Description

4 Description

Figures and descriptions may vary due to modifications in the construction that become possible and necessary to improve the loader and to develop it further technically.
These modifications are summarised in section 13.

4.1 Overview

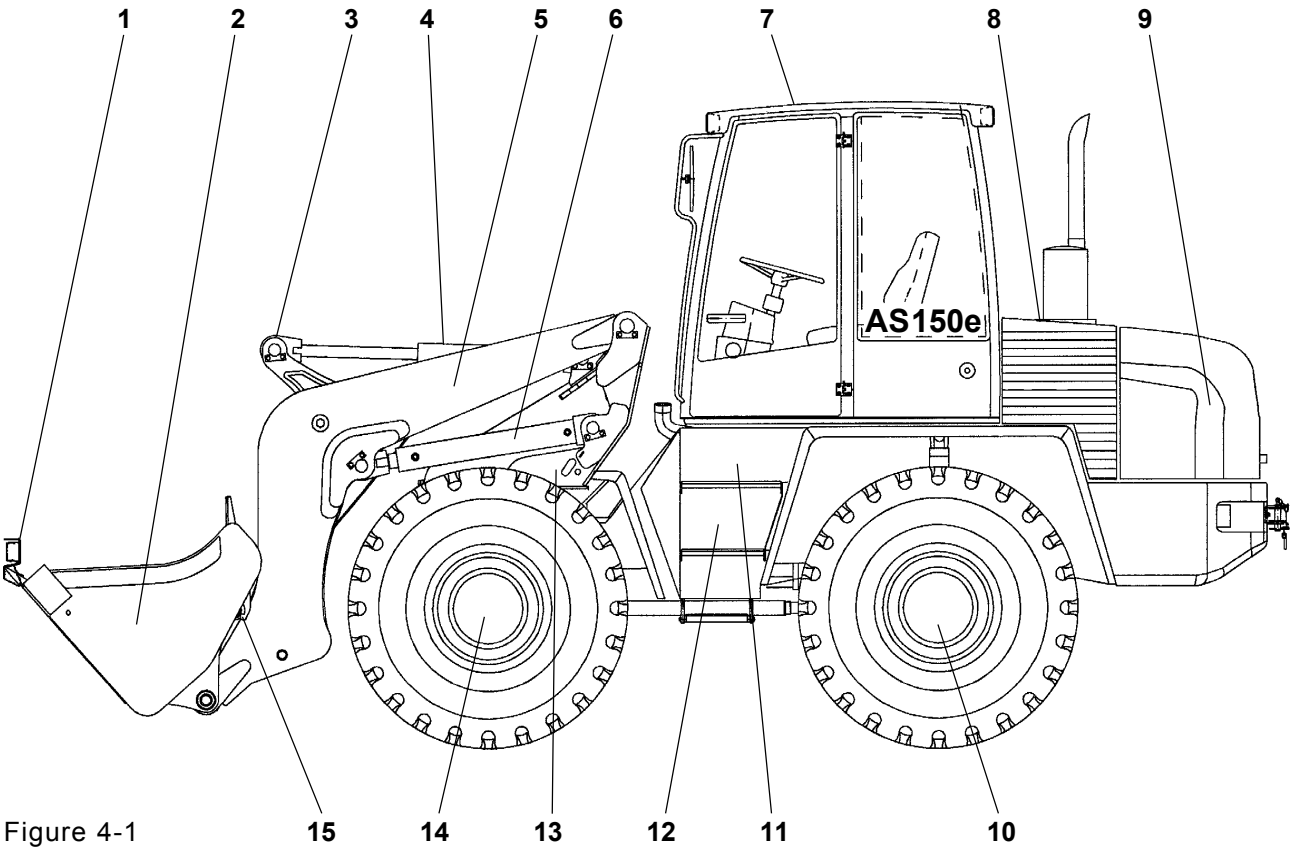


Figure 4-1

1 - Bucket protection
2 - Bucket/attachment
3 - Deflection lever
4 - Tip cylinder
5 - Bucket arm
6 - Lift cylinder
7 - Driver's cab
8 - Hydraulic oil reservoir / filler neck
9 - Drive motor
10 - Rear axle
11 - Battery compartment
12 - Tool box
13 - Revolving seat
14 - Front axle
15 - Quick-change device
16 - Fuel tank, steps at right loader side (not shown)

4.2 Swivel unit and axle support

Two swivel cylinders are fed by a separate gear-type pump via a servo valve. The revolving seat is connected to the cylinders by a chain drive and is thus completely free of play. Swivelling can be carried out simultaneously with lifting of the bucket arm without mutual interference.

