

MINNICH

M-SPRAYER OPERATOR/SERVICE MANUAL



MINNICH MANUFACTURING

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NOTICE

Your new Minnich M-SPRAYER was carefully designed and manufactured to give years of dependable service. To keep it running efficiently, read the instructions in this manual thoroughly. It contains detailed descriptions and instructions for the efficient operation and maintenance. Each section is clearly identified so you can easily find the information that you need. All instructions are recommended procedures only.

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

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 curing 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.

⚠ 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, quartz, 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 OSHA/NIOSH 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 operating 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**, **CAUTION** 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

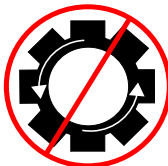
Indicates a hazardous situation which, if not avoided, **COULD** result in **MINOR** or **MODERATE INJURY**

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
	Factory Settings

WARNING

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

⚠ CAUTION

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



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



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



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

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

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

NOTICE

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

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

Δ 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 comfortability

with appropriate safety regulations.

Δ 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.

Δ Always know the location of the nearest fire extinguisher.



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



Δ 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

Δ 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

Δ 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.

Δ 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

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

Δ 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.

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.

POWER CORD/CABLE SAFETY

⚠ DANGER

- Δ 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!**
- Δ NEVER let power cords or cables lay in water.
- Δ NEVER use damaged or worn cables or cords when connecting equipment to generator. Inspect for cuts in the insulation.
- Δ NEVER grab or touch a live power cord or cable with wet hands. The possibility exists of electrical shock, electrocution or death
- Δ Make sure power cables are securely connected. Incorrect connections may cause electrical shock and damage to the machine.



⚠ CAUTION

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

NOTICE

- Δ ALWAYS make certain that proper power or extension cord has been selected for the job.
- Δ Use only extension cords that are intended for outdoor use and so marked
- Δ 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

- Δ 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.
- Δ 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.
- Δ 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.

- Δ 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.
- Δ 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.
- Δ Keep cutting tools sharp and clean. Properly maintained cutting tools with sharp cutting edges are less likely to bind and easier to control.
- Δ 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

- Δ 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

- Δ 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.



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 unrepairable 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.

- Δ 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.
- Δ ALWAYS Dispose of hazardous waste properly. Examples of potentially hazardous waste include used motor oil, fuel, and fuel filters.
- Δ DO NOT use food or plastic containers to dispose hazardous waste

⚠ WARNING

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

- Δ When the life cycle of this equipment is over, remove battery (if equip) and bring to appropriate facility for lead reclamation. Use safety precautions when handling batteries that contain sulfuric acid.
- Δ When the life cycle of this equipment is over, it is recommended that the unit frame and all other metal parts be sent to a recycling center.

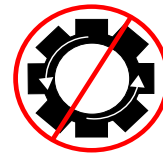
Metal recycling involves the collection of metal from discarded products and its transformation into raw materials to use in many Manufacturing a new product.

Recyclers and manufactures alike promote the process of recycling center promotes energy cost savings.

- Δ Fix damage to machine and replace any broken parts immediately.
- Δ 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.

⚠ CAUTION

- Δ 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 allowable range. .



ELECTRICAL SAFETY

⚠ DANGER

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

GROUNDING SAFETY

⚠ DANGER

- Δ 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.
- Δ NEVER use gas piping as an electrical ground.

NOTICE

Make sure to keep the barrel/drum on a level surface at all times.

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.

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.

NOTICE

Specifications and part numbers are subject to change without notice.

NOTICE

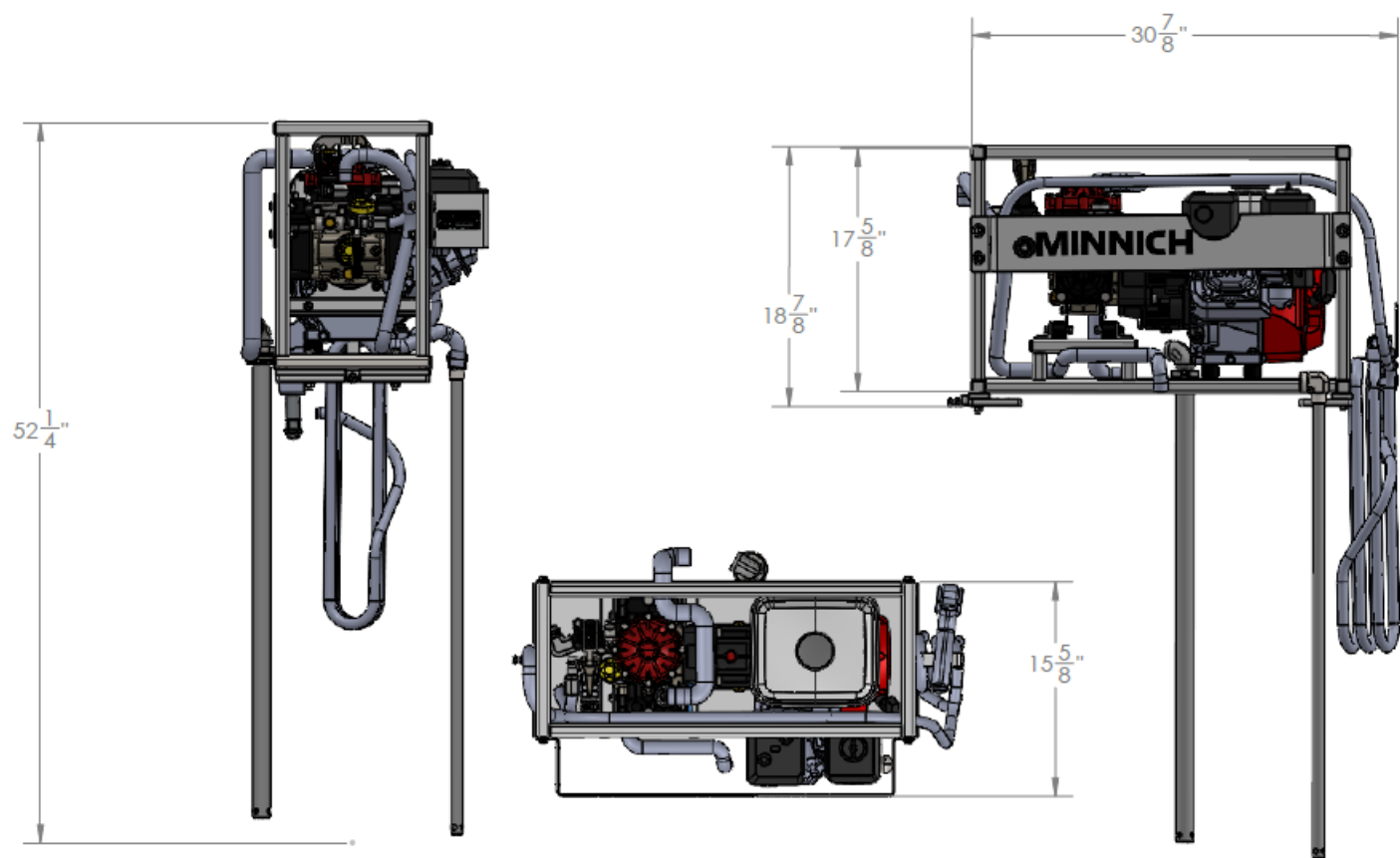
SPARK ARRESTORS

Some states require that in certain locations arrestors be used on internal combustion engines. A spark arrester is a device designed to prevent the discharge of spark or flames from the engine exhaust. It is often required when operating equipment on forested land to prevent the risk of fires. Consult the engine distributor or local authorities and make sure that you comply with regulations regarding spark arrestors.

⚠ CAUTION

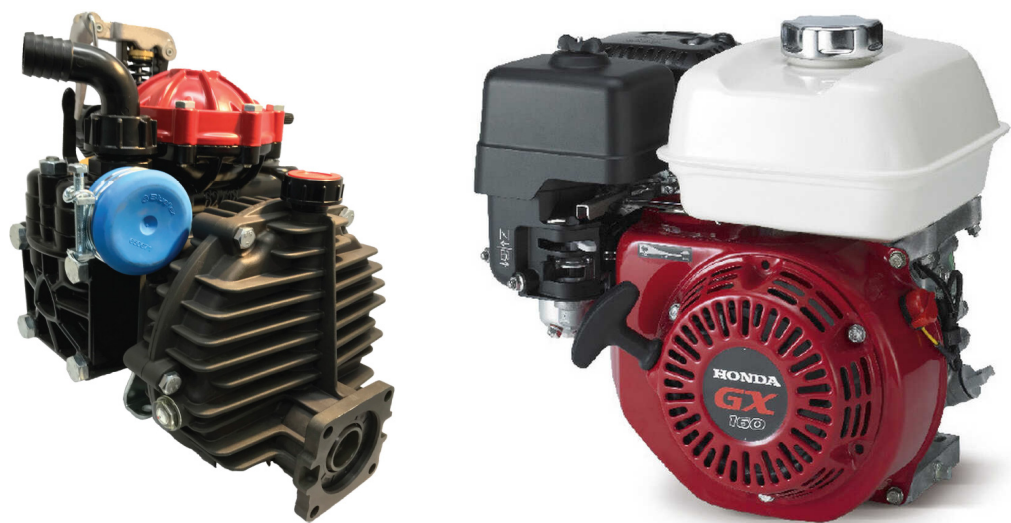
- △ DO NOT use equipment in a potentially explosive atmosphere.
- △ DO NOT use the pump for flammable, toxic or corrosive liquids or liquids with unstable density, especially seawater, adhesives, bitumens, two-stage curing compounds, liquefied gases or solvents of any kind, paints or any kind or liquids containing solids in suspension, and in all cases do not use with any liquids unless certain that it is compatible with the materials used in this pump circuit.
- △ DO NOT draw liquids at temperatures above 122° F or below 41° F
- △ DO NOT use pump in drinking water supply systems.
- △ DO NOT use the pump on products for human consumption.
- △ DO NOT use the pump on pharmaceutical products.
- △ DO NOT use the pump without first checking that the intake and delivery circuit pipelines are correctly secured and free from leaks.
- △ DO NOT use the pump to wash or spray: people, animals or delicate items, live electrical equipment or chemicals whose characteristics are not known.
- △ DO NOT tamper with or remove any safety devices on the equipment.
- △ DO NOT operate the pump above the limits set by the manufacturer to increase its performance in any way.

M-SPRAY



TECH SPEC

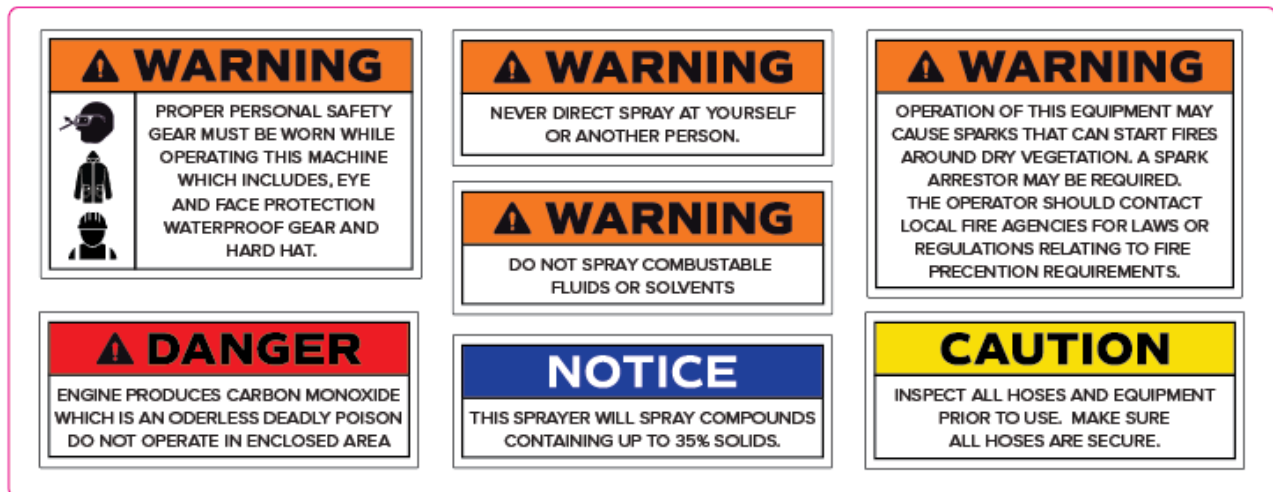
Pressure	100-450psi
Engine	Honda GX160
Hose Lengths	25'(7.6m), 50'(15.2m), 100'(30.5m)
Weight	150lbs (68kg)



NOTICE

All safety labels on Minnich Manufacturing units have been carefully placed so they can be easily seen at all times. There are several different types of labels on the units. Always keep these warnings free of dirt, concrete, or anything else that restricts visibility. Never remove the labels for any reason. If the label on your machine become worn or in any way difficult to read, call our parts department for replacements.

