

# MINNICH

## HIGH CYCLE VIBRATOR - M258 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**

See engine manual for information pertaining to the engine.

### **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](mailto:sales@minnich-mfg.com)

**⚠ WARNING**

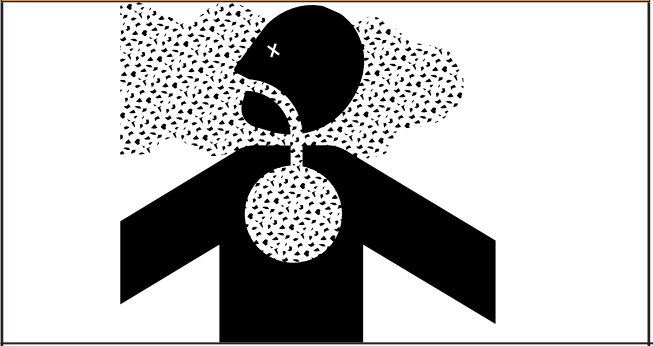
**CALIFORNIA PROPOSITION 65**

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

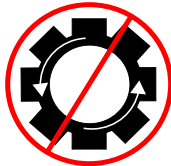

**⚠ WARNING**  
Indicates a hazardous situation which, if not avoided, COULD result in DEATH or SERIOUS INJURY

**⚠ 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
	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

- △ DO NOT expose vibrator to rain.
- △ DO NOT use vibrator motor in damp or wet locations without proper electrical circuits.
- △ DO NOT immerse the motor part in concrete.
- △ ALWAYS keep clear of rotating or moving parts while operating.
- △ NEVER leave the machine unattended while running
- △ ALWAYS disconnect the motor from the power source when not in use, before servicing, and when changing flexible shafting and vibrator heads.

- △ Allow the machine to cool before servicing. Contact with hot components can cause serious burns.



- △ Before Each use, ALWAYS check the motor 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.

### NOTICE

- △ ALWAYS secure forms. Make sure the form work is well made and braced to withstand the stresses made by vibration.
- △ ALWAYS keep vibrator motor clean for better and safer operation.
- △ 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.
- △ Use only factory authorized replacement parts.
- △ Store idle vibrator motor. When not in use, motor should be stored in a dry, safe storage area.

### ⚠ WARNING

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

## ELECTRICAL SAFETY

### ⚠ CAUTION

- △ Power tools must match the outlet. NEVER modify the plug in any way. DO NOT use the adapter plugs with earthed (grounded) power tools. Unmodified plugs and matching outlets will reduce risk of electric shock.
- △ Avoid contact with earthed or grounded surfaces such as pipes, radiators ranges and refrigerators. There is an increase risk of electric shock if your body is earthed or grounded.
- △ DO NOT expose power tools to rain or wet conditions. Water entering a power tool will increase risk of electric shock.
- △ DO NOT abuse power cord. NEVER use the cord for carrying, pulling or unplugging the power tool. Keep cord away from heat, oil sharp edges or moving parts. Damaged or entangled cords increase the risk of electric shock.
- △ When operating a power tool outside use an extension cord suitable for outdoor use. Use of a cord suitable for outdoor use reduces the risk of electric shock.
- △ This unit is double-insulated. The double insulation between the electric-conducting part and the outside frame makes grounding unnecessary. However, if parts are replaced with wrong parts or assembled incorrectly, the machine may become unsafe to operate. Use only Minnich Recommended replacement parts.
- △ When applicable, use a protection wiring device such as a Ground Fault Circuit Interrupter, for the protection of personnel.
- △ Operate electric motor only at the specific voltage indicated on the nameplate.
- △ DO NOT spray water onto electric motor.
- △ DO NOT yank the cord to disconnect it from the receptacle. Grasp the plug itself to disconnect it.
- △ ALWAYS make sure the ON/OFF switch is in the OFF position when not in use, and before inserting the power plug into an AC replacement.
- △ Before plugging the motor into a power source, ALWAYS remove any wrenches or other tools from the motor, shaft, and head that were used for assembly.

## 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



## GENERAL SAFETY

### ENGINE SAFETY

#### **⚠ DANGER**

- △ The engine fuel exhaust gases contain poisonous carbon monoxide. This gas is colorless and odorless, and can cause death if inhaled.
- △ The engine of this equipment requires an adequate free flow of cooling air. NEVER operate this equipment in any enclosed or narrow area where free flow of the air is restricted. If the air flow is restricted it will cause injury to people and property and serious damage to the equipment or engine. Remember the engine gives off deadly gases.

#### **⚠ WARNING**

- △ 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.

#### **⚠ CAUTION**

- △ NEVER touch the hot exhaust manifold, muffler or cylinder. Allow these parts to cool before servicing equipment.



- △ ALWAYS place the engine ON/OFF switch in the OFF position when the machine is not in use.

- △ 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.



### ELECTRICAL SAFETY

#### **⚠ DANGER**

- △ Turn generator OFF before performing maintenance on the generator or making contact with the output receptables.
- △ NEVER insert any objects into the output receptables during operation. This is extremely dangerous. The possibility exists of electrical shock, Electrocutation or death.

#### **NOTICE**

- △ Refer to the engine Owners Manual for engine technical questions or information (if applicable).
- △ NEVER run engine without an air filter or with a dirty air filter. Severe engine damage may occur. Service air filter frequently to prevent engine malfunction (if applicable).
- △ State health safety codes and Public Resources Code specify that in certain locations, spark arrester must be used on internal combustion engines the used hydrocarbon fuels. A spark arrester is a device designed to prevent accidental discharge of sparks or flames from the engine exhaust. Spark arrestors are qualified and rated by the United States Forecast Service for this purpose. In order to comply with local laws regarding spark arresters, consult the engine distributor of the local Health and Safety Administrator (if applicable).

### FUEL SAFETY

#### **⚠ DANGER**

- △ DO NOT add fuel to equipment if it is placed inside truck bed with plastic liner. Possibility exist of explosion or fire due to static electricity.
- △ DO NOT start the engine near spilled fuel or combustion fluids. Gasoline fuel is extremely flammable and its vapors can cause an explosion if ignited.
- △ ALWAYS refuel in a well-ventilated area, away from sparks and open flames.
- △ ALWAYS use extreme caution when working with flammable liquids.
- △ DO NOT fill the fuel tank while the engine is running or hot.
- △ DO NOT overfill tank, since spilled fuel could ignite if it come into contact with hot engine parts or sparks from the ignition system.

#### **⚠ DANGER**



Electric shock can occur when vibrators are used. Pay close attention to handling when operating vibrators and always use rubber boots and gloves to insulate the body from a short circuit.

## GENERAL SAFETY

### 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, jewelery, 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 preformed only by qualified repair personnel. Service or maintained preformed 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.

### GROUNDING SAFETY

#### DANGER

- △ ALWAYS make sure that electrical circuits are properly grounded to a suitable earth ground (ground rod) per the National Electrical Code (NEC) and local codes before operating generator. Serve injury or death by electrocution can result from operating an ungrounded generator.
- △ NEVER use gas piping as an electrical ground.

#### CAUTION

- △ Install the drill steel and bits into the drill motors and close the latch retainers and rod guides.
- △ Make sure that the air compressor is set at an operating pressure of not more than 120 PSIG (8Bar)
- △ Make sure air line is cleaned out and is of the proper size and pressure rating for the drill unit.
- △ Make sure the lubricator is filled with proper lubricant. See Minnich recommended lubricant

below.

- △ Make sure all controls are in the "off" position and the lift lever (if so equipped) is in the "up" position.
- △ Make sure all lock pins are in their locked position.

### 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](http://www.minnich-mfg.com)

### NOTICE

THIS MANUAL MUST ACCOMPANY THE EQUIPMENT AT ALL TIMES.

