AMKUS® RESCUE SYSTEMS

Manual: ION Battery Powered Electro-hydraulic Rescue Tools

⚠ 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 and Safety Data Sheet LAA-040. Instructions for safe operation of DEWALT lithium ion batteries and chargers are included with DEWALT packaging. Obtain safety information at amkus.com/resources/documentation**

ion® 60 VOLT Maximum Power

Certified Compliant to NFPA 1936

UL® CERTIFIED SAFETY US SA44669

CUTTER	Model: iC550
SPREADER	Model: iS240, iS240-L, iS280, iS280-L
COMBI TOOL	Model: iCT516
RAM	Model: iTR230
BATTERY	DEWALT® DCB606 60VDC Lithium Ion Part#: IBATTFV-6
CHARGER	DEWALT® DCB118 1 Hour Charger, 120 VAC Part#: ICHRG120
HYDRAULIC SYSTEM	Self-contained, 10,150 PSI (700 bar) high-speed single stage pump
HYDRAULIC FLUID	AMKUS MV0 (Mineral Oil base) part#: KF0007 Safety Data Sheet (SDS) for AMKUS MV0 Hydraulic Fluid is available at AMKUS.com and CHEMTREC.com

AMKUS RESCUE SYSTEMS
AMKUS.com

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

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


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 (rams, 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.

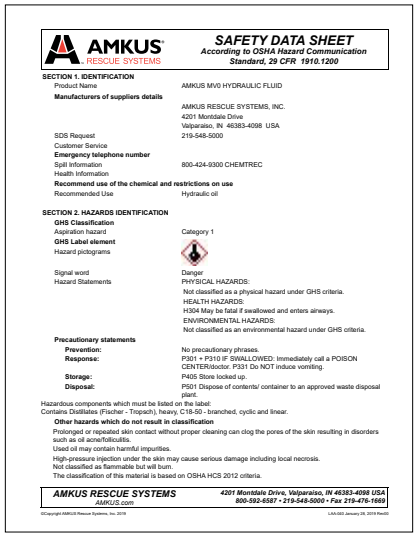
This manual does **NOT** address operation or servicing of AMKUS Rescue Systems. Only competent rescue tool repair technicians are qualified to repair AMKUS equipment. This manual should be available to all personnel involved with AMKUS equipment.

AMKUS RESCUE SYSTEMS
www.amkus.com

4201 Montdale Drive, Valparaiso, IN 46383-4098 USA
800-592-6587 • 630-515-1800 • Fax 630-515-8866

LAA-001 April 15, 2016 Rev00

Safety information for AMKUS Electric Rescue Tools is found in document LAA-001, SAFETY MANUAL FOR AMKUS RESCUE SYSTEMS which is intended to be used in conjunction with this operations manual.


AMKUS RESCUE SYSTEMS

SAFETY DATA SHEET
According to OSHA Hazard Communication Standard, 29 CFR 1910.1200

SECTION 1. IDENTIFICATION

Product Name: AMKUS MV0 HYDRAULIC FLUID

Manufacturers of suppliers details

AMKUS RESCUE SYSTEMS, INC.
4201 Montdale Drive
Valparaiso, IN 46383-4098 USA

SDS Request: 219-548-5000
Customer Service

Emergency telephone number

Spill Information: 800-424-9300 CHEMTREC
Health Information

Recommend use of the chemical and restrictions on use

Recommended Use: Hydraulic oil

SECTION 2. HAZARDS IDENTIFICATION

GHS Classification

Aspiration hazard: Category 1

GHS Label element

Hazard pictograms:

Signal word: Danger

Hazard Statements:
PHYSICAL HAZARDS:
Not classified as a physical hazard under GHS criteria.
HEALTH HAZARDS:
H304 May be fatal if swallowed and enters airways.
ENVIRONMENTAL HAZARDS:
Not classified as an environmental hazard under GHS criteria.

Precautionary statements

Prevention: No precautionary phrases.
Response: P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER/doctor. P331 Do NOT induce vomiting.
Storage: P405 Store locked up.
Disposal: P501 Dispose of contents/ container to an approved waste disposal plant.

Hazardous components which must be listed on the label:
Contains Distillates (Fischer - Tropsch), heavy, C18-50 - branched, cyclic and linear.

Other hazards which do not result in classification

Prolonged or repeated skin contact without proper cleaning can clog the pores of the skin resulting in disorders such as oil acne/folliculitis.
Used oil may contain harmful impurities.
High-pressure injection under the skin may cause serious damage including local necrosis.
Not classified as flammable but will burn.
The classification of this material is based on OSHA HCS 2012 criteria.

AMKUS RESCUE SYSTEMS
AMKUS.com

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

LAA-040 January 24, 2019 Rev03

Safety Data Sheet (SDS) LAA-040 for AMKUS MV0 Hydraulic Fluid is available at AMKUS.com and CHEMTREC.com

Table Of Contents

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

2.1 GENERAL SPECIFICATIONS

BATTERY SPECIFICATIONS Part#: IBATTFV-6	
Model; DEWALT	DCB606
20V/60V MAX* FLEXVOLT 6.0 Ah BATTERY	
Dimensions; Length X Width X Height Inches (mm)	4.9 X 3.3 X 3.6 (124 X 84 X 91)
Weight LB (kg)	2.25 (1.0)
CHARGER SPECIFICATIONS Part#: ICHRG120	
Model; DEWALT 20VMAX* Fan Cooled Fast Charger	DCB118
Input power [Volts AC]	120
Output [Volts DC]	20
Charge current [A]	8
Dimensions; Length X Width X Height Inches (mm)	7.6 X 4.7 X 3.3 (193 X 120 X 84)
Charge Time (minutes)	60
OPERATING LIMITS	
Operating temperature range Degrees F (C)	-25 to 140 (-32 to 60)
ELECTRIC DRIVE SPECIFICATIONS	
Motor type	Brushless
Input voltage [Volts DC]	60
Rated input current; minimum / maximum [Amps]	9.8 / 25.0
HYDRAULIC SPECIFICATIONS	
Fluid Type; AMKUS MV0 Hydraulic Fluid (part number)	KF0007
Maximum operating pressure PSI (bar)	10,150 (700)

* The DCB606 20V/60V MAX Battery pack changes voltage when you change tools, powering a line of powerful 60V MAX tools, 120V MAX tools, and backwards compatible to existing 20V MAX tools and chargers. The battery pack is smart enough to know when to provide runtime for 20V MAX tools (6.0Ah) and power in the new 60V MAX and 120V MAX tools.

