

Operation

5 Operation

5.1 Checks before start-up

- Engine oil level (see the operating instructions for the engine)
- Hydraulic oil level
- Tyre pressure
- Profile depth
- Battery fluid level
- Lighting system
- Seat position
- Bucket arm prop [(e.g. bucket arm support (option) (1-2/ arrow)); remove if necessary
- Actuate the toggle switch for switching off pilot control (4-10/2) if applicable » only if work is about to begin «
- Actuate the toggle switch for automatic dump interlock (4-10/3) if applicable
» the automatic dump interlock must be enabled «
- General state of the loader, e.g. check for leaks
- The presence of
 - a first aid kit
 - a warning triangle
 - a signal lamp
 must be verified.

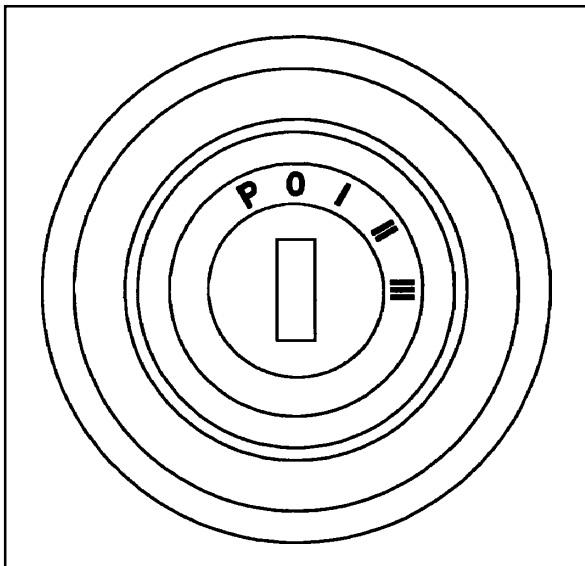


Figure 5-1

5.2 Commissioning

5.2.1 Start the diesel engine

- (1) Engage the parking brake lever (4-12/2).
- (2) Set the drive switch (4-11/4) to "0" (starter interlock!).
- (3) Insert the ignition key into the starter switch (4-10/7) and turn the key clockwise to position „I“ (5-1).



NOTE

- The indicator lamps for battery charge, parking brake and engine oil pressure light up. The instruments for fuel level, engine coolant temperature and operating hours deflect.
- Start the engine in the neutral position.

- (4) Turn the ignition key clockwise to position „III“. As soon as the engine starts, release the ignition key.



NOTE

- If the engine has not started after two attempts, determine the cause using the malfunction table in the operating instructions for the engine (chapt. 7.1).
- For operation at extremely low temperatures, see the operating instructions for the engine.
- The clogging indicator (4-14/13) may light up prematurely after a cold start. It will go out when the hydraulic oil warms up. Operate the loader at a **low** speed until the indicator lamp (4-14/13) goes out. Never subject the loader to full loads in this state.

5.2.2 Winter operation



CAUTION

If the outside temperature is below 0 °C, the machine must be properly „warmed up“ to avoid damage to certain assemblies. To do so, actuate all cylinders (lifting, tipping and compensation cylinders) for some time (depending on the ambient temperature) with the engine idling.

Proper operation of the machine, even for subzero temperatures, can only be guaranteed if the following measures have been taken:

5.2.2.1 Fuel

At low temperatures, paraffin precipitating from the fuel can cause the fuel system to clog up. For this reason, always use winter diesel fuel (suitable for temperatures down to -15 °C) when the outside temperature is below 0 °C.



NOTE

The fuelling stations normally start offering winter diesel fuel in good time before the cold season starts. Often, they offer diesel fuel that can be used down to temperatures of 20 °C (super-grade diesel fuel).

If the temperature is below -15 °C or -20 °C, paraffin oil must be added to the diesel fuel. For the mixture ratio, refer to the diagram (5-2).

- I = Summer diesel fuel
- II = Winter diesel fuel
- III = Super-grade diesel fuel



CAUTION

Only mix the ingredients in the tank! First, fill in the required amount of paraffin oil, then top up with diesel fuel.

