Vibratory Rollers
DV201 - DV202 - DV204

Service Manual

Cre 9-54980

CASE

DV201 - DV202 - DV204
Vibratory Rollers

CONTENT

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INTRODUCTION

This series of Vibratory Rollers is suitable for compaction of all kinds of ground and for large and average-scale site pretaration in highway construction (construction of highways, railways, airports), in hydro-engineering (construction of dams), in building construction (industrial areas, ports), and the like.

These machines are manufactured in compliance with the latest developments and standards, which ensure their safe function.

If the machine is used incorrectly, by untrained operators or for other purposes than those stipulated within, there is a danger of an accident or damage to the equipment or injury to personnel.

The main purpose of this manual is to give the information necessary for carrying out assembly and disassembly of the machine as well as service repairs of main assemblies of the equipment. It contains technical and installation data, instructions on how to adjust the machine and how to use special tools, fixtures and aids.

The manufacturer continuously seeks to make product improvements on the basis of experience and latest developments in the field.

For this reason, the manufacturer may make some changes in drawings, descriptions and designs in this manual.

SAFETY INSTRUCTIONS

GENERAL SAFETY INSTRUCTIONS

The following safety instructions must be observed by ALL personnel repairing the machine.

1. Repairs may be carried out by skilled, trained and experienced personnel only.
2. When performing repairs, always use our service manual. Special instructions for the assembly work are given in individual chapters of this manual.
3. Before putting the machine into operation familiarize yourselves with the machine controls as explained in the “Operator’s Manual” and make sure that you are completely familiar with the machine.
4. Do not use the machine if you do not fully understand all controls and until this know how the machine works.
5. Familiarize yourself with the area where you will work.
6. Do not carry out any redesign work or modifications on the machine because you could compromise the safety of the equipment.
7. Original parts and accessories have been designed especially for this machine.
8. Installation and use of spare parts not supplied by the manufacturer of the machine or not authorized by them can have negative effects on operational characteristics and safe operation of the machine.

REPAIRING AND INSPECTING THE MACHINE

1. Wear working clothes and boots.
2. Use gloves when handling oils, fuel or coolant.
3. Protect your eyes with a full face shield when handling the battery.
4. Place the equipment on a flat and firm surface before starting repair. Secure the machine to prevent spontaneous movement.
5. Secure the frame of the machine and the drum to prevent rotation using a locking pin and a draw bar.
6. Before starting work remove the starter switch key, disconnect the batteries and let hot parts cool down.
7. Attach a "Do not operate" warning note to the steering wheel and leave it there for the duration of the service work.
8. Wash the equipment thoroughly. If you use steam, do not expose electrical components and insulation directly to the steam, otherwise cover them beforehand.
9. Keep all parts absolutely clean when dismantling, mounting, and servicing each assembly. Protect removed parts from getting soiled.
10. Clean the surface of dismantled parts and do the necessary to ensure adequately dust-free working conditions and a suitable storage area.
11. Be careful when handling cleaning agents. Do not use fuel or other easy inflammable materials for cleaning.
12. Dry the cleaned parts and immediately cover with anti-corrosive protective oil, never install corroded parts.
13. Tools, hoists, safety equipment on chains, and other additional items must be serviceable and in good condition.
14. Use hoists and fasteners (ropes, chains) that have sufficient lifting capacity and are in good condition.
15. Make sure that there is enough fresh air supply when starting up the equipment in an enclosed area.

16. Before operating the equipment make sure there is nobody on the machine or close by. Starting up of the machine must always be announced with an audible alarm, also after any pause in operation before the equipment is restarted. Those present on the machine and dangerously close by must leave the machine after the alarm has been sounded.
17. Do not adjust moving equipment.
18. When working (adjusting) on a running engine, avoid touching hot and rotating parts. During work on a running engine, another person must be present that can easily access the emergency switch and must be in contact at all times with the person performing the adjustment, to be able to switch off the engine immediately when necessary.
19. Use only approved makes of motor, gear and hydraulic oil and coolant.