The bucket's swivelling radius is 90° to the right or to the left.

If the bucket is swivelled more than approx. 30°, the axle support system is automatically activated. The load-side support cylinder that affects the rear axle is subjected to hydraulic pressure by the force of the load via the support valve, counteracting the swivelled load.

NOTE

The axle support is deactivated when swivelling back.

4.3 Floating position

The loader is equipped with a floating position function that allows work such as levelling (grading) on uneven ground to be performed. To do this, move the hand lever for the working hydraulics (4-7/2) forwards beyond its pressure point.

The hand lever remains in this position until the bucket arm is to be raised again by moving the hand lever in the opposite direction.

DANGER

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

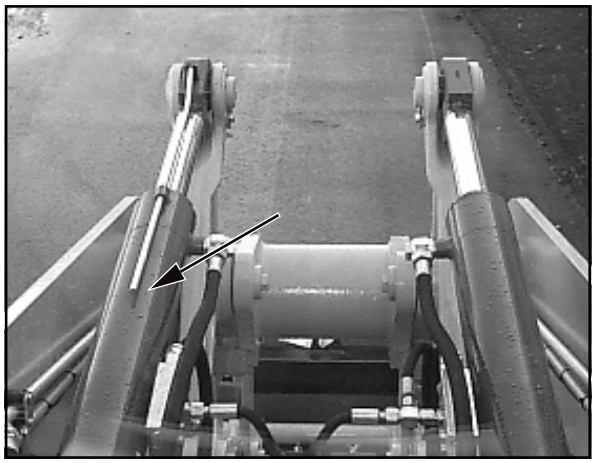


Figure 4-2

4.4 Bucket position indicator

The driver can read the position of the bucket using colour marks on the tip cylinder. When the marks on the tip cylinder and the end of the control rod (4-2/arrow) form a line, the bucket floor is parallel to the ground.

4.5 Acoustic warning buzzer

The loader features an acoustic warning system:

1. The hydraulic oil temperature exceeds 100° C (+/- 3° C).
   » in conjunction with indicator (4-10/14) «
2. The diesel engine is switched off (starter switch set to 0) when road or parking lights (4-8/7) are switched on.

4.6 Air-conditioning system (option)

The loader features an airconditioning system allowing the driver to set the desired temperature. It significantly enhances the driver's ability to respond and power of concentration. At the same time, it dehumidifies the air flowing into the cabin, prevents water condensation on the window panes and thus enhances the visibility. It also features a dust air filter and also prevents dust and other unpleasant and harmful substances from entering the cabin by generating a permanent slight overpressure.

To ensure trouble-free operation and full performance of the air conditioning system, you should switch on the compressor for a short period of time once a week; this will ensure lubrication of the inner seals.

At low ambient temperatures you must switch on the compressor only when the engine has reached its operating temperature. This will cause the refrigerant collecting at the lowest point of the compressor circuit when liquid to evaporate due to the heat irradiation of the engine. Liquid refrigerant can cause damage to the compressor.

DANGER

- Never open the air conditioning circuit; this will result in refrigerant loss.
- The circuit contains a gas that can be noxious under certain circumstances.

CAUTION

- Perform a visual inspection every 6 months. Pay particular attention to any loss of refrigerant.
- All work on the air conditioning system must only be carried out by authorized personnel.
- The compressor is equipped with an oil level gauge plug. You must never remove this plug since this would cause the system to run empty. An oil level check only occurs when the circuit is emptied.

NOTE

Leaks in the circuit will degrade the system's performance.

4.7 Lifting device suspension

When the loader must be driven over larger distances, especially with a loaded bucket, the lifting device suspension (4-8/9) 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, not for working with the loader.
- The pipe break protection is disabled when the lifting suspension is switched on.
- Do not switch on the lifting suspension while the fork-lift or lifting hook attachment is fitted.

