Single- and Two-Stage Regulators

Safety and Operating Instructions
WE APPRECIATE YOUR BUSINESS!

Congratulations on your new Victor® product. We are proud to have you as our customer and will strive to provide you with the best service and reliability in the industry. This product is backed by our extensive warranty and worldwide service network. To locate your nearest distributor or service agency, please contact a representative at the address and phone number in your area listed on the inside back cover of this manual, or visit us on the web at www.victorequip.com.

This Operating Manual has been designed to instruct you on the correct use and operation of your Victor® product. Your satisfaction with this product and its safe operation is our ultimate concern. Therefore, please take the time to read the entire manual, especially the Safety Precautions. They will help you to avoid potential hazards that may exist when working with this product.

YOU ARE IN GOOD COMPANY!

The Brand of Choice for Contractors and Fabricators Worldwide.

Victor® is a Global Brand of gas equipment products for Thermadyne Industries, Inc. We manufacture and supply to major welding and cutting industry sectors worldwide, including: Manufacturing, Construction, Mining, Automotive, Aerospace, Engineering, Rural and DIY/Hobbyist, Scrap, Demolitions and Shipyards.

We distinguish ourselves from our competition through market-leading, dependable products that have stood the test of time. We pride ourselves on technical innovation, competitive prices, excellent delivery, superior customer service and technical support, together with excellence in sales and marketing expertise.

Above all, we are committed to develop technologically advanced products to achieve a safer working environment within the welding industry.
Read and understand this entire manual and your employer’s safety practices before installing, operating, or servicing the equipment. While the information contained in this manual represents the Manufacturer’s judgment, the Manufacturer assumes no liability for its use.

Single- and Two-Stage Regulators
Safety and Operating Instructions
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Record the following information for Warranty purposes:

Where Purchased: _______________________________________________
Purchase Date: _______________________________________________
Equipment Serial #: ____________________________________________
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⚠️ **WARNING**

*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.*

*(California Health & Safety Code § 25249.5 et seq.)*
SECTION 1: INTRODUCTION

This booklet is a guide to the safe and efficient operation of regulators used in oxy-fuel applications. If the apparatus is not used in an oxy-fuel application, the operator must still follow safety and operating procedures that apply. Regulator usage presents several potential hazards. Read this booklet thoroughly and carefully before operating this equipment.

All operations should conform to applicable Federal, State, County, or City regulations for installation, operation, ventilation, fire prevention, and protection of personnel. ANSI Standard Z49.1, “Safety in Welding and Cutting” contains detailed safety instructions. It is available from the American Welding Society, P.O. Box 351040, Miami, FL 33135.

A system of notes, cautions, and warnings emphasize important safety and operating information in this booklet:

**NOTE**

Conveys installation, operation, or maintenance information which is important but not hazard-related.

**CAUTION**

Caution indicates a potentially hazardous situation which, if not avoided, may result in injury.

**WARNING**

WARNING indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.
**WARNING**

**DO NOT** attempt to use this apparatus until you thoroughly read and understand all safety and operating instructions provided. For your safety, practice the safety and operating procedures described in this booklet every time you use the apparatus. Deviating from these procedures may result in fire, explosion, property damage and/or operator injury. If at any time the apparatus you are using does not perform in its usual manner, or you have any difficulty in the use of the apparatus, **STOP** using it immediately. **DO NOT** use the apparatus until the problem has been corrected!

**WARNING**

Service or repair of apparatus should be performed only by a qualified repair technician capable of servicing gas apparatus in strict accordance to applicable Part and Service bulletins for Victor® manufactured products. Improper service repair, or modification of the product could result in damage to the product or injury to the operator. Improper service repair, **USE OF NON-GENUINE VICTOR® PARTS**, or modification could result in damage to the product or injury to the operator.

