

Short Instructions Loading and Driving BunkerMaus 5

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ROPA

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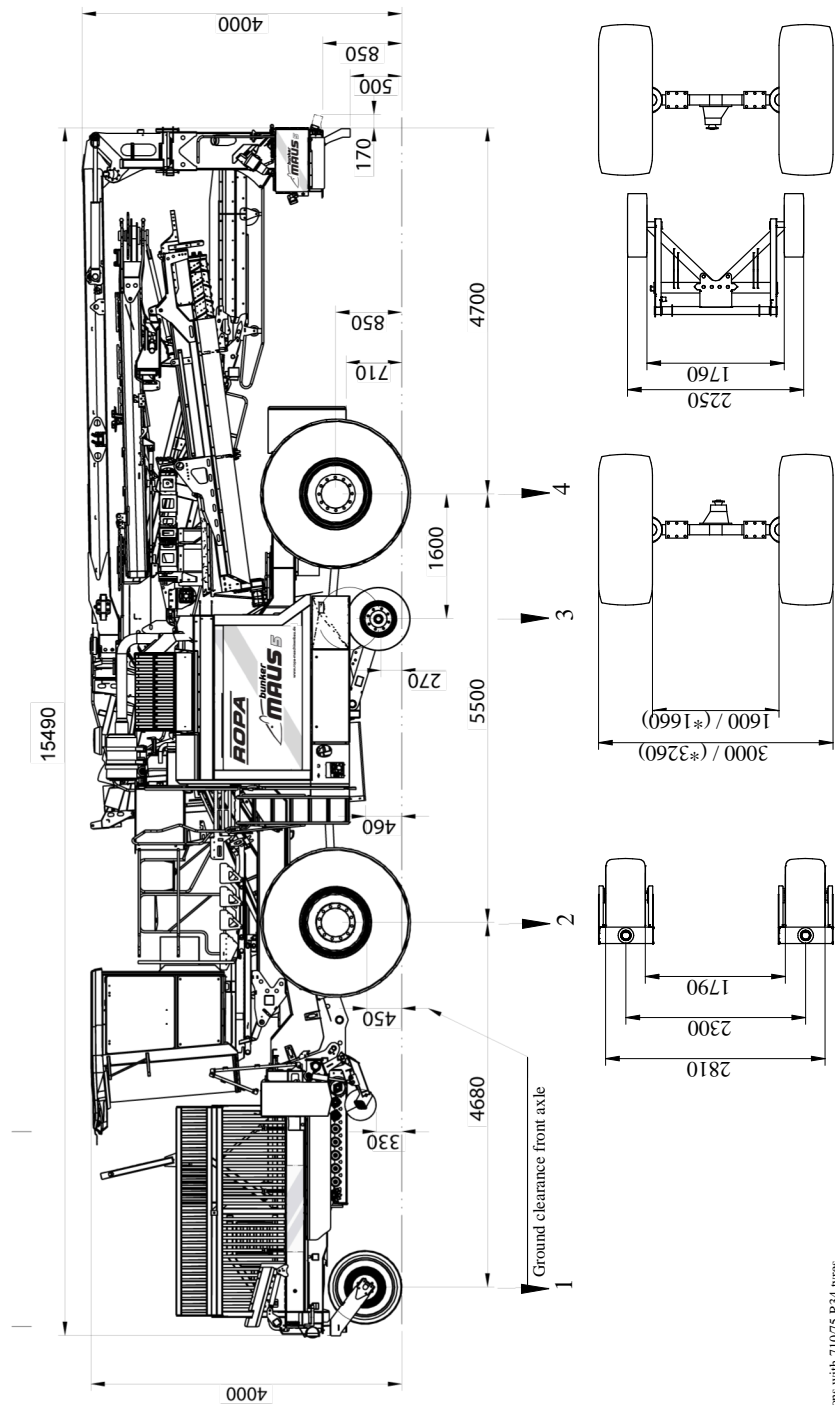
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1 Loading

1.1 Transport draft for low-loader transport



All data in mm.

1.2 Lashing eyes for transport by low-loader/ship

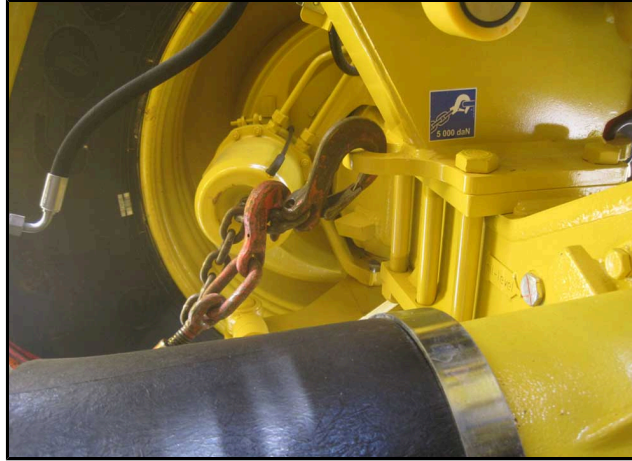
The front axle is equipped with eyes, located on the right and left side, for clamping it down in ground direction. The rear axle support is also equipped with eyes, located on the right and left side, for clamping it down in direction of the ground. Each eye may be loaded with a maximum tensile force of 5000 daN. Clamping chains etc. must not be stretched over mechanical parts.



