

# POWER HAWK<sup>®</sup> P-16X™

THE POWER HAWK<sup>®</sup> P-16X™ RESCUE SYSTEM  
USER SAFETY & INSTRUCTION MANUAL





## TABLE OF CONTENTS

- 1. GENERAL SAFETY INFORMATION ..... 3
- 2. MANUFACTUER CONTACT INFORMATION..... 4
- 3. INTRODUCTION AND SYSTEM DESCRIPTION..... 6
  - 3.1 THE P-16X™ RESCUE TOOL .....6
- 4. PREPARATION FOR OPERATION ..... 6
  - 4.1 INSPECTION.....6
  - 4.2 POWER SOURCE SELECTION AND CONNECTIONS.....7
    - 4.2.1 PWR-LI12X “LI-GHTNING POWER PACK™”, 12V LITHIUM-ION..... 8
    - 4.2.2 BC-LI12X BATTERY CHARGER..... 10
    - 4.2.3 PA-12X POWER ADAPTER, 12V..... 11
  - 4.3 AUXILLIARY & BACK-UP 12V POWER .....12
    - 4.3.1 JC4-16 JUMPER CABLES ..... 12
    - 4.3.2 VH4-4 VEHICLE HARNESS WITH EC4-16 EXTENSION CABLE ..... 12
- 5. TOOL ATTACHMENT SELECTION AND INSTALLATION ..... 13
  - 5.1 INSTALLING P-16X™ TOOL ATTACHMENT(S).....13
  - 5.2 INSTALLING SPREADER ARMS ..... 14
  - 5.3 INSTALLING CUTTER ATTACHMENTS.....14
  - 5.4 REMOVING P-16X™ TOOL ATTACHMENTS .....16
- 6. POWERHEAD 70° VARIABLE POSITIONING..... 17
- 7. OPERATION of P-16X™ RESCUE SYSTEM ..... 18
  - 7.1 HAND-HELD OPERATIONS.....18
  - 7.2 REMOTE OPERATIONS.....19
  - 7.3 OPERATING SAFETY INFORMATION .....20
  - 7.4 HELPFUL HINTS.....20
- 8. MAINTENANCE for P-16X™ RESCUE SYSTEM ..... 22
  - 8.1 MAINTENANCE AFTER USE: .....22
  - 8.2 MONTHLY MAINTENANCE AND INSPECTION:.....22
  - 8.3 ANNUAL INSPECTION:.....22
  - 8.4 STORAGE: .....23
  - 8.5 STOP SCREW REPLACEMENT: .....23
  - 8.6 REPLACEMENT PARTS.....23
  - 8.7 TROUBLESHOOTING .....23
- 9. SPECIFICATIONS ..... 24
- 10. WARRANTY INFORMATION..... 26
- 11. MAINTENANCE SERVICE RECORD ..... 27



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## 1. GENERAL SAFETY INFORMATION

The Power Hawk® P-16X™ Rescue System is designed to provide safe operation. All users should read and be thoroughly familiar with the operating instructions and safety precautions contained in this manual. Operator safety depends on users being properly trained by the Authority having jurisdiction and using the tool for the purpose intended. The following safety precautions must be observed at all times. **FAILURE TO DO SO COULD RESULT IN SERIOUS PERSONAL INJURY AND/OR DAMAGE TO PROPERTY AND/OR EQUIPMENT.**

- The Power Hawk® P-16X™ Rescue System shall only be operated by persons authorized by the Authority having jurisdiction.
- Suitable protective equipment shall be worn as directed by the Authority having jurisdiction. At a minimum, this should include gloves, helmet, eye protection, and body protection – such as turnout gear.
- Prior to use, inspect all Power Hawk® P-16X™ Rescue System components for any signs of damage or fraying. Do not use damaged equipment.
- Stay alert. Do not operate tool when tired.
- Use only Power Hawk Technologies Authorized Service Centers and parts.
- This equipment should only be used with accessories approved by Power Hawk Technologies.
- Use of unauthorized accessories can result in unpredictable and unreliable product operation and is therefore prohibited.
- Never use the tool while holding the cutting or spreading attachments. Hold the tool only by the handles when operating. To avoid risk of serious personal injury and/or damage to property and/or equipment, do not under any circumstances place hands or other body parts on or near Power Hawk® attachments when in operation.
- Operate the tool only with the clutch knob tightened. The clutch is intended to secure the position of the attachments. Failure to do so may result in personal injury due to sudden movement of the tool and/or attachments.
- When spreading with Power Hawk® spreader attachments, make sure objects being spread are stabilized and operator(s) and patient(s) are shielded from any loose debris.
- When stabilizing, use proper cribbing methods.
- Power Hawk® cutter attachments are designed to cut a variety of materials such as door and windshield posts, pipe, sheet metal, steel plate, rebar, etc. Do not attempt to cut hardened metal, such as steering columns, Nader pins, seat belt bolts, lock hasps, etc., as this action may result in blade damage.
- When cutting with the Power Hawk® cutting attachments, make sure the object being cut is anchored on both sides and the tool is held firmly.
- Make sure the cutter Bolt and Nut is tight. The blades should never be able to be opened and closed by hand. If tightening is required, the cutter nut should be torqued to 150 footpounds
- Make sure the cutter-link snap rings are secure.
- When cutting, position the cutter so that the material being cut does not wedge in between and cause the blades to separate while cutting. Failure to do so may result in component breakage, causing serious personal injury and/or damage to property and/or equipment.

