1.1 Technical data for diesel engine

Engine

- Deutz 4-cylinder Diesel engine
- Output 45 kW / 60 HP at 2300 rpm
- Type T 2011 L04 w water-cooled
- Capacity 3619 cm^3

Hydraulic system

- Driving hydraulics
  Flow rate 129 l/min (optional: 163 l/min)
  Working pressure 445 bar
- Working hydraulics

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Overlap	Adjust valve play
Cylinder 1	3, 6, 7 and 8
Cylinder 4	1, 2, 4 and 5

Requirements

Ensure the following:

- The operator's platform is tilted (see operator's manual "Tilting the operator's platform").

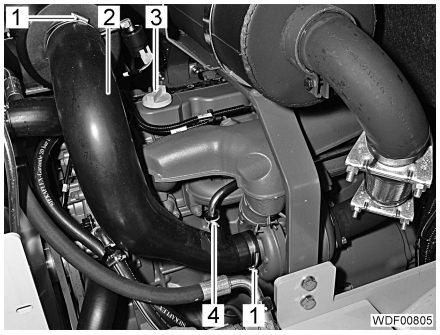


Fig. 2 Connection to the air filter

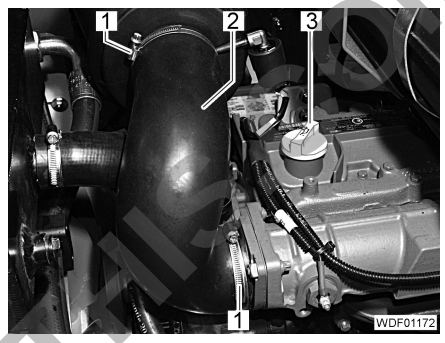


Fig. 3 Connection to the air filter (alternative)

Removing the hose

- Release the 2 clamps (Fig. 2,1 or Fig. 3,1).
- Release the clamp (Fig. 2,4) (if present).
- Remove the hose (Fig. 2,2 or Fig. 3,2).
- Unscrew the cap (Fig. 2,3 or Fig. 3,3).