A



B

MINNICH

SPRAYER

C



D



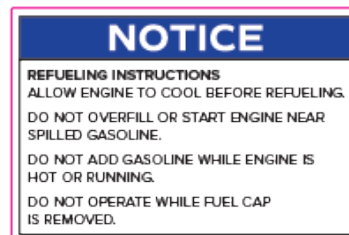
E

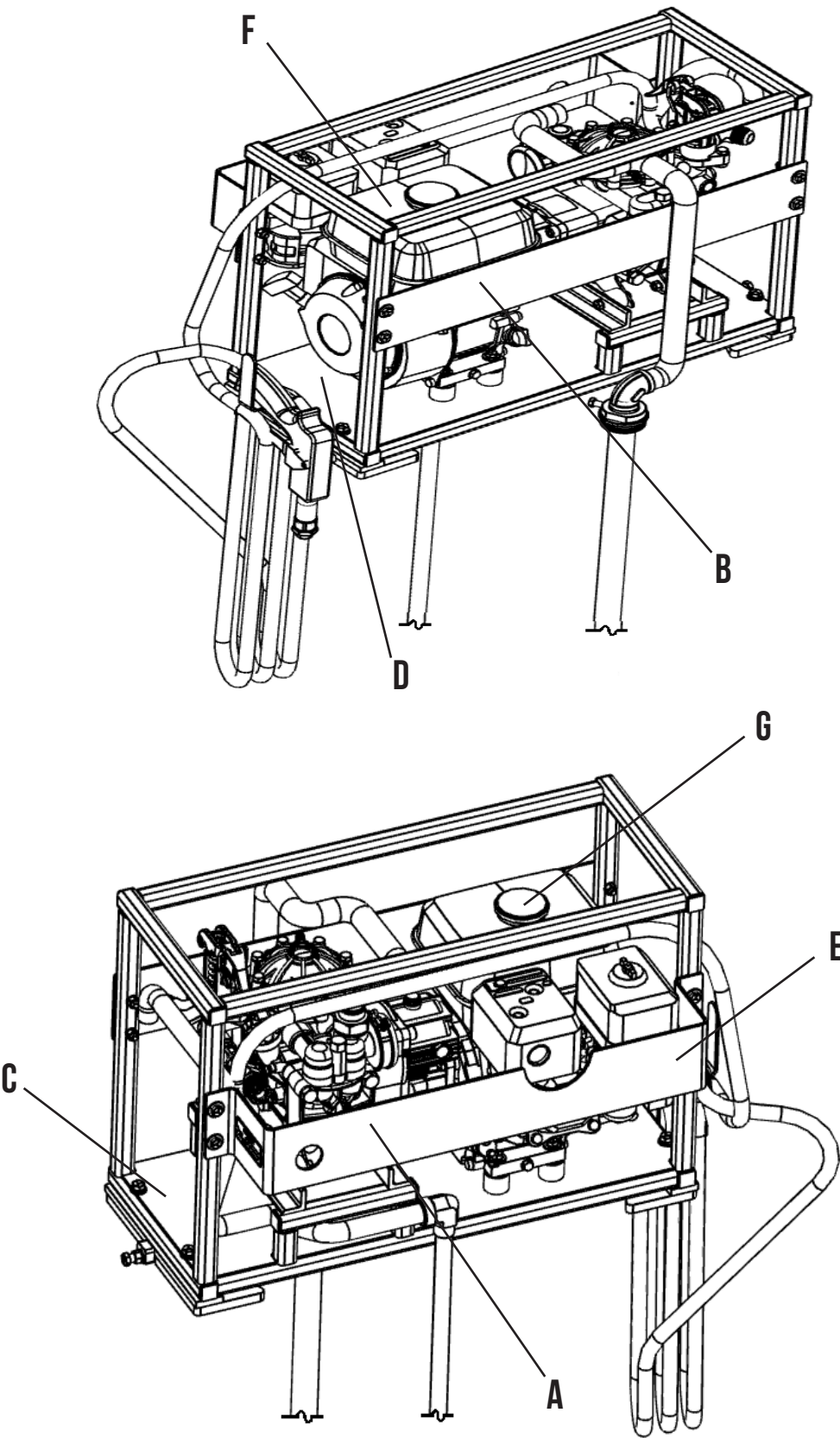


G

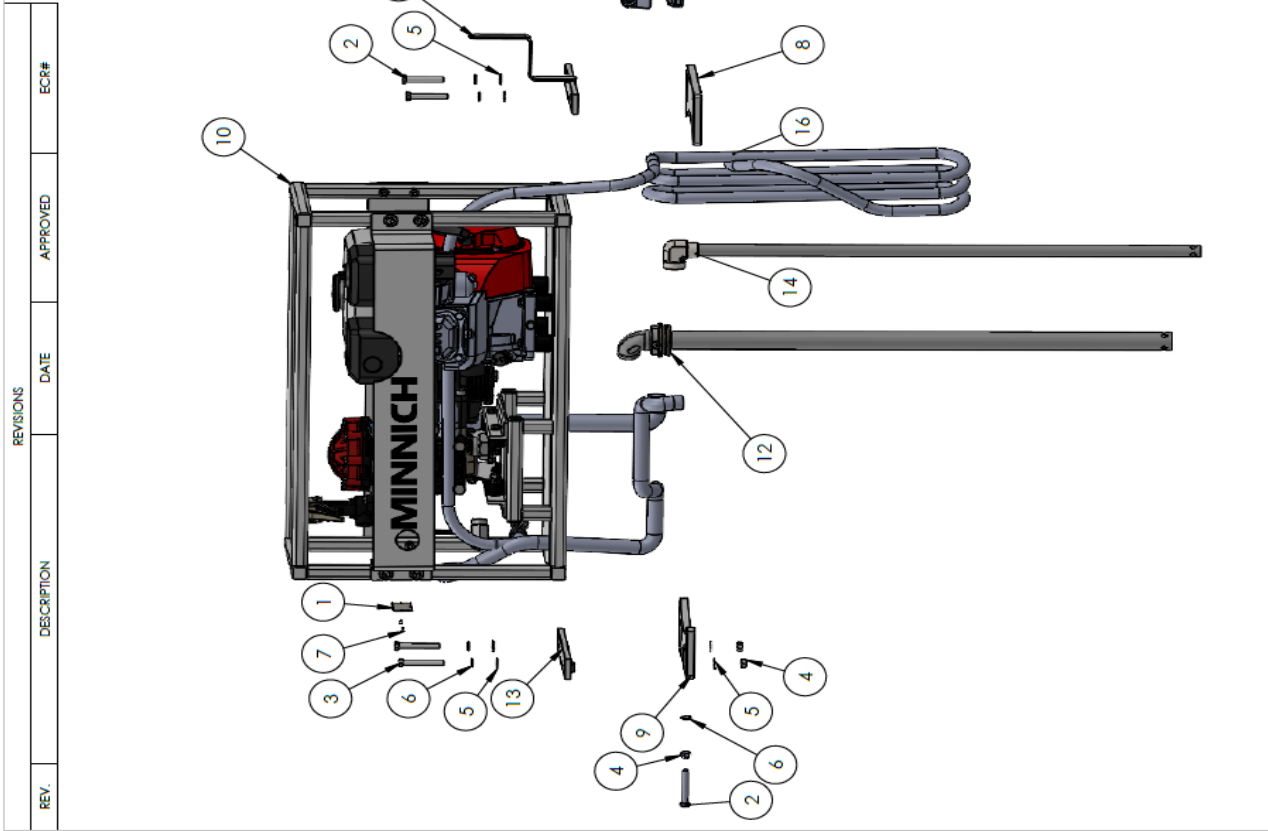


F





REVISIONS				ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
REV.	DESCRIPTION	DATE	APPROVED				
				1	000708-00004	MODEL & SERIAL # NAME PLATE	1
				2	006038-2.500	HHCS, 3/8-16 x 2-1/2 GR.5	3
				3	006038-2.750	HHCS, 3/8-16 x 2-3/4 GR.5	2
				4	006072-00000	NUT, HEX 3/8-16	3
				5	006107-00000	FLAT WASHER, 3/8 SAE	6
				6	006149-00000	LOCKWASHER, 3/8	5
				7	006262-00001	SCREW, DRIVE HD RD. #4 X 1/4"	2
				8	013690-00077	DRUM MOUNT PLATE, SPRAYER	1
				9	013690-00079	DRUM MOUNT PLATE, SPRAYER	1
				10	A13690-00031	PUMP HOUSING ASSY, SPRAYER	1
				11	A13690-00042	SPRAY GUN, GREENMASTER	1
				12	A13690-00047	SPRAYER, PICK UP KIT	1
				13	A13690-00049	WELDMINT. BARREL MOUNT ADJUSTER	1
				14	A13690-00054	SPRAYER, RETURN KIT	1
				15	A13690-00089	DRUM MOUNT HANGER, SPRAYER	1
				16	A13690-00096	MIDSTATE SPRAYER HOSE KIT - 25FT	1



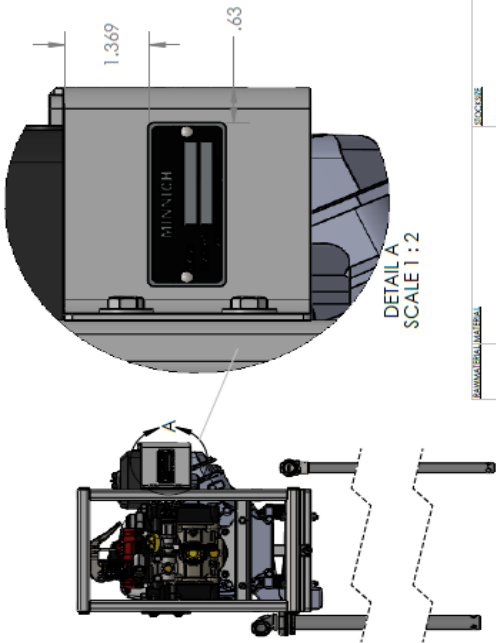
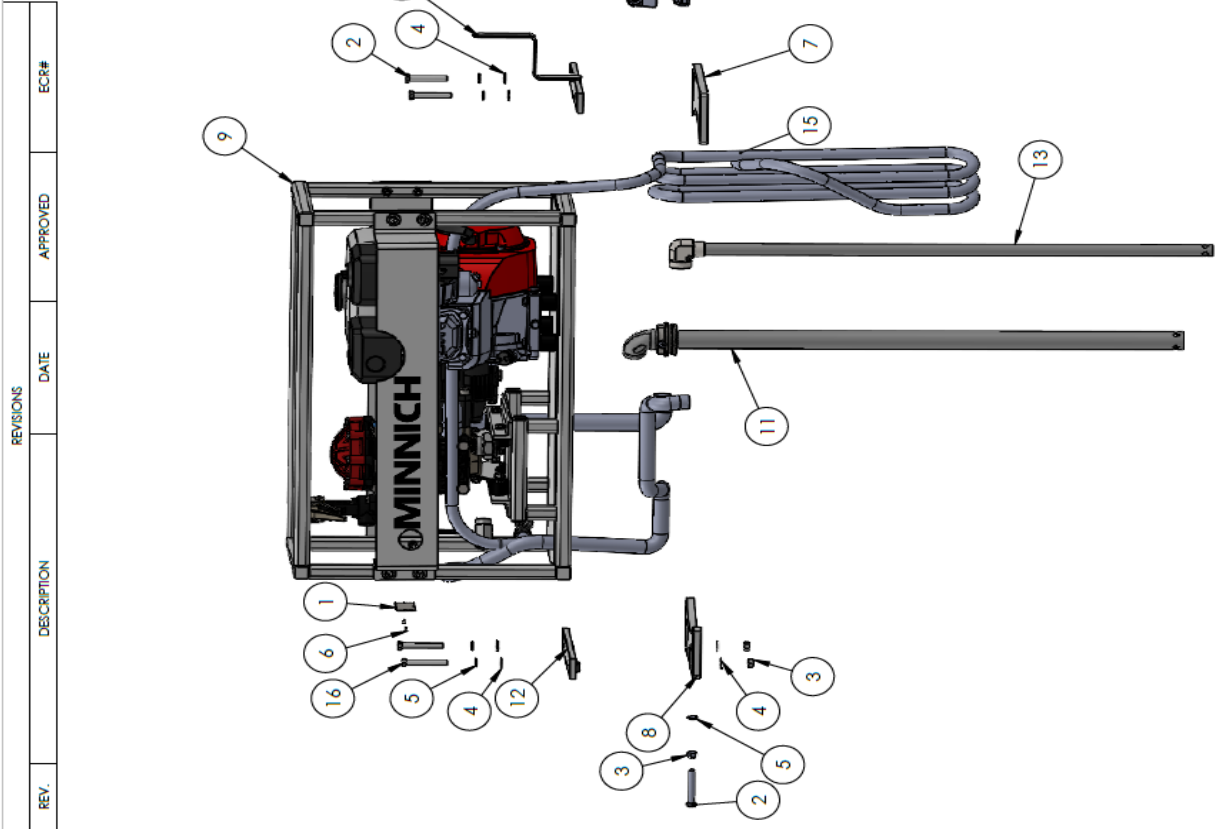
TOLERANCES (EXCEPT IN INCHES)	
X .000	1/16"
X .001	1/32"
X .002	1/64"
X .003	1/128"
X .004	1/256"
X .005	1/512"

Dimension in accordance with ANSI Y14	
FIGURE NO.	LOCATION

TITLE: ASSY, SPRAYER	
DO NOT SCALE DRAWING	
APPROVED BY:	
CHECKED BY:	
DRAWN BY:	
DATE:	
REV. LEVEL	

ROUTING NO.	
DRAWING NUMBER:	
A13690-00025	

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	000708-00004	MODEL & SERIAL # NAME PLATE	1
2	006038-2.500	HHCS, 3/8-16 x 2-1/2 GR.5	3
3	006072-00000	NUT, HEX 3/8-16	3
4	006107-00000	FLAT WASHER, 3/8 SAE	6
5	006149-00000	LOCKWASHER, 3/8	5
6	006262-00001	SCREW, DRIVE HD RD. #4 X 1/4"	2
7	013690-00077	DRUM MOUNT PLATE, SPRAYER	1
8	013690-00079	DRUM MOUNT PLATE, SPRAYER	1
9	A13690-00031	PUMP HOUSING ASSY, SPRAYER	1
10	A13690-00042	SPRAY GUN, GREENMASTER	1
11	A13690-00047	SPRAYER, PICK UP KIT	1
12	A13690-00049	WELDMNT, BARREL MOUNT ADJUSTER	1
13	A13690-00054	SPRAYER, RETURN KIT	1
14	A13690-00089	DRUM MOUNT HANGER, SPRAYER	1
15	A13690-00097	MIDSTATE SPRAYER HOSE KIT - 50FT	1
16	006038-2.750	HHCS, 3/8-16 x 2-3/4 GR.5	2



TOLERANCES (UNLESS NOTED)	Dimension in accordance with ANSI Y14
.X ± .040	
.XX ± .000	
.XXX ± .000	
XX ± .015	
± .1"	

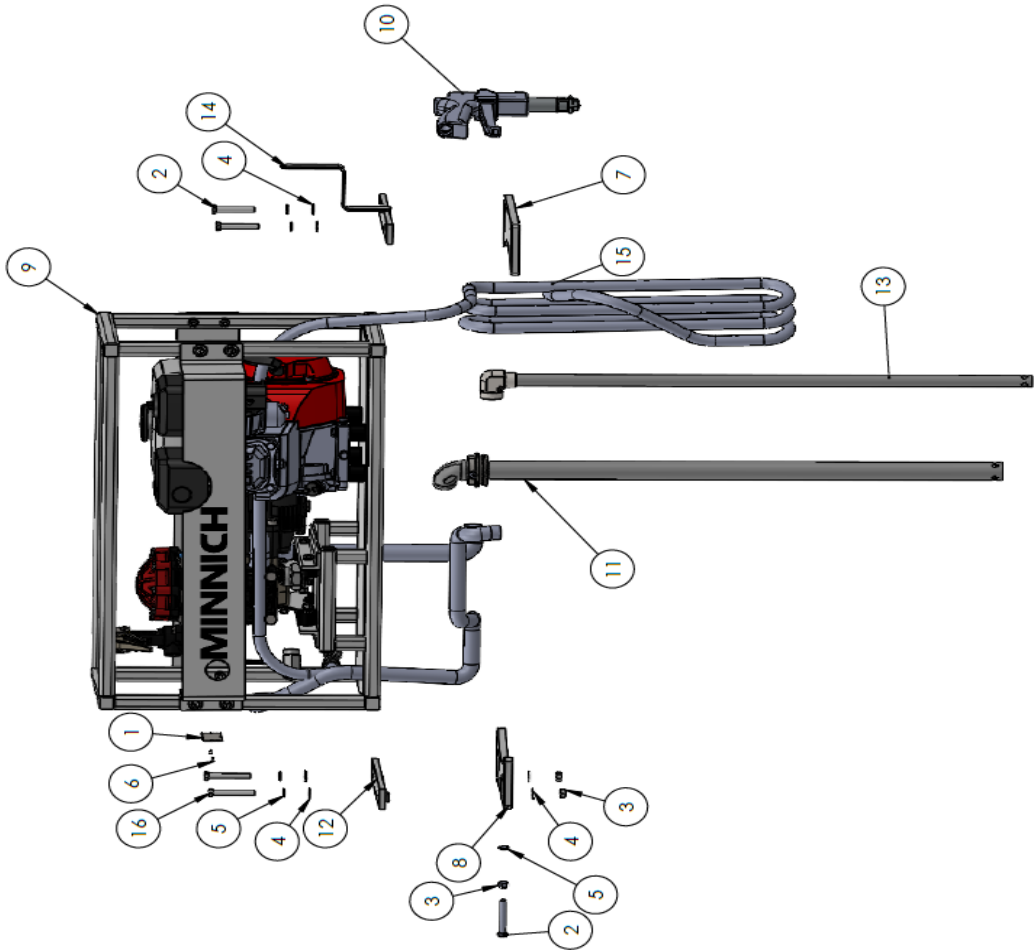
MINNICH CO., INC.	DESIGNED BY:
MINNICH CO., INC.	ALB
THIS INFORMATION IS NOT TO BE USED IN CONNECTION WITH ANY OTHER PRODUCT OF MINNICH CO., INC.	CHECKED BY:
	APPROVED BY:
	DATE:
	4/9/2024
	REV. LEVEL
	-

TITLE: ASSY, SPRAYER	ROUTING NO.
	A13690-00050

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	000708-00004	MODEL & SERIAL # NAME PLATE	1
2	006038-2.500	HHCS, 3/8-16 x 2-1/2 GR.5	3
3	006072-00000	NUT, HEX 3/8-16	3
4	006107-00000	FLAT WASHER, 3/8 SAE	6
5	006149-00000	LOCKWASHER, 3/8	5
6	006262-00001	SCREW, DRIVE HD RD. #4 X 1/4"	2
7	013690-00077	DRUM MOUNT PLATE, SPRAYER	1
8	013690-00079	DRUM MOUNT PLATE, SPRAYER	1
9	A13690-00031	PUMP HOUSING ASSY, SPRAYER	1
10	A13690-00042	SPRAY GUN, GREENMASTER	1
11	A13690-00047	SPRAYER, PICK UP KIT	1
12	A13690-00049	WELDMNT, BARREL MOUNT ADJUSTER	1
13	A13690-00054	SPRAYER, RETURN KIT	1
14	A13690-00089	DRUM MOUNT HANGER, SPRAYER	1
15	A13690-00098	MIDSTATE SPRAYER HOSE KIT - 100FT	1
16	006038-2.750	HHCS, 3/8-16 x 2-3/4 GR.5	2

REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED

ECR#



TOLERANCES	
INCHES	MILLIMETERS
.XX ± .005	XX ± .005
.XXX ± .005	XXX ± .005
.XXX ± .010	XXX ± .010

Dimension in accordance with ANSI Y14	
FEATURE NO.	LOCATION

TITLE: ASSY, SPRAYER	
ROUTING NO.	LOCATION

DRAWING NUMBER: A13690-00100	

DO NOT SCALE DRAWING	

MINNICH MFG. CO., INC.	