## BATTERY AND BATTERY CHARGING SAFETY INFORMATION

All batteries contain corrosive acids and produce explosive gases during recharging. Failure to follow the safety precautions below may result in acid burns and/or gas explosion, causing blindness, serious personal injury, and/or damage to property and/or equipment.

- RECHARGE PWR-Li12X Battery Pack using **ONLY** the special charger Model BC-Li12X provided by POWER HAWK Technologies, Inc.
- RECHARGE battery pack **ONLY** at temperatures between -13 to 131°F (-25 to 55°C)
- DO NOT expose battery pack to temperatures above 140°F (60°C)
- DO NOT use battery pack below -22°F (-30°C), if cold-soaked for 2 hours or more
- DO NOT store battery pack in a discharged state
- DO NOT attempt to open or service the battery pack
- DO NOT use battery pack for jump starting another battery
- DO NOT crush or puncture battery pack
- DO NOT submerge battery pack in water
- DO NOT expose battery pack to fire or excessive heat
- Keep battery pack and charger away from children
- TRANSPORTATION of Lithium-Ion batteries must be in accordance with U.S. DOT Hazardous Material Regulations and International Dangerous Goods Regulations.
- DISPOSE of battery pack in accordance with Local, State, & Federal Laws and Regulations. They must be collected, recycled, or disposed of in an environmentally sound manner. It is unlawful to incinerate batteries, or discard them in municipal solid waste or landfill.



## 2. MANUFACTUER CONTACT INFORMATION

Power Hawk Technologies, Inc.,  
300 Forge Way, Suite 2  
Rockaway, New Jersey 07866 USA  
Telephone: 973-627-4646 or 1-800-PWR-HAWK (1-800-797-4295)  
Fax: 973-627-4622

[www.powerhawk.com](http://www.powerhawk.com)



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### 3. INTRODUCTION AND SYSTEM DESCRIPTION

#### 3.1 THE P-16X™ RESCUE TOOL

The Power Hawk® P-16X™ Rescue Tool is a self-contained cordless tool that utilizes aerospace gear technology, namely the Curtiss Wright Power Hinge™, to deliver high output forces to tool attachments such as spreaders and cutters. Tool attachments are quickly interchangeable using high-strength steel, ball detent pins. A variable 70° articulation of the power head and attachments allows greater versatility of access as compared to conventional hydraulic rescue tools. The P-16X™ Rescue Tool is powered solely by 12 volts DC. There are NO HYDRAULICS. The rear handle has a circular design to maintain identical trigger switch operation regardless of the tool's rotational position.



Enter the Serial Number of your P-16X™ Rescue Tool below:

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The five-digit number can be found on the right side of the tool or on the bottom plate behind the Power Head, as shown on the left.

### 4. PREPARATION FOR OPERATION

#### 4.1 INSPECTION

Remove P-16X™ Rescue System components and carefully inspect contents for any damage. If damage is found, contact your local Power Hawk® Dealer or the Factory for instructions.



