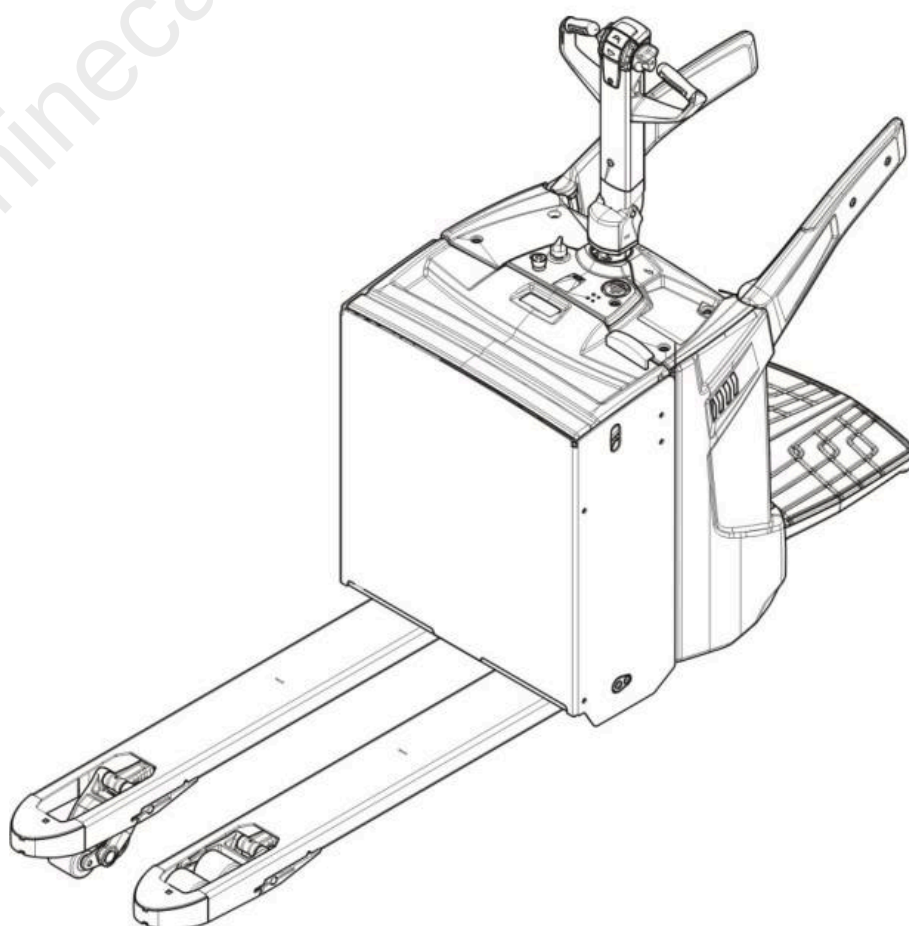


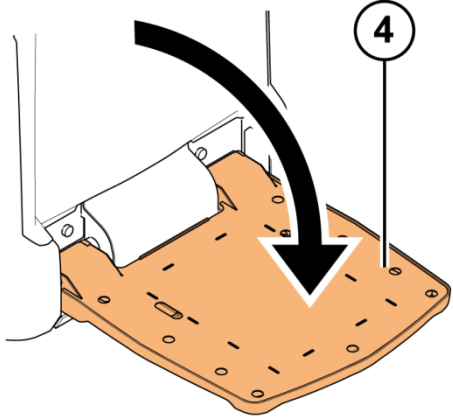
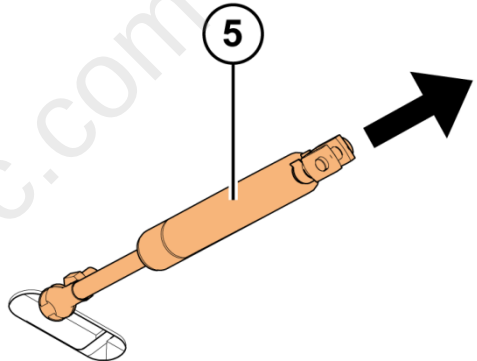
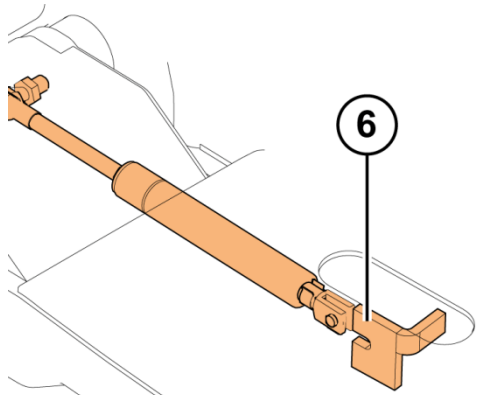


