

GASPONY® **POWERTORCH** **250**

OXY-ACETYLENE OUTFIT

SAFETY AND OPERATION MANUAL



Congratulations on purchasing the GASPONY® POWERTORCH 250 Medium Duty Outfit!

This manual is designed to help you get the most out of your GASPONY® POWERTORCH 250. **CAREFULLY REVIEW ALL SAFETY INFORMATION.** Adherence to proper safety practices protects you from potential hazards on the worksite. Installation and operation are quick and easy. Instructions for setup and use are included in this manual. Warranty and service information are also provided. Keep this manual in a secure place for future reference. Write your invoice number, purchase date and purchase location below:

Invoice Number: _____ Purchase Date: _____

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SECTION 1 – SAFETY INFORMATION

WARNING: READ BEFORE USING – AVOID INJURY TO YOURSELF AND OTHERS

WARNING: Only qualified persons should install, operate, maintain, and repair this unit.

WARNING: Keep other people, especially children, away during operation.



FIRE PREVENTION - Oxy-fuel gas apparatus uses fire or combustion as a basic tool. This process must be controlled or it can be extremely destructive.

- The work area must have a fireproof floor.
- Furniture used during the welding or cutting process must have fireproof tops.
- Protect nearby walls from sparks and hot metal with heat resistant shields or other approved material.
- A fire extinguisher must be kept in the work area. Ensure it has appropriate FM Approvals and inspect regularly.
- Ensure work area is free of combustible material. If it cannot be removed, protect with fire proof covers.
- NEVER WORK ALONE!
- Before each use, inspect the gas hose for damage. Replace immediately if damaged.
- When not in use, ensure gas supply is shut off.
- DO NOT touch welding or cutting tip to any part of your body or combustible material.
- Maintain this equipment according to manual specifications. Repair and/or replace parts immediately as needed.
- Keep all cylinders secured in a portable tote, cylinder cart or cylinder bracket system.
- Never perform welding, heating or cutting operations on a container that has held toxic, combustible or flammable liquids, or vapors.
- Never perform welding, heating or cutting operations in an area containing combustible vapors, explosives, or flammable liquids.
- Never allow oxygen to contact grease, oil or other flammable substances. These substances become highly-explosive in the presence of oxygen.



FUMES AND GASES ARE OFTEN HAZARDOUS – Breathing gases generated from the welding or cutting processes can be hazardous to your health.

- Avoid breathing fumes by keeping your head clear of fumes.
- Ensure that area is well ventilated. If necessary, force ventilation to remove welding/cutting fumes and gases.
- Wear an approved air-supplied respirator when area is poorly ventilated.
- ALWAYS read the Material Safety Data Sheets (MSDSs) and manufacturer's recommendations for consumables, coatings, degreasers, cleaners and filler metals.

- Extra precaution should be used while operating in confined areas. Ensure that breathing air is safe. Welding/cutting fumes and gases displace air and lower the oxygen level causing injury or death. Use an approved air-supplied respirator when needed.
- Avoid use in locations with potential for high concentrations of chemical vapors.
- Remove all coatings from the work pieces. Coatings can give off toxic fumes if welded or cut.



GAS BUILDUP CAN INJURE OR KILL

- Shut off supply of gas when torch outfit is not in use.
- ALWAYS ensure the work space is properly ventilated or use approved air-supplied respirator.



HOT METAL CAN CAUSE SEVERE BURNS

- DO NOT touch hot parts without approved safety gloves.
- Allow torch to cool before repair or exchange of consumables.
- Wear heavy, insulated welding gloves and clothing to prevent burns.



PERSONAL PROTECTION

- ALWAYS wear approved safety goggles or glasses with no less than a shade 4 lens to protect from infrared radiation caused by gas flames.
- Wear heavy, insulated welding gloves and clothing to prevent burns.



CYLINDERS CAN EXPLODE IF DAMAGED – Shielding gas cylinders contain gas under high pressure. Inspect the cylinder for dents, gouges or other types of damage. A damaged cylinder can explode.

- Protect gas cylinders from excessive heat, mechanical shock, physical damage, slag, open flames, sparks, welding arcs and torch flame.
- Maintain cylinders in an upright position. Secure cylinders to a stationary support. DO NOT allow cylinders to fall.
- Cylinders must be kept away from the welding/cutting process, electrical circuits and torch flame.
- NEVER drape a welding/cutting torch over a gas cylinder.
- NEVER touch a gas cylinder with a welding or cutting tip.

