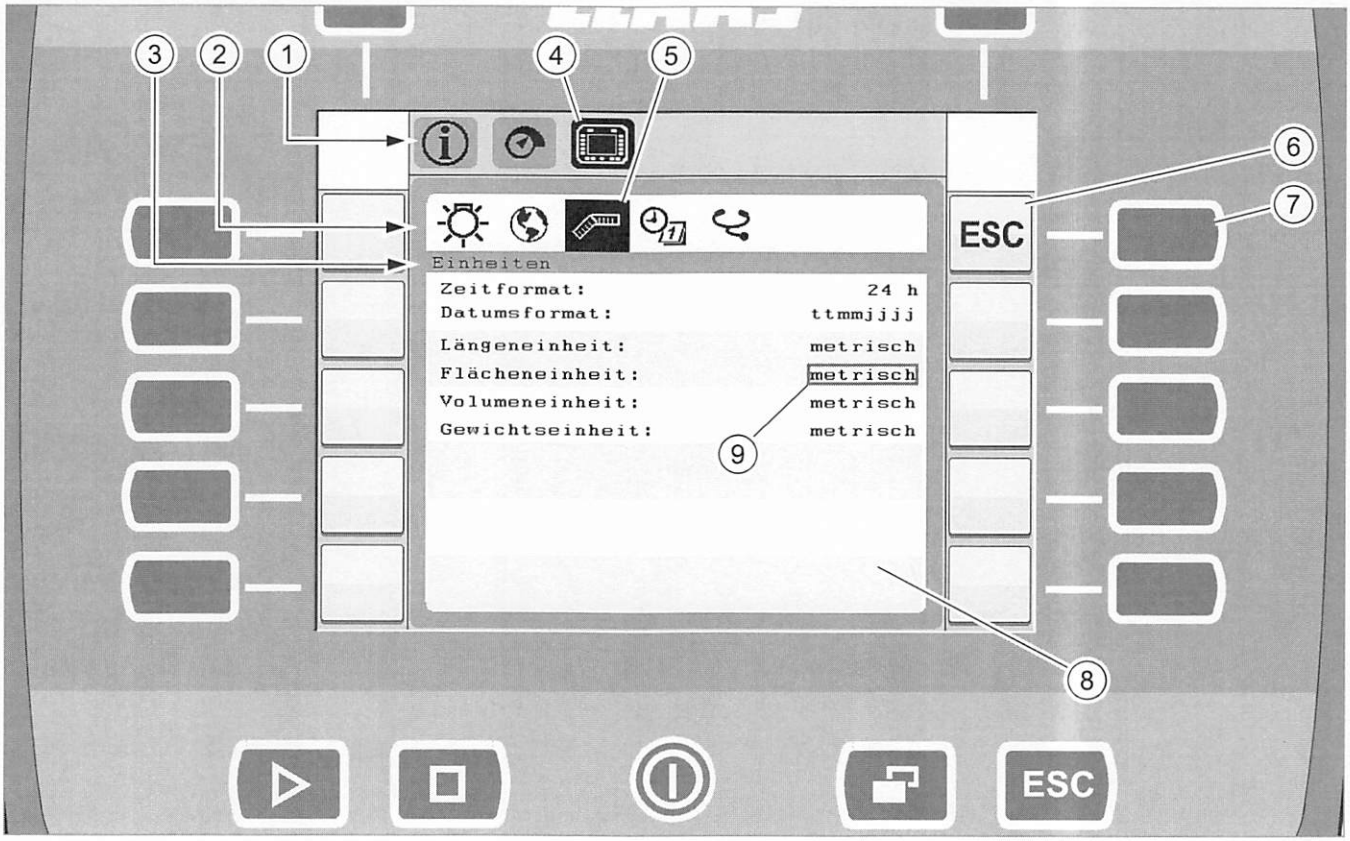
4.1.2 Terminal program



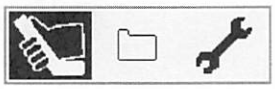
165351-001 **56**

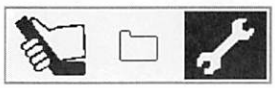
	Designation	Operation
1	Main menu	Select a submenu.
2	Sub-menu	Select a menu item.
3	Title line	Show the name of the selected menu item.
4	Selected menu item in the main menu	Shows the associated submenu.
5	Selected menu item in the submenu	Shows the associated data field and softkeys.
6	Softkey	Shows the function of the function key (7).
7	Function key	Function depends on the softkey shown (6).
8	Data field	Shows current information relating to selected menu item.
9	Item frame	In the data field, frames an item that is to be selected or changed.

4.1.3 Main menu - "Information"

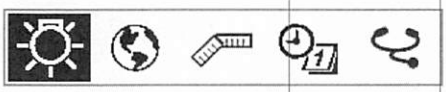
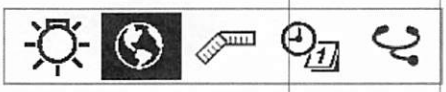
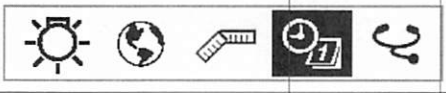
Sub-menu	Softkey	Operation
		No menu items available ISOBUS logo shown

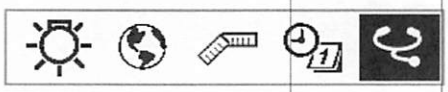
4.1.4 Main menu - "Settings"

Sub-menu	Softkey	Operation
		"Function key settings" menu item Assign "Auxiliary" functions (if available) to programmable keys. Page 95
		storing the key assignment.
		Show key assignment.
	ESC	Return to submenu, return to main menu.
		"Settings for working set" menu item Show available memory, memory in use and software version. Set application that is first shown when switching on (favourite). Delete application. Page 96
		Set favourite application.
		Delete selected application.
		Page application up.
		Page application down.
	ESC	Return to main menu.

Sub-menu	Softkey	Operation
		"Service settings" menu item Show ECU address and ECU name. Enable the tractor speed signal (e.g. for area calculation). Page 96
		Page application up.
		Page application down.
	ESC	Return to main menu.

4.1.5 Main menu - "Terminal settings"

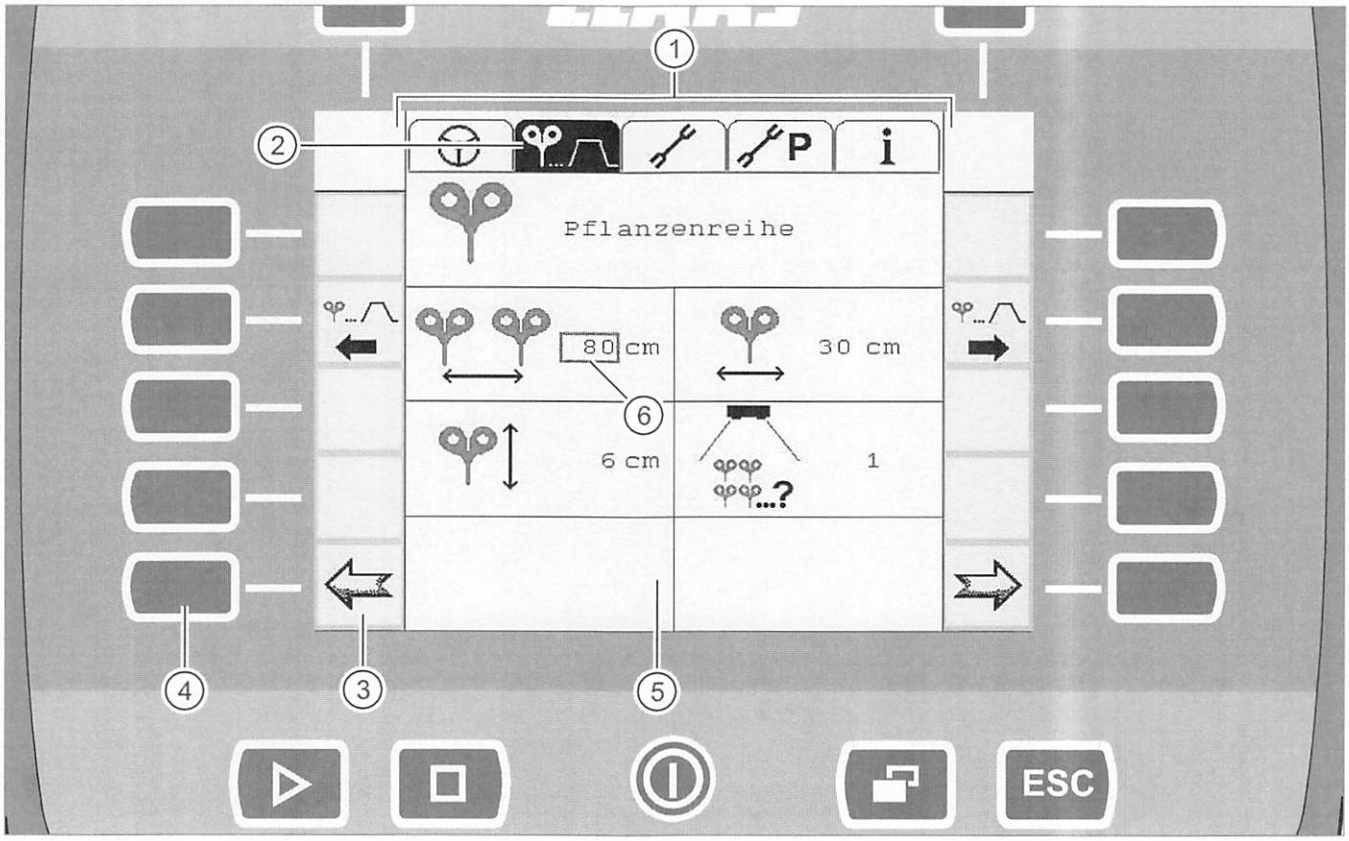
Sub-menu	Softkey	Operation
		"Brightness" menu item Set screen brightness and volume. Page 97
	ESC	Cancel current input, return to submenu, return to main menu.
		"Language" menu item Set language. Page 98
	ESC	Return to submenu, return to main menu.
		"Units" menu item Set display format for date and time. Set measuring unit for distances, areas, volume and mass. Page 99
	ESC	Return to submenu, return to main menu.
		"Time" menu item Set date and time. Page 100
	ESC	Cancel current input, return to submenu, return to main menu.

Sub-menu	Softkey	Operation
		"Info" menu item Display COMMUNICATOR II software version. Page 101
	ESC	Return to main menu.

4.2 CULTI CAM

158865-001

4.2.1 CULTI CAM application



181310-001 **57**

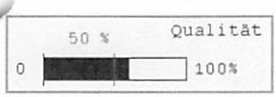
	Designation	Function
1	Menu cards	Selection of a menu card.
2	Selected menu card	Shows the associated data field and softkeys.
3	Softkey	Shows the function of function keys (4).
4	Function key	The function depends on the displayed softkey (3).
5	Data field	Shows the current information of the selected menu item.
6	Position frame	Frames a position in the data field for selection or editing.