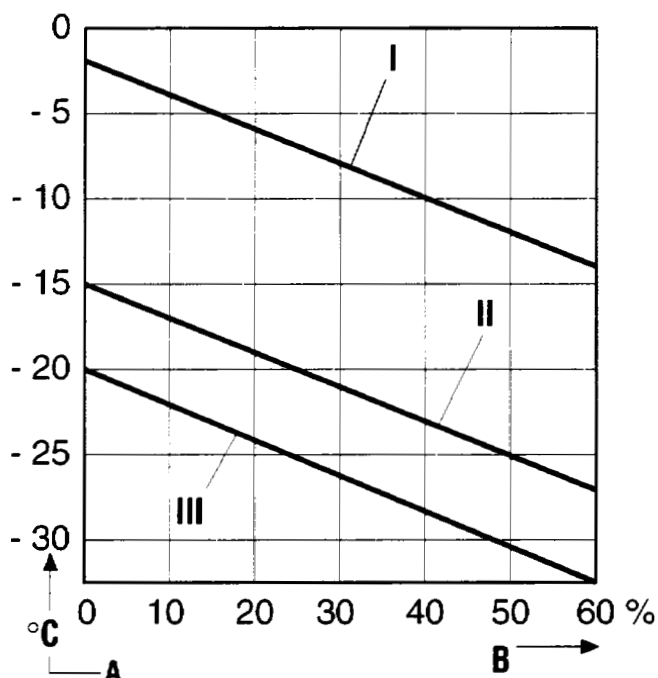


Figure 5-2

5.2.2.2 Engine oil change

See the operating instructions for the engine and the operating instructions for the machine (section 8.2.4).

5.2.2.3 Oil change, hydraulic system



CAUTION

The viscosity of the hydraulic oil changes according to the temperature; therefore, the ambient temperature in the location where the machine will be used determines what viscosity class (SAE class) must be chosen. If the hydraulic oil used matches the expected ambient temperature, optimum operating conditions can be attained. Therefore, use higher grade hydraulic oil if required. See section 8.2.6 for the oil change procedure required for the hydraulic system.

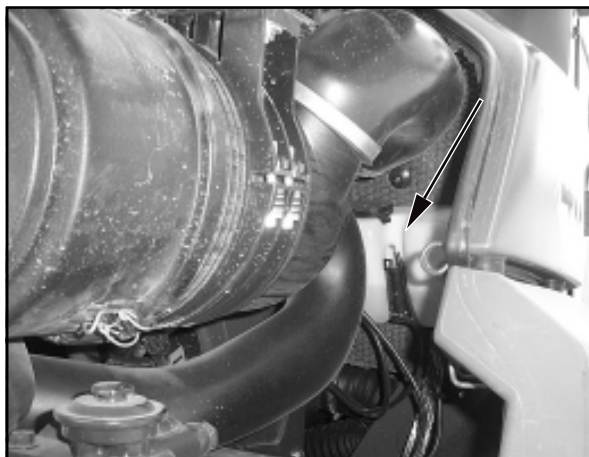


Figure 5-3

5.2.2.4 Anti-freeze for windshield washer system



CAUTION

If the temperature is expected to drop below 0° C, add a sufficient amount of anti-freezing agent to the water in the windshield washer system (5-3/ arrow) to prevent it from icing up in due time. Heed the instructions provided by the manufacturer for the mixture ratio.

5.2.3 Driving the loader on public roads



CAUTION

- Driving on public roads is **only** permitted with an **empty** standard or multi-purpose bucket and **only** with the bucket protection in place.
- To travel on public roads, you must obtain an appropriate permission (Germany: as per § 29 StVO) prior to starting when the distance between front edge of the steering wheel and the front edge of the bucket exceeds 3,500 mm. The German regulations stipulate that a guide (assisting person) give appropriate signs and instructions to the driver of the loader for safely negotiating crossings and intersections.
- When the road lights (which are used solely to light up the road) are switched on, the highest permissible speed is 30 km/h.
- According to § 52 (4) No. 1 of the German Motor Vehicle Construction and Use Regulations, the warning beacon (optional equipment) may be switched on only if the loader is marked by red and white warning stripes.



Figure 5-4

The driver of the loader must possess an appropriate, valid driver's license. This translates to:

- German class V (old) for slow loaders
» 20 km/h variant «
- German class III (old) for fast loaders
» 30 km/h and 40 km/h variants «

The driver must carry his driver's license (original) and the operating permit (original) with him.

