GMS INDUSTRIAL SUPPLY
AMERICAN PATRIOT
FAMILY OF COMPANIES

Deployable Hydraulic Conex AP101257

Manual

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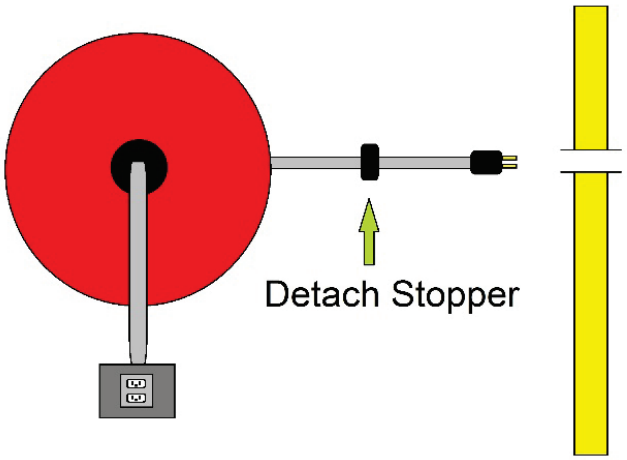
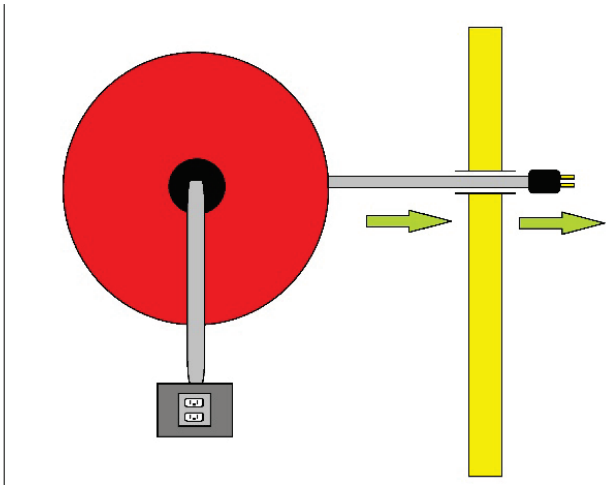
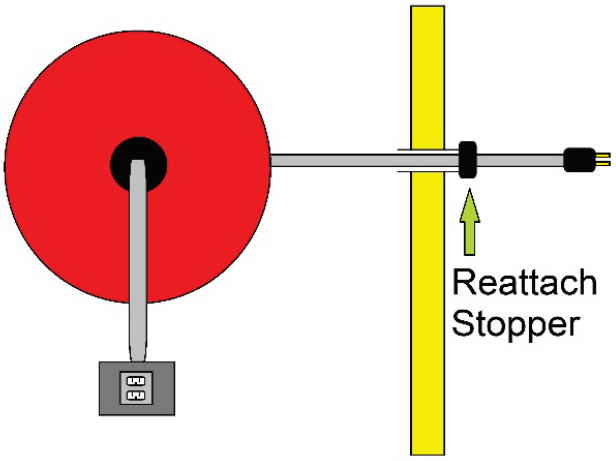




Push Cord Through Wall Hole



The stopper will close the hole
when the cord is fully retracted

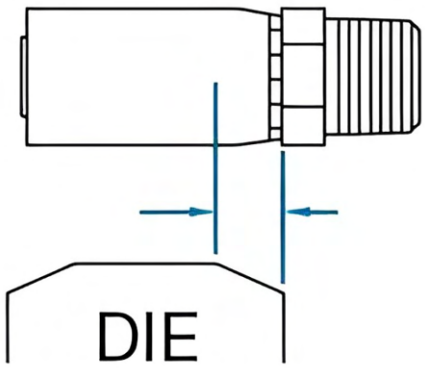
Crimper 100638A

TECHNICAL DATA REPORT

The table below is the recommended crimp diameters and settings for designated fittings to hose combinations using American Patriot 100638A crimper. All machines are calibrated differently and so the settings are for reference only. Verify the crimp diameter by measuring the middle of the crimp at half the height of the die fingers using calipers. All units of measure are in inches. All crimp diameters are nominal and carry a tolerance of ±0.005 inches.

The tables below refer to fittings and hose distributed by American Patriot. American Patriot is always striving to optimize the performance of the products offered to customers please check periodically for changes to technical data.

A full body crimp is defined as 1/8 of an inch past the major diameter of the shell to the top of the crimp fingers.



Hose Part #	Hose Diameter	Hose Type	Fitting	Die Position	Die	Crimp Diameter	Gauge Setting	Skive Length
100883	¼	Tough	STND	To Knurl	.520	.600	88	0
			W	Full	.520	.660	77	0
			K2	Full	.520	.660	77	0
100884	3/8	Tough	STND	To Knurl	.670	.750	90	0
			W	Full	.670	.800	80	0
			K2	Full	.670	.760	88	0
100885	½	Tough	STND	To Knurl	.830	.860	98	0
			W	Full	.830	.950	81	0
			K2	Full	.830	.925	87	0
48966-13	5/8	Tough	STND	To Knurl	.830	.985	75	0
			W	Full	1.100	1.170	91	0
100886	¾	Tough	STND	To Knurl	1.100	1.151	94	0
			W	Full	1.100	1.240	74	0
100887	1	Tough	STND	To Knurl	1.320	1.455	78	0
			W	Full	1.500	1.545	95	0
100888	1-1/4	2SN	STND	To Knurl	1.730	1.875	72	0
			W	Full	1.920	2.060	74	0
100889	½	Spiral	W	Full	.830	1.010	70	0
100890	¾	Bend	W	Full	1.320	1.330	100	0
			WHP	Full	1.320	1.440	82	0
100891	1	Bend	W	Full	1.500	1.670	73	0
100892	1-1/4	Bend	W	Full	1.920	1.985	92	0

SAFETY PRECAUTIONS

Read and identify all component parts before using crimper.

Crimper can produce 60 tons of force. Keep both hands away from pinch points.

Consult hose and fitting manufacturers specifications for correct machine settings and crimp measurements.

Always wear eye protection.