- NEVER weld or cut a pressurized cylinder.
- Identify your application and only use correct gas cylinders, regulators, hoses and fittings. Keep all well maintained and replace as needed.
- NEVER face valve outlet when opening.
- ALWAYS keep protective cap over the valve when cylinder is not in use.
- Cylinders require specialized equipment or cylinder tote to move and position safely.
- Read and comply with instructions from Compressed Gas Association (CGA) publication P-1.



CALIFORNIA PROPOSITION 65 WARNINGS

- Welding or cutting equipment produces fumes or gases which contain chemicals known to the State of California to cause birth defect and, in some cases, cancer. (California Health & Safety Code Section 25249.5 et seq.)

This product contains chemicals, including lead, or otherwise produces chemicals known to the State of California to cause cancer, birth defects and other reproductive harm. Wash hands after handling.

SECTION 2 – GLOSSARY OF TERMS

FLASHBACK – The return of flame through the torch and into the gas hose or beyond.

Flashback has the potential to travel through the torch, hose, regulator and into the cylinder.

Flashback can cause explosion in the system.

BACKFIRE – The return of flame through the torch producing a popping sound. The flame will either extinguish or reignite the tip.

ROSEBUD – Multi-Flame Heating Nozzle

SUSTAINED BACKFIRE – The return of flame through the torch with continued burning within the torch. This condition is characterized by popping sounds followed by a continuous hissing sound.

CRACK – A process in which one momentarily and slightly opens and closes the cylinder valve to dislodge dust or dirt.

FUEL – For the purposes of this manual, the word fuel is synonymous with Acetylene. (i.e. Fuel Gas)

SECTION 3 – CONTENTS



Parts List:

1. CGA200 Light Duty Acetylene Regulator, 30 psig
2. CGA540 Light Duty Oxygen Regulator, 100 psig
3. Medium Duty Torch Handle (Compatible with Victor Technologies)
4. Medium Duty Cutting Attachment (Compatible with Victor Technologies)
5. Multi-Flame Heating Nozzle, Acetylene size #4
6. Cutting Tip: style 3-101, size #0
7. Welding Tip: style W-1, size #2
8. Striker
9. Tip Cleaner w/ 12 tips
10. Safety Goggles
11. Twin R-Grade Gas Hose
12. Safety & Operation Manual

SECTION 4 – OXY-FUEL APPARATUS

4.1 Compressed Gas Cylinders

The Department of Transportation (DOT) approves the design and manufacture of cylinders that contain gases used for welding and cutting operations.



Cylinders are highly pressurized. Serious accidents may result from improper handling or misuse. **DO NOT** drop or knock over a cylinder. **DO NOT** expose a cylinder to excessive heat, flames or sparks. **DO NOT** bang cylinders together. For more information on proper cylinder handling, consult your local gas supplier.



Figure 1

1. Secure cylinders in a vertical position. *See Figure 1*
2. When moving cylinders, ensure the cylinder valve is closed.
3. Store empty cylinders away from full cylinders and close the cylinder valves.
4. **ALWAYS** use a pressure reducing regulator when cylinders are in use.
5. Inspect the cylinder valve for oil, grease and/or damaged parts. **DO NOT USE** if you find oil, grease or damage and obtain a replacement from your gas supplier.
6. With it facing away from you, **CRACK** the cylinder valve to dislodge dust or dirt in an open and well-ventilated area. *If a mist is sprayed by an acetylene cylinder, let it stand for 15 to 20 minutes and crack again. If this problem persists, DO NOT USE and contact your gas supplier.*

4.2 Regulators

Pressure regulators, when attached to cylinder valves, reduce high cylinder pressure to a low working pressure for welding and cutting applications. Regulators must always be used for the gas and pressure for which they are designed. NEVER adapt or alter a regulator for use with another gas.