Before driving on public roads, the following road safety measures must be taken:

- (1) Lower the bucket arm until the lowest point of the bucket arm or the bucket is at least 30 cm above the road (5-4).
- (2) Set the toggle switch for switching off pilot control (4-10/2) to "up".



CAUTION

The pilot valve(s) for the auxiliary hydraulics is (are) now disabled. This prevents the bucket arm from being lowered and the bucket from tipping while driving.

- (3) Cover the bucket cutting edge and teeth with the bucket protector (5-4/arrow).

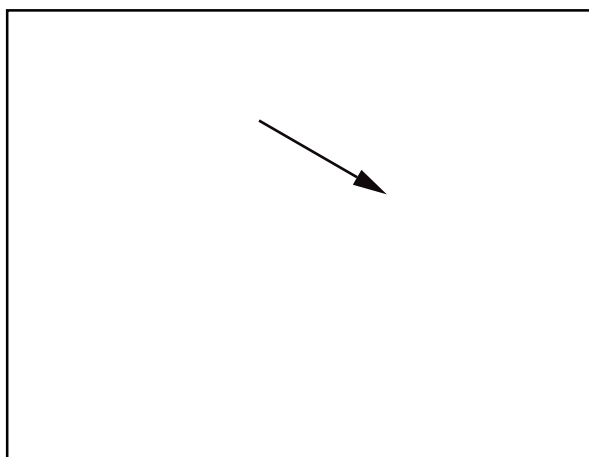


Figure 5-5

(4) Insert the plug of the bucket protector into the socket (5-5/arrow, option).

(5) Perform a function check.

(6) Lock both doors.

**DANGER**

- When the steering type selector lever is set to "rear wheel steering", the respective indicator lamp (4-14/6) lights up.
- Driving on public roads with the bucket filled is forbidden.
- The working lights must be switched off (4-9/3).

(7) Release the parking brake (4-12/2).

(8) Switch to 2nd gear (4-11/1).

(9) Select the travel direction (4-11/4).

(10) Press the accelerator pedal (4-9/6).

**NOTE**

The loader starts. The travel speed is determined by the position of the accelerator pedal.

**CAUTION**

- The service brake is activated by depressing the brake pedal (4-8/1).
- Changing the travel direction during driving is **not** allowed to avoid putting other road users at risk.

5.2.4 Working with the loader

**DANGER**

Always fasten seat belts when working with the swivel shovel loader.

Generally, all work is carried out in gear stage "2" (4-11/1). For special tasks which ask for a more sensitive control of the speed or a higher engine speed at reduced travel speed, gear stage "1" can be selected. This allows the maximum travel speed to be limited.

(1) Lock both doors.

(2) Release the parking brake (4-12/2).

(3) Select the gear stage (4-11/1).

(4) Select the travel direction (4-11/4).

(5) Press the accelerator pedal (4-9/6).

**NOTE**

- The thrust forces and travel speeds are the same in the forward and the reverse direction.

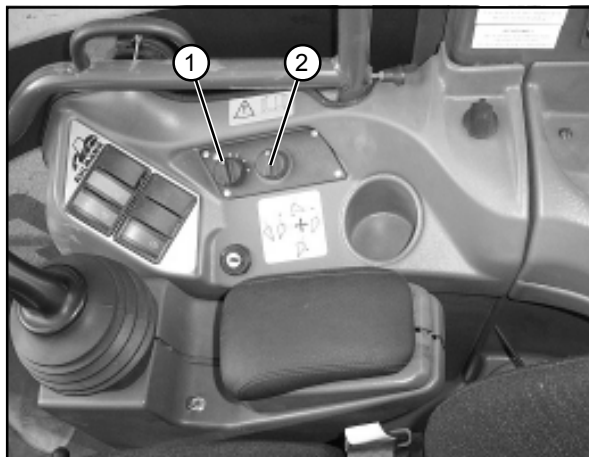


Figure 5-6



NOTE

- To attain full performance, the combined action of propulsion and of the working hydraulics is necessary. It is up to the operator to control the available power using the accelerator, the inching function and the hand lever for the working hydraulics.
- The travel speed and the thrust force are altered exclusively by depressing the accelerator pedal.
- When driving up gradients, the travel speed decreases in spite of full throttle in favour of the thrust force.



CAUTION

- The hydraulic quick-change device must only be actuated if an attachment has been mounted.
- If the hydraulic oil temperature indicator lamp (4-14/13) lights up during operation, the loader must be switched off immediately, the cause must be determined by a hydraulics expert and the malfunction must be eliminated.