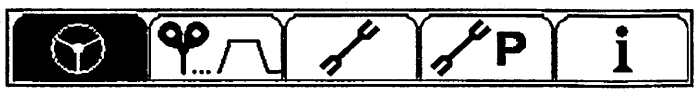
4.2.2 Menu cards

Menu card	Designation	Function
	Automatic control Page 107	• Activates and deactivates the automatic control. • Lateral offset of the implement. • Sets the right / left offset. • Display of camera signal quality. • Display of status and fault messages.
	Setting an application Page 103	• Select the application. - Row of plants - Multiple row • Set the parameters for this application.
	General settings Page 102	• Height of camera. • Angle of camera. • Light On / Off. • Sound On / Off. • Dual offset On / Off.
	Extended settings Page 81	• Calibration menu
	Information Page 67	• Information about software versions of camera and of UBM.

158908-001

4.2.3 "Automatic control" menu card

Display	Softkey	Function
		Lateral offset of the implement. Page 108
		Right/left offset Page 109
		Signal quality of camera with threshold value. Page 107

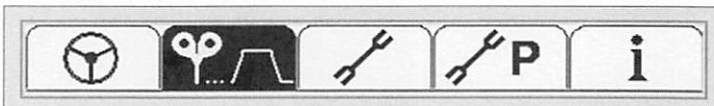


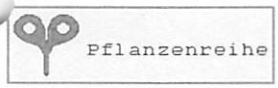
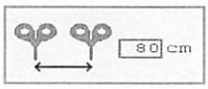
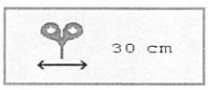
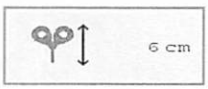
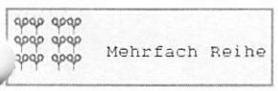
Display	Softkey	Function
		No connection with camera. Page 111
		No connection with the steering angle sensor. Page 111
		Symbol of the currently selected application (plant row). Page 103
		Symbol of the currently selected application (multiple row). Page 105
		Tractor is driving too slowly. Page 111
		Tractor is driving too fast. Page 111
		Implement is raised. Page 107
		Implement is lowered (working position). Page 107
		Automatic control is active. Page 107
		Activate automatic control. Page 107
		Deactivate automatic control. Page 108
		Implement in centre position. Page 108
		Shift implement to the left. Page 108
		Shift implement to the right. Page 108
		Shift offset to the left. Page 109

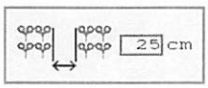
Display	Softkey	Function
		Shift offset to the right. Page 109
		Xenon light On / Off. Page 110
		Dual offset On / Off. Page 109
		Menu card back.
		Menu card forward.

158907-001

4.2.4 "Application settings" menu card

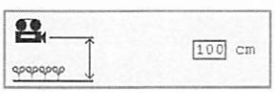
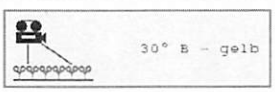
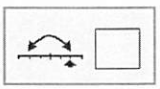


Display	Softkey	Function
		Plant rows application. Page 103
		Spacing between the plant rows.
		Plant width
		Plant height
		Number of plant rows per track / in the visible range of camera.
		Multiple row application Page 105

Display	Softkey	Function
		Spacing between the multiple rows.
		Spacing in the multiple rows.
		Number of plant rows in the multiple rows.
		Next applications. Page 103
		Previous applications. Page 103
		Menu card back.
		Menu card forward.

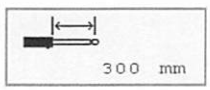
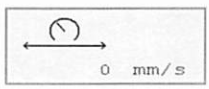
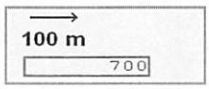
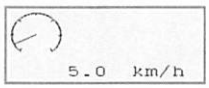
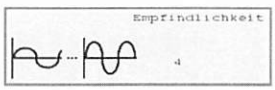
158914-001

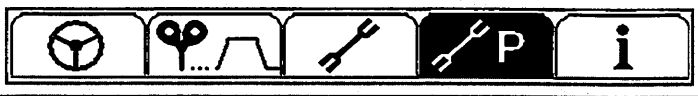
4.2.5 "General settings" menu card

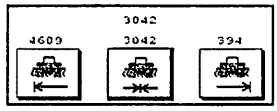
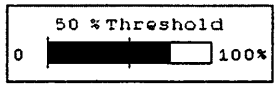
Display	Softkey	Function / description
		Height of camera. Page 75
		Angle of camera. Page 77
		Activate Xenon lights. Page 102
		Activate "Dual offset" function. Page 102
		Sound On / Off. Page 102

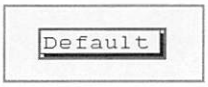
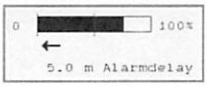
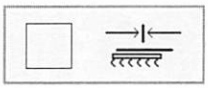
Display	Softkey	Function / description
		Menu card back.
		Menu card forward.

4.2.6 "Extended settings" menu card

Menu code	Display	Softkey	Function / description
1977			Calibration menu. Page 81
			Display of maximum deflection width in mm. Page 84
			Display of steering rate in mm/s. Page 82
			Pulses of travel speed sensor per 100 m. Page 81
			Travel speed
			Sensitivity of control unit. Page 85
			Shift implement to the left.
		Esc	Cancel calibration step and reject changes.
			Reduce control unit sensitivity.
			Menu card back.



Menu code	Display	Softkey	Function / description
			Turn to next page of calibration menu.
			Shift implement to the right.
		Start 100 m	Start 100 metres calibration.
		STOP 100 m	Stop 100 metres calibration.
			Increase control unit sensitivity.
			Menu card forward.
			Setting values of steering angle sensor (left stop, right stop, center position, current value). Page 82
			Signal quality threshold value Page 86
			Shift implement to the left.
		Esc	Cancel calibration step and reject changes.
			Menu card back.
			Shift implement to the right.
		Start	Start camera calibration.
		Stop	Stop camera calibration.
			Menu card forward.
1969			Extended calibration menu Page 87
			Selected application

Menu code	Display	Softkey	Function / description
			Restore factory settings Page 88
			Alarm delay upon signal loss Page 88
			Simulation speed Page 89
			Invert position switch. Page 89
			Automatic centring upon signal loss. Page 90
			Single camera mode
			Activate wheel control
			Menu card back
			Twin camera mode
			Activate parallel frame
			Menu card forward

4.2.7 "Information" menu card

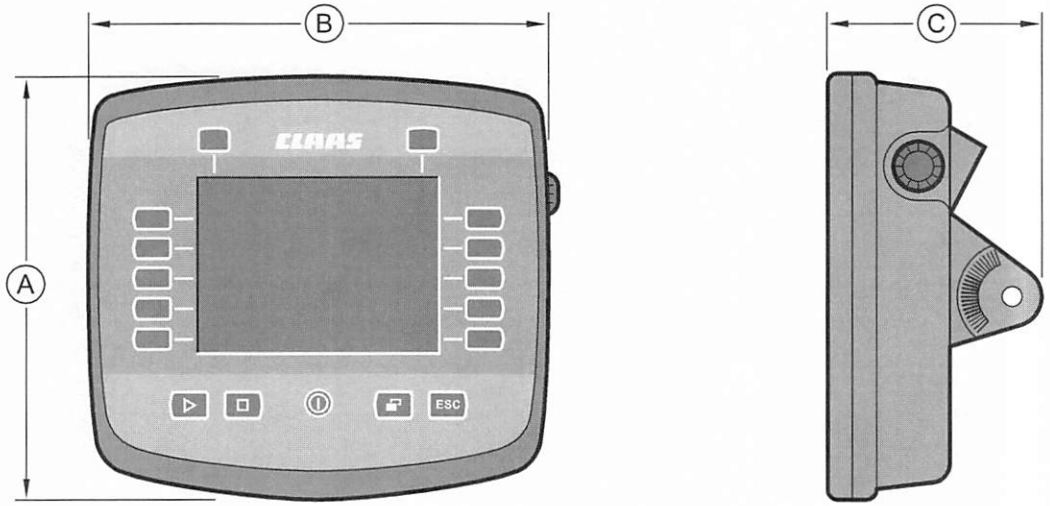
Display	Softkey	Function
Vision-Software: V03.00.01 CAM		Software version of camera. Page 70
Module-Software: V02.08.03 CME		Software version of UBM module. Page 70
		Menu card back.
		Menu card forward.

5 Technical specifications

5.1 COMMUNICATOR II

150974-001

5.1.1 Specification



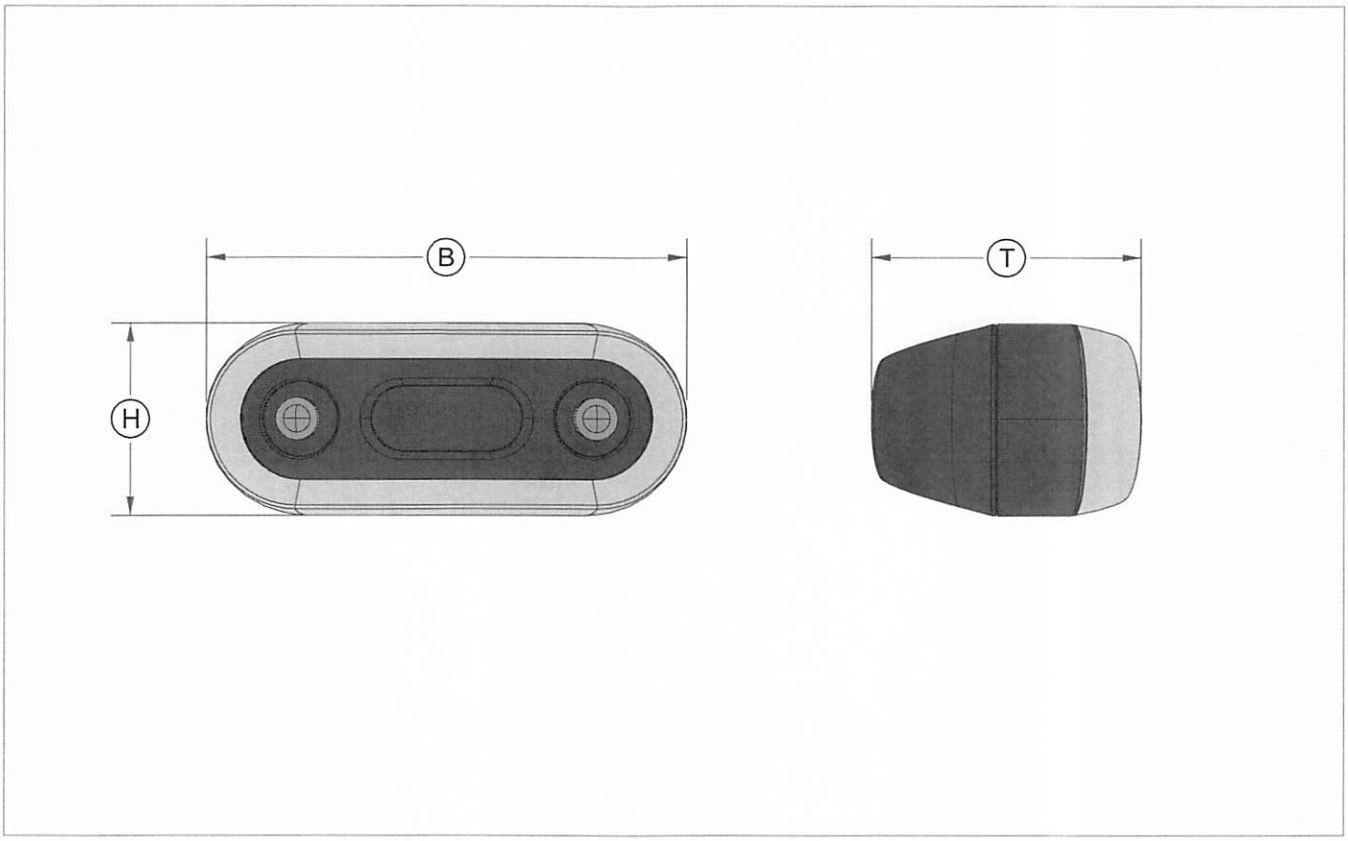
167789-001 **58**

	Designation		
A	Height	210	mm
B	Width	220	mm
C	Depth	95	mm
	Weight	1.3	kg
	Protection class	IP64	
	Operating temperature	-20 to +70	°C
	Storage temperature	-30 to +80	°C
	Monitor	TFT colour display	
	Screen diagonal	14,5	cm
	Screen resolution	640 x 480	Pixels
	Operating voltage	8 - 30	V
	Power consumption	max. 0.6	A
		max. 7	W