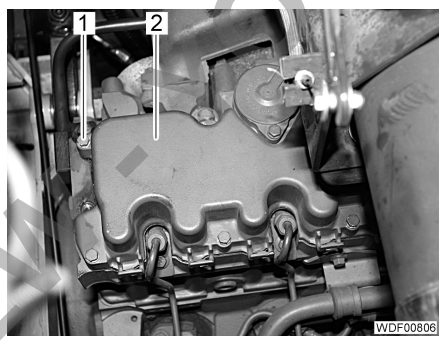


Fig. 4 Cylinder head cover attachment

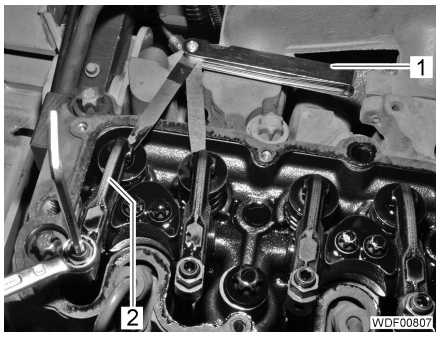


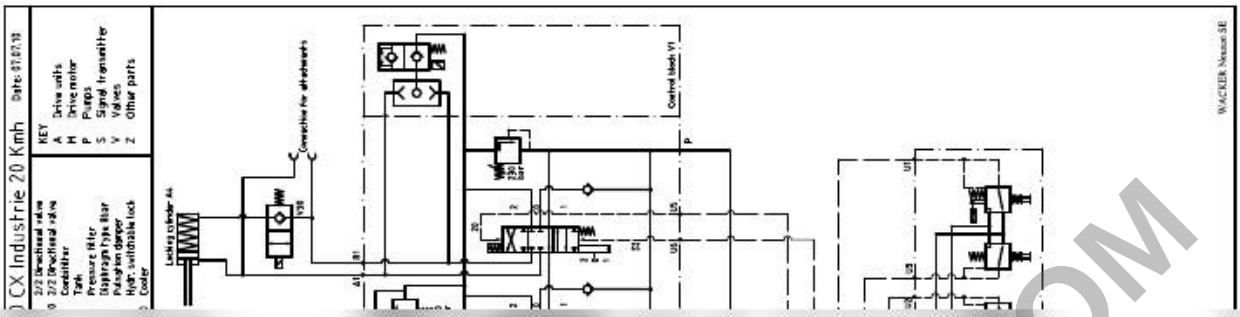
Fig. 5 Valves 1 and 2

Checking and adjusting the valve play

- Unscrew the 10 screws (Fig. 4,1).
- Remove the cylinder head cover (Fig. 4,2).
- Push the feeler gauge (Fig. 5,1) under the tipping lever (Fig. 5,2).
- If necessary, hold the nut with a suitable ring wrench and adjust the valve play with a hexagon socket wrench.

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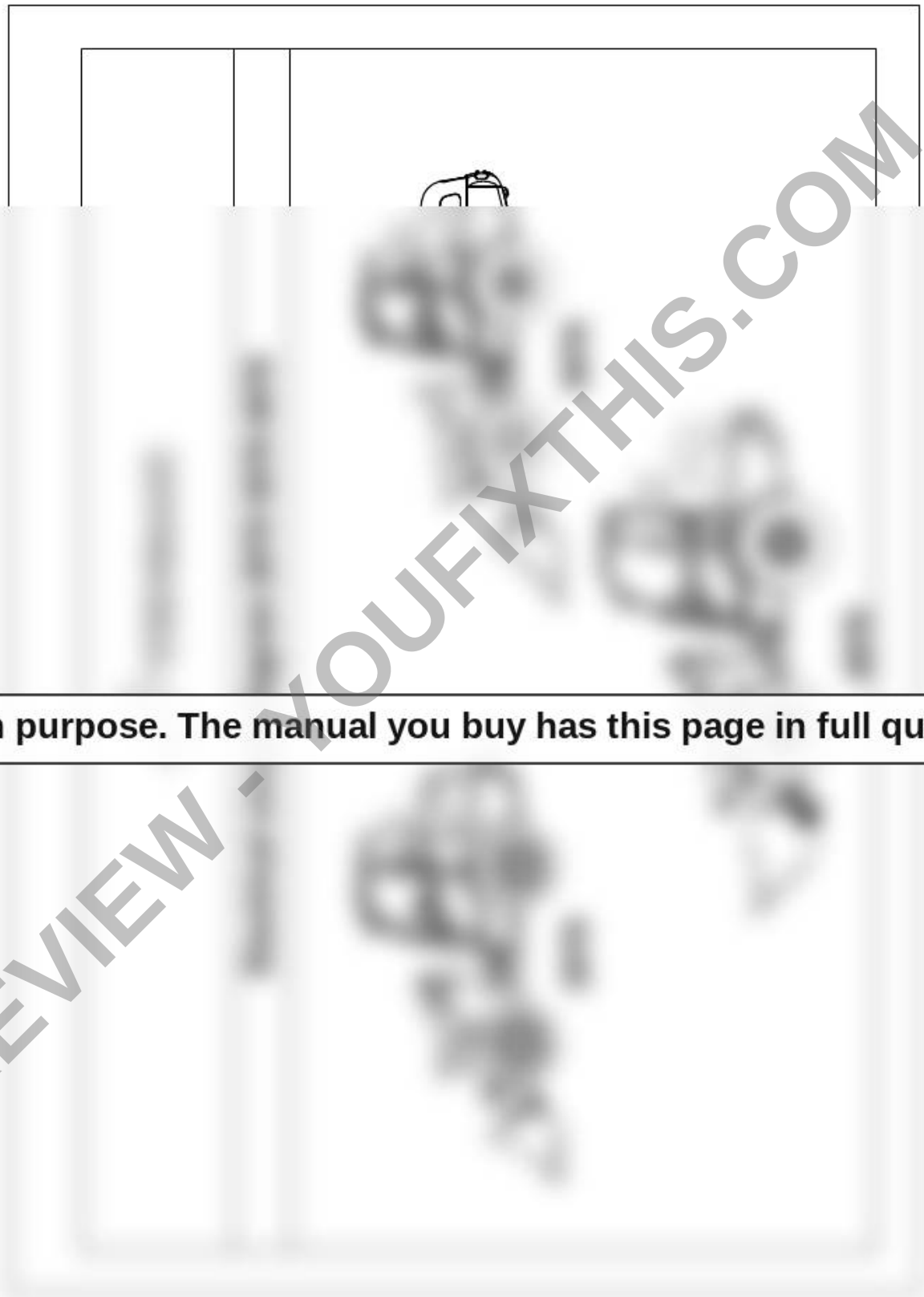
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▷ All values are approximate values.