Also compatible with;

DEWALT DCB609 20V/60V MAX FLEXVOLT 9.0 Ah and DEWALT DCB612 20V/60V MAX FLEXVOLT 12 Ah BATTERY - AMKUS IBATTFV-9 /IBATTFV-12

DEWALT DCB1800B 1800 Watt Portable Power Station and Simultaneous Battery Charger - AMKUS ICHRG120-4

2.2 CUTTER SPECIFICATIONS

Part#: iC550	
MECHANICAL SPECIFICATIONS	
Dimensions; Length X Width X Height inches (mm)	30.6 X 9.5 X 9.5 (777 X 241 X 241)
Weight (excl. battery) LB (kg)	45.3 (20.5)
Weight (ready to use) LB (kg)	47.6 (21.6)
Cutter Opening inches (mm)	5.8 (147)
Cutter Rating NFPA 1936	A6 / B5 / C6 / D7 / E7

2.3 SPREADER SPECIFICATIONS

Part#: iS240	
MECHANICAL SPECIFICATIONS	
Dimensions; Length X Width X Height inches (mm)	31.2 X 11.1 X 9.6 (793 X 282 X 244)
Weight (excl. battery) LB (kg)	48.1 (21.8)
Weight (ready to use) LB (kg)	50.4 (22.9)
Max Spreading Distance inches (mm)	24.5 (622)
Max Spreading Distance (with optional ERT tips) inches (mm)	32.0 (813)
Highest Spreading Force (HSF) LB (kN)	13,620 (60.6)
Lowest Spreading Force (LSF) LB (kN)	7,410 (32.9)
Highest Pulling Force (HPF) LB (kN)	10,350 (46.0)
Lowest Pulling Force (LPF) LB (kN)	5,850 (26.0)
Max Spreading Force LB (kg)	39,120 (174.0)

Part#: iS240-L (with lighted handle)	
MECHANICAL SPECIFICATIONS	
Dimensions; Length X Width X Height inches (mm)	31.2 X 11.1 X 9.6 (793 X 282 X 244)
Weight (excl. battery) LB (kg)	48.5 (22.0)
Weight (ready to use) LB (kg)	50.8 (23.0)
Max Spreading Distance inches (mm)	24.5 (622)
Max Spreading Distance (with optional ERT tips) inches (mm)	32.0 (813)
Highest Spreading Force (HSF) LB (kN)	13,620 (60.6)
Lowest Spreading Force (LSF) LB (kN)	7,410 (32.9)
Highest Pulling Force (HPF) LB (kN)	10,350 (46.0)
Lowest Pulling Force (LPF) LB (kN)	5,850 (26.0)

Part#: iS280	
MECHANICAL SPECIFICATIONS	
Dimensions; Length X Width X Height inches (mm)	32.9 X 11.1 X 9.6 (836 X 282 X 244)
Weight (excl. battery) LB (kg)	49.9 (22.6)
Weight (ready to use) LB (kg)	52.2 (23.7)
Max Spreading Distance inches (mm)	28.0 (711)
Max Spreading Distance (with optional ERT tips) inches (mm)	36.0 (914)
Highest Spreading Force (HSF) LB (kN)	12,720 (56.6)
Lowest Spreading Force (HSF) LB (kN)	6,610 (29.4)
Highest Pulling Force (HPF) LB (kN))	9,590 (42.7)
Lowest Pulling Force (HPF) LB (kN)	4,960 (22.1)

2.3 SPREADER SPECIFICATIONS (cont)

Part#: iS280-L (with lighted handle)	
MECHANICAL SPECIFICATIONS	
Dimensions; Length X Width X Height Inches (mm)	32.9 X 11.1 X 9.6 (836 X 282 X 244)
Weight (excl. battery) LB (kg)	50.1 (22.7)
Weight (ready to use) LB (kg)	52.5 (23.8)
Max Spreading Distance inches (mm)	28.0 (711)
Max Spreading Distance (with optional ERT tips) inches (mm)	36.0 (914)
Highest Spreading Force (HSF) LB (kN)	12,720 (56.6)
Lowest Spreading Force (HSF) LB (kN)	6,610 (29.4)
Highest Pulling Force (HPF) LB (kN)	9,590 (42.7)
Lowest Pulling Force (HPF) LB (kN)	4,960 (22.1)

2.4 COMBI TOOL SPECIFICATIONS

Part#: iCT516	
MECHANICAL SPECIFICATIONS	
Dimensions; Length X Width X Height Inches (mm)	33.9 X 9.5 X 9.5 (861 X 241 X 241)
Weight (excl. battery) LB (kg)	48.1 (21.8)
Weight (ready-to-use) LB (kg)	50.4 (22.9)
Max Spreading Distance inches (mm)	15.5 (394)
Highest Spreading Force (HSF) LB (kN)	8,920 (39.7)
Lowest Spreading Force (LSF) LB (kN)	6,650 (29.6)
Cutter Opening inches (mm)	7.3 (185)
Cutter Rating	A6 / B7 / C6 / D7 / E7

2.5 TELESCOPIC RAM SPECIFICATIONS

Part#: iTR230	
MECHANICAL SPECIFICATIONS	
Dimensions; Length X Width X Height Inches (mm)	17.8 X 7.3 X 11.4 (452 X 185 X 290)
Weight (excl. battery) LB (kg)	36.9 (16.7)
Weight (ready-to-use) LB (kg)	39.2 (17.8)
Length Retracted inches (mm)	11.4 (290)
Length Extended inches (mm)	22.6 (574)
Highest Spreading Force (HSF) Piston 1 LB (kN)	48,360 (215.1)
Lowest Spreading Force (LSF) Piston 2 LB (kN)	17,170 (76.4)
Extension Lengths Available inches (mm)	10, 18 and 27 (254, 457 and 686)
Max Extended Length (achieved with 27” extension) inches (mm)	49.6 (1260)

3.0 DESCRIPTION

3.1 TOOL COMPONENTS

AMKUS ION 2.0 tools have a 60 Volt direct current brushless motor which drives a hydraulic pump. Pressurized hydraulic fluid moves a piston to operate the tool.