5.2 CULTI CAM

158933-001

5.2.1 Specification

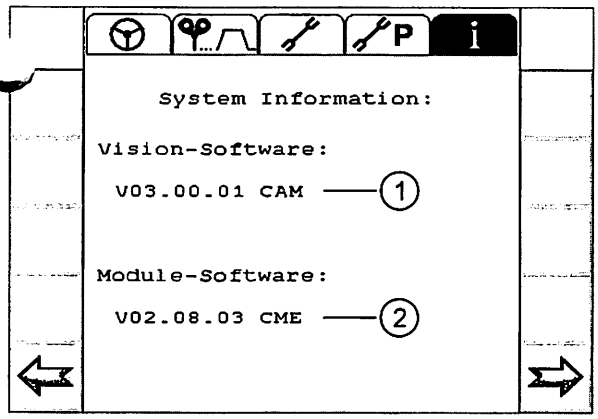


181597-001 **59**

	Designation		
B	Width	190	mm
H	Height	80	mm
T	Depth	100	mm
	Weight	0.99	kg
	Protection category	IP6k9k	DIN 40050-9
	Operating temperature	-40 - +85	°C
	Storage temperature	-40 - +85	°C
	Supply voltage	8 - 30	V
	Current consumption	max. 0.8	A
		max. 6	W

5.2.2 Software version

The versions of the currently installed software can be found in the information menu.



184608-001

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– Select the information menu.

The camera software version (1) and the UBM software version (2) are displayed.

921-002

6 Preparing the product

6.1 General Information

162391-001

6.1.1 General warnings

The following sections of this chapter contain instructions referring to the following general warning information.

98215-001

DANGER!

Carry out any repair, maintenance and cleaning work and remove any problems only with the machine stopped.

Death or serious injuries!

- Diesel engine OFF.
- Apply the parking brake.
- Remove the ignition key.
- Remove the key of the battery isolating switch.
- Secure the machine with wheel chocks.
- Ensure that the machine cannot be put into operation by third parties.

3810-001

DANGER!

Persons are in the driving range of the machine.

Death or serious injury.

- Before and while driving, ensure that there are no persons or objects in the driving range.
- Do not carry any persons outside of the cab.

51138-001

DANGER!

Persons in the steering / hazard area of the machine.

Death or serious injuries!

- Before and during all adjustment work, ensure that there are no persons in the steering / hazard area.

6.1.2 Turning off and securing the machine

	Activity	
☐	Stop the machine.	
☐	Apply the parking brake.	
☐	Turn off the diesel engine.	
☐	Secure machine against rolling away.	
☐	Remove the ignition key and carry it with you.	
☐	Remove the battery isolating switch and carry it along.	
☐	Keep a safe distance from machine parts that continue rotating.	
☐	Wait for all moving machine parts to come to a complete halt.	
☐	Keep unauthorised persons and children at a safe distance.	
☐	Observe the items relating to "Turning off and securing the machine" in the Operator's Manual of the machine.	

6.2 Prior to operation

151705-001

6.2.1 Before commissioning

	Activity to be carried out	
☐	Carry out installation as per fitting instructions.	Page 74
☐	Start the terminal.	Page 93
☐	Calibrate the CULTI CAM.	Page 81
☐	Carry out maintenance work according to the maintenance intervals.	Page 115
☐	Set the steering rate.	Page 81
☐	Carry out all required items according to the check list every time before putting the machine into operation.	Page 73

151682-001

6.2.2 Every time before putting into operation

	Activity to be carried out	
☐	Carry out maintenance work according to the maintenance intervals.	Page 115
☐	Start the terminal.	Page 93
☐	Adjust the camera.	Page 74
☐	Install and adjust Xenon light* if required.	Page 80
☐	Set the application.	Page 103

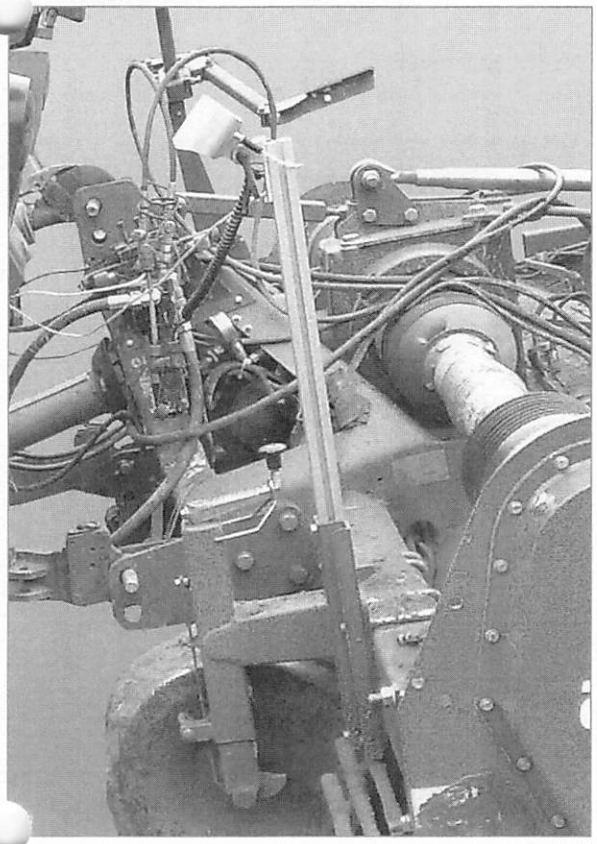
6.3 Mounting

159470-001

6.3.1 Camera

The camera must be fitted on the implement so that it has free view to the ground. It must always be installed in direction of travel. To adjust the camera height and the camera angle, see the respective chapters in this Operator's ManualPage 74.

This figure shows an installation example.



182818-001

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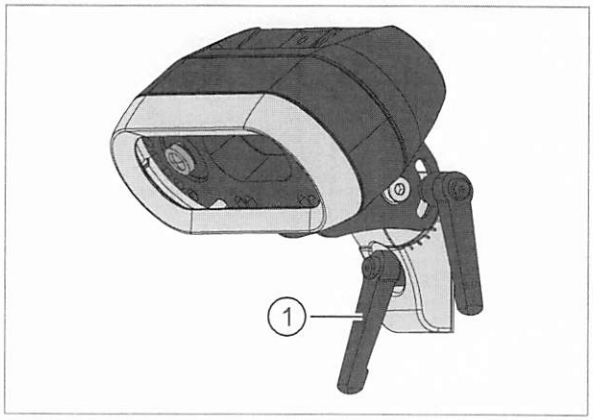
159978-002

6.3.2 Adjusting the camera position

The camera position must be found as a compromise between row distance, number of rows and plant size. Hence, the following factors influence the camera performance.

Influencing factors	Description
Number of rows	The more rows the camera is looking at, the less susceptible the system is against weeds and missing plants. The more rows the camera is to look at, the higher the camera position has to be to have the plants in the field of view of the camera.
Camera height	The higher the camera is placed, the harder it is for the camera to see the plants. Therefore, with small plants the camera should always be kept in the lowest possible position. Starting at a plant diameter of 10 cm, you can raise the camera height to 120 cm - 200 cm in order to detect as many rows as possible and therefore to increase the performance.

Influencing factors	Description
Camera angle	Larger camera angles ensure more even operation. However, in winding or hilly terrain, a larger camera angle gives reduced performance. In case that the camera is in very low positions it might be an advantage using a bigger angle in order to increase the field of view.
Position above the rows	Selecting an even number of rows (2 or 4) the camera must be placed in the middle of the rows. When selecting an uneven number of rows (1, 3 or 5), the camera must be placed straight above the centre row.



182004-001

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Adjusting the camera height

The camera height influences the signal quality Page 107. Camera height is measured between the ground and the camera centre.

- Slacken off toggle bolt (1).
- Adjust the camera height to suit the application and the conditions.
- Bolt down toggle bolt (1).

The camera height is now set.

Camera height setting values

The values shown in the following tables are recommended settings for the camera height. The height of the camera must always be adapted to the field and operating conditions.

Plant row and multiple row

Setting values for plant heights from 0 to 15 cm. Camera angle 30° (yellow mark).

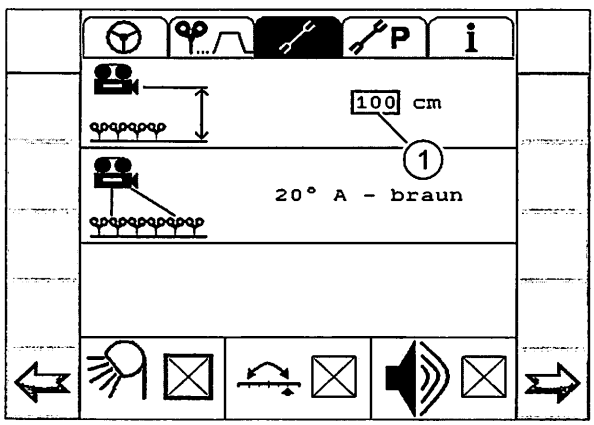
Number of rows	Row spacing [cm]	Camera height [cm]
2	25	60
2	50	80
2	75	100
3	25	80
3	50	120
3	75	160
4	25	100
4	50	160
5	25	120

Setting values for plant heights from 15 to 35 cm. Camera angle 30° (yellow mark).

Number of rows	Row spacing [cm]	Min. camera height [cm]
2	25	100
2	50	100
2	75	120
3	25	120
3	50	140
3	75	180
4	25	120
4	50	180
5	25	140

Setting values for plant heights from 35 to 55 cm. Camera angle 30° (yellow mark).

Number of rows	Row spacing [cm]	Min. camera height [cm]
2	25	120
2	50	120
2	75	140
3	25	120
3	50	160
3	75	200
4	25	140
4	50	200
5	25	160



181998-001

Detecting the camera height

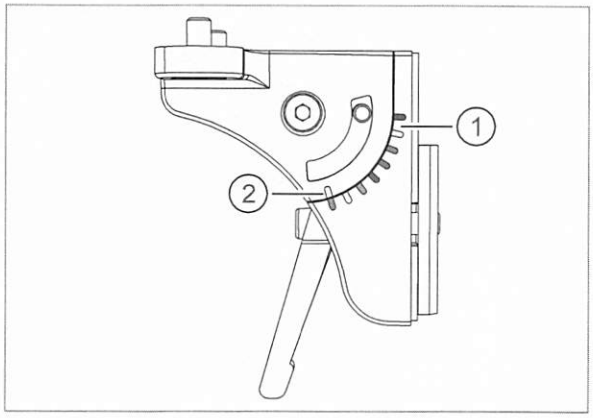
The detected camera height must exactly match the actual camera height.