The inspection holes, inspection glasses or dipsticks must be used to obtain a correct filling.

	Location	Quantity in liters	Liquid	Specification
Engine	Fuel tank	90.0	Diesel fuel	DIN 51601 (see engine manual)
	Engine oil with fil-	10.5	Engine oil	SAE 10 W 40

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This section summarizes the tightening torques in two groups:

- Special tightening torques
- General tightening torques

▷ If no special tightening torque is stipulated, the general tightening torques apply (see "General tightening torques").

Special tightening

Assembly	Connection	Tightening torque (Nm)
Engine	Cylinder head cover	8.5

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This part of the repair manual contains special safety instructions relating to the loader's individual assemblies.

Warning notices

Warning notices are identified by a symbol, and differ in terms of the type and severity of the hazard described. The various types are shown below.



▶ **DANGER**

Identifies a hazard that will result in death or serious, irreversible injury if it is not prevented.

Follow the instructions in order to prevent the hazard.



▶ **WARNING**

Identifies a hazard that can result in death or serious, irreversible injury if it is not prevented.

Follow the instructions in order to prevent the hazard.



▶ **CAUTION**

Identifies a hazard that can result in minor reversible injury.

Follow the instructions in order to prevent the hazard.



▷ Identifies possible damage to the loader or to other property.

Notices

The following notices point out important items of information:



▷ Identifies a special item of information that is required for effective and efficient working.



▷ Identifies an environmental notice.

Do not start working until you have read and understood all safety instructions.

Sequence

The sequence of the described work is binding. Keep to the defined sequence in order to avoid hazards.

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- 1307081333
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- 1307183323

Special features

The repair manual also describes work on special features that are not present on every loader.

Abbreviations and units

%	Percent
A	High-pressure connection on the variable displacement pump
as req.	As required
B	High-pressure connection on the variable displacement pump
bar	Unit of pressure
BK	Black
BL	Blue
BN	Brown
cm	Centimeter
cm^3	Cubic centimeter
F3	Fuse No. 3
G	Supply pressure at the variable displacement pump **or** Test pressure at the variable displacement motor
GN	Green
GR	Gray
h	Hour
KL30	Terminal designation
l	Liter
LB	Light blue
M_1	Test pressure at the variable displacement motor
M_A	Test pressure at the variable displacement pump
max.	Maximum, highest
M_B	Test pressure at the variable displacement pump
min	Minute
min.	Minimum, at least
Nm	Newton meter
Ø [mm^2]	Wire cross section [in square millimeters]
OR	Orange

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3.1.7 Checking and adjusting the control commencement of the variable displacement motor

▷ Pay attention to the "Safety instructions for working on the hydraulic system" (see Part 1 "Safety").

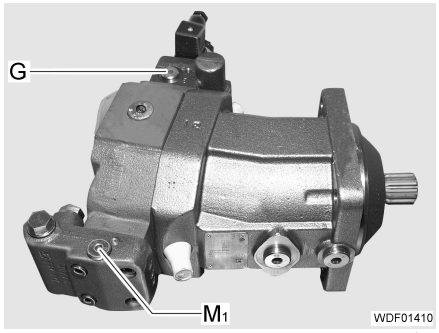


Fig. 20 Connections on the variable displacement motor

Setpoint values (diesel engine)

Pressure at measuring point	
G	**M_1**
< 230 bar	0 bar
= 230 bar	115 bar
> 230 bar	same as G

▷ Set the control commencement so that the variable displacement motor switches to the high displacement volume as from 230 bar high pressure. The control process begins when half the high pressure of Connection G is reached at M_1.

