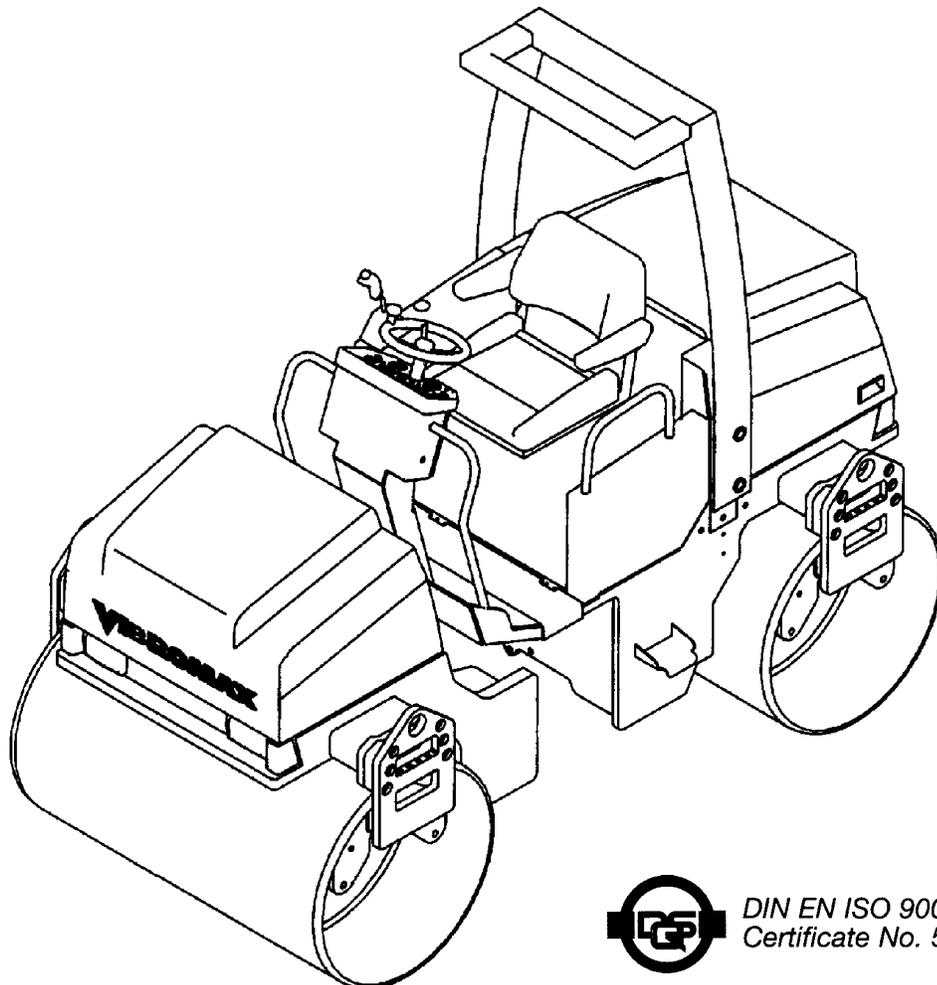


# VIBROMAX

**355 / 365 TANDEM ROLLER**  
**355K / 365K COMBINATION ROLLER**  
**455 / 465 TANDEM ROLLER**  
**455K / 465K COMBINATION ROLLER**

***SERVICE MANUAL SM63005***

January 2002



DIN EN ISO 9001  
Certificate No. 59557-01

Product: Vibromax 355/365,455/465 Tandem Roller?Service Repair Workshop Manual SM63005

Full Download: <https://www.arepairmanual.com/downloads/vibromax-35536545546>

5-tandem-roller-service-repair-workshop-manual-sm63005/

**CALIFORNIA**

**Proposition 65 Warning**

Diesel engine exhaust and some of its constituents are known to the State of California to cause cancer, birth defects, and other reproductive harm.