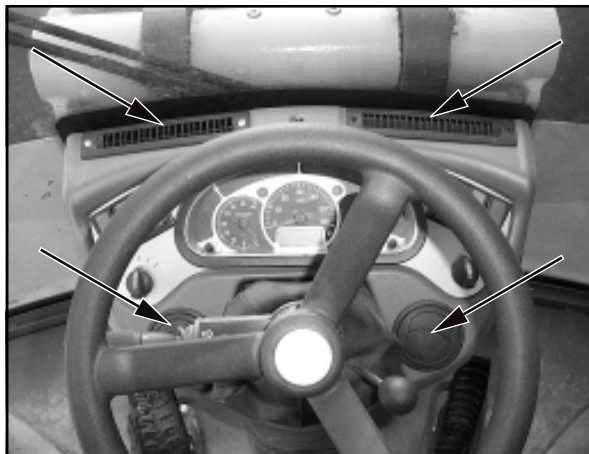


Figure 5-7

5.2.5 Heater and ventilation system

5.2.5.1 Setting the air flow

(1) Turn the rotary switch (5-6/1) for the blower to position 0, 1, 2, or 3 depending on the air flow desired.

(2) Adjust the direction of the air flow by means of the lateral nozzles (5-7/arrows and 5-8/arrows).

5.2.5.2 Switching on the heater

(1) Depending on the heat required, turn the rotary switch (5-6/2) to the desired position.



NOTE

- Rotary switch turned in clockwise direction
 - warm.
- Rotary switch turned in counter clockwise direction
 - cold.

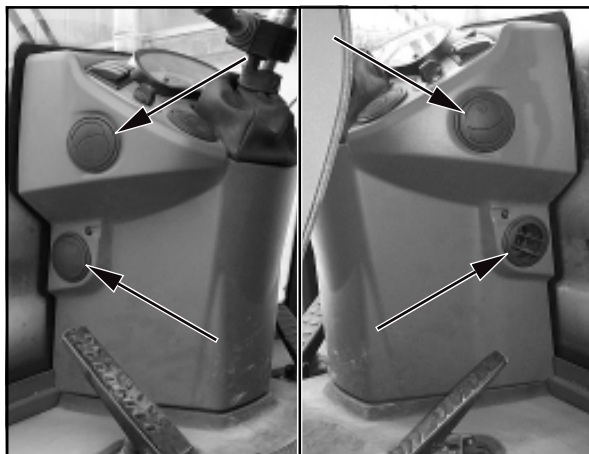


Figure 5-8

(2) Adjust the amount of air as described under 5.2.5.1.

5.3 Decommissioning the loader

5.3.1 Parking the loader

- (1) Stop the loader on solid ground; if possible, not on a slope.
- (2) Place the bucket or the attachment on the ground.
- (3) Set the drive switch (4-11/4) to "0".
- (4) Apply the parking brake (4-12/2).



DANGER

If parking on a gradient cannot be avoided, wheel chocks must be used and placed on the sloping side in front of the front axle wheels **in addition** to applying the parking brake.

5.3.2 Switching off the diesel engine



CAUTION

If the diesel engine is very hot or has been subjected to heavy loads, let the engine idle for a short time before switching it off.

Turn the ignition key to the left to position "0" (5-1) and remove the key.



NOTE

In position "P", the parking light and the dashboard illumination remain switched on.

5.3.3 Switch off the heater and ventilation system

- (1) Shut off the hot air supply (5-6/2).
- (2) Turn the rotary switch (5-6/1) for the blower to position "0".

5.3.4 Leaving the loader

- (1) Secure the hand lever for the working and auxiliary hydraulics (set toggle switch 1-2/arrow to "**up**").
- (2) Remove the ignition key and lock the doors.