NOTE

- A pushbutton (4-8/9) is used to switch on the lifting suspension.
- Turning the starter switch (4-8/13) to “0” automatically disables the lifting suspension; it must then be enabled if required.

4.8 Pipe break protection (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.

CAUTION

The pipe break protection is disabled when the lifting suspension is switched on.

4.9 Wheel change

DANGER

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

(1) Park the loader on a hard surface.

(2) Set the drive switch (4-7/3) to “0”.

(3) Apply the parking brake (4-7/4).

(4) When changing a wheel on the front axle:

- Lift and mechanically prop up the bucket arm [e.g. by inserting the bucket arm support (option) (1-1/arrow)] and lower the bucket arm until it rests on the bucket arm support.
- Block the swivel unit. To do this, remove the blocking wedge (1-3/arrow) from the holder, insert it into the swivel block (1-4/arrow) and secure it with the spring locking lever.

(4) When changing a wheel on the rear axle:

Lower the attachment to the ground.

Figure 4-3

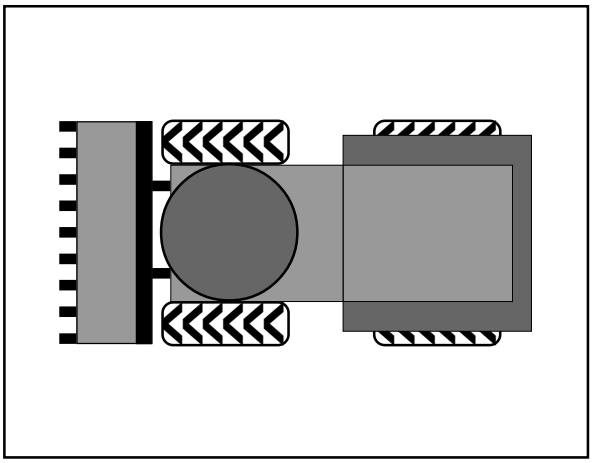


Figure 4-4

(5) Turn the ignition key (4-8/13) to the left to position “0”.

(6) Secure the hand levers for the working and auxiliary hydraulics (1-2/1 and 1-2/2).

(7) Ensure that the loader does not roll away by securing it on one of the wheels of the axis in both driving directions. The wheel that does **not** have to be changed is to be secured.

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

(9) Fit a suitable jack (minimum capacity 6.0 tons) from the side under the axle bridge in the vicinity of the axle fixture so that it is centred and cannot slip (4-3). Lift the front/rear axle until the wheel does not have any contact to the ground.

DANGER

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

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

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

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

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

NOTE

- Only the tyres that are listed in section 11.7 are permitted.
- Pay attention to the profile position.
- If the profile position of the spare tyre does not fit, the spare tyre may only be used temporarily until a suitable tyre can be fitted.
- All four tyres must be the same size and have the same PR rating (PR = ply rating: number of textile plies). For the running direction, if it exists, see Fig. 4-4.

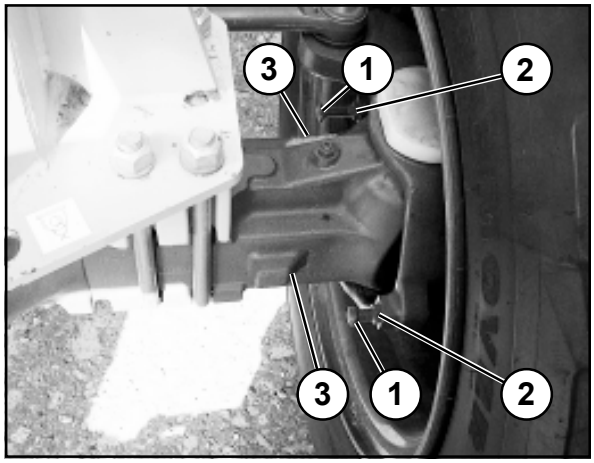
(14) Tighten the wheel nuts by hand.

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

(16) Tighten the wheel nuts to 600 Nm with a torque wrench.

