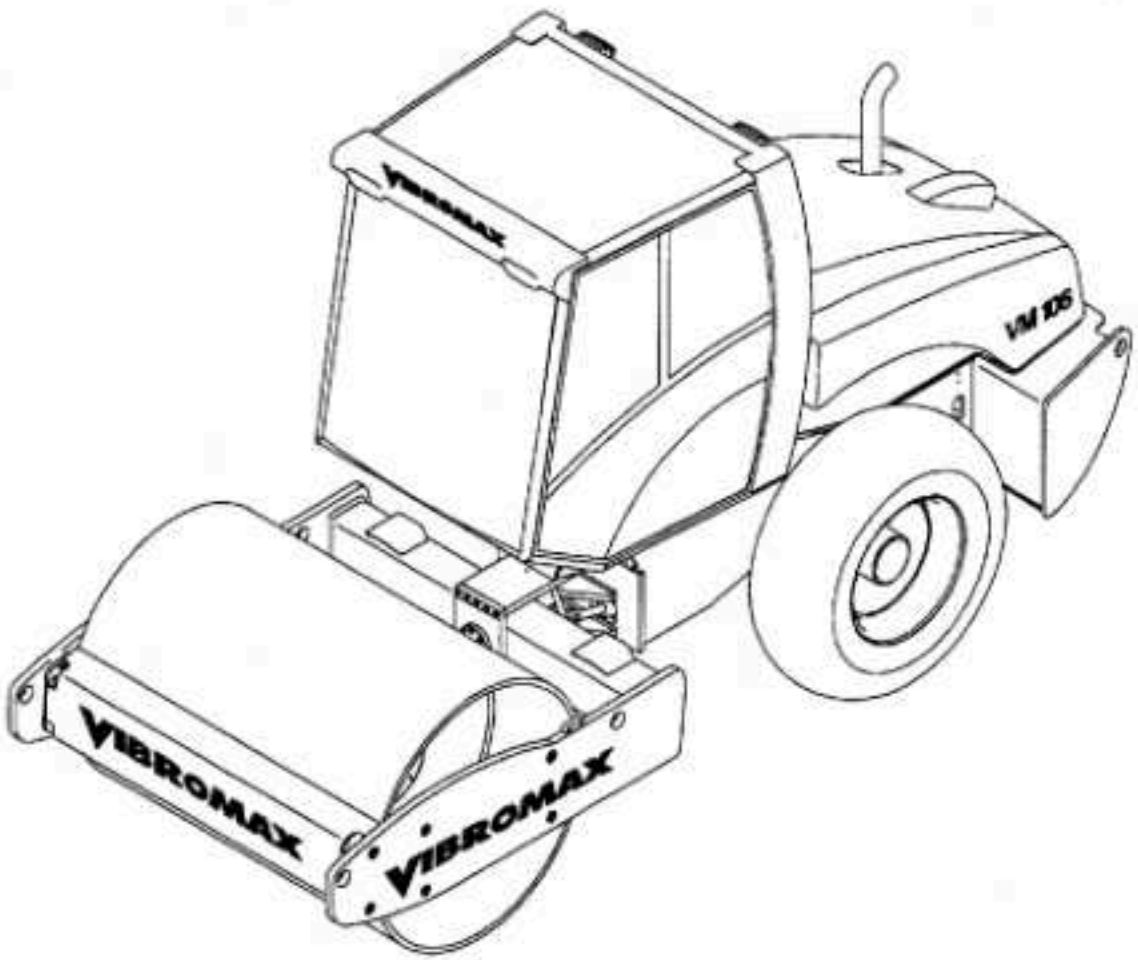
VIBROMAX

SINGLE DRUM ROLLER

SERVICE MANUAL SM96106

July 2004

Model VM 106



MidWestTech | JCB Vibromax VM 106 Single Drum Roller Service Manual | Publication 98... Order the manual at mid-west-tech.com >

