Description

4 Description

4.1 Overview

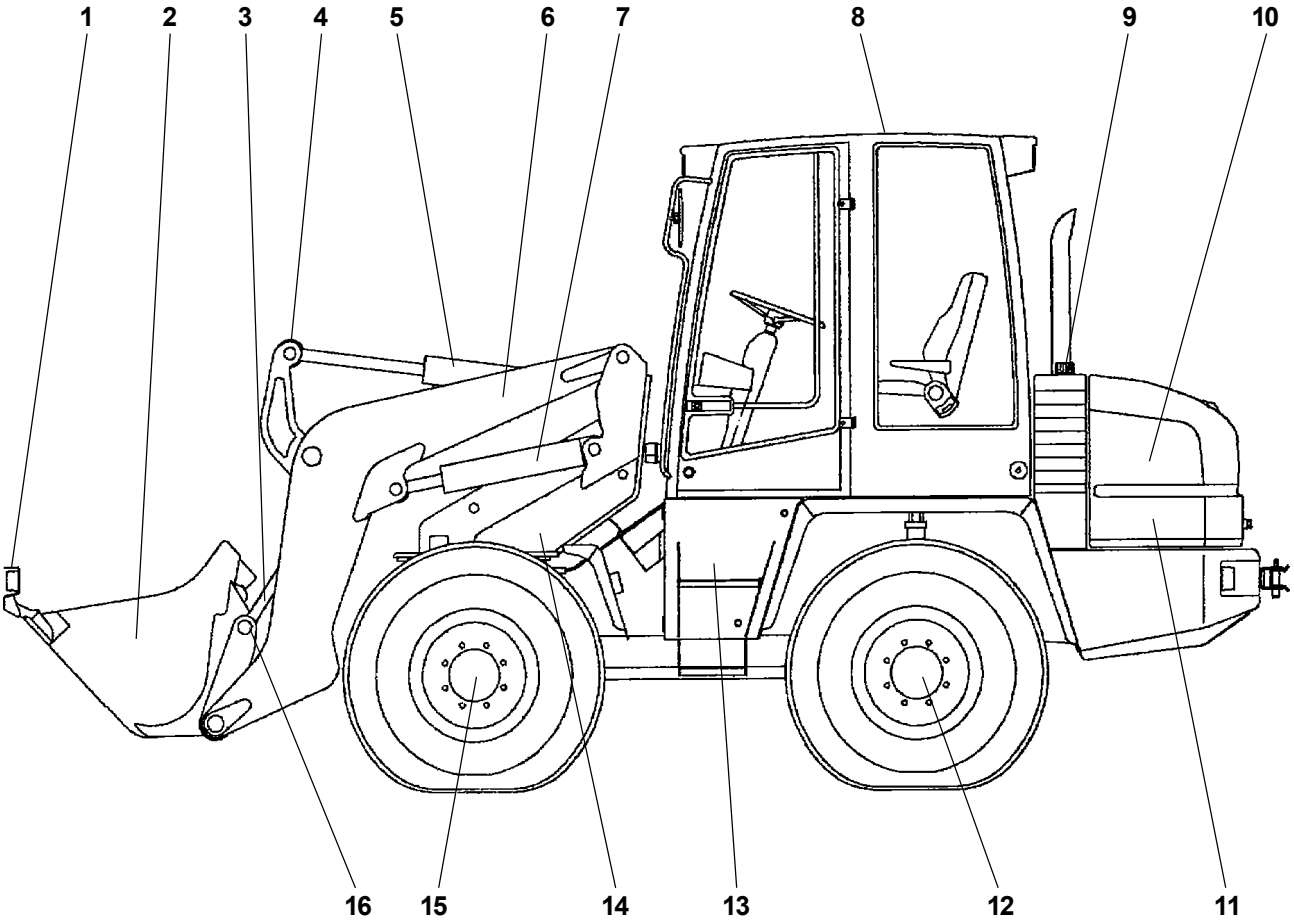

Figure 4-1

1 - Bucket protection
2 - Bucket/attachment
3 - Tip lever/tip shaft
4 - Tilt lever
5 - Tip cylinder
6 - Bucket arm
7 - Lift cylinder
8 - Operator's cabin
9 - Hydraulic oil reservoir/filling cap
10 - Drive unit
11 - Battery compartment (right-hand side of the loader)
12 - Rear axle
13 - Tool compartment
(contains tool box and bucket arm support)
14 - Revolving seat
15 - Front axle
16 - Quick-change device
17 - Fuel tank, ladder on right-hand side of vehicle (not shown)

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 axle distribution gear. The torque of the axial piston engine is transmitted by the cardan shaft to the front and rear axles, both with planetary gears.

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 axle is equipped with a self-locking differential (locking value 45%).

As standard, the rear axle is delivered without a self-locking differential. A self-locking differential (locking value 45%) is special equipment.

Tires

The following tires are permitted:

335/80 R 18	365/80 R 20
365/70 R 18	375/75 R 20
405/70 R 18	405/70 R 20

All four tires are of equal size. For the travel direction, if available, see Figure 4-2.

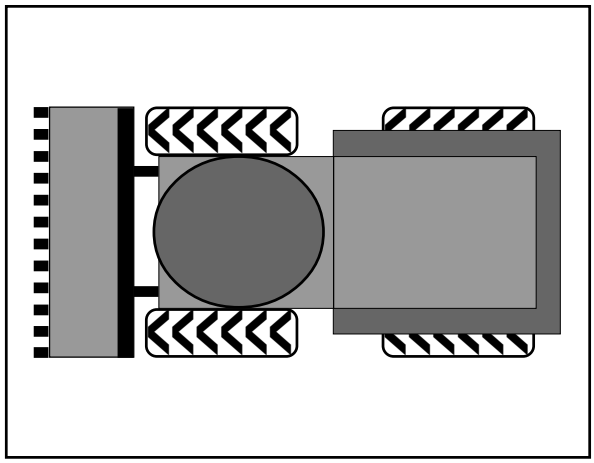

Figure 4-2

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.
Four-wheel and rear-wheel steering can be selected using a switch-over valve.