**SECTION 2: GENERAL SAFETY INFORMATION**

Read and understand all safety and operating instructions provided before using this apparatus. **RETAIN THESE INSTRUCTIONS IN A READILY AVAILABLE LOCATION FOR FUTURE REFERENCE.**

**2.01 FIRE PREVENTION**

Welding and cutting operations use fire or combustion as a basic tool. The process is very useful when properly controlled. However,
it can be extremely destructive if not performed correctly in the proper environment.

1. The work area must have a fireproof floor.
2. Work benches or tables used during welding or cutting operations must have fireproof tops.
3. Use heat resistant shields or other approved material to protect nearby walls or unprotected flooring from sparks and hot metal.
4. Keep an approved fire extinguisher of the proper size and type in the work area. Inspect it regularly to ensure that it is in proper working order. Know how to use the fire extinguisher.
5. Move combustible materials away from the work site. If you can not move them, protect them with fireproof covers.

**WARNING**

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, flammable liquids, or explosive dust.

### 2.02 HOUSEKEEPING

**WARNING**

NEVER allow oxygen to contact grease, oil, or other flammable substances. Although oxygen by itself will not burn, these substances become highly explosive. They can ignite and burn violently in the presence of oxygen.

Keep ALL apparatus clean and free of grease, oil and other flammable substances.
2.03 VENTILATION

⚠️ WARNING ⚠️
Adequately ventilate welding, heating, and cutting work areas to prevent accumulation of explosive or toxic concentrations of gases. Certain combinations of metals, coatings, and gases generate toxic fumes. Use respiratory protection equipment in these circumstances. When welding/brazing, read and understand the Material Safety Data Sheet for the welding/brazing alloy.

2.04 PERSONAL PROTECTION
Gas flames produce infrared radiation which may have a harmful effect on the skin and especially on the eyes. Select goggles or a mask with tempered lenses, shaded 4 or darker, to protect your eyes from injury and provide good visibility of the work.

Always wear protective gloves and flame-resistant clothing to protect skin and clothing from sparks and slag. Keep collars, sleeves, and pockets buttoned. **DO NOT** roll up sleeves or cuff pants.

When working in a non-welding or cutting environment, always wear suitable eye protection or face shield. Practice the following safety and operation precautions **EVERY TIME** you use pressure regulation equipment. Deviation from the following safety and operation instructions can result in fire, explosion, damage to equipment, or injury to the operator.

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

1. Place the cylinder (Figure 1) where you will use it. Keep the cylinder in a vertical position. Secure it to a cart, wall, work bench, post, etc.
**WARNING**

Cylinders are highly pressurized. Handle with care. Serious accidents can result from improper handling or misuse of compressed gas cylinders. DO NOT drop the cylinder, knock it over, or expose it to excessive heat, flames or sparks. DO NOT strike it against other cylinders. Contact your gas supplier or refer to CGA P-1 “Safe Handling of Compressed Gases in Containers” publication.

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**NOTE**

*CGA P-1 publication is available by writing the Compressed Gas Association, 4221 Walney Road, 5th Floor, Chantilly, VA 20151-2923*

2. Place the valve protection cap on the cylinder whenever moving it, placing it in storage, or not using it. Never drag or roll cylinders in any way. Use a suitable hand truck to move cylinders.

3. Store empty cylinders away from full cylinders. Mark them “EMPTY” and close the cylinder valve.

4. **NEVER** use compressed gas cylinders without a pressure reducing regulator attached to the cylinder valve.
5. Inspect the cylinder valve for oil, grease, and damaged parts.

⚠️ **WARNING**

*DO NOT* use the cylinder if you find oil, grease or damaged parts. Inform your gas supplier of this condition immediately.

6. Momentarily open and close (called “cracking”) the cylinder valve to dislodge any dust or dirt that may be present in the valve.

⚠️ **CAUTION**

Open the cylinder valve slightly. If you open the valve too much, the cylinder could tip over. When cracking the cylinder valve, *DO NOT* stand directly in front of the cylinder valve. Always perform cracking in a well ventilated area. If an acetylene cylinder sprays a mist when cracked, let it stand for 15 minutes. Then, try to crack the cylinder valve again. If this problem persists, contact your gas supplier.

