

MINNICH

HAND HELD DIGITAL TACHOMETER OPERATOR/SERVICE MANUAL



MINNICH MANUFACTURING

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NOTICE

It is Minnich's policy to constantly strive to improve our products. The information, specifications, and illustrations in this publication are based on the information in effect at the same time as approval for printing and publishing. Minnich therefore reserves the right to make changes in design and improvements whenever it is believed the efficiency of the machine which has been shipped or curring any obligation to incorporate such improvements in any machine which has been shipped or is in service. It is recommended that users contact Minnich or a Minnich Dealer for latest revisions.

NOTICE

If there are any questions regarding the machine or its application which are not covered in this manual or in other literature accompanying this unit, please contact your Minnich Dealer or Minnich Manufacturing at 419-903-0010 or sales@minnich-mfg.com

⚠ WARNING

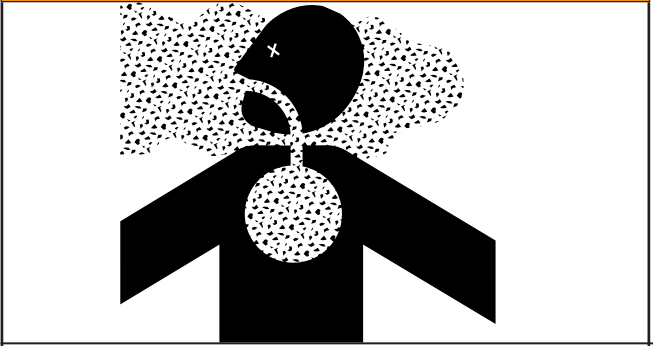
CALIFORNIA PROPOSITION 65

Engine exhaust and some of its constituents, and some dust created by power sanding, sawing, grinding, drilling and other construction activities contains chemicals known to the State of California to cause cancer, birth defects and other reproductive harm. Some examples of these chemicals are:

- Lead from lead-based paints.
- Crystalline silica from bricks.
- Arsenic and chromium from chemically treated lumbar.

Your risk from these exposures varies, depending on how often you do this type of work. To reduce your exposure to these chemicals: ALWAYS work in a well ventilated area, and work with improved safety equipment, such as dust masks that are specifically designed to filter out microscopic particles.

⚠ WARNING



SILICOSIS WARNING

Grinding/cutting/drilling of masonry, concrete, metal and other materials with silica in their composition may give off dust or mist containing crystalline silica.

Silica is a basic components of sand, quarts, brick clay, granite and numerous other minerals and rocks. Repeated and/or substantial inhalation of airborne crystalline silica can cause serious or fatal respiratory disease, including silicosis. In addition, California and some authorities have listed repairable crystalline silica as a substance known to cause cancer. When cutting such materials, always follow the respiratory precautions mentioned above.

⚠ WARNING

RESPIRATORY HAZARDS



Grinding/cutting/drilling of masonry, concrete, metal and fumes containing chemicals known to cause serious or fatal injury or illness, such as respiratory disease, cancer, birth defects or other reproduction harm, if you are unfamiliar with the risks associated with the particular process and/or material being cut or the composition of the tool being used, review the material safety data sheet and/or consult your employer, the material manufacturer/supplier, governmental agencies such as OSHA and NIOSH and other sources on hazardous materials. California and some other authorities, for instance, have published lists of substances known to cause cancer, reproductive toxicity or other harmful effects.

Control dust, mist and fumes at the source where possible. In this regard use good work practices and follow the recommendations of the manufactures of suppliers, OSHA/NIOSH, and occupational and trade associations. Water should be used for dust suppression when wet cutting is feasible. When the hazards from inhalation of dust, mist and fumes cannot be eliminated, the operator and any bystanders should always wear a respirator approved by NIOSH/MSHA for the materials being used.

GENERAL SAFETY

Do not operate or service the equipment before reading the entire manual. Safety precautions should be followed at all times when operating this equipment. Failure to read and understand the safety messages and operating instructions could result in injury to yourself and others.

This operation manual has been developed to provide complete instruction for the safe and efficient operation. Refer to the engine manufactures instructions for data relative to its safe operation. Before using, ensure that the operation individual has read and understood all instructions in the manual. The surrounding environment and you, could be damaged if you do not follow instructions.