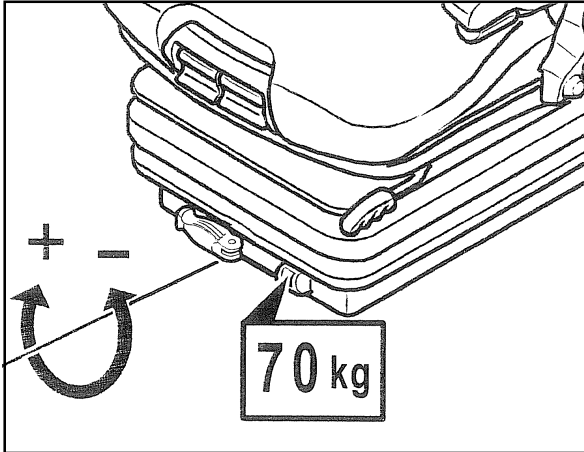


Figure 5-9

5.4 Adjusting the driver's seat



CAUTION

- Adjust the seat only when the loader is not moving.
- Check fastening and locking parts from time to time.

5.4.1 Grammer seat

(1) Weight adjustment:

Adjust the seat to the driver's weight by actuating the weight adjustment lever. The set driver's weight is visible in the inspection window (5-9).

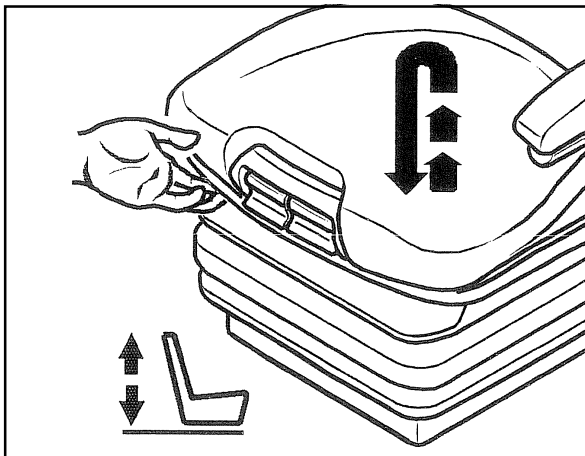


Figure 5-10

(2) Height adjustment:

The height can be adjusted in several steps. Lift the driver's seat to the desired height until it can be heard to engage. The seat returns to the lowest position when it is lifted over the topmost position (stop) (5-10).

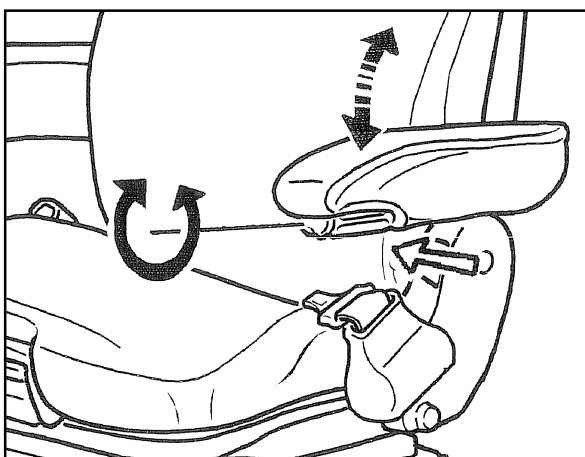


Figure 5-11

(3) Armrest inclination:

Turn the handwheel (5-11/arrow) to adjust the armrest in longitudinal direction.

(4) Armrests:

If desired, you can swing the armrests to the rear and adjust their height.

To adjust the armrest height, remove the round cap (5-12/ arrow) in the covering.

Loosen the hex nut (wrench size 13 mm), set the armrest as desired and tighten the nut again. Push the removed cap onto the nut again.

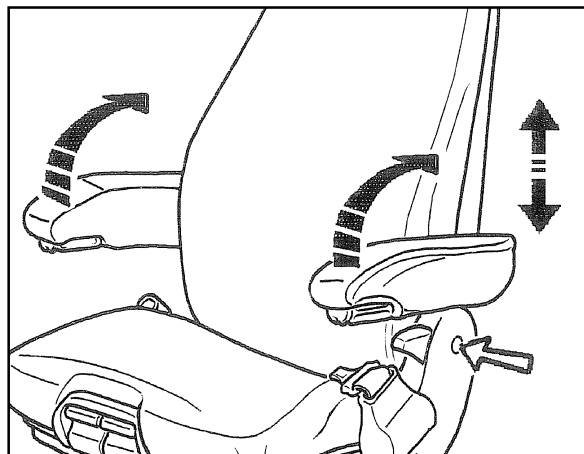


Figure 5-12

(5) Adjusting the backrest:

Use the locking lever (5-13/arrow) to adjust the backrest.



NOTE

The locking lever must engage in the desired position. It must be impossible to move the backrest to another position when the lever has engaged.