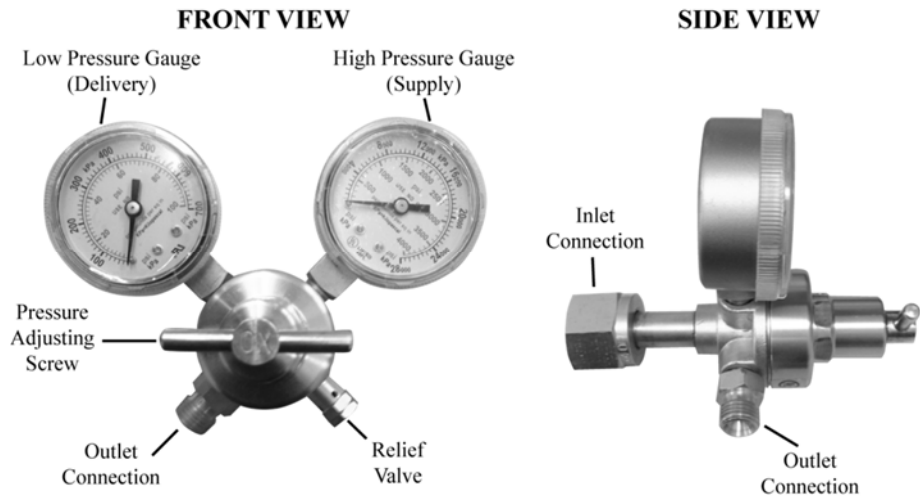


Figure 2

1. Familiarize yourself with all regulator parts. (See Figure 2)
2. Inspect the regulator. Remove dust and dirt with a clean cloth. DO NOT use the regulator if grease, oil or damage is present. DO NOT use the regulator if threads are damaged.
3. Attach the regulator to the cylinder valve and tighten securely with a wrench. (See Figure 3)
4. Turn the Pressure Adjusting Screw (See Figure 2) counterclockwise until it turns freely.
5. With the cylinder valve facing away from you, slowly open the cylinder valve until the maximum pressure shows on the high pressure gauge (See Figure 2). The Oxygen valve should be opened completely. The Acetylene valve should be opened 3/4 of a turn up to a max of 1-1/2 turns only.



Figure 3

4.3 Gas Hoses

R-Grade twin hose is included in this kit. R-Grade is suitable for use with oxygen and acetylene gas. **DO NOT USE WITH PETROLEUM BASED GASES.** The hose is color coded green for Oxygen and red for Acetylene.

1. Examine the hose for cuts, burns and damaged fittings before use. Replace hose before use if any of these defects are present.
2. Connect the hose to the regulators and tighten with a wrench.
3. For first time use*, in a well-ventilated area, adjust the Oxygen regulator to approximately 5 psig and allow oxygen to flow through the green hose. This will purge the hose of dust or preservatives present from the manufacturing process. Repeat the process on the fuel side for the red hose.
4. Connect hose to torch handle and securely tighten with a wrench. If using Check Valves or Flashback Arrestors, see 4.4 Check Valves & Flashback Arrestors.

*Always purge the hose when using new or replacement hose for the first time.

4.4 Check Valves & Flashback Arrestors

Check Valves are designed to allow gases to flow in only one direction: from cylinder to torch tip. It prevents gases from flowing backwards and mixing in the hose and/or the regulator. Flashback Arrestors prevent the flame from traveling backwards from the torch through the hose, regulator and cylinder.

Check Valves are pre-installed on the supplied torch handle. It is **highly recommended** that Check Valves or Flashback Arrestors be used at all times to reduce the possibility of **FLASHBACK, BACKFIRE** or **SUSTAINED BACKFIRE**. Both can be obtained from your local gas supplier.

When using Check Valves:

1. Connect Check Valves to base of handle and securely tighten with a wrench. Make sure that check valves match up with the Oxygen and Acetylene sides properly.
2. Connect hose to Check Valves and securely tighten.

When using Flashback Arrestors:

1. Connect Flashback Arrestors to base of handle and securely tighten with a wrench. Make sure that check valves match up with the Oxygen and Acetylene sides properly.
2. Connect hose to Flashback Arrestors and securely tighten.

Always inspect Check Valves & Flashback Arrestors prior to use. If oil, grease or damage is present, **DO NOT** use and replace.

SECTION 5 – WELDING, HEATING & CUTTING OPERATIONS

5.1 Welding & Heating Procedure

Follow the below steps before performing welding or heating operations.