SAFETY MESSAGES

The four safety messages shown below will inform you about potential hazards that could injure you or others. The safety messages specifically address the level of exposure to the operator and are preceded by one of four words: DANGER, WARNING, NOTICE or NOTICE.

⚠ DANGER

Indicates a hazardous situation which, if not avoided, WILL result in DEATH or SERIOUS INJURY

⚠ WARNING

Indicates a hazardous situation which, if not avoided, COULD result in DEATH or SERIOUS INJURY

⚠ CAUTION




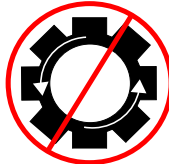

Indicates a hazardous situation which, if not avoided, COULD result in MINOR or MODERATE INJURY

NOTICE

Addresses practices not related to personal injury

SAFETY SYMBOLS

Potential hazards associated with the operation of this equipment will be referenced with hazards symbols which may appear throughout this manual in conjunction with safety messages.

SYMBOL	SAFETY HAZARD
	Lethal exhaust gas hazards
	Explosive fuel hazards
	Burn hazard
	Overspeed hazards
	Electrocution/Shock Hazard

⚠ WARNING

DO NOT USE TOOL IF IT IS IN NEED OF SERVICE!

GENERAL SAFETY

⚠ CAUTION

△ NEVER operate this equipment without proper protective clothing, shatter proof glasses, respirator protection, hearing protection, steel-toes boots and other protective devices required by the job or city and state regulations.



△ Never operate this equipment when not feeling well due to fatigue, illness or when under medication.



△ NEVER operate this equipment under the influence of drugs or alcohol.



△ ALWAYS check the equipment for loosened threads or bolts before starting.

△ NEVER operate around corrosive chemicals or water containing toxic substances. These fluids could create serious health and environmental hazards. Contact local authorities for assistance.

△ DO NOT use the equipment for any purpose other than its intended purpose or applications.

NOTICE

△ This equipment should only be operated by trained and qualified personnel 18 years of age and older.

△ This equipment is for industrial use only. Whenever necessary, replace nameplate, operation and safety decals when they become difficult to read.

△ Manufacturer does not assume responsibility for any accident due to equipment modifications. Unauthorized equipment modifications will void all warranties. Any modification which it could lead to change in the original characteristics of the machine should be

made only by the manufacturer who shall confirm that the machine is in compliance with appropriate safety regulations.

△ Never use accessories or attachments that are not recommended by Minnich for the equipment. Damage to the equipment and/or injury to user may result.

△ Always know the location of the nearest fire extinguisher.



△ ALWAYS know the location of the nearest first aid kit.



△ ALWAYS know the location of the nearest phone or keep a phone on the job site. Also, know the phone numbers of the nearest ambulance, doctor and fire department. This information will be invaluable in the case of an emergency.



⚠ DANGER

△ NEVER operate the equipment in an explosive atmosphere, near combustible materials, or near flammable or low flash point fluids. An explosion or fire could result causing severe bodily harm or even death.



⚠ WARNING

△ NEVER disconnect any emergency or safety devices. These devices are intended for operator safety. Disconnection of these devices can cause severe injury, bodily harm or even death. Disconnection of any of these will void all warranties.

△ NEVER operate equipment with the covers or guards removed. Keep fingers, hands, hair and clothing away from all moving parts to prevent injury. Wear clothing that will not likely become caught in the equipment or snag on any moving parts.

⚠ CAUTION

△ ALWAYS be sure the operator is familiar with the proper safety precautions and operating techniques before using.

△ NEVER leave the machine unattended. Turn off when unattended

GENERAL SAFETY

POWER CORD/CABLE SAFETY

⚠ DANGER

- △ ALWAYS use a grounded 3-wire extension cord that has a 3-prong grounding plug, and a 3-pole receptacle that accepts the plug on the concrete vibrator motor. **DO NOT REMOVE THE GROUNDING PIN FROM THE PLUG!**
- △ NEVER let power cords or cables lay in water.
- △ NEVER use damaged or worn cables or cords when connecting equipment to generator. Inspect for cuts in the insulation.
- △ NEVER grab or touch a live power cord or cable with wet hands. The possibility exists of electrical shock, electrocution or death
- △ Make sure power cables are securely connected. Incorrect connections may cause electrical shock and damage to the machine.



