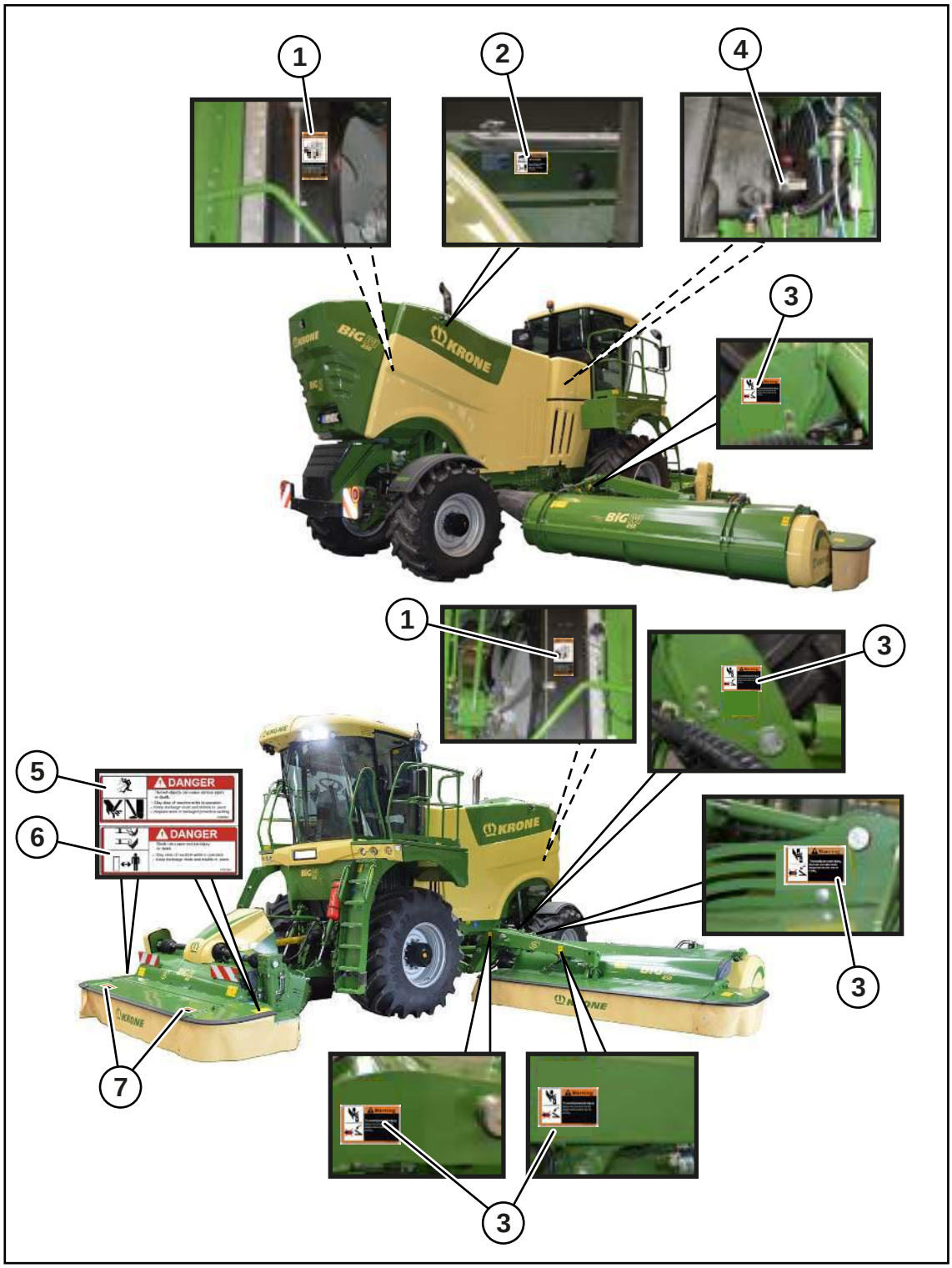
5. Order no. 27 014 829 0 (1x)

	**WARNING** **To Avoid serious injury or death** -Do not touch any moving machine components. -Wait until all machine components have completely stopped.

6. Order no. 27 021 178 0 (4x)

	**WARNING** **High pressure oil can cause severe injury** Hydraulic accumulators contain oil and gas under high pressure. Relieve pressure before servicing hydraulic system. Hydraulic accumulators may be removed and repaired by a qualified workshop only.

Overview 2



BM000-223

1. Order no. 942 546 0 (2x)

	**WARNING** **Avoid bodily injuries from rotating engine fan.** Keep hands out of fan discharge area when engine is running.

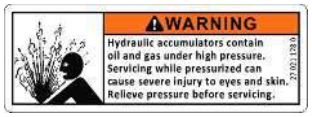
2. Order No. 27 014 825 0 (1x)

	**WARNING** **Hot surfaces** -Keep sufficient distance from hot surfaces. -Allow to cool before servicing.

3. Order no. 27 002 057 0 (5x)

	**WARNING** **To avoid personal injury.** Never put your hand into the danger area as parts may be moving.

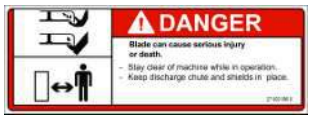
4. Order no. 27 021 178 0 (1x)

	**WARNING** **High pressure oil can cause severe injury** Hydraulic accumulators contain oil and gas under high pressure. Relieve pressure before servicing hydraulic system. Hydraulic accumulators may be removed and repaired by a qualified workshop only.

5. Order no. 27 002 055 0 (2x)

	**DANGER** **Thrown objects can cause serious injury** **or death.** • Stay clear of machine while in operation. • Keep discharge chute and shields in place. • Replace worn or damaged protective skirting.

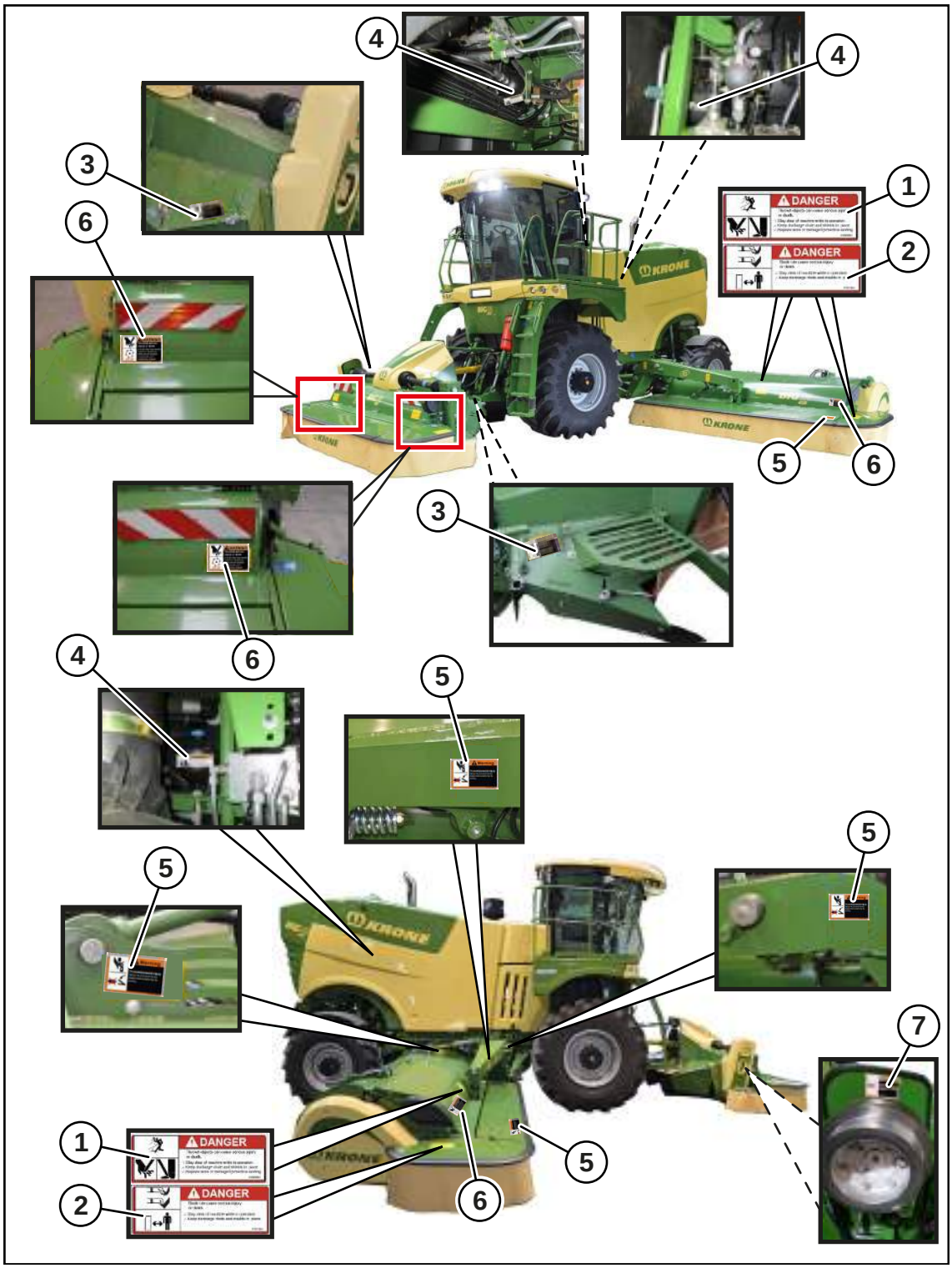
6. Order No. 27 002 056 0 (2x)

	**DANGER** **Blade can cause serious injury or death.** • Stay clear of machine while in operation. • Keep discharge chute and shields in place.

7. Order No. 27 002 057 0 (2x)

	**WARNING** **To avoid personal injury.** Never put your hand into the danger area as parts may be moving.

Overview 3

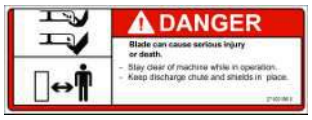


BM000-224

1. Order No. 27 002 055 0 (4x)

	**DANGER** **Thrown objects can cause serious injury or death.** • Stay clear of machine while in operation. • Keep discharge chute and shields in place. • Replace worn or damaged protective skirting.

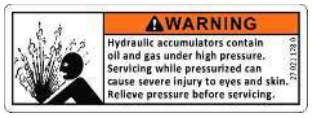
2. Order No. 27 002 056 0 (4x)

	**DANGER** **Blade can cause serious injury or death.** • Stay clear of machine while in operation. • Keep discharge chute and shields in place.

3. Order no. 27 009 598 0 (2x)

	**WARNING** **Danger in the slewing range** • Keep distance while the machine is operating.

4. Order no. 27 021 178 0 (3x)

	**WARNING** **High pressure oil can cause severe injury** Hydraulic accumulators contain oil and gas under high pressure. Relieve pressure before servicing hydraulic system. Hydraulic accumulators may be removed and repaired by a qualified workshop only.