SPECIFICATIONS

Maximum Cylinder Force.....60 Ton

Maximum Hose Diameter (2 Wire).....1-1/4 Inch

Maximum Hose Diameter (4 Wire).....1-1/4 Inch

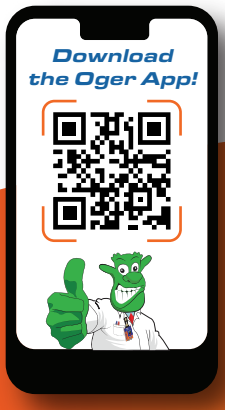
Maximum Hose Diameter (6 Wire).....1 Inch

Crimper Depth.....17 Inch

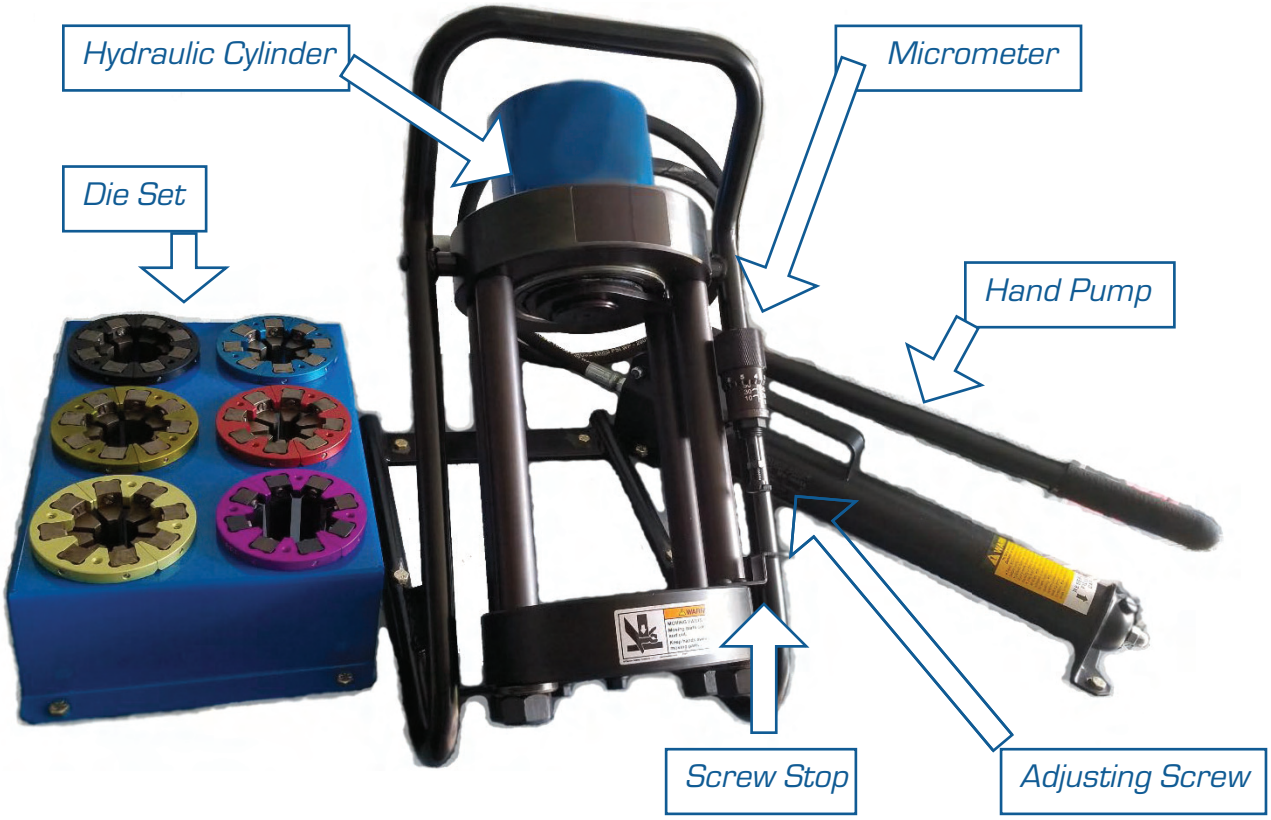
Crimper Width.....10-1/4 Inch

Crimper Height.....21 Inch

Weight.....74 Pounds



COMPONENT IDENTIFICATION



QUICK START GUIDE AND CALIBRATION CHECK

FOLLOW THESE STEPS BEFORE USING THE CRIMPER FOR THE FIRST TIME:

- *Set the Standard Micrometer at 100 as shown in photo 1.*
- *Slide the Pusher onto the stud on the hydraulic ram, lubricate the cone insert, lubricate a die set and insert it in the cone insert with the die fingers pointing down, lubricate the bent tube pusher plate and place it on the die set as shown in photo 2. Note that a hose and fitting are not required for an initial calibration check. NOTE: failure to lubricate all contact surfaces can cause the Cone Insert and/or the dies to seize in the cone base.*
- *Connect the crimper's hose quick disconnectting to the hand pump. NOTE: If using a hand pump start building pressure, after it has built pressure pump 9 full strokes and stop.*
- *By hand push up the adjustment screw until the white line is visible as shown in photo 3.*
- *Adjust the stop screw to meet the bottom of the adjustment screw as shown in photo 4. NOTE: Adjust either/or/both "Adjustment screw" and "Stop screw" as needed.*
- *Use a 7/16-inch wrench to tighten the lock nut to keep the stop screw in place as shown in photo 5. NOTE: At this point the adjustment screw and stop screw should meet and the white line should be visible as shown in photo 6.*
- *Set the standard micrometer to your required crimping specifications.*
- *Make a test crimp.*
- *Check the finished crimp diameter to be certain that is within the crimp specifications.*


Photo 1

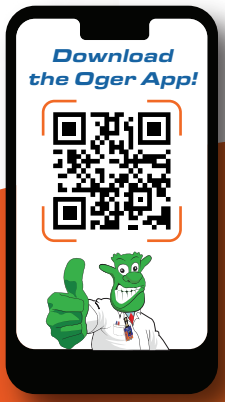

Photo 2


Photo 3


Photo 4


Photo 5


Photo 6



CALIBRATION

If the test crimp diameter is not within your required crimp diameter follow the steps below to change calibration.

Hold the micrometer barrel with a 5/16-inch wrench and rotate the adjustment screw either inwards, or outwards with a 5/32-inch hex key wrench.

If the test crimp diameter is too big (under-crimping), rotate the adjustment screw inwards.

NOTE: 1/4 turn = approximately 0.008" change in crimp diameter.

If the test crimp diameter is too small (over-crimping), rotate the adjustment screw outwards.