The camera height is measured between the ground and the camera centre.

- Measure the camera height.

- Select the General settings.
- Turn the rotary control until the "Camera height" setting (1) is selected.
- Press the rotary control.
- Turn the rotary control until the set camera height is displayed.
- Press the rotary control.

The camera height is now detected.



188567-001

64

Adjusting the camera angle

It is recommended to adjust a camera angle of 30°. When the camera is fitted at a very low position, it is useful to select a larger angle.

Colour marks (1) are provided on the camera bracket to make adjustment of the camera angle easier. Mark (2) shows the current angle.

Camera angle	Colour mark
20°	Brown
30°	Yellow
40°	Red
50°	Green
60°	Blue
70°	Orange
80°	White
90°	Magenta

The camera angle influences the signal quality Page 107.

182005-001

65

- Slacken off toggle bolt (1).
- Adjust the camera angle to suit the application and the conditions.
- Bolt down toggle bolt (1).

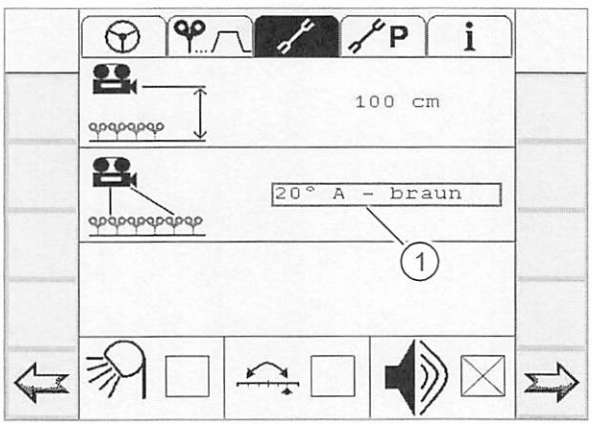
The camera angle is now adjusted.

Detecting the camera angle

The detected camera angle must match the actual camera angle.

The camera angle is measured between the vertical and the viewing direction of the camera.

- Read the camera angle on the scale of the camera bracket.

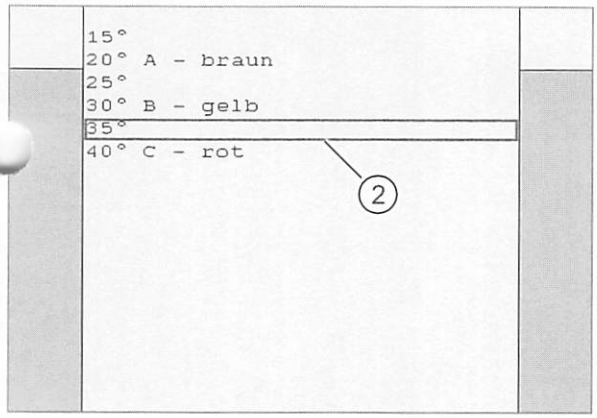


181999-001

66

- Select the General settings.
- Turn the rotary control until the "Camera angle" setting (1) is selected.
- Press the rotary control.

The camera angle select list appears on the screen.



184297-001

921-002

- Turn the rotary control until the adjusted camera angle is marked (2).
- Press the rotary control.

The camera angle is now detected.

67

159471-001

6.3.3 Operation and output

127633-001

DANGER!

Installation of additional controls and displays.

Restricted field of view.

- Comply with the field of view prescribed in the legal provisions in force in the relevant country (Germany: Regulations Authorizing the Use of Vehicles for Road Traffic).

16028-002

DANGER!

Welding, boring, sawing or grinding on load-bearing components.

Death or serious injury due to deformation, cracks or breakage of cab, safety frame or joining elements.

- Do not perform any welding, drilling, cutting and grinding work on the cab, the safety frame or joining devices.
- Observe the fitting and safety precautions of the machine and implement manufacturer.
- Have damaged components replaced.

COMMUNICATOR II

The driver must be able to reach the terminal while driving and make settings and corrections. The fitting position must be adapted to the vehicle in question.

Monitor

The driver must be able to keep the monitor in the field of view while driving to enable reactions to deviations. The fitting position must be adapted to the vehicle in question.

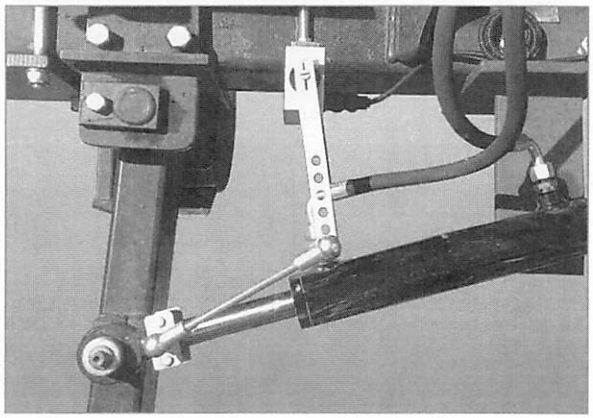
159472-002

6.3.4 Electronics

Sensors

The **steering angle sensor** must be fitted so that one end is fastened to a rigid part of the implement and the other end to a shiftable part.

The figure shows a possible installation of the steering angle sensor on the implement.



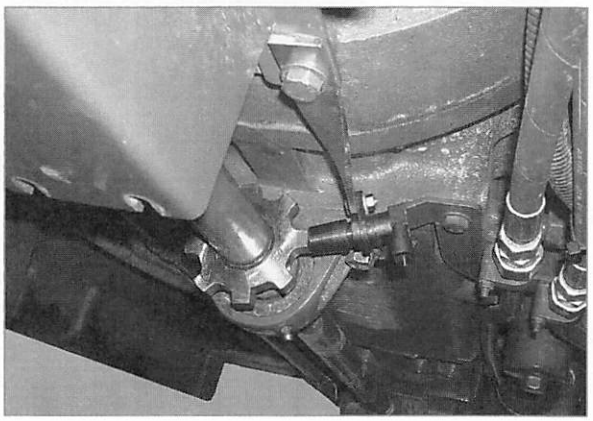
182663-001

68

The **travel speed sensor** counts the pulses triggered by the teeth of the cam switch. To this end, the cam switch must be fitted to a rotating part (axle).

The clearance between sensor and cam switch must be roughly 2.5 mm.

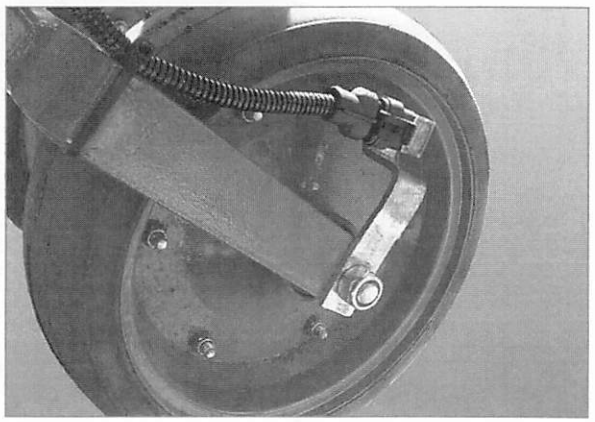
The figure shows a possible installation of the travel speed sensor on the implement.



182695-001

69

The figure shows another possible installation of the travel speed sensor on the implement. Here the wheel bolts substitute the usual cam switches.



182696-001

70

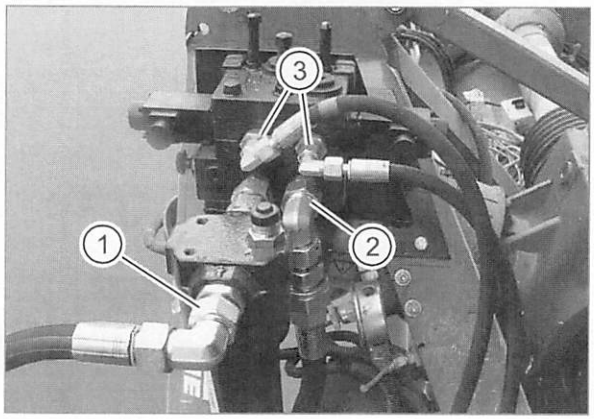
The **"Working position switch"** must be fitted so that it is actuated with the implement lowered (in working position).

UBM module

The UBM module must be fitted to the implement.

159473-001

6.3.5 Hydraulic system



182814-001

71

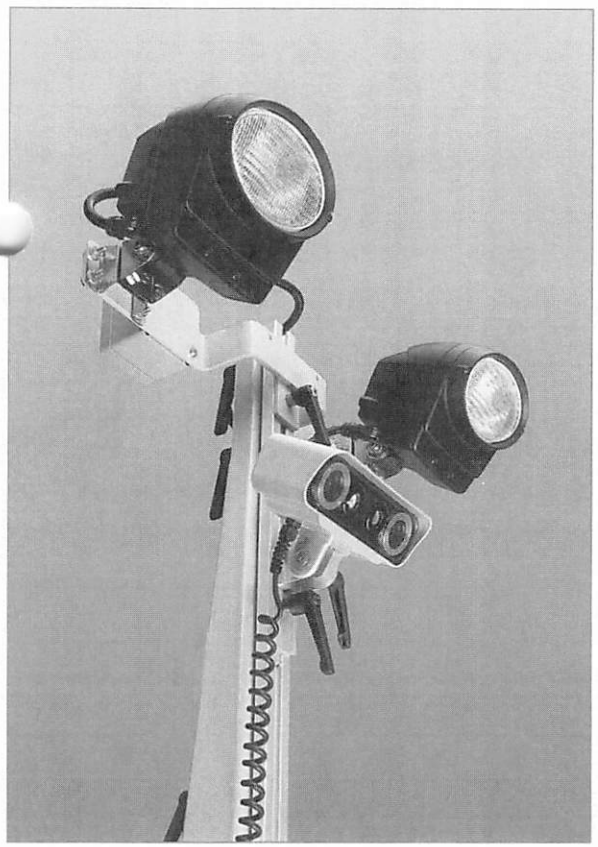
The steering valve is fitted on the implement. In this process, the fitting position must be adapted to suit the implement in question.

This figure shows an installation example.

The hydraulic system pressure connection (1) and the tank line (2) must be connected with the relevant tractor connections. The outgoing lines (3) must be connected with the hydraulic cylinder controlling the implement position.

159539-001

6.3.6 Xenon light



182826-001

72

The Xenon light must be fitted and aligned so that the area viewed by the camera is illuminated.

This figure shows an installation example.

6.4 CULTI CAM

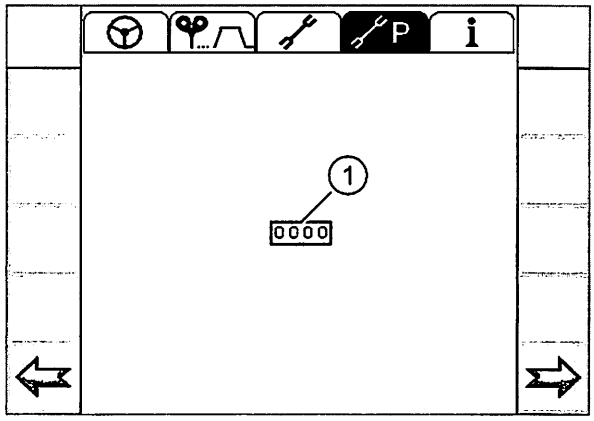
159287-001

6.4.1 Preparing calibration

Pre-conditions:

- Machine engine started.
- Terminal switched on.
- CULTI CAM started.