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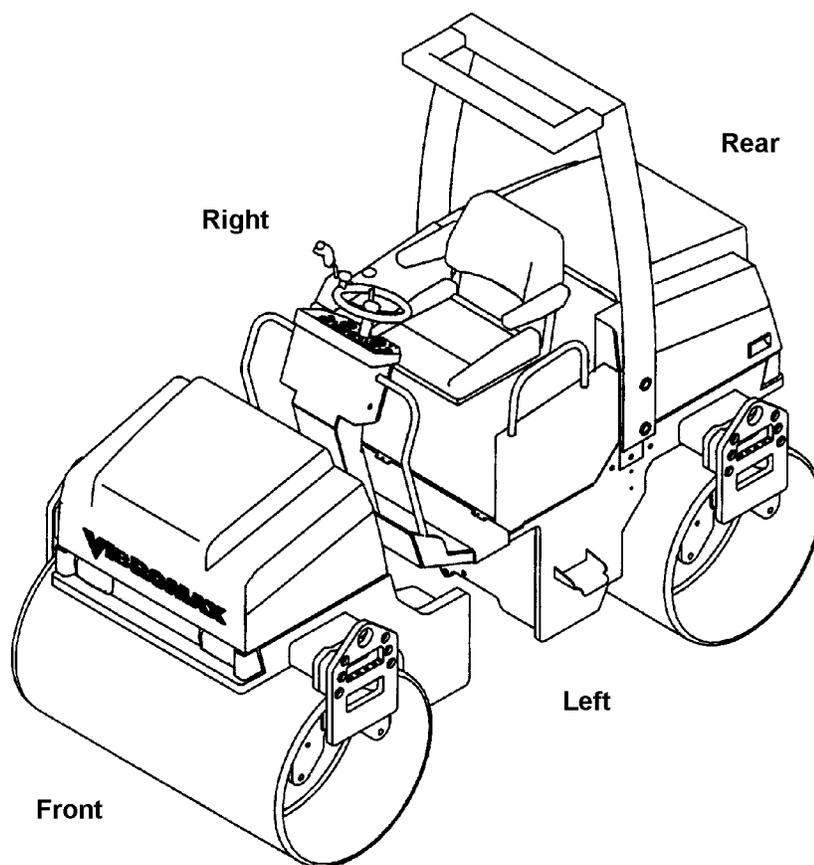
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# SECTION ONE

## GENERAL INFORMATION

Built with serviceability in mind.



## MACHINE DESCRIPTION

The Vibromax Model 355/365 is a 3.5 metric ton tandem drum roller with articulated steering, hydrostatic propulsion and a hydrostatic vibratory system. The Model 455/465 is a larger 4.5 metric ton tandem drum roller. Both the 3.5 and 4.5 ton machines offer a “K” model option. The “K” model is a combination machine offering a steel front drum and pneumatic tires in place of the rear drum.

Power is provided by a 134.4 cubic inch (2197 cc) Kubota, four cylinder diesel engine, Model V2203-E, rated at 46.6 hp SAE net (34.3 kW) at 2600 RPM.

The operator’s platform was designed using modern techniques to assure good visibility and operator comfort. The operator’s seat box can be tilted forward to gain easy access to the machine’s hydraulic pumps and valves.

Both tandem roller models operate at a vibration frequency of 3300 vibrations per minute (55 Hz). Vibratory operation is available for either the front drum or both drums. A two frequency/two amplitude option is available for both the 3.5 and 4.5 metric ton machines. The second vibration frequency is 3000 vpm. (50 Hz). On the “K” model only the front drum will vibrate.

The hydrostatic drive system allows for infinitely variable ground speed. All machines are equipped with a two speed arrangement which provides greater control in the 0 to 4 mph range. The hydrostatic drive system consists of a piston pump and front and rear drum drive motors. Hydraulic release, spring applied parking brakes are incorporated into the design of the drum motors. On the “K” model two smaller hydraulic motors are used to drive the right and left side pneumatic tires. Brakes are also incorporated into “K” model drive motors.

As a factory option, these machines offer an articulation offset of five inches (127 mm) to the left or right of center position. This feature is most useful when compacting asphalt on tight turns.

These machines are equipped with an intermittent sprinkler system for use in asphalt applications. The water tanks are made of a rust proof synthetic material. The system is a pressure spray type with sprinkler tubes fitted with nozzles. The system controls are designed to allow variable off times in the automatic mode to minimize water usage. The pneumatic “K” model offers separate sprinkler systems for the front and rear of the machine to allow the use of special soap solutions on the rear tires. Both systems have variable controls.

