



255 / 265 TANDEM ROLLER

SERVICE MANUAL SM61005

December 2000

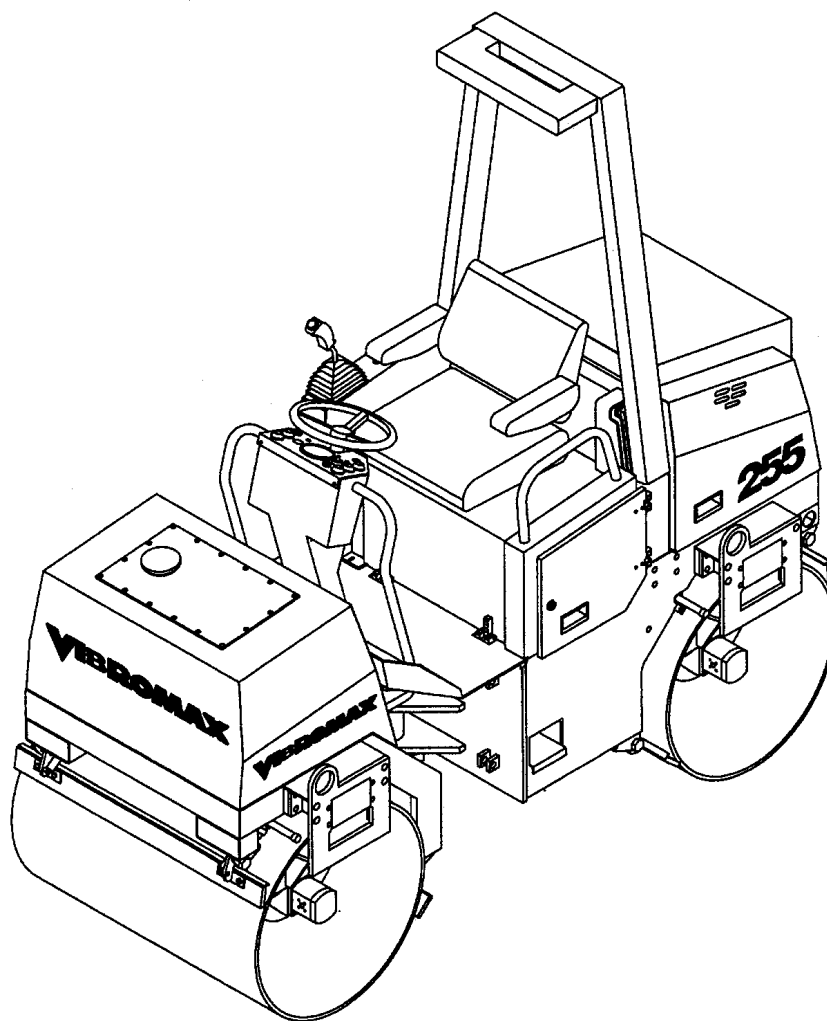


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SECTION ONE

GENERAL INFORMATION

Built with serviceability in mind.



MACHINE DESCRIPTION

The 255/265 Series vibratory roller is a redesign of the 253/263. The machine remains a 2.5 metric ton, tandem drum machine with articulated steering, hydrostatic drive and a hydraulically driven vibration system. The 255 has a 1000 mm (39 inch) drum width while the 265 is a 1200 mm (47 inch) drum width version. These machines are also offered with a “K” version which is a combination roller built with pneumatic tires in place of the rear drum.

A Kubota D1403B, water cooled, three cylinder in-line diesel engine, mounted in the rear chassis, provides the power for the machine. The standard engine has a 29.0 Net Horse Power rating at 2600 RPM. An optional high horsepower Kubota D1403B (37 horsepower) is also available. Both engines meet the latest exhaust emissions standards.

A Sauer Sunstrand hydrostatic propulsion pump provides oil for the front and rear Poclain, fixed displacement, drum drive motors in a parallel path. On the “K” model combination roller there are three propulsion motors in parallel. Propulsion system controls are enhanced with the addition of a high and low operating range. The motors are located on the right hand side of the drums and are connected directly to the drum.

The vibration system consists of a fixed displacement gear pump mounted to the back of the propulsion pump. This gear pump drives the two gear motors (one on each drum, left hand side) in a series flow path, with options of vibration to the front drum only, rear drum only, both drums or neither drum. Oil from the vibration circuit passes through an air to oil cooler at the engine radiator. The exciter shafts and the drum bearings are oil lubricated, eliminating the need for grease zerks.

Pressure testing of the hydraulic system has been simplified by the location of a test station inside the left side access door. Pressure testing of the drive, charge, vibratory and steering systems can be performed from this one location.