### WARNING

- △ NEVER attempt to loosen any compressed air hose that is pressurized.
- △ KEEP AWAY from all hot or spark generating objects, do not smoke when handling fuel.
- △ So as to facilitate shipment, new or repaired units are not lubricated before delivery to customers.
- △ DO NOT use hydrocarbons and especially do not use fuel oil for lubricating purposes.
- △ 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.

### NOTICE

- △ CLEAR AIR SUPPLY LINE: Before connecting vibrator, clear the compressed air supply line of possible impurities, contaminants and water.
- △ 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.
- △ 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.
- △ 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.

### 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.

## 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.

### CAUTION

- △ 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.
- △ Filter the hydraulic fluid to 10 micron absolute (ISO 17/13 fluid cleanliness). Oil that is not properly filtered may cause damage to the hydraulic motor.

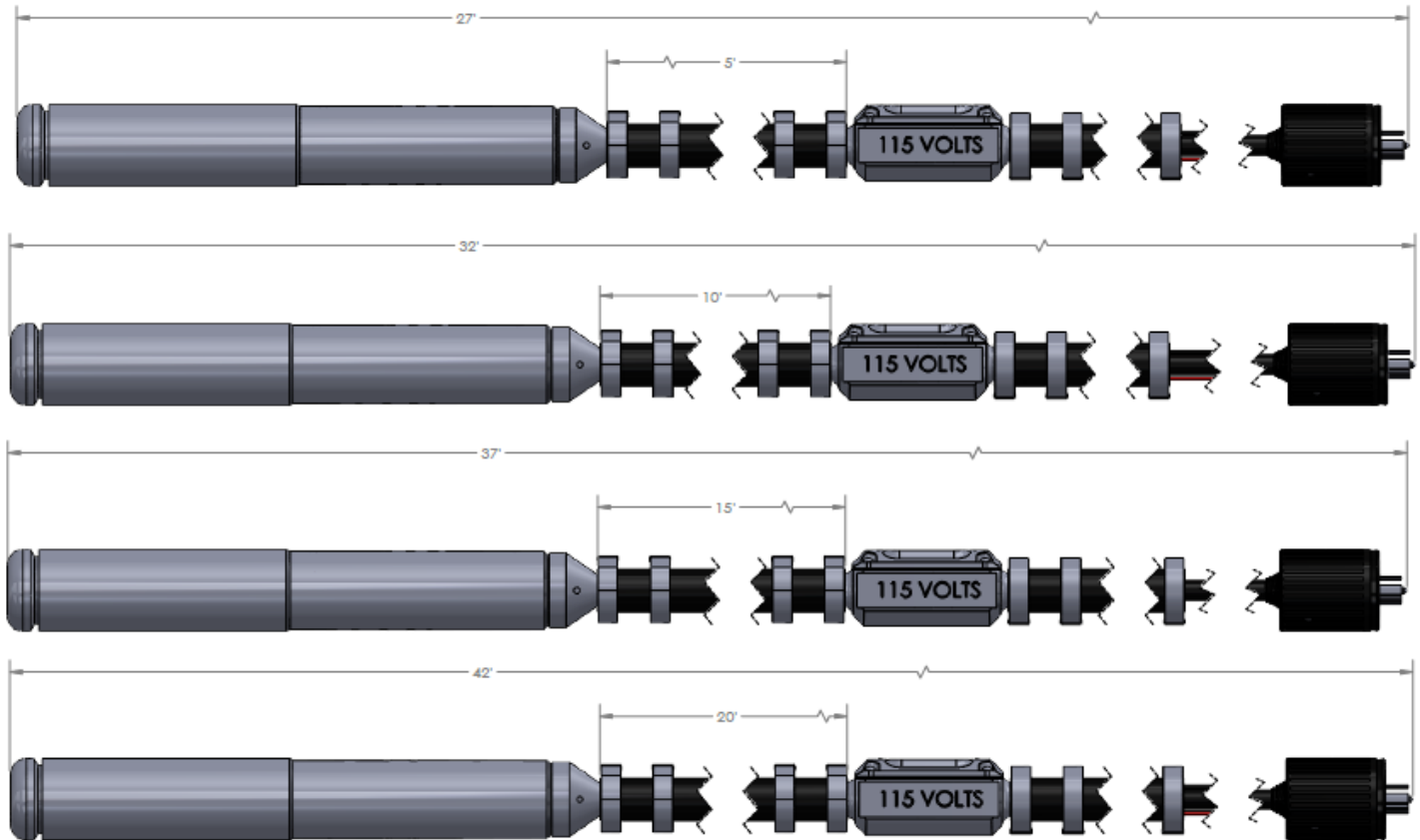
## GENERAL SAFETY

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### TOOLS USE & CARE

- △ DO NOT force tool. Use the correct tool for your application.
- △ The correct tool will do the job better and safer at the rate for which it is designed.
- △ DO NOT use tool if switch does not turn it on or off.
- △ Any tool that cannot be controlled with the switch is dangerous and must be repaired.
- △ Disconnect the plug from the power source before making any adjustments, changing accessories, or storing the tool.
- △ Such preventive safety measures reduce the risk of starting the tool accidentally.
- △ Store tools out of the reach of children and other untrained persons.
- △ Tools are dangerous in the hands of untrained users.
- △ Maintain tools with care. Keep tools clean.
- △ Properly maintained tools are less likely to bind and are easier to control.
- △ Check for misalignment or binding of moving parts, breakage of parts, and any other condition that may affect the tools
- △ way become hazardous when used on another tool.

**M258 SPECIFICATIONS**



HEAD DIAMETER	2-3/8" (60mm)
HEAD LENGTH	18" (457.2mm)
HEAD WEIGHT	14lbs. (6.4kg)
NO LOAD AMPERAGE: COMPLETE HEAD	3
NO LOAD AMPERAGE: MOTOR ONLY	1.5
CENTRIFUGAL FORCE	1402lbs. (6236N)
AMPLITUDE	.112" (2.85mm)
DIAMETER OF INFLUENCE	18"-24" (457.2mm-609.6mm)
WEIGHT OF COMPLETE UNIT	44lbs. (20.0kg)
POWER REQUIREMENTS	230V 3ph 180cy
RECOMMENDED POWER SOURCE	MHA-2C

**SPECIFICATIONS ARE NOMINAL VALUES AND WILL VARY DEPENDING ON THE SIZE AND RANGE OF AGGREGATE, AND THE SLUMP OF THE CONCRETE.**

**SPECIFICATIONS TAKEN AT 10,500VPM**

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	645	SHIM	4
2	651	LOCKNUT, ECCENTRIC BEARING	2
3	652	LOCKWASHER, BEARING	2
4	653	BEARING, BALL	4
5	655	ECC. BEARING HOUSING	1
6	656	MOTOR LOCKNUT	1
7	660	HEX LOCKNUT 5/16-24	1
8	666-1	PLUG	1
9	758	ROTOR - 3 PHASE 180 CYCLE	1
10	908	BEARING SPACER	1
11	1803-2	BALL BEARING	1
12	2101	BALL BEARING	1
13	6541	ECCENTRIC WEIGHT	1
14	A661	115 VOLT STATOR ASSEMBLY	1
15	A751	2.63 ECCENTRIC HOUDING WELDMENT	1
16	A30006	MOTOR HOUSING ASSEMBLY	1

**REVISIONS**

REVISION NO. 1 DATE 07/28/2020 BY KEY LEVEL

**DESIGN**

DESIGNER: KEY LEVEL

**CHECKED**

CHECKED BY: KEY LEVEL

**APPROVED**

APPROVED BY: KEY LEVEL

**DATE**

DATE: 07/28/2020

**KEY LEVEL**

**TOLERANCES**

UNLESS OTHERWISE SPECIFIED:

FRACTIONS: .0005, .001, .002, .003, .005, .010, .015, .020, .030, .040, .050, .060, .070, .080, .090, .100, .125, .150, .175, .200, .250, .300, .375, .450, .500, .600, .750, .875, 1.000, 1.250, 1.500, 2.000, 2.500, 3.000, 4.000, 5.000, 6.000, 8.000, 10.000, 12.500, 15.000, 20.000, 25.000, 30.000, 35.000, 40.000, 45.000, 50.000, 60.000, 70.000, 80.000, 90.000, 100.000

DECIMALS: .0005, .001, .002, .003, .005, .010, .015, .020, .030, .040, .050, .060, .070, .080, .090, .100, .125, .150, .175, .200, .250, .300, .375, .450, .500, .600, .750, .875, 1.000, 1.250, 1.500, 2.000, 2.500, 3.000, 4.000, 5.000, 6.000, 8.000, 10.000, 12.500, 15.000, 20.000, 25.000, 30.000, 35.000, 40.000, 45.000, 50.000, 60.000, 70.000, 80.000, 90.000, 100.000

ANGLES: 1/2°, 1°, 1 1/2°, 2°, 3°, 4°, 5°, 6°, 8°, 10°, 12°, 15°, 20°, 25°, 30°, 35°, 40°, 45°, 50°, 55°, 60°, 65°, 70°, 75°, 80°, 85°, 90°, 95°, 100°, 105°, 110°, 115°, 120°, 125°, 130°, 135°, 140°, 145°, 150°, 155°, 160°, 165°, 170°, 175°, 180°

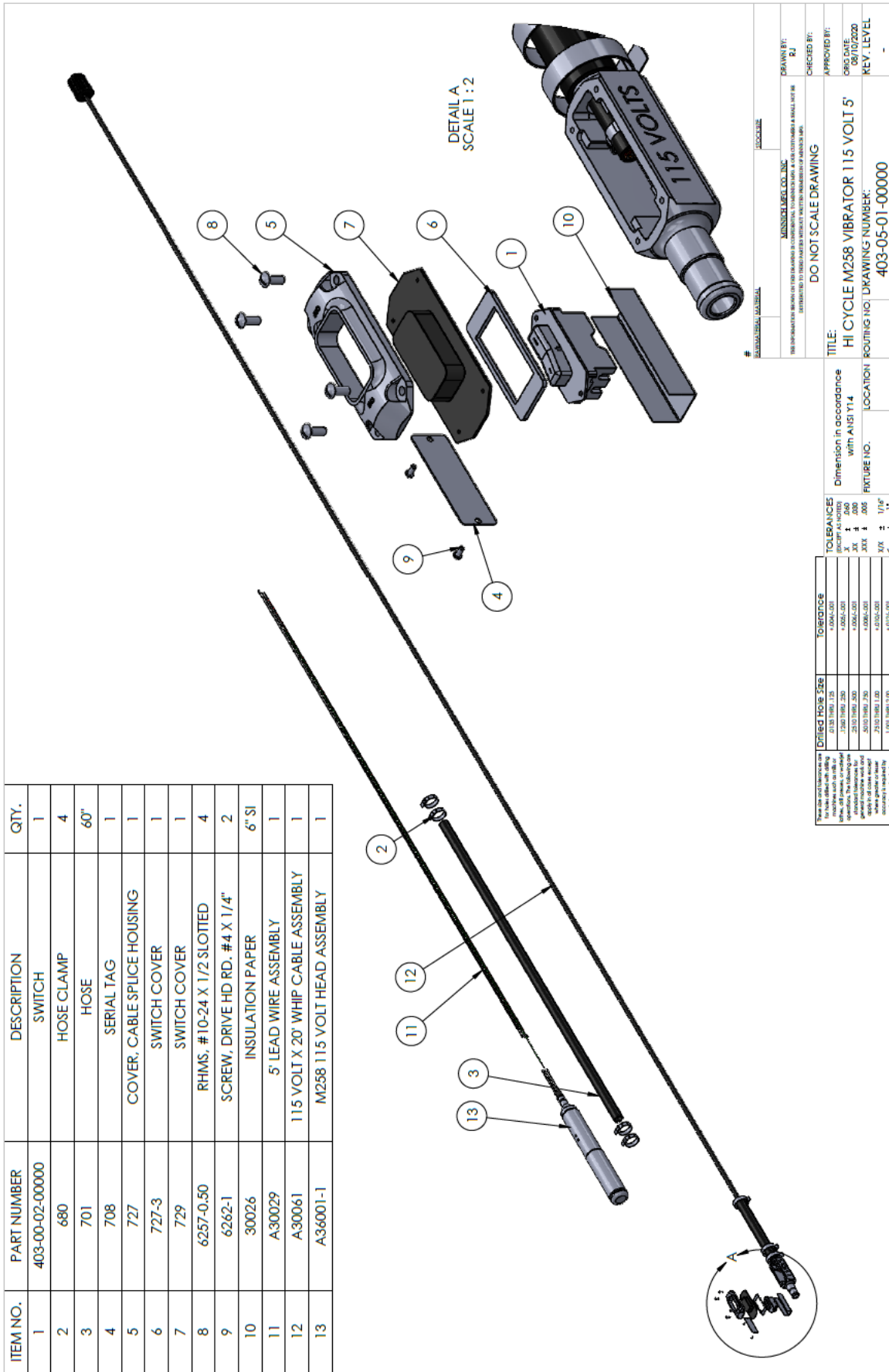
THREADS: UN, UNF, UNR, 2-60, 3-48, 4-40, 5-40, 6-32, 8-32, 10-32, 12-24, 14-20, 16-18, 18-14, 20-12, 24-10, 28-8, 30-7, 36-6, 40-5, 44-4, 48-3, 56-3, 60-2.5, 72-2, 80-1.8, 90-1.5, 100-1.25, 110-1, 120-0.75, 140-0.5, 160-0.375, 180-0.25, 200-0.1875, 220-0.15, 240-0.125, 270-0.1, 300-0.075, 360-0.05, 420-0.0375, 480-0.025, 540-0.01875, 600-0.015, 720-0.0125, 840-0.01, 900-0.0075, 1000-0.005

**DO NOT SCALE DRAWING**

**TITLE:** M258 115 VOLT HEAD ASSEMBLY

**ROUTING NO.:** A36001-1

**LOCATION:** Dimension in accordance with ANSI Y1.4



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	403-00-02-00000	SWITCH	1
2	680	HOSE CLAMP	4
3	701	HOSE	60"
4	708	SERIAL TAG	1
5	727	COVER, CABLE SPLICE HOUSING	1
6	727-3	SWITCH COVER	1
7	729	SWITCH COVER	1
8	6257-0.50	RHMS, #10-24 X 1/2 SLOTTED	4
9	6262-1	SCREW, DRIVE HD RD, #4 X 1/4"	2
10	30026	INSULATION PAPER	6" SI
11	A30029	5' LEAD WIRE ASSEMBLY	1
12	A30061	115 VOLT X 20' WHIP CABLE ASSEMBLY	1
13	A36001-1	M258 115 VOLT HEAD ASSEMBLY	1

DRILLED HOLE SIZE	TOLERANCE
.1312 (1/8) .125	+0.004/-0.01
.1875 (3/16) .180	+0.004/-0.01
.2512 (1/8) .250	+0.004/-0.01
.3150 (1 1/8) .3125	+0.004/-0.01
.3750 (3/8) .375	+0.004/-0.01
.4375 (7/16) .4375	+0.004/-0.01
.5000 (1/2) .500	+0.004/-0.01

TOLERANCES	FINISHES
XX ± .000	XX ± .000
XXX ± .005	XXX ± .005
XX ± 1/16"	XX ± 1/16"