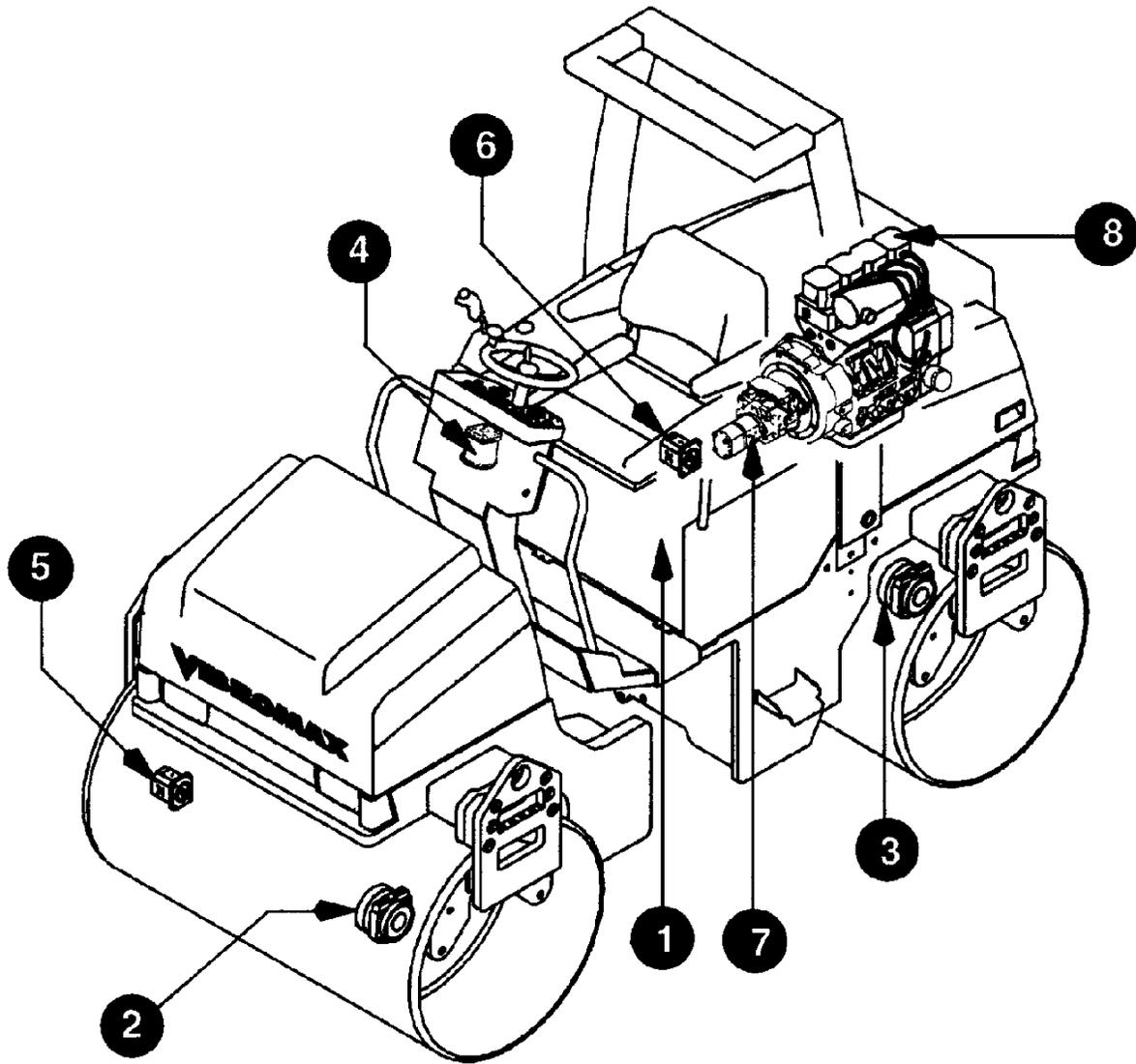
Each drum is equipped with front and rear scrapers. The scrapers are spring loaded against the drum and can easily be moved away from the drum for soil and gravel compaction jobs. Scrapers are also available on the “K” model. A cocoa mat option is also available.

As sold in the United States the machines are fitted with a Roll Over Protective Structure (ROPS). A seat belt is provided as part of the ROPS system.

As sold in the United States the machines are also fitted with a standard Back-up alarm system and an emergency stop system.