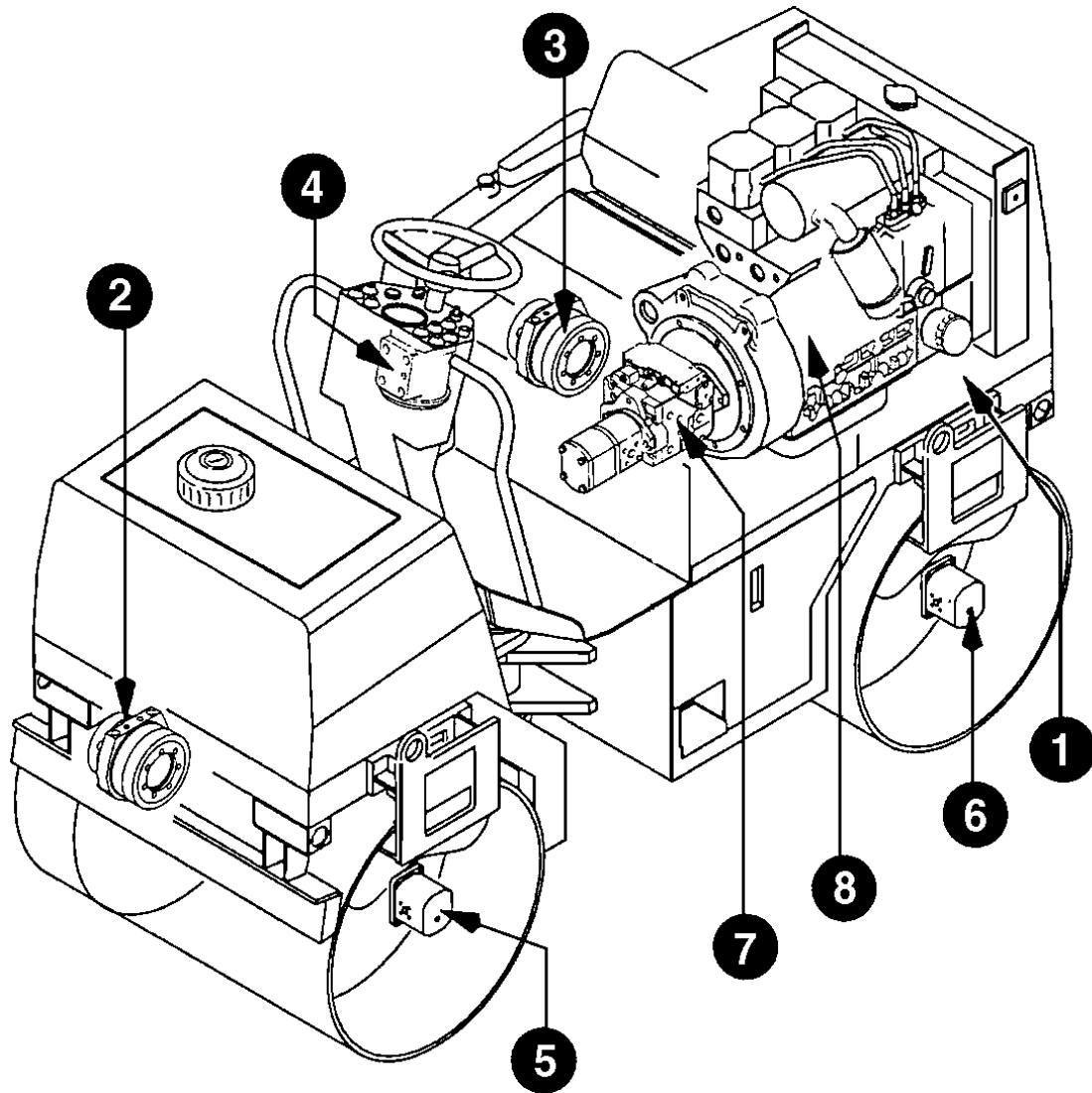
Front and rear parking brakes are provided on the 255/265. The drum brakes are integral to the drive motors. The brakes are spring applied / hydraulically released and are controlled by a switch on the dash and by an emergency stop switch on the right operators console. A brake release valve and a brake hand pump are located under the hood on the left side of the machine. These items provide for brake release when towing a disabled machine.

A steering pump, mounted to the back of the vibration pump, provides oil for the steering control valve and a single steering cylinder at the articulation joint. The joint is maintenance free, providing 40 degrees of articulation and 15 degrees of oscillation. An articulation joint safety lock completes the steering system.

The return oil flow from the vibratory circuit and the steering circuit passes through a 10 micron oil filter mounted in the top of the hydraulic reservoir. A filter bypass and a pressure differential switch completes the filter circuit. The hydraulic reservoir is located below the operators platform on the left side of the rear chassis.