⚠ CAUTION

- △ Ensure that cables and cords will not be tripped over.

NOTICE

- △ ALWAYS make certain that proper power or extension cord has been selected for the job.
- △ Use only extension cords that are intended for outdoor use and so marked
- △ Use only the gauge wire and length of cord recommended for the motor size. If in doubt, go to the next heavier gauge. (The smaller the gauge the heavier the cord.)

POWER TOOL USE AND CARE

- △ DO NOT force the power tool. Use the correct power tool for your application. The correct power tool will do the job better at the rate for which it was designed.
- △ DO NOT use the power tool if the switch does not turn it on and off. Any power tool that cannot be controlled with the switch is dangerous and must be repaired.
- △ Disconnect the plug from the power cord source and/or the battery pack from the power tool before making any adjustments, changing accessories, or storing power tools. Such preventative safety measures reduce the risk of starting the power tool accidentally.

- △ Store idle power tools out of reach of children and do not allow persons unfamiliar with the power tool or these instructions to operate the power tool. Power tools are dangerous in the hands of untrained users.
- △ Maintain power tools. Check for misalignment or binding of moving parts, breakage of parts and any other condition that may affect the power tools operation. If damaged, have the power tools repaired before use. Many accidents are caused by poorly maintained power tools.
- △ Keep cutting tools sharp and clean. Properly maintained cutting tools with sharp cutting edges are less likely to blind and easier to control.
- △ Use the power tool, accessories and tool bits etc. In accordance with these instructions, taking into account the working conditions and the work to be performed. Use of the power tool for operations different from those intended could result in a hazardous situation

SERVICE

- △ Have your power tool serviced by a qualified repair person using only identical replacement parts. This will ensure the safety of the power tool is maintained.

ENVIRONMENTAL SAFETY/DECOMMISSIONING

NOTICE

- △ DO NOT pour waste or oil directly into the ground, down a drain or into any water source.
- △ Contact your country department of Public Works or recycling agency in your area and arrange for proper disposal of any electrical components, waste or oil associated with this equipment.
- △ When the life-cycle of this equipment is over it is recommended that the head casing and all other metal parts be sent to a recycling center.



GENERAL SAFETY

- △ Store fuel in appropriate containers, in well-ventilated areas and away from sparks and flames.
- △ NEVER use fuel as a cleaning agent.

- △ DO NOT smoke around or near the equipment. Fire or explosion could result from fuel vapors or if fuel is spilled on hot engine.



TRANSPORTING

- △ ALWAYS shut down engine before transporting.
- △ Tighten fuel cap securely and close fuel cock to prevent fuel from spilling.
- △ ALWAYS use proper lifting techniques when using or moving the machine assembly.

NOTICE

Decommissioning is a controlled process used to safely retire a piece of equipment that is no longer serviceable. If the equipment poses an unacceptable and unreparable safety risk due to wear or damage or is no longer cost effective to maintain (beyond life-cycle reliability) and is to be decommissioned (demolition and dismantlement), be sure to follow rules below.

- △ ALWAYS observe all applicable compulsory regulations relevant to environmental protection, especially fuel storage, the handling of hazardous substances, and the wearing of protective clothing and equipment. Instruct the user as a necessary, or, as the user, request this information and training.
- △ ALWAYS Dispose of hazardous waste properly. Examples of potentially hazardous waste include used motor oil, fuel, and fuel filters.
- △ DO NOT use food or plastic containers to dispose hazardous waste.
- △ DO NOT pour waste or oil directly onto the ground, down or drain or into any waste source.

EMISSIONS INFORMATION

NOTICE

If Applicable...

The gasoline engine used in this equipment has been designed to reduce harmful levels of carbon monoxide (CO), hydrocarbons (HC) and nitrogen oxides (NOx) contained in gasoline exhaust emissions.

This engine has been certified to meet US EPA Evaporative emission requirements in the installed configuration.

Attempting to modify or make adjustments to the engine emission, system by unauthorized personnel without proper training could damage the equipment or create an unsafe condition.