5. Order no. 27 002 057 0 (5x)

	**WARNING** **To avoid personal injury.** Never put your hand into the danger area as parts may be moving.

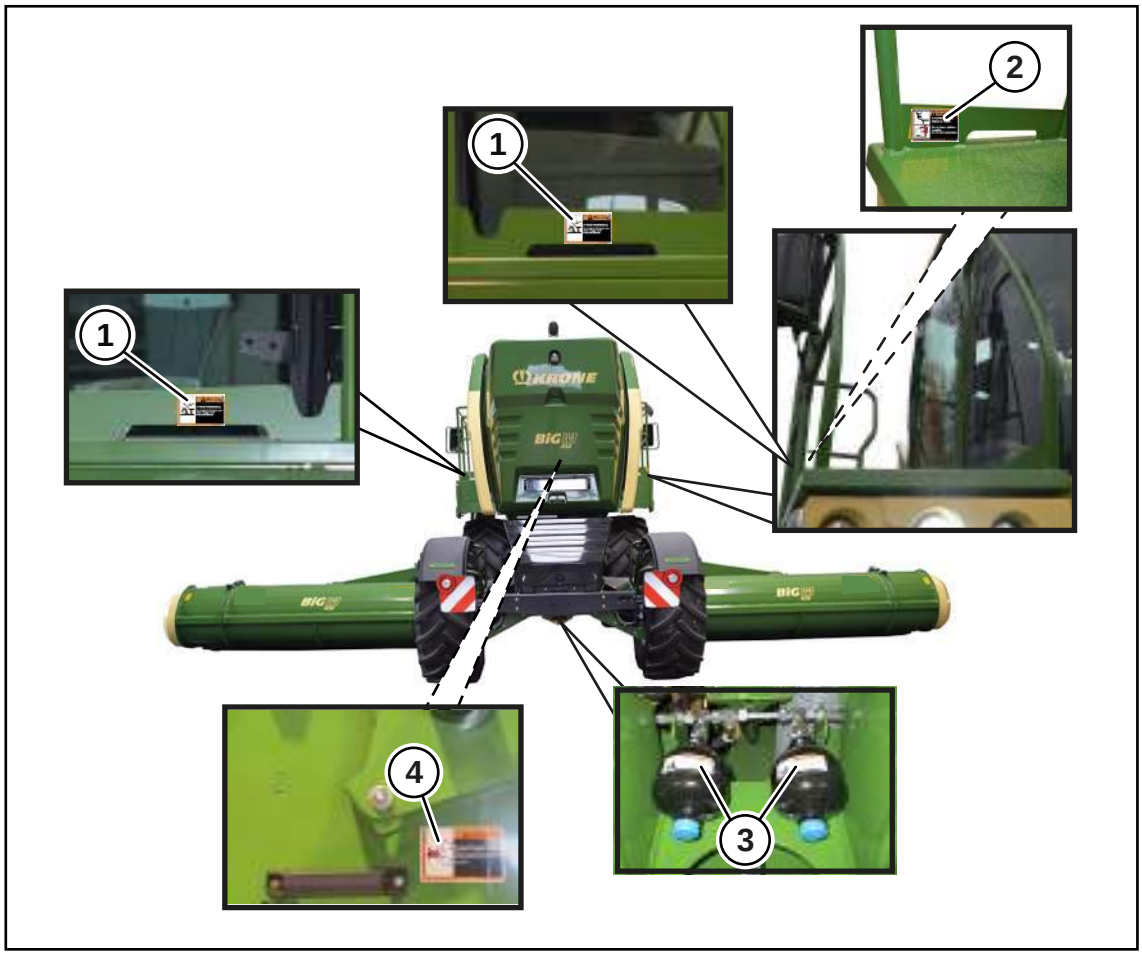
6. Order No. 27 014 829 0 (4x)

	**WARNING** **To Avoid serious injury or death** -Do not touch any moving machine components. -Wait until all machine components have completely stopped.

7. Order No. 27 006 964 0 (1x)

	WARNING! **To avoid Possible injury.** Close the protective equipment before placing the machine in operation !

Overview 4



BM000-225

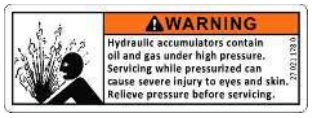
1. Order no. 27 003 029 0 (2x)

	**Warning** **To avoid possibly injury** Do not stay in the swivel area of the outrigger arms. Keep your distance.

2. Order no. 27 014 824 0 (1x)

	**WARNING** **To Avoid serious injury or death** -Do not ride on platform or ladder. -Do not carry passengers.

3. Order no. 27 021 178 0 (2x)

	**WARNING** **High pressure oil can cause severe injury** Hydraulic accumulators contain oil and gas under high pressure. Relieve pressure before servicing hydraulic system. Hydraulic accumulators may be removed and repaired by a qualified workshop only.

4. Order No. 27 006 964 0 (1x)

	WARNING! **To avoid Possible injury.** Close the protective equipment before placing the machine in operation !

Overview 5

Universal shafts

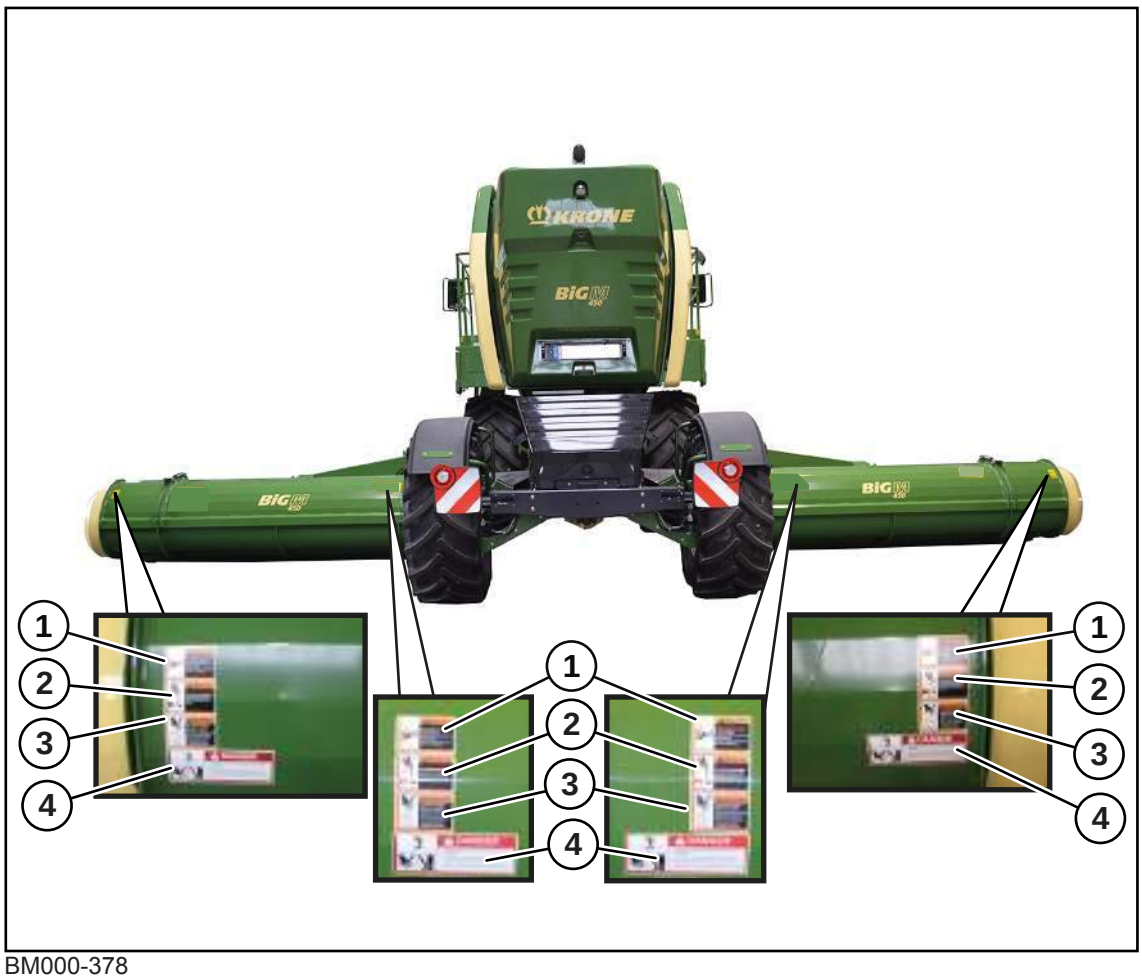
BM000-329

1. Order no. 949 228 0 (6x)

	**DANGER** **ROTATING DRIVELINE – CONTACT CAN CAUSE DEATH. KEEP AWAY!** DO NOT OPERATE WITHOUT- • All driveline guards, tractor and equipment shields in place. • Driveline securely attached at both ends. • Driveline guards that turn freely on driveline.

Overview 6

With version "Swath merging system with hydraulic hood"



BM000-378

1. Order no. 27 004 016 0 (4x)

	**Warning** Rotating augers can cut arms, hands and fingers. To avoid injury STAY AWAY from rotating augers. Failure to comply could result in death or serious injury.

2. Order No. 27 002 057 0 (4x)

	**WARNING** **To avoid personal injury.** Never put your hand into the danger area as parts may be moving.

3. Order No. 27 014 829 0 (4x)

	**WARNING** **To Avoid serious injury or death** -Do not touch any moving machine components. -Wait until all machine components have completely stopped.

4. Order No. 27 002 055 0 (4x)

	**DANGER** **Thrown objects can cause serious injury or death.** • Stay clear of machine while in operation. • Keep discharge chute and shields in place. • Replace worn or damaged protective skirting.

Overview 7

With version "Standard swathing"

BM000-391

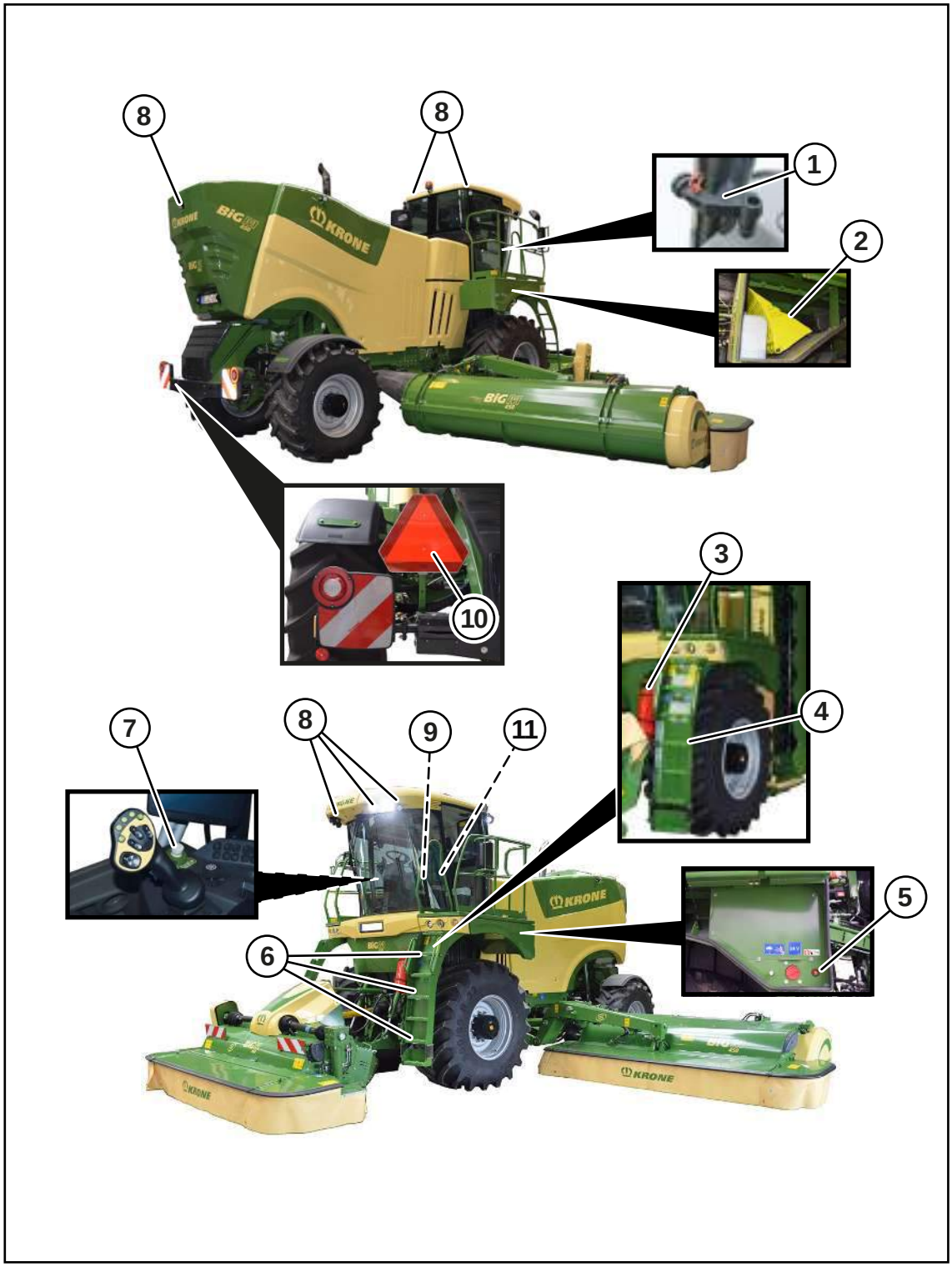
1. Order No. 27 002 057 0 (4x)

	**WARNING** **To avoid personal injury.** Never put your hand into the danger area as parts may be moving.

2. Order no. 27 002 055 0 (2x)

	**DANGER** **Thrown objects can cause serious injury or death.** • Stay clear of machine while in operation. • Keep discharge chute and shields in place. • Replace worn or damaged protective skirting.