- A. P-16X™ Rescue Tool
- B. AP-1600 Attach. Pin Set
- C. PWR-Li12X "Li-GHTNING POWER PACK", 12V
- D. BC-Li12X Battery Charger
- E. PA-12X Power Adapter
- F. S-1601X Spreader Arms

- G. CS-1602LW Power Blade
- H. C-1601 Curved Cutter
- I. C-1603 Hatchet Cutter
- J. C-1604 Shredder Cutter
- K. JC4-16 Jumper Cables

## 4.2 POWER SOURCE SELECTION AND CONNECTIONS

The Power Hawk® P-16X™ Rescue Tool is powered using 12 volts DC which must be connected via Power Pack or Power Adapter. Power sources may include:

- **Power Hawk Power Packs**



PWR-Li12X  
Rechargeable  
Lithium-Ion



PA-12X  
Power Adapter

- **Direct 12 VDC vehicle system hook-up**



VH4-4  
Vehicle  
Harness  
with



EC4-16  
Extension  
Cable

- **Jumper Cable to 12 VDC batteries**



JC4-16  
Jumper  
Cables

- **12 VDC Generator**

- **12 VDC Converted Power Supply**

**It is recommended that back-up 12 volts DC power always be available on-scene when using the Power Hawk® P-16X™ Rescue System, especially when operating with consumable power sources such as the Power Hawk power packs.**

**NOTE**

The 12 volts DC power source must be capable of delivering sufficient current to properly operate the P-16X™ Rescue Tool without causing damage to the power source itself.  
(See section 9. SPECIFICATIONS for P-16X™ current requirements.)



**4.2.1 PWR-Li12X “Li-GHTNING POWER PACK™”, 12V Lithium-Ion**



The PWR-Li12X “Li-GHTNING POWER PACK™” is a lightweight and portable 7.5 Ampere Hour (99WH) 13.2 V Lithium-Ion (LiFePO4) battery pack. The PWR-Li12X uses a custom connector and a replaceable latch mechanism to connect power to the internal controller of the P-16X™. A charge indicator using five (5) **GREEN** LEDs with test button and fault indication are built into the Power Pack so that the user can visually check the charge state of the battery. The PWR-Li12X “Li-GHTNING POWER PACK™” charges via the same custom connector and latch mechanism using the required battery charger -- Model BC-Li12X -- provided by POWER HAWK Technologies, Inc. (See section 4.2.3 BC-Li12X BATTERY CHARGER.)

**⚠ CAUTION**

**Prior to charging, inspect battery connection port to ensure no dirt/debris/corrosion will block the connection. If there is corrosion, please contact Power Hawk.**

Prior to selecting the PWR-Li12X Li-GHTNING Power Pack, note the charge condition of the battery by PRESSING the “T” test button located on the top of the pack. A fully charged battery is indicated by all five (5) **GREEN** LEDs illuminating and the bar graphics directly underneath. As the charge on the battery is depleted, the LED lights from right to left will not illuminate, indicating reduced battery capacity.



- ● ● ● ● = Fully Charged
- ● ● ● = Ready to use
- ● ● = Power partially discarded
- ● = Recharge soon
- = Finish operation, charge battery

**NOTE:** If the PWR-Li12X senses any issues within the pack, the **RED** “FAULT” LED will illuminate and cut power to the P-16X™ Rescue Tool. Contact Power Hawk if this issue occurs.

**IMPORTANT:** The battery gauge will show the proper voltage level **ONLY** when the battery is in its “settled” state. It will not indicate accurate state-of-charge under the following conditions:

1. **During operation of the P-16X™ Rescue Tool**, the battery LED gauge on the PWR-Li12X will illuminate less than three (3) LED’s even though there may be plenty of capacity remaining in the battery. This is because the indicator is sensing voltage and as amperage is being drawn by the P-16X™ Rescue Tool, the voltage of the battery drops naturally when under load. After operating the tool, it may take several minutes for the battery to “settle” and for the gauge to indicate the actual charge level.



**CAUTION:** A partially discharged battery will shorten the operational time of the P-16X™ Rescue Tool. Keep the PWR-Li12X Power Pack fully charged when not in use, a partially discharged battery will shorten the operational time of the P-16X™ Rescue Tool. To avoid reduced battery capacity due to self-discharging:

- Charge upon receipt
- Recharge after each use
- When not in use, recharge at least:
  - **Recommended: ONCE EVERY 6 MONTHS**
  - **Required: ONCE EVERY 12 MONTHS**

### CONNECTING THE PWR-Li12X Li-GHTNING POWER PACK TO THE P-16X™ RESCUE TOOL

The PWR-Li12X unique and custom shape allows for quick connection and release to the Power Hawk P-16X™ Rescue Tool. The battery pack has a thicker rear section and a thinner front section. The thinner front section has a tang used to create more holding points when attached to the P-16X™ inside the battery cradle, while the thicker rear section has a lip used in conjunction with the latch mechanism to secure to the tool. With the LED gauge facing towards the sky, use the tang of the PWR-Li12X to guide the battery into the top cradle. When the battery cannot go any further, press down on the thick back of the battery until the latch mechanism has secured the PWR-Li12X to the P-16X™ Rescue Tool.