Additionally, modifying the fuel system may adversely affect evaporative emissions, resulting in fines or other penalties.

EMISSION CONTROL LABEL

The emission control label is an integral part of the emission system and is strictly controlled by regulation(s).

The label must remain with the engine for its entire life.

If a replacement emission label is needed, please contact your authorized Honda Engine Distributor.

NOTICE

- △ ALWAYS keep the machine in proper running condition.
- △ ALWAYS become familiar with the components of the machine before operation.
- △ Fix damage to machine and replace any broken parts immediately.
- △ ALWAYS store equipment properly when it is not being used. Equipment should be stored in a clean, dry location out of the reach of children and unauthorized personnel.
- △ NEVER lubricate components or attempt service on a running machine

⚠ WARNING

DO NOT USE TOOL IF IT IS IN NEED OF SERVICE!

GENERAL SAFETY

⚠ CAUTION

△ NEVER tamper with the factory settings of the engine or engine governor. Damage to the engine or equipment can result in operation in speed ranges above the maximum allowability.



- △ Minimize the amount of hose connected to the return line, excessive amounts of return hose will increase back pressure on the hydraulic motor seal, causing premature hydraulic motor seal failure.
- △ Make sure that the quick disconnects are clean prior to assembly or leakage may occur, whenever a vibrator is not connected to a paver, connect the pressure and return lines together to avoid contamination.
- △ The Seal on the Hydraulic Motor will fail quickly if the hoses are improperly connected.
- △ At temperatures under 100°F, excessive pressure is required to operate the vibrator at normal speeds. Temperatures above 196°F could cause serious damage. When excessive temperatures are encountered, follow the paver manufacturing recommendations to remedy the situation.

⚠ WARNING

- △ DO NOT OPERATE MACHINE WITHOUT GUARDS AND COVERS IN PLACE
- △ ALWAYS disconnect the air supply before changing steel or dismantling the tool for service or repair. For maximum safety we advise the installation of a shut-off valve at the end of the air line.
- △ NEVER operate the engine with heat shields or guards removed.
- △ DO NOT remove the engine oil drain plug while the engine is hot. Hot oil will gush out of the engine crankcase and severely scald any persons in the general area of the machine.

PERSONAL SAFETY

- △ Stay alert, watch what you are doing, and use common sense when operating the machine.
- △ DO NOT use the tool while tired or under the influence of drugs, alcohol, or medication. A moment of inattention while operating power tools may result in serious personal injury or death.
- △ Dress properly. DO NOT wear loose clothing or jewelry. Tie up long hair. Keep your hair, clothing and gloves away from moving parts. Loose clothes, jewelry, or long hair can be caught in moving parts.
- △ DO NOT overreach. Keep proper footing and balance at all times. Proper footing and balance enables better control in unexpected situations.

SERVICE

- △ Tool service must be performed only by qualified repair personnel. Service or maintained performed by unqualified personnel could result in injury or death
- △ When servicing a tool, use only identical replacement parts. Use of unauthorized parts may create a risk of injury or death.

NOTICE

Specifications and part numbers are subject to change without notice.

NOTICE

To find the latest revision of this publication, visit our website at: www.minnich-mfg.com

NOTICE

THIS MANUAL MUST ACCOMPANY THE EQUIPMENT AT ALL TIMES.

GENERAL SAFETY

NOTICE

- Δ **CLEAR AIR SUPPLY LINE:** Before connecting vibrator, clear the compressed air supply line of possible impurities, contaminants and water.
- Δ **LUBRICATE:** Every day or every four hours of continuous service, pour a ½ teaspoon of non-detergent oil into the quick release coupling. **NOTE:** An optional oiler/strainer is available.
- Δ The relationship between speed and centrifugal force of a vibrator is not a straight line function. The centrifugal force varies as the square of the speed. This results in that a 10% change in RPM will be reflected by a 21% change in the centrifugal force and a 20% change in RPM will be reflected by a 44% change in the centrifugal force.
- Δ When concrete, a mixture of cement, sand, aggregates and water, is placed it contains a high volume of entrapped air. If the concrete is allowed to harden in this condition, it will be porous, non-uniform in consistency and weak. Therefore, concrete must be consolidated to attain acceptable results. The most widely used method for concrete consolidation is vibration and for slip form paving this is accomplished by an internal vibrator.