DRAWN BY: AEB	

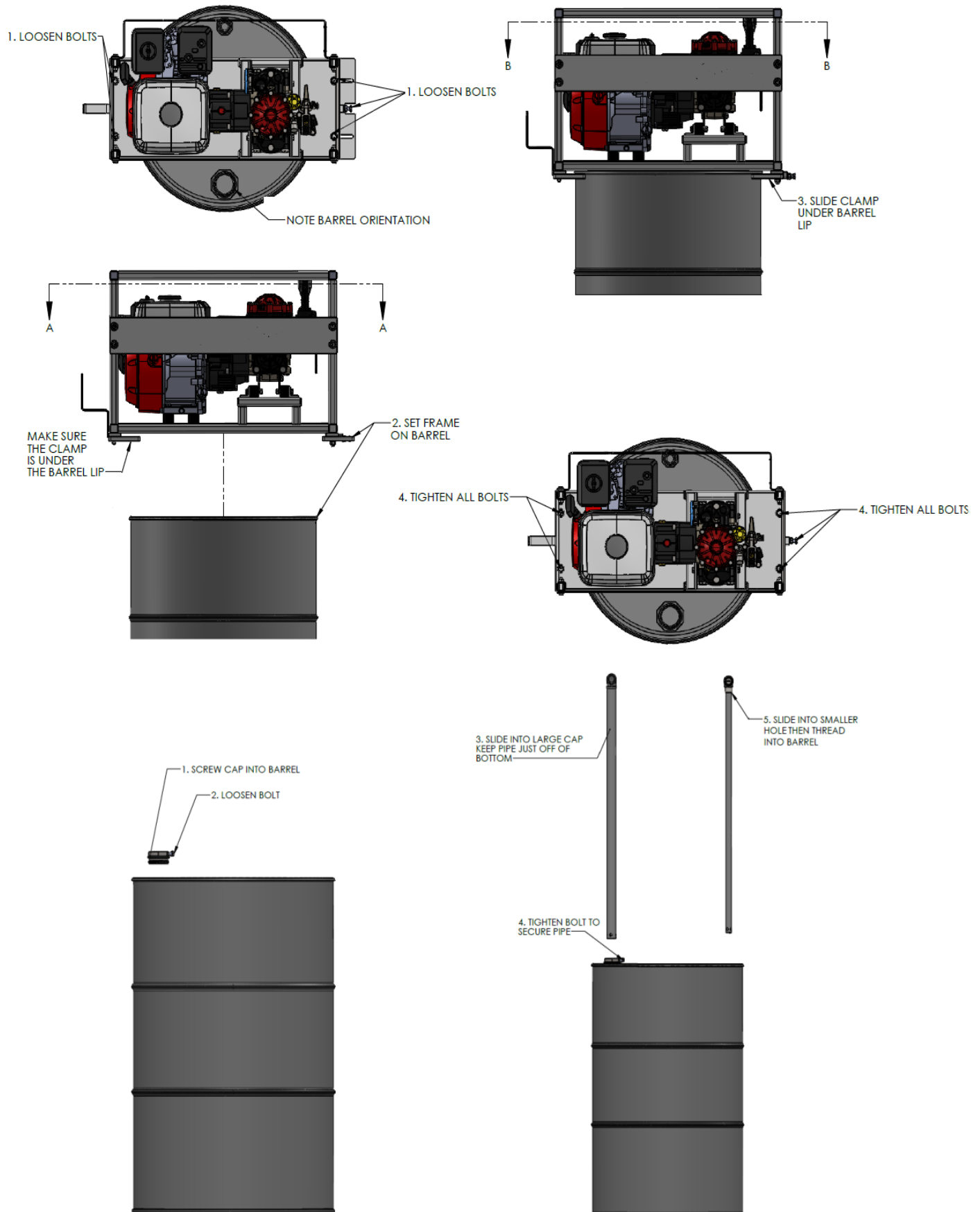
CHECKED BY:	

APPROVED BY:	

DATE: 4/9/2024	

REV. LEVEL	

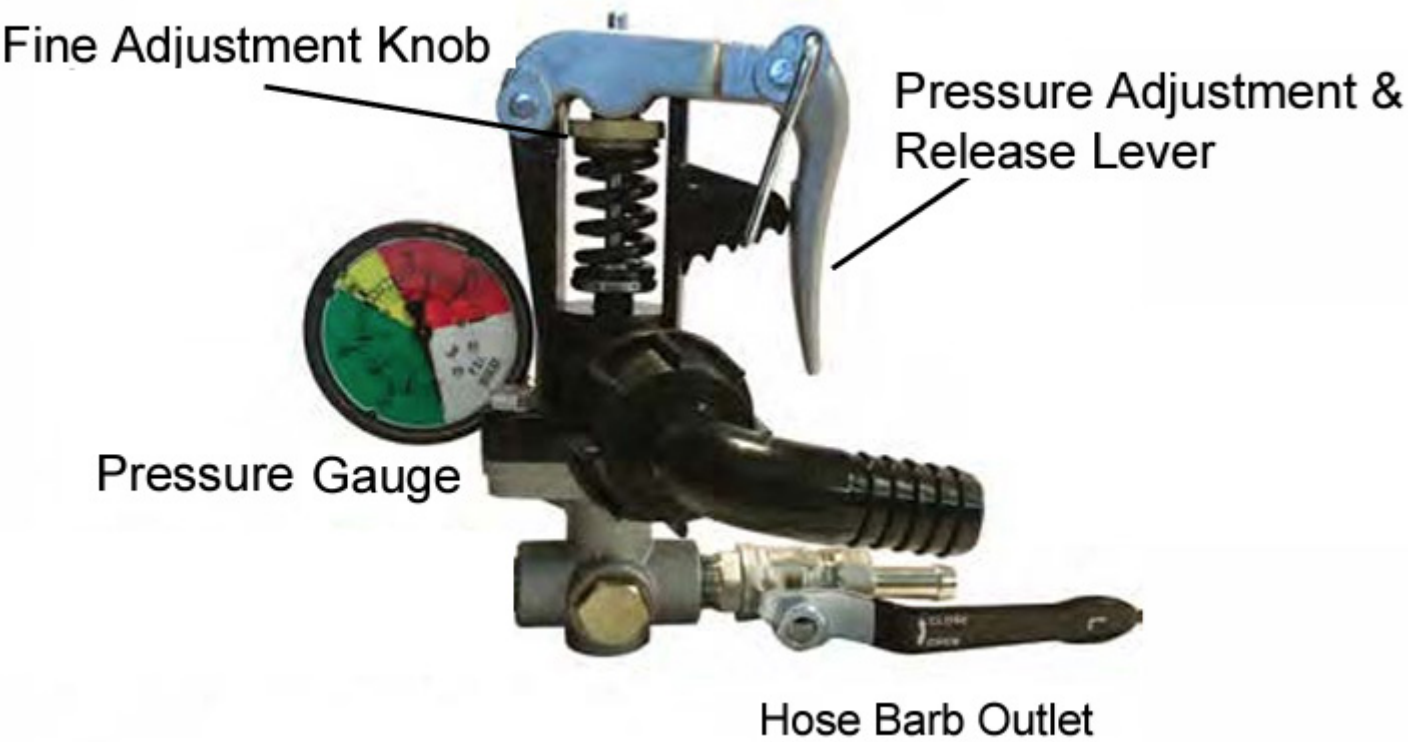
BARREL INSTALL



NOTICE

- Δ On the MINNICH SPRAYER, adjust the pressure by clamping the relief valve adjustment lever down.
- Δ With the bale hook in the number one position, the pressure is about 100psi, number two position is about 250psi, number three position is about 350psi, number four position is about 450psi.
- Δ These pressures can be adjusted by using the fine adjustment knob located on top of the relief valve spring. The fine adjustment knob can be rotated when the relief valve lever is in the UP position.
- Δ The pressure is released by lifting up the relief valve adjustment lever with the bale hook on the number one position.
- *General rule to follow with pressure, check the pressure gauge, it should optimally be at approximately 20% of the maximum operating pressure. FACTORY SETTING: 80-90psi

SPEC	INFORMATION
Max GPM	21.1
Max L/Min.	80
Max PSI	580
Max Temp (F)	140
Max Bar	40



NOTICE

Δ STORAGE - In the event of a lengthy period out of use, place the equipment under cover, protected from the weather. DO NOT store in places where the ambient conditions might impair the pump's operating condition over time.

Δ TRANSPORTATION - Secure the equipment firmly to the vehicle during transport, to prevent random movement.

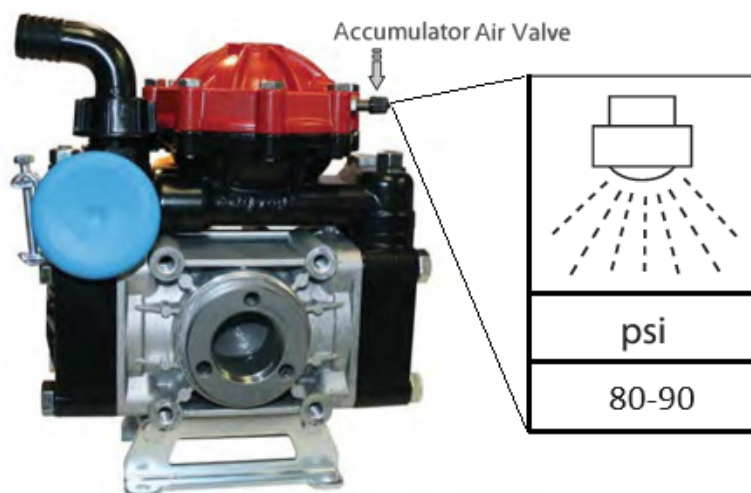
Δ START-UP - Prior to start-up, the operator must perform the necessary safety checks, which include checking for leaks in the system - turn equipment off immediately and make necessary repairs before operating equipment.

SPEC	INFORMATION
Max GPM	9.6
Max L/Min.	36.2
Max PSI	580
HP Power	2.9
Max Bar	40
Max Solid Content	35%
Weight (lbs.)	33.0

CHECKING THE INFLATION PRESSURE

The pump has a pressure accumulator, check its level of inflation, with the pump at a standstill, using a standard air gun fitted with a standard automotive pressure gauge. The accumulator is inflated by the manufacturer for use of the pump at its most efficient performance.

1. Remove air valve cap pictured.
2. Fill with pump to 80psi.
3. Replace the air valve cap to protect from accidental deflation, dirt and debris.



STARTING AND STOPPING OPERATION INSTRUCTIONS

To start the pump, proceed as follows:

Δ When starting the pump, keep the control unit lever in the full bypass position until the pump has primed.

Δ After starting, and after the pump is primed, move the control lever into the pressure regulation position desired for the application.

Δ During the first few hours of operation, check that the oil level in the tank remains between the minimum and maximum limits. If top-ups are required, use the 14oz. 90W GEAR LUBE OIL mentioned in the maintenance section (pg. 16).

To stop the pump, proceed as described below.

Δ Reduce the pressure by releasing the control unit lever.

Δ Stop the pump, shut the Honda GX160 off.

****THIS IS ESSENTIAL FOR MAINTAINING PUMP LIFE****

It is mandatory that the sprayer be cleaned after each use. Parts that fail due to improper/insufficient cleaning will not be warranted. Use the following steps as a guide to proper cleaning and maintenance.

1. Place the suction hose into a container that has been filled with water, this is recommended by the pump manufacturer to clean spraying equipment after each use.
2. Place the return hose in an empty container the same size, or larger than the one with the water.
3. Run the unit for 2-3 minutes with clean water.
4. Disconnect the supply line and leave the pump to run for approximately 15 seconds so that all the water inside the pump is drained.
5. Make sure it's drained by operating the unit at a pressure of 0 bar and sucking in air until the pump starts to run dry. Solutions which are not particularly corrosive still may become extremely corrosive if they are left to stand inside circuits for weeks and the water they contain evaporates.
6. Disconnect all the hoses and allow all the water to drain from the lines.
7. As you begin your next spraying operation, spray a small amount of water through the lines and into an empty container. This will clear any remaining compounds before it is mixed with the new spraying compound.

8. PRECAUTIONS AGAINST FREEZING

If shutdown during winter or in the case of places and seasons subject to frost, once the pump has finished working, run it for the time required to pump an emulsion of 50% clean water and 50% of antifreeze fluid through it in order to prevent freezing and damage to the pump.

9. Check Oil Sight Gauge Frequently. If the oil in the sight gauge is milky in color, this indicates that there is chemical intrusion. Replace the Diaphragm and the O-Rings and follow the above to clean out the system before next use.

Here is a quick reference for the Kits that should be kept on-hand:

013690-030-1 Sprayer, Pump Blue Flex Diaphragm

013690-030-2 Sprayer, Pump O-Ring Kit

013690-030-3 Sprayer, Pump Control Repair Kit

⚠ CAUTION

Δ The pump must not be used to pump anti-freeze fluid that is not mixed with water.

⚠ CAUTION

Δ Never leave liquid compound inside the pump. Damage to the diaphragm or to other components is often caused by liquid that is left inside the pump for a long time.

⚠ CAUTION

Δ In the presence of ice or very cold temperatures at the workplace, the pump must never be started. This can cause serious damage.

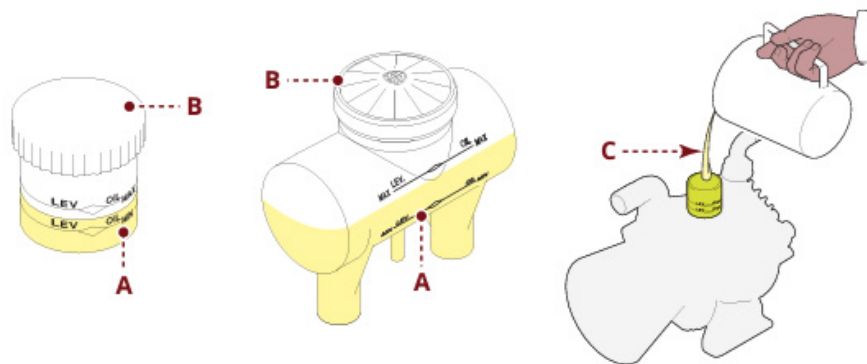
⚠ CAUTION

Δ Do not wash the pump externally: water could get into the pump crankcase, for example through the seal rings of the crankshaft

Scheduled maintenance table			
Frequency	Component	Procedure	Reference
Every working day	Filter	Inspect filter cartridge	See "Inspecting the filter"
	Pump	Checking the oil level	See "Checking the oil level"
	Connection of pump to power source (pulley, belt, coupling)	Inspection	-
	Pump	Inspect mounting	See "Inspecting the pump mounting"
	Pipes and connections	Inspection	See "Inspecting the connections and pipes"

Δ INSPECTING THE FILTER - Inspect the filter cartridge. If the cartridge is fouled, wash it thoroughly to remove the dirt and debris. If the cartridge is torn or cracked, it must be replaced.

