



13c Vario
ART.059.623.0

GENESISTM

S E R I E S

USERS GUIDE



 **AMERICAN**
RESCUE TECHNOLOGY INCORPORATED

240 Warren Street
Dayton, Ohio 45402
Tel. (937) 228-2200
Fax. (937) 228-3300
<http://www.art4rescue.com>
e-mail: amres@erinet.com

Thank you for choosing equipment from **American Rescue Technology**. We strive to give our customers the latest technology available in rescue products. From the newest lightweight alloys, to the most innovative designs in the industry. We continually update and refine our products in order to offer the highest quality equipment at a reasonable price. All **Genesis Series** tools are third party tested, ISO 9001 Quality Assurance Certified and **NFPA 1936 Compliant**. At **American Rescue Technology** we feel we offer the highest quality rescue equipment available; so do our customers! Thank you again for choosing **American Rescue Technology**.

Read Before Operating

Read and follow this manual and safety regulations prior to operation.

- Only trained and qualified personnel are authorized to use these tools.
- Operator must wear protective clothing, helmet with eye protection and gloves.
- No modifications in shape or performance is allowed. Changing the pressure relief valve of the tool is not allowed.
- These tools are designed for the use described in this manual. Other applications are not permitted.
- Before operating tools, all by-standers must be removed from area.

Vario Applications

The Vario tool is designed to rescue trapped or endangered patients in motor vehicle accidents, building collapse and confined space situations. It is used to force open doors, pull steering columns, lift concrete. . . etc.

The Vario tool is also used for industrial purposes, e.g. to lift machinery, position pipes, cut pipe or tubing, cutting sheet metal . . . etc.

Spreading: The tips of the Vario tool have grooves on the inside and outside. These areas provide the safest spots for spreading and squeezing. The grooves help the tool grip the part reducing the chances of slippage or “kick-back”.

Lifting: When lifting loads or vehicles, make sure the ground is hard and stable. If not, use a board to stabilize the ground. Always crib the load as it is being lifted. Be aware that loads being lifted can shift causing more problems during a rescue.

Cutting: The Vario tool is designed for cutting body parts on vehicles. It is used to rescue trapped or endangered patients by: Cutting door and roof pillars, door posts, hinges and side impact bars.

Operating Vario Tool

The operation of the cutter is controlled by a push-button “dead man” control.

Neutral or Stop Position: The push-button is held in the center position when not in use.

←|→ **Opening:** Press the spherical knob- Vario arms open.

→|← **Closing:** Press wedge-end knob- Vario arms close.

Spreading: The Genesis Series Vario tool will provide you with many years of reliable service. All of the Genesis Series tools are designed to be low maintenance. By following a few simple rules your Vario tool will provide many years of trouble-free service. The most important thing to remember is spreader tip placement. Be careful not to damage the tips by pushing against the head of a bolt or other small objects. Avoid the deformation of the arms. If the arms appear to be bending or are misaligned discontinue spread and look for a better working position.

Cutting: The Vario tool produces it’s strongest force at the base of the blades, near the pivot point. Always put the object being cut as close to the base of the blades as possible. Always keep the blades perpendicular to the piece being cut. Never try to puncture plate steel or any heavy material with the tips of the blades.

When cutting pay attention to the gap in the blades. If gapping occurs stop the cut and try a different position. Extreme gapping (1/2” or more) could bend or break the blades.

Storage: Always store the Vario tool with the arms slightly open. Never store the tool fully closed, fully open or under pressure. This puts unnecessary pressure on the tool and could cause damage.

Genesis Series Vario

The Genesis Series Vario tool requires care and maintenance. Following the General Maintenance recommendations on this page will keep your tool working reliably for many years.

Cleaning & Inspecting Blades

When necessary clean the tool blades with a wire brush. This will reduce the amount of contaminants that get into the moving parts of the blades and linkage. The blades and linkage should be cleaned and greased at least once a year.

After each use we recommend inspecting the blades for damage. Damage can occur during rescue operations for many reasons. Check along the cutting edge of the blades for nicks or gouges. These can usually be filed smooth. Bent blades or major blade failures require replacement. Call your local dealer or American Rescue Technology.