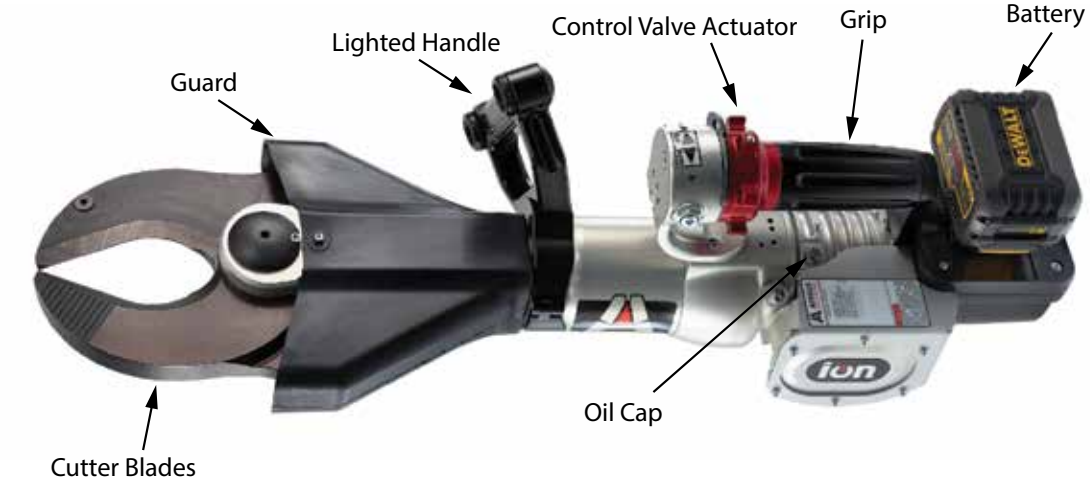


FIGURE 3.1a

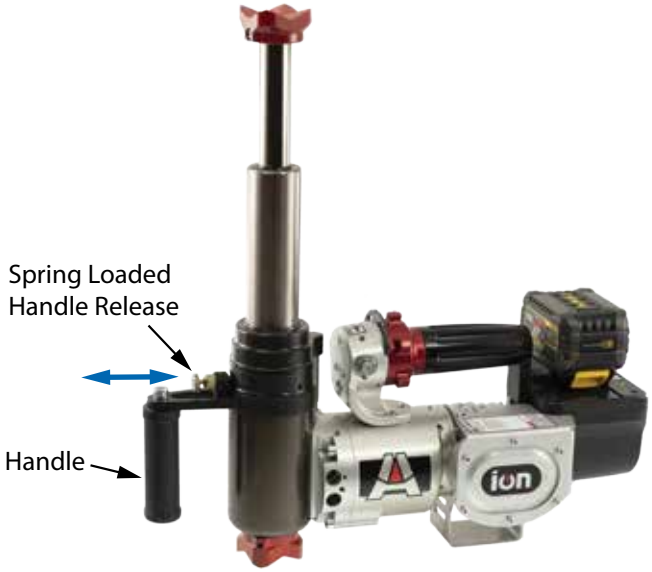


FIGURE 3.1b

3.2 SAFETY MARKINGS

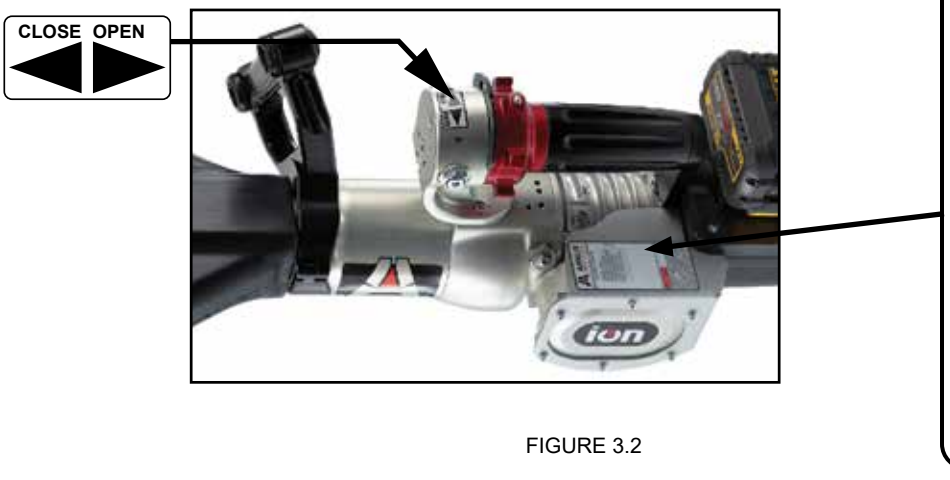


FIGURE 3.2

4.0 SAFETY CONSIDERATIONS

NOTICE **AMKUS electric motors, batteries, and chargers are not waterproof and are not intended for immersion.**

Consult Safety Manual LAA-001 for risk associated with electric rescue tools. Consult DEWALT safety data sheet for risk associated with DEWALT DCB battery and charger. Observe warnings provided with the battery and charger.

4.1 PROTECTIVE CLOTHING

It is the responsibility of the user to ensure 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.

4.2 TRAINING

The AMKUS ION tool design facilitates the extraction of entrapment victims by emergency services personnel. Only trained personnel should attempt extrication. 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.

4.3 OPERATING CONSIDERATIONS

AMKUS ION tools are intended for intermittent use with sufficiently longs pauses to allow the oil to cool. If the tool becomes too hot to touch, the temperature is above 120°F (49°C). When oil temperature reaches 158°F (70°C) the efficiency is significantly reduced and the tool should be stopped to cool down.

