

4 Description

4.1 Overview

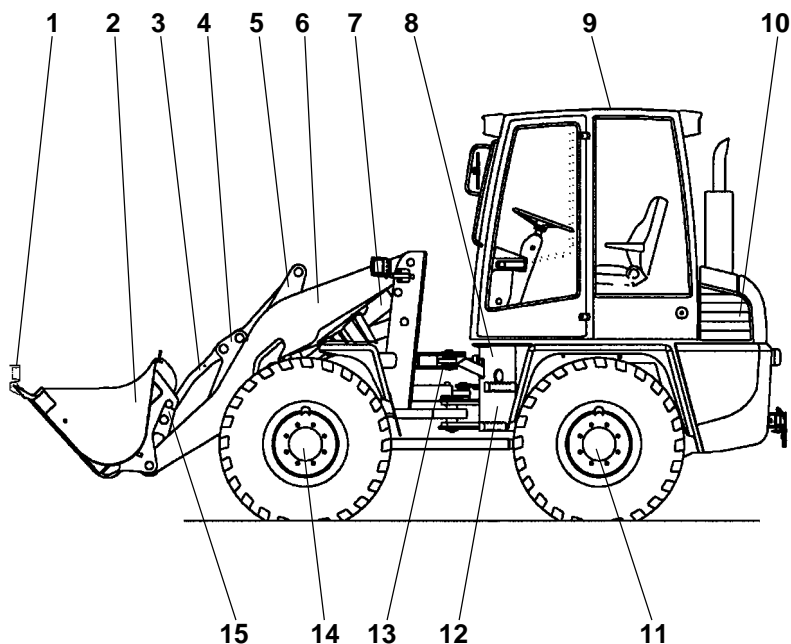


Figure 4-1

- 1 - Bucket protection
- 2 - Bucket/attachment
- 3 - Tip rod
- 4 - Tip lever
- 5 - Pivot arm
- 6 - Bucket arm
- 7 - Tip cylinder
- 8 - Fuel tank (right-hand side of vehicle)
- 9 - Driver's cabin
- 10 - Drive motor
- 11 - Rear axle
- 12 - Hydraulic oil reservoir
- 13 - Articulation pivot joint
- 14 - Front axle
- 15 - Quick-change device

4.2 Loader

Undercarriage

The axial piston pump for the hydraulic drive is driven by the diesel engine. Pressure hoses for extremely high pressure connect the axial piston pump with the axial piston engine. The axial piston engine is flanged to the distribution/intermediate gear of the rear axle (with planetary gear). The distribution/intermediate gear transmits the torque of the axial piston engine directly to the rear axle and via a cardan shaft to the front axle (with planetary gear).



CAUTION

The maximum speed of the axial piston engine is governed by settings made at the factory. Any adjustment will render the warranty invalid.

The front and rear axles are equipped with a self-locking differential (locking value 45%).

Tires

The following tires are permitted:

AL 70e

12.5 - 18	335/80 R 18
15.5/55 R 18	405/70 R 18

AL 85t / AL 100t / AL 100ti

365/70 R 18	405/70 R 18
365/80 R 20	375/75 R 20
405/70 R 20	14.5 - 20

For the running direction, see Fig. 4-2.

NOTE

All four wheels must be identical and have the same PR rating (PR = ply rating: number of textile plies).

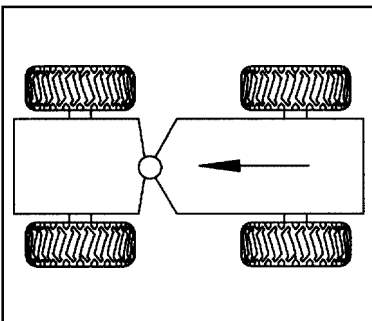


Figure 4-2

Steering system

The power for the hydrostatic steering system is supplied via a priority valve from a gear-type pump. With a minimum of effort on the steering wheel, the oil flow is directed by a steering unit into the steering cylinder.

Emergency steering

The hydrostatic steering system can also be used in a limited way if the diesel engine fails. The loader can be steered using a considerable amount of manual effort.

NOTE

See chapter 7, "Towing the loader".

Service and parking brake

The loader is equipped with a combined service/auxiliary and parking brake that acts as a service and a parking brake.

The foot-actuated service brake is operated by a double pedal to the left and to the right of the steering column (4-3/arrows). The brake is a fully hydraulic wet lamella brake in the front axle. When the pedal is pressed down, the control pressure of the drive pump to the reservoir is first relieved via an inching gear. Then the hydraulic pressure in the main brake cylinder is built up. This means that the service brake is supported by the hydrostatic drive unit. The parking brake, which also acts as an auxiliary brake, works as a negative coefficient brake. This means that the pistons prestressed by spring packs are loosened when a defined actuating pressure is applied. The parking brake is actuated via a hand lever (4-4/arrow) located to the right of the operator's seat.