2.7 Safety features

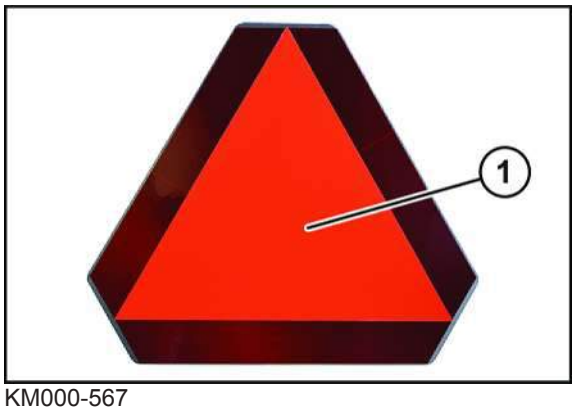


BMG000-047

Pos.	Designation	Explanation
1	Emergency exit	In case of an emergency, the side window on the right-hand side in the direction of travel, next to the driver's seat, can be opened as an exit door, *refer to page 69*.
2	Wheel chocks	Wheel chocks can be used to secure the machine from rolling away. The machine is equipped with 2 wheel chocks which are located above the front right wheel in the storage compartment, *refer to page 203*.
3	Fire extinguisher	The fire extinguisher is located on the cabin ladder, *refer to page 57*.
4	Ladder	▶ To enter the cabin safely at all timed, climb up onto the machine using the left-hand side ladder only. Use the handrails while doing so.
5	Main battery switch	The main battery switch is used to switch on or interrupt the machine’s power supply, *refer to page 204*.
6	Ladder lighting	**For the "Ladder and maintenance lighting" version** To enable the rungs on the ladder to be easily seen, even in the dark, the rungs can be illuminated, *refer to page 82*.
7	Quick-stop switch	The quick-stop switch in the armrest is used to stop the machine's working functions in an emergency. The traction drive remains active, *refer to page 92*.
8	Working lights	To ensure that the machine can be safely exited in the dark, the working lights are switched off after a delay, *refer to page 82*.

Pos.	Designation	Explanation
9	Seat switch in driver's seat	The seat switch integrated into the driver's seat is used to check whether the driver's seat is occupied or not. Field mode: If the driver's seat is not occupied for longer than 7 seconds, then all the mowers and the traction drive are switched off. Once the driver's seat is occupied again, the mowers can be switched on and the traction drive started up again. ▶ Switch mowers on and off, *refer to page 210*. Road mode: If the driver's seat is not occupied for longer than 7 seconds, then the traction drive's reverse drive is switched off. During forward travel the traction drive is switched off only after the machine comes to a standstill.
10	SMV emblem	The Slow Moving Vehicle emblem (SMV emblem) is attached to slow-moving machines or vehicles travelling on public highways at a speed of less than 40 km/h (25 mph), *refer to page 56*.
11	Seatbelt	▶ Always put on the safety belt before driving.

2.7.1 SMV emblem



KM000-567

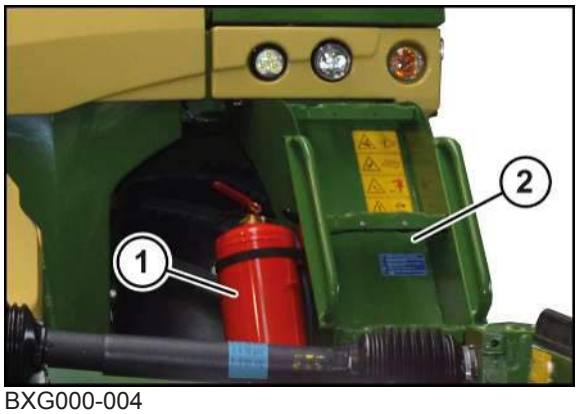
The SMV emblem (Slow-Moving Vehicle) (1) is attached to slow-moving machines or vehicles travelling on public highways at a speed of less than 40 km/h (25 mph).

The SMV emblem (1) is at the rear in the centre or at the rear on left.

When driving the machine on public highways, the SMV emblem must be mounted.

If the machine is transported on transport vehicles (for example lorry or train), the SMV emblem must be covered or dismounted.

2.7.2 Fire extinguisher



BXG000-004

INFORMATION

The machine must not be operated without a fire extinguisher which contains at least 20 lbs of extinguishing agent.

The manufacturer recommends a powder fire extinguisher for fire classes A, B and C.

The support for fire extinguisher (1) is located in direction of travel left on the ladder (2) to the platform.

Have the fire extinguisher registered. So you can be sure that maintenance is carried out regularly and in good time (according to EN 3 at the latest every two years) and can be proven.

- Prior to starting up the machine, check that the fire extinguisher is attached and ready for use, *refer to page 276*.
- Consider the operating instructions of the fire extinguisher and the web page of the manufacturer of the fire extinguisher.
- Check fire extinguisher for external damage. In the event of anomalies, inform responsible maintenance company.

The inspection intervals in other countries may be different. In such a case, the prescribed inspection intervals of the country of operation apply.

- Observe the provisions of the corresponding countries.

3 Data memory

A variety of electronic components of the machine contains data memories which save temporarily and permanently technical information on machine condition, events and errors. This technical information generally documents the condition of a part, module, system or of the environment:

- Operating states of system components (e.g. filling levels)
- Status messages of the machine and its single components (e.g. number of revolutions of wheel, wheel speed, motion delay, lateral acceleration)
- Malfunctions and defects in important system components (e.g. light and brakes)
- Reactions of machine in special driving situations (e.g. actuation of airbag, installing stability control systems)
- Ambient conditions (e.g. temperature)

These data are exclusively of a technical nature. They are used to detect and remedy errors as well as to optimize machine functions. There is no possibility to create motion profiles on driven routes from these data.

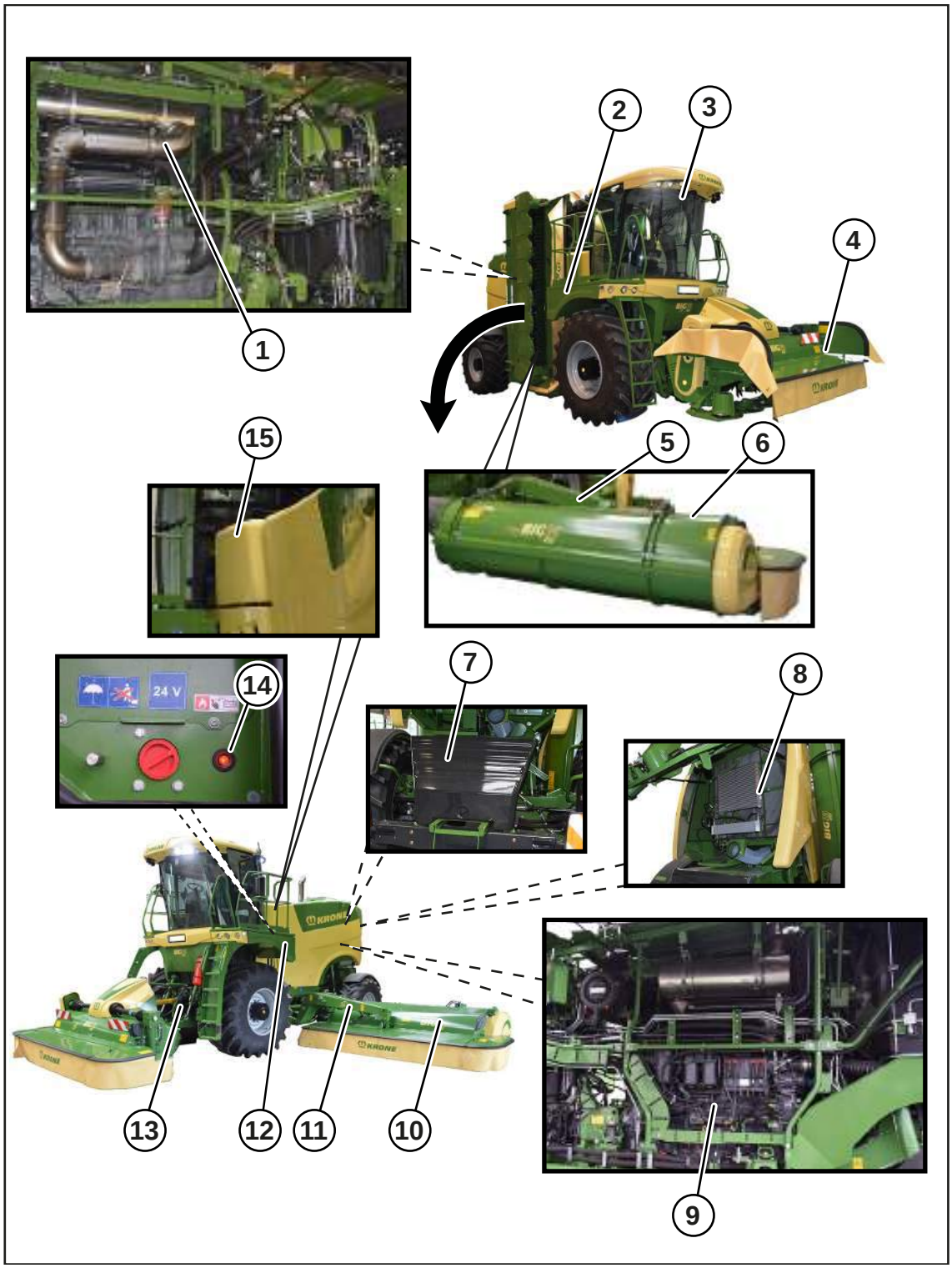
If services are used (e.g. repair services, service processes, warranty cases, quality assurance), this technical information can be read out by employees of service network (including manufacturer) from the event and error data memories by means of special diagnostic units. There you receive further information, if necessary. After the error has been remedied, the information in the error storage is either deleted or continuously overwritten.

When using the machine, situations are possible in which these technical data in connection with other information (accident protocol, damage to the machine, testimonies etc.) could become transferable to people - if applicable in consultation with an expert.

Additional functions regulated by a contractual agreement with the customer (e.g. remote maintenance) permit the transmission of certain machine data from the machine.