WORKING ON HYDRAULIC CIRCUITS

1. Make sure that no hydraulic circuit is under pressure before opening it. Hydraulic oil leaks under pressure may penetrate your skin and cause serious injury.
2. Mark all parts, hoses and pipes before removing them.
3. Do not operate hydraulic pumps and hydraulic motors without oil.
4. There is danger of being scalded when handling hot oil.
5. Do not warm oil to temperatures above 160°C (320°F), oil or its fumes may ignite.
6. For cleaning and wiping hydraulic parts use lint free material.
7. When reassembling parts use hydraulic oil, not grease, as a lubricant.
8. Clean screws and bolts carefully before installation, wash hoses and pipes and blow through them using compressed air.
9. Always use new seals and packing in sealing areas during re-installation.
10. Fill new components with hydraulic oil before installation.
11. Rinse the hydraulic circuit after replacing a hydraulic component; clean the hydraulic reservoir as well.
12. Replace the oil filter cartridge.
13. Fill the hydraulic circuit with clean oil of the recommended viscosity, but only when the engine has been stopped.
14. Wipe off excess oil.
15. Check connections for tightness and any oil leaks, before applying pressure to the system.
16. Do not adjust safety valves.
17. After all work has been finished, recheck all connections and replace all safety items.
18. After finishing the work put all protective devices back in place.
19. After putting the machine into operation.
    - Check the level in the hydraulic reservoir.
    - Check the output pressure of hydraulic pumps if they have been replaced as well as safety valve pressure. Carry out the measurements at a temperature of 40°C (104°F).

WORKING ON THE FUEL SYSTEM

Mixtures of gasoline and diesel (winter fuel) are as inflammable as gasoline.

1. Do not refuel in closed areas.
2. Wipe off excess fuel.
3. Do not smoke when working on the fuel system and do not use open frames. There is a danger of fire.

WORKING ON ELECTRICAL WIRING

1. Disconnect the battery when carrying out any repairs on the charging circuit to avoid accidental short-circuits.
2. When dismantling, first disconnect the cable from the negative pole (-), then the cable from the positive one (+).
3. Do not disconnect batteries when the engine is running.
4. Connect the “minus” pole of the battery to the chassis and the “plus” pole to terminal “B+” from the alternator. Opposite connection will cause the whole semi-conductor device to be destroyed.
5. When starting with an auxiliary external supply, do not disconnect the supply before is the battery the machine is charging. Make sure of the starting voltage of the auxiliary external supply, (for 24 V).
6. Do not put the alternator into no-load operation, i.e. with the wire disconnected from the “+” terminal and connected to the “D+” terminal.
7. Do not check the presence of voltage in the wire by sparking it on the chassis of the equipment.
8. Do not do anything that produces sparks.
9. When handling batteries, use protective rubber gloves and full face protection.
10. Protect your skin and clothes from stains caused by electrolyte or lead particles.
11. If electrolyte gets into your eyes, rinse them with running water for 15 minutes. Then see a doctor as soon as possible.
12. When electrolyte stains your skin or clothes, take off your clothes, wash the stained area with soapy water or with a solution of baking soda and water and see a doctor.
13. In the event of accidentally swallowing electrolyte, drink as much milk or water as possible or a solution of milk of magnesia and immediately see a doctor.
14. Never pour distilled water into the cells unless the operation of the machine or charging outside the machine follows. In this case, the battery would discharge rapidly.
15. Never add sulfuric acid (H_2SO_4).
16. Do not overturn the batteries because electrolyte could run out of the air vents in the battery.
17. If acid (electrolyte) is spilled, rinse the area with water and neutralize it with lime.
18. When the batteries are being charged, hydrogen is released and, mixed with air, makes an explosive, easily combustible mixture. Do not use open flames and do not smoke.

WELDING ON THE MACHINE

Before starting arc welding, disconnect all parts with semi-conductors from electrical wiring, i.e.:

- engine alternator,
- hourmeter,
- control unit under the instrument panel,
- ground both the supply and the machine that is being repaired,
- protect the supply point against moisture,
- place the ground terminal close to the welded joint,
- when parts are welded or when the machine is in the suspended position, insulate the point of current transfer to avoid current entering the hoist, or use a non-conducting rope.

SEALS

1. Always use new seals.
2. You can obtain seals kits in spare part form.

HARDWARE TORQUE

1. Use a torque wrench to obtain correct hardware torque.
2. Fastening screw and nut are tightened according to the table.
3. Screw grades are shown normally on the screw head.
4. Hardware torque is given in the tables.
5. Threaded connections for hydraulics are tightened as specified in the tables.
6. The given hardware torque specifications are valid for dry screw threads.
7. Use new self-locking nuts only.

DESCRIPTION

Front frame (1)
The front frame is a weldment, and it contains a fuel tank. A plastic water tank (14) is placed in the front part of the frame along with a hydraulic oil tank (13) and a storage battery (20) with a master switch. The driving unit is flexibly mounted in the rear part of the frame. The whole space of the front frame is covered with a hinged laminated cowl.

