

MINNICH

HIGH CYCLE VIBRATOR - M178 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 curreing 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

⚠ 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




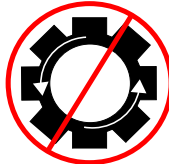

⚠ WARNING
Indicates a hazardous situation which, if not avoided, COULD result in DEATH or SERIOUS INJURY

⚠ 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

- △ 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 bind 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.

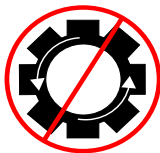
⚠ CAUTION

- △ 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

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.

GENERAL SAFETY

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

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 operation. If damaged, have the tool serviced before using.
- △ Many accidents are caused by poorly maintained tools.
- △ Use only accessories that are recommended by the manufacturer for your model.
- △ Accessories that may be suitable for one tool may become hazardous when used on another tool.

M178 SPECIFICATIONS



HEAD DIAMETER	1-7/8"(47.6mm)
HEAD LENGTH	13"(482.6mm)
HEAD WEIGHT	11lbs.(5.0kg)
NO LOAD AMPERAGE: COMPLETE HEAD	
M178(115V)	2
M178(230)	1
NO LOAD AMPERAGE: MOTOR ONLY	
M178(115V)	1
M178(230)	.7
CENTRIFUGAL FORCE	8000lbs.(3559N)
AMPLITUDE	.082"(2.06mm)
DIAMETER OF INFLUENCE	12"-16" (304.8mm-406.4mm)
WEIGHT OF COMPLETE UNIT	41lbs. (18.6kg)
POWER REQUIREMENTS	
M178(115V)	115V 3ph 180cy
M178(230)	230V 3ph 180cy
RECOMMENDED POWER SOURCE	
M178(115V)	HHA-4C
M178(230)	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	403-00-02-00000	SWITCH	1
2	680	HOSE CLAMP	3
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	6257-1.25	RHMS, #10-24 X 1-1/4 SLOTTED	4
9	6262-1	SCREW, DRIVE HD RD. #4 X 1/4"	2
10	30026	INSULATION PAPER	6" SI
11	A1556	SV-1 120V HEAD ASSEMBLY	1
12	A30029-15	15' LEAD WIRE ASSEMBLY	1
13	A30061	115 VOLT X 20' WHIP CABLE ASSEMBLY	1

DETAIL A
SCALE 1 : 3

37'

15'

115 VOLTS

DO NOT SCALE DRAWING

#

UNITED HOSE SIZE	TOLERANCE
40.18 (1.58) 1.25	+0.004/-0.001
40.18 (1.58) 1.25	+0.004/-0.001
40.18 (1.58) 1.25	+0.004/-0.001
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40.18 (1.58) 1.25	+0.004/-0.001
40.18 (1.58) 1.25	+0.004/-0.001

TOLEANCES	Dimension in accordance with ANSI Y14	LOCATION
X ± .000		
XX ± .000		
XXX ± .005		
M/R ± 1/16"		
<		

MECHANICAL MATERIAL LOCKWIRE

MESSER LIFT CO., INC.
THE INFORMATION SHOWN ON THIS DRAWING IS UNCLASSIFIED UNLESS INDICATED OTHERWISE IN A CIRCUMSCRIBED MANNER