Δ CHECKING THE OIL - Check the oil with the pump level, ensuring that it has been running for at least 5 minutes in normal working conditions. If the oil level is not between the MIN and MAX marks on the tank, add or remove oil to restore this level and check, still with the pump running, that the oil level does not vary so much that it leaks from or is no longer visible in the tank. If necessary, top up with 90W GEAR LUBE OIL. Check the oil level (A) frequently, as it may vary significantly with the operating conditions. To top up with oil proceed as described. 1. Unscrew the plug (B) and pour in oil (C). 2. Screw the plug (B) back into place.



Δ INSPECTING THE PUMP MOUNTING - Check that the pump's fixing screws have not become loose. If necessary, tighten them with securing force.

Δ INSPECTING THE CONNECTIONS & PIPES - Leaks can normally be dealt with by tightening the connections properly. If leaks from the intake pipeline connections are noticed, the seals must be replaced. Inspect the hoses for signs of aging, breakage, swelling, rubbing, etc., they must be replaced.

****PUMP OIL LEVELS SHOULD ALWAYS BE MONITORED****

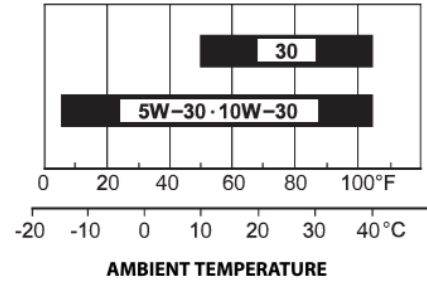
Problem	Cause	Remedy
The pump does not prime properly.	Intake circuit not airtight.	Tighten, repair or replace hoses and fittings as necessary.
	Distributor switching lever on "Pressure" setting.	Move distributor switching lever to "By-pass" setting.
The pump does not retain the required pressure.	Seat and plate of intake and delivery valves worn.	Replace the worn valves. 
	Nozzles worn or too large in diameter.	Replace the worn nozzles. Use nozzles of suitable diameter.
	Restriction in intake circuit.	Remove the restriction from the circuit.
	Intake filter fouled.	Clean the filter cartridge.
Pressure gauge needle wobbles, pressure throbbing.	Intake circuit not airtight.	Clean or replace the intake and delivery valves.
	Residual air left inside pump.	Discharge the air by opening a ball valve/ central unit connected to the delivery side with the pump in operation.
	Valve plate stuck to its seat.	Tighten, repair or replace hoses and fittings as necessary.
	Pressure accumulator deflated	Inflate accumulator to the correct pressure.
Uneven flow of liquid to nozzles.	Pressure accumulator deflated	Inflate accumulator to the correct pressure.
Increase in noise and simultaneous drop in oil level (pump cavitation).	Restriction in intake circuit.	Remove the restriction from the circuit.
	Intake filter fouled.	Clean the filter cartridge.
	Pump drawing in liquid from too low a level.	See "Pump Intake Conditions" section.
Oil on pump body or base.	Oil seal on pump shaft worn.	Replace the worn oil seal.
	Oil pressure inside pump too high.	Restore correct oil level in tank.
Pump using too much oil (oil flowing from delivery port) or oil whitish in colour (water/oil emulsion in tank).	One or more diaphragms ruptured.	Stop the pump at once. Replace the diaphragms

REGULAR SERVICE PERIOD (3) Perform at every indicated month or operating hour interval, whichever comes first. ITEM		Each Use	First Month or 20 Hrs	Every 3 Months or 50 Hrs	Every 6 Months or 100 Hrs	Every Year or 300 Hrs	Refer to Page
Engine oil	Check level	o					8
	Change		o		o		9
Reduction case oil (applicable types)	Check level	o					8-10
	Change		o		o		10
Air cleaner	Check	o					10
	Clean			o	o		10-12
	Replace					o	
Sediment cup	Clean				o		12
Spark plug	Check-adjust				o		12
	Replace					o	
Spark arrester (applicable types)	Clean				o		13
Idle speed	Check-adjust					o	13
Valve clearance	Check-adjust					o	Shop manual
Combustion chamber	Clean	After every 500 Hrs.					Shop manual
Fuel tank & filter	Clean				o		Shop manual
Fuel tube	Check	Every 2 years (Replace if necessary)					Shop manual

Recommended Oil

Use 4-stroke motor oil that meets or exceeds the requirements for API service category SJ or later (or equivalent). Always check the API service label on the oil container to be sure it includes the letters SJ or later (or equivalent).

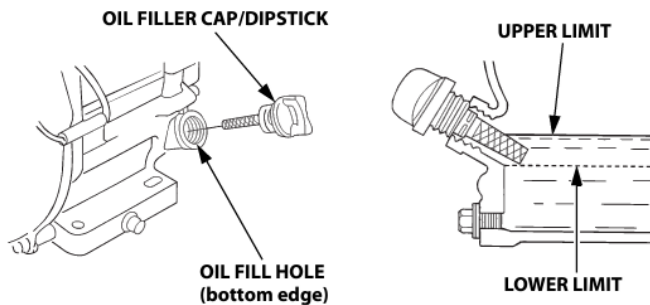
SAE 10W-30 is recommended for general use. Other viscosities shown in the chart may be used when the average temperature in your area is within the indicated range.



Oil Level Check

Check the engine oil level with the engine stopped and in a level position.

1. Remove the oil filler cap/dipstick and wipe it clean.
2. Insert the oil filler cap/dipstick into the oil filler neck as shown, but do not screw it in, then remove it to check the oil level.
3. If the oil level is near or below the lower limit mark on the dipstick, fill with the recommended oil (see page 8) to the upper limit mark (bottom edge of the oil fill hole). Do not overfill.
4. Reinstall the oil filler cap/dipstick.



NOTICE

Running the engine with a low oil level can cause engine damage. This type of damage is not covered by the Distributor's Limited Warranty.

Oil Change

Drain the used oil when the engine is warm. Warm oil drains quickly and completely.

1. Place a suitable container below the engine to catch the used oil, then remove the oil filler cap/dipstick, oil drain plug and sealing washer.
2. Allow the used oil to drain completely, then reinstall the oil drain plug and a new sealing washer, and tighten the oil drain plug securely.

TORQUE: 18 N·m (13 lbf·ft, 1.8 kgf·m)

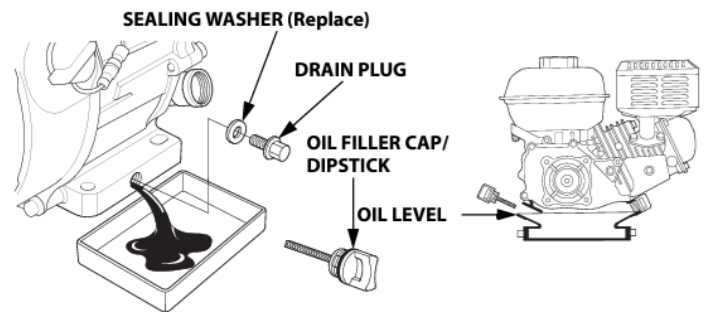
NOTICE

Please dispose of used motor oil in a manner that is compatible with the environment. We suggest you take used oil in a sealed container to your local recycling center or service station for reclamation. Do not throw it in the trash, pour it on the ground, or pour it down a drain.

3. With the engine in a level position, fill with the recommended oil (see page 8) to the upper limit mark (bottom edge of the oil fill hole) on the dipstick.

Engine oil capacity: GX160: 0.58 L (19 US oz, 0.51 Imp qt)

4. Install the oil filler cap/dipstick and tighten securely.



SEDIMENT CUP

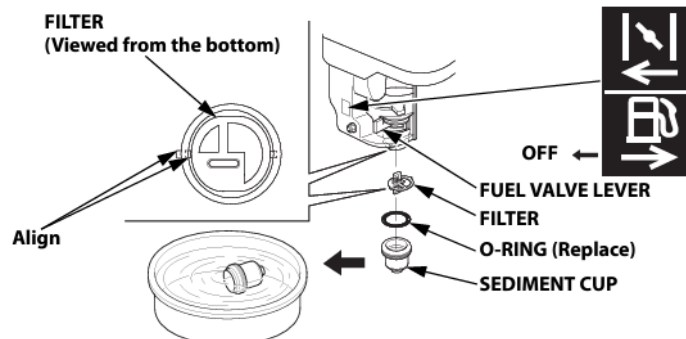
Cleaning

⚠ WARNING

Gasoline is highly flammable and explosive.

You can be burned or seriously injured when handling fuel.

- Stop the engine and let it cool before handling fuel.
- Keep heat, sparks, and flame away.
- Handle fuel only outdoors.
- Keep away from your vehicle.
- Wipe up spills immediately.



1. Move the fuel valve lever to the OFF position, and then remove the sediment cup, O-ring and filter.
2. Wash the sediment cup and filter in non-flammable solvent, and dry it thoroughly.
3. Reinstall the filter, new O-ring, and the sediment cup. Tighten the sediment cup securely.
4. Move the fuel valve lever to the ON position and check for leaks.

SPARK PLUG

Spark Plugs: BPR6ES (NGK)
W20EPR-U (DENSO)

This spark plug has the correct heat range for normal engine operating temperatures.

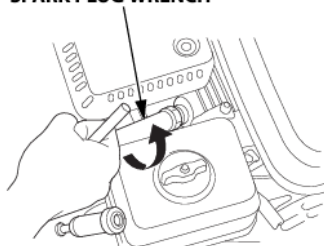
NOTICE

An incorrect spark plug can cause engine damage.

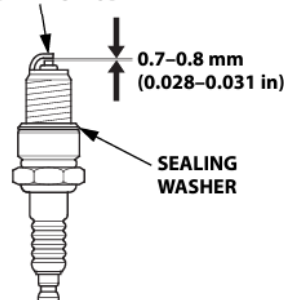
For good performance, the spark plug must be properly gapped and free of deposits.

1. Disconnect the spark plug cap, and remove any dirt from around the spark plug area.
2. Remove the spark plug with a 21 mm (13/16 in) spark plug wrench.
3. Inspect the spark plug. Replace it if damaged or badly fouled, if the sealing washer is in poor condition, or if the electrode is worn.
4. Measure the spark plug electrode gap with a wire-type feeler gauge. Correct the gap, if necessary, by carefully bending the side electrode. The gap should be: 0.7–0.8 mm (0.028–0.031 in)
5. Install the spark plug carefully, by hand, to avoid cross-threading.

SPARK PLUG WRENCH



SIDE ELECTRODE



6. After the spark plug is seated, tighten with a 21 mm (13/16 in) spark plug wrench to compress the sealing washer.

When installing a new spark plug, tighten 1/2 turn after the spark plug seats to compress the washer.

When reinstalling a used spark plug, tighten 1/8–1/4 turn after the spark plug seats to compress the washer.

TORQUE: 18 N·m (13 lbf·ft, 1.8 kgf·m)

NOTICE

A loose spark plug can overheat and damage the engine.

Overtightening the spark plug can damage the threads in the cylinder head.

7. Attach the spark plug cap to the spark plug.

AIR CLEANER

A dirty air cleaner will restrict air flow to the carburetor, reducing engine performance. If you operate the engine in very dusty areas, clean the air filter more often than specified in the MAINTENANCE SCHEDULE.

NOTICE

Operating the engine without an air filter, or with a damaged air filter, will allow dirt to enter the engine, causing rapid engine wear. This type of damage is not covered by the Distributor's Limited Warranty.

Inspection

Remove the air cleaner cover and inspect the filter elements.
Clean or replace dirty filter elements. Always replace damaged filter elements. If equipped with an oil-bath air cleaner, also check the oil level.

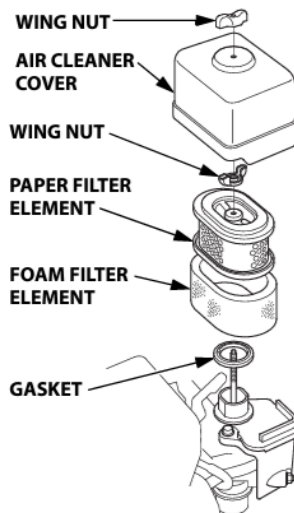
Refer to pages 10–12 for instructions that apply to the air cleaner and filter for your engine type.

Cleaning

Dual-Filter Element Types

1. Remove the wing nut from the air cleaner cover, and remove the cover.
2. Remove the wing nut from the air filter, and remove the filter.
3. Remove the foam filter element from the paper filter element.
4. Inspect both air filter elements, and replace them if they are damaged. Always replace the paper air filter element at the scheduled interval

STANDARD DUAL-FILTER-ELEMENT TYPE



5. Clean the air filter elements if they are to be reused.
Paper filter element: Tap the filter element several times on a hard surface to remove dirt, or blow compressed air [not exceeding 207 kPa (2.1 kgf/cm², 30 psi)] through the filter element from the inside. Never try to brush off dirt; brushing will force dirt into the fibers.
6. Wipe dirt from the inside of the air cleaner case and cover using a moist rag. Be careful to prevent dirt from entering the air duct that leads to the carburetor.
7. Place the foam air filter element over the paper element, and reinstall the assembled air filter. Be sure the gasket is in place beneath the air filter. Tighten the air filter wing nut securely.
8. Install the air cleaner cover, and tighten the wing nut securely.

Quick Reference Information

GX160 (PTO shaft type S, with fuel tank)

Fuel	Unleaded gasoline (Refer to page 8)	
	U.S.	Pump octane rating 86 or higher
	Except U.S.	Research octane rating 91 or higher Pump octane rating 86 or higher
Engine oil	SAE 10W-30, API SJ or later, for general use. Refer to page 8.	
Reduction case oil	Same oil as engine oil, see above (applicable types).	
Spark plug	BPR6ES (NGK) W20EPR-U (DENSO)	
Maintenance	Before each use:	
	• Check engine oil level. Refer to page 8. • Check reduction case oil (applicable types). Refer to page 8–10. • Check air filter. Refer to page 10.	
	First 20 hours:	
	• Change engine oil. Refer to page 9. • Change reduction case oil (applicable types). Refer to page 10.	
	Subsequent:	
	Refer to the maintenance schedule on page 7.	

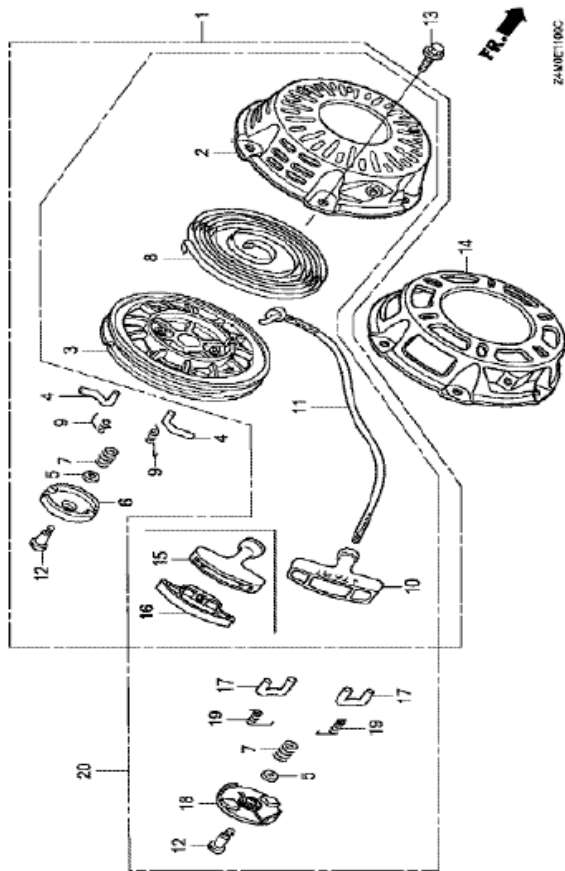
Length × Width × Height	304 × 362 × 346 mm (12.0 × 14.3 × 13.6 in)
Dry mass [weight]	15.1 kg (33.3 lbs)
Engine type	4-stroke, OHV, single cylinder
Displacement [Bore × Stroke]	163 cm ³ (9.9 cu-in) [68.0 × 45.0 mm (2.7 × 1.8 in)]
Net power (in accordance with SAE J1349*)	3.6 kW (4.8 bhp, 4.9 PS) at 3,600 min ⁻¹ (rpm)
Max. Net torque (in accordance with SAE J1349*)	10.3 N·m (7.6 lbf·ft, 1.05 kgf·m) at 2500 min ⁻¹ (rpm)
Engine oil capacity	0.58 L (19 US oz, 0.51 Imp qt)
Fuel tank capacity	3.1 L (0.82 US gal, 0.68 Imp gal)
Cooling system	Forced air
Ignition system	Transistor type magneto ignition
PTO shaft rotation	Counterclockwise

Carbon Monoxide Hazards

For your safety, do not operate the engine in an enclosed area such as a garage. Your engine's exhaust contains poisonous carbon monoxide gas that can collect rapidly in an enclosed area and cause illness or death.