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”.

Brake system

Service brake / inching

The foot-actuated service brake is operated by a pedal (4-8/3). There is a fully hydraulically working wet lamella brake in the front axle. When the pedal is pressed down, the pilot pressure of the drive pump is relieved to the tank by an inching leverage and the hydraulic pressure is built up in the main brake cylinder. This means that the service barke is supported by the hydrostatic drive. Under normal working conditions, accelerating and braking is carried out with the accelerator pedal. Continuous inching is required if a high lifting speed (high diesel engine speed) is necessary at low traction speeds (inching).

Parking brake

The loader is equipped with a parking brake which is actuated manually via a hand lever (4-10/8), located to the right of the operator's seat, which applies the wet lamella brake at the front axle using a Bowden wire. When the parking brake is applied, the indicator lamp lights up (4-11/25) and the traction drive is electrically switched off.

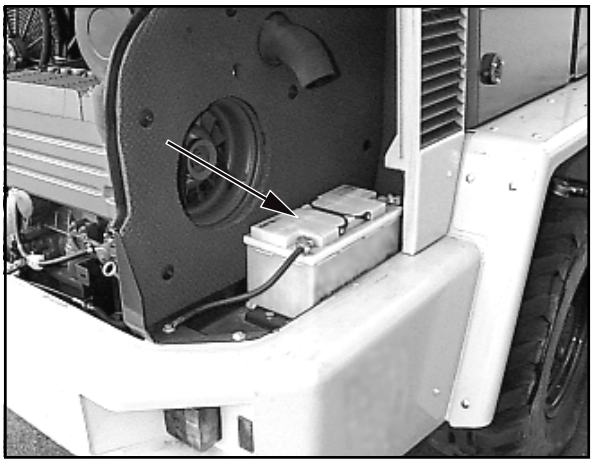

Figure 4-3

Battery

The battery compartment contains a maintenance-free battery (4-3/arrow) according to DIN 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 welding operations may only be performed if the battery main switch (4-10/5) has been pulled out.