DRAWN BY: RJ
CHECKED BY:
APPROVED BY:
ORIG DATE: 07/29/2020
KEY LEVEL
ROUTING NO. DRAWING NUMBER: 403-06-03-00000

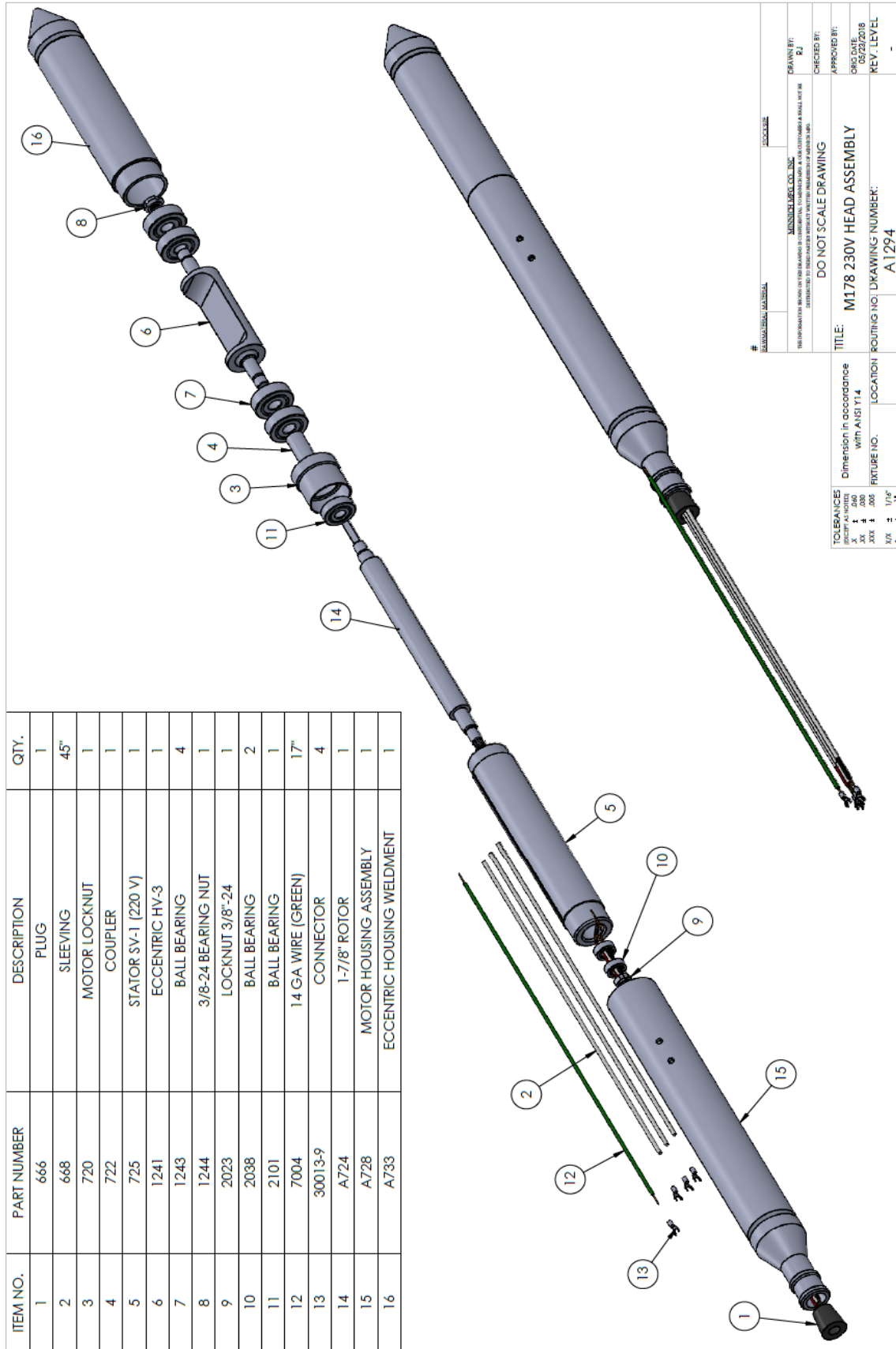
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	403-00-02-00000	SWITCH	1
2	680	HOSE CLAMP	3
3	701	HOSE	60"
4	708	SERIAL TAG	1
5	727	COVER, CABLE SPICE HOUSING	1
6	727-3	SWITCH COVER	1
7	729	SWITCH COVER	1
8	6257-1.25	RHMS, #10-24 X 1-1/4 SLOTTED	4
9	6262-1	SCREW, DRIVE HD RD. #4 X 1/4"	2
10	30026	INSULATION PAPER	6" SI
11	A1294	HEAD SV-1 230V ASSEMBLY	1
12	A30029-15	5' LEAD WIRE ASSEMBLY	1
13	A30061M	230 VOLT X 20' WHIP CABLE ASSEMBLY	1

UNITED HOSE SIZE	TOLERANCE
1/2" (12.7mm)	+0.004 (-0.001)
3/4" (19.0mm)	+0.004 (-0.001)
1" (25.4mm)	+0.004 (-0.001)
1 1/4" (31.8mm)	+0.004 (-0.001)
1 1/2" (38.1mm)	+0.004 (-0.001)
2" (50.8mm)	+0.004 (-0.001)
2 1/2" (63.5mm)	+0.004 (-0.001)
3" (76.2mm)	+0.004 (-0.001)
3 1/2" (88.9mm)	+0.004 (-0.001)
4" (101.6mm)	+0.004 (-0.001)