NOTE: 1/4 turn = approximately 0.008" change in crimp diameter.

Perform another test crimp and measure the test crimp diameter to be certain that it is within your required crimp diameter.

NOTE: If it is necessary, continue to adjust the adjustment screwuntil the test crimp is within your required crimp diameter.

CRIMPING INSTRUCTIONS

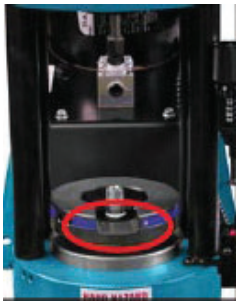
Lubrication of the cone must be done prior using for the first time.

Lubricate die fingers, all contact surfaces and die cones.

Correct alignment of the hose and fitting in the die set is shown. Reference crimp specifications for fitting locations.

Place the die set and hose and fitting loosely in the cone insert.

Use care to be certain that the die halves do not overlap.

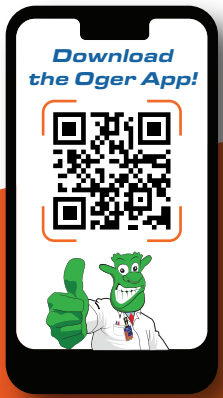


Place the Bent Tube Pusher Plate on top of the die set.
Note: Notch must face forward as shown.

Adjust Micrometer for the hose and fitting specification.

Slide the Pusher onto the stud on the hydraulic ram and press and hold the start switch until the motor shuts off.

Check the finished crimp diameter to be certain that it is within the crimp specification limits.



TROUBLESHOOTING

PROBLEM: CRIMPER WILL NOT RUN AT ALL

- *Check the stop switch mounted to the switch bracket under the Micro-Crimp Adjuster. This is a normally closed switch and if it does not close the crimper will not operate.*

PROBLEM: CRIMP DIAMETER TOO LARGE

- *Incorrect setting of the Micro-Crimp Adjuster. Check crimp specifications.*
  - *(NOTE: All published machine settings are approximate. To correct for slight variances, the gauge settings may be adjusted for the specific hose, fitting, and size combination).*
- *Incorrect die being used. Each die has a range of approximately 3mm (.120 in) above the closed diameter of the die. The closed diameter is the die size stamped on the die ring.*
- *Check crimper calibration and recalibrate if required.*
- *Inadequate pump pressure. Check oil level in the pump. It should be 1-1/2 to 2 inches below the fill plug.*
- *Replenish with ISO Viscosity Grade 46 hydraulic oil.*
- *Inadequate lubrication of the dies and compression ring causing the pump to work harder than normal to reach the required diameter. Use only the grease shipped with the machine or equivalent.*

PROBLEM: CRIMP DIAMETER TOO SMALL

- *Incorrect setting of the Micro-Crimp Adjuster. Check crimp specifications.*
  - *(NOTE: All published machine settings are approximate. To correct for slight variances, the gauge settings may be adjusted for the specific hose, fitting and size combination).*
- *Incorrect die being used (See die range under Crimp Diameter Too Large).*
- *Check crimp diameter and recalibrate if necessary.*

PROBLEM: DIES STICKING IN COMPRESSION CONE

- *Inadequate lubrication of the compression cone and die surfaces.*
- *Use only the grease shipped with the machine or equivalent.*

Hand Pump 100638A

PLEASE READ AND FOLLOW THIS INSTRUCTION BEFORE YOU USE AMERICAN PATRIOT HAND PUMPS.

SAFETY

To avoid personal injury or property damage, please follow all safety precautions. AMERICAN PATRIOT cannot be responsible for injury or damage resulting from unsafe and incorrect products use or system operation, or lack of maintenance.

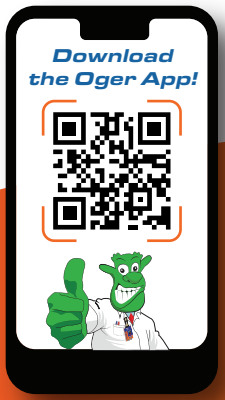
- *The hydraulic equipment operator must be a qualified operator must have correct training and work experience with hydraulic equipment. Lack of knowledge in any of these areas can lead to equipment damage or personal injury.*
- *Carefully inspect cylinder(s), coupler(s), hose(s) and hand pump before using hydraulic equipment. Any damage can cause personal injury when you use the hand pumps.*
- *To avoid personal injury, please do not modify or weld hydraulic equipment*
- *Please never lift a more than the rated capacity of the cylinder(s), overloading causes equipment failure and serious personal injury.*
- *The cylinder is a load lifting device, not a load holding device. After the load has been raised or lowered, it must always be held mechanically, never work under a load supported by a hydraulic unit.*
- *Keep hands and feet away from cylinder(s) and workplace during operation to avoid personal injury.*
- *Do not put unbalanced or off-center loads on cylinders. The incorrect load can result in equipment failure and serious personal injury.*