SERVICE MANUAL

NPV20N2

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4. Carefully lower the operator's platform.	
5. Pull the gas spring out through the hole in the operator's platform.	
6. Push the new spring into place, making sure that the spring's head is positioned correctly into the slot inside the operator's platform.	
7. Carefully lift the operator's platform, making sure that the new spring does not fall out. 8. Tighten the gas spring locking spring and install the ball joint if it was removed earlier. 9. Lower the operator's platform. 10. Attach the rubber mat to the operator's platform.	

10.2 Hydraulic oil recommendations



CAUTION

Hydraulic oil is hazardous waste that must be disposed of accordingly.

Normal operating conditions	ISO VG 32
Cold storage	ISO VG 15
Hot temperatures	ISO VG 46

Fill the hydraulic oil tank up to $\frac{3}{4}$ of the full volume. The filling hole for hydraulic oil is shown in Figure 79 below.

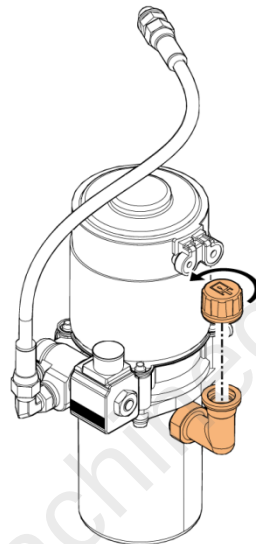
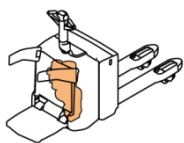


Figure 79. Filling hole for hydraulic oil

10.3 Maintenance points of the hydraulic system

During maintenance, clean the hydraulic oil suction filter in the oil tank.

14.3 Maintenance check list

Legend: C = Check, R = Repair, Clean or Change, G = Grease

	BEFORE DAILY USE (USER)	MONTHLY (OWNER)	600 h OR ONCE A YEAR (SERVICE)	1,200 h OR EVERY SECOND YEAR (SERVICE)
Drive unit				
Transmission leakage check	C	C	C	C
Steering bearing			C	C
Fastening of the gearbox			C	C
Hydraulics				
Leakage checking		C	C	C
Cleaning the oil filter				R
Hydraulic oil change				R
Oil level		C	C	C
Hose and cylinder		C	C	C
Operation of the hydraulics	C	C	C	C
Pressure relief valves			C	C
Linkage				
Bearings			C	C
Linkage			C	C
Wheels				
Traction wheel	C	C	C	C
Traction wheel has to be replaced when its diameter reaches 218 mm			C	C
Load wheels	C	C	C	C
Castor wheel suspension			C	C
Battery				
Battery water level	C	C	C	C
Battery cable and connector	C	C	C	C
Battery automatic watering system		C	C	C

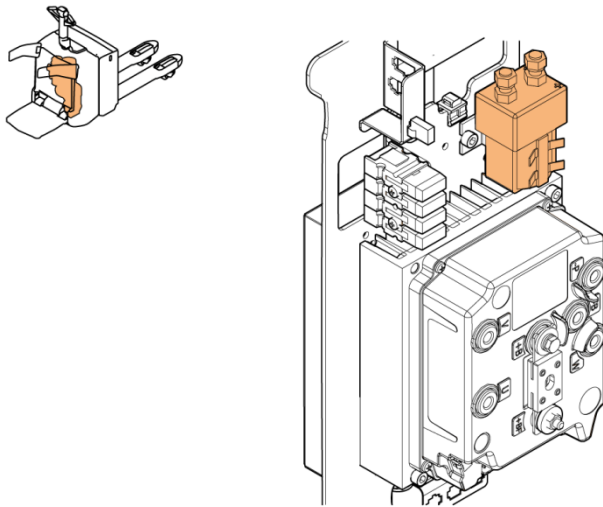


Figure 56. Contactor

A contactor is an electrically-controlled switch used for switching a power circuit, similar to a relay, except with higher current ratings. A contactor is controlled by a circuit, which has a much lower power level than the switched circuit.

