AMK-24 SPREADER
User Information Manual

DANGER **Understand manual before use. Operating AMKUS Rescue Systems without understanding the manual, receiving proper training, and using appropriate personal protective equipment is a misuse of AMKUS equipment. This manual does not fully address safety. Additional safety information is published in AMKUS Safety Manual LAA-001. Obtain safety information at www.amkus.com/**

AMKUS RESCUE SYSTEMS

SAFETY MANUAL for AMKUS RESCUE SYSTEMS

DANGER Understand manual before use. Operating AMKUS Rescue Systems without understanding the manual, receiving proper training, and using appropriate personal protective equipment is a misuse of AMKUS equipment. Obtain safety information at www.amkus.com/

This Safety Manual is intended to familiarize rescue workers and maintenance personnel with the safety messages of AMKUS Rescue Systems, including powered rescue tools (cans, cutters, spreaders, combination tools), power units (electric or gasoline driven), and powered rescue tool components (cable assemblies, hose assemblies, hose reels, etc.). The safety messages in this publication supersede safety information appearing in AMKUS publications prior to April 2016.

This manual is intended for use with manuals published by manufacturers of prime movers (engines, electric motors, and pumps) used in AMKUS power units.

This manual does **NOT** address operation or servicing of AMKUS Rescue Systems. Only competent rescue tool repair technicians are qualified to repair AMKUS equipment. This manual should be available to all personnel involved with AMKUS equipment.

AMKUS RESCUE SYSTEMS
4201 Montdale Drive, Valparaiso, IN 46383-4098 USA
800-592-6587 • 219-548-5000 • Fax 630-510-4094

CE *EN13204 Designation: AS33/609-17.0*

AMKUS RESCUE SYSTEMS
amkus.com

4201 Montdale Drive, Valparaiso, IN 46383-4098 USA
800-592-6587 • 219-548-5000 • Fax 219-476-1669

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⚠ DANGER

PERSONAL RESPONSIBILITY CODE

The member companies of FEMSA that provide emergency response equipment and services want responders to know and understand the following:

1. Firefighting and Emergency Response are inherently dangerous activities requiring proper training in their hazards and the use of extreme caution at all times.
2. It is your responsibility to read and understand any user's instructions, including purpose and limitations, provided with any piece of equipment you may be called upon to use.
3. It is your responsibility to know that you have been properly trained in Firefighting and /or Emergency Response and in the use, precautions, and care of any equipment you may be called upon to use.
4. It is your responsibility to be in proper physical condition and to maintain the personal skill level required to operate any equipment you may be called upon to use.
5. It is your responsibility to know that your equipment is in operable condition and has been maintained in accordance with the manufacturer's instructions.
6. Failure to follow these guidelines may result in death, burns or other severe injury.

FEMSA

Fire and Emergency Manufacturers and Service Association
P.O. Box 147, Lynnfield, MA 01940 • www.FEMSA.org

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1.0 MEANING OF SAFETY SIGNAL WORDS

A safety related message is identified by a safety alert symbol and a signal word to indicate the level of risk involved with a particular hazard. Per ANSI standard Z535.6, the definitions of the four signal words are as follows:

DANGER **DANGER indicates a hazardous situation which, if not avoided, will result in death or serious injury.**

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

CAUTION **CAUTION indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury.**

NOTICE **NOTICE is used to address practices not related to physical injury.**

2.0 SPECIFICATIONS

Length	29.7 in. (754 mm)
Width	14.0 in. (356 mm)
Depth	8.0 in. (203 mm)
Weight (ready to use) (Ready-to-use with Standard couplings)	37.35 lbs. (17.0 kg)
Maximum Spreader Opening	24.0 in. (610 mm)
Maximum Spreader Travel Distance	23.9 in. (607 mm)
Spreader Opening Time	4 seconds
Spreader Closing Time	4 seconds
Rated Input Pressure	10,500 psi (724 bar)
Highest Spreading Force HSF	10,100 lbs. (44.8 kN)
Lowest Spreading Force LSF	9,145 lbs. (40.6 kN)
Highest Pulling Force HPF	6,218 lbs. (27.6 kN)
Lowest Pulling Force LPF	5,450 lbs. (24.2 kN)
Fluid Type	AMKUS MV1 Mineral Base Hydraulic Fluid Safety Data Sheet (SDS) for AMKUS MV1 Hydraulic Fluid is available at AMKUS.com and CHEMTREC.com (For equipment stored and operated in environments below 32 deg. F (0 deg C) contact Amkus Rescue Systems for recommendation.