Fuel supply system

The fuel tank is located on the right frame side bar. An electrical fuel gauge (4-11/7) in the operator's cabin monitors the fuel level in the tank. The filler neck (4-4/arrow) is located on the right side in the cabin access area.

Figure 4-4

Air filter device

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

Lift and tip devices

Via a control valve, a double-acting gear-type pump feeds

- two lift cylinders and
- one tip cylinder.

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".

Swivel mechanism and axle support

Two single-acting swivel cylinders are fed by a separate gear-type pump via a control valve. The revolving seat is connected with the cylinders by a chain drive. There is no play at all. The swivel and the lifting movements of the bucket arm can take place simultaneously and independently.

The bucket assembly can be swung 90° to the left or right.

When the bucket assembly is swivelled, the axle support is automatically switched on when the bucket arm position is ca. 30°. The support cylinder on the load side acting on the rear axle is thus loaded with hydraulic pressure by the load pressure via the support valve; it acts counter to the swivelled load.

NOTE

The axle support is deactivated when the arm is swung back.

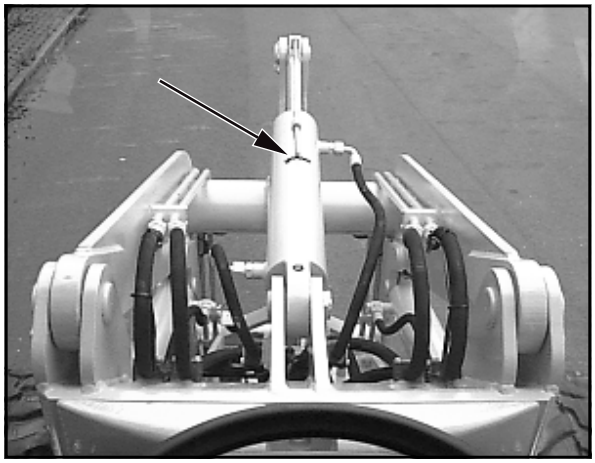

Figure 4-5

Bucket position indicator

Colored markings on the tip cylinder allow the driver to determine the bucket position. The bucket floor is parallel to the ground when the markings on the tip cylinder and the end of the indicator rod (4-5/arrow) are in line.

Float position

The loader is equipped with a floating position function that allows works such as leveling (scraping) to be performed on uneven ground. To use this, the hand lever for the working hydraulics (4-10/2) must be pressed beyond its pressure point into the forward poisition. The hand lever remains locked in this position until it is moved in the opposite direction lo lift the bucket arm again.

DANGER

The floating position function must only be switched on in the lowermost bucket arm position.

Lifting device suspension

(Option)
When the loader must be driven over larger distances, especially with a loaded bucket, the lifting device suspension (4-11/15) should be activated to avoid resonant motion. This becomes even more important with increasing unevenness of the terrain and increasing speed of the loader.

Pipe break safety device

(Option)
A pipe break safety valve is installed on the bottom side of 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 of the tipping rod are blocked until the damage is repaired.