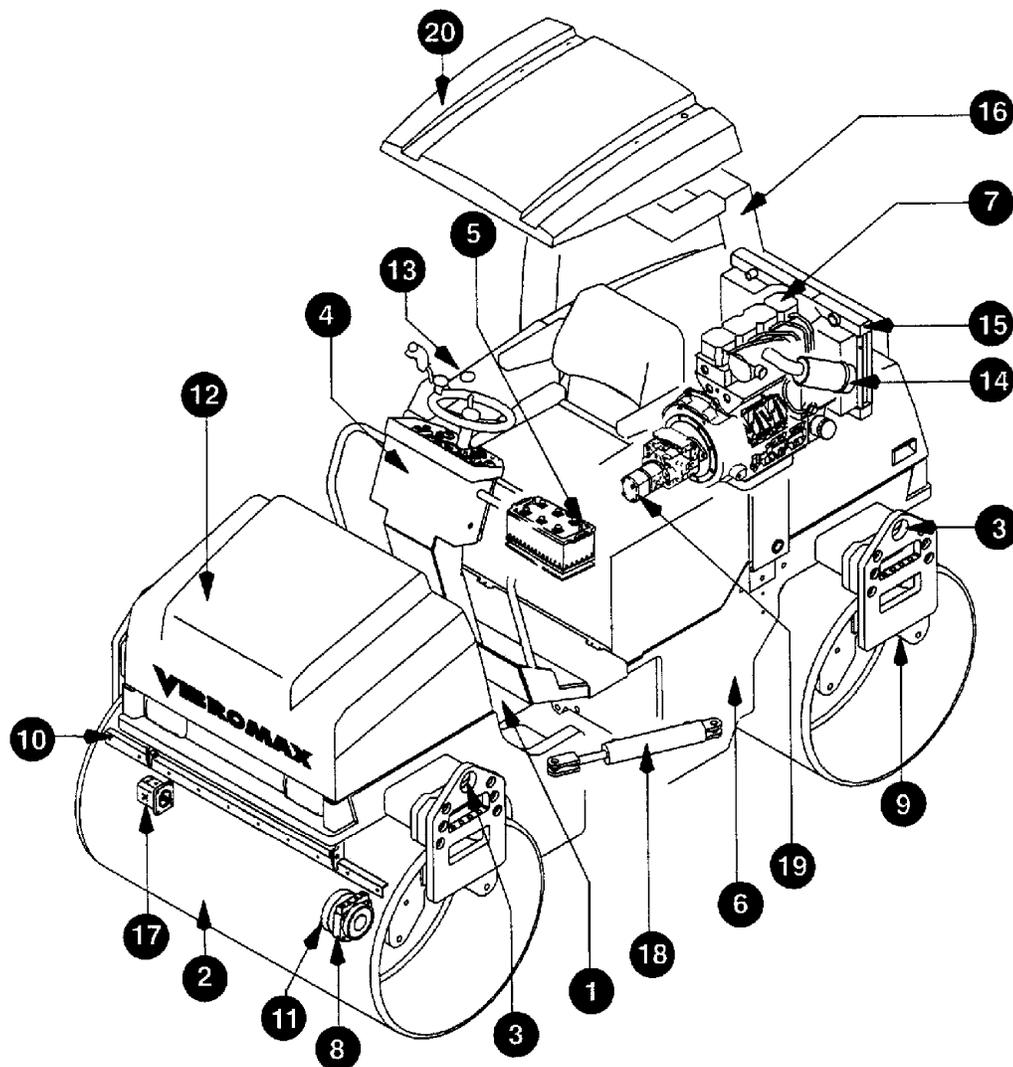
All models include a centralized testing station for quick and easy diagnostics for the various hydraulic systems.

Road lights, work lights, FOPS, and a sun roof are four standard options. Other additional equipment such as beacon lights, slow moving machine signs, etc., are available as special order items. If you have special needs please contact your dealer.



**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/tie-down 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

## **GENERAL SAFETY**

The information in this manual does not replace any safety rules and laws used in your area. Before operating 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. Before starting the engine study the operator's manual.

- 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.

The following decal is located on the right side of the water tank. Check the decal daily. Clean or replace as needed.



## **SPARK ARRESTER**

***NOTE: Rules or laws in some areas may require that this machine be equipped with a spark arrester or spark arrester muffler. Check the rules or laws in your area.***

## PERSONAL SAFETY



*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.*

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

*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.*



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

*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.*

*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.*

*Lack of, or incomplete, machine inspection and maintenance can cause accidents. Always follow the instructions in this manual for machine inspection and maintenance.*

*Always use the seat belt when operating the machine. Make sure the buckle is fully secured.*

The following decal is located on the upper rear side of the steering column. Check the decal daily. Clean or replace as needed.



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

The following decal is located on the instrument panel to the right side of the main gauge cluster. Check the decal daily. Clean or replace as needed.



## OPERATING SAFETY



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



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

The following decal is located on the left side of the water tank. Check the decal daily. Clean or replace as needed.



***Do not permit other people to ride on the machine as passengers.***

***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.***

***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.***

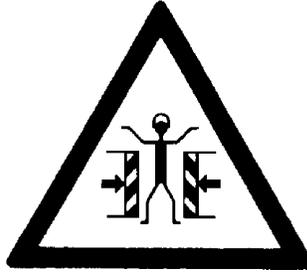
***The vibrations from this machine can cause the walls of a trench or high bank to collapse. Make sure the walls of the trench or bank are braced. If you do not follow these instructions, you can cause personal injury or death to persons working in these areas.***

***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.***

The following decal is located on each side of the machine's and rear frames floor panel in the articulation joint area. Check the decals daily. Clean or replace as needed.



The following decal is also located on both sides of the rear frame in the area of the articulation joint and symbolizes the danger of the pinch point. Check the decal daily. Clean or replace as needed.