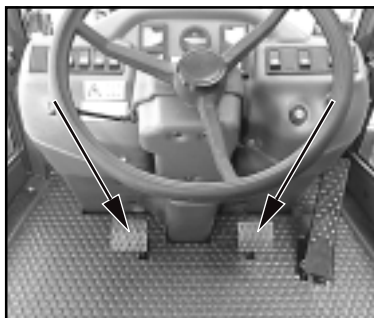


Figure 4-3



Figure 4-4

Inching

(option)

The inching pedal is located next to the left-hand service brake pedal. By stepping on this pedal, the driving speed can be reduced to a standstill while the engine speed is retained. The continuously adjustable inching function is required if a high lifting speed (high diesel engine speed) is required at low driving speeds (inching).

Electrical system

2 headlights, front
2 working lights, front
2 working lights, rear
Hazard flasher
Interior lighting
1 plug socket, 7-pin, front
Rear window heater
Battery main switch
Signal horn
Reverse warning system (opt.)
Radio system (opt.)
Warning beacon (opt.)
Heatable rearview mirror (opt.)
Engine compartment illumination (opt)
Transponder for drive-away interlock (opt.)
(opt. = option)

Battery

The battery compartment contains a maintenance-free battery (4-5/ arrow) with an increased cold start performance. The battery is to be kept clean and dry. Lightly grease the terminals with acid-free and acid-resistant grease.

CAUTION

Electric arc welding on the loader is only to be performed when the battery main switch (4-11/3) has been disconnected.

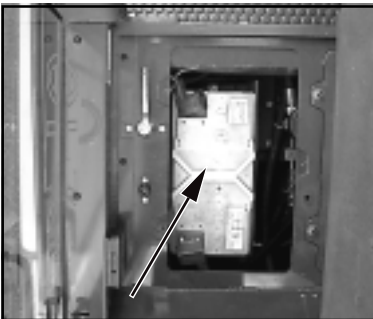


Figure 4-5

Fuel supply system

The fuel tank is located on the right-hand side of the loader rear. An electrical fuel gauge (4-13/7) in the operator's cabin monitors the fuel level in the tank. The filler neck (4-6/arrow) is located on the right side in the cabin access area.

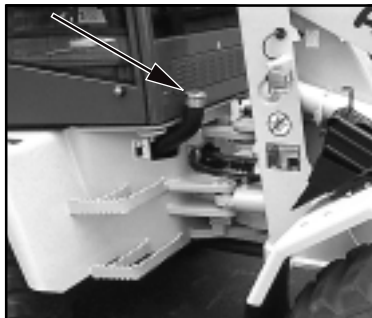


Figure 4-6

Air filter device

Dry air filter device with safety cartridge and dust discharge valve.

Lift and tip devices

- Two lift cylinders and
 - one tip cylinder
- are fed by a double-acting gear-type pump via a control valve.

All movements of the bucket arm, the bucket, the attachments and the quick-change device are controlled from the operator's seat by pilot valves.

The pilot valves provide continuous speed control from "slow" to "fast".

Float position

(optional equipment for AL 70e)

The loader is equipped with a floating position function which allows work such as levelling (grading) to be carried out in a rough terrain.

For this purpose, the toggle switch (4-13/14) must be unlocked and actuated.

DANGER

The floating position may only be activated when the bucket is in the lowermost position.



Floating position

(AL 85t / AL 100t / AL 100ti)

The loader is equipped with a floating position that is activated by moving the hand lever (4-12/5) beyond its pressure point to the frontmost position. The hand lever remains in this position until it is pulled back.



DANGER

The floating position may only be activated when the bucket is in the lowermost position.

NOTE

The floating position is disabled if the loader is equipped with a pipe rupture protection.

Pipe break safety device

(option)

A pipe break safety valve is installed underneath each lift and tip cylinder. In the event of a pipe or hose break in the lift and/or tip system, the movements of the bucket arm and the tipping rod are blocked until the damage is repaired.

Lifting device suspension

(option)

When the loader must be driven over larger distances, especially with a loaded bucket, the lifting device suspension (4-13/15) should be activated to avoid resonant motion. This becomes even more important with increasing unevenness of the terrain and increasing speed of the loader.



CAUTION

The lifting device suspension must only be used **for driving over long distances**, but not for working with the loader.

Bucket position mark

The driver can see the position of the bucket by the coloured markings on the reversing rod and the reversing lever. When the coloured marks (4-7/arrow) form a line, the bucket floor is parallel to the ground.