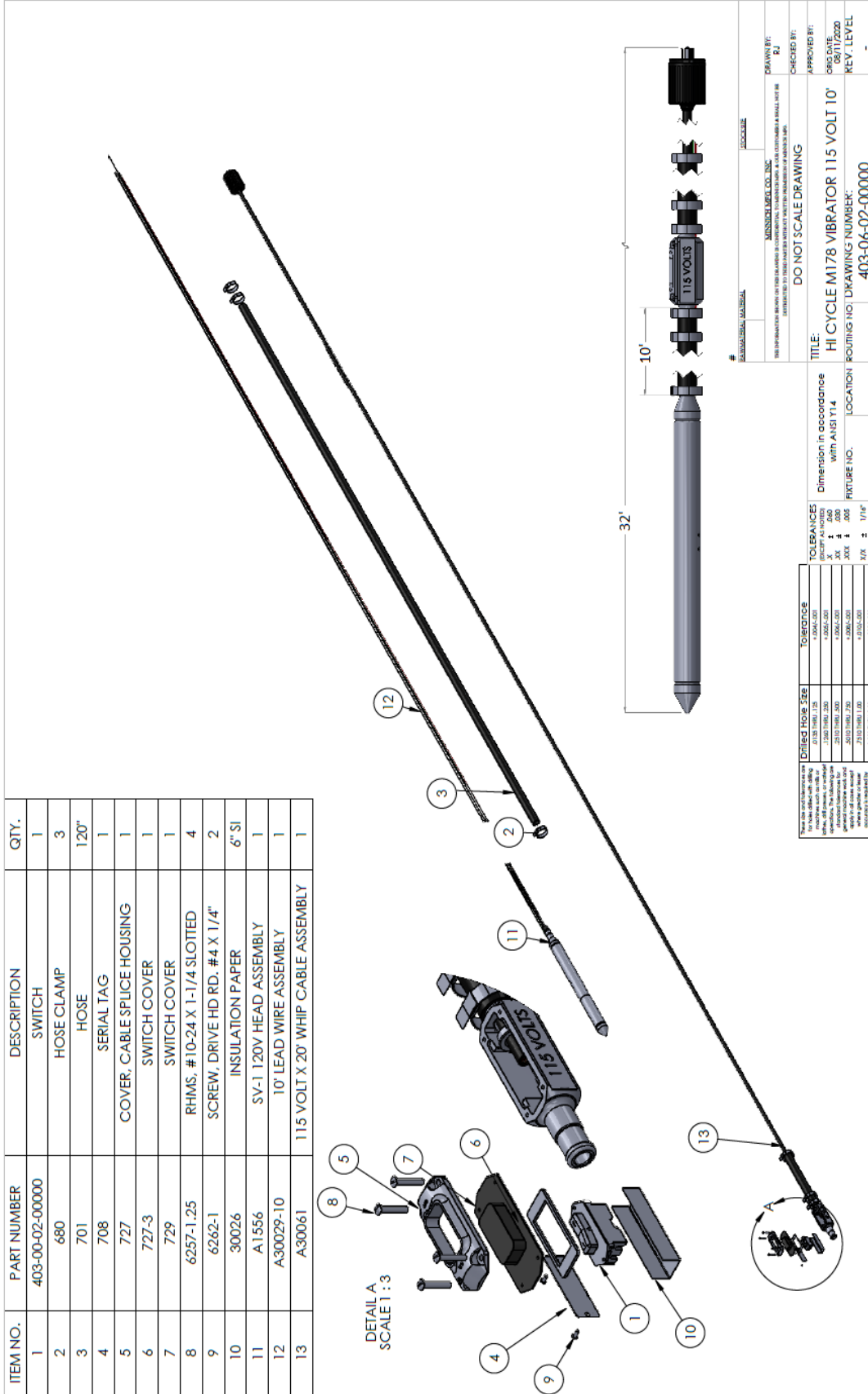
TOLERANCES
 X ± .004
 XX ± .003
 XXX ± .005
 M/E ± .1/16"
 <

TITLE: HI CYLCE M178 VIBRATOR 230 VOLT 15'
 Dimension in accordance with ANSI Y14
 DRAWING NO: 403-04-01-00000
 ROUTING NO: 403-04-01-00000
 KEY LEVEL: -

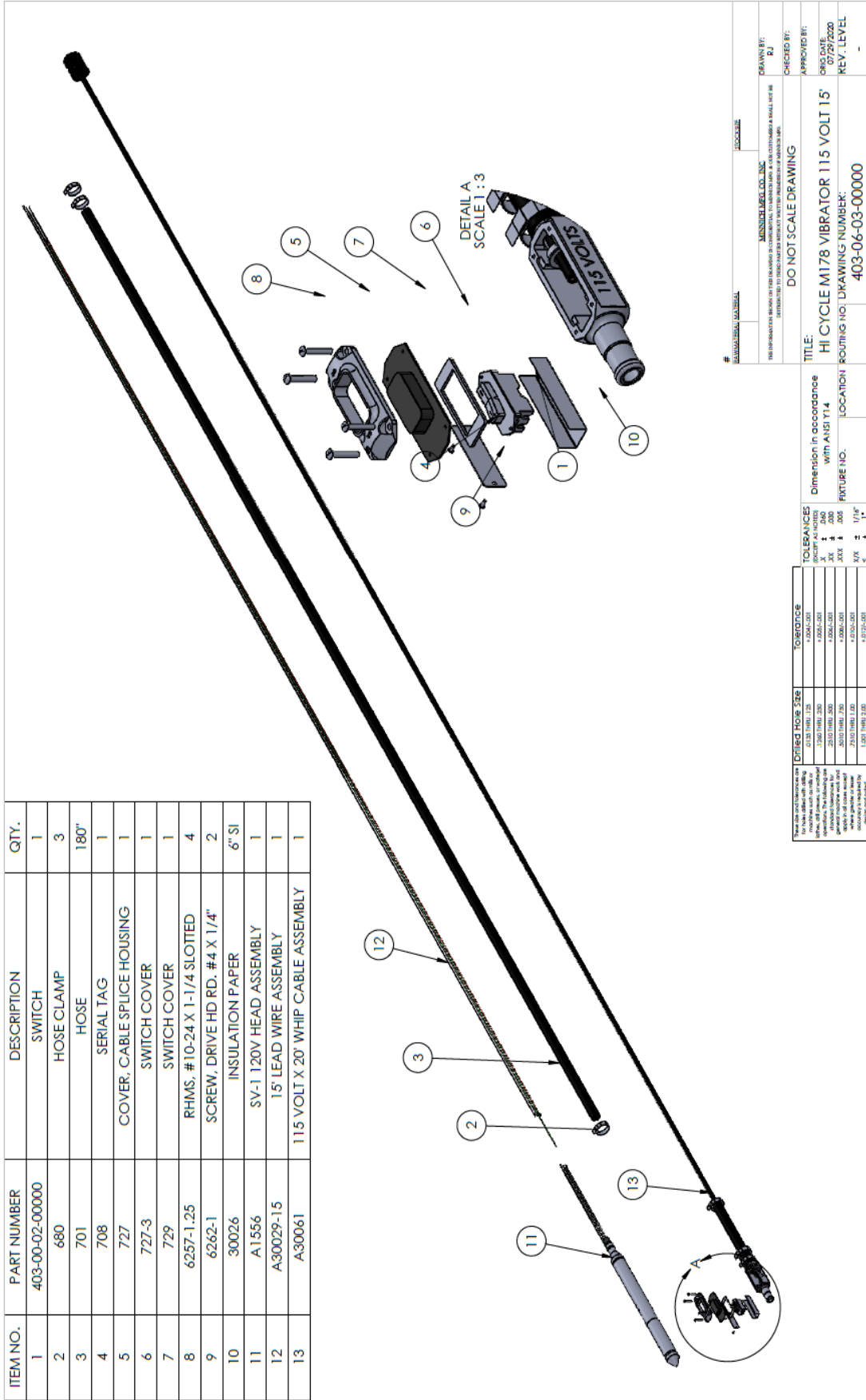
DO NOT SCALE DRAWING
 DRAWN BY: RJ
 CHECKED BY:
 APPROVED BY:
 ORG DATE: 08/11/2020
 MESSER LIFT CO., INC.
 1500 W. 10TH ST. SUITE 100
 DENVER, CO 80202