Dimension in accordance with ANSI Y14  
 FIXTURE NO. LOCATION  
 ROUTING NO. DRAWING NUMBER: 403-05-01-00000

DO NOT SCALE DRAWING  
 TITLE: HI CYCLE M258 VIBRATOR 115 VOLT 5  
 APPROVED BY: 08/10/2020  
 KEY LEVEL

MANUFACTURED BY: MESSLER CO., INC.  
 DRAWN BY: BJ  
 CHECKED BY:

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	403-00-02-00000	SWITCH	1
2	680	HOSE CLAMP	4
3	701	HOSE	120"
4	708	SERIAL TAG	1
5	727	COVER, CABLE SPLICE HOUSING	1
6	727-3	SWITCH COVER	1
7	729	SWITCH COVER	1
8	6257-0.50	RHMS, # 10-24 X 1/2 SLOTTED	4
9	6262-1	SCREW, DRIVE HD RD. # 4 X 1/4"	2
10	30026	INSULATION PAPER	6" SI
11	A30029-10	10' LEAD WIRE ASSEMBLY	1
12	A30061	115 VOLT X 20' WHIP CABLE ASSEMBLY	1
13	A36001-1	M258 115 VOLT HEAD ASSEMBLY	1

DETAIL A  
SCALE 1 : 2

**REVISIONS**

NO.	DATE	DESCRIPTION

**APPROVED BY:** \_\_\_\_\_

**CHECKED BY:** \_\_\_\_\_

**DRAWN BY:** \_\_\_\_\_

**DATE:** \_\_\_\_\_

**SCALE:** \_\_\_\_\_

**TITLE:** HI CYCLE M258 VIBRATOR 115 VOLT 10'

**ROUTING NO.:** 403-05-02-00000

**LOCATION:** \_\_\_\_\_

**KEY LEVEL:** \_\_\_\_\_

**DO NOT SCALE DRAWING**

**MISSISSIPPI LOCKER**

**MISSISSIPPI LOCKER, INC.**

**115 VOLT HEAD ASSEMBLY**

**TOLERANCES**

FINISH	± .0001
ASSEMBLY	± .0005
WELD	± .005
DRILL	± .0005
TURN	± .0005
ROUNDER	± .0005
GRIND	± .0005
THREADS	± .0005
PLATE	± .0005
COIL	± .0005
WIRE	± .0005
ROUNDER	± .0005

**Direct Hole Size**

Ø1.50 (1.50) ±.02	±.0001
Ø1.50 (1.50) ±.02	±.0001
Ø1.50 (1.50) ±.02	±.0001
Ø1.50 (1.50) ±.02	±.0001
Ø1.50 (1.50) ±.02	±.0001
Ø1.50 (1.50) ±.02	±.0001
Ø1.50 (1.50) ±.02	±.0001

**Notes:**

1. All dimensions are in inches unless otherwise specified.
2. All dimensions are to be held unless otherwise specified.
3. All dimensions are to be held unless otherwise specified.
4. All dimensions are to be held unless otherwise specified.
5. All dimensions are to be held unless otherwise specified.
6. All dimensions are to be held unless otherwise specified.
7. All dimensions are to be held unless otherwise specified.
8. All dimensions are to be held unless otherwise specified.
9. All dimensions are to be held unless otherwise specified.
10. All dimensions are to be held unless otherwise specified.
11. All dimensions are to be held unless otherwise specified.
12. All dimensions are to be held unless otherwise specified.
13. All dimensions are to be held unless otherwise specified.





ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	403-00-02-00000	SWITCH	1
2	680	HOSE CLAMP	4
3	701	HOSE	240"
4	708	SERIAL TAG	1
5	727	COVER, CABLE SPLICE HOUSING	1
6	727-3	SWITCH COVER	1
7	729	SWITCH COVER	1
8	6257-0.50	RHMS, #10-24 X 1/2 SLOTTED	4
9	6262-1	SCREW, DRIVE HD RD, #4 X 1/4"	2
10	30026	INSULATION PAPER	6" SI
11	A30029-20	20' LEAD WIRE ASSEMBLY	1
12	A30061	115 VOLT X 20' WHIP CABLE ASSEMBLY	1
13	A36001-1	M258 115 VOLT HEAD ASSEMBLY	1

DETAIL A  
SCALE 1:3

DRIBCO HOSE SIZE	TOLERANCE
21/32 (198) 1.25	+0.004/-0.001
23/32 (198) 1.50	+0.004/-0.001
25/32 (198) 1.75	+0.004/-0.001
27/32 (198) 2.00	+0.004/-0.001
29/32 (198) 2.25	+0.004/-0.001
31/32 (198) 2.50	+0.004/-0.001
33/32 (198) 2.75	+0.004/-0.001
35/32 (198) 3.00	+0.004/-0.001

Dimension in accordance with ANSI Y14  
 FITTURE NO. LOCATION  
 TOLERANCES  
 DECIMALS AS NOTED  
 FRACTIONS AS NOTED  
 XX ± .000  
 XXX ± .005  
 XXX ± .010  
 XXX ± .015  
 XXX ± .020

# 403-00-02-00000

MANUFACTURED BY: MANUSSELEC CO., INC.  
 THIS INFORMATION BEING FOR FIELD DRAWING OR CONSTRUCTION PURPOSES ONLY. A USER CUSTOMER'S SMALL LIST IS  
 EXTENDED TO THE USER'S PRODUCT FOR THE USER'S INFORMATION ONLY.

DO NOT SCALE DRAWING

DRAWN BY: BJ  
 CHECKED BY:  
 APPROVED BY:  
 ORG DATE: 08/11/2020  
 REV. LEVEL: -

TITLE: HI CYCLE M258 VIBRATOR 115 VOLT 20'  
 ROUTING NO: DRAWING NUMBER: 403-05-04-00000

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	645	SHIM	4
2	651	LOCKNUT, ECCENTRIC BEARING	2
3	652	LOCKWASHER, BEARING	2
4	653	BEARING, BALL	4
5	655	ECC. BEARING HOUSING	1
6	656	MOTOR LOCKNUT	1
7	660	HEX LOCKNUT 5/16-24	1
8	666-1	PLUG	1
9	758	ROTOR - 3 PHASE 180 CYCLE	1
10	908	BEARING SPACER	1
11	1803-2	BALL BEARING	1
12	2101	BALL BEARING	1
13	6541	ECCENTRIC WEIGHT	1
14	A751	2.63 ECCENTRIC HOUDING WELDMENT	1
15	A6611	230 VOLT STATOR ASSEMBLY	1
16	A30006	MOTOR HOUSING ASSEMBLY	1

Drilled Hole Size	Tolerance
.2125 (1/16) .125	+ .0004/- .001
.2500 (1/8) .125	+ .0004/- .001
.3125 (1/4) .125	+ .0004/- .001
.3750 (3/8) .125	+ .0004/- .001
.4375 (7/16) .125	+ .0004/- .001
.5000 (1/2) .125	+ .0004/- .001
.5625 (9/16) .125	+ .0004/- .001
.6250 (5/8) .125	+ .0004/- .001
.6875 (3/4) .125	+ .0004/- .001
.7500 (3/4) .125	+ .0004/- .001

