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WORKSHOP MANUAL

Asphalt paver wheeled

F80W

Hatz



EN 4812072968

DYNAPAC
FAYAT GROUP

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F80W
Asphalt paver, wheeled
Hatz

Workshop manual

Edition 01/2019 EN
From Serial No. 4510125

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Preface

Information, specifications, and recommended instructions for the assembly and disassembly of individual machine components or parts contained in this publication represent basic and final information at the time of the printing of this publication. Printer's errors, technical modifications, and modifications of figures are reserved. All dimensions and weights are approximate and, therefore, not binding.

DYNAPAC reserves the right to perform modifications at any time with no obligation to inform the machine user. If you identify any differences between the machine operated by you and the information contained in this publication, contact your local dealer.

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Dynapac GmbH | Ammerlaender Str. 93 | 26203 Wardenburg – Germany

☎ +49 4407 972-0 | www.dynapac.com

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1 Introduction

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1 Introduction

The workshop manual is divided into separate chapters and contains technical and maintenance data, instructions for adjustment and instructions for the use of special tools, jigs and aids.

The main purpose of this manual is to provide basic information for disassembly, assembly and service repairs of the main subassemblies of the machine.

Labelling of machine subassemblies in this manual corresponds to the spare parts catalogue.

In order to ensure smooth operation of the DYNAPAC compaction equipment, use only original spare parts supplied by DYNAPAC for repairs.

The manufacturer constantly improves its products on the basis of operational experience and the latest findings. Due to development, the manufacturer reserves the right to change the images, descriptions, procedures and designs presented in this manual.



Before disassembly, it is recommended to always mark the removed parts for their reassembly and blank off all holes of individual parts of the hydraulic system in order to prevent contamination of the hydraulic circuits.

When mounting individual parts on the machine, tighten individual screws or nuts according to the table of tightening torques (see the appendix), unless specified otherwise in the text.

When handling the parts, use a crane and slings with adequate load capacity. Weights of individual parts are listed in the electronic spare parts catalogue.

During work, always follow the safety instructions and measures given in Chapter 2.

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SAFETY NOTICES AND SIGNS:

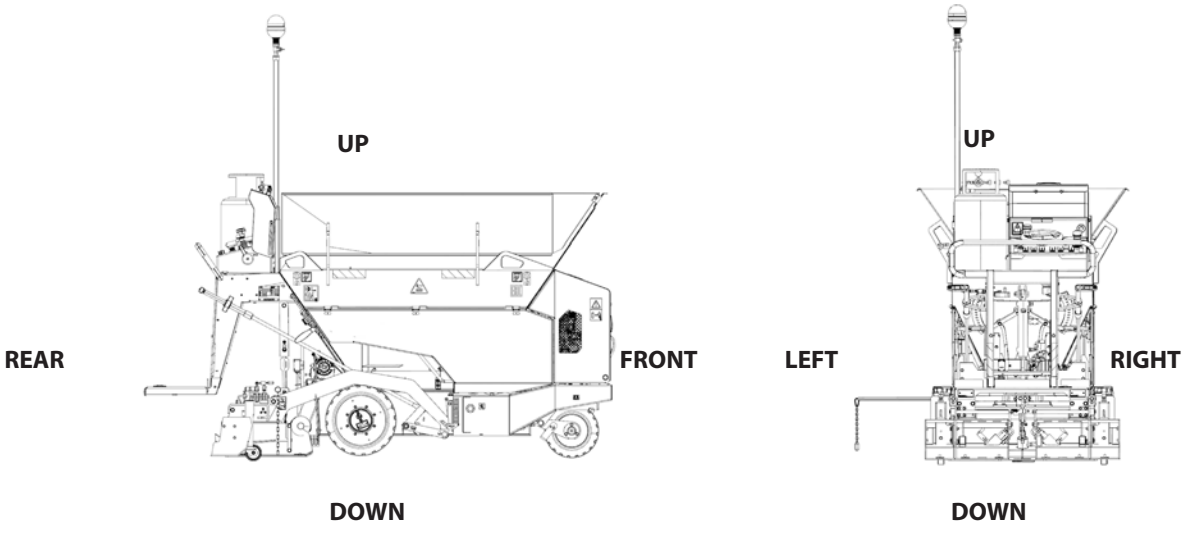
The notice warns of a serious risk of personal injury or other personal hazards.

The notice warns of possible damage to the machine or its parts.

The notice warns of the necessity of environmental protection.

! CAUTION!

As used in this operating manual, the terms right, left, front and rear indicate sides of the machine moving forward.



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2 Safety measures and instructions

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2 Safety measures and instructions

2.1 Safety rules

These safety rules must be followed by all persons involved in machine repairs!

- Repairs of this machine may be carried out only by qualified, professionally trained and experienced workers or by the Service personnel of our dealers.
- Always use our workshop manual when performing repairs. Individual chapters contain special instructions regarding assembly work.
- Before putting the machine into operation, familiarize yourself with the machine controls according to the Operating Manual and make sure you have well understood all the equipment of your machine.
- Do not use the machine if you do not fully understand all operating and control elements and if you do not know exactly how the machine works.
- Familiarize yourself with the area where you work.
- Do not carry out any alterations or modifications to the machine, as this may affect the safety of the machine.
- Original parts and accessories have been designed specifically for this machine.
- Installation and use of spare parts that are not supplied or authorized by the machine manufacturer may have a negative impact on the operational characteristics and safe operation of the machine.
- It is forbidden to remove components of individual parts during the warranty period. If you fail to comply with this prohibition, the warranty of the damaged component will not be recognized.

Safety measures for machine repairs and inspection

- Wear work clothes and footwear.
- Use gloves when handling oil, fuel and coolant.
- When handling the battery, protect your eyes with goggles or a shield.
- Place the machine on a level and firm surface before performing repairs. Secure the machine against spontaneous movement.
- Secure the machine and drum frame against relative rotation with a lock pin and rod.
- Before starting work, remove the key from the ignition, disconnect the batteries and allow hot parts to cool.
- Attach a "machine out of order" sign to the steering wheel and leave it there for the duration of the work.
- Properly wash the entire machine. In the case of steam cleaning, avoid aiming the steam flow directly at electrical components and insulating material or cover them beforehand.
- When removing, installing and repairing individual groups, maintain absolute cleanliness of all parts. Protect removed parts against dirt.
- Clean the surface of removed parts and create a corresponding dust-free work environment with the necessary storage area.
- Handle cleaning agents with caution. Do not use petrol or other flammable substances for cleaning!
- Dry the cleaned parts and immediately coat them with anti-corrosion oil – never install corroded parts!
- Tools, lifting equipment, securing elements, supports and other auxiliary equipment must be in a good, working condition.
- Lifting equipment and slings (ropes, chains) must have adequate load capacity and be intact.
- Ensure sufficient air supply when starting the machine indoors.
- Before putting the machine into operation, make sure there are no persons on the machine or in its dangerous proximity. Use the audible warning signal when putting the machine into operation, always before starting the engine and after each break, before the machine starts moving. Persons located on the machine and in its dangerous proximity must leave the machine and the area after the audible warning signal.
- Do not adjust the machine in operation.
- When performing necessary work on a running engine (adjustment), avoid contact with hot and rotating parts of the machine. Work performed when the engine is running (adjustment) must be carried out in the presence of another person who has immediate access to emergency shut-down and who is continuously in contact with the person performing the adjustment, so that the engine can be immediately switched off if necessary.
- Only use prescribed kinds of engine, transmission and hydraulic oil and coolant.

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Safety measures for work on hydraulic circuits

- Before disassembly, make sure the hydraulic circuits are depressurized. Hydraulic oil leaking under pressure may damage your skin and cause serious injury.
- Before disassembly, mark the parts, hoses and pipes.
- Do not put hydraulic pumps and motors into operation without oil.
- Work with hot oil may result in scalding.
- Do not heat the oil to temperatures above 160 °C – the oil or its vapours may ignite.
- When removing hydraulic components, always blank off the hose ends and outlets of the components.
- Use lint-free cloth when wiping and cleaning hydraulic parts.
- When assembling parts, use hydraulic oil as a slip agent – not grease.
- Before installation, carefully clean the fittings and flush and blow compressed air through hoses and pipes.
- Only use new seals.
- Fill new aggregates with hydraulic oil before installation.
- After a hydraulic aggregate replacement, flush the hydraulic circuit and clean the hydraulic tank.
- Replace the oil filter element.
- Fill the hydraulic circuit with clean oil of prescribed viscosity, only when the engine is off!
- Wipe any overflowed oil.
- Check the connections for any leaks before the system pressurizes.
- Check all connections after finishing all work.
- Do not adjust safety valves.
- After finishing work, reinstall all protective elements.

Check after putting into operation

- Oil level in the hydraulic tank.
- Check the charge pressure of replaced hydraulic pumps and the pressure of safety valves.
- Perform the measurement at 40°C (104°F).

Safety measures for work on the fuel system

Petrol and diesel mixtures (winter fuel) are as flammable as petrol.

- Do not refuel in enclosed spaces.
- Wipe any overflowed fuel.
- Do not smoke and do not use an open flame while working on the fuel system! There is a risk of fire!

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Safety measures for work on the electrical system

- Disconnect the battery when repairing the charging circuit to prevent accidental short circuits.
- Before removal, disconnect the cable from the negative terminal (-) and then from the positive terminal (+).
- Do not disconnect the batteries when the engine is running.
- Connect the negative battery terminal to the ground and the positive terminal to the "B+" alternator output. The opposite connection would destroy the whole semiconductor equipment.
- When starting using an auxiliary external power supply, do not disconnect this power supply until the machine battery is connected. Pay attention to the starting voltage of the auxiliary external power supply (for 24 V).
- Do not put the alternator into idle operation, i.e. with a disconnected wire from the "B+" terminal and connected "D+" terminal.
- Do not check the presence of voltage in the wire by sparking against the machine frame.
- Do not perform any activities generating sparks.
- Use protective rubber gloves and eye protection when handling batteries.
- Protect your skin and clothes against being splashed by the electrolyte or lead particles.
- In case of eye contact with the electrolyte, immediately flush the affected eye thoroughly with running water for several minutes. Then, seek medical treatment as soon as possible.
- If the electrolyte comes in contact with skin or clothing, remove the clothes, immediately wash the affected areas with soapy water or a solution of baking soda and water and seek medical treatment.
- In case of ingestion of electrolyte, drink the maximum possible amount of milk, magnesium oxide dissolved in water or at least water and immediately seek medical treatment.
- Never fill the cells with distilled water, unless it is followed by work with the machine or recharging outside the machine. It would otherwise cause excessive battery self-discharge.
- Never fill up the acid (H_2SO_4)!
- Do not turn over the batteries to avoid electrolyte flowing out of the degassing vents.
- In case of acid (electrolyte) spillage, wash the affected area with water and neutralize with lime.
- The charging process releases hydrogen, which forms an explosive, easily combustible mixture with air. Do not smoke or use open flame or lights in the vicinity.

Welding work on the machine

- Before performing welding work on the machine using an electric arc, disconnect all elements containing semiconductors from the electrical system, including the machine electronics:
  - ground the power supply as well as the repaired machine,
  - protect the power supply against moisture,
  - place the ground terminal in close proximity to the weld joint,
  - When performing welding work on suspended parts or machine, it is necessary to prevent current from reaching the lifting equipment by insulating the point of current transition or using non-conductive slings (hemp rope).

Sealing

- Use new seals for all installation.
- Seal kits are obtained as spare parts.

Tightening torques

- In order to apply the correct tightening torque, use a torque spanner.
- Fastening screws and nuts of used quality shall be tightened according to the respective tables.
- The screw quality is indicated on the screw head.
- Different tightening torques are specified in the respective chapters.
- Threaded joints of hydraulic circuits shall be tightened according to the tables.
- The presented tightening torques apply to non-lubricated threads.
- Only use new self-locking nuts.

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2.2 Environmental and hygiene principles

When repairing the machines, observe general principles of health and environmental protection as well as laws and regulations related to this issue and being in force within the territory where the machine is used.

Hygienic principles

- Petroleum products, fillings of cooling systems, battery fillings and paints, including thinners, are harmful substances that can cause severe injuries when in contact with body organs.
- It is therefore necessary to strictly follow safety and hygiene instructions of products and use personal protective equipment when handling these substances.
- Workers coming into contact with the above products when repairing the machine are obliged to follow general principles of their own health protection and comply with safety and hygiene manuals of the manufacturers of the products.

  In particular we draw your attention to the following:

  - Protect your eyes and skin while working with the batteries.
  - Protect your skin while handling petroleum products, coating compounds and coolants.
  - Wash your hands properly after finishing the work and before eating, treat your hands with a suitable reparation cream.
  - When handling the cooling system, follow the instructions given in the manuals supplied with the machine.
- Always store petroleum products, cooling system fluids, battery fluids and coating compounds including thinners and also cleaners and preservative agents in their original and properly labelled containers. These materials are not allowed to be stored in unlabelled bottles or in any other containers considering the likelihood of confusion. Possible confusion with foodstuffs or beverages is very dangerous.
- If by accident the skin, eyes or mucous membrane is stained or if you breathe in the vapours of such products, apply immediately the principles of the first aid. In case of accidental ingestion of these products, immediately seek medical help.

Environmental measures

- Discarded operating fluids of individual systems of the machine and also some of its parts become hazardous wastes with dangerous properties for the environment.

  This category of waste products includes in particular:

  - organic and synthetic lubricating materials, oils and fuels;
  - coolants;
  - battery cartridges and batteries;
  - cleaning and preservative agents;
  - all dismounted filters and filter elements,
  - all used and discarded hydraulic or fuel hoses, rubber-metals and other parts of the machine contaminated by the above mentioned products.
- It is necessary to treat the above mentioned materials and parts after they have been discarded in accordance with relevant national regulations valid for protection of individual parts of the environment and in compliance with health protection regulations.
- When disassembling hydraulic, fuel and cooling systems and their units. Escape of fluids into the ground has to be prevented by using suitable vessels placed underneath and by plugging of the holes.
- In case of leakage, the affected area must be immediately dried with the use of sawdust, Vapex, etc.
- The affected soil must be removed to prevent further leakage. The contaminated soil and absorbent should then be handed over for further safe disposal.

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2.3 Fire prevention

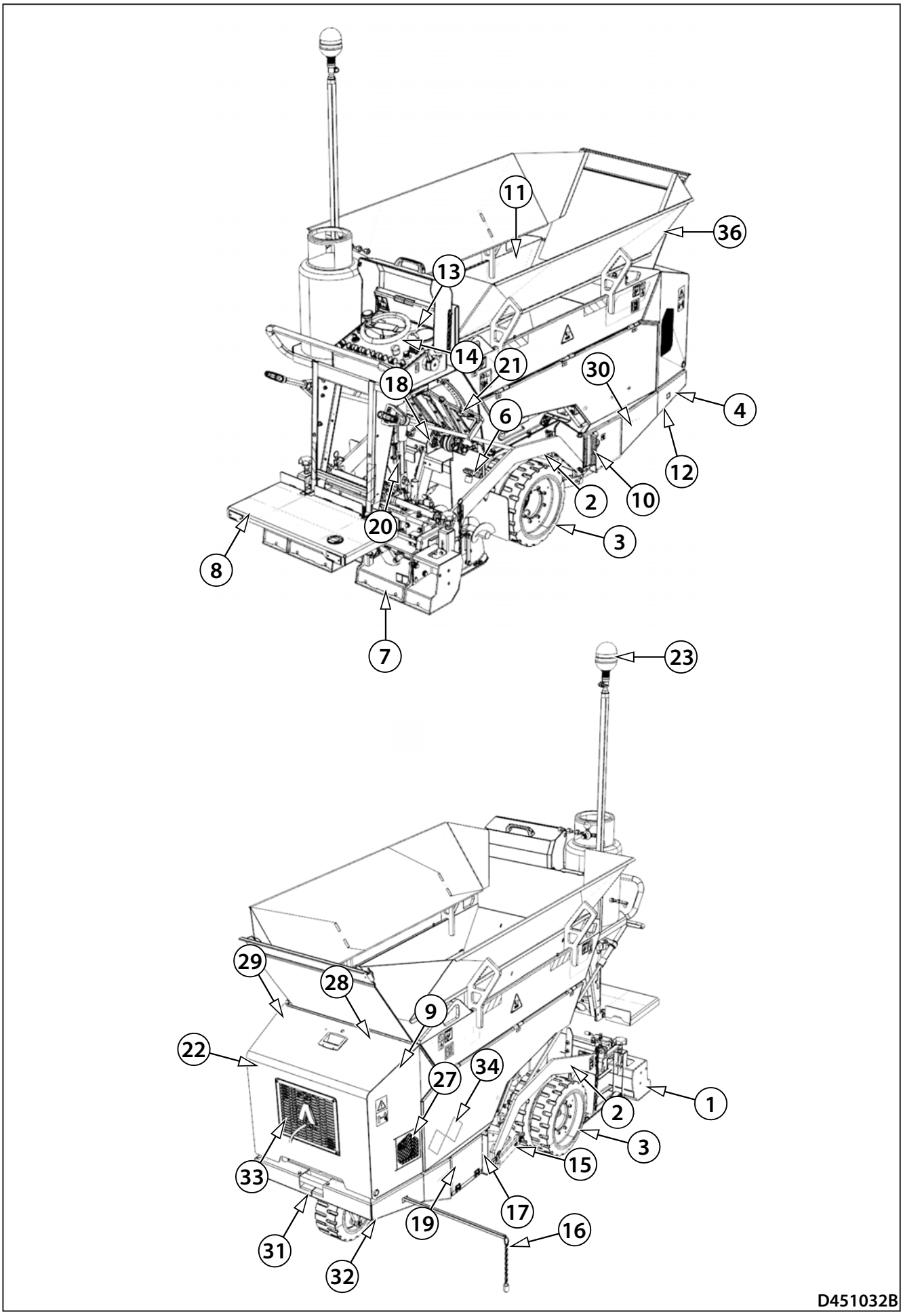
- The oil change area must be located so that it does not interfere with any explosion or fire hazard area.
- It must be identified by the tables and marks with "No smoking" signs and signs prohibiting the use of naked fire.
- The handling area must be dimensioned so that it can capture a volume of the flammable liquid equal to the capacity of the biggest transport container.
- It must be equipped with portable fire extinguishers.
- For handling the oil and diesel fuel, use such vessels as metal barrels, jerry cans, sheet-metal cans.
- The transport containers must be properly closed during storage.
- Vessels must be with only one outlet, stored always with the outlet up and secured against the outflow and drains.
- Containers must be marked by non-removable texts stating the contents and flammability classes.

Special tools, jigs – see relevant chapters of the manual

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3 Machine description

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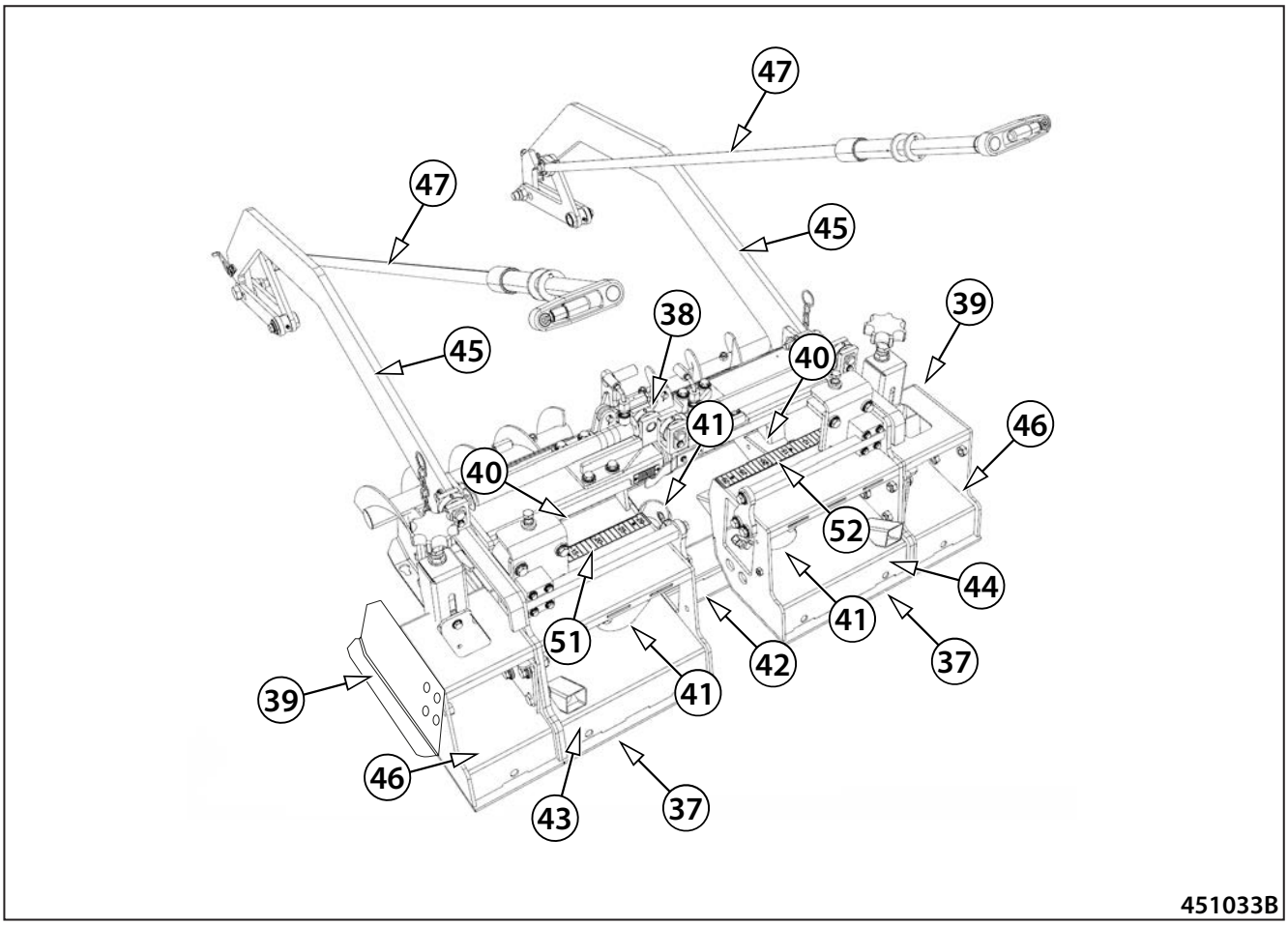


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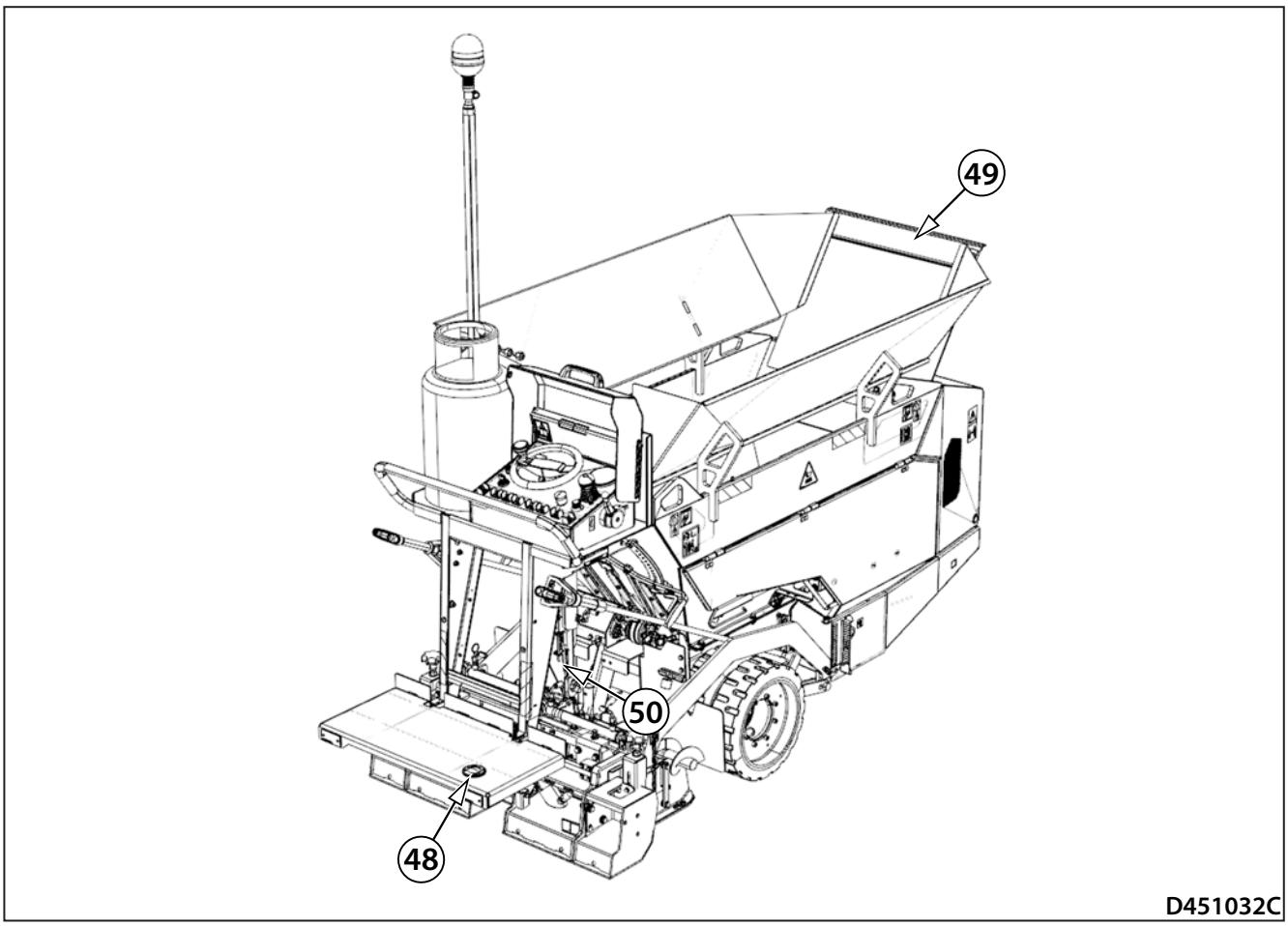
Legend:

1. Augers
2. Screed tow arm
3. Travel wheels
4. Machine frame
5. Belt conveyors
6. Screed lock
7. Screed
8. Tilting platform
9. Engine
10. Paving thickness indicator
11. Hopper
12. Exhaust
13. Main dashboard
14. Steering wheel
15. Tow point
16. Paving direction indicator
17. Battery disconnecter
18. Conveyor hydraulic motor
19. Battery
20. Screed linear hydraulic motor
21. Material outlet
22. Hydraulic pumps
23. Beacon
24. Gas bottle
25. Fuse box
26. Warning horn
27. Air filter
28. Fuel tank
29. Bonnet
30. Hydraulic tank
31. Lug for towing the machine
32. Conveyor tensioner
33. Combined cooler
34. Storage space for the first aid kit
35. Mounting place for a manual fire extinguisher.
36. Hopper extension

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37. Roadway profile bottom plates
38. Crown adjustment
39. Screed end gate
40. Screed vibrators
41. Gas components
42. Main screed
43. Left screed extension
44. Right screed extension
45. Screed tow arm
46. Mechanical extension
47. Paving thickness controller
48. Foot switch
49. Hopper cover
50. Conveyor limit switch
51. Left indicator of paving width setting
52. Right indicator of paving width setting

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4 Specification manual

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4.1 Basic data

Machine description

The F80W wheeled asphalt paver is equipped with a screed with gas heating. The basic paving width is from 800 mm (31.5 in) to 1,300 mm (51.2 in).

The machine is characterised with good manoeuvrability, good view from the operator's place, a wide range of uses and easy transport.

Specification of the expected use of the machine

The performance and dimensions of the F80W wheeled asphalt paver predetermine it for a wide range of paving works, in particular for city streets, city centres as well as for repairs and general maintenance of constructions.

The F80W wheeled asphalt paver has been designed and manufactured for the use for:

Paving asphalt mixtures (at hot condition)

Paving loose mixtures (at cold condition)

The machine is not intended for paving concrete.

Machine type

.....

Serial number of the machine

.....

Year of manufacture

.....

Engine type

.....

Serial number of the engine

.....

Screed type

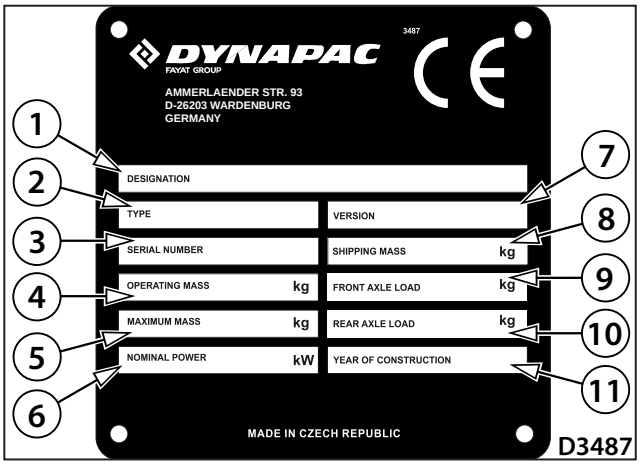
.....

Serial number of the screed

.....

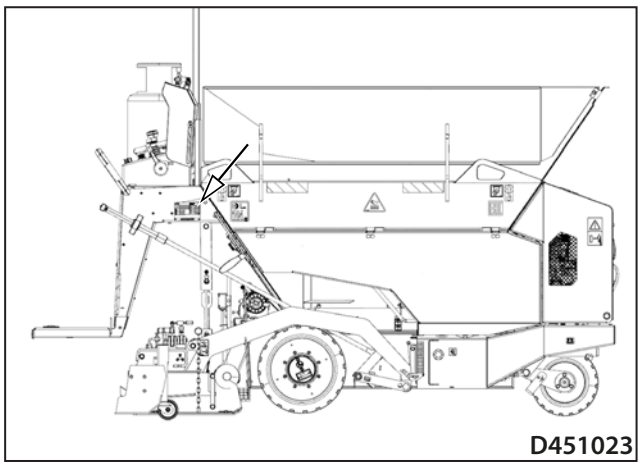
The machine that complies with the requirements on health protection and safety is provided with a nameplate with CE marking.

1. Name – always stated only in the English version
2. Type
3. Serial number
4. Operating weight
5. Maximum mass
6. Rated power
7. Version
8. Transport weight
9. Front axle load
10. Rear axle load
11. Year of manufacture

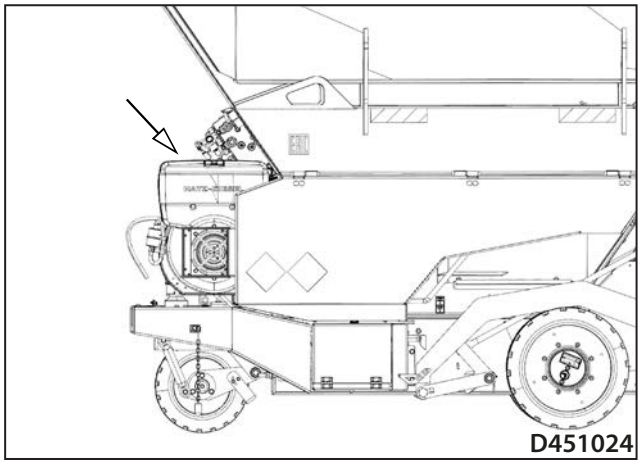


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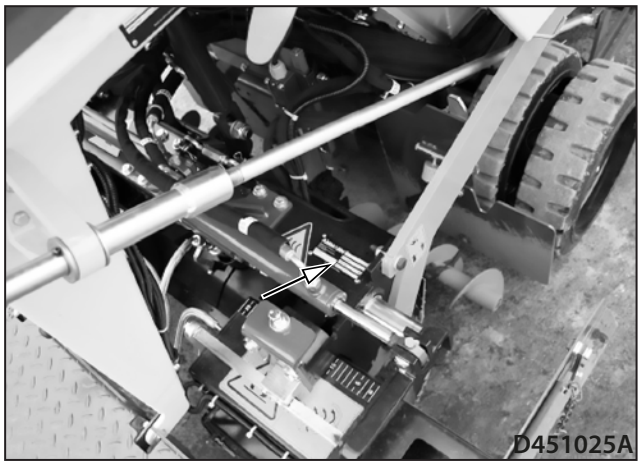
Nameplate.
Serial number of the machine.



Serial number of the engine.

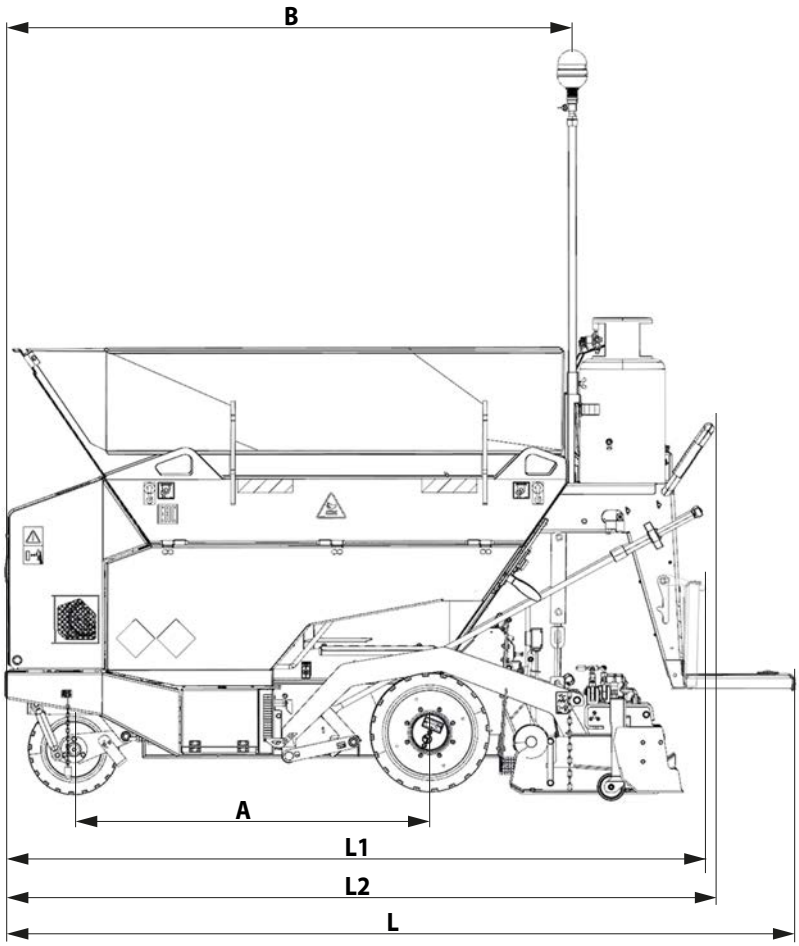


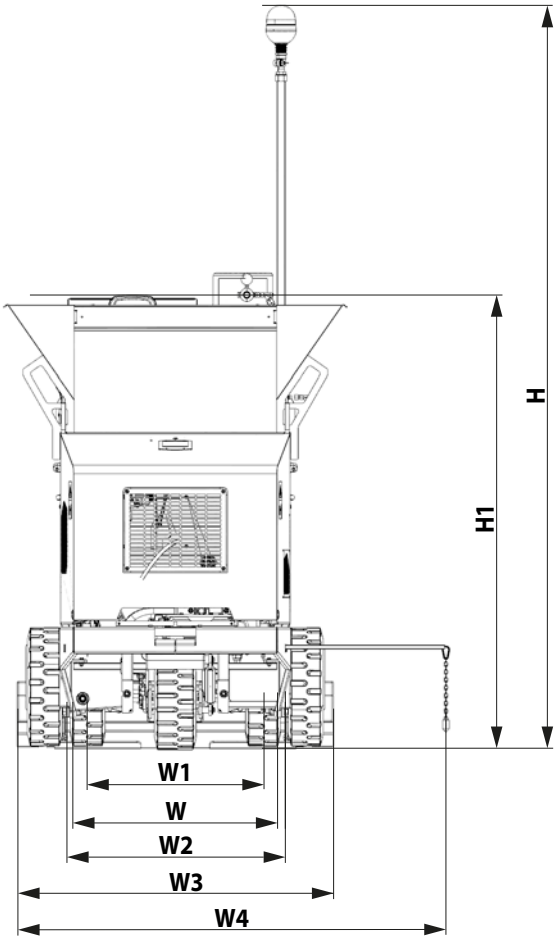
Nameplate of the screed.
Serial number of the screed.



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4.2 Dimensional drawing of the machine





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	A	B	H	H1	L	L1
mm	1280	2070	2680	1598	2865	2526
in	50.4	81.5	105.5	62.9	112.8	99.4
	L2	**W**	**W1**	**W2**	**W3**	**W4**
mm	2550	765	640	800	1150	1699
in	100.4	30.1	25.2	31.5	45.3	66.9

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4.3 Technical data

Weight		
The machine operation weight (including: screed extension, doubled driving wheels, vibration)	kg (lb)	1260 (2780)
Transport weight	kg (lb)	1185 (2610)
Driving characteristics		
Number of speeds	-	2
Working speed	km/h (MPH)	0.6 (0.37)
Transport speed	km/h (MPH)	2.5 (1.6)
Machine gradeability with an empty hopper (screed in the lower position)	° / %	7 / 12
Machine gradeability with a full hopper (screed in the lower position)	° / %	11 / 19
Machine descent with a full hopper (screed in the lower position)	° / %	20 / 36
Lateral static stability with an empty hopper	° / %	12 / 21
Lateral static stability with a full hopper	° / %	12 / 21
Drive type	-	Hydrostatic
Number of driving axles	-	1
Steering		
Steering type	-	Hydraulic
Steering control	-	Hydraulic servo unit
Engine		
Manufacturer	-	Hatz
Type	-	1B40T
Power according to ISO 3046-1	kW (HP)	6.3 (8)
Number of cylinders	-	1
Cylinder capacity	cm^3 (cu in)	462 (28)
Nominal speed	min^{-1} (RPM)	2600
Maximum torque	Nm/rpm	25/2000
The engine complies with emission regulations	-	Not regulated
Engine cooling system	-	Air-cooled
Axle		
Number of tyres	-	2
Rear wheel	-	432/127
Front wheel	-	330/152
Brakes		
Operating	-	Hydrostatic
Parking	-	Mechanical

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Operating fluids		
Fuel	l (gal US)	5 (1.3)
Engine (oil filling)	l (gal US)	1.8 (0.5)
Hydraulic system	l (gal US)	20 (5.3)
Lubricants	kg (lb)	0.1 (0.22)
Gas bottle with the maximum volume	kg (lb)	10 (22)
Maximum operating pressure	bar	1
Recommended operating pressure	bar	0.6–0.8
Gas type	-	Propane-butane (LPG)
Hopper		
Hopper capacity	kg (lb) / m^3	1,600 (3,527) / 0.6
Filling area length	mm (in)	1100 (43.3)
Paving		
Paving capacity	kg/h (lb/h)	22,000 (48,500)
Paving thickness	mm (in)	5–100 (0.2–3.9)
Screed		
Minimum paving width without reduction plates (standard equipment of the machine)	mm (in)	800 (31.5)
Maximum paving width without reduction plates (standard equipment of the machine)	mm (in)	1300 (51.2)
Minimum paving width with reduction plates	mm (in)	250 (9.8)
Maximum paving width with reduction plates	mm (in)	750 (29.5)
Minimum paving width with mechanical extension	mm (in)	1150 (45.3)
Maximum paving width with mechanical extension	mm (in)	1650 (65)
Electrical installation		
Voltage	V	12
Battery capacity	Ah	55
Noise and vibration emissions		
Measured sound power level A, L_{pA} at the operator platform*	dB	81
Uncertainty K_{pA} *	dB	2
Guaranteed sound power level A, L_{WA} **	dB	104
Declared highest weighted effective value of vibration acceleration transmitted to the whole body (platform)***	m/s^2 (ft/s^2)	0.6
Declared total value of vibration acceleration transmitted to hands (platform)***	m/s^2 (ft/s^2)	<2.5

* measured according to EN 500-4

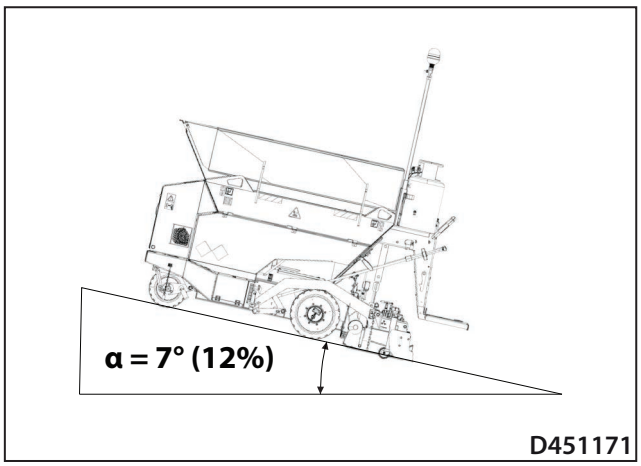
** measured according to DIRECTIVE 2000/14/EC

*** measured according to EN 1032+A1 while driving with vibration on gravel foundation

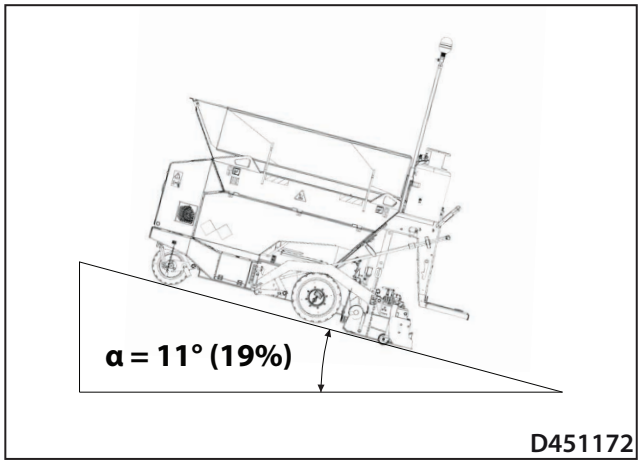
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4.4 Machine gradeability and lateral static stability of the machine

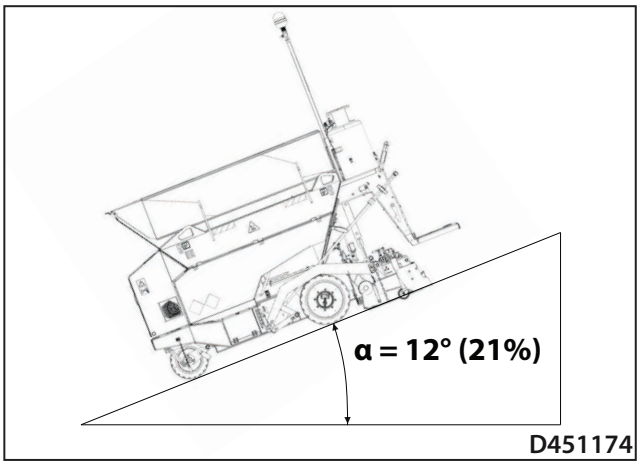
Machine gradeability with an empty hopper (screed in the lower position).



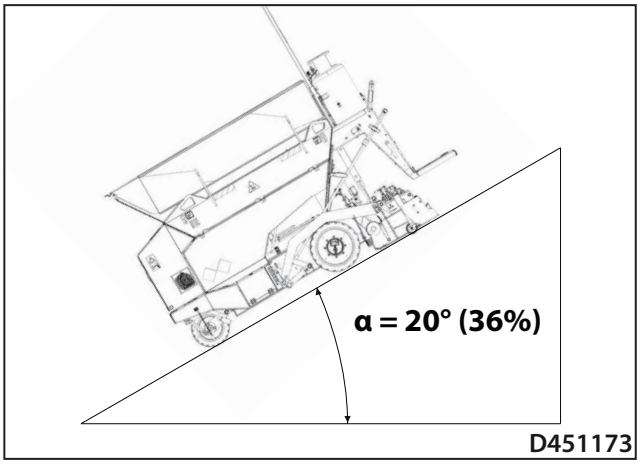
Machine gradeability with a full hopper (screed in the lower position).



Machine descent with an empty hopper (screed in the lower position).

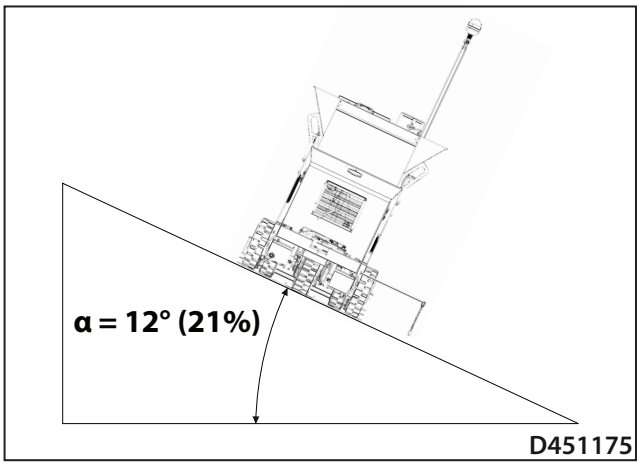


Machine descent with a full hopper (screed in the lower position).



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Lateral static stability with an empty and full hopper.



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5 Specification of operating fluids

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5 Specification of operating fluids

5.1 Engine oil



Engine oil has been specified as per its performance classification and viscosity classification.

Performance classification according to

API (AMERICAN PETROLEUM INSTITUTE)

ACEA (ASSOTIATION DES CONSTRUCTEUERS EUROPPÉENS DE AUTOMOBILE)

Viscosity classification

To determine the SAE (Society of Automotive Engineers) viscosity class, the ambient temperature and type of operation where the machine is used are decisive.

Use of permissible oils according to API: CF / CH-4 or better quality.

Use of permissible oils according to ACEA: B3 / E4 or better quality.

SAE 15W-40 year-round.

Note

Exceeding the lower temperature limit does not result in damage to the engine; it can only cause some starting difficulties.

It is convenient to use universal multi-range oils to avoid oil changes due to ambient temperature.

For easy starts at the temperatures below 0°C (32°F), the engine manufacturer recommends SAE 10W-30 oil.



Exceeding the upper temperature limit, considering the reduced lubricating capabilities of the oil must not last for long.

5.2 Fuel



Diesel oil is used as fuel for the engine:

- EN 590
- BS 2869 A1 / A2
- ASTM D 975-09a 1-D, 2-D

At ambient temperatures below 0°C (32°F), use winter diesel fuel.

Mixing diesel with special additives is forbidden.

Mixing diesel with petrol is forbidden.

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5.3 Hydraulic oil


2158

For the hydraulic system of the machine, it is necessary to use only high-quality hydraulic oil grades according to ISO 6743/HV (equal to DIN 51524 part 3 HVLP).

Fill the Machines normally with hydraulic oil that has cinematic viscosity of 46 mm^2/s at 40°C (104°F) ISO VG 46. This oil is the most suitable for use in the widest range of ambient temperatures.

Synthetic hydraulic oil

The hydraulic system can be filled with synthetic oil, which if leakages occur will be degraded completely by micro-organisms present in water and soil.



Always consult with the oil manufacturer or dealer any switching from mineral oil to synthetic or mixing oils of various brands!

5.4 Anti-adherent solution


AMN411

The anti-adhesive liquid is a non-adhesive additive.

It serves for cleaning the hopper, conveyor, augers and parts of the machine which are in contact with the paved asphalt material.

Use an environmentally-friendly anti-adherent solution according to the applicable national regulations.

To create the anti-adherent solution, mix a non-sticking agent with water according to the instructions of the non-sticking agent manufacturer.

Dosage

The anti-adherent solution dosage may vary depending on the operating conditions:

For standard mixtures, 1 part of anti-adherent solution in 30 parts of water. (1:30)

For modified mixtures, 1 part of anti adherent solution in 5 parts of water. (1:5)

Note

There is no vessel for an anti-adherent solution on the machine.

To apply the anti-adherent solution on individual parts of the machine, use a hand pump for spraying liquids.



It is prohibited to use diesel oil instead of an anti-adherent solution.

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5.5 Liquid gas

The machine is equipped with a gas heating system that uses liquid gas as fuel.

- Propane-butane (LPG)



Propane-butane (LPG) is an extremely flammable substance and any leakage causes a high risk of fire or explosion!

Propane-butane (LPG) is heavier than air and may accumulate in lower places – danger of fire or explosion!

Gas inhalation may cause headache, weakness, confusion, dizziness and nausea. It causes frostbites in the liquid state in contact with skin!

Avoid contact with skin. Wear suitable protective clothing!

Wear protective gloves resistant to oil substances complying with EN374!

Wear safety goggles!

In case of excess of vapour concentration limits in air, use a suitable breathing mask. Recommended: organic fume and vapour filter (type A, AX)!

No smoking at work.

Provide adequate area ventilation!

Always require a material safety data sheet to the delivered gas bottle. Before mounting the gas bottle on the machine, read and check that the gas bottle meets all conditions for putting the machine into operation.

The machine must be equipped with a fire extinguisher. Have the fire extinguisher ready on the driver's stand at a place intended for this purpose.

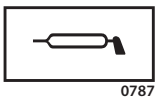
When the machine is operated in underground garages or other underground areas, observe the national safety regulations regarding space ventilation.



Stop the gas leakage.

In case of gas leakage, inform relevant national authorities.

5.6 Lubricating grease



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To lubricate the machine you must use a plastic grease containing lithium according to:

ISO 6743/9 CCEB 2

DIN 51 502 KP2K-30

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5.7 Fluids

Part	Fluid type	Filling quantity l (gal US)	Brand
Engine	Engine oil according to Chapter 5.1.	1.8 l (0.48 gal US)	
Fuel tank	Fuel according to Chapter 5.2.	5 l (1.3 gal US)	
Hydraulic system	Hydraulic oil according to Chapter 5.3.	20 l (5.3 gal US)	
Liquid gas	Liquid gas according to Chapter 5.5.	Maximum weight of 10 kg (22 lb)	
Anti-adherent solution	Fluid according to Chapter 5.4.	-	
Lubricating grease	Grease according to Chapter 5.6.	As required	

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6 Lubrication and maintenance chart

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6 Lubrication and maintenance chart

Every 10 hours at the beginning of work (daily)
Fuel level check
Engine oil level check
Hydraulic tank oil level check
Driver's stand cleaning
Cleaning the hopper, outlets and conveyor
Cleaning the augers
Test of burner ignition, flame position adjustment and spark plug maintenance
Gas equipment tightness check
Every 10 hours at the end of work (daily)
Fuel level check
Cleaning the conveyor
Cleaning the augers
Every 50 hours (weekly)
Clearing the water separator
Machine lubrication
After 50 hours of operation
Engine oil replacement
Every 100 hours of operation (monthly)
Fuel system tightness check
Rear wheel fastening check
Conveyor chain tension
Every 250 hours of operation (every 3 months)
Engine oil replacement
Engine air intake check
Engine accelerator cable tension check
Hydraulic oil cooler cleaning
Hydraulic circuit tightness check
Battery inspection

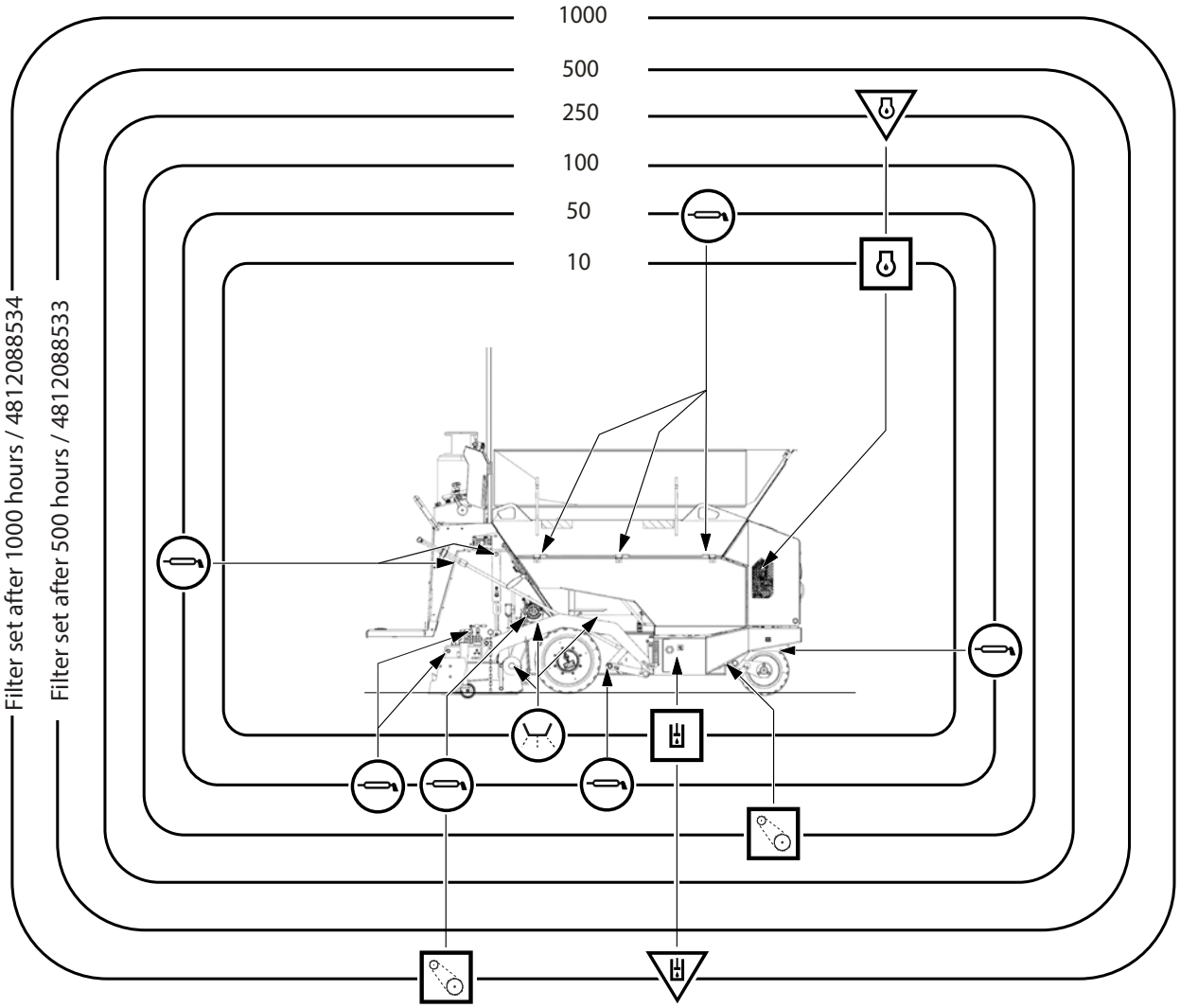
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Every 500 hours of operation (every 6 months)
Fuel filter replacement
Air filter replacement
Front and rear wheel condition check
After 500 hours of operation
Hydraulic oil and hydraulic oil filter replacement **
Every 1000 hours (yearly)
Engine oil filter cleaning
Hydraulic oil and hydraulic oil filter replacement **
Gas line hose replacement
Maintenance as required
Battery replacement
Screw connections tightness check
*** First after 50 engine hours.** **** First after 500 engine hours.**

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LUBRICATION AND SERVICE PLAN

□	INSPECTION
○	LUBRICATION
▽	REPLACEMENT



	Engine oil:	**SAE 15W-40**	**API CF / CH-4**
	Hydraulic oil:	**ISO VG 46**	**ISO 6743/HV**
	Lubricating grease:	**ISO 6743/9**	**CCEB 2**
	Anti-adherent solution:	**Specification according to the country of machine operation**	

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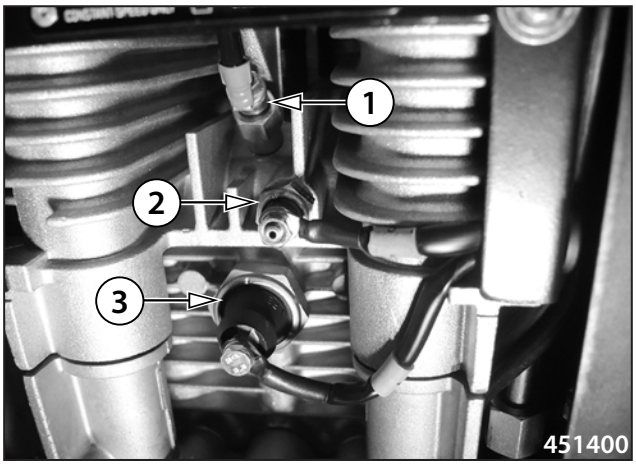
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7 Engine

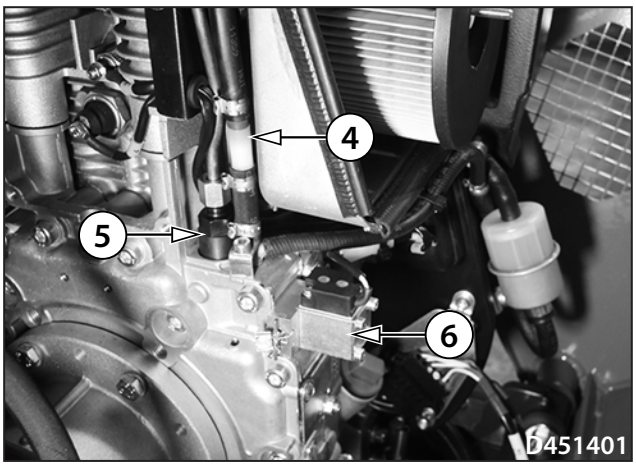
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7.1 Description of engine basic elements

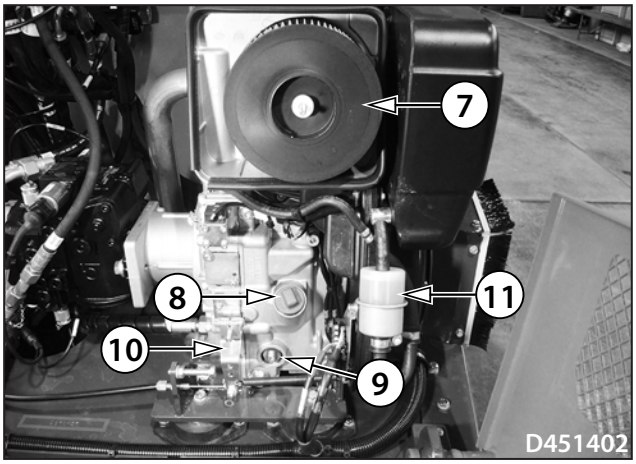
1 Glow plug
2 Temperature sensor
3 Lubricating oil pressure switch



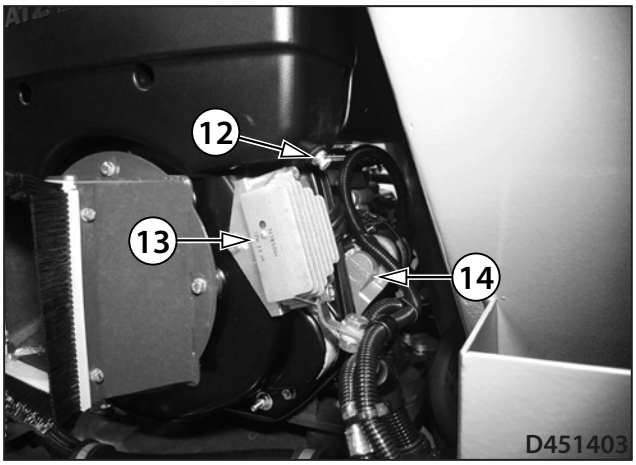
4 One-way valve
5 High-pressure pump
6 Extinguishing valve



7 Air filter
8 Oil dipstick
9 Oil filter
10 Speed adjustment lever
11 Fuel filter

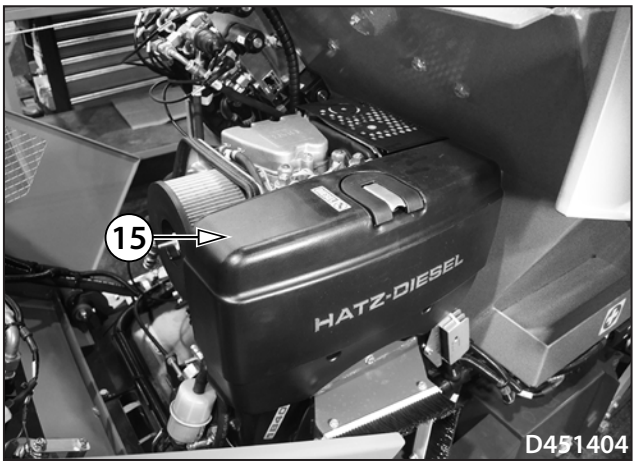


12 Condensate drain
13 Charging controller
14 Starter



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15 Fuel tank



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7.2 Technical data of the manufacturer

General technical data	
Engine type	1B40T
Working principle	Air-cooled four-stroke diesel engine
Combustion process	Direct injection
Number of cylinders	1
Bore/stroke	88/76 mm (3.46/2.99 in)
Total volume of cylinders	462 cm^3
Tank capacity	5 l (1.32 gal US)
Engine oil capacity without an oil collector	1.5 l (0.4 gal US)*
Engine oil capacity with an oil collector	3.2 l (0.85 gal US)*
Difference between the minimum and maximum marking without an oil collector	0.8 l (0.21 gal US)*
Difference between the minimum and maximum marking with an oil collector	2.2 l (0.58 gal US)*
Engine oil consumption	Max. 1% of fuel consumption, referred to the full load
Oil pressure at 100°C	Approximately 2.5 bar at 3000 rpm
Direction of rotation when looking at the flywheel	Left
Valve clearance at 10-30°C	0.10 mm (0.0039 in)
Maximum allowed inclination during operation in the given direction	Flywheel side 25°C ** Other directions 35°C **
Weight (including the fuel tank, air filter, damper and electric start)	Approximately 55 kg (121.25 lb)
Battery capacity	Min. 12 V - 36/55 Ah Max. 24 V - 24/44 Ah

* These specifications are approximate values. The maximum marked value on the dipstick is always decisive.

** Exceeding these limit values will cause damage to the engine.

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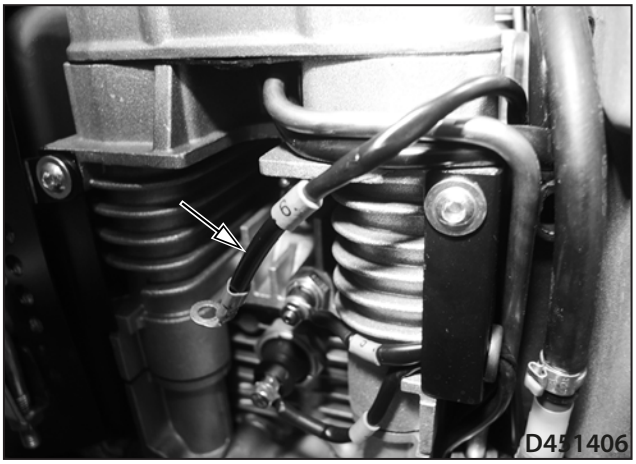
7.3 Engine diagnostics

All measured values are measured using a multimeter.

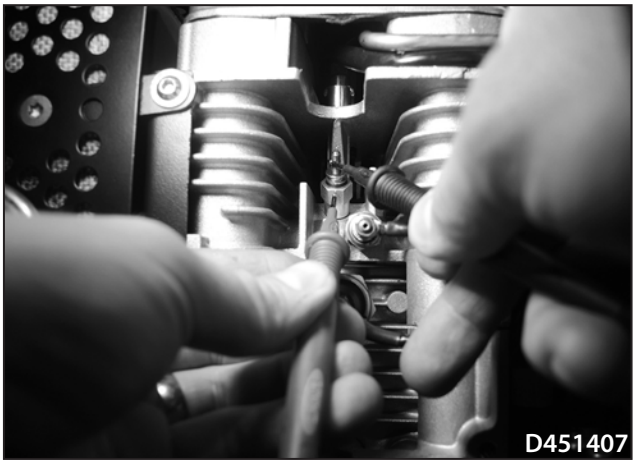


7.3.1 Measuring glow plug resistance

Remove wire no. 6.



The measured resistance is approximately 0.9 Ω.



Note

In case of the measured value – open circuit, replace the glow plug.

7.3.2 Measuring glow plug power supply

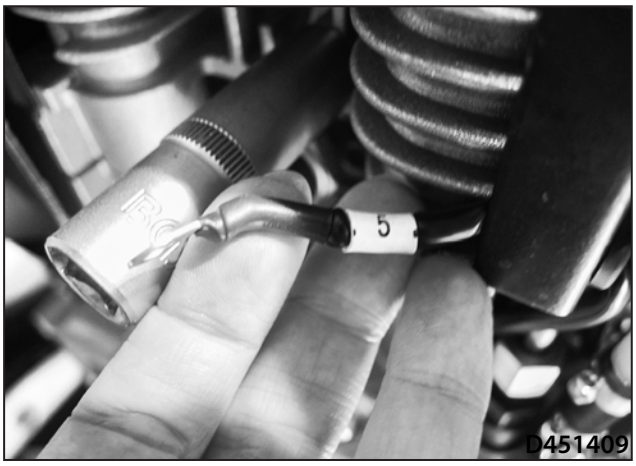
Measure voltage of approximately 12 V between wire no. 6 and the engine frame with the engine pre-heating switched on.



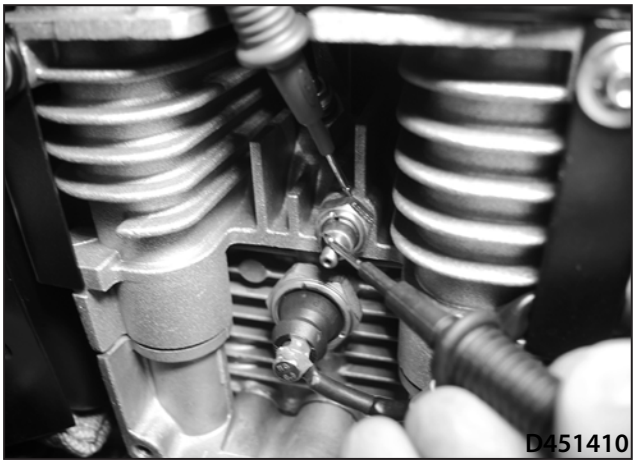
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7.3.3 Measuring temperature sensor

Remove wire no. 5.



Measure the resistance between the engine frame and the connecting screw.



The switch is disconnected (the disconnected circuit). The switch is connected at the temperature of 220°C and the resistance is approximately 1.8 Ω.



Before measuring voltage make sure that the key in ignition is in the "I" position.

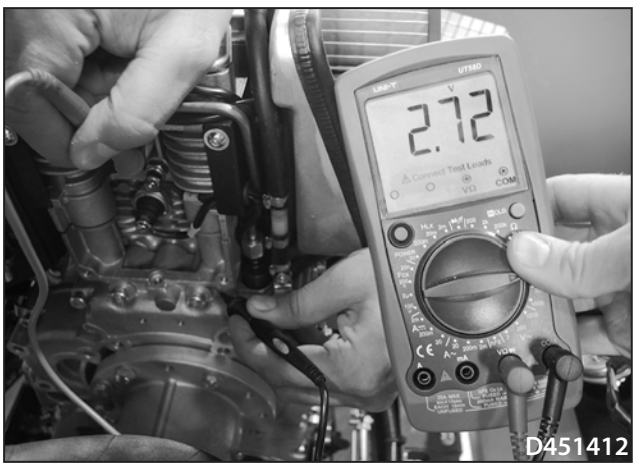
The voltage between wire no. 5 and the engine frame is approximately 2.7 V.

Note

The measured value must be approximately 1.8 Ω at the engine temperature of 220°C. If disconnected circuit is measured, replace the switch.

To verify the function

When the engine is overheated, attach wire no. 5 to the engine frame and the fan must start up.



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7.3.4 Measuring lubricating oil pressure switch

Remove wire no. 4.



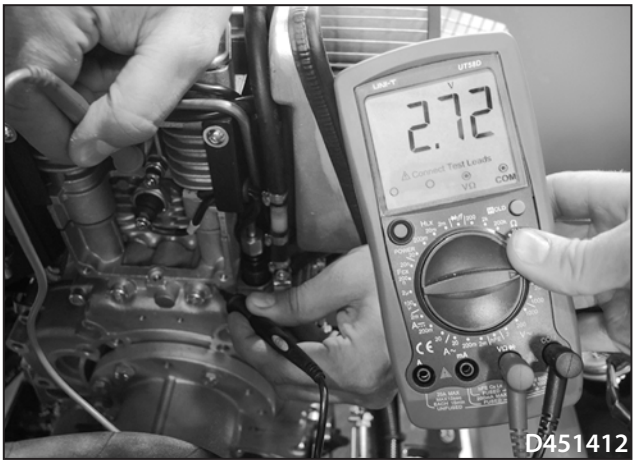
Measure the resistance between the frame and the lubricating oil pressure switch screw.