CONNECT/START

NOTICE

If the vibration intensity drops, check that the filters are not clogged or that hoses are not kinked.

TEMPERATURE

NOTICE

The hydraulic oil temperature should be maintained at 100...180° F with 140° F being optimum.

OIL FILTRATION

NOTICE

The hydraulic oil must be filtered to maintain proper operation and to prevent wear and damage due to contaminates.

PLACEMENT AND CONSOLIDATION

NOTICE

The force exerted by an internal concrete vibrator is controlled by the weight and the speed at which the eccentric rotates. The centrifugal force exerted can be arrived at by various combinations of weight (size of eccentric weight) and the speed at which the weight rotates. For years the most favorable working speed for a vibrator was considered to be around 10,200 RPM (VPM) and consequently this figure is used in many vibrator comparisons. More recently, the optimum speed for compaction has been accepted as being between 7500 and 9000 RPM.

OIL PRESSURE

NOTICE

Oil pressure varies depending on oil temperature, flow rate, oil viscosity and the amount of hose connected between manifold and vibrator. A vibrator in good condition operates with a pressure of 700...1200 psi at 4 gpm and 140°F.

STORAGE

NOTICE

To properly store unit after use, hang the vibrator with the head up and set the handle (variable control assembly) in the open position to permit the discharge of possible impurities, contaminants and water.

NOTICE

- Δ **ALWAYS** store equipment properly when it is not being used. Equipment should be stored in a clean, dry location out of reach of children and unauthorized personnel.
- Δ Use only factory authorized replacement parts.
- Δ Before Each use, **ALWAYS** check the equipment to make certain that there are no damaged parts and that all parts function properly. If any damage or malfunctioning parts are found, have them repaired or replaced by an authorized service facility.

HOW TO USE

OVERVIEW

The Hand Held Digital Tachometer is used to measure the rate of vibration in vibrations per minute (VPM) of a specific vibrator. This tachometer can be used on any vibrator by holding the sensor on the vibrator. It can also be used to read Minnich Manufacturing's Auto Vibe sensor equipped vibrators (See Set Up).

GETTING STARTED

Set Up

1. There are two ways in which the tachometer can be used.

a. The first way is to use the remote sensor by placing it on a vibrator. The sensor should be placed anywhere on the vibrator where adequate vibration is present for the sensor to pick it up. If you don't get a reading, move the sensor to a point where there is greater vibration.

b. The second way is to connect the unit to a censored vibrator. First, make sure the unit is powered off then disconnect the remote sensor and connect the unit directly to the vibrator's internal Minnich Auto Vibe sensor. When the unit is powered back on, it will read off the internal sensor.

Reading the Monitor

1. To turn on the tachometer, hold down the red button until the display turns on. There is an auto shut-off after a minute and thirty second.

2. When the tachometer is turned on, the screen will say "Low Bat" on the left hand side.

3. The "Low Bat" will then disappear and an "S" will scroll across the screen until a "0" appears.

4. When the "0" appears, the tachometer is ready to be used.

Charging the Battery

1. The battery needs recharged whenever the "Low Bat" message appears in the upper left hand corner of the display. There is a 115 VAC wall charger for overnight and continuous charging. There is also a 12 VDC cigarette lighter charger. Either one is to be plugged into the recharging socket on the front panel of the display. The unit will scroll a "C" across the display while it is charging and will display a "Done" when it is finished.

NOTICE

If the Tachometer battery is ever completed drained of power and it is plugged in to be charged, within a few minutes it will say "Done" implying it is fully charged. However, this is not the case. The charger needs to be disconnected and then plugged back in to the tachometer. After this, the battery will charge at its normal rate and it will be fully charged when the "Done" appears on the screen.

TROUBLE SHOOTING

UNIT WILL NOT POWER UP

- Check charge. See section 2.3 Charging the Battery.
- Check to see the internal batteries are properly installed. Remove (4) front panel screws and lift out display to examine batteries.

DISPLAY READS "SErr"

- Turn the unit off and make sure the sensor is connected to four pin connector. Latch on connector should be seated around catch. Turn unit back on and try again.