The following decal is located on the right side of the water tank. Check the decal daily. Clean or replace as needed




**DANGER**

*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.*

*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!**

**Table 1: Electrical Safety Rules**

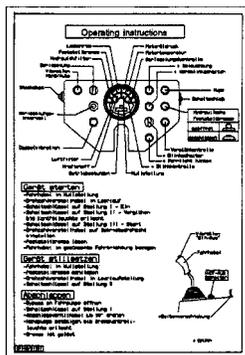
Cable Voltage	Minimum Clearance From Cable When Machine is Working	Minimum Clearance From Cable When Transporting Machine
50,000 volts or less	10 feet (3 meters)	4 feet (1.2 meters)
50,000 volts to 345,000 volts	10 feet (3m) plus 1/2 inch (13mm) for every 1000 volts over 50,000 volts	10 feet (3 meters)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

## **MAINTENANCE SAFETY**

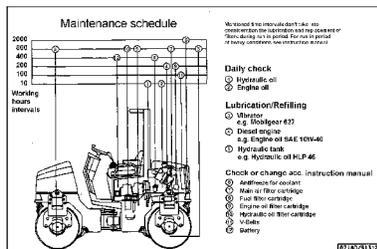
The following decal is located on the left side of the front roller frame. Check the decal daily. Clean or replace as needed



The following decal is located on the left side of the operator's seat. This decal will provide a description of the machine controls. Check the decal daily. Clean or replace as needed.



The following decal is located on the left side of the water tank. The information on this decal will provide the maintenance schedule for the machine. Check the decal daily. Clean or replace as needed.



**Engine fuel is flammable and can cause a fire or an explosion. Do not fill the fuel tank or service the fuel system while the machine is running, or near an open flame, welding, burning cigars and cigarettes, etc.**

**Machine movement without an operator can cause injury or death. If you must service this machine with the engine running, have another person help you and follow the instructions in the machine manuals. Lock the articulation joint and do not leave the machine when the engine is running.**

**Improper service or repair can cause injury or death. If you do not understand the service procedures for this machine, see your Vibromax dealer.**

**Flammable cleaning solvents can cause injury or death. Use nonflammable cleaning solvents for cleaning purposes.**

**Missing shields, guards, or access panels can cause injury or death. Always install all shields, guards, or access panels before you start the engine.**

***Do not make any modifications or repairs to the machine ROPS. If your ROPS is damaged, replace it with new parts. Welding, drilling, etc. can weaken the ROPS structure.***

***Metal chips or debris can cause eye injury. Wear eye protection when you service this machine. If you use a hammer to drive hardened pins or for other service, use a hammer with a soft face (brass, plastic, etc.).***

***Unauthorized modifications to cast iron parts can cause injury or death. Welding can cause cast iron parts to break. Do not use welding to repair or attach items to cast iron parts on this machine.***

***Batteries produce explosive gases. Protect from and flames away. Ventilate when charging. Always wear eye protection when working near batteries. Do not wear jewelry or watch bands when working on batteries.***

***When you install a battery or use a booster battery, connect the negative ground cable last. When you remove a battery or booster battery, disconnect the negative ground cable first.***

***Unauthorized modifications to this machine can cause injury or death. Never make modifications to this machine without prior written approval from Vibromax.***

The following decal is located on the left side of the engine compartment on the brake hand pump. Check the decal daily. Clean or replace as needed.



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## GENERAL INFORMATION

### CLEANING

Clean all metal parts, except bearings, in mineral spirits or by steam cleaning. Do not use caustic soda when steam cleaning. After cleaning, dry and put oil on all parts. Clean oil passages with compressed air. Clean bearings in kerosene, dry the bearings completely and put oil on the bearings.

### INSPECTION

Check all parts as they are disassembled. Replace all parts that have wear or damage. Small scoring or grooves can be removed with a hone or crocus cloth. Complete visual inspection for indications of wear and pitting. Replacement of bad parts will prevent early failure.

### BEARINGS

Check bearings for easy movement. If bearings have a loose fit or rough action, replace the bearing. Wash bearings in kerosene and allow to air dry. **DO NOT USE COMPRESSED AIR TO DRY BEARINGS.**

### NEEDLE BEARINGS

Before pressing needle bearings into a bore, always remove any metal protrusions in the bore or at the edge of the bore. Before pressing bearing, lubricate the inner and outer diameters as needed.

### GEARS

Check and replace all gears that have wear or damage.

### OIL SEALS, O-RINGS, & GASKETS

Always install new oil seals, o-rings and gaskets. Put petroleum jelly or the specified oil on seals and o-rings.

**SHAFTS**

Check all shafts for wear damage. Check the surfaces where bearings and oil seals operate for signs of wear.

**SERVICE PARTS**

Always install genuine Vibromax service parts. When ordering refer to the parts manual for the correct part numbers. Failure to use genuine Vibromax replacement parts can void your warranty.

**LUBRICATION**

Use the oils and lubricants specified in the Operator's or Service Manual. Failures due to the use of non specified lubricants are not covered by warranty.

**STANDARD TORQUE DATA**

Where no special torque data is specified, the following torque figures should be applied. Threads should be lubricated with engine oil or grease. Loctite products also act as a lubricant.