If the lubricating oil pressure is insufficient, measure the closed circuit – the resistance is close to zero. After starting the engine measure the opened circuit.



Before measuring voltage make sure that the key in ignition is in the "I" position.

The voltage between wire no. 4 and the engine frame with the engine started is approximately 2.7 V.



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7.3.5 Measuring extinguishing valve

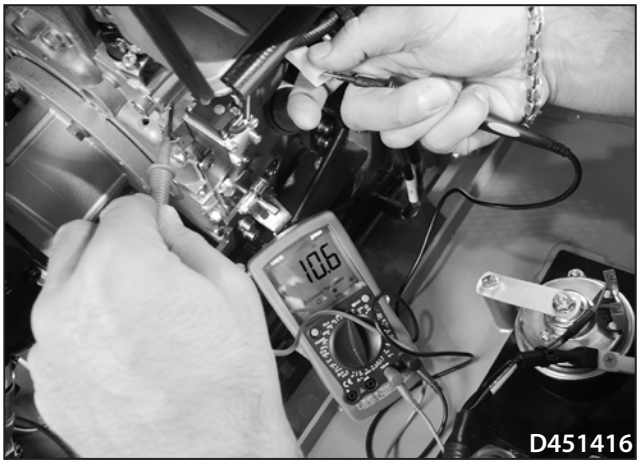
Before measuring voltage make sure that the key in ignition is in the "I" position.

Remove wire no. 7.



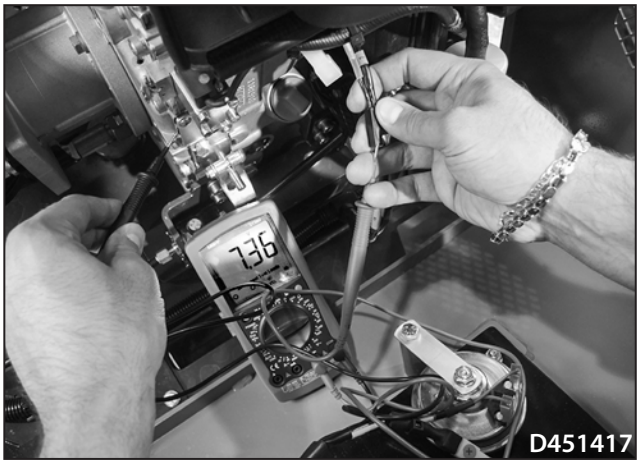
Measure the resistance between the wire at the output from the coil and the machine frame.

The measured resistance is approximately 10.5 Ω.



Measure the voltage of the extinguishing coil between wire no. 7 and the engine frame.

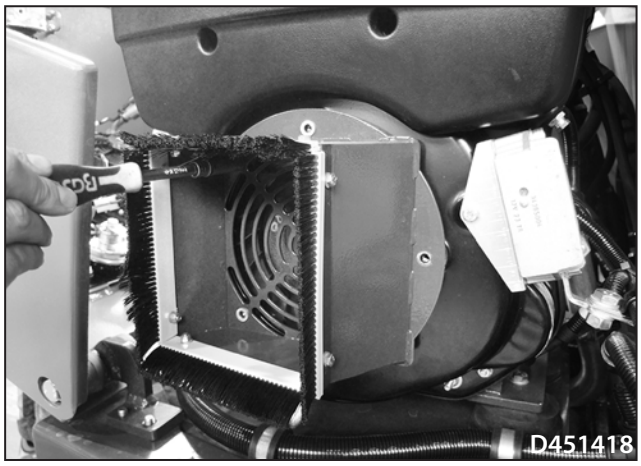
The voltage of the extinguishing valve is approximately 7.3 V.



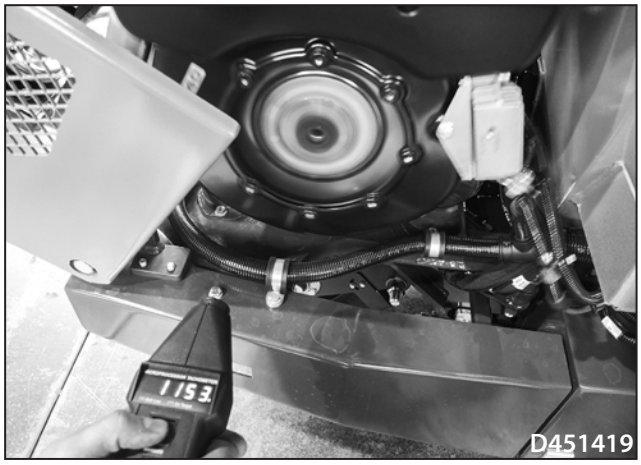
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7.3.6 Measuring engine speed

Remove the cover.



Measure the engine speed using a revolution counter.
Measure idling of approximately 1200 RPM.



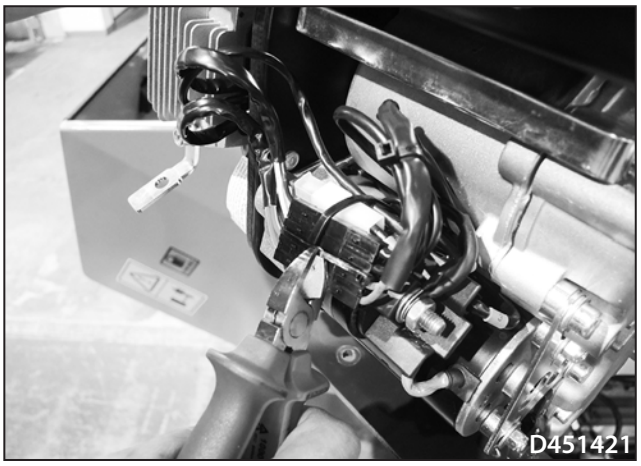
Measure maximum speed of approximately 2600 RPM.



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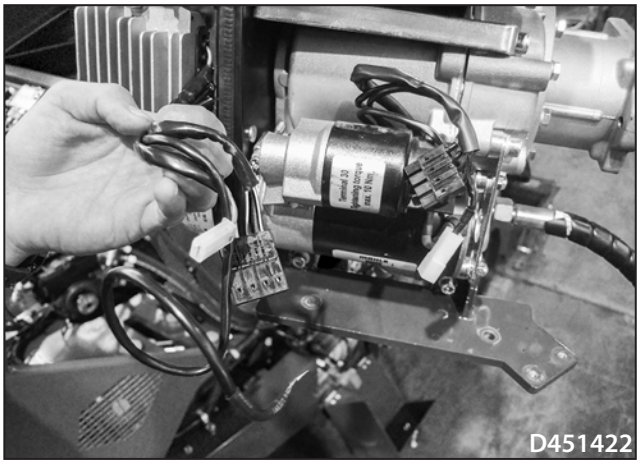
7.4 Dismounting the charging controller

Dismount the charging controller from the machine with the switched off battery disconnecter and with the closed gas bottle valve.

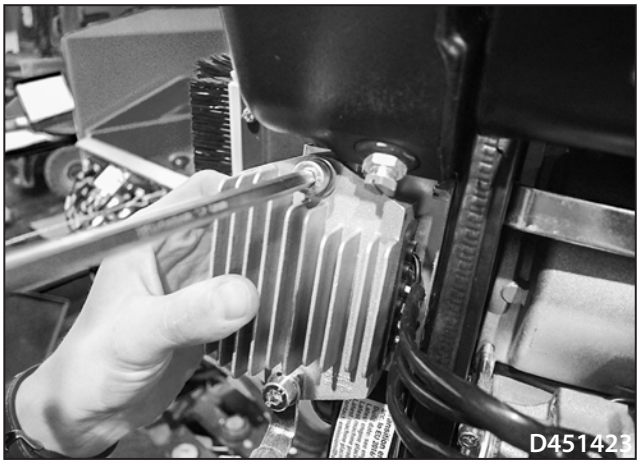


Cut off the binding straps.

Disconnect the wire and connectors of the charging controller.



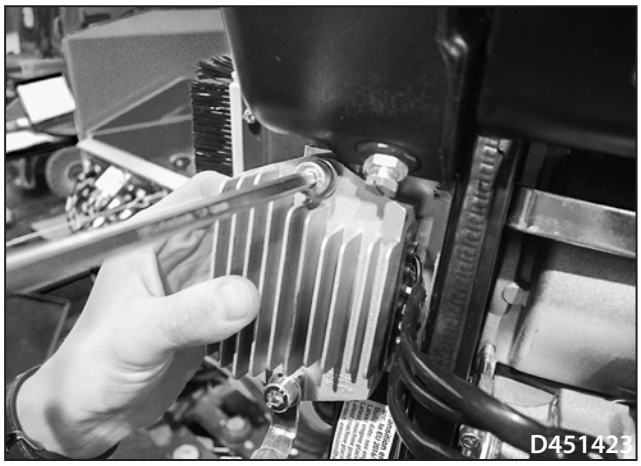
Remove the screws.



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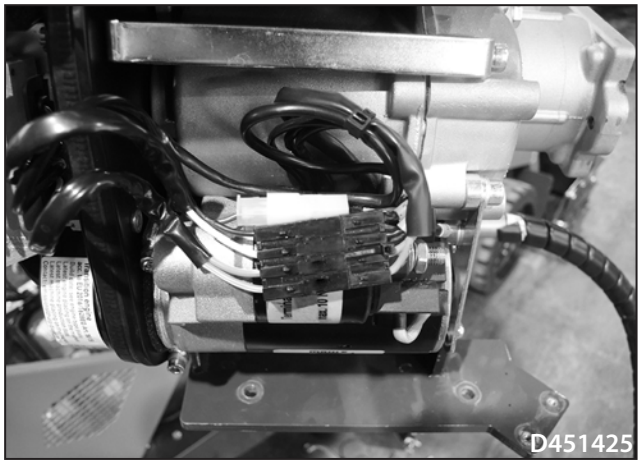
7.5 Mounting the charging controller

Mount the charging controller to the machine with the switched off battery disconnecter and with the closed gas bottle valve.

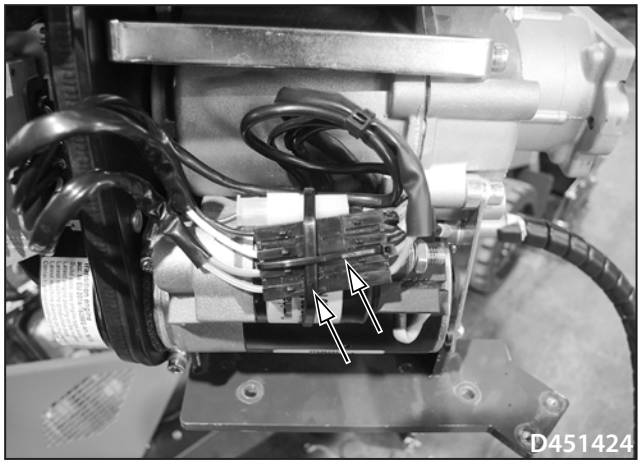


Fasten the controller.

Connect the wire and connectors of the charging controller.



Connect the wire and connectors and fasten them with a binding strap.



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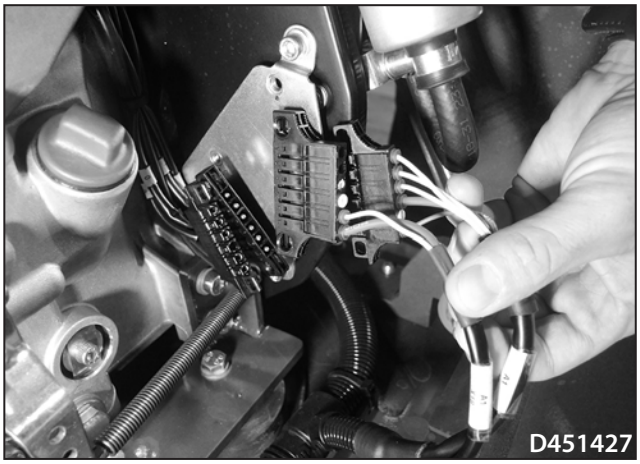
7.6 Dismounting the engine

Dismount the engine from the machine with the switched off battery disconnecter and with the closed gas bottle valve.

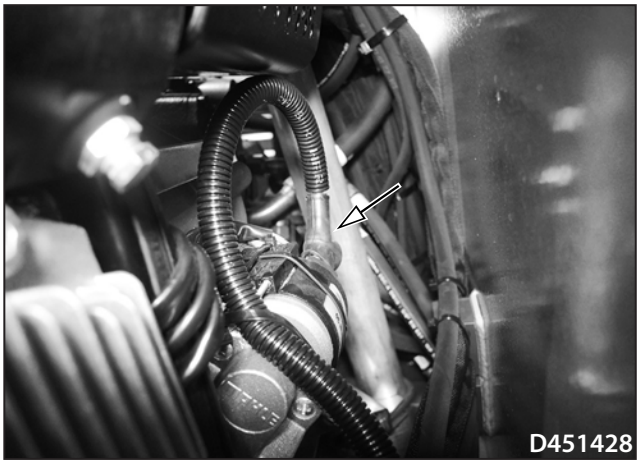
Disconnect the battery.



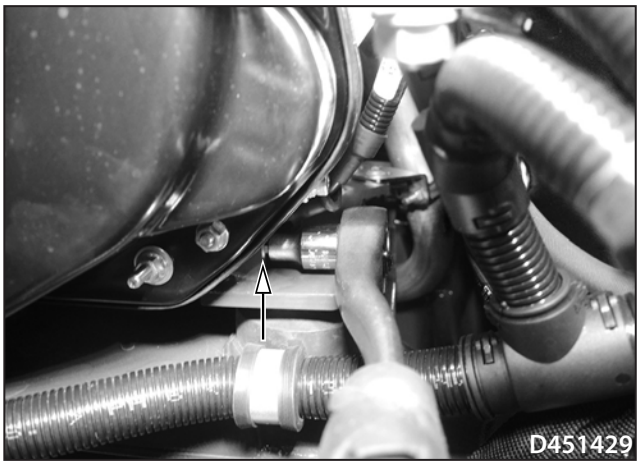
Disconnect the connectors.



Dismount the wire to the starter.

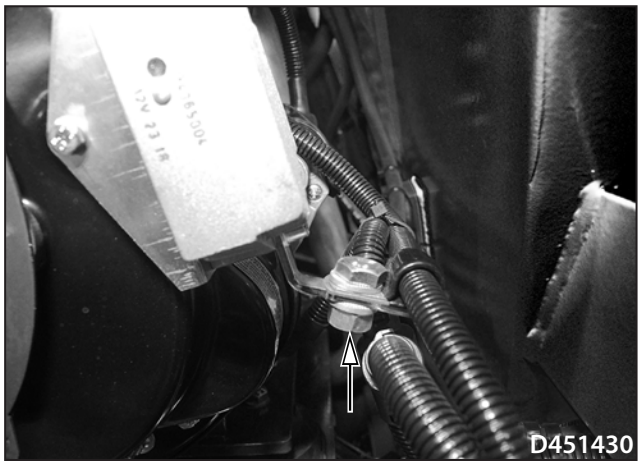


Dismount the engine earthing wire.

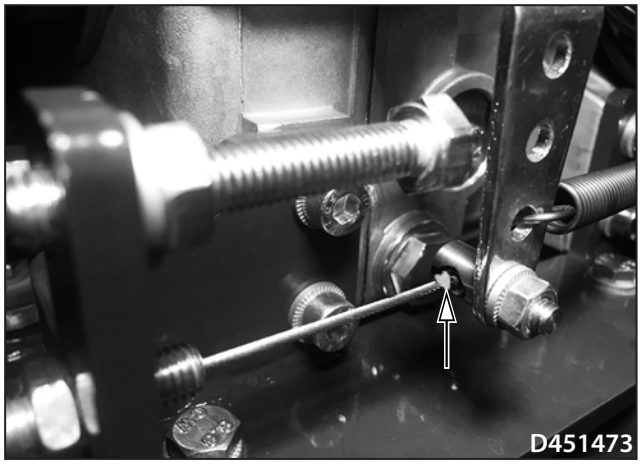


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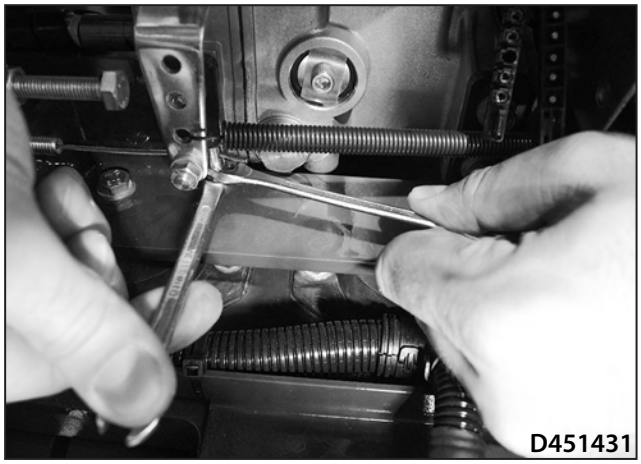
Remove the holder.



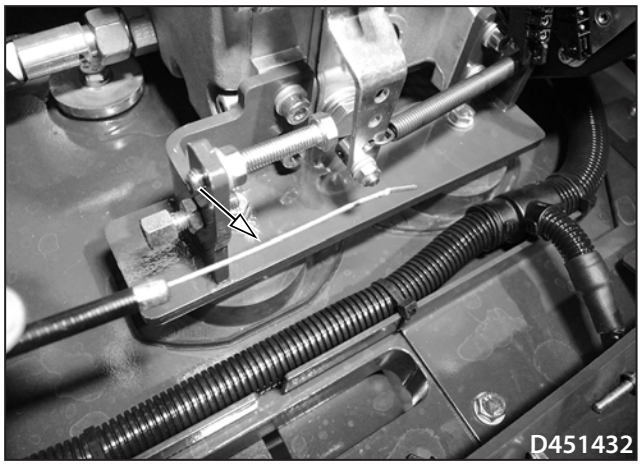
Mark the cable (e.g. by an alcohol marker) to facilitate back assembly.



Loosen the locking screw of the engine speed cable.

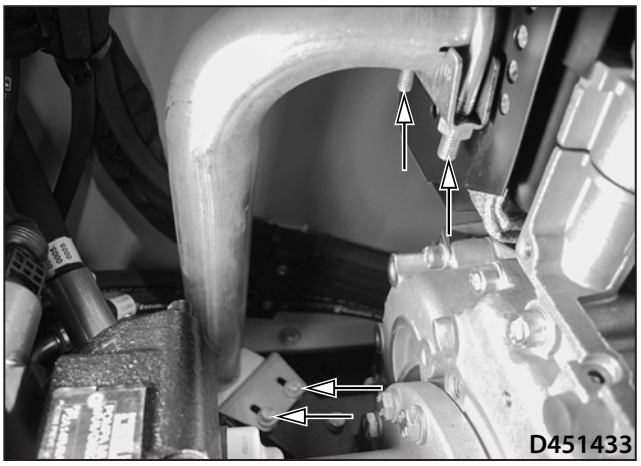


Pull out the cable.

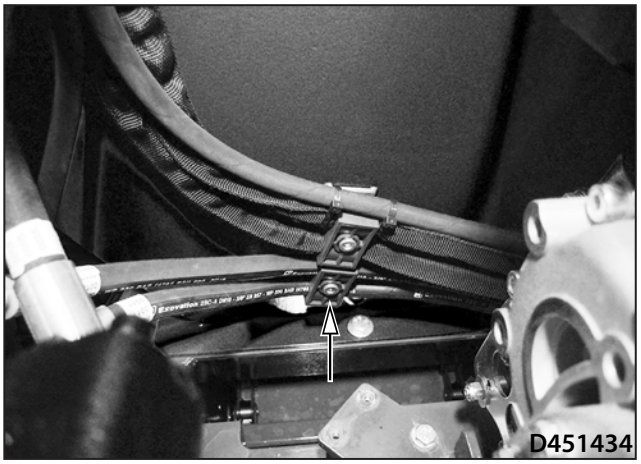


https://truckmanualshub.com/

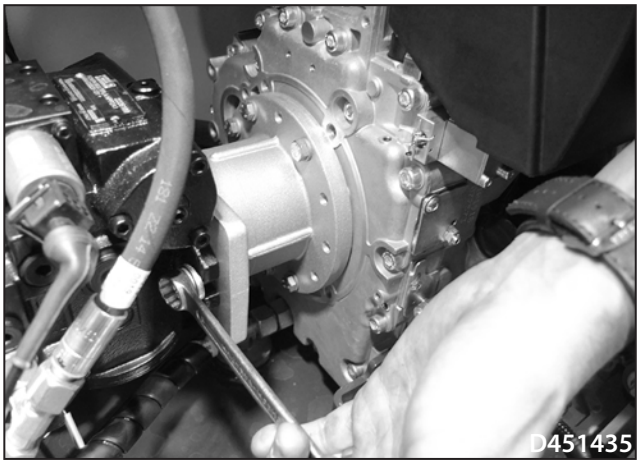
Remove the exhaust clip and holder.



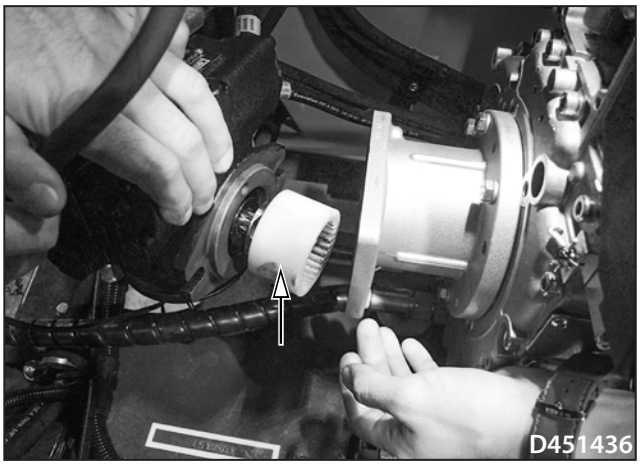
Remove the lower hose clip.



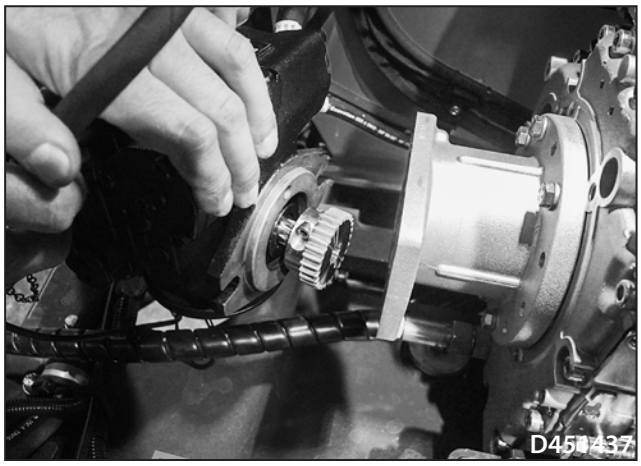
Remove pump bolts.



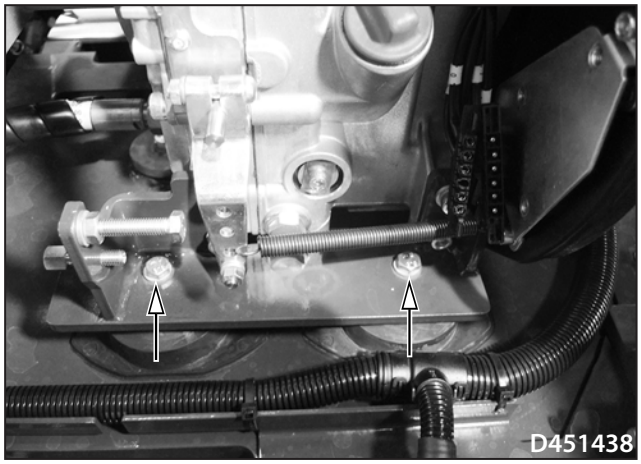
Move the pump aside and remove the coupling.

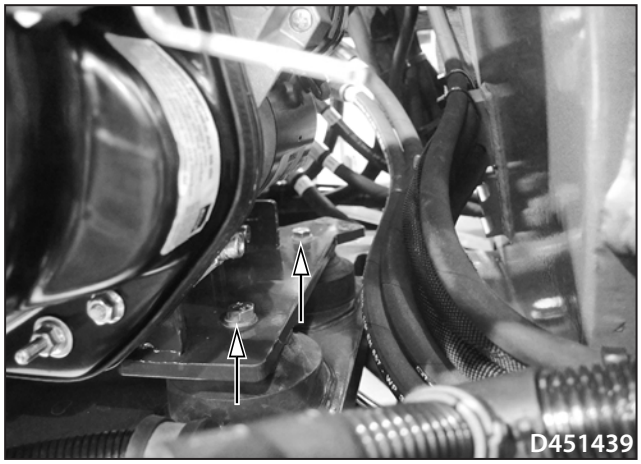


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Remove the screws of the engine holder (4x).





Remove the air filter cover.



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Remove the top engine cover.



Hang the engine in the lifting lug on the crane.





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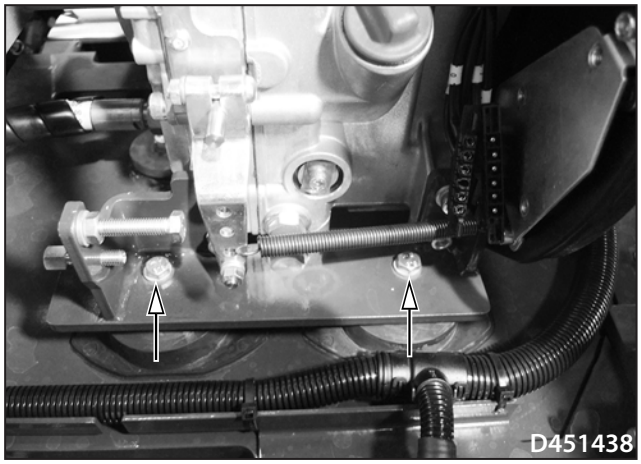
7.7 Mounting the engine

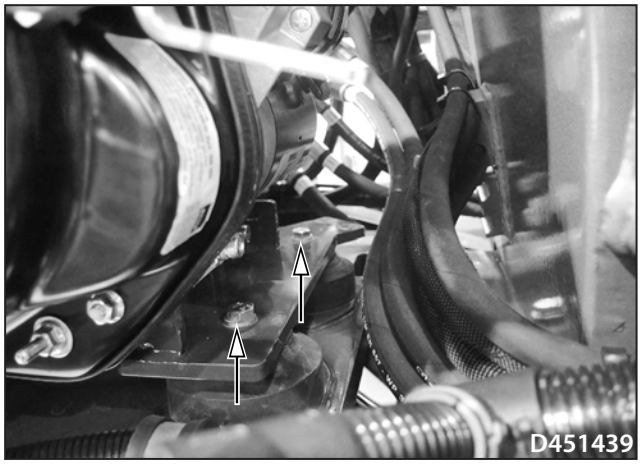
Mount the engine to the machine with the switched off battery disconnecter and with the closed gas bottle valve.

Start and place the engine on the rubber-metals of the engine.

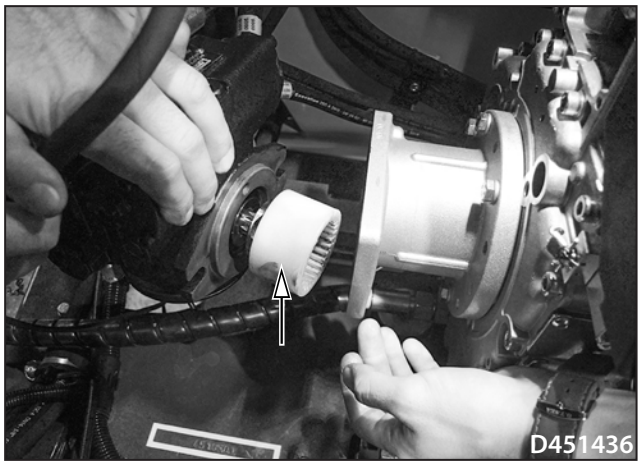


Mount the screws of the engine holder and tighten them.

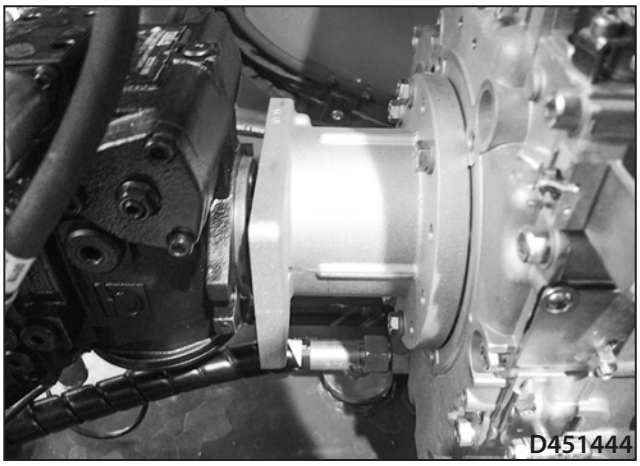




Fit the coupling onto the pump and insert the pump to the engine.

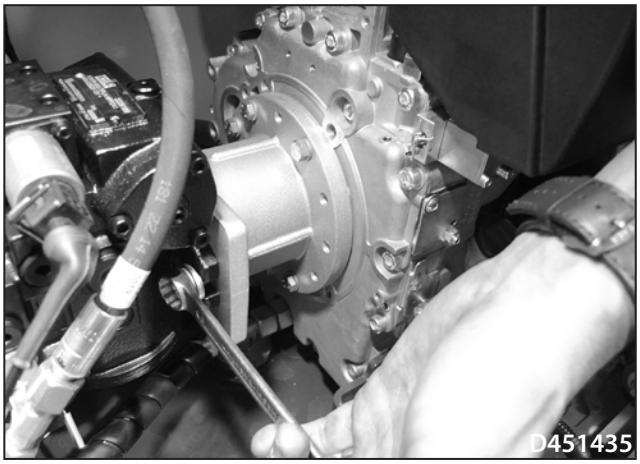


https://truckmanualshub.com/

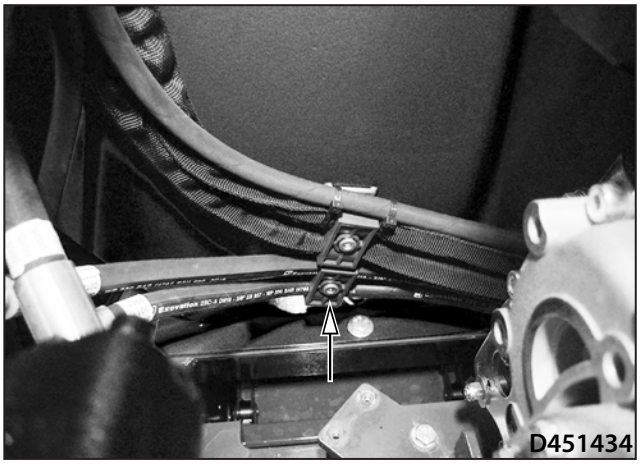


Mount the screws of the pump.

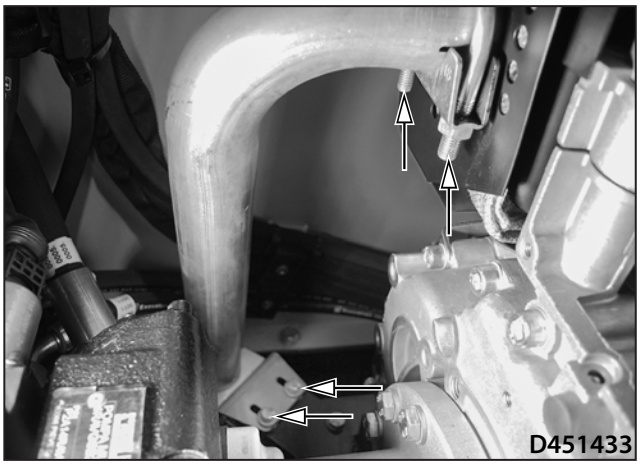
Remove the lifting lug.



Mount the lower hose clip.

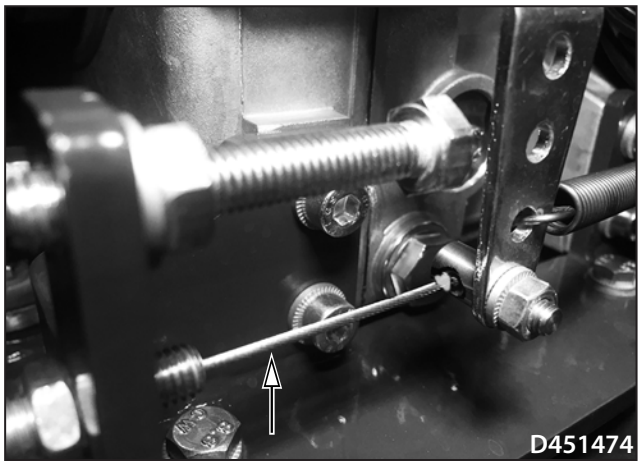


Mount the exhaust clip and holder.



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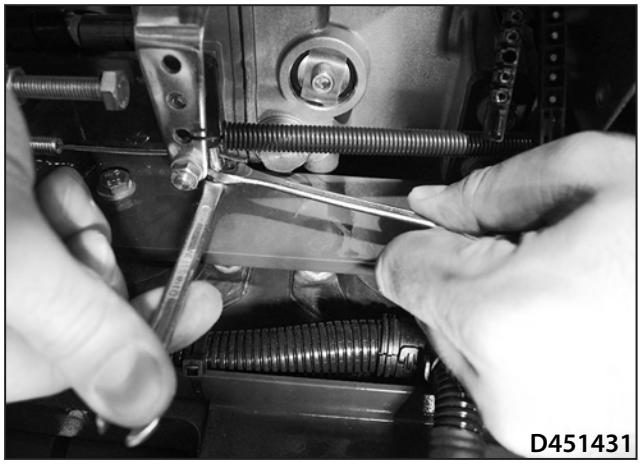
Mount the engine speed cable.



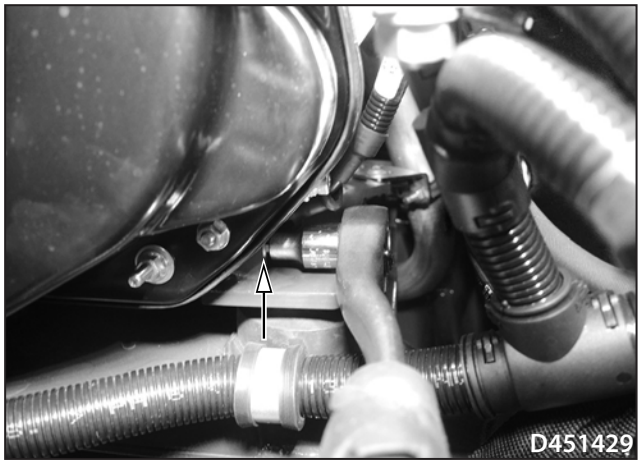
Mount the locking screw of the engine speed cable.

Note

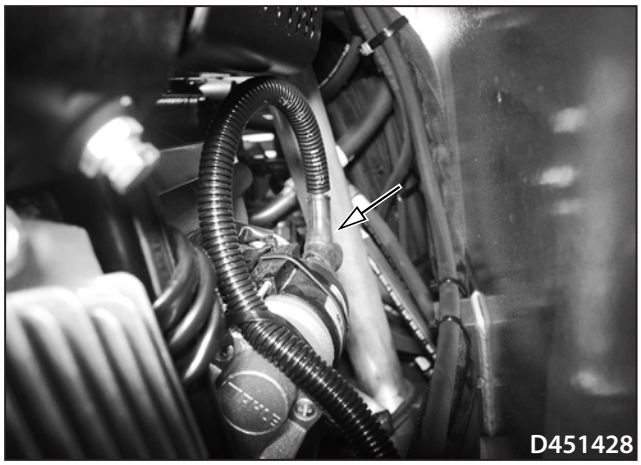
Make sure that the mark of the cable is at the same place.



Mount the engine earthing wire.

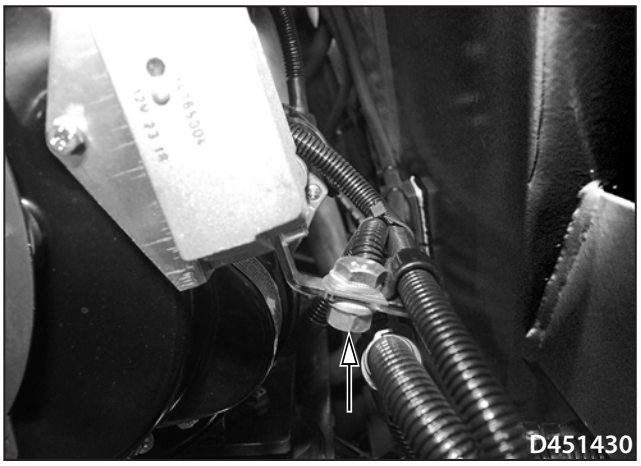


Mount the wire to the starter.

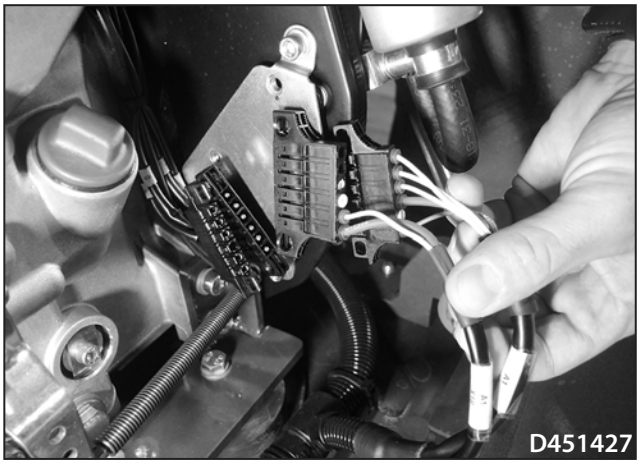


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Mount the holder.



Connect the connectors.



Mount the top engine cover.



Mount the air filter cover.



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Connect the battery.



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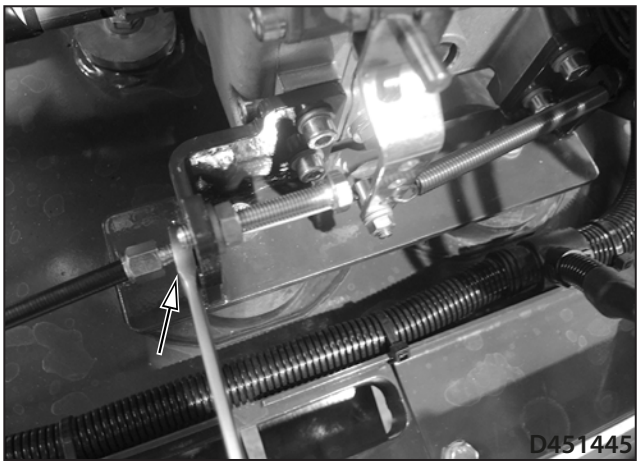
7.8 Engine speed adjustment

Measure the engine speed using a revolution counter.

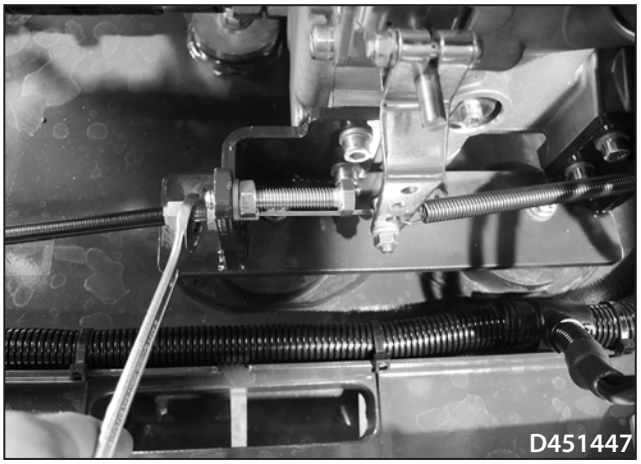
Idle engine speed

Start the engine and set the engine speed adjusting controller to idle speed.

Loosen the lock nut.

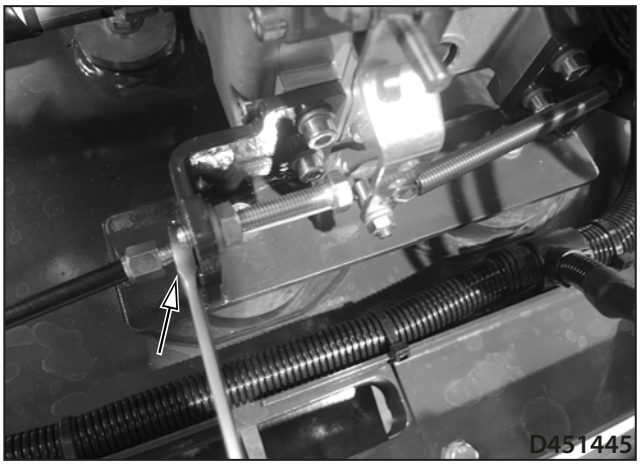


Turn the screw until it reaches 1200 RPM.





Tighten the lock nut.

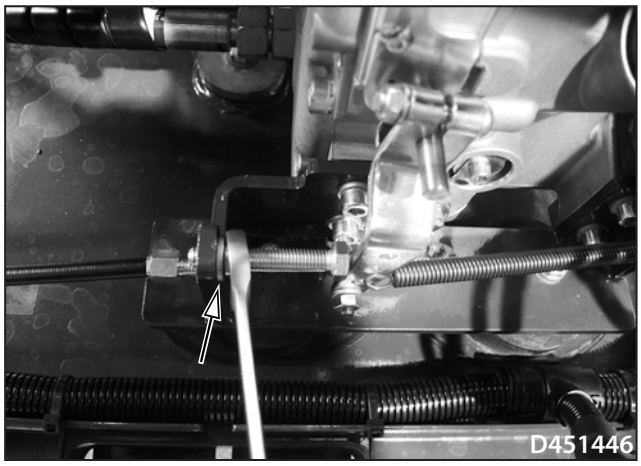


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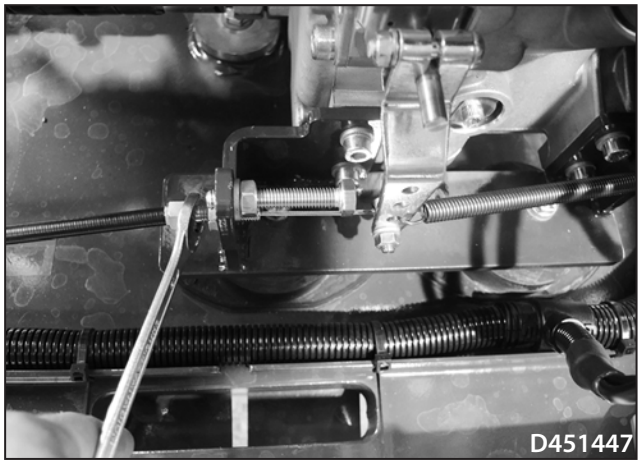
Maximum engine speed

Set the engine speed adjusting controller to the maximum speed.

Loosen the lock nut.



Turn the screw until it reaches 2600 RPM.





Tighten the lock nut.



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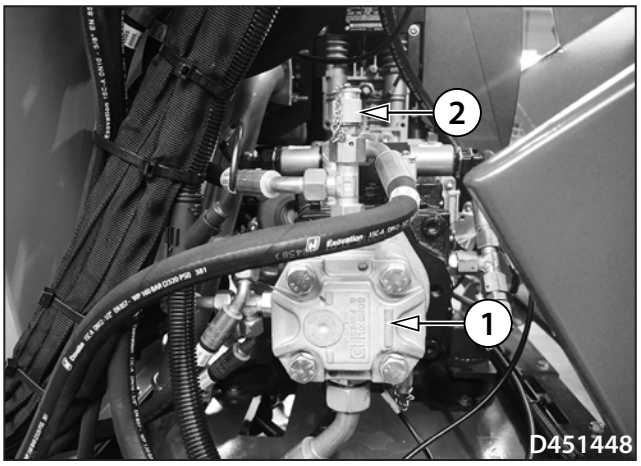
8 Steering

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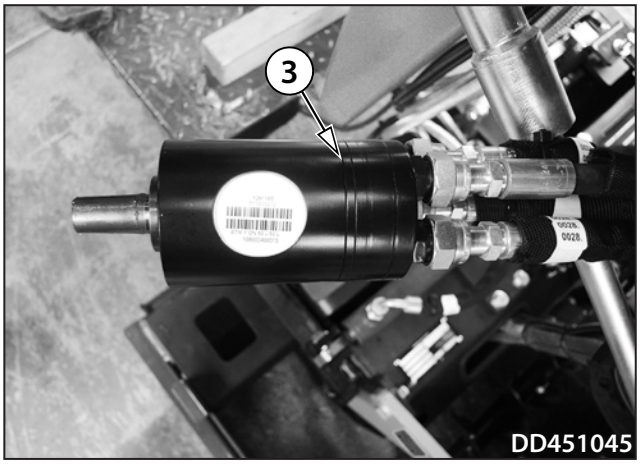
8.1 Description of basic elements

1 Service pump

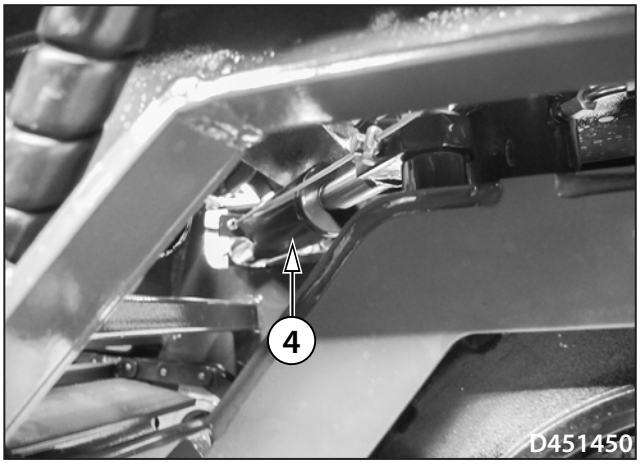
2 Measuring point for pressure measurement



3 Power steering



4 Steering hydraulic motor



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8.2 Technical data of the manufacturer



- Open-centre power steering
- Volume of 50 cm^3/revolution.
- Maximum pressure of 50 Bar.

8.3 Diagnostics



Measuring the steering pressure

- Measure the pressure using a pressure gauge with a suitable range.
- Perform the measurement with the heated-up hydraulic oil.
- Start the engine and set the engine speed adjusting controller to the maximum speed.

Measure the refilling pressure in the steering of approximately 22 Bar.

The maximum pressure in steering limit positions is approximately 50 Bar.

Note

In case a different value is measured, contact your dealer or DYNAPAC Technical Support.

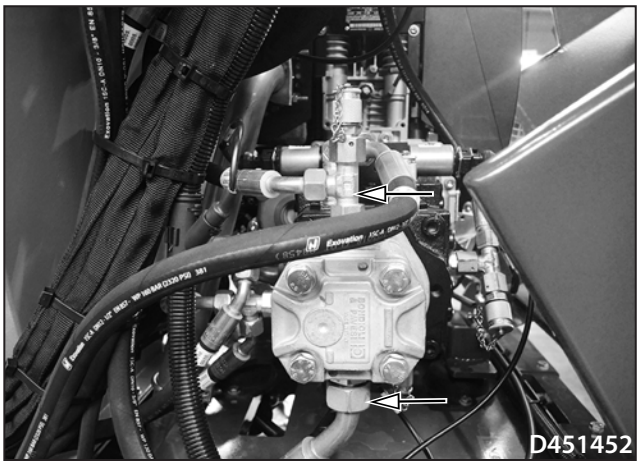
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8.4 Replacement of the gear pump

Perform the replacement of the gear pump with the machine with the switched off battery disconnecter and with the closed gas bottle valve.

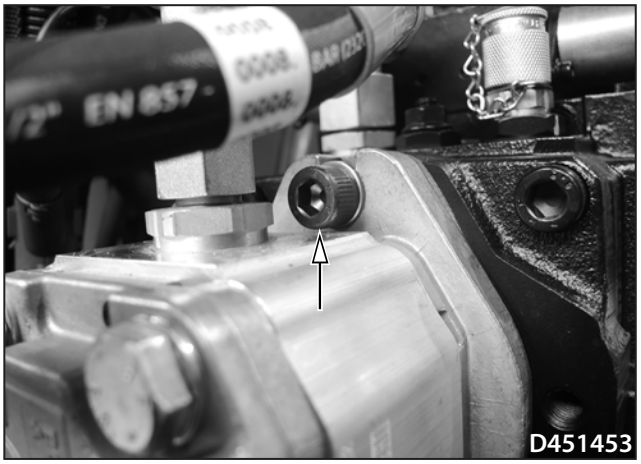
Remove the suction and discharge pump hose.

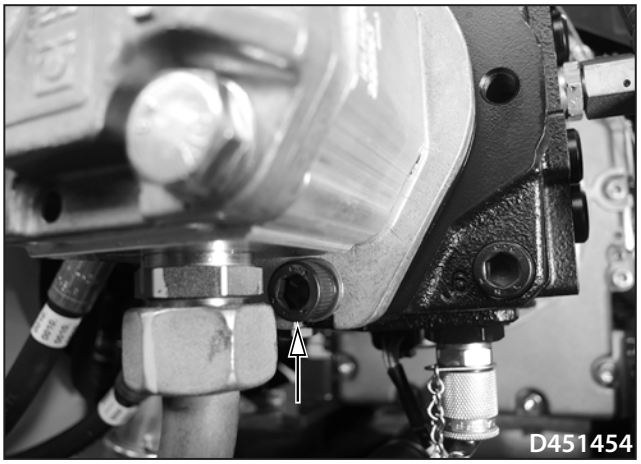
Avoid the oil soaking into the ground.



Remove the screws.

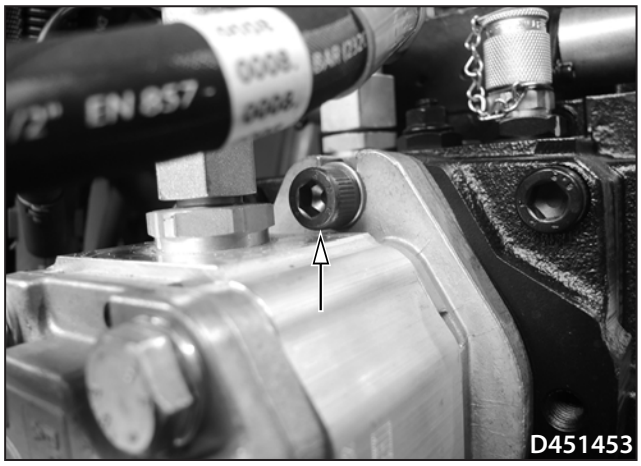
Replace the pump with a new one.

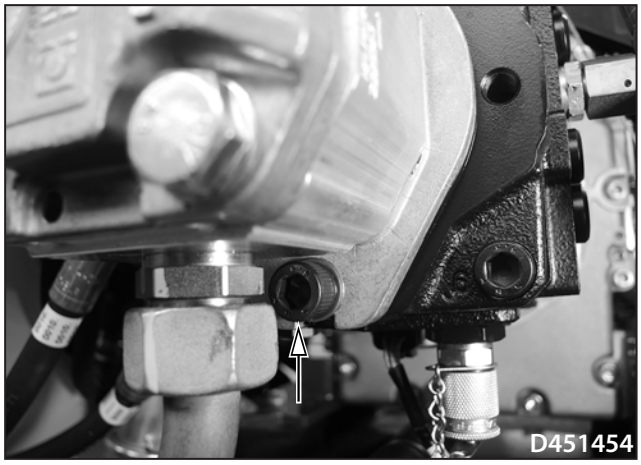




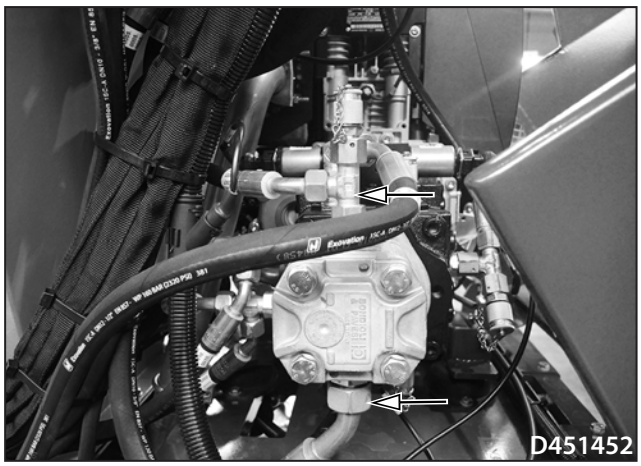
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Mount the screws and fasten the pump.





Mount the suction and discharge hose.



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8.5 Dismounting the steering linear hydraulic motor

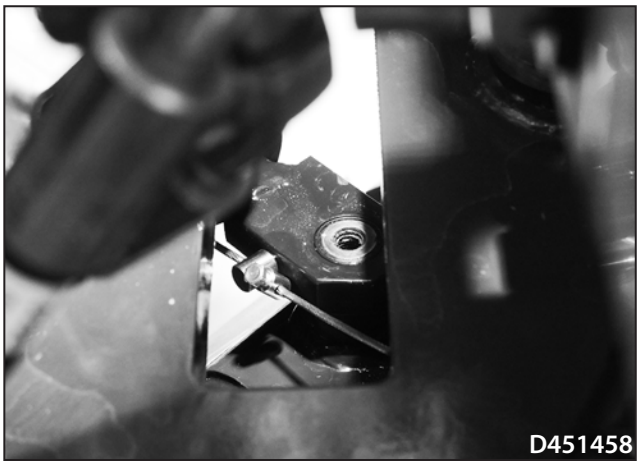
Dismount the steering linear hydraulic motor from the machine with the switched off battery disconnecter and with the closed gas bottle valve.

Turn the steering wheel to the maximum right position.

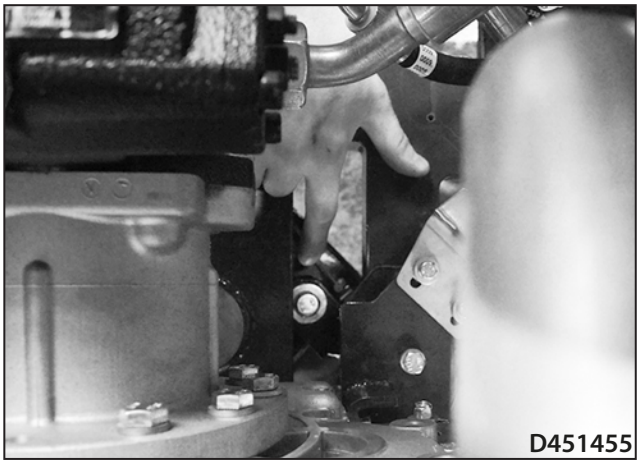
Remove the cable on the steering hydraulic motor.

Note

Mark the cable (e.g. by an alcohol marker) to facilitate back assembly.



Remove the screw of the steering hydraulic motor.

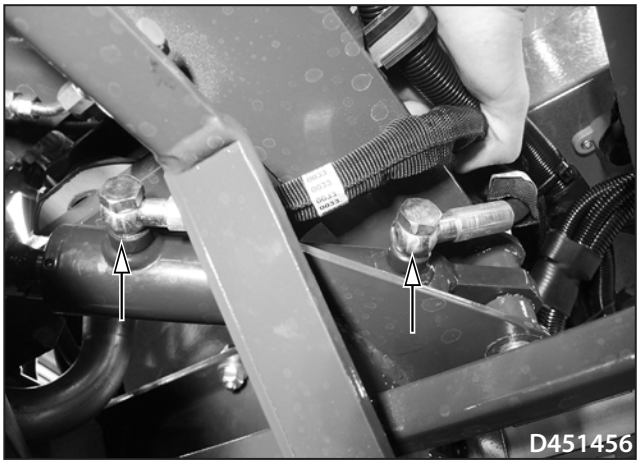


Remove the screws of hoses of the steering hydraulic motor.

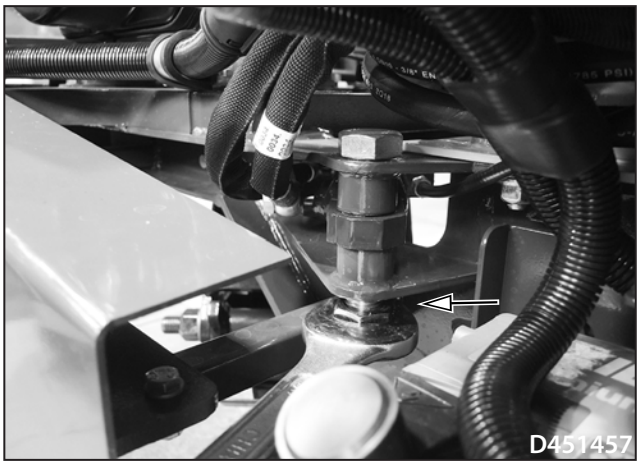
Note

Place a container underneath the hoses of the steering hydraulic motor to trap the oil.

Avoid the oil soaking into the ground.

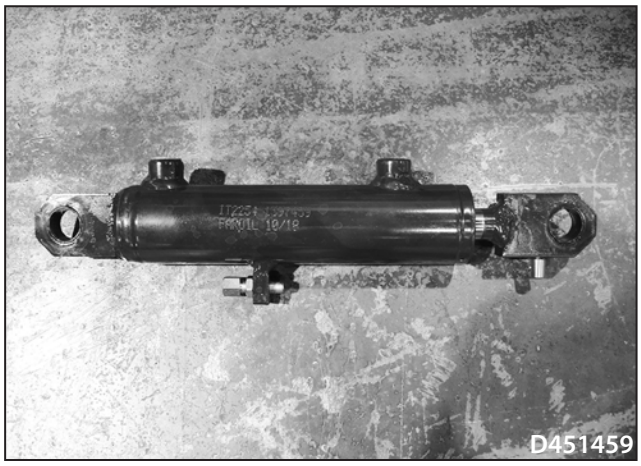


Remove the screw of the steering hydraulic motor.



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Replace the steering hydraulic motor.



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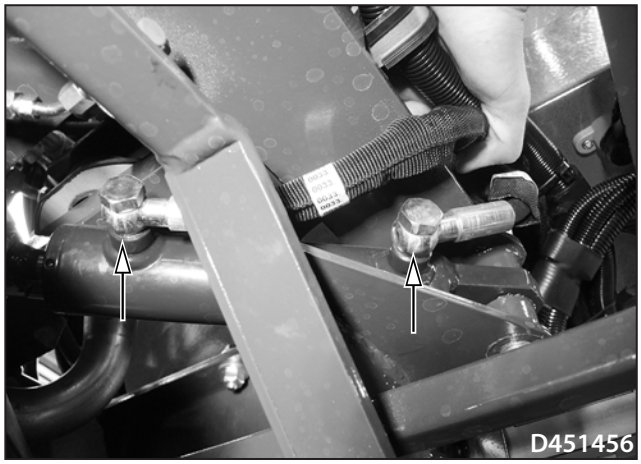
8.6 Mounting the steering linear hydraulic motor

Mount the steering linear hydraulic motor to the machine with the switched off battery disconnecter and with the closed gas bottle valve.

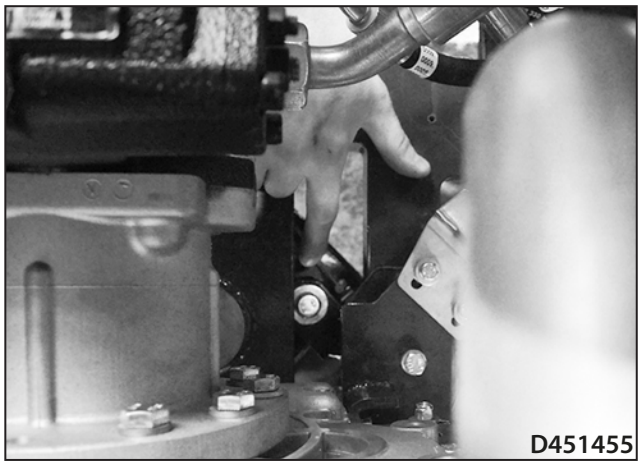
Insert the steering hydraulic motor and mount the screw.



Mount the screws of hoses of the steering hydraulic motor.



Mount the screw of the steering hydraulic motor and glue it with the LOXEAL 83·54 adhesive.

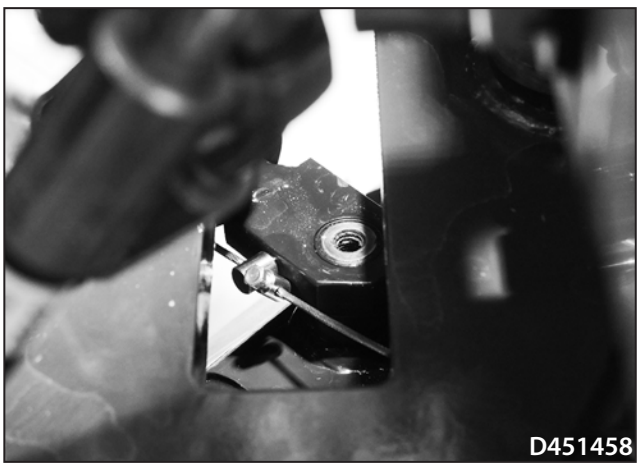


Mount the cable on the steering hydraulic motor.

Note

Make sure that the mark of the cable is at the same place.

During the back assembly it is necessary to adjust the steering indicator to the central position by loosening or tightening the cable on the steering hydraulic motor.



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8.7 Dismounting the steering unit

Dismount the steering unit from the machine with the switched off battery disconnecter and with the closed gas bottle valve.

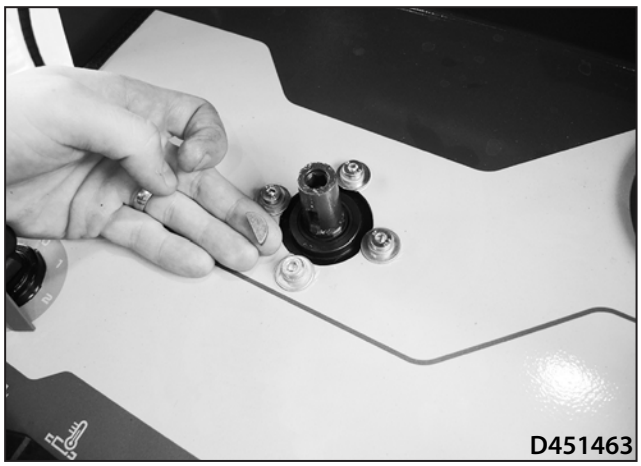
Remove the cover.



Remove the screw.



Take out the steering wheel and remove the screws.



Cut off the binding straps of hydraulic hoses.



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Take out the steering hydraulic unit.

Remove the hydraulic hoses on the steering unit.

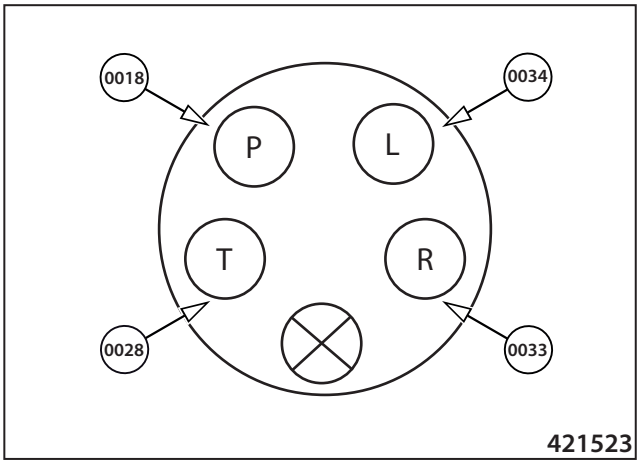


Avoid the oil soaking into the ground.

Note

When mounting the steering hydraulic unit back proceed in the reverse order and take care of the correct connection of the hydraulic hoses.

- Hose 0028 at position T
- Hose 0018 at position P
- Hose 0034 at position L
- Hose 0033 at position R



8.8 Removal of the hydraulic tank

Drain the heated oil from the hydraulic tank.

Perform the hydraulic oil draining when the machine is parked on a flat and solid surface, the engine and the battery disconnecter are off and the gas bottle is closed.

Open the right material hopper side cover (1).

Place a vessel with a volume of at least 21 l (5.5 gal US) under the hydraulic oil drain plug (3).

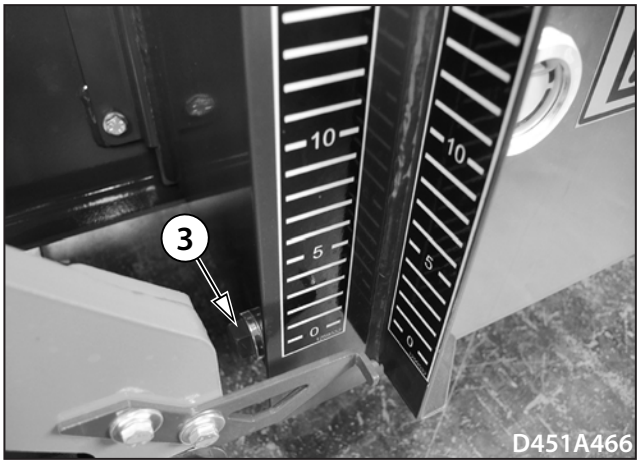
Remove the drain plug (3) from the hydraulic tank.

Drain the oil into the prepared container.

Mount the drain plug (3) onto the hydraulic tank and tighten.



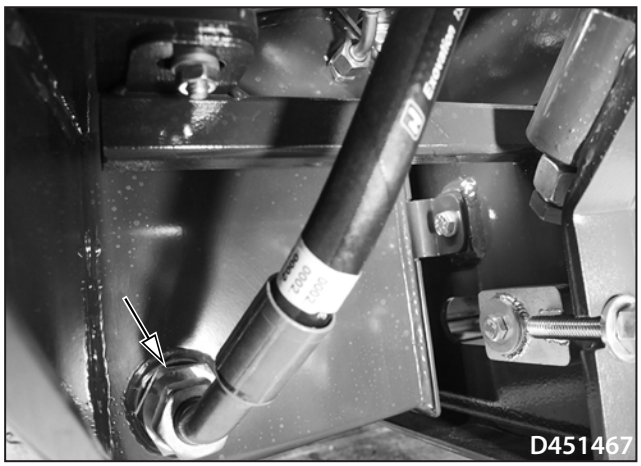
Avoid the oil soaking into the ground.

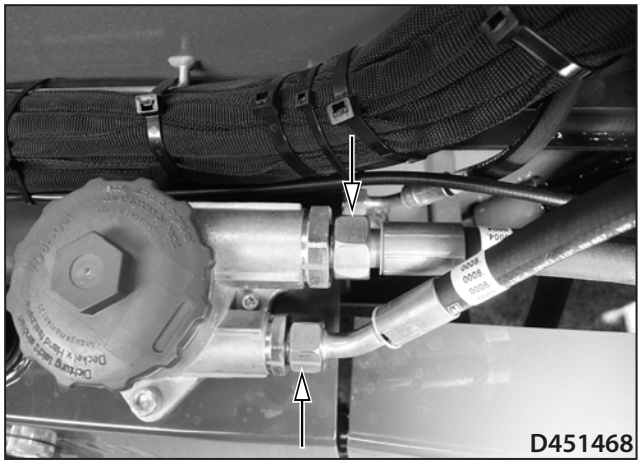


https://truckmanualshub.com/

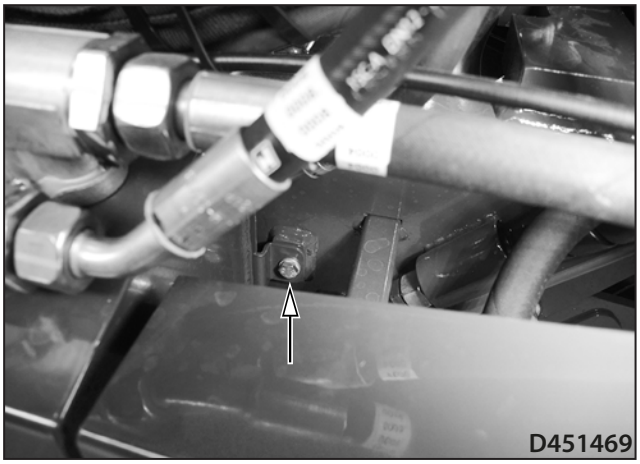
Remove the hydraulic hoses.