Setpoint values (turbo-diesel engine)

Pressure at measuring point	
G	**M_1**
< 250 bar	0 bar
= 250 bar	125 bar
> 250 bar	same as G

▷ Set the control commencement so that the variable displacement motor switches to the high displacement volume as from 250 bar high pressure. The control process begins when half the high pressure of Connection G is reached at M_1.

Requirements

Ensure the following:

- The operator's platform is tilted (see operator's manual "Tilting the operator's platform").

Spare parts and auxiliary equipment

Designation	Quantity
Test pressure gauge 0 ... 600 bar	2
Test adapter	2

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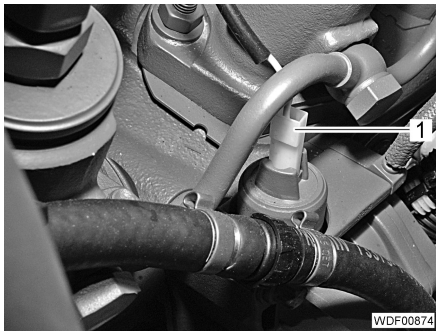


Fig. 43 LDA

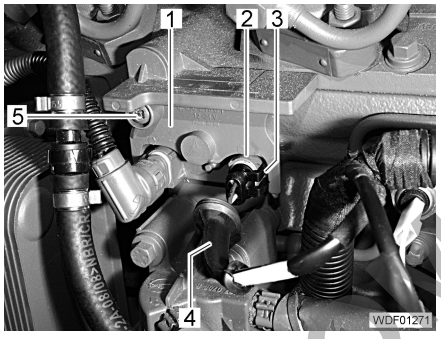


Fig. 44 LDA (alternative)

Connecting the electrical cables (left)

- Attach the connector (Fig. 43,1) to the LDA.

or

- Insert the connector (Fig. 44,3) and fix it with a clip (Fig. 44,2).
- Fix the locking plate (Fig. 44,1) with screw (Fig. 44,5).
- Slide on the plug protection (Fig. 44,4).

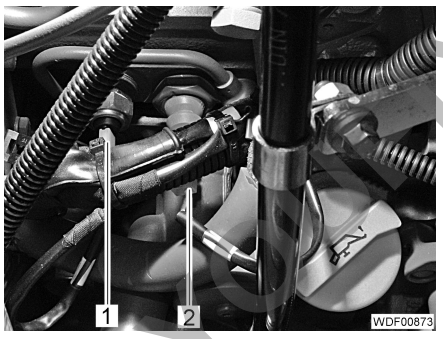


Fig. 45 Electrical connectors (center)

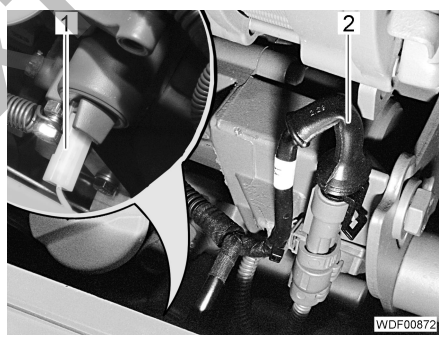


Fig. 46 Electrical connectors (rear)

- Attach the connector (Fig. 45,2) onto the pressure switch.
- Attach the connector (Fig. 45,1) onto the pressure switch.
- Attach the connector (Fig. 46,1) to the negative contact pin.
- Remove the connector (Fig. 46,2) of the cutoff solenoid.

