



SEI Certified Model NFPA 1936, 2015 edition
CE EN13204 Designation: AC132D-15.9

Serial Number _____

Thank you for choosing AMKUS Rescue Systems. Please read this User Information Manual thoroughly. If you have any questions, please contact your local dealer or AMKUS, Inc.

Please complete the tool registration form included with your equipment and return it to AMKUS, Inc. You may also register your equipment on-line at www.amkus.com.

The serial number for your tool is identified on the product label which is located on the front of the tool. For quick reference, record the serial number on the cover of this manual. Please have the serial number available if you need to contact your local dealer or AMKUS, Inc.

Important Safety Instructions

Do not use this product until you have read this manual and understand all safety and operating instructions! Failure to comply with these warnings and instructions may result in serious injury, disease, illness or death.

Safety

It is the responsibility of the user to insure that appropriate protective clothing and equipment are used to provide protection from those hazards to which personnel are exposed or could be exposed while working with this product.

Always wear appropriate apparel!

AMKUS equipment is manufactured with superior craftsmanship and quality that is backed by a factory warranty. AMKUS cannot control how other manufacturers of rescue tools rate, test and warranty their equipment. Therefore, we do not recommend that tools other than AMKUS be connected to our equipment. Mixing AMKUS equipment with another manufacturer's equipment may cause operational problems, equipment failure or warranty claims to be denied.

Caution: Use only AMKUS supplied mineral base hydraulic fluid in all AMKUS equipment.

This rescue tool is designed to be held by the provided handle and the control valve handgrip. **Never lift or hold a rescue tool by the arms, tips, cutting blades or other moving parts.**

Training

This product is designed to be used by emergency services personnel to facilitate the extrication of victims from entrapment. Its use should be limited to trained personnel only. All personnel using this equipment are assumed to have completed a course of instruction that is acknowledged as being educationally sound by the local authority having jurisdiction over such training. This document contains basic operating and maintenance instructions only.

Set-Up Procedures

Normally, AMKUS equipment is prepared and serviced by your dealer prior to delivery. If, however, you have decided to place the equipment into service yourself, please review the following instructions carefully.

1. Remove equipment from the packing cartons and carefully inspect for damage. Damage that occurs during shipment should be reported immediately to the carrier.
2. Connect the tool connection hoses to the hose lines from the AMKUS hydraulic power unit. Please note that the male and female couplings on the hose lines leading from the power unit should be connected to the corresponding male and female couplings on the tool connection hoses. To connect the couplings, twist the sleeve on the female coupling so that the notch in the sleeve lines up with the

pin. Push the sleeve back so the pin fits into the notch. While holding the sleeve back, push the male coupling into the female coupling. Release the sleeve; it will spring forward into place. Twist the sleeve 1/4 turn so that the pin no longer lines up with the notch. Pull on the couplings to check that they are securely connected.

Getting Started

Start the power unit (refer to power unit and engine manuals). Following the instructions in the power unit manual, operate the selector valve to charge the hose line to which the tool is connected. Pick up the tool, noticing that the design of the AMK-21A cutter makes it natural to grip the handle with one hand and the control valve handgrip with the other. The handle can be repositioned by rotating it clockwise or counter-clockwise to the desired position. There are a total of eight detented positions; one each 45 degrees of rotation.

Operating Instructions

All AMKUS rescue tools are equipped with a twist grip control valve. To operate the valve, twist the control valve handgrip to the right or left, appropriate to the movement you desire from your rescue tool. When holding the cutter in your hands, twisting the handgrip to the right will open the cutter blades and twisting the handgrip to the left will close the cutter blades. The control valve is equipped with a deadman safety feature, which causes the handgrip to return to the center (neutral) position when it is released. The movement of the tool will stop, and the tool will continue to contain the internal pressure that was present at the time the control valve handgrip was released.

To perform a cutting operation, open the cutter blades. Place the blades around the object to be cut. Close the blades to cut the object. Maximum cutting forces are obtained nearest the pivot point or the back of the blades. When possible, start your cut at this point. After making the cut, open the blades, and then remove the tool.

When operating the cutter, you should take care to be positioned to the side of the cutter. As the cutter blades meet resistance, the rescue tool may rotate. If you feel that this movement places you or others in jeopardy, you should immediately release the control valve handgrip. The deadman safety feature of the control valve will immediately return the handgrip to the center (neutral) position, and the movement of the blades will stop. You should then seek another position that does not cause the same problem.

The blades on AMKUS cutters have been proven effective for cutting steering columns, brake pedals, latching mechanisms, and other such items as may be neces-

sary for extrication. However, the hydraulic cutter is not intended as a piercing tool for heavy metal. Therefore, **when cutting, care must be taken to insure that the tips of the blades have a clear path of travel.** The tips of the blades will pierce the sheet metal body panels of most automobiles, but care must be taken to avoid the heavy metal backing plates behind seat belt mounts, door hinges, and latching mechanisms or locks. Please note that the blades are not unbreakable, and should not be used to cut hardened items such as tie rods, leaf springs or spindles. Attempting to cut such items may cause damage to the blades that could result in blade failure.

Please note the minimum safe bend radius of the hoses is 4 inches (101.6 mm).

Routine Maintenance

Inspect all hose, hose fittings and couplings for leakage and damage (see routine maintenance for hoses and couplings).

Using a torque wrench, tighten the socket head cap screws which hold the control valve to the valve manifold and the valve manifold to the hydraulic cylinder plug to 180 in/lbs (20.3 Nm). **DO NOT OVERTIGHTEN!** These screws are installed securely at the factory but may loosen because of vibration while being transported on moving vehicles.

