

Description

4 Description

4 Description

4.1 Overview

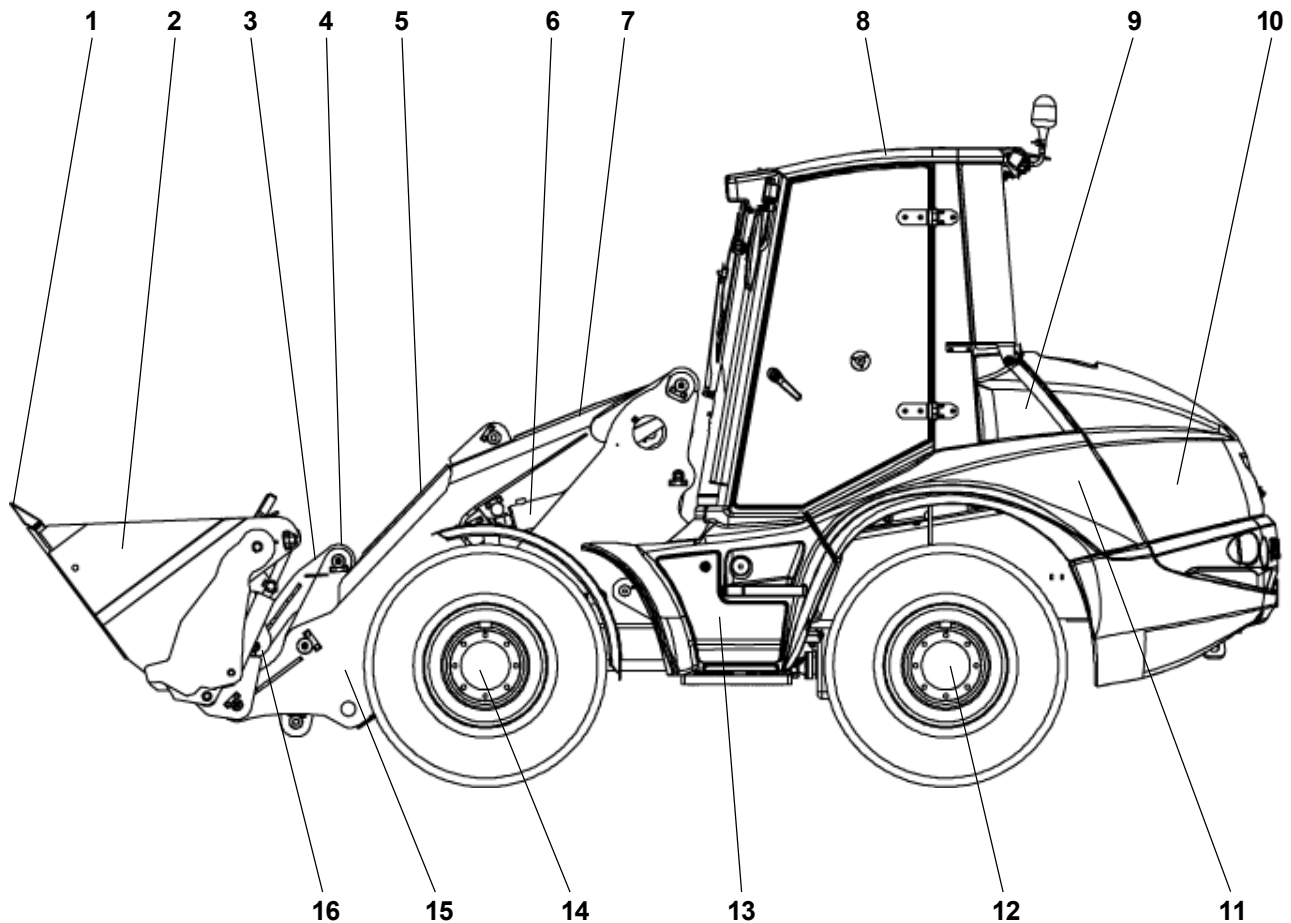


Figure 4-1

- 1 - Bucket protection
- 2 - Bucket/attachment
- 3 - Tip lever
- 4 - Deflection lever
- 5 - Tip cylinder
- 6 - Lift cylinder
- 7 - Compensation cylinder
- 8 - Driver's cab
- 9 - Battery (right truck side – behind maintenance flap)
- 10 - Drive motor
- 11 - Hydraulic oil tank/filler neck (underneath the engine hood)
- 12 - Rear axle
- 13 - Tool box
- 14 - Front axle
- 15 - Bucket arm
- 16 - Quick-change device
- 17 - Fuel tank, steps at right loader side (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 directly flanged to the distribution gear of the rear axle (with planetary gear). The distribution gear transmits the torque of the axial piston engine directly to the rear axle and to the front axle (with planetary gear) with a cardan shaft.