1. Inspect the torch handle for dust, dirt, grease, oil or damage. Remove dust and dirt with a clean cloth. If grease, oil or damage are present, DO NOT use and replace or have a qualified repair technician fix the handle.
2. Inspect the welding tip or heating nozzle for dust, dirt, grease, oil or damage. Remove dust and dirt with a clean cloth. If grease, oil or damage is present, DO NOT use and replace. Seating Surfaces must be dent, burr and burn free.
3. Inspect all O-rings. If old, damaged or missing, replace O-rings prior to use.
4. Attach the welding hose to the torch handle and securely tighten. *When using Check Valves or Flashback Arrestors, see Section 4.4.*
5. Inspect the tip orifice. Remove any spatter with a tip cleaner.
6. Attach the welding tip or heating nozzle to the handle and tighten securely.
7. Open the oxygen valve on the torch handle. Adjust the oxygen regulator to a delivery pressure suitable for the tip type and size. *(See Welding Tip Chart or Multi-Flame Heating Nozzle Chart, Acetylene in Section 6)*
8. Close the oxygen valve on the torch handle
9. Open the fuel valve on the torch handle. Adjust the fuel gas regulator to a delivery pressure suitable for the tip type and size. *(See Welding Tip Chart or Multi-Flame Heating Nozzle Chart, Acetylene in Section 6)*
10. Close the fuel gas valve on the torch handle.
11. Check for leaks. *(See Section 5.3)*
12. Light the torch. *(See Section 5.4)*

5.2 Cutting Procedure

Follow the below steps before performing cutting operations.

1. Inspect the cutting attachment for dust, dirt, grease, oil and damage. Remove dust and dirt with a clean cloth. If grease, oil or damage are present, DO NOT use and replace or have a qualified repair technician fix the cutting attachment. Seating Surfaces must be dent, burr and burn free.
2. Inspect all O-rings. If old, damaged or missing, replace O-rings prior to use.
3. Connect the cutting attachment to the handle. Tighten securely by hand only.
4. Select an appropriate size acetylene cutting tip for the application. *(See Cutting Tip Chart Section 6)*

5. Inspect the cutting tip for dust, dirt, grease, oil and damage. Remove dust and dirt with a clean cloth. If grease, oil or damage are present, DO NOT use and replace. Seating Surfaces must be dent, burr and burn free.
6. Inspect the cutting tip orifice. Remove any spatter with a tip cleaner.
7. Insert the cutting tip into the cutting attachment and tighten securely with a wrench.
8. Open the oxygen control valve on the torch handle completely.
9. Open the oxygen control valve on the cutting attachment and depress the oxygen cutting lever. Adjust the oxygen regulator to a delivery pressure suitable for the tip type and size. *(See Cutting Tip Chart in Section 6)*
10. Release the oxygen cutting lever and close the oxygen control valve on the cutting attachment.
11. Open the fuel control valve on the handle completely.
12. Open the fuel control valve on the cutting attachment. Adjust the fuel gas regulator to a delivery pressure suitable for the tip type and size. *(See Cutting Tip Chart in Section 6)*
13. Close the fuel control valve.
14. Check for leaks. *(See Section 5.3)*
15. Light the torch. *(See Section 5.4)*

5.3 Check for Leaks

Follow the below procedures before each use of the torch.

1. Close the cylinder valves.
2. Turn the pressure adjusting screw counterclockwise by one turn. Observe the high pressure gauge. If there is a drop in pressure, a leak exists in the cylinder valve, inlet fitting or high pressure gauge. Observe the low pressure gauge. If there is a drop in pressure, a leak exists in the torch handle valve, hose, hose fitting, outlet fitting or low pressure gauge. If both gauges drop in pressure, there is a leak in the regulator. DO NOT use if a leak exists in the regulator. Replace or have a qualified repair technician fix the regulator.
3. Use an approved leak detector solution to determine where the leak exists.

5.4 Lighting the Torch

For the Welding Procedure, follow steps 1 through 7. For the Cutting Procedure follow steps 1 through 11. *(See Figure 4)*

1. Wear appropriate safety gear.
2. Ensure system has been appropriately purged. *(See Section 4.3)*
3. Point the torch tip away from people, cylinders and flammable materials. Open the fuel gas valve about 1/8 turn. Ignite the gas with a striker. The resulting flame is a “Pure Acetylene Flame.”

4. Adjust the fuel valve until all smoke and soot are removed from the flame. If smoke persists, adjust the pressure on the acetylene regulator. *DO NOT exceed 15 psig on the acetylene regulator.*
5. (When using the cutting attachment, skip to step 8) When using the Welding Tip, Open the oxygen valve slowly. A bright inner cone will appear in the flame. Continue to adjust the oxygen valve until the edges of the flame disappear and a sharp inner cone is visible. The resulting flame is a “Neutral Flame.”
6. To increase the flame, open the torch control valves or slightly increase the regulator operating pressure. **DO NOT** reduce the flame setting. This will cause the tip to overheat and **BACKFIRE**. Use a smaller tip size if less heat or a finer flame is required.
7. Skip to step 11.
8. When using the cutting attachment, slowly open the preheat oxygen valve. A sharp inner cone should appear in the flame.
9. Depress the oxygen cutting lever. If the flame becomes less sharp, adjust the preheat oxygen valve until the flame’s sharp inner cone is reestablished.
10. If you are experiencing **BACKFIRE** or **SUSTAINED BACKFIRE**, immediately turn off the oxygen control valve followed by the fuel valve. Allow the torch to cool. Repeat Lighting the Torch procedures. If trouble persists, **DO NOT** use and contact a qualified repair technician.
11. Follow Proper Shutoff Procedures. (See Section 5.5)