⚠ WARNING

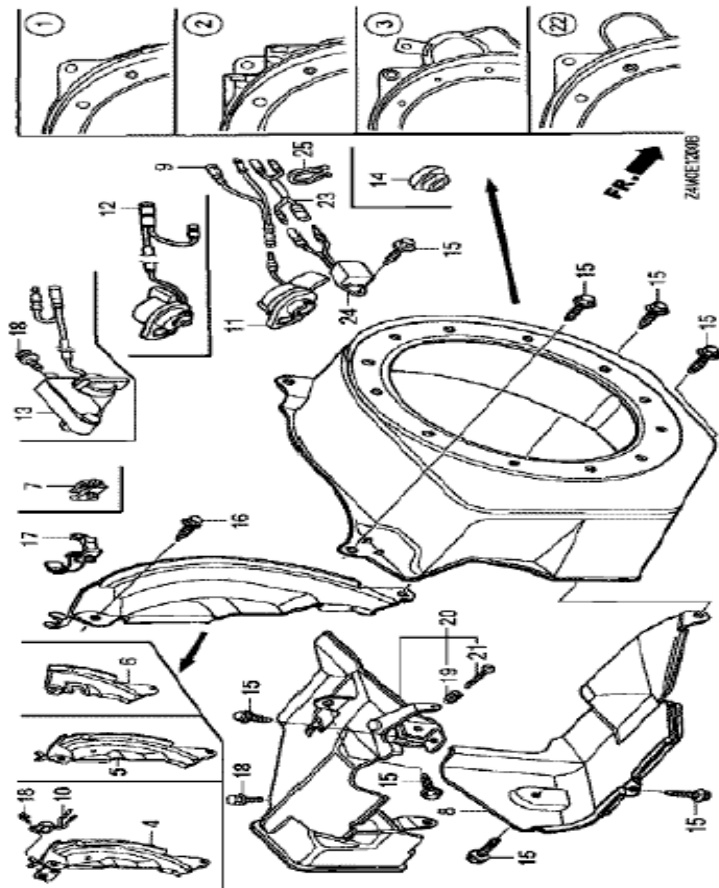
Exhaust contains poisonous carbon monoxide gas that can build up to dangerous levels in closed areas.
Breathing carbon monoxide can cause unconsciousness or death.
Never run the engine in a closed, or even partly closed area.



Ref	Minnich Partnumber	Description	GX160UT2X	Serial Numbers
002	013690-66001	CASE COMP., RECOIL STARTER *RED*	1	
002	013690-66200	CASE COMP., RECOIL STARTER *BLACK*	1	
003	013690-66002	REEL, RECOIL STARTER (BLACK)	1	
005	013690-66003	PLATE, FRICTION	1	
007	013690-66004	SPRING, FRICTION	1	
008	013690-66005	SPRING, RECOIL STARTER	1	
011	013690-66006	ROPE, RECOIL STARTER	1	
012	013690-66007	SCREW, SETTING	1	
013	013690-66008	BOLT, FLANGE, 6X8	3	
015	013690-66009	KNOB, RECOIL STARTER	1	
016	013690-66010	KNOB, REINFORCEMENT	1	
017	013690-66011	RATCHET, STARTER	2	
018	013690-66012	GUIDE, RATCHET	1	
019	013690-66013	SPRING, RETURN	2	
020	013690-66014	STARTER ASSY., RECOIL *RED*	1	
020	013690-66015	STARTER ASSY., RECOIL *BLACK*	1	

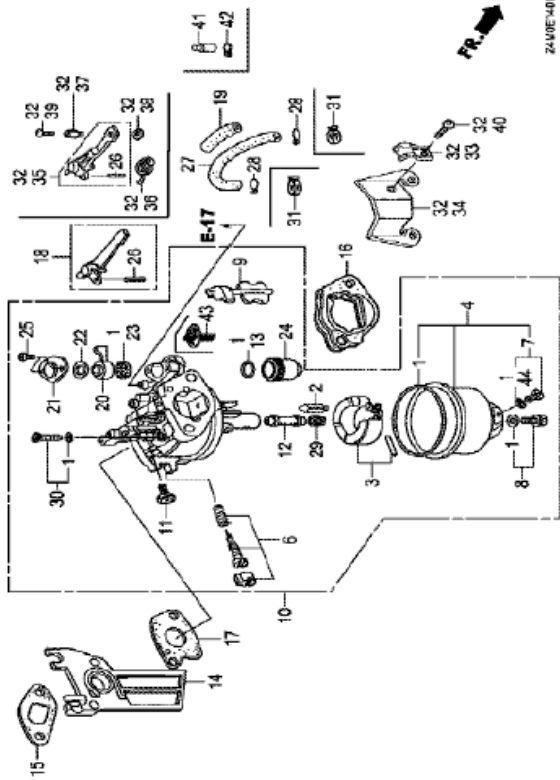
GX160UT2X(QX2)

E-12 FAN COVER



Ref	Minnich Partnumber
001	013690-66016
001	013690-66017
004	013690-66018
008	013690-66019
010	013690-66020
012	013690-66021
012	013690-66022
015	013690-66023
016	013690-66024
017	013690-66025
018	013690-66026

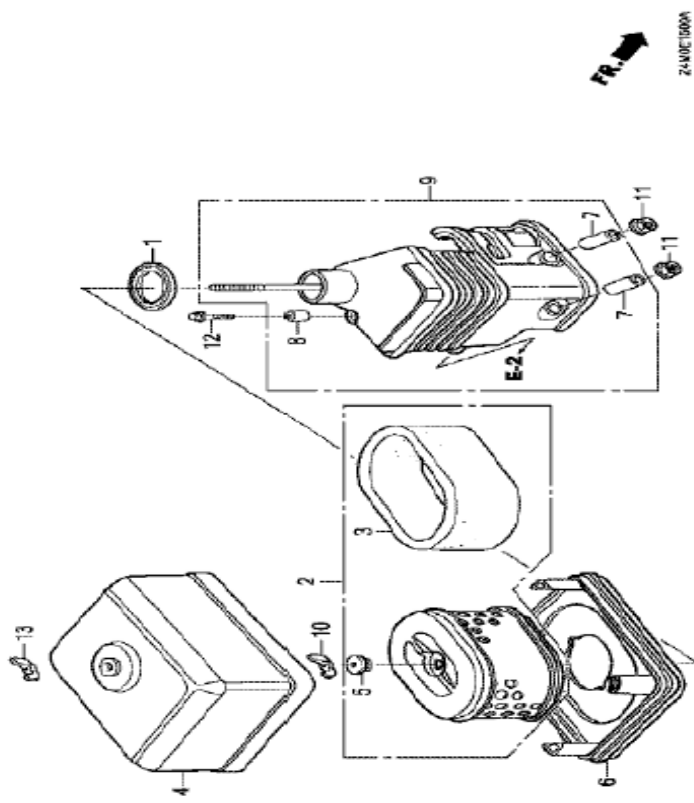
Description	GX160UT2X	Serial Numbers
COVER COMP., FAN *RED*	1	
COVER COMP., FAN *BLACK*	1	
PLATE COMP., SIDE (OIL ALERT)	1	
SHROUD COMP.	1	
ALERT UNIT, OIL (CHONGQING LIHUA)	1	
SWITCH ASSY., ENGINE STOP (TOYO DENSO)	1	
SWITCH ASSY., ENGINE STOP (MINDA)	1	
BOLT, FLANGE, 6X12 (CT200)	6	
BOLT, FLANGE, 6X20 (CT200)	1	
CLIP, HARNESS	1	
BOLT, FLANGE, 6X8	1	



Ref	Minnich Partnumber	Description	GX160UT2X	Serial Numbers
001	013690-66027	GASKET SET	1	
002	013690-66028	VALVE SET, FLOAT	1	
003	013690-66029	FLOAT SET	1	
004	013690-66030	CHAMBER SET, FLOAT	1	
006	013690-66031	SCREW SET	1	
007	013690-66032	SCREW SET, DRAIN	1	
008	013690-66033	SCREW SET	1	
009	013690-66034	CHOKE SET	1	
010	013690-66035	CARBURETOR ASSY. (BE99M A)	1	
011	013690-66036	SCREW, THROTTLE STOP	1	
012	013690-66037	NOZZLE, MAIN	1	
013	013690-66038	O-RING	1	
014	013690-66039	INSULATOR, CARBURETOR	1	

*CONTINUED ON FOLLOWING PAGE

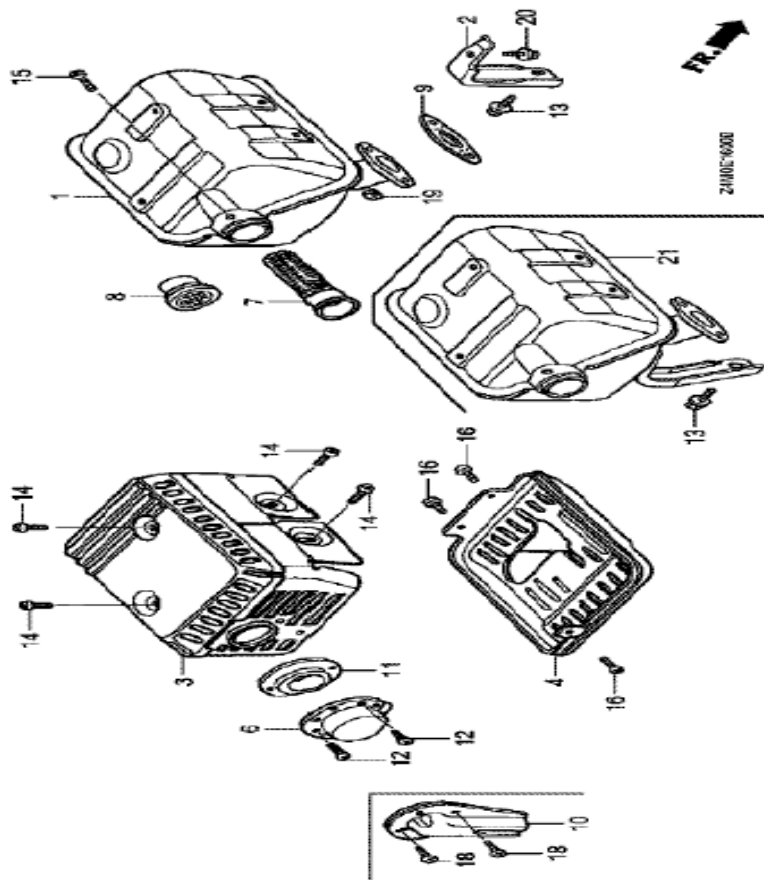
<u>Ref</u>	<u>Minnich Partnumber</u>	<u>Description</u>	<u>GX160UT2X</u>	<u>Serial Numbers</u>
015	013690-66040	PACKING, INSULATOR SPACER	1	
016	013690-66041	COMP., CARBURETOR	1	
017	013690-66042	PACKING, CARBURETOR	1	
018	013690-66043	LEVER COMP., CHOKE (STD.)	1	
020	013690-66044	LEVER, COCK	1	
021	013690-66045	PLATE, LEVER SETTING	1	
022	013690-66046	SPRING, COCK LEVER	1	
023	013690-66047	PACKING, FUEL COCK	1	
024	013690-66048	CUP, FUEL STRAINER SCREW,	1	
025	013690-66049	PAN, 3X6	2	
026	013690-66050	PIN, SPRING, 2X12	1	
029	013690-66051	JET, MAIN, #60	1	
029	013690-66052	JET, MAIN, #62	1	
029	013690-66053	JET, MAIN, #65	1	
030	013690-66054	JET SET, PILOT, #40	1	
043	013690-66055	FILTER, CUP	1	
044	013690-66056	WASHER, PLAIN (6.2X10.7 DRAIN)	1	



Ref	Minnich Partnumber	Description	GX160UT2X	Serial Numbers
001	013690-66057	PACKING, ELBOW	1	
002	013690-66058	ELEMENT, AIR CLEANER (DUAL)	1	
003	013690-66059	FILTER, OUTER	1	
004	013690-66060	COVER, AIR CLEANER	1	
005	013690-66061	GROMMET, AIR CLEANER	1	
007	013690-66062	COLLAR, AIR CLEANER	2	
008	013690-66063	COLLAR B, AIR CLEANER	1	
009	013690-66064	ELBOW COMP, AIR CLEANER	1	
010	013690-66065	NUT, TOOL BOX SETTING	1	
011	013690-66066	NUT, FLANGE, 6MM	2	
012	013690-66067	BOLT, FLANGE, 6X20	1	
013	013690-66068	NUT, AIR CLEANER	1	

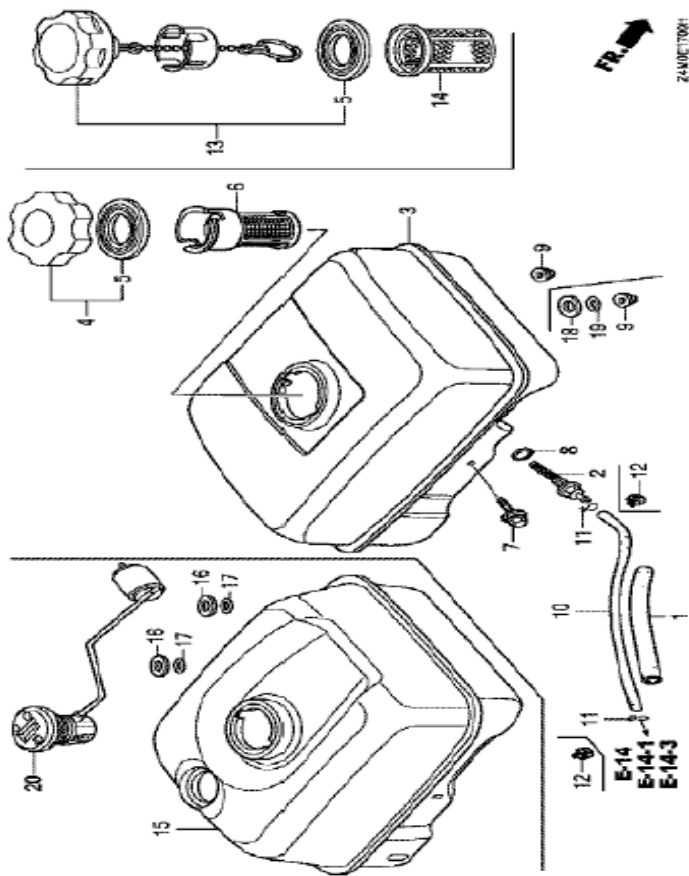
GX160UT2X(QX2)