SECTION ONE

GENERAL INFORMATION

MACHINE DESCRIPTION ..... 1 - 3
SERIAL NUMBERS ..... 1 - 5
IDENTIFYING MACHINE COMPONENTS ..... 1 - 6
FLUID SPECIFICATIONS ..... 1 - 7
MACHINE SPECIFICATIONS ..... 1 - 8
STANDARD TORQUE DATA ..... 1 - 10
DIESEL FUEL SPECIFICATION ..... 1 - 12
ENGINE OIL SPECIFICATION ..... 1 - 13
SAFETY, GENERAL ..... 1 - 14
SPARK ARRESTER ..... 1 - 14
PERSONAL ..... 1 - 15
MACHINE OPERATION ..... 1 - 16
MAINTENANCE ..... 1 - 19
MAINTENANCE SCHEDULE ..... 1 - 23

SECTION TWO

ENGINE

CUMMINS ENGINE WARRANTY ..... 2 - 2

SECTION THREE

ELECTRICAL

GENERAL INFORMATION ..... 3 - 3
FUSES ..... 3 - 4
RELAYS ..... 3 - 5
INSTRUMENT PANEL ..... 3 - 6
UNDERSTANDING ELECTRICAL SCHEMATICS ..... 3 - 11
UNDERSTANDING RELAYS ..... 3 - 14
STARTER/CHARGING CIRCUIT ..... 3 - 17
EMERGENCY STOP ..... 3 - 17
UNDERSTANDING BATTERIES ..... 3 - 17
UNDERSTANDING ALTERNATORS ..... 3 - 19
UNDERSTANDING STARTERS ..... 3 - 22
INSTRUMENTATION PANEL ..... 3 - 27
BRAKE SWITCH ..... 3 - 29
HIGH SPEED CIRCUIT ..... 3 - 31
VIBRATION CIRCUIT ..... 3 - 33
ROAD LIGHTING CIRCUIT ..... 3 - 35

MidWestTech | JCB Vibromax VM 106 Single Drum Roller Service Manual | Publication 98... Order the manual at mid-west-tech.com >

WORK LIGHTS & ACCESSORY PLUG ..... 3 - 37
CAB CIRCUITS ..... 3 - 39
ELECTRICAL SCHEMATICS ..... 3 - 40
PLUG CONNECTORS ..... 3 - 48
INSTRUMENT HARNESS 7242/80435 ..... 3 - 49
WIRE CHART 7242/80435 ..... 3 - 51
RELAY/FUSE HARNESS 7242/80415 ..... 3 - 54
WIRE CHART 7242/80415 ..... 3 - 56
REAR HARNESS 7222/80510 ..... 3 - 60
WIRE CHART 7222/80510 ..... 3 - 62

SECTION FOUR

HYDRAULIC

HYDRAULIC COOLER LINES ..... 4 - 2
HYDRAULIC DRAIN LINES ..... 4 - 5
HYDRAULIC CHARGE SYSTEM ..... 4 - 7
HYDRAULIC TEST STATION ..... 4 - 9
HYDRAULIC TEST FITTINGS ..... 4 - 10
PROPULSION SYSTEM ..... 4 - 11
PROPULSION SCHEMATIC ..... 4 - 13
PROPULSION SYSTEM DIAGNOSTICS ..... 4 - 15
VIBRATION SYSTEM ..... 4 - 17
VIBRATORY SYSTEM DIAGNOSTICS ..... 4 - 19
VIBRATION SYSTEM SCHEMATIC ..... 4 - 20
STEERING SYSTEM ..... 4 - 21
STEERING SYSTEM SCHEMATIC ..... 4 - 23
PARKING BRAKE SYSTEM ..... 4 - 25
PARKING BRAKE SCHEMATIC ..... 4 - 27
TOWING YOUR MACHINE ..... 4 - 29
TOWING PROCEDURE ..... 4 - 30
PUMP CONTROL VALVE ..... 4 - 31
HYDRAULIC COMPONENTS ..... 4 - 33
HYDRAULIC SCHEMATIC ..... 4 - 34