Contactor functionality check:

1. Measure the ohms between the coil A1 – A2 terminals.
The ohms value should be ~55 Ω .
If the ohms value is ~0 Ω or ~ ∞ Ω , replace the contactor.
2. Measure the ohms between the main switching contacts 1-2.
The ohms value should be ~ ∞ Ω .
If the value does not match the above, replace the contactor.
3. Supply +24 Vdc between the A1 (+) and A2 (-) terminals.
4. Measure between the main contacts 1 – 2 that the contacts are closed.
If the contacts are not closed, they are stuck together. In that case, replace the contactor.

PARAMETER	DESCRIPTION
Pump acceleration ramp PU. ACCELER. DEL	This parameter controls the acceleration ramp for the pump motor. Value range: 0.1: Fastest 25.5: Slowest
Pump deceleration ramp PU. DECELER. DEL	This parameter controls the deceleration ramp for the pump motor. Value range: 0.1: Fastest 25.5: Slowest
Pump max speed SPEED LIMIT	This parameter controls the maximum lift speed. Value range: 10%: Slowest 100%: Fastest
Release braking ramp RELEASE BRAKING	This parameter controls the deceleration rate when the accelerator is released in the standard drive mode. Value range: 0.1: Fastest 10: Slowest
Speed limit braking ramp SPEED LIM BRK.	This parameter controls the deceleration rate when speed reduction is activated in the standard drive mode. Value range: 0.1: Fastest 10: Slowest
Steering cutback STEER CUTBACK	This parameter controls the maximum speed when steering is at a 90-degree angle. Value range: 10%: Slowest 100%: Fastest NOTE: This parameter is used only if the truck is equipped with the electrical steering option!
Steering cutback braking ramp STEER BRAKING	This parameter controls the deceleration rate when electrical steering cutback is activated in the standard drive mode. Value range: 0.1: Fastest 10: Slowest

4.3.3.3 Multi-function display

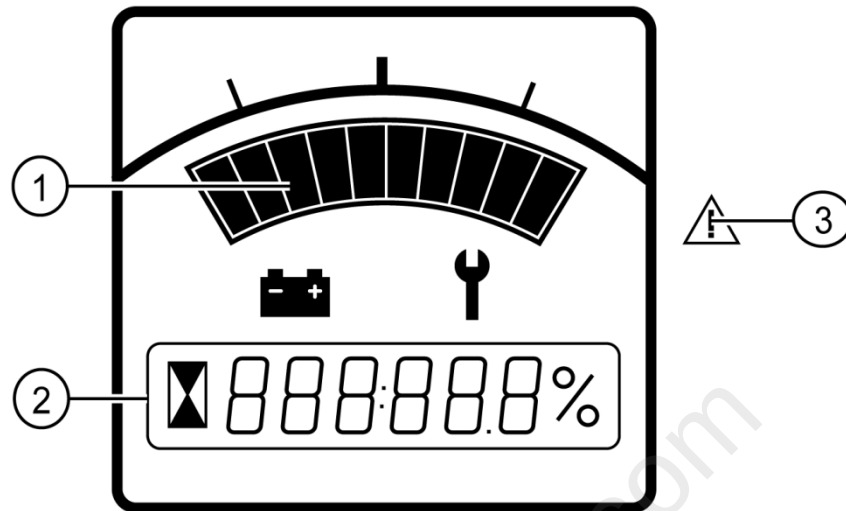


Figure 7. Multi-function display

- | | |
|---|------------------|
| 1. Level of battery charge | 3. LED indicator |
| 2. Indication of operational hours, system messages and fault codes | |

The multi-function display shows the following information:

- Level of battery charge
- Indication of operational hours
- System messages:
 - ECO = Economy mode selected
 - Ls SPd = Low speed mode selected
- Fault codes:
 - Flashing numeric code = warning
 - Solid numeric code = error
- LED indicator:
 - Flashing red = error