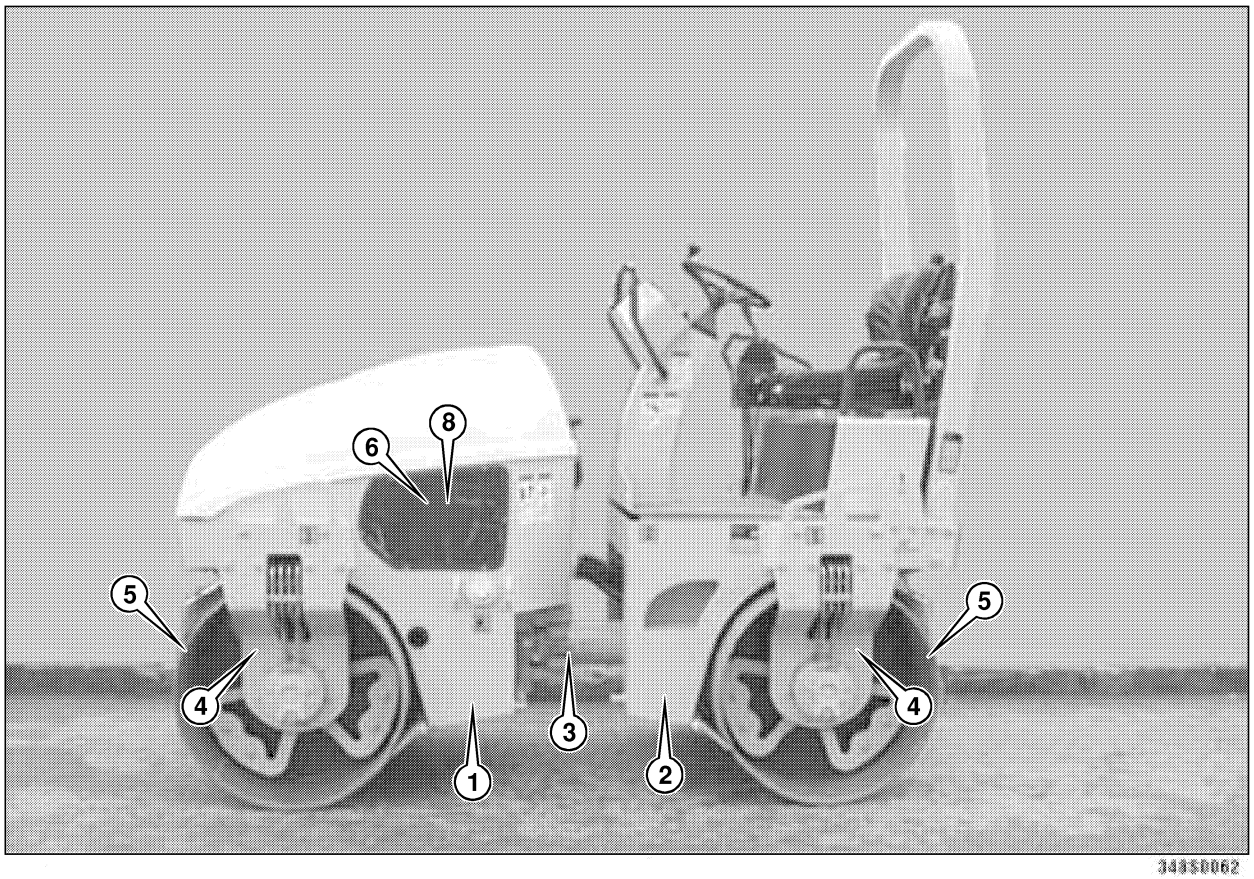
Rear frame (2)
The rear frame is a weldment too. The platform (15) and plastic water tank (14) are flexibly mounted on the frame. The protective frame (21) is fixed to the rear part of the frame.

