FC140 Cutter

FV13c Vario

FS30 Spreqader

FREEDOM SERIES

USERS GUIDE

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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 **Freedom Series** tools are third party tested and ISO 9001 Quality Assurance Certified. 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 visor 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.

- **Immediately after connecting tool to energy pack the rescue tool is ready for use. To avoid accidents unplug tool when not in use.**

Cutter Applications

The cutter is designed for cutting body parts on vehicles. It is used to rescue trapped or endangered patients by: Cutting door or roof pillars, door posts, hinges and side impact bars. It is also used in structural collapse and confined space rescue.

The cutters are also used for industrial purposes, e.g. to cut pipes, structural steel, sheet metal and cables.

Fundamental Description

The hydraulic pressure is produced by a high pressure swash-plate axial piston pump. This pump is driven by a permanently excited 12V/400 Watt DC motor. Switching on and off is done by an auxillary switch at the slide switch. This combination assures that the motor will not be running in the off or zero position.

The hydraulic control provides a “deadman” handle. After release of the rocker switch the tool will stop moving.

Operating Cutter

First the cutter is connected to the energy pack via the plug connection. (Guiding groove on the bottom) The control for the cutter is situated below the stationary handle.

The operation of the cutter is controlled by a “dead man” rocker switch control.

Neutral or Stop Position: The rocker is held in the center position by a spring when not in use.

→|← **Opening:** Press rocker to the right- cutter blades open.

←|→ **Closing:** Press rocker to the left- cutter blades close.

Cutting: The Freedom Series cutter 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 wrap around the piece being cut and keep the blades perpendicular to the piece. Never try to puncture plate steel or any heavy material with the tips of the blades. Puncturing material heavier than sheet metal may damage cutter 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 cutting blades.

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

Freedom Series Cutter

Of all the tools in your new Freedom Series Rescue System, the cutter requires the most care and maintenance. Following the General Maintenance recommendations on this page will keep your cutter working reliably for many years.

Cleaning & Inspecting Blades

When necessary clean the cutter 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.

FC-140 Cutter ----------80-90 ft-lbs

If the cutter 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 many years of reliable service.

After Each Use

- Wipe down all equipment to remove debris
- Check handles and switches
- Clean cutter blades
- Check for play between blades, torque center bolt if necessary.
- Check cutter 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 cutter
- Sharpening or dressing of cutter blades

Regrinding Cutter Blades

The cutter 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.

Do NOT disassemble cutter body, motor or pump. There are no user serviceable parts inside.

Blade Placement When Cutting

When cutting with a hydraulic cutter be aware of what your cutting. Following these guidelines will keep your cutter working in top condition.

- Always wrap around the piece to be cut. (See photo below left)
- 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. (See photo below right)
- Puncture cuts should only be made in sheet metal.
- Cut normal rescue obstacles. DO NOT cut leaf springs, coil springs, trailer hitches, tie rods, axles . . . these could damage the cutter.
- When cutting door hinges, cut to either side of the hinge pin. Wedging the pin between the blades could cause damage.

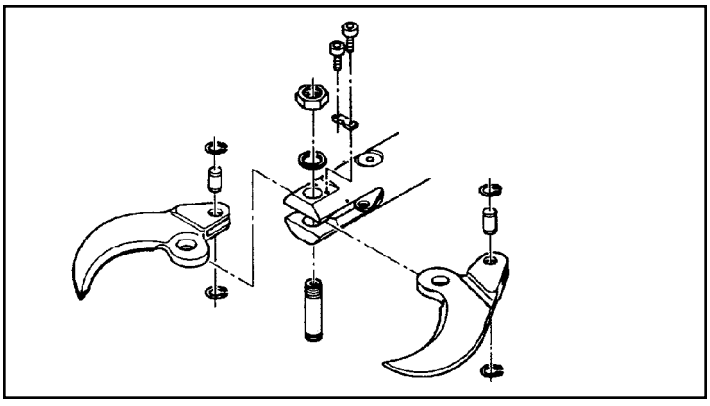
Wrap the blades around the object. This will reduce the chance of blade damage.

The proper way to cut. The blades are perpendicular to the piece being cut.