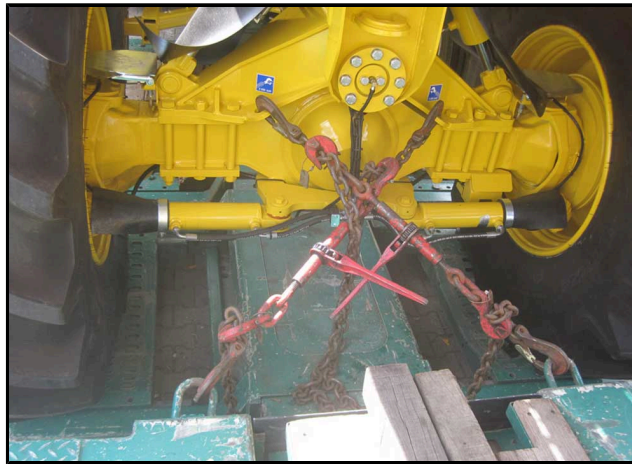
Regular low loader for road transport with minimum transport height



Lashing of the front axle



Lashing point behind the front axle, left side



Lashing point at the rear axle support

2 Driving

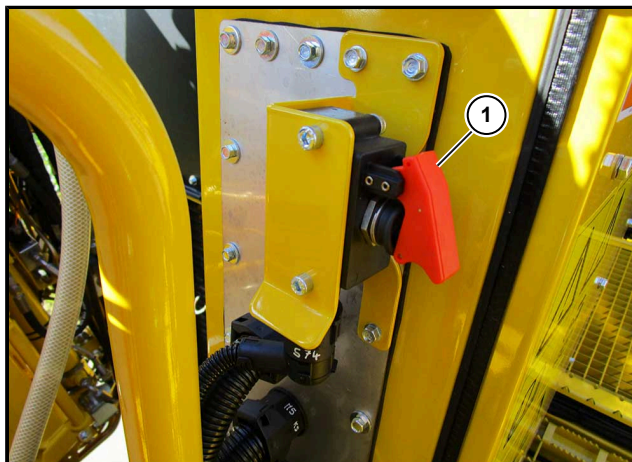
2.1 Steps to drive a Maus

- Switch on the Power supply at the emergency switch. ([See Page 16](#))
- Adjust the steering column ([See Page 17](#))
- Turn on battery main switch. ([See Page 18](#))
- Turn on the rotating beacons. Fold out and adjust the mirror. Turn on driving light. ([See Page 18](#))
- Inform you about the operating components on the floor of the driver's cabin. ([See Page 19](#))
- Start diesel engine. ([See Page 21](#))
- Make sure that operating mode "Field" is switched on. ([See Page 22](#))
- Release the parking brake. ([See Page 25](#))
- Select the driving direction. ([See Page 24](#))
- Unlock the main steering switch. ([See Page 28](#))
- Steering rear wheels with joystick ([See Page 29](#)) or select a steering mode. ([See Page 32](#), [See Page 32](#))

Drive slowly and carefully!

- Engage the parking brake. ([See Page 25](#))
- Shut down the diesel engine. ([See Page 22](#))
- Switch off the ignition. ([See Page 21](#))
- Switch off the main battery switch. ([See Page 17](#))
- Close the driver's cabin.

2.2 Battery emergency shutdown



- (1) Power supply at the emergency switch turned on ("*Battery emergency shut-down*")

ATTENTION

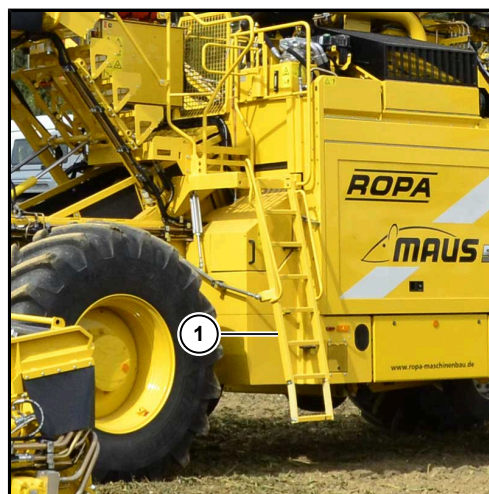


Danger of machine damage.

If this switch is tilted upward while the ignition is on, it can lead to data loss.

It may also seriously damage the exhaust gas after-treatment system (SCR system).

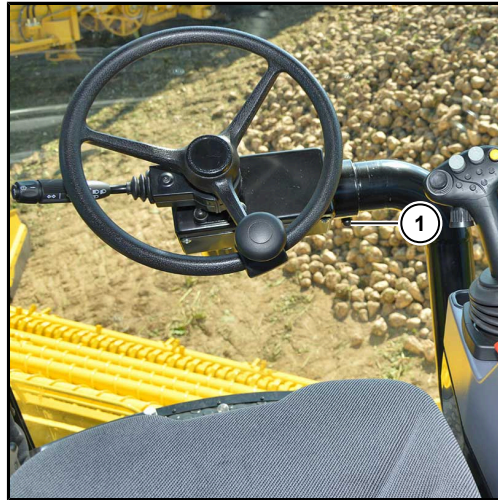
2.3 Ladder driver's cabin



Ladder to driver's cabin in transport respectively loading position

- (1) Climbing ladder driver's cabin
- The ladder (1) swings out by switching to Turtle operating mode, and swings into the vehicle contour by switching to Rabbit operating mode.

2.4 Steering column



DANGER



Hazard of deadly injuries if the steering column is moved while driving.

In this case, the machine can go out of control and cause the severest damages.

- Therefore, NEVER move the steering column while driving!