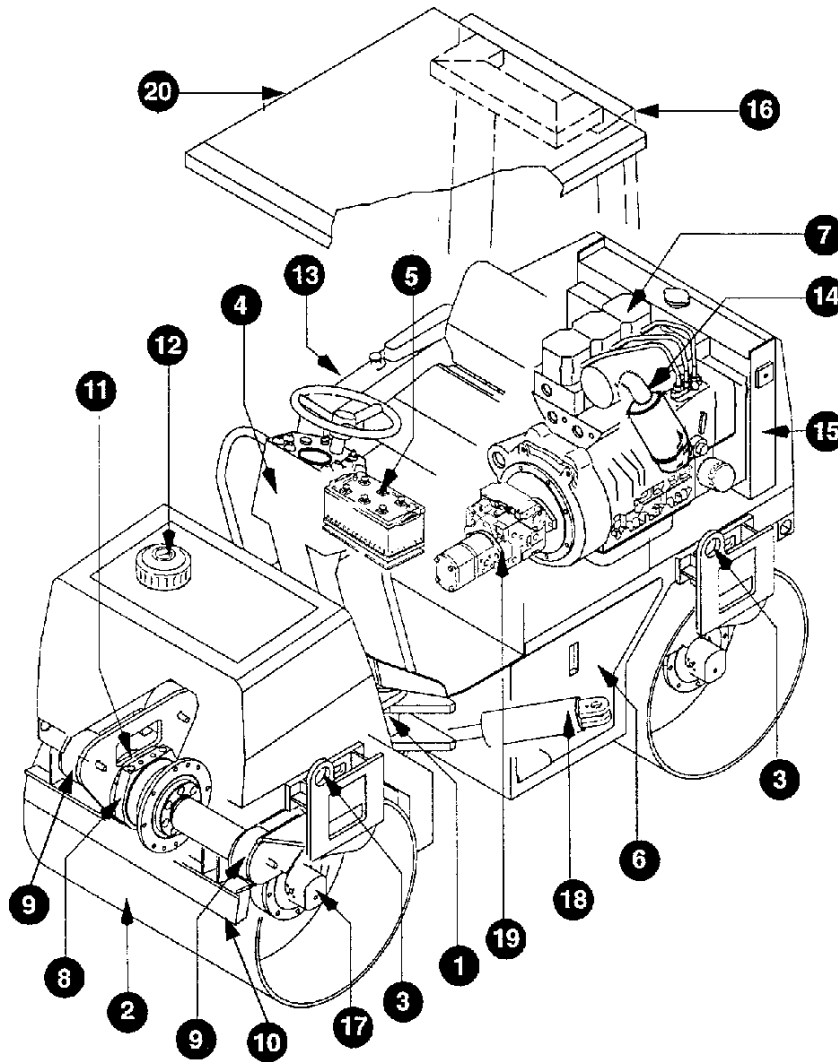
The electrical system consists of the standard starter, battery and charging circuit along with optional lighting, hazard and directional lights. The instrument panel includes switches for vibration, sprinklers, lights and brakes along with the standard instrument cluster of warning lights and an hour meter. An emergency stop button is located right of the operator's seat. All electrical fuses and relays are located behind a door panel on the right side of the operators platform.

A 53 gallon water tank is located on the front chassis, providing water for the asphalt sprinkler system. The tank's modular design allows for easy removal if necessary. On the "K" model combination roller the water tank has two separate compartments and the system has two water pumps to allow for the use of a special spray on the pneumatic tires. Pressurized sprinkler bars with spray nozzles on each drum, or tires on the "K" model, complete the water system. Spring loaded scrapers are provided on the front and rear of each drum. This arrangement keeps a constant scraper pressure against the drum.



SERIAL NUMBERS

1	Model / Serial Number	
2	Front Drum Drive Motor S/N	
3	Rear Drum Drive Motor S/N	
4	Steering Unit S/N	
5	Front Vibratory Motor S/N	
6	Rear Vibratory Motor S/N	
7	Hydraulic Pumps S/N	
8	Engine S/N	



IDENTIFYING MACHINE COMPONENTS

1	Articulation joint	11	Spring loaded brake
2	Smooth drum	12	Water tank
3	Lifting eye	13	Fuel tank
4	Operator's stand	14	Air filter canister
5	Battery	15	Water - oil cooler
6	Hydraulic tank	16	Roll over protection
7	Engine	17	Vibration motor
8	Drum drive motor	18	Steering cylinder
9	Rubber buffer	19	Hydraulic pumps
10	Scraper	20	Sun roof

SAFETY, GENERAL

The information in this manual does not replace any safety rules and laws used in your area. Before you operate this machine, learn the rules and laws for your area and make sure your machine has the correct equipment according to these rules and regulations.