- Avoid rescue tool overheating.
- Keep motor cooling vents unobstructed and the heat sink fins clean.
- Remove the battery prior to cleaning, servicing, or inspecting the tool.
- Make sure to power off tool prior to replacing removable spreader tips.
- After use, clean off any accumulated oil, grease, dirt, or corrosive substances.
- Use a damp cloth and soapy water to clean components.

⚠WARNING **Operating the rescue tool continuously against an end stop may damage the tool or cause injury to operator.**

NOTICE **Store electric tools in a secure dry place that can only be accessed by authorized staff.**

5.0 SET-UP PROCEDURE

AMKUS equipment is manufactured with superior craftsmanship and quality that is backed by the standard warranty which is published on the AMKUS website. 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, remove equipment from the packing cartons and carefully inspect for damage. Damage that occurs during shipment should be reported immediately to the carrier.

5.1 CHARGE THE BATTERY

Charge the battery before use;

- Plug the charger into 110 VAC power outlet before inserting a battery pack
- Insert the battery pack into the charger
- The charger has a light charge indicator that blinks according to the state of the charge of the battery pack
- Charging is complete when the red light remains ON
- The battery is fully charged and may be used, or left in the charger

Figure 5.1

5.2 INSTALL THE BATTERY

A quick push slides the battery into the tool. Slide the battery onto the tool until the latch clicks.

Figure 5.2

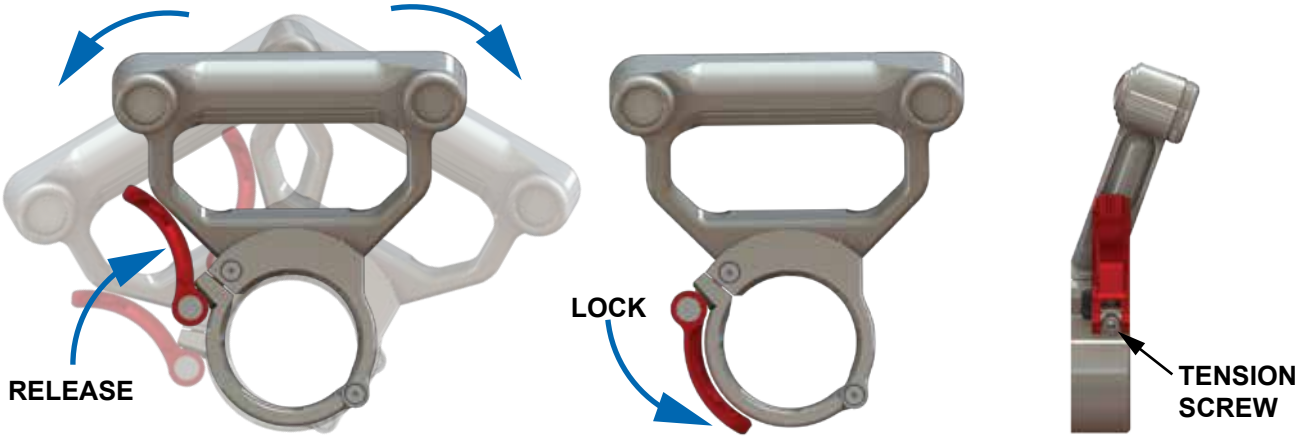
5.3 POWER BUTTON ON/OFF

Press and hold the silver power button momentarily. Release the button when the light stays lit. Press and hold the power button to shut off the rescue tool. The power is off when the lights are off. The rescue tool will power off automatically after 20 minutes of inactivity.

Figure 5.3

5.4 ROTATING HANDLE

ION cutter and combi tools come equipped with a 360° swiveling handle that has variable tension.



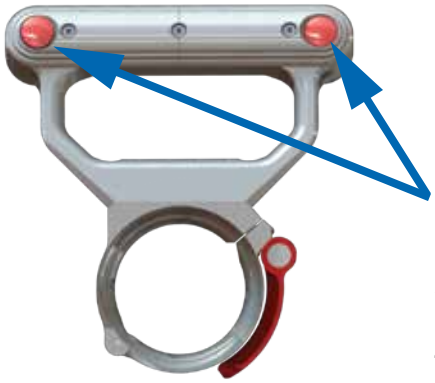
Flip the red latch handle up on the tool's cuff to rotate the rescue tool, and flip it down to lock the handle position.

To increase rotating handle tension, tighten the tension screw shown above.

Figure 5.4

5.4.1 HANDLE LIGHTS

AMKUS dual handle lights operate at three levels of intensity. To operate these lights, press the button located behind each light. The lights can be powered OFF by scrolling through each setting to OFF, or by a single button press from a setting that's been powered ON for over 5 seconds. Continuous use time is about 60 hours on low. Battery saver function will turn the lights off after 15 minutes of continuous use.

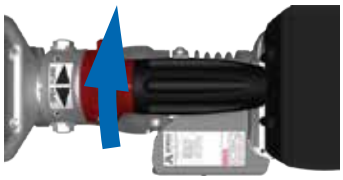


Button press:
1st light level low
2nd light level medium
3rd light level high
4th power off light

Figure 5.4.1

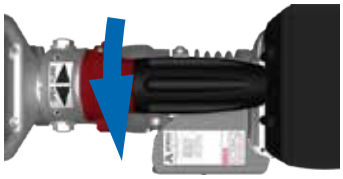
5.5 CONTROL VALVE ACTUATOR

The control valve actuator is equipped with a deadman safety feature, which causes the control valve actuator to return to the OFF position (neutral) when released (see fig. 5.5). The movement of the tool will stop and hold its position and load. The control valve actuator controls the motor and hydraulic pump. The tool contains electronics that prevent overload during operation. The control valve actuator has three positions (see fig. 5.5)



OPEN:
clockwise rotation
closes the tool

OFF (Neutral postion):
The control valve actuator returns to the center with motor stopped



CLOSE:
counter clockwise rotation
opens the tool

Figure 5.5

Verify operation of control valve actuator by checking to see it returns automatically to the neutral position. The silver indicator will be lined up with the center axis of the hand grip in the neutral position.

6.0 OPERATION

6.1 BATTERY CHARGE STATUS

Figure 6.1

Check the battery charge status using the indicator lights on the battery by pushing the status button on the battery.