WARNING

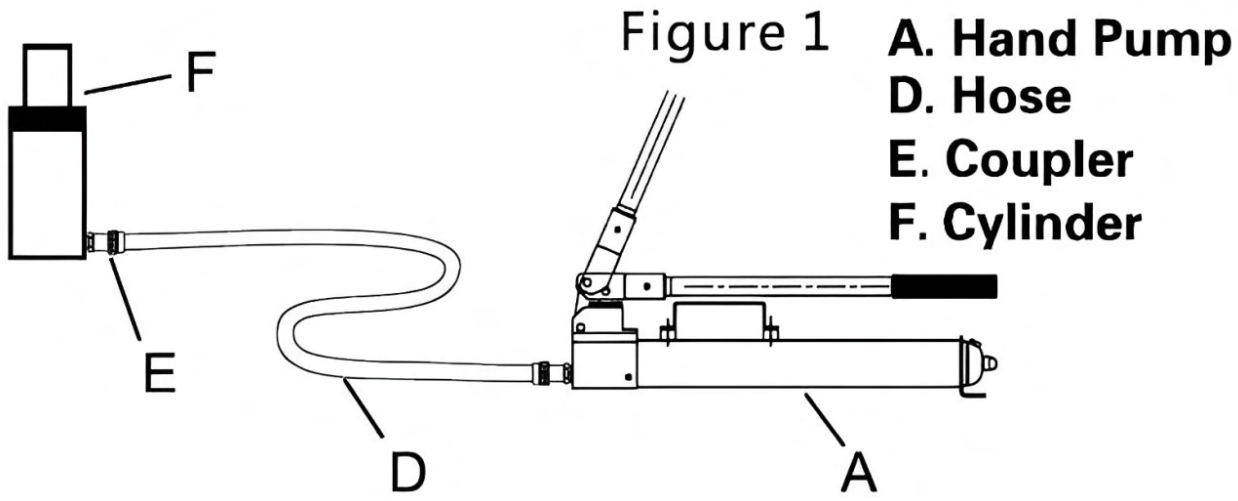
- *Wear safety glasses, helmet and other necessary personal protective equipment when operating hydraulic equipment.*
- *Cylinder(s) used to lift load must have solid footing for correct support. Please select steel or wood blocks that are capable of supporting the load.*
- *Install Pressure gauges in the system to monitor the operating pressure. The gauge must have the same pressure rating as the pump and cylinder(s). The wrong gauges may result in Personal injury.*
- *The system operating pressure must lower than the lowest rated pressure in the system.*
- *Carefully inspect the cylinder(s) and couplers before use cylinder(s). Never connect the cylinder(s) with damaged couplers or damaged port threads. The damaged coupler(s) or damaged port threads may cause equipment failure and possible personal injury.*
- *Install coupler(s) in a clean environment. Prevent dirt or other debris from entering into cylinder(s) body or tube. Dirt or other debris will damage the cylinder(s) and result in equipment failure and possible personal injury.*
- *Cylinder must be placed on a stable base, use AMERICAN PATRIOT hydraulic or motorpool table.*
- *Before removing or tightening hose(s) or coupler(s), release hydraulic pressure in system.*
- *Never handle pressurized hoses; escaping oil under high pressure can penetrate the skin, causing serious injury. Seek medical aid immediately if injured.*
- *American Patriot has no obligations under any warranty with respect to products that have been repaired by unauthorized personnel, modified, or damaged through misuse, abuse, accident, neglect, or mishandling.*

IMPORTANT

- *Keep the hand pump clean all the time.*
- *When the hand pump is not in use, release the valve, remove hose and use rubber cap to recover the port.*
- *Do not drop objects on hose.*
- *Do not lift and carry hydraulic equipment by the hoses or couplers, use the handle or other means.*
- *Use hydraulic equipment in normal operating temperatures. Do not use equipment in temperatures of 65 °C(150°F) or higher. Overheating will soften seals and weakens hose materials, resulting in oil leaking or other equipment failure.*



SETUP



Before using hand pumps, visually check all units, to make sure there is no damage to pump or other hydraulic equipment. Ensure that no oil is leaking or missing parts.

To connect the hand pump, please refer to Figure 1 and follow the steps below.

Step 1: Clean all hose ends, couplers and other areas around oil ports of pump and cylinder. Remove thread protectors from the hydraulic oil outlets.
Step 2: Thread hose into pump.
Step 3: Connect the hose(s) to cylinder or tool.

IMPORTANT - To fully seal the connections, use of Teflon tape or sealing compound is necessary. Please leave first complete thread free to prevent tape particles from entering into the hydraulic system. Any tape particles in the hydraulic system may jam the oil flow.

BLEEDING AIR FROM THE CYLINDER

Air may accumulate within a hand pump during shipment or after refilling the hydraulic oil. This trapped air can cause the hand pump feel weak. Use the steps below to bleed the air from cylinder.

Position the cylinder so that the piston rod is extended down and the cylinder lower than the pump. Fully extend and retract the cylinder 1 or 2 times. It may be necessary to repeat the above steps several times.

OPERATION

Some hand pumps have air vent screw. Please loosen it before use hand pump. To avoid the oil leak from oil reserve, please tighten the air vent screw when not in use.

- *Turn the hand pump's release valve clockwise to close the valve. Operate the pump handle up and down to produce the pressure to the cylinder, causing the piston to extend to the work position.*
- *Monitor the pressure gauge while completing the application.*
- *Slowly turn the hand pump's release valve counterclockwise to release the pressure; the release speed is controlled by how fast the valve is opened.*

WARNING

- *Hand tighten the valve only, applying too much force to the valve may damage the valve stem*
- *Always release the pressure slowly*
- *Do not use an extension handle, an extension handle will damage the pump.*

MAINTENANCE

Adding/changing hydraulic oil

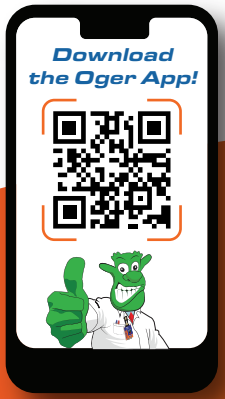
When oil level in hand pump is low, please add hydraulic oil. With cylinder full retract, set hand pump in its normal level position, remover oil filler screw. Fill until oil is within the oil filler screw hole opening, reinstall oil filler screw. For best performance and increased system life, replace the complete hydraulic oil at least once per year.

Lubrication

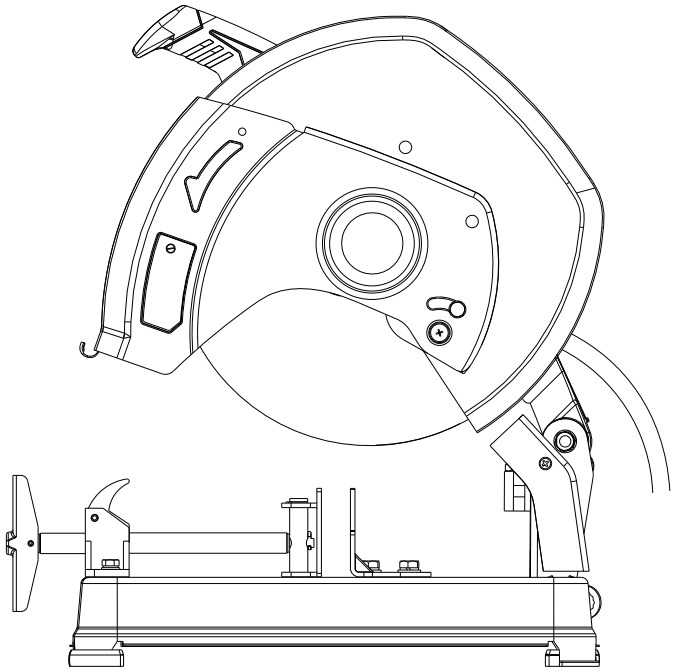
A coating of light lubricating oil to pivot points, axles and hinges will help to prevent rust and assure that pump assemblies move freely.