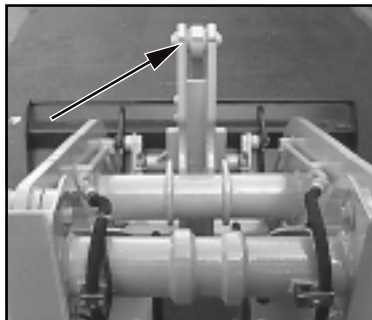


Figure 4-7

Lifting height restriction

(option)

A device allowing the maximum lifting height to be restricted is installed at the junction of the bucket unit and the center support.

Adjustment:

- (1) Lift the bucket arm to the desired height.
- (2) Shut down the engine and close the ball block valves for the working and auxiliary hydraulics (1-3/arrow).
- (3) Loosen the hex screw (size 10) (4-8/3) of the shift gate and turn the shift gate (4-8/2) towards the roller switch (4-8/1) until it switches audibly.
- (4) Tighten the hex screw of the shift gate.

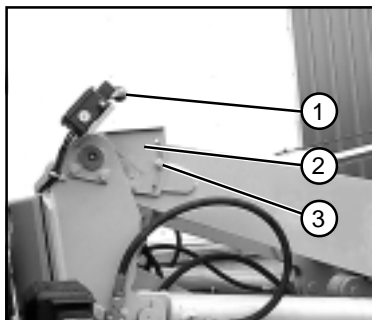


Figure 4-8

DANGER

Perform a function check before starting work with the lifting height restriction. Observe the lifting height restriction from the driver's seat during work.

Bucket arm (stops)

The deflection lever (4-8a/1) and the quick-change device (4-8a/2) are fitted with adjustable stops on either side. These stops are to prevent the quick-change device from getting stretched (see Fig. 4-8a/line) or from dropping into the bucket arm.

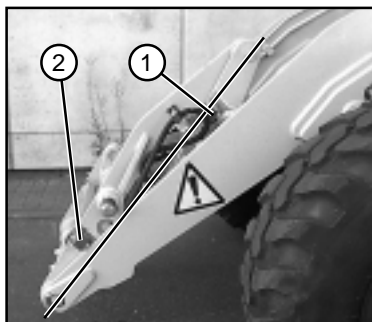


Figure 4-8a



CAUTION

Never change the stop settings made at the factory; otherwise, it may no longer be possible to tilt up or dump the quick-change device.

Equipment

Driver's seat

The driver's seat has a hydraulic suspension and is provided with a pelvis safety belt and arm rests (height-adjustable). The weight compensation, the horizontal and height position as well as the backrest and the seat inclination can be adjusted.

Operator's cabin

Standard ROPS design with ECC conformity certificate. Comfortable entry and exit from both sides, lockable doors, front and rear windshield wipers/washers, sun visor, good all-round vision, multi-speed heating/ventilation system.

4.3 Changing a wheel



DANGER

Before changing a wheel on public roads, the danger area must be properly marked.

- (1) Park the loader on solid ground and not on inclines if possible.
- (2) Lower the attachment to the ground.
- (3) Set the drive switch (4-12/6) to "0".
- (4) Apply the parking brake (4-12/3).
- (5) Turn the ignition key to the left to position "0" (5-1).

(6) Close the ball block valve for the working and auxiliary hydraulics (1-3/arrow).

(7) Insert the articulation safeguard into the articulation joint (1-4/arrow).

(8) Secure the machine by placing two wedges under one wheel of the axle where **no** wheel is to be changed.

(9) Loosen the wheel nuts of the wheel to be changed so that they can be turned manually.

(10) Fit a suitable jack (minimum capacity 3.0 tons) from the side under the axle bridge in the vicinity of the axle fixture so that it is centred and cannot slip (4-9). Lift the front/rear axle until the wheel does not have any contact to the ground.

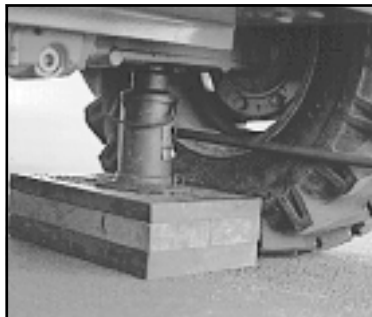


Figure 4-9

DANGER

- Secure the jack by a suitable support to prevent it from sinking into the ground.
- Make sure that the jack is fitted well.



(11) Loosen the wheel nuts completely and remove them.

(12) Lower the loader slightly with the jack until the wheel bolts are free.

(13) Push off the wheel from the wheel hub by moving it back and forth. Remove the wheel and roll it aside.

(14) Mount the new wheel onto the planetary axle.

(15) Tighten the wheel nuts by hand.

(16) Lower the front/rear axle using the jack.