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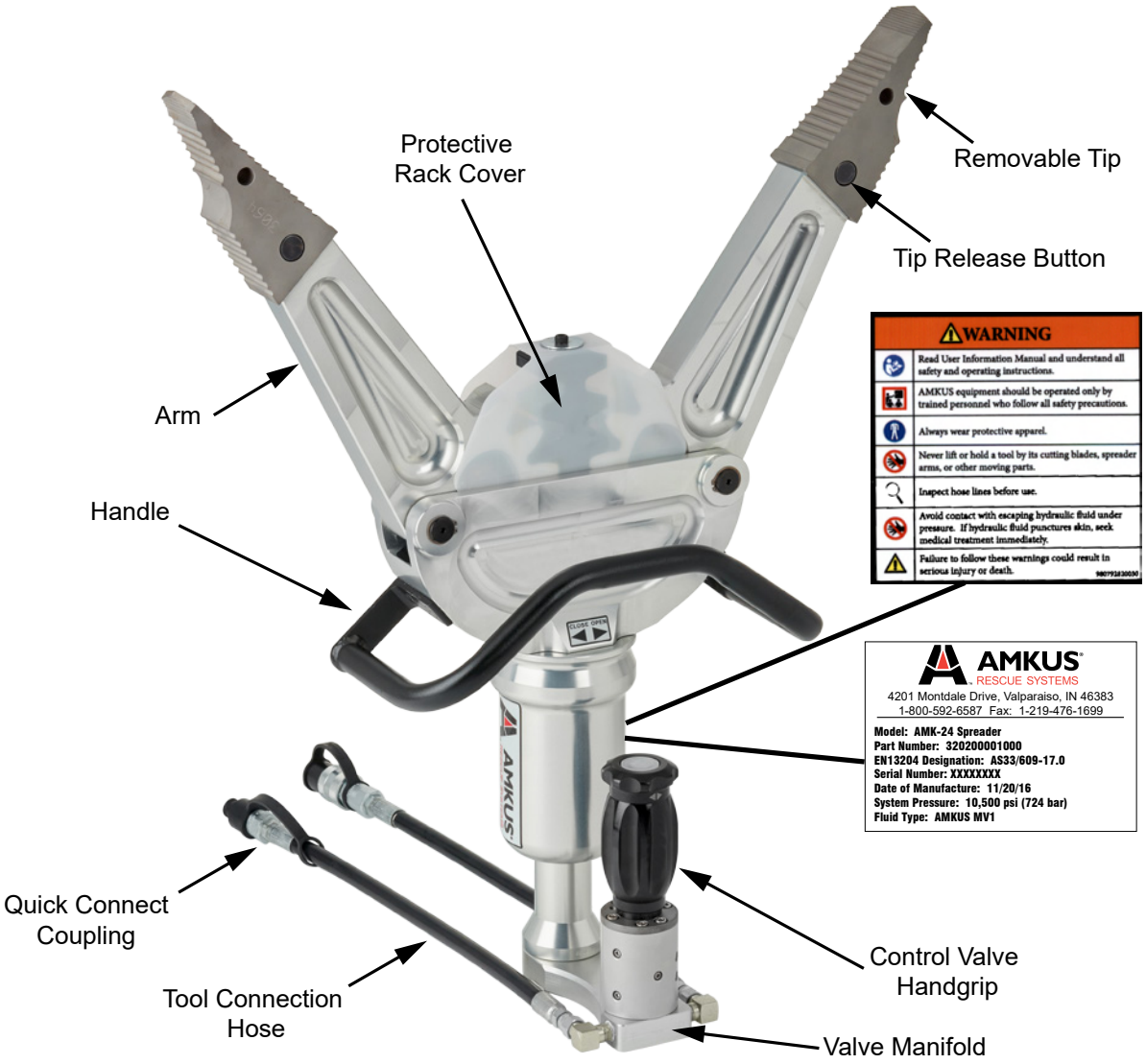
2.1 PART IDENTIFICATION



3.0 PROTECTIVE CLOTHING

Responsibility rests on the equipment's operator to use and deploy appropriate protective clothing and equipment are used. Proper clothing and equipment provide protection from hazards to which personnel are exposed or could be exposed while working with this product.