Lubricating Cutter

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. (90 lb-ft)



Troubleshooting

Problem	Reason	Solution
Tool makes grinding noise when operated	Lack of grease at pivot points	Clean and grease pivot points
Tool twisting excessively when cutting	Loose centerbolt or bent blades	Tighten centerbolt. Replace blades if necessary.
Tool will not run.	Improper connection, low battery, other	Check connection, charge battery, contact dealer

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

Freedom Series FS-30 Spreader

Spreader Applications

The spreader 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 spreader is also used for industrial purposes, e.g. to lift machinery, position pipes, break molds . . . etc.

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

Crimping: Pipes and similiar items can be crimped with the inner sides of the spreaders arms.

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.

Fundemental Description

The hydraulic pressure is produced by a high pressure swash-plate axial piston pump. This pump is driven by a permanently excited 12V/400 Watt DC motor. Switching on and off is done by an auxillary switch at the slide switch. This combination assures that the motor will not be running in the off or zero position.

The hydraulic control provides a “deadman” handle. After release of the rocker switch the tool will stop moving.

Operating Spreader

First the spreader is connected to the energy pack via the plug connection. (Guiding groove on the bottom) The control for the spreader is situated below the stationary handle.

The operation of the spreader is controlled by a “dead man” rocker switch control.

Neutral or Stop Position: The rocker is held in the center position by a spring when not in use.

Opening: Press rocker to the right- spreader arms open.

Closing: Press rocker to the left- spreader arms close.

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

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

Freedom Series Spreaders

Your new Freedom Series spreader will provide you with many years of reliable service. All of the Freedom Series tools require little maintenance. We suggest following the guidelines as stated under the General Maintenance section of this guide. On a yearly basis disassemble, clean and grease all of the moving parts and linkage on the spreader arms. The spreader should also be pressure tested and adjusted if necessary. Any adjustments to the pressure settings should be done by a qualified American Rescue Technology technician.

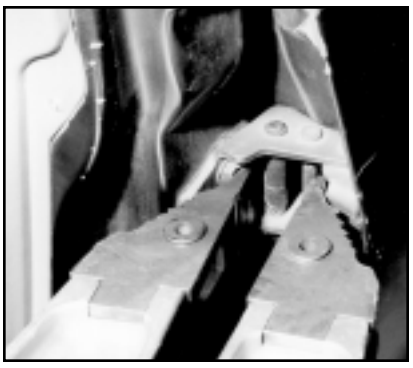
Cleaning Spreader Tips

When necessary, clean the spreader tips with a wire brush. Removing the dirt and metal particles from the surface of the tips allows the spreader to grip better during spreading operations.

Tip Placement When Spreading

The most important thing when using a spreader is tip placement.The placement of the tips will determine how successful your spreading operation will be. Here are a few suggestions.

- 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. (See photo below)
- Always insert the spreader tips as deep as possible. This will spread the force over a larger area and give a better grip.
- Always spread with the tips not the arms.



General Maintenance

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

After Each Use

- Wipe down all equipment to remove debris
- Check handles and switches
- Clean spreader arms
- Check arms and tips for damage

Yearly Maintenance

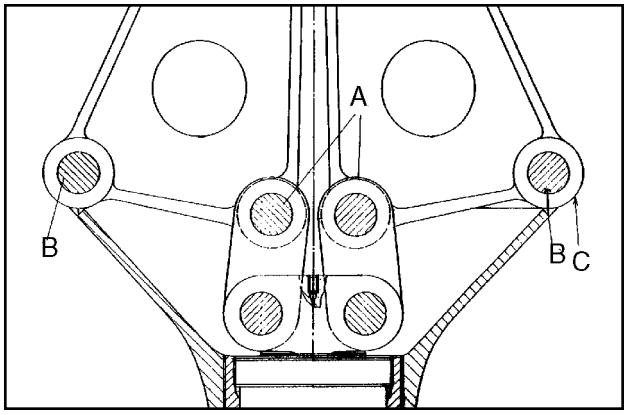
We recommend having a yearly inspection and service done by a qualified American Rescue Technology technician.

- Cleaning, greasing and inspection of cutter
- Pressure testing

Do NOT disassemble spreader body, motor or pump. There are no user serviceable parts inside.