6.2 WHEN TO CHANGE THE BATTERY

ION tools always keep power ON when you're running the tool. Operation can continue until the motor starts to slow down. When the motor sounds slower, stop & change to a charged battery. The battery management system maintains power until the battery is drained. Allow the battery to cool before charging. Also allow the battery to fully charge before using it again.

Figure 6.2

NOTICE **Draining a battery's charge completely may result in overheating or battery damage reducing the battery's longevity. Wait for the battery to cool down before placing the battery in a charger. Ensure the battery is completely charged before installation in a tool.**

⚠CAUTION **Shorting the battery terminals together may cause burns or a fire. When battery pack is not in use, keep it away from other metal objects, like paper clips, coins, keys, nails, screws, or other small metal objects, that can make a connection from one terminal to another.**

⚠CAUTION **Liquid ejected from the battery may cause irritation or burns. Under abusive conditions, liquid may be ejected from the battery; avoid contact. If skin or eye contact accidentally occurs, flush with water. If liquid contacts eyes, additionally seek medical help.**

6.3 CUTTING

A slight rotation of the control valve actuator runs just the electric motor and pump. Rotating the control valve actuator regulates the hydraulic flow rate and power delivered to the tool. Rotating the control valve actuator to the end stops provides maximum hydraulic flow rate and power.

Figure 6.3a

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. Start the cut with the blades engaged as deep as possible. After making the cut, open the blades and remove the tool. When operating the cutter, take care to be positioned to the side of the cutter. As the cutter blades meet resistance, the rescue tool may rotate (drift). If tool rotation places the user or others in jeopardy, immediately release the control valve actuator. The deadman safety feature of the control valve actuator should immediately return the control valve actuator to the center (neutral) position, and the movement of the blades will stop. Reposition cutter as needed to maintain optimum cutting performance.

The blades on AMKUS cutters have been proven effective for cutting steering columns, brake pedals, latching mechanisms, and other such items as may be necessary for extrication. However, this 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 obstacles like the heavy metal backing plates behind seat belt mounts, door hinges, and latching mechanisms or locks.

⚠WARNING

Blades can break if positioned incorrectly. If blades start to flex sideways (tool rolls as space between blades increases), stop immediately and reconsider cutting strategies.

NOTICE

Cutting hardened solids can potentially dent or deform the blade's cutting edge. Blades may break at these weak spots on subsequent cuts, especially if cutting near the tips. Avoid cutting hardened solids of unknown strength such as padlock shackles, tie rods, leaf springs, spindles, hardened bolts, tool steel, and heat treated chain. Blade damage or breakage that results from cutting these hardened solids is not covered by the AMKUS Rescue Systems warranty. The blades are intended and designed to cut hardened auto bodies and components without damage. We recommend an Authorized AMKUS Rescue Systems Dealer inspect, evaluate and replace dented blades as necessary.

CORRECT POSITIONING

Figure 6.3b

Blades start to flex sideways

INCORRECT POSITIONING

Figure 6.3c

6.4 SPREADING / SQUEEZING / LIFTING

Figure 6.4a

The spreader can be used for spreading, squeezing, pulling and lifting operations. When spreading, squeezing or lifting, make sure that the spreader tips are positioned to maintain maximum contact with the surfaces to be spread or gripped. Always stabilize the object being lifted. When operating the spreader, the tool may rotate as it meets resistance. If tool rotation places the user or others in jeopardy, immediately release the control valve actuator and modify your procedure. The deadman safety feature should immediately return the control valve actuator to the center (neutral) position, and the movement of the arms will stop. Then seek another purchase point that does not cause the same problem.

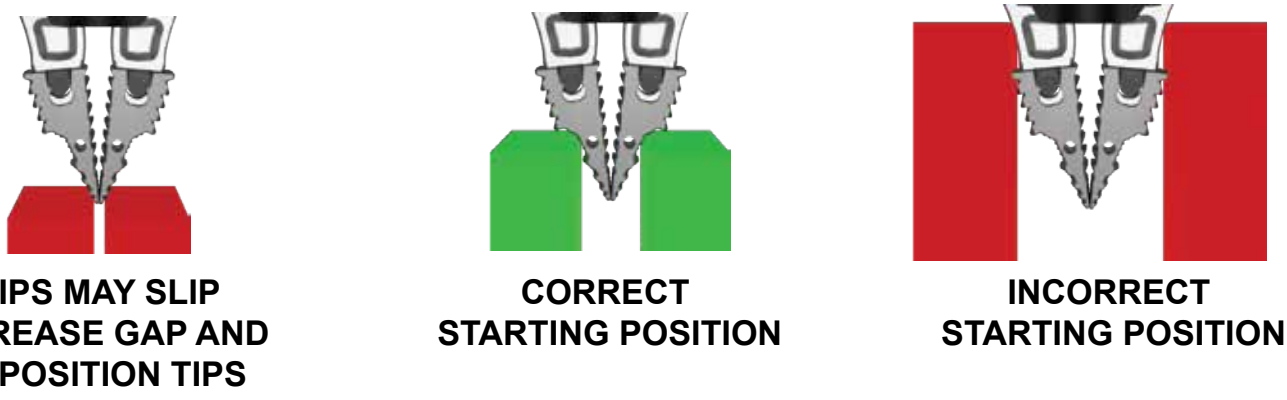


Figure 6.4b

See 7.2 for exchanging spreader tips

6.5 TELESCOPING RAM OPERATION

Figure 6.5a

The telescopic ram has two stages that extend out in sequence. The larger diameter first stage has a higher force than the second stage due to its larger diameter. The head on the second stage is permanently installed, whereas the base of the ram is removable so an extension may be added. (See section 7.1)

Identify the crush zone. These are areas under the load and around the load with risk of crushing from a falling or rolling load. Position the ram base securely against a support surface. Excess space may be taken up using cribbing, or a ram extension. Extend the lifting head to the object being displaced. Ensure nearby people are clear of the crush zone before lifting or retracting. Displace the object only as far as needed. Stop to stabilize the load in increments as the load is lifted or lowered. The telescoping ram is used in pushing and lifting objects with pistons extending. The load is held when the control valve actuator is in OFF (neutral) position. The ram is NOT to be used for pulling tension loads with pistons retracting.