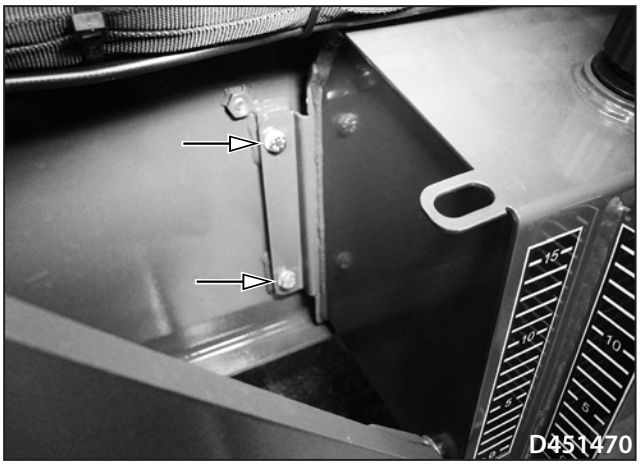
Avoid the oil soaking into the ground.





Remove the screws (3x).



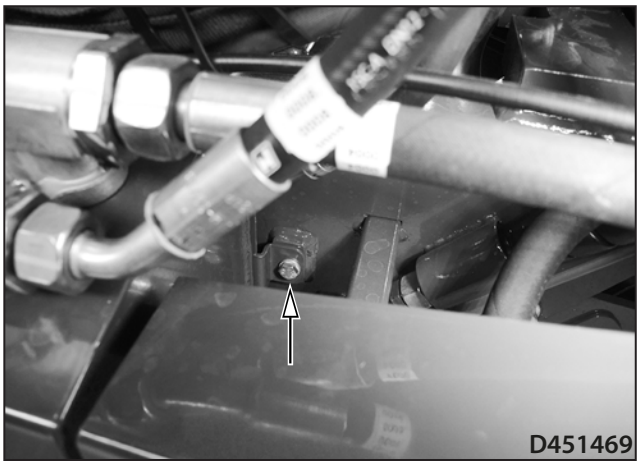


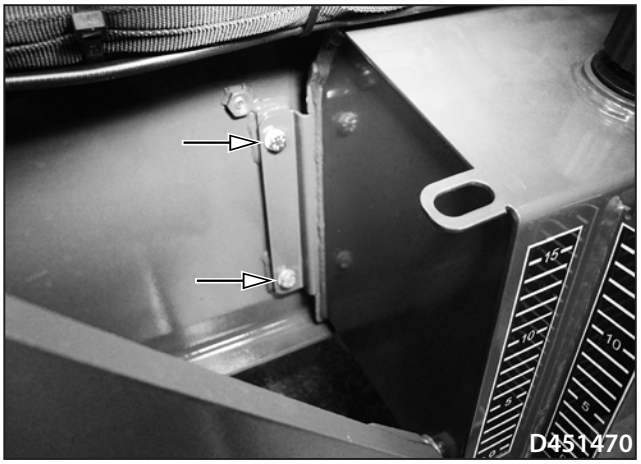
https://truckmanualshub.com/

8.9 Mounting the hydraulic tank

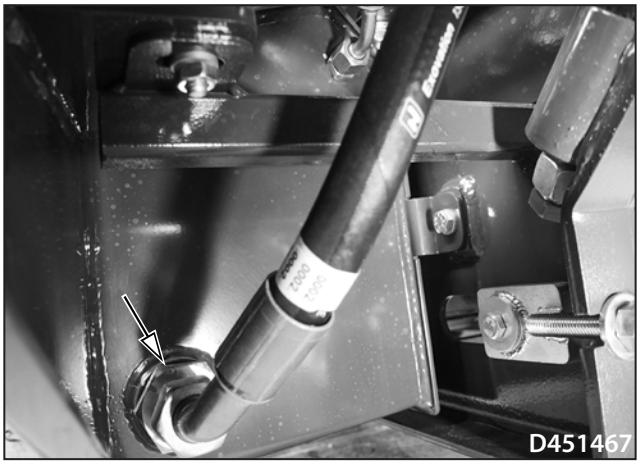
Mount the hydraulic tank to the machine with the switched off battery disconnecter and with the closed gas bottle valve.

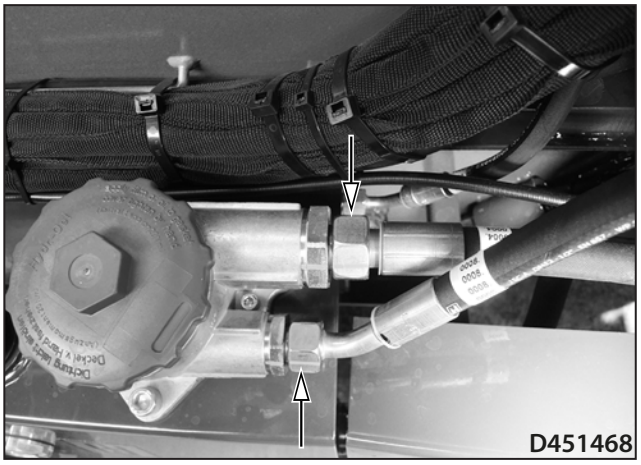
Mount the screws.





Mount the hydraulic hoses.

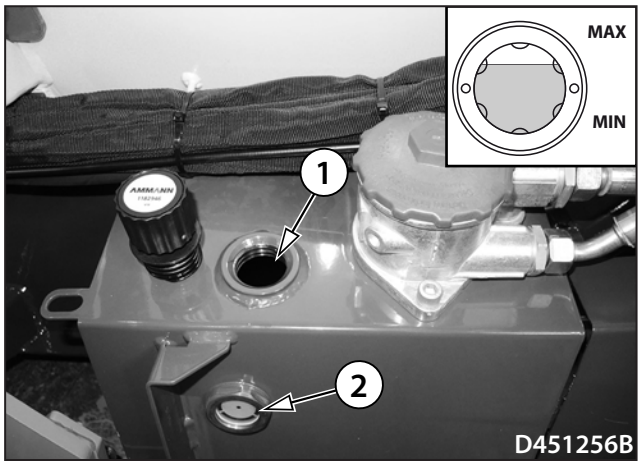




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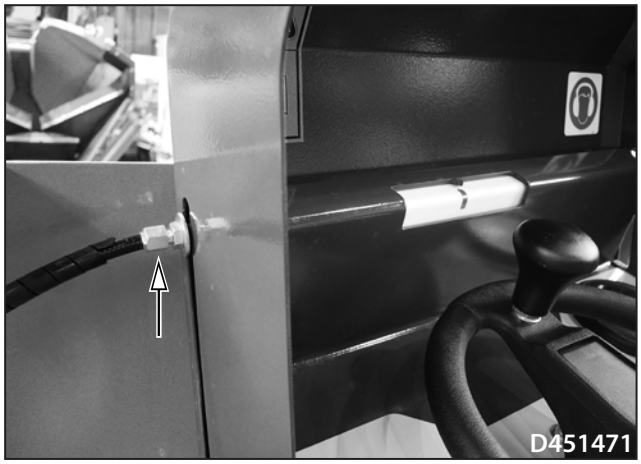
Fill in the hydraulic tank:

- Fill in new oil to the hydraulic tank through the hole (1).
- The prescribed oil volume is 20 l (5.3 gal US).
- Check the oil level on the oil gauge (2).
- The hydraulic oil level must be between the MIN and MAX marks.



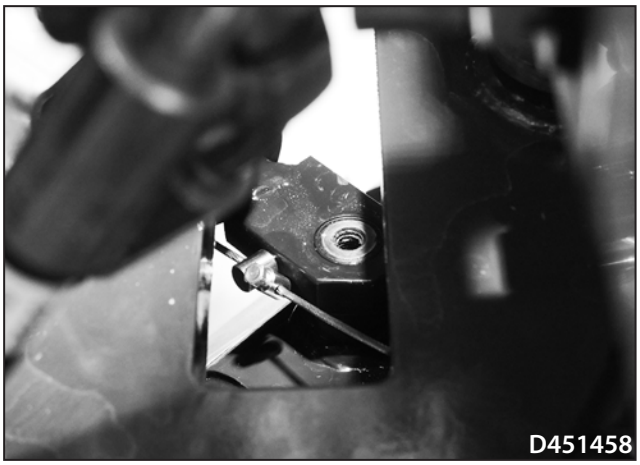
8.10 Adjustment of the front wheel turning angle indicator

Adjust the indicator by tightening or loosening the adjusting screw.



Note

If the tightening or loosening of the adjusting screw is insufficient, change the position of the cable on the steering linear hydraulic motor.



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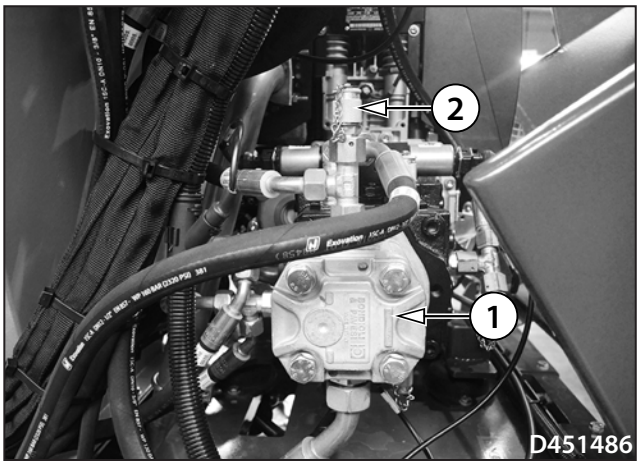
9 Travel

https://truckmanualshub.com/

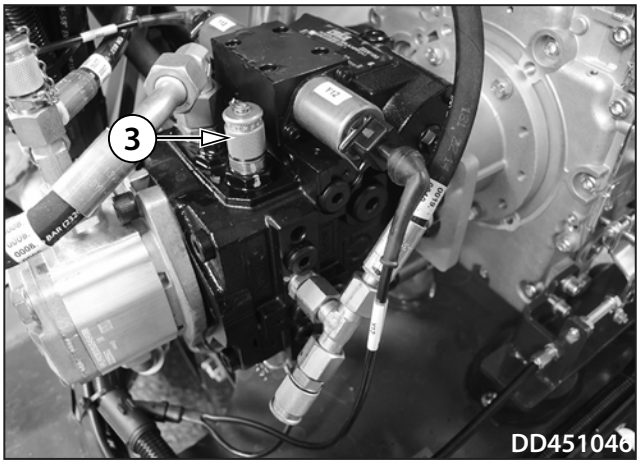
9.1 Description of basic elements

1 Service pump

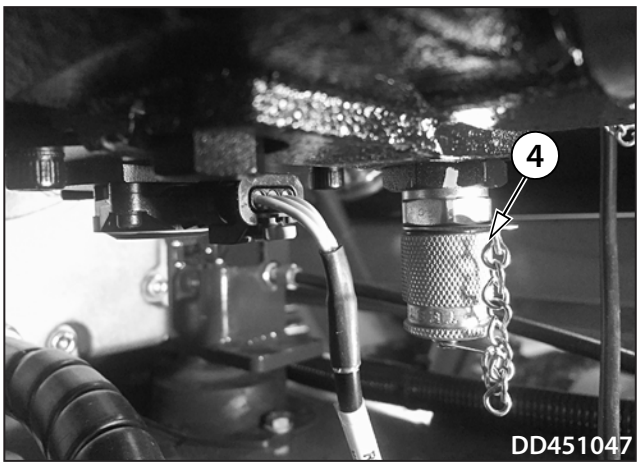
2 Measuring point for pressure measurement



3 Measuring point for pressure measurement for forward travel

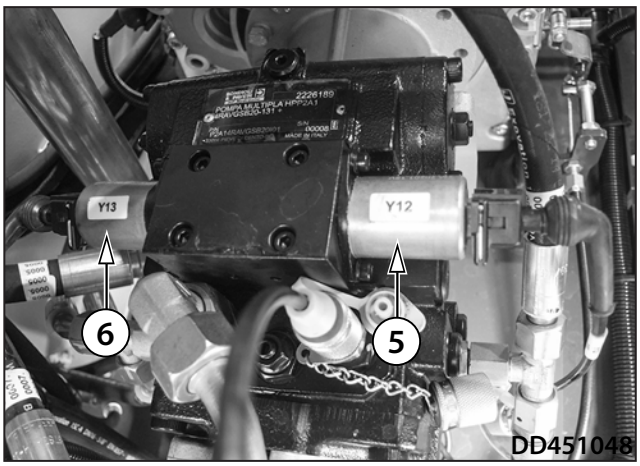


4 Measuring point for pressure measurement for reverse travel



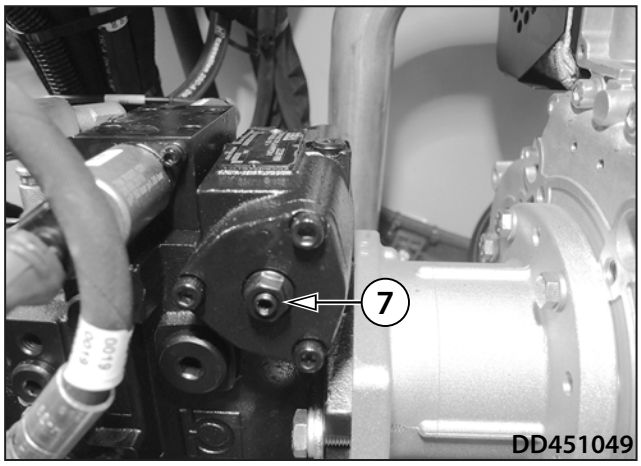
5 Coil of the valve electromagnet for forward travel Y12

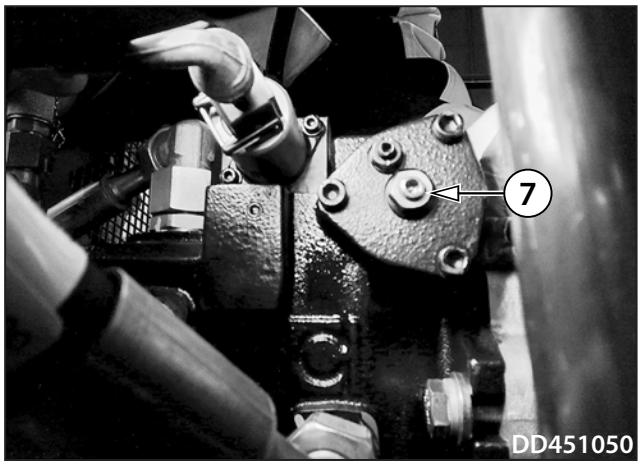
6 Coil of the valve electromagnet for forward travel Y13



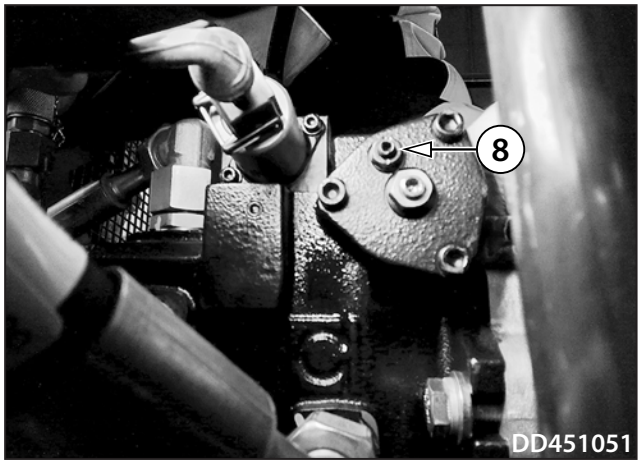
https://truckmanualshub.com/

7 Setting the maximum pump volume

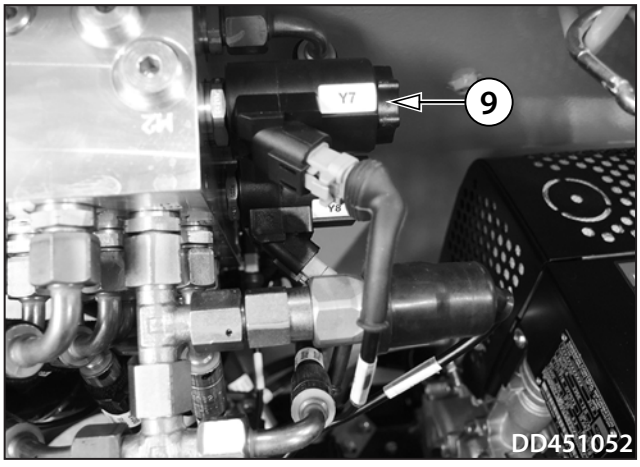




8 Setting the neutral pump position

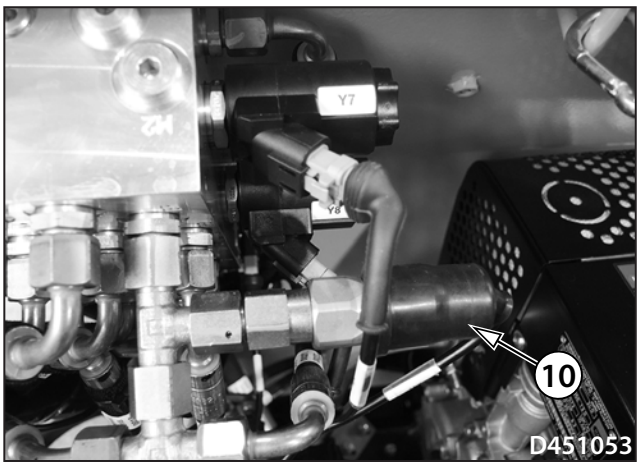


9 Coil of the brake valve electromagnet Y7

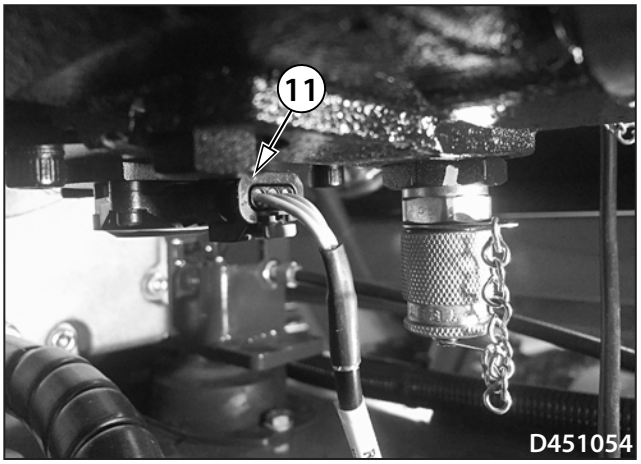


https://truckmanualshub.com/

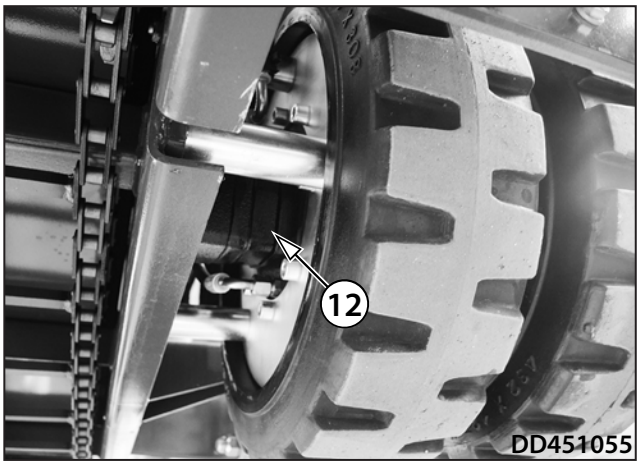
10 Brake pressure switch



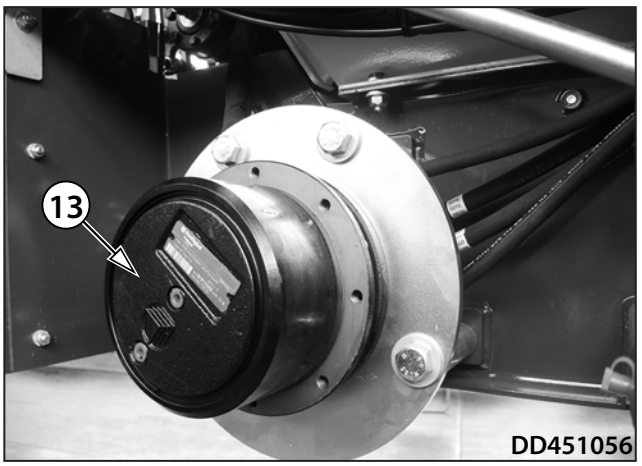
11 Pump plate tilt sensor



12 Travel hydraulic motor



13 Travel gearbox



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9.2 Diagnostics

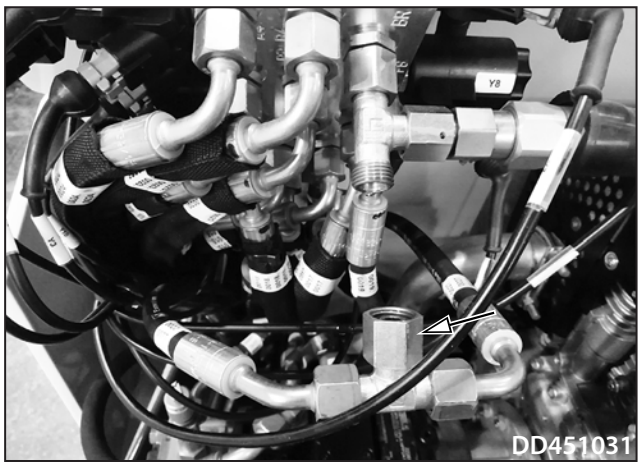
9.2.1 Measuring the brake switch

Brake enabled = the switch disconnected.

- Brake pressure 0 Bar.

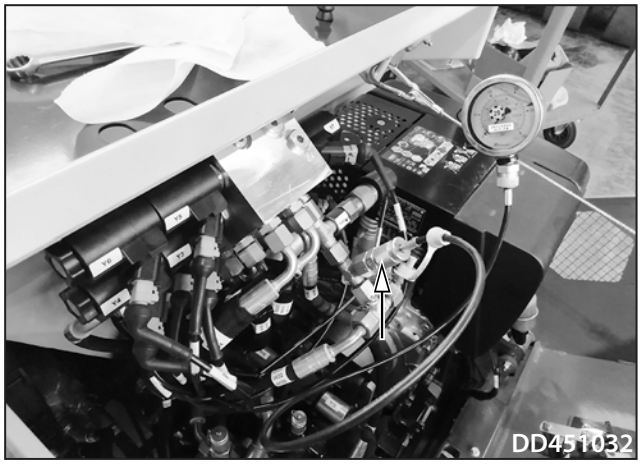
Brake disabled = the switch connected = released brake of the machine

- Pressure of 22 Bar.

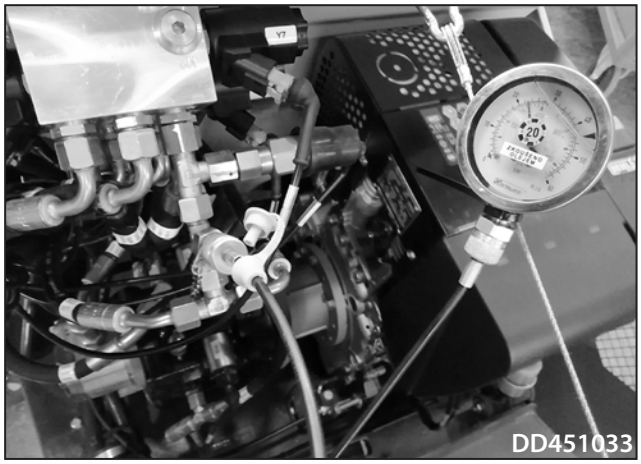


Measuring brake switch pressure

- Disconnect the hose fittings.
- Insert the jumper with the measuring point to the circuit and connect the pressure gauge with a suitable range to it.
- Start the engine, set the engine speed adjusting controller to the maximum speed and put the machine in motion.



- Measure the brake release pressure of approximately 22 Bar.



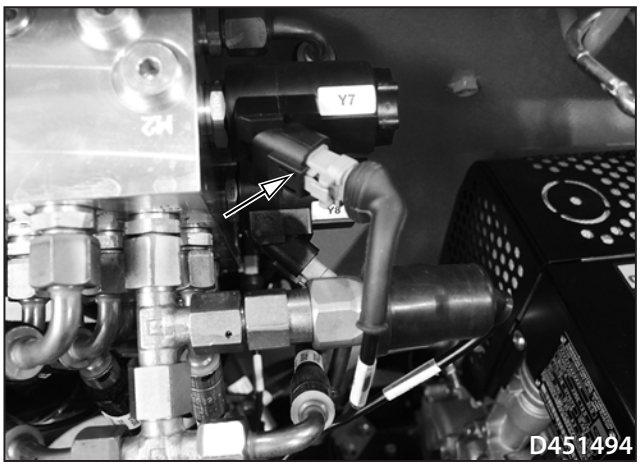
Note

In case a different value is measured, contact your dealer or DY-NAPAC Technical Support.

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9.2.2 Measuring the brake valve electromagnet Y7

Disconnect the connector from valve Y7.



Measure the resistance between outputs of the electromagnet coil of approximately 6 Ω.



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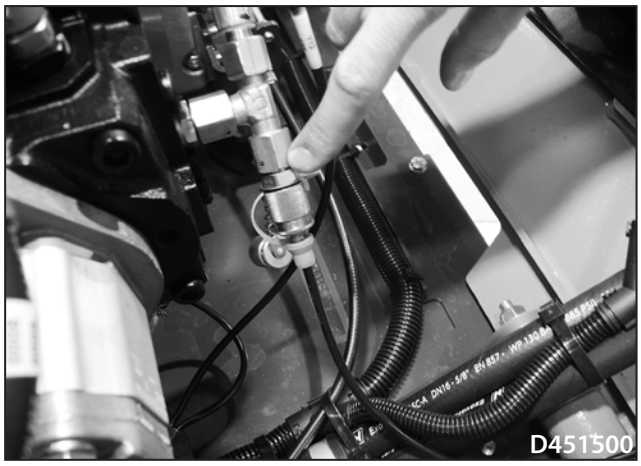
Measure the opened circuit between individual outputs and the electromagnet body.



9.2.3 Measuring the refilling pressure

Measure the pressure using a pressure gauge with a suitable range.

Connect the pressure gauge.



Start the engine and set the engine speed adjusting controller to the maximum speed.

Measure the pressure to approximately 22 Bar.

Note

In case a different value is measured, contact your dealer or DYNAPAC Technical Support.

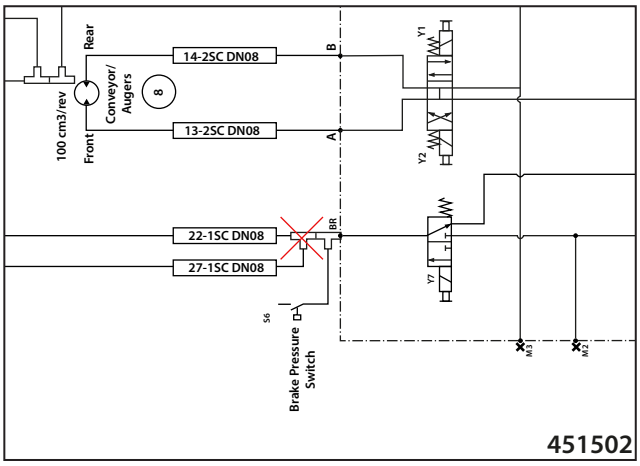


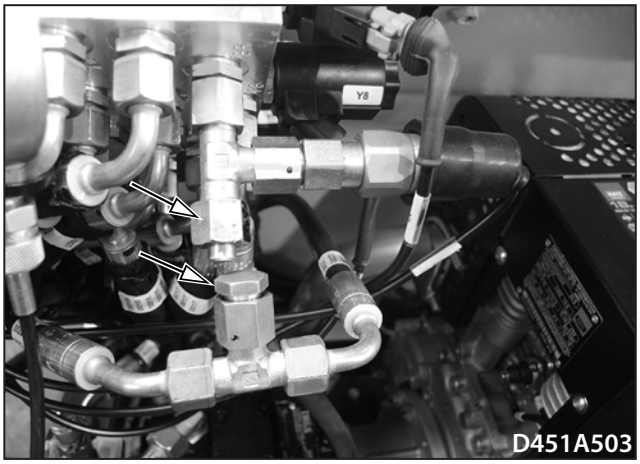
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9.2.4 Measuring the maximum pressure for forward and reverse travel

Measure the pressure using a pressure gauge with a suitable range.

Disable the brake release function.



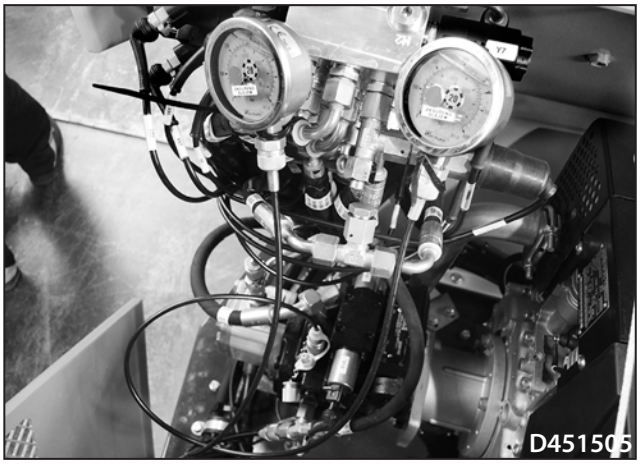


Secure the machine against travel.

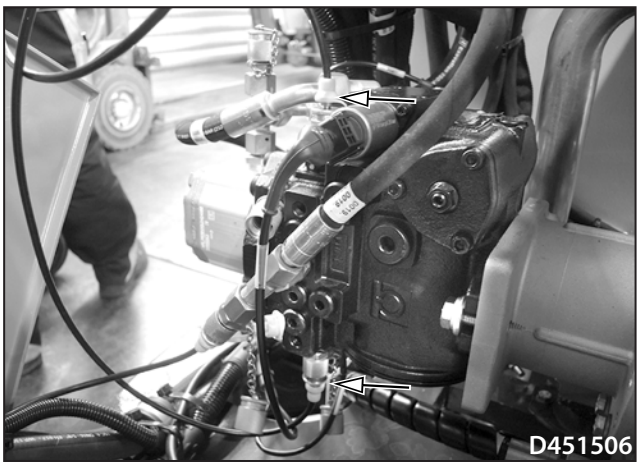
Start the engine and set the engine speed adjusting controller to the maximum speed.



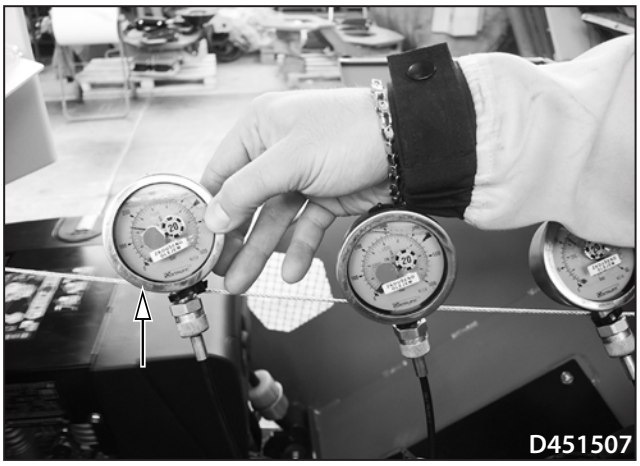
Connect the pressure gauge to the ports on the pump.



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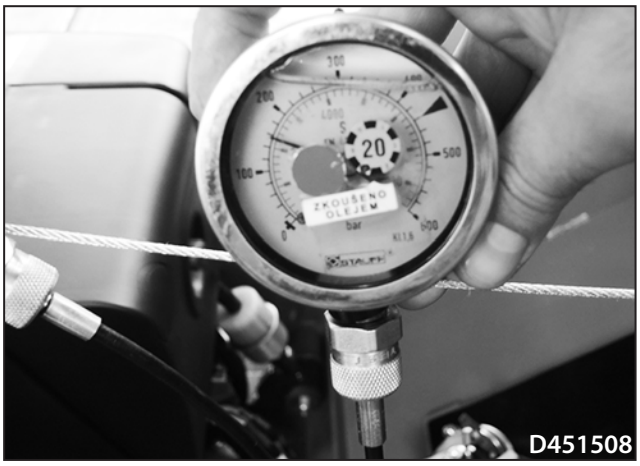


Measure the maximum pressure to approximately 150 Bar.



Note

In case a different value is measured, contact your dealer or DYNAPAC Technical Support.



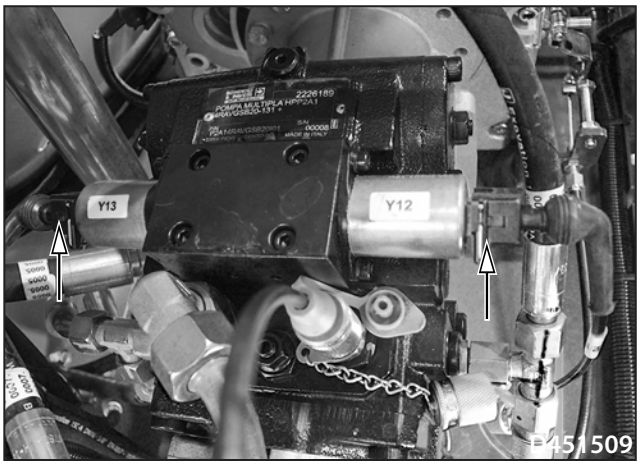
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9.2.5 Measuring the resistance of the electromagnet coil

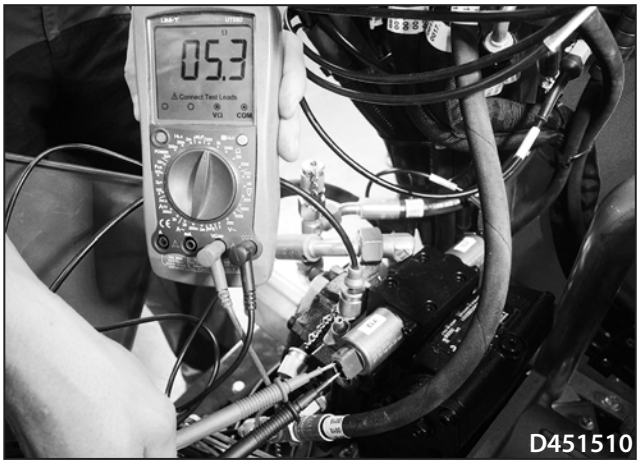
Disconnect the connectors from the coils of electromagnets Y12 and Y13.

Y12 – for forward travel

Y13 – for reverse travel



Measure the resistance of approximately 5.3 Ω between outputs of the coil of electromagnets Y12 and Y13.



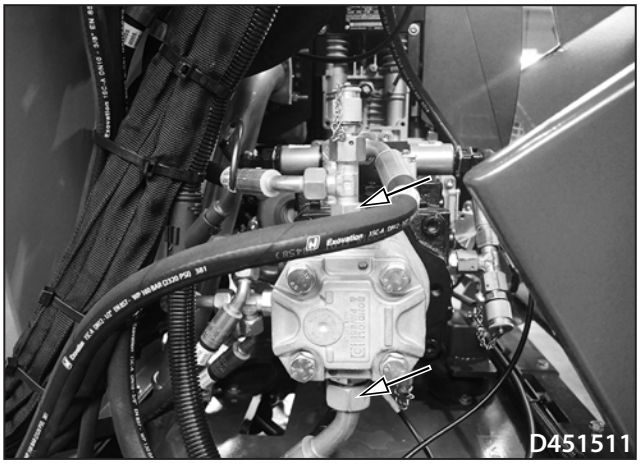
Note

There must be an opened circuit between individual inputs and the body of the coil.

9.3 Removal of the travel pump

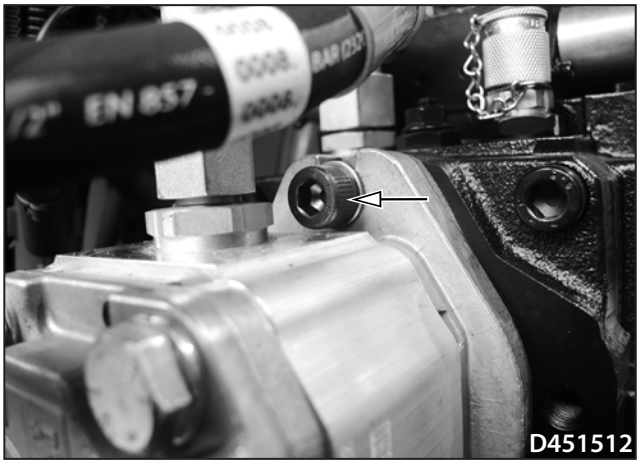
Dismount the travel pump from the machine with the switched off battery disconnecter and with the closed gas bottle valve.

Remove the suction and discharge hose of the travel pump.

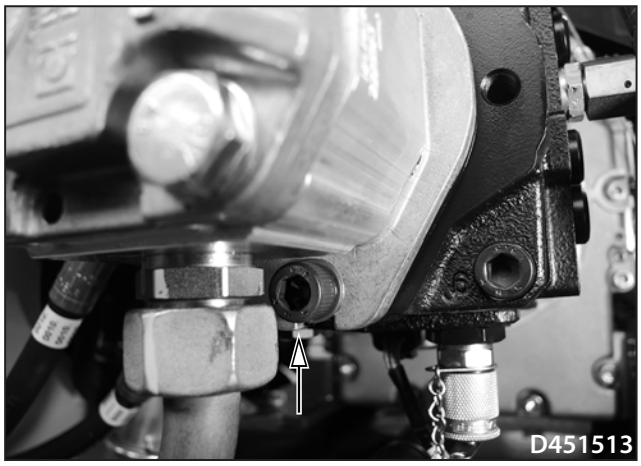


Avoid the oil soaking into the ground.

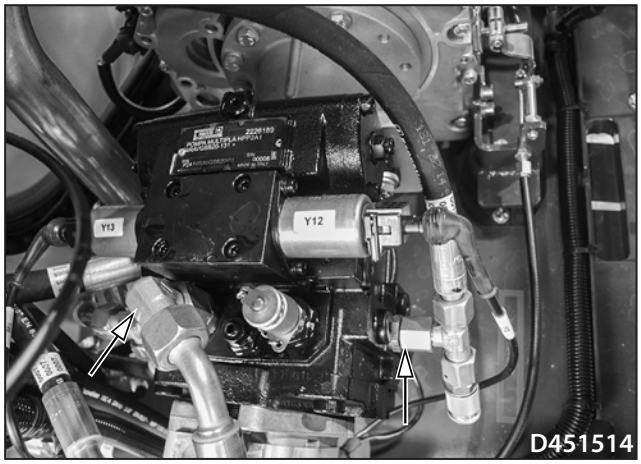
Remove the screws (2x).

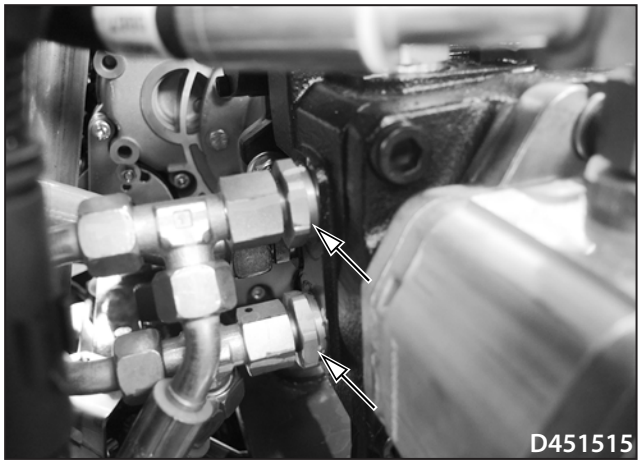


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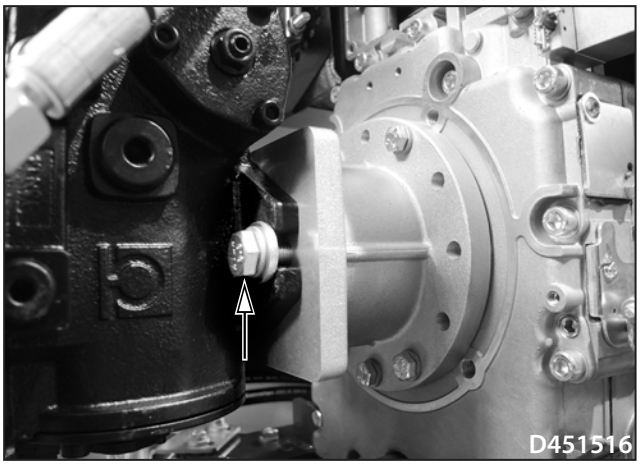


Remove all hoses from the pump.





Remove pump bolts.



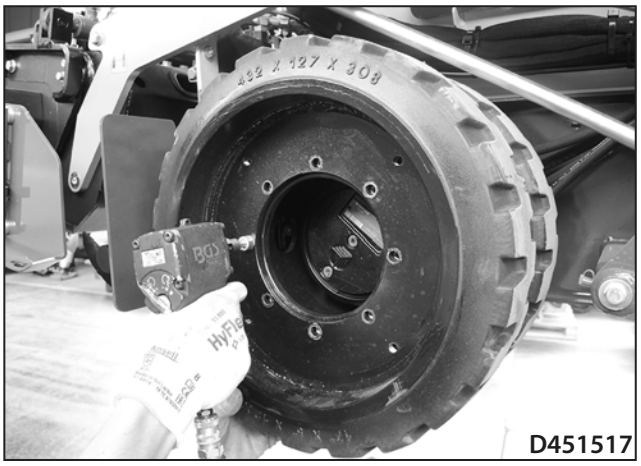
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9.4 Dismounting the hydraulic motor and travel gearbox

Dismount the hydraulic motor and travel gearbox from the machine with the switched off battery disconnecter and with the closed gas bottle valve.

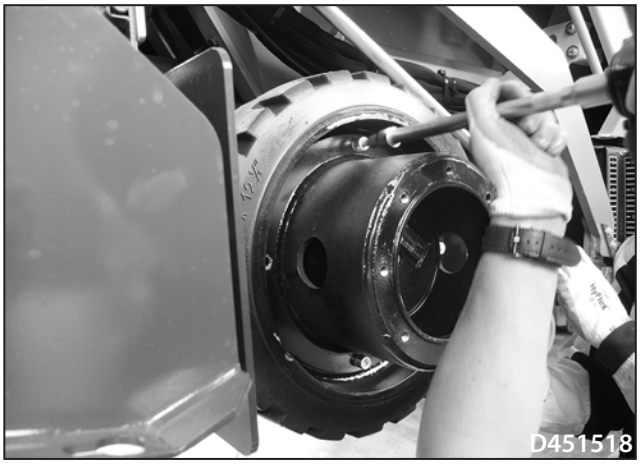
When dismounting the hydraulic motor and travel gearbox proceed in the same way on both sides of the machine.

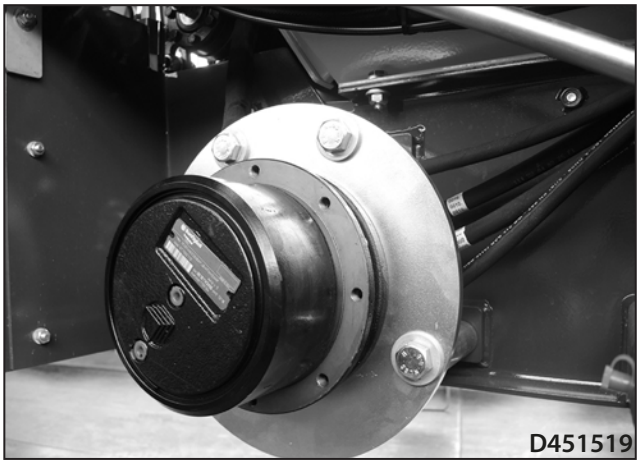
Avoid the oil soaking into the ground.



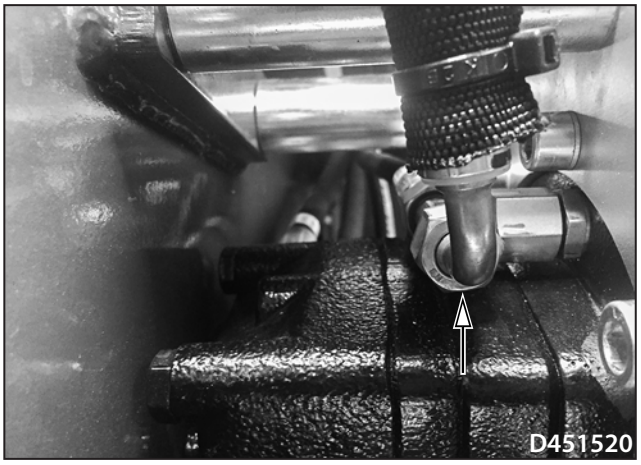
Remove the rear wheels.

Remove the screws.

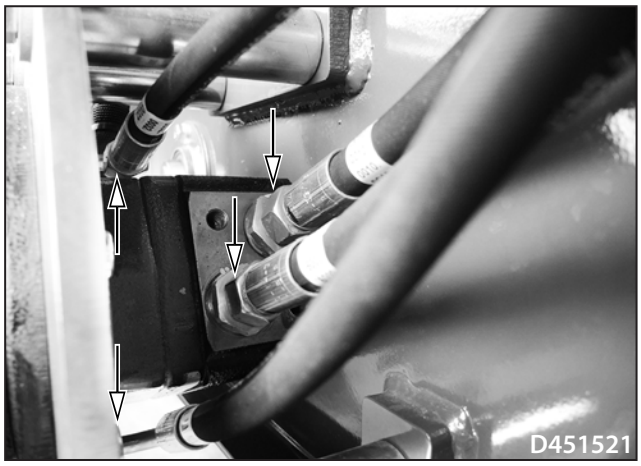




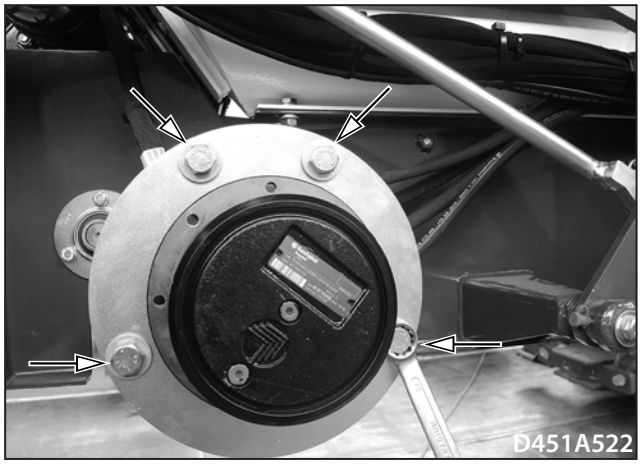
Remove the hoses.



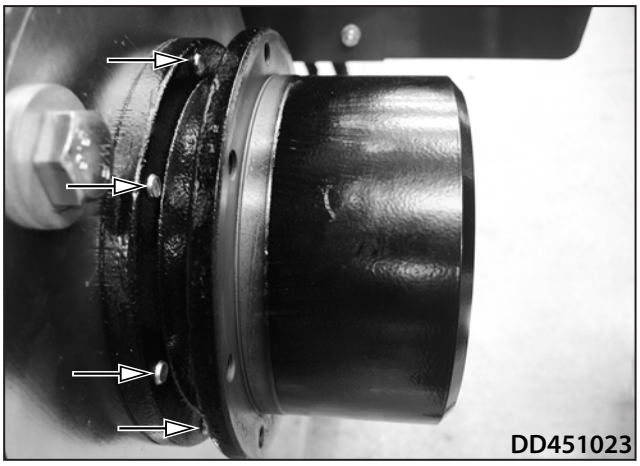
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Remove the screws.



Remove the screws (8x).



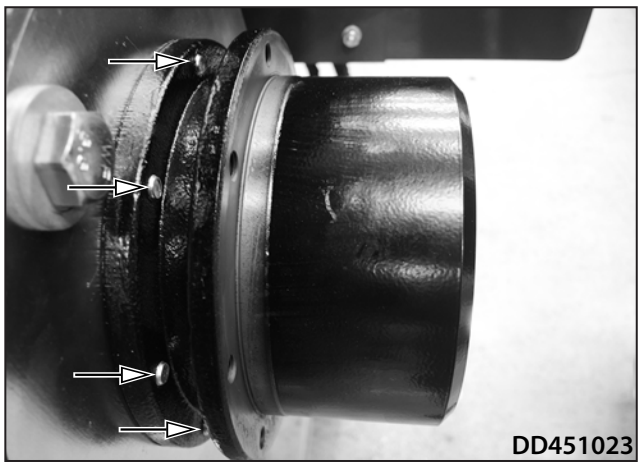
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9.5 Mounting the hydraulic motor and travel gearbox

Mount the hydraulic motor and travel gearbox to the machine with the switched off battery disconnecter and with the closed gas bottle valve.

When mounting the hydraulic motor and travel gearbox proceed in the same way on both sides of the machine.

Mount the screws (8x).



Mount the screws.

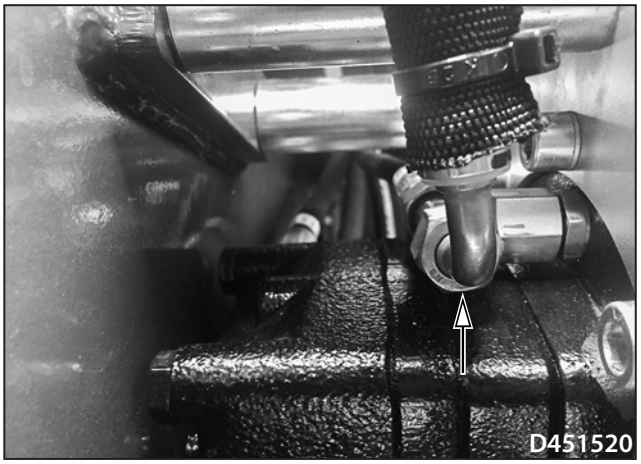
Secure the screws with the LOXEAL 83·54 adhesive.

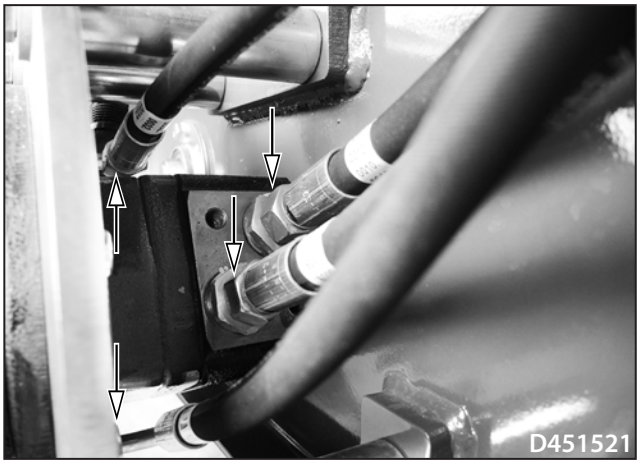


Mount the hydraulic hoses.

Note

Ensure the correct connection of the hydraulic hoses.

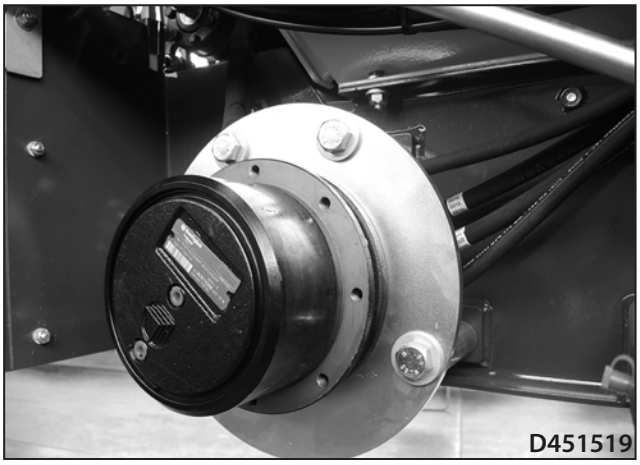


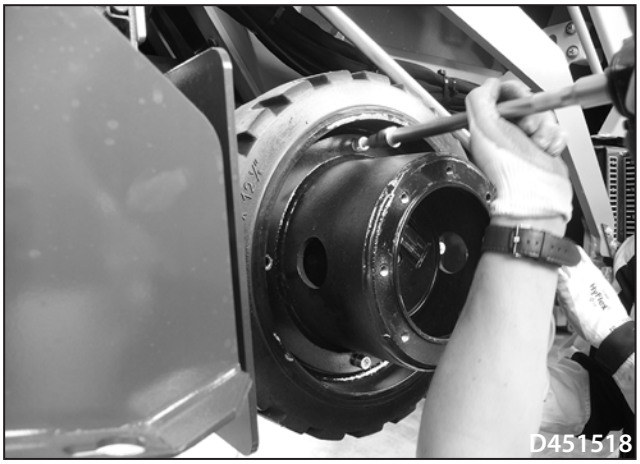


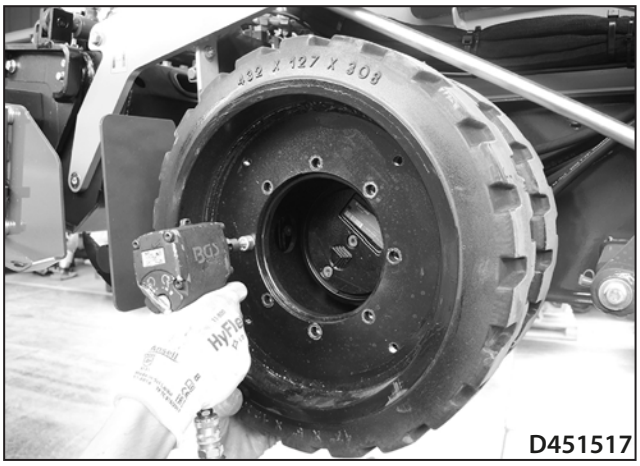
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Mount the rear wheels.

Mount the screws.







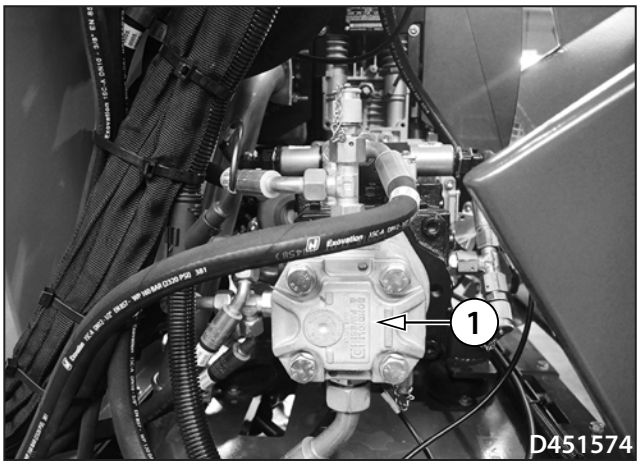
https://truckmanualshub.com/

10 Gear pump

https://truckmanualshub.com/

10.1 Description of basic elements

1 Gear pump



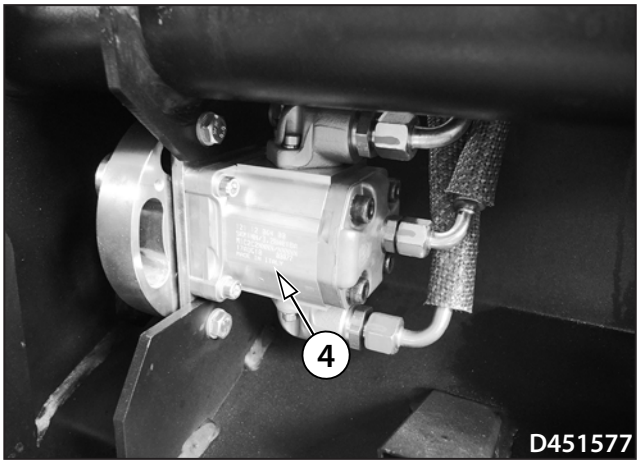
2 Hydraulic block



3 Linear hydraulic motors

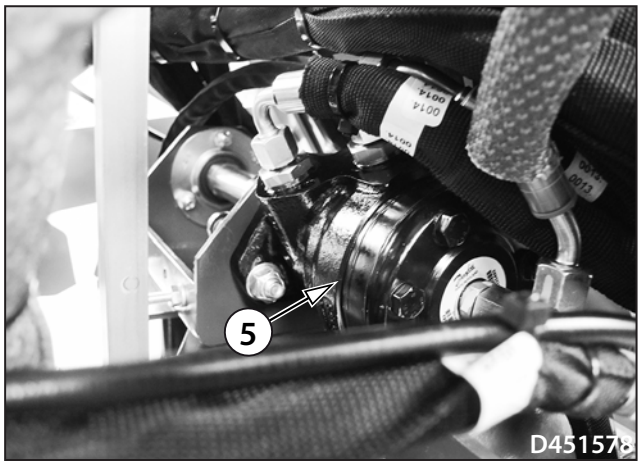


4 Vibrators

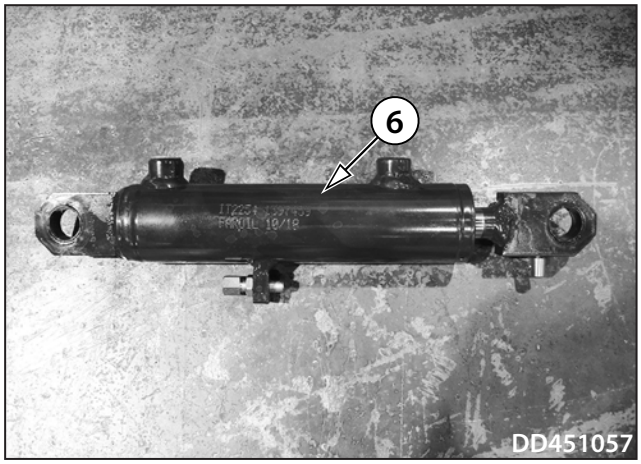


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5 Hydraulic motor for driving the augers and the belt conveyor



6 Steering linear hydraulic motor



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10.2 Diagnostics

Measure the pressure in the gear pump using a suitable pressure gauge.

10.2.1 Measuring the pressure of the belt conveyor and auger

Start the engine.

Block the travel of the conveyor.

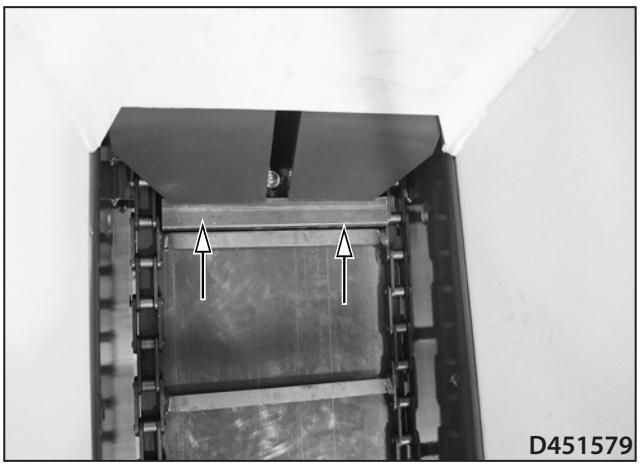
Start the function of the conveyor by selector switch (18).

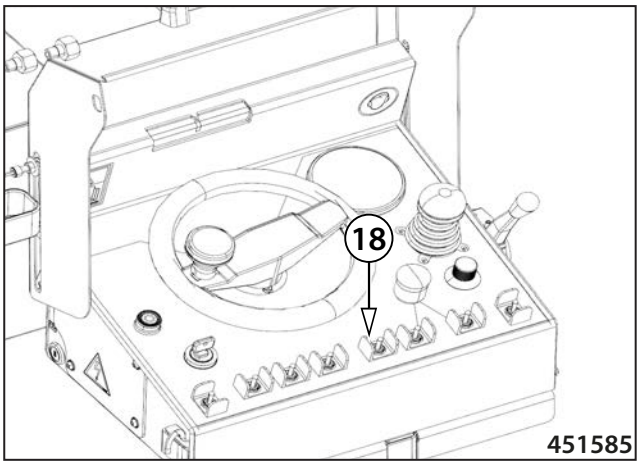
Let the belt conveyor function running for the maximum period of 2 sec.

Measure the pressure of approximately 150 Bar.

Note

In case a different value is measured, contact your dealer or DYNAPAC Technical Support.



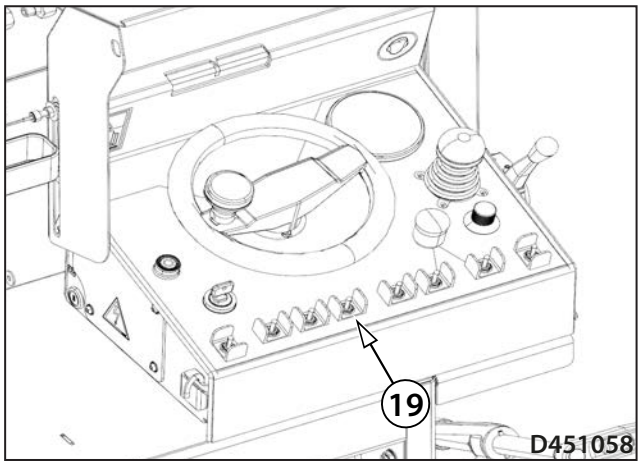




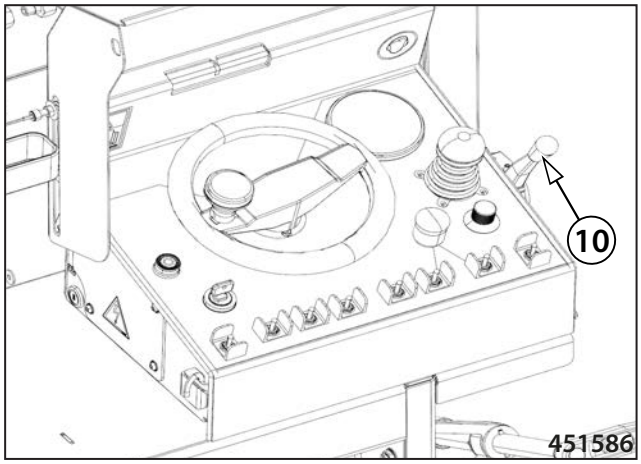
https://truckmanualshub.com/

10.2.2 Measuring the screed lifting pressure

Start the engine and lift the screed to the maximum position by selector switch (19).



Set the engine speed adjusting controller (10) to the maximum speed.



Let the engine idle for at least for 5 minutes.

Measure the pressure of approximately 50 Bar.



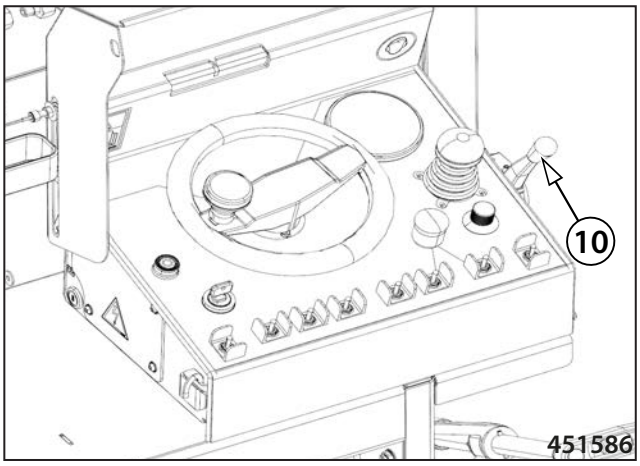
Note

In case a different value is measured, contact your dealer or DYNAPAC Technical Support.

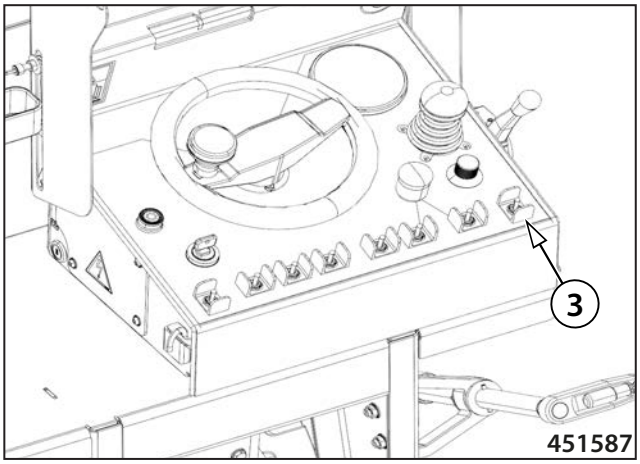
https://truckmanualshub.com/

10.2.3 Measuring the screed extension pressure

Start the engine and set the engine speed adjusting controller (10) to the maximum speed.



Measure the pressure with the closed screed extension. Keep the paving width switch – right (3) on the left during the measurement.



Measure the pressure of approximately 50 Bar.



Note

In case a different value is measured, contact your dealer or DYNAPAC Technical Support.

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10.2.4 Measuring the maximum vibrator pressure

Measure the maximum vibrator pressure on the gear pump using a suitable pressure gauge.

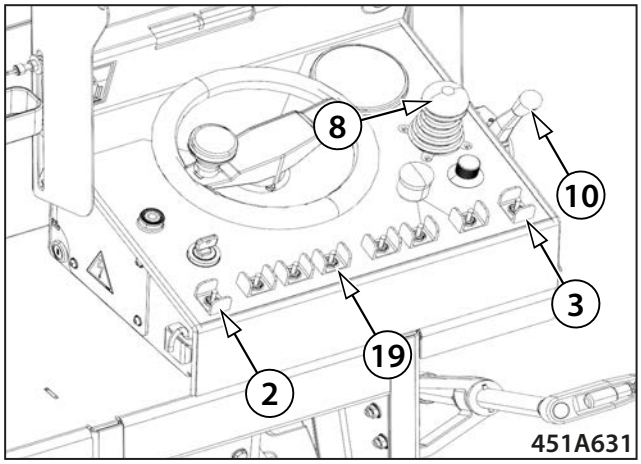


Using the screed lift/lower switch (19) lift the screed to the maximum position.

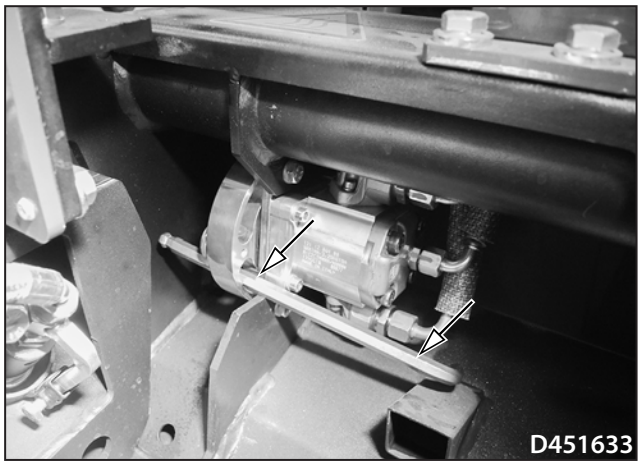
Set the travel controller (8) to the neutral position.

Using the engine speed adjusting controller (10), set the maximum engine speed.

Set the screed to the maximum paving width using the paving width switch – left (2) and the paving width switch – right (3).



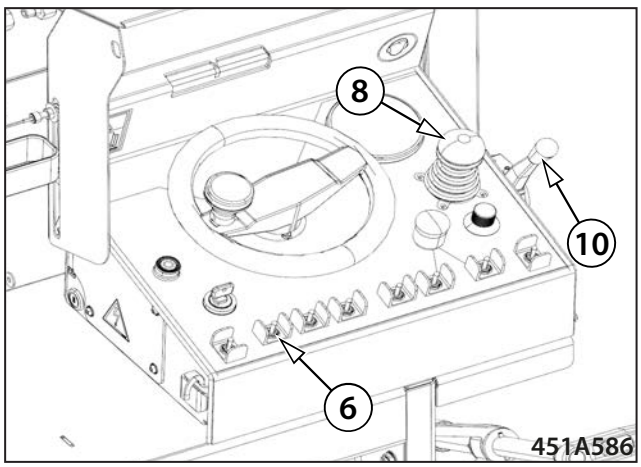
Block the vibrator against movement.



Start the engine and set the engine speed adjusting controller (10) to the maximum speed.

Set the travel control (8) to the forward position.

Turn the vibration unit switch (6) on the main dashboard to the upper position.



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Measure the pressure of vibrators of approximately 50 Bar.

Note

In case a different value is measured, contact your dealer or DYNAPAC Technical Support.