CAUTION

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


3
1
2
3
1
2

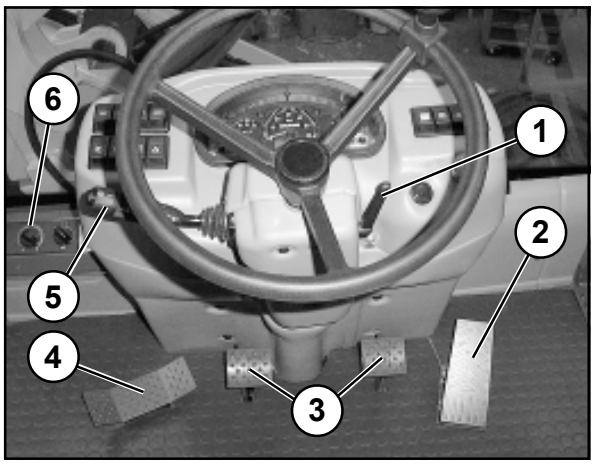


Figure 4-5

4.10 Controls

1 - Lock lever for steering column adjustment
  - to the front/rear
  - in axial steering column direction
2 - Accelerator
3 - Double pedal for service brake/inching
4 - Swivelling pedal
5 - Steering column switch
  - to the front: Turn signal, right
  - to the rear: Turn signal, left
  - to the top - Low beam
  - to the bottom - High beam
  - Push button - Signal horn
6 - Heater/ventilation/air-conditioning system (option)

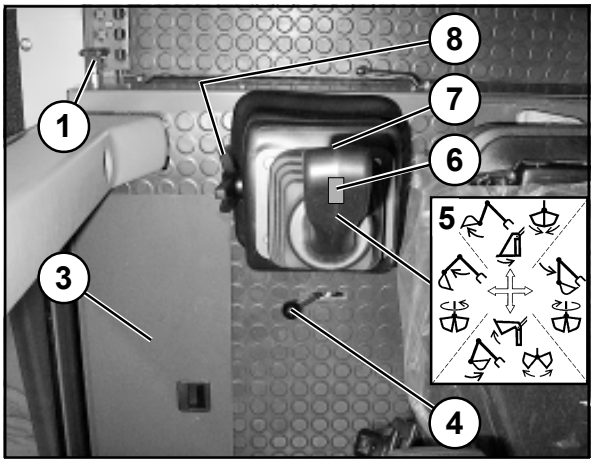


Figure 4-6

To the left of the driver's seat:

1 - Door handle
2 - free
3 - Maintenance door
4 - Switching lever for steering
  - outwards: four-wheel steering
  - inwards: rear-axle steering
5 - Pilot valve for auxiliary hydraulics
6 - Switch for auxiliary front-end excavator hydraulics (option)
7 - Dump interlock button (option)
8 - Handwheel for console adjustment (pilot valve for auxiliary hydraulics)

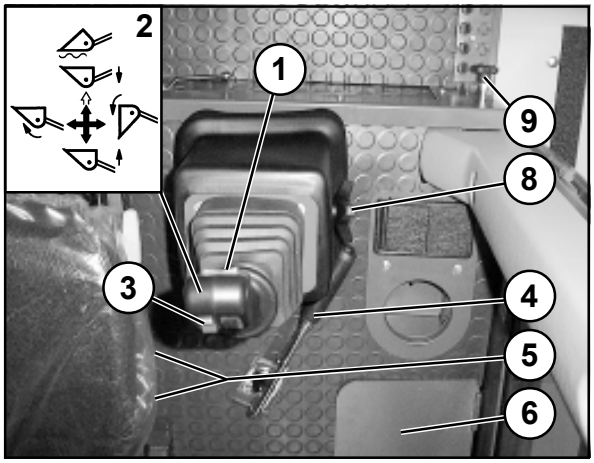


Figure 4-7

To the right of the driver's seat:

1 - Gear shift:
  - left: 2nd gear
  - centre: 1st gear
  - right: Alpha max. (turtle symbol)
2 - Pilot valve for working hydraulics
3 - Drive switch: forward/0/reverse
4 - Hand lever for parking brake
5 - Two sockets for connection of two laptops (e.g. for reading engine diagnostic codes (error codes), see chapter 9.1)
6 - Maintenance door
7 - free
8 - Handwheel for console adjustment (pilot valve for working hydraulics)
9 - Door handle