The handle position is adjustable by pulling out the spring loaded handle release and rotating the handle as needed. Re-position the carrying handle to avoid interference with the load. The tool may be carried with the handle in any locked position.

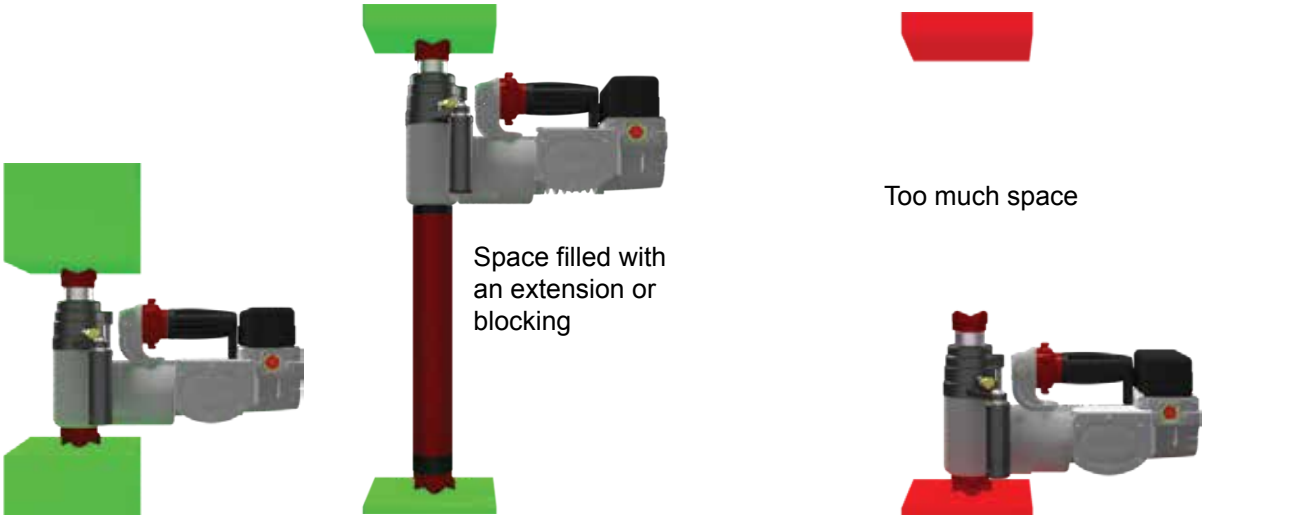
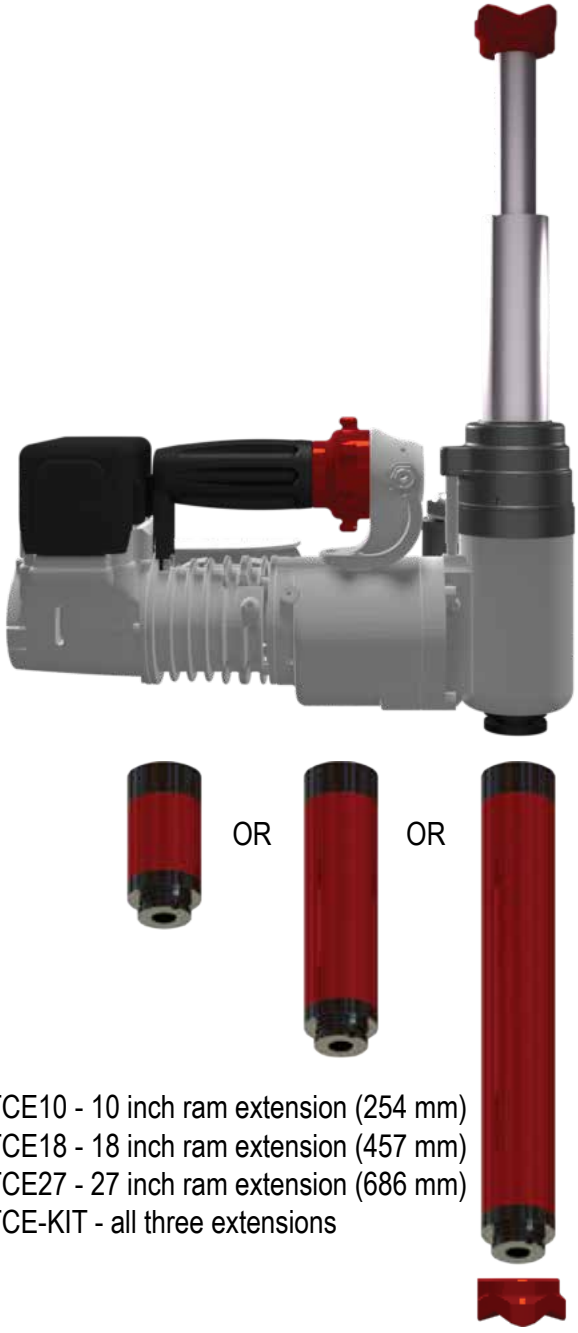


Figure 6.5b

7.0 ACCESSORIES
7.1 RAM EXTENSIONS

Ram extensions are available in three lengths and fit onto the telescopic ram.



AMK-TCE10 - 10 inch ram extension (254 mm)
AMK-TCE18 - 18 inch ram extension (457 mm)
AMK-TCE27 - 27 inch ram extension (686 mm)
AMK-TCE-KIT - all three extensions

To Remove:
Line up the dots and pull

To Install:
Line up the dots, push on and twist

Figure 7.2

⚠WARNING **Stacking extensions adds pivot points that may cause the load to become unstable. Sudden movement can occur in unstable loads having potential to cause severe injury or death. Only use one extension at a time. (For examples, see LAA-001 Safety Manual For AMKUS Rescue Tools)**

7.2 EXTENDED REACH SPREADER TIPS

The ION spreaders use removable tips. To remove the spreader tip, use a thumb and finger to depress the spring loaded tip pins, and remove the tips. To re-install the spreader tip, slide the tip back into place. Be sure that both pins return fully to their original positions.