10.2.5 Measuring the vibration frequency

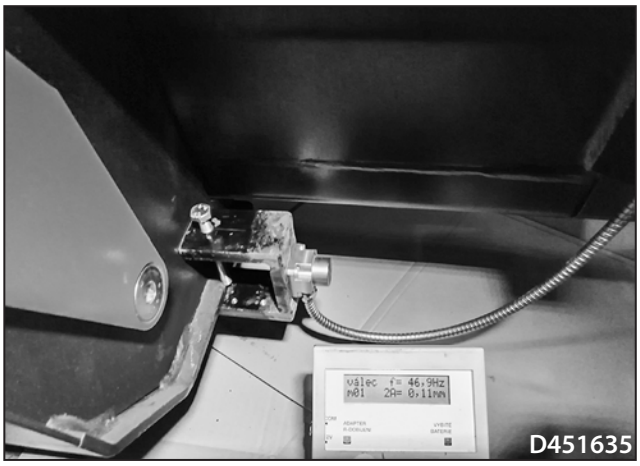
Measure the vibration frequency using a suitable vibrometer.

Start the engine.

Lift the screed to the transportation position using the screed lift/lower switch (19) and lock it.

Adjust the maximum screed width with the controls (2) and (3) on the control panel.

Fix the acceleration sensor of the vibrometer on the screed.

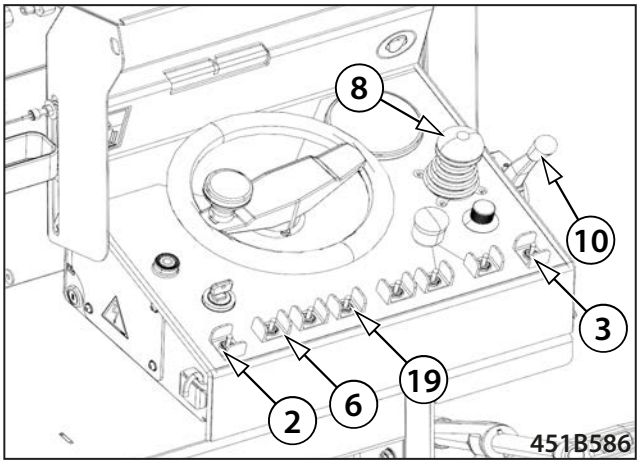


Set the engine speed adjusting controller (10) to the maximum speed.

Set the travel control (8) to the forward position.

Turn the vibration unit switch (6) on the main dashboard to the upper position.

Measure the frequency of approximately 47 Hz.



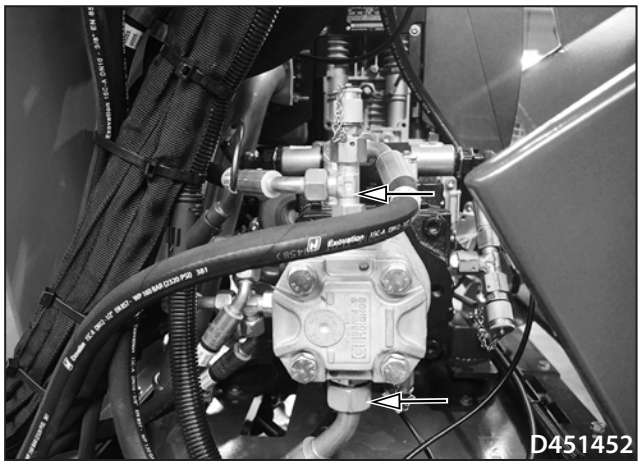
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10.3. Dismounting the gear pump

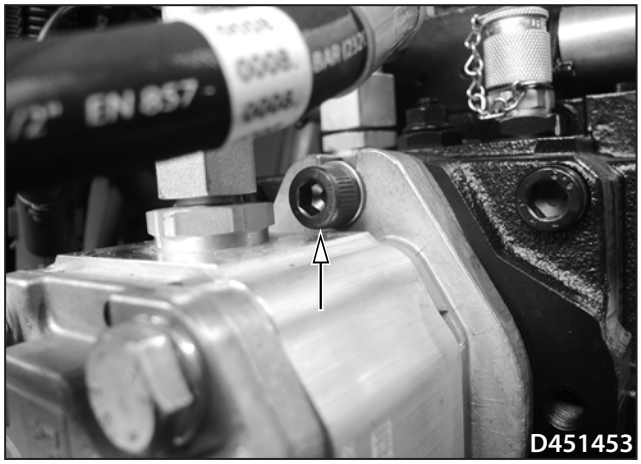
Dismount the gear pump from the machine with the switched off battery disconnecter and with the closed gas bottle valve.

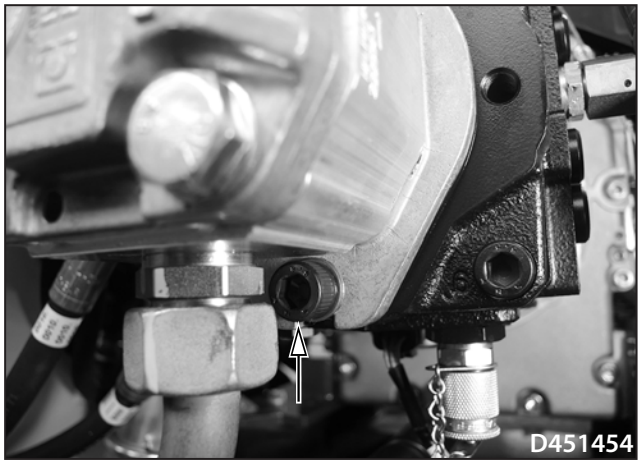
Remove the suction and discharge gear pump hose.

Avoid the oil soaking into the ground.



Remove the screws.





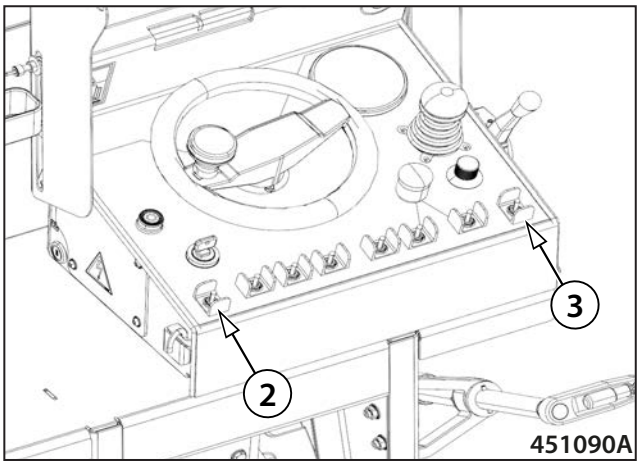
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10.4 Dismounting the vibration units

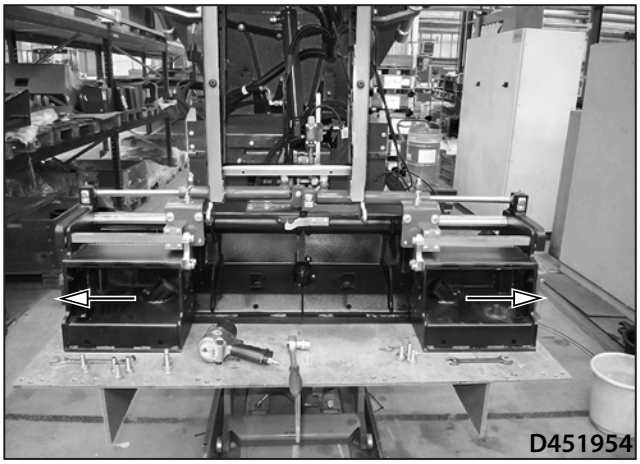
Start the engine.

Adjust the maximum screed width with the controls (2) and (3) on the control panel.

Turn off the engine, disconnect the battery disconnecter and close the gas bottle valve.

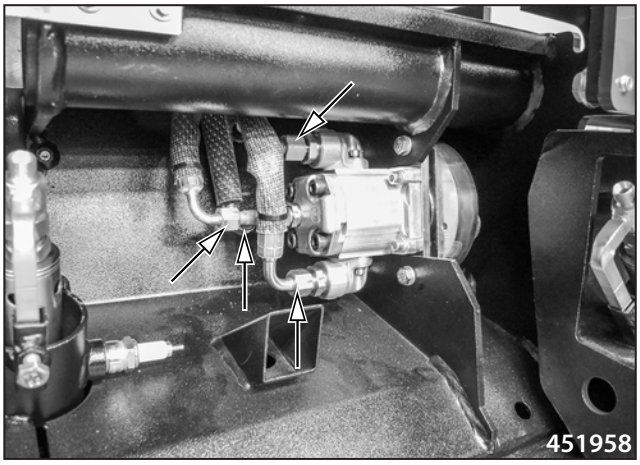


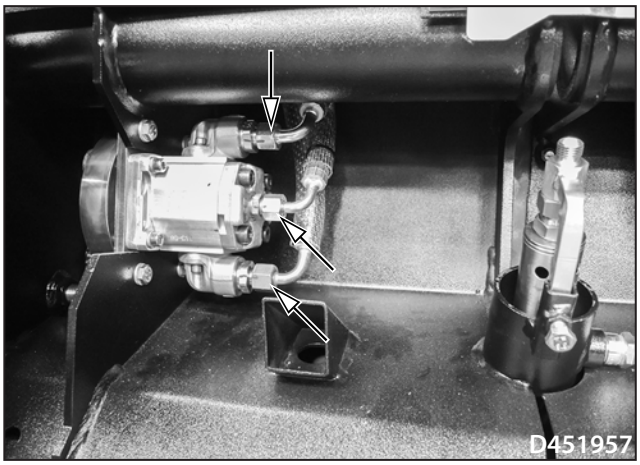
Dismount the vibration units when the machine is parked on a flat and solid surface, the engine and the battery disconnecter are off and the gas bottle is closed.



Remove the hydraulic hoses.

Avoid the oil soaking into the ground.



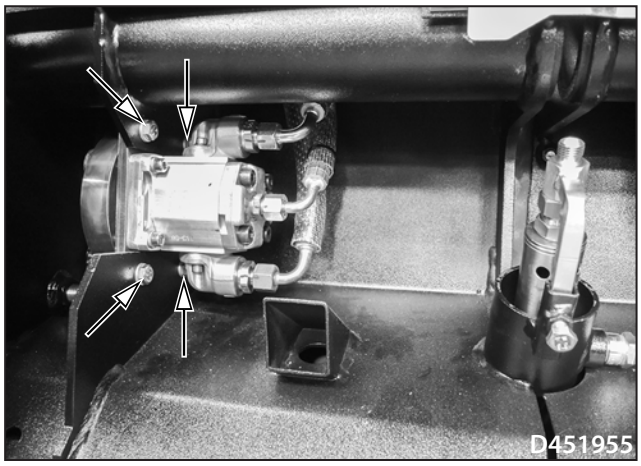


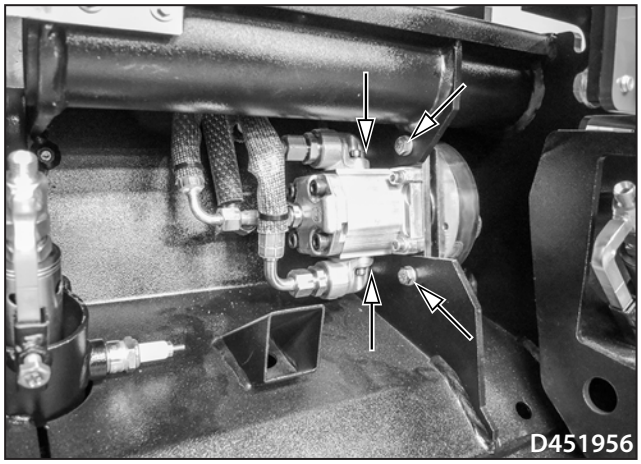
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Remove the screws.

Note

During reverse assembly glue the screws with the LOXEAL 83·54 adhesive.





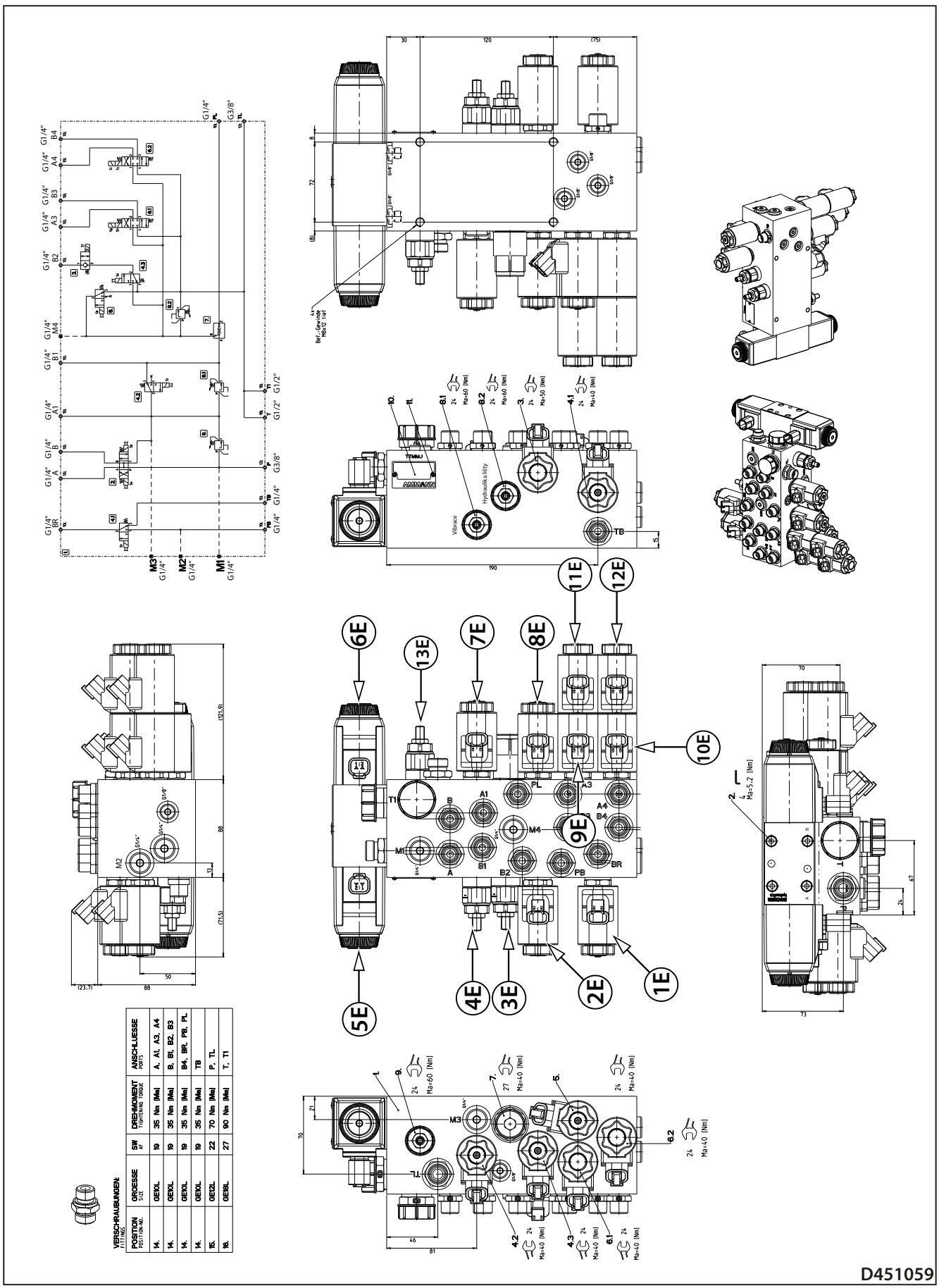
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10.5 Hydraulic system switchboard

10.5.1 Description of basic elements

1E Brake electromagnet
2E Screed lowering electromagnet
3E Screed hydraulic system pressure safety valve
4E Vibration pressure safety valve
5E Conveyor electromagnet for forward direction
6E Conveyor electromagnet for reverse direction
7E Vibration electromagnet
8E Screed lifting electromagnet
9E Screed extension – left electromagnet
10E Screed closure – right electromagnet
11E Screed closure – left electromagnet
12E Screed extension – right electromagnet
13E Pressure safety valve for the drive of augers and the belt conveyor

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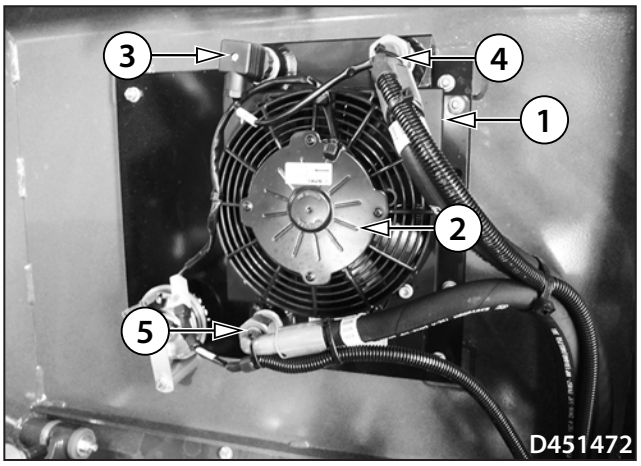
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11 Cooling

https://truckmanualshub.com/

11.1 Description of basic elements

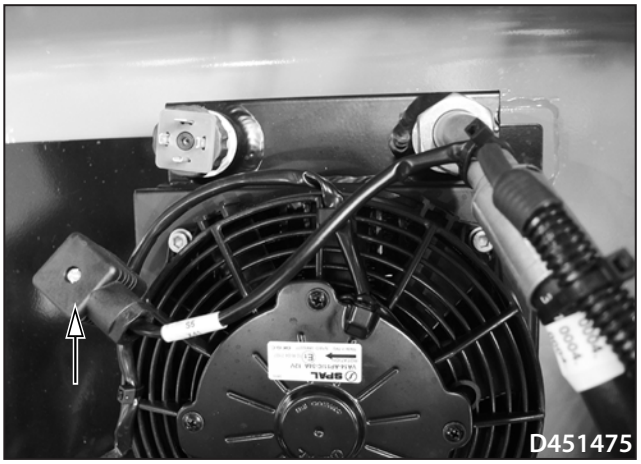
1 Cooler
2 Fan
3 Temperature sensor
4 Output
5 Input



11.2 Cooling diagnostics

11.2.1 Fan test

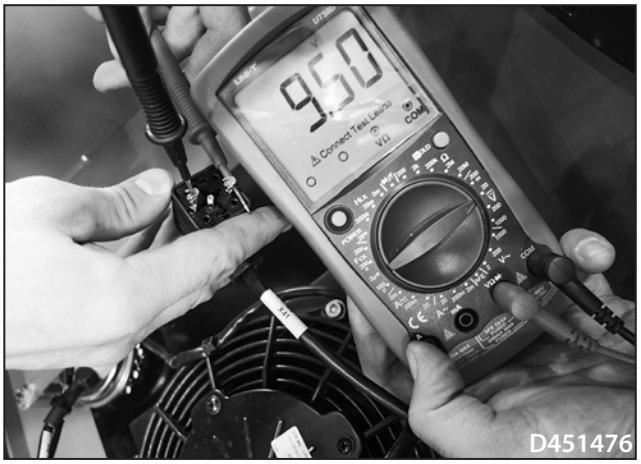
Dismount the temperature sensor connector and turn the key in the ignition box to the "I" position. The fan will start.



11.2.2 Temperature sensor

Turn the key in the ignition box to the "I" position.

Measure approximately 10 V between wires of connector X41.



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11.3 Dismounting the cooler

Drain the oil from the hydraulic tank.

Perform the hydraulic oil draining when the machine is parked on a flat and solid surface, the battery is switched off and the gas bottle is closed.

Open the right material hopper side cover (1).

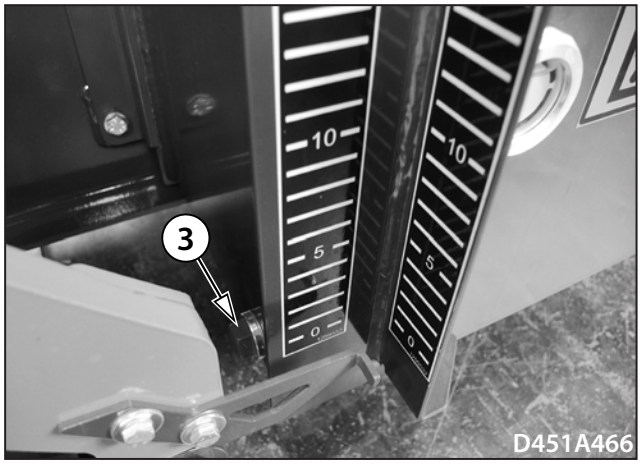
Place a vessel with a volume of at least 21 l (5.5 gal US) under the hydraulic oil drain plug (3).

Remove the drain plug (3) from the hydraulic tank.

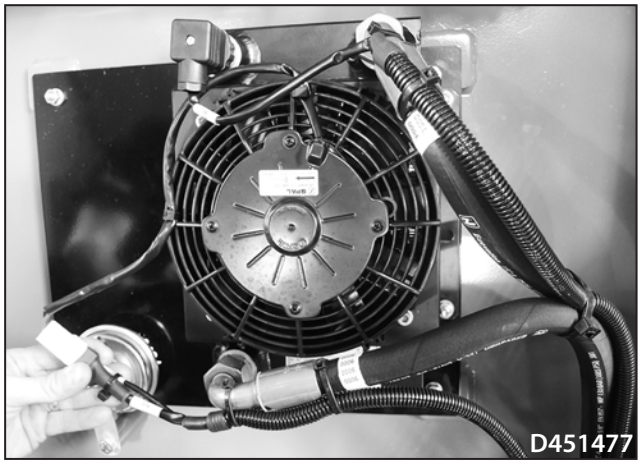
Drain the oil into the prepared container.

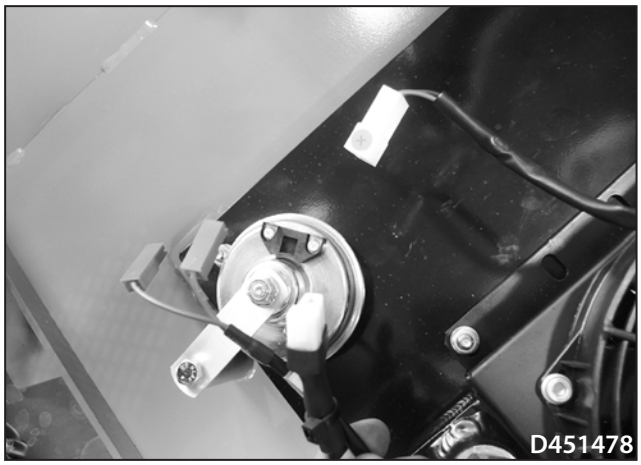
Mount the drain plug (3) onto the hydraulic tank and tighten.





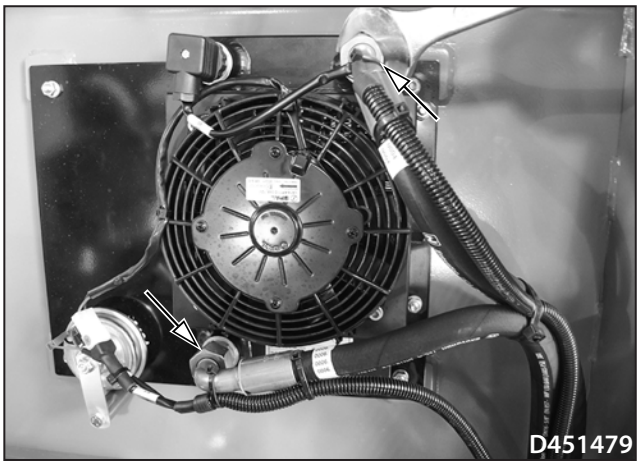
Disconnect the connectors X41, X19 and X20.



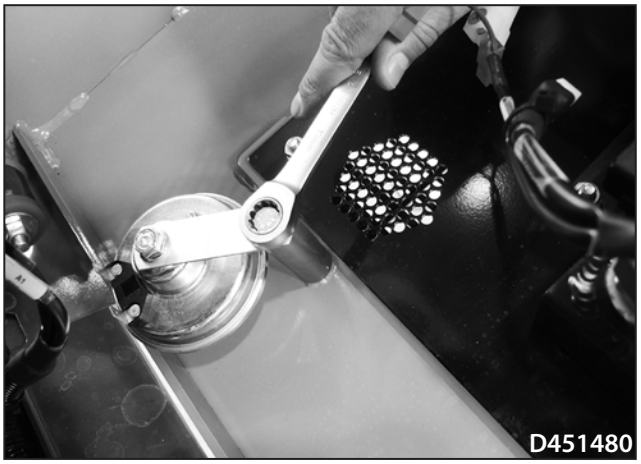


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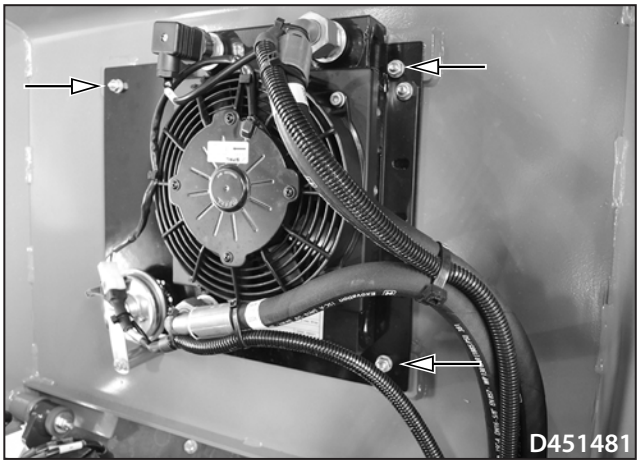
Remove the hoses of the input and output.

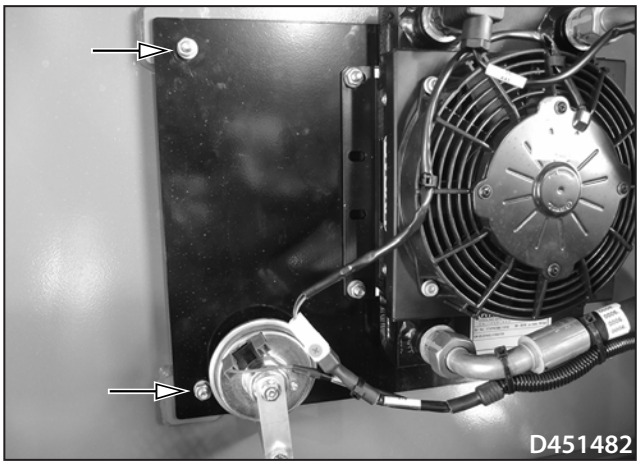


Loosen the screw and move the horn to the side.



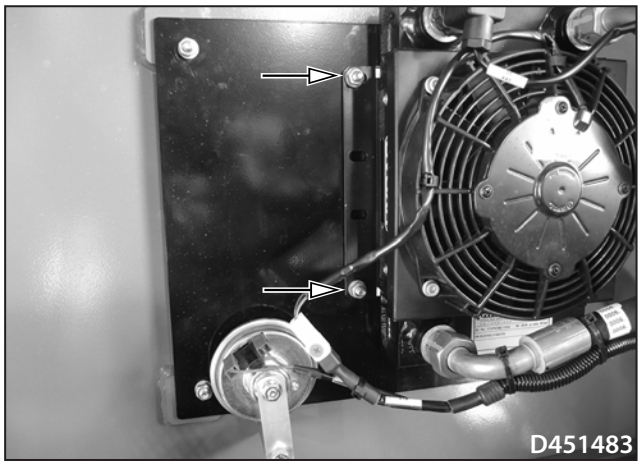
Remove the screws.





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Remove the screws.

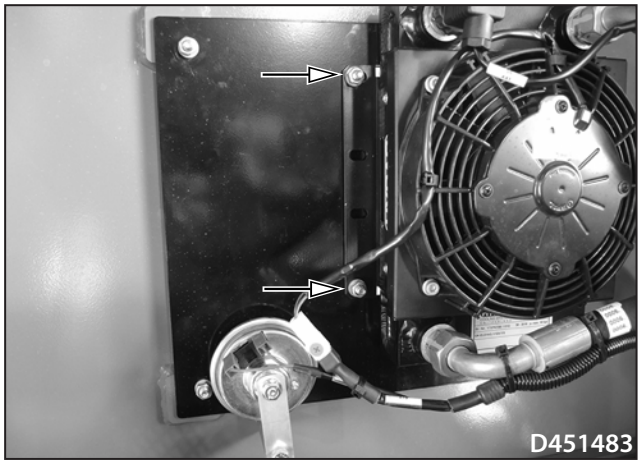


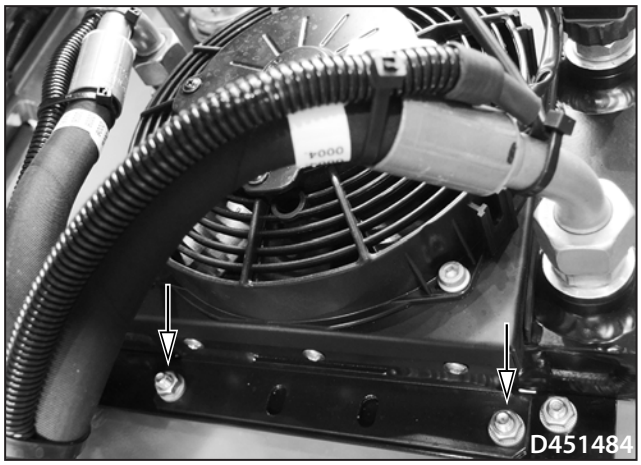


11.4 Mounting the cooler

Mount the cooler to the machine with the switched off battery disconnecter and with the closed gas bottle valve.

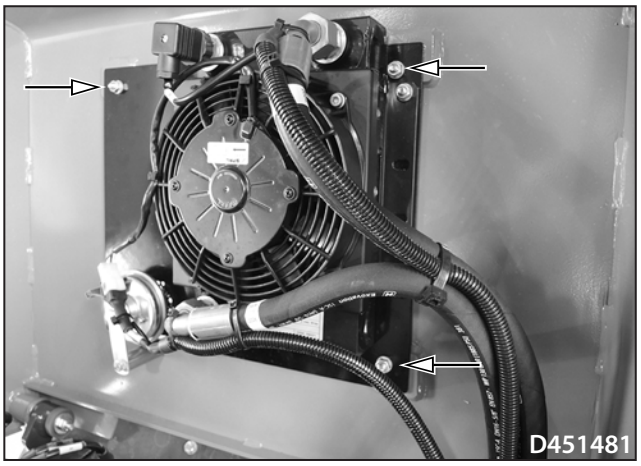
Mount the screws.

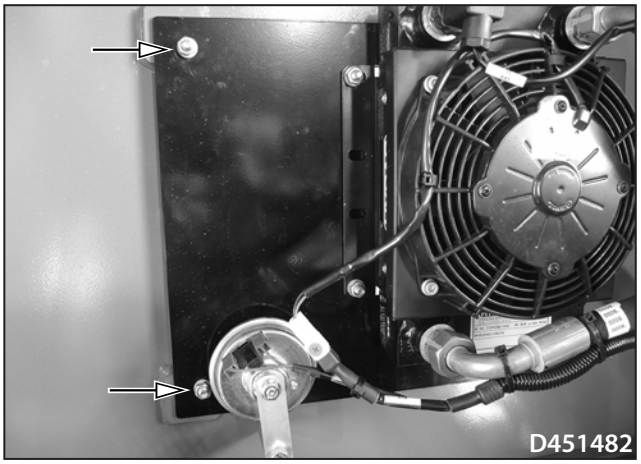




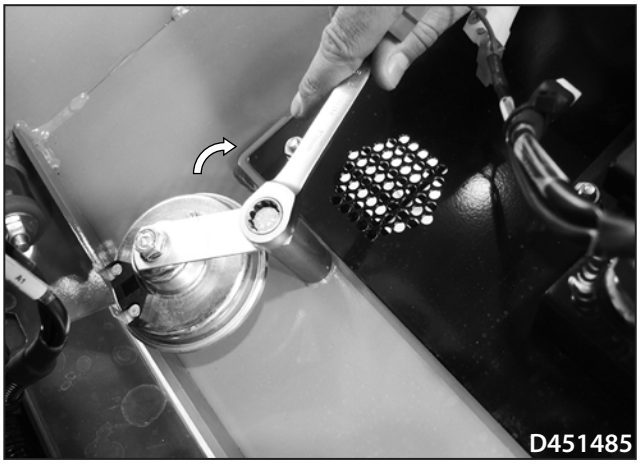
https://truckmanualshub.com/

Mount the screws.

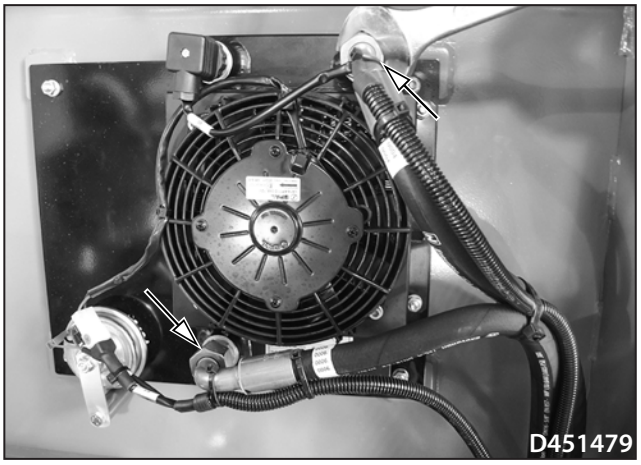




Mount horn and tighten the screw.

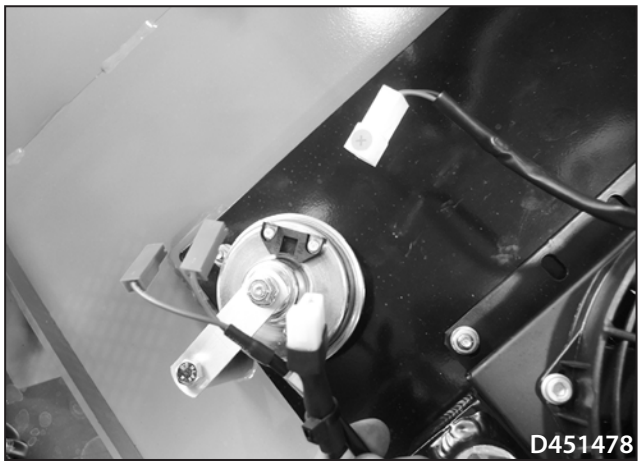


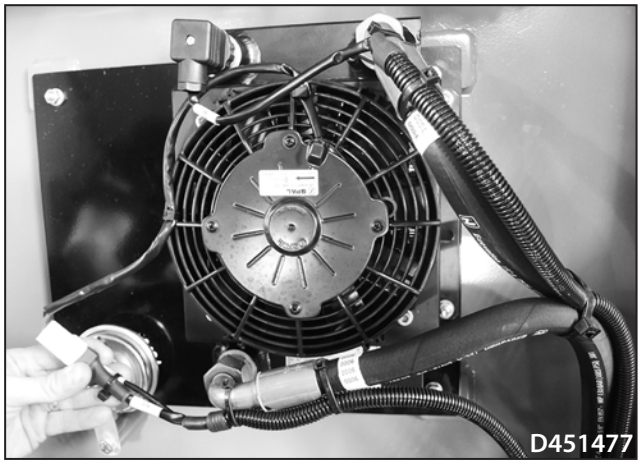
Mount the hoses of the input and output.



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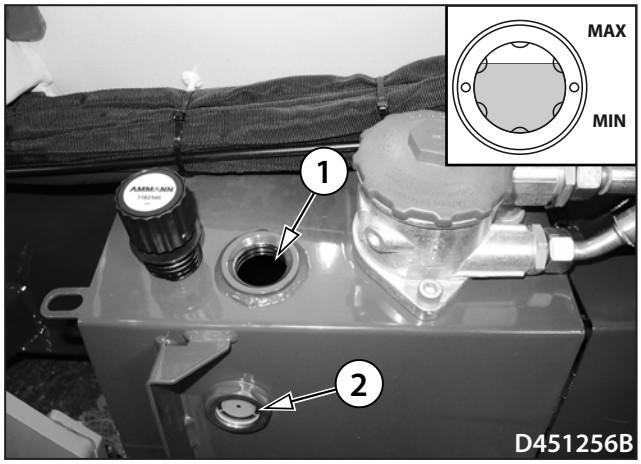
Connect the connectors X41, X19 and X20.





Fill in the hydraulic tank.

- Fill in new oil to the hydraulic tank through the hole (1).
- The prescribed oil volume is 20 l (5.3 gal US).
- Check the oil level on the oil gauge (2).
- The hydraulic oil level must be between the MIN and MAX marks.



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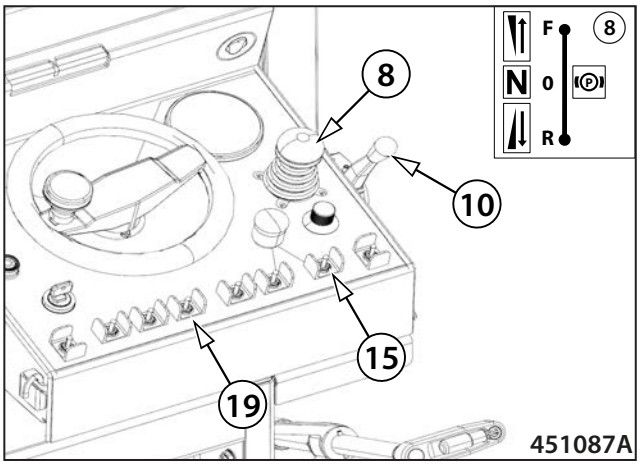
12 Screed

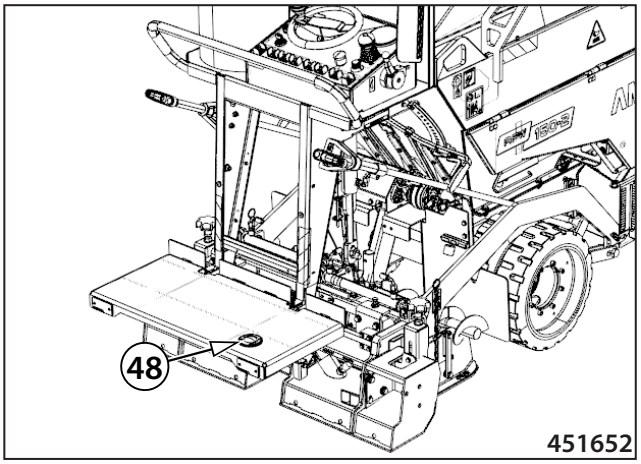
https://truckmanualshub.com/

12.1 Dismounting the screed lifting cylinder

Start the engine and lower the screed to the ground.

- Procedure for lowering of the screed in the transport mode:
  - Set the travel controller (8) to the neutral position (N).
  - Set the engine speed adjusting controller (10) to the maximum speed.
  - Switch over the transport/operating mode switch (15) to the upper position.
  - Press the foot switch (48).
  - To lower the screed, switch over the screed lift/lower switch (19) down.
  - After reaching the required position, release the switch.
  - Release the foot switch (48).





Turn off the engine.

Turn off the battery disconnecter and close the gas bottle valve.

Remove the hose.

Note

Place a container under the hose to trap the oil.

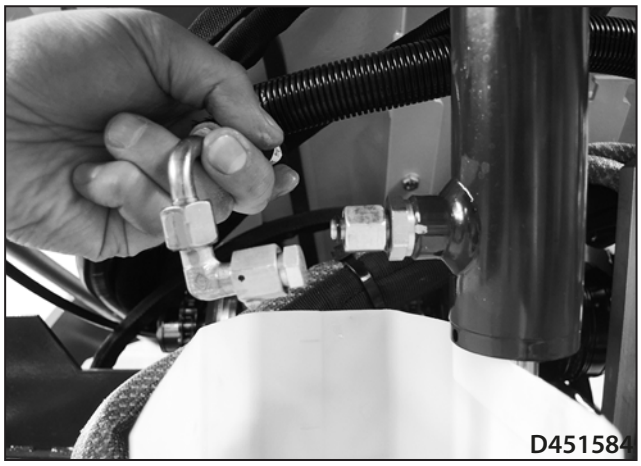
Avoid the oil soaking into the ground.



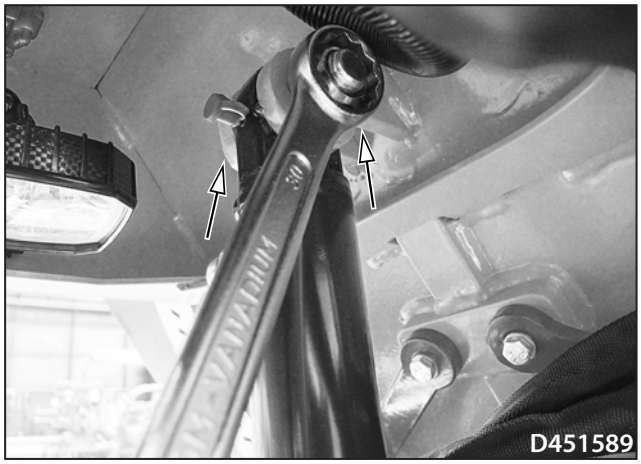


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Plug both ends of the hose.



Dismount the screwed fittings.





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12.2 Replacement of linear hydraulic motors for screed extension

Remove the hoses.

Note

Place a container under the hoses to trap the oil.

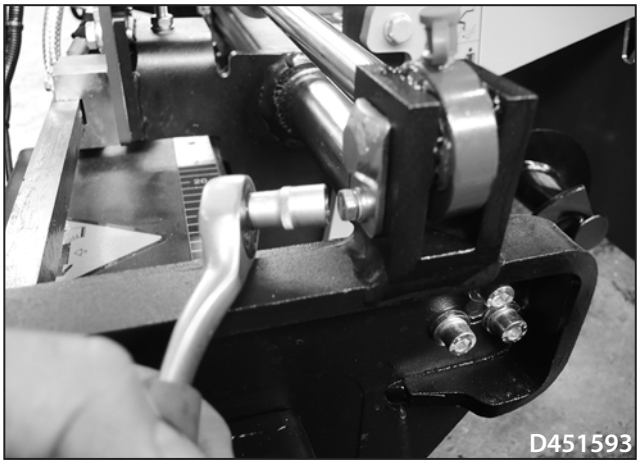
Avoid the oil soaking into the ground.



Plug all ends.



Remove the screw.

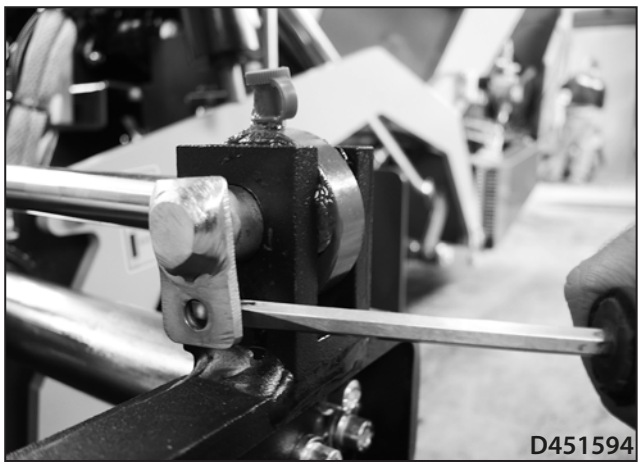


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Remove the pin.

Note

Proceed in the same way on the other side of the hydraulic motor.





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12.3 Basic setting of the screed

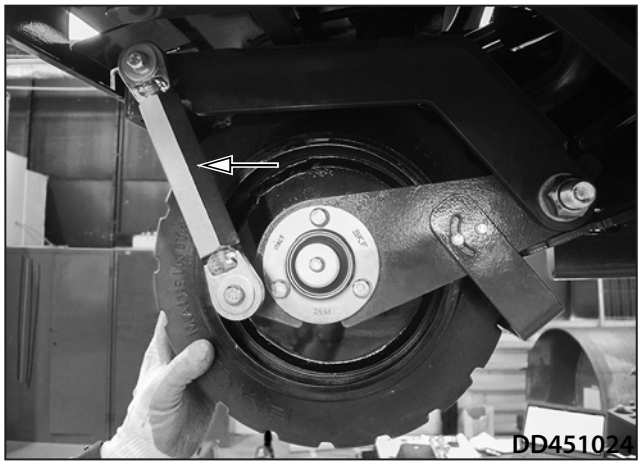
Park the machine on a flat and solid surface.

Note

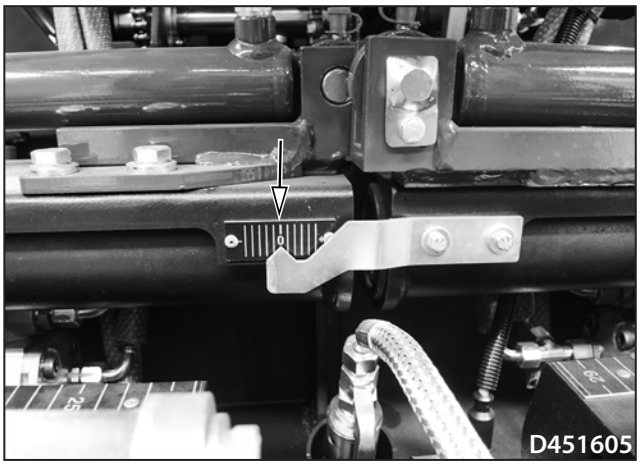
Make sure that the machine is levelled by measuring the frame distance from the ground – 12.5 cm – at the front wheel.



If a different distance is measured, adjust the height of the front wheel to the required height.



Check that the paving cross gradient is on the "0" position.

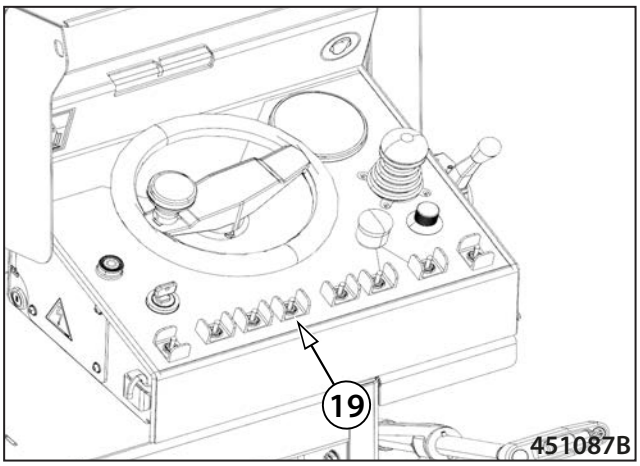


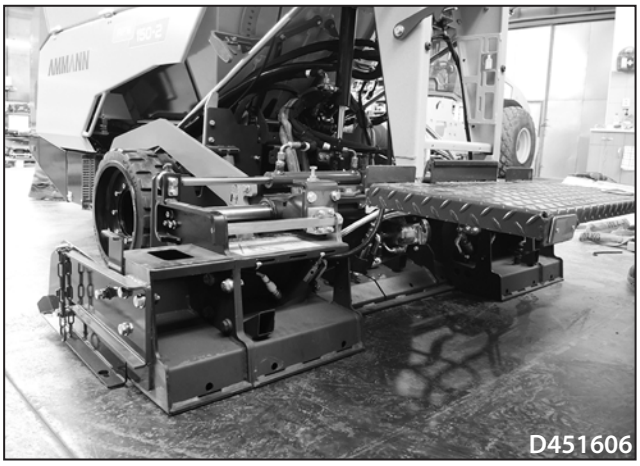
Check that the marks on the trailing arm and the screed match each other.



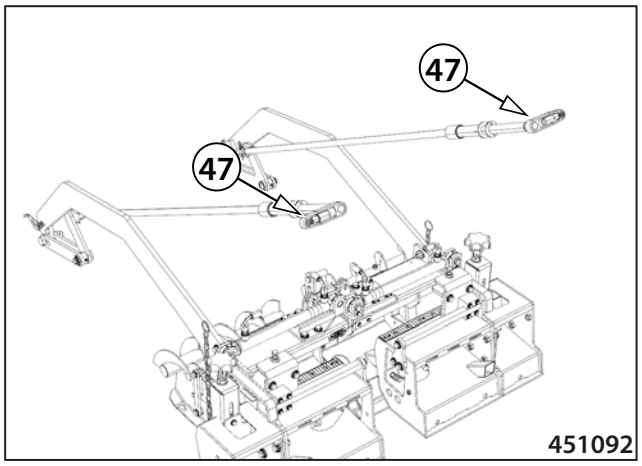
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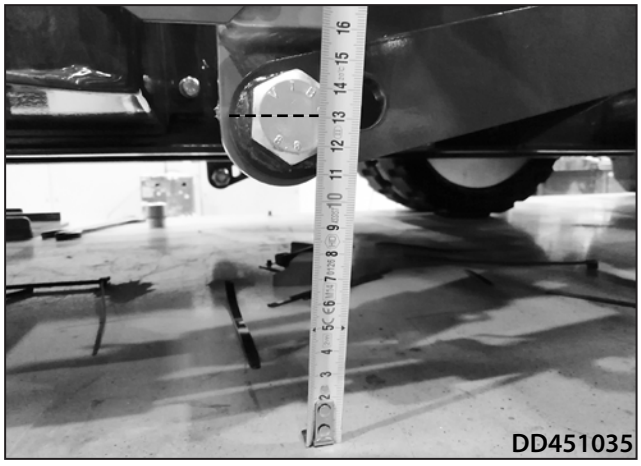
Start the engine and lower the screed to the ground by selector switch (19).





Set the distance of 13–13.5 cm from the ground to the screw centre by the paving thickness controller (47) on both sides.

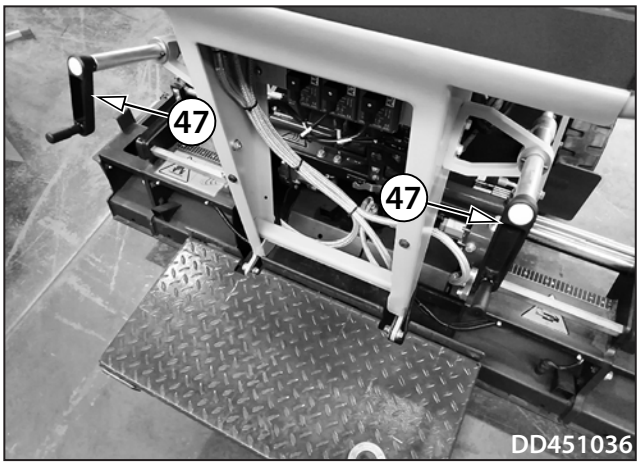




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Note

Ensure that the paving thickness controllers (47) face to the ground on both sides.

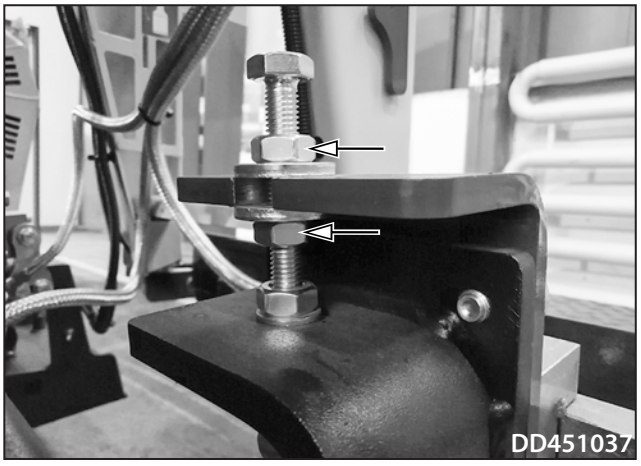


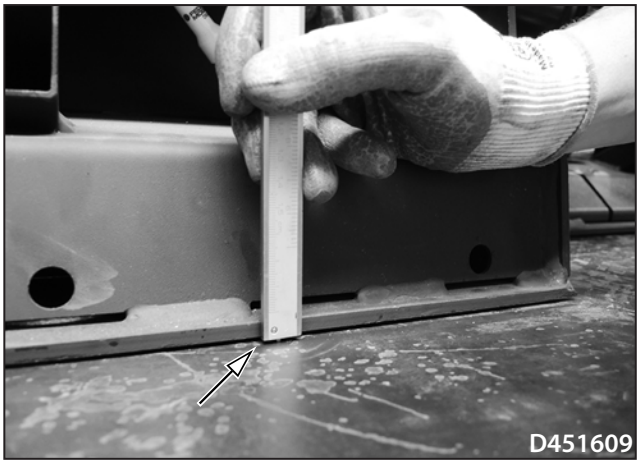
Loosen the screws (3x).



Using the adjusting nuts, set the height of the hydraulic extension to 2 mm above the main screed.

Lock the screws (3x).

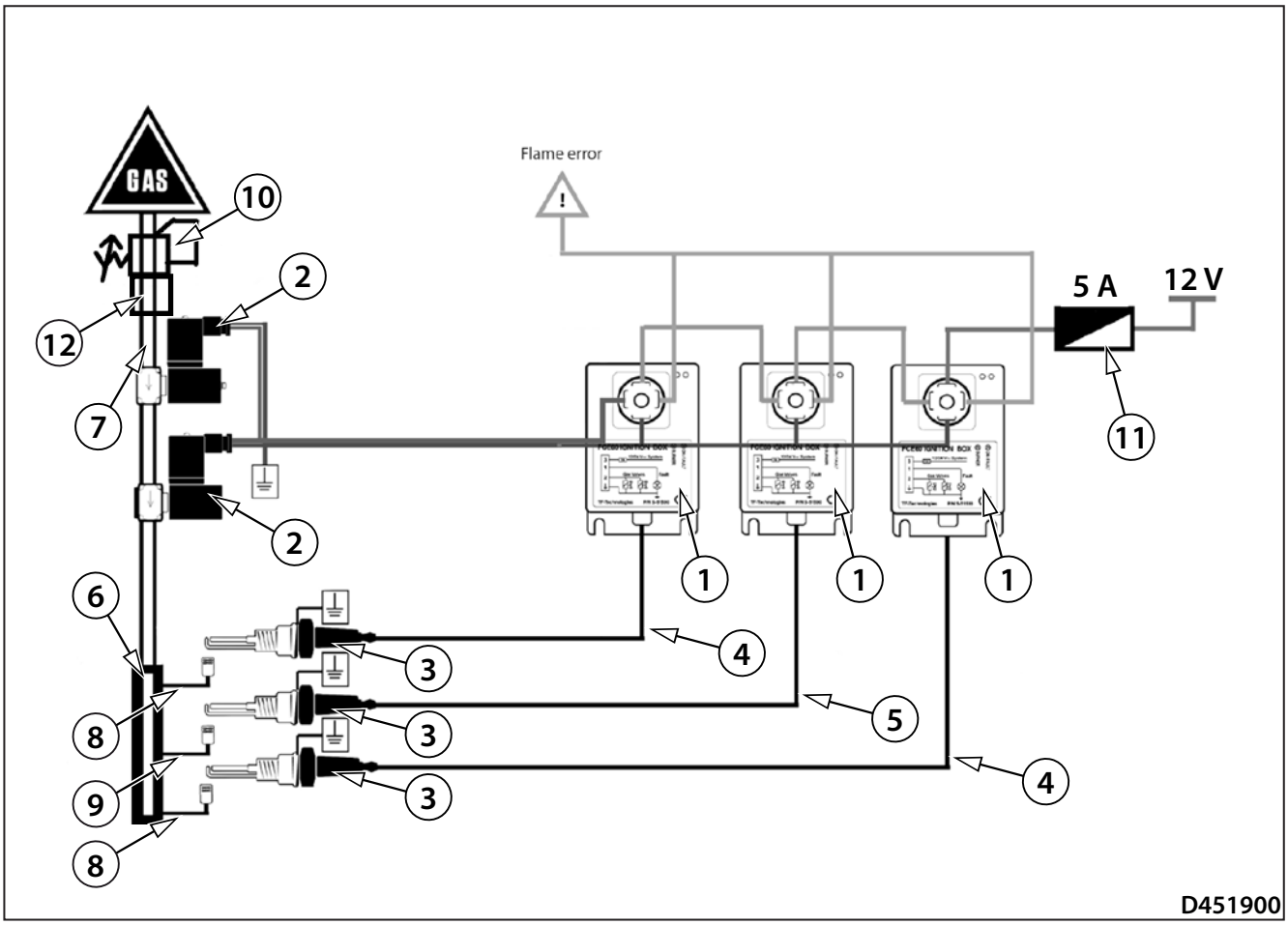




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13 Screed gas heating

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13.1 Gas system diagram

Legend:

1 Screed heating system ignition units
2 Gas supply solenoid valves
3 Spark plugs
4 Cables
5 Cable
6 Gas supply manifold
7 Gas hose
8 Gas hose
9 Gas hose
10 Reducing valve
11 Screed heating fuse, 5 A
12 Safety valve

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13.2 Ignition process

When the screed heating switch is switched on:

- The control unit opens solenoid valves to supply gas to the burners.
- The control unit activates ignition units and unless permanent fire is achieved within 7 seconds, the electronic system indicates a fault.
- If everything is OK, gas is automatically ignited by spark plugs. Whether or not the flame is burning is evaluated by the ignition unit through the spark plugs. After reaching the temperature of 120°C on the screed temperature sensor, the heating is automatically interrupted. After reducing the screed temperature, heating is automatically activated by the control unit.
- If the flame cannot be ignited for any reason, a red Led indicator is turned on on the ignition unit for the relevant section, and an error message is displayed on the display.

Error message on the display:

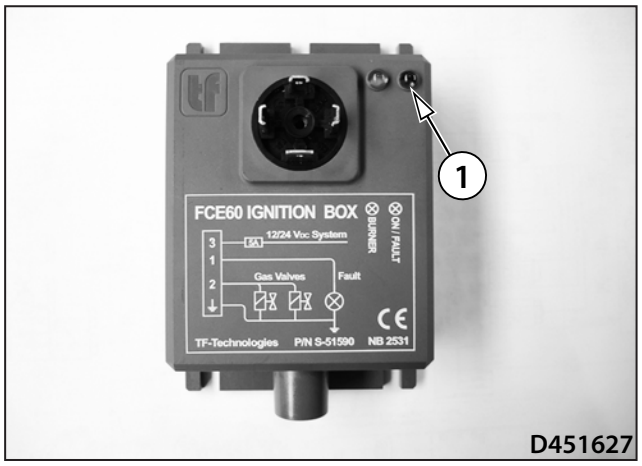
F75 – Left screed extension

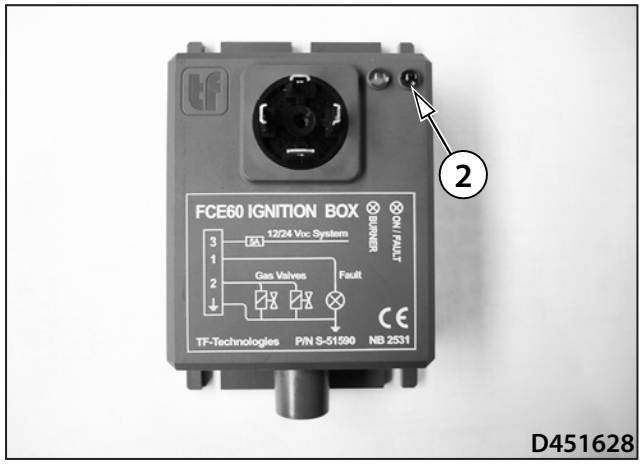
F76 – Main screed

F77 – Right screed extension

LED indicators on the ignition unit:

- red LED indicator (1) – indicates a fault of the ignition system for the given section
- green LED indicator (2) – the ignition system is active
- orange LED indicator (3) – is illuminated = it is burning, is not illuminated = is not burning.







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Potential faults:

1 Problem in electrical wiring

- Proceed according to Chapters:
  - Coil electromagnet resistance measurement (13.8.2)
  - Gas supply valve coil power supply measurement (13.8.3)
  - Spark plug check procedure (13.11.2)
  - Temperature sensor (13.12)
  - High-voltage cables (13.10)
  - Measuring resistance on the ignition unit (13.9.1)
  - Voltage measurement on the cable harness of ignition units (13.9.2).

2 The flame is not steadily burning

- Incorrect gas flame adjustment
  - Proceed according to Chapter 13.7.3.
- Nozzles are clogged.
  - Proceed according to Chapter: 13.7.2.
- Strainers in the gas supply valves are clogged
  - Proceed according to Chapter: 13.8.1.
- Faulty gas supply hose
  - Check the supply hoses for damage.
- Sufficient gas pressure is not available
  - Check the gas quantity in the gas bottle. Replace the gas bottle for a new one as needed
  - Check that the gas bottle valve and the reducing valve are opened.

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13.3 Diagnostics

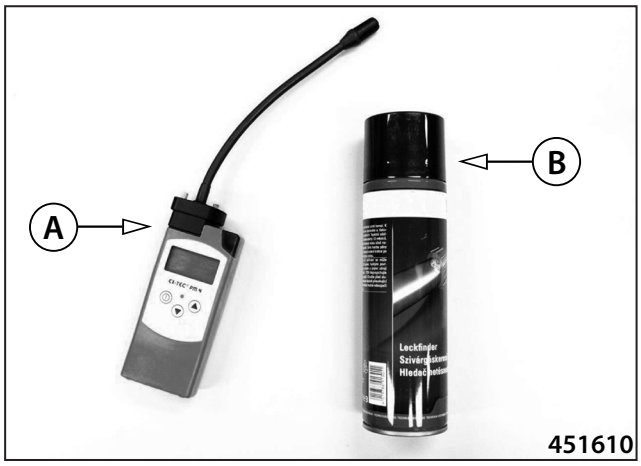
13.3.1 Gas equipment tightness check

Check the gas equipment for leakage when the machine is parked on a flat and solid surface and the valve (5) of the gas bottle is open.

Measure the gas leak on gas components where there is a danger of a gas leak.

A gas leak can be detected by means of:

- a gas leak detector (A)
- gas leak detection spray (B)
- soap water.



Gas equipment tightness check procedure

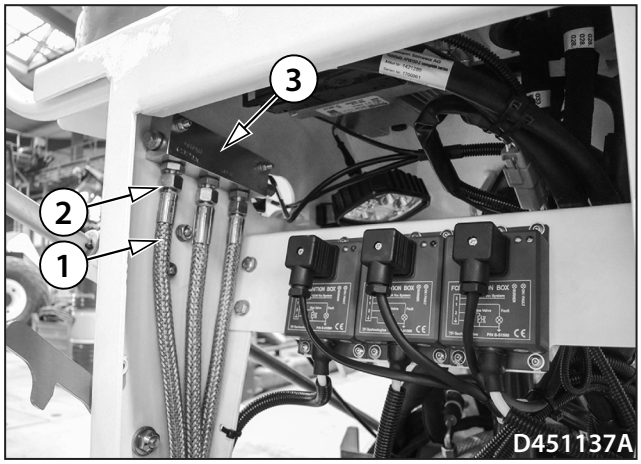
Start the engine.

Switch on the screed gas heating.

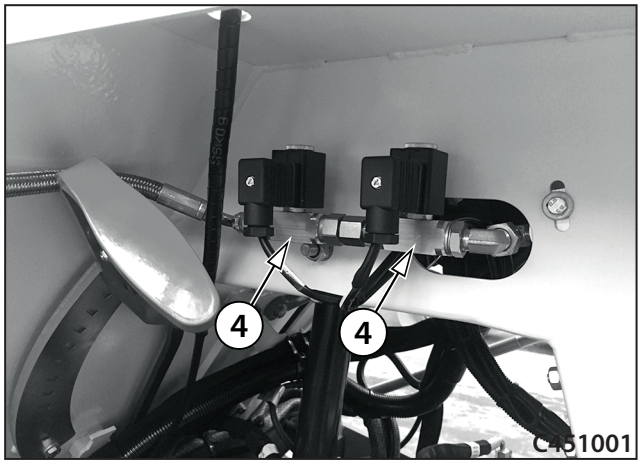
Check the tightness of the gas equipment, e.g. with a gas leak detector.

When checking the gas equipment, pay extra attention especially to any damage of hoses and potential gas leaks, and also check:

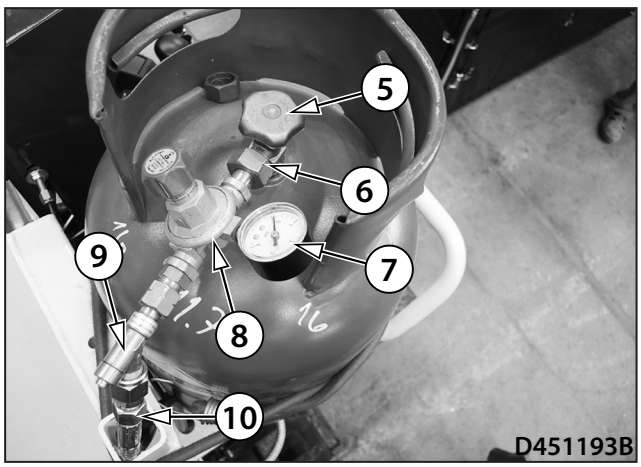
- All hoses (1)
- All fittings (2)
- Gas supply manifold (3)



- Gas supply solenoid valves (4)



- Gas bottle shut-off valve (5)
- Tightness of the reducing valve connection to the gas bottle (6)
- Pressure gauge (7)
- Reducing valve (8)
- Safety valve (9)
- Tightness of the hose connection to the safety valve (10)



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- Tightness of the hose and fitting connection to the burners (11)

Perform the gas equipment tightness test.

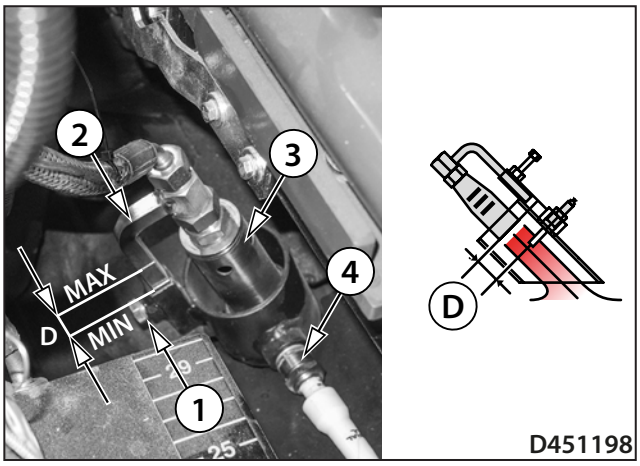
In case of any leak, interrupt the gas supply and have the gas equipment repaired by an authorised service plant or qualified personnel.

Close the gas bottle shut-off valve.

Turn off the screed gas heating.

Closed the gas supply.

Stop the engine.



Do not smoke during machine operation. There is a risk of explosion or fire. Liquid gas can easily ignite.

The machine must be equipped with a fire extinguisher. Have the fire extinguisher ready on the driver's stand at a place intended for this purpose.

Pay extra attention to potential gas leaks and in doubt, shut off the gas supply.

Check the tightness of the gas equipment, e.g. with a gas leak detector.

If you detect gas leakage, immediately shut off the gas bottle shut-off valve and have the gas equipment repaired by an authorised service plant or qualified personnel.

Follow safety regulations for handling gas bottles.

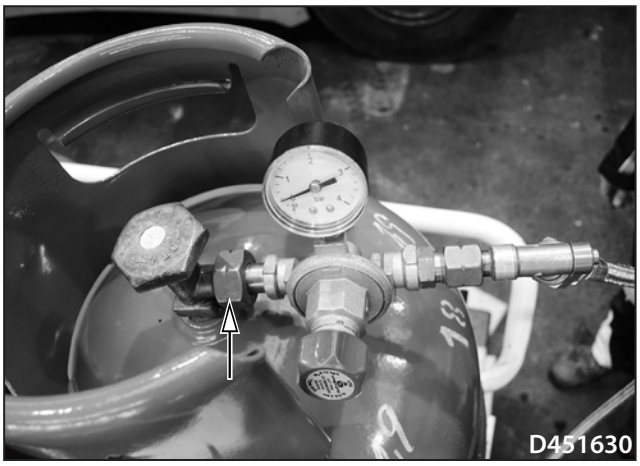
There is a risk of burns. Use protective equipment.

Have the gas equipment tightness check performed by an authorised service plant or qualified personnel.

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13.4 Reducing valve

Ensure that individual connections are not loosened and any gas leak is prevented. The tightening torque on the reducing valve cap nut must not exceed 3 – 5 Nm (2.2 – 3.7 lbft.)



If the reducing valve replacement is required, perform it with the machine with the switched off battery disconnecter and with the closed gas bottle valve.