Your safety and the safety of other persons in the work area are dependent on your correct operation of this machine.

- Know the location and function of all machine controls.
- Clear the area of other persons before you start the engine.
- Check all controls in a safe area before you operate the machine.
- Understand the limits of the machine.
- Do not try to do too much too fast.
- Keep the machine under control at all times.

SPARK ARRESTER

NOTE: *Rules or laws in some areas can make it necessary for this machine to be equipped with a spark arrester or spark arrester muffler. Check the rules or laws in your area.*

SAFETY, PERSONAL

⚠ WARNING *Loose clothing and jewelry can cause an accident. Do not wear loose clothing or jewelry that can catch on controls, etc. Do wear safety shoes, hard hat, heavy gloves, etc. when required for your protection.*

⚠ WARNING *A fire can cause injury or death. Always have a fire extinguisher on the job site near the machine. Make sure the fire extinguisher is serviced according to the manufacturer's instructions.*

⚠ WARNING *Foreign materials and loose objects on the steps, hand rails, and in the operator's compartment can cause accidents and injury. Keep the steps, hand rails, and operator's compartment clear at all times.*

⚠ WARNING *Always use the seat belt when operating the machine. Make sure the buckle for the seat is fastened correctly.*

⚠ WARNING *Make sure cab windows are clean and unobstructed.*

⚠ WARNING *Know and understand the arrangements for movement of trucks, machines, and persons on your job site. Understand and follow the instructions of flagmen, road signs, or signals.*

⚠ WARNING *Always wear the proper ear protection when operating this machine. Permanent hearing loss can result from extended exposure to loud noises.*

⚠ WARNING *Check machine controls for proper operation prior to starting the machine.*

⚠ WARNING Holes, obstructions, debris, and other work area hazards can cause injury or death. Always walk around and look for these and other hazards before you operate your machine in a new work area.

⚠ WARNING Electrical cables, gas pipes, water pipes, sewers, or other underground objects can cause injury or death. Know the location of underground hazards before you operate your machine in a new work area.

⚠ WARNING Not doing, or wrong machine inspection and maintenance can cause accidents. Always follow the instructions in this manual for machine inspection and maintenance.

SAFETY, MACHINE OPERATION

⚠ WARNING Dust, smoke, fog, etc. can decrease your vision and cause an accident. Always stop or slow the machine until you can see your work area and the surrounding traffic.

⚠ WARNING Operate the controls from the operator's seat only, and keep your hands on the controls during operation.

⚠ WARNING Do not permit other persons to ride on the machine.

⚠ WARNING Look at the instruments and gauges frequently when you operate. Make sure all systems are in the proper operating range.

⚠ WARNING This machine uses an articulating joint. Keep all persons clear of this pinch area when the engine is running. Machine movement can cause personal injury.

⚠ WARNING A machine out of control can cause injury or death. You must make a judgement if weather and earth conditions will permit safe operation on a hill, ramp, or rough ground. Adjust machine operation accordingly.

⚠ WARNING Operating your machine in, on, or near a trench, high bank, or overhang is extra dangerous and can cause injury or death. You must make a judgement if your machine can be safely operated near any of these areas. Use wall supports if necessary.

⚠ WARNING Sparks from the electrical system or engine exhaust can cause a fire or explosion. Before you operate this machine in an area with flammable dust or vapors, use good ventilation to remove the flammable dust or vapors.

⚠ WARNING Engine exhaust fumes can cause injury or death. If you operate this machine in an enclosed area, use good ventilation to replace the exhaust fumes with fresh air.

⚠ WARNING *The vibrations from this machine can cause the walls of a trench or high bank to collapse. If you must operate this machine close to a trench or high bank, make sure the walls of the trench or bank are braced. If you do not follow these instructions, you can cause personal injury or death to persons working in these areas.*

⚠ WARNING *Operating this machine too close to High Voltage electrical lines can cause injury or death. Follow the guide lines listed below.*

NOTE: IF THE CLEARANCES IN THE SPECIFICATIONS BELOW ARE LESS THAN THE CLEARANCES GIVEN IN THE RULES AND LAWS OF YOUR AREA, YOU MUST FOLLOW THE RULES AND LAWS OF YOUR AREA!

Electrical Safety Rules

Cable Voltage	Minimum Clearance From Cable When Machine is Working	Minimum Clearance From Cable When Transporting Machine
50,000 volts or less	10 feet (3 meters)	4 feet (1.2 meters)
50,000 volts to 345,000 volts	10 feet (3m) plus 1/2 inch (13mm) for every 1000 volts over 50,000 volts	10 feet (3 meters)
345,000 volts to 750,000 volts	23 feet (7m) plus 1/2 inch (13mm) for every 1000 volts over 345,000 volts	16 feet (5 meters)

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