The reach and versatility of the spreader can be increased by using the Extended Reach Tips (ERT). ERT tips are interchangeable with the standard tips.

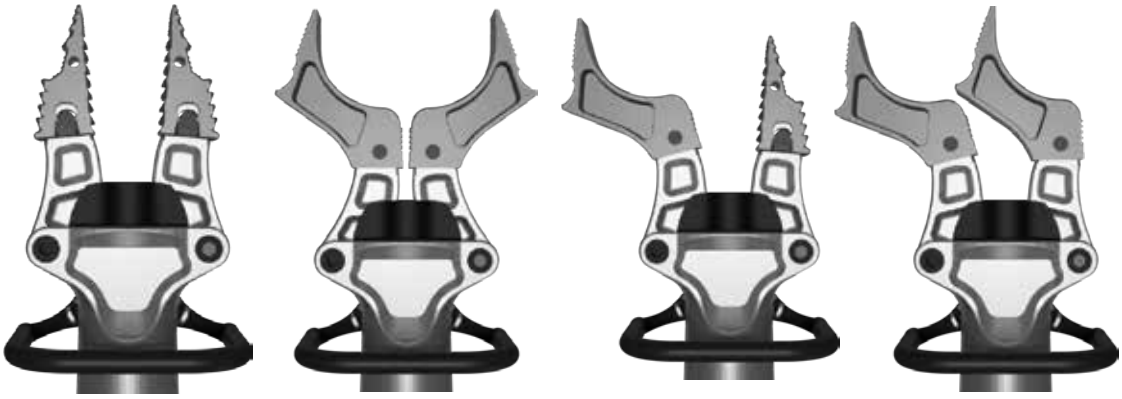


Figure 7.2a

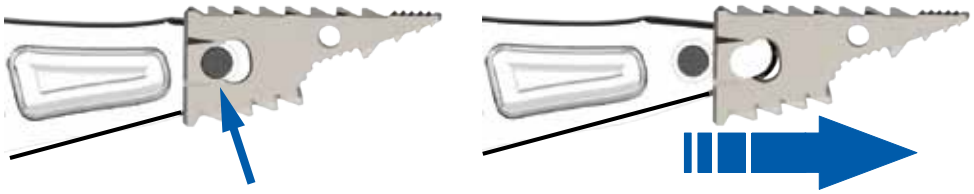


Figure 7.2b

7.3 CHAIN USE

Chain kits are available for spreaders.

⚠WARNING **Transport chain is NOT rated for overhead lifting. Injury or death may occur from improper chain use. Observe chain safety guidelines established by the Authority Having Jurisdiction.**

Figure 7.3a

Setup and operation of both chain kits are the same:

- Secure chains around the load removing slack using grab hooks to latch fully across the chain (tip of hook must not to be inserted into holes of the chain link)
- Remove slack in the chain using quick adjust links (spreader), or grab hooks (combi)
- Tension the chain slightly and check to see that the connections are stable and safe
- Activate the control valve actuator to close the arms and draw the load

Chain rating; 3/8” grade 70 Transport chain, working load limit 6600 lbs (2994 kg)

K-CHAIN24-30 (for use on iS240 & iS280 Spreaders)

Figure 7.3b

Figure 7.3c

8.0 SAFETY GUARDS

Tools with moving blades or arms have a guard over the moving parts. The guard is secured with screws which can be removed to clear debris during maintenance. Replace guards after maintenance.

⚠WARNING **Operating rescue tools can result in injury or death from laceration, projectile (high speed flying debris) and pinch point injuries. Stay clear of the path of travel. Do not operate without guards. Avoid unnecessary risk. (For examples, see LAA-001 Safety Manual For AMKLUS Rescue Tools)**

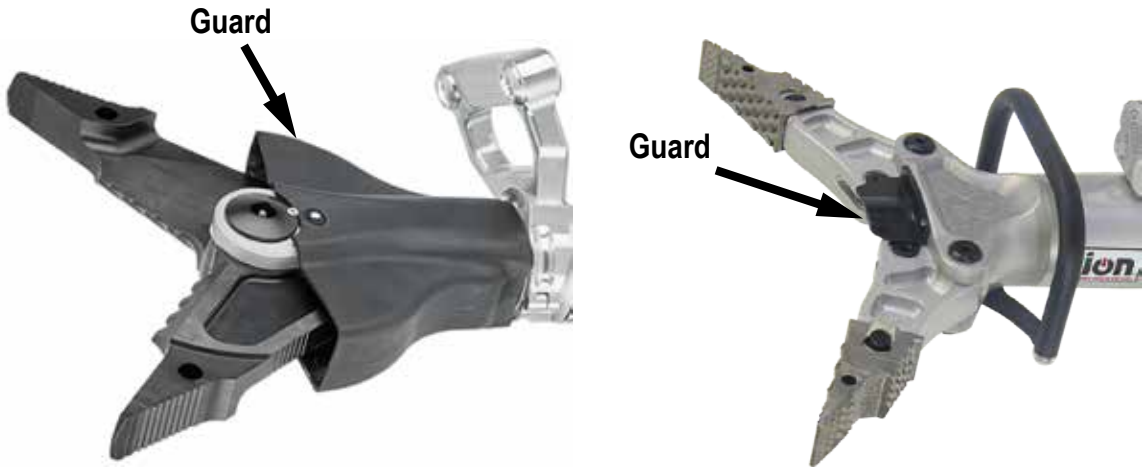


Figure 8.0

9.0 MAINTENANCE

PERIODIC MAINTENANCE SCHEDULE

Frequency (Hours of Use)	Operation	Method	Person in charge
AFTER USE	CHECK BLADES, TIPS AND ARMS FOR WEAR or DAMAGE	SEE 9.1.1	Operator
EVERY 8 HOURS	CHECK THE TOOL FOR DAMAGE, VERIFY OPERATING CONTROLS	Visual	Operator
EVERY 8 HOURS	ENSURE ALL NUTS AND BOLTS ARE SECURE		Operator

Perform all maintenance, inspection, and cleaning operations with the battery removed and the tool cool (see the person responsible in the maintenance schedule); Annual tool maintenance shall be completed regardless of how many hours the tool has been used since it's last maintenance. Clean and inspect the tool before starting any maintenance work.