Clamping screw (1) incline adjustment

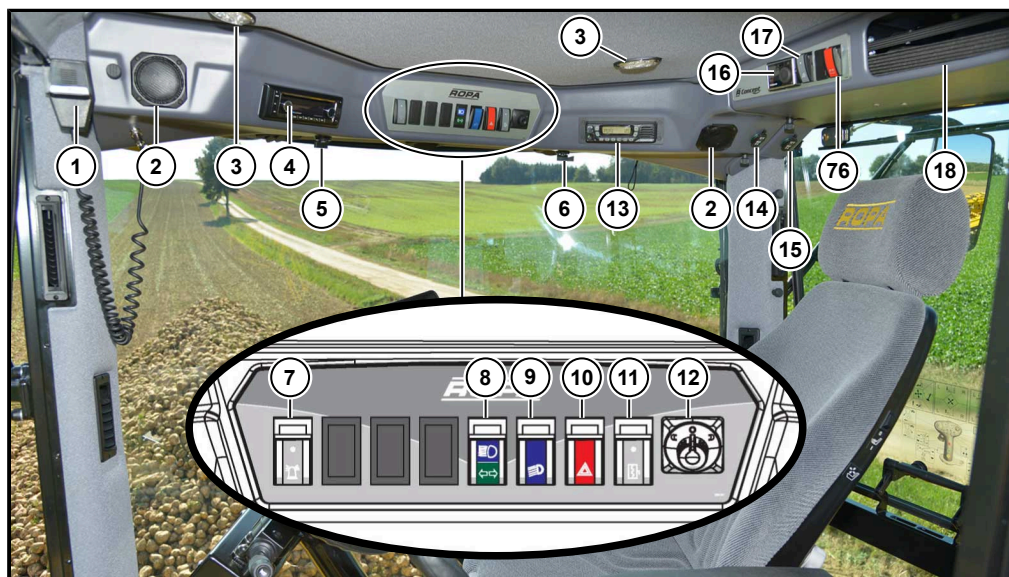
Loosen the clamping screw (1) and pull or push steering column into the desired position. Retighten the clamping screw (1). Check if the steering column is securely fixed in the desired position.

2.5 Battery disconnect relay

When you disconnect the power supply (upward = OFF, downward = ON) at the main battery switch (76) the power supply does not switch off until 6 minutes later (provided the ignition lock is in position 0). If you forget to switch off the main battery switch (76) the battery disconnect relay will switch off automatically 120 hours after switching off the ignition. In this case you have to switch the main battery switch (76) OFF/ON once before the next time you turn on the ignition. (*"Shutdown for a longer period of time"*)

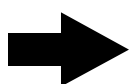


2.6 Switches on roof console



- (1) Microphone for public address system
- (2) Loud-speaker radio
- (3) Internal lamps on driver's cabin ceiling LED
- (4) Radio with Bluetooth (see separate operating manual)
- (5) Rotating switch to fold in/out the left rearview mirror
- (6) Rotating switch to fold in/out the right rearview mirror
- (7) Switch for rotating beacons
- (8) High beam control (above) / turn signal control (below)
- (9) Switch parking/driving lights
- (10) Switch flashing warning system
- (11) Switch mirror heating

ADVICE



The mirror heating switches off to conserve battery life in few minutes with the stopped diesel engine.

- (12) Four-way switch for electrical adjustment of right and left outer mirrors.
- (13) Dummy cap, installation option for radio equipment, cable for voltage supply located behind the dummy cap in the roof console
- (14) Outlet 12V/5A maximum
- (15) Outlet 12V/5A maximum

ATTENTION



The voltage transformer can become damaged if these 12 V outlets are overloaded.

- (16) Timer for park heating (optional)

The timer for park heating even functions when the main battery switch is switched off.

- (17) Switch for LED internal lamps on driver's cabin ceiling
(18) Storage compartment roof console
(76) Battery main switch ([See Page 17](#))

WARNING



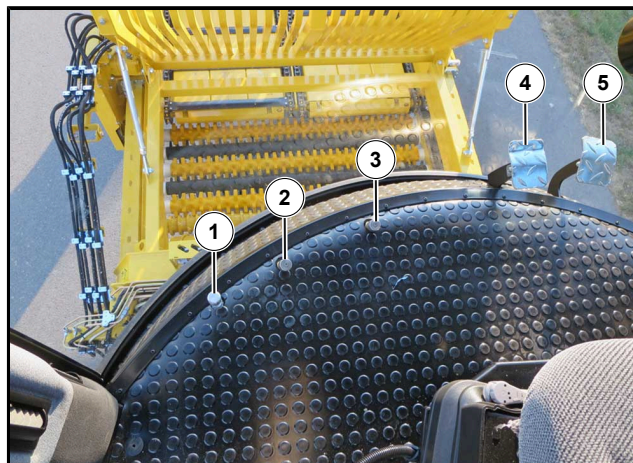
Hazard of objects falling down from the storage compartment in the roof console.

During jerky movements of the machine or driving around curves, these objects may fall out and severely injure the driver.

Do not put any heavy or sharp objects in this storage compartment.

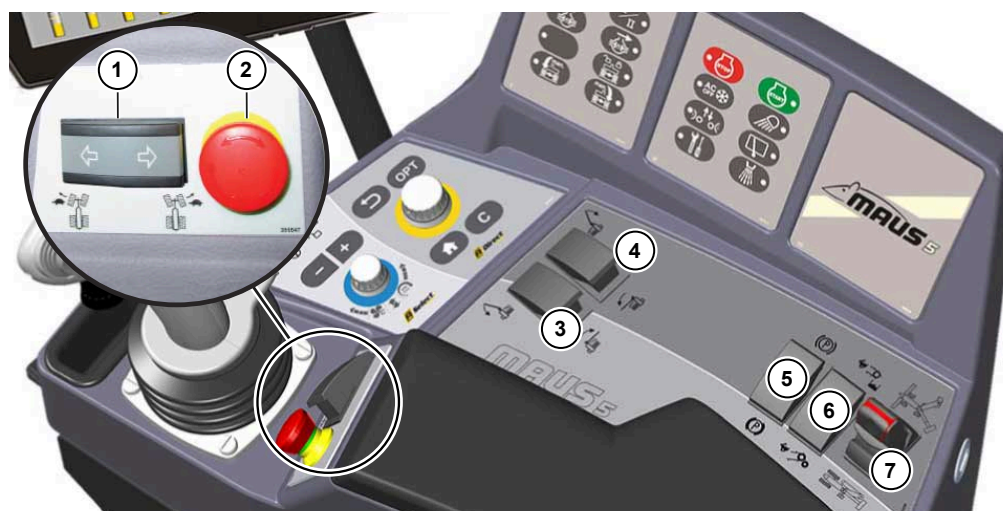
Whenever possible, place such items in the storage compartment on the cabin rear panel.