#		UNIVERSAL MACHINERY	LOCKLINE
UNIVERSAL MACHINERY		UNIVERSAL MACHINERY	UNIVERSAL MACHINERY
THIS INFORMATION IS FOR INFORMATIONAL PURPOSES ONLY. IT IS NOT TO BE USED FOR THE DESIGN OR CONSTRUCTION OF ANY EQUIPMENT.		DO NOT SCALE DRAWING	APPROVED BY: B.J.
TOLERANCES		Dimension in accordance with ANSI Y14	CHECKED BY:
XX	± .000	FIGURE NO.	APPROVED BY:
XX	± .005	LOCATION	ORIG DATE: 05/23/2018
XX	± .010	ROUTING NO.	REV. LEVEL
XX	± .015	DRAWING NUMBER:	A1294



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	403-00-02-00000	SWITCH	1
2	680	HOSE CLAMP	3
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	6257-1,25	RHMS, #10-24 X 1-1/4 SLOTTED	4
9	6262-1	SCREW, DRIVE HD RD, #4 X 1/4"	2
10	30026	INSULATION PAPER	6" SI
11	A1556	SV-1 120V HEAD ASSEMBLY	1
12	A30029-15	15' LEAD WIRE ASSEMBLY	1
13	A30061	115 VOLT X 20' WHIP CABLE ASSEMBLY	1



Drilled Hole Size	Tolerance
1/8"	± 0.004
3/16"	± 0.004
1/4"	± 0.004
5/16"	± 0.004
3/8"	± 0.004
1/2"	± 0.004
5/8"	± 0.004
3/4"	± 0.004
7/8"	± 0.004
1"	± 0.004

TOLERANCES	TO TOLERANCE
UNLESS OTHERWISE SPECIFIED	± 0.004
AS NOTED	± 0.004
AS SHOWN	± 0.004
AS SPECIFIED	± 0.004
AS ORDERED	± 0.004
AS REQUIRED	± 0.004
AS STATED	± 0.004
AS SHOWN	± 0.004
AS ORDERED	± 0.004
AS REQUIRED	± 0.004
AS STATED	± 0.004
AS SHOWN	± 0.004
AS ORDERED	± 0.004
AS REQUIRED	± 0.004
AS STATED	± 0.004