**TOLEANCES**  
 DECIMAL AS NOTED  
 .X ± .000  
 .XX ± .000  
 .XXX ± .000  
 .XX" ± .001"  
 .X" ± .001"

**DO NOT SCALE DRAWING**

**TITLE:** M258 230 VOLT HEAD ASSEMBLY  
**Dimension in accordance with ANSI Y14**

**FIGURE NO.:** LOCATION ROUTING NO: DRAWING NUMBER: A36003-2

**REVISIONS:**

#	DESCRIPTION	DATE	BY	CHKD BY
1	ISSUE			

**DO NOT SCALE DRAWING**

**DATE:** 01/20/2008  
**REV. LEVEL:** -

DETAIL A  
SCALE 1 : 2

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	403-00-02-00000	SWITCH	1
2	680	HOSE CLAMP	4
3	701	HOSE	60"
4	708	SERIAL TAG	1
5	727	COVER, CABLE SPLICE HOUSING	1
6	727-3	SWITCH COVER	1
7	729	SWITCH COVER	1
8	6257-0.50	RHMS, # 10-24 X 1/2 SLOTTED	4
9	6262-1	SCREW, DRIVE HD RD. # 4 X 1/4"	2
10	30026	INSULATION PAPER	6" SI
11	A-30029	5' LEAD WIRE ASSEMBLY	1
12	A-30061M	230 VOLT X 20' WHIP CABLE ASSEMBLY	1
13	A-36003-2	M258 230 VOLT HEAD ASSEMBLY	1

UNITED HOLE SIZE	TOLERANCE
.0150 THRU .125	+0.001/-0.01
.130 THRU .250	+0.001/-0.01
.250 THRU .500	+0.001/-0.01
.500 THRU .750	+0.001/-0.01
.750 THRU 1.00	+0.001/-0.01
1.00 THRU 2.00	+0.002/-0.01

TOLERANCES:  
 Dimension in accordance with ANSI Y14  
 FUTURE NO. LOCATION  
 ROUTING NO. DRAWING NUMBER: 403-03-01-00000

TITLE:  
 HI CYCLE M258 VIBRATOR 230 VOLT 5'

DO NOT SCALE DRAWING

DRAWN BY: RJ  
 CHECKED BY:  
 APPROVED BY:  
 ORG DATE: 08/10/2020  
 KEY LEVEL:

MINISCI REG. CO. INC.  
 1000 W. 10TH ST. SUITE 100  
 WYOMING, WY 82001  
 307-778-1111  
 WWW.MINISCI.COM

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	403-00-02-00000	SWITCH	1
2	680	HOSE CLAMP	4
3	701	HOSE	120"
4	708	SERIAL TAG	1
5	727	COVER, CABLE SPLICE HOUSING	1
6	727-3	SWITCH COVER	1
7	729	SWITCH COVER	1
8	6257-0.50	RHMS, # 10-24 X 1/2 SLOTTED	4
9	6262-1	SCREW, DRIVE HD RD. # 4 X 1/4"	2
10	30026	INSULATION PAPER	6" SI
11	A30029-10	10' LEAD WIRE ASSEMBLY	1
12	A30061M	230 VOLT X 20' WHIP CABLE ASSEMBLY	1
13	A36003-2	M258 230 VOLT HEAD ASSEMBLY	1

DETAIL A  
SCALE 1 : 2

**GENERAL SAFETY**

UNIVERSAL ELECT. INC.  
THIS INFORMATION IS FOR INFORMATIONAL PURPOSES ONLY. ALWAYS USE THE LATEST REVISIONS AND SMALL PARTS LIST.  
EXTENDED TO THE PATENTED PRODUCT NUMBER OF UNIVERSAL.

DO NOT SCALE DRAWING

TITLE: HI CYCLE M258 VIBRATOR 230 VOLT 10'  
ROUTING NO. 403-03-02-00000

DRAWING REF: 02  
CHECKED BY:  
APPROVED BY:  
DATE: 02/03/2009  
KEY LEVEL

Dimension in accordance with ANSI Y14

FIXTURE NO. LOCATION

TOLERANCES UNLESS NOTED OTHERWISE	UNITED HOUS SIZE	TOLERANCE
XXX	0.125 (1/8) - 1.250	+0.004/-0.001
XX	1.250 - 2.500	+0.005/-0.002
X	2.500 - 5.000	+0.007/-0.003
XXX	5.000 - 10.000	+0.009/-0.004
XX	10.000 - 25.000	+0.012/-0.005
X	25.000 - 50.000	+0.015/-0.006
XX	50.000 - 100.000	+0.020/-0.008
X	100.000 - 250.000	+0.025/-0.010

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	403-00-02-00000	SWITCH	1
2	680	HOSE CLAMP	4
3	701	HOSE	180"
4	708	SERIAL TAG	1
5	727	COVER, CABLE SPLICE HOUSING	1
6	727-3	SWITCH COVER	1
7	729	SWITCH COVER	1
8	6257-0-50	RHMS, #10-24 X 1/2 SLOTTED	4
9	6262-1	SCREW, DRIVE HD RD. #4 X 1/4"	2
10	30026	INSULATION PAPER	6" SI
11	A30029-15	15' LEAD WIRE ASSEMBLY	1
12	A30061M	230 VOLT X 20' WHIP CABLE ASSEMBLY	1
13	A36003-2	M258 230 VOLT HEAD ASSEMBLY	1