13.5 Gas hoses

Ensure that gas hoses are not damaged. In case of their damage, replace the hoses and perform a gas leakage test.

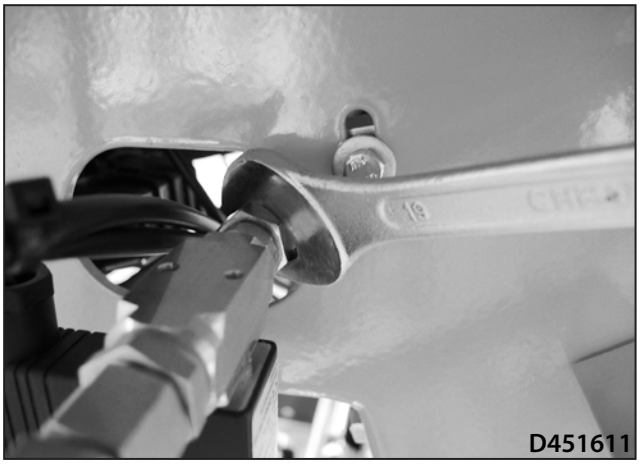
If the gas hose replacement is required, perform it with the machine with the switched off battery disconnecter and with the closed gas bottle valve.

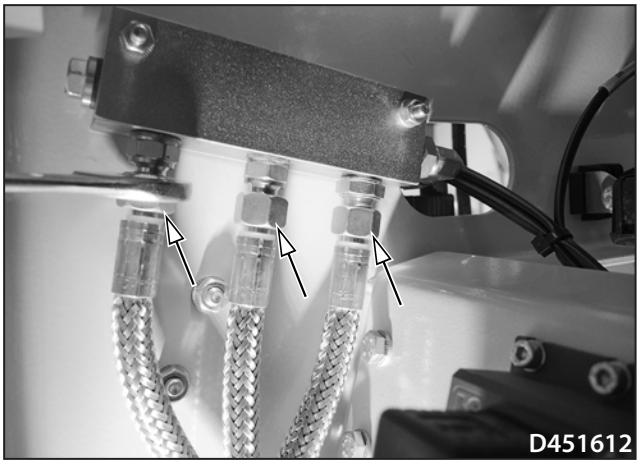
13.6 Gas manifold

13.6.1 Gas manifold replacement

Perform the replacement of the gas manifold with the machine with the switched off battery disconnecter and with the closed gas bottle valve.

Remove the gas hoses (4x).



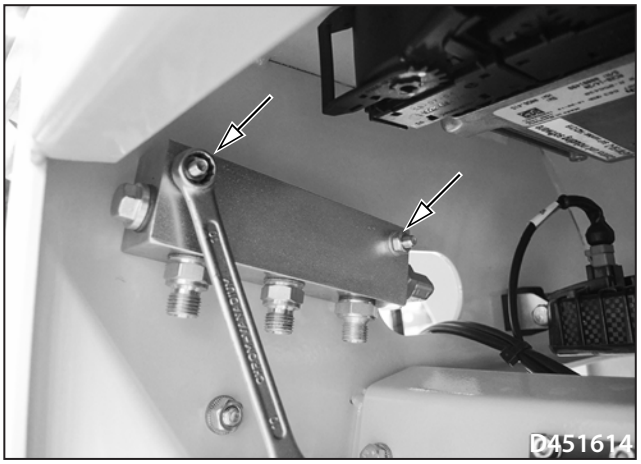


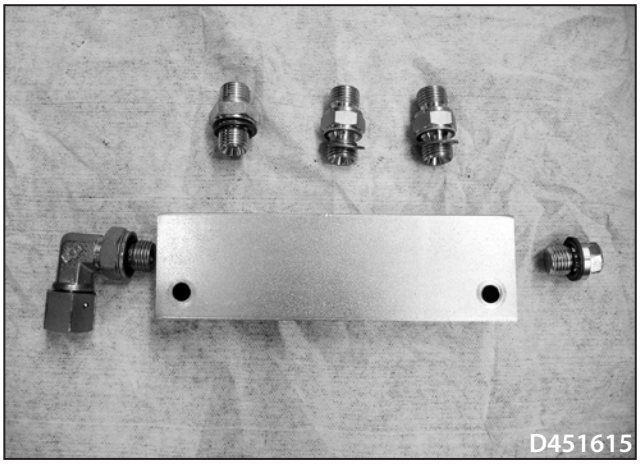
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Loosen the fittings (5x).



Remove the screws (2x).





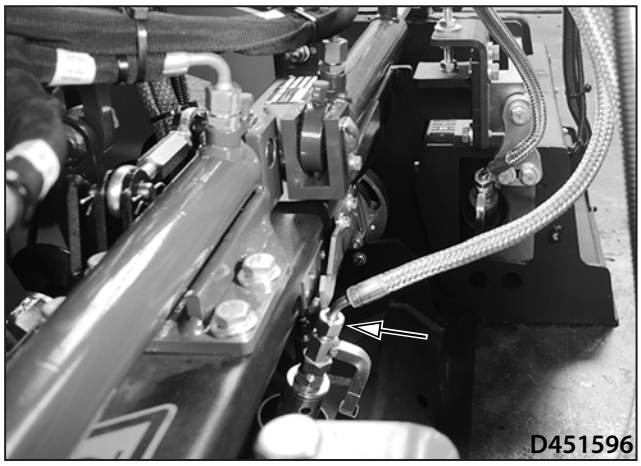
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13.7 Screed heating burner

13.7.1 Screed heating burner replacement

Perform the replacement of the screed heating burner with the machine with the switched off battery disconnecter and with the closed gas bottle valve.

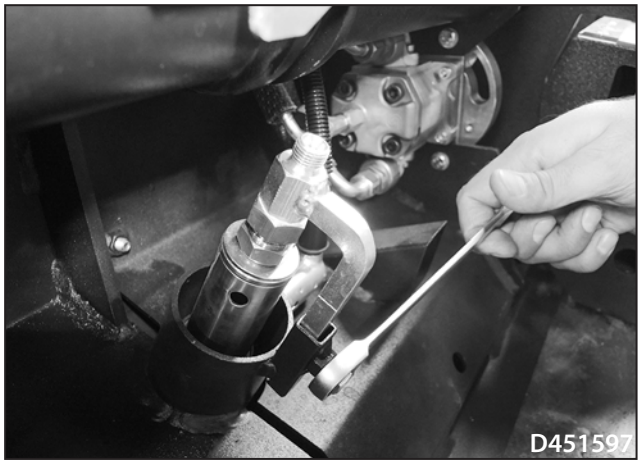
Remove the hose.



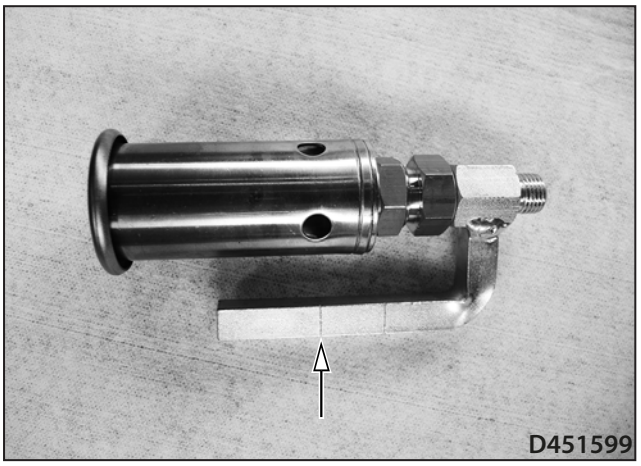
Loosen the screw and replace the burner.

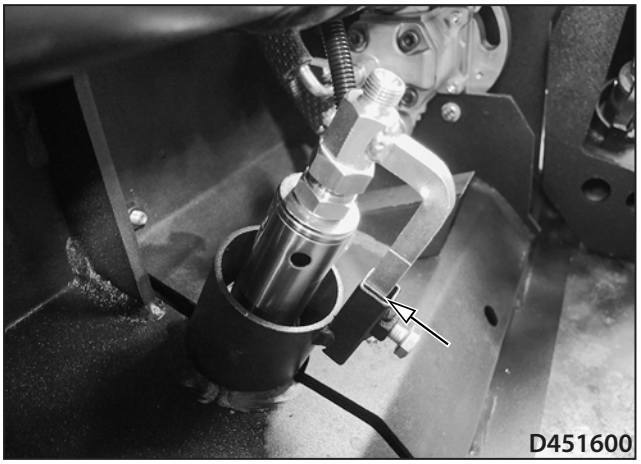
Note

When reassembling, observe the correct leading of the hose and prevent its breakage.



When reassembling, observe the correct location of the burner lower mark.



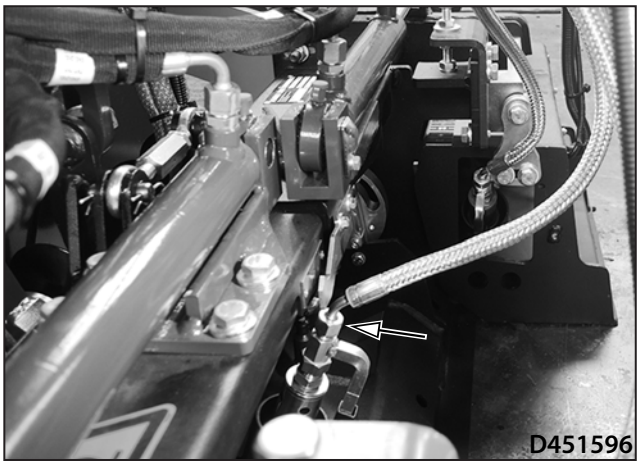


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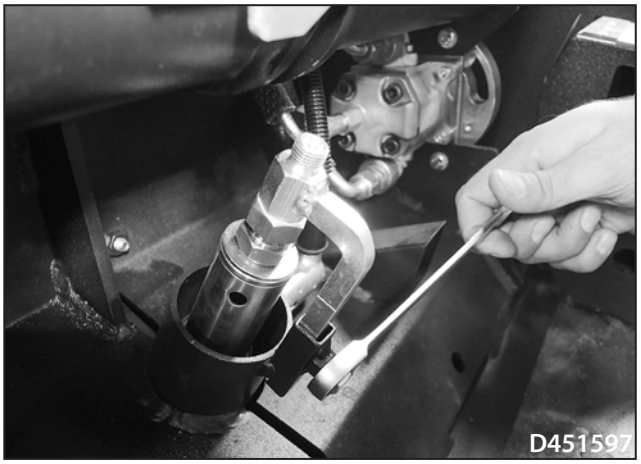
13.7.2 Cleaning the gas burner nozzle

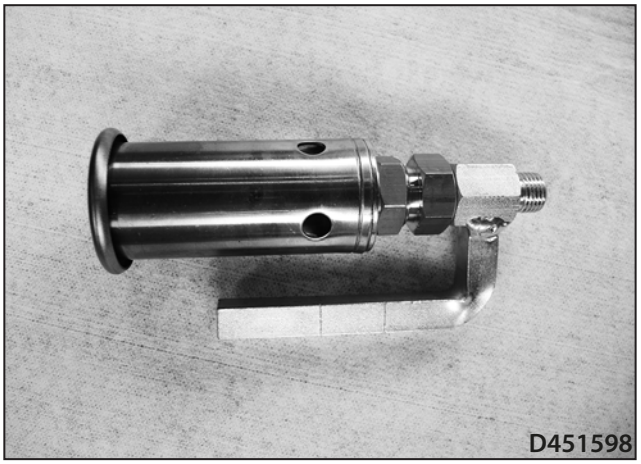
Perform the cleaning of the gas burner nozzle with the machine with the switched off battery disconnecter and with the closed gas bottle valve.

Remove the hose.



Loosen the screw and replace the burner.





Remove the burner.



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Clean the nozzle hole with a suitable wire.





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13.7.3 Gas flame adjustment

Open the access to the burners.

Insert the key into the ignition box (11) in the position "0" and switch over to the position "I".

Set the key between position "I" and "II" and the engine glowing indicator lamp (24) will light up.

Do not perform engine glowing for more than 15 s.

Use the alarm horn (12) to signal that the engine is starting.

Turn the key to position "II" to start the engine.

Secure the screed against free fall.

Set the maximum paving width on both sides of the machine.

Turn the key in the ignition box (11) from position "II" to position "I". The engine switches off.

Turn the key in the ignition box (11) from position "I" to position "0" and disconnect the battery disconnecter.

Have the correct position of the gas flame adjusted.

Have the flame position adjustment performed by an authorised service plant or qualified personnel according to the procedure given below.

Adjust the distance (D) between the gas burner (3) and the spark plug (4).

Adjust the distance (D) by loosening the gas burner set screw (1) on the burner holder (2).

The distance (D) can only be adjusted within the MIN and MAX marks. The values of MIN and MAX are marked on the burner holder (2) by marks.

After adjusting the burner (3), tighten the burner set screw (1) on the burner holder (2).

Test the ignition of the burners. In case of incorrect adjustment, repeat the gas flame adjustment procedure.

Perform gas flame adjustment when the machine is parked on a flat and solid surface with the engine and battery disconnecter off.

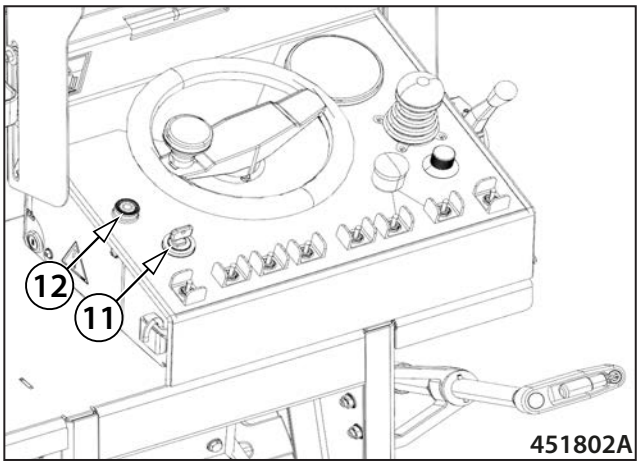
Have the gas flame adjustment performed by an authorised service plant or qualified personnel according to the given procedure.

There is a risk of burns. Use protective equipment.

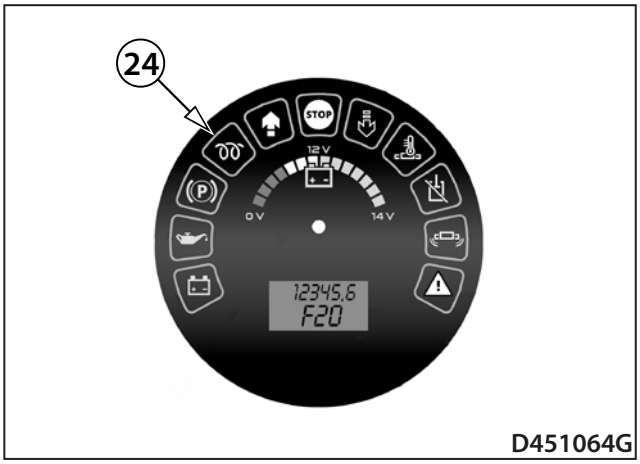
There is a risk of explosion.

Do not smoke during machine operation. There is a risk of explosion or fire. Liquid gas can easily ignite.

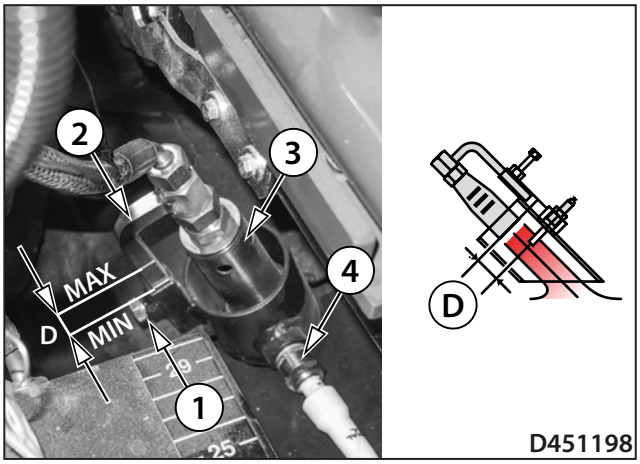
The machine must be equipped with a fire extinguisher. Have the fire extinguisher ready on the driver's stand at a place intended for this purpose.



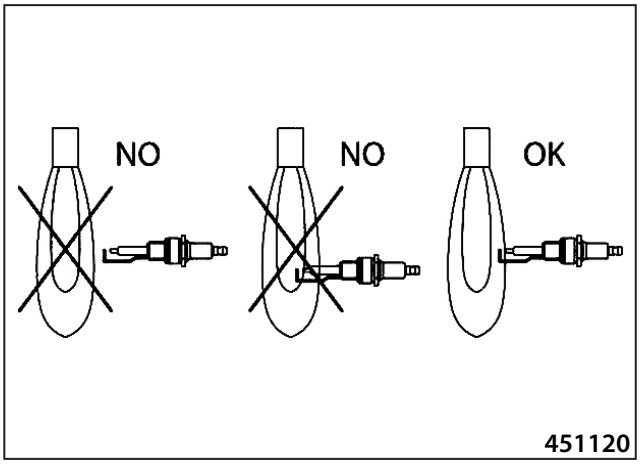
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13.7.4 Test of burner ignition

When testing the burner ignition, check the behaviour of the burners and the position of the gas flame.

The behaviour of the burners when ignited is correct if the burners ignite within a few seconds.

Unless the burners ignite within a few seconds, the ignition box stops further attempts for igniting the burners and interrupts gas supply.

Burner ignition test procedure

Open the access to the burners.

Insert the key into the ignition box (11) in the position "0" and switch over to the position "I".

Set the key between position "I" and "II" and the engine glowing indicator lamp (24) will light up.

Do not perform engine glowing for more than 15 s.

Use the alarm horn (12) to signal that the engine is starting.

Start the engine by turning the key to position "II".

Secure the screed against free fall.

Set the maximum paving width on both sides of the machine.

Turn the key in the ignition box (11) from position "II" to position "I". The engine switches off.

Switch on the gas screed heating system by moving the switch (13) to the upper position.

Check that all burners are burning.

Unless the burners start within a few seconds, switch off the gas screed heating system and perform a test of spark plugs, or have spark plug maintenance performed. Have the test and maintenance of spark plugs performed by an authorised service plant or qualified personnel according to the procedure given below.

Visually check the gas flame position on all burners (1). Perform the visual check through the burner pipe (2) and check their position with regard to the spark plug (3).

If the gas flame is incorrect, have the flame position adjusted. Have the flame position adjustment performed by an authorised service or qualified personnel according to the procedure given below.

Switch off the gas screed heating system by moving the switch (13) to the lower position.

Close the access to the burners.

Set the key between position "I" and "II" and the engine glowing indicator lamp (24) will light up.

Do not perform engine glowing for more than 15 s.

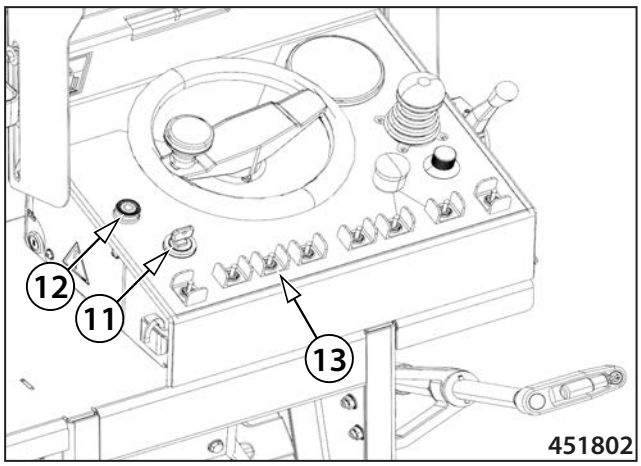
Use the alarm horn (12) to signal that the engine is starting.

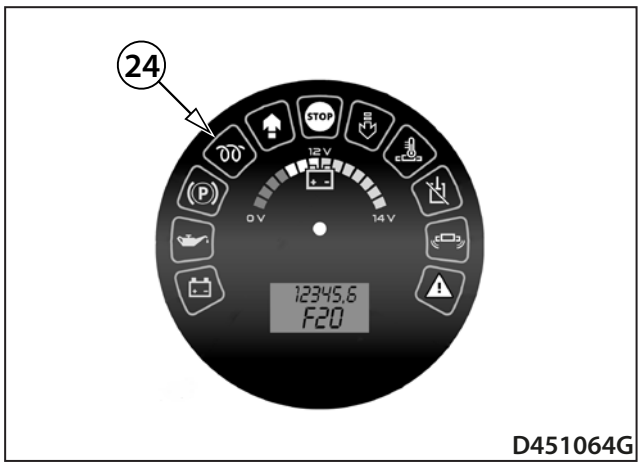
Start the engine by turning the key to position "II".

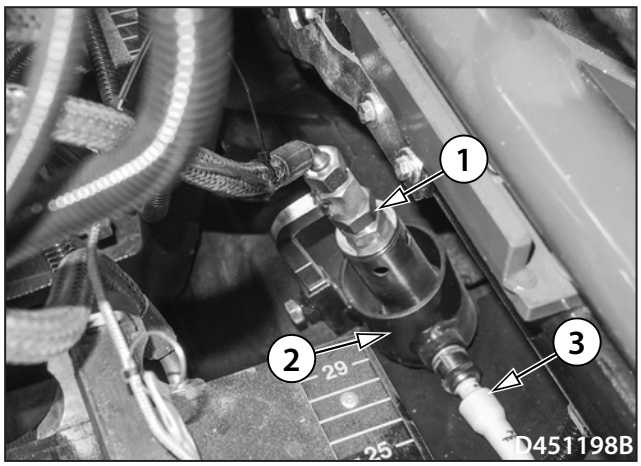
Set the minimum paving width on both sides of the machine.

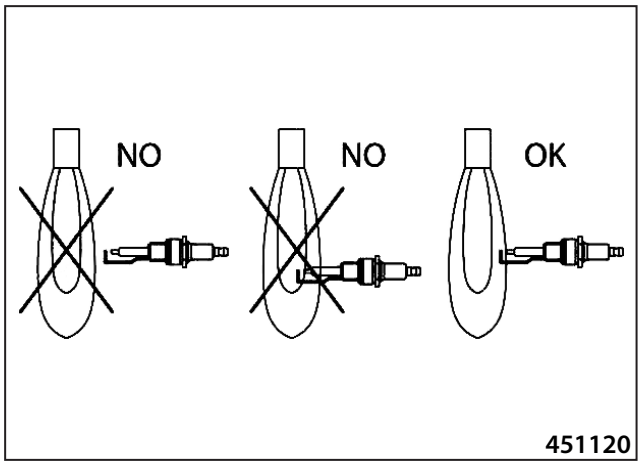
Unlock the screed and lower it to the ground.

Turn the key to the position "0" and remove the key from the ignition box (11).









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There is a risk of explosion.

Do not smoke during machine operation. There is a risk of explosion or fire. Liquid gas can easily ignite.

The machine must be equipped with a fire extinguisher. Have the fire extinguisher ready on the driver's stand at a place intended for this purpose.

Pay extra attention to potential gas leaks and in doubts, shut off the gas supply.

Check the tightness of the gas equipment, e.g. with a gas leak detector.

If you detect gas leakage, immediately shut off the gas bottle shut-off valve and have the gas equipment repaired by an authorised service plant or qualified personnel.

Follow safety regulations for handling gas bottles.

There is a risk of burns. Use protective equipment.

Have the test and maintenance of spark plugs performed by an authorised service plant or qualified personnel according to the procedure given below.

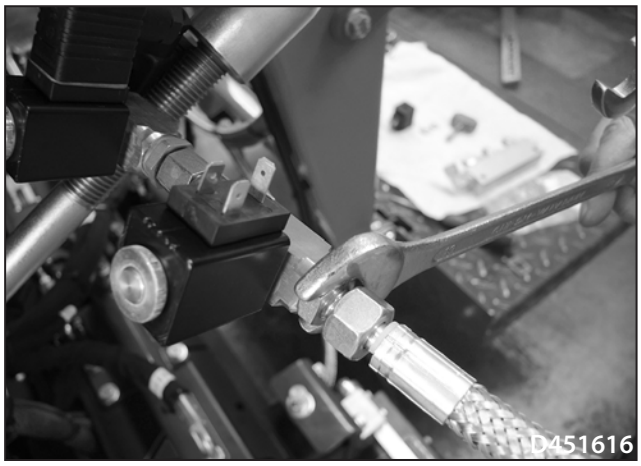
https://truckmanualshub.com/

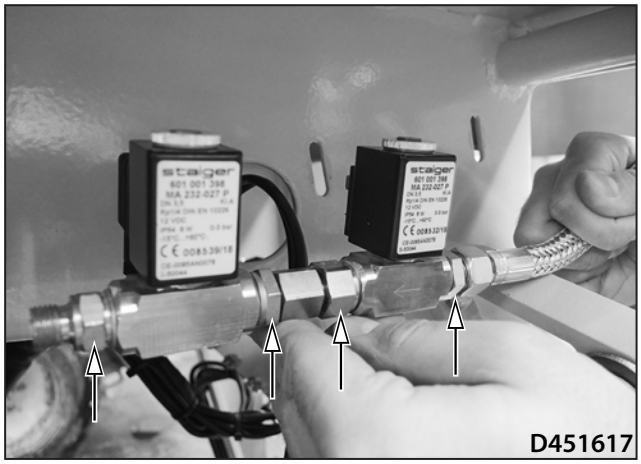
13.8 Gas supply solenoid valves

13.8.1 Valve cleanliness inspection

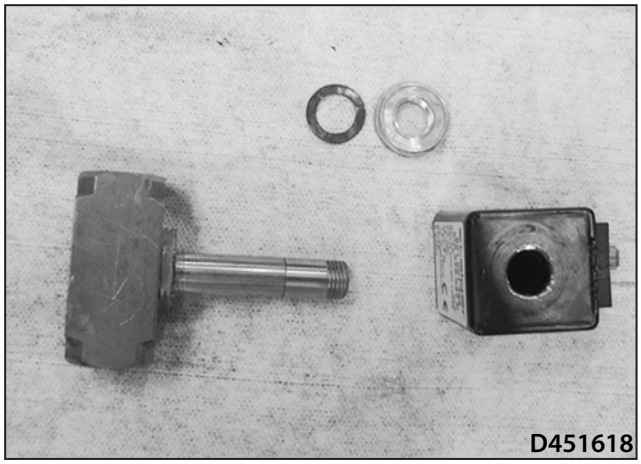
Check the cleanliness of the valves with the machine with the switched off battery disconnecter and with the closed gas bottle valve.

Remove the fitting.





Remove gas supply valves.

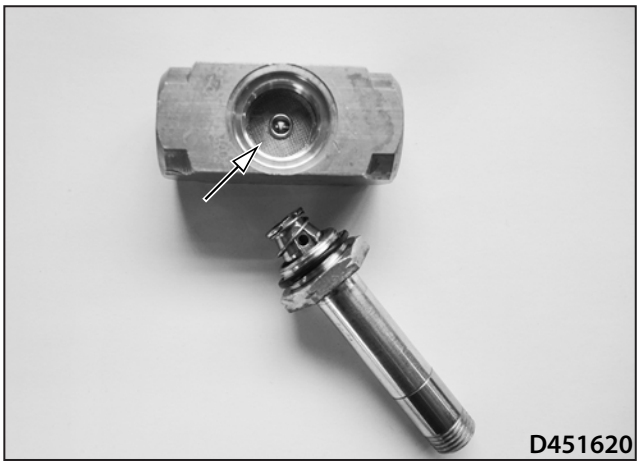


Remove the valve body coil core.



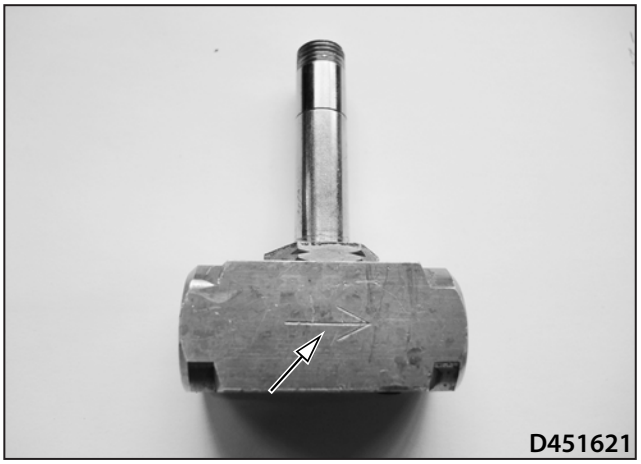
https://truckmanualshub.com/

Check that the strainer inside the valve body is not clogged.



Note

When reassembling, observe the correct placement of the valve so that the arrow on the valve corresponds to the gas flow direction.

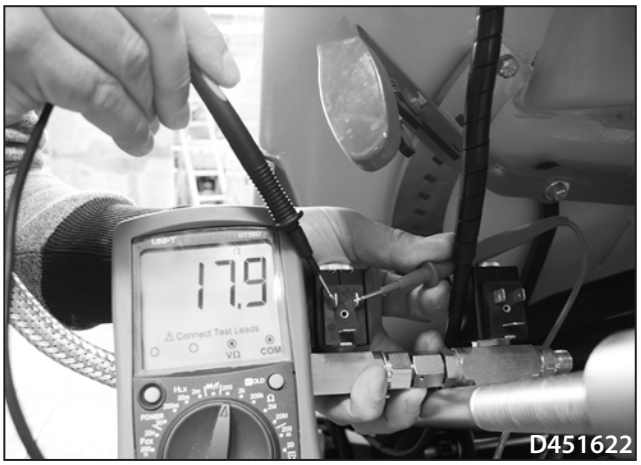


13.8.2 Measuring resistance of the coils of gas supply valve electromagnets

Measure the coil resistance of approximately 18 Ω.

Note

If a different value is measured, replace the coil.

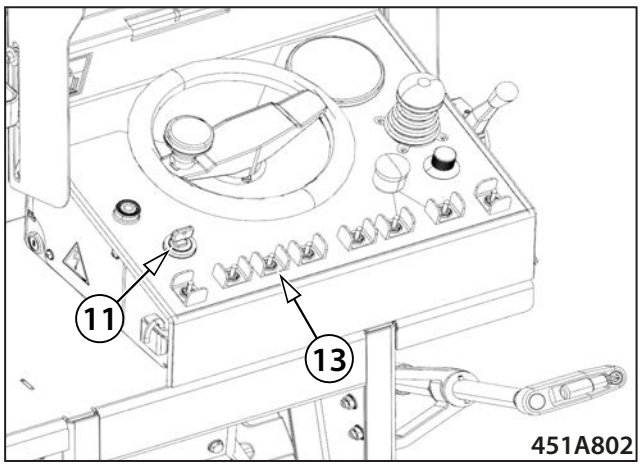


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13.8.3 Measuring power supply of the coils of gas supply valve electromagnets

Turn the key in the ignition box (11) to the "I" position.

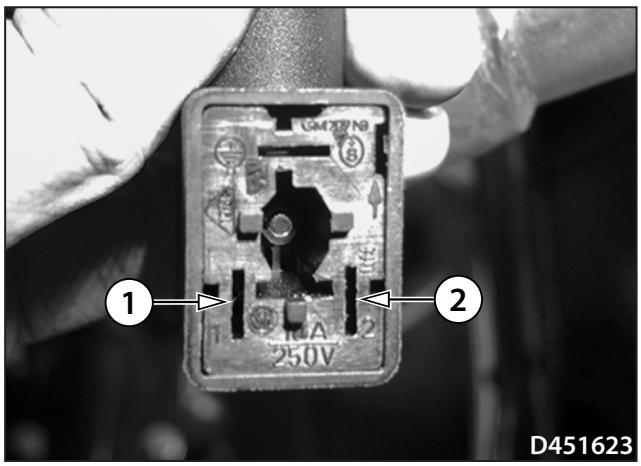
Switch on the gas screed heating system by changing over the switch (13) to the upper position.

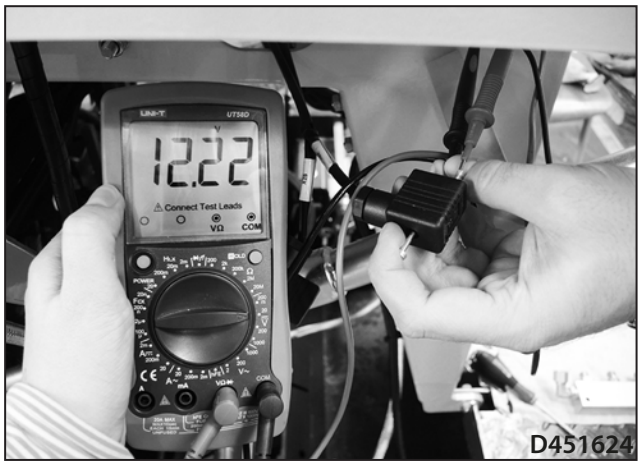


Measure the battery voltage (12 V) on the sockets of electromagnets Y14 and Y15 between pins 1 and 2.

If a different value is measured, check:

- fuse F6
- relays K6 and K10
- wiring between the valve and the units A6, A7 and A8.





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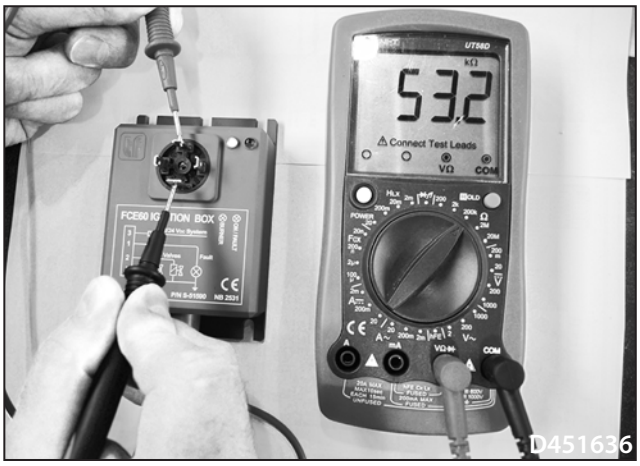
13.9 Ignition units

13.9.1 Measuring resistance on the ignition unit

Measure resistances on the ignition unit on the machine with the switched off battery disconnecter and with the closed gas bottle valve.

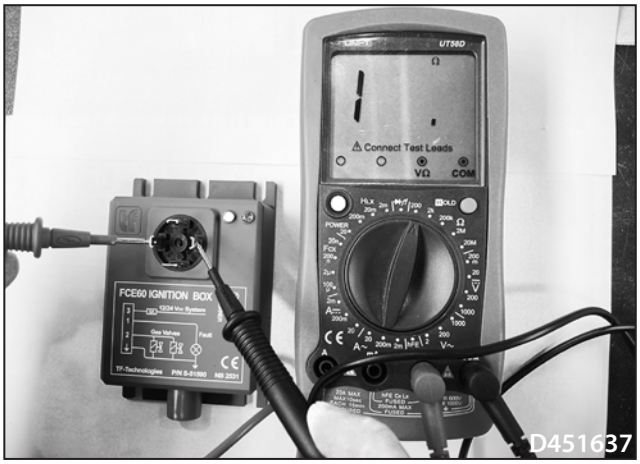
Measure the resistance on the unit with disconnected supply cables.

Measure the resistance of approximately 53.2 Ω between pin 3 and pin of the frame.



There is an opened circuit between pin 3 and pins 1 and 2.

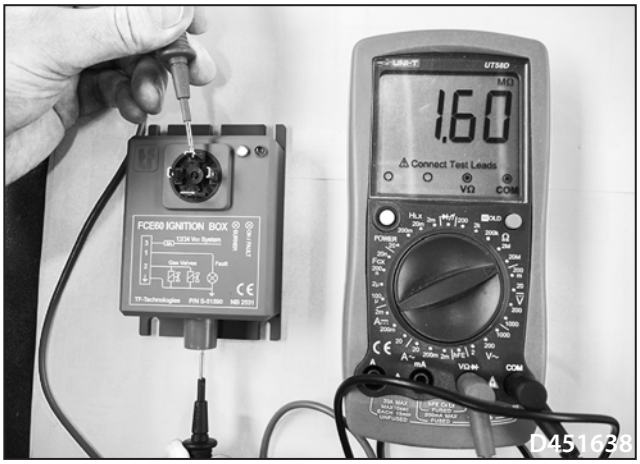
There is an opened circuit between the pin of the frame and pins 2 and 3.



Measure the resistance of approximately 1.6 Ω between pin 3 and pin 4.

Note

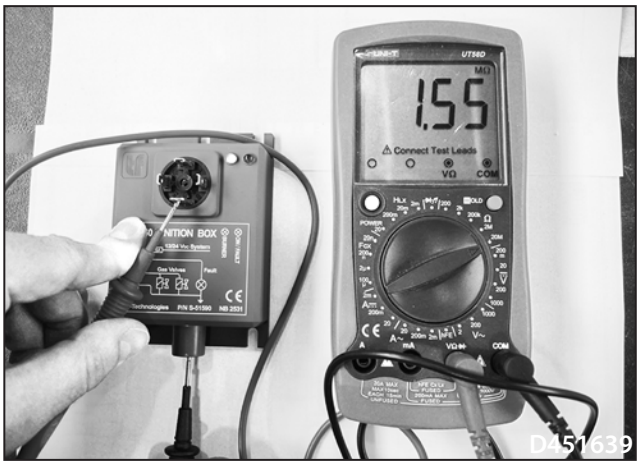
If a different value is measured, replace the ignition unit.



Measure approximately 1.55 MΩ between the pin of the frame and pin 4.

Note

If a different value is measured, replace the ignition unit.

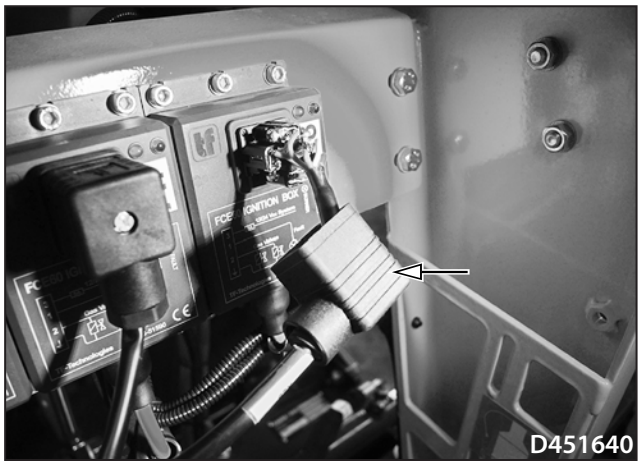


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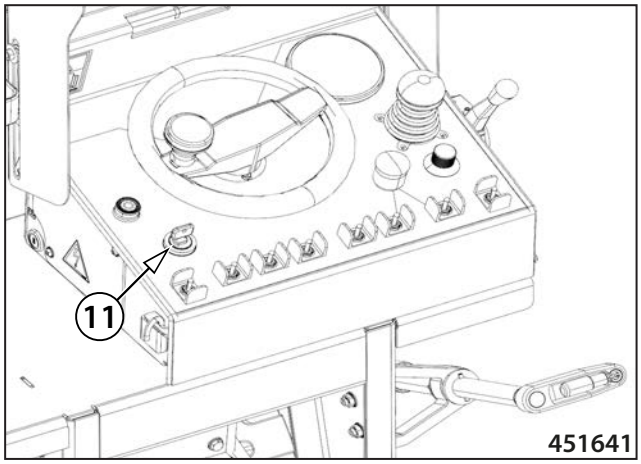
13.9.2 Voltage measurement on the cable harness of ignition units

Measure the voltage on the cable harness of ignition units on the machine with the closed gas bottle valve.

Remove the cover of connector X73, X74 or X75.



Turn the key in the ignition box (11) to the "I" position.

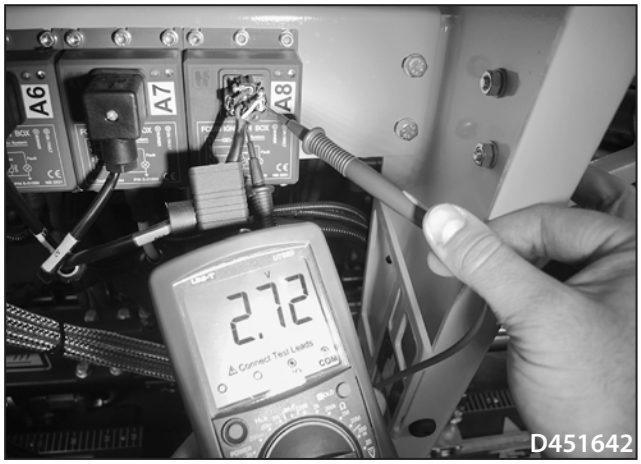


Measure the voltage of approximately 2.72 V between the pin of the frame and pin 1.

Note

If a different value is measured, check:

- the wiring between ignition units A6, A7, A8 and the control unit A2
- the wiring between the pin of the frame on connector X73, X74 or X75 and the required pin of the central earthing point X6.

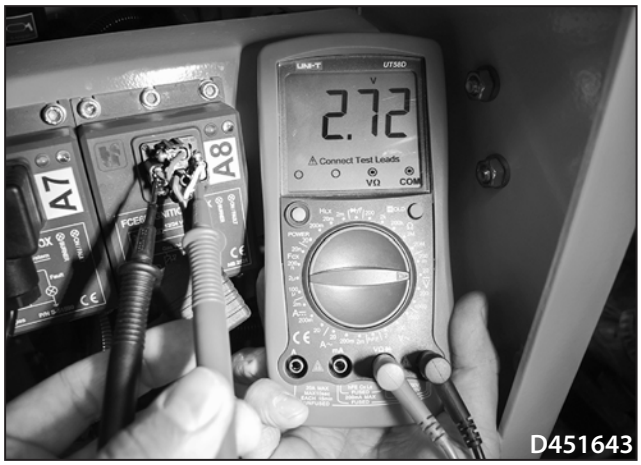


Measure the voltage of approximately 2.72 V between pin 1 and pin 2.

Note

If a different value is measured, check:

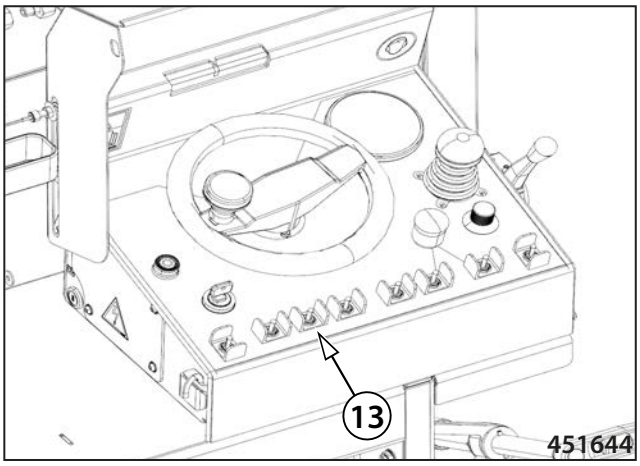
- the wiring between ignition units A6, A7, A8 and the control unit A2
- the wiring between the pin of the frame on connector X73, X74 or X75 and the correct pin of the central earthing point X6.



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Switch on the gas screed heating system by moving the switch (13) to the upper position.

Measure the voltage of the battery (12 V) between the pin of the frame and pins 2 and 3.



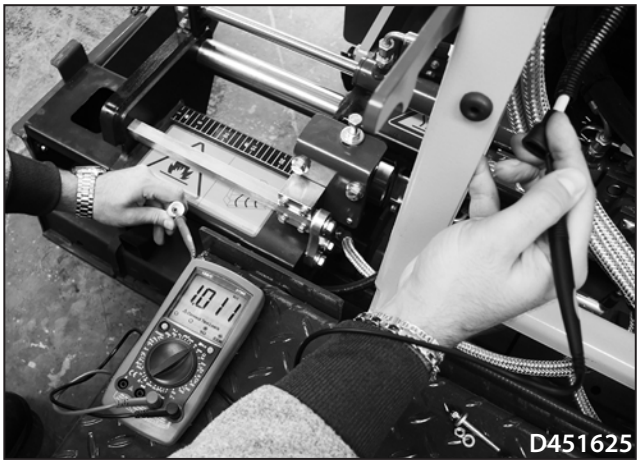
13.10 High-voltage cables

Measure and replace the high-voltage cables on the machine with the switched off battery disconnecter and with the closed gas bottle valve.

Measure the resistance of approximately 1 kΩ.

Note

If a different value is measured, replace the high-voltage cables.



13.11 Spark plugs

13.11.1 Spark plug function test

Insert the key into the ignition box (11) in the position "0" and switch over to the position "I".

Set the key between position "I" and "II" and the engine glowing indicator lamp (24) will light up.

Do not perform engine glowing for more than 15 s.

Use the alarm horn (12) to signal that the engine is starting.

Turn the key to position "II" to start the engine.

Secure the screed against free fall.

Set the maximum paving width on both sides of the machine.

Turn the key in the ignition box (11) from position "II" to position "I". The engine switches off.

Close the gas bottle shut-off valve.

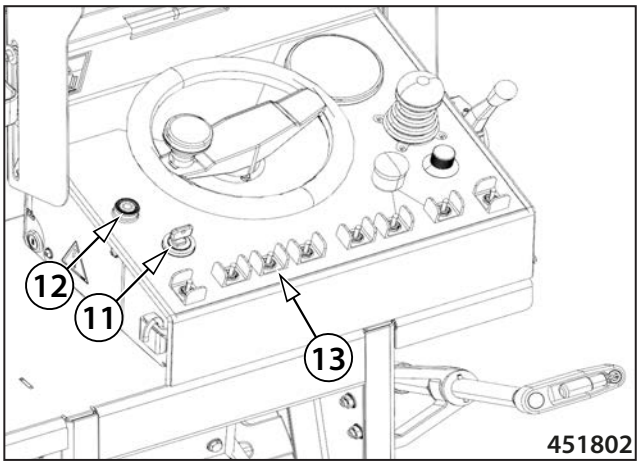
Switch on the gas screed heating system by moving the switch (13) to the upper position.

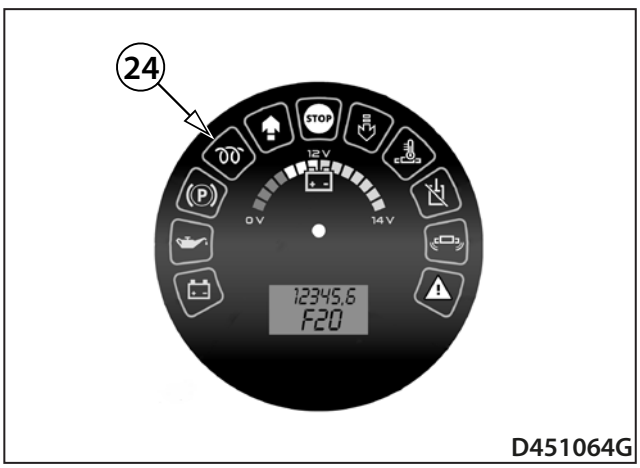
Test the spark plugs for sparking and correct sending of the signal pulse.

Switch off the gas screed heating system by moving the switch (13) to the lower position.

Turn the key to the "0" position.

Disconnect the battery disconnecter.





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13.11.2 Spark plug check procedure

Dismount the cable (4) of a spark plug (3).

Dismount the spark plug (3).

Check the middle electrode (5)

If the spark plug is too burned, replace the spark plug (3) for a new one.

Measure the distance between the middle electrode (5) and the external electrode (6). The correct distance must be 4 mm (0.2 in).

In case of incorrect distance, adjust the distance between the middle electrode (5) and the external electrode (6) by slightly bending the external electrode (6).

Screw in the spark plug (3).

Mount the cable of the spark plug (4).

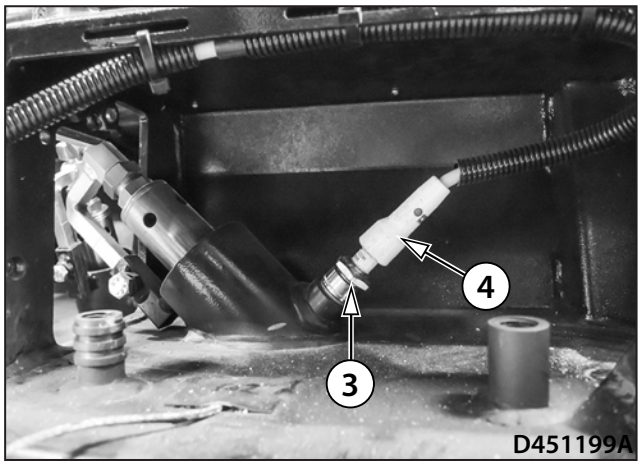
Perform the spark plug test again according to the previous procedure.

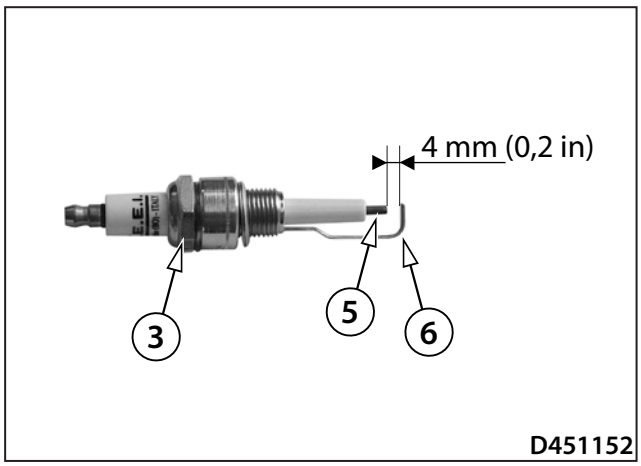
Unless the burners start within a few seconds, repeat the whole procedure.

Perform maintenance of spark plugs when the machine is parked on a flat and solid surface with the engine and battery disconnecter off.

Have the test and maintenance of spark plugs performed by an authorised service plant or qualified personnel according to the given procedure.

There is a risk of burns. Use protective equipment.





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13.12 Temperature sensor

Measure the temperature sensor on the machine with the closed gas bottle valve.

Measure the resistance of approximately 1.1 kΩ at the temperature of 20°C on the pins of the temperature sensor.

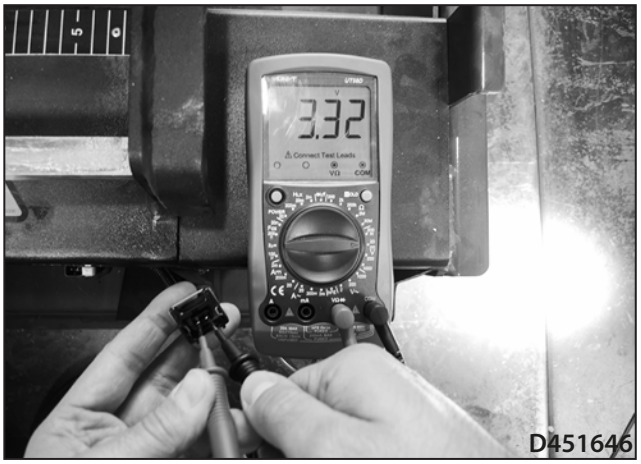


Measure the voltage of approximately 3.32 V on the pins of the temperature sensor socket.

Note

If a different voltage value is measured, check the wiring between the control unit A2 and the sensor S18.

In case of a short circuit or interruption of the cables, the error message F70 is displayed.



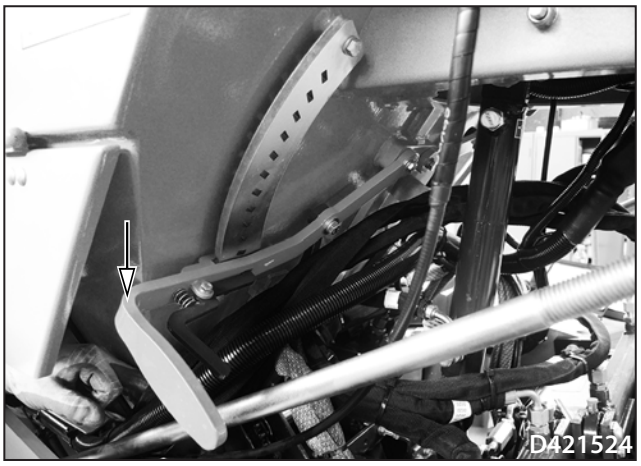
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14 Belt conveyors and augers

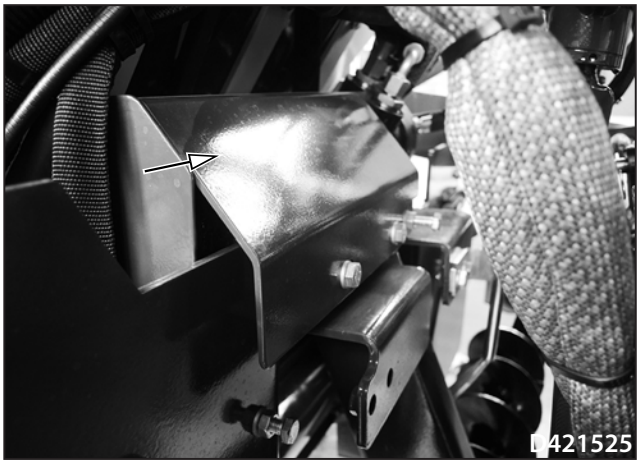
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14.1 Replacement of the hydraulic motor for driving the augers and the belt conveyor

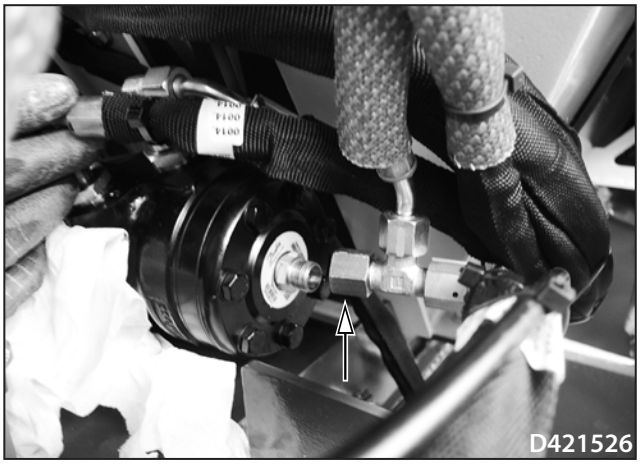
Set the lever for material outlet to the lower position.



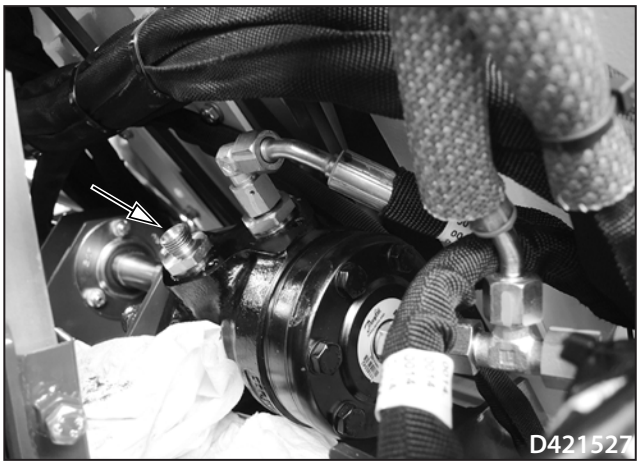
Remove the cover of the drive for belt conveyors and augers.



Remove the hydraulic hoses.



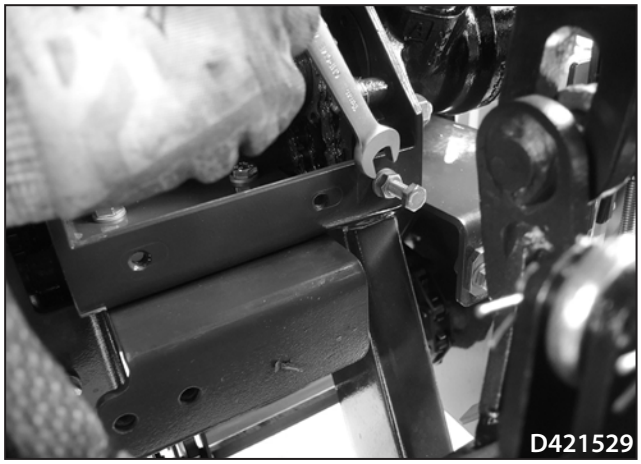
Avoid the oil soaking into the ground.



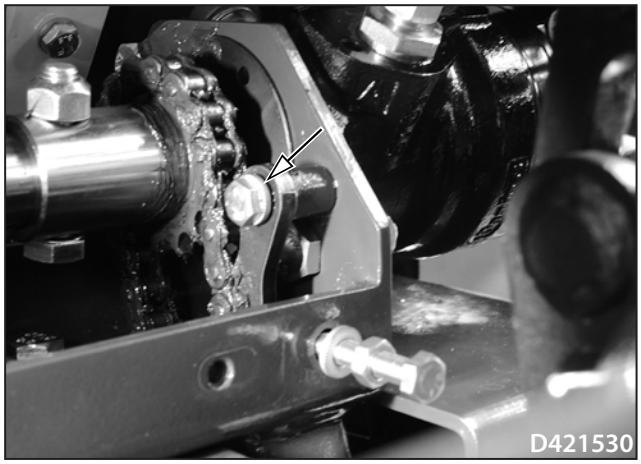
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Remove the tension screw.



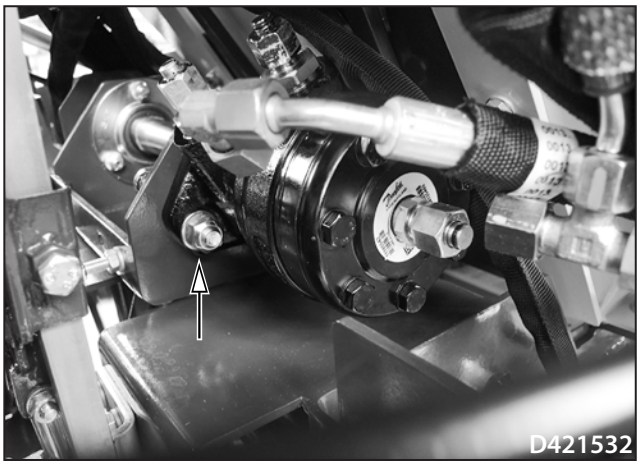
Remove the screw for fastening the tension mechanism of the auger chain.





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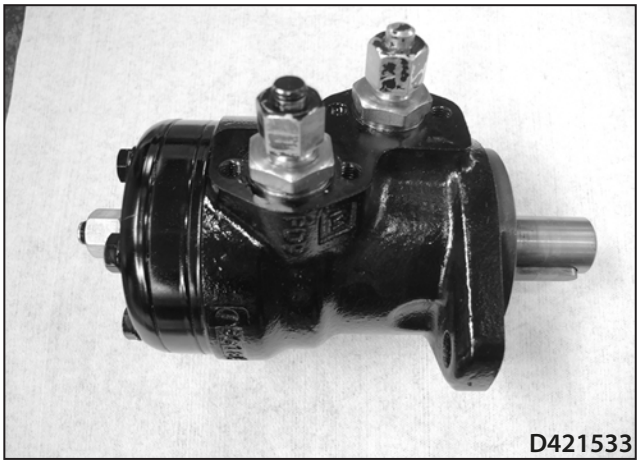
Remove fastening screws of the hydraulic motor (2x).



Take out the hydraulic motor for driving the belt conveyor and auger.

Note

When reassembling the hydraulic motor of augers and belt conveyors, proceed in the reverse order.

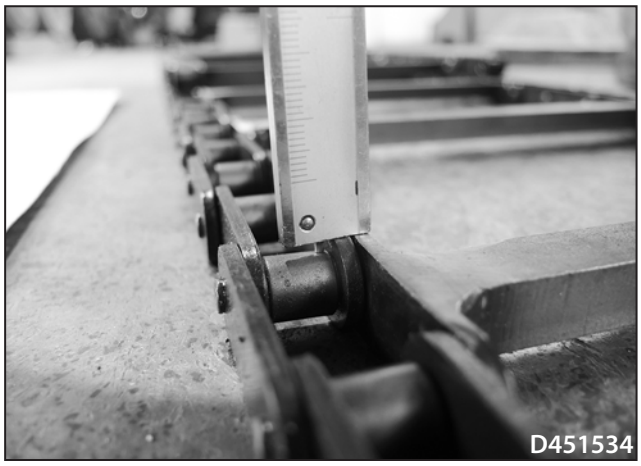


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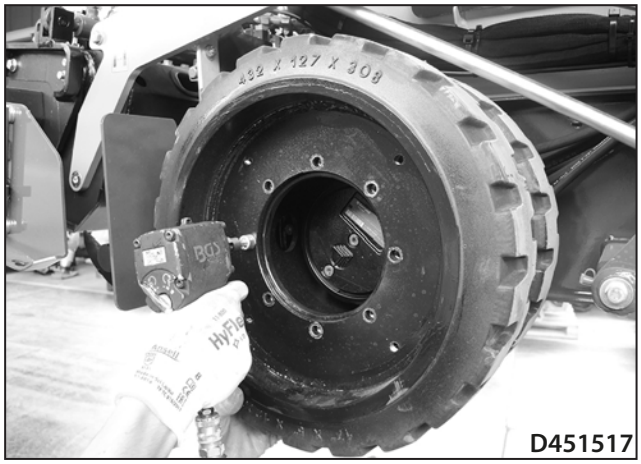
14.2 Dismounting the belt conveyor chain

Dismount the belt conveyor chain from the machine with the switched off battery disconnecter and with the closed gas bottle valve.

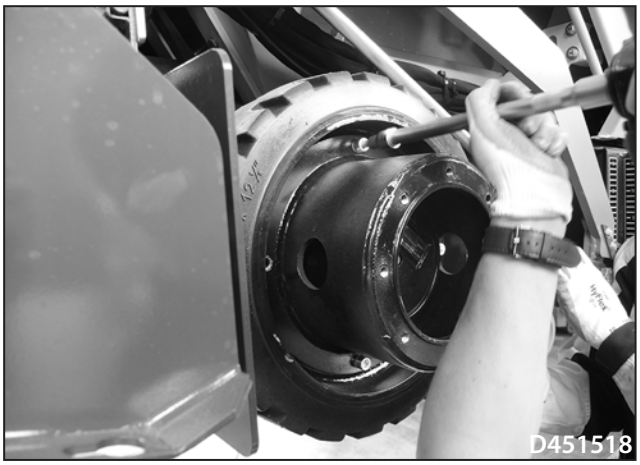
Replace the belt conveyor chain when the thickness between the chain and the cylinder is 0 mm at the latest.

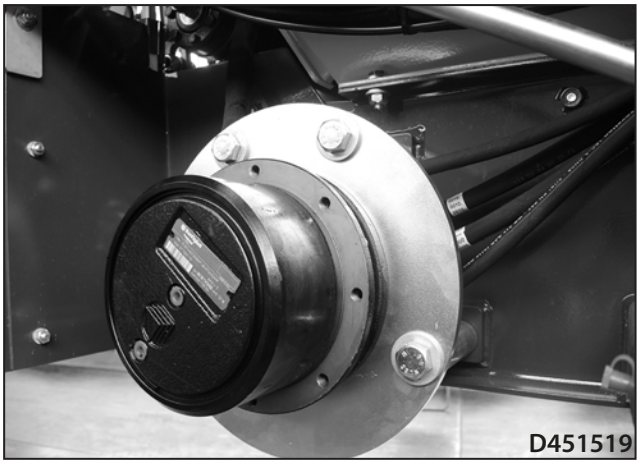

D451534

Remove the rear wheels on the left side of the machine.



D451517

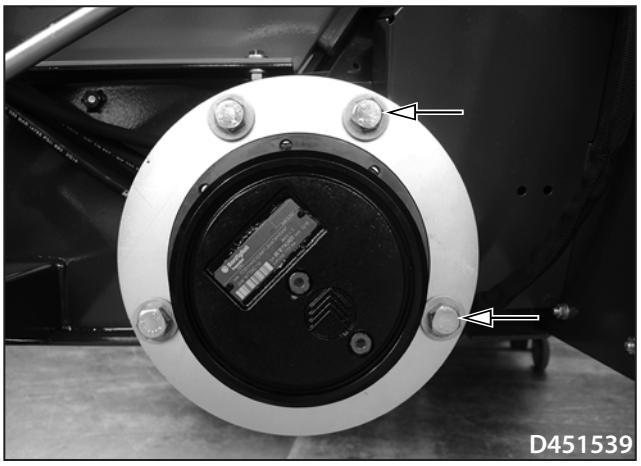

D451518


D451519

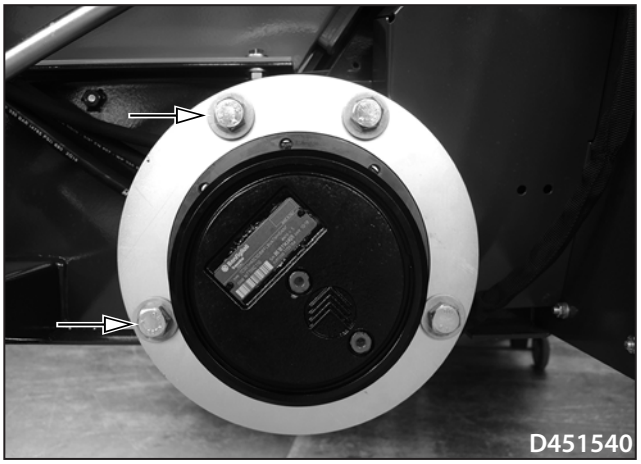
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Remove the drive chain of the belt conveyor.

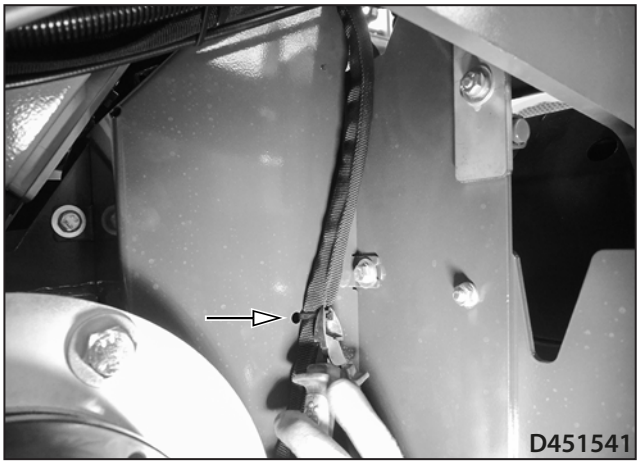
- Remove the screws of the hydraulic motor (2x).



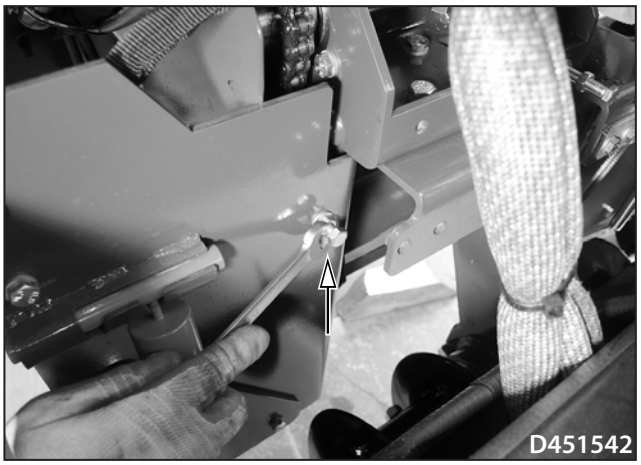
- Loosen the hydraulic motor screws (2x). Pull the hydraulic motor slightly out towards you.



- Cut the binding strap of the hose and remove the cover of the drive.

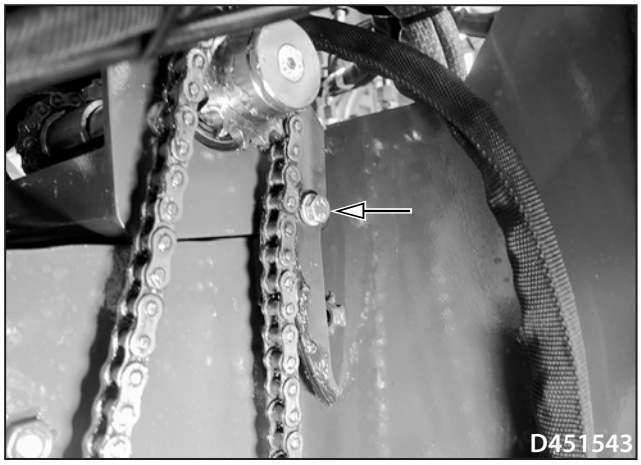


- Remove the tension screw for the conveyor drive.