2.7 Operating components on the floor of the driver's cabin



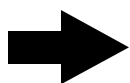
- (1) Opener for cleaning flap
(2) Foot-switch look forward
(3) Foot switch driving direction
(4) Brake pedal
(5) Drive pedal

2.8 Switches on operating console



- (1) **Steer the rear axle right/left (only in "Turtle" operating mode)**
- (2) **Emergency stop switch**
- (3) Not installed in BunkerMaus
- (4) Not installed in BunkerMaus
- (5) **Parking brake (hand brake)**
- (6) **Quick motion switch truck conveyor/infeed conveyor**
press to the right = fast motion truck conveyor
press to the left = fast motion infeed conveyor
- (7) **Analogue rocker**
Automatic unfolding into operating position. *"Folding the machine out/in"*
Automatic folding for road drive. *"Folding in machine automatically rear"*

ADVICE



The emergency stop switch never switches off the diesel engine and the traction drive! It switches off the machine drive as well as the yellow button (6) on the joystick! In order to unlock, turn the Emergency-Stop switch slightly clockwise.

2.9 Start diesel engine

If the gas pedal is not in resting position during starting, then for safety reasons, traction drive is blocked. The block remains for so long until the gas pedal is completely released and pressed again.

ATTENTION



Danger of machine damage.

Use of chemical starting aids (e.g. Startpilot etc.) is expressly prohibited, because this may lead to injuries and to damage to the machine.

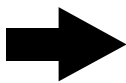
The ignition lock has three switching positions:

- Position 0: Shut down engine/ignition off – the key may be removed
- Position I: Ignition on, the engine is ready for starting
- Position II: Start engine (not connected)




The engine is started with the key START  and shut down using the key STOP  or ignition lock.

ADVICE



After each start of the engine, the fan of the cooling system is automatically reversed for a short time. This frees the cooling system of loose dirt (leaves, etc.).

If the engine does not start immediately, then the electronic system switches off the starter after a certain period of time. In this case, wait at least 2 minutes until the next try to start so that the starter can sufficiently cool down.

If the engine cannot be started due to a starting block, then the R-Touch displays the following warning icon: 

This warning icon and one of the following alternately flash on the R-Touch:

	Please swing up rear platform wall		Please close engine housing door
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2.10 Shut down diesel engine

Let the engine run for a short time idling before shutting it down. If the engine is shut down at high speed, then the turbo charger runs on after the oil pressure has already fallen.

This leads to lack of lubricant and therefore to unnecessary wear on bearings of the turbo charger running at high speed.

- Put ignition lock in the position 0
or
- press STOP key

2.11 Operating mode change



- To switch the operating mode completely release the gas pedal and stop the vehicle.
- Select the desired operating mode using keys (1) and (2) on the keypad I.

In the operating mode "Turtle" the ladder swings out.

Driving speeds:

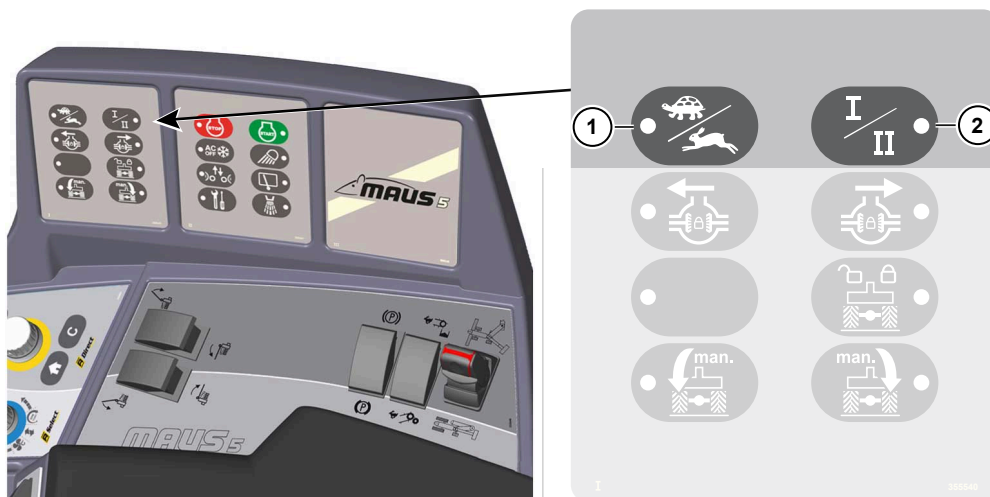
Operating mode "Turtle I"	0-0,7 km/h
Operating mode "Rabbit I"	0-10,3 km/h
Operating mode "Rabbit II"	0-32 km/h (or 40 km/h, 25 km/h)

Switching process:

- Engage the parking brake.
- Set the engine to idling speed.
- Select the desired combination of operating mode and gear using the keys (1) and (2) on the keypad I:
Select operating mode "Turtle"/"Rabbit"- key (1);
Select gear I/II - key (2)


- A sound is audible when switching the operating mode (clack).
- If one of the two key LEDs and the icon on the R-Touch are flashing orange after switching, then the transmission is under tension.