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 35%).

A self-locking differential (locking value 100%) is special equipment.

Tyres

The following tyres are permitted:

AF 1050

16/70 R 20
405/70 R 20
420/75 R20
500/45-22.5
550/45 R 22.5
14.5-R 20

AF 1200

16/70 R 20
405/70 R 20
420/75 R20
500/45-22.5
550/45 R 22.5

All four tyres are of equal size. For the running direction, see Fig. 4-2.

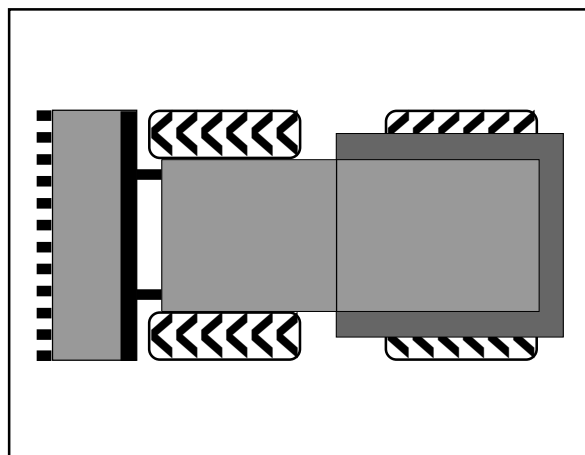


Figure 4-2

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 and crab steering can be selected by way of a toggle 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".

Air filter device

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

4 Description



Figure 4-3

Battery

The motor compartment on the right side of the loader 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 (8-24/arrow) has been pulled out.

Fuel supply system

The fuel tank is located on the right frame side bar. An electrical fuel gauge (4-14/23) 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.

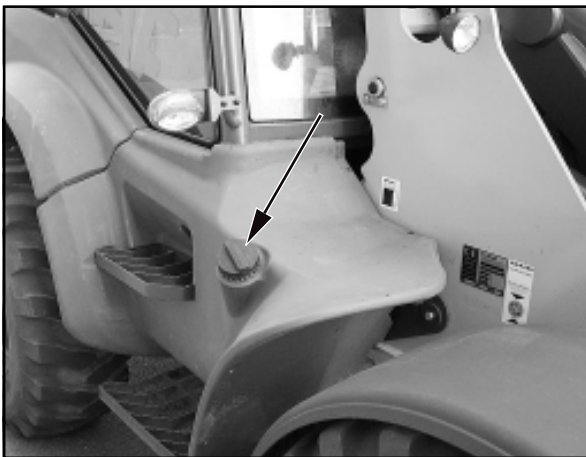


Figure 4-4

Lift and tip devices

Via a servo valve a double-acting gear-type pump drives

- two lifting cylinders
- one tip cylinder
- one compensation cylinder

All movements of the bucket arm, the bucket, the attachments and the quick-change device are controlled from the driver's seat by (one) pilot valve. With this pilot valve/these pilot valves, you can continuously control movements from very low to very high speed.

Bucket position indicator

In the dashboard there is an indicator lamp (4-5/arrow) indicating when the bucket floor is parallel to the ground.



NOTE

With the indicator lamp lit permanently, the bucket floor is parallel to the ground.



Figure 4-5

Floating position

The loader features a floating position. It is activated by moving the hand lever for working and auxiliary hydraulics (4-10/1) beyond its pressure point to the frontmost position. The hand lever remains engaged in this position until it is pulled back.



DANGER

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

Lifting device suspension (option)

When the loader must be driven over larger distances, especially with a loaded bucket, the lifting device suspension (4-6/arrow) 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 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.



Figure 4-6

Equipment**Operator's cabin**

Spacious ROPS panorama cabin with two lockable side doors for fully fledged entry and exit on both sides. The spacious doors opening up to 180° can be locked within the vehicle contour in two positions (gap or 180°). Tinted windows, parallel operating front wipers for maximum field of view, rear screen wiper, front and rear screen washers, entirely heatable rear screen, 2 large hinged, engaging external rear-view mirrors, tinted rooflight, height and inclination adjustable steering column, ergonomic adjustable joystick controls, sunshade, heater and fresh air system with external air filter and recirculating air function, coat hook and numerous oddment trays.