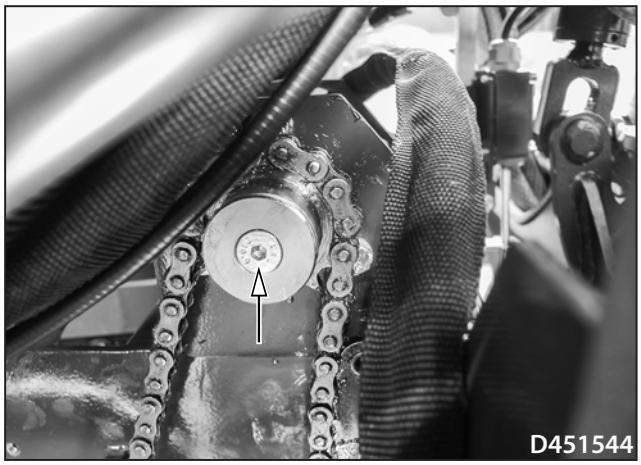


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- Remove the screw.



- Remove the screw and the washer.



- Remove the lock ring.

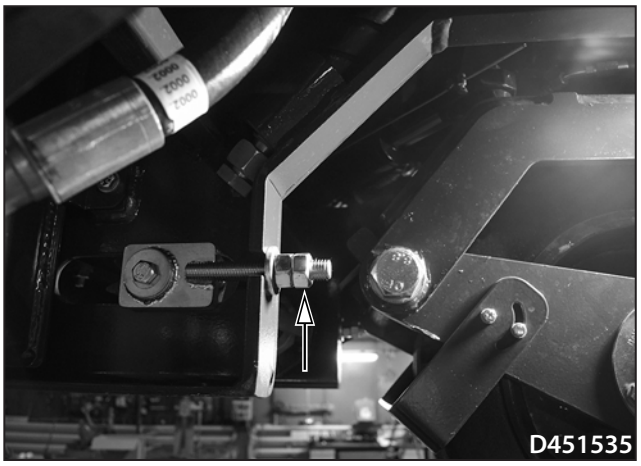


- Remove the gear wheels.

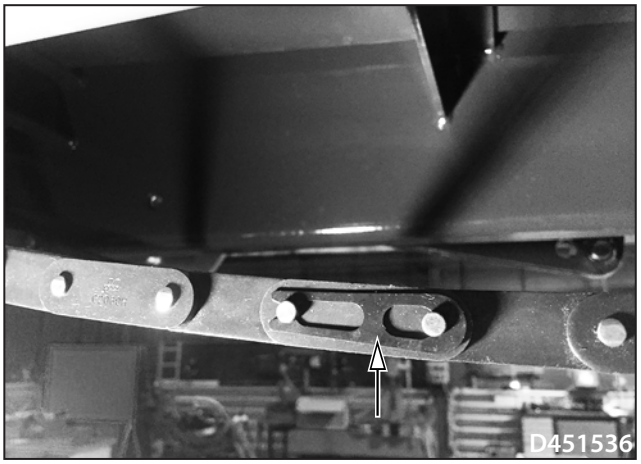


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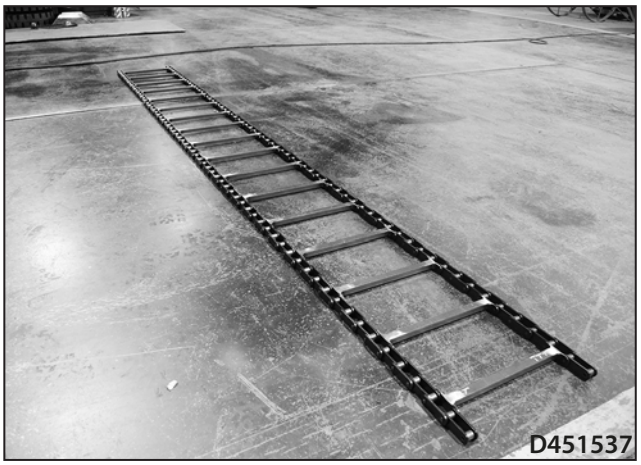
Loosen the tension screws of the belt conveyor on the left and right side of the machine.



By moving the belt conveyor find and dismount chain coupling links (2x).



Take the chain out of the machine.



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14.3 Mounting the belt conveyor chain

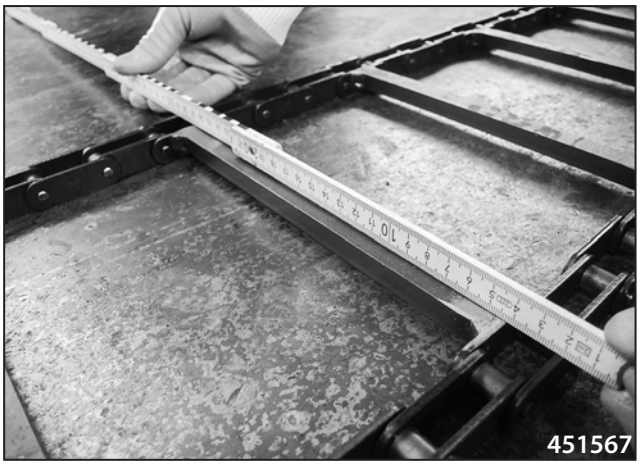
Mount the belt conveyor chain to the machine with the switched off battery disconnecter and with the closed gas bottle valve.

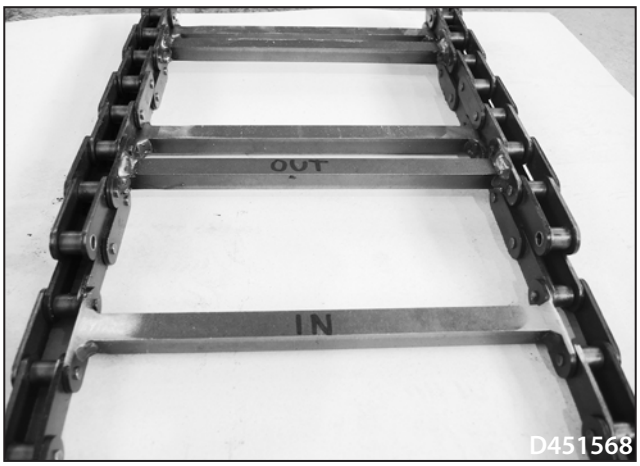
Insert the chain to the machine and mount the chain coupling links (2x). Secure the chain coupling links in the direction of conveyor chain movement from the inner side of the chain.

Note

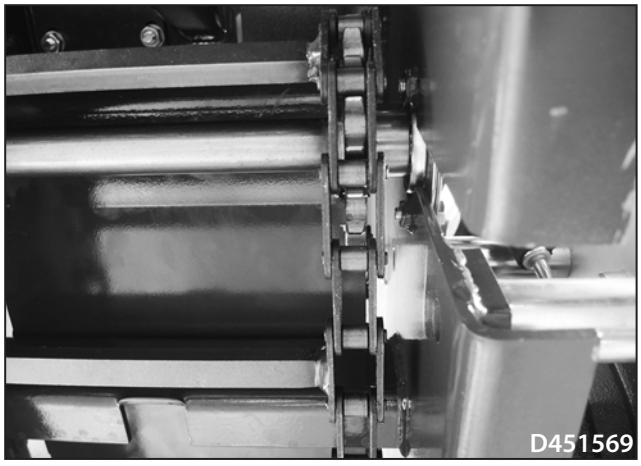
Ensure that the conveyor chain is installed with the contact surface to the chain guide plate.







Ensure that the chain is at the same distance from the machine frame on both sides.

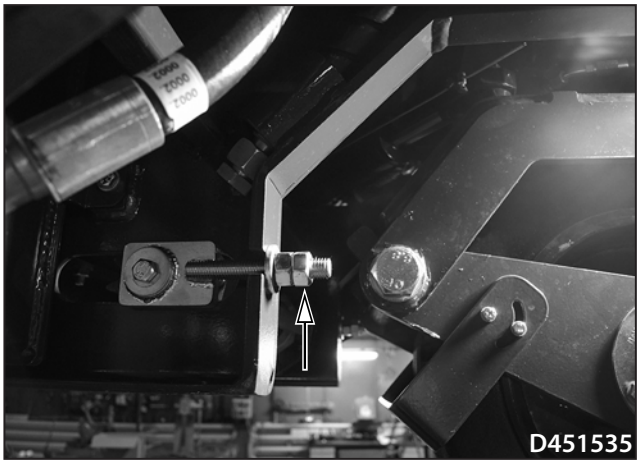


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Tighten the tension screws on the left and right side of the machine. Test the correct running of the chain by manually turning the chain of the belt conveyor.

Observe the correct conveyor chain tension according to Chapter 14.4.

Mount the belt conveyor drive chain by proceeding in the reverse order according to Chapter 14.5.



Mount the drive chain of the belt conveyor.

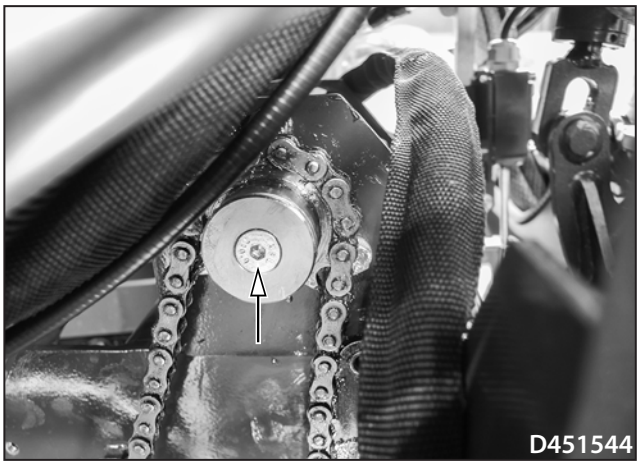
- Mount the gear wheels with the chain for driving the belt conveyor.



- Mount the lock ring.

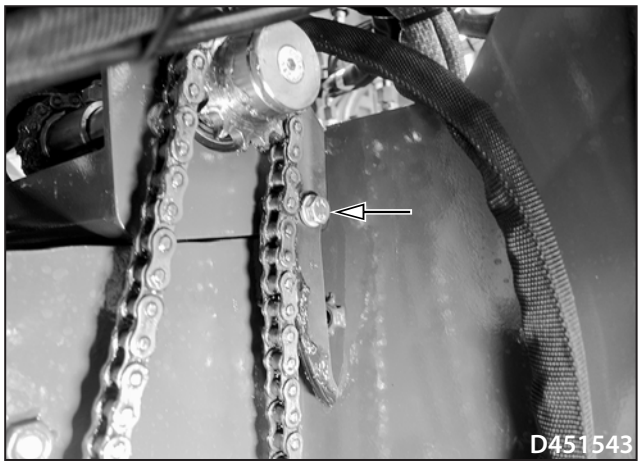


- Mount the screw and the washer.



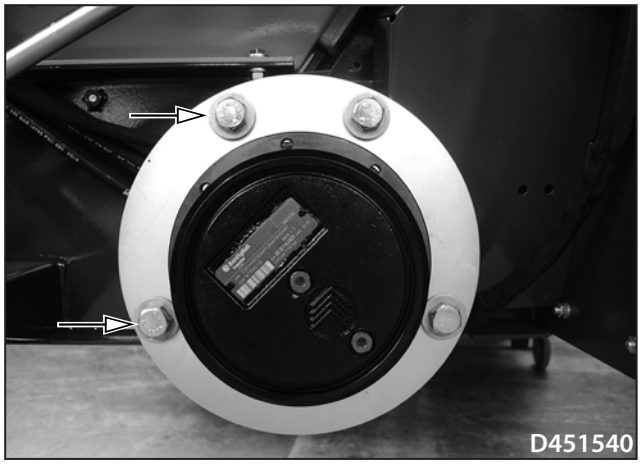
https://truckmanualshub.com/

- Mount the screw.

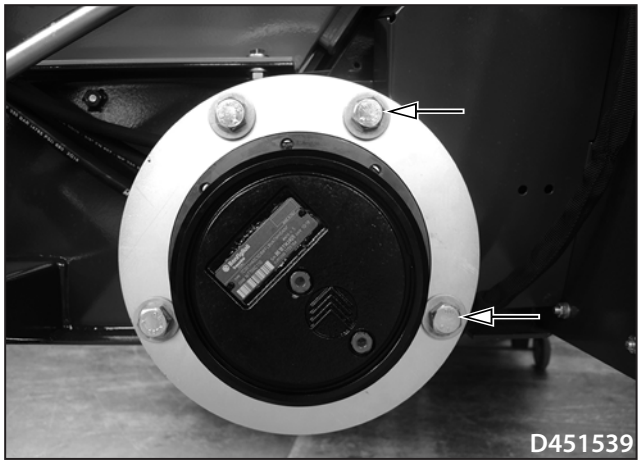


Remove the tension screw for the belt conveyor drive and motor cover.

- Tighten the hydraulic motor screws (2x).

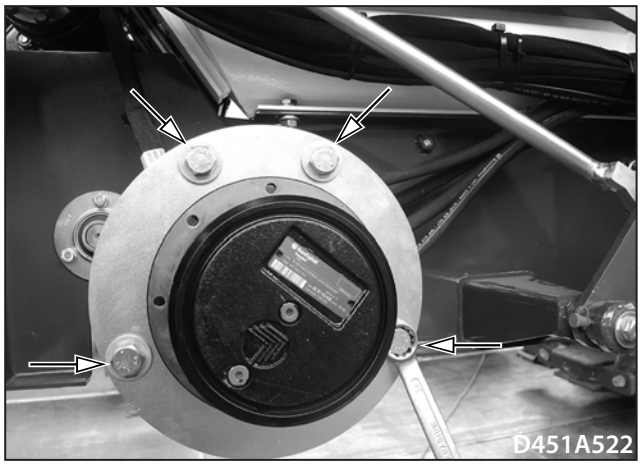


- Mount the screws of the hydraulic motor (2x).



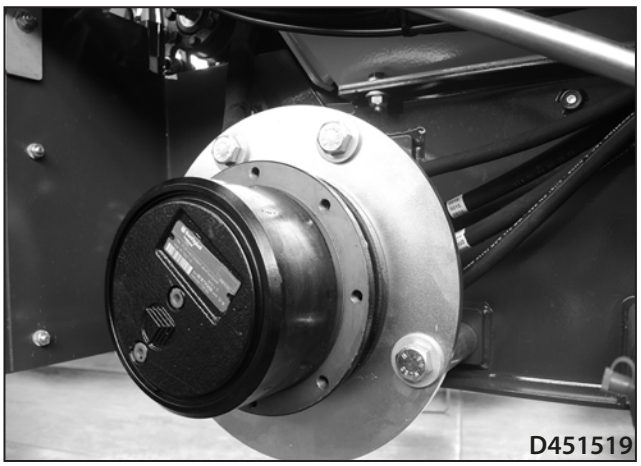
Note

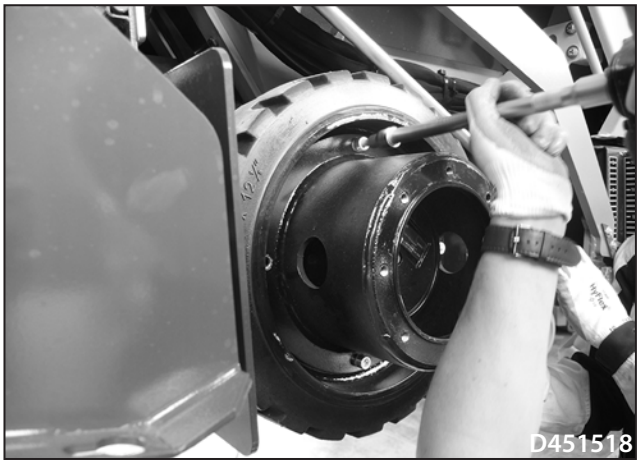
Secure the screws of the hydraulic motor (4x) with the LOXEAL 83.54 adhesive.

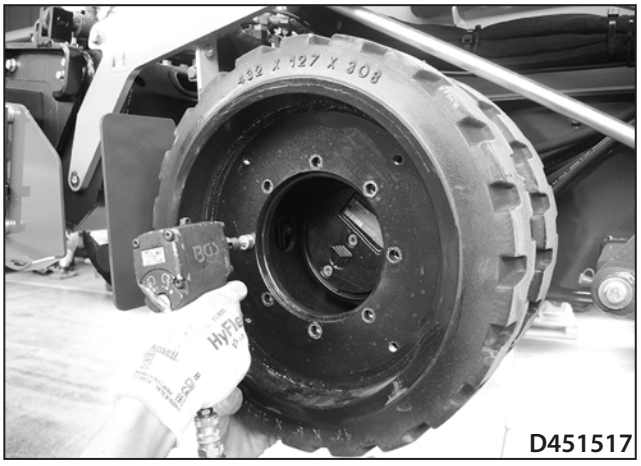


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- Mount the rear wheels on the left and right side of the machine.





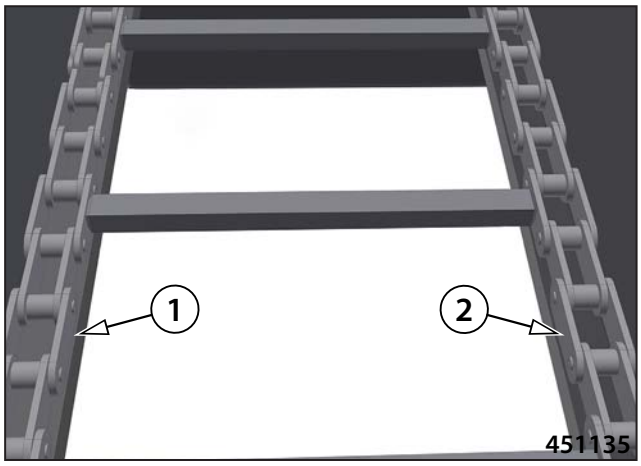


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14.4 Setting the belt conveyor chain sag

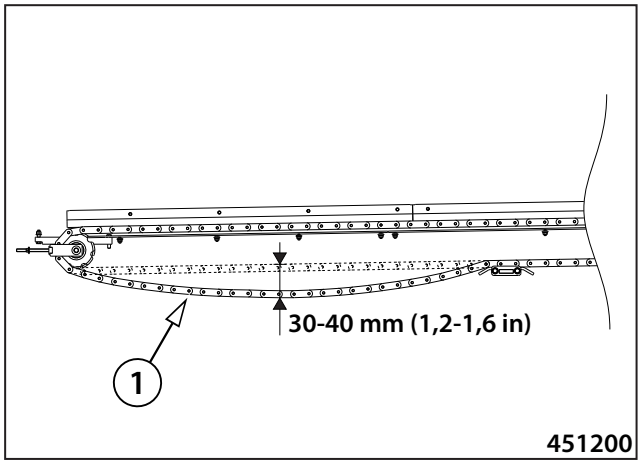
Calculate the sag of the conveyor chain by measuring the distance between the ground and the left conveyor chain (1) or the right conveyor chain (2), always in the central part of the chain.

The chain is correctly tensioned when there is an approx. 30 – 40 mm sag (1.2 – 1.6 in) in the middle.



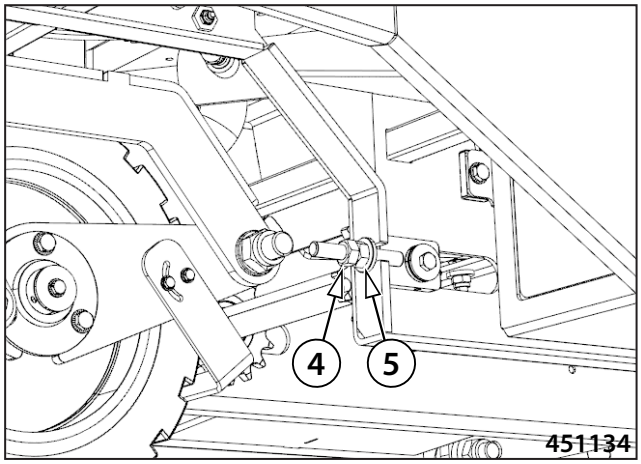
Chain sag calculation procedure:

- The procedure is identical for the left (1) and right (2) conveyor chain.
- Measuring the distance between the ground and the chain in the middle part of the chain (1).
- Press the chain upwards in the middle part of the chain (1) and measure the distance between the ground and the chain again.
- Calculate the sag of the chain (1) by deducting the two measured values.
- The chain is correctly tensioned when there is an approx. 30 – 40 mm sag (1.2 – 1.6 in) in the middle.



Chain tensioning procedure:

- The procedure is identical for the left (1) and right (2) conveyor chain.
- Loosen the lock nut (4).
- Tension the chain using the adjusting nut (5).
- Calculate the sag of the chain (1) by deducting the two measured values according to the procedure above.
- If the calculated sag is in the range of 30 – 40 mm (1.2 – 1.6 in), tighten the lock nut (4).
- Tension the chain equally on both sides of the machine.



Note

In case of too high chain tension, loosen the lock nut (4) and the adjusting nut (5).

Calculate the sag of the chain (1) by deducting the two measured values according to the procedure above.

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Belt tension check:

- Check chain movement. Start the engine.
- Let the conveyor running in the manual mode.
- Check the correct running of conveyor chains.
- Stop the conveyor.
- Turn off the engine.



Perform tensioning of the conveyor chains with the machine parked on a flat and solid surface with the engine and battery disconnecter off.

Wear the prescribed personal protective equipment when tensioning the conveyor chains.

There is a risk of burns from the hot parts of the conveyor.

Caution! Tension the chain equally on both sides of the machine.

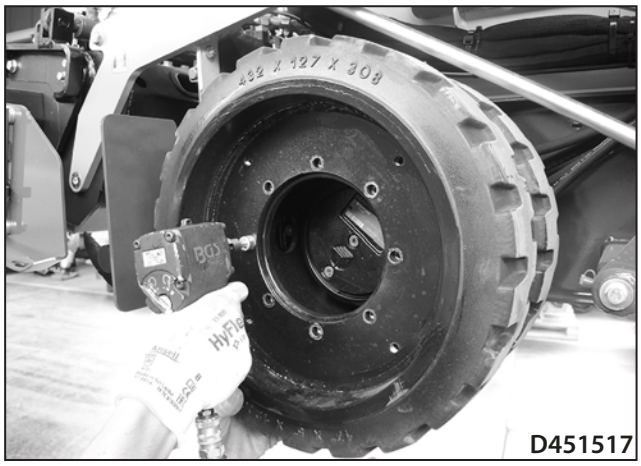
https://truckmanualshub.com/

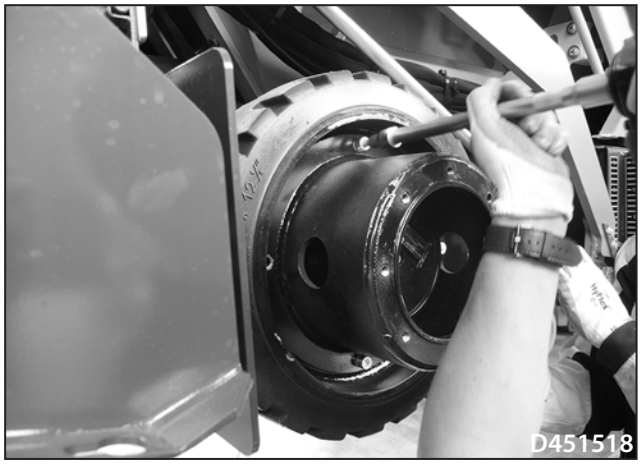
14.5 Dismounting the belt conveyor chain drive

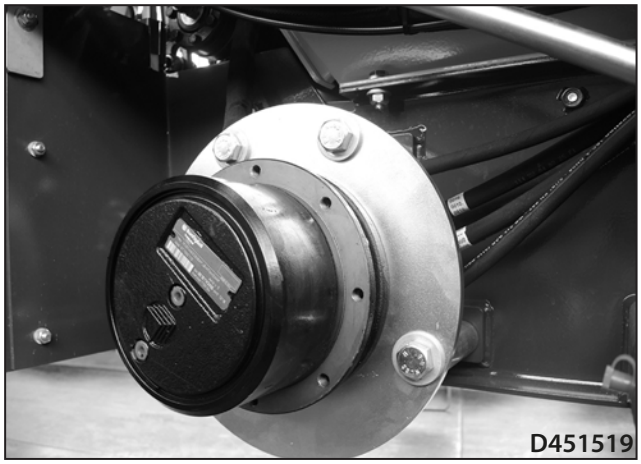
Dismount the belt conveyor chain drive from the machine with the switched off battery disconnecter and with the closed gas bottle valve.

Remove the rear wheels on the left and right side of the machine.

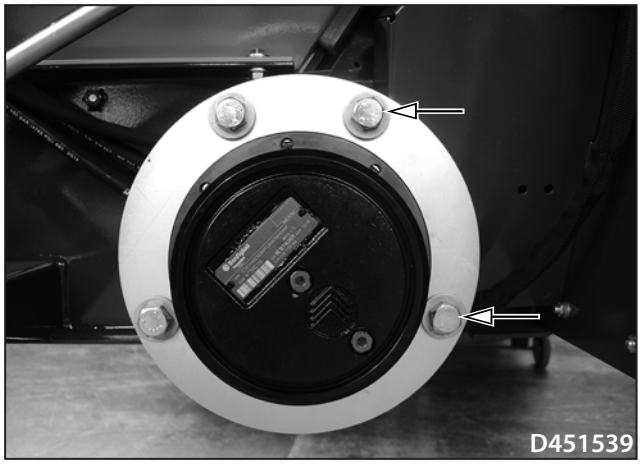
Remove the screws.





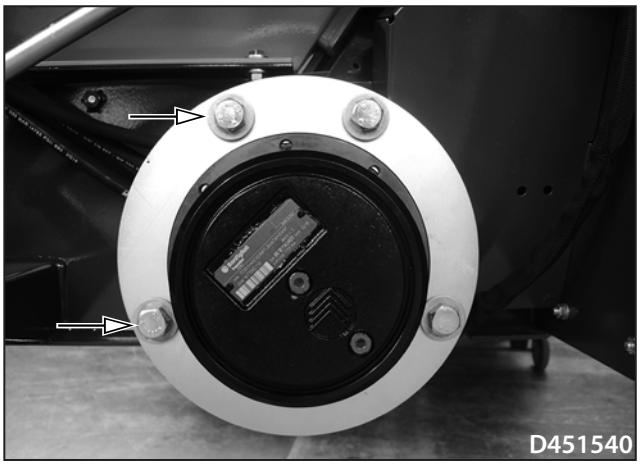


Remove the screws of the hydraulic motor (2x).



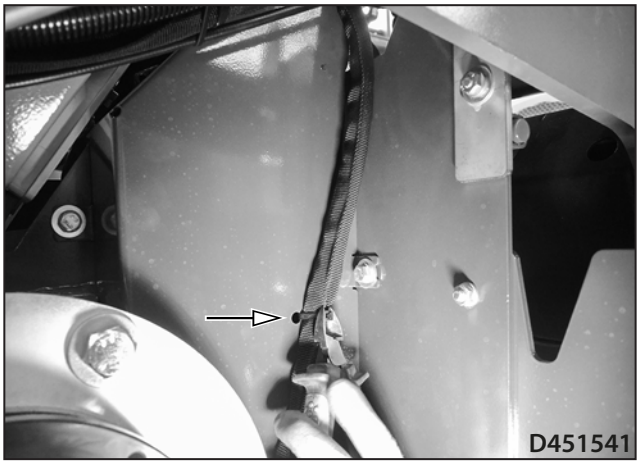
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Loosen the hydraulic motor screws (2x). Pull the hydraulic motor slightly out towards you.

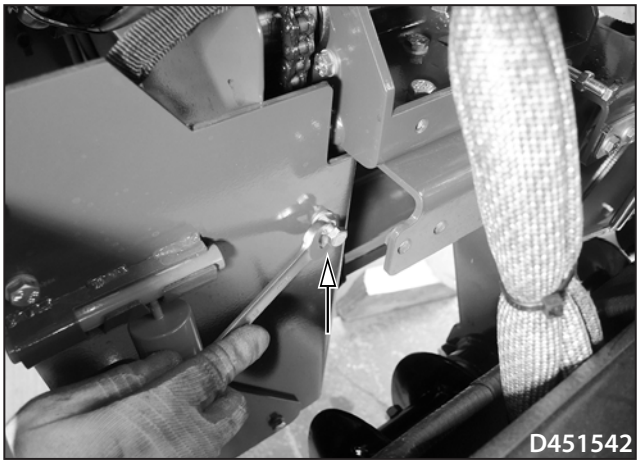


Cut the binding strap of the hose.

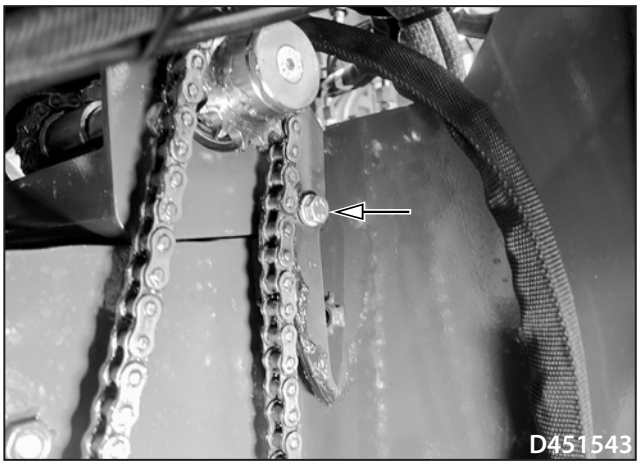
Remove the drive cover.



Remove the tension screw for the conveyor drive.

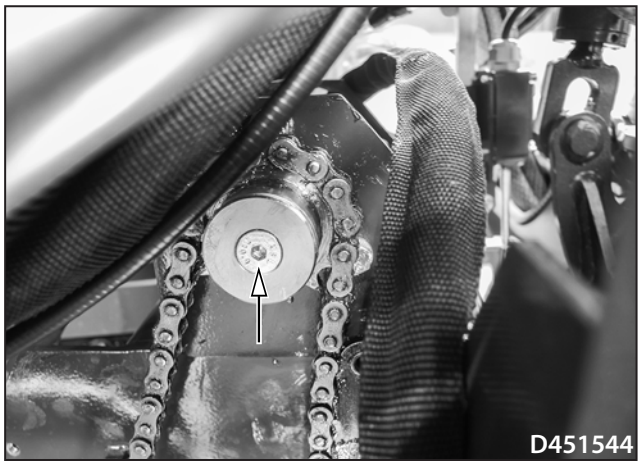


Remove the screw.



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Remove the screw and the washer.



Remove the lock ring.



Remove the gear wheels with the chain for driving the belt conveyor.



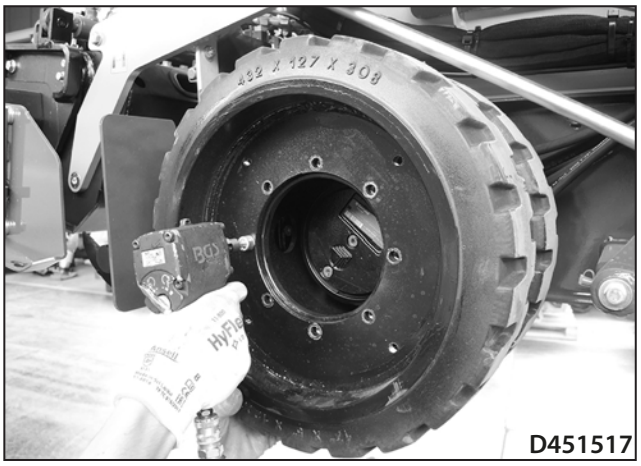
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14.6 Dismounting the auger chain

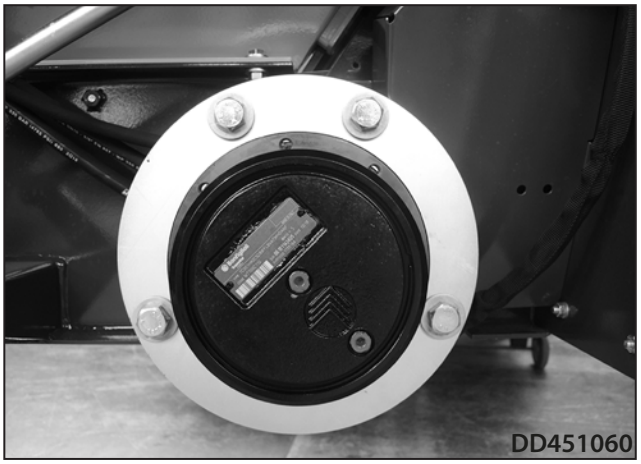
Dismount the auger chain from the machine with the switched off battery disconnecter and with the closed gas bottle valve.

Remove the rear wheels on the left side of the machine.

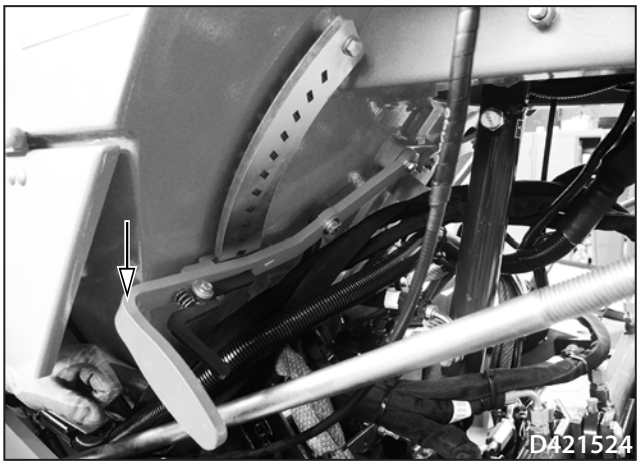
Remove the screws.







Set the lever for material outlet to the lower position.

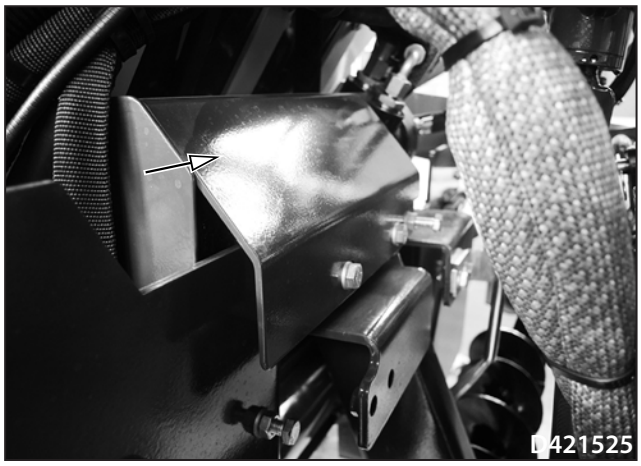


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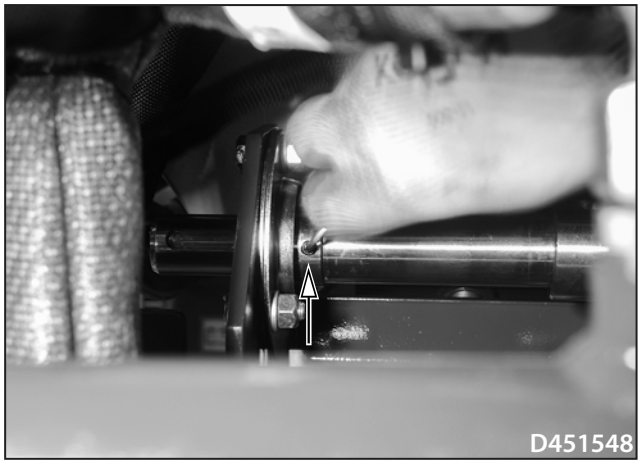
Remove the cover.

Remove the hydraulic motor of the augers and the belt conveyor according to Chapter 14.1.

Remove the belt conveyor chain according to Chapter 14.2.

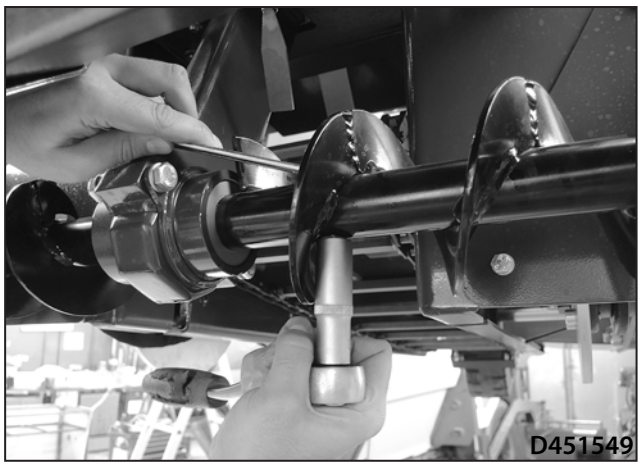


Remove the lock screws.



Remove the augers.

Remove the lock screw.



Remove the lock screws.

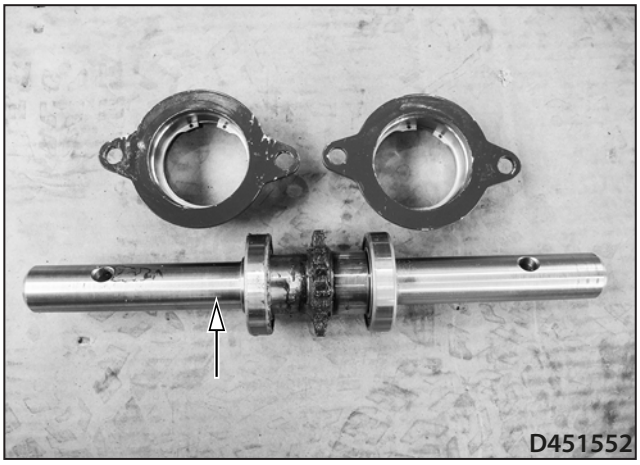


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Remove the bearing housing on the left and right side.



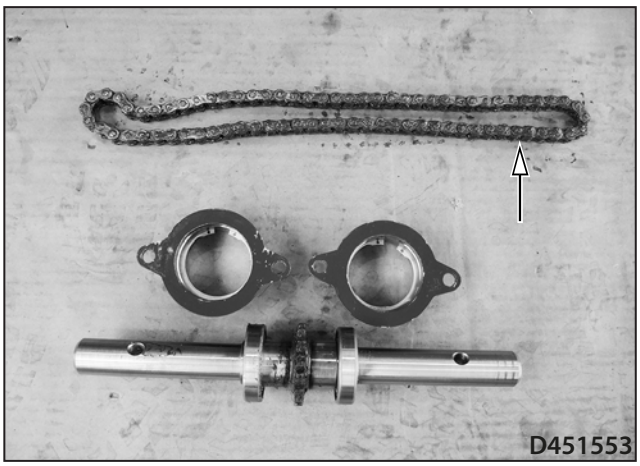
Take the shaft out.



Pull out the auger chain.

Note

Proceed in the reverse order when reassembling the auger chain.



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14.7 Replacement of the drive switch of augers and belt conveyor

Perform the replacement of the drive switch of augers and belt conveyor on the machine with the switched off battery disconnecter and with the closed gas bottle valve.

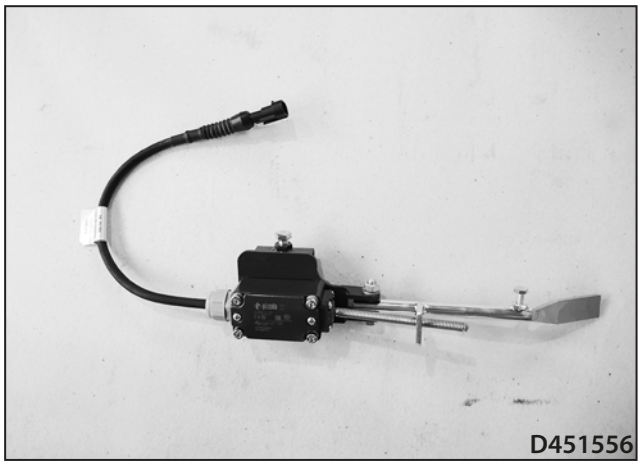
Disconnect the connector X43.



Remove the adjusting screw.



Take out the switch.



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14.7.1 Measuring the belt conveyor drive switch S7

Voltage measurement

- Disconnect the connector X43.
- Turn the key in the ignition box to the "I" position.
- Measure the voltage of 9.9 V on the connector on the cable harness side.

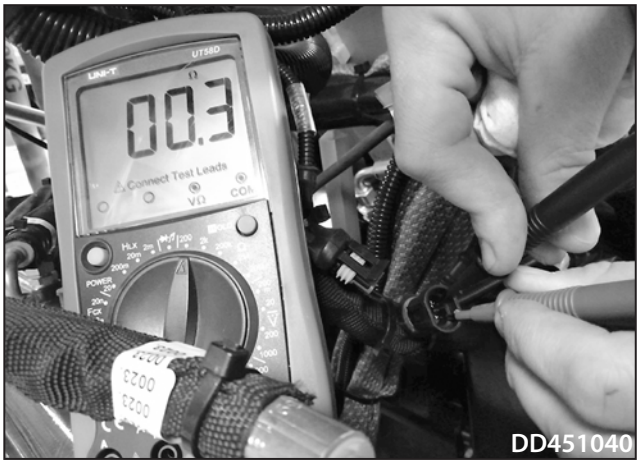


Resistance measurement

- Disconnect the connector X43.

The switch in the ON status (the material delivery is active).

- Measure the resistance of approximately 0.3 Ω on the connector on the switch side.



The switch in the disconnected status (the material delivery is interrupted).

- Measure the opened circuit on the connector on the switch side.



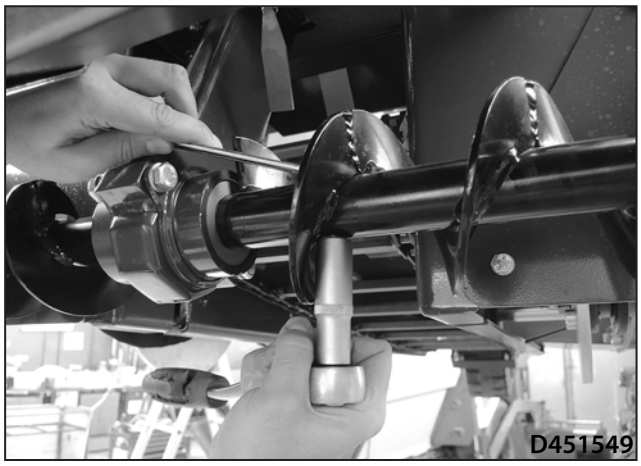
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14.8 Dismounting the driving gear wheel of augers

Dismount the driving gear wheel of augers from the machine with the switched off battery disconnecter and with the closed gas bottle valve.

Remove the augers.

Remove the lock screws.



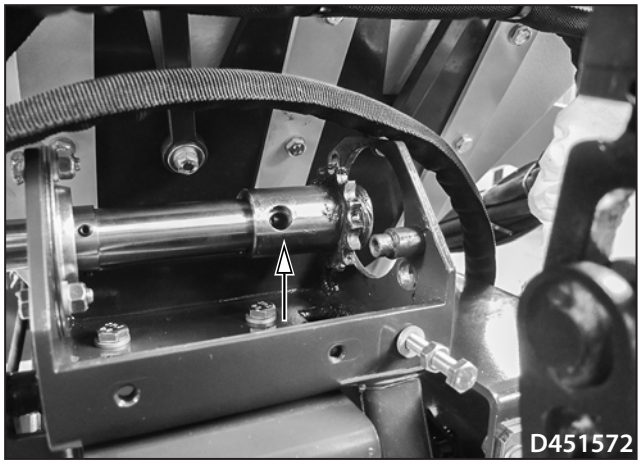
Remove the screws on the right and left side (4x).

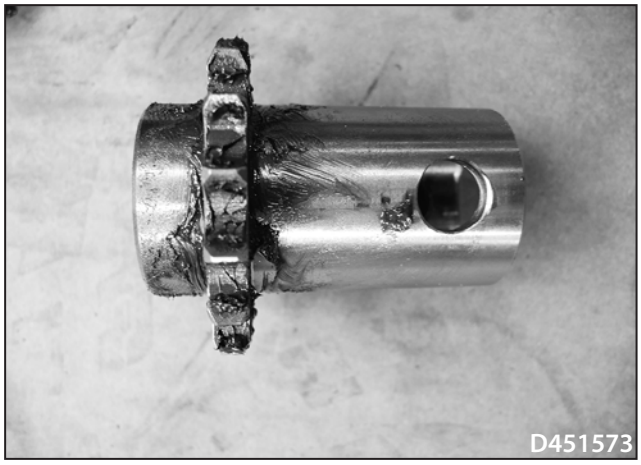
Remove the auger chain according to Chapter 14.6.



Remove the screw.

Dismount the driving gear wheel of augers.





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14.9 Replacement of consumables

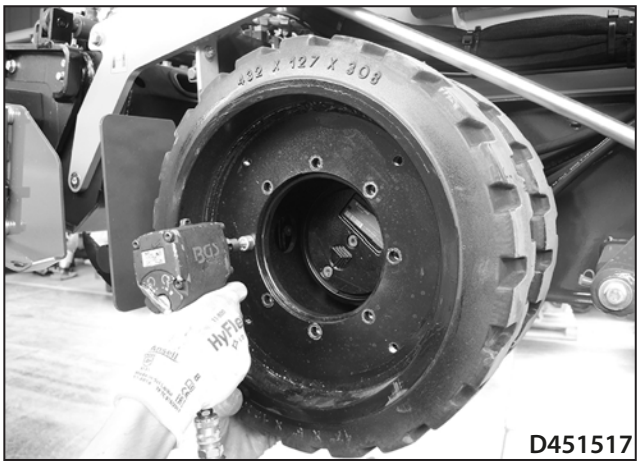
14.9.1 Belt conveyor chain guide plate

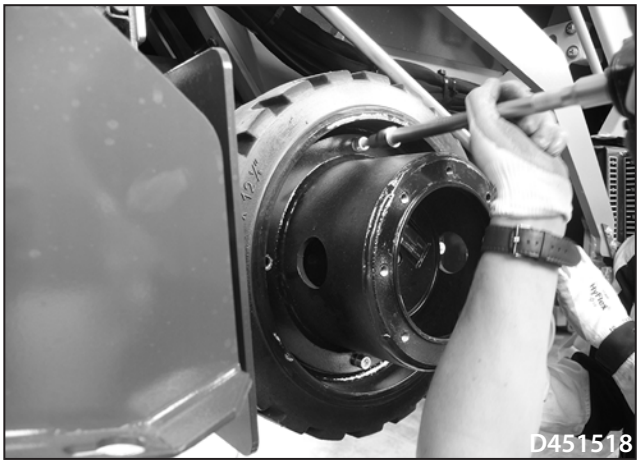
Replace the belt conveyor chain guide plate on the machine with the switched off battery disconnecter and with the closed gas bottle valve.

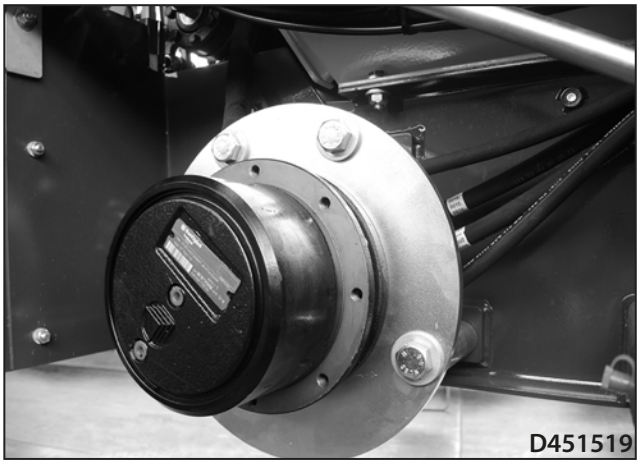
Remove the rear wheels on the left and right side of the machine.

Remove the belt conveyor drive chain according to Chapter 14.5.

Remove the belt conveyor chain according to Chapter 14.2.

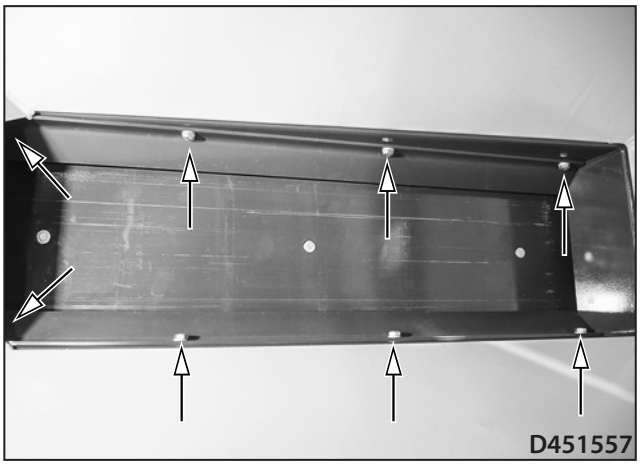






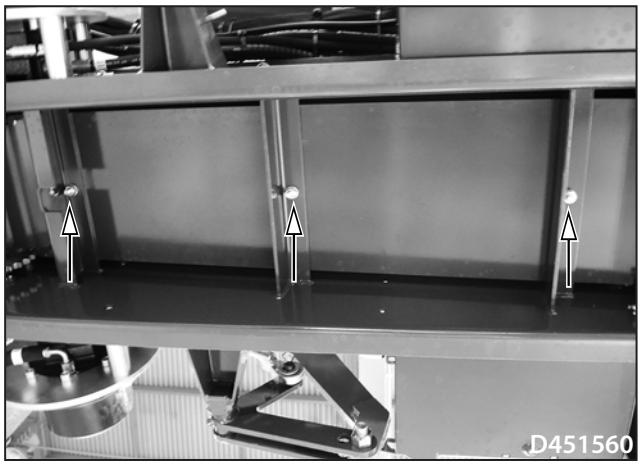
Remove the cover plates.

- Remove the screws (8x).



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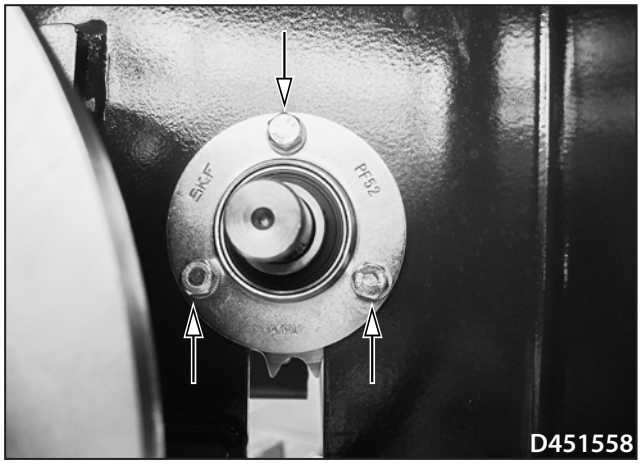
Remove the screws (3x).



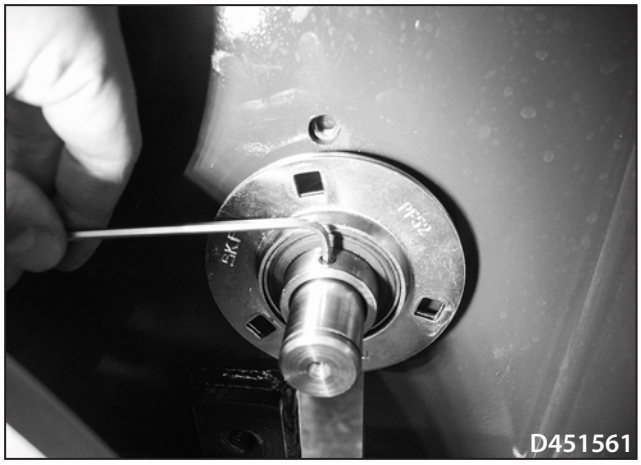


Remove the rear shaft with gear wheels.

- Loosen the tension screws on the left and right side.

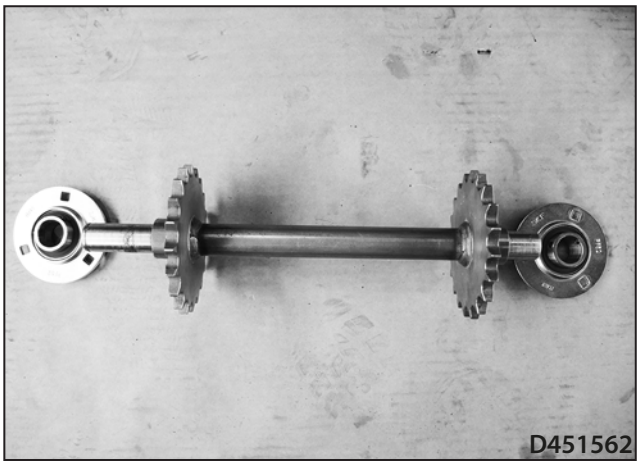


- Remove the bearing housing on the left and right side.



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- Pull out the shaft with the gear wheels.

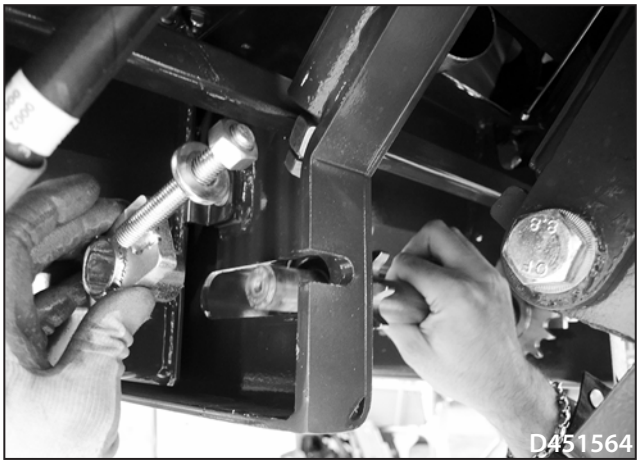


Remove the front shaft with gear wheels.

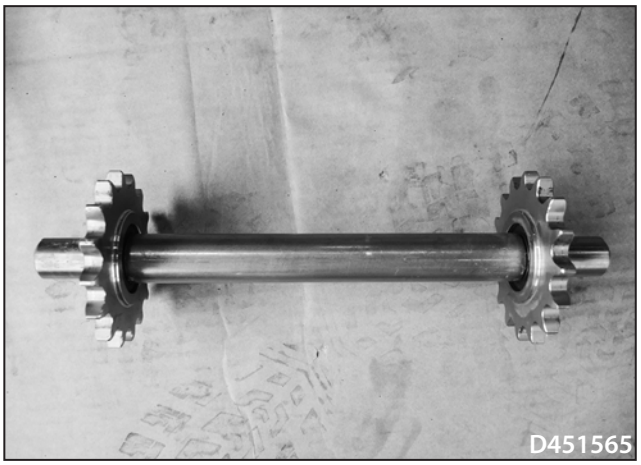
- Loosen the screws on both sides of the machine.



- Remove chain tensioners.



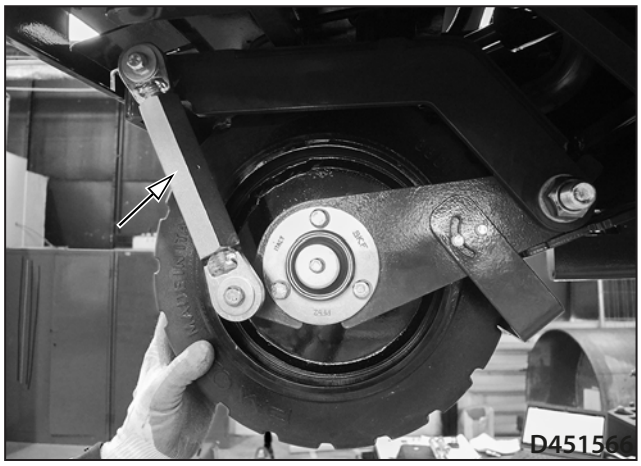
- Remove the shaft out of the machine.



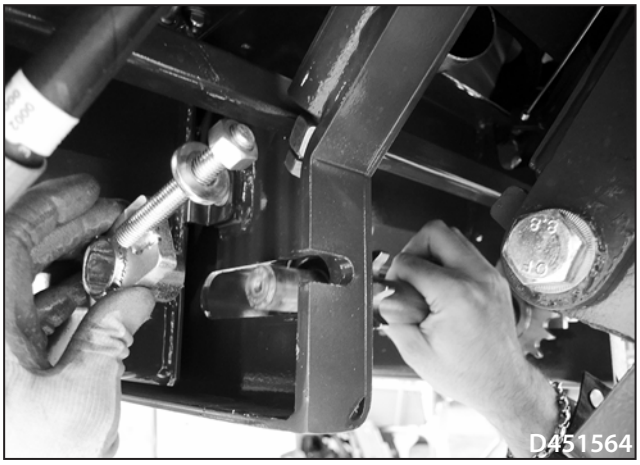
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Having the front wheel levelled, completely screw the adjusting mechanism of the front wheel height.

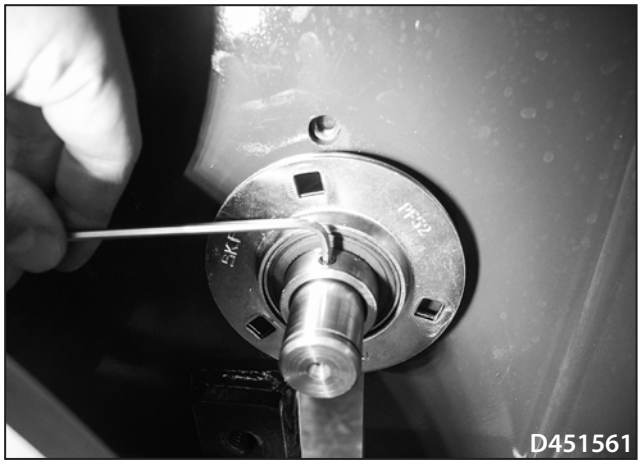
Take out the guide plate of the belt conveyor chain and replace it with the new one.



Mount the front shaft and the chain tensioners.

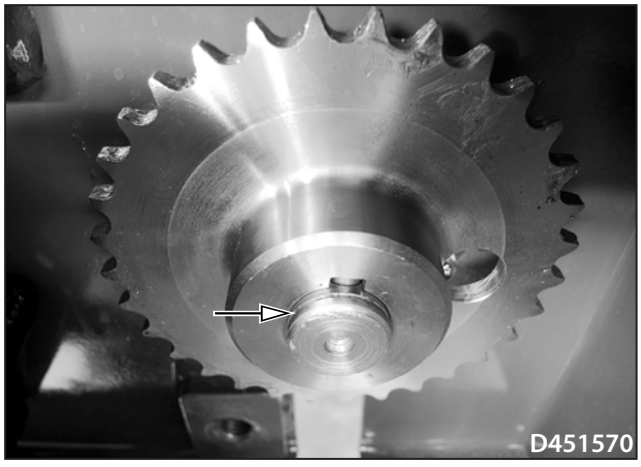


Mount the rear shaft and the bearing housing on the left and right side.



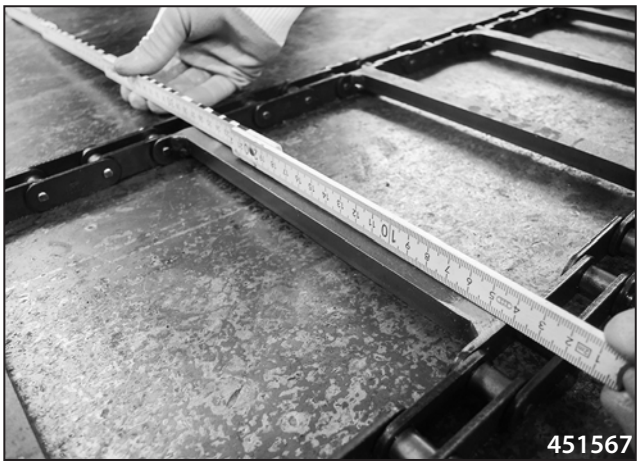
Note

Ensure that the groove for the lock ring can be seen when reassembling the shaft.



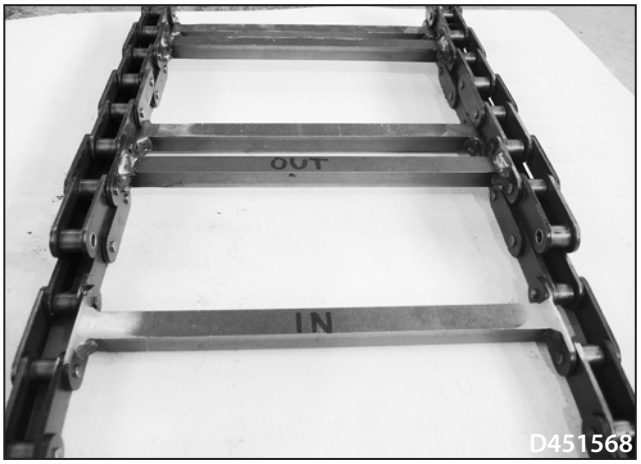
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Mount the belt conveyor chain according to Chapter 14.3.

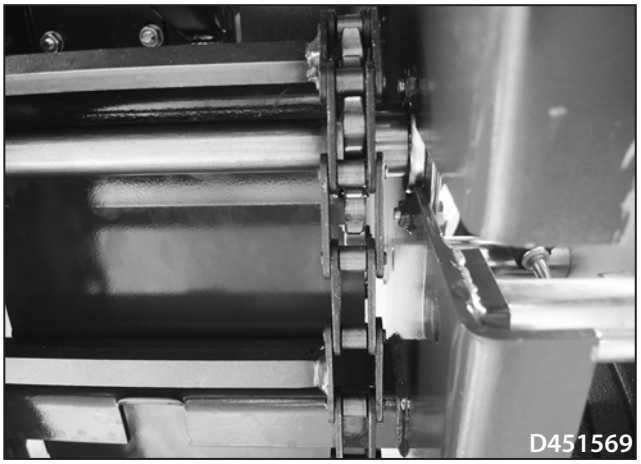


Note

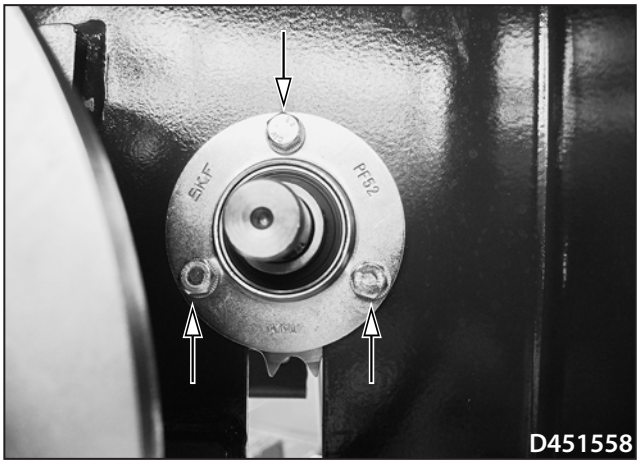
Ensure that the conveyor chain is installed with the contact surface to the chain guide plate.



Ensure that the chain is at the same distance from the machine frame on both sides.



Tighten the tension screws of the rear shaft on the left and right side.

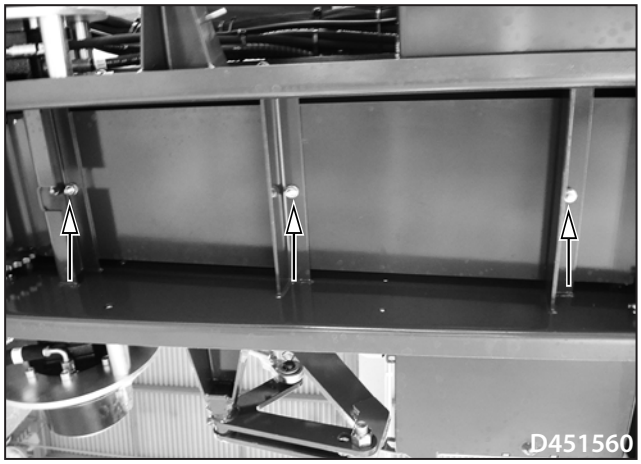


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Tighten the screws of the front shaft on both sides of the machine.



Mount the screws (3x).



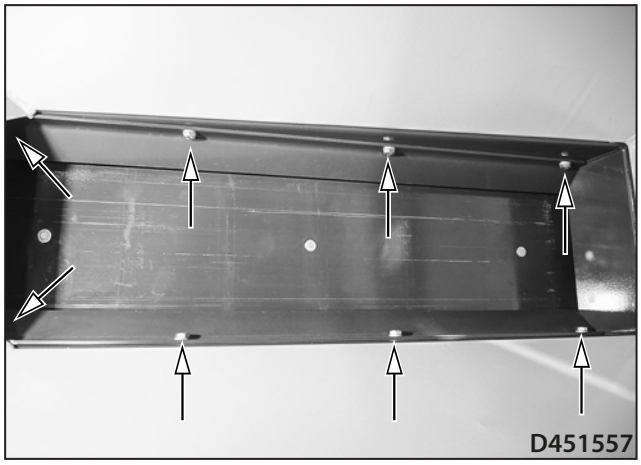


Mount the cover plates.

- Mount the screws (8x).

Note

Secure the screws with the LOXEAL 83·54 adhesive.



Mount the belt conveyor drive chain by proceeding in the reverse order according to Chapter 14.5.

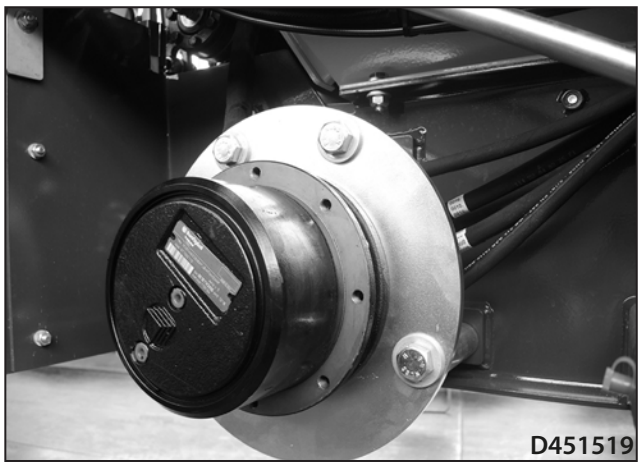
Note

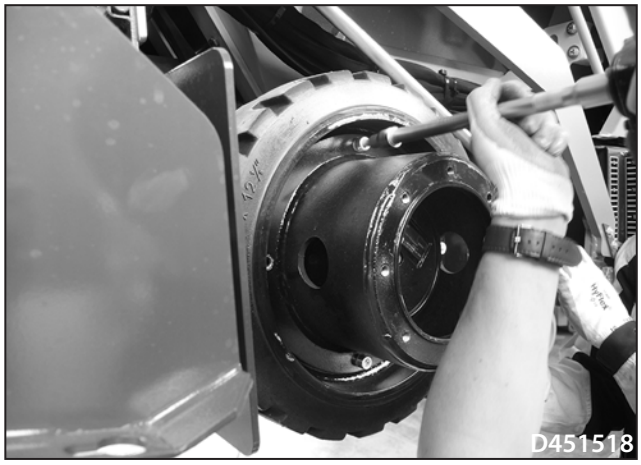
Observe the correct chain tension according to Chapter 14.4.

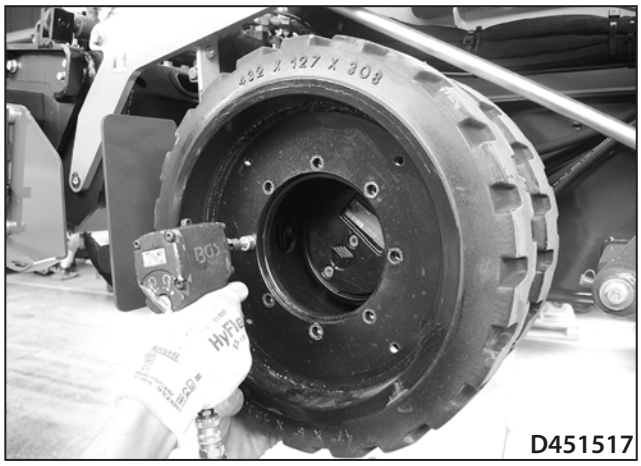
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Mount the rear wheels on the left and right side of the machine.

- Mount the screws.