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**SECTION 3: REGULATORS: SAFETY AND OPERATION**

Pressure regulators (Figure 2) attached to the cylinder valve reduce high cylinder pressures to suitable low working pressures for welding, cutting, and other applications.

⚠️ **WARNING**

*Use the regulator for the gas and pressure for which it is designed.* *NEVER* alter a regulator for use with any other gas.

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**NOTE**

Regulators purchased with open 1/8”, 1/4”, 3/8”, or 1/2” NPT ports must be assembled to their intended system.
1. Note the maximum inlet pressure stamped on the regulator. **DO NOT** attach the regulator to a system that has a higher pressure than the maximum rated pressure stamped on the regulator.

2. The regulator body will be stamped “IN” or “HP” at the inlet port. Attach the inlet port to the system supply pressure connection.

3. Wrap pipe threads with Teflon tape 1 1/2 to 2 turns to effect a seal. If other sealants are used, they must be compatible with the gas that will be used in the system.

4. If gauges are to be attached to the regulator and the regulator is stamped “UL listed.” The following requirements must be met:
   a) Inlet gauges over 1000 PSIG (6.87 mPa) shall conform with the requirements of UL 404, “Indicating Pressure Gauges for Compressed Gas Service.”
   b) Low pressure gauges must be UL recognized for the class of regulator they are being used on according to UL 252A.
**WARNING**

Do not use a regulator that delivers pressure exceeding the pressure rating of the downstream equipment unless provisions are made to prevent over-pressurization (i.e. system relief valve). Make sure the pressure rating of the downstream equipment is compatible with the maximum delivery pressure of the regulator. (See page 3-9 for information on regulator relief valve.)

1. Be sure that the regulator has the correct pressure rating and gas service for the cylinder used.

2. Carefully inspect the regulator for damaged threads, dirt, dust, grease, oil, or other flammable substances. Remove dust and dirt with a clean cloth. Be sure the inlet swivel filter is clean and in place. Attach the regulator (Figure 3) to the cylinder valve. Tighten securely with a wrench.

**WARNING**

**DO NOT** attach or use the regulator if oil, grease, flammable substances or damage is present! Have a qualified repair technician clean the regulator or repair any damage.

![Figure 3: Regulator to Cylinder Valve](image)
3. Before opening the cylinder valve, turn the regulator adjusting screw counterclockwise until there is no pressure on the adjusting spring and the screw turns freely.

4. Relief Valve (where provided): The relief valve is designed to protect the low pressure side of the regulator from high pressures. Relief valves are not intended to protect downstream equipment from high pressures.

⚠️ **WARNING**

**DO NOT** tamper with the relief valve or remove it from the regulator.

⚠️ **WARNING**

Stand to the side of the cylinder opposite the regulator when opening the cylinder valve. Keep the cylinder valve between you and the regulator. For your safety, **NEVER STAND IN FRONT OF OR BEHIND A REGULATOR WHEN OPENING THE CYLINDER VALVE!**

5. Slowly and carefully open the cylinder valve (Figure 4) until the maximum pressure shows on the high pressure gauge.

![Figure 4: Open Cylinder Valve](image)
6. On all cylinders, except acetylene, open the valve completely to seal the valve packing. On gaugeless regulators, the indicator will register the cylinder contents open.

7. On acetylene cylinders, open the valve 3/4 of a turn and no more than 1-1/2.

⚠️ **WARNING**

*Acetylene delivery pressure must not exceed 15 psig (103 kPa) or 30 psig (207 kPa). Acetylene can dissociate (decompose with explosive violence) above these pressure limits.*

⚠️ **CAUTION**

*Keep the cylinder valve wrench, if one is required, on the cylinder valve to turn off the cylinder quickly, if necessary.*

8. Attach the desired downstream equipment.

### 3.01 LEAK TESTING THE SYSTEM

Leak test the system before putting into operation.