Driver's seat

Multi-position driver's seat [longitudinal adjustment of seat, longitudinal adjustment of seating area, seating area inclination, backrest inclination, armrest(s)] with weight-controlled, mechanic suspension and safety belt.

Dump interlock (option)

The loader is equipped with an automatic dump interlock as series feature. This is to prevent tipping over in the upper lifting range when operating, for example, a bucket or fork-lift attachment.

In certain situations, it is feasible to further tilt up the attachment (e.g. lifting hook or front-end excavator) to extend the range of motion of the attachment, for example. This will also increase the payload and last but not least the lifting height.

Actuating toggle switch 4-10/3 disables the automatic dump interlock.

**DANGER**

Set the toggle switch „Dump interlock“ (4-10/3) back to its original position when work is finished. The automatic dump interlock is enabled again.



Figure 4-7

4.3 Wheel change

(1) Park the loader on a hard surface.

(2) Set the drive switch (4-11/4) to "0".

(3) Apply the parking brake (4-12/2).

(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.

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

Lower the attachment to the ground.

(5) Turn the ignition key (4-10/7) to the left to position "0".

(6) Secure the ball hand lever for the working and auxiliary hydraulics (4-10/2).

(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 2.0 tons) from the side under the axle bridge in the vicinity of the axle fixture so that it is centred and cannot slip (4-7). 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

- 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.

(14) Tighten the wheel nuts by hand.

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

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



CAUTION

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

4.4 Controls

- 1 - Service brake pedal
- 2 - Steering column switch
 - To the front: Turn signal, right
 - To the rear: Turn signal, left
 - Down - Dipped beam
 - Centre - High beam
 - Up - Headlamp flasher
 - Push button - Signal horn
 - Turn, step 1: Windshield wiper, front
 - Turn, step 2: Front windshield wiper fast
 - Turn, step 3: Interval windshield wiper, front
 - Push upper ring in axial direction: Windshield washer, front
- 3 - Steering type switching
 - To the left - Four-wheel steering
 - Centre position - Rear-axle steering
 - To the right - Crab steering



NOTE

For close-to-edge working.

- 4 - Toggle switch for rear wiper/washer
- 5 - Toggle switch for rear window heater
- 6 - Button for release of quick-change device
- 7 - Bucket position indicator



NOTE

With the indicator lamp lit permanently, the bucket floor is parallel to the ground.

- 1 - Multifunction panel (see chapter 4.4.1 Fig. 4-14)
- 2 - Toggle switch for warning beacon (option)
- 3 - Toggle switch for work lights
 - Position 1: front
 - Position 2: front and rear
- 4 - Toggle switch for hazard flasher system
- 5 - Lock lever for steering column adjustment
 - to the front/rear
 - in axial steering column direction
- 6 - Accelerator

- 1 - Pilot valve for working and auxiliary hydraulics
 - 2 - Toggle switch for switching off pilot control
- NOTE**
set toggle switch to "up"
- 3 - Toggle switch for dump interlock (option)
 - 4 - Toggle switch for permanent auxiliary hydraulics (option)
 - 5 - 2-pole socket
 - 6 - Air-conditioning system (option)/heater
 - 7 - Starter switch
 - 8 - Button for fan reversal unit (option)
 - 9 - Toggle switch for switching rear axle support (option)
 - 10 - Toggle switch for lifting device suspension (option)