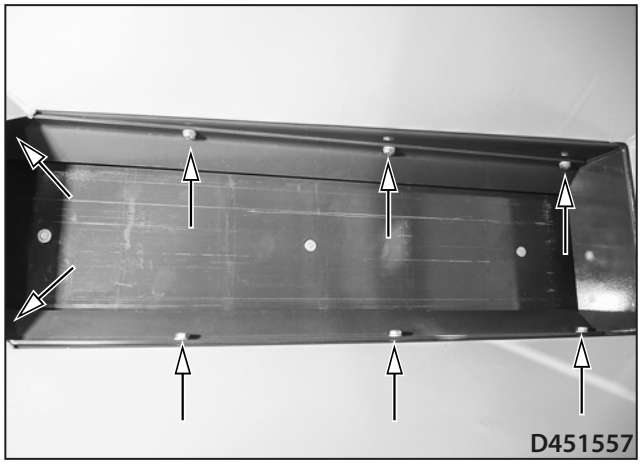


14.9.2 Cover plates

Remove the screws (8x).

Note

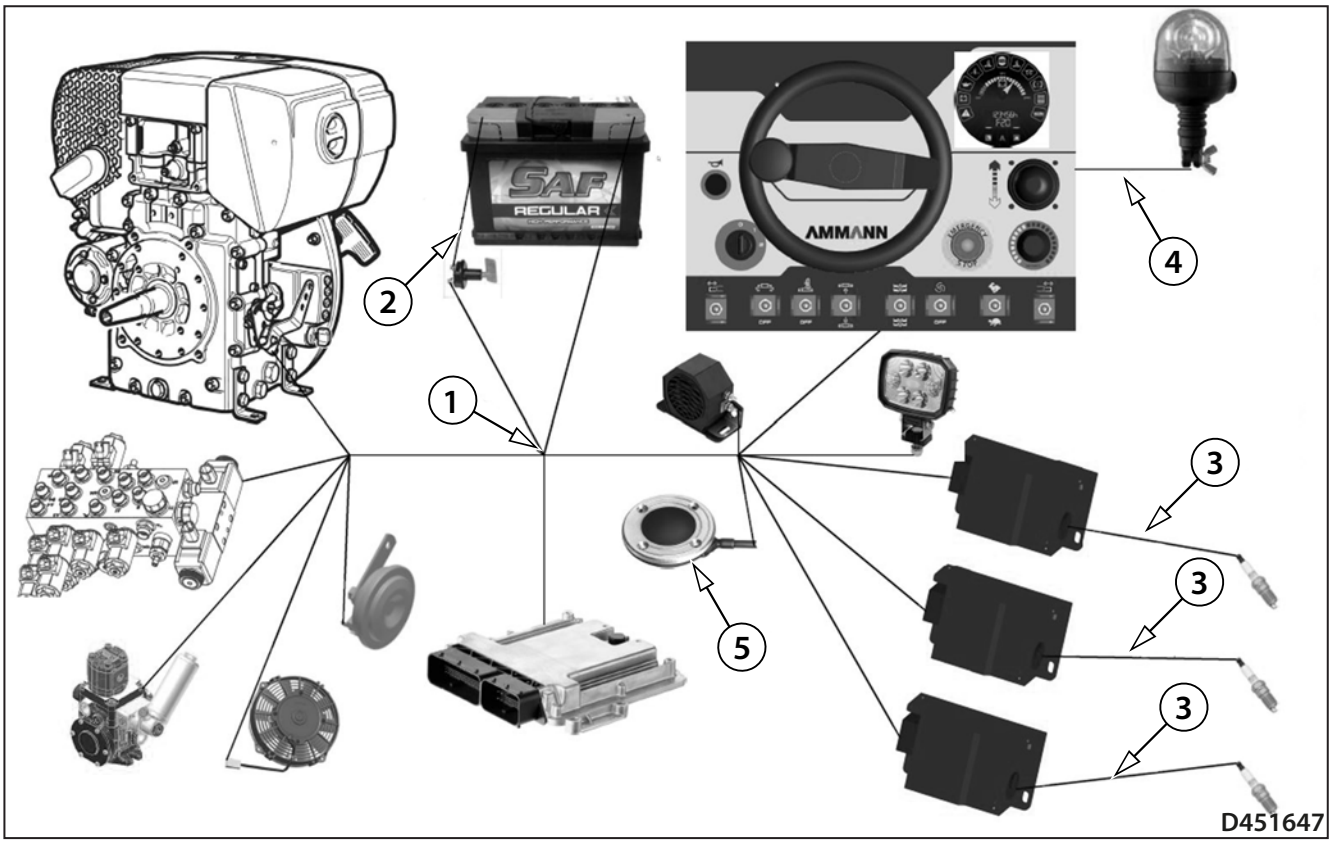
During reverse assembly glue the screws with the LOXEAL 83·54 adhesive.



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15 Wiring

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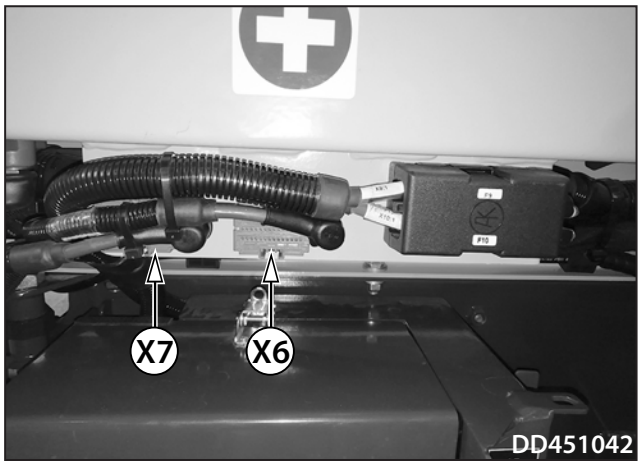
15.1 Description of basic components

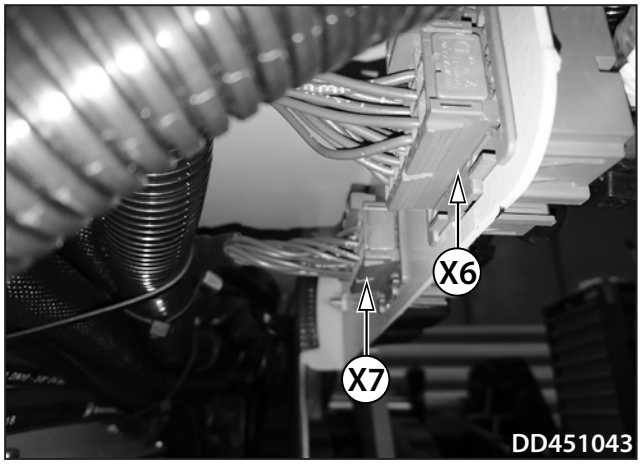
1 Main harness
2 Battery cable
3 Gas ignition cable
4 Beacon cable
5 Foot switch cable

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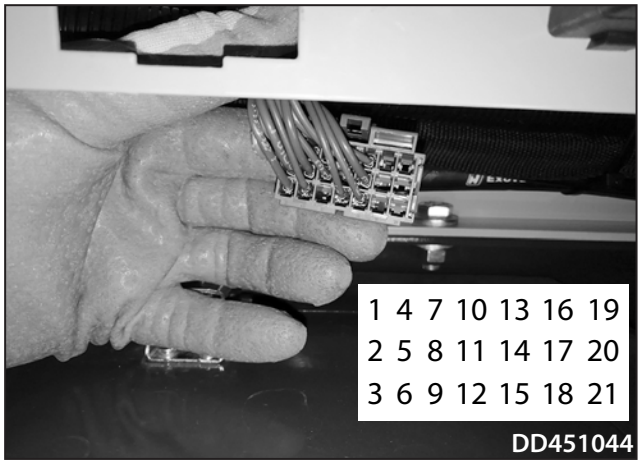
15.1.2 Central earthing points X6 and x7

Location of earthing points.





Numbering of pins.



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15.2 Diagnostics

Perform diagnostics of electrical wiring on the machine with the closed gas bottle valve.

15.2.1 List of error codes displayed on the display

Code F	Short description	Causes and troubleshooting
F01	hydraulic oil sensor	short circuit to the ground detected – check the connection (X41, RD 141, WH 227)
F02	material feed sensor	short circuit to the ground detected – check the connection (X43, RD 143, WH 229)
F03	F03 brake pressure sensor	short circuit to the ground detected – check the connection (X42, RD 142, WH 228)
F04	engine cooling sensor	“short circuit on the battery detected – check the connection (X18:5, X35)”
F05	engine oil level sensor	“short circuit on the battery detected – check the connection (X17:4)”
F06	engine air filter sensor	“short circuit on the battery detected – check the connection (X18:3)”
F07	drive pump sensor	"short circuit to the ground or on the battery detected or no connection – check the connection (X38, WH 214, WH 217, WH 222)"
F11	controller	“the most frequent cause: the controller is not calibrated; - parameter error 1 through 6: redundancy fault; - parameter error 7: not calibrated; - parameter error 8: error in the main channel; - parameter error 9: error in the redundant channel (X36)”
F12	speed potentiometer (Paving speed controller)	“the most frequent cause: an error in the main channel; - parameter error 1 through 6: redundancy fault; - parameter error 8: error in the main channel; - parameter error 9: error in the redundant channel (X37)”
F13	travel mode switch	short circuit to the ground detected – check the connection (X53, RD 153, WH 243)
F14	material feed mode switch	short circuit to the ground detected – check the connection (X52, RD 152, WH 242)
F15	material feed direction switch	short circuit to the ground detected – check the connection (X51, RD 151, WH 240, WH 241)
F16	screed height switch	short circuit to the ground detected – check the connection (X48, RD 148, WH 236, WH 237)
F19	screed vibration switch	short circuit to the ground detected – check the connection (X49, RD 149, WH 238)
F21	horn button	short circuit to the ground detected – check the connection (X45, RD 145, WH 231)
F22	engine start switch	short circuit to the ground detected – check the connection (137)
F23	safety button	short circuit to the ground detected – check the connection (X44, RD 144, WH 230)
F24	screed extension switch – left, inside	short circuit to the ground detected – check the connection (X46, RD 146, WH 233)
F25	screed extension switch – left, outside	short circuit to the ground detected – check the connection (X46, RD 146, WH 232)
F26	screed extension switch – right, inside	short circuit to the ground detected – check the connection (X47, RD 147, WH 234)
F27	screed extension switch – right, outside	short circuit to the ground detected – check the connection (X47, RD 147, WH 235)
F28	forward control switch	short circuit to the ground detected – check the connection (X36)
F29	rearward control switch	short circuit to the ground detected – check the connection (X36)
F30	control neutral position switch	short circuit to the ground detected – check the connection (X36)
F31	travel pump – forward	"short circuit to the ground or on the battery detected or no connection – check the connection and the coil (X65, Y12, WH 263, WH 265, WH 266)"
F32	travel pump - rearward	"short circuit to the ground or on the battery detected or no connection – check the connection and the coil (X66, Y13, WH 264, WH 266)"
F33	drive pump safety	"short circuit to the ground or on the battery detected or no connection – check the connection and the coil (X65, X66, Y12, Y13, WH 263, WH 264, WH 265, WH 266)"
F34	brake release output	"short circuit to the ground or on the battery detected or no connection – check the connection and the coil (X60, Y7, WH 256, WH 257)"
F35	brake release safety	"short circuit to the ground or on the battery detected or no connection – check the connection and the coil (X60, Y7, WH 256, WH 257)"
F36	material feed forward valve	"short circuit to the ground or on the battery detected or no connection – check the connection and the coil (X54, Y1, WH 244, WH 246, WH 247)"

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Code F	Short description	Causes and troubleshooting
F37	material feed rearward valve	"short circuit to the ground or on the battery detected or no connection – check the connection and the coil (X55, Y2, WH 245, WH 247)"
F38	material feed safety	"short circuit to the ground or on the battery detected or no connection – check the connection and the coil (X54, X55, Y1, Y2, WH 244, WH 245, WH 246, WH 247)"
F39	floating mode valve	"short circuit to the ground or on the battery detected or no connection – check the connection and the coil (X61, Y8, WH 258, WH 259)"
F40	floating mode safety	"short circuit to the ground or on the battery detected or no connection – check the connection and the coil (X61, Y8, WH 258, WH 259)"
F41	screed activation valve	"short circuit to the ground or on the battery detected or no connection – check the connection and the coil (X62, Y9, WH 260, BN 326)"
F42	screed lifting valve	"short circuit to the ground or on the battery detected or no connection – check the connection and the coil (X63, Y10, WH 261, BN 327)"
F43	extension valve – to the left, outside	"short circuit to the ground or on the battery detected or no connection – check the connection and the coil (X56, Y3, WH 248, WH 250, WH 251)"
F44	extension valve – to the left, inside	"short circuit to the ground or on the battery detected or no connection – check the connection and the coil (X57, Y4, WH 249, WH 251)"
F45	left extension safety	"short circuit to the ground or on the battery detected or no connection – check the connection and the coil (X56, X57, Y3, Y4, WH 248, WH 249, WH 250, WH 251)"
F46	extension valve – to the right, outside	"short circuit to the ground or on the battery detected or no connection – check the connection and the coil (X59, Y6, WH 253, WH 255)"
F47	extension valve – to the right inside	"short circuit to the ground or on the battery detected or no connection – check the connection and the coil (X58, Y5, WH 252, WH 254, WH 255)"
F48	right extension safety	"short circuit to the ground or on the battery detected or no connection – check the connection and the coil (X58, X59, Y5, Y6, WH 252, WH 253, WH 254, WH 255)"
F49	vibration valve	"short circuit to the ground or on the battery detected or no connection – check the connection and the coil (X64, Y11, WH 262, BN 328)"
F50	cooling fan output	"short circuit to the ground or on the battery detected or no connection – check the connection and the relay (X68, K2, WH 268, BN 330)"
F51	alarm backup output	"short circuit to the ground or on the battery detected or no connection – check the connection and the relay (X70, K4, WH 270, BN 332)"
F52	engine start output	"short circuit to the ground or on the battery detected or no connection – check the connection and the relay (X67, K1, WH 267, BN 329)"
F53	fuel valve output	"short circuit to the ground or on the battery detected or no connection – check the connection (X17:5, WH 205)"
F54	conveyor output, lower side	"short circuit to the ground or on the battery detected or no connection – check the connection and the coil (X54, X55, Y1, Y2, WH 244, WH 245, WH 246, WH 247)"
F55	left extension output, lower side	"short circuit to the ground or on the battery detected or no connection – check the connection and the coil (X56, X57, Y3, Y4, WH 248, WH 249, WH 250, WH 251)"
F56	right extension output, lower side	"short circuit to the ground or on the battery detected or no connection – check the connection and the coil (X58, X59, Y5, Y6, WH 252, WH 253, WH 254, WH 255)"
F57	drive pump output, lower side	"short circuit to the ground or on the battery detected or no connection – check the connection and the coil (X65, X66, Y12, Y13, WH 263, WH 264, WH 265, WH 266)"
F58	brake release output, lower side	"short circuit to the ground or on the battery detected or no connection – check the connection and the coil (X60, Y7, WH 256, WH 257)"
F59	floating screed output, lower side	"short circuit to the ground or on the battery detected or no connection – check the connection and the coil (X61, Y8, WH 258, WH 259)"
F60	brake not adjusted	"pressure in the brake release hydraulic system although it should be zero – check the sensor and the pressure valve (X42, X60, S6, Y7, RD 142, WH 228, WH 256, WH 257)"
F61	brake not released	"zero pressure in the brake release hydraulic system although it should not be zero – check the sensor and the pressure valve (X42, X60, S6, Y7, RD 142, WH 228, WH 256, WH 257)"
F62	beacon light output	"short circuit to the ground or on the battery detected or no connection – check the connection and the relay (X71, K5, WH 271, BN 333)"
F63	neutral switch general error	"control safety check failed – check control connection (X36)"
F64	forward switch general error	"control safety check failed – check control connection (X36)"

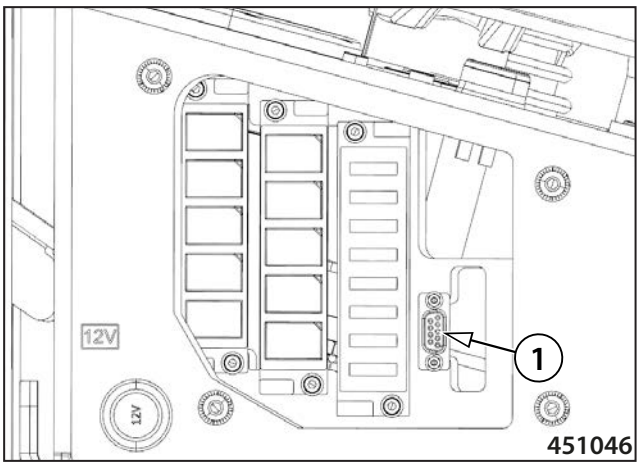
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Code F	Short description	Causes and troubleshooting
F65	rearward switch general error	“control safety check failed – check control connection (X36)”
F70	screed temperature sensor	“short circuit to the ground detected or no connection – check the connection and the sensor”
F71	glowing of ignition 1	short circuit to the ground detected – check the connection (X27, A6, RD 126, WH 206)
F72	glowing of ignition 2	short circuit to the ground detected – check the connection (X28, A7, RD 127, WH 207)
F73	glowing of ignition 3	short circuit to the ground detected – check the connection (X29, A8, RD 128, WH 208)
F74	glowing switch	short circuit to the ground detected – check the connection (X50, S14, RD 150, WH 239)
F75	fault of ignition 1	"ignition box 1 indicates a fault – check the gas flow and burner ignition 1 (X73, X76, I1)"
F76	fault of ignition 2	"ignition box 2 indicates a fault – check the gas flow and burner ignition 2 (X74, X77, I2)”
F77	fault of ignition 3	"ignition box 3 indicates a fault – check the gas flow and burner ignition 3 (X75, X78, I3)"
F78	glowing output	"short circuit to the ground or on the battery detected or no connection – check the connection and the relay (X72, K6, WH 272, BN 334)"
F79	horn output	"short circuit to the ground or on the battery detected or no connection – check the connection and the relay (X69, K3, WH 269, BN 331)"
F80	electronics temperature too high	the internal temperature of the electronic control unit exceeds 80°C
F81	air filter service required	the diesel engine requires air filter service

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15.2.2 Fuse box

1 Diagnostics connector



F1 Fuse at the input of the power supply of the control unit ..... (3 A)

F2 Fuse at the output of the power supply of the control unit ..... (25 A)

F3 Oil cooler fan fuse ..... (15 A)

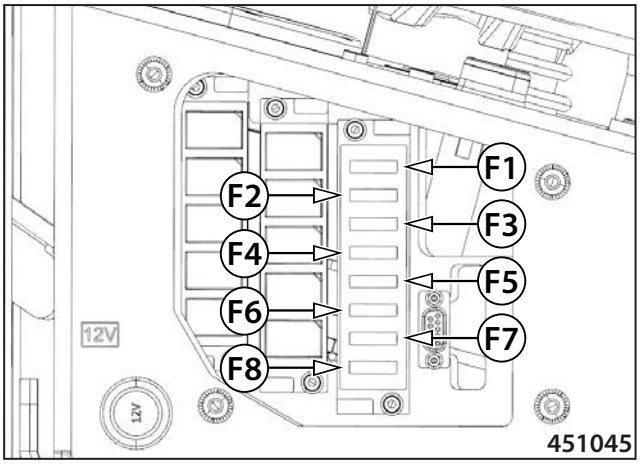
F4 Horn and reverse travel with horn fuse..... (5 A)

F5 Fuse of beacon and auger area lighting ..... (7.5 A)

F6 Screed heating fuse..... (5 A)

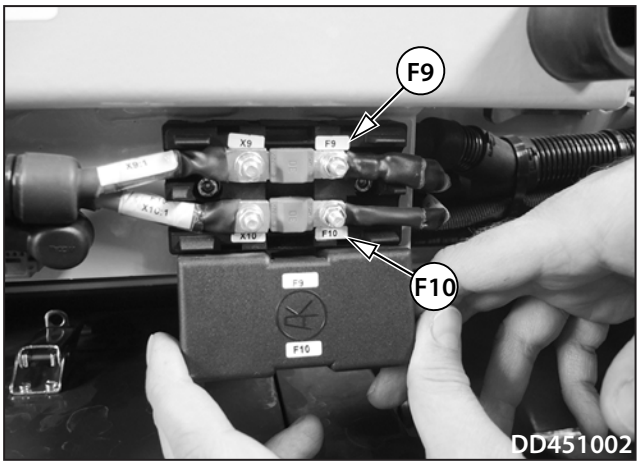
F7 Universal display fuse ..... (2 A)

F8 Fuse of the power supply of the electronics of the control unit ..... (5 A)



F9 Main fuse ..... (30 A)

F10 Starter fuse ..... (30 A)



K1 Engine starting relay

K2 Oil cooler relay

K3 Horn relay

K4 Relay of the warning acoustic signal of the reverse run

K5 Warning beacon relay;

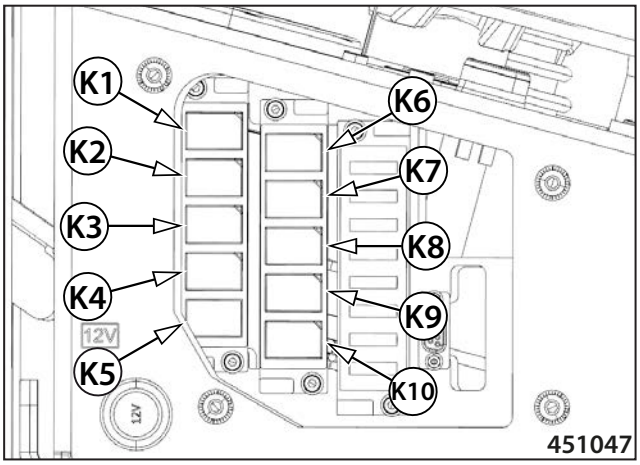
K6 Screed heating relay

K7 Not used

K8 Not used

K9 Not used

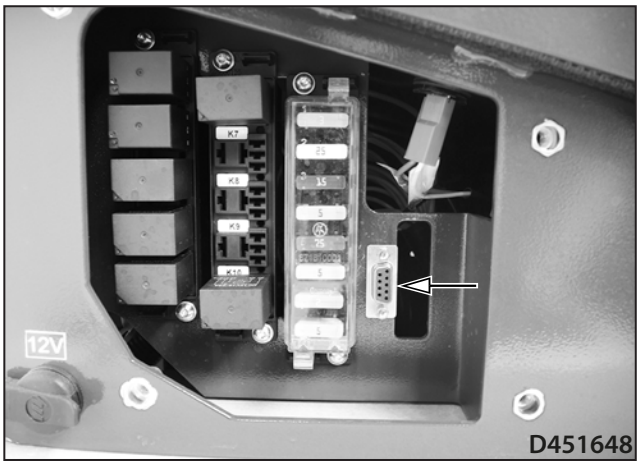
K10 Screed heating relay



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15.2.3 Diagnostics socket

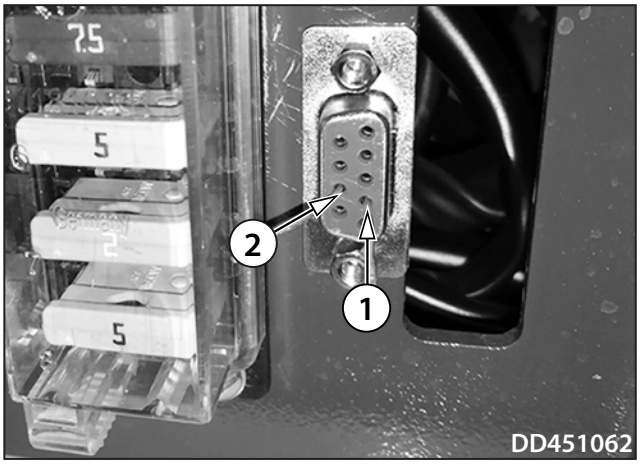
Location of the diagnostic socket.



Basic description of the diagnostic socket.

1 CAN-Low (pin 7)

2 CAN-High (pin 2)

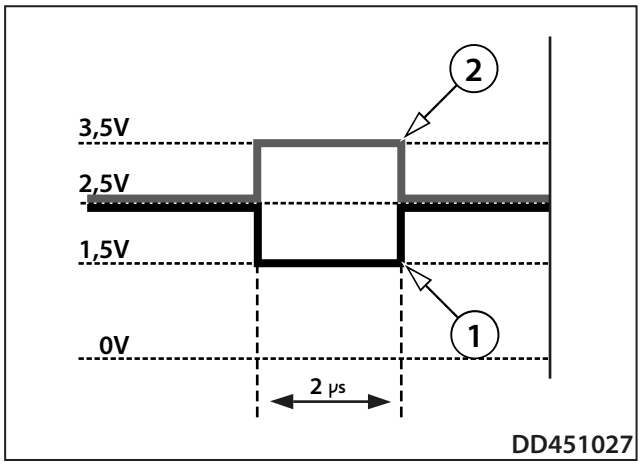


https://truckmanualshub.com/

15.2.3.1 Measuring of the CAN BUS data bus

Measure 2.5 – 3.5 V at the diagnostic socket of CAN-High pin (2).

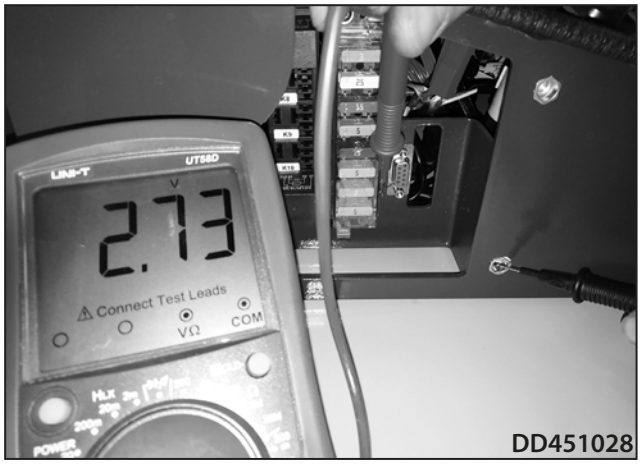
Measure 1.5 – 2.5 V at the diagnostic socket of CAN-Low pin (1).



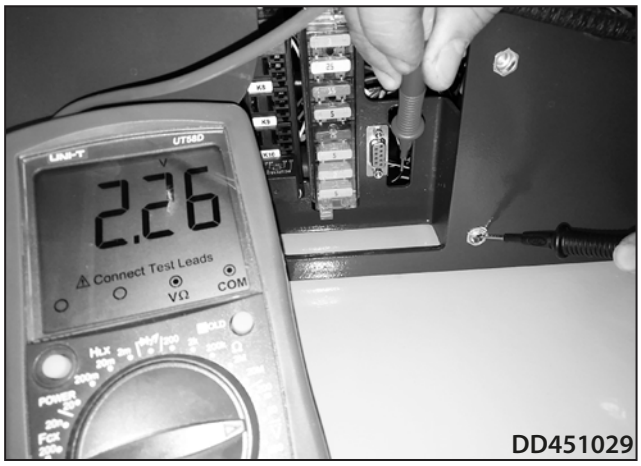
15.2.3.1.1 Measuring voltage of the CAN BUS data bus

Turn the key in the ignition box to the "I" position.

Measure a voltage at the range of 2.5 – 3.5 V at the CAN-High output (pin 2).

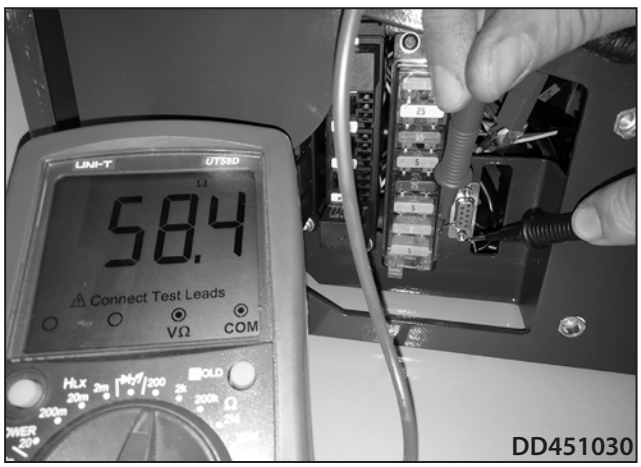


Measure a voltage at the range of 1.5 – 2.5 V at the CAN-Low output (pin 7).



15.2.3.1.2 Measuring resistance of the CAN BUS data bus

Measure a resistance of approximately 60 Ω between CAN-High (pin 2) and CAN-Low (pin 7) outputs.



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15.2.4 Communication with the control unit A2 by means of Bodas – service 3.5

To communicate with the control unit, Bodas – service 3.5 must be installed.

Components necessary to connect to the machine:

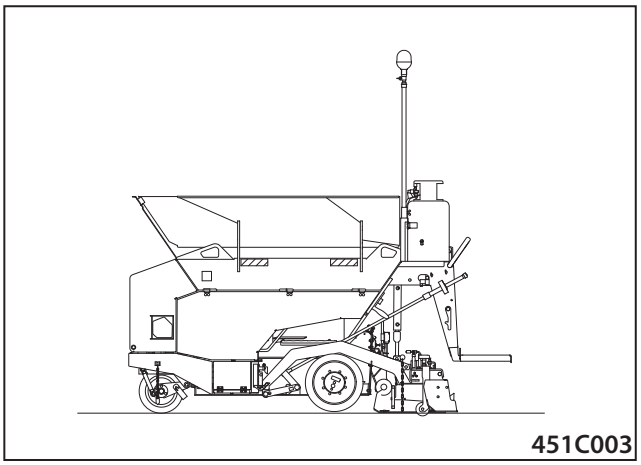
- Bodas – service 3.5 software
- connecting cable and a USB key.



D451649

15.2.4.1 Connecting the machine to PC

Park the machine on a solid and flat surface.



451C003

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Connect the computer to the machine using the connecting cable (1).



D451C001

Connect the USB key (2) to the computer.



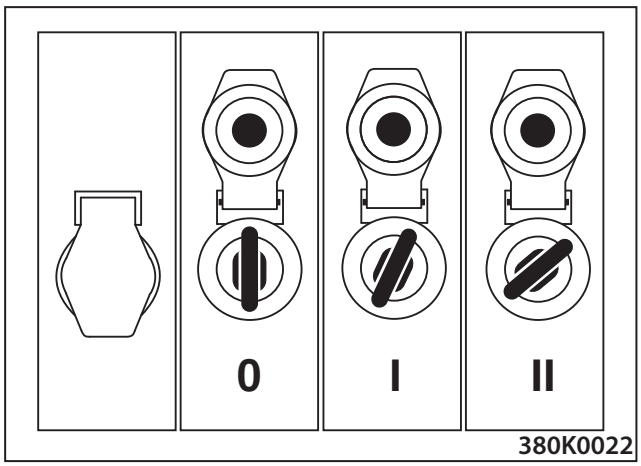
D451C002

Start the Bodas software.



D451C004

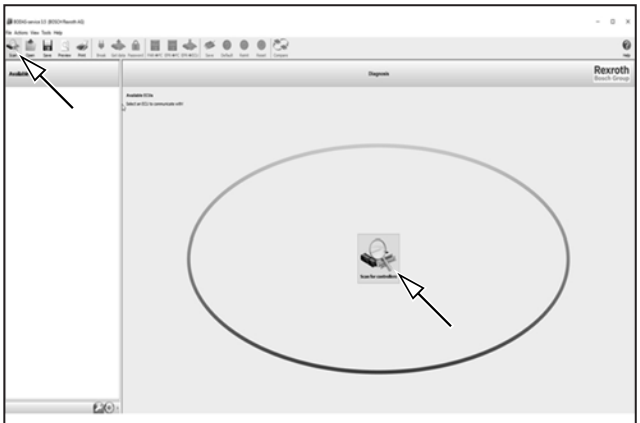
Turn the key in the ignition box to the "I" position.



380K0022

https://truckmanualshub.com/

Press the “Scan” icon for connecting the computer.



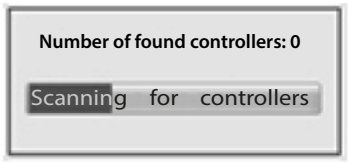
D451C005

Press the button to confirm licence conditions.



D451C006

The computer is connecting.



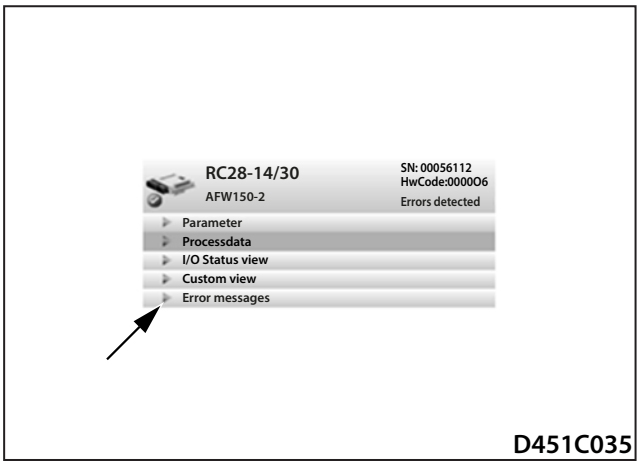
D451C007

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15.2.4.2 Uploading and deleting errors

If the name of the computer and software version are written in red, some errors are active. If they are written in black, the computer is without errors.

Unroll the "Error Messages" tab.



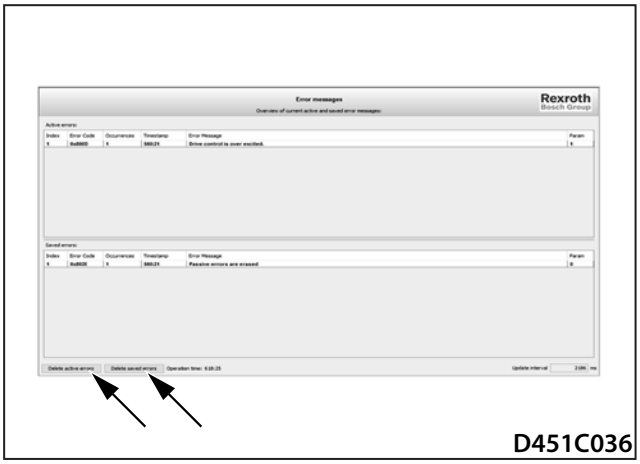
D451C035

A list of error will be displayed.

To delete errors, press the "Delete active errors" and "Delete saved errors" buttons.

Note

If any of the errors remains active, they will appear in the list after deletion. Repair the failures!



D451C036

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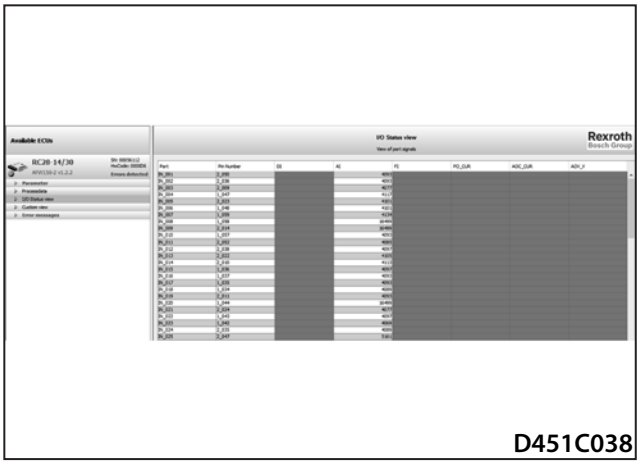
15.2.4.3 Check of parameters

The check of parameters serves for the evaluation of faults or for checking the values on inputs and outputs of the RC unit.

There are two ways how to display the values.

Method No. 1

Display the "I/O Status view" tab – the check of the voltage level on individual pins.

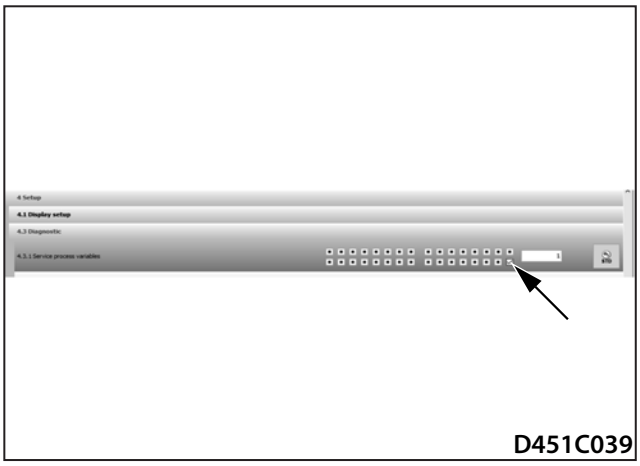


D451C038

Method No. 2

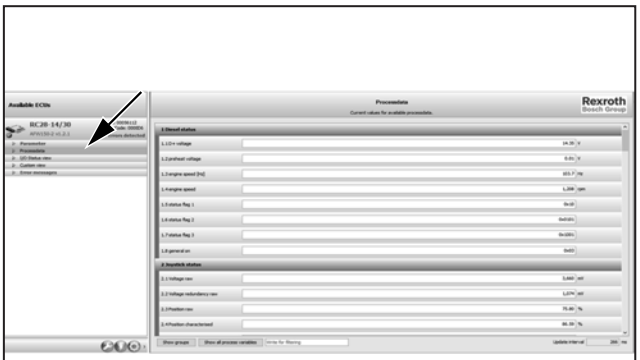
Select item "4. Setup".

Check the last box in "4.3.1 Service process variables".



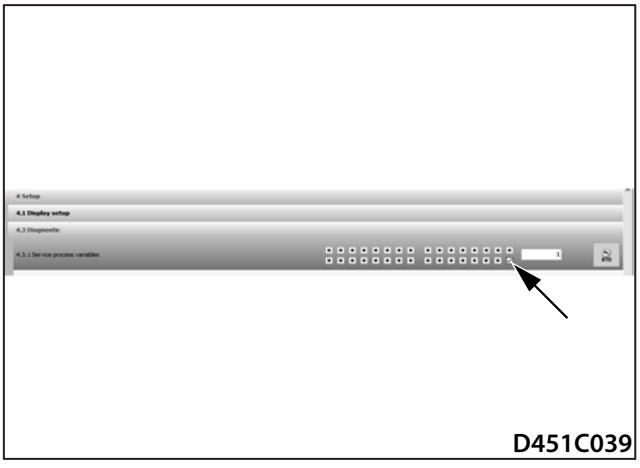
D451C039

Parameters can be seen in the "Processdata" tab.



D451C040

To remove the fault or check the parameters, uncheck the last box in "4.3.1 Service process variables".



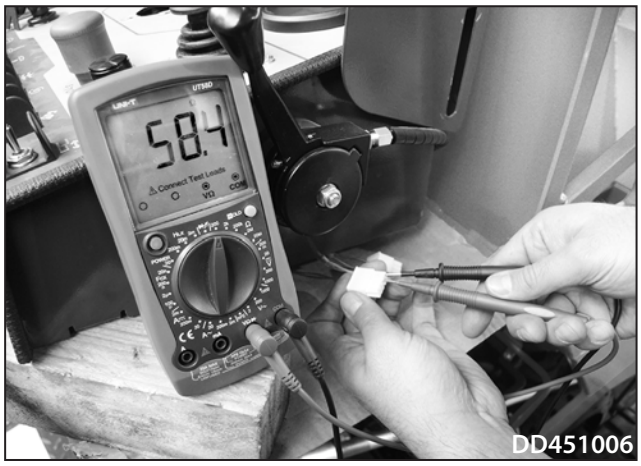
D451C039

https://truckmanualshub.com/

15.2.5 Display measurement

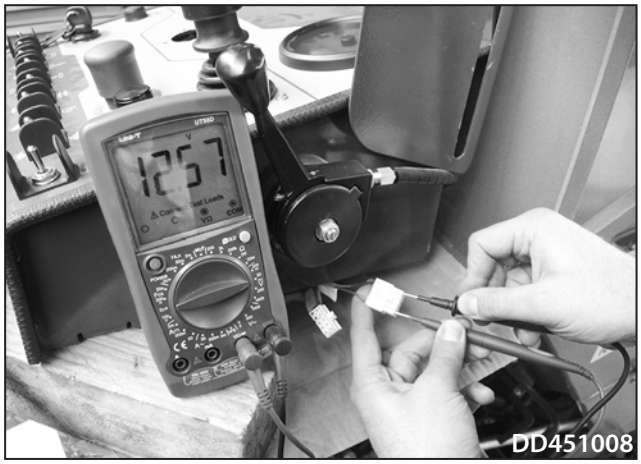
Disconnect connectors X33 and X40 from display A3.

Measure a resistance of approximately 60 Ω on the connector X40 between the blue and yellow wire.

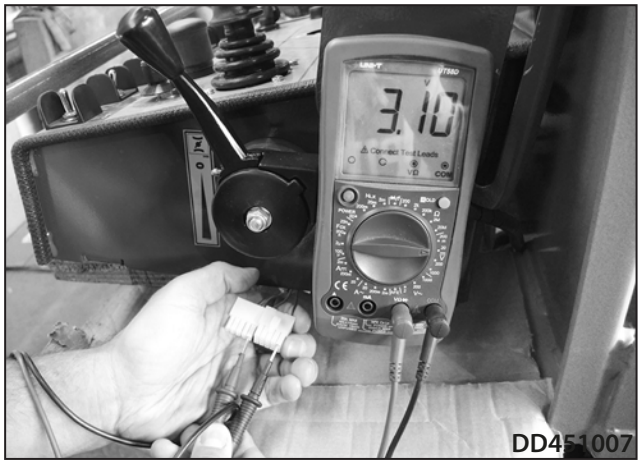


Turn the key in the ignition box to the "I" position.

Measure the voltage of battery (12 V) on the connector X33 between the wires.



Measure the voltage of approximately 3.1 V on the connector X40 between the yellow wire no. 6 and the machine casing (the brown wire of connector X33).



Measure the voltage of approximately 2.07 V on the connector X40 between the blue wire no. 7 and the machine casing (the brown wire of connector X33).

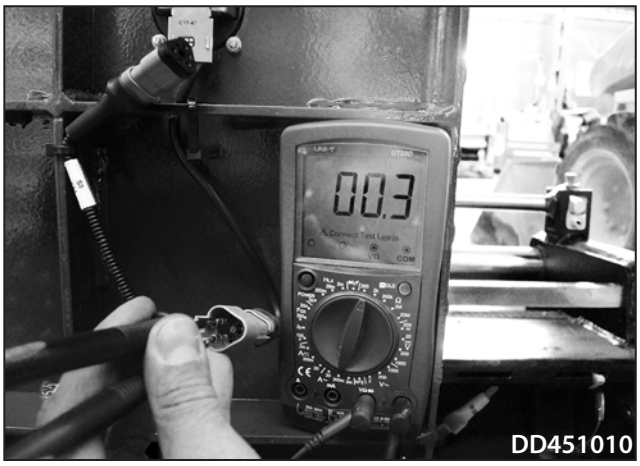


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15.2.6 Foot switch measurement

Disconnect the connector X44 of the foot switch S8.

Measure the resistance on the connector X44 on the switch side between pin A and pin B. The measured value will be displayed after activating the foot switch.

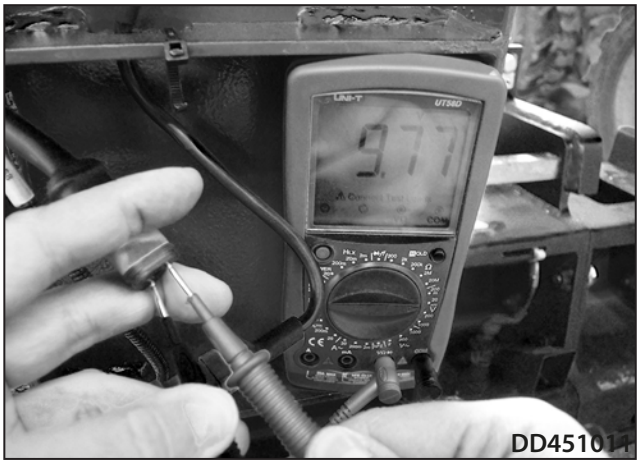


Turn the key in the ignition box to the "I" position.

Measure the voltage of approximately 9.77 V at the foot switch on the connector X44 between pin A and pin B.

If a different voltage value is measured, check:

- fuse F1 (3 A)
- wiring between the ignition box (pin 15) and the connector X44 (pin A)
- wiring between the connector X44 (pin B) and the connector X34 of the control unit (pin 42).



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15.2.7 Travel controller measurement

In case of a failure of the travel controller, error messages F11, F28, F29 or F30, F63, F64 and F65 will be displayed on the display.

Remove the steering wheel:

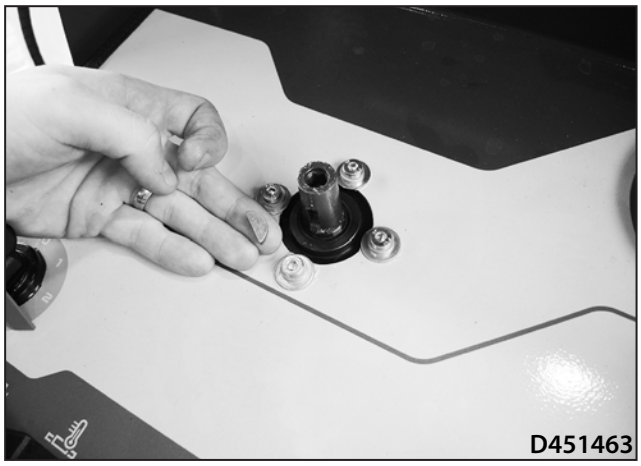
- Remove the cover



- Remove the screw

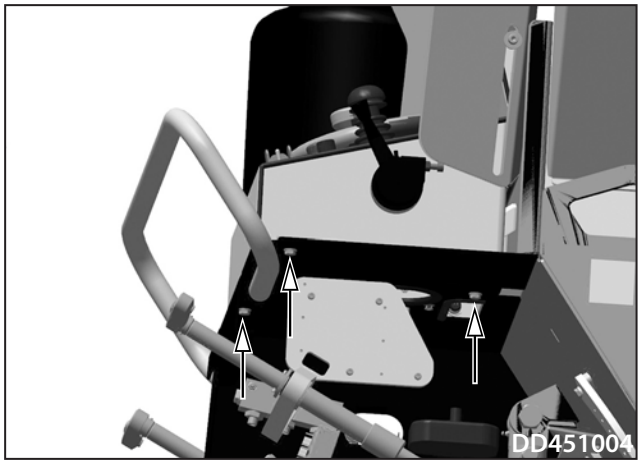


- Take out the steering wheel and remove the screws



Remove the control panel:

- Remove the screws (3x)

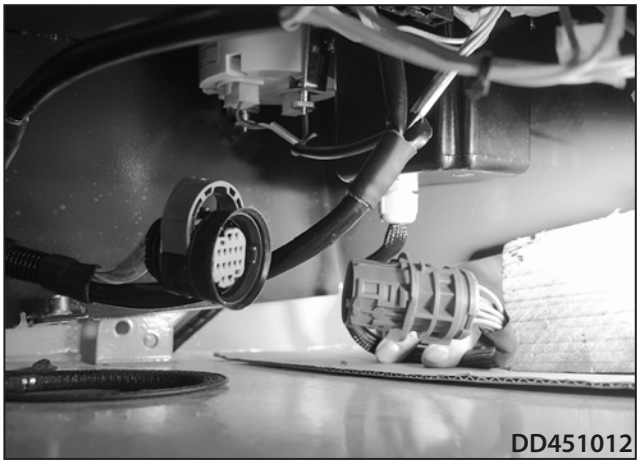


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- Support the control panel



- Disconnect the connector X36



Measure the voltage on the connector X36 on the machine side:

- approximately 2.71 V between pin 14 and pin 3.
- approximately 5.08 V between pin 14 and pin 7.
- approximately 2.71 V between pin 14 and pin 8.
- approximately 5.08 V between pin 14 and pin
- of the battery (12 V) between pin 14 and pin 9.

Measure the resistance on the connector X36 on the travel controller side:

- 0.8 kΩ between pin 6 and pin 7 with the travel controller set in the forward position
- 3.1 kΩ between pin 6 and pin 7 with the travel controller set in the neutral position
- 5.4 kΩ between pin 6 and pin 7 with the travel controller set in the reverse position
- approximately 5.5 kΩ between pin 13 and pin 12 with the travel controller set in the forward position
- 3.1 kΩ between pin 13 and pin 12 with the travel controller set in the neutral position
- 0.8 kΩ between pin 13 and pin 12 with the travel controller set in the reverse position
- 6.2 kΩ between pin 5 and pin 7 with the travel controller set in any position
- 6.2 kΩ between pin 14 and pin 12 with the travel controller set in the any position

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15.2.8 Paving speed selector measurement

Measure the paving speed selector on the machine with the switched off battery disconnecter and with the closed gas bottle valve.

Remove the paving speed selector.

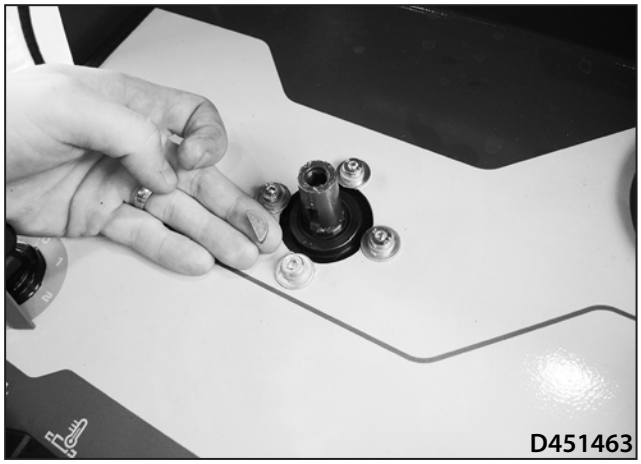
- Remove the steering wheel.
  - Remove the cover.



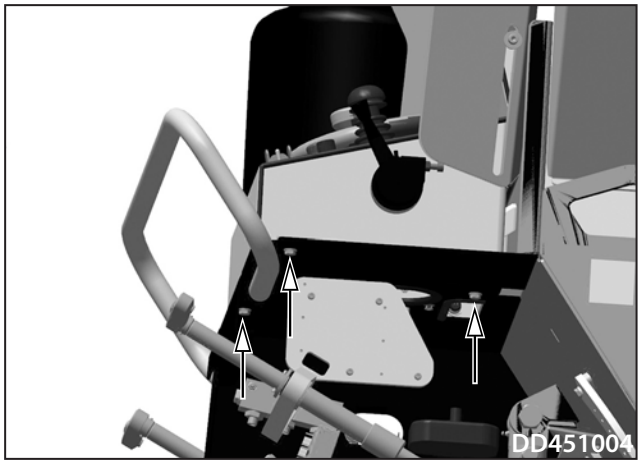
  - Remove the screw.



  - Take out the steering wheel and remove the screws.



- Remove the control panel.
  - Remove the screws (3x).

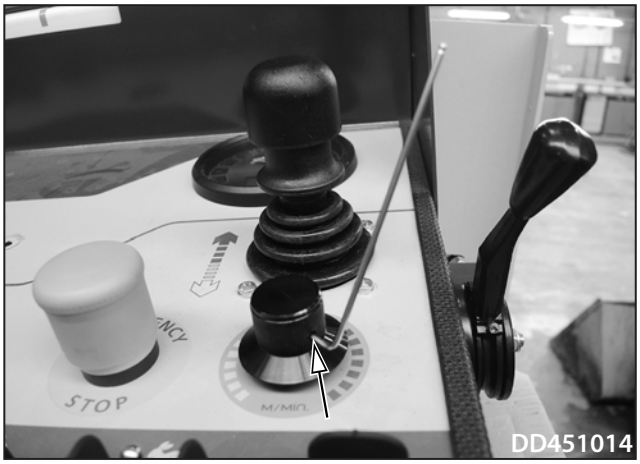


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- Support the control panel.



- Remove the paving speed selector regulator.
  - Loosen the screw.



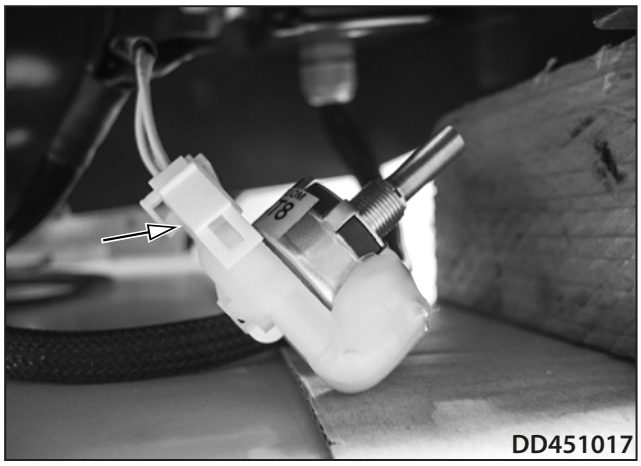


  - Remove the nut.



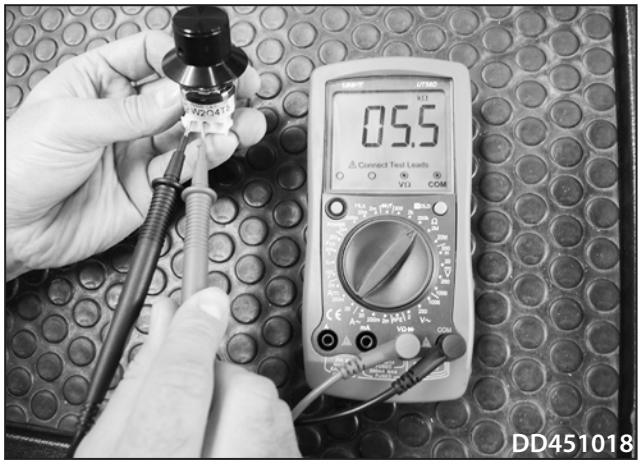
https://truckmanualshub.com/

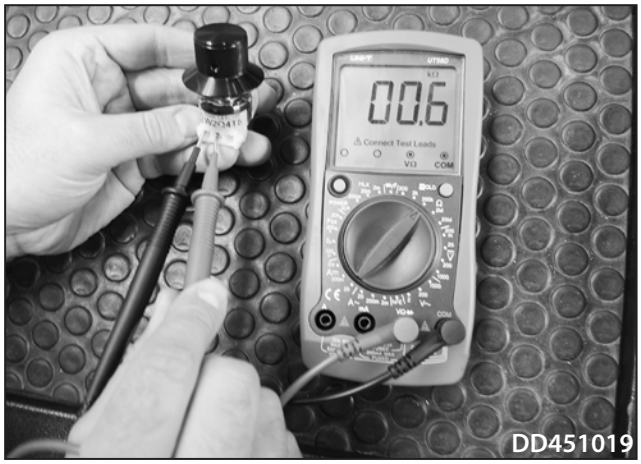
– Slightly pull out the selector and disconnect the X37 connector.



Measure the resistance of the paving speed selector.

- 6.2 Ω between pin 1 and pin 3
- 5.5 Ω between pin 1 and pin 2 in the minimum selector position
- 0.6 Ω between pin 1 and pin 2 in the maximum selector position
- 0.6 Ω between pin 2 and pin 3 in the minimum selector position
- 5.5 Ω between pin 2 and pin 3 in the maximum selector position





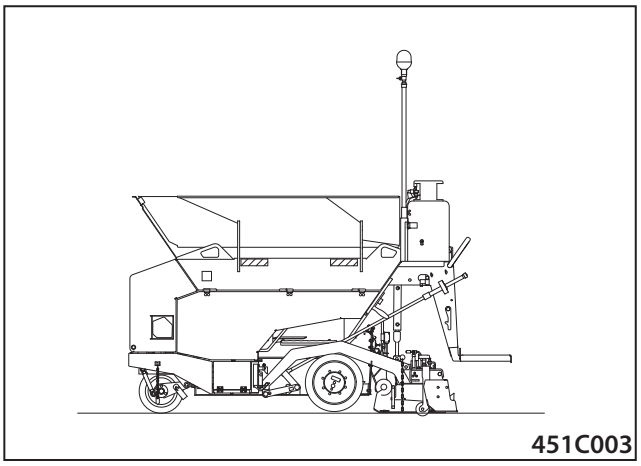
https://truckmanualshub.com/

15.3 Calibration

Perform calibration on the machine with the closed gas bottle valve.

15.3.1 Connecting the machine to PC

Park the machine on a solid and flat surface.


451C003

Connect the computer to the machine using the connecting cable (1).



D451C001

Connect the USB key to the computer (2).



D451C002

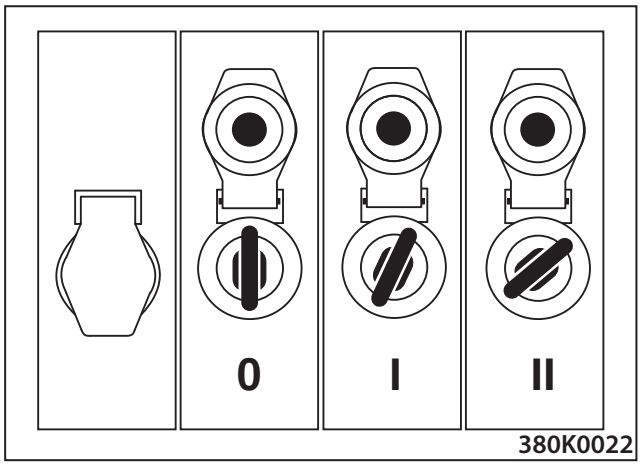
Start the Bodas software.



D451C004

https://truckmanualshub.com/

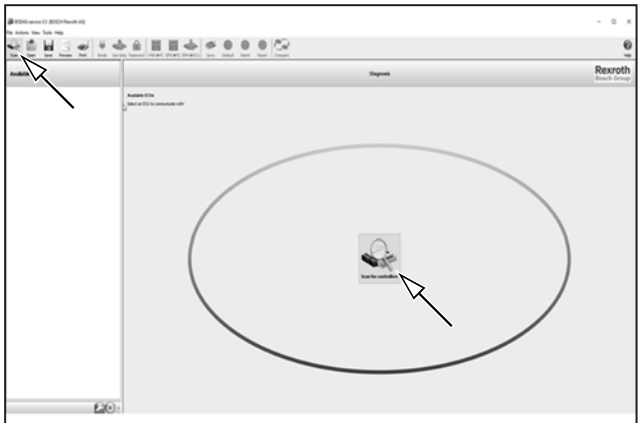
Turn the key in the ignition box to the "I" position.



380K0022

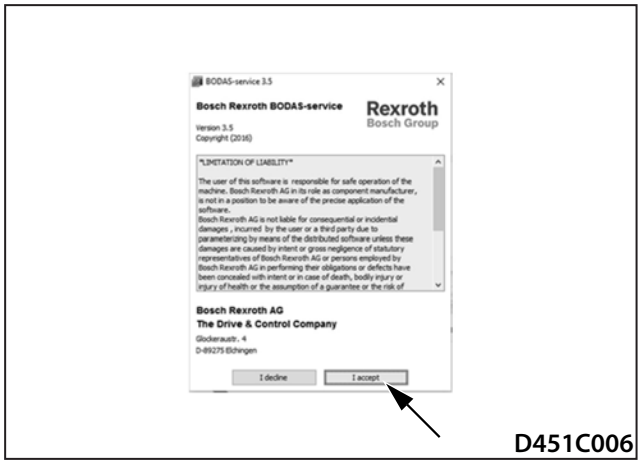
15.3.2 Calibration of the travel controller and the paving speed selector

Press the "Scan" icon for connecting the computer.



D451C005

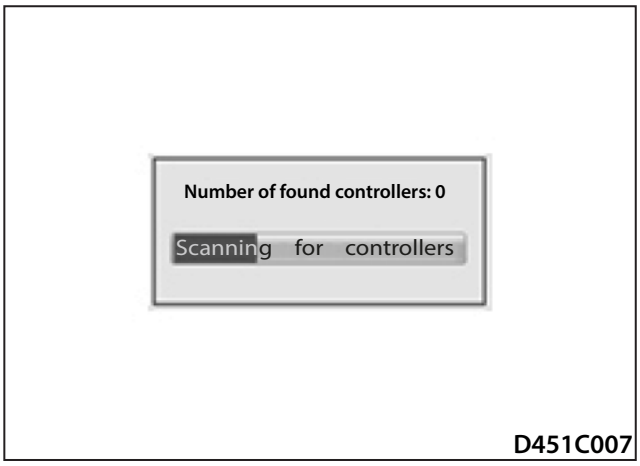
Press the button to confirm licence conditions.



D451C006

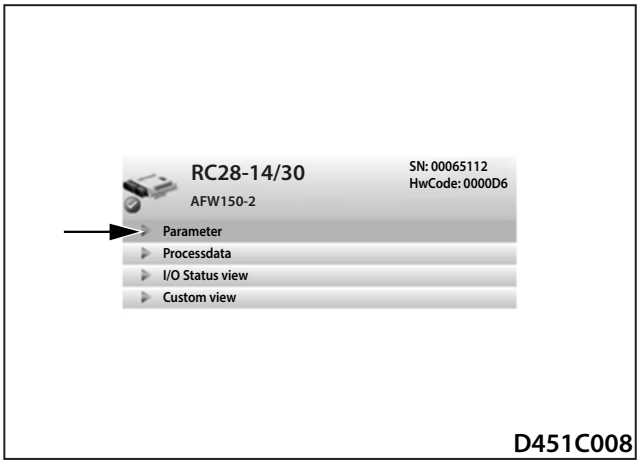
https://truckmanualshub.com/

The computer is connecting.



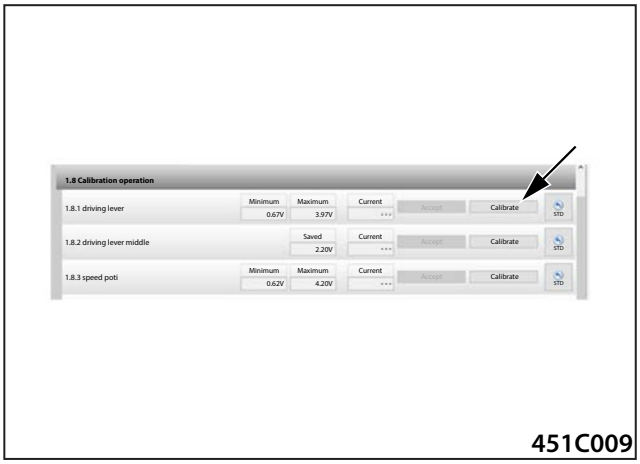
D451C007

Unroll the "Parameter" tab.



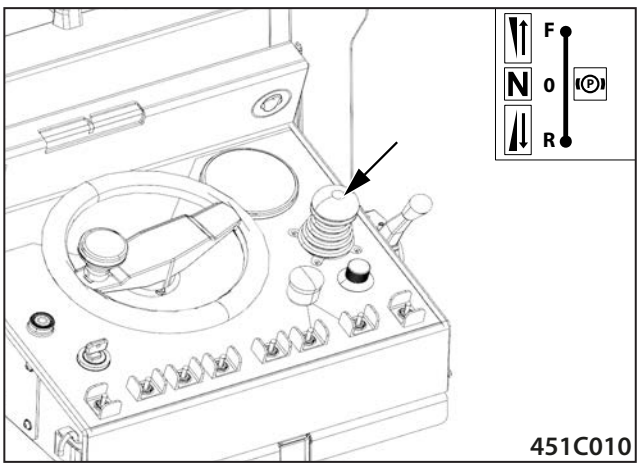
D451C008

Select – 1.8 "Calibration operation"
Confirm – 1.8.1 "Calibrate"



451C009

Set the position for reverse travel by the travel controller.

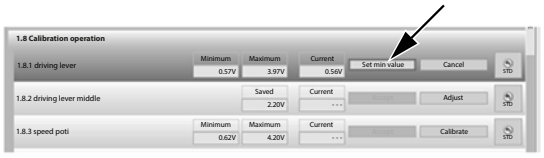


451C010

https://truckmanualshub.com/

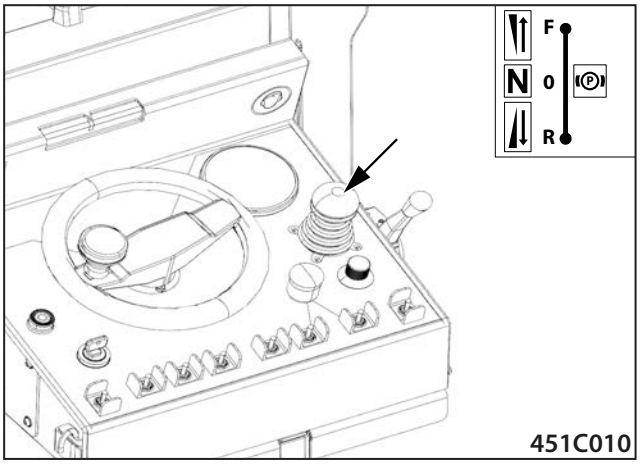
Confirm it by pressing the "Set min value" button.

The red highlighting means that the value has been changed.



D451C011

Set the position for forward travel by the travel controller.



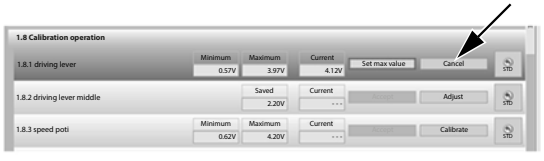
451C010

Confirm it by pressing the "Set max value" button.



D451C012

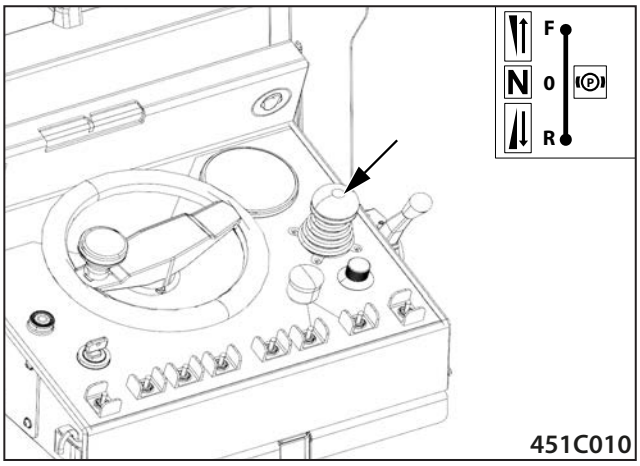
After setting both values press "Cancel" to end the calibration.



D451C013

https://truckmanualshub.com/

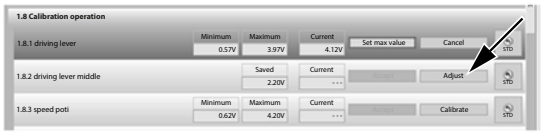
Set the neutral position by the travel controller.



451C010

Confirm it by pressing "Adjust".

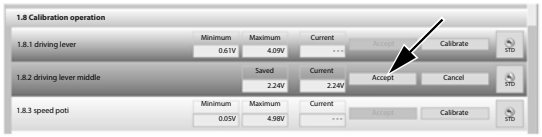
The current value will be saved.



D451C014

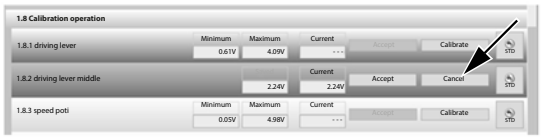
Confirm it by pressing "Accept".

The red highlighting means that the value has been changed.



451C015

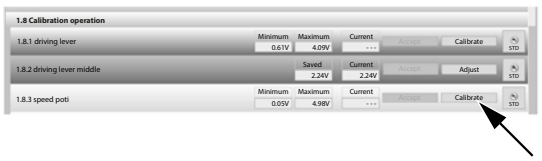
After setting the value press "Cancel".



D451C016

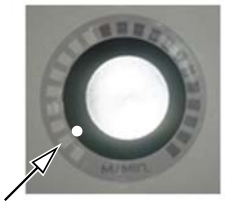
https://truckmanualshub.com/

Calibrate the paving speed selector by pressing the “Calibrate” button.



D451C017

Set the paving speed selector to the min. position.



451C018

Confirm it by pressing the “Set min value” button.

The red highlighting means that the value has been changed.



D451C019

Set the paving speed selector to the max. position.



451C020

https://truckmanualshub.com/

Confirm it by pressing the "Set max value" button.



D451C021

After setting both values press "Cancel" to end the calibration.

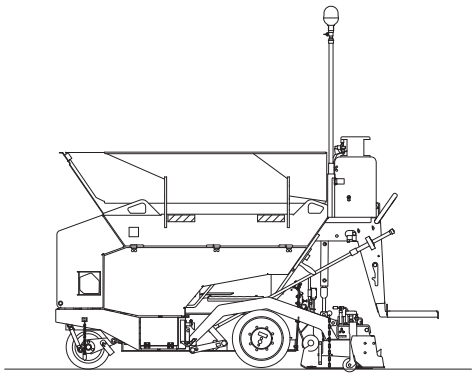


D451C022

15.3.3 Travel pump calibration

Place the machine onto a flat, firm surface.