### DISCONNECTING THE PWR-Li12X Li-GHTNING POWER PACK FROM THE P-16X RESCUE TOOL

The Power Hawk P-16X™ Rescue Tool uses a custom designed replaceable latch mechanism. To release the PWR-Li12X from the tool, pull back on the latch mechanism until the latch clears the rear lip of the PWR-Li12X. Then lift up on the battery pack and guide the battery out of the cradle.



### IMPORTANT:

1. **Charge prior to first use.** New battery packs may have been stored or in transit for extended periods of time and/or at temperatures that reduced the battery's state-of-charge due to self-discharging. Charge new battery packs until full, regardless of their indicator readings.
2. **Recharge immediately after EACH use.** Recharge regardless of the battery's state-of-charge. Storing a discharged battery can hurt the longevity of the battery pack life.
3. **Recharge at least EVERY 6 MONTHS when not in use.** The battery will naturally self-discharge in storage. A lower storage temperature will result in longer shelf life. (See section 1. GENERAL SAFETY INFORMATION for storage temperatures)
4. **“On-Board” Charging.** The Power Hawk chargers can be used onboard emergency vehicles. The Power Hawk chargers may be installed into a vehicle compartment and plugged into the shoreline circuit using AC adapter or wire directly in using 12V DC. All Power Hawk chargers are designed to prevent overcharging and may remain connected to the battery pack.
5. **Always have back-up 12 volts DC power available.** It is recommended that you have spare battery packs (i.e. Model PWR-12MP), however, other back-up 12 Volts DC sources may be used. An automobile battery (using jumper cables Model JC4-16), direct vehicle hook-up (using Models VH4-4 Vehicle Harness Kit and EC4-16 extension cable), 12 Volts DC generator, and 12 Volts DC converted power supply, etc. are viable power source options.

**If service is required, contact your Power Hawk® dealer or the Factory for assistance.**

### 4.2.2 BC-Li12X BATTERY CHARGER

Battery packs supplied by Power Hawk Technologies, Inc. require special chargers designed to properly charge and prevent overcharging conditions. Only chargers provided by Power Hawk Technologies, Inc. shall be used to recharge Power Hawk® battery packs.

The Model BC-Li12X Battery Charger and power block (pictured left) is specifically designed to recharge only the PWR-Li12X Li-GHTNING POWER PACK.



Turn charger power “ON” by plugging the power input cord into a suitable 105 to 240 VAC outlet. A large **GREEN** LED on the side of the charger will illuminate when power is connected, confirming the charger is ON. The battery charger supplies energy at rates that are best suited to recharge the battery and maintain its life. Once the battery reaches full charge, the BC-Li12X charger automatically switches to “Float” mode, keeping the battery in the fully charged condition without overcharging.



The charger uses the same cradle and easy latch design as the top of the P-16X™. To connect the charger to the power pack, use the tang of the Power Pack to guide the battery in into the charger cradle. When the battery pack slides completely to the front, press down on the thick back of the battery until the latch mechanism has secured the battery to the charger. The Power Packs LED will start to illuminate, showing its charge state and confirming it is charging.

The **GREEN** LED's on the battery will blink and then go solid in sequence as it charges. Once all 5 LED lights are solid **GREEN**, the Power Pack is fully charged.



**NOTE:** If for any reason the DC power input is wrong or there is a problem with the charger, the **RED** fault LED will illuminate. Check your connection to the charger or contact Power Hawk.



### **IMPORTANT:**

- When recharging, ALWAYS use the indicator lights on the battery pack to determine the status of the battery.
- Charge the PWR-Li12X Power Pack at ambient temperatures ranging from -13 to 131°F (-25 to 55°C) (reduced charge rate below 32°F / 0°C)
- As a safety feature, Power Pack will blink slower when charger senses pack is not at normal charging temperatures, indicating the charge rate is being throttled and the battery will take longer to charge.
- The PWR-Li12x Lithium-Ion Battery Pack will not provide early notice to the operator that the battery is near empty by slowing down. When the P-16X™ stops running due to a depleted Lithium-Ion battery (Indicator is showing 1 **GREEN** LED), stop all heavy work and operate the tool using the reserve battery energy to remove it from the working material. NOTE: If the P-16X™ does not respond, WAIT APPROXIMATELY 1 MINUTE and then try again. For continued operation, replace with a charged battery pack or switch to back-up power.
- Always have back-up power available for operating the P-16X™ Rescue Tool. It is recommended that you have spare Power Hawk battery packs, however, other back-up power sources may be used such as; 12 volts DC automobile battery (using jumper cables Model JC4-16), 12 volts DC direct vehicle hook-up (using Models VH4-4 Vehicle Harness Kit and EC4-16 extension cable), 12 Volts DC generator, and 12 Volts DC converted power supply, etc.