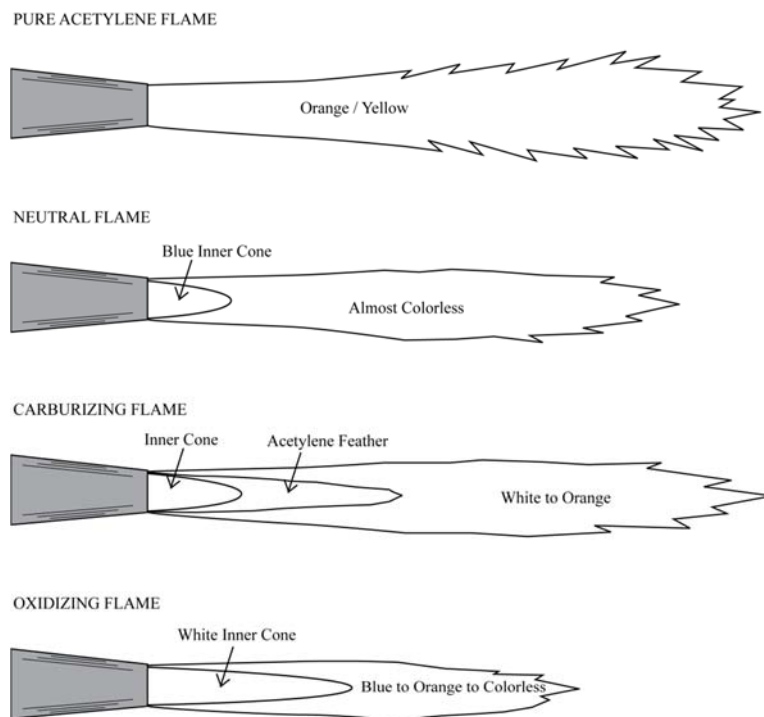


Figure 4

5.5 Proper Shutoff Procedures

When the Welding or Cutting Procedure is complete, follow this procedure.

1. Close the oxygen control valve on the torch handle.
2. Close the fuel control valve on the torch handle.
3. Close both cylinder valves.
4. Open the oxygen control valve on the torch handle to release remaining pressure.
5. Turn the pressure adjusting screw on the oxygen regulator clockwise until it spins freely.
6. Close the oxygen control valve on the torch handle.
7. Open the fuel control valve on the torch handle to release remaining pressure.
8. Turn the pressure adjusting screw on the fuel regulator clockwise until it spins freely.
9. Close the fuel control valve on the torch handle.
10. Ensure all regulator gauges read zero.
11. Recommended: Close cylinder valves for storage.
12. You may leave all equipment connected. Protect from dirt, dust, grease, oil and damage.

SECTION 6 – OPERATIONAL DATA & TIP CHARTS

WARNING: At no time should the withdrawal rate of an individual acetylene cylinder exceed 1/7 of the cylinder contents per hour.

Operational Data – Using 3/8” I.D. Hose – 100 ft. in length or less.

Gas	Maximum Pressure	Maximum Capacity
Acetylene	15 psig	Welding: 3”, Cutting: 8”
Oxygen	150 psig	Welding: 3”, Cutting: 8”

Welding Tip Chart – Using 3/8” I.D. Hose on Mild Steel

Tip Size	Metal Thickness	Drill Size	Oxygen Pressure (psig)		Acetylene Pressure (psig)		Acetylene Consumption (schf)	
			Min	Max	Min	Max	Min	Max
000	Up to 1/32"	75 (.022)	3	5	3	5	1	2
00	1/16" - 3/64"	70 (.028)	3	5	3	5	1 1/2	3
0	1/32" - 5/64"	65 (.035)	3	5	3	5	2	4
1	3/64" - 3/32"	60 (.040)	3	5	3	5	3	6
2	1/16" - 1/8"	56 (.046)	3	5	3	5	5	10
3	1/8" - 3/16"	53 (.060)	4	7	3	6	8	18
4	3/16" - 1/4"	49 (.073)	5	10	4	7	10	25