Have this work carried out by an authorised specialist workshop only.



182095-001

73

– Select extended settings.

The calibration menu is protected by code 1977.

– Press the rotary control.
– Turn the rotary control until code 1977 appears in the input field (1).
– Press the rotary control.

The calibration menu is now open.

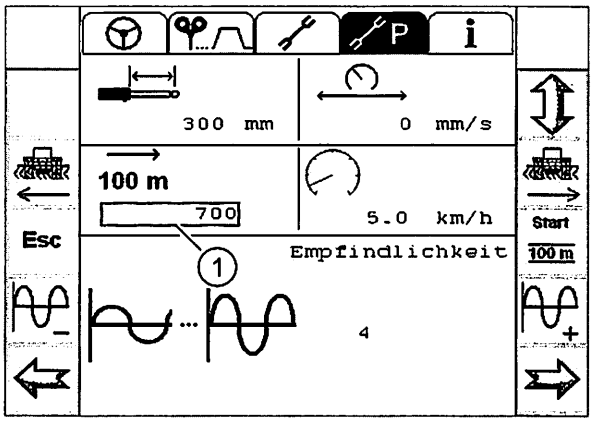
159060-002

6.4.2 Perform calibration

– Observe the safety information and the warnings at the beginning of this chapter Page 71.

Calibration of travel speed sensor

The travel speed is calibrated over a distance of 100 m.



182072-001

74

– Measure a distance of 100 m as precisely as possible.
– Approach the starting point of the 100 m distance.
– Turn the rotary control until the calibration run field (1) is selected.

– Press the key and cover the 100 m distance.

– Stop as exactly as possible after 100 m.

– Press the key.

The counted value is stored.

If the distance was not covered precisely enough:

– Press the key.

The measured value is reset and the calibration run can be repeated.

Entering the value manually

If the value of the number of pulses is known, it can also be entered manually.

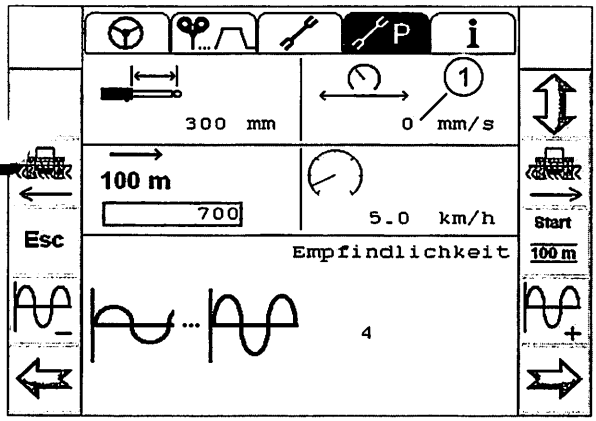
- Turn the rotary control until the calibration run field (1) is selected.
- Press the rotary control.
- Turn the rotary control until the known value is set.
- Press the rotary control.

The value is now stored.

Testing the control unit

Pre-conditions:

- Machine engine started.
- Terminal switched on.
- CULTI CAM started.
- Calibration menu open.
- Calibration complete.



182092-001

To test the control unit function, the implement must be moved in one direction.

– Press the key.

The implement shifts to the left.

If the implement moves to the right:

– Exchange the valve connectors.
Page 22

Alternative:

– Press the key.

The implement shifts to the right.

If the implement moves to the left:

– Exchange the valve connectors.
Page 22

Calibration of steering angle sensor

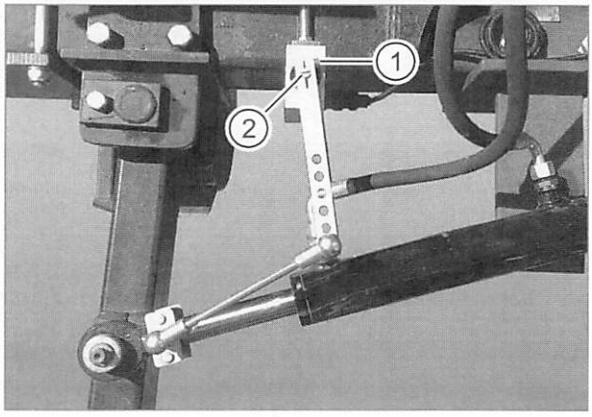
Pre-conditions:

- Two persons are required.

The steering angle sensor calibration can be found on page 2 of the menu.

– Press the key.

Page 2 of the calibration menu is displayed.

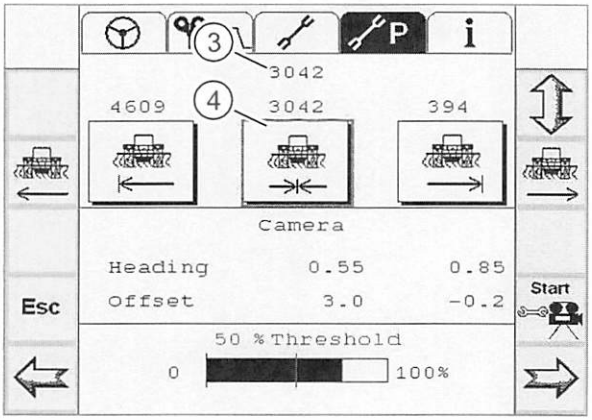


182281-001

- Move the implement to the centre position.
- Slacken off bolt (1).
- Turn potentiometer (2) until the steering angle calibration field (3) displays the value **2495** as precisely as possible.
- Tighten bolt (1).
- Turn the rotary control until centre position (4) is selected.
- Press the rotary control.

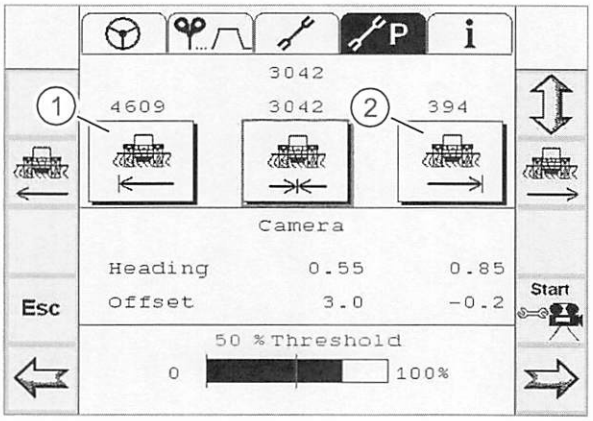
The displayed value is saved as centre position.

76



182073-001

77



182074-001

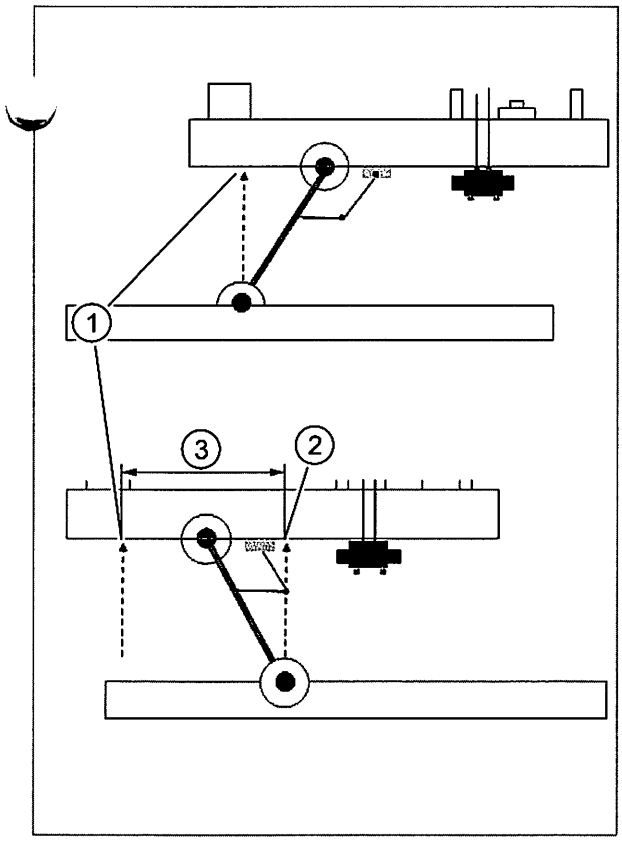
78

- Press the key repeatedly until the implement reaches the left end stop.
- Turn the rotary control until left end stop (1) is selected.
- Press the rotary control.

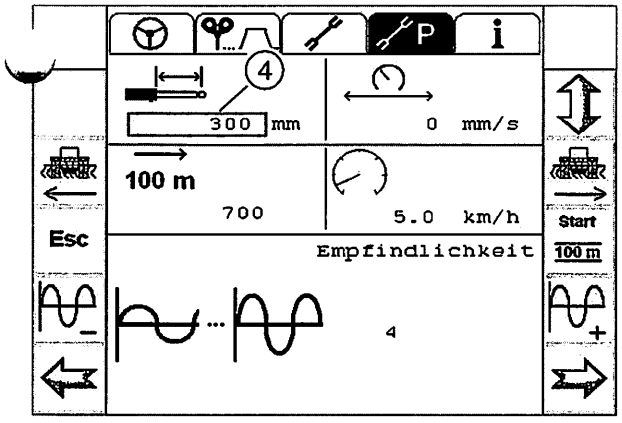
The displayed value is saved as the left end position.

- Press the key repeatedly until the implement reaches the right end stop.
- Turn the rotary control until right end stop (2) is selected.
- Press the rotary control.

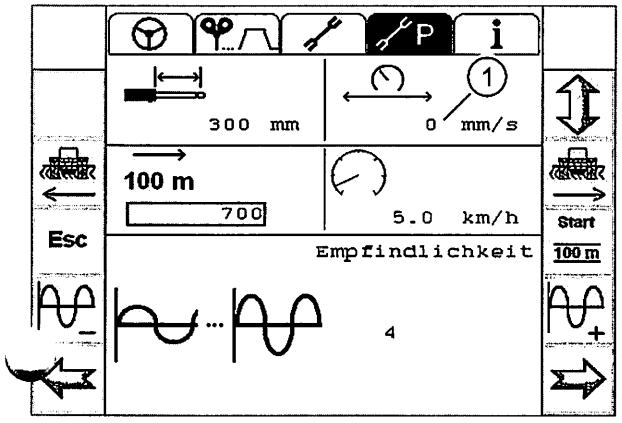
The displayed value is saved as the right end position.



182079-001



182076-001



182092-001

Calibration of maximum deflection

First of all, the maximum deflection width of the implement must be measured.

– Press the key repeatedly until the implement reaches the left end stop.

– Mark one point (1) of the slewing implement at a non-moving part or on the ground.

– Press the key repeatedly until the implement reaches the right end stop.

– Mark one point (2) of the slewing implement at a non-moving part or on the ground.
– Measure the distance between the two marked points (3).

The measured value must be entered in the calibration menu:

– Turn the rotary control until maximum deflection width (4) is selected.
– Press the rotary control.
– Turn the rotary control until the measured value is set.
– Press the rotary control.