**STANDARD TORQUE SPECIFICATIONS +/- 10%**

SIZE	GRADE 8.8		GRADE 10.9		GRADE 12.9	
	ft-lbs	Nm	ft-lbs	Nm	ft-lbs	Nm
5mm	4	5.5	5.5	7.5	6.6	9
6mm	6.6	9	9.2	12.5	11	15
8mm	16.5	22.5	23	31.5	26.5	36
10mm	32	44	45	62	55	75
12mm	57	77.5	81	110	95	130
14mm	88	120	125	170	155	210

## STANDARD TORQUE SPECIFICATIONS +/- 10%

SIZE	GRADE 8.8		GRADE 10.9		GRADE 12.9	
	ft-lbs	Nm	ft-lbs	Nm	ft-lbs	Nm
16mm	140	190	195	265	236	320
18mm	192	260	269	365	320	435
20mm	273	370	383	520	457	620
22mm	369	500	516	700	619	840
24mm	471	640	665	900	796	1080
27mm	702	950	996	1350	1195	1620
30mm	955	1300	1328	1800	1593	2160

## NUTS FOR TUBES AND HOSES

DIAMETER & PITCH	NEWTONS/METER	POUNDS/FOOT
16MM X 1.5	20	14.5
18MM X 1.5	35	26
20MM X 1.5	45	33.2
24MM X 1.5	60	44

## FITTINGS, CONNECTIONS AND PLUGS

DIAMETER & PITCH	NEWTONS/METER	POUNDS/FOOT
10MM X 1	20	14.5
12MM X 1.5	35	26
14MM X 1.5	45	33.2
16MM X 1.5	60	44
18MM X 1.5	70	51
22MM X 1.5	100	73
27MM X 2	200	147
33MM X 2	280	207
42MM X 2	380	281

**FLANGES**

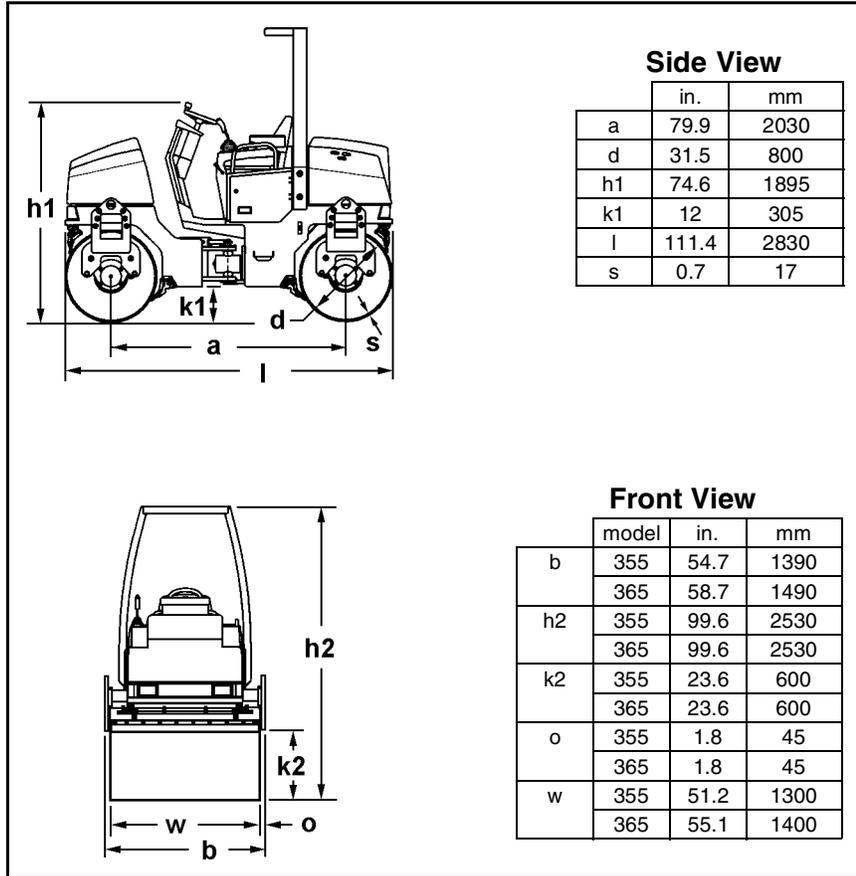
DIAMETER & PITCH	NEWTONS/METER	POUNDS/FOOT
8MM X 1.5	28	21
10MM X 1.5	55	41
12MM X 1.75	90	67
14MM X 2	145	107
16MM X 2	230	170