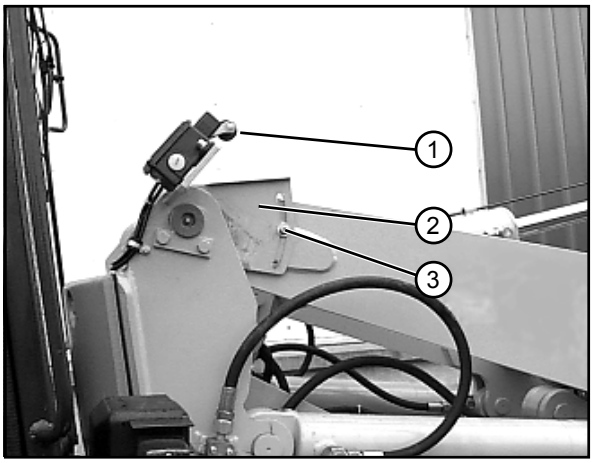

Figure 4-6

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 (1-2/arrow).

(3) Loosen the hex screw (size 10) (4-6/3) of the shift gate and turn the shift gate (4-6/2) towards the roller switch (4-6/1) until it switches audibly.

(4) Tighten the hex screw of the shift gate.

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.

Equipment

Operator's cabin

Standard ROPS design with EEC conformance certificate. Comfortable entry and exit from both sides, good all-round vision, lockable doors, sun visor, front and rear windscreen wipers/washers, rear window heater, multi-speed heating/ventilation system, heating and ventilation filter.

Driver's seat

The driver's seat is hydraulically mounted and provided with weight compensation. Individual seat adjustments for safety and comfort can be made for horizontal and height positioning as well as for backrest and seat inclination. The seat belt, the fold-up arm rests and the ergonomically formed seat and back rest assure a safe and comfortable seat position.

4.3 Changing a wheel

(1) Park the loader on solid ground.

(2) Set the drive switch (4-10/3) to “0”.

(3) Apply the parking brake (4-10/8).

(4) Changing a front wheel:

- Lift the bucket arm and insert the bucket arm support (1-1/arrow).
- Block the swivel mechanism by inserting the blocking wedge (1-3/arrow) in the swivel blocking device (1-4/arrow) and secure it using the spring cotter pin.

(4) Changing a rear wheel:
Place the attachment on the ground.

(5) Turn the ignition key (4-11/19) to the left to the “0” position.

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

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

(8) Loosen the wheel nuts of the wheel to be changed until further loosening does not require a large torque.

(9) Fit an appropriate jack (minimum capacity = 2.0 t) from the side under the axle bridge in the vicinity of the axle fixture so that it is centered and cannot slip (4-7). Lift the front/rear axle from the side until the wheel does not have any contact to the ground.

Figure 4-7

DANGER

- Block the jack by a suitable support to prevent any penetration into the ground.

- Make sure that the jack is fitted well.

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

(13) Push the new wheel on to the planetary axle.

NOTE

- Pay attention to the profile position.
- If the profile position of the replacement wheel does not fit, the replacement wheel must only be used until an appropriate one can be fitted as soon as possible.

(14) Fit the wheel nuts by hand.

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

(16) Tighten the wheel nuts with a torque wrench to 500 Nm.

CAUTION

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

4.4 Controls

1 - Locking lever for steering column adjustment
  - forward/backward
  - higher/lower
2 - Accelerator pedal
3 - Double pedal for service brake/inching
4 - Foot pedal for swiveling
5 - Steering column switch
  - to the front: Turn indicator, right
  - to the rear: Turn indicator, left
  - up - Low beam
  - down - High beam
  - pushbutton - Signal horn

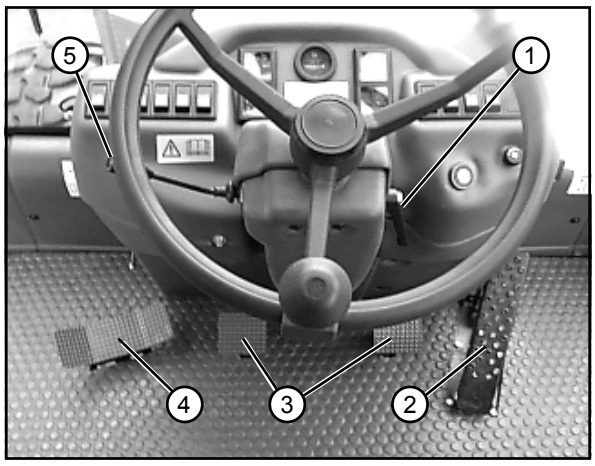

Figure 4-8

To the left of operator's seat:

1 - Door handle
2 - Water tank for wiper system
3 - Maintenance door
4 - Switch lever for steering

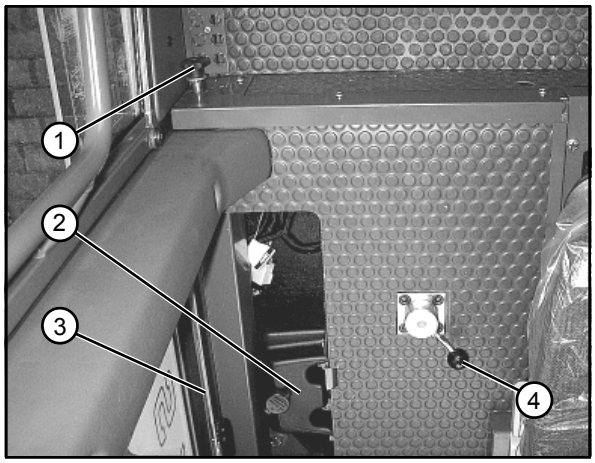

Figure 4-9

To the right of operator's seat:

1 - Hydraulic driving steps:
  - right - speed I: slow
  - left - speed II: fast
2 - Pilot valve for working hydraulics
3 - Drive switch: forward/0/reverse
4 - Compensation tank for brake fluid
5 - Battery main switch
6 - Maintenance door
7 - Holder
8 - Hand lever for parking brake
9 - Handwheel, console adjustment of pilot valve for working hydraulics
10 - Door handle
11 - Actuator for auxiliary hydraulics:
  - upper pushbutton:
    - Lock attachment
    - Close multipurpose bucket
  - bottom pushbutton:
    - Unlock attachment
      » in conjunction with 4-10/2 «
    - Open multipurpose bucket