DATE	DESCRIPTION	BY
07/20/2020	REV. LEVEL	
07/20/2020	REV. LEVEL	

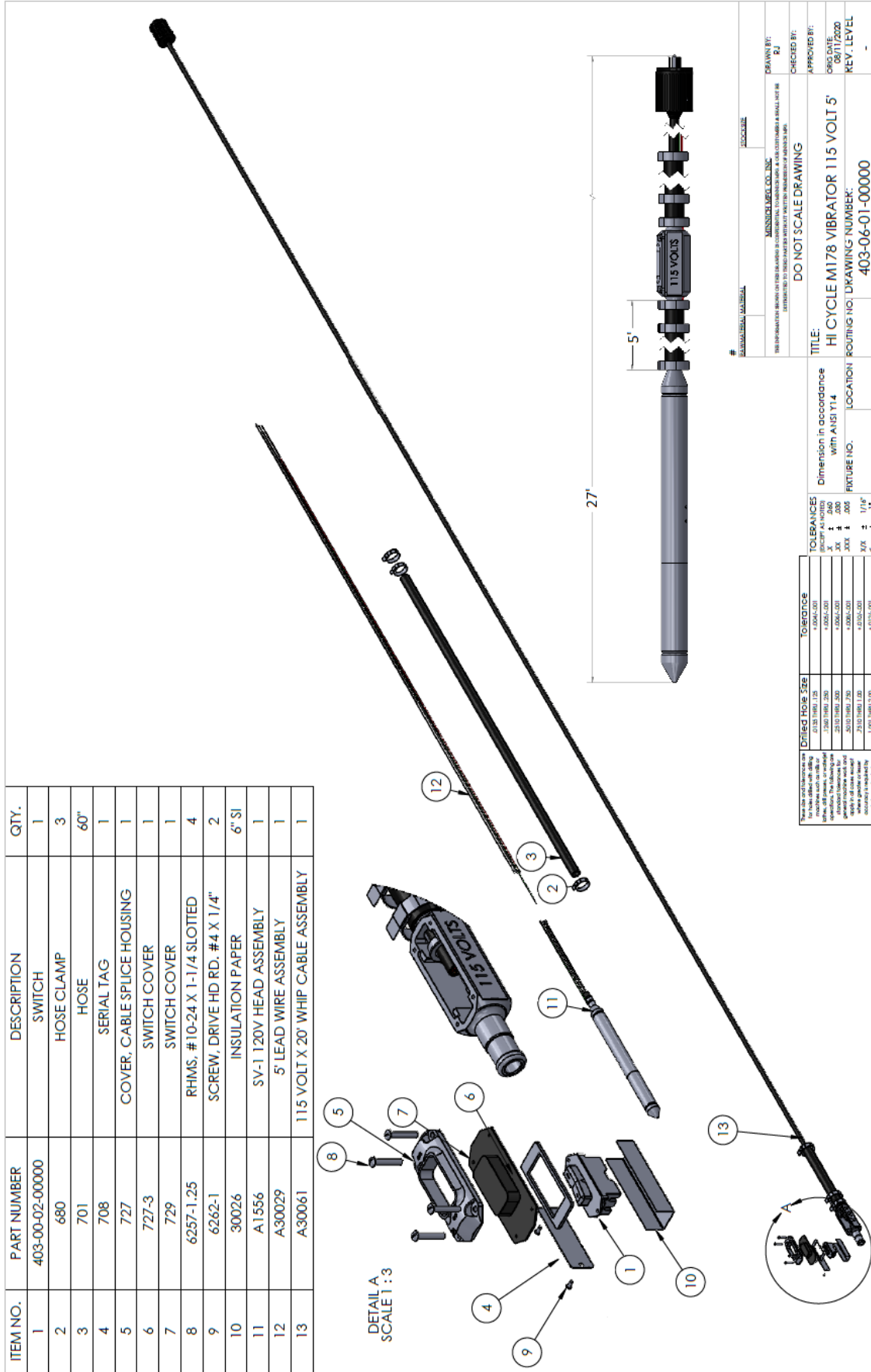
DO NOT SCALE DRAWING
 TITLE: HI CYCLE M178 VIBRATOR 115 VOLT 15'
 ROUTING NO: 403-06-03-00000

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	403-00-02-00000	SWITCH	1
2	680	HOSE CLAMP	3
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	6257-1.25	RHMS, #10-24 X 1-1/4 SLOTTED	4
9	6262-1	SCREW, DRIVE HD RD, #4 X 1/4"	2
10	30026	INSULATION PAPER	6" SI
11	A1556	SV-1 120V HEAD ASSEMBLY	1
12	A30029-20	20' LEAD WIRE ASSEMBLY	1
13	A30061	115 VOLT X 20' WHIP CABLE ASSEMBLY	1

UNITED NBS SIZE	TOLERANCES
0.125 (1/8) 1.25	+0.004/-0.001
0.1875 (3/16) 1.25	+0.004/-0.001
0.250 (1/4) 1.25	+0.004/-0.001
0.3125 (5/16) 1.25	+0.004/-0.001
0.375 (3/8) 1.25	+0.004/-0.001
0.4375 (7/16) 1.25	+0.004/-0.001
0.500 (1/2) 1.25	+0.004/-0.001
0.5625 (9/16) 1.25	+0.004/-0.001
0.625 (5/8) 1.25	+0.004/-0.001
0.6875 (11/16) 1.25	+0.004/-0.001
0.750 (3/4) 1.25	+0.004/-0.001
0.8125 (13/16) 1.25	+0.004/-0.001
0.875 (7/8) 1.25	+0.004/-0.001
0.9375 (15/16) 1.25	+0.004/-0.001
1.000 (1) 1.25	+0.004/-0.001

TOLERANCES
 X ± .000
 XX ± .005
 XXX ± .010
 XXXX ± .015
 XXXXX ± .020
 XXXXX ± .025
 XXXXX ± .030
 XXXXX ± .035
 XXXXX ± .040
 XXXXX ± .045
 XXXXX ± .050
 XXXXX ± .055
 XXXXX ± .060
 XXXXX ± .065
 XXXXX ± .070
 XXXXX ± .075
 XXXXX ± .080
 XXXXX ± .085
 XXXXX ± .090
 XXXXX ± .095
 XXXXX ± .100
 XXXXX ± .105
 XXXXX ± .110
 XXXXX ± .115
 XXXXX ± .120
 XXXXX ± .125
 XXXXX ± .130
 XXXXX ± .135
 XXXXX ± .140
 XXXXX ± .145
 XXXXX ± .150
 XXXXX ± .155
 XXXXX ± .160
 XXXXX ± .165
 XXXXX ± .170
 XXXXX ± .175
 XXXXX ± .180
 XXXXX ± .185
 XXXXX ± .190
 XXXXX ± .195
 XXXXX ± .200