9.1 ROUTINE MAINTENANCE

9.1.1 CHECK THE BLADES

The use of damaged blades decreases the cutting efficiency of the tool and can overheat the motor.

Replace the blades when they become: worn, cracked, or gouged. (Consult AMKUS Rescue Systems)

9.1.2 HYDRAULIC MAINTENANCE

NOTICE **Immediately remove malfunctioning or damaged tools from service. Consult your dealer or AMKUS Rescue Systems.**

NOTICE **Do not adjust pressure relief valve . User adjustment of the pressure relief valve voids the warranty.**

⚠WARNING **Misuse of AMKUS Rescue Systems can result in a wide variety of hazards and consequences. Remain aware of and avoid misuse situations. (For examples, see LAA-001 Safety Manual For AMKUS Rescue Tools)**

AMKUS Electric tools are equipped with an internal relief valve. In case of an unexpected pressure drop have a qualified AMKUS repair technician check the pressure relief valve to ensure that it's operating properly.

- User adjustment of the pressure relief valve is a misuse of the tool.

See document LIK-055 SERVICE PROCECURE: ION OIL FILL (Level 3 service Technician).

9.1.3 MOTOR MAINTENANCE

Keep the motor cooling vents clean and unobstructed

9.1.4 LUBRICATION

Cutter blades, combi blades, spreader arms, links, and pins are lubricated with white lithium grease. Annual re-lubrication is recommended for average service conditions. More frequent lubrication may be required for severe of frequent usage conditions. Refer to document LAA-023 SERVICE PROCEDURE LAA-023 (Level 2 service technician) and LIK-056 SERVICE PROCEDURE ION SPREADER ARM.

9.1.5 HANDLE LIGHT BATTERY REPLACEMENT

To replace the batteries for either of the independent lights located at opposite ends of the handle, remove the corresponding lid screws with a 3mm hex key. Insert one CR123A battery into each of the battery holders. Use the hex key to tighten the lid screws back into position.

Battery change; remove the screws and covers. Replacement batteries; CR123 lithium ion battery (2 required).

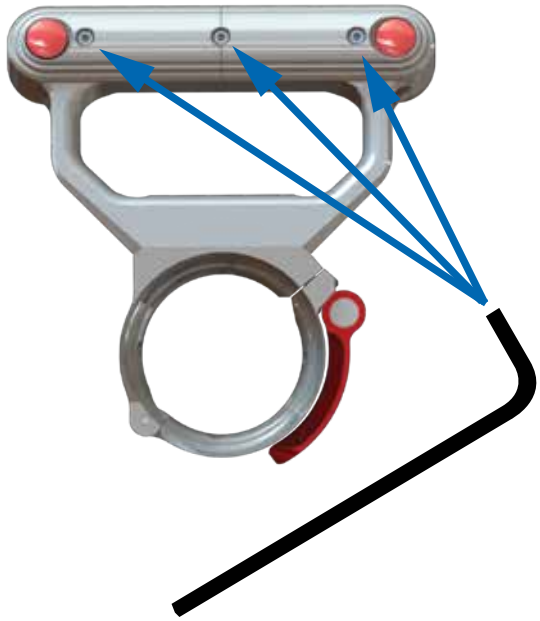


Figure 9.1.5

10.0 TROUBLESHOOTING

10.1 GENERAL

Malfunctions can be divided into three sections:

1. Malfunction of the electric motor
2. Malfunction of the hydraulic system
3. Malfunctions related to other rescue tool systems.

NOTICE **ALL SERVICE MUST BE PERFORMED BY QUALIFIED SERVICE TECHNICIANS IN OBSERVANCE OF SAFETY REGULATIONS.**

Remedies marked by the letter **M** require the intervention of the Maintenance technician.
Remedies marked with the letter **O** can be performed by the Operator.

10.2 TROUBLESHOOTING THE MOTOR

FAULT	POSSIBLE REASON	POSSIBLE REMEDY	PERFORMED BY
MOTOR DOES NOT START	Battery defective	Replace	**O**
	Tool not turned on	Press power button for 3 seconds	**O**
	Battery not charged	Charge battery	**O**

FAULT	POSSIBLE REASON	POSSIBLE REMEDY	PERFORMED BY
ELECTRIC MOTOR OVERHEATED	Battery overheated	Wait for it to cool down	**O**
	Cooling vents obstructed	Clean	**O**

10.3 TROUBLESHOOTING THE HYDRAULICS

FAULT	POSSIBLE REASON	POSSIBLE REMEDY	PERFORMED BY
OUTWARD STROKE DOES NOT BEGIN	Control valve actuator damaged	Replace	**M**
MOTOR DOES NOT STOP	Battery shorted	Replace battery	**O**
	Control valve actuator stuck	Blow out control valve with air/Consult Authorized AMKUS Service Tech	**M,O**
OUTWARD STROKE DISCONTINUOUS	Max. pressure valve fault	Consult AMKUS Service Department	**M,O**

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.

12.0 DECOMMISIONING

When decommissioning any AMKUS Rescue Systems Tool or power supply, local regulations shall be followed. For proper disposal information, contact your local AMKUS Rescue Systems dealer.

13.0 INSPECTION, CLEANING, DECONTAMINATION, AND STORAGE

1. Always store the tool securely in a clean, dry space.
2. Relieve the pressure on the tools after use by backing off the end stop.
3. Charge the battery.

BEFORE BEING PLACED BACK IN SERVICE, the rescue tool must be inspected to this list:

1. Check to see that all rescue tool markings are legible.
   Contact your local dealer or AMKUS Rescue Systems for replacement labels.
2. Wipe the tool clean.
3. If the rescue tool becomes contaminated, determine the nature of the contamination. Follow the decontamination guidelines provided by the authority having jurisdiction. Technical advice may be requested from AMKUS Rescue Systems.
4. Inspect the tool, controls and battery after each use for damage, leakage and excessive wear.
5. 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.
6. Install battery and verify tool operation.

⚠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.**

Products manufactured in Italy and USA.

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