4.11 Instrument panel

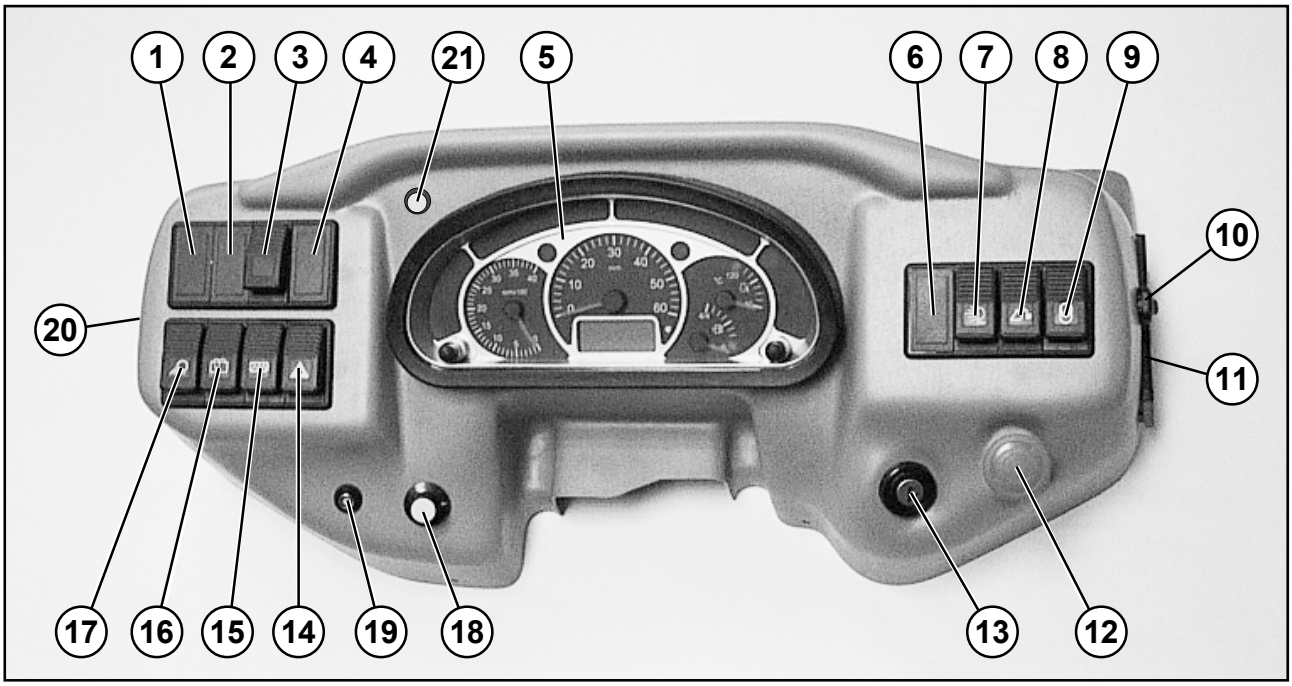


Figure 4-8

1 - Pushbutton for engine diagnosis
(engine error codes - see chapter 9.1 -)
2 - Pushbutton for fan reversal unit (option) see fig. 4-9c
3 - free
4 - Toggle switch for ECO-mode function

NOTE
Actuating the toggle switch for the ECO-mode function will reduce the engine speed when travelling at maximum speed in the 2nd gear stage, resulting in a reduced fuel consumption.

5 - Multifunction panel (4.11.1)
6 - Toggle switch for beacon light (option)
7 - Toggle switch for driving lights
- Position I: Parking light, tail light
- Position II: Low beam or high beam (depending on the position of the steering column switch 4-8/1)

8 - Pushbutton for releasing the quick-change device
9 - Toggle switch for lifting device suspension
10 - Socket
11 - Fuse box
12 - Emergency stop switch (traction drive cut-out)

DANGER
Immediately apply the parking brake (4-7/4) when you have actuated the emergency stop switch.