TITLE: HI CYCLE M178 VIBRATOR 115 VOLT 20'
 ROUTING NO. LOCATION: DIMENSION IN OCCURRENCE WITH ANSI Y14
 FUTURE NO. LOCATION: DO NOT SCALE DRAWING
 ROUTING NO. LOCATION: 403-06-04-00000



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	403-00-02-00000	SWITCH	1
2	680	HOSE CLAMP	3
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	6257-1.25	RHMS, # 10-24 X 1-1/4 SLOTTED	4
9	6262-1	SCREW, DRIVE HD RD. #4 X 1/4"	2
10	30026	INSULATION PAPER	6" SI
11	A1556	SV-1 120V HEAD ASSEMBLY	1
12	A30029	5' LEAD WIRE ASSEMBLY	1
13	A30061	115 VOLT X 20' WHIP CABLE ASSEMBLY	1

DETAIL A
SCALE 1:3

MATERIALS MANAGER LOCKER

MISSION LEVEL CO., INC.
1000 FARM ROAD, BOX 183, P.O. BOX 183, HOUSTON, TEXAS 77058
CONTACT: 281-291-1000 FAX: 281-291-1001

DRAWN BY: RJ
CHECKED BY:
APPROVED BY:

DO NOT SCALE DRAWING

TITLE:
Dimension in accordance with ANSI Y14

DATE: 06/08
REV. LEVEL
ROUTING NO. LOCATION DRAWING NUMBER:
403-06-01-00000

Detailed Hole Size	Tolerance
.010 - .015	+ .004 / .001
.015 - .020	+ .003 / .001
.020 - .030	+ .002 / .001
.030 - .050	+ .002 / .001
.050 - .125	+ .002 / .001
.125 - .250	+ .002 / .001
.250 - .500	+ .002 / .001
.500 - 1.000	+ .002 / .001

TOLERANCES UNLESS OTHERWISE NOTED:
X .000
XX .005
XXX .010

FINISHES UNLESS OTHERWISE NOTED:
Z 1/2" X
Y 1/2" X
X 1/2" X
XX 1/2" X
XXX 1/2" X

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	403-00-02-00000	SWITCH	1
2	680	HOSE CLAMP	3
3	701	HOSE	60"
4	708	SERIAL TAG	1
5	727	COVER, CABLE SPICE HOUSING	1
6	727-3	SWITCH COVER	1
7	729	SWITCH COVER	1
8	6257-1.25	RHMS, # 10-24 X 1-1/4 SLOTTED	4
9	6262-1	SCREW, DRIVE HD RD. #4 X 1/4"	2
10	30026	INSULATION PAPER	6" SI
11	A1294	HEAD SV-1 230V ASSEMBLY	1
12	A30029-10	5' LEAD WIRE ASSEMBLY	1
13	A30061M	230 VOLT X 20' WHIP CABLE ASSEMBLY	1

DRILLED HOLE SIZE	TOLERANCE
Ø 1/8 (3.18)	+0.004 (-0.001)
Ø 3/16 (4.75)	+0.004 (-0.001)
Ø 1/4 (6.35)	+0.004 (-0.001)
Ø 5/16 (7.94)	+0.004 (-0.001)
Ø 3/8 (9.52)	+0.004 (-0.001)
Ø 7/16 (11.13)	+0.004 (-0.001)
Ø 1/2 (12.70)	+0.004 (-0.001)

TOLERANCES:
 DIMENSIONS IN PARENTHESES ARE IN MILLIMETERS.
 UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES AND DECIMALS THEREOF.
 DIMENSIONS ARE TO BE TAKEN FROM THE DRAWING UNLESS OTHERWISE SPECIFIED.
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 DIMENSIONS ARE TO BE TAKEN FROM THE DRAWING UNLESS OTHERWISE SPECIFIED.
 DIMENSIONS ARE TO BE TAKEN FROM THE DRAWING UNLESS OTHERWISE SPECIFIED.

TITLE: HI CYCLE M178 VIBRATOR 230 VOLT 10'
 ROUTING NO: DRAWING NUMBER: 403-04-01-00000
 LOCATION:

DO NOT SCALE DRAWING
 APPROVED BY: R.J.
 CHECKED BY:
 DATE: 08/11/2020
 REV. LEVEL:

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	403-00-02-00000	SWITCH	1
2	680	HOSE CLAMP	3
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	6257-1,25	RHMS, #10-24 X 1-1/4 SLOTTED	4
9	6262-1	SCREW, DRIVE HD RD, #4 X 1/4"	2
10	30026	INSULATION PAPER	6" SI
11	A1294	HEAD SV-1 230V ASSEMBLY	1
12	A30029-20	5' LEAD WIRE ASSEMBLY	1
13	A30061M	230 VOLT X 20' WHIP CABLE ASSEMBLY	1

42'

20'

DETAIL A
SCALE 1:2

DO NOT SCALE DRAWING

MINISPEC MFG. CO., INC.
1000 W. 10TH ST. SUITE 100
MIDLAND, TX 79701-1000
TEL: 409-835-1111 FAX: 409-835-1112
WWW.MINISPEC.COM

DRAWN BY: RJ
CHECKED BY:
APPROVED BY:
DATE: 08/01/2020
REV. LEVEL: -

TITLE: HI CYLCE M178 VIBRATOR 230 VOLT 20'
Dimension in accordance with ANSI Y1.4
LOCATION: ROUTING NO. 403-04-01-00000