4 Machine Description

4.1 Machine overview



BMG000-049

1	Exhaust aftertreatment	9	Engine
2	Storage compartment right	10	Side mounted mower left
3	Cabin	11	Outrigger arm left
4	Front mounted mower	12	Battery compartment
5	Outrigger arm right	13	Lifting unit
6	Right side mounted mower	14	Main battery switch
7	Rear storage compartment	15	Maintenance flap left
8	Combination cooler		

4.1.1 Content of the storage compartments on the machine

Right storage compartment (2)

- 2 wheel chocks
- 1 canister for fresh water
- 1 canister for windshield washer fluid

Rear storage compartment (7)

- 1 Blade wrench for tensioning the belt drives and with the "Blade quick fastener" version: for blade changing
- 1 Drain hose for fluids
- 1 Special spanner for SafeCut
- Several spare blades
- 1 Measuring hose

Left maintenance flap (15)

- 1 Lever for operating the control block

4.2 Labelling

INFORMATION

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

Information for enquiries and orders

If you have any further queries on the machine or if you want to order spare parts, always enter type designation, vehicle identification number and year of manufacture of the corresponding machine. To ensure that these data are always available, we recommend to enter them in the fields on the front cover page of these operating instructions.

BM000-093

The machine data can be found on type plate (1). The type plate is located on right-hand machine side on vehicle frame below the cabin.

4.3 Function description

The self-propelled high-performance mower conditioner is a self-propelled work machine with three disc mowers with integrated mower-conditioners. The self-propelled high-performance mower conditioner is used for mowing various live agricultural grasses and pulse crops (from initial stages to end of photosynthetic process).

The three mowing units can be used individually or together and thereby enabling the working width to be adapted to suit. The integrated mower-conditioners accelerate the mowed crop drying process.

5 Technical Data

BM000-129

Dimensions	
Width W	3,000 mm
Length L	8,450 mm
Height H	4,000 mm
Working width	9,950 mm
Centre distance X	4,110 mm

Weight	
Permissible total weight	16,000 kg
Permitted axle load at front	10,500 kg
Permitted axle load at rear	6000 kg

Engine data	
Manufacturer	Liebherr Machines Bulle SA
Engine type	D946 A7-04
Design	6-cylinder diesel engine
Emissions level	IV (EU)
Exhaust aftertreatment system	SCR method
Power	See engine model plate
Cooling system	Liquid cooling
Diesel injection process	Liebherr Common Rail
Starter voltage	24 V
Starter output	7.8 kW

Traction drive	
Type	Continuously variable hydro-static drive
Working speed	0–25 km/h
Transport speed	0-40 km/h
Four-wheel	Option
Traction control system	Standard equipment

Axles	
Steering	Rear axle
Steering angle	53°
Suspension on front axle/rear axle	Hydropneumatic

Electrical system	
Alternator voltage	24 V
Alternator current intensity	180 A
Number of batteries	2
Battery voltage	24 V (2x12 V)
Battery capacity	(2x) 135 Ah

Air conditioning	
Evaporator	Refrigerating capacity *5200 W
Heater	Heating output 4000 W
Fan	910 m³/h free blowing
Voltage	24 V
Power consumption	13.5 A

* Measured at +30 °C ambient temperature (manufacturer's specifications)

Vibration values

The determined values are below the values required according to the EU Vibration Directive 2002/44/EC.

- The vibration values for hand-arm vibrations are below 2.5 m/s².
- Concerning whole body vibrations the action value of 0.5 m/s² is not exceeded.

Noise in the operating position

- The noise in the operating position is 80 dB L_{pA} with cabin closed.

Ambient temperature	
Temperature range for machine operation	-5 to +45 °C

Maximum speed[1]	
Maximum permitted speed	40 km/h

[1)] Depending on the legal requirements in the country of use.

Mowing units	
Number of mowing units	3
Working width	9950 mm
Number of mowing discs	6 per side mounted mower 5 per front mounted mower
Number of mowing drums	2 per side mounted mower 2 per front mounted mower
Conditioning system	V-shaped steel tines
Conditioner speed	Adjustable 700/1000 rpm

Cutting height	conditions of usage
8–11 cm	High cut Forage crop, dry or moist soil
4-6 cm	Forage crop, dry or normal soil
approx. 3 cm	Low cut **Sward damage can occur**

5.1 Consumables

NOTICE

Machine damage due to mixing of oil

If oils, which have different specifications, are mixed with each other, the machine may be damaged.

- ▶ Never mix oils, which have different specifications, with each other.
- ▶ Contact your KRONE service partner before using an oil with a different specification after changing the oil.

The following filling quantities are reference values. The actual refiling quantity is determined when checking the level.

Biodegradable consumables can be used on request.

5.1.1 Oils

Vehicle

Designation	Filling quantity	Specification	Initial filling at the factory
Hydraulic oil tank	60 L	Hydraulic oil HLP 46	SRS Wiolan HS 46
General hydraulic system	110 L	Hydraulic oil HLP 46	SRS Wiolan HS 46
Engine oil (diesel engine)	40 L	LIEBHERR engine oil 10W-40 options: Fuchs Titan Cargo MC 10W-40, Chevron Texaco URSA TDX 10W-40, Shell Rimula R6M 10W-40 or Total Rubia Tir 8600 10W-40	LIEBHERR engine oil 10W-40
Transfer gearbox	9.2 L	Mobil SHC 630	
Front wheel hub gearbox	2.5 L	Gear oil Shell Spirax S4 CX 50	
Rear wheel hub gearbox	1.5 L	Gear oil Shell Spirax S4 CX 50	

Mowers

Designation	Filling quantity	Specification
Input gearbox on front mounted mower	1.7 L	API GL4 SAE 90
Main gearbox on front mounted mower	7 L	API GL4 SAE 90
Main gearbox of side mounted mowers	6.5 L	API GL4 SAE 90
Front mounted mower cutter bar	7 L	API GL4 SAE 90
Cutterbar side mounted mowers	8 L	API GL4 SAE 90

List of mineral oils of quality class HLP (HM) and environmentally friendly, rapidly biodegradable HEPG pressure fluids allowed to be used for hydraulic oil tank:

ISO viscosity class	HEPG VG 46	HLP VG 46
Manufacturer		
ADDINOL		Hydraulic oil HLP 46
AGIP		OSO 46
ARAL	BAF 46Vitam	Aral Vitam GF 46
ASEOL	Aqua VG 46	

ISO viscosity class	HEPG VG 46	HLP VG 46
Manufacturer		
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
FRAGOL	Hydraulic TR 46	
FUCHS	Renolin PGE 46	RENOLIN MR 15, VG 46, B15 VG 46
Houghton	Syntolubric 46	
KLÜBER		LAMORA HLP 46
KUWAIT		Q8 Haydn 46, Q8 Holst 46, hydraulics 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
SRS		WIOLAN HS 46 WIOLAN HX 4
Stuart Theunissen	Hydrocor E46 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

5.1.2 Lubricating grease

Designation	Filling quantity	Specification
Central lubrication system	3.5 L	Lubricating grease acc. to DIN 51818 of NLGI class 2, Li soap with EP additives
Manual lubrication points	As required [1]	
Intermediate gear	65 g (per side)	Mobilgrease XHP 222

[1] Lubricate the manual lubrication point until grease escapes at the bearing position. After lubricating, remove the grease escaping from the bearing position.

5.1.3 Coolant

Consumables / initial filling ex works

Designation	Filling quantity	Specification	Initial filling ex works
Engine coolant tank	54 L	See shipped operating instructions from LIEBHERR	• Liebherr Antifreeze OS Concentrate • Liebherr Antifreeze OS Mix

5.1.4 Refrigerant (air conditioning)

Designation	Filling quantity	Specification
Refrigerant	1,800 g	R134a
Oil	75 mL	PAG

Data sheet for refrigerant R134a (excerpt)

Refrigerant R 134a	
Chemical designation	1,1,1,2 tetrafluoroethane
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 °C)	1206 kg/m^3
Limits of flammability in the air:	not inflammable

Environmental data FKW 134a	
ODP – Ozone depletion potential	ODP=0
CLP – Chlorine load potential	CLP=0
PCR – Photochemical reactivity	PCR=0.5
GWP – Greenhouse effect	1,430
CO_2 equivalent	2,574 kg

5.1.5 Fuel/urea

Designation	Filling quantity	Specification
Fuel tank	800 L	See shipped operating instructions from LIEBHERR
Urea tank	70 L	

5.2 Tyres

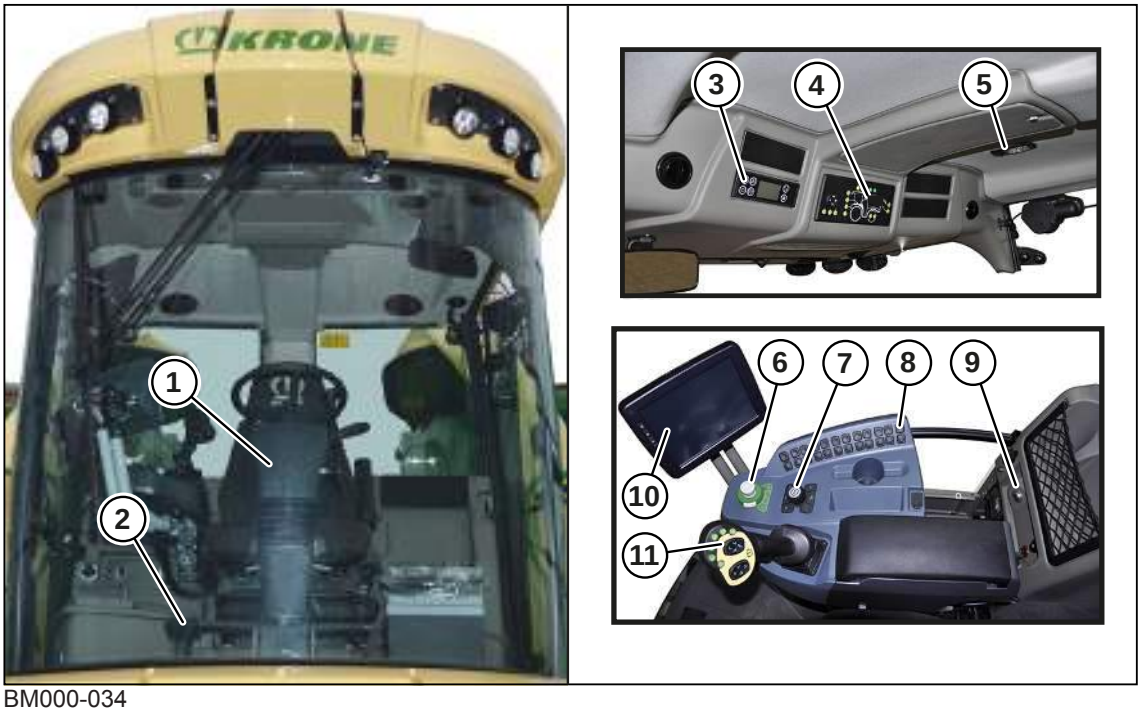
Before working on a slope, increase the tyre pressure by 0.4 bar more than the recommended pressure indicated in the following table. After working on the slope, the tyre pressure must be set to the recommended values in the table.

Before putting the machine into storage at the end of the harvesting season, set the tyre pressure to the maximum permitted value. Before starting the new season, the tyre pressure must be set to the values in the table.

Tyres	Recommended tyre pressure	Max. permissible tyre pressure
Front: 800/65 R32 (AC70N)	1.6 bar	4.0 bar
Rear: 600/65 R28 (AC65)	1.4 bar	2.0 bar
Front: 800/60 R32 (Flotation Trac)	1.2 bar	4.0 bar
Rear: 600/60 R30.5 (Flotation Trac)	1.2 bar	4.0 bar

6 Control and Display Elements

6.1 Overview of operating elements



BM000-034

1	Steering column with steering wheel	7	Navigation module
2	Brake pedal	8	Keypad
3	Operation unit automatic climate control	9	Ignition lock
4	Light control unit	10	Terminal
5	Interior lighting/control lever lighting switch	11	Control lever
6	Main mode switch		

6.2 Opening doors and windows of cabin

Opening right side window

In case of an emergency, the right side window can be opened as an exit door.