E-16 MUFFLER (1)

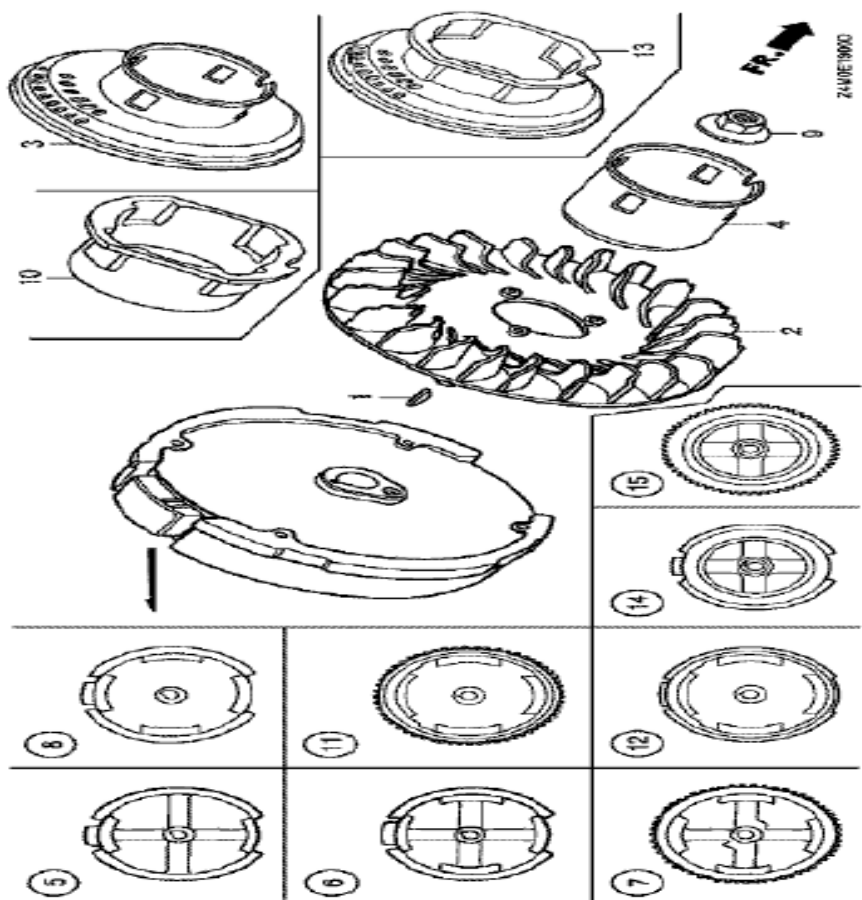


Ref	Minnich Partnumber
001	013690-66069
001	013690-66070
003	013690-66071
007	013690-66072
009	013690-66073
014	013690-66074
015	013690-66075
019	013690-66076

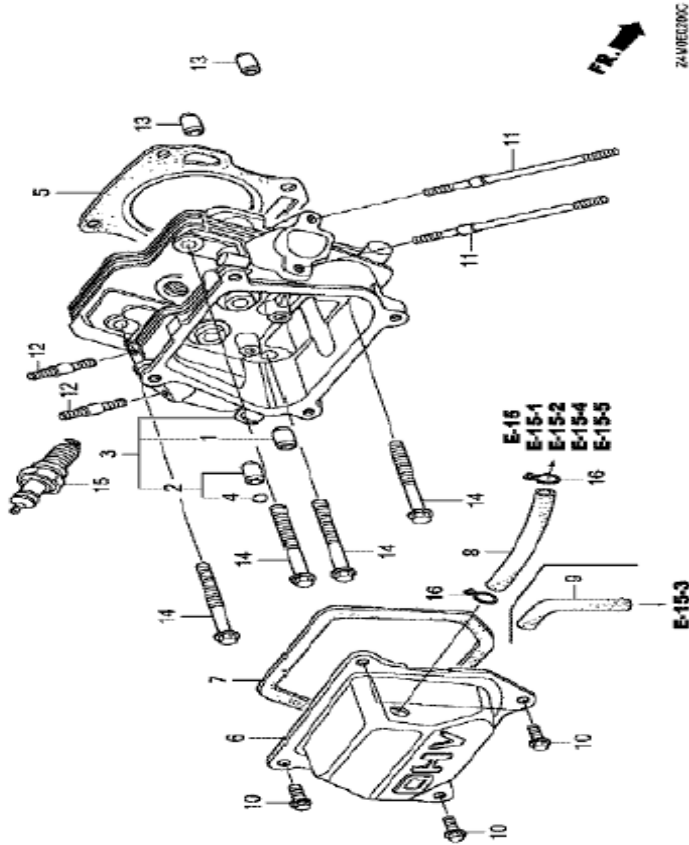
Description	GX160UT2X	Serial Numbers
MUFFLER COMP.	1	
MUFFLER COMP. (ARRESTER)	1	
PROTECTOR COMP, MUFFLER (STD.)	1	
ARRESTER, SPARK	1	
GASKET, MUFFLER	1	
SCREW, TAPPING, 5X8	4	
SCREW, TAPPING, 4X6	1	
NUT, HEX., 8MM	2	



Ref	Minnich Partnumber	Description	GX160UT2X	Serial Numbers
001	013690-66077	RUBBER, SUPPORTER (107MM)	1	
002	013690-66078	JOINT, FUEL TANK	1	
005	013690-66079	PACKING, FUEL FILLER CAP (39X62X3)	1	
007	013690-66080	BOLT, FLANGE, 6X29	1	
008	013690-66081	O-RING, 14MM (NOK)	1	
009	013690-66082	NUT, FLANGE, 6MM	2	
010	013690-66083	TUBE, FUEL, 4.5X145 (FKM)	1	
012	013690-66084	CLAMP, TUBE (D8)	2	
013	013690-66085	CAP COMP., FUEL FILLER	1	
015	013690-66086	TANK COMP., FUEL *WHITE*	1	
015	013690-66087	TANK COMP., FUEL *BLACK*	1	



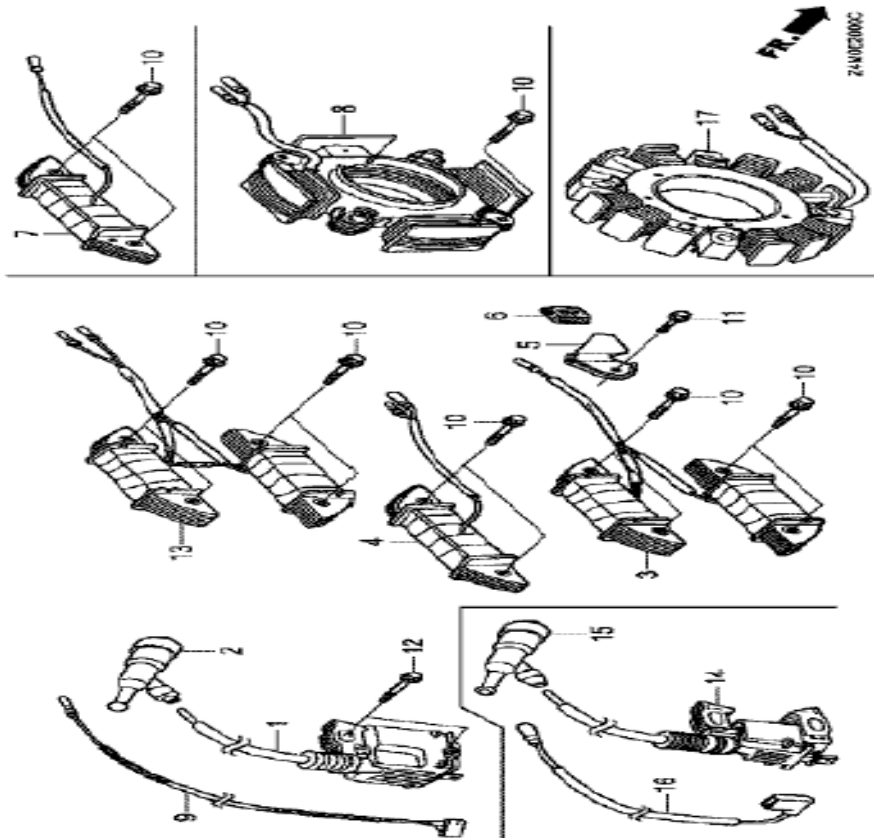
Ref	Minnich Partnumber	Description	GX160UT2X	Serial Numbers
001	013690-66088	KEY, SPECIAL WOODRUFF, 25X18	1	
002	013690-66089	FAN, COOLING	1	
005	013690-66090	FLYWHEEL COMP. (YUXIN)	1	
009	013690-66091	NUT, SPECIAL, 14MM	1	
010	013690-66092	PULLEY, STARTER	1	



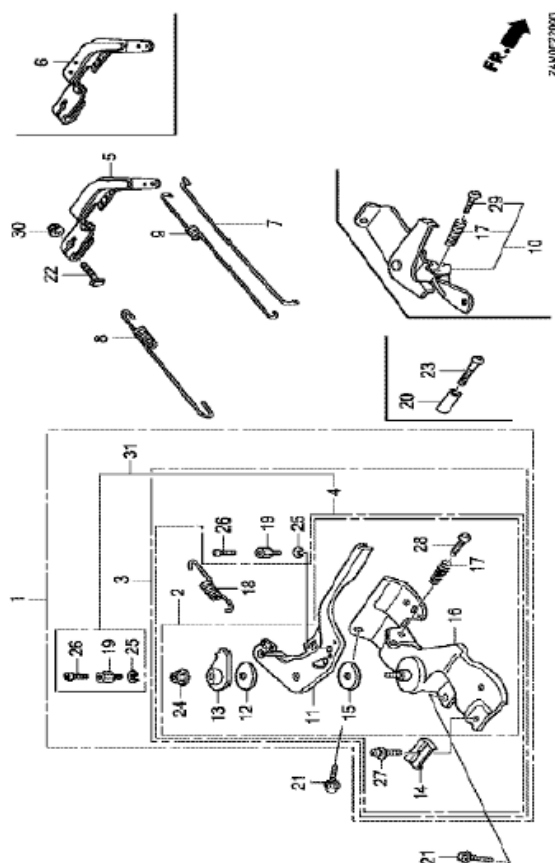
Ref	Minnich Partnumber	Description	GX160UT2X	Serial Numbers
003	013690-66093	HEAD COMP, CYLINDER	1	
005	013690-66094	GASKET, CYLINDER HEAD (NIPPON LEAKLESS)	1	
006	013690-66095	COVER COMP, HEAD	1	
007	013690-66096	PACKING, HEAD COVER	1	
008	013690-66097	TUBE, BREATHER	1	
010	013690-66098	BOLT, FLANGE, 6X12 (CT200)	4	
011	013690-66099	BOLT, STUD, 6X112	2	
012	013690-66100	BOLT, STUD, 8X32	2	
013	013690-66101	DOWEL PIN, 10X16	2	
014	013690-66102	BOLT, FLANGE, 8X60	4	
015	013690-66103	PLUG, SPARK (BPR5ES - NGK)	1	
015	013690-66104	PLUG, SPARK (BPR6ES - NGK)	1	

E-20 IGNITION COIL

GX160UT2X(QX2)



Ref	Minnich Partnumber	Description	GX160UT2X	Serial Numbers
012	013690-66105	BOLT, FLANGE, 6X25 (CT200)	2	
014	013690-66106	COIL ASSY., IGNITION (TEC)	1	
015	013690-66107	CAP ASSY., NOISE SUPPRESSOR (TEC)	1	
016	013690-66108	CORD, STOP SWITCH (370MM)	1	



Ref	Minnich Partnumber	Description	GX160UT2X	Serial Numbers
004	013690-66109	CONTROL ASSY. (REMOTE)	1	
005	013690-66110	ARM, GOVERNOR	1	
007	013690-66111	ROD, GOVERNOR	1	
008	013690-66112	SPRING, GOVERNOR	1	
009	013690-66113	SPRING, THROTTLE RETURN	1	
011	013690-66114	LEVER, CONTROL	1	
012	013690-66115	SPRING, LEVER	1	
013	013690-66116	WASHER, CONTROL LEVER	1	
014	013690-66117	HOLDER, CABLE	1	
015	013690-66118	SPACER, CONTROL LEVER	1	
016	013690-66119	BASE COMP., CONTROL	1	
017	013690-66120	SPRING, CONTROL ADJUSTING	1	
018	013690-66121	SPRING, CABLE RETURN	1	
021	013690-66122	BOLT, FLANGE, 6X12 (CT200)	2	
022	013690-66123	BOLT, GOVERNOR ARM	1	
024	013690-66124	NUT, SELF-LOCK, 6MM	1	
024	013690-66125	NUT, SELF-LOCK, 6MM	1	
027	013690-66126	SCREW, PAN, 5X16	1	
028	013690-66127	SCREW, PAN, 5X25	1	
030	013690-66128	NUT, FLANGE, 6MM	1	

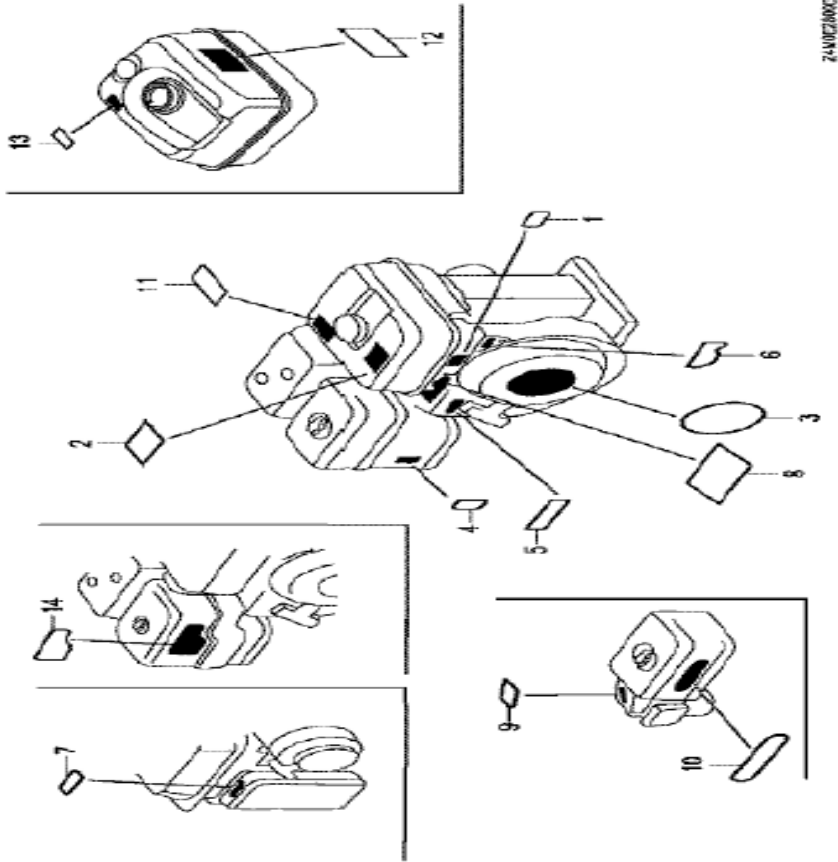
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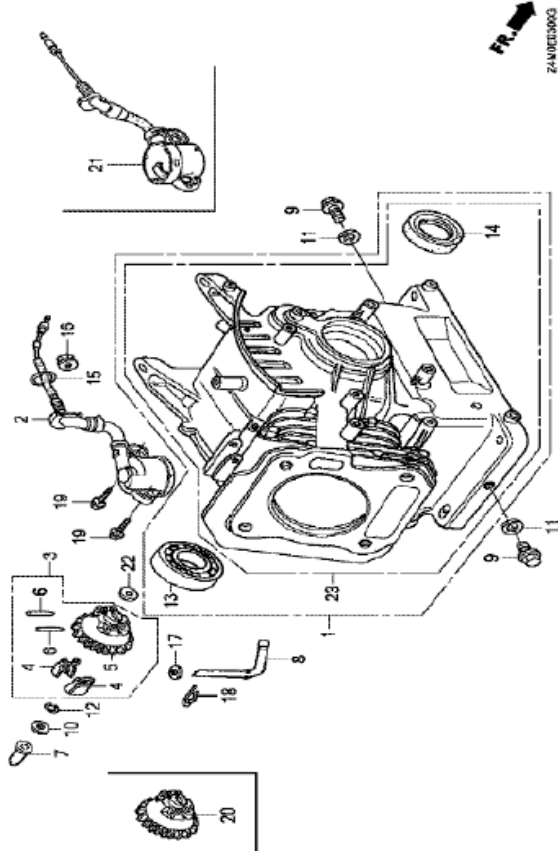
021	013690-66129	BOLT, FLANGE, 6X12 (CT200)	2
022	013690-66130	BOLT, GOVERNOR ARM	1
024	013690-66131	NUT, SELF-LOCK, 6MM	1
024	013690-66132	NUT, SELF-LOCK, 6MM	1
027	013690-66133	SCREW, PAN, 5X16	1
028	013690-66134	SCREW, PAN, 5X25	1
030	013690-66135	NUT, FLANGE, 6MM	1