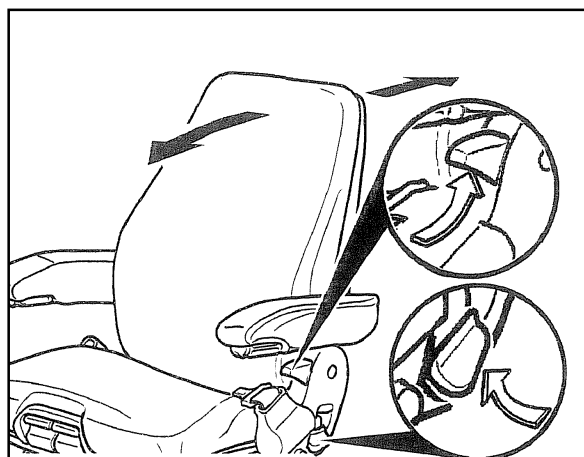


Figure 5-13

(6) Longitudinal adjustment:

You can adjust the seat in longitudinal direction when you pull the lever (5-14) upwards.



NOTE

The locking lever must engage in the desired position. It must be impossible to move the backrest to another position when the lever has engaged.

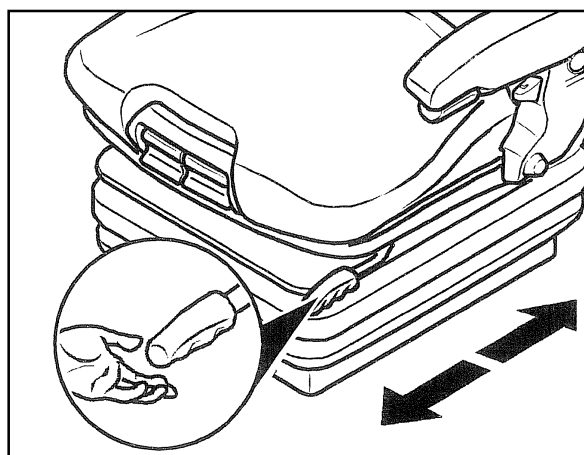


Figure 5-14

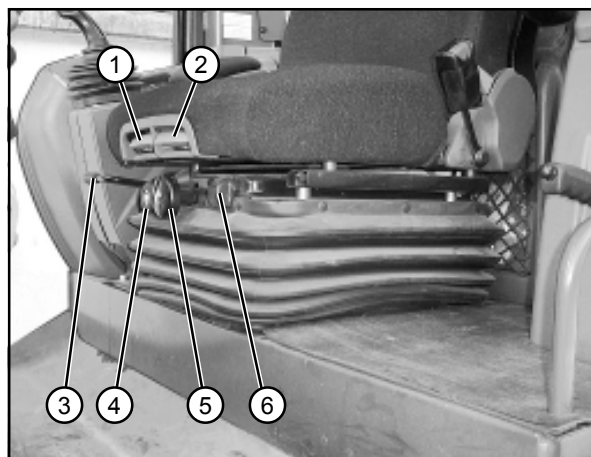


Figure 5-15

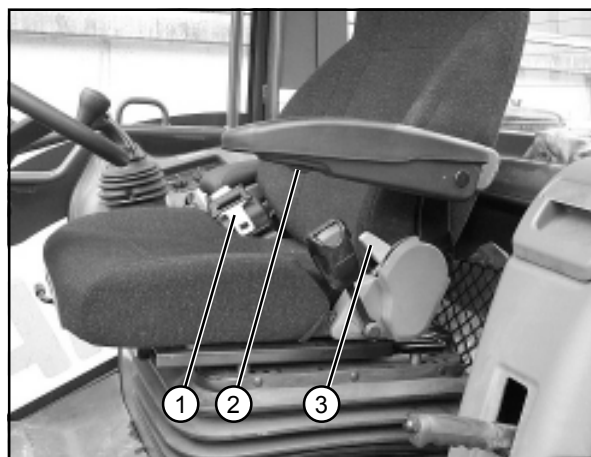


Figure 5-16



Figure 5-17

5.4.2 KAB seat

(1) **Seat inclination adjustment (5-15/1):**

You can adjust the seat inclination to your wishes. To adjust the seat inclination, lift the right button (5-15/1). Exert pressure on the seat or relieve the pressure while keeping the button lifted to set the desired inclination.