(17) Tighten the wheel nuts with a torque wrench to 440 Nm.

CAUTION

Tighten the wheel nuts after the first 8-10 operating hours.



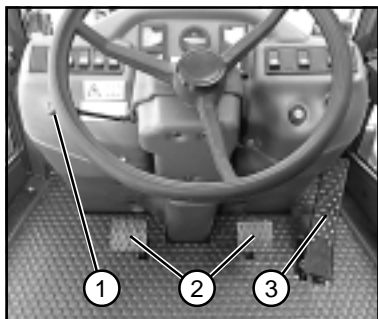


Figure 4-10

4.4 Controls

- 1 - Steering column switch
 - Fwd.: turn indicator, right
 - Bwd.: turn indicator, left
 - Up - dipped beam
 - Down - high beam
 - Pushbutton - signal horn
- 2 - Double pedal for service brake/inching
- 3 - Accelerator pedal

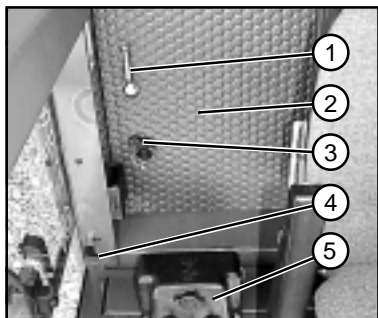


Figure 4-11

To the left of the operator's seat:

- 1 - Ball block valve for heater
- 2 - Maintenance flap (battery) (below damping mat)
- 3 - Battery main switch
- 4 - Door release
- 5 - Water tank for windshield washer system

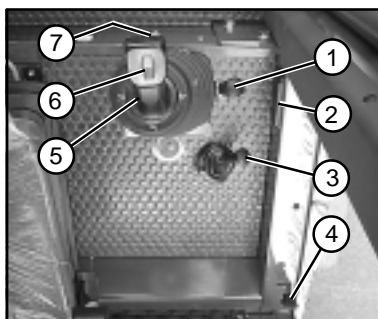


Figure 4-12

To the right of the operator's seat:

- 1 - Pilot valve for auxiliary hydraulics
- 2 - Ash tray
- 3 - Hand lever for parking brake
- 4 - Door release
- 5 - Pilot valve for working hydraulics
- 6 - Drive switch: forward/0/reverse
- 7 - Hydraulic driving steps:
 - right - speed I: slow
 - left - speed II: fast

4.5 Instrument panel

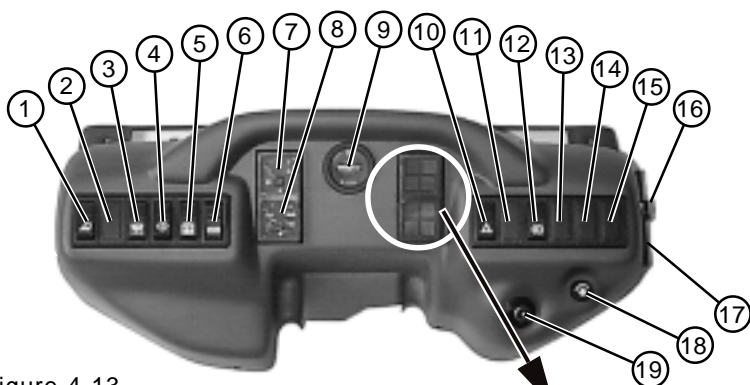


Figure 4-13

- 1 - Toggle switch for work lights
- 2 - Pushbutton for releasing the quick-change device
- 3 - Toggle switch for interval wiper, front
- 4 - Toggle switch for windshield washer, front
- 5 - Toggle switch for windshield wiper/washer, rear
- 6 - Toggle switch for rear window heater
- 7 - Fuel gauge
- 8 - Engine oil temperature display
- 9 - Operating hour meter
- 10 - Toggle switch for hazard flasher system
- 11 - Toggle switch for beacon light (option)
- 12 - Toggle switch for driving lights
- 13 - Transmission switch (only for fast loaders - 30 km/h)
UP: transmission step II; DOWN: transmission step I
- 14 - Toggle switch with unlocking device for floating position (option)
» **only for AL 70e** «
- 15 - Toggle switch for lifting device suspension (option)
- 16 - Socket
- 17 - Fuse box
- 18 - Rotary switch for ventilation/fan
- 19 - Starter switch
- 20 - Control lamp for battery charging
- 21 - Control lamp for high beam
- 22 - Indicator lamp for cooling water temperature
- 23 - Hydraulic oil filter clogging indicator
- 24 - Control lamp for hydraulic oil temperature
- 25 - Control lamp for parking brake
- 26 - Control lamp for directional indicator
- 27 - Control lamp for engine oil pressure