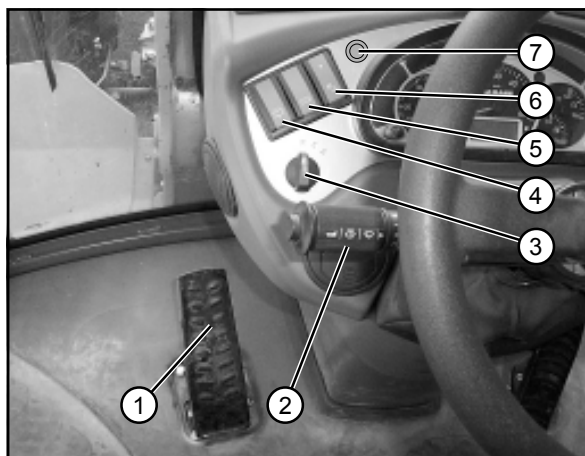


Figure 4-8

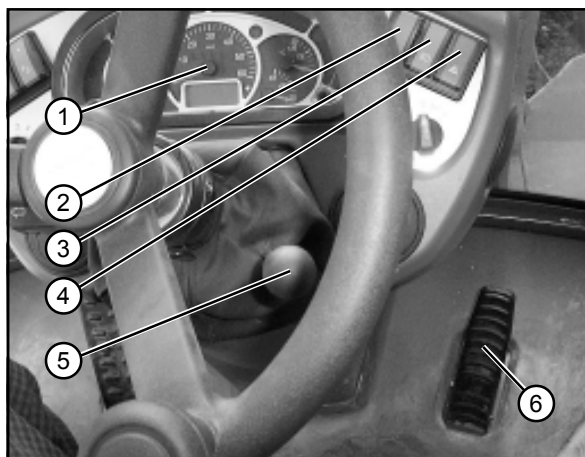


Figure 4-9

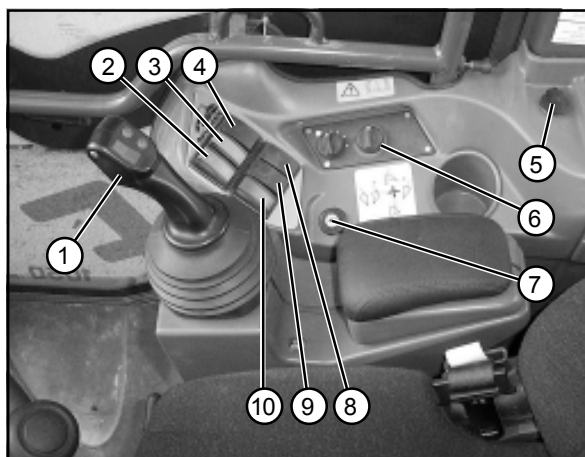


Figure 4-10

4 Description

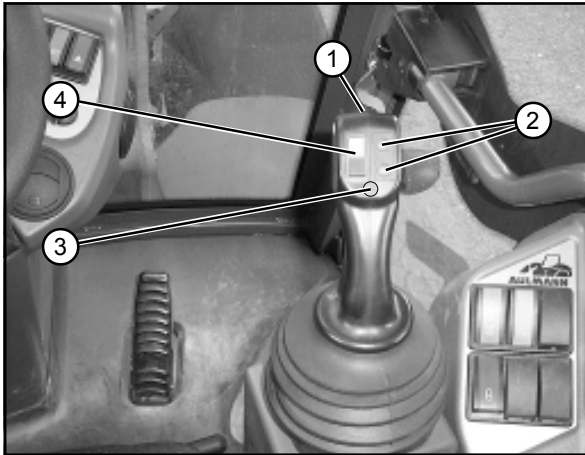


Figure 4-11

- 1 - Gear shift
 - 2nd gear
 - 1st gear
 - Alpha max. (turtle symbol)
- 2 - Actuator for auxiliary hydraulics:
 - Upper pushbutton:
 - Lock attachment
 - Close multipurpose bucket
 - Lower pushbutton:
 - Unlock attachment
 - » in conjunction with 4-8/6 «
 - Open multipurpose bucket
- 3 - Actuator for differential lock (option)
- 4 - Drive switch: forward/0/reverse