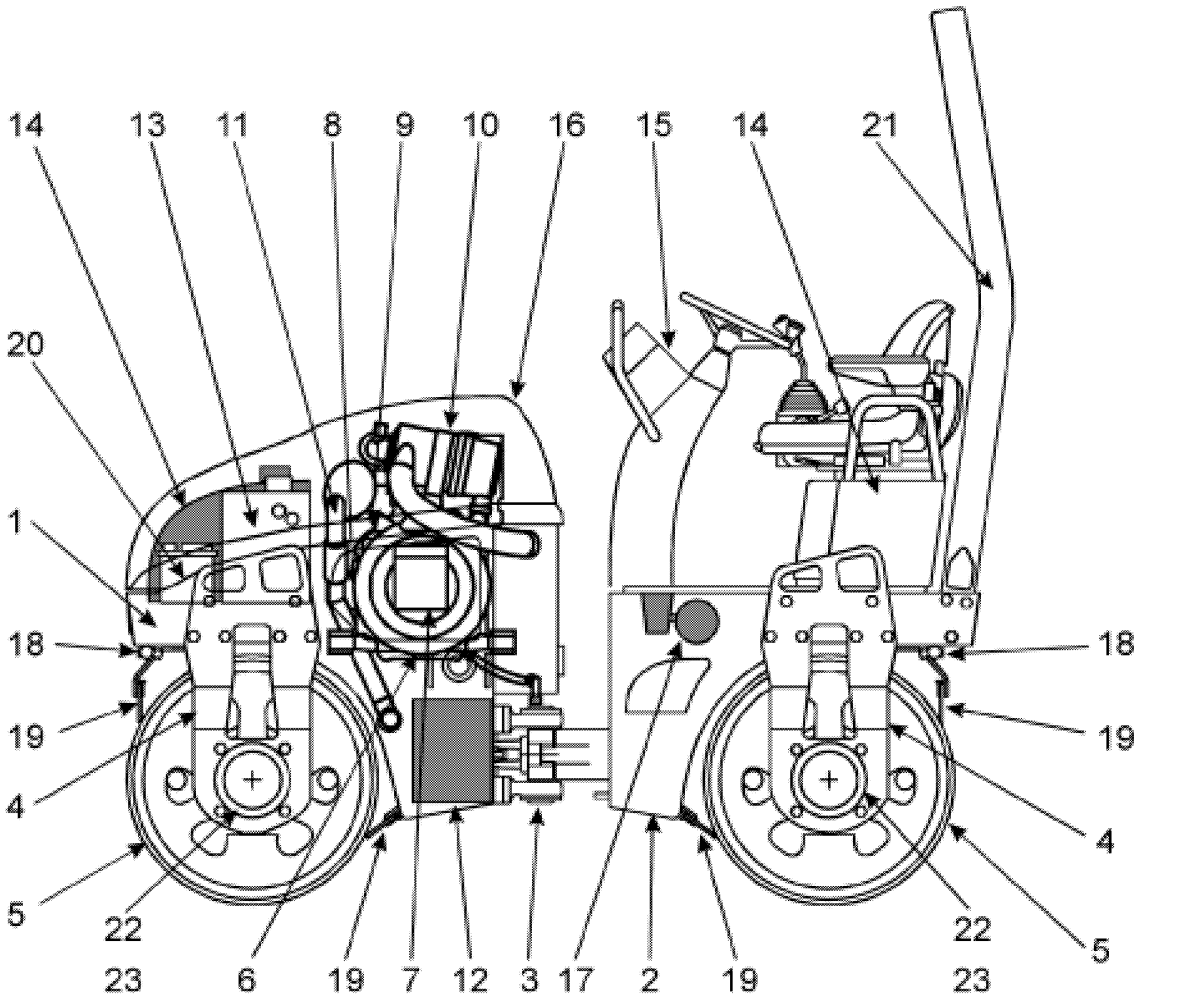
Articulated joint (3)
The hinge joins the front and rear frames. It has a horizontal pin (1) and a vertical pin (2). Both are mounted in bearings that make it possible for both parts to turn horizontally as well as vertically.

Front and rear forks (4)
The forks attach the drums flexibly to the rear and front frames. The travel hydraulic motor is fixed to the left fork; the absorber plate with two rubberized metal pieces is also flexibly attached to the right fork

Front and rear drums (5)
The drum is welded of steel plates. In the lids there are roller bearings with the shaft of the vibrator with two eccenters. The shaft is driven through a clutch by the vibration hydraulic motor. The bearings are lubricated by a grease fill. The drum rotates in the bearing in the right lid and the bearing of the hydraulic motor.

Driving unit
This unit is flexibly mounted in the front frame. It consists of a combustion engine with air cooling (6) which is driven by the travel hydraulic generator via the clutch. Two gear hydraulic generators – vibration and servosteering (8) – are mounted on the engine side.