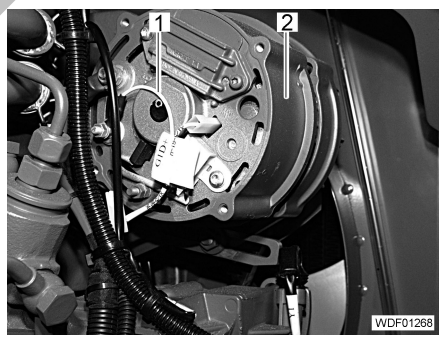


Fig. 47 Generator

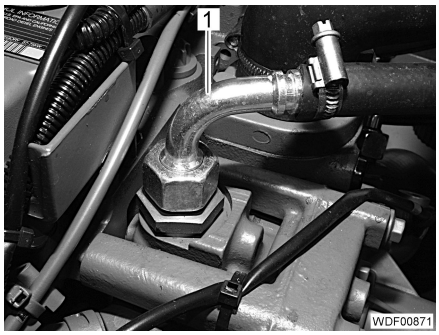


Fig. 48 Heater connection

Fitting the holders (left)

- Connect the 3 cables (Fig. 47,1) to the generator (Fig. 47,2).
- Screw the heating line (Fig. 48,1) onto the connection on the engine and tighten.

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- Put on the hydraulic lines (Fig. 144,1) with new O-rings.
- Tighten 4 screws with spring lock washers on each of the screw connections of the hydraulic lines.

Final work

- Tilt the operator's platform back (see operator's manual "Tilting the operator's platform").

3.5.2 Replacing the gear pump (dual pump)

▷ Pay attention to the "Safety instructions for working on the hydraulic system" (see Part 1 "Safety").

▷ Use home-made sealing plates to temporarily seal the hydraulic lines at the screw connections (see Part 2, "Sealing plate" section).

Requirements

Ensure the following:

- The hydraulic system is depressurized (see the section 3.1.1 "Depressurizing the hydraulic system").
- The operator's platform is tilted (see operator's manual "Tilting the operator's platform").

Spare parts and auxiliary equipment

Designation	Quantity
Gear pump (dual pump)	1
Seal	1
O-ring	1
O-ring	4

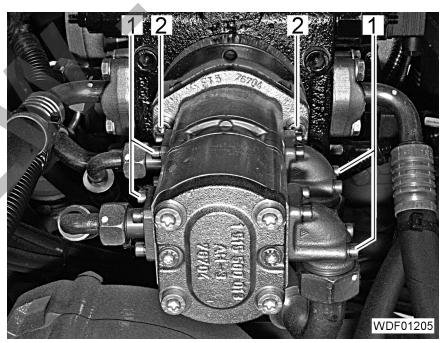


Fig. 146 Gear pump



Fig. 147 Gear pump seals

Removing the gear pump

- Unscrew 4 screws on each of the screw connections of the hydraulic lines (Fig. 146,1).
- Remove and close off the hydraulic lines.
- Unscrew the 2 screws (Fig. 146,2).
- Carefully remove the gear pump.

▷ Before installing the gear pump, replace the used seals with new ones.

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4.1 Replacing the drive shaft

▷ Do not disassemble the drive shaft for removal or installation.
If the drive shaft has been disassembled, pay attention to the markings during assembly (Fig. 268). If necessary, apply markings yourself.

▷ Do not damage the grease nipple on the drive shaft.



Fig. 268 Markings on the drive shaft

Requirements

Ensure the following:

- The parking brake has been applied and the loader secured against rolling away (e.g. with chocks).
- The articulated link is blocked (see operator's manual "Blocking the articulated link").

Spare parts and auxiliary equipment

Designation	Quantity
Drive shaft	1
Stop nut - hexagon M10	16
Locking agent (e.g. Loctite®)	as req.