**METRIC/USA CONVERSIONS**

METRIC UNITS	CHANGE TO	ARITHMETIC
millimeters (mm)	inches (in)	mm x .03937 = inches
bars	pound per sq. in. (psi)	bar x 14.22 = psi
kilograms (kg)	pounds (lb)	kg x 2.204 = pounds
kilowatts (kW)	horsepower (hp)	kW x 1.341 = horsepower
celsius (°C)	farenheit (°F)	°C x 1.8 + 32 = °F
newton meters (Nm)	pounds feet (lb ft)	Nm x .737 = lb ft
newton meters (Nm)	pounds inch (lb in)	Nm x 8.85 = lb in
liters (L)	U.S. gallon	liters x .264 = gallons
liters (L)	U.S. quarts	liters x 1.056 = quarts
cubic centimeters (cm <sup>3</sup> )	cubic inches (in <sup>3</sup> )	cm <sup>3</sup> x .061 = in <sup>3</sup>

MACHINE SPECIFICATIONS

355/365 SPECIFICATIONS



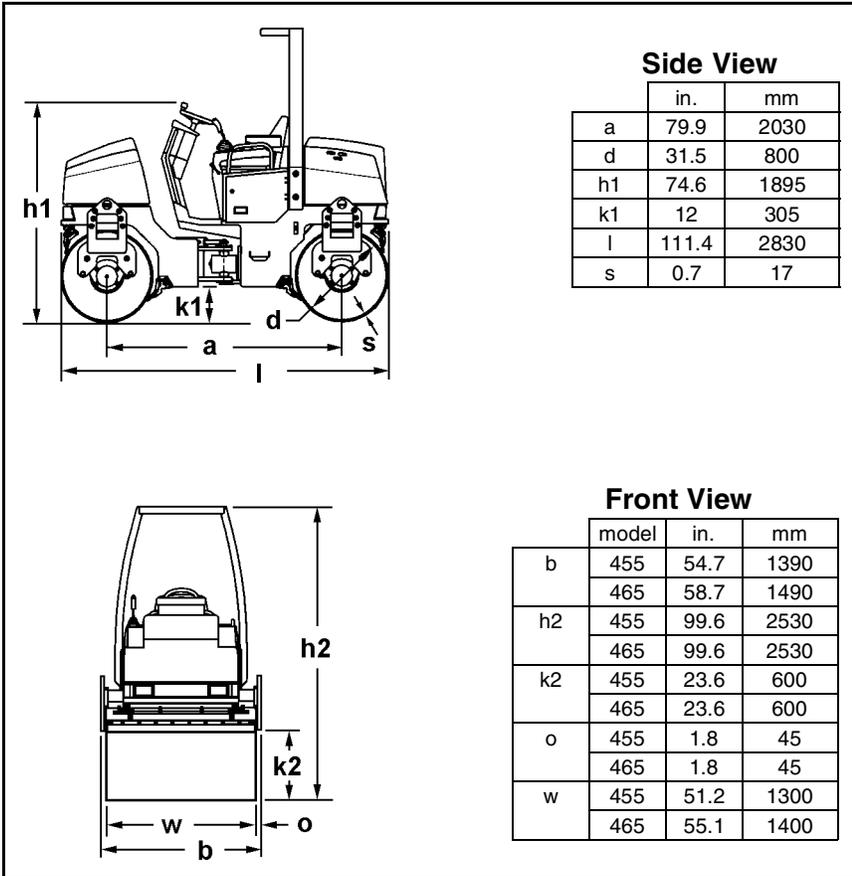
## ENGINE DATA

Make / Model / Type	V2203-E Kubota, 4 cylinder, diesel
Cooling	Water
Displacement - cu.in. (cc)	134.1 (2197)
HP, SAE net (kW)	46.6 (34.3)
Operating speed (rpm)	2800
Air Cleaner	Dual replaceable elements
Fuel filter	Cartridge
Fuel Consumption - gal/hr (liter/hr)	2.2 (8.5)
Fuel capacity - gal (liter)	20.1 (76)
Electrical system	12 volt
Battery, amp hours/alternator amps	88/45
Injector pump timing	17 to 19 degrees
Injector pop off pressure	1991 to 2133 PSI
Valve clearance (intake \ exhaust)	.018 \ .022 mm (cold)

## OPERATING DATA

	<b>355</b>	<b>365</b>
Operating Weight - lbs (kg)	8598 (3900)	8774 (3980)
Static linear drum load - lb/in (kg/cm) ea.drum	84 (15.0)	78 (14.2)
Centrifugal force per drum - lbf (kN) - standard (machine with dual frequency)	10878 (48)	11461 (51)
	11911(53)/6967(31)	12810 (57)/7416(33)
Centrifugal force/rolling width - lbf/in (N/cm) (machine with dual frequency)	209 (367)	209 (367)
	234(410)/136(239)	234(410)/136(239)
Frequency - vpm (Hz) (machine with dual frequency)	3300 (55)	3300 (55)
	3000(50)/3300(55)	3000(50)/3300(55)
Nominal Amplitude - in. (mm) (machine with dual frequency)	.020 (0.51)	.020 (0.51)
	.022(0.56)/.013(0.33)	.022(0.56)/.013(0.33)
Propulsion - front and rear	Infinitely variable hydrostatic	
Travel speed - mph (km/hr)	1st gear 0 - 3.7 (0-6) 2nd gear 0 - 6.8 (0-11)	
Theoretical gradeability, forward - %	40	
Brakes, operating	Hydrostatic braking thru ground drive	
Brakes, parking	Spring applied, hydraulic release	
Steering	Articulated, hydraulic powered	
Articulation/oscillation - degrees	36 / 8	
Articulation offset, option left & right - in. (mm)	5.0 (127)	
Turning radius, inside - in. (mm)	95.7 (2430) -	93.7 (2380)
Drum shell thickness - in. (mm)	0.70 (17)	0.70 (17)
Water tank capacity - gal (liter)	79.3 (300)	