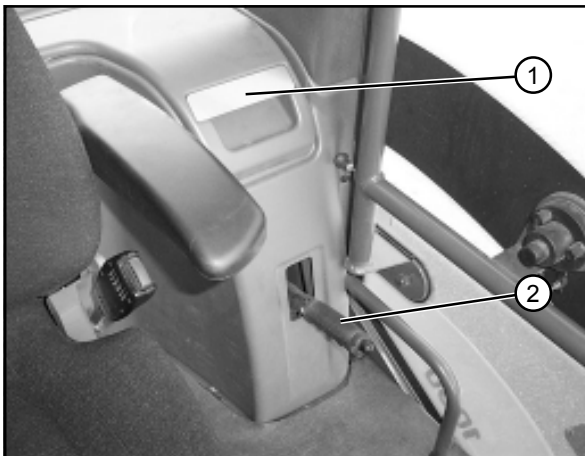


Figure 4-12

- 1 - Storage compartment
- 2 - Hand lever for parking brake

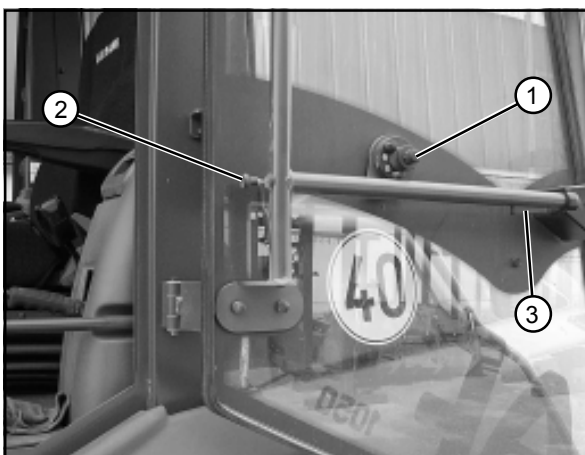


Figure 4-13

- 1 - Door stay device
(press door stay device = unlock stay device)
- 2 - Bowden cable for door
(pull Bowden cable = unlock stay device)
- 3 - Door opener (close door)