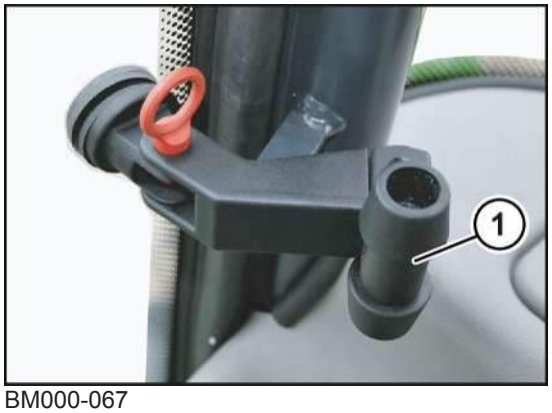
⚠ *WARNING*

Danger to life due to blocked escape route

If the right side window cannot be opened without obstruction, the escape route for the driver is obstructed.

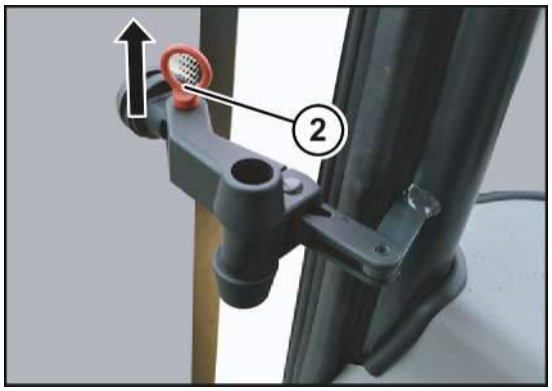
- ▶ Make sure prior to travel that the right platform is free.

To fully open the window on the right next to the driver's seat:



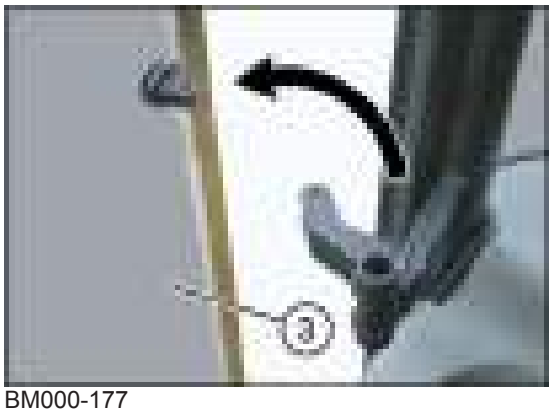
BM000-067

- Swivel the lever (1) forwards until it locks into position.



BM000-176

- Pull the cotter pin (2) and remove it.

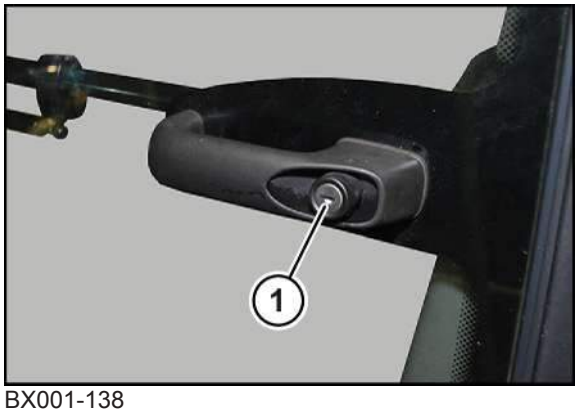


BM000-177

- Open the side window (3) all the way.

Opening the cabin door

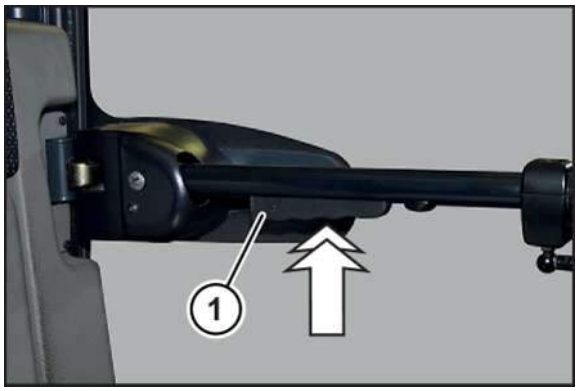
Opening the cabin door from outside



BX001-138

- Unlock the door lock (1) with the door key.
- Press in the door lock (1) and open the door.

Opening the cabin door from inside



BX001-139

- Press up the door opening lever (1) and open the door outwards.

6.3 Control and display elements on the steering column

BM000-035

1	Steering wheel	4	Release lever for horizontal steering column adjustment and upper pivot point, *refer to page 162*
2	Warning lights, *refer to page 76*	5	Steering column switch, *refer to page 72*
3	Unlocking pedal for steering column adjustment bottom, *refer to page 162*		

6.3.1 Steering column switch

6.3.1.1 Activating horn

BM000-055

- ▶ To actuate the horn, press the momentary switch (1) for the horn on the steering column switch (2).
- ➡ As long as the momentary switch is pressed, the horn sounds.

6.3.1.2 Switching direction indicators on/off

BM000-056

- ▶ To switch on the right direction indicator, move the steering column switch (1) forwards.
- ➡ The direction indicator on the right is switched on.
- ▶ To switch on the left direction indicator, push the steering column switch (1) backwards.
- ➡ The direction indicator on the left is switched on.

The direction indicator is switched off when the steering wheel is turned.

- ▶ To switch off the direction indicator when the steering wheel is not turned, move the steering column switch (1) in the opposite direction.

The warning light for direction indicator lights up when the direction indicator lamps have been switched on, *refer to page 76*.

6.3.1.3 Switching parking light/dipped beam on/off

BM000-059

The lighting setting ring gauge (2) on the steering column switch (1) can be turned to the following positions:

Pos.	Icon	Explanation
I		Switches the light off.
II		Switches the parking light on.
III		Switches dipped beam on.
IV		Inoperative

- ▶ To switch on the parking light, turn the lighting setting ring gauge (2) one notch forwards to position II.
- ➡ Front parking light and rear parking light are lit, *refer to page 79*.
- ✓ The ignition is switched on, *refer to page 92*.
- ▶ To switch on the dipped beam, turn the lighting setting ring gauge (2) to the second notch forwards to position III.
- ➡ The green dipped beam indicator lamp is lit, *refer to page 76*.
- ➡ Dipped beam, front parking light, licence plate lamp and rear position lamp are on, *refer to page 79*
- ▶ To switch off the parking light and dipped beam, turn the lighting setting ring gauge (2) to the last notch backwards to position I.
- ➡ All the lights have been switched off.

6.3.1.4 Switching full beam on/off

BM000-057

- ✓ The dipped beam has been switched on, *refer to page 73*.
- ▶ To switch on full beam, press the steering column switch (1) downwards.
- ➡ The steering column switch locks in this position and full beam is switched on.
- ➡ The blue warning light full beam is on, *refer to page 76*.
- ▶ To switch off full beam, move the steering column switch (1) to the neutral position.

6.3.1.5 Actuating headlamp flasher

BM000-058

- ▶ To activate the headlamp flasher, pull the steering column switch (1) upwards.
- ➡ As long as the steering column switch is pulled upwards, the full beam and the blue warning light full beam light up, *refer to page 76*.

6.3.1.6 Switching windshield wipers on/off

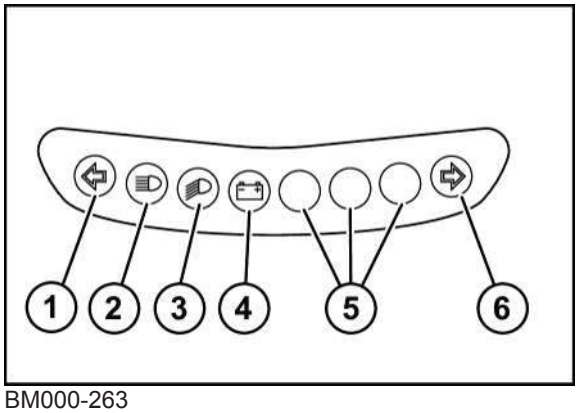
BM000-060

The setting ring gauge (2) for the windshield wiper on the steering column switch (1) can be turned to the following positions:

Pos.	Icon	Explanations
I		Switches the windscreen wiper off.
II		Switches on interval mode of the windscreen wiper.
III		Switches on continuous operation of the windscreen wiper.
IV		Switches on the windscreen washer system.

- ▶ To switch on the wiper in interval mode, turn the setting ring gauge (2) one notch forwards to position II.
- ➡ The windshield wiper operates in interval mode.
- ▶ To switch on the wiper in continuous operation, turn the setting ring gauge (2) to the second notch forwards to position III.
- ➡ The windshield wiper operates in continuous operation.
- ▶ To switch on the windscreen washer system, turn the setting ring gauge (2) to the third notch forwards to position IV.
- ➡ The windscreen washer system is operating.
- ▶ To switch off the wiper, turn the setting ring gauge (2) to the last notch backwards to position I.
- ➡ The wiper returns to the rest position and stops.

6.3.2 Warning lights



BM000-263

1 Warning light for direction indicator left
2 Warning light for full beam
3 Warning light for dipped beam
4 Charging warning light
5 not assigned
6 Warning light for direction indicator on right

6.3.3 Switching the flashing warning light on/off

BM000-061

- ▶ To switch on the flashing warning light, press the flashing warning light switch (1) to position II.
- ➡ When the flashing warning light is switched on, all direction indicators flash simultaneously and the warning lights for the direction indicators on the left and right are lit, *refer to page 76*.
- ▶ To switch off the flashing warning light, press the flashing warning light switch (1) to position I.
- ➡ The warning lights for direction indicators on the left and right go out.

6.4 Actuating service brake

⚠ *WARNING*

Risk of accident due to defective service brake!

If the service brake has a restricted function, the machine cannot be brought to a standstill in time. Thus there is a risk of serious injuries or death.

- ▶ Before starting the machine, always check service brake and ensure its functionality.