1. Be sure that there is a valve in the downstream equipment to turn off the gas flow.

2. With the cylinder valve open, adjust the regulator to deliver the maximum required delivery pressure.

3. Close the cylinder valve.

4. Turn the adjusting screw counterclockwise one turn.
   a) If the high-pressure gauge reading drops, there is a leak in the cylinder valve, inlet fitting, or high-pressure gauge.
   b) If the low-pressure gauge drops, there is a leak in the downstream equipment, hose, hose fitting, outlet fitting or low-pressure gauge. Check for leaks using an approved leak detector solution.
c) If the high-pressure gauge drops and the low-pressure gauge increases at the same time, there is a leak in the regulator seat.

d) If the regulator requires service or repair, take it to a qualified repair technician.

5. Once leak testing has been performed and there are no leaks in the system, slowly open the cylinder valve and proceed.

⚠️ **WARNING**

*If a leak has been detected anywhere in the system, discontinue use and have the system repaired. **DO NOT** use leaking equipment. Do not attempt to repair a leaking system while the system is under pressure.*

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**SECTION 4: WHEN YOU FINISH USING THE REGULATOR**

1. Close the cylinder valve.

2. Open the valve on the downstream equipment. This drains all pressure from the system.

3. Close the valve on the downstream equipment.

4. Turn the adjusting screw counterclockwise to release the tension on the adjusting spring.

5. Check the gauges after a few minutes for verification that the cylinder valve is closed completely.

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**4.01 STORAGE**

When the regulator is not in use and has been removed from the cylinder, it should be stored in an area where it will be protected from dust, oil, and grease. The inlet and outlet should be capped to protect against internal contamination and prevent insects from nesting.
SECTION 5: STATEMENT OF WARRANTY

LIMITED WARRANTY: THERMADYNE® warrants that its products will be free of defects in workmanship or material. Should any failure to conform to this warranty appear within the time period applicable to the THERMADYNE products as stated below, THERMADYNE shall, upon notification thereof and substantiation that the product has been stored, installed, operated, and maintained in accordance with THERMADYNE’s specifications, instructions, recommendations and recognized standard industry practice, and not subject to misuse, repair, neglect, alteration, or accident, correct such defects by suitable repair or replacement, at THERMADYNE’s sole option, of any components or parts of the product determined by THERMADYNE to be defective.

THIS WARRANTY IS EXCLUSIVE AND IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

LIMITATION OF LIABILITY: THERMADYNE shall not under any circumstances be liable for special or consequential damages, such as, but not limited to, damage or loss of purchased or replacement goods, or claims of customers of distributor (hereinafter the “Purchaser”) for service interruption. The remedies of the Purchaser set forth herein are exclusive and the liability of THERMADYNE with respect to any contract, or anything done in connection therewith such as the performance or breach thereof, or from the manufacture, sale, delivery, resale, or use of any goods covered by or furnished by THERMADYNE whether arising out of contract, negligence, strict tort, or under any warranty, or otherwise, shall not, except as expressly provided herein, exceed the price of the goods upon which such liability is based.

THIS WARRANTY BECOMES INVALID IF REPLACEMENT PARTS OR ACCESSORIES ARE USED WHICH MAY IMPAIR THE SAFETY OR PERFORMANCE OF ANY THERMADYNE PRODUCT.

THIS WARRANTY IS INVALID IF THE PRODUCT IS SOLD BY NON-AUTHORIZED PERSONS.

This warranty is effective for the time stated in the Warranty Schedule beginning on the date that the authorized distributor delivers the products to the Purchaser.
Warranty repairs or replacement claims under this limited warranty must be submitted by an authorized THERMODYNE repair facility within thirty (30) days of the repair. No transportation costs of any kind will be paid under this warranty. Transportation charges to send products to an authorized warranty repair facility shall be the responsibility of the Purchaser. All returned goods shall be at the Purchaser’s risk and expense. This warranty supersedes all previous THERMODYNE warranties.