GX160UT2X(QX2)

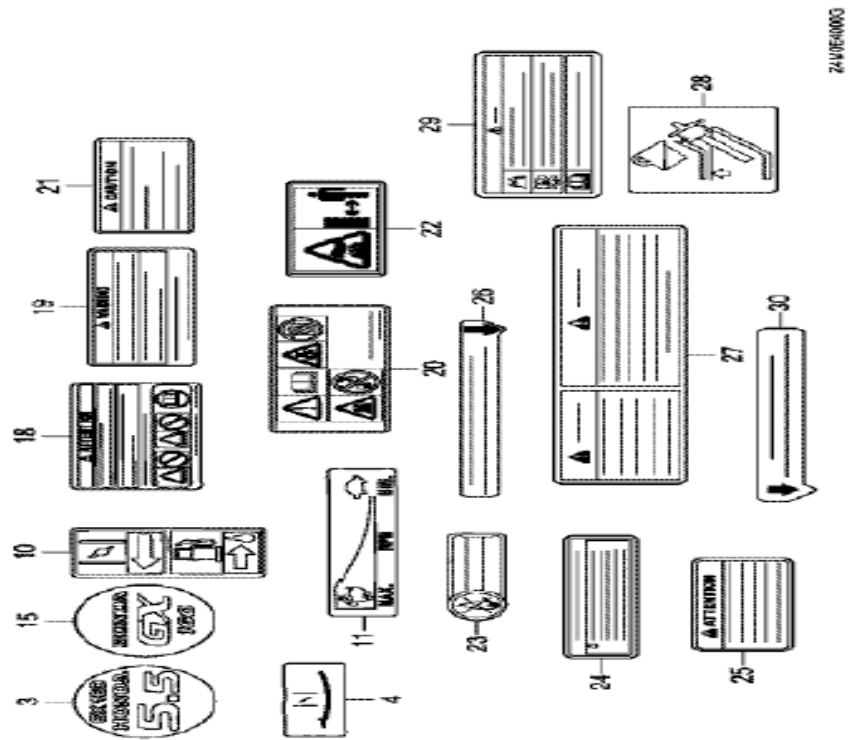
E-28 LABEL



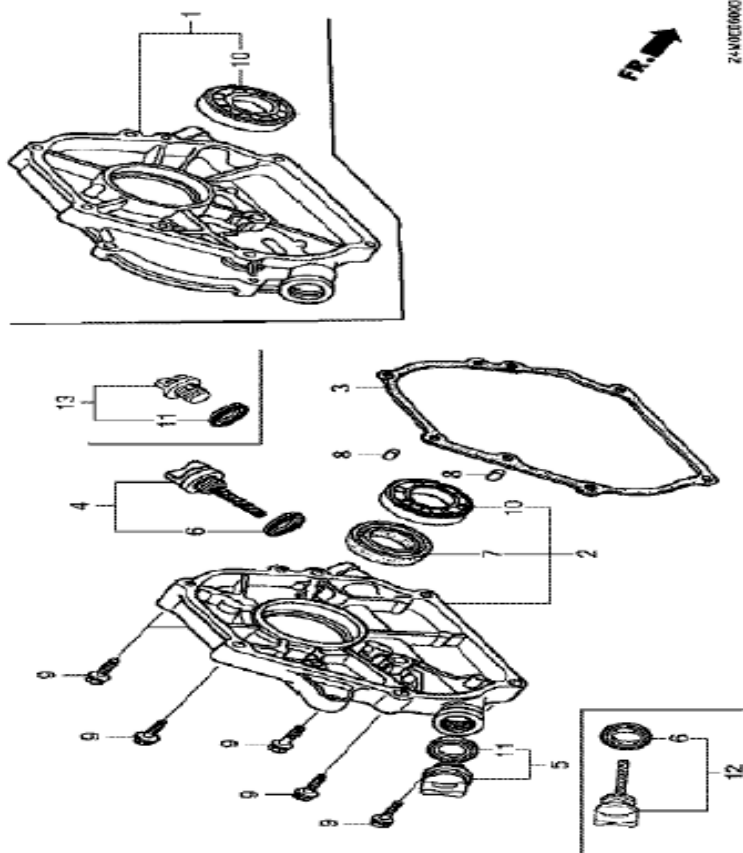
Ref	Minnich Partnumber	Description	GX160UT2X	Serial Numbers
003	013690-66136	EMBLEM (GX160)	1	
004	013690-66137	MARK, CHOKE	1	
005	013690-66138	MARK, THROTTLE INDICATION	1	
012	013690-66139	MARK, OPERATOR CAUTION (ENGLISH)	1	
013	013690-66140	MARK, EX. CAUTION (ENGLISH)	1	



Ref	Minnich Partnumber	Description	GX160UT2X	Serial Numbers
003	013690-66141	GOVERNOR ASSY.	1	
004	013690-66142	WEIGHT, GOVERNOR	2	
005	013690-66143	HOLDER, GOVERNOR WEIGHT	1	
006	013690-66144	PIN, GOVERNOR WEIGHT	2	
007	013690-66145	SLIDER, GOVERNOR	1	
008	013690-66146	SHAFT, GOVERNOR ARM	1	
009	013690-66147	BOLT, DRAIN PLUG	2	
011	013690-66148	WASHER, DRAIN PLUG, 10.2MM	2	
012	013690-66149	CLIP, GOVERNOR HOLDER	1	
014	013690-66150	OIL SEAL, 25X41X6 (NOK)	1	
014	013690-66151	OIL SEAL, 25X41X6 (ARAI)	1	
014	013690-66152	OIL SEAL, 25X41X6 (ARAI)	1	
015	013690-66153	O-RING, 14MM (NOK)	1	
016	013690-66154	NUT, FLANGE, 10MM	1	
018	013690-66155	PIN, LOCK, 8MM	1	
019	013690-66156	BOLT, FLANGE, 6X12	2	
021	013690-66157	SWITCH ASSY., OIL LEVEL (ASAHI DENSO)	1	
022	013690-66158	WASHER, PLAIN, 6MM	1	
023	013690-66159	BARREL ASSY., CYLINDER (OIL ALERT)	1	



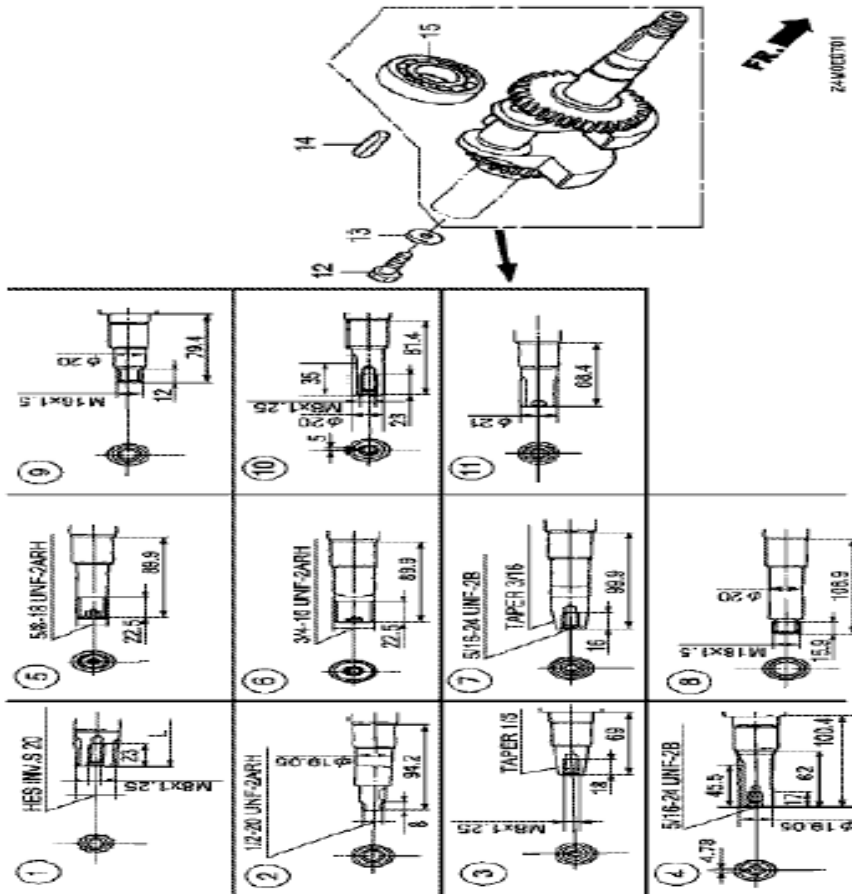
Ref	Minnich Partnumber	Description	GX160UT2X	Serial Numbers
019	013690-66160	MARK, OPERATOR CAUTION (FRENCH)	1	
020	013690-66161	MARK, OPERATOR CAUTION (PICTOGRAPH)	1	
022	013690-66162	MARK, EX. CAUTION (PICTOGRAPH)	1	
025	013690-66163	MARK, EX. CAUTION (FRENCH)	1	
029	013690-66164	MARK, OPERATOR CAUTION (CHINESE)	1	



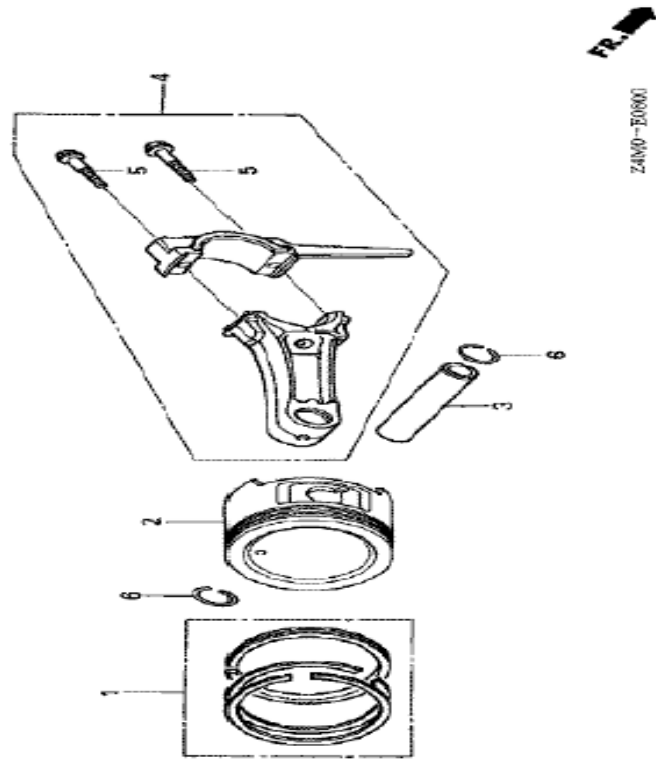
Ref	Minnich Partnumber	Description	GX160UT2X	Serial Numbers
002	013690-66165	COVER ASSY., CRANKCASE	1	
003	013690-66166	PACKING, CASE COVER (NON ASBESTOS)	1	
004	013690-66167	CAP ASSY., OIL FILLER (GAUGE) (GRAY)	1	
005	013690-66168	CAP ASSY., OIL FILLER (BLACK)	1	
007	013690-66169	OIL SEAL, 25X41X6 (NOK)	1	
008	013690-66170	DOWEL PIN, 8X14	2	
009	013690-66171	BOLT, FLANGE, 8X32	6	
010	013690-66172	BEARING, RADIAL BALL, 6205	1	
011	013690-66173	PACKING, OIL FILLER CAP	1	

GX160UT2X(QX2)

E-7-1 CRANKSHAFT (2)



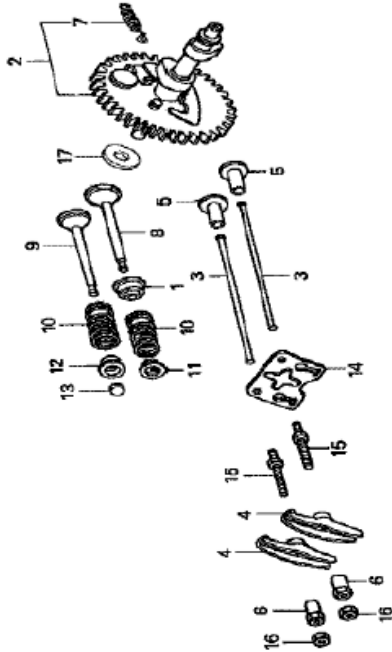
Ref	Minnich Partnumber	Description	GX160UT2X	Serial Numbers
004	013690-66174	CRANKSHAFT COMP.	1	
014	013690-66175	KEY, 4.78X4.78X38	1	
015	013690-66176	BEARING, RADIAL BALL (6205) (NSK)	1	
015	013690-66177	BEARING, RADIAL BALL (6205TMB) (NTN)	1	
015	013690-66178	BEARING, RADIAL BALL (6205SH) (KOYO)	1	



Ref	Minnich Partnumber	Description	GX160UT2X	Serial Numbers
001	013690-66179	RING SET, PISTON (STD.) (RIKEN)	1	
001	013690-66180	RING SET, PISTON (STD.) (TPR)	1	
002	013690-66181	PISTON (STD.)	1	
003	013690-66182	PIN, PISTON	1	
004	013690-66183	ROD ASSY., CONNECTING	1	
005	013690-66184	BOLT, CONNECTING ROD, 6X34.5	2	
006	013690-66185	CLIP, PISTON PIN, 18MM	2	

GX160UT2X(QX2)