4.0 TRAINING

This product is designed for use 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 acknowledged as being educationally sound by the local authority having jurisdiction over such training. This document contains basic operating and maintenance instructions only.

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5.0 SET-UP PROCEDURE

AMKUS manufactures equipment of superior craftsmanship and quality. Amkus backs new products with a standard warranty published on the AMKUS website, www.amkus.com

NOTICE **Only use AMKUS tools with AMKUS equipment. Mixing AMKUS tools with another manufacturer's equipment may cause operational problems, equipment failure, or denial of warranty claims.**

NOTICE **Only use AMKUS mineral-base hydraulic fluid in AMKUS equipment. Using another manufacturer's hydraulic fluid in AMKUS equipment may cause operational problems, equipment failure, or denial of warranty claims.**

Normally, AMKUS dealers prepare and service equipment prior to delivery. If, however, you have decide 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 occurring during shipment should be reported immediately to the carrier.
2. Gather and review all safety and use documentation prior to operating any rescue tool.
3. Connect the tool connection hoses to the hose lines from the AMKUS hydraulic power unit.
   a. Standard Couplings: 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.
   b1. Mono Couplings: Please note that the female coupling on the hose lines leading from the power unit should be connected to the corresponding male coupling on the tool connection hoses. To connect the couplings, place the male coupling into the female coupling. Rotate clockwise until you feel the coupling latch. Pull on the couplings to check that they are securely connected.
   b2. In most cases, the Mono Couplings can be connected and disconnected while the hose line is under flow. It is usually not necessary to place the directional control of the power unit in the neutral position before connecting and disconnecting. However, certain circumstances such as back pressure in the return line and/or cold temperatures, may make connecting and disconnecting under flow extremely difficult or impossible. If you are unable to connect and disconnect while the line is under flow, place the directional control valve of the power unit in the neutral position and then disconnect or connect.

6.0 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 grip the handle with one hand and the control valve handgrip with the other.

7.0 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 direction of movement you desire from your rescue tool. Twisting the handgrip to the right will open the spreader arms and twisting the handgrip to the left will close the spreader arms.

The control valve is equipped with a deadman safety feature. This feature causes the handgrip to return to the center (neutral) position when it is released. The movement of the tool stops. The tool remains pressurized.

The spreader can be used for spreading, squeezing, pulling and lifting operations. When spreading, squeezing or lifting, make sure the spreader tips are positioned to maintain maximum contact with the surfaces to be spread or gripped.

Use caution when lifting. Always stabilize the object being lifted. When operating the AMK-24 spreader, the tool may rotate as it meets resistance. Take care to position yourself to the side of the spreader. If you feel this movement places you or others in jeopardy, immediately release the control valve handgrip. Then seek another purchase point that does not cause the same problem.

The design of the AMK-24 spreader incorporates removable tips. To remove the spreader tip, use your thumb and finger to simultaneously depress the spring loaded tip pins. To re-install the spreader tip, depress the spring loaded tip pins, and slide the tip back into place. Be sure both pins return fully to their original positions. To shut down the power unit, follow the instructions in the engine owner's manual to stop the engine.

NOTICE **The minimum safe bend radius of the AMKUS hydraulic hoses is 4 inches (101.6 mm).**

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8.0 TROUBLE SHOOTING GUIDE

Any problem not resolved by these suggestions may require you to contact your local dealer or AMKUS Rescue Systems. for further guidance.

PROBLEM	SOLUTION
Arms do not move	Check that hoses are properly connected. Check hydraulic fluid level in power unit reservoir. Check that the power unit is running. Check that the line is charged.
Rescue 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.