4.4.1 Multifunction panel (4-9/1)

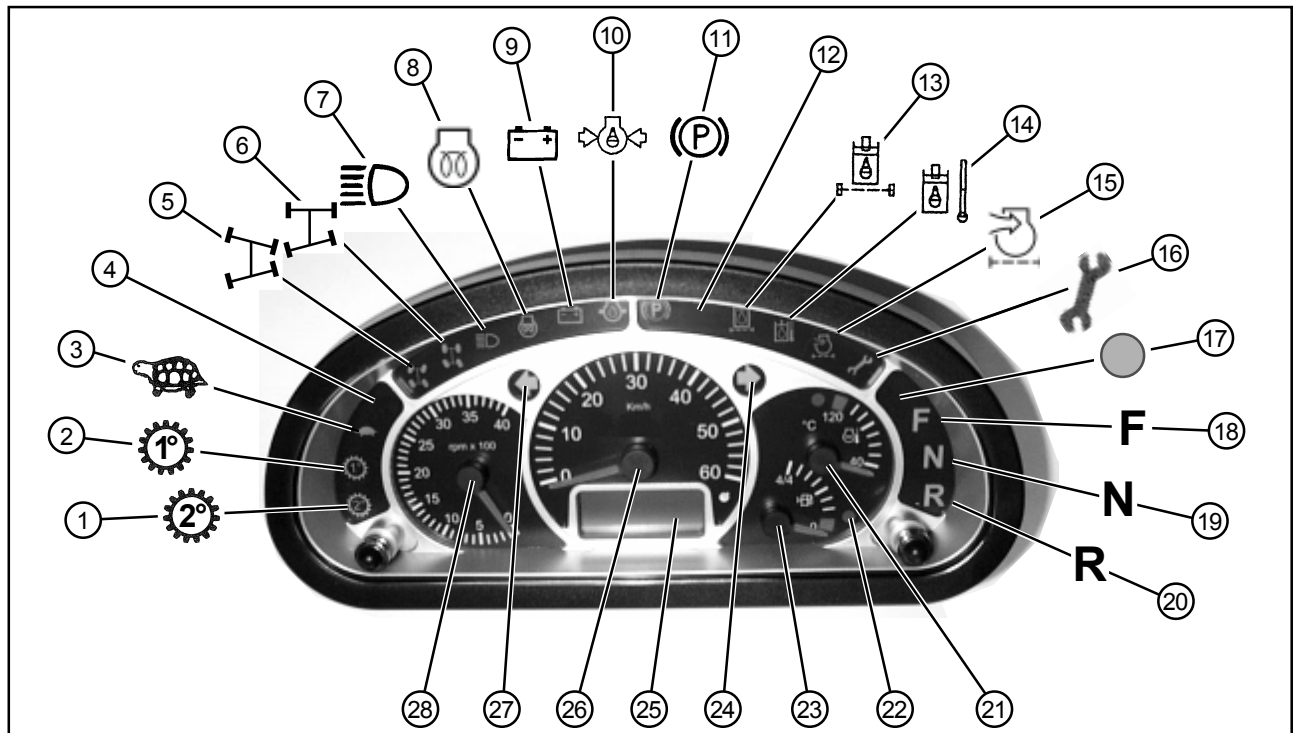


Figure 4-14

- 1 - Indicator lamp: 2nd gear
- 2 - Indicator lamp: 1st gear
- 3 - Indicator lamp: „Alpha max.“ gear
- 4 - free
- 5 - Indicator lamp: four-wheel steering
- 6 - Indicator lamp: rear-axle steering
- 7 - Indicator lamp: High beam
- 8 - Indicator lamp: Preheating
- 9 - Battery charge indicator lamp
- 10 - Indicator lamp: engine oil pressure
- 11 - Indicator lamp: Parking brake
- 12 - free
- 13 - Hydraulic oil filter clogging indicator
- 14 - Warning lamp: hydraulic oil temperature
- 15 - Air filter clogging indicator
- 16 - free
- 17 - Indicator lamp: Differential lock
- 18 - Indicator lamp: Travel direction „forward“
- 19 - Indicator lamp: Travel direction „0-position“
- 20 - Indicator lamp: Travel direction „reverse“
- 21 - Coolant 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 - Tachometer (fast loader)
- 27 - Indicator lamp: Turn signal „left“
- 28 - RPM meter



Figure 4-15

4.4.2 Fuses/relays



NOTE

Fuses, relays, turn signal relay, interval relay etc. (4-16) are located behind the maintenance flap on the right side of the loader (4-15/arrow).

Type 1:

- 1 - Interval timer (K1)
- 2 - ECU steering switch
- 3 - Relay for gear shift (K5) (fast loaders)
- 4 - Turn signal relay
- 5 - Acoustic buzzer/hydraulic oil temperature
- 6 - Relay for front working lights (K4)
- 7 - Timer relay for dump interlock (K24)
- 8 - Maxi relay (K25) (power supply)

Fuses:

| | |
|--|--------|
| 1 - Hazard flasher | 15.0 A |
| 2 - Warning beacon (opt.), 2-pole socket | 10.0 A |
| 3 - Working lights, front | 20.0 A |
| 4 - Working lights, rear | 15.0 A |
| 5 - Traction drive, steering | 20.0 A |
| 6 - Hydraulics | 20.0 A |
| 7 - Turn indicator | 7.5 A |
| 8 - Windshield wiper/washer front/rear | 20.0 A |
| 9 - Rear window heater | 20.0 A |
| 10 - Heater fan motor | 20.0 A |
| 11 - Brake lights | 5.0 A |
| 12 - Engine shut-off | 5.0 A |
| 13 - Parking light, left; tail light, left | 5.0 A |
| 14 - Parking light, right; tail light, right | 5.0 A |
| 15 - Dipped beam | 15.0 A |
| 16 - High beam | 15.0 A |

Relays:

- K10 - Traction drive cut-out
- K11 - Differential lock
- K12 - Alpha max.
- K13 - Power adjustment, forward
- K14 - Power adjustment, reverse
- K15 - Start-up interlock
- K16 - Fan control
- K17 - Dump interlock
- K18 - Dump interlock
- K19 - free
- K20 - 2. auxiliary hydraulics circuit (opt.)
- K21 - 2. auxiliary hydraulics circuit (opt.)
- K22 - 1. auxiliary hydraulics circuit
- K23 - 1. auxiliary hydraulics circuit

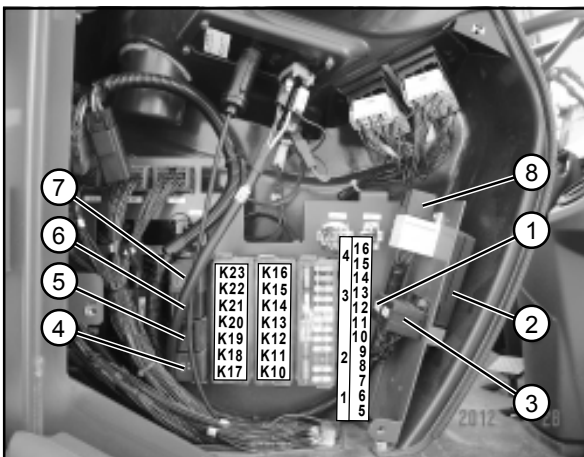


Figure 4-16

Type 2:

- 1 - Interval timer (K1)
- 2 - ECU steering switch
- 3 - Relay for gear shift (K5) (fast loaders)
- 4 - Turn signal relay
- 5 - Acoustic buzzer/hydraulic oil temperature
- 6 - Relay for front working lights (K4)
- 7 - Timer relay for dump interlock (K24)
- 8 - Maxi relay (K25) (power supply)