BM000-062

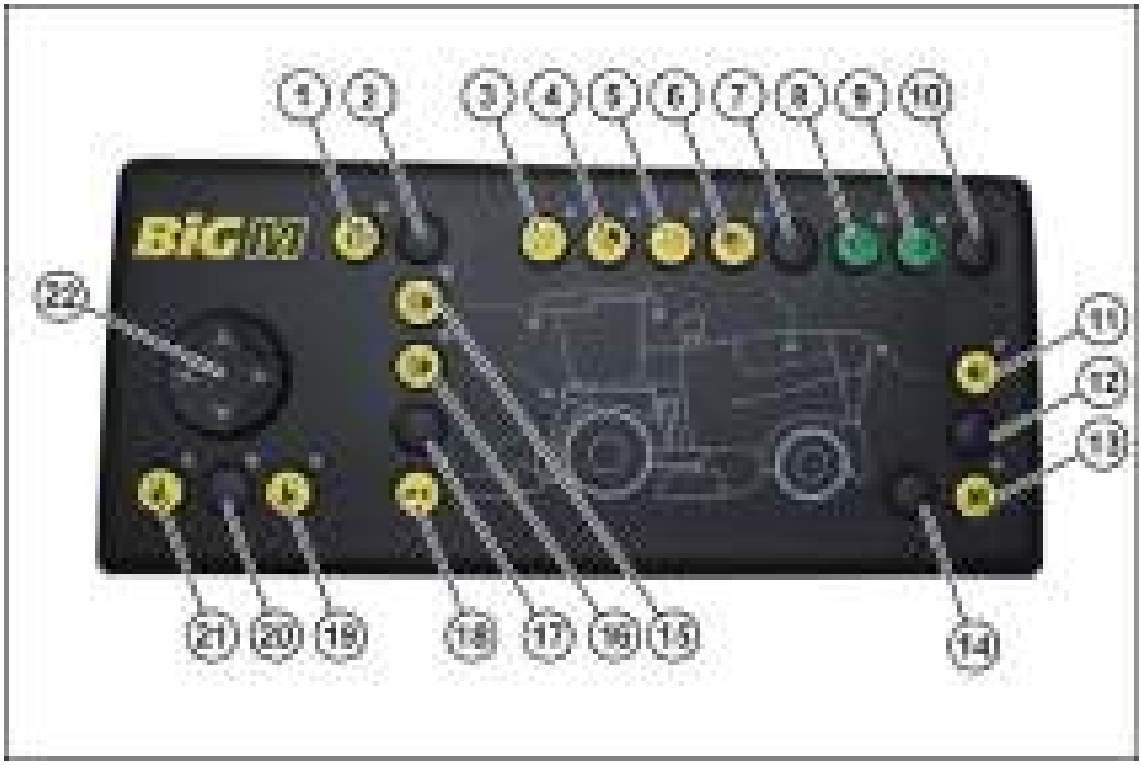
- ▶ Before driving, check the service brake, drive the machine at low speed one metre forwards and actuate the brake pedal (1).
- ➡ If the machine brakes, the service brake is functioning correctly.
- ➡ If the machine does not brake, stop driving the machine.
  - ▶ Shut down and secure the machine, *refer to page 31*.
  - ▶ Have a technician check and repair the service brake.

6.5 Lighting

6.5.1 Light control unit

The Light Control Unit is used to switch the working lights, mirror heating and the wipers on and off and to adjust the outside mirrors.

If one of the functions is active, an LED above the corresponding key lights up.



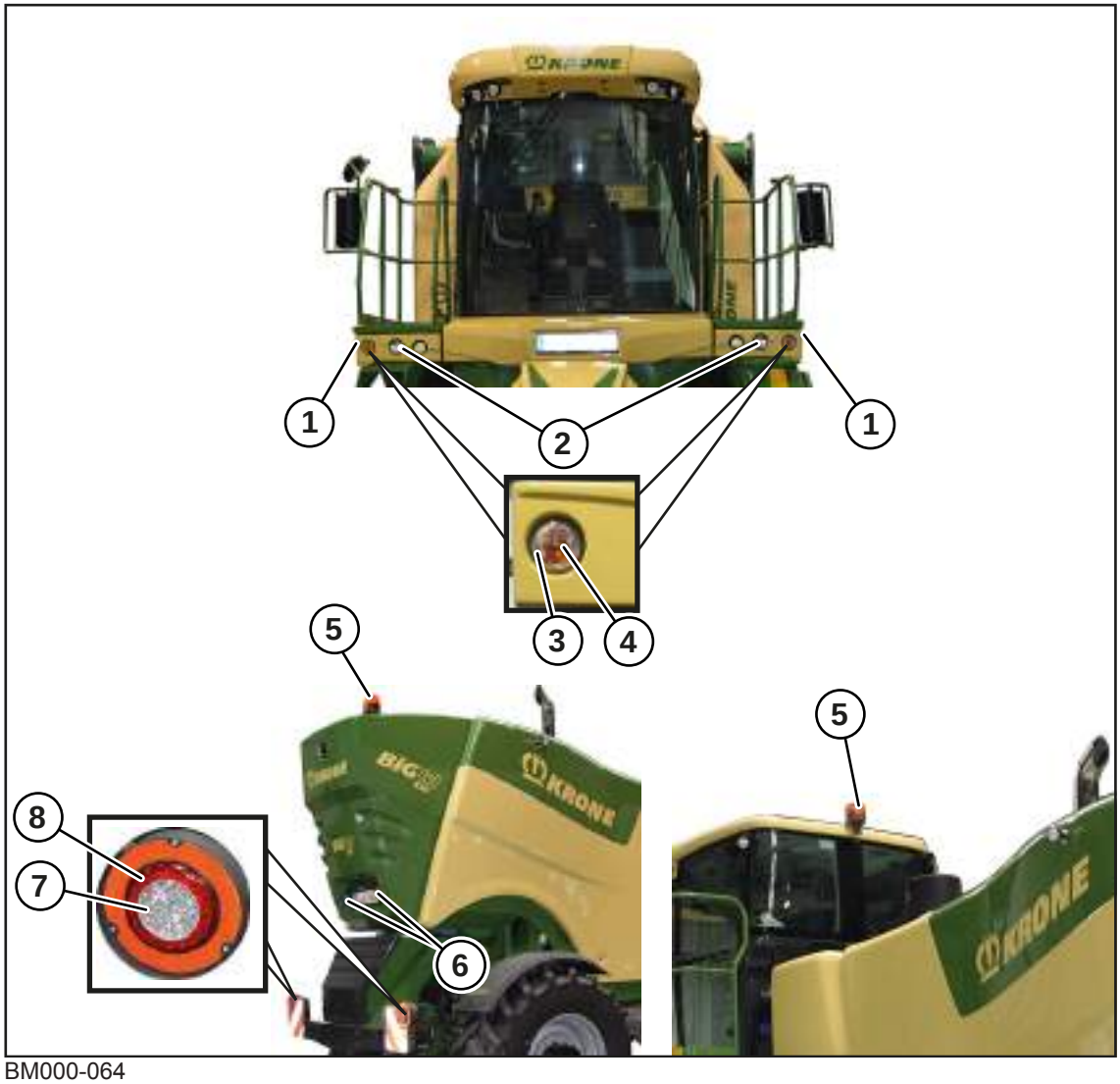
BXG000-012

Pos.	Designation	Explanation
1	"Mirror heating" key	Switches the heating on/off for the outside rear-view mirrors and the anti-collision mirror.
2	not assigned	
3	"Warning beacon" key	Switches the warning beacons on/off.
4	"Cabin working light, left/right" key	Switches the cabin working light at left and right on/off.
5	"Maintenance and ladder lighting" key	Switches the maintenance and ladder lighting on/off.
6	"Working light, left/right" key	Switches the working light at left and right on/off.
7	not assigned	
8	"Left wiper" key	Switches the left wiper on/off.
9	"Right wiper" key	Switches the right wiper on/off.
10	not assigned	
11	"Rear working light" key	Switches the rear working light on/off.
12	not assigned	
13	"Memory" key	Switches a programmed combination of working lights on/off, *refer to page 81*.

Pos.	Designation	Explanation
14	not assigned	
15	"Working lights cabin roof" key	Switches the cabin roof working lights on/off.
16	"Front guard working lights" key	Switches the front guard working lights on/off.
17	not assigned	
18	"All working lights" key[1]	Switches all working lights on/off.
19	"Right outside rear-view mirror" key	Activates the right outside rear-view mirror for mirror adjustment.
20	not assigned	
21	"Left outside rear-view mirror" key	Activates the left outside rear-view mirror for mirror adjustment.
22	"Mirror adjustment" control panel	Adjusts the reflecting surface of the mirror which has a lit indicator lamp.

[1] The "All working lights" key switches the working lights on/off only if the parking light has been switched on.

6.5.1.1 Road travel lighting



BM000-064

1 Side direction indicator/flashing warning lamp
2 Dipped beam/full beam
3 Front position lamp
4 Front direction indicator/flashing warning lamp
5 Warning beacon
6 Licence plate lamp
7 Rear direction indicator/flashing warning lamp
8 Rear position lamp/parking light/brake lamp

6.5.1.2 Working lights

⚠ WARNING

Risk of accident from dazzling working lights

If the working lights are not switched off during road travel, road users may be blinded.

- ▶ Switch the working lights off during road travel.

BM000-331

1 Front cabin working light
2 Rear cabin working light
3 Side working light
4 Rear working light
5 Front working light

6.5.1.3 Switching and saving working lights via “Memory” key

BXG000-039

The "Memory" key (2) can be used to combine several working lights (1) into one lighting scenario so that they can be switched on or off simultaneously.

- ▶ To save a lighting scenario with different working lights, switch on the required working lights (1) with the corresponding keys and press the "Memory" key (2) for 3 seconds.
- ➡ The lighting scenario is saved. For monitoring purposes the LED above the "Memory" key (2) flashes.
- ▶ To switch on the working lights (1) of the saved lighting scenario, press the "Memory" key (2).
- ➡ The working lights (1) of the saved lighting scenario light up. For monitoring purposes the LEDs are lit above the keys which belong to the lighting scenario.
- ▶ To switch off the working lights (1) of the saved lighting scenario, press the "Memory" key (2).
- ➡ The working lights (1) of the saved lighting scenario go out. For monitoring purposes the LEDs go out above the keys which belong to the lighting scenario.
- ▶ To save a new lighting scenario, repeat the saving process with different working lights (1).
- ➡ The previous lighting scenario is overwritten.

6.5.1.4 Warning beacons

BM000-095

INFORMATION

In some countries the warning beacons must be switched on for road travel. Observe the respective national statutory regulations.

The warning beacons (2) are automatically switched on when the Main Mode Switch is set to "Road mode".

- ▶ To manually switch off the warning beacons (2), press the key (1) on the Light Control Unit.
- ➡ The LED above the key (1) goes out.

6.5.1.5 Ladder lighting

For the "Ladder and maintenance lighting" version

To enable the rungs on the ladder up to the cabin to be easily seen, even in the dark, the rungs can be illuminated

BM000-234

Leaving Home function

The Leaving Home function allows the cabin to be entered safely, even in the dark.

- ▶ To activate the "Leaving Home" function, press the "Ladder lighting" (3) key.
- ➡ The lights (1), (2), (4) and (5) light up for a certain amount of time.

Coming Home function

The Coming Home function allows the cabin to be left safely, even in the dark.

- ▶ The activate the Coming Home function, turn the ignition key to the "STOP" position.
- ➡ The lights (1), (2), (4) and (5) light up for a certain amount of time.