79 *The entered value is stored.*

In the ex-works condition, a maximum deflection of 300 mm is pre-set.

80

Adjusting the steering rate

– Press the key repeatedly until the implement reaches the left end stop.

– Press the key repeatedly until the implement reaches the right end stop.

The steering rate can be read on the display (1) of the terminal.

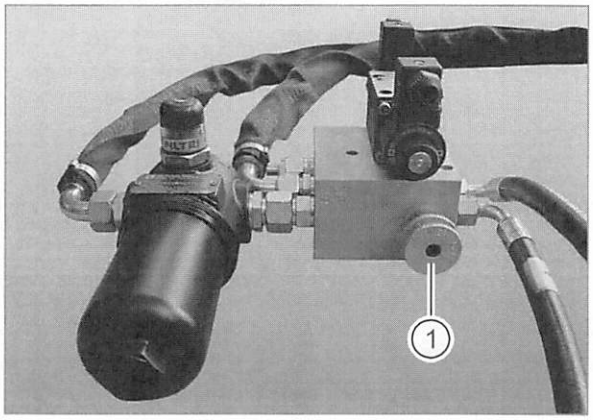
A steering rate of 35 to 55 mm/s is recommended.

81 The steering rate must be the same in both directions. Otherwise the steering accuracy is influenced negatively.

If the steering rate is too fast or too slow, it can be adapted by changing the flow rate of the hydraulic valve.

Increasing the flow rate leads to more acute steering corrections and reduced track errors. If the flow rate is too high this leads to instability of steering adjustment and major errors.

Reducing the flow rate leads to more stable steering corrections and gentler responses. If the flow rate is too low the steering adjustment becomes more sluggish and major track errors occur.



184616-001

82

Adjusting wheel (1) is positioned on the steering valve.

- Pull adjusting wheel (1) until it disengages.
- If the steering rate is to become faster, turn adjusting wheel (1) anti-clockwise.
- If the steering rate is to become slower, turn adjusting wheel (1) clockwise.
- Press adjusting wheel (1) until it engages.
- Check the steering rate once again.

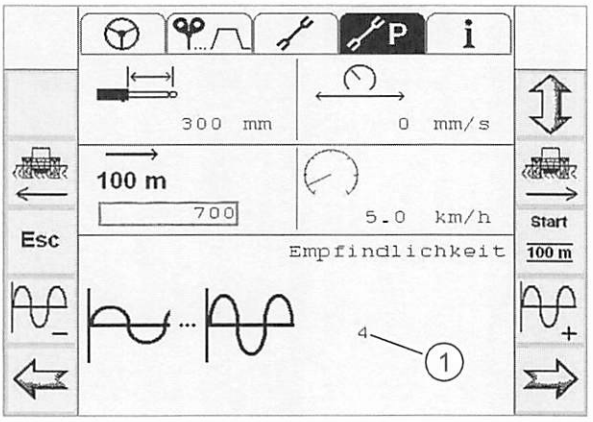
The steering rate is properly set.

Sensitivity

The sensitivity sets how fast or slow the control unit responds.

- 1-2 very low sensitivity (control system responds very slowly).
- 9-10 high sensitivity (control system responds very quickly).

The default value is 4.



182075-001

83

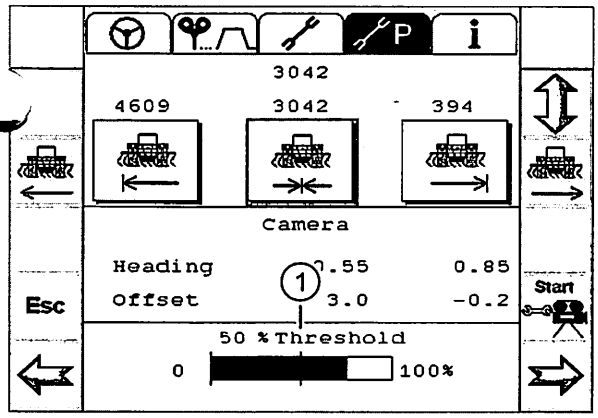
To increase the sensitivity value:

– Press key several times until the desired value (1) is displayed.

To reduce the sensitivity value:

– Press key several times until the desired value (1) is displayed.

The set value is now stored.



182404-001

Setting the threshold value

When the signal quality drops below the threshold value, the implement control unit stops operating. The threshold value can be set manually.

- Turn the rotary control until threshold value (1) is selected.
- Press the rotary control.
- Turn the rotary control until the desired threshold value is displayed.
- Press the rotary control.

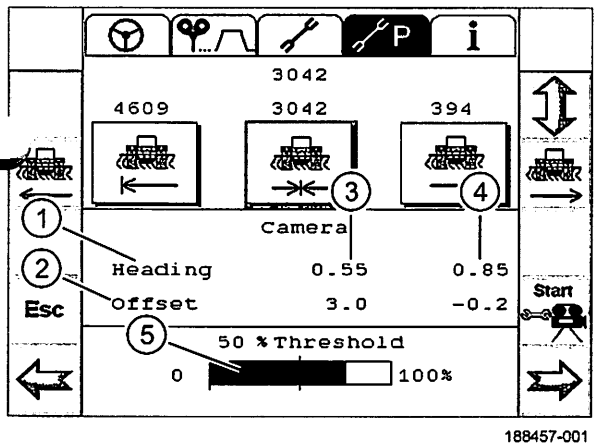
The set threshold value is now stored.

84 A small threshold value may result in poor performance. Use a threshold value below 50 % only for small plants (height below 10 cm) and a clearly identifiable row structure. Page 28

Calibration of camera

Pre-conditions:

- Appropriate application settings made.
- Camera height set.
- Camera angle set.



188457-001

Values in the "Heading" line (1) indicate a twist of the camera relative to the plant rows (6).

Values in the "Offset" line (2) indicate an offset of the camera relative to the plant rows (7).

Column (3) indicates the current values for "Heading" and "Offset". Column (4) shows the calibrated values.

Performing the camera calibration

In the workshop ("Plant row" application):

- Lay out the green hose straight and centred in front of the camera.

85 Or on the field (suitable application):

- Drive to the centre of the beginning of a plant row, track, etc.

The implement and the camera must be placed so that the values in column (3) are as low as possible.

In both cases, the procedure continues as follows:

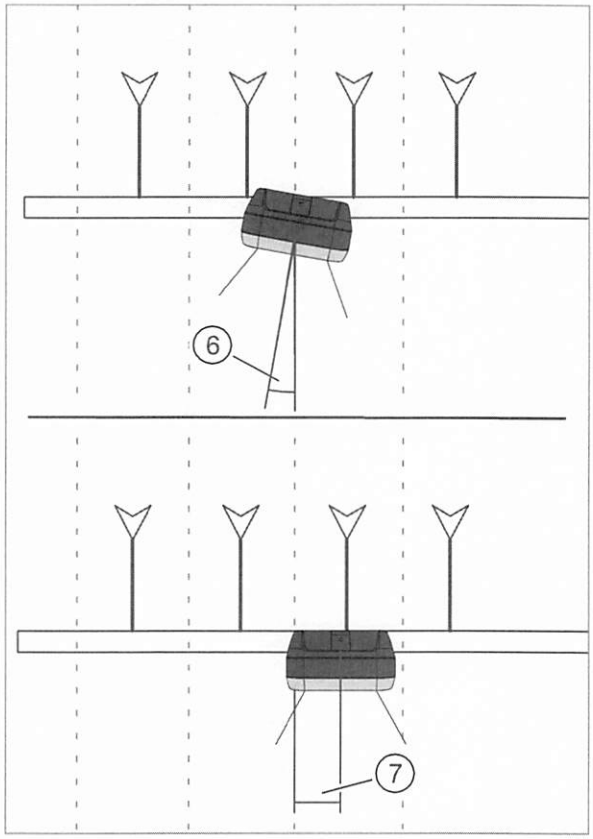
– Press the key.

The calibration menu extension is opened.

– Press the key.

Camera calibration starts.

During calibration, the signal quality (5) must be at least 80 %.



188472-001

86

Stop – After one minute: Press key.

Data from column (3) are saved and written in column (4).

If calibration was not successful:

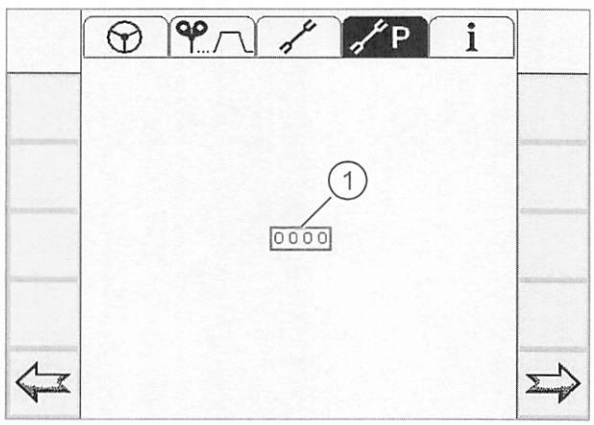
Esc – Press the key.

The measured value is reset. Calibration can start again.

161908-002

6.4.3 Extended calibration

– Observe the safety information and the warnings at the beginning of this chapter Page 71.



182095-001

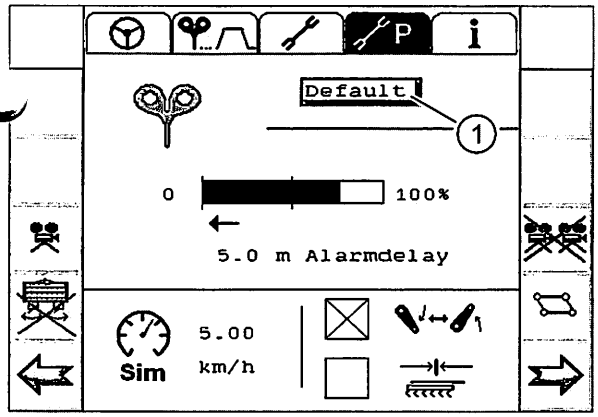
87

P – Select Extended settings.

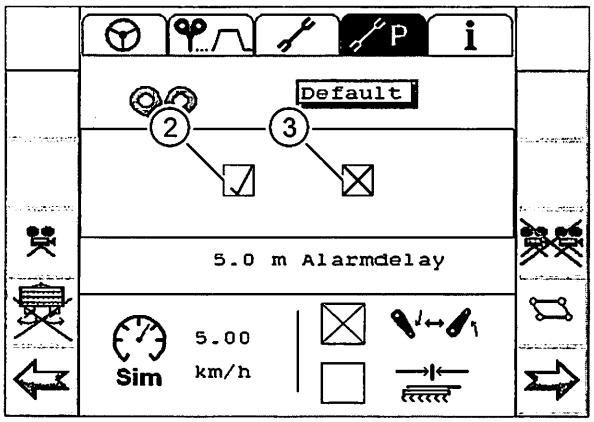
The calibration menu is protected by code 1969.

– Press the rotary control.
– Turn the rotary control until code 1969 appears in the input field (1).
– Press the rotary control.

The calibration menu is now open.



187827-001



187828-001

Factory settings

The settings in the "Application settings" menu can be reset to the factory settings.

- Turn the rotary control until the "Default" display (1) is framed.
- Press the rotary control.

The question for resetting the settings appears.