DISPLAY READS "LOW BATT"

- Charge batteries. See section 2.3 Charging the Battery.

UNIT WILL NOT READ OUT

- Turn the unit off and make sure the sensor is connected to four pint connector. Latch on connector should be seated around catch. Turn unit back on and try again.

SPECIFICATIONS

Detachable impact resistant urethane coated 5g-100g vibrator sensor.

Power Source

(2) "AA" 800 mah nickel metal hydride batteries.

LIMITED WARRANTY, DISCLAIMER

Supplier warrants to Customer that the Services shall be provided in a workmanlike manner and that the Goods shall be free from defects in material and workmanship at the date of shipment from Supplier's facility. This warranty shall not run to any person other than Customer.

All claims under this warranty must be made in writing and delivered to Supplier prior to the expiration of one (1) year after the Goods have been delivered (or, if applicable, within one (1) year after the Services have been performed) or be forever barred. Supplier will repair or replace Goods or parts recognized and acknowledged by Supplier as being defective at the time of delivery without charge. However, Supplier will bill Customer for Goods and/or Services not covered by the warranty, including travel expenses incurred while performing warranty service calls. EQUIPMENT, COMPONENTS OR OTHER GOODS FURNISHED THAT ARE NOT MANUFACTURED BY SUPPLIER ARE ONLY COVERED TO THE EXTENT OF THE ORIGINAL MANUFACTURER'S WARRANTY, WHICH MAY VARY FROM THE ABOVE. Further, the above warranty shall not apply to any hardware or software that has been repaired or altered without Supplier's written permission by anyone other than Supplier's personnel. The foregoing states the sole and exclusive remedy for any breach of warranty or for any other claim based on any defect in, or nonperformance of, the Goods or Services, whether based upon contract, warranty, negligence, tort (including strict liability) or otherwise.

NO EXPRESS WARRANTIES AND NO IMPLIED WARRANTIES, WHETHER OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE OR WEAR CAPACITY, OR OTHERWISE, SHALL APPLY TO THE GOODS AND SERVICES. SUPPLIER SPECIFICALLY DISCLAIMS AND EXCLUDES ALL OTHER EXPRESS AND IMPLIED WARRANTIES. NO WAIVER, ALTERATION, ADDITION OR MODIFICATION OF THE FOREGOING SHALL BE VALID UNLESS MADE IN WRITING AND SIGNED BY AN EXECUTIVE OFFICER OF SUPPLIER. IN NO EVENT WILL SUPPLIER BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES.

WHAT IS NOT COVERED

This Limited Warranty does not cover any damage, deterioration or malfunction resulting from normal wear or tear, or any alteration, modification, improper or unreasonable use or maintenance, misuse, abuse, accident, neglect, exposure to excess moisture, fire, improper packing and shipping (such claims must be presented to the carrier), lightning, power surges, or other acts of nature. This Limited Warranty does not cover any damage, deterioration or malfunction resulting from the installation or removal of this product from any installation, any unauthorized tampering with this product, any repairs attempted by anyone unauthorized by Minnich to make such repairs, or any other cause which does not relate directly to a defect in materials and/or workmanship of this product.

WHAT IS COVERED

This limited warranty ("Limited Warranty") covers manufacturing defects in materials and workmanship of a product.

WHO IS COVERED:

Only the original purchaser of this product is covered under this Limited Warranty. This Limited Warranty is not transferable to subsequent purchasers or owners of this product. The product must have been purchased directly from Minnich or from an authorized Minnich reseller.

ORDER VIA INTERNET!



Order Online:
<https://www.minnich-mfg.com/login>



- View parts
- Order Parts
- Print specific information
- If you don't have a login give us a call.

ORDER VIA PHONE!



Contact us at:
419-903-0010

WE ACCEPT THE FOLLOWING CARDS!



SCAN FOR HELPFUL VIDEOS!



NON-DEALER AND INTERNATIONAL CUSTOMERS:

Contact Minnich Manufacturing through the following number to locate a dealer near you.
(419-903-0010)

NOTICE

All orders are treated as Standard Orders and will ship the same day if received prior to 3PM EST