Storage

Always keep hand pump and other attachments clean, use dust cap to protect couplers. When not in use, cylinder and hand pump piston must be fully retracted and stored in the clean place.



Metal Cutting Saw
14” Chop Saw
900095



HEAVY-DUTY 14" ABRASIVE CUT-OFF MACHINE
EXTRA ROBUSTE TRONÇONNEUSE 355 mm (14") À DISQUE ABRASIF
SIERRA TRONZADORA ABRASIVA DE 355 mm (14"), HEAVY DUTY

TO REDUCE THE RISK OF INJURY, USER MUST READ AND UNDERSTAND OPERATOR'S MANUAL.

AFIN DE RÉDUIRE LE RISQUE DE BLESSURES, L'UTILISATEUR DOIT LIRE ET BIEN COMPRENDRE LE MANUEL DE L'UTILISATEUR.

PARA REDUCIR EL RIESGO DE LESIONES, EL USUARIO DEBE LEER Y ENTENDER EL MANUAL DEL OPERADOR.

GENERAL POWER TOOL SAFETY WARNINGS

⚠ WARNING READ ALL SAFETY WARNINGS AND ALL INSTRUCTIONS.
Failure to follow the warnings and instructions may result in electric shock, fire and/or serious injury. *Save all warnings and instructions for future reference.*

WORK AREA SAFETY

- **Keep work area clean and well lit.** Cluttered, dark work areas invite accidents.
- **Avoid dangerous environments.** Do not use your power tool in rain, damp or wet locations or in the presence of explosive atmospheres (gaseous fumes, dust or flammable materials). Remove materials or debris that may be ignited by sparks.
- **Keep bystanders away.** Children and bystanders should be kept at a safe distance from the work area to avoid distracting the operator and contacting the tool or extension cord.
- **Protect others in the work area** from debris such as chips and sparks. Provide barriers or shields as needed.
- **Make workshop child proof** with padlocks, master switches, or by removing starter keys.

ELECTRICAL SAFETY

- **Grounded tools must be plugged into an outlet properly installed and grounded in accordance with all codes and ordinances.** Never remove the grounding prong or modify the plug in any way. Do not use any adaptor plugs. Check with a qualified electrician if you are in doubt as to whether the outlet is properly grounded. If the tool should electrically malfunction or break down, grounding provides a low resistance path to carry electricity away from the user.
- **Double insulated tools are equipped with a polarized plug (one blade is wider than the other). This plug will fit in a polarized outlet only one way. If the plug does not fit fully in the outlet, reverse the plug. If it still does not fit, contact a qualified electrician to install a polarized outlet. Do not change the plug in any way.** Double insulation ⧈ eliminates the need for the three wire grounded power cord and grounded power supply system.
- **Guard against electric shock.** Prevent body contact with grounded surfaces such as pipes, radiators, ranges and refrigerators. When making blind or plunge cuts, always check the work area for hidden wires or pipes. Hold your tool by insulated nonmetal grasping surfaces. Use a Ground Fault Circuit Interrupter (GFCI) to reduce shock hazards.
- **Do not expose to rain or use in damp locations.**
- **Do not abuse the cord. Never use the cord to carry the tools or pull the plug from an outlet. Keep cord away form heat, oil, sharp edges or moving parts. Replace damaged cords immediately.** Damaged cords increase the risk of electric shock.

PERSONAL SAFETY

- **Know your power tool.** Read this manual carefully to learn your power tool's applications and limitations as well as potential hazards associated with this type of tool.
- **Stay alert, watch what you are doing, and use common sense when operating a power tool. Do not use 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.
- **Dress properly.** Do not wear loose clothing or jewelry. Wear a protective hair covering to contain long hair. These may be caught in moving parts. When working outdoors, wear rubber gloves and insulated non-skid footwear. Keep hands and gloves away from moving parts.
- **Reduce the risk of unintentional starting.** Be sure your tool is turned off before plugging it in. Do not use a tool if the power switch does not turn the tool on and off. Do not carry a plugged-in tool with your finger on the switch.
- **Remove all adjusting keys and wrenches.** Make a habit of checking that adjusting keys, wrenches, etc. are removed from the tool before turning it on.
- **Do not overreach. Maintain control.** Keep proper footing and balance at all times. Maintain a firm grip. Use extra care when using tool on ladders, roofs, scaffolds, etc.
- **Use safety equipment.** Everyone in the work area should **wear safety goggles or glasses with side shields** complying with current safety standards. Everyday eyeglasses only have impact resistant lenses. They are not safety glasses. Wear hearing protection during extended use and a dust mask for dusty operations. Hard hats, face shields, safety shoes, etc. should be used when specified or necessary. Keep a fire extinguisher nearby.
- **Keep guards in place** and in working order.
- **Never stand on tool.** Serious injury could occur if the tool is tipped or if the cutting tool is unintentionally contacted.
- **Keep hands away from all cutting edges and moving parts.**

POWER TOOL USE AND CARE

- **Secure work.** Use a clamp, vise or other practical means to hold your work securely, freeing both hands to control the tool.
- **Do not force tool.** Your tool will perform best at the rate for which it was designed. Excessive force only causes operator fatigue, increased wear and reduced control.
- **Use the right tool.** Do not use a tool or attachment to do a job for which it is not recommended. For example, do not use a circular saw to cut tree limbs or logs. Do not alter a tool.
- **Unplug tool** when it is not in use, before changing accessories or performing recommended maintenance.
- **Store idle tools.** When not in use, store your tool in a dry, secured place. Keep out of reach of children.
- **Never leave the tool running unattended.** Turn power off. Do not leave the tool until it comes to a complete stop.

•**Check for damaged parts.** Inspect guards and other parts before use. Check for misalignment, binding of moving parts, improper mounting, broken parts and any other conditions that may affect operation. If abnormal noise or vibration occurs, turn the tool off immediately and have the problem corrected before further use. Do not use a damaged tool. Tag damaged tools "DO NOT USE" until repaired. A guard or other damaged part should be properly repaired or replaced by a service facility. For all repairs, insist on only identical replacement parts.

•**Use proper accessories.** Consult this manual for recommended accessories. Using improper accessories may be hazardous. Be sure accessories are properly installed and maintained. Do not defeat a guard or other safety device when installing an accessory or attachment.