UNITED HOSE SIZE	TOLERANCE
1/2" (19.05)	± 0.005
3/4" (19.05)	± 0.005
1" (25.4)	± 0.005
1 1/4" (31.75)	± 0.005
1 1/2" (38.1)	± 0.005
2" (50.8)	± 0.005
2 1/2" (63.5)	± 0.005
3" (76.2)	± 0.005
3 1/2" (88.9)	± 0.005
4" (101.6)	± 0.005
4 1/2" (114.3)	± 0.005
5" (127)	± 0.005
5 1/2" (139.7)	± 0.005
6" (152.4)	± 0.005
6 1/2" (165.1)	± 0.005
7" (177.8)	± 0.005
7 1/2" (190.5)	± 0.005
8" (203.2)	± 0.005
8 1/2" (215.9)	± 0.005
9" (228.6)	± 0.005
9 1/2" (241.3)	± 0.005
10" (254)	± 0.005
10 1/2" (266.7)	± 0.005
11" (279.4)	± 0.005
11 1/2" (292.1)	± 0.005
12" (304.8)	± 0.005
12 1/2" (317.5)	± 0.005
13" (330.2)	± 0.005
13 1/2" (342.9)	± 0.005
14" (355.6)	± 0.005
14 1/2" (368.3)	± 0.005
15" (381)	± 0.005
15 1/2" (393.7)	± 0.005
16" (406.4)	± 0.005
16 1/2" (419.1)	± 0.005
17" (431.8)	± 0.005
17 1/2" (444.5)	± 0.005
18" (457.2)	± 0.005
18 1/2" (469.9)	± 0.005
19" (482.6)	± 0.005
19 1/2" (495.3)	± 0.005
20" (508)	± 0.005
20 1/2" (520.7)	± 0.005
21" (533.4)	± 0.005
21 1/2" (546.1)	± 0.005
22" (558.8)	± 0.005
22 1/2" (571.5)	± 0.005
23" (584.2)	± 0.005
23 1/2" (596.9)	± 0.005
24" (609.6)	± 0.005
24 1/2" (622.3)	± 0.005
25" (635)	± 0.005
25 1/2" (647.7)	± 0.005
26" (660.4)	± 0.005
26 1/2" (673.1)	± 0.005
27" (685.8)	± 0.005
27 1/2" (698.5)	± 0.005
28" (711.2)	± 0.005
28 1/2" (723.9)	± 0.005
29" (736.6)	± 0.005
29 1/2" (749.3)	± 0.005
30" (762)	± 0.005
30 1/2" (774.7)	± 0.005
31" (787.4)	± 0.005
31 1/2" (800.1)	± 0.005
32" (812.8)	± 0.005
32 1/2" (825.5)	± 0.005
33" (838.2)	± 0.005
33 1/2" (850.9)	± 0.005
34" (863.6)	± 0.005
34 1/2" (876.3)	± 0.005
35" (889)	± 0.005
35 1/2" (901.7)	± 0.005
36" (914.4)	± 0.005
36 1/2" (927.1)	± 0.005
37" (939.8)	± 0.005
37 1/2" (952.5)	± 0.005
38" (965.2)	± 0.005
38 1/2" (977.9)	± 0.005
39" (990.6)	± 0.005
39 1/2" (1003.3)	± 0.005
40" (1016)	± 0.005
40 1/2" (1028.7)	± 0.005
41" (1041.4)	± 0.005
41 1/2" (1054.1)	± 0.005
42" (1066.8)	± 0.005
42 1/2" (1079.5)	± 0.005
43" (1092.2)	± 0.005
43 1/2" (1104.9)	± 0.005
44" (1117.6)	± 0.005
44 1/2" (1130.3)	± 0.005
45" (1143)	± 0.005
45 1/2" (1155.7)	± 0.005
46" (1168.4)	± 0.005
46 1/2" (1181.1)	± 0.005
47" (1193.8)	± 0.005
47 1/2" (1206.5)	± 0.005
48" (1219.2)	± 0.005
48 1/2" (1231.9)	± 0.005
49" (1244.6)	± 0.005
49 1/2" (1257.3)	± 0.005
50" (1270)	± 0.005