Release the parking brake and drive **very carefully** (!) and very slowly forward or backward. The gearbox will now audibly switch gears. In spite of this, check whether the icon for the selected operating mode is white on the R-Touch and that the key LEDs on the keypad are steady.



ATTENTION**Hazard of heavy damage to the gear box.**

Please observe the above hints in any case! Damage to the gearbox caused because the above hints were not or only imprecisely complied with are excluded from any guarantee or warranty!

The keys for switching between the operating modes may ONLY be used if the machine is standing completely still (0.0 km/h). Additionally, sufficient pressure must be present in the compressed air system. This is the case if the icon  disappears from the R-Touch. If you do not comply with this hint, then this may lead to destruction of the gearbox.

2.12 Selection of the driving direction (forward+/backward) in operating mode "Rabbit"

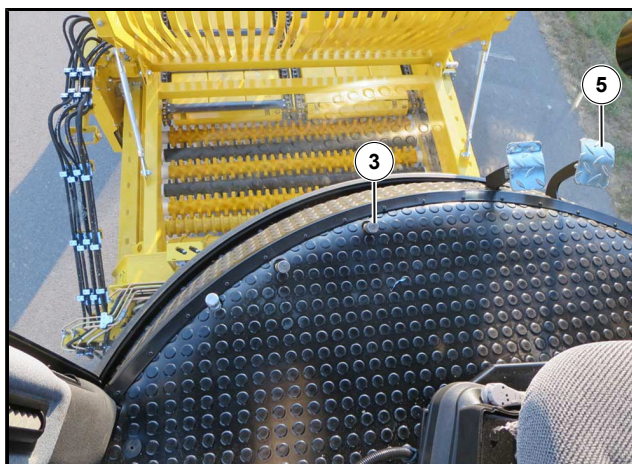
Foot switch driving direction (3):

NOT PRESSED

driving direction „forward“

PRESSED

Driving direction „backward“



(3) Foot switch driving direction

(5) Drive pedal

ADVICE



The following is only for operating mode "Rabbit II": the driving pedal (5) must be released completely for switching to drive in the reverse direction. Wait until the machine comes to a complete standstill (0.0 km/h). Only then the foot switch "Driving direction" may be pushed and held in this position. When the gas pedal is now pushed, then the machine drives backward.

In the operating modes „Rabbit I“ the driving direction may be changed on low speed. A warning signal always sounds while driving backward, which draws the attention of other people to the reversing movement. Simultaneously, both backup lamps are automatically switched on.

ATTENTION



Hazard of damage to the machine.

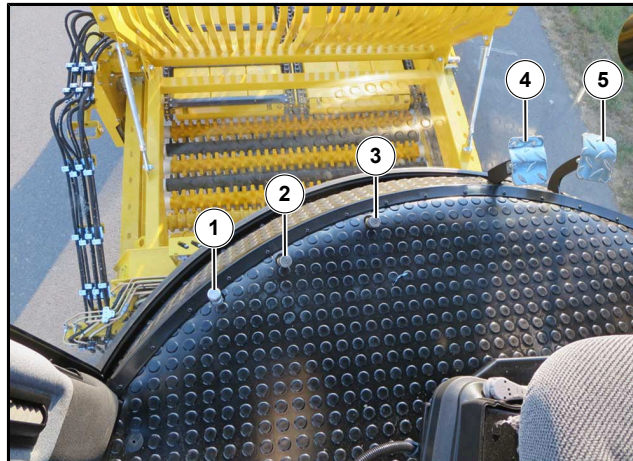
When driving in reverse, always make sure that the counterweight is raised high enough that neither the counterweight nor the under-run protective device contact the ground/road surface. This danger exists when sharply rising terrain is located to the rear of the machine.

2.13 Driving

Electronic control relieves the driver and lightens the load on the environment by automotive driving.

Automotive driving means that the driving speed is preselected by the pressure on the gas pedal. The electronics controls the hydrostatic drive and the diesel engine so that the preselected speed is always driven at the lowest possible engine rotational speed, independent on the fact whether you are driving uphill or downhill.

You control the driving speed of the machine using the gas pedal. The more you press on the pedal, the faster the machine drives. When you completely release the gas pedal, the machine strongly brakes due to the hydrostatic drive.



- (1) Opener for cleaning flap
- (2) Foot-switch look forward (to release bunker telescope)
- (3) Foot switch driving direction
- (4) Brake pedal
- (5) Drive pedal

Hydrostatic drives are deemed very safe. The following measure additionally increases this safety, if there should be any operating faults of the drive. If, when releasing the driving pedal, the machine should neither reduce driving speed nor stand still, then a safety circuit is activated by engaging the parking brake (1).



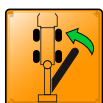
This safety circuit bypasses the standard control behaviour of the hydraulic system and opens a safety valve that quickly shuts off the traction drive. If, in the extremely improbable case of failure of all safety devices, the machine still does not stop, then shut off the diesel engine at the ignition key as quickly as possible. ("Ignition lock") (See Page 22)


DANGER




Danger of severe rear-end collisions with injuries hazardous to life or even deadly when engaging the parking brake or shutting off the diesel engine, while the machine is driving.

- Therefore, take this EMERGENCY-STOP measure only in extreme emergencies and try to warn following traffic by pressing the foot brake pedal several times and switching on the hazard warning system.









If the vehicle should move only very slowly after switching to the operating mode "Rabbit", then the R-Touch displays the respective icon: e.g. "Please put truck conveyor in transport position" . Make sure before start driving, that the machine is completely in transport position.