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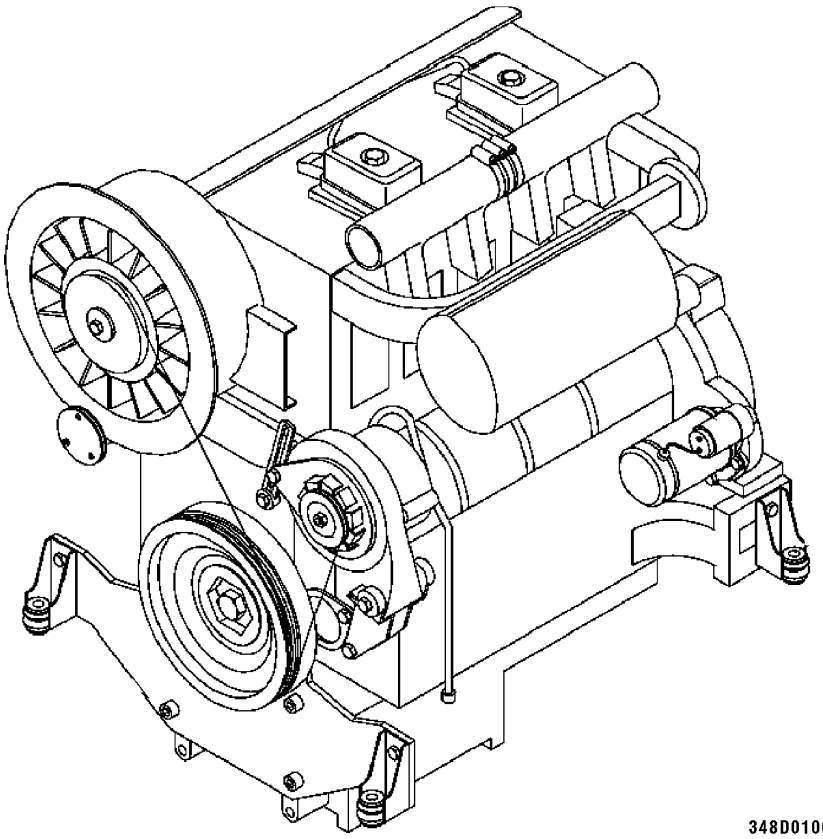
1 - Front frame
2 - Rear frame
3 - Articulated joint
4 - Front and rear forks
5 - Front and rear drum
6 - Engine
7 - Hydraulic generator of travel
8 - Tandem hydraulic generator of vibration and power steering
9 - Hydraulic oil cooler
10 - Motor air filter
11 - Exhaust
12 - Fuel tank
13 - Hydraulic oil tank
14 - Sprinkling water tank front and rear
15 - Platform
16 - Hood
17 - Sprinkling pump
18 - Sprinkling of the drums
19 - Scrapers of the drums
20 - Battery
21 - Protective frame ROPS
22 - Travel hydraulic motor
23 - Vibration hydraulic motor

REMOVAL OF THE ENGINE FROM THE MACHINE WITH THE TRAVEL PUMP



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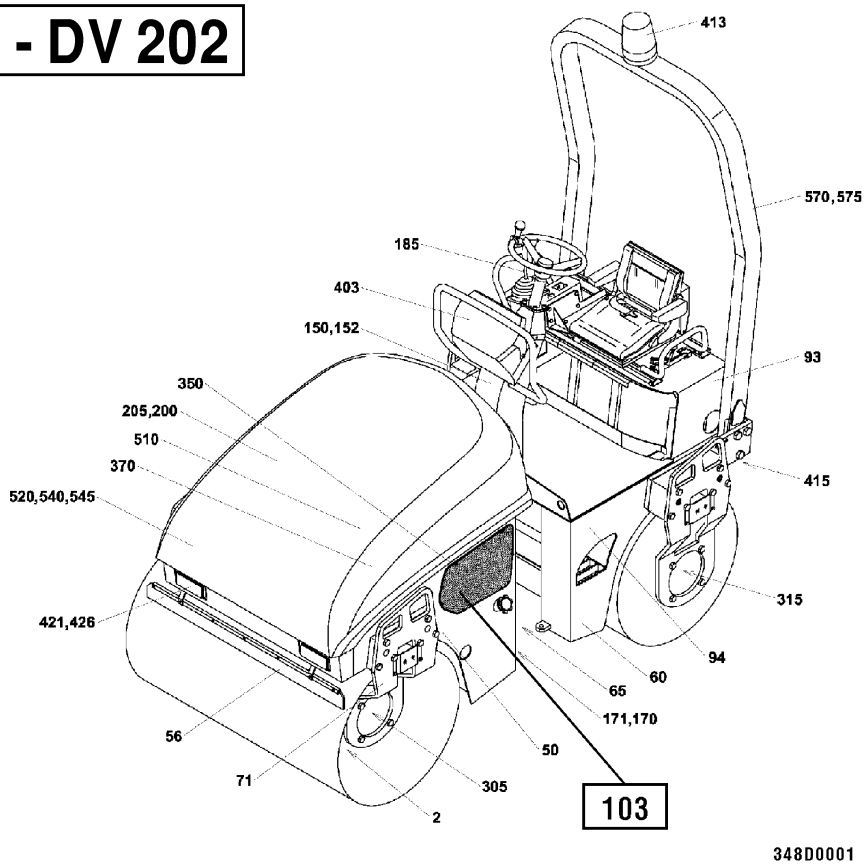