•**Maintain tools carefully.** Keep handles dry, clean and free from oil and grease. Keep cutting edges sharp and clean. Follow instructions for lubricating and changing accessories. Periodically inspect tool cords and extension cords for damage. Have damaged parts repaired or replaced by a service facility.

•**Maintain labels & nameplates.** These carry important information. If unreadable or missing, contact a service facility for a free replacement.

SERVICE

•**Tool service must be performed only by qualified repair personnel.** Service or maintenance performed by unqualified personnel may result in a risk of injury.

•**When servicing a tool, use only identical replacement parts. follow instructions in the maintenance section of this manual.** Use of unauthorized parts or failure to follow maintenance instructions may create a risk of shock or injury.

SPECIFIC SAFETY RULES

⚠ ***WARNING*** **To reduce the risk of injury, avoid inhalation of dust generated by grinding and cutting operations. Exposure to dust may cause respiratory ailments. Use approved NIOSH or OSHA respirators, safety glasses or face shields, gloves and protective clothing. Provide adequate ventilation to eliminate dust, or to maintain dust level below the Threshold Limit Value for nuisance dust as classified by OSHA.**

•**WARNING:** Some dust created by power sanding, sawing, grinding, drilling, and other construction activities contains chemicals known to cause cancer, birth defects or other reproductive harm. Some examples of these chemicals are:

•lead from lead-based paint

•crystalline silica from bricks and cement and other masonry products, and

•arsenic and chromium from chemically-treated lumber.

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

Wheel Instructions

•Use only the edge (not the sides) of the wheel for cutting. Do not allow the wheel to twist or bind.

•Keep hands and body away from the rotating wheel. Do not wear loose clothing when using this tool.

•Store cut-off wheels with care. Do not drop them or subject them to excessive heat, cold or humidity.

•Make sure that all wheel flanges and other mounting hardware are in good condition and are always used properly. Defective or missing parts may cause damage to the wheel. Always use mounting flanges supplied with the tool.

•Cutting with a damaged wheel is very hazardous. After installing a new wheel, leave the tool unplugged and rotate the wheel by hand to see if it is uneven, warped, or cracked. If so, discard the wheel and replace it with a new one. Do not use a wheel that has been dropped; impact may result in breakage.

•Before starting a cut, step back from the tool and make a trial run to confirm that the wheel is in good condition. Trial run periods are:
When replacing a cut-off wheel — over 3 minutes.
When starting routine work — over 1 minute.

•Never try to remove or clamp the workpiece to the tool while the cut-off wheel is rotating.

•Before installing a cut-off wheel, always inspect it for cracks. Visually check resinoid and rubber-bonded wheels for cracks. Replace cracked wheel immediately.

•Always check maximum operating speed established for wheel against machine speed. Do not exceed the maximum operating speed that is marked on the wheel.

•Do not force a wheel onto the machine or alter the size of the arbor hole. Don't use a wheel that fits the arbor too loosely. If the wheel doesn't fit the machine, get one that does.

•Do not attempt to install saw blades on this tool because it is not designed for this type of blade.

•Do not overtighten wheel nut.

Machine Instructions

•Start cutting only after the motor has reached full speed.

•Release switch immediately if the cut-off wheel stops rotating or if the motor sounds like it is straining.

•Keep flammable and fragile objects away from this tool. Do not allow cut-off sparks to contact the operator's hands, face or feet.

•Place the tool securely on a flat, level surface.

•Always use the tool with the proper voltage specified on the tool's nameplate.

•Never touch a short cut-off piece until it cools.

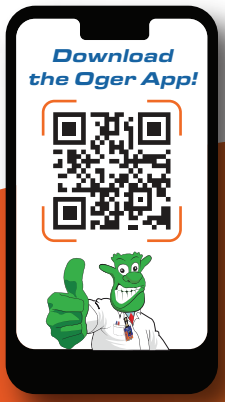
•Never attempt to cut material larger than the rated capacity listed in "Specifications".

•Never stand in line with the wheel while cutting. Always stand to the side.

•Always keep guards in place.

•Always start the cut gently. Do not bump or bang a wheel to start a cut.

•Never make any freehand cuts. Always place the workpiece between the vise and fence when making cuts.



GROUNDING

WARNING Improperly connecting the grounding wire can result in the risk of electric shock. Check with a qualified electrician if you are in doubt as to whether the outlet is properly grounded. Do not modify the plug provided with the tool. Never remove the grounding prong from the plug. Do not use the tool if the cord or plug is damaged. If damaged, have it repaired by a *MILWAUKEE* service facility before use. If the plug will not fit the outlet, have a proper outlet installed by a qualified electrician.

Grounded Tools: Tools with Three Prong Plugs
Tools marked "Grounding Required" have a three wire cord and three prong grounding plug. The plug must be connected to a properly grounded outlet (See Figure A). If the tool should electrically malfunction or break down, grounding provides a low resistance path to carry electricity away from the user, reducing the risk of electric shock.
The grounding prong in the plug is connected through the green wire inside the cord to the grounding system in the tool. The green wire in the cord must be the only wire connected to the tool's grounding system and must never be attached to an electrically "live" terminal.
Your tool must be plugged into an appropriate outlet, properly installed and grounded in accordance with all codes and ordinances. The plug and outlet should look like those in Figure A.

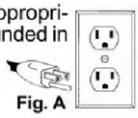


Fig. A

Double Insulated Tools: Tools with Two Prong Plugs
Tools marked "Double Insulated" do not require grounding. They have a special double insulation system which satisfies OSHA requirements and complies with the applicable standards of Underwriters Laboratories, Inc., the Canadian Standard Association and the National Electrical Code. Double Insulated tools may be used in either of the 120 volt outlets shown in Figures B and C.

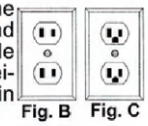


Fig. B Fig. C

EXTENSION CORDS

Grounded tools require a three wire extension cord. Double insulated tools can use either a two or three wire extension cord. As the distance from the supply outlet increases, you must use a heavier gauge extension cord. Using extension cords with inadequately sized wire causes a serious drop in voltage, resulting in loss of power and possible tool damage. Refer to the table shown to determine the required minimum wire size.
The smaller the gauge number of the wire, the greater the capacity of the cord. For example, a 14 gauge cord can carry a higher current than a 16 gauge cord. When using more than one extension cord to make up the total length, be sure each cord contains at least the minimum wire size required. If you are using one extension cord for more than one tool, add the nameplate amperes and use the sum to determine the required minimum wire size.