SECTION FIVE

POWER TRAIN

DRUM ASSEMBLY ..... 5 - 2
DRUM REMOVAL ..... 5 - 6
DRUM INSTALLATION ..... 5 - 6
RIGHT SIDE BEARING COVER ..... 5 - 7
DRUM DRIVE BEARING REMOVAL ..... 5 - 7

MidWestTech | JCB Vibromax VM 106 Single Drum Roller Service Manual | Publication 98... Order the manual at mid-west-tech.com >

DRUM DRIVE BEARING ASSEMBLY ..... 5 - 9
DRUM DRIVE MOTOR REPAIRS ..... 5 - 10
DRUM DRIVE GEARBOX ..... 5 - 11
GFT 17 T2/312 2 GEARBOX ..... 5 - 13

SECTION SIX

PARKING BRAKE SYSTEM

PARKING BRAKE SYSTEM ..... 6 - 2
PARKING BRAKE SCHEMATIC ..... 6 - 4
TOWING YOUR MACHINE ..... 6 - 6
TOWING PROCEDURE ..... 6 - 7

SECTION SEVEN

VIBRATION SYSTEM

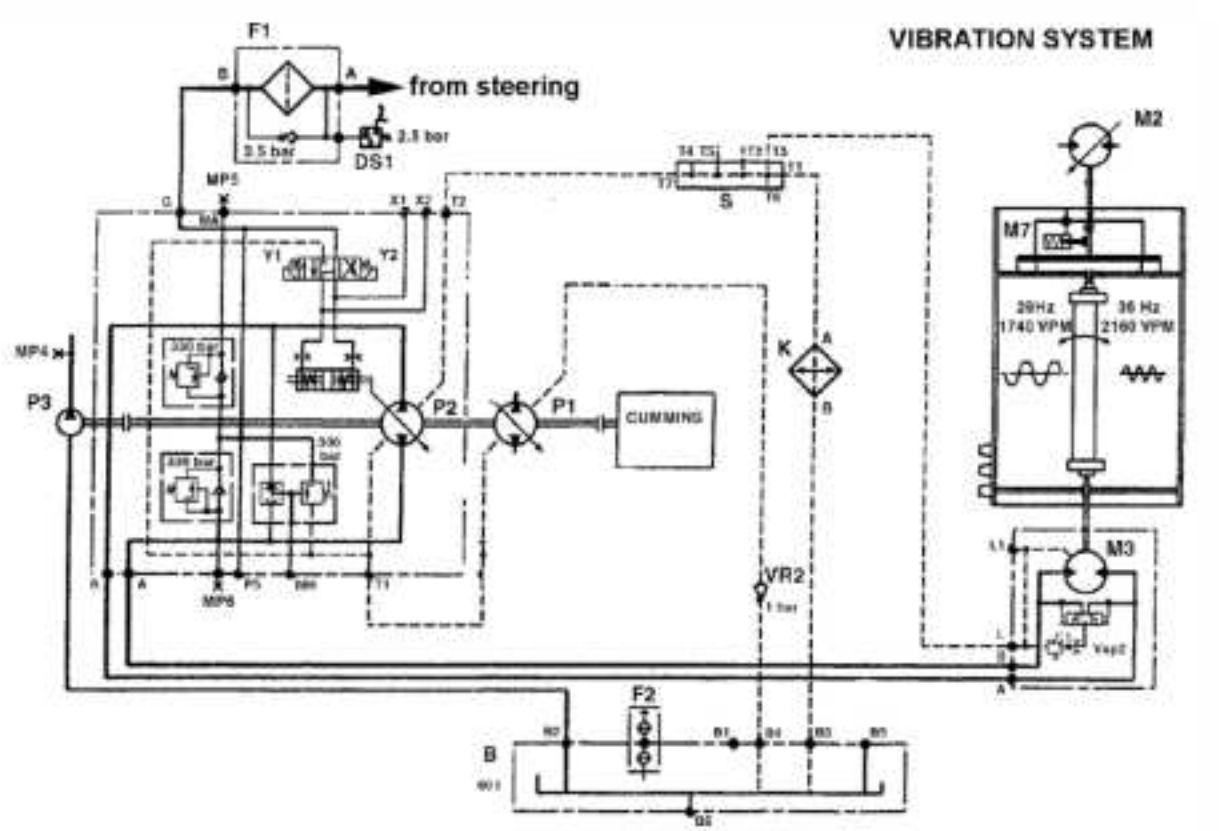
LIFTING DEVICE ..... 7 - 2
DRUM EXCITER SHAFT ..... 7 - 3
VIBRATION SYSTEM ..... 7 - 4
VIBRATION SYSTEM SCHEMATIC ..... 7 - 5
VIBRATION FREQUENCY ..... 7 - 6
VIBRATION AMPLITUDE ..... 7 - 7
VIBRATORY SYSTEM DIAGNOSTICS ..... 7 - 8
DRUM DRAWING ..... 7 - 9
DRUM - LEFT SIDE ..... 7 - 10
DRUM - RIGHT SIDE ..... 7 - 11
DRUM REMOVAL ..... 7 - 13
DRUM INSTALLATION ..... 7 - 13
RIGHT SIDE BEARING COVER ..... 7 - 14
EXCITER BEARING REMOVAL ..... 7 - 15
EXCITER BEARING ASSEMBLY ..... 7 - 17