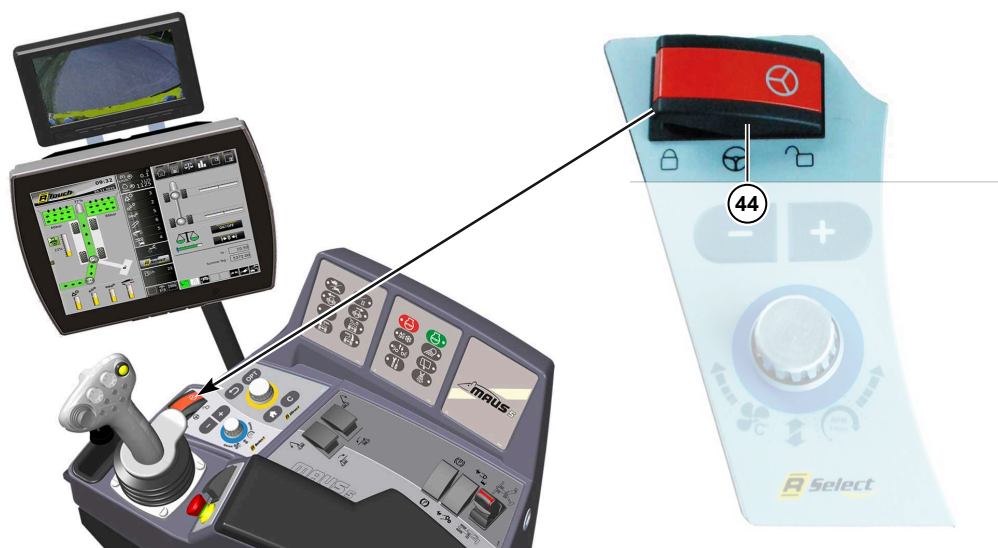


If the supply pressure in hydrostatic drive is too low (15 bar) the orange warning icon appears:  Please stop and call customer service!

If it is not possible to move the vehicle, then the cause for this is shown on the R-Touch:

	Please release parking brake.	
	Please release brake pedal.	
	Compressed air brake reservoir pressure is too low!	
	Error of the gas pedal sensors!	Call customer service
	Release pressure parking brake too low!	
	Supply pressure in hydrostatic drive is very low (12 bar)!	

2.14 Main steering switch



(44) Main steering switch

DANGER



When the main steering switch is unlocked the driving speed of the machine is limited.

- When driving on public roads and paths, the main steering switch must generally be locked.
- It may ONLY be unlocked for driving through narrow curves and at low speed (below 12 km/h).

swung right = unlocked

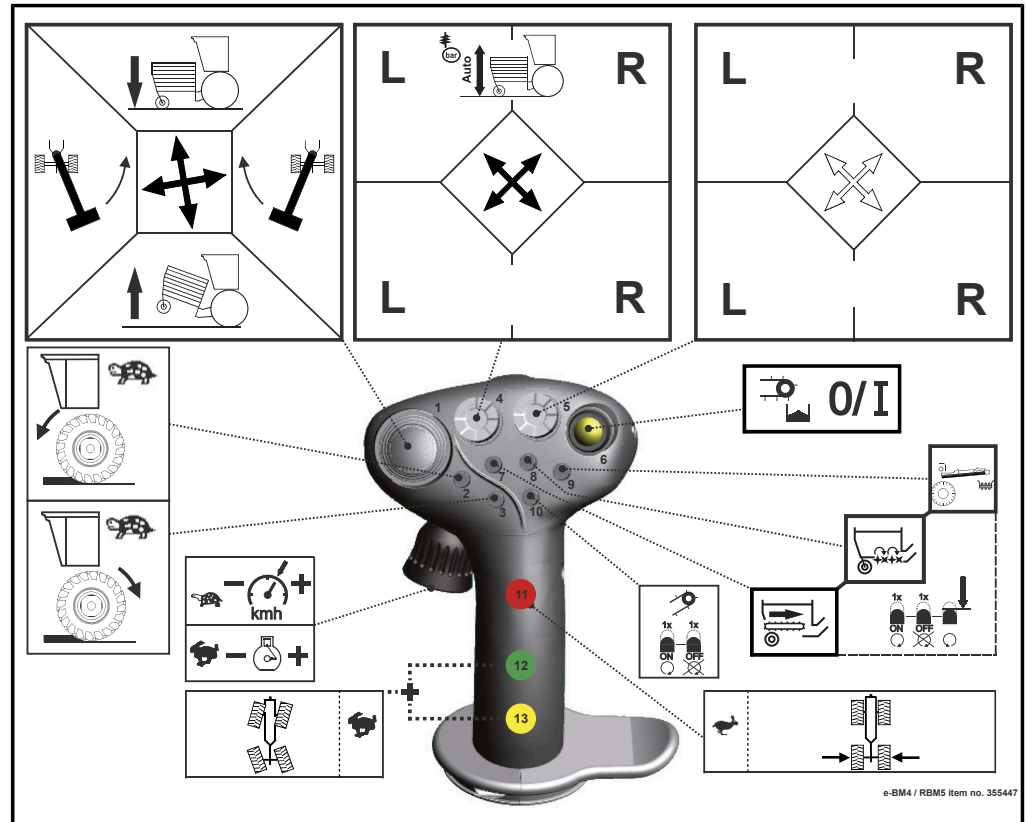
Steering of rear axle is possible.

swung left = locked

Steering of rear axle is locked.

2.15 Right joystick with multi-functional handle

The joystick enables easy control of a multitude of functions of the machine with a single hand without distracting the attention of the operator. For better orientation, a transparent sticker is located on the side window of the driver's cabin containing the following schematic overview of all functions of the joystick with multifunctional handle. A detailed description ([See Chapter - "Right joystick with multi-functional handle"](#))



Joystick movements



Press joystick forward

= Cruise control ON. ONLY in the operating mode "Rabbit".