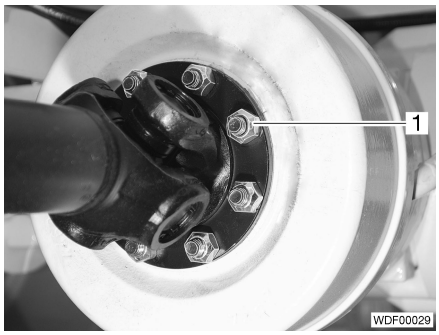


Fig. 269 Connection to the front axle

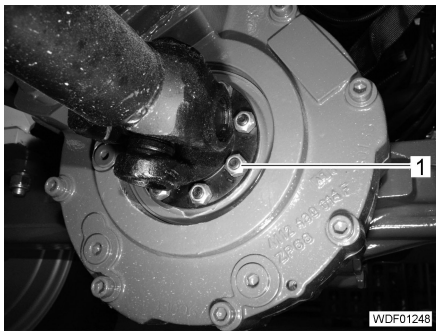


Fig. 270 Connection to the rear axle

Removing the drive shaft

- Unscrew the 8 nuts (Fig. 269,1).
- Unscrew the 8 nuts (Fig. 270,1).
- Detach the drive shaft from the front axle.
- Detach the drive shaft from the rear axle.
- Clean both contact surfaces if the same drive shaft is to be re-installed.

Installing the drive shaft

- Clean the contact surface and the threaded bolts on the front axle.
- Coat the 8 threaded bolts with locking agent.

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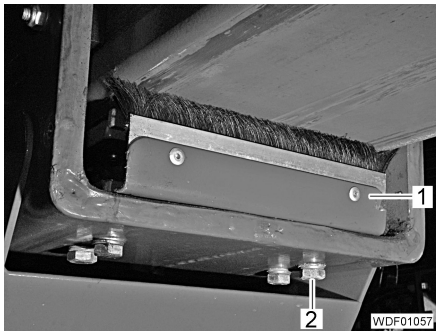


Fig. 393 Bearing block attachment

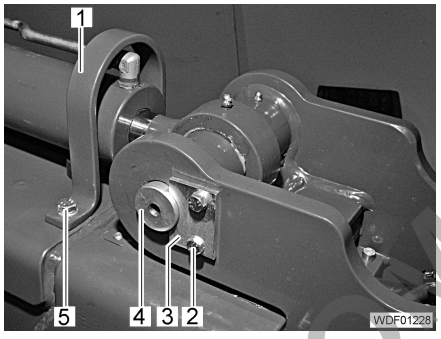


Fig. 394 Pin attachment

Removing the bearing block

- Unscrew the 4 screws (Fig. 393,2).
- Switch on the **float control** (see operator's manual "Control lever for lift frame").

▶ **WARNING**

Risk of crushing between inner and outer cylinder.

Never put your fingers in the space between the inner and outer cylinder while the telescopic arm is being extended or retracted.

- Extend the telescopic cylinder until the bearing block (Fig. 393,1) can be removed.
- Remove the bearing block.
- Fully extend the telescopic cylinder.
- Unscrew the 2 screws (Fig. 394,2) and remove the locking plate (Fig. 394,3).
- Drive out the pin (Fig. 394,4).

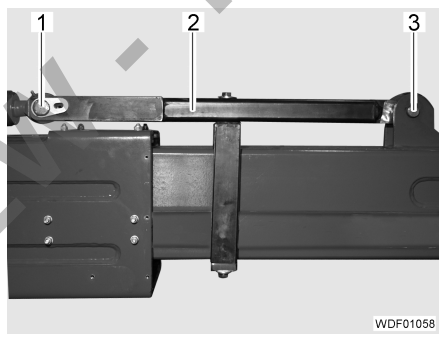


Fig. 395 Assembly tool

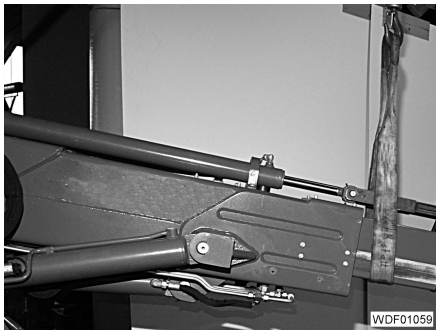


Fig. 396 Securing the inner cylinder

Removing the inner cylinder

- Fully retract the telescopic cylinder.
- Fit the assembly tool (Fig. 395,2) onto the inner cylinder and secure.
- Drive in the 2 pins (Fig. 395,1 and 3).
- Secure the inner cylinder with suitable lifting gear (Fig. 396).
- Extend the telescopic cylinder until the inner cylinder and outer cylinder are separated.
- Drive out 2 pins (Fig. 395,1 and 3) and remove the assembly tool (Fig. 395,2).