SECTION EIGHT

STEERING SYSTEM

SPECIAL TOOLS ..... 8 - 2
ARTICULATION JOINTS ..... 8 - 3
JOINT DISASSEMBLY ..... 8 - 5
JOINT ASSEMBLY ..... 8 - 9

MidWestTech | JCB Vibromax VM 106 Single Drum Roller Service Manual | Publication 98... Order the manual at mid-west-tech.com >



VIBRATION SYSTEM SCHEMATIC

The vibration circuit consists of a pump providing oil to a vibration motor. The pump is a variable displacement axial piston design with bi-directional flow. The motor is a fixed displacement axial piston style with a built in flushing valve.

The model VM106 smooth and padfoot drums have two frequency ranges. When high frequency is desired, the solenoid controlled pump is stroked to provide oil to the vibration motor. This results in a vibration frequency of 2160 vibrations per minute, rotating the vibration shaft in a clockwise direction. When low frequency is desired, the solenoid controlled pump is stroked in the opposite direction, to provide oil to the vibration motor. This results in a vibration frequency of 1860 vibrations per minute, rotating the shaft in a counter clockwise direction. In either case the actual shaft RPM is controlled by the amount the pump is set to stroke.

Two pressure relief valves in the vibration pump, set at 350 bar (5075 PSI), protect the vibration circuit from excessive pressure in the same manner as in the propulsion circuit. The pump is also designed with a 320 bar pressure limiting valve. Start up pressure may be as high as 350 bar but will drop to 100 to 150 bar once the operating speed is obtained.

MidWestTech | JCB Vibromax VM 106 Single Drum Roller Service Manual | Publication 98... Order the manual at mid-west-tech.com >

the housing from the drum. Install lifting eyes into the bolt holes in bearing flange (#3) and remove the assembly. **NOTE: The complete right side bearing cover assembly will be lifted out as a unit (note diagram). Care should be taken not to damage the exciter shaft.** The exciter bearing cone will come out with the flange.