Tightening the Center Bolt

The most common cause for blade failure is a loose center bolt. The center bolt is the bolt that goes through both blades and acts as a pivot point. The center bolt torque should be checked after heavy use. The chart below gives the proper torque setting.

13c Vario ----- 110 ft-lbs

If the tool is twisting excessively when cutting, the problem may be a loose center bolt.

General Maintenance

Following are the recommended service intervals for your new rescue equipment. By following these guidelines you will be assured of many years of reliable service.

After Each Use

- Wipe down all equipment to remove debris
- Check handles and guards
- Clean tool blades
- Check for play between blades, torque center bolt if necessary.
- Check blades for damage

Yearly Maintenance

We recommend having a yearly inspection and service done by a qualified American Rescue Technology technician.

- Cleaning, greasing and inspection of the tool
- Sharpening or dressing of blades
- Pressure test

Regrinding Vario Blades

The Vario blades can be re-ground up to 2 mm. When grinding, ensure that the original cutting angle and cutting width are restored. Only grind the cutting edge of the cutter blades. Any burrs or nicks should be removed with a file.

Placement When Spreading & Cutting

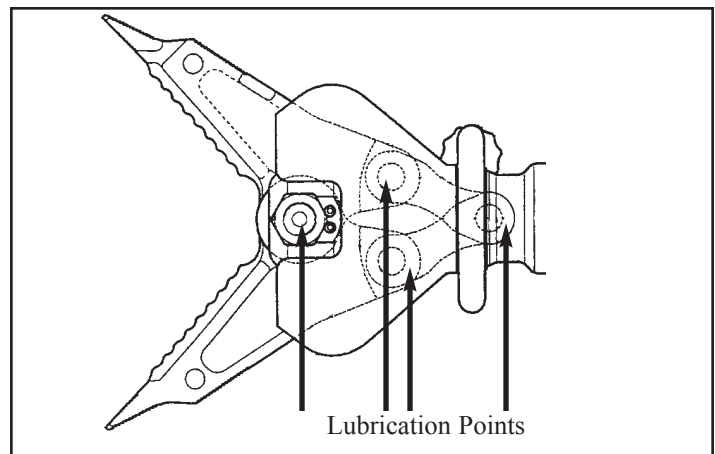
When using a rescue tool be aware of what your spreading and cutting. Following these guidelines will keep your tool working in top condition.

- Always look for a solid surface to spread against. Single layers of sheet metal usually tear. Look for folds, double thickness or formed areas to spread against.
- When spreading a nader pin, make the final spread with the tips near the flat head screws that mount the locking mechanism.
- NEVER spread with the tips on the heads of bolts. This will concentrate the force on a small area of the tips and could cause damage.
- Always insert the tools tips as deep as possible. This will spread the force over a larger area and give a better grip.
- Cut as close to the pivot point as possible. This is where the cutter has the greatest power.
- BEWARE, loose ends may “launch” when cut.
- Always cut perpendicular to the blades.
- Cut normal rescue obstacles. DO NOT cut leaf springs, coil springs, trailer hitches, tie rods, axles . . . these could damage the tool.
- When cutting door hinges, cut to either side of the hinge pin. Wedging the pin between the blades could cause damage.

Lubricating Vario Tool

Remove the guard plates/rubber sleeve - close cutter blades to the point at which the pivot pins with snap ring are accessible. Remove snap ring and disassemble pivot pin. Remove rubber sleeve, hex nut and center bolt. Remove blades.

Grease blade friction points and pivot pins with molybdenum disulphide grease. Re-assemble in reverse order. When tightening center bolt use proper torque setting. (110 lb-ft)

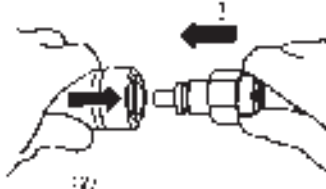


Connecting the Vario Tool

Remove the protective caps from the male (1) and female (2) coupler.