Pull joystick backward

= cruise control OFF. ONLY in the operating mode "Rabbit".



Pull joystick to the left

= Rear axle steers to the left. ONLY in the operating mode "Rabbit". See [See Page 32](#)



Push joystick to the right

= Rear axle steers to the right. ONLY in the operating mode "Rabbit". See [See Page 32](#)

2.16 Steering in operating mode "Rabbit"

In operating mode "Rabbit", the rear wheels may be steered by moving the joystick back and forth, if the main steering switch (44) is unlocked. When driving on public roads and paths, the main steering switch must generally be locked. It may **ONLY** be unlocked for driving through narrow curves and at low speed (below 12 km/h). When the main steering switch is unlocked the driving speed of the machine is limited.

DANGER



Hazard of deadly injuries when driving with unlocked main steering switch.

In case of some technical faults, uncontrolled swinging movements of the vehicle at higher speeds may occur. This might seriously endanger or cause deadly injuries to other participants in traffic.

- Therefore, the main steering switch may be unlocked on public roads and paths only under the conditions stated above and only for as long as indispensably required. It is obligatory to reduce the driving speed to maximum **12 km/h** BEFORE releasing the main steering switch!

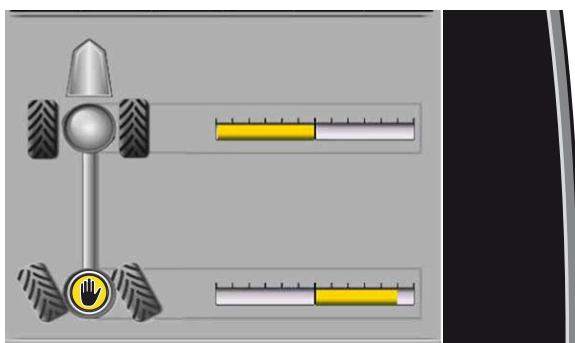
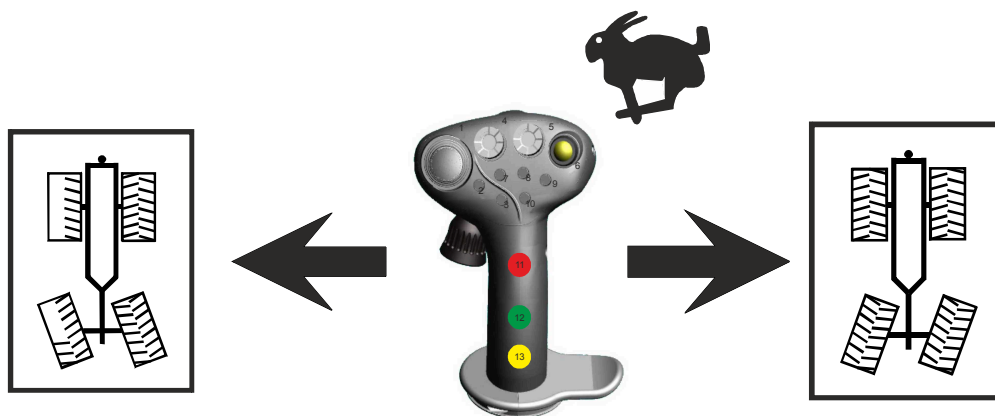


2.16.1 Manual rear axle steering



In operating mode „Rabbit“, the rear axle may be steered independently from the front axle by moving the right joystick left/right. Additionally, the main steering switch unlocked. The R-Touch displays the icon

When driving in operating mode "Rabbit" at a speed of more than 12 km/h, the main steering switch must generally be locked.

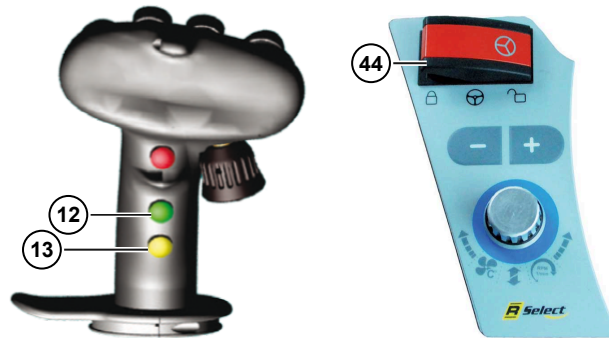


2.16.2 All-wheel steering

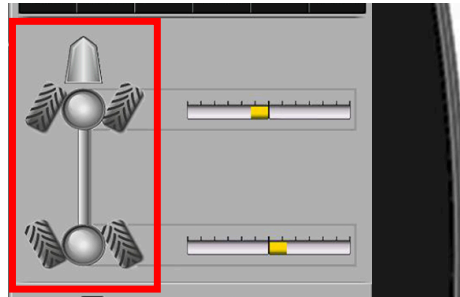
All-wheel steering can be used to steer both front and rear axles simultaneously with the steering wheel with no further driver input. The rear axle steers in the opposite direction to the front axle. This steering mode simplifies manoeuvring for less skilled drivers.

The following prerequisites must be met before actuating all-wheel steering:

- "Rabbit" operating mode active
- Reduce speed
- Main steering switch (44) unlocked (permitted maximum speed 12 km/h)
- Drive at least 0.5 km/h
- Press simultaneously on the right joystick the keys (12) and (13).



Steering indicator appears on the R-Touch:



If the all-wheel steer was not activated, then the cause of it is shown on the R-Touch:



- Unlock the main steering switch (44)

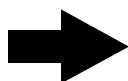


- Drive faster, the minimum speed (0.5 km/h) shouldn't be reached.



