Description

4 Description

4.1 Overview

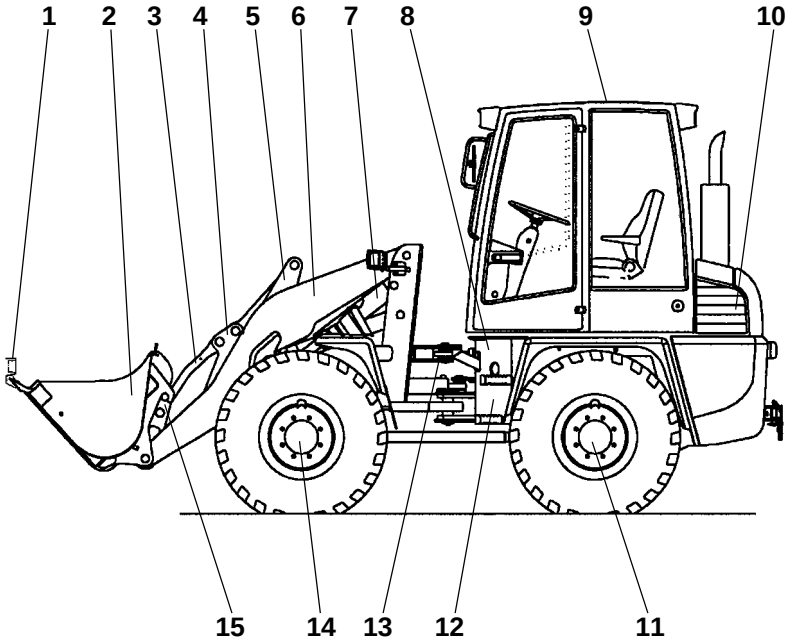

Figure 4-1

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:

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.

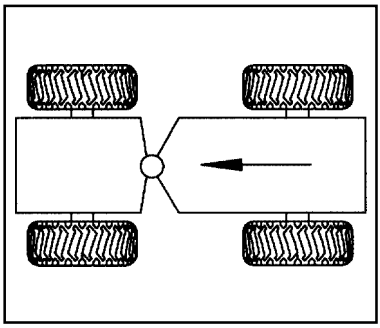

Figure 4-2

NOTE

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

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 service brake is actuated with a double pedal (4-3/arrows) located to the right and to the left of the steering column. The service brake is actuated hydraulically by applying a pressure (max. 80 bar) through a feed bore. The brake piston movement simultaneously acts on the differential discs and on the brake discs. Thus braking occurs between the differential housing and the axle body. The differential lock ensures uniform braking, i.e. the brake force is evenly distributed between the two axle segments.

The parking brake is actuated with a hand lever (4-4/arrow) located to the right of the driver's seat. The negative parking brake is actuated by the Belleville springs acting on the brake pistons. To release the brake, a minimum pressure of 15 bar (max. 30 bar) must be supplied through a feed bore. This pressure allows the clearance between the brake discs and the differential lock to be opened by pushing back the brake piston, acting against the force of the Belleville springs. The Belleville springs push back the spring-loaded brake piston and cause the loader's emergency stop if a pressure loss problem occurs in the hydraulic brake system. To release the negative spring-loaded brake after an emergency stop, the release screws provided for this purpose must be actuated.

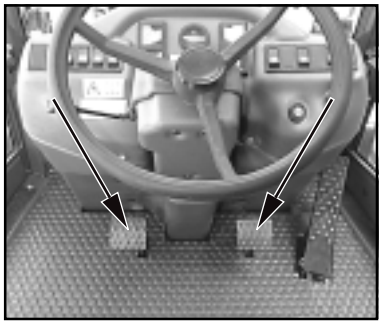

Figure 4-3

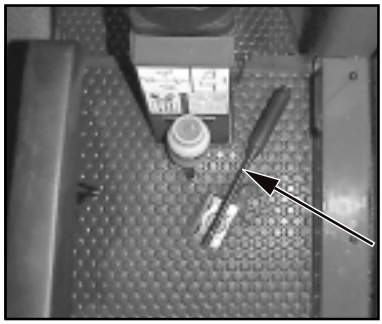

Figure 4-4

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.

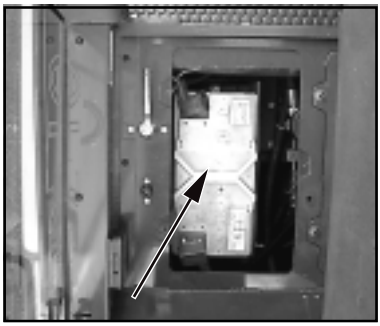

Figure 4-5

CAUTION

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

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.

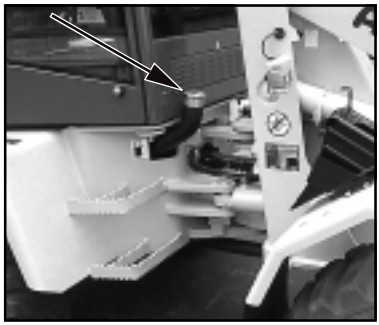

Figure 4-6

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.