15.9.1 Replacing the recharging plug

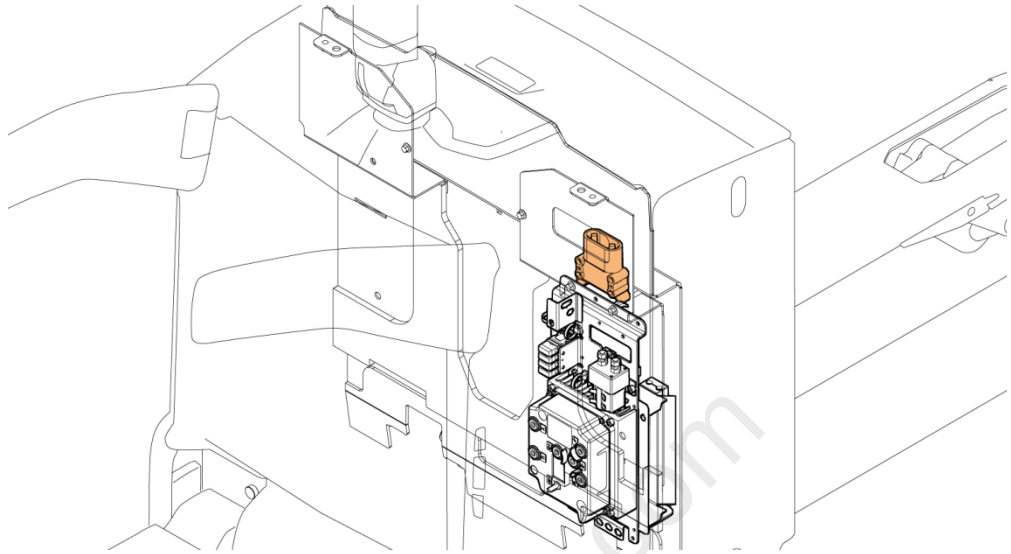
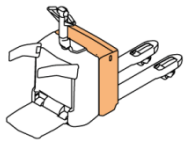
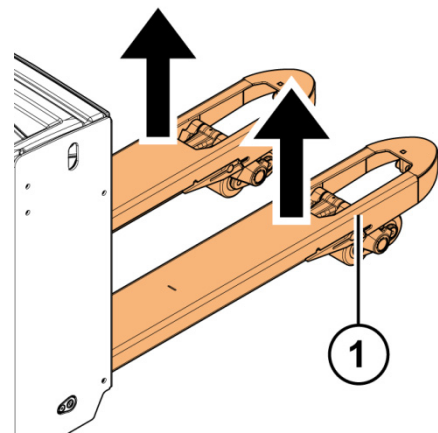


Figure 96. Recharging plug overview

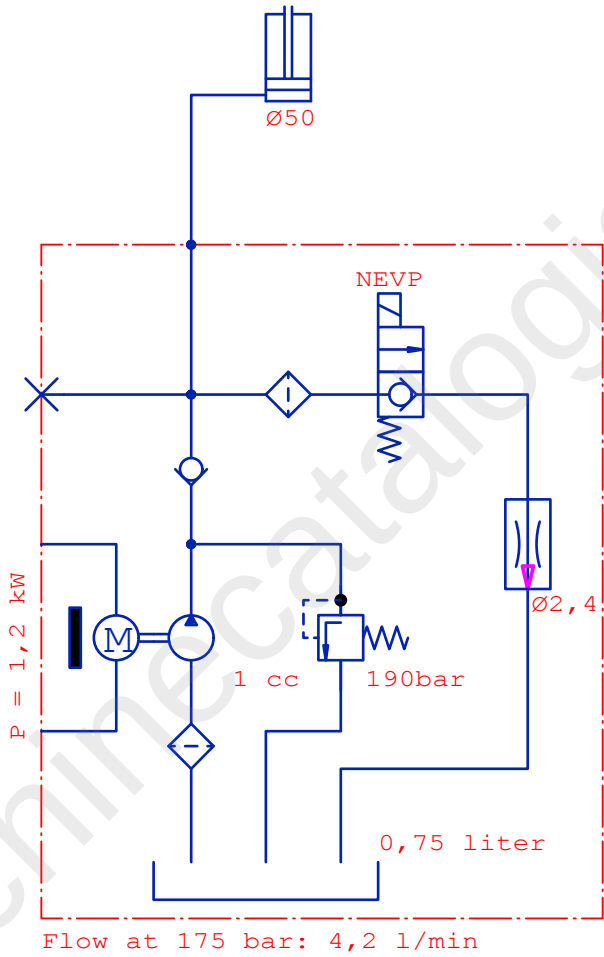
Instructions for removing the recharging plug are provided below. Install the recharging plug by repeating the steps in reversed order.

1. Lift the forks of the truck to their upmost position.



2. Remove the electric panel. For more detailed instructions, see the steps 1-3 in the section 8.2.5.

REV	DATE:	NAME:	CHANGE:
A	2011-12-20	EP	



	DATE:	NAME:
DESIGN.	2011-12-20	EP
CHECK.		
APPROV.		

HYDRAULIC CIRCUIT TH91

NPP/NPV/NPF
HYDRAULIC CIRCUIT DIAGRAM

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