DETAIL A  
SCALE 1 : 2

DO NOT SCALE DRAWING

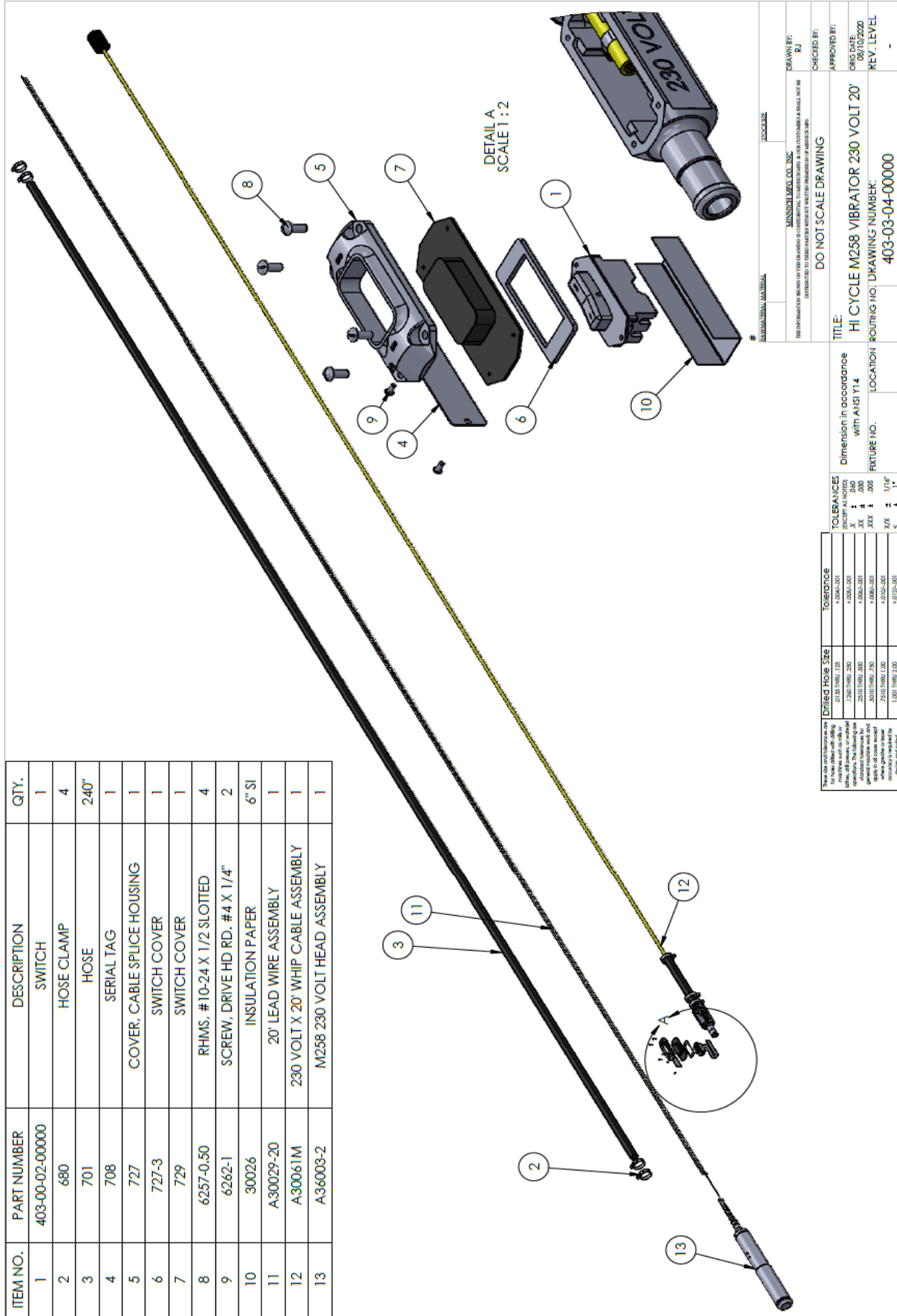
# 230VAC

MENSEL LABEL CO., INC.  
THIS INFORMATION BEINGS ON THIS DRAWING IS CONFIDENTIAL. IT IS UNLAWFUL TO REPRODUCE OR TRANSMIT THIS INFORMATION IN ANY MANNER WITHOUT THE WRITTEN PERMISSION OF MENSEL CO., INC.

APPROVED BY: RJ  
CHECKED BY:  
DATE: 07/28/2020  
REV. LEVEL: -

TITLE: HI CYCLE M258 VIBRATOR 230 VOLT 15'  
ROUTING NO. 403-03-03-00000

TOLERANCES	DIMENSIONS	TOLERANCES
EXCEPT AS NOTED	AS SHOWN	AS SHOWN
FRACTIONS	1/16" TO 1/8"	± 0.004" (0.1016)
DECIMALS	1/16" TO 1/8"	± 0.004" (0.1016)
ANGLES	30°, 45°, 60°, 90°	± 0.004" (0.1016)
HOLE DIA.	1/16" TO 1/8"	± 0.004" (0.1016)
DRILL DIA.	1/16" TO 1/8"	± 0.004" (0.1016)
PLUG DIA.	1/16" TO 1/8"	± 0.004" (0.1016)
THREAD DIA.	1/16" TO 1/8"	± 0.004" (0.1016)
WELD DIA.	1/16" TO 1/8"	± 0.004" (0.1016)
WELD LENGTH	1/16" TO 1/8"	± 0.004" (0.1016)
WELD ANGLE	1/16" TO 1/8"	± 0.004" (0.1016)
WELD POSITION	1/16" TO 1/8"	± 0.004" (0.1016)
WELD FINISH	1/16" TO 1/8"	± 0.004" (0.1016)
WELD DEFECTS	1/16" TO 1/8"	± 0.004" (0.1016)
WELD TOLERANCES	1/16" TO 1/8"	± 0.004" (0.1016)



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	403-00-02-00000	SWITCH	1
2	680	HOSE CLAMP	4
3	701	HOSE	240"
4	708	SERIAL TAG	1
5	727	COVER, CABLE SPLICE HOUSING	1
6	727-3	SWITCH COVER	1
7	729	SWITCH COVER	1
8	6257-0.50	RHMS, #10-24 X 1/2 SLOTTED	4
9	6262-1	SCREW, DRIVE HD. RD. #4 X 1/4"	2
10	30026	INSULATION PAPER	6" SI
11	A30029-20	20' LEAD WIRE ASSEMBLY	1
12	A30061M	230 VOLT X 20' WHIP CABLE ASSEMBLY	1
13	A36003-2	M258 230 VOLT HEAD ASSEMBLY	1

Drilled Hole Size	Tolerance
Ø1.31 (106) .125	+0.004/-0.01
Ø1.50 (118) .125	+0.004/-0.01
Ø1.62 (126) .125	+0.004/-0.01
Ø1.75 (135) .125	+0.004/-0.01
Ø1.87 (144) .125	+0.004/-0.01
Ø2.00 (153) .125	+0.004/-0.01
Ø2.12 (162) .125	+0.004/-0.01
Ø2.25 (171) .125	+0.004/-0.01
Ø2.37 (180) .125	+0.004/-0.01
Ø2.50 (189) .125	+0.004/-0.01

MISSISSIPPI DIECAST CO., INC.  
 1000 INDUSTRIAL BLVD. (OFFICE) 1000 INDUSTRIAL BLVD. (FACILITY)  
 MEMPHIS, TN 38117-1000 (OFFICE) MEMPHIS, TN 38117-1000 (FACILITY)