Cutting Tip Chart – Using 3/8” I.D. Hose on Mild Steel

Tip Size	Metal Thickness	Oxygen Pressure (psig)	Preheat Oxygen (psig)	Acetylene Pressure (psig)	Speed (ipm)	Kerf Width
000	1/8"	20-25	3-5	3-5	20-30	0.04
00	1/4"	20-25	3-5	3-5	20-28	0.05
0	1/2"	25-35	3-6	3-5	16-22	0.06
1	3/4"	30-35	4-7	3-5	15-20	0.07
2	1"	35-40	4-8	3-6	13-18	0.09
3	2"	40-45	5-10	4-8	10-12	0.11
4	3"	40-45	5-10	5-11	10-12	0.12

Multi-Flame Heating Nozzle Chart, Acetylene – Using 3/8” I.D. Hose on Mild Steel

Tip Size	Oxygen Pressure (psig)	Acetylene Pressure (psig)	Oxygen Consumption (scfh)	Acetylene Consumption (scfh)
2	4/8	4/8	3/10	3/9
4	8/12	6/10	7/22	6/20
6	10/15	8/12	15/44	14/40
8	20/30	10/15	33/88	30/80
10	30/40	12/15	44/110	40/100
12	50/60	12/15	66/165	60/150
15	50/60	12/15	99/244	90/220

RECOMMENDATION: Acetylene pressure should be kept at 4/7 psig for the supplied Size 4 Multi-Flame Heating Nozzle.

SECTION 7 – WARRANTY INFORMATION

LIMITED WARRANTY - GASPONY® POWERTORCH 250 - LIMITED 1 YEAR / 90 DAY WARRANTY

STATEMENT OF LIMITED WARRANTY. THOROUGHbred INDUSTRIAL CYLINDER EXCHANGE MAKES EVERY EFFORT TO ENSURE THAT ITS PRODUCTS MEET HIGH QUALITY STANDARDS AND WARRANTS THE FOLLOWING TO THE ORIGINAL END USER (PURCHASER): NINETY (90) DAYS, FROM THE DATE OF PURCHASE, THAT THE WELDING TIP SEAT, HOSE, STRIKER, TIP CLEANER AND GOGGLES ARE FREE OF DEFECTS IN MATERIAL AND WORKMANSHIP. THIS DOES NOT APPLY TO CONSUMABLE PARTS: WELDING TIP, CUTTING TIP AND MULTI-FLAME HEATING NOZZLE. ONE (1) YEAR, FROM THE DATE OF PURCHASE, THAT THE OXYGEN REGULATOR, ACETYLENE REGULATOR, TORCH HANDLE AND CUTTING ATTACHMENT ARE FREE OF DEFECTS IN MATERIAL AND WORKMANSHIP.

THIS WARRANTY IS VOID IF THOROUGHbred INDUSTRIAL CYLINDER EXCHANGE OR ITS AUTHORIZED SERVICE CENTERS FINDS THAT THE EQUIPMENT HAS BEEN SUBJECTED TO IMPROPER INSTALLATION, CARE, UNAUTHORIZED MODIFICATION, TAMPERING, INADEQUATE MAINTENANCE, IMPROPER STORAGE OR ABNORMAL USE. THIS LIMITED WARRANTY IS NOT TRANSFERABLE FROM THE ORIGINAL PURCHASER TO A SECOND OWNER. IN NO EVENT IS THOROUGHbred INDUSTRIAL CYLINDER EXCHANGE LIABLE OR RESPONSIBLE FOR ANY INJURY, DAMAGE, OR LOSS RESULTING EITHER DIRECTLY OR INDIRECTLY FROM THE USE OR MISUSE OF THIS PRODUCT. THIS WARRANTY IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS.

To take advantage of this warranty, the product or part must be returned to Thoroughbred Industrial Cylinder Exchange or its authorized service centers with transportation charges prepaid. Proof and date of purchase, with an explanation of the complaint, must accompany the merchandise. If our inspection verifies a defect, we will either repair or replace the product at our election or we may elect to refund the purchase price if we cannot readily or quickly provide purchaser with a replacement. Thoroughbred Industrial Cylinder Exchange will return repaired products at our expense, but if Thoroughbred Industrial Cylinder Exchange determines there is no defect, or that the defect resulted from causes not within the scope of our warranty, then the purchaser must pay the cost for the return of the product.

This warranty gives the purchaser specific legal rights and they may also have other rights, which vary from state to state. www.gaspony.com