Lighting for refuelling

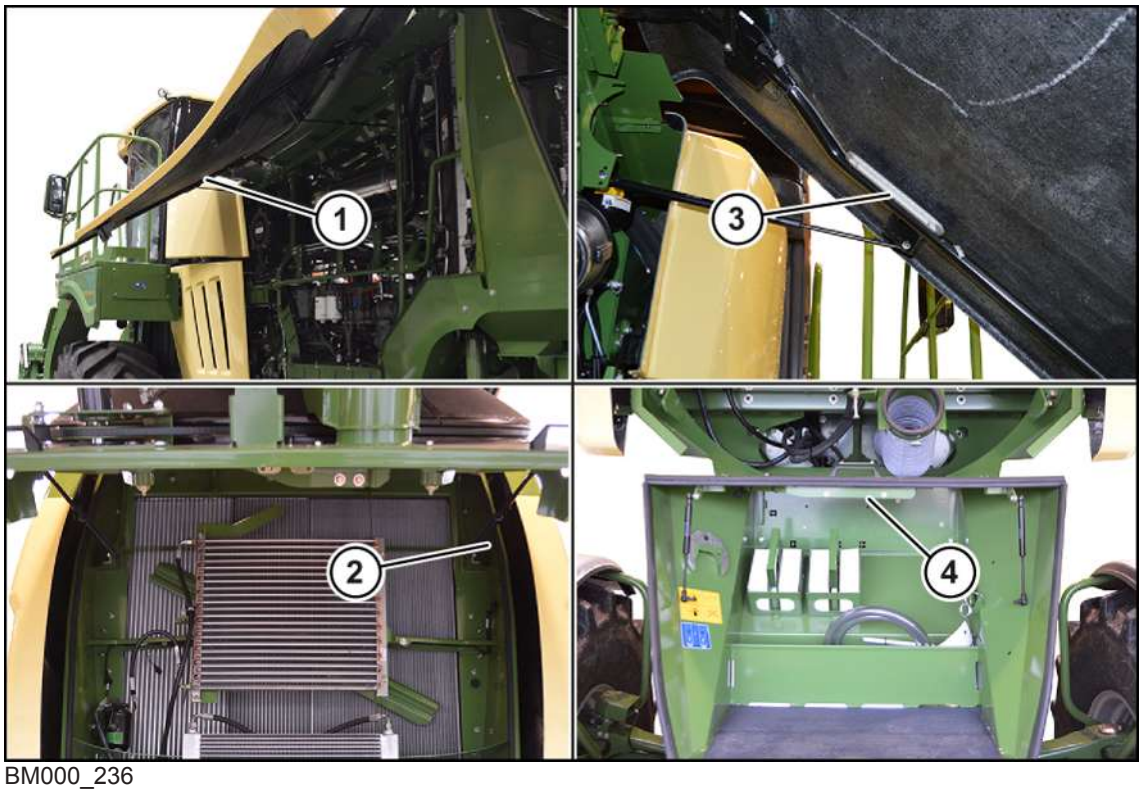
The lighting for refuelling serves to illuminate around the tank nozzle sufficiently in the dark.

- ▶ To activate the lighting for refuelling, press the "Ladder lighting" key (3) 2 x or if either the Coming Home function or Leaving Home function is active, press the "Ladder lighting" key (3) 1 x.
- ➡ The lights (2) light up for a certain amount of time.

> ***INFORMATION***
>
> The time period for activation of the individual functions can be set in the terminal in the menu cabin "Lighting settings".

6.5.1.6 Maintenance lighting

For the "Ladder and maintenance lighting" version



BM000_236

1 Maintenance lamp left side hood
2 Maintenance lamp cooler compartment
3 Maintenance lamp right side hood
4 Maintenance lamp rear storage compartment

- ▶ To switch on the maintenance lamps (1), (2), (3) and (4), press the "Maintenance and ladder lighting" key, *refer to page 78*.
- ➡ The maintenance lamps (1), (2), (3) and (4) light up.
- ▶ To switch on the maintenance lamps (1), (2), (3), (4) and the lighting on the ladder up to the cabin, press the key on the ladder up to the cabin for longer than 2 seconds, *refer to page 78*.
- ➡ The maintenance lamps (1), (2), (3), (4) and the lighting on the ladder up to the cabin light up for 20 minutes. After 20 minutes the central electrical system switches off to preserve battery power.

6.5.1.7 Wiper on left/on right

BXG000-051

- ▶ To switch on the left wiper, press the "Left wiper" key (1) on the light control unit.
- ➡ The left wiper wipes, the LED above the key is lit.
- ▶ To switch off the left wiper, press the "Left wiper" key (1).
- ➡ The left wiper goes into park position, LED above the key goes out.
- ▶ To switch on the right wiper, press the "Right wiper" key (2) on the light control unit.
- ➡ The right wiper wipes, the LED above the key is lit.
- ▶ To switch off the right wiper, press the "Right wiper" key (2).
- ➡ The right wiper goes into park position, LED above the key goes out.

6.5.1.8 Setting mirror

Adjusting outside rear-view mirrors

⚠ *WARNING*

Danger to life of persons next to and behind the machine due to impaired view of the driver!

If the outside rear-view mirrors are not correctly set, the driver does not have a proper view of the area around the machine, possibly placing people in danger when the machine is being driven.

- ▶ Before driving the machine, set the outside rear-view mirrors so that the rear area is fully visible to the driver from the driver's seat.

BXG000-052

- In order to adjust the left outside rear-view mirror, press the “Left outside rear-view mirror” key (3).
  - ⇨ The LED above the key lights up.
- Press the "Mirror adjustment" control panel (1) in the direction in which the selected mirror is to be adjusted.

➡ The area of the left outside rear-view mirror swivels in the desired direction.

- In order to adjust the right outside rear-view mirror, press the “Right outside rear-view mirror” key (2).
  - ⇨ The LED above the key lights up.
- Press the "Mirror adjustment" control panel (1) in the direction in which the selected mirror is to be adjusted.

➡ The surface of the right outside rear-view mirror swivels in the desired direction.

Setting the anti-collision mirror

⚠ *WARNING*

Danger to life of persons on right next to the machine as the driver only has an impaired view!

If the anti-collision mirror has not been set correctly, the driver does not have a proper view of the ground area next to the right front wheel, possibly placing people in danger when the machine is being driven.

- Before starting to drive, set the anti-collision mirror so that the ground area next to the right front wheel is fully visible to the driver from the driver’s seat.

BXG000-097

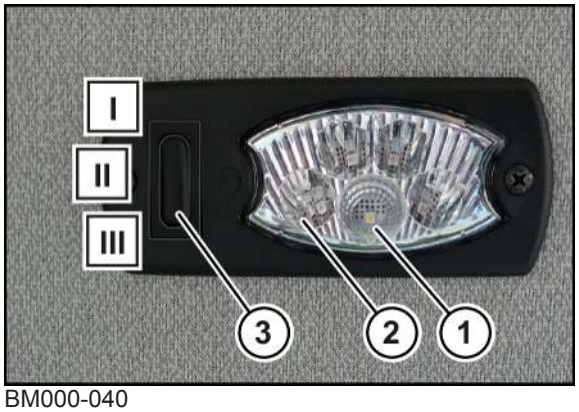
- Manually set the anti-collision mirror (1) in such a way that the ground area next to the right front wheel can be checked prior to starting.

Switching mirror heating on/off

BXG000-054

- ▶ To heat the outside mirrors and the anti-collision mirror, press the "Mirror heating" key (1).
- ➡ The LED above the key lights up. The heating for the outside mirrors and the anti-collision mirror has been switched on.
- ▶ To switch off the heating for the outside mirrors and the anti-collision mirror, press the "Mirror heating" key (1).
- ➡ The LED above the key goes out. The heating for the outside mirrors and the anti-collision mirror has been switched off.

6.5.2 Interior lighting



BM000-040

The interior lamp (2) is located on the cab roof and is switched with the switch (3).

The switch has 3 positions:

Pos.	Explanation
I	The interior lamp is switched via the door contact switch.
II	The interior lamp has been switched off.
III	The interior lamp has been switched on.

Switching logic when the switch (3) is in position II:

- When the cabin door is opened, the interior lamp (2) is switched on and is switched off again after a delay.
- When the cabin door is being opened, the interior lamp (2) is switched on. As soon as ignition stage II is switched on *refer to page 194*, the interior lamp (2) goes out.
- When the diesel engine has been switched off, the interior lamp (2) is switched on and goes out after a short time.

In addition to the interior lamp (2), the lighting for the control lever (1) is switched on as soon as the parking, dipped or full beam has been switched on.

6.6 Operating elements on control lever

The control lever is used to make important settings and issue commands for road and field mode of the machine.

BXG000-010

The keys on the control lever are used to run machine functions. The keys are assigned either to sensing mode, step mode or 2-stage operation. Depending on the particular key operating mode involved, there are 2 methods of running the machine functions:

- Sensing mode: The function is activated and completely run by tapping the key. The function is not stopped by releasing the key.
- Step mode: The function is run for as long as the key is pressed.

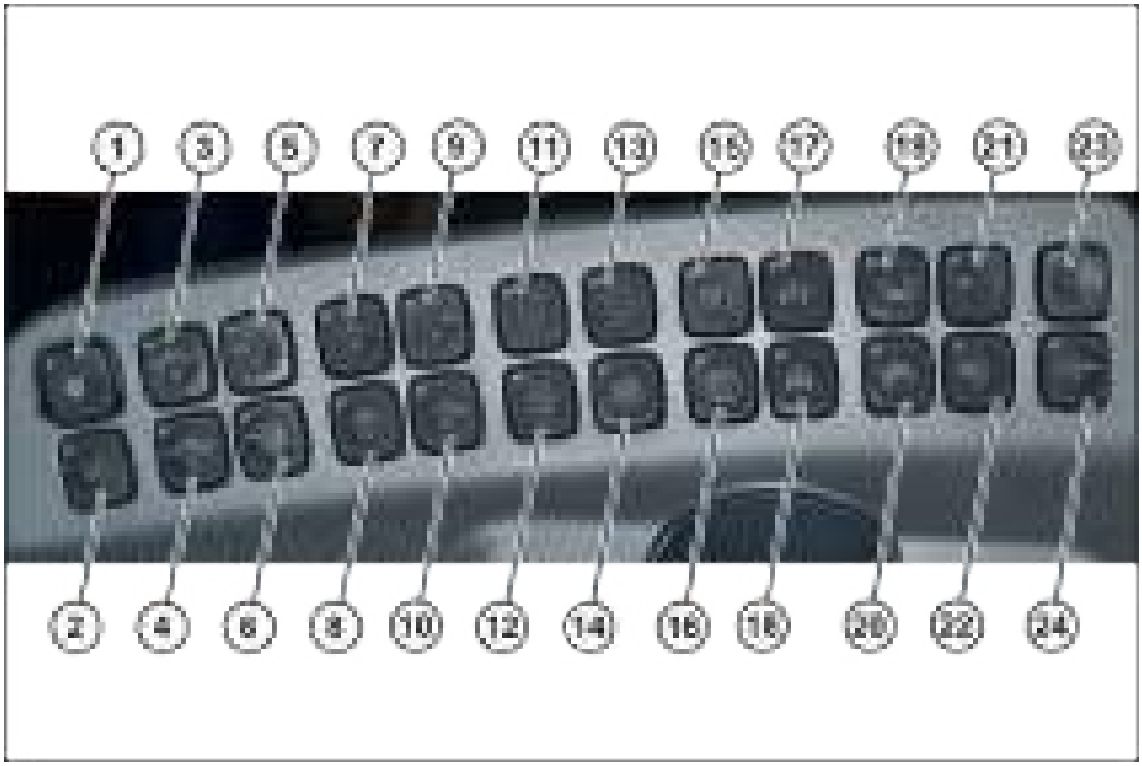
The release button  designated in the following table is located on the keypad, *refer to page 89*.