# 455/465 SPECIFICATIONS



## ENGINE DATA

Make / Model / Type	V2203-E Kubota, 4 cylinder, diesel
Cooling	Water
Displacement - cu.in. (cc)	134.1 (2197)
HP, SAE net (kW)	46.6 (34.3)
Operating speed (rpm)	2800
Air Cleaner	Dual replaceable elements
Fuel filter	Cartridge
Fuel Consumption - gal/hr (liter/hr)	2.2 (8.5)
Fuel capacity - gal (liter)	20.1 (76)
Electrical system	12 volt
Battery, amp hours/alternator amps	88/45
Injector pump timing	17 to 19 degrees
Injector pop off pressure	1991 to 2133 PSI
Valve clearance (intake \ exhaust)	.018 \ .022 mm (cold)

## OPERATING DATA

	455	465
Operating Weight - lbs (kg)	10516 (4770)	10693 (4850)
Static linear drum load - lb/in (kg/cm) ea.drums	102 (18.3)	97 (17.3)
Centrifugal force per drum - lbf (kN) -standard (machine with dual frequency)	10878 (48) 11911(53)/6967(31)	11461 (51) 12810(57)/7416(33)
Centrifugal force/rolling width - lbf/in (N/cm)-std (machine with dual frequency)	209 (367) 234(410)/136(239)	209 (367) 234(410)/136(239)
Frequency - vpm (Hz) - standard (machine with dual frequency)	3300 (55) 3000(50)/3300(55)	3300 (55) 3000 (50)/3300(55)
Nominal Amplitude - in. (mm) - standard (machine with dual frequency)	.020 (0.51) .022(0.56)/.013(0.33)	.020 (0.51) .022(0.56)/013(0.33)
Propulsion - front and rear	Infinitely variable hydrostatic	
Travel speed - mph (km/hr)	1st gear 0 - 3.7 (0-6) 2nd gear 0 - 6.8 (0-11)	
Theoretical gradeability, forward - %	40	
Brakes, operating	Hydrostatic braking thru ground drive	
Brakes, parking	Spring applied, hydraulic release	
Steering	Articulated, hydraulic powered	
Articulation/oscillation - degrees	36 / 8	
Articulation offset, option left & right - in. (mm)	5.0 (127)	
Turning radius, inside - in. (mm)	95.7 (2430)	93.7 (2380)
Drum shell thickness - in. (mm)	0.70 (17)	0.70 (17)
Water tank capacity - gal (liter)	79.3 (300)	

## FLUID CAPACITY

MACHINE PART	CAPACITY USA (metric)	SPECIFICATIONS
Fuel tank	18.5 gal (70 l)	see diesel fuel
Engine crankcase	10 qts(9.5 l)	engine oil API classification API-CD MIL-L-2104C multigrade engine oil (see oil chart) single grade engine oil (see oil chart)
Hydraulic system	15.9 gal (60 l)	cold weather HLP 46 DIN 51524 hot weather HLP 68 DIN 51524
Reservoir only	13.2 gal (50 l)	Mobil DTE 25,26 Shell Tellus OL 46,68 Amoco Rykon HD 46,68 Texaco Rando HD 46,68
Vibration system	(each drum)	CLP 100
355/455	0.84 qts (0.8 l)	Mobil Gear 627
365/465	1.3 qts (1.2 l)	
Battery	as required	Distilled water
Grease	as required	KP3K DIN 51502 Mobil Oil - Mobilux 3 Shell Oil - Alvania 3 Texaco Oil - Starplex 3
Engine coolant	13.5 qts (13 l)	50% ethylene glycol and 50% water SAE J814c
Sprinkling Device	79 gal (300 l)	Tap water - 255/265 Special soap mixtures - 255K/265K

## PNEUMATIC TIRE PRESSURE

The “K” version of the 355K/365K and 455K/465K is a pneumatic/steel drum combination machine. The “K” model has four 205/60 R15 compactor tires in place of the rear drum. The inflation pressure of these tires is 35 PSI (2.5 bar).