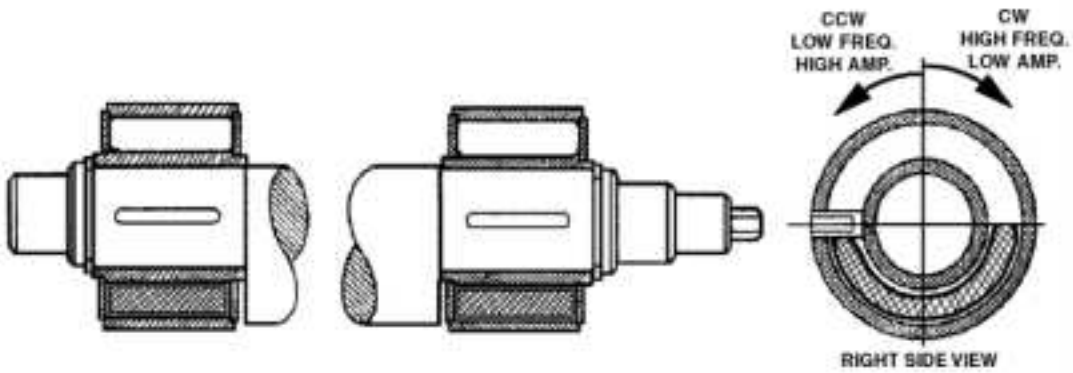
7. Remove capscrews (#22) from bearing flange (#8) and separate the #3 bearing flange and bearings from the #8 bearing flange.

8. Remove snap ring (#14) from the bearing flange shaft (#3) and pull bearing (#15) off the shaft. Repeat these steps with snap ring (#16) and bearing (#17).

9. Remove the shaft seal (#18), ring (#19), and cover (#21) from the bearing flange shaft. If required the bearing shaft (#3) can now be unscrewed from buffer plate (#4).

MidWestTech | JCB Vibromax VM 106 Single Drum Roller Service Manual | Publication 98... Order the manual at mid-west-tech.com >

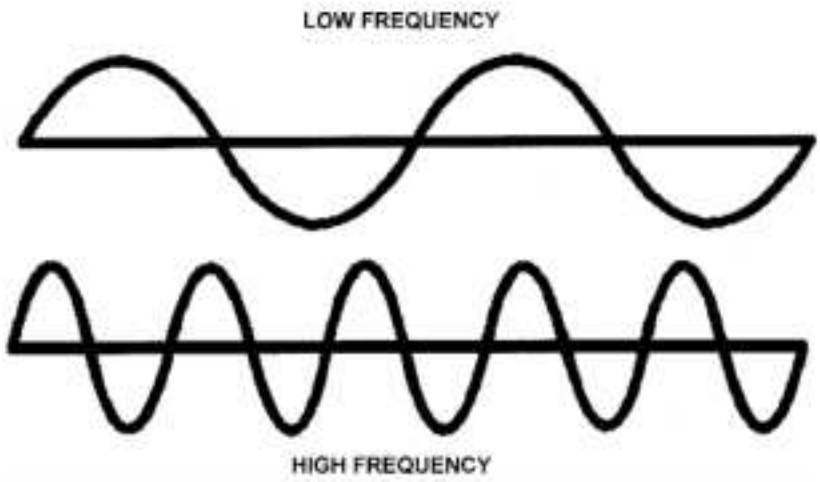
VIBRATION FREQUENCY



This drawing illustrates a typical exciter shaft and the two overturning weights.

The shaft rotation can be faster in one direction and slower in the other direction. These two speeds create the two frequencies. The amplitude is changed by the use of overturning weights. In one direction the overturning weights are opposite the shaft counterweight and create a low amplitude vibration. When the shaft is rotated in the opposite direction the overturning weights are transferred to the same side as the shaft counterweight causing an increase in amplitude. This design allows for a LOW amplitude when the frequency is HIGH and a HIGH amplitude when the frequency is LOW.

The models which offer only one frequency do not reverse the direction of shaft rotation nor do they use the overturning weight design.



MidWestTech | JCB Vibromax VM 106 Single Drum Roller Service Manual | Publication 98... Order the manual at mid-west-tech.com >