Pos.	Designation	Explanation
1.1	"Lower/fold down all mowers simultaneously" key	Lowers all mowers simultaneously. (Sensing mode)
		With previously pressed release button  : Folds down all mowers simultaneously from the transport into the headland position. (Step mode) **For the "Hydraulically foldable side guards" version:** The side guards of the mowers are automatically actuated.
1.2	"Raise/fold in all mowers simultaneously" key	Raises all mowers simultaneously. (1.stage: step mode; 2. stage: sensing mode)

Pos.	Designation	Explanation
1.2	"Raise/fold in all mowers simultaneously" key	With previously pressed release button  : Folds up all mowers simultaneously from headland position to transport position. (Step mode) **For the "Hydraulically foldable side guards" version:** The side guards of the mowers are automatically actuated.
1.3	"Left front mower side shift" key	**For the "Hydraulic side shift on front mower" version:** Shifts front mower to left. (Step mode)
1.4	"Right front mower side shift" key	**For the "Hydraulic side shift on front mower" version:** Shifts front mower to right. (Step mode)
2	"Acceleration behaviour" switch	Switches the value for the acceleration behaviour.
3	"Traction drive" key	Releases the traction drive.
4	"M1" key	Freely assignable memory key
5	"M2" key	Freely assignable memory key
6	"M3" key	Freely assignable memory key
7	"M4" key	Freely assignable memory key
8	"Automatic steering system" key	**For the "Automatic steering" version:** Activates the automatic steering system. (Sensing mode)
9	"Lower front mower" key	Lowers the front mower. (Sensing mode)
10	"Raise front mower" key	Raises the front mower. (1.stage: step mode; 2. stage: sensing mode)
11	"Lower/fold down right side mounted mower" key	Lowers the right mower (sensing mode).
		With pressed release button  : Folds down right mower from transport into headland position. (Step mode)
12	"Raise/fold in right side mounted mower" key	Raises the right mower. (1.stage: step mode; 2. stage: sensing mode)
		With previously pressed release button  : Folds in the right mower from the headland position into the transport position. (Step mode)

Pos.	Designation	Explanation
13	"Lower/fold down left side mounted mower" key	Lowers the left mower. (Sensing mode)
		With previously pressed release button  : Folds down left mower from transport into headland position. (Step mode)
14	"Raise/fold in left side mounted mower" key	Raises the left mower. (1.stage: step mode; 2. stage: sensing mode)
		With previously pressed release button  : Folds in the left mower from the headland position into the transport position. (Step mode)

6.7 Control and display elements on the keypad



BXG000-011

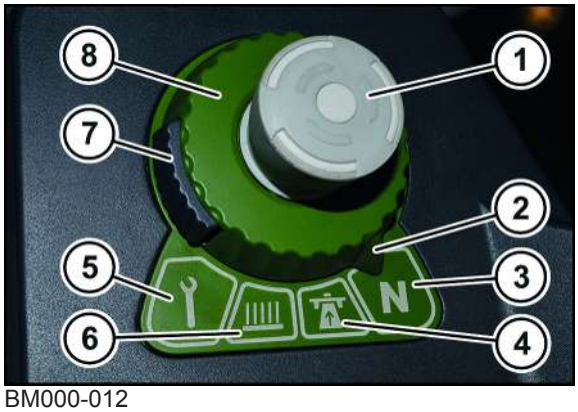
- The keys that can be used to select functions light up.
- The top left LED in each key flashes on and off or lights up when the selected function is executed.

The keys on the control lever are used to run machine functions. The keys are assigned either to sensing mode, step mode or 2-stage operation. Depending on the particular key operating mode involved, there are 2 methods of running the machine functions:

- Sensing mode: The function is activated and completely run by tapping the key. The function is not stopped by releasing the key.
- Step mode: The function is run for as long as the key is pressed.

Pos.	Designation	Explanation
1	Release button for "Mowing units and drives"	Release for: • Fold in/down mowing units • Switch on drives (Sensing mode)
2	Not assigned.	
3	"Switch on all drives" key	Switch on all drives. (Sensing mode)
4	"Switch off all drives" key	Switch off all drives. (Sensing mode)
5	"Switch on left drive" key	Switch on left drive. (Sensing mode)
6	"Switch off left drive" key	Switch off left drive. (Sensing mode)
7	"Switch on front drive" key	Switch on front drive (Sensing mode)
8	"Switch off front drive" key	Switch off front drive (Sensing mode)
9	"Switch on right drive" key	Switch on right drive. (Sensing mode)
10	"Switch off right drive" key	Switch off right drive. (Sensing mode)
11	"Increase diesel engine speed" key	Increases the speed of the diesel engine. (Step mode)
12	"Reduce diesel engine speed" key	Reduces the speed of the diesel engine. (Step mode)
13	"Diesel engine speed" key	Switches between saved speed of the diesel engine and idle speed of the diesel engine (sensing mode).
14	"M-Power/Eco-Power" key	Switches between Eco-Power mode and M-Power mode (Sensing mode)
15	"Parking brake" key	• Applies the parking brake. (Sensing mode) • Releases the parking brake. (Sensing mode)
16	"Traction control system" key	Changes between TC I (low slip) and TC II (increased slip) and OFF. (Sensing mode)
17	"Raise front and rear axle" key	Raises front and rear axle. (Step mode)
18	"Lower front and rear axle" key	Lowers front and rear axle. (Step mode)
19	"Fold down side guard" key	Folds down side guard. (Sensing mode)
20	"Fold up side guard" key	Folds up side guard. (Sensing mode)
21	"Open left swath hood" key	Opens left swath hood. (Sensing mode)
22	"Close left swath hood" key	Closes left swath hood. (Sensing mode)
23	"Open right swath hood" key	Opens right swath hood. (Sensing mode)
24	"Close right swath hood" key	Closes right swath hood. (Sensing mode)

6.8 Main mode switch



BM000-012

The Main Mode Switch (8) is used to select the operating mode of the machine.

Pos.	Designation	Explanation
1	Quick-stop switch	Stops the working functions. The diesel engine continues running.
2	Main Mode Switch tip	Indicates the selected operating mode.
3	"Neutral mode" switch position	Selects neutral mode.
4	"Road mode" switch position	Selects road mode.
5	"Field mode" switch position	Selects field mode.
6	"Maintenance mode" switch position	Selects maintenance mode.
7	Main Mode Switch unlocking device	Pressed unlocking device releases the rotary switch.
		Released unlocking device locks the rotary switch.
8	Main Mode Switch	Selects the operating mode of the machine.

To select an operating mode with the Main Mode Switch (8):

- ▶ Press and hold down the unlocking device (7) on the Main Mode Switch (8) and simultaneously turn the Main Mode Switch (8) to the required operating mode.
- ➡ The tip (2) indicates the selected operating mode.

To stop the working functions in an emergency:

- ▶ Press the quick-stop switch (1).

To release the working functions again:

- ▶ Unlock the quick-stop switch (1) by slightly turning it clockwise.

6.9 Quick-stop switch

BXG000-006

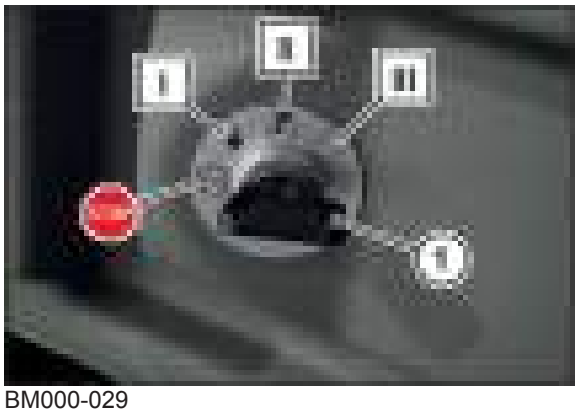
The quick-stop switch (1) in the cabin is used to stop the working functions of the machine. The diesel engine continues running.

- ▶ To actuate it, press down the quick-stop switch (1) until it locks into position.
- ➡ The working functions are stopped. The switch is locked.

BXG000-058

- ▶ To release it, turn the quick-stop switch (1) clockwise until the home position is reached.
- ➡ The working functions are activated. The switch is released.

6.10 Ignition lock



BM000-029

The ignition key (1) can be turned to 4 different positions in the ignition lock:

Pos.	Explanation
STOP	The circuit is interrupted.
I	The circuit for the electronics is switched on.
II	The ignition is switched on
III	Start position

6.11 Automatic climate control

6.11.1 Overview of automatic climate control

The driver can use the automatic climate control operation unit to operate the air conditioning and heating system of the cabin.

> ***INFORMATION***
>
> If the power supply to the control unit of the automatic climate control is interrupted, the control unit performs a self test after power is restored. After the self test is complete, the last setting to be saved appears.

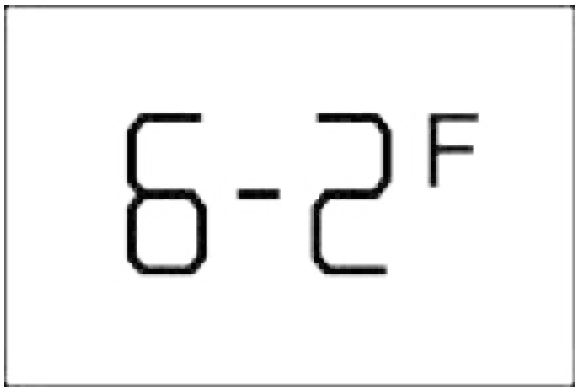
BX000-140

Pos.	Designation	Explanation
1	Air conditioning mode key	Switches air conditioning mode on/off.
2	Plus key	In automatic mode: Increases the value for the required cabin temperature. In manual mode: Increases the rotational speed of the evaporator fan.
3	Icon for the cabin	Indicates the air flow in the cabin in REHEAT mode.
4	Air conditioning mode icon	Air conditioning mode has been switched on.
5	REHEAT mode icon	REHEAT mode has been switched on.
6	Temperature unit	Indicates the temperature unit of the setpoint value of the cabin temperature in °C or °F.
7	REHEAT key	Switches REHEAT mode (dehumidifying cabin air) on/off.
8	Shift key for temperature units	Switches between temperature units °Celsius/ °Fahrenheit (key covered)
9	Shift key for operating mode	Automatically/manually switches between rotational speed of the evaporator fan.
10	Numeric display	Indicates the setpoint value of the cabin temperature or the error code.
11	Manual fan mode icon	Appears in manual fan mode.
12	Bar icon for the rotational speed of the evaporator fan	Indicates the rotational speed of the evaporator fan in manual mode.
13	Fully automatic mode icon	Fully automatic mode has been switched on.
14	Minus key	In automatic mode: Reduces the value for the required cabin temperature. In manual mode: Reduces the rotational speed of the evaporator fan.
15	Control unit on/off key	Switches the control unit on/off.

6.11.2 Switching on automatic climate control

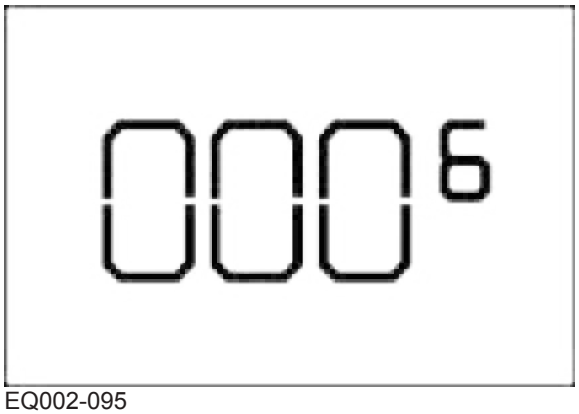
▶ To switch on automatic climate control, press  .

When the automatic climate control has been switched on, the control unit performs a self test. The software version is displayed for approx. 5 seconds.



EQ002-096

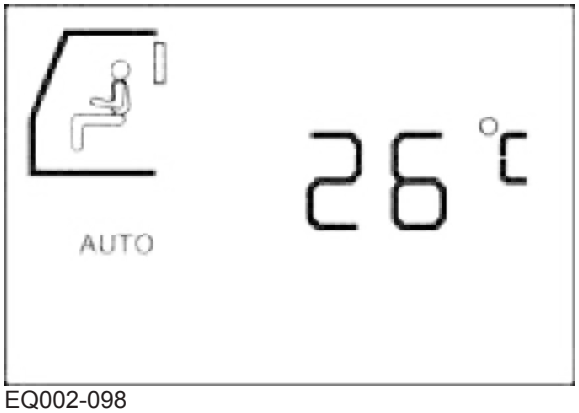
Then the operating hours of the air conditioning are displayed for 5 seconds (e.g. 6 operating hours).



EQ002-095

Then the last saved setting appears in the display.

6.11.3 Setting cabin temperature



EQ002-098

The display shows the following information:

- The current cabin temperature in °C.
- That the control unit is in automatic mode (AUTO).

▶ To change the cabin temperature, gradually press or until the required value is shown on the display.