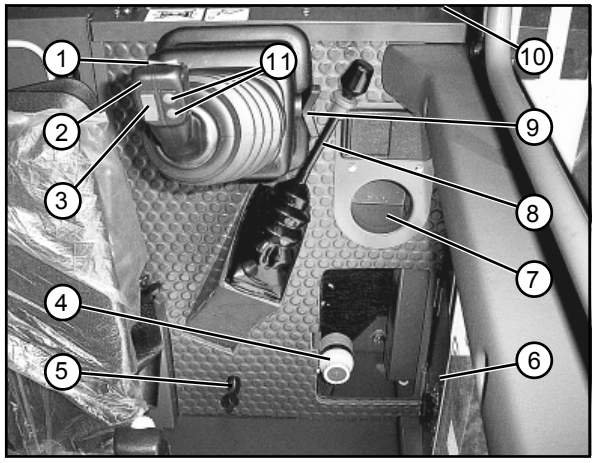

Figure 4-10

4.5 Instrument panel

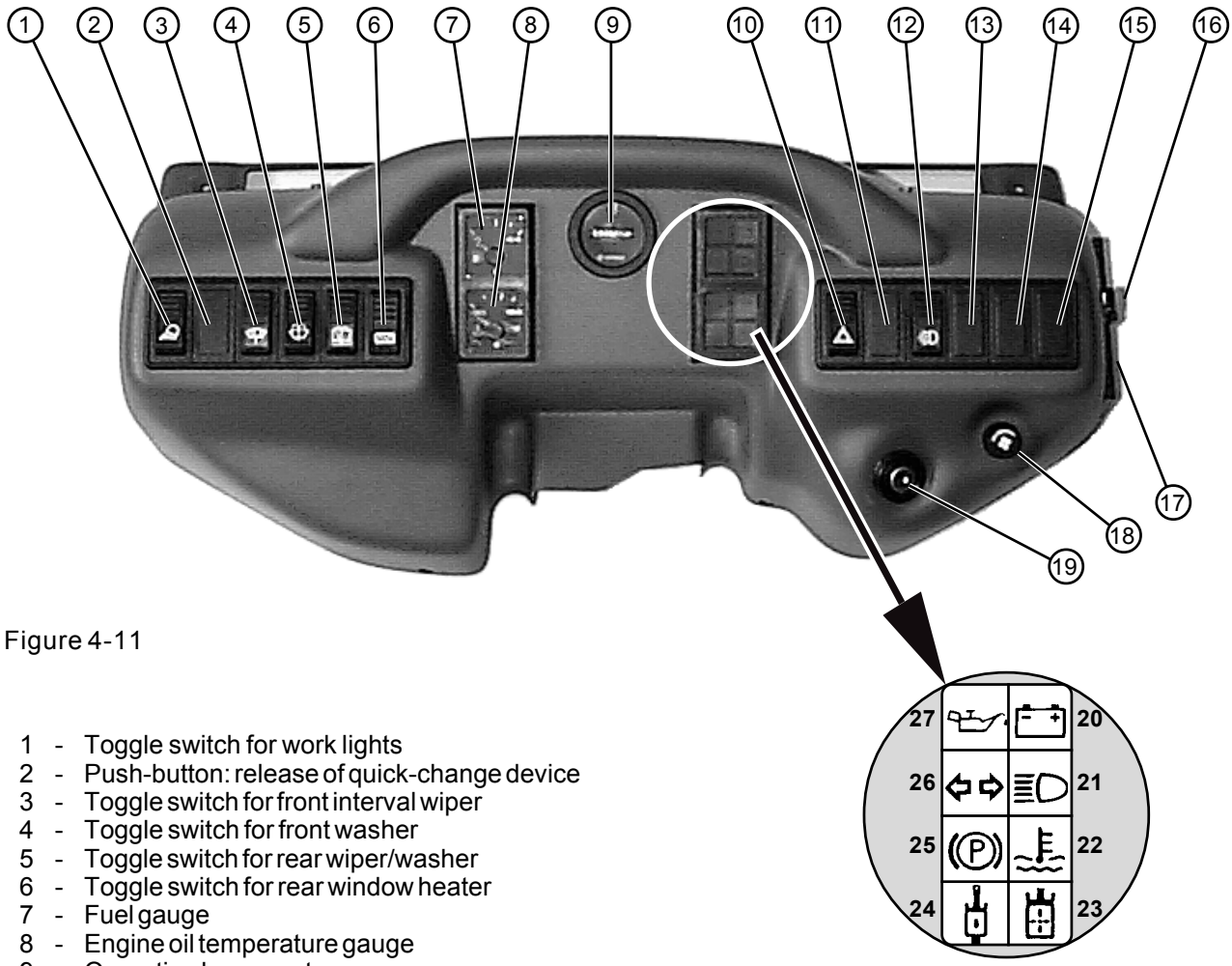

Figure 4-11

1 - Toggle switch for work lights
2 - Push-button: release of quick-change device
3 - Toggle switch for front interval wiper
4 - Toggle switch for front washer
5 - Toggle switch for rear wiper/washer
6 - Toggle switch for rear window heater
7 - Fuel gauge
8 - Engine oil temperature gauge
9 - Operating hours meter
10 - Toggle switch for hazard flasher
11 - Toggle switch for warning beacon (option)
12 - Toggle switch for road lights
13 - Gear switch (only for fast loaders)
up: gear step II, down: gear step I
14 - Not used
15 - Toggle switch for lifting device suspension (option)
16 - Socket
17 - Fuse box
18 - Rotary switch for heating/fan
19 - Starter switch
20 - Battery charge control lamp
21 - Control lamp for high beams
22 - Control 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