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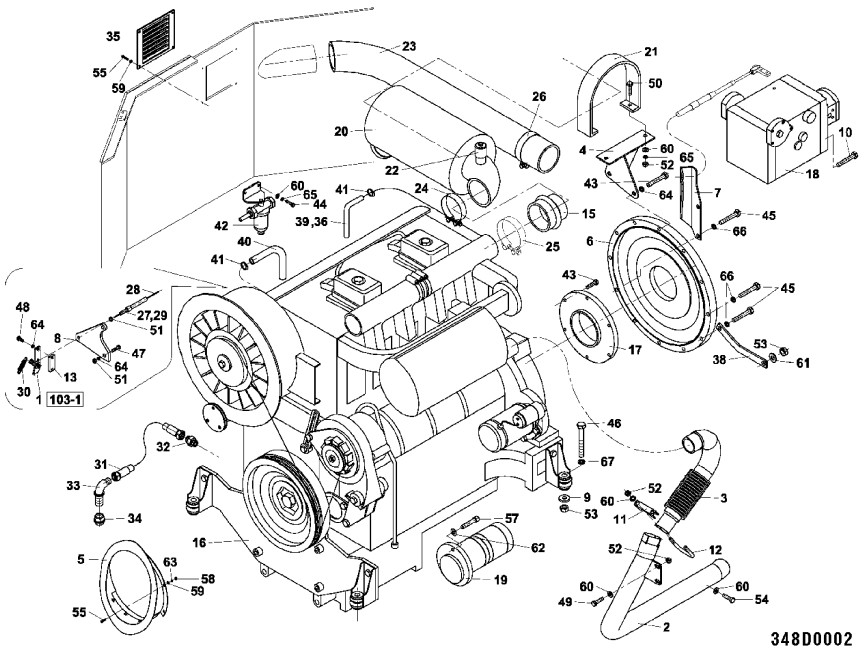