NOTE
To restart the loader after the emergency stop switch was actuated, you must shut down the engine, remove the battery main switch (8-31/2), insert it again after approx. 10 seconds and restart the engine.

13 - Starter switch
14 - Toggle switch for hazard flasher system
15 - Toggle switch for heatable rear window/ rear view mirror (option)
16 - Toggle switch for rear wiper/washer rear
17 - Toggle switch for work lights
- Position I: front
- Position II: front and rear

18 - Inching speed control

NOTE
You can set the maximum speed in the range from 0 to 12 km/h in the “Alpha max.“ gear stage.

18 - Hand throttle control (option)
19 - Switchover hand throttle/foot throttle (option)

DANGER
Before actuating the switchover
- do **not** actuate the accelerator (4-5/2),
- apply the parking brake (4-7/4),
- set the drive switch (4-7/3) to “0”,
- Turn the hand throttle (4-8/18) all the way to the left to position “0”.

Operate the vehicle only with the hand throttle enabled only if the drive switch is set to „0“ and the parking brake has been applied.
Moving the vehicle with the hand throttle engaged is expressly forbidden for reasons of safety.

20 - Fuse box
21 - Pushbutton for teach function (4.11.2)

Fuse box (4-8/11):

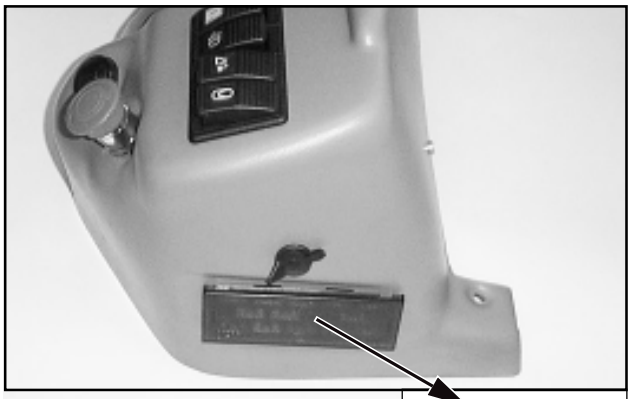


Figure 4-9a

1	Window wiper/washer	15.0 A
2	Turn indicator	7.5 A
3	Hydraulics	10.0 A
4	Rear window heater	15.0 A
5	High beam	7.5 A
6	Dipped beam	7.5 A
7	Tail light, left; parking light, left	5.0 A
8	Tail light, right; parking light, right	5.0 A
9	Spocket, interior lighting	10.0 A
10	Hazard flasher	10.0 A
11	Warning beacon (opt.), signal horn	20.0 A

Fuse box (4-8/20):

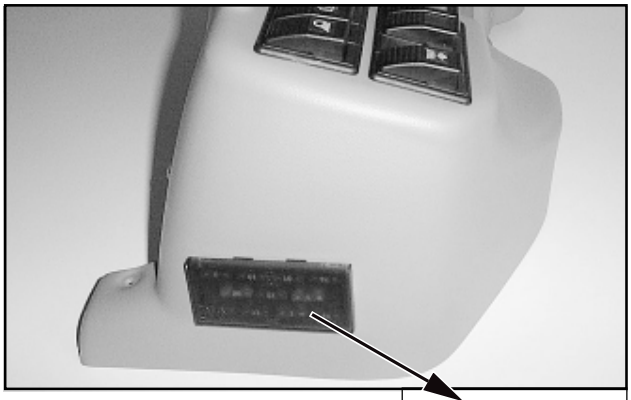


Figure 4-9b

1	Controller engine	7,5 A
2	Controller traction drive	3,0 A
3	Controller traction drive	15,0 A
4	Controller traction drive	1,0 A
5	Reversing light, reversing warning indicator	7,5 A
6	Working light, front	10,0 A
7	Working light, rear	10,0 A
8	Multifunction panel	3,0 A
9	Brake light	5,0 A
10	free	
11	Heating/air condition	20,0 A