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- Screw the nut (Fig. 519,2) onto the operating part (Fig. 519,3) and tighten it hand-tight.
- Fit the knob (Fig. 519,1) onto the operating part.

Final work

- Tighten or replace undone or removed fastenings (e.g. cable ties) along the Bowden cable.
- Install the steering column switch (see the section 8.2.8 "Replacing the steering column switch").
- Installing the heater blower (see the section 8.1.5 "Replacing the heater blower").

7.5.2 Removing and installing the vaporizer of the air-conditioning unit

▶ **DANGER**

Risk of death due to escaping refrigerant!

The lines to the air-conditioning unit (where applicable) must only be opened by specially trained personnel.

Never open any pipes, tubes or other components that contain refrigerant.

Requirements Ensure the following:

- The lines to the vaporizer of the air-conditioning unit have been emptied and removed by specially trained personnel.
- The heater blower has been removed (see the section 8.1.5 "Replacing the heater blower").
- The cab ventilation filter has been removed (see operator's manual "Maintaining the cab ventilation filter").

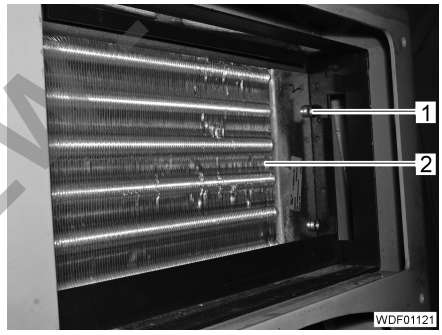


Fig. 523 Fixing the vaporizer

Removing the vaporizer

- Unscrew the 4 screws (Fig. 523,1).
- Carefully remove the vaporizer (Fig. 523,2) towards the front.

Fitting the vaporizer

- Carefully insert the vaporizer (Fig. 523,2) from the front.
- Screw in and tighten the 4 screws (Fig. 523,1).

Final work

- Fit the cab ventilation filter (see operator's manual "Maintaining the cab ventilation filter").
- Install the heater blower (see the section 8.1.5 "Replacing the heater blower").

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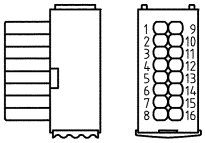
This part of the repair manual contains circuit diagrams and drawings that are required for fault searches and troubleshooting.

Additional features

Some of the circuit diagrams contain additional functions that are not installed in all loaders.

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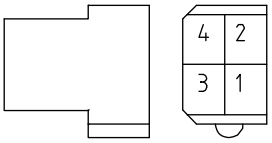
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Rack, 16-pin
Art. No. 5931632171

S	Color	Ø [mm²]	Designation
11	-	-	Not assigned
12	-	-	Not assigned
13	BK	1	Electrical connection or differential lock
14	BK	1	Control unit, forwards
15	BK	1	Control unit reverse
16	BK	1	Control unit

[1] Variances if equipped with hydro connection comfort (optional).



Rack, 4-pin
Art. No. on request

X34

S	Color	Ø [mm²]	Designation
1	GN	1	Fuse F21
2	WH	1	S17 Switch windshield wiper back, contact 5
3	WH	1	S17 Switch windshield wiper back, contact 7
4	BN	1	31 Ground

Rack, 8-pin (brown)
Art. No. 963121-1

X35

S	Color	Ø [mm²]	Designation
1	-	-	Not assigned
2	-	-	Not assigned
3	-	-	Not assigned
4	RD	1	Fuse F24 30
5	-	-	Not assigned
6	-	-	Not assigned
7	GN	1	Fuse F23 15
8	BN	-	31 Ground

Rack, 8-pin (gray)
Art. No. 963120-1

X36

S	Color	Ø [mm²]	Designation
1	-	-	Not assigned
2	-	-	Not assigned
3	BK	1	Plus loudspeaker left

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