- Turn the rotary control.
  - To reset the settings, select box (2).
- Press the rotary control.

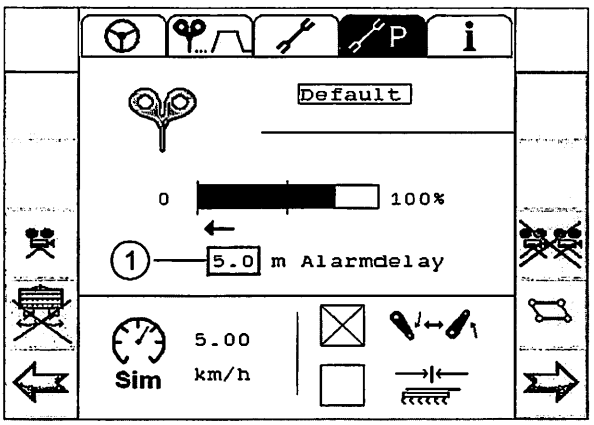
All settings of the CULTI CAM are reset to the factory settings.

88

- Turn the rotary control.
  - To maintain the settings, select box (3).
- Press the rotary control.

The process is cancelled. The settings are maintained.

89



187835-001

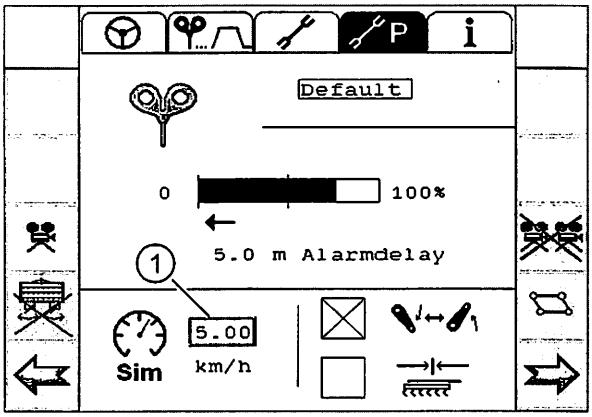
Alarm delay

Falling short of the signal quality threshold value is signalled by an alarm tone. The delay of the alarm tone can be adjusted. The delay is indicated in metres travelled.

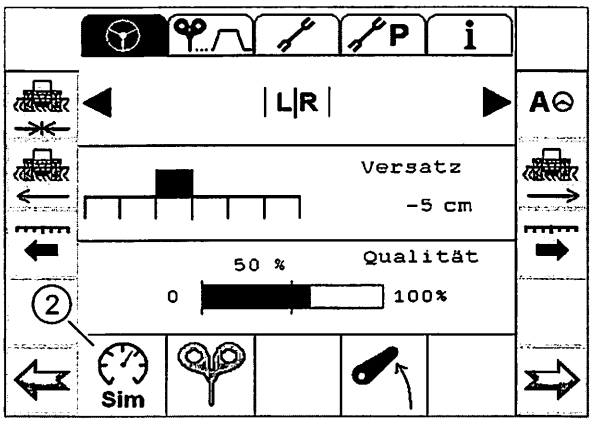
- Turn the rotary control until alarm delay (1) is selected.
- Press the rotary control.
- Turn the rotary control until the desired value is set.
- Press the rotary control.

The set value is accepted.

90



187837-001



187839-001

Simulation speed

A simulation speed can be set for testing and adjusting purposes.

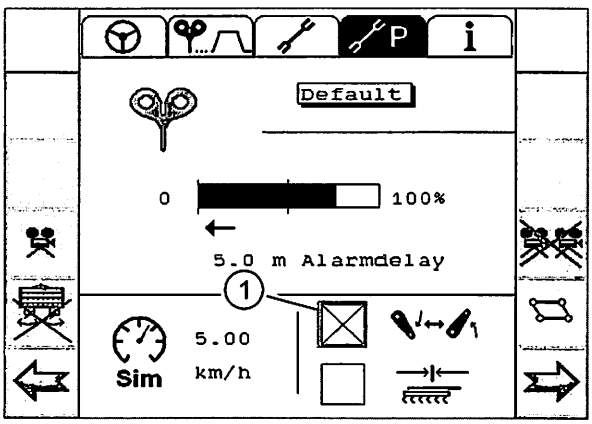
- Turn the rotary control until simulation speed (1) is selected.
- Press the rotary control.
- Turn the rotary control until the desired value is set.
- Press the rotary control.

The set value is accepted. Display (2) in the "Automatic control" menu signals that a simulation speed has been set.

91

You can work with the CULTI CAM only when no simulation speed is set. Set the simulation speed to the value "0" to switch it off.

92



187847-001

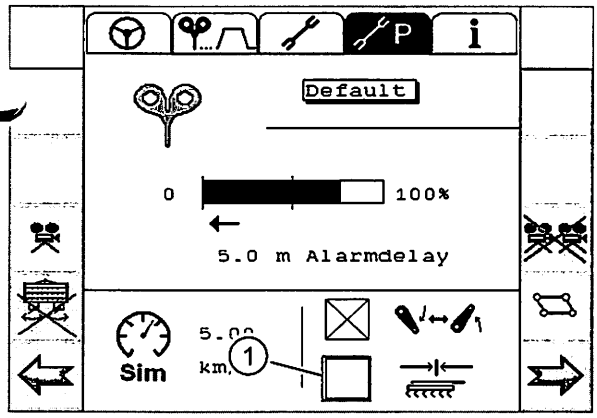
Inverting the position switch

Depending on the installation position of the position switch, this switch may have to be inverted.

- Turn the rotary control until box (1) is framed.
- Press the rotary control.

When inverting the position switch signal, a cross is displayed in box (1).

93



187848-001

Automatic centring

The automatic centring function indicates how the implement is controlled when the signal is lost.

- Turn the rotary control until box (1) is framed.
- Press the rotary control.

A cross in box (1) signals that automatic centring is activated.

94

It depends on the pre-set type of implement which action is carried out.

Implement on wheels and controlled by wheels:

- Press the key.

The red cross on the softkey is hidden.
If the automatic centring function is additionally activated, the hydraulic system sets the implement wheels to a straight-ahead position upon signal loss, the implement continues straight ahead.
When the automatic centring function is deactivated, the wheel remain in their last position upon signal loss.

When using such an implement, automatic centring must always be activated.

Implements controlled by a shifting frame:

- Press the key.

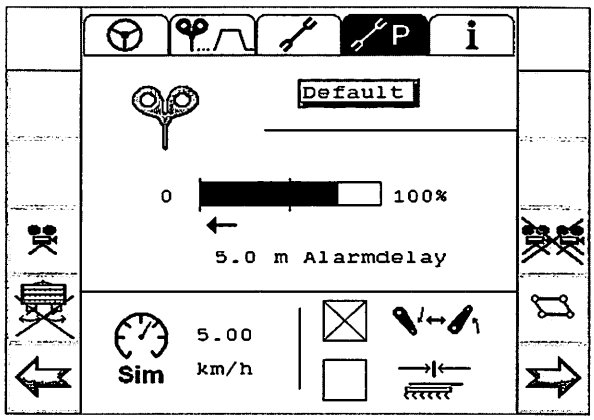
The red cross on the softkey is hidden.
When automatic centring is additionally activated, the hydraulic system automatically centres the implement behind the machine upon signal loss.
When automatic centring is deactivated, the implement remains in the last position upon signal loss.

When using such an implement, automatic centring must not be activated.

The table below shows in a simple manner how you have to set up your system.

Type of control	Automatic centring	
	ON	OFF

Wheels	X	
Shifting frame		X



187854-001

95

Twin-camera mode

Pressing this key changes over to twin-camera mode.

The use of a second camera is not planned. Always use the mode with only one camera:

– Press the key.

921-002

7 Operation

7.1 Driving on the road

162594-001

7.1.1 Road travel

159460-001

DANGER!

Operating the machine with the automatic control system.

Death or serious injury.

- Do not use the automatic control system for driving on roads.
- Prior to driving on the road, ensure that the system is deactivated.

7.2 Switching COMMUNICATOR II on/off

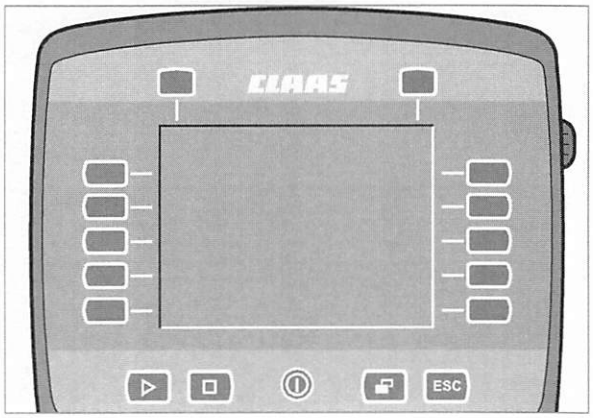
159332-001

7.2.1 Engaging COMMUNICATOR II

The terminal needs a power supply. When the tractor engine is stopped, the battery may be discharged.

– Start the tractor engine.

– Press the key.



166244-001

96

The "Loading data" message window appears under the following conditions:

- when putting the machine into operation for the first time;
- or if the application in the COMMUNICATOR II was deleted.

The ISOBUS application of the connected machine is loaded into the COMMUNICATOR II. The loading process may take some minutes. The COMMUNICATOR II can be operated during the loading process.

165442-001

97

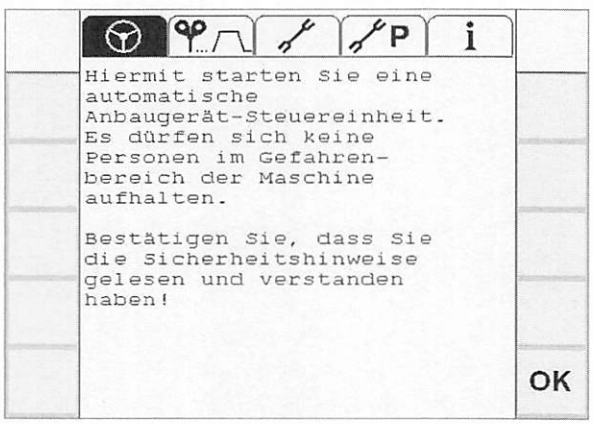
The start menu of the connected application is displayed.

The figure shows the CULTI CAM start screen.

– Read and observe the safety message on the terminal.

– Read and observe the safety instructions in this Operator's Manual.

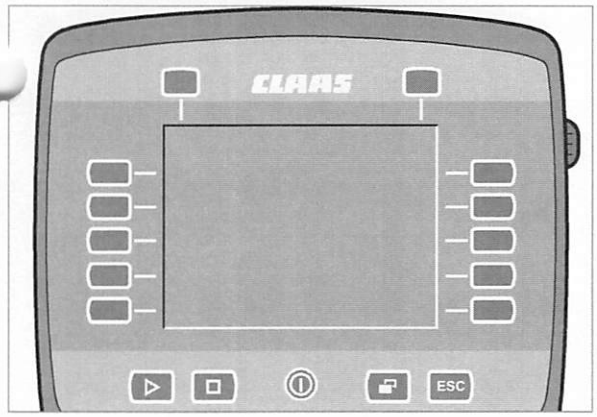
OK – Press a key when you have understood the safety message.