9.0 ROUTINE MAINTENANCE

⚠WARNING **Avoid contact with escaping hydraulic fluid under pressure. If hydraulic fluid punctures skin, seek medical treatment immediately. Contact with escaping hydraulic fluid under pressure could result in serous injury or death.**

Inspect all hose, hose fittings and couplings for leakage and damage (see 9.2 routine maintenance for couplings and 9.3 routine maintenance for hoses).

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 to 180 in/ lbs (20.3 Nm).

⚠CAUTION **DO NOT OVERTIGHTEN! These screws are installed securely at the factory but may loosen because of vibration while being transported on moving vehicles.**

9.1 ANNUAL MAINTENANCE

1. Annual maintenance shall be completed by an Authorized AMKUS dealer while the rescue tool is under warranty.
2. Contact the Amkus dealer or Amkus directly for replacement parts.
3. Always relieve the rescue tool of internal pressure prior to servicing.

9.2 SPREADER ARM MAINTENANCE

Annually at a minimum, or more often if necessary, removal of the spreader arms for cleaning and inspection shall be performed by either an Amkus Level One Service Technician or a local Amkus dealer. Removal of the spreader arms is most easily accomplished by opening the spreader arms to the near full open position (as shown below). Personnel doing this inspection shall wear safety glasses.

1. Loosen and remove the socket head cap screw which secures the protective rack cover to the rod/rack. Next, remove the flat washer. Slide the protective rack cover up and off of the rod/rack.
2. Using external retaining ring pliers, remove the retaining rings which secure the spreader arm pivot pins to the spreader bracket (Photo 1). Discard the retaining rings. Tap out the pivot pins (Photo 2). Lift each arm out of the spreader bracket (Photo 3).
3. Clean away all dirt and grease. Inspect the spreader arms and the rod/rack for any signs of damage or excessive wear. Pay particular attention to the gear teeth.
4. Apply a general purpose white lithium grease such as Lubriplate® NO. 630-AA to the teeth of the spreader rack, the teeth of each spreader arm, inside the pivot pin holes of each arm, inside the pivot pin holes of the bracket and the surfaces of the spreader arm that will contact the spreader bracket.
5. To reassemble the spreader. Be sure the gear teeth of the arms engage properly with the gear teeth of the rack. Lubricate and insert the pivot pins. Install new retaining rings into the grooves at each end of both pivot pins.
6. Clean away all dirt and grease and inspect the protective rack cover for damage. Replace the protective rack cover if damaged. Reinstall the protective rack cover by sliding it down over the rod/rack. Replace the flat washer. Install and tighten the socket head cap screw.

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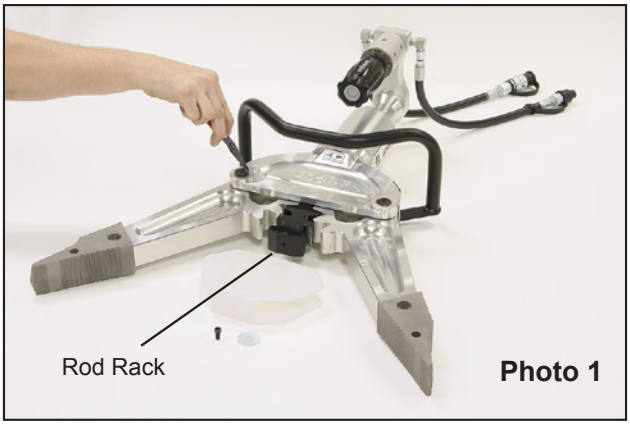
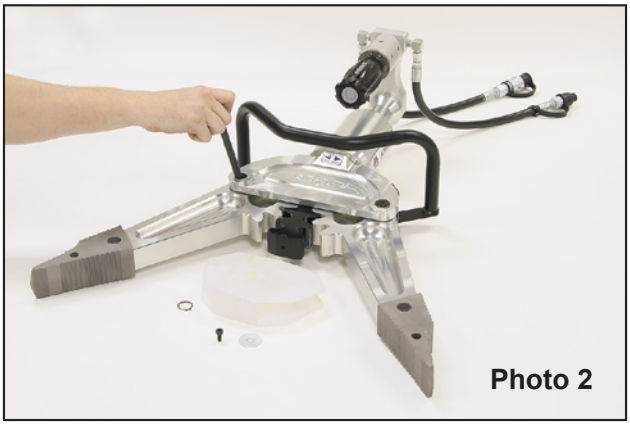