opt. = optional equipment

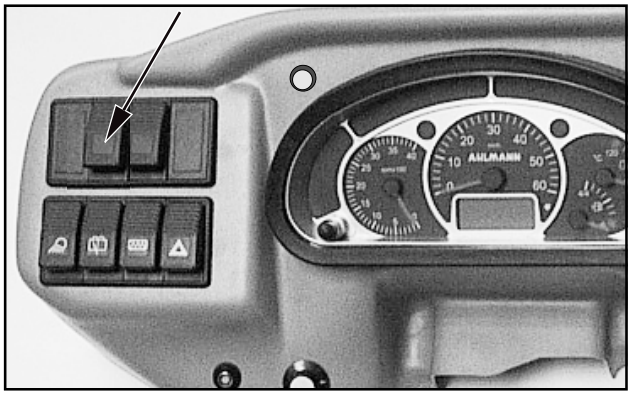


Figure 4-9c

Fan reversal (option)

The loader is equipped with a fan reversal unit, permitting the radiator to be cleaned quickly and easily.
Depending on the degree of air pollution in the working area, the fan reversal unit should be activated regularly in intervals of 15 minutes (in extreme cases) to daily (in less serious cases).
To do this, press and hold the fan reversal button (4-9c/ arrow).

NOTE

Fan reversal can be activated both when the loader is at a standstill and when it is moving.