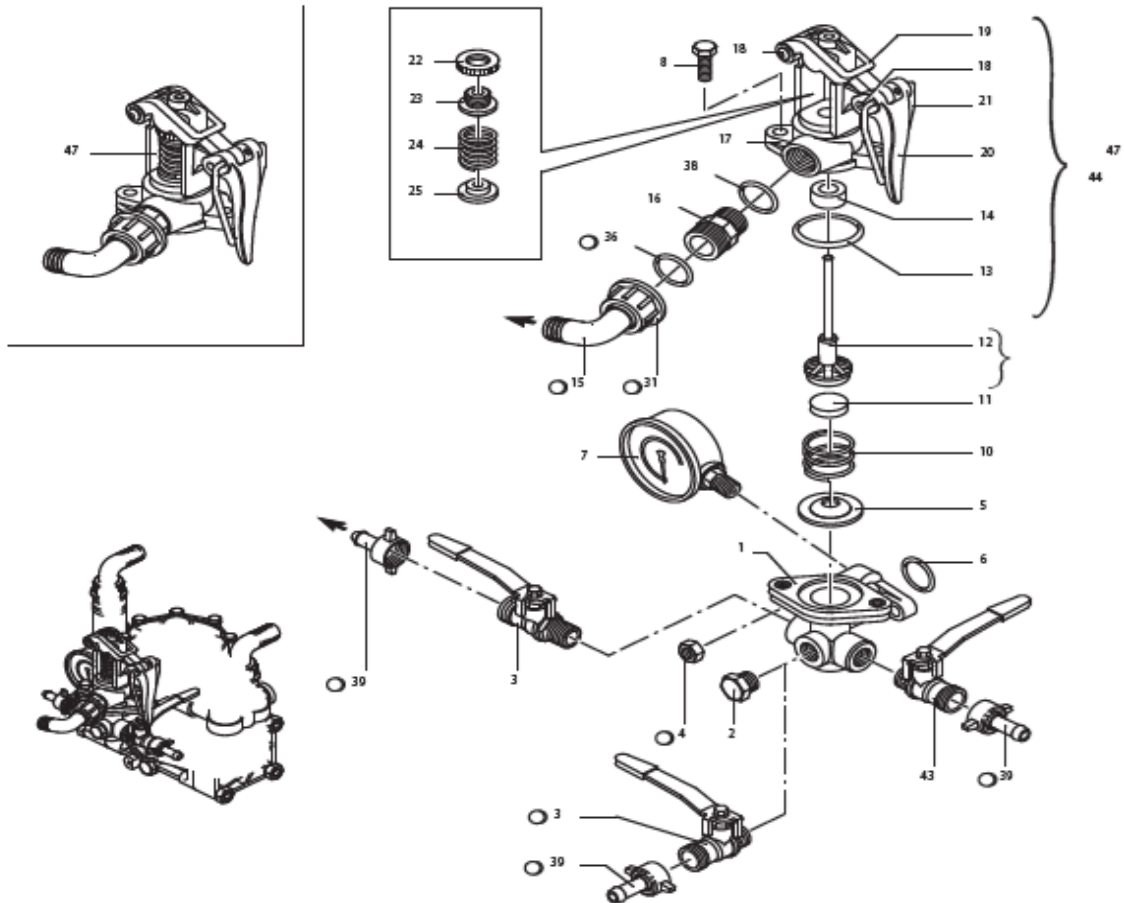
E-9 CAMSHAFT



24M0-E0600A

Ref	Minnich Partnumber
001	013690-66186
002	013690-66187
003	013690-66188
004	013690-66189
005	013690-66189
006	013690-66190
007	013690-66191
008	013690-66192
009	013690-66193
010	013690-66194
011	013690-66195
012	013690-66196
014	013690-66197
015	013690-66198
016	013690-66199

Description	GX160UT2X	Serial Numbers
SEAL, VALVE STEM	1	
CAMSHAFT ASSY.	1	
ROD COMP., PUSH	2	
ARM, VALVE ROCKER	2	
LIFTER, VALVE	2	
PIVOT, ROCKER ARM	2	
SPRING, WEIGHT RETURN	1	
VALVE, IN.	1	
VALVE, EX.	1	
SPRING, VALVE	2	
RETAINER, VALVE SPRING	1	
RETAINER, VALVE SPRING	1	
PLATE, PUSH ROD GUIDE	1	
BOLT, PIVOT, 8MM NUT,	2	
PIVOT ADJUSTING	2	

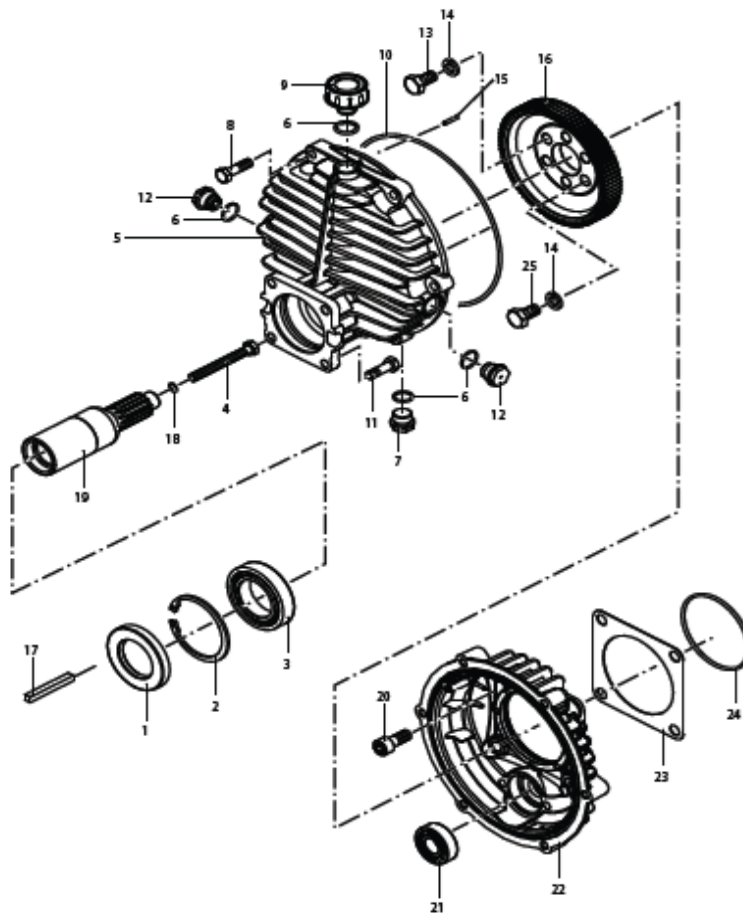


Ref	Minnich Partnumber	Description	Quantity
001	013690-30026	RELIEF VALVE BODY	1
002	013690-30027	PLUG	1
003	013690-30028	BALL VALVE	2
004	013690-30029	NUT	2
005	013690-30030	SEAT	1
006	013690-30031	O-RING	2
007	013690-30032	PRESSURE GAUGE	1
008	013690-30033	SCREW	2
010	013690-30034	SPRING	1
011	013690-30035	SEAT	1
012	013690-30036	STEM	1
013	013690-30037	O-RING	1
014	013690-30038	GASKET	1
015	013690-30039	ELBOW	1
016	013690-30040	FITTING	1
017	013690-30041	BODY VALVE	1
018	013690-30042	HUB PIN	1
019	013690-30043	FORK	2
020	013690-30044	LEVER	1
021	013690-30045	SUPPORT	1
022	013690-30046	WOBBLE PLATE	1
023	013690-30047	RING NUT	1
024	013690-30048	SPRING	1
025	013690-30049	WOBBL PLATE	1
028	013690-30050	BRACKET	1

Per - For: AR 30 - AR 303 - AR 403

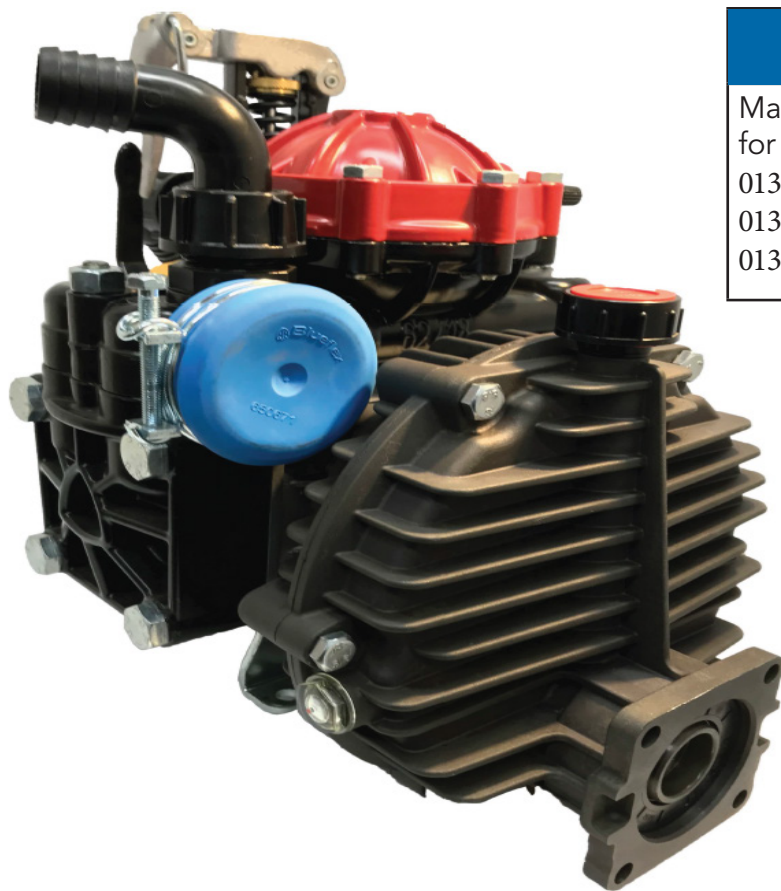
Use of engine :
 B&S Vanguard 6.5
 Kohler SH 265
 Kohler SH 270
 Honda GX 120
 Honda GX 160
 Honda GP 160
 Honda GP 200
 Aiso AMG 120
 Aiso AMG 121
 Aiso AMG 200
 Aiso AMG 201
 Aiso AMG 20
 Robin Ex 17
 Rato EHR 160
 Rato EHR 210

Ø 3/4" Straight Keyed Shaft



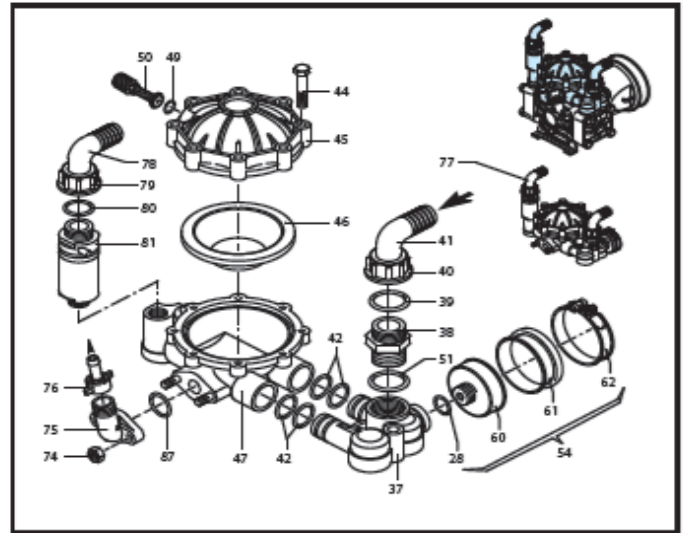
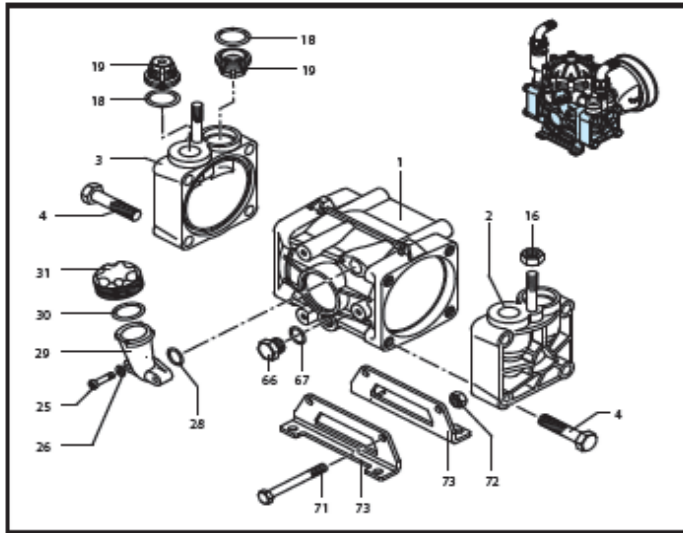
Ref	Minnich Partnumber	Description	Quantity
001	013690-30001	SEAL	1
002	013690-30002	SNAP RING	1
003	013690-30003	BEARING	1
004	013690-30004	BOLT	1
005	013690-30005	BODY	1
006	013690-30006	O-RING	4
007	013690-30007	PLUG	1
008	013690-30008	BOLT	6
009	013690-30009	PLUG	1
010	013690-30010	O-RING	1
011	013690-30011	BOLT	4
012	013690-30012	SIGHT GLASS	2
013	013690-30013	BOLT	3
014	013690-30014	WASHER	6
015	013690-30015	PIN	1
016	013690-30016	GEAR	1
017	013690-30017	KEY	1
018	013690-30018	O-RING	1
019	013690-30019	PINION	1
020	013690-30020	BOLT	4
021	013690-30021	BEARING	1
022	013690-30022	COVER	1
023	013690-30023	GASKET	1

<u>Ref</u>	<u>Minnich Partnumber</u>	<u>Description</u>	
030	013690-30051	FLANGE	1
031	013690-30052	RING NUT	1
033	013690-30053	SCREW	1
038	013690-30054	O-RING	1
039	013690-30055	RING NUT	2
041	013690-30056	RING NUT	1
042	013690-30057	HOSE TAIL	1
043	013690-30058	BALL VALVE	2
044	013690-30059	SEAT	1
046	013690-30060	REDUCER BUSHING	1
047	013690-30061	UPPER BODY ASSEMBLY,	1



NOTICE

Maintenance Kits that should be kept in stock for proper care of the Pump unit:
 013690-030-1 Sprayer, Pump Blue Flex Diaphragm
 013690-030-2 Sprayer, Pump O-Ring Kit
 013690-030-3 Sprayer, Pump Control Repair Kit



Ref	Minnich Partnumber	Description	Quantity
001	013690-30062	PUMP BODY	1
002	013690-30063	HEAD	1
003	013690-30064	HEAD	1
004	013690-30065	SCREW	8
016	013690-30066	NUT	2
018	013690-30067	O-RING	4
019	013690-30068	VALVE	4
025	013690-30069	SCREW	4
026	013690-30070	WASHER	2
028	013690-30071	O-RING	2
029	013690-30072	TANK	2
030	013690-30073	O-RING	1
031	013690-30074	CAP	1
037	013690-30075	FITTING	1
038	013690-30076	FITTING	1
039	013690-30077	O-RING	1
040	013690-30078	RING NUT	1
041	013690-30079	ELBOW	2
042	013690-30080	O-RING	1
044	013690-30081	SCREW	1
045	013690-30082	SEMI-AIR CHAMBER	1
046	013690-30083	AIR CHAMBER	1
047	013690-30084	SEMI-AIR CHAMBER	1
049	013690-30085	GASKET	2
050	013690-30086	AIR VALVE	1
051	013690-30087	O-RING	1
054	013690-30088	DIAPHRAGM	1
055	013690-30089	FLANGE	1
056	013690-30090	WASHER	1
057	013690-30091	SCREW	1
058	013690-30092	RING	1
059	013690-30093	COVER	1
060	013690-30094	DIAPHRAGM HOLDER	1
061	013690-30095	DIAPHRAGM	1
062	013690-30096	CLAMP	4
065	013690-30097	BEARING	1
066	013690-30098	PLUG	1
067	013690-30099	O-RING	1

<u>Ref</u>	<u>Minnich Partnumber</u>	<u>Description</u>	
071	013690-30100	SCREW	2
072	013690-30101	NUT	2
073	013690-30102	FOOT	2
074	013690-30103	NUT	2
075	013690-30104	FLANGE	1
076	013690-30105	RING NUT	1
077	013690-30106	AIR CHAMBER	1
078	013690-30107	ELBOW	1
079	013690-30108	RING NUT	1
080	013690-30109	O-RING	1
081	013690-30110	SAFETY VALVE	1
082	013690-30111	SCREW	1
083	013690-30112	WASHER	3
084	013690-30113	SPACER	3
085	013690-30114	WASHER	1
086	013690-30115	COUPLER	1
087	013690-30116	O-RING	1
088	013690-30117	SCREW	3
089	013690-30118	DIAPHRAGM	1
090	013690-30119	PLUG	1
091	013690-30120	O-RING	1

Handwriting practice lines with the word MINNICH centered across the middle.

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
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ORDER VIA PHONE!



Contact us at:
419-903-0010

SCAN FOR HELPFUL VIDEOS!

WE ACCEPT THE FOLLOWING CARDS!



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