- The speed is too high. Please continue reducing the speed.

ADVICE



Once the main steering switch is opened in the operating mode "Rabbit", the speed is reduced automatically for the safety reasons. If the keys (12) and (13) on the joystick are pressed and held in such a way at too high speed and opened main steering switch, at first the speed is reduced automatically to the maximum activation speed, and then the function "All-wheel steer" becomes active. Then the keys can be released again.

In case you need to continue driving with high or maximum speed, please perform the following actions:

- Set rear axle to central position (see following section)
- Lock the main steering switch

2.16.3

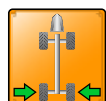
Put rear axle in central position




- Select operating mode „Rabbit“
- Drive slowly (below 12 km/h).
- Unlock the main steering switch (44)
- Drive at least 0.5 km/h and shortly press the multi-key (11) on the joystick

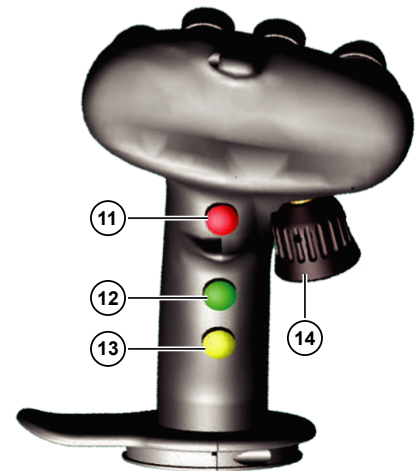
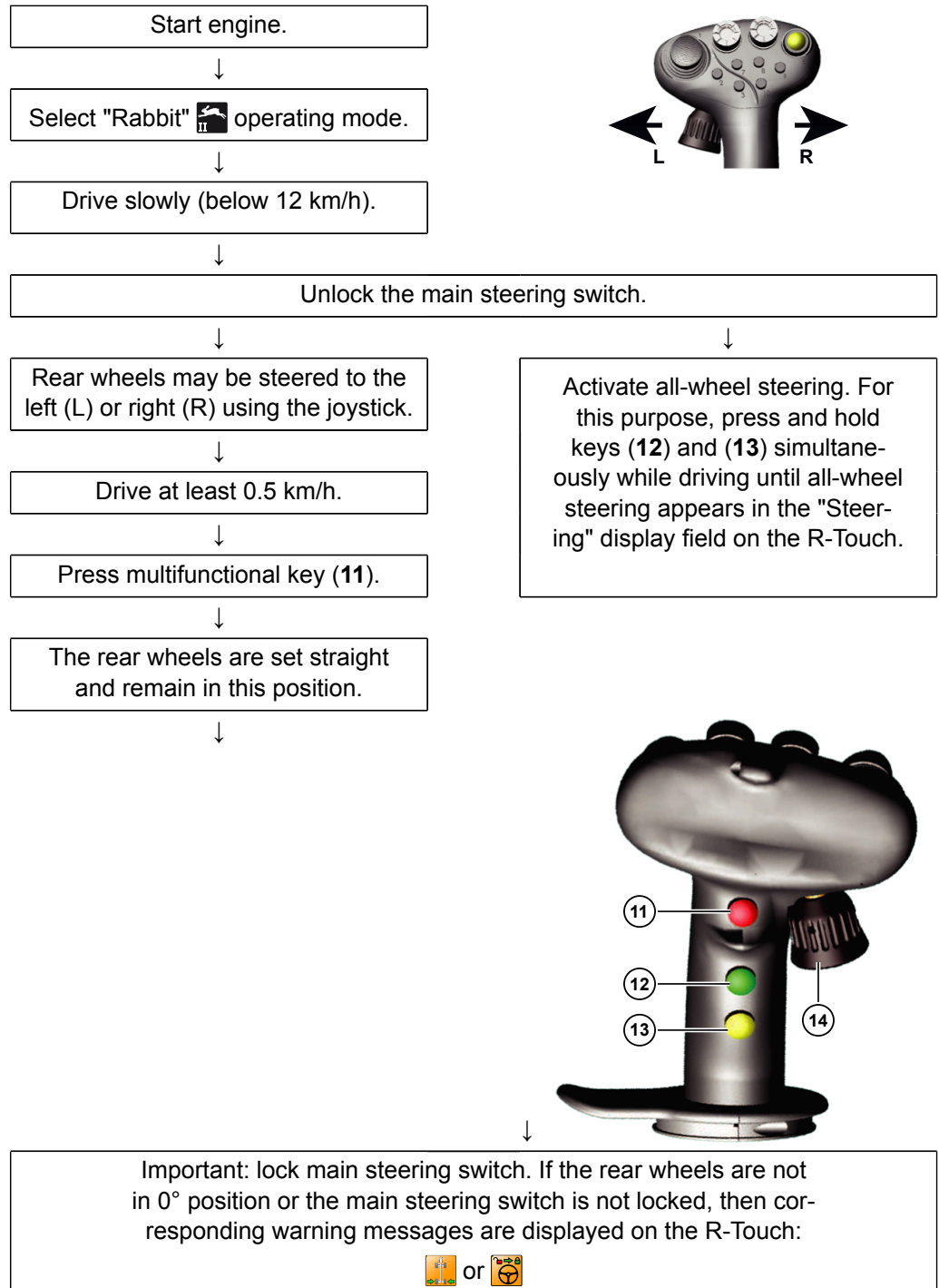
This sets the rear wheels straight.

Then, the main steering switch must IMMEDIATELY be locked again.



If the rear axle is not locked in central position, then during driving in operating mode "Rabbit II", the following warning icon  is displayed on the R-Touch.

2.16.4 Quick description: steering in "Rabbit" operating mode



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