Dimension in accordance with ANSI Y1.4

LOCATION: ROUTING NO. 403-04-01-00000

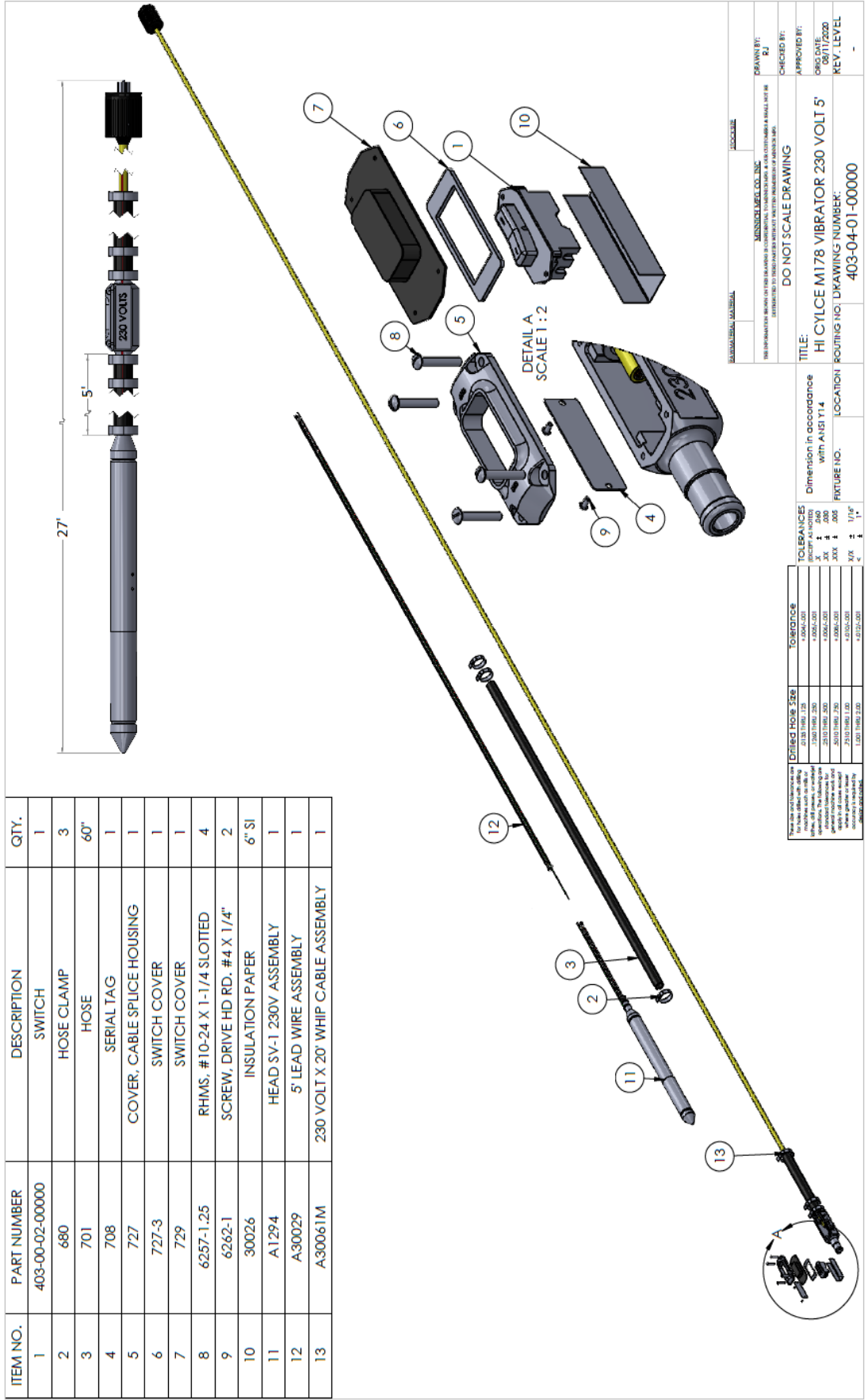
DO NOT SCALE DRAWING

MINISPEC MFG. CO., INC.
1000 W. 10TH ST. SUITE 100
MIDLAND, TX 79701-1000
TEL: 409-835-1111 FAX: 409-835-1112
WWW.MINISPEC.COM

DRAWN BY: RJ
CHECKED BY:
APPROVED BY:
DATE: 08/01/2020
REV. LEVEL: -

TITLE: HI CYLCE M178 VIBRATOR 230 VOLT 20'
Dimension in accordance with ANSI Y1.4
LOCATION: ROUTING NO. 403-04-01-00000

TOLERANCES
DIMENSIONS UNLESS OTHERWISE SPECIFIED
FRACTIONS DECIMALS
XX ± .005
XXX ± .005
XXX ± .005
XXX ± .005
XXX ± .005
XXX ± .005



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	403-00-02-00000	SWITCH	1
2	680	HOSE CLAMP	3
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	6257-1,25	RHMS, #10-24 X 1-1/4 SLOTTED	4
9	6262-1	SCREW, DRIVE HD RD, #4 X 1/4"	2
10	30026	INSULATION PAPER	6" SI
11	A1294	HEAD SV-1 230V ASSEMBLY	1
12	A30029	5' LEAD WIRE ASSEMBLY	1
13	A30061M	230 VOLT X 20' WHIP CABLE ASSEMBLY	1

Drilled Hole Size	Tolerance
1/8" (3.18)	+0.004/-0.004
5/16" (7.94)	+0.004/-0.004
3/8" (9.53)	+0.004/-0.004
1/2" (12.70)	+0.004/-0.004
5/8" (15.88)	+0.004/-0.004
3/4" (19.05)	+0.004/-0.004
7/8" (22.23)	+0.004/-0.004
1" (25.40)	+0.004/-0.004

TOLERANCES
 UNLESS OTHERWISE SPECIFIED:
 XX ± .005
 XXX ± .002

Dimension in accordance with ANSI Y14

DO NOT SCALE DRAWING

TITLE:
 HI CYCLE M178 VIBRATOR 230 VOLT 5'
ROUTING NO.:
 403-04-01-00000

APPROVED BY:
 08/11/2020
REV. LEVEL:
 -

LIMITED WARRANTY, DISCLAIMER AND REMEDIES

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