DO NOT SCALE DRAWING

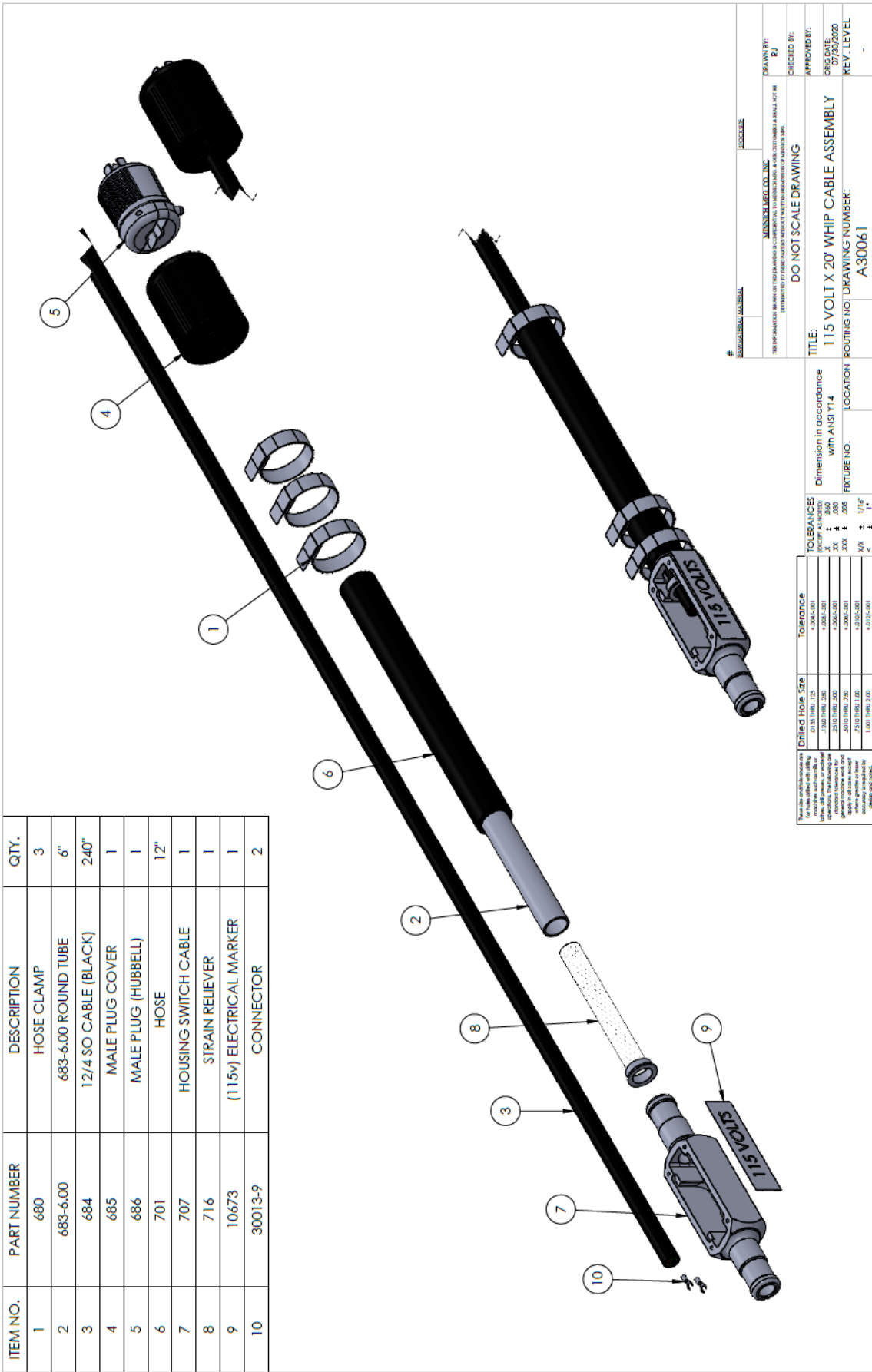
DATE: 08/10/2020  
 REV. LEVEL: -

TITLE: HI CYCLE M258 VIBRATOR 230 VOLT 20'  
 ROUTING NO. 403-03-04-00000

Dimension in accordance with ANSI Y14

FIXTURE NO. LOCATION

FINISHES: X ± .000, XX ± .005, XXX ± 1/16"



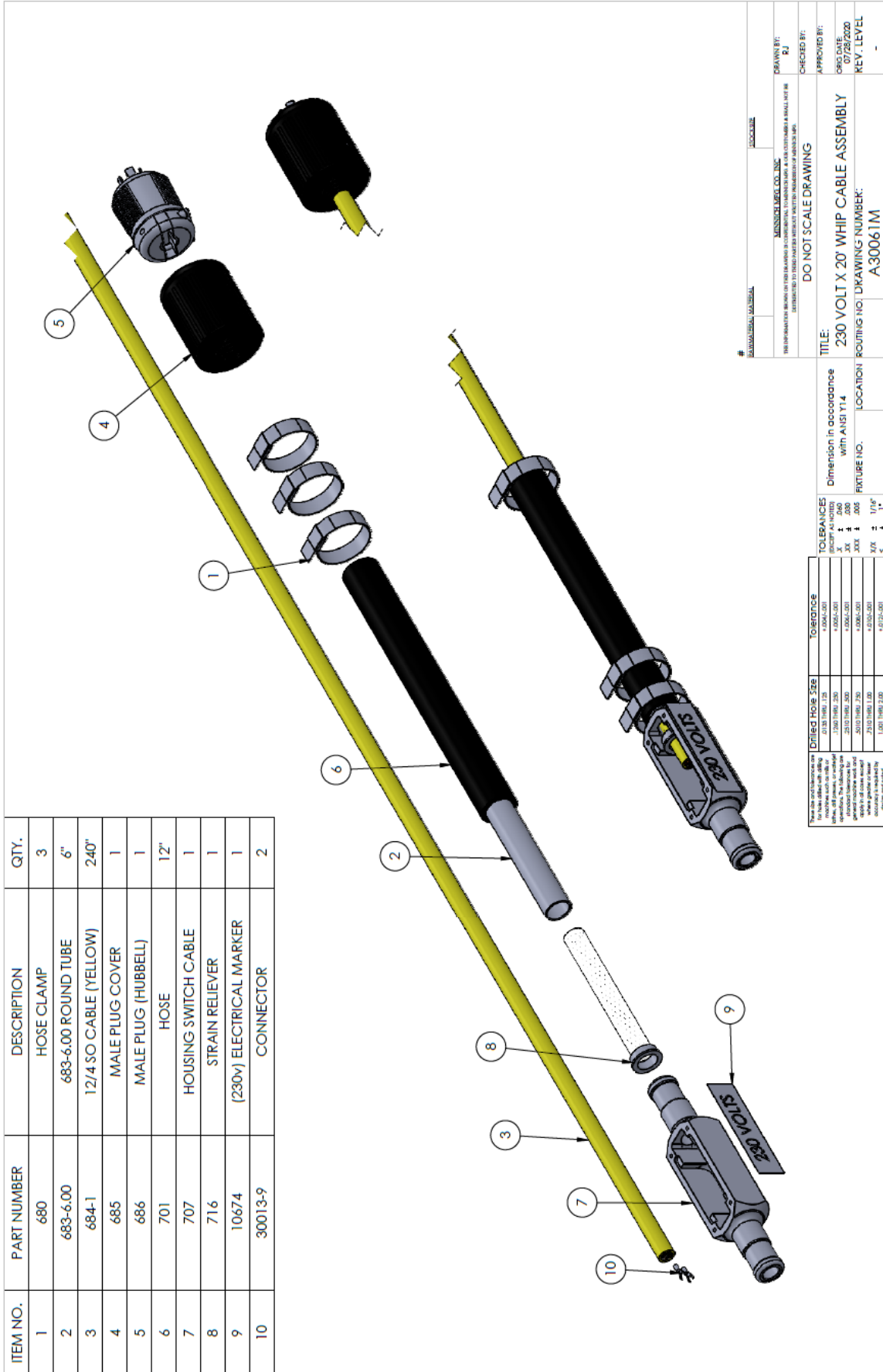
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	680	HOSE CLAMP	3
2	683-6.00	683-6.00 ROUND TUBE	6"
3	684	12/4 SO CABLE (BLACK)	240"
4	685	MALE PLUG COVER	1
5	686	MALE PLUG (HUBBELL)	1
6	701	HOSE	12"
7	707	HOUSING SWITCH CABLE	1
8	716	STRAIN RELIEVER	1
9	10673	(115v) ELECTRICAL MARKER	1
10	30013-9	CONNECTOR	2

UNITED HOSE SIZE	TOLERANCE
1/2" (12.7mm)	± 0.004 (0.10)
3/4" (19.0mm)	± 0.004 (0.10)
1" (25.4mm)	± 0.004 (0.10)
1 1/4" (31.8mm)	± 0.004 (0.10)
1 1/2" (38.1mm)	± 0.004 (0.10)
2" (50.8mm)	± 0.004 (0.10)
2 1/2" (63.5mm)	± 0.004 (0.10)
3" (76.2mm)	± 0.004 (0.10)
3 1/2" (88.9mm)	± 0.004 (0.10)
4" (101.6mm)	± 0.004 (0.10)

TOLERANCES  
 Dimension in accordance with ANSI Y14  
 FITURE NO. LOCATION  
 TITLE: 115 VOLT X 20' WHIP CABLE ASSEMBLY  
 ROOMING HOT DRAWING NUMBER: A-30061

DO NOT SCALE DRAWING  
 DRAWN BY: RJ  
 CHECKED BY:  
 APPROVED BY:  
 ORG DATE: 07/30/2020  
 REV. LEVEL





PLEASE SEE DIMENSIONS AND TOLERANCES FOR THE FOLLOWING DIMENSIONS:

DWG'S HOUS SIZE	TOLERANCE
1.000 1.999 2.999	± .005
3.000 3.999 4.999	± .006
5.000 5.999 6.999	± .007
8.000 8.999 9.999	± .008
11.000 11.999 12.999	± .009
15.000 15.999 16.999	± .010
20.000 20.999 21.999	± .012
25.000 25.999 26.999	± .015
30.000 30.999 31.999	± .018
35.000 35.999 36.999	± .020
40.000 40.999 41.999	± .025
45.000 45.999 46.999	± .030
50.000 50.999 51.999	± .035
55.000 55.999 56.999	± .040
60.000 60.999 61.999	± .045
65.000 65.999 66.999	± .050
70.000 70.999 71.999	± .055
75.000 75.999 76.999	± .060
80.000 80.999 81.999	± .065
85.000 85.999 86.999	± .070
90.000 90.999 91.999	± .075
95.000 95.999 96.999	± .080
100.000 100.999 101.999	± .085
105.000 105.999 106.999	± .090
110.000 110.999 111.999	± .095
115.000 115.999 116.999	± .100
120.000 120.999 121.999	± .105
125.000 125.999 126.999	± .110
130.000 130.999 131.999	± .115
135.000 135.999 136.999	± .120
140.000 140.999 141.999	± .125
145.000 145.999 146.999	± .130
150.000 150.999 151.999	± .135
155.000 155.999 156.999	± .140
160.000 160.999 161.999	± .145
165.000 165.999 166.999	± .150
170.000 170.999 171.999	± .155
175.000 175.999 176.999	± .160
180.000 180.999 181.999	± .165
185.000 185.999 186.999	± .170
190.000 190.999 191.999	± .175
195.000 195.999 196.999	± .180
200.000 200.999 201.999	± .185
205.000 205.999 206.999	± .190
210.000 210.999 211.999	± .195
215.000 215.999 216.999	± .200
220.000 220.999 221.999	± .205
225.000 225.999 226.999	± .210
230.000 230.999 231.999	± .215
235.000 235.999 236.999	± .220
240.000 240.999 241.999	± .225
245.000 245.999 246.999	± .230
250.000 250.999 251.999	± .235
255.000 255.999 256.999	± .240
260.000 260.999 261.999	± .245
265.000 265.999 266.999	± .250
270.000 270.999 271.999	± .255
275.000 275.999 276.999	± .260
280.000 280.999 281.999	± .265
285.000 285.999 286.999	± .270
290.000 290.999 291.999	± .275
295.000 295.999 296.999	± .280
300.000 300.999 301.999	± .285
305.000 305.999 306.999	± .290
310.000 310.999 311.999	± .295
315.000 315.999 316.999	± .300
320.000 320.999 321.999	± .305
325.000 325.999 326.999	± .310
330.000 330.999 331.999	± .315
335.000 335.999 336.999	± .320
340.000 340.999 341.999	± .325
345.000 345.999 346.999	± .330
350.000 350.999 351.999	± .335
355.000 355.999 356.999	± .340
360.000 360.999 361.999	± .345
365.000 365.999 366.999	± .350
370.000 370.999 371.999	± .355
375.000 375.999 376.999	± .360
380.000 380.999 381.999	± .365
385.000 385.999 386.999	± .370
390.000 390.999 391.999	± .375
395.000 395.999 396.999	± .380
400.000 400.999 401.999	± .385
405.000 405.999 406.999	± .390
410.000 410.999 411.999	± .395
415.000 415.999 416.999	± .400
420.000 420.999 421.999	± .405
425.000 425.999 426.999	± .410
430.000 430.999 431.999	± .415
435.000 435.999 436.999	± .420
440.000 440.999 441.999	± .425
445.000 445.999 446.999	± .430
450.000 450.999 451.999	± .435
455.000 455.999 456.999	± .440
460.000 460.999 461.999	± .445
465.000 465.999 466.999	± .450
470.000 470.999 471.999	± .455
475.000 475.999 476.999	± .460
480.000 480.999 481.999	± .465
485.000 485.999 486.999	± .470
490.000 490.999 491.999	± .475
495.000 495.999 496.999	± .480
500.000 500.999 501.999	± .485
505.000 505.999 506.999	± .490
510.000 510.999 511.999	± .495
515.000 515.999 516.999	± .500
520.000 520.999 521.999	± .505
525.000 525.999 526.999	± .510
530.000 530.999 531.999	± .515
535.000 535.999 536.999	± .520
540.000 540.999 541.999	± .525
545.000 545.999 546.999	± .530
550.000 550.999 551.999	± .535
555.000 555.999 556.999	± .540
560.000 560.999 561.999	± .545
565.000 565.999 566.999	± .550
570.000 570.999 571.999	± .555
575.000 575.999 576.999	± .560
580.000 580.999 581.999	± .565
585.000 585.999 586.999	± .570
590.000 590.999 591.999	± .575
595.000 595.999 596.999	± .580
600.000 600.999 601.999	± .585
605.000 605.999 606.999	± .590
610.000 610.999 611.999	± .595
615.000 615.999 616.999	± .600
620.000 620.999 621.999	± .605
625.000 625.999 626.999	± .610
630.000 630.999 631.999	± .615
635.000 635.999 636.999	± .620
640.000 640.999 641.999	± .625
645.000 645.999 646.999	± .630
650.000 650.999 651.999	± .635
655.000 655.999 656.999	± .640
660.000 660.999 661.999	± .645
665.000 665.999 666.999	± .650
670.000 670.999 671.999	± .655
675.000 675.999 676.999	± .660
680.000 680.999 681.999	± .665
685.000 685.999 686.999	± .670
690.000 690.999 691.999	± .675
695.000 695.999 696.999	± .680
700.000 700.999 701.999	± .685
705.000 705.999 706.999	± .690
710.000 710.999 711.999	± .695
715.000 715.999 716.999	± .700
720.000 720.999 721.999	± .705
725.000 725.999 726.999	± .710
730.000 730.999 731.999	± .715
735.000 735.999 736.999	± .720
740.000 740.999 741.999	± .725
745.000 745.999 746.999	± .730
750.000 750.999 751.999	± .735
755.000 755.999 756.999	± .740
760.000 760.999 761.999	± .745
765.000 765.999 766.999	± .750
770.000 770.999 771.999	± .755
775.000 775.999 776.999	± .760
780.000 780.999 781.999	± .765
785.000 785.999 786.999	± .770
790.000 790.999 791.999	± .775
795.000 795.999 796.999	± .780
800.000 800.999 801.999	± .785
805.000 805.999 806.999	± .790
810.000 810.999 811.999	± .795
815.000 815.999 816.999	± .800
820.000 820.999 821.999	± .805
825.000 825.999 826.999	± .810
830.000 830.999 831.999	± .815
835.000 835.999 836.999	± .820
840.000 840.999 841.999	± .825
845.000 845.999 846.999	± .830
850.000 850.999 851.999	± .835
855.000 855.999 856.999	± .840
860.000 860.999 861.999	± .845
865.000 865.999 866.999	± .850
870.000 870.999 871.999	± .855
875.000 875.999 876.999	± .860
880.000 880.999 881.999	± .865
885.000 885.999 886.999	± .870
890.000 890.999 891.999	± .875
895.000 895.999 896.999	± .880
900.000 900.999 901.999	± .885
905.000 905.999 906.999	± .890
910.000 910.999 911.999	± .895
915.000 915.999 916.999	± .900
920.000 920.999 921.999	± .905
925.000 925.999 926.999	± .910
930.000 930.999 931.999	± .915
935.000 935.999 936.999	± .920
940.000 940.999 941.999	± .925
945.000 945.999 946.999	± .930
950.000 950.999 951.999	± .935
955.000 955.999 956.999	± .940
960.000 960.999 961.999	± .945
965.000 965.999 966.999	± .950
970.000 970.999 971.999	± .955
975.000 975.999 976.999	± .960
980.000 980.999 981.999	± .965
985.000 985.999 986.999	± .970
990.000 990.999 991.999	± .975
995.000 995.999 996.999	± .980
1000.000 1000.999 1001.999	± .985

UNIVERSAL ELECTRIC, INC.  
 230 VOLT X 20' WHIP CABLE ASSEMBLY  
 ROUTING NO. DRAWING NUMBER: A30061M



## LIMITED WARRANTY, DISCLAIMER AND REMEDIES

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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!**

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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!**

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Contact us at:  
419-903-0010

**WE ACCEPT THE FOLLOWING CARDS!**

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**SCAN FOR HELPFUL VIDEOS!**

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**NON-DEALER AND INTERNATIONAL CUSTOMERS:**

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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