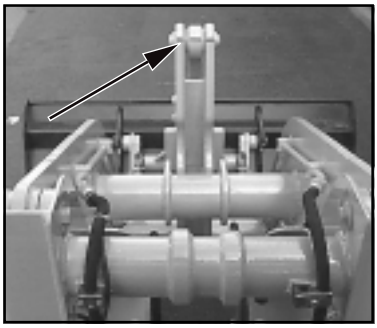

Figure 4-7

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.

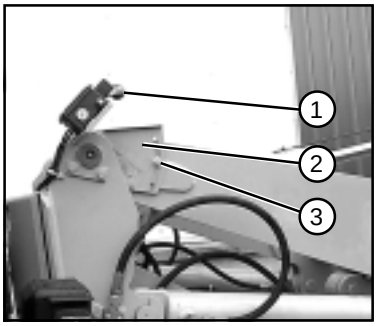

Figure 4-8

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.

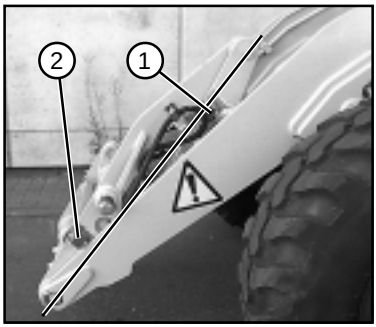

Figure 4-8a

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 back-rest and the seat inclination can be adjusted.

Operator's cabin

Standard ROPS design with ECC conformity certificate. Comfortable entry and exit from both sides, lock-able doors, front and rear wind-shield 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.

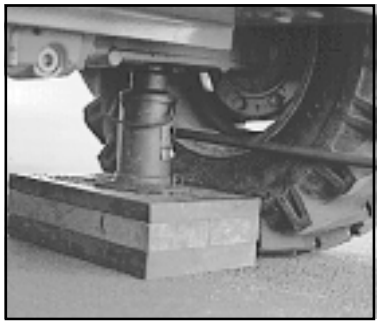

Figure 4-9

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.

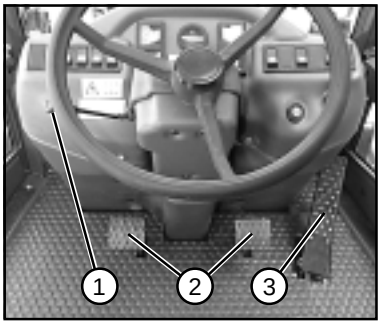

Figure 4-10

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

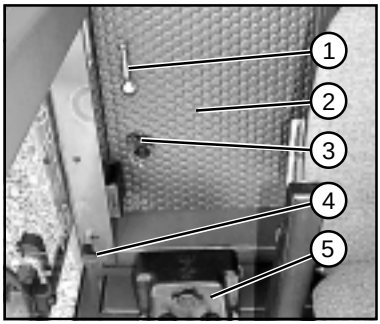

Figure 4-11

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

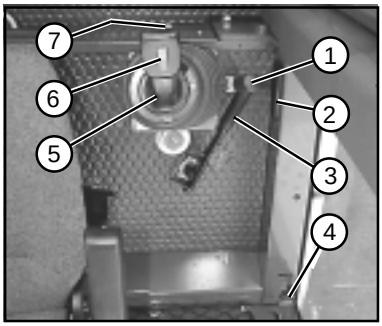

Figure 4-12

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

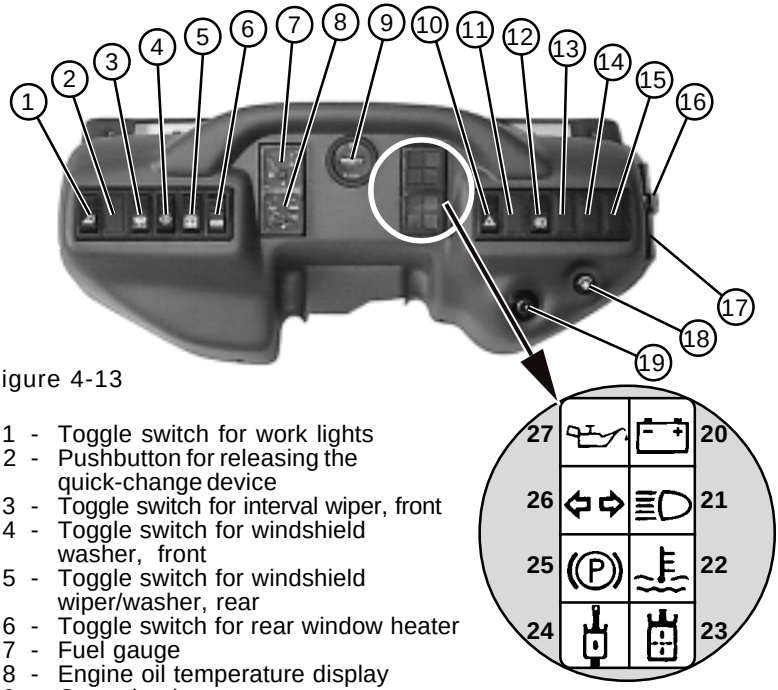

Figure 4-13

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 - Gear shift pushbutton (only for fast loaders - 30 km/h)
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