Guidelines for Using Extension Cords

- If you are using an extension cord outdoors, be sure it is marked with the suffix "W-A" ("W" in Canada) to indicate that it is acceptable for outdoor use.
- Be sure your extension cord is properly wired and in good electrical condition. Always replace a damaged extension cord or have it repaired by a qualified person before using it.
- Protect your extension cords from sharp objects, excessive heat and damp or wet areas.

Recommended Minimum Wire Gauge for Extension Cords*

Nameplate Amperes	Extension Cord Length				
	25'	50'	75'	100'	150'
0 - 2.0	18	18	18	18	16
2.1 - 3.4	18	18	18	16	14
3.5 - 5.0	18	18	16	14	12
5.1 - 7.0	18	16	14	12	12
7.1 - 12.0	16	14	12	10	
12.1 - 16.0	14	12	10		
16.1 - 20.0	12	10			

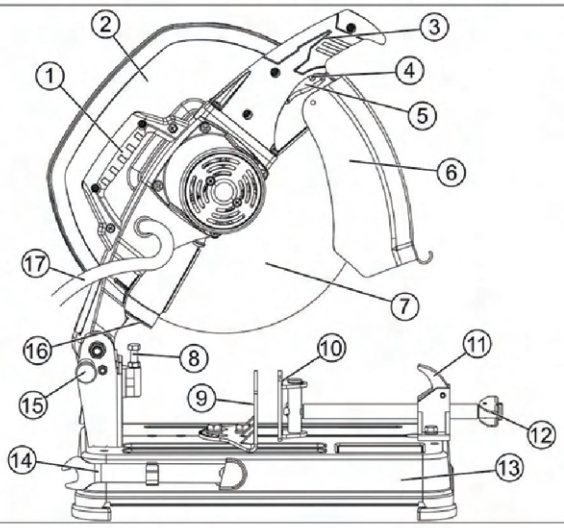
* Based on limiting the line voltage drop to five volts at 150% of the rated amperes.

READ AND SAVE ALL INSTRUCTIONS FOR FUTURE USE.

SPECIFICATIONS

Tool								Max. Capacities at 90°		
Cat. No.	Volts AC	A	No Load RPM	Wheel Size	Min. Wheel RPM Rating	Wheel Thickness	Arbor Hole Size	O.D. Pipe	Rectangular Stock	Sq. Tubing
6177-20	120	15	3900	14"	4300	3/32"	1"	5"	2-15/16" x 9"	4-5/8" x 4-5/8"

FUNCTIONAL DESCRIPTION



1. Carrying handle
2. Upper guard
3. Handle
4. Trigger lock hole
5. Trigger
6. Lower guard
7. Abrasive cut-off wheel
8. Depth adjustment bolt
9. Adjustable fence
10. Vise clamp
11. Lock lever
12. Vise handle
13. Base
14. Wrench
15. Lock down pin
16. Spindle lock button
17. Cord

SYMBOLOGY

	Double Insulated
V≂	Volts Alternating/Direct Current
A	Amps
n_0 xxxx min.$^{-1}$	No Load Revolutions per Minute (RPM)
c UL us	Underwriters Laboratories, Inc. United States and Canada
	Do not use toothed blades.
	Do not expose to rain or use in damp locations.

ASSEMBLY

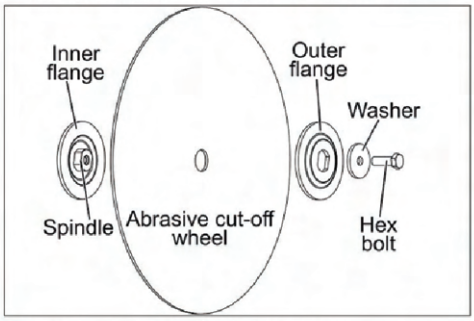
WARNING To reduce the risk of injury, always unplug tool before attaching or removing accessories or making adjustments. Use only specifically recommended accessories. Others may be hazardous.

Raising and Lowering the Head
The head must be locked down for transporting and storing the tool.
To **unlock**, press head down and pull out the lock down pin.
To **lock**, press head down and push in the lock down pin.

WARNING To reduce the risk of injury, use only the proper wheel for this machine. DO NOT USE ANY TYPE OF SAW BLADE.

Removing and Installing Cut-Off Wheels Use onl 14" Abrasive Cut-Off Wheels, 3/32" thick with this tool. Before operating the tool, make sure the wheel is in good condition as described in the "SpecificSafetyRules".
To change wheels:
1. Unplug the tool.
2. Raise the head.

3. Push up the lower guard to expose the hex bolt. Press in the spindle lock button and use the wrench provided to loosen the hex bolt (counterclockwise).
4. Remove the hex bolt, washer, outer flange and cut-off wheel. Do not remove the inner flange.
5. Check the inner and outer flanges to be sure they are in good condition. Remove any nicks, burrs, and debris from the mounting hardware, which could cause uneven cutting pressure and result in wheel damage.
6. Install the cut-off wheel, outer flange, washer, and hex bolt onto the spindle, as shown.

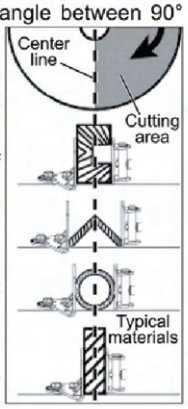


Raising and Lowering the Head
The head must be locked down for transporting and storing the tool.
To **unlock**, press head down and pull out the lock down pin.
To **lock**, press head down and push in the lock down pin.