Fuses:

| | |
|--|--------|
| 1 - 4 | free |
| 5 - Traction drive | 15,0 A |
| 6 - Steering | 20,0 A |
| 7 - Hydraulics | 20,0 A |
| 8 - Windshield wiper/washer front/rear | 20,0 A |
| 9 - Rear window heater | 20,0 A |
| 10 - Heater fan motor | 20,0 A |
| 11 - Engine shut-off | 10,0 A |
| 12 - 18 | free |
| 19 - Working lights, front | 20,0 A |
| 20 - Working lights, rear | 15,0 A |
| 21 - | free |
| 22 - Drive-away interlock | 5,0 A |
| 23 - 2-pole socket | 15,0 A |
| 24 - Radio, Interior lighting | 5,0 A |
| 25 - Warning beacon (opt.) | 10,0 A |
| 26 - Hazard flasher | 15,0 A |
| 27 - Turn indicator | 7,5 A |
| 28 - Brake lights | 5,0 A |
| 29 - Parking light, left; tail light, left | 5,0 A |
| 30 - Parking light, right; tail light, right | 5,0 A |
| 31 - Dipped beam | 15,0 A |
| 32 - High beam | 15,0 A |

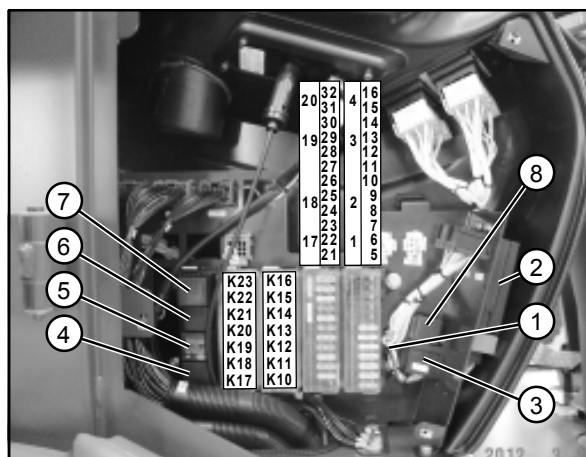


Figure 4-16

Relays:

- K10 - Traction drive cut-out
- K11 - Differential lock
- K12 - Alpha max.
- K13 - Power adjustment, forward
- K14 - Power adjustment, reverse
- K15 - Start-up interlock
- K16 - Fan control
- K17 - Dump interlock
- K18 - Dump interlock
- K19 - free
- K20 - 2. auxiliary hydraulics circuit (opt.)
- K21 - 2. auxiliary hydraulics circuit (opt.)
- K22 - 1. auxiliary hydraulics circuit
- K23 - 1. auxiliary hydraulics circuit

Type 3:

Relays:

- K1 - Windshield wiper/washer/interval timer
- K2 - Turn signal relay
- K3 - Buzzer
- K4 - Timer (option)
- K5 - Working lights, front
- K6 - Working lights, rear (option)
- K7 - Interrupt telescoping
- K10 - Traction drive
- K11 - Differential lock (option)
- K12 - Alpha max.
- K13 - Power control: forward
- K14 - Power control: reverse
- K15 - Start-up interlock
- K16 - Fan control
- K17 - Dump interlock (option)
- K18 - Dump interlock (option)
- K19 - Air-conditioning system (option)
- K20 - 2nd auxiliary hydraulics circuit – CLOSED - (option)
- K21 - 2nd auxiliary hydraulics circuit – OPEN - (option)
- K22 - 1st auxiliary hydraulics circuit – CLOSED - (option)
- K23 - 1st auxiliary hydraulics circuit – OPEN - (option)
- K24 - Transmission controller PLC (fast loader only)
- K25 - Telescoping PLC
- K26 - free
- K27 - High current relay (12 V/120 A)
- K28 - Working platform preparation (option)
- ECU - Steering system controller

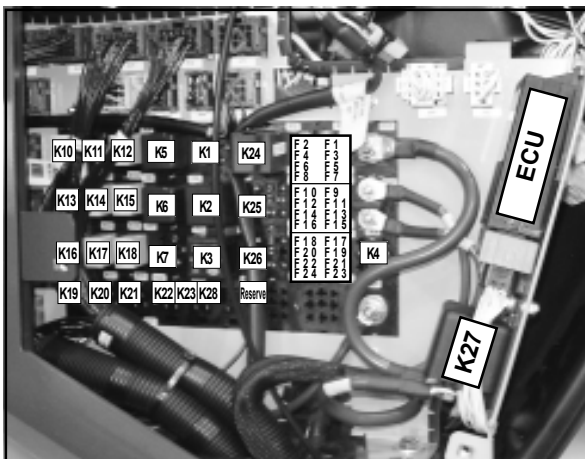


Figure 4-16

Fuses:

- | | |
|---------------------------------|--------|
| F1 - Traction drive | 10.0 A |
| F2 - Steering | 7.5 A |
| F3 - Hydraulics | 20.0 A |
| F4 - Windshield wiper/washer | 20.0 A |
| F5 - Rear window heater | 20.0 A |
| F6 - Heating/air condition | 20.0 A |
| F7 - Engine shut-off, fuel pump | 10.0 A |
| F8 - Working lights, front | 15.0 A |
| F9 - Working lights, rear | 15.0 A |
| F10 - Drive-away interlock | 5.0 A |
| F11 - Socket | 15.0 A |
| F12 - Radio/interior lighting | 5.0 A |
| F13 - warning beacon (opt.) | 15.0 A |
| F14 - Hazard flasher | 15.0 A |
| F15 - Turn indicator | 7.5 A |
| F16 - Brake lights | 5.0 A |
| F17 - Parking light, left | 5.0 A |
| F18 - Parking light, right | 5.0 A |
| F19 - Dipped beam | 15.0 A |
| F20 - High beam | 15.0 A |
| F21 - F24 - Spare | |

- 1 - Maxi fuse (100 A): Glow start system
Maxi fuse (250 A): Glow start system 63 kW engine
- 2 - Main fuse (100 A): Loader electrics
- 3 - Main fuse (30 A): Loader electrics
- 4 - Main fuse (50 A): Loader electrics

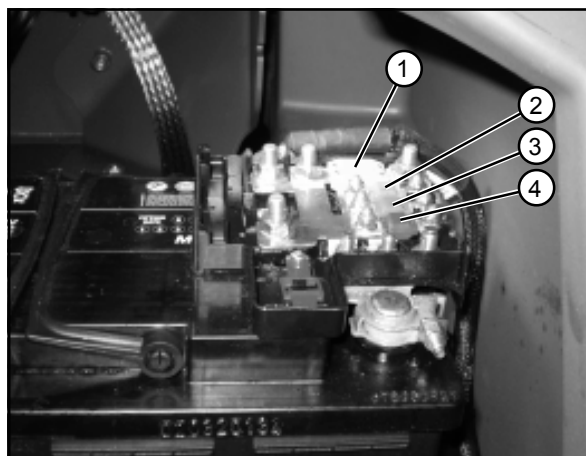


Figure 4-17

- 1 - Glow start controller
- 2 - Glow start system relay

4.6 Gear shift

4.6.1 Slow loader » 20 km/h «

For the slow loader, you can choose between the hydraulic drive stages "I" (Alpha max.) and "II" (4-13/1).

| | |
|------------------------------|-----------------|
| Speed range in | |
| drive stage "I" (Alpha max.) | 0 up to 5 km/h |
| drive stage "II" | 0 up to 20 km/h |

In the multifunction panel (4-16), the indicator lamp of gear stage "I" (4-16/2) lights up with both gear stages, and with gear stage "I", the indicator lamp "Alpha max" (4-16/3) lights up additionally.



Figure 4-18

4.6.2 Fast loader » 40 km/h «

For the fast loader, you can choose between gear stages "1" and "2", and in both gear stages between the hydraulic drive stages "I" (Alpha max.) and "II" (4-13/1).

| | |
|----------------------------------|-----------------|
| Speed range in | |
| Gear stage "1", drive stage "I" | 0 up to 5 km/h |
| Gear stage "1", drive stage "II" | 0 up to 17 km/h |
| Gear stage "2", drive stage "I" | 0 up to 11 km/h |
| Gear stage "2", drive stage "II" | 0 up to 40 km/h |

In the multifunction panel (4-16), the indicator lamp of gear stage "1" (4-16/2) lights up with gear stage "1" selected, and the indicator lamp of gear stage "2" (4-16/1) lights up with gear stage "2" selected. With drive stage "I" selected, the indicator lamp "Alpha max" (4-16/3) lights up additionally with any of the two gear stages selected.

To change the gear stage, set the drive switch (4-13/3) to "0" and the gear switch (4-13/1) to "2" or "1" (depending on the gear stage the gear switch was in before changing).



NOTE

- The gear stage engages approx. 5 seconds after the loader has come to a standstill.
- When the engine is restarted, the gear stage selected at engine shut-down will be selected again.

To change the hydraulic drive stage, set the drive direction switch to "Forward" or "Reverse" before actuating the gear switch (4-13/1).