Approximately once a year, or more often if necessary, remove the cutter blades for cleaning and inspection. Removal of the blades is most easily accomplished by closing the blades until the retaining rings on the drive link pins are easily accessible.

Loosen the center bolt. Your tool is equipped with a two-piece permanently locking washer beneath the nut. This makes loosening the center bolt most easily accomplished by turning the centerbolt while holding the nut in place (Photo 1). After removing the nut and washer push the center bolt out, being careful not to damage the threads. Remove the hex nut, lock washer and flat washer from the socket head shoulder screw. Now, push out the socket head shoulder screw. Next remove the retaining ring (Photo 2) from the drive link pin for each blade. Remove the blades and friction plates from the body (Photo 3).

Clean and inspect each blade, friction plate, drive link pin and the center bolt for signs of damage or excessive wear. Damaged or worn parts may need to be replaced. Also, clean inside the body, being sure to remove all grease and dirt.

Lubricate each blade inside the center bolt hole, the drive link pin hole, and on the surfaces where it will contact the other blade, the friction plate, and the drive link. Use a general purpose white lithium grease such as Lubriplate® No. 630-AA.

Position the “ear” of the blade in the drive link. Lubricate and insert the drive link pin through the drive link and the blade. Please note that the head of the drive link pin should fit into the counterbore in the drive link. Install a **new** retaining ring into the groove of the drive link pin. Repeat these steps for the remaining blade.

Insert the socket head shoulder screw. Place the flat washer and lock washer onto the threaded end of the socket head shoulder screw. Thread the hex nut onto the socket head shoulder screw. **DO NOT TIGHTEN!**

Lubricate the shaft of the center bolt. Insert the friction plate nearest the back of the cutter, rotate the blade into position and insert the center bolt through the back half of the body, friction plate and blade. Insert the remaining friction plate, rotate the remaining blade into position and push the center bolt in completely. Install the permanently locking washer and hex nut onto the center bolt.

Hold the center bolt in place with a wrench, and using a torque wrench, tighten the nut to 120 ft/lbs (163 Nm) (Photo 1).

Tighten the nut on the socket head shoulder screw to 100 in/lbs (11.3 Nm).



Routine Maintenance for Hoses

After each use, hoses should be wiped clean with a light cleaning solvent such as Simple Green®. Inspect hoses for damage to the rubber outer cover. Damage which exposes the wire braided reinforcement subjects the wire to corrosion and may weaken the hose. Damaged hoses should be replaced.

Routine Maintenance for Couplings

Couplings should be kept free of dirt and contaminants. They may be most easily cleaned by immersing in, or scrubbing with, a petroleum based solvent such as SAFE-SOL® 140. Couplings should then be lubricated with a non-water based lubricant such as WD-40®. The rubber dust caps which are provided with the tools should also be cleaned periodically. Be aware that while the couplings may be clean, the dust caps will accumulate dirt during use. Do not cover a clean coupling with a dirty dust cap.

Routine Maintenance for Center Bolt

Every three months, or more often if necessary, torque the center bolt nut to 120 ft/lbs (163Nm).

Maintenance Records

It is the responsibility of the user to keep maintenance records for each component of the rescue system. Maintenance shall be performed in accordance with the recommendations as outlined in this manual.

General Maintenance and Storage

1. Always store the tool in a clean dry space.
2. Never store a tool under pressure.
3. Store cutters with the blades in the center of their range of travel (tips slightly overlapped).

After each use:

1. Check to see that important tool markings are legible. Contact your local dealer or AMKUS, Inc. for replacement labels.
2. Wipe tool, hoses, fittings and couplings clean (see routine maintenance for hoses and couplings).
3. Inspect the tool, hoses, fittings and couplings after each use for damage, leakage and excessive wear.
4. If damage or excessive wear is noticed, do not use the tool; contact your local dealer or AMKUS, Inc.

Parts, Service & Technical Information

Parts, service and technical information may be obtained from your local AMKUS dealer, or by contacting AMKUS, Inc.

Troubleshooting Guide

Any problem not resolved by the following suggestions may require you to contact your local dealer or AMKUS, Inc. for further guidance.

Problem	Solution
Blades do not move	Check to see that hoses are properly connected. Check hydraulic fluid level in power unit reservoir. Check to see that the power unit is running. Check to see that the line is charged.
Tool lacks power or speed	Check hydraulic fluid level in power unit reservoir.
Fluid leaks at fittings or hoses	Check tightness of hose fittings. Replace damaged hoses.

AMK-21A Cutter Specifications

Length:	25.8 in.	(655 mm)	A7 
Width:	9.0 in.	(229 mm)	B4 
Depth:	8.0 in.	(203 mm)	C5 
Weight (Ready-to-use)	35.0 lbs.	(15.9 kg)	C5 
Maximum Cutting Force:	110,000 lbs.	(489.3 kN)	D6 
Cutter Opening Distance:	5.2 in.	(132 mm)	E8 
Cutter Opening Time:	4 seconds		
Cutter Closing Time:	4 seconds		
Rated Input Pressure:	10,500 psi	(724 bar)	
Fluid Type:	AMKUS MV-1 Mineral Base Hydraulic Fluid		
	<i>(For equipment stored and operated in environments below freezing use AMKUS MV-0 Mineral Base Hydraulic Fluid)</i>		



CERTIFICATE NO.

AMKUS RESCUE SYSTEMS

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