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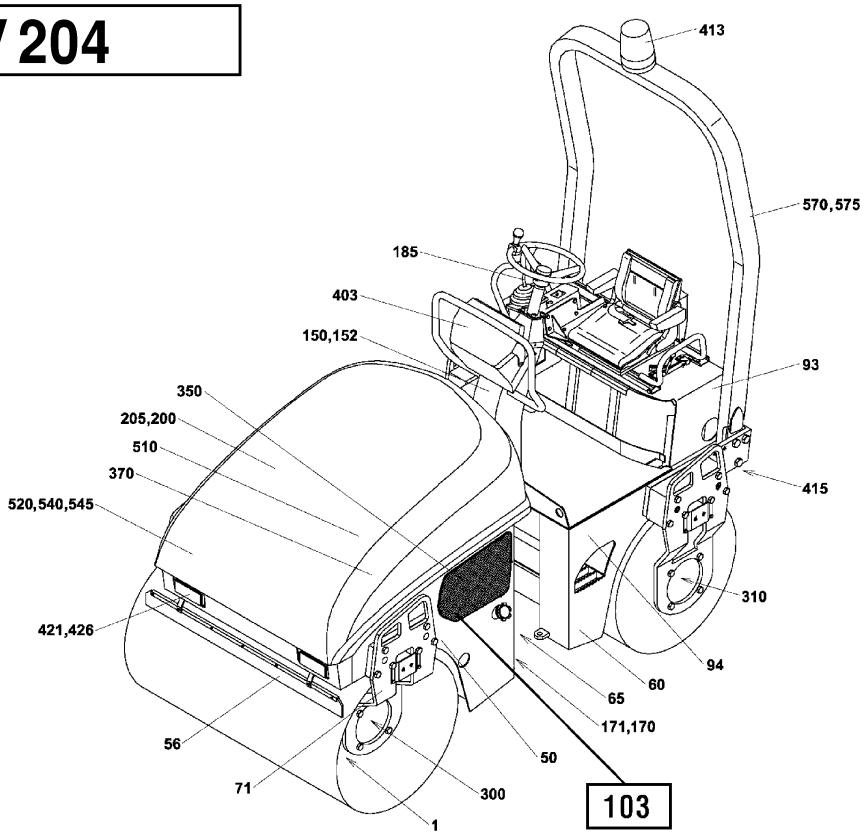
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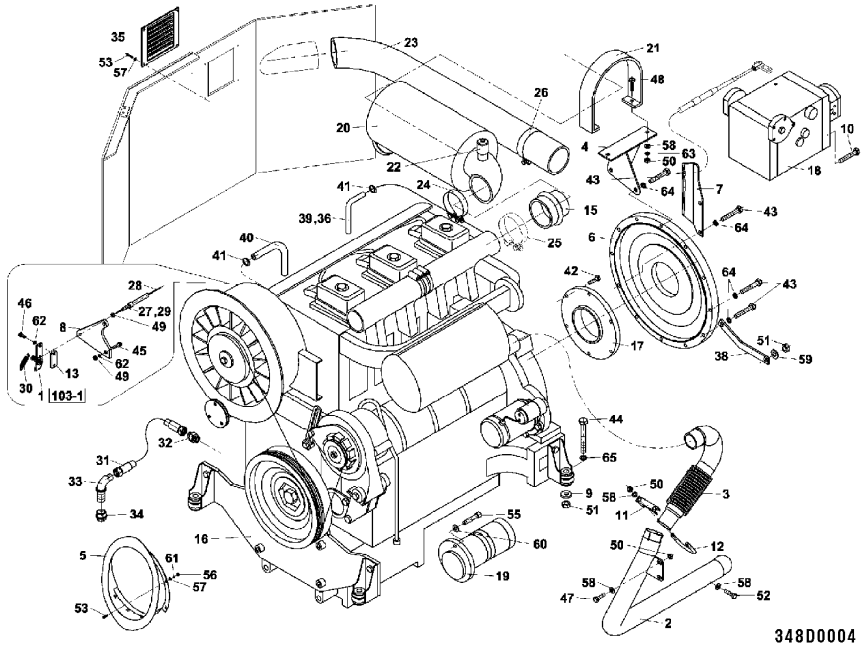
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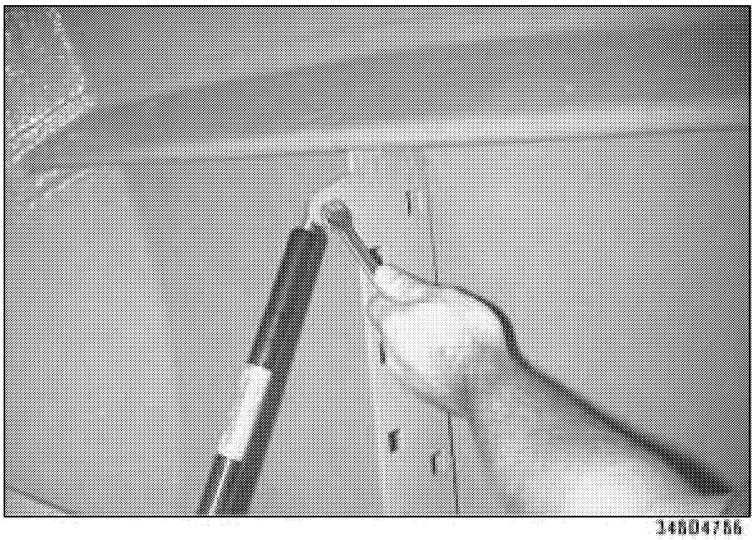
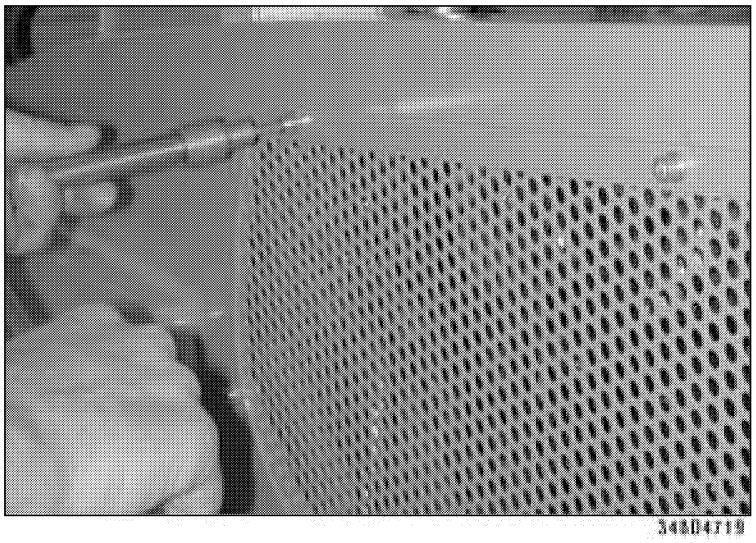
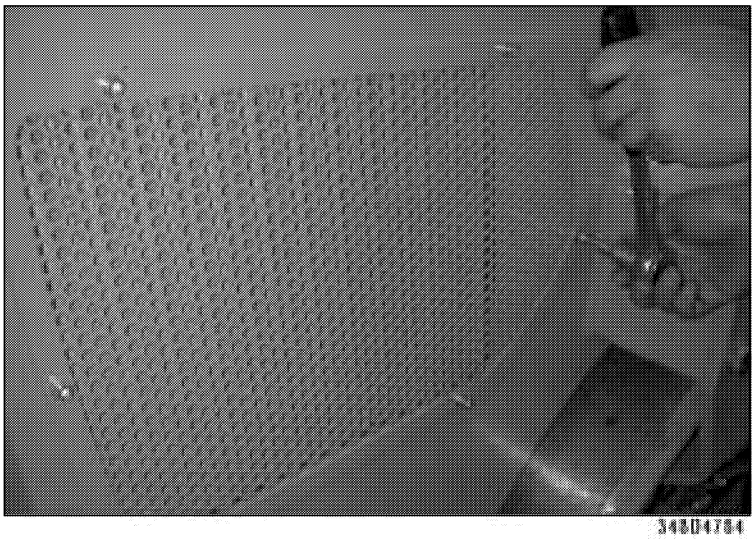
Lift the hood, remove the mounting of the gas-operated support on the hood and tilt the hood.