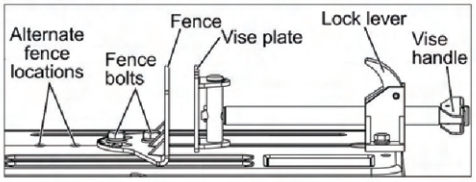
Removing and Installing Cut-Off Wheels Use only 14" Abrasive Cut-Off Wheels, 3/32" thick with this tool. Before operating the tool, make sure the wheel is in good condition as described in the "SpecificSafetyRules".
To change wheels:
1. Unplug the tool.
2. Raise the head.
3. Push up the lower guard to expose the hex bolt. Press in the spindle lock button and use the wrench provided to loosen the hex bolt (counterclockwise).
4. Remove the hex bolt, washer, outer flange and cut-off wheel. Do not remove the inner flange.
5. Check the inner and outer flanges to be sure they are in good condition. Remove any nicks, burrs, and debris from the mounting hardware, which could cause uneven cutting pressure and result in wheel damage.
6. Install the cut-off wheel, outer flange, washer, and hex bolt onto the spindle, as shown.
7. Press in the spindle lock button while using the wrench provided to tighten the hex bolt (clockwise).
8. Release the lower guard.
9. Before starting a cut, step back from the tool and make a trial run to confirm that the wheel is in good condition. Before using a new cut-off wheel, run the tool for at least 3 minutes. Before starting work, run the tool for at least 1 minute.

Adjusting the Depth of Cut
The depth adjustment bolt can be adjusted to change the depth of cut. When adjusted properly, the depth adjustment bolt prevents the cut-off wheel from contacting the surface under the base during cutting. Cut-off wheels wear down as they are used and the depth of cut may need to be increased.
To adjust the depth of cut:
1. Unplug the tool.
2. Use the wrench provided to loosen the hex nut.
3. Adjust the depth adjustment bolt to the desired height.
4. Tighten the hex nut.

Supporting the Workpiece and Adjusting the Vise and Fence System
The adjustable vise and fence system holds the workpiece in the desired position. The vise plate and fence can be moved backward or forward and can be adjusted to any angle between 90° and 45°.
When adjusting the system, the vise and fence should be positioned so the centerline of the wheel hub is in line with or behind the centerline of the workpiece, toward the rear of the tool. The workpiece should be resting flush with the base of the cut-off machine.



To **adjust the fence:**
1. Use the wrench provided to loosen (counterclockwise) the two fence bolts.
2. Adjust the position and angle of the fence as desired.
3. Securely tighten (clockwise) the two fence bolts.



To **adjust the vise**:
1. Pull the lock lever back.
2. Pull the vise handle out.
3. Place the workpiece flat on the base and against the fence.
4. Push down the lock lever.
5. Slide in the vise handle to press the vise plate againce the workpiece.
6. Turn the vise handle clockwise to tighten the vise plate against the workpiece.

OPERATION

WARNING To reduce the risk of injury, always unplug tool before attaching or removing accessories or making adjustments. Use only specifically recommended accessories. Others may be hazardous.

WARNING To reduce the risk of injury, wear safety goggles or glasses with side shields.

Selecting a Workpiece

The Abrasive Cut-Off Machine is designed to cut steel and concrete. It is not recom-mended for cutting wood. Do not attempt to install a saw blade on the tool.

Starting and Stopping the Tool

1. Plug in the tool.
2. To **start** the tool, pull the trigger.
3. To **stop** the tool, release the trigger.

Making a Cut

1. Unplug the tool.
2. Select a cutting angle and position the fence and vise to support the workpiece (see "Supporting the Workpiece and Adjusting the Vise and Fence System").
3. Plug in the tool.
4. Before starting a cut, step back from the tool and make a trial run to confirm that the wheel is in good condition. Before using a new cut-off wheel, run the tool for at least 3 minutes. Before starting work, run the tool for at least 1 minute.
5. Allow the motor to reach full speed. Slowly lower the wheel into the workpiece.
   NOTE: Always start the cut gently; do not bang or bump a wheel when starting the cut. For the safest and most efficient cutting, make sure that the cut-off wheel contacts the center of the workpiece.
6. When the cut is complete, raise the wheel completely from the workpiece before releasing the trigger and allowing the motor to stop.

Trigger Hole Lock-Off

The trigger hole allows the user to insert a padlock. This prevents the tool from being started unintentionally.

ACCESSORIES

WARNING To reduce the risk of injury, always unplug the tool before attaching or removing accessories. Use only specifically recommended accessories. Others may be hazardous.

MAINTENANCE

WARNING To reduce the risk of injury, always unplug your tool before performing any maintenance. Never disassemble the tool or try to do any rewiring on the tool's electrical system. Contact a *MILWAUKEE* service facility for ALL repairs.

Maintaining Tools

Keep your tool in good repair by adopting a regular maintenance program. Before use, examine the general condition of your tool. Inspect guards, switches, tool cord set and extension cord for damage. Check for loose screws, misalignment, binding of moving parts, improper mounting, broken parts and any other condition that may affect its safe operation. If abnormal noise or vibration occurs, turn the tool off immediately and have the problem corrected before further use. Do not use a damaged tool. Tag damaged tools "DO NOT USE" until repaired (see "Repairs"). Under normal conditions, relubrication is not necessary until the motor brushes need to be replaced. After six months to one year, depending on use, return your tool to the nearest service facility for the following:

- Lubrication
- Brush inspection and replacement
- Mechanical inspection and cleaning (gears, spindles, bearings, housing, etc.)
- Electrical inspection (switch, cord, armature, etc.)
- Testing to assure proper mechanical and electrical operation

WARNING To reduce the risk of injury, electric shock and damage to the tool, never immerse your tool in liquid or allow a liquid to flow inside the tool.

Cleaning

Clean dust and debris from vents. Keep the tool handles clean, dry and free of oil or grease. Use only mild soap and a damp cloth to clean your tool since certain cleaning agents and solvents are harmful to plastics and other insulated parts. Some of these include: gasoline, turpentine, lacquer thinner, paint thinner, chlorinated cleaning solvents, ammonia and household detergents containing ammonia. Never use flammable or combustible solvents around tools.

Repairs

If your tool is damaged, return the entire tool to the nearest service center.

American Patriot proudly offers a minimum 1-year parts and service warranty on every product that we sell. We also offer multiple items in our catalog that exceed the standard 1-year warranty. This ranges anywhere from 2-5 year durations. American Patriot upholds customer satisfaction to the highest priority and backs every item sold. Even in the event that the items are out of their warranty period or not covered, American Patriot will assess the customer needs on a case-by-case basis in order to attain the most effective option for the customer. We have worked with customers in the past that have had various limitations such as inaccessible funds for repair or replacement, inability to ship items, or even just troubleshooting assistance.

At American Patriot we pride ourselves in having customers that buy from us during their entire military career. We do this by going above and beyond just meeting the needs of our customers - including our trouble-free warranty.

Rachel Gorken, Owner/President