180422-001

98

7.2.2 Selecting an application

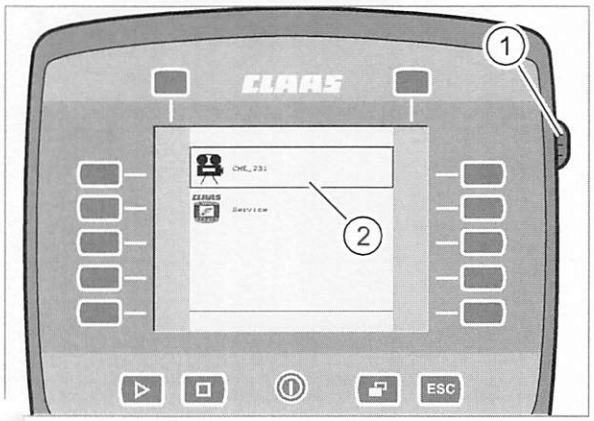


166244-001

99

ESC

– Press the key.
– Depending on the current situation:
  Press the key several times.



184278-001

100

The select list shows the CULTI CAM application and the service menu.

– Turn the select wheel (1) until the position frame (2) is around the desired application.

The position frame (2) relocates either up or down.

– Press the select wheel

The display changes to the selected application and shows the last selected menu item.

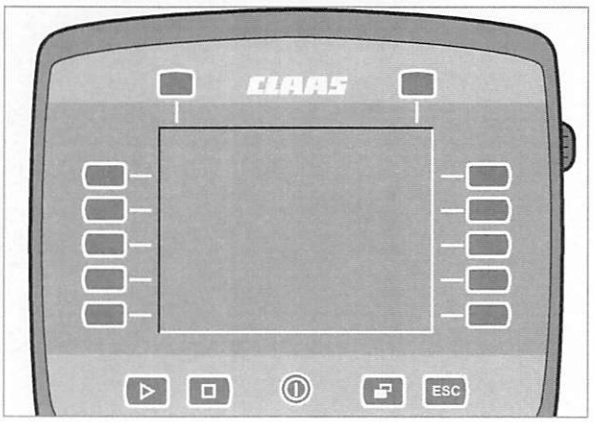
– Alternative:
  Press the key.

  Repeatedly pressing the key makes you go through all applications one after another.

The display changes to the next application in each case and shows the last selected menu item.

149721-001

7.2.3 Switching COMMUNICATOR II off



166244-001

101

149722-001

CAUTION!

Switching off the terminal during work.

All the machine's control functions fail.

– Never switch off the terminal during work.

– Press the key for approx. 2 seconds.

The screen darkens and then goes out.

If switched off for a prolonged period:

– Unplug COMMUNICATOR II.

7.3 Programmable COMMUNICATOR II keys

159378-001

7.3.1 Key assignment

The COMMUNICATOR II terminal offers the option to assign functions of the connected machines to programmable keys.

This function is not used by the CULTI CAM application and therefore not covered in this Operator's Manual.

Back to main menu:

ESC – Press the key.

The monitor screen is deleted. Return to main menu.

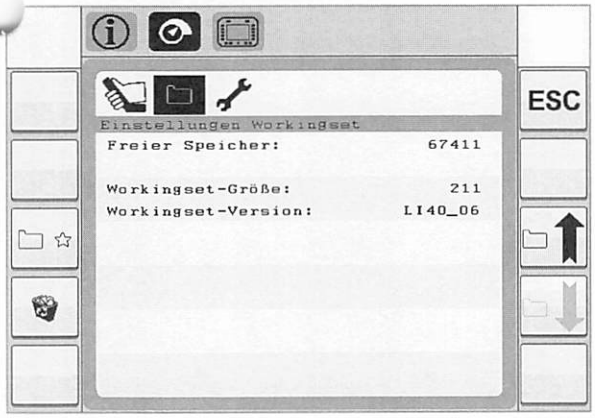
165867-001

102

7.4 COMMUNICATOR II ISOBUS settings

160261-001

7.4.1 Administration of applications



184291-001

103

The COMMUNICATOR II offers options for administration of several installed applications. Use of the CULTI CAM only requires one application, which is why some functions are not described in the present Operator's Manual.

Back to main menu:

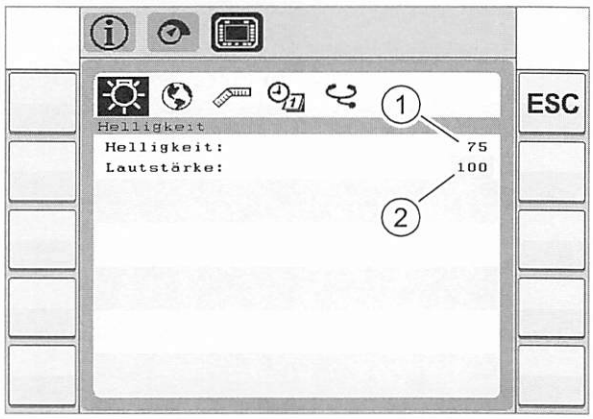
ESC – Press the key.

The monitor screen is deleted. Return to main menu.

7.5 COMMUNICATOR II terminal settings

150109-001

7.5.1 Setting the screen brightness/volume



166224-001

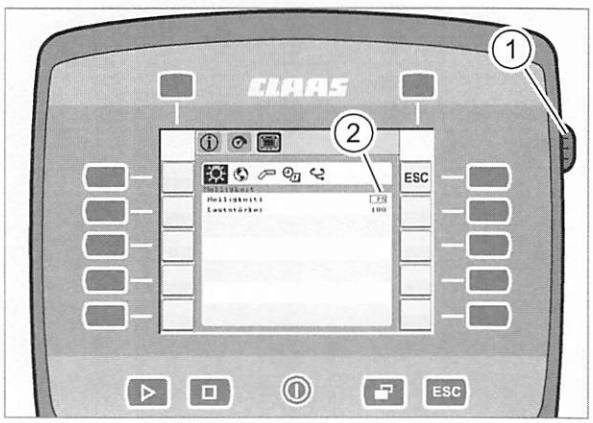
104

– Select menu item.

The screen shown here appears.

(1) = Brightness of the screen as a percentage

(2) = Volume of the loudspeaker as a percentage



166226-001

105

– Press the select wheel (1).

The item frame (2) appears.

– Turn the select wheel until the desired item is in the item frame.

The item frame moves up or down.

– Press the select wheel.

168108-001

106

The item frame (1) switches to red, and is around the last digit.

– Turn the select wheel.

The digit changes.

– Press the select wheel.

The red item frame moves to the next digit.

– Turn the select wheel.

The digit changes.

– Press the select wheel.

The red item frame moves to the next digit.

– Turn the select wheel.

The digit changes.

– Press the select wheel.

The item frame changes from red to grey. Numerical value is adopted.

Return to the submenu:

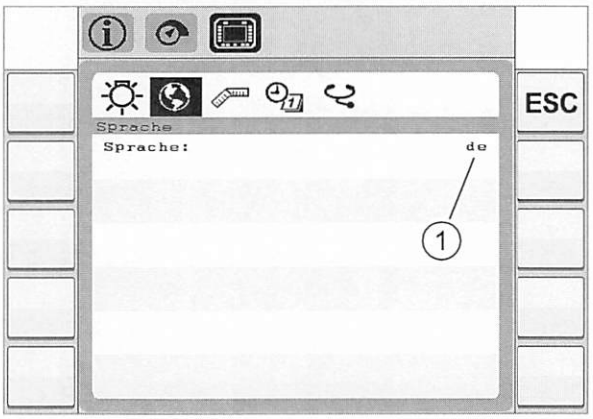
ESC – Press the button.

The item frame disappears. Returns to the submenu.

160843-001

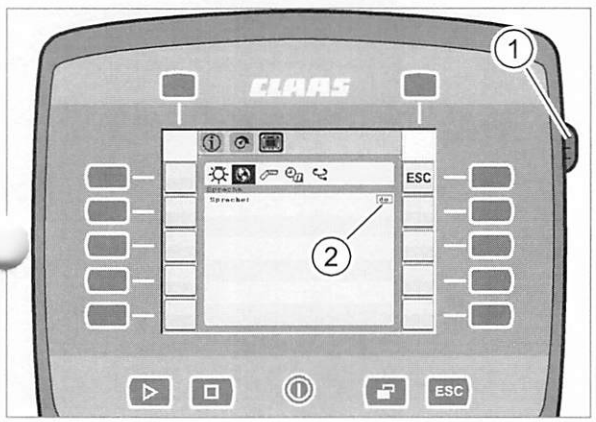
7.5.2 Setting the language

– Select a menu item.



166256-001

107



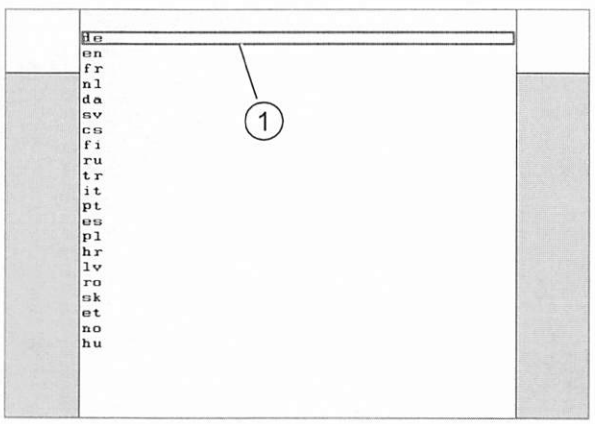
166814-001

108

– Press the select wheel (1).

The position frame (2) frames the language identification.

– Press the select wheel.



166820-001

109

The selection list shows the available languages.

The table below lists only languages supported by the CULTI CAM system. The terminal program supports further languages.

	Language
de	German
en	English
fr	French
nl	Dutch
da	Danish
sv	Swedish
cs	Czech

	Language
it	Italian
es	Spanish

– Turn the select wheel until the desired language is framed.

The position frame (1) moves either up or down.

– Press the select wheel

The selection list is closed.

The texts on the monitor are displayed in the set language.

Back to the sub-menu:

ESC – Press the key.

The position frame is hidden. Back to the sub-menu.

7.5.3 Setting the display formats

– Select menu item.

The screen shown here appears.

166263-001

110

– Press the select wheel (1).

The item frame (2) appears.

– Turn the select wheel until the desired item is in the item frame.

The item frame moves up or down.

– Press the select wheel.

Selection list showing the display formats available appears.

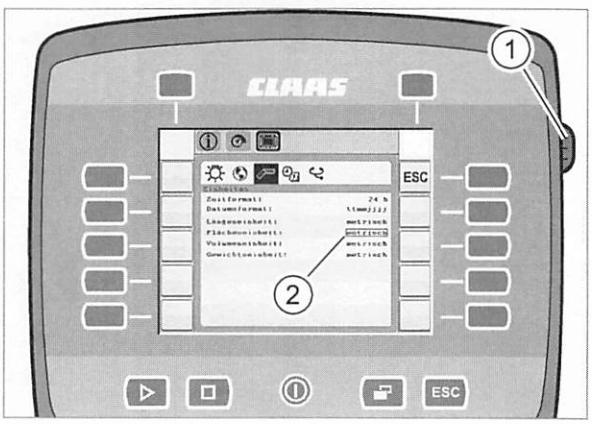
– Turn the selection wheel until the desired display format is highlighted.

The item frame moves up or down within the selection list.

– Press the select wheel.

The selection list closes.

The selected display format is applied.



166265-001

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