Lubricating Spreader

1. Remove the plastic hand guards from the top and bottom of the spreader. They are easily removed by lifting them at the front.
2. After removing the plastic guards connect the spreader to the energy pack and open arms until they are almost fully opened.
3. Disconnect the plug from the energy pack.
4. Remove the crossbar by removing socket screws from the pivot bolt. This requires a 6mm allen key.
5. Remove the two bracket connecting bolts (A) from the arms using circlip pliers.
6. Remove the pivot pin bolt (B). This requires a 27mm and a 30mm open end wrench.
7. Clean the arms, bolts (A&B) washers (C) and nuts. Replace any defective parts.
8. Coat all friction surfaces with high performance lubricant. A good molybdenum disulfide grease is sufficient.
9. Re-assemble in reverse order. Make sure the friction washers (C) are correctly positioned between the arms and cross-member.



Troubleshooting

Problem	Reason	Solution
Tool makes grinding noise when operated	Lack of grease at pivot points	Clean and grease pivot points
Tool will not run.	Improper connection, low battery, other	Check connection, charge battery, contact dealer

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

Freedom Series FV-13c Vario Tool

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 or roof pillars, door posts, hinges and side impact bars.

Fundamental Description

The hydraulic pressure is produced by a high pressure swash-plate axial piston pump. This pump is driven by a permanently excited 12V/400 Watt DC motor. Switching on and off is done by an auxillary switch at the slide switch. This combination assures that the motor will not be running in the off or zero position.

The hydraulic control provides a “deadman” handle. After release of the rocker switch the tool will stop moving.

Operating Vario Tool

First the Vario is connected to the energy pack via the plug connection. (Guiding groove on the bottom) The control for the Vario tool is situated below the stationary handle.

The operation of the Vario tool is controlled by a “dead man” rocker switch control.

Neutral or Stop Position: The rocker is held in the center position by a spring when not in use.

Opening: Press rocker to the right- Vario arms open.

Closing: Press rocker to the left- Vario arms close.

Spreading: The Freedom Series Vario tool will provide you with many years of reliable service. All of the Freedom 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 when spreader is 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 force on the tool and could cause damage.

Freedom Series Vario

The Freedom 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.

FV-13c Vario ---------- 90 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 many years of reliable service.

After Each Use

- Wipe down all equipment to remove debris
- Check handles and switches
- 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

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.

Do NOT disassemble cutter body, motor or pump. There are no user serviceable parts inside.

Placement When Spreading & Cutting

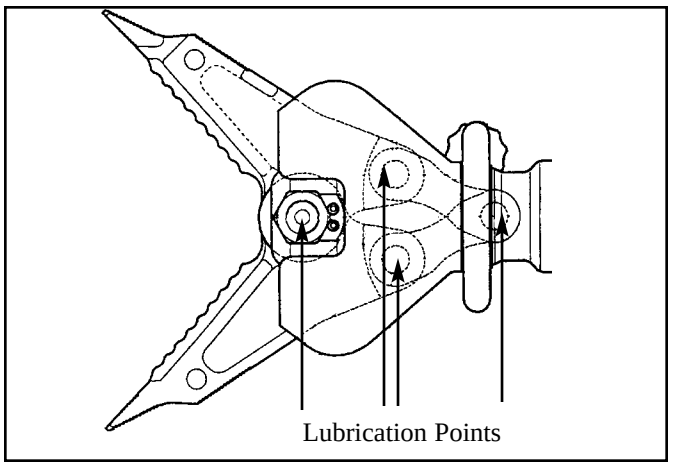
When using a rescue tool be aware of what your spreading and cutting. Following these guidelines will keep your tool working in top condition.

- 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 Cutter

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. (90 lb-ft)



Lubrication Points

Specifications

	FS30 Spreader	FC140 Cutter	FV13c Vario
Spreading Force (max)lbs/kN	18,000/82	N/A	10,000-18,000 45-82
Cutting Force (max) lbs/kN	N/A	56,000/255	58,000/264
Pulling Force (max) lbs/kN	5,400/24	N/A	7,200/33
Opening (max) in/mm	24/610	5/127	13/330
Weight lbs/kg	53/24	35/15.9	42/19.1
Length in/mm	36/914	27.5/700	33/838
Width in/mm	10/254	8/203	8/203
Height in/mm	7.5/191	7.5/191	7/178
Shipping Weight lbs/kg	56/25.4	38/17.2	45/20.4
Part Number	ART.059.995.6	ART.059.994.8	ART.593.002.2