Photo 1



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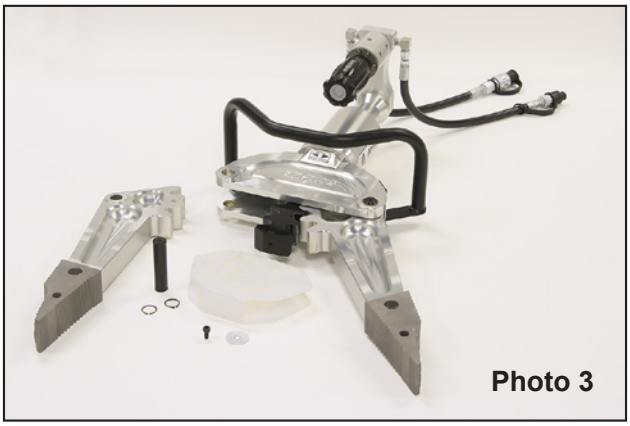

Photo 3

9.3 ROUTINE MAINTENANCE FOR HOSES

After each use, wipe clean hydraulic hoses with a light cleaning solvent such as Simple Green®. Inspect hydraulic hoses for damage to the outer rubber cover. Damage exposing the wire braided reinforcement subjects the wire to corrosion and may weaken the hydraulic hose. Remove damaged hydraulic hoses from service. Replace damaged hydraulic hoses immediately.

9.4 ROUTINE MAINTENANCE FOR COUPLINGS

⚠WARNING **Remove damaged hose couplings from service. Replace damaged hose couplings immediately. Damaged hose couplings could cause hydraulic fluid to escape under high pressure. Contact with escaping hydraulic fluid under pressure could result in serious injury or death. Loss of hydraulic pressure prevents the rescue tool from operating properly and may result in serious injury or death.**

Keep hose couplings free of dirt and contaminants. Even with care, residual oils on the moving parts gradually accumulate dirt and grit making hose connections difficult. To clean hose couplings, immerse in, or scrub with, an automotive type aerosol solvent degreaser. Apply a light spray lube (automotive, lock, or gun type) to keep the collars moving easily. The rubber dust caps provided with the tools should be cleaned periodically. Be aware, the hose couplings may be clean, yet the dust caps accumulate dirt during use. Do not cover a clean hose coupling with a dirty dust cap.

9.5 MAINTENANCE RECORDS

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

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10.0 INSPECTION, CLEANING, DECONTAMINATION, AND STORAGE

1. Always store the tool securely in a clean dry space.
2. Never store a tools or power unit hoses under pressure. Always relieve the pressure on hoses and tools after use.

BEFORE BEING PLACED BACK IN SERVICE, rescue tools must be inspected to this checklist;

1. Check to see that important tool markings are legible.
   Contact your local dealer or AMKUS Rescue Systems for replacement labels.
2. Wipe tool, hoses, fittings and couplings clean (see routine maintenance for hoses and couplings).
3. Inspect the rescue tool, hoses, fittings and couplings after each use for damage, leakage and excessive wear.
4. If rescue tool damage or excessive wear is noticed, remove the rescue tool from service immediately; contact your local dealer or AMKUS Rescue Systems for service.
5. If the rescue tool becomes contaminated, determine the nature of the contamination. IE: biological, chemical, radioactive. The authority having jurisdiction may follow internal decontamination guidelines or request technical advice from AMKUS Rescue Systems.

⚠WARNING **Any rescue tool failing any part of the checklist is unsafe for use and must have the problem corrected before use or being placed back into service. Operating a rescue tool that has failed the checklist is a misuse of this equipment. Contact your local dealer or Amkus Rescue Systems.**

11.0 PARTS, SERVICE AND TECHNICAL INFORMATION

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

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amkus.com

4201 Montdale Drive, Valparaiso, IN 46383-4098 USA
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