(2) **Seat depth adjustment (5-15/2):**

You can adjust the seat depth to your wishes. To adjust the seat depth, lift the left button (5-15/2). Push the set to the front or rear to obtain the correct position while keeping the button lifted.

(3) **Longitudinal adjustment (5-15/3):**

You can adjust the seat in longitudinal direction when you pull the lever (5-15/3) upwards.



NOTE

The locking lever must engage in the desired position. It must be impossible to move the driver's seat to another position when the lever has engaged.

(4) **Suspension travel adjustment (5-15/4):**

You can increase or reduce the suspension travel by turning the adjusting knob (5-15/4).

(5) **Weight adjustment (5-15/5):**

To adjust to the driver's weight, turn the weight adjustment lever (5-15/5).

(6) **Controll indicator (5-15/6):**

The control indicator shows a "green" background if driver's weight and suspension travel are adjusted correctly. Increase the suspension travel if the indicator shows "red".

(7) **Lap belt (5-16/1)**

(8) **Armrests/armrest inclination (5-16/2):**

Turn the hand wheel (5-16/2) to adjust the armrest in longitudinal direction. If needed, you can fold the armrests to the rear.

(9) **Backrest adjustment (5-16/3):**

Use the locking lever (5-16/3) to adjust the backrest.



CAUTION

The locking lever must engage in the desired position. It must be impossible to move the driver's seat to another position when the lever has engaged.

(10) **Lumbar support (5-17/arrow):**

Turn the knob to adjust the curvature of the back cushion to suit your needs. This will increase the seating comfort and also the driver's performance.

5.5 Switching the steering type



CAUTION

Switch the steering type (5-18/arrow) when the loader is at a standstill only. The drive direction switch (4-11/4) must be in "0" position.

You can choose from the following steering types:

- to the left - four-wheel steering
- centre position - rear-axle steering
- to the right - Crab steering



NOTE

Crab steering:
For close-to-edge working.



Figure 5-18

5.5.1 Overview of switching options

1.) Switching from »all wheel steering« to »rear wheel steering«:



NOTE:

»Rear wheel steering« will function only when wheels of the front axle are in straight ahead position.

2.) Switching from »rear wheel steering« to »all wheel steering«:



NOTE:

»All wheel steering« will function only when wheels of the rear axle are in straight ahead position.

3.) Switching from »rear wheel steering« to »crab steering«:



- Steer rear axle wheels to the desired position before switching over.
- The »all wheel steering« indicator is lit permanently.

NOTE:

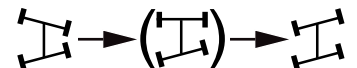
»Crab steering« (»all wheel steering« with offset axles) is active.

4.) Switching from »crab steering« to »rear wheel steering«:



- The »all wheel steering« indicator lights up, the »rear wheel steering« indicator flashes.
- Turn the steering wheel until the front axle is in straight ahead position.
- The indicator for »all wheel steering« goes dark when the front axle is in straight ahead position. The »rear wheel steering« indicator is lit permanently.

5.) Switching from »all wheel steering« to »crab steering«:



NOTE:

You may not directly switch from »rear wheel steering« to »crab steering« but must execute an intermediate step: »rear wheel steering«

a) Switch from »all wheel steering« to »rear wheel steering«:



NOTE:

»Rear wheel steering« will function only when wheels of the front axle are in straight ahead position.

b) Switching from »rear wheel steering« to »crab steering«:



- Steer rear axle wheels to the desired position before switching over.
- The »all wheel steering« indicator is lit permanently.

NOTE:

»Crab steering« (»all wheel steering« with offset axles) is active.

6.) Switching from »crab steering« to »all wheel steering«:



NOTE:

You may not directly switch from »crab steering« to »all wheel steering« but must execute an intermediate step: »rear wheel steering«

a) Switching from »crab steering« to »rear wheel steering«:



- The »all wheel steering« indicator lights up, the »rear wheel steering« indicator flashes.
- Turn the steering wheel until the front axle is in straight ahead position.
- The indicator for »all wheel steering« goes dark when the front axle is in straight ahead position. The »rear wheel steering« indicator is lit permanently.

b) Switching from »rear wheel steering« to »all wheel steering«:



NOTE:

»All wheel steering« will function only when wheels of the rear axle are in straight ahead position.