4.11.1 Multifunction panel (4-8/5)

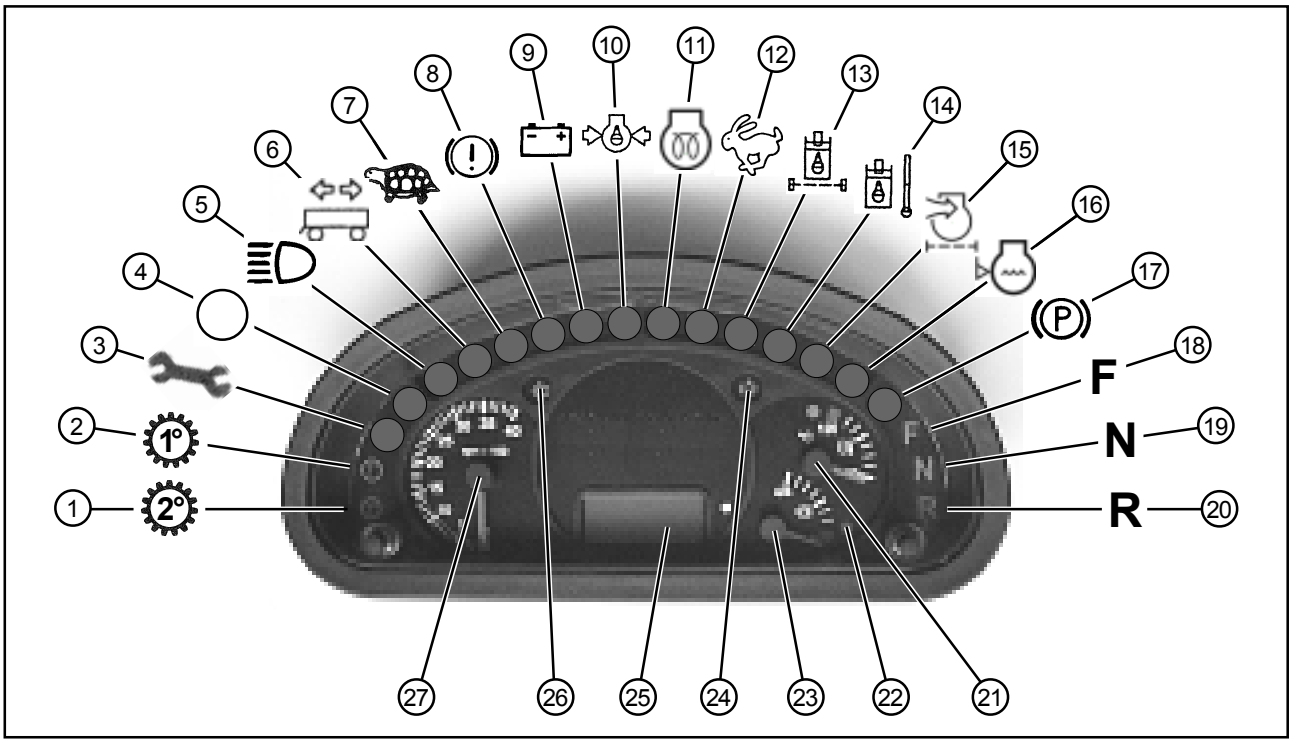


Figure 4-10

1 - Indicator: 2nd gear
2 - Indicator: 1st gear
3 - Error indicator: Traction drive
4 - Indicator: Engine diagnosis (4-8/1)
5 - Indicator lamp: High beam
6 - free
7 - Indicator lamp: “Alpha max.” drive stage
8 - Parking brake
9 - Battery charge indicator
10 - Engine oil pressure
11 - Indicator lamp: Preheating
12 - free
13 - Hydraulic oil filter clogging indicator (opt.)
14 - Signal lamp: Hydraulic oil temperature
15 - Air filter clogging indicator (opt.)
16 - Signal lamp: Low cooling water
17 - Indicator lamp: Parking brake
18 - Indicator lamp: Travel direction “forward“
19 - Indicator lamp: Travel direction “0-position“
20 - Indicator lamp: Travel direction “reverse“
21 - Cooling water temperature gauge
22 - Indicator lamp: Fuel on reserve
23 - Fuel gauge
24 - Indicator lamp: Turn signal “right“
25 - Operating hours counter and digital clock
26 - Indicator lamp: Turn signal “left“
27 - Rev meter

4.11.2 Teach function

4.11.2.1 How to activate the teach function

The teach function is required to write the minimum and maximum values to the traction drive controller after a potentiometer was replaced.

NOTE

To perform a teach-in, the engine of the loader must have been running until immediately before teaching in the potentiometers to obtain an inch signal via the brake pressure reservoirs. You must align all three relevant potentiometers at the same time even if only one was exchanged (accelerator, brake/inch pedal and potentiometer for speed limitation). All of them must be in the zero position (minimum value)!

1. Start the ignition and keep the pushbutton for the teach function (4-8/21) pressed. The error indicator (4-10/3) lights up permanently as soon as the controller has booted.
2. Release the pushbutton for the teach function (4-8/21) when the controller has booted (error indicator » 4-10/3 « is lit permanently).
3. Briefly press the pushbutton for the teach function (4-8/21) not later than 5 seconds after releasing the pushbutton for the teach function (4-8/21) and before the error indicator (4-10/3) goes dark and starts flashing.
4. This will activate the teach function for potentiometer alignment. The error indicator (4-10/3) now being in the flash mode signalises that the controller is ready for alignment.
5. You must now align all three relevant potentiometers to their maximum value even if you replaced only one of them. To do so, fully press down accelerator and brake/inch pedal and turn the potentiometer for speed limitation all the way to the right, then release or turn back all the way.
6. Press the pushbutton for the teach function (4-8/21) briefly three times to write the values into the controller and to conclude the teach-in.
7. Check all functions and repeat the procedure if necessary.

4.11.2.2 How to activate the emergency traction mode (when there is an accelerator fault)

1. When an accelerator fault is pending, set the drive direction switch (4-7/3) to the neutral position once as soon as the loader stops.

   NOTE

   A loader standstill is detected when a hydraulic motor speed of less than 50 rpm is detected. From this point onwards, you can press the pushbutton for the teach function (4-8/21) to activate a parameter-defined replacement value.

2. Preselect the drive direction (4-7/3) while keeping the pushbutton for the teach function (4-8/21) and the accelerator (4-5/2) pressed.

   NOTE

   The speed with the default value for the accelerator replacement value (30%) is
   - in the 1st gear: approx. 1 km/h
   - in the 2nd gear: approx. 6 km/h

4.11.2.3 How to activate the emergency traction mode (when there is a fault with the EP magnet of the hydro motor)

NOTE

When there is a fault with the EP magnet of the hydro motor, the hydro motor controller remains disabled, and driving is restricted to a maximum pump control value of 40%. The actual position of the hydro motor depends on the type of the fault and the hydraulic mechanical conditions.
- On level ground, the speed in the 1st gear is approx. 4 km/h.
- Negotiating inclines is possible with severe restrictions only.