Connecting

Grasp the male coupling in one hand and with the other grasp the female coupler and draw back the sleeve, be sure the pin and slot are aligned. Bring the ends together and press. Release and turn the sleeve to ensure couplers are connected.



Disconnecting

Grasp the coupler pair and draw back on the sleeve of the female coupler. Make sure the pin and slot are aligned and the coupler will disconnect. A few drops of fluid may be expelled. This is normal.

Disconnecting of the Vario Tool

When disconnecting the Vario from the power unit hoses, the power unit must be in the neutral position. The Vario can now be disconnected and another tool connected.

Cleaning the Couplers

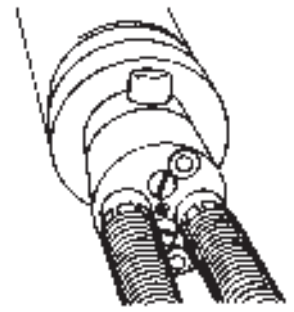
Below is a photo of a dirty female coupler. Dirty couplers allow dirt to get into the hydraulic system, requiring more frequent fluid changes. Dirty couplers are difficult to connect and lead to further complications. To clean a coupler, we recommend immersing it in hydraulic fluid and agitating it until the dirt is removed. Petroleum based penetrating oil will also work. (WD-40) These are available in sprays and are well suited for field use.



Clean dirty couplers with hydraulic fluid or a light penetrating oil like WD-40.

Operation of Over-Pressurization Relief Valve

If the couplers have not been properly engaged, preventing the return flow of fluid back to the power unit, a relief valve in the control handle automatically releases fluid. This causes a fluid leak, from the hole, between the hoses on the control handle. Immediately switch the power unit to the neutral position and connect the couplings correctly.



13c Vario Set Up

If any hydraulic leaks are detected at any time immediately shut system off.

1. Remove tool from box.
2. Remove packing material from tool and clean.
3. Check tightness of hose connections and couplers.
4. Check center bolt torque.
5. Connect tool to power unit.
6. Start power unit and engage pump valve.
7. Allow fluid to circulate for 2 minutes.
8. Open and close cutter a few times. This will remove any air in the system.
9. Build pressure by fully opening and closing the tool a few times.
10. Vario tool is ready for use.

Specifications

| | 13c Vario |
|----------------------------------|----------------|
| NFPA Level Rating | A6/B7/C6/D8/E7 |
| Length (in/mm) | 32.8/833 |
| Width (in/mm) | 8.5/216 |
| Height (in/mm) | 6.9/175 |
| Weight (lbs/kg) | 29.5/13.4 |
| Opening (in/mm) | 13.2/335 |
| Opening Time (sec) | 2.3 |
| Closing Time (sec) | 2.9 |
| HSF (lbs.) | 7942 |
| LSF (lbs.) | 5827 |
| HPF (lbs.) | 7515 |
| LPF (lbs.) | 6052 |
| Operating Pressure(max. psi/bar) | 10,000/700 |
| Cutting Force (max. lbs/kN) | 58,000/258 |
| Spreading Force (max. lbs/kN) | 18,000/80 |
| Part Number | ART.059.623.0 |

| Problem | Reason | Action |
|--|--|--|
| Tool not achieving maximum performance. Blades won't move or tool runs backward. | Push-button not completely depressed. Coupler set on backwards | Depress push-button completely Find reversed coupler set and repair |
| Tool cannot be connected to hose. Fluid leaks at back of control handle. | Pressure build-up in hose. Return line not properly connected | Put pump valve to dump or neutral position Check coupler connections |
| Tool opens and closes slowly Hoses have cuts and abrasions and wire braids are exposed. | Clogged filter or flow restrictor Hoses showing signs of wear | Check & clean tool filters and flow restrictors Replace hoses |
| Fittings or couplers leaking Tool twisting excessively when cutting. | Loose fitting or coupler or bad seal Center bolt loose. Bent blades | Replace seal if bad. Tighten Tighten center bolt to specs. Replace blades |

Parts and service are available through your local dealer or contact American Rescue Technology, Inc. Before disassembling tools contact your local dealer or American Rescue Technology, Inc.