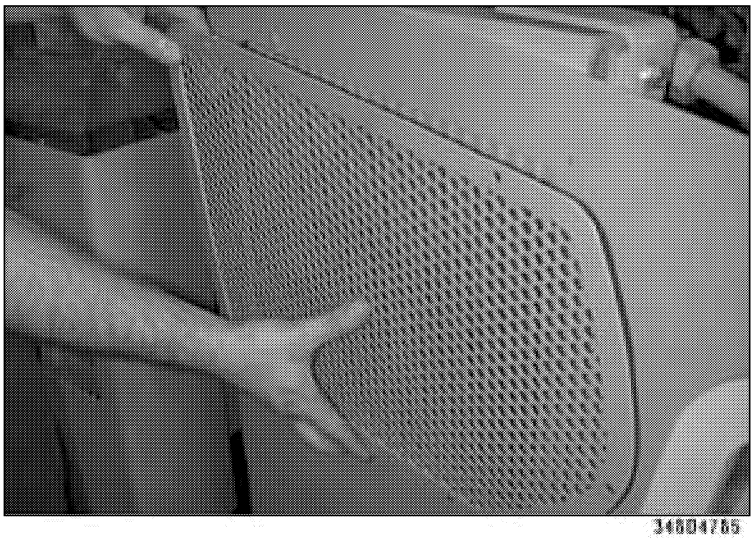


Remove cover on the front frame of the machine on the left side.

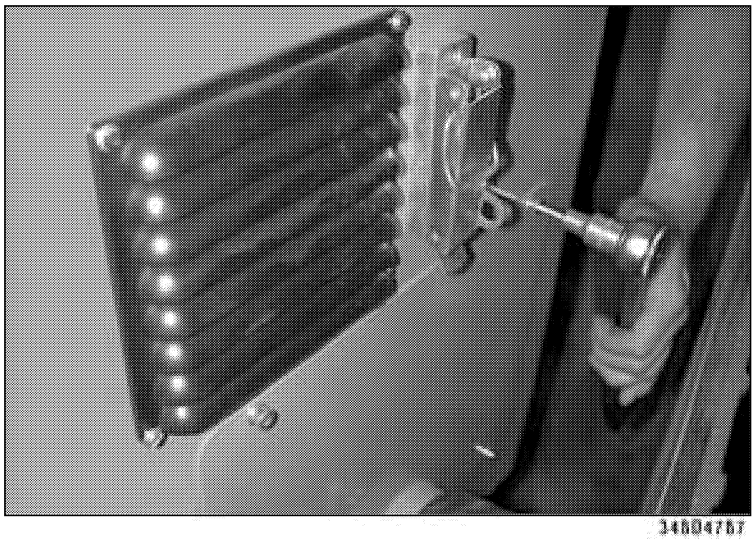


Remove cover on the front frame of the machine on the right side.





Remove cover on the front frame above the steering joint of the machine.



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Release the lid on the filling hole of the oil tank for the engine.

Remove drain plug of oil fill of the engine and drain oil.

Remove the hose in the frame of the machine on the „L“ joint of the drain plug.