With the motor running, heat up the hydraulic oil to the temperature of 40°C.



451C003

Before starting calibration, enter the password.

Note

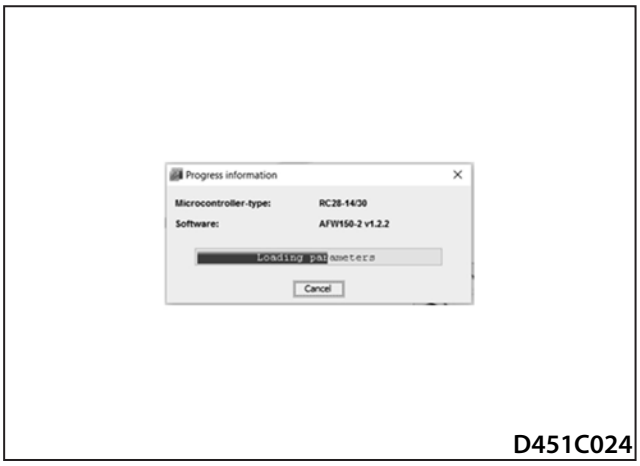
To obtain the password to the Bodas – service 3.5 system, contact your dealer or the DYNAPAC Technical Support.



D451C023

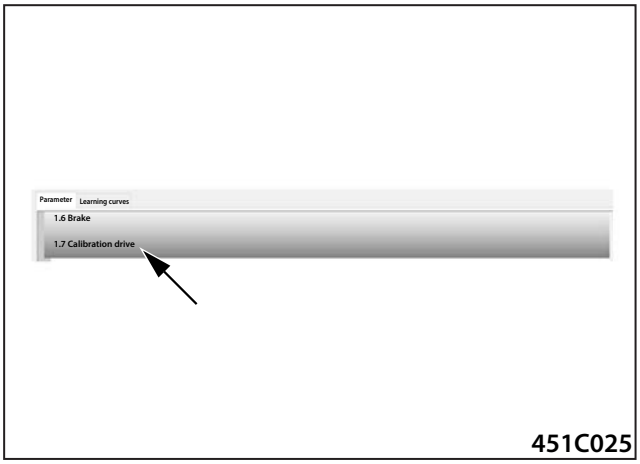
https://truckmanualshub.com/

A new connection will be uploaded.



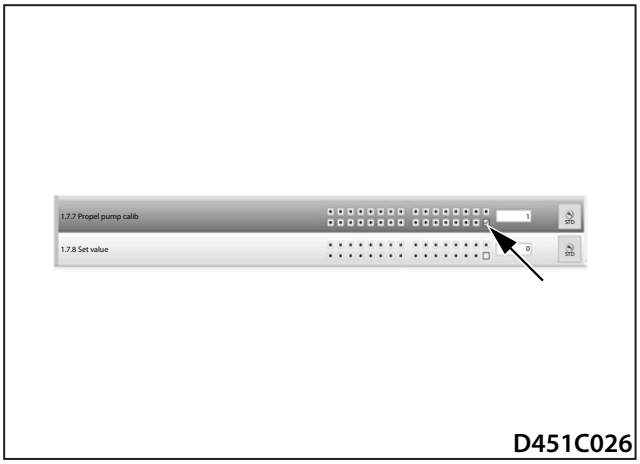
D451C024

Unroll the "Parameter" tab and select "1.7 Calibration drive".



451C025

Check the last box in "1.7.7 Propel pump calib". The line will become red and the value will be changed to "1".



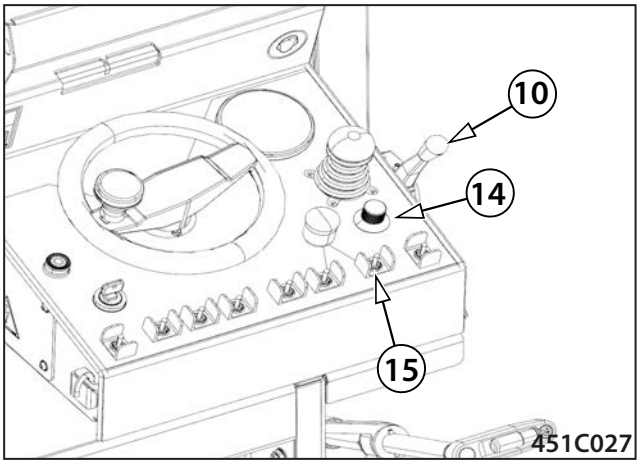
D451C026

Start the transport speed by the selector switch (15).

Set the paving speed selector (14) to the "min" position.

Adjust maximum engine rpm via controller (10)

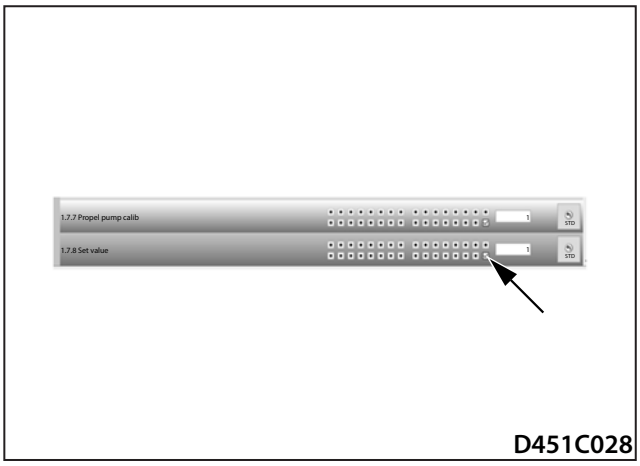
No one is allowed in the hazardous area of the machine during travel pump calibration.



451C027

https://truckmanualshub.com/

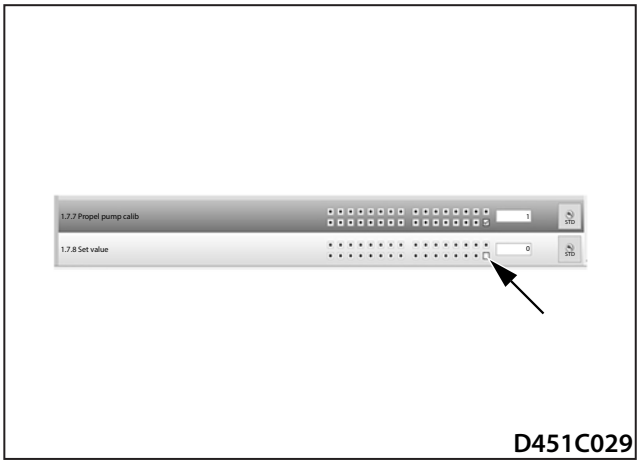
Check the last box in "1.7.8 Set value". The line will become red and the value will be changed to "1".



D451C028

Uncheck the last box in "1.7.8 Set value".

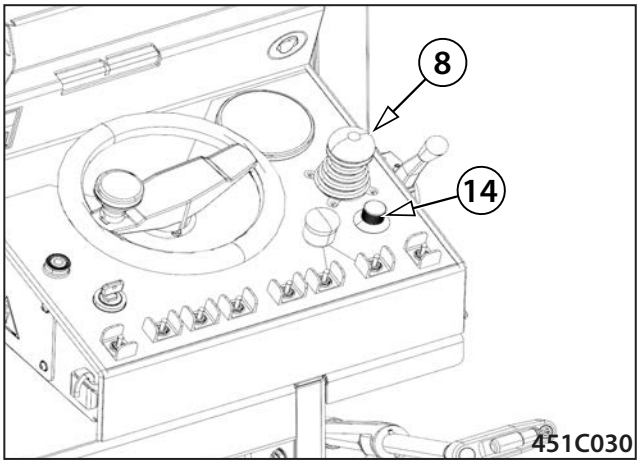
A short sound signal will be heard in case of correct setting.



D451C029

Shift the drive control (8) to the forward travel position.

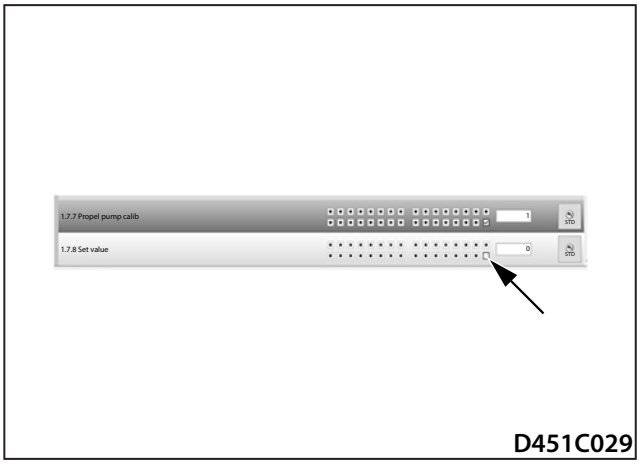
Slowly turn the paving speed selector (14) so that the machine drives at the lowest possible speed (the wheels are permanently turning).



451C030

Confirm the setting by checking and subsequent unchecking the box in "1.7.8 Set value".

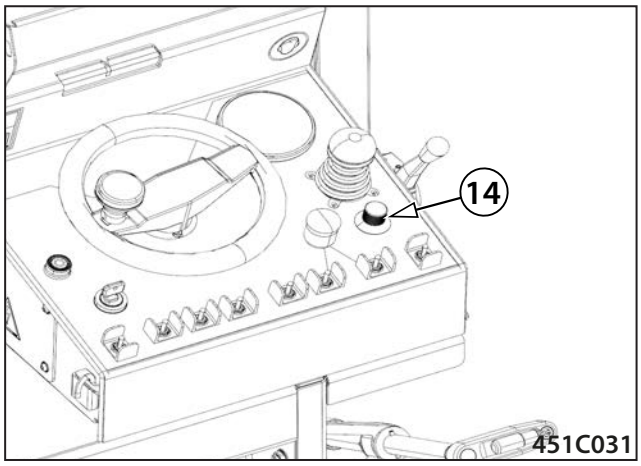
A short sound signal is heard.



D451C029

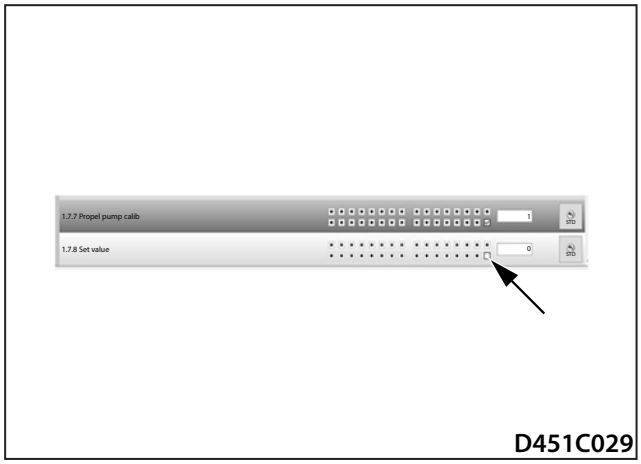
https://truckmanualshub.com/

Slowly turn the paving speed selector (14) to the "max" position.



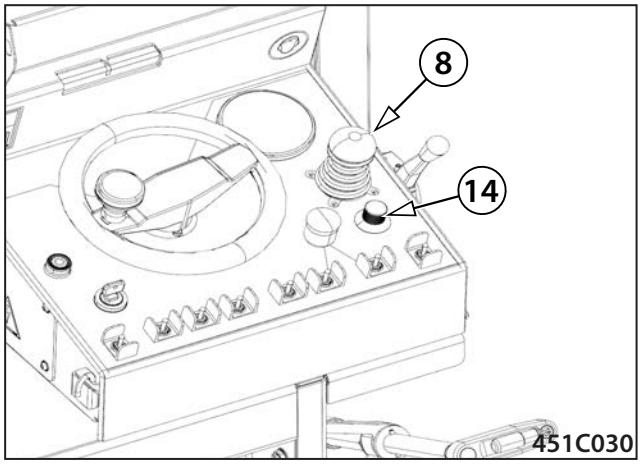
Confirm the setting by checking and subsequent unchecking the box in "1.7.8 Set value".

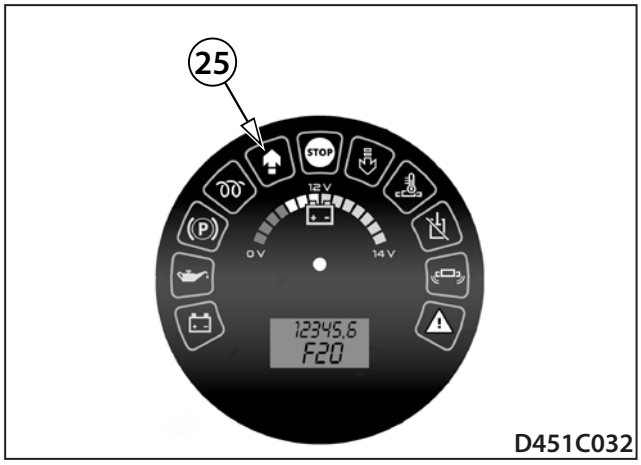
A short sound signal is heard.



Turn the paving speed selector (14) to the "min" position and wait for the LED indicator (25) to turn off.

Then shift the travel controller (8) to the neutral position.

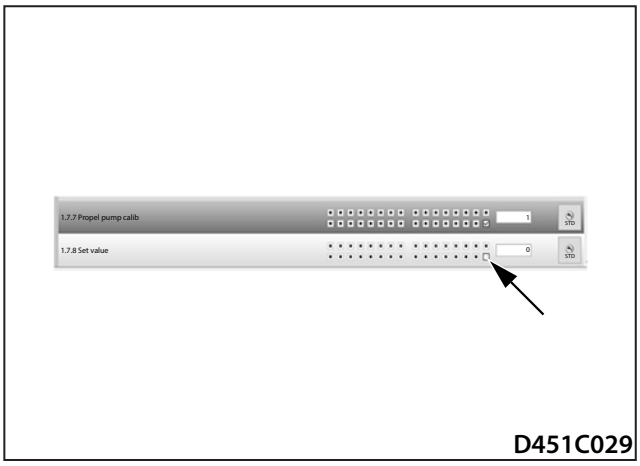




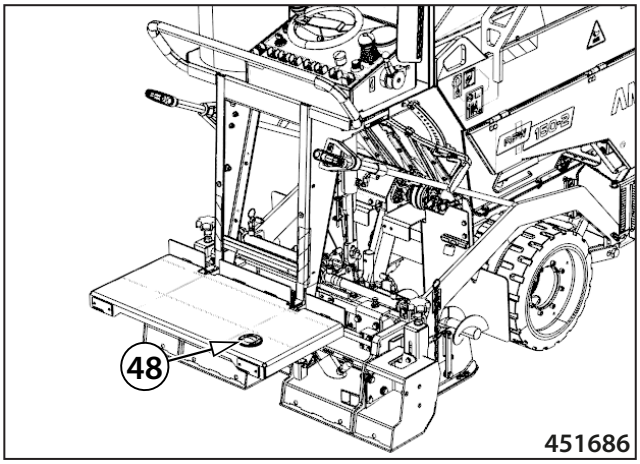
https://truckmanualshub.com/

Confirm the setting by checking and subsequent unchecking the box in "1.7.8 Set value".

A short sound signal is heard.

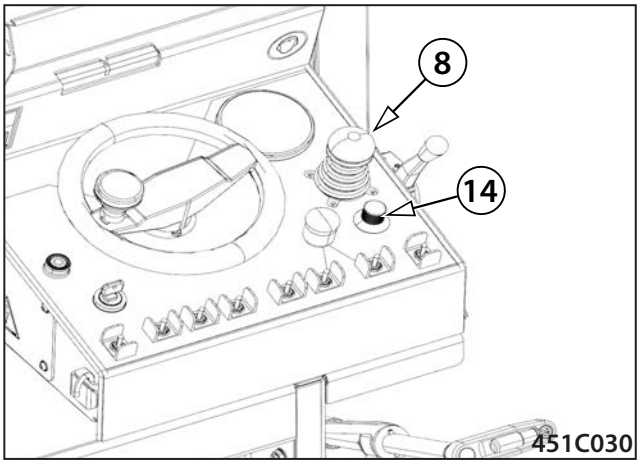


Activate the foot switch (48).



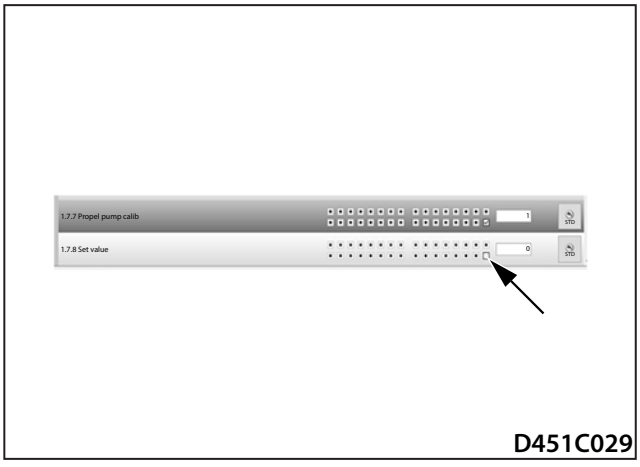
Shift the travel controller (8) to the reverse travel position.

Slowly turn the paving speed selector (14) so that the machine drives at the lowest possible speed (the wheels are permanently turning).



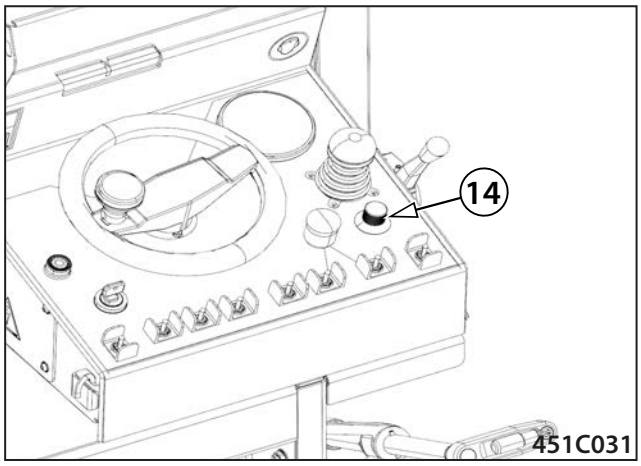
Confirm the setting by checking and subsequent unchecking the box in "1.7.8 Set value".

A short sound signal is heard.



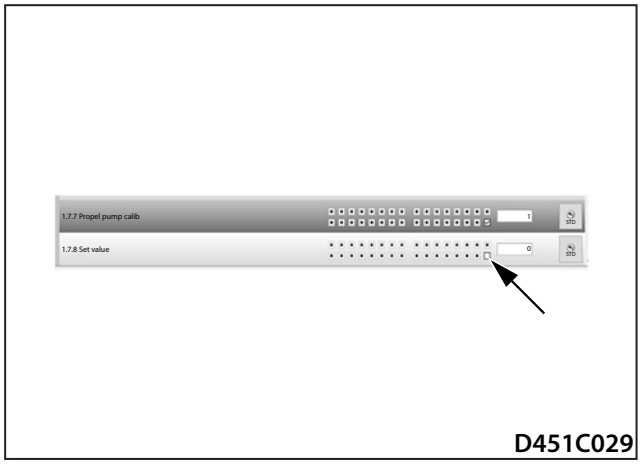
https://truckmanualshub.com/

Slowly turn the paving speed selector (14) to the "max" position.



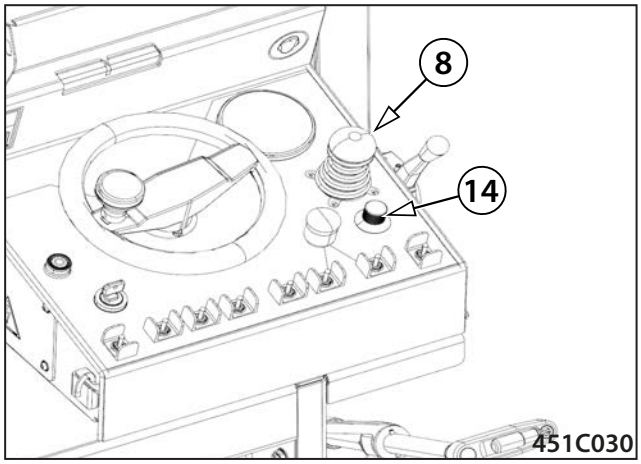
Confirm the setting by checking and subsequent unchecking the box in "1.7.8 Set value".

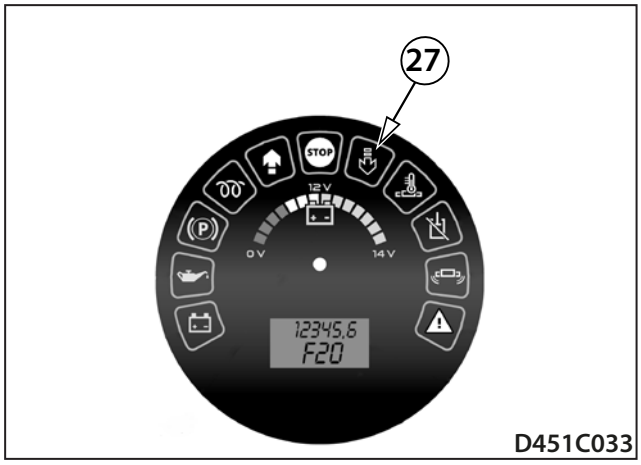
A short sound signal is heard.



Turn the paving speed selector (14) to the "min" position and wait for the LED indicator (27) to turn off.

Then shift the travel controller (8) to the neutral position.

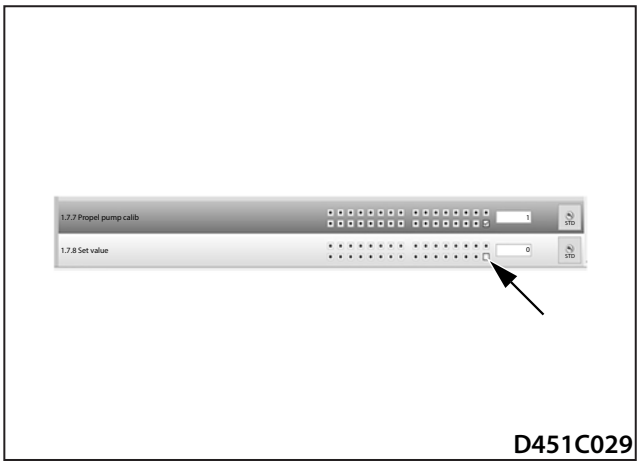




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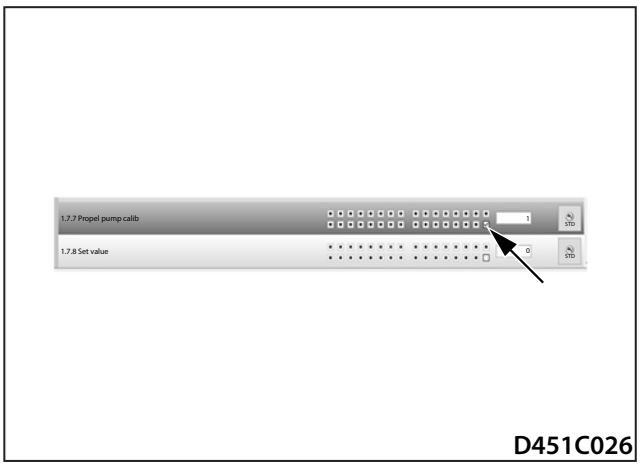
Confirm the setting by checking and subsequent unchecking the box in "1.7.8 Set value".

A short sound signal is heard.



D451C029

After finishing calibration uncheck the last box in "1.7.7 Propel pump calib".



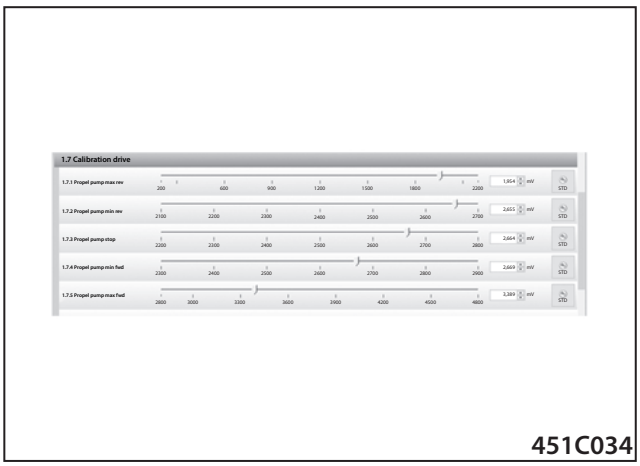
D451C026

The changed values are visible at the next connection of the computer to the machine.

Check the parameters; the values must be slowly increasing.

Note

The result of calibration should be that when the working speed is started, it slowly decreases without any speed increase by the travel controller or by turning the paving speed selector. The machine must not move if the travel controller is in the maximum position for the forward travel and at the same time the paving speed selector is in the "min" position.

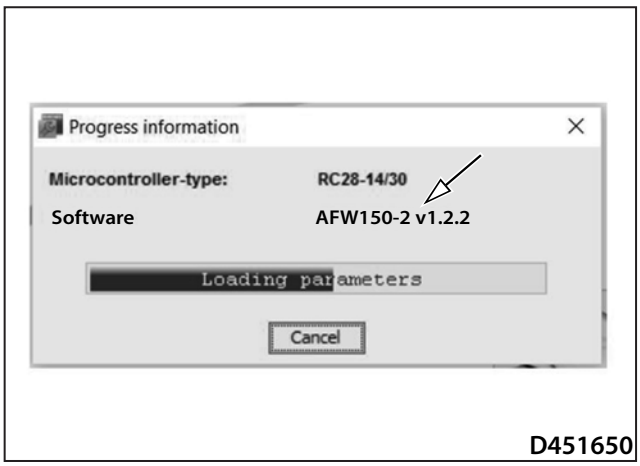


451C034

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15.4 Control unit A2

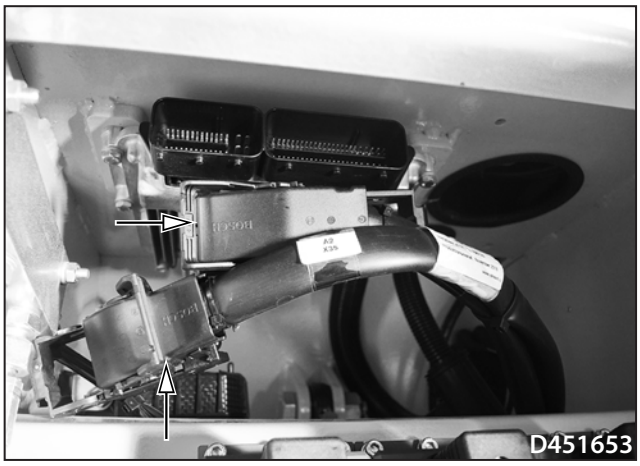
When replacing the control unit, the machine compatibility with the software in the control unit must be consulted with the DY-NAPAC Technical Support.



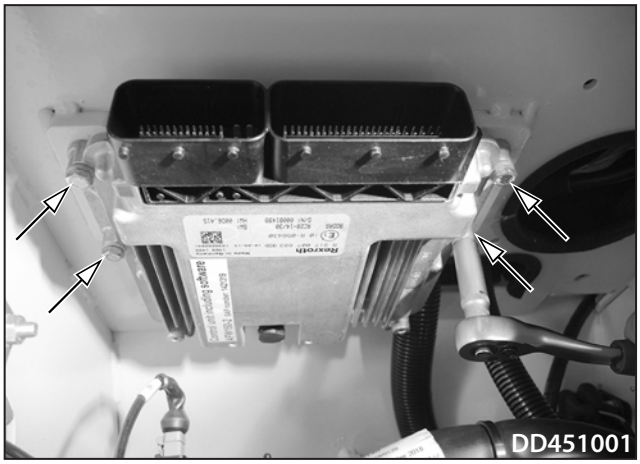
15.4.1 Dismounting the control unit A2

Dismount the control unit from the machine with the switched off battery disconnecter and with the closed gas bottle valve.

Unlock and disconnect connectors X34 and X35 of the control unit.



Remove the screws (4x).



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15.5 Display unit

If the display does not respond when the key is turned to the "I" position, check:

- fuse F7 (2 A)
- wiring between the ignition box S3 (pin 15) and the display connector X33 (pin 1)
- wiring between the battery disconnecter and the connector X33 (pin 5)
- connection of connectors X33 and X40 to the display.

15.5.1 Dismounting the display

Dismount the display from the machine with the switched off battery disconnecter and with the closed gas bottle valve.

Remove the steering wheel.

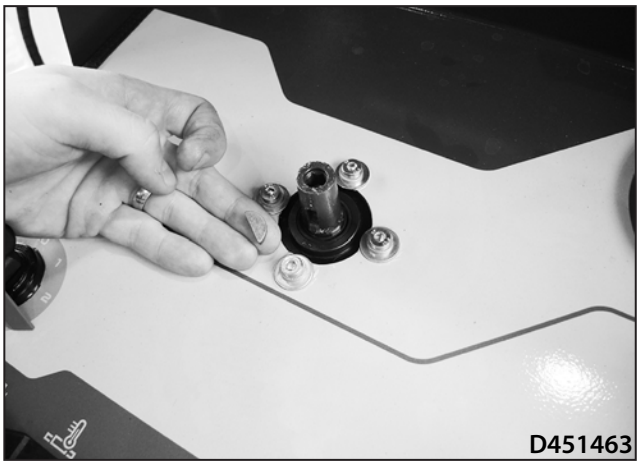
- Remove the cover.



- Remove the screw.



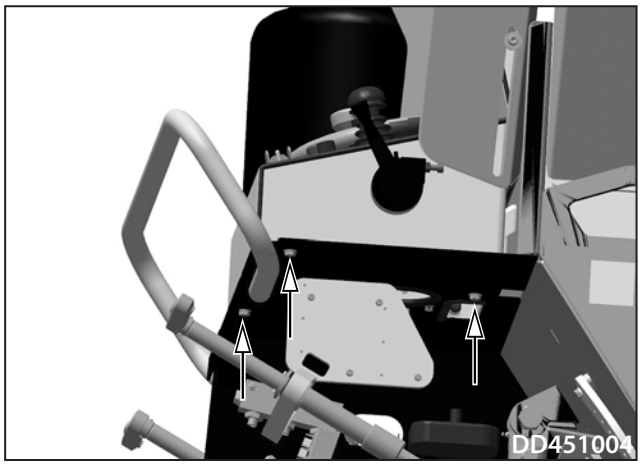
- Take out the steering wheel and remove the screws.



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Remove the control panel.

- Remove the screws (3x).



Support the control panel.



Remove the lock nuts (2x).



Note

Proceed in the reverse order when reassembling the display.

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15.6 Travel controller

When calibrating the travel controller proceed according to Chapter 15.3.2.

15.6.1 Dismounting the travel controller A4

Dismount the travel controller from the machine with the switched off battery disconnecter and with the closed gas bottle valve.

Remove the steering wheel.

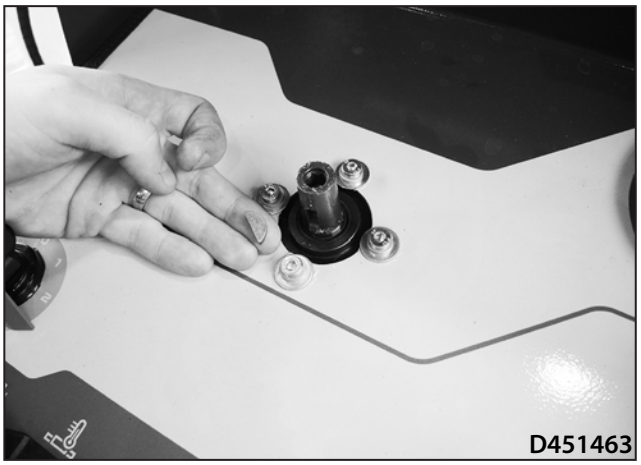
- Remove the cover.



- Remove the screw.



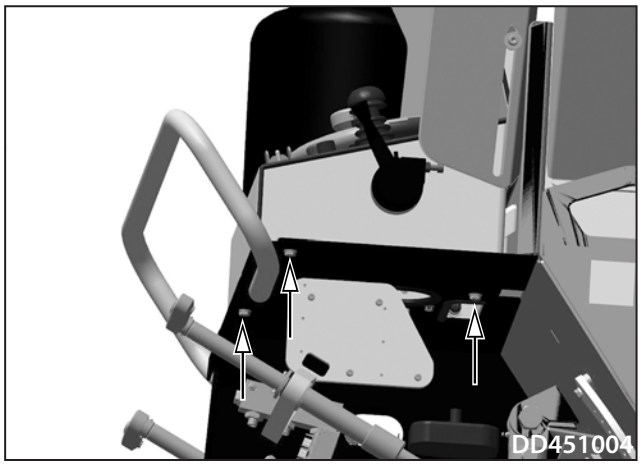
- Take out the steering wheel and remove the screws.



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Remove the control panel.

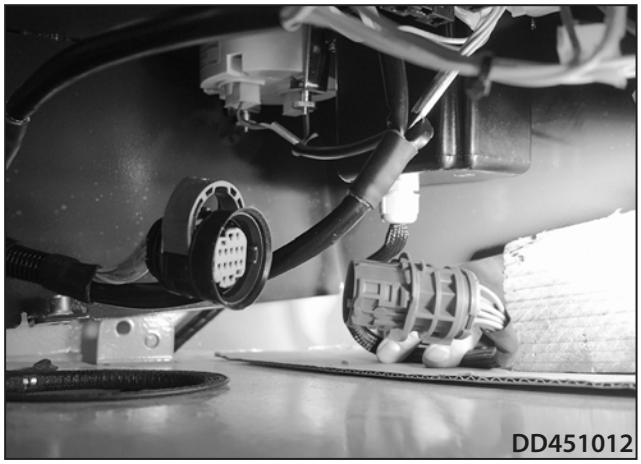
- Remove the screws (3x).



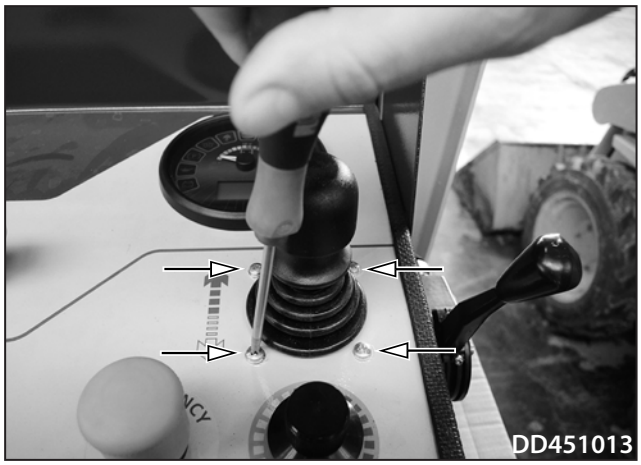
Support the control panel.



Disconnect the connector X36.



Remove screws of the travel controller (4x).



Note

Proceed in the reverse order when reassembling the unit.

After reassembling the unit perform calibration according to Chapter 15.3.2.

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15.7 Paving speed selector

- In case of a fault of the paving speed selector, the display shows error message F12.
- When calibrating the paving speed selector proceed according to Chapter 15.3.2.



15.7.1 Dismounting the paving speed selector

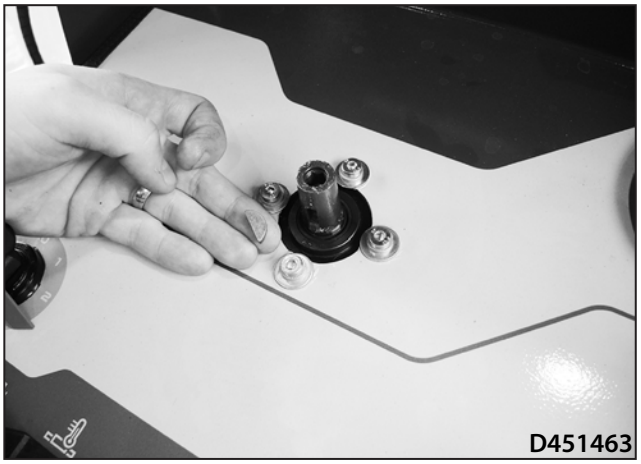
Dismount the paving speed selector from the machine with the switched off battery disconnecter and with the closed gas bottle valve.

Remove the steering wheel.

- Remove the cover.
- Remove the screw.

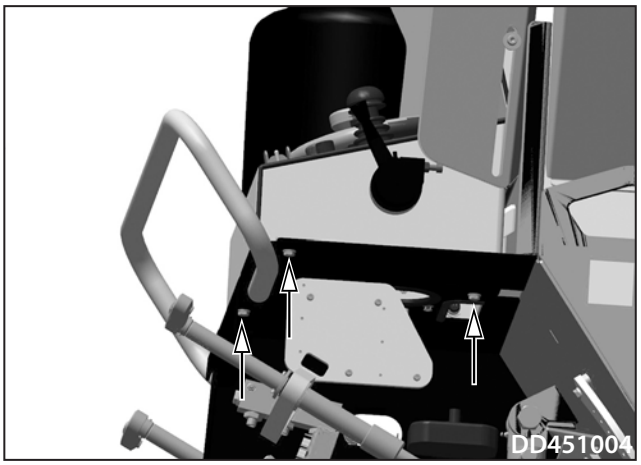


- Take out the steering wheel and remove the screws.



Remove the control panel.

- Remove the screws (3x).



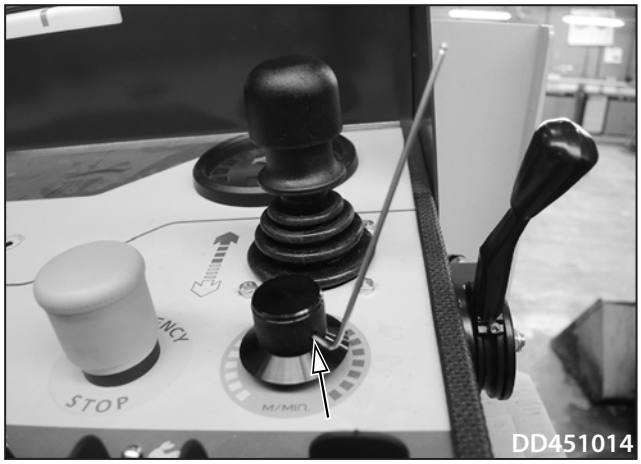
https://truckmanualshub.com/

Support the control panel.



Remove the paving speed selector regulator.

– Loosen the screw.



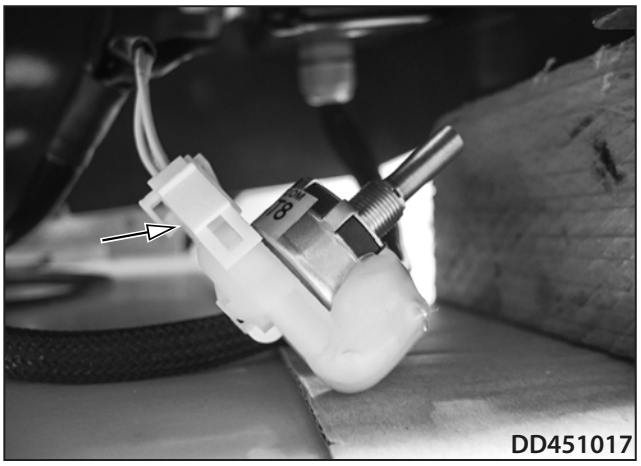


Remove the nut.



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Slightly pull out the selector and disconnect the X37 connector.



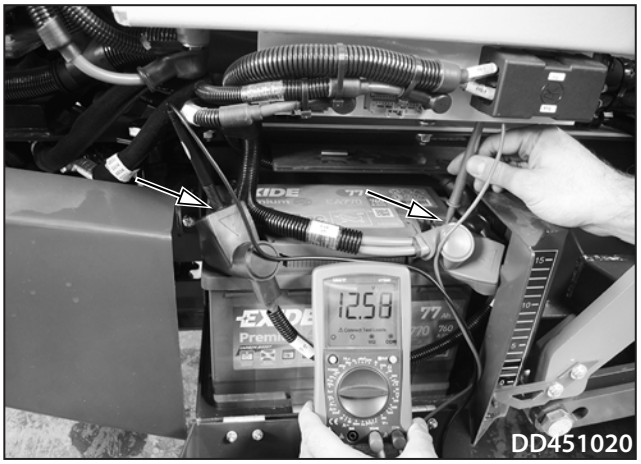
Note

Proceed in the reverse order when reassembling the unit.

After reassembling the unit perform calibration according to Chapter 15.3.2.

15.8 Battery

Measuring the battery voltage.



Battery status

Battery voltage	Battery charge status
12.6+ V	100%
12.5 V	90%
12.42 V	80%
12.32 V	70%
12.20 V	60%
12.06 V	50%
11.9 V	40%
11.75 V	30%
11.58 V	20%
11.31 V	10%
10.5 V	0%

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16 Appendices

https://truckmanualshub.com/

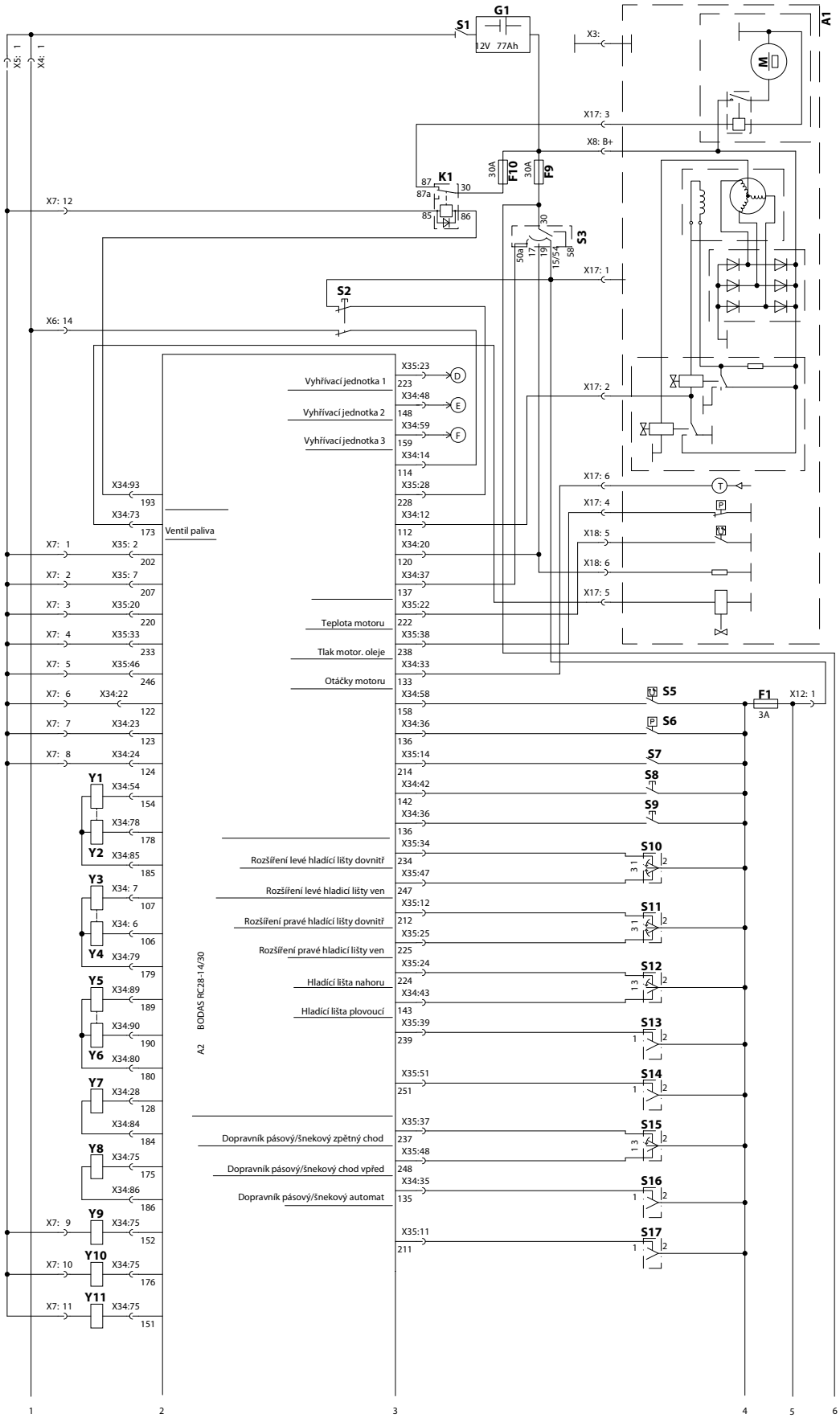
16.1 Machine wiring diagram

Legend:

A1	Diesel engine
A2	BODAS RC control unit
A3	Display unit
A4	Travel control lever
A5	Diagnostic socket
A6	Screed heating unit 1 (left)
A7	Screed heating unit 2 (middle)
A8	Screed heating unit 3 (right)
F1 - F8	Fuses
F9	Main fuse
F10	Starter fuse
G1	Battery
H1	Beacon
H2	Auger lighting
I1	Burner ignition (left)
I2	Burner ignition (middle)
I3	Burner ignition (right)
K1 - K6	Relays
K10	Relay
M1	Hydraulic oil cooling fan
P1	Horn
P2	Back signal horn
R1	Speed control potentiometer
R2	Pump turning potentiometer
R3 – R6	Resistor
S1	Disconnecter
S2	Emergency brake button
S3	Ignition box
S5	Hydraulic oil temperature switch
S6	Brake pressure switch
S7	Travel switch
S8	Foot switch
S9	Horn button
S10	Left smoothing screed extension switch
S11	Right smoothing screed extension switch
S12	Smoothing screed lifting switch
S13	Vibration switch
S14	Smoothing screed heating switch
S15	Conveyor direction switch
S16	Automatic mode switch
S17	Operating mode switch
S18	Screed temperature switch
Y1	Conveyor/auger electromagnet, right
Y2	Conveyor/auger electromagnet, reversing
Y3	Left smoothing screed extension electromagnet
Y4	Left smoothing screed retraction electromagnet
Y5	Right smoothing screed retraction electromagnet
Y6	Right smoothing screed extension electromagnet
Y7	Brake electromagnet
Y8	Floating smoothing screed electromagnet
Y9	Smoothing screed release electromagnet
Y10	Smoothing screed lifting electromagnet
Y11	Vibration electromagnet
Y12	Forward travel valve electromagnet
Y13	Reverse travel valve electromagnet

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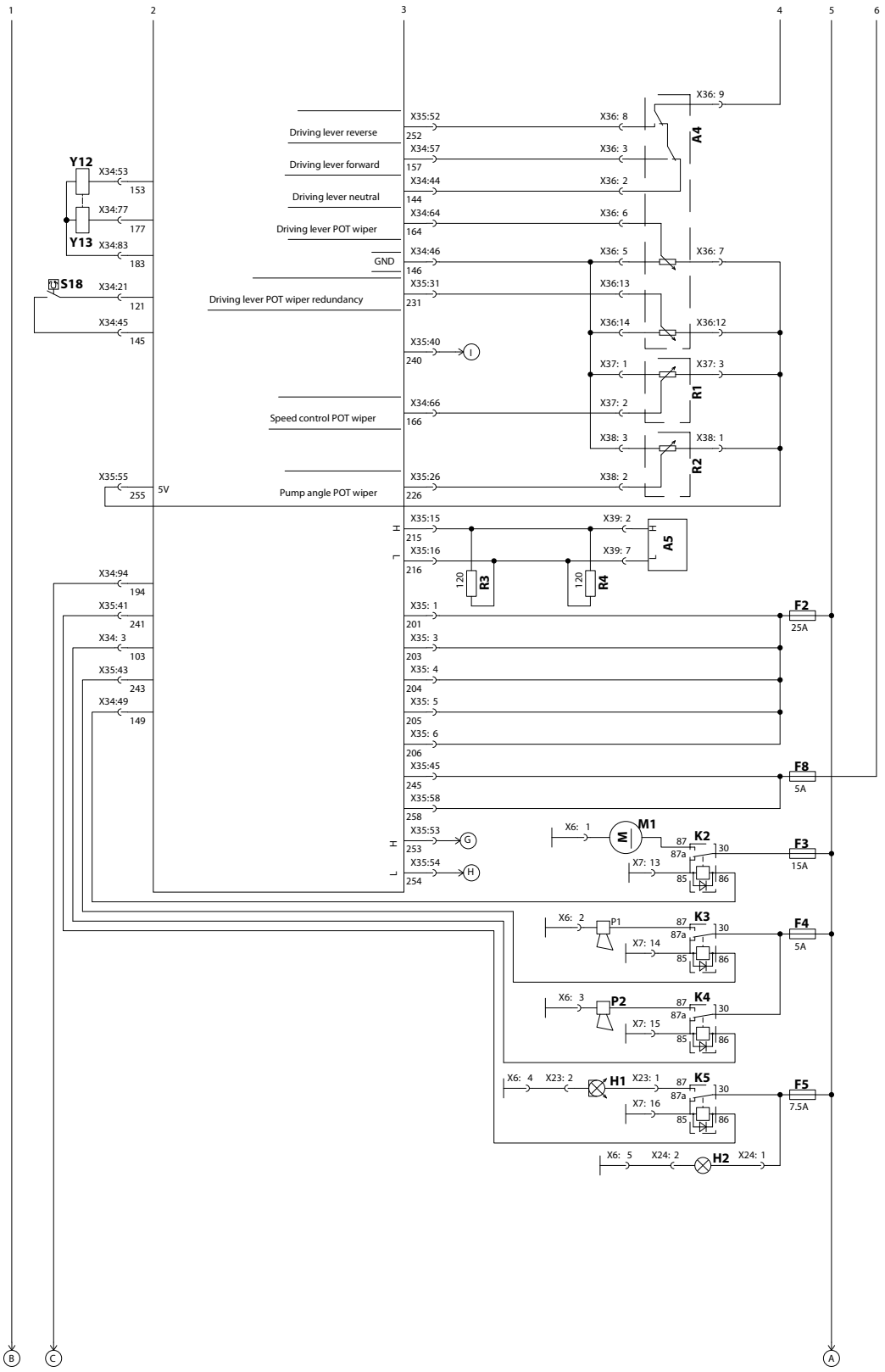
Machine wiring diagram

Legend:

A1	Diesel engine
A2	BODAS RC control unit
A3	Display unit
A4	Travel control lever
A5	Diagnostic socket
A6	Screed heating unit 1 (left)
A7	Screed heating unit 2 (middle)
A8	Screed heating unit 3 (right)
F1 - F8	Fuses
F9	Main fuse
F10	Starter fuse
G1	Battery
H1	Beacon
H2	Auger lighting
I1	Burner ignition (left)
I2	Burner ignition (middle)
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K10	Relay
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P2	Back signal horn
R1	Speed control potentiometer
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R3 – R6	Resistor
S1	Disconnecter
S2	Emergency brake button
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S5	Hydraulic oil temperature switch
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S7	Travel switch
S8	Foot switch
S9	Horn button
S10	Left smoothing screed extension switch
S11	Right smoothing screed extension switch
S12	Smoothing screed lifting switch
S13	Vibration switch
S14	Smoothing screed heating switch
S15	Conveyor direction switch
S16	Automatic mode switch
S17	Operating mode switch
S18	Screed temperature switch
Y1	Conveyor/auger electromagnet, right
Y1	Conveyor/auger electromagnet, right
Y2	Conveyor/auger electromagnet, reversing
Y3	Left smoothing screed extension electromagnet
Y4	Left smoothing screed retraction electromagnet
Y5	Right smoothing screed retraction electromagnet
Y6	Right smoothing screed extension electromagnet
Y7	Brake electromagnet
Y8	Floating smoothing screed electromagnet
Y9	Smoothing screed release electromagnet
Y10	Smoothing screed lifting electromagnet
Y11	Vibration electromagnet
Y12	Forward travel valve electromagnet
Y13	Reverse travel valve electromagnet

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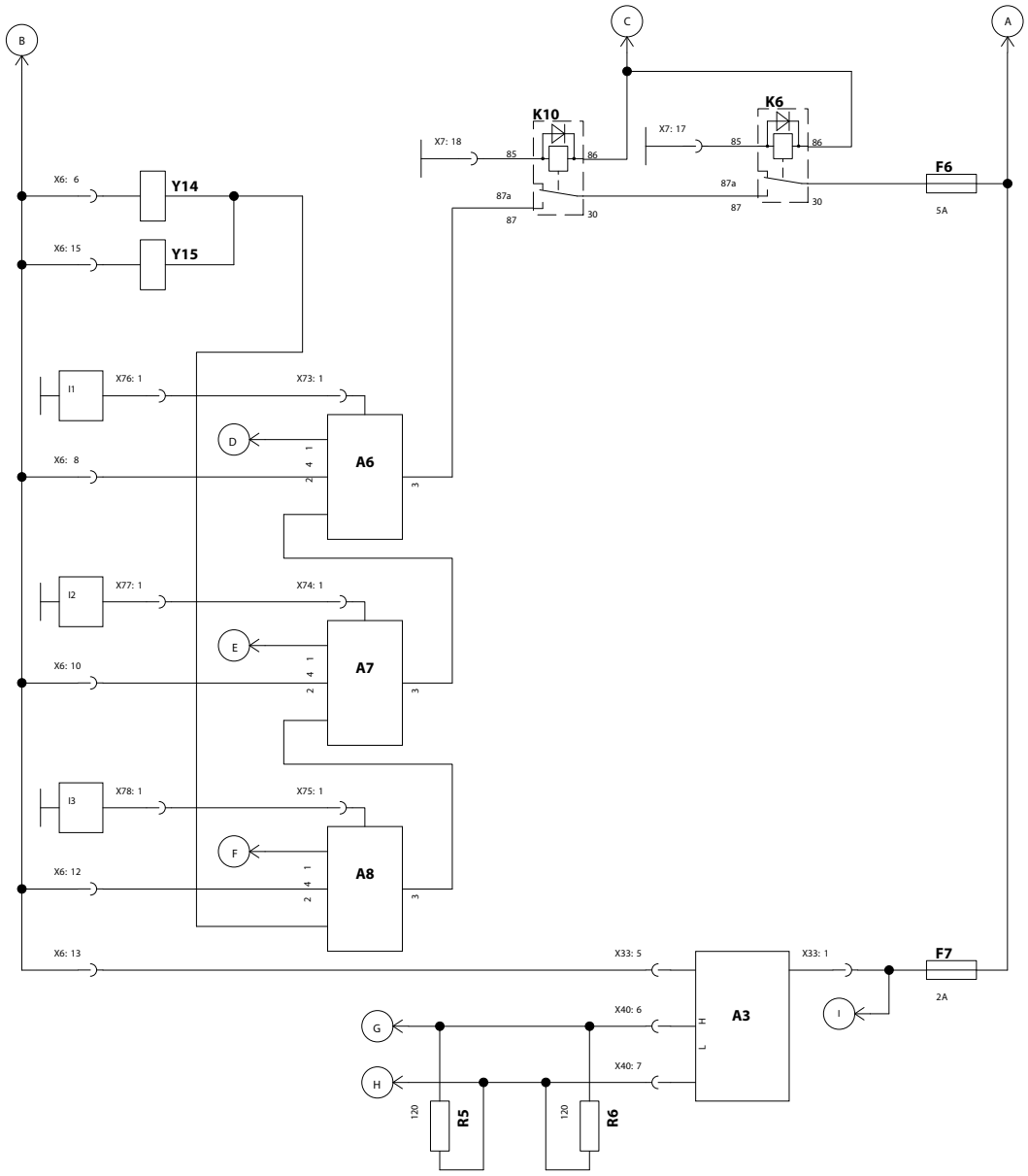
Machine wiring diagram

Legend:

A1	Diesel engine
A2	BODAS RC control unit
A3	Display unit
A4	Travel control lever
A5	Diagnostic socket
A6	Screed heating unit 1 (left)
A7	Screed heating unit 2 (middle)
A8	Screed heating unit 3 (right)
F1 - F8	Fuses
F9	Main fuse
F10	Starter fuse
G1	Battery
H1	Beacon
H2	Auger lighting
I1	Burner ignition (left)
I2	Burner ignition (middle)
I3	Burner ignition (right)
K1 - K6	Relays
K10	Relay
M1	Hydraulic oil cooling fan
P1	Horn
P2	Back signal horn
R1	Speed control potentiometer
R2	Pump turning potentiometer
R3 – R6	Resistor
S1	Disconnecter
S2	Emergency brake button
S3	Ignition box
S5	Hydraulic oil temperature switch
S6	Brake pressure switch
S7	Travel switch
S8	Foot switch
S9	Horn button
S10	Left smoothing screed extension switch
S11	Right smoothing screed extension switch
S12	Smoothing screed lifting switch
S13	Vibration switch
S14	Smoothing screed heating switch
S15	Conveyor direction switch
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S17	Operating mode switch
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Y1	Conveyor/auger electromagnet, right
Y2	Conveyor/auger electromagnet, reversing
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Y4	Left smoothing screed retraction electromagnet
Y5	Right smoothing screed retraction electromagnet
Y6	Right smoothing screed extension electromagnet
Y7	Brake electromagnet
Y8	Floating smoothing screed electromagnet
Y9	Smoothing screed release electromagnet
Y10	Smoothing screed lifting electromagnet
Y11	Vibration electromagnet
Y12	Forward travel valve electromagnet
Y13	Reverse travel valve electromagnet

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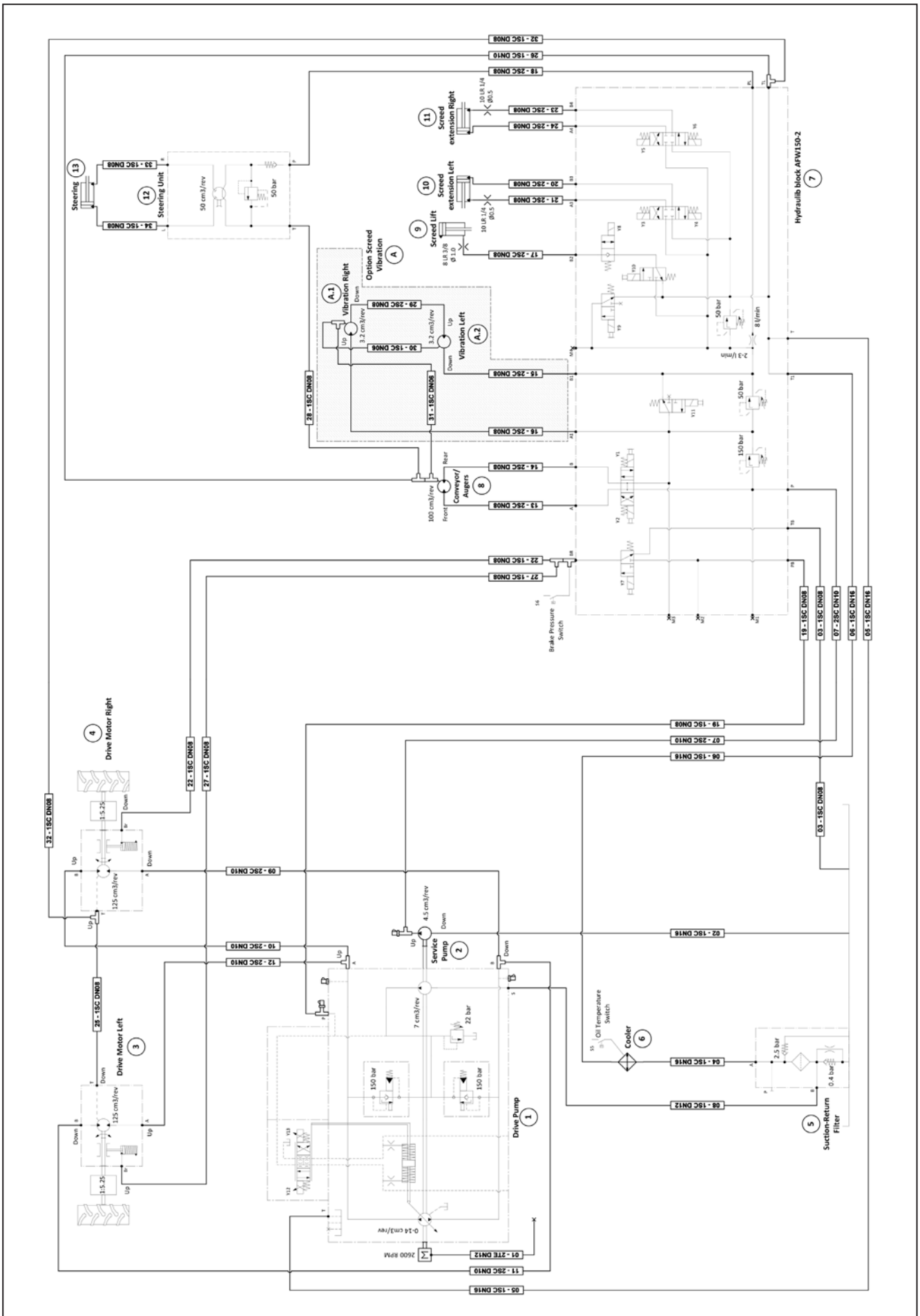
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16.2 Machine hydraulic system diagram

Legend:

1 Travel pump
2 Operating pump
3 Left travel motor
4 Right travel motor
5 Suction return filter
6 Hydraulic oil cooler
7 Hydraulic system block
8 Augers
9 Screed lifting/lowering hydraulic cylinder
10 Left paving width hydraulic cylinder
11 Right paving width hydraulic cylinder
12 Control unit
13 Steering
A.1 *Vibration unit right
A.2 *Vibration unit left

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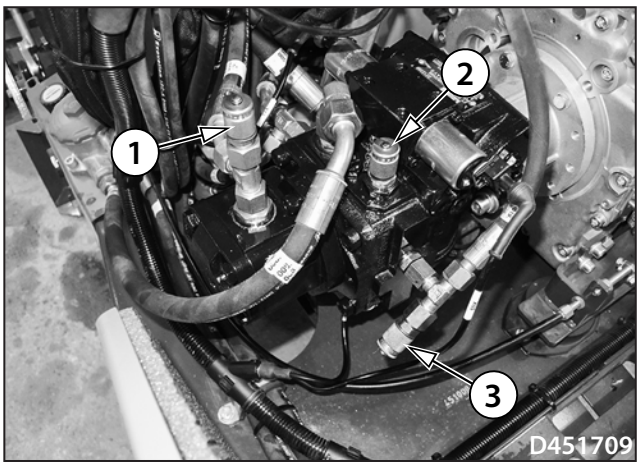
16.2.1 Measuring points of the hydraulic circuit

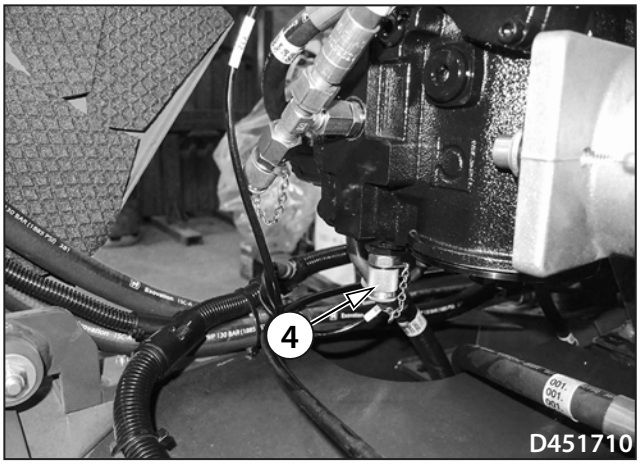
The table shows the list of the hydraulic circuit measuring points located on the machine.

Note

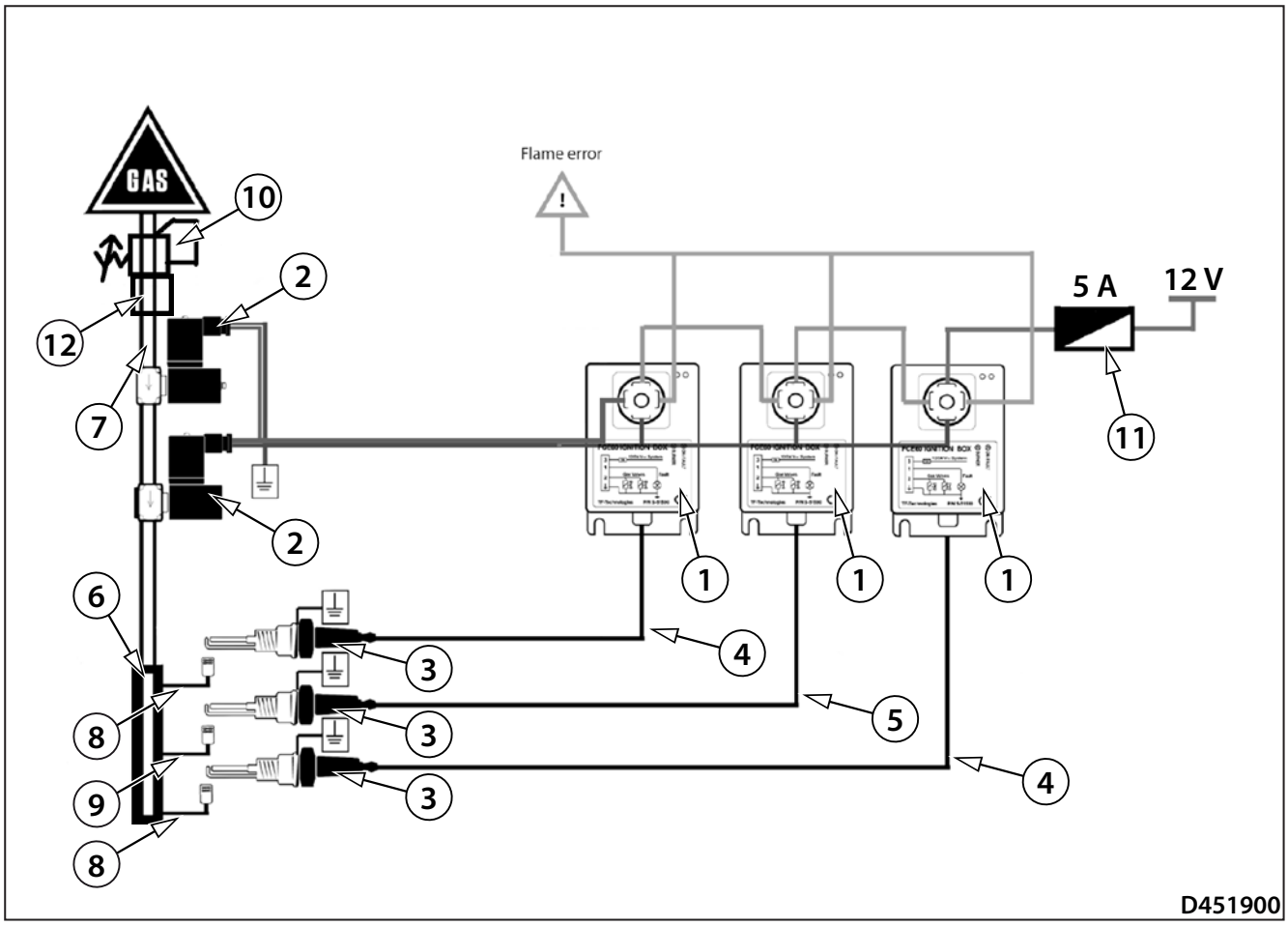
See the procedure for measuring the pressure in the hydraulic circuit in the workshop manual delivered upon a special order.

	Mode	Pressure (bar)
Measuring point no. 1	Conveyor (maximum speed)	150±5
	Auger (maximum speed)	150±4
	Screed lifting (maximum speed)	50±5
	Screed extension (maximum speed)	50±5
	Vibrations + travel (maximum speed)	50±5
	Steering (maximum speed)	50±5
Measuring point no. 2	Forward travel	150±10
Measuring point no. 3	Refilling pressure (maximum speed)	20±2
	Refilling pressure (idle speed)	22+4/-2
Measuring point no. 4	Reverse travel	150±10





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16.3 Screed gas heating system diagram

Legend:

1 Automatic screed heating ignition boxes
2 Gas supply solenoid valves
3 Spark plugs
4 Cables
5 Cable
6 Gas supply manifold
7 Gas hose
8 Gas hose
9 Gas hose
10 Reducing valve
11 Screed heating fuse, 5 A
12 Safety valve

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Notes

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