### 4.2.3 PA-12X POWER ADAPTER, 12V

The PA-12X Power Adapter is a lightweight adapter that provides back-up 12 VOLT power to the Power Hawk P-16X™ Rescue System. The red connector is used to connect extension or jumper cables to readily available external sources.



**NOTE:** The Power Adapter also utilizes a **RED** warning LED to indicate a reverse polarity is detected. While in this state, the power adapter will not allow the tool to operate until corrected. Check the jumper cable or extension cable connection and correct until the **RED** LED is no longer illuminating.



#### **WARNING:**

**Only connected 12V power to the P-16X™ Rescue System. Any voltage at a greater amount may cause damage to the tool.**

#### **CONNECTING THE PA-12X POWER ADAPTER TO THE P-16X™ RESCUE TOOL**

The Power Hawk P-16X™ Rescue System's PA-12X Power Adapter allows the user to use readily available back-up 12 Volt DC power, which is all around. *The design of the Power Adapter is identical to the PWR-Li12X*, meaning connecting the PA-12X to the P-16X™ is identical to the battery. With the **RED** power connector facing towards the sky, use the tang of the PA-12X to guide the Power Adapter into the top cradle. When the battery cannot go any further, press down on the thick back of the Power Adapter until the latch mechanism has secured the PA-12X to the P-16X™ Rescue Tool. Then connect your JC4-16 Jumper Cables or EC4-16 Extension Cables to an external power source to operate the P-16X™ via backup 12 Volt DC power.

#### **DISCONNECTING THE PA-12X POWER ADAPTER FROM THE P-16X RESCUE TOOL**

*The design of the Power Adapter is identical to the PWR-Li12X*, meaning disconnecting the PA-12X from the P-16X™ is identical to the battery. The Power Hawk P-16X™ Rescue Tool uses a custom designed replaceable latch mechanism. First disconnect all external power sources (JC4-16 or EC4-16) from the **RED** connector on top of the PA-12X Power Adapter. To release the PA-12X from the tool, pull back on the latch mechanism until the latch clears the rear lip of the PA-12X. Then lift the Power Adapter and guide the adapter out of the cradle.

### 4.3 AUXILLIARY & BACK-UP 12V POWER



#### **WARNING**

**Do not make direct contact between battery positive and negative battery terminals as this can cause an explosion or fire. Keep the protective caps snapped in place over the 2 red connector terminals and charger port when not in use.**

**Ensure proper polarity is maintained.**

**RED cable = POSITIVE (+)**

**BLACK cable = NEGATIVE (-)**

**NOTE:** The PA-12X Power Adapter is designed so that if polarity is accidentally reversed, the **RED** fault LED on the Power Adapter will illuminate and P-16X™ Rescue Tool will not operate, remaining unharmed. If the P-16X™ Rescue Tool does not operate, check cable connections for proper polarity.

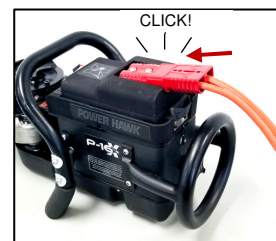
#### 4.3.1 JC4-16 JUMPER CABLES

Power may be supplied by a charged automobile battery at the scene by using the JC4-16 Jumper Cables. Connect the Jumper Cable clips to the appropriate battery terminals. For operation, connect the red plug of the Jumper Cable to the PA-12X Power Adapter via the red plug labeled “12 Volt Input Only.”



#### 4.3.2 VH4-4 VEHICLE HARNESS with EC4-16 EXTENSION CABLE

Using the VH4-4 Vehicle Harness Kit and EC4-16 Extension Cable, power may be supplied from a vehicle at the scene without opening its hood. Install the Vehicle Harness Kit by mounting the red plug to a desired location on the vehicle (i.e. front grill) and routing and connecting the wires to the proper battery terminals. Make sure the protective terminal cap is secured to the red plug and kept snapped in place when not in use. For operation, connect the plugs of the harness and the EC4-16 Extension Cable. Then connect the Extension Cable to the PA-12X Power Adapter via the red plug labeled “12 Volt Input Only.”



Test the connections by momentarily turning the P-16X™ Rescue Tool trigger switch. The tool should energize and move the powerhead output lugs. If the tool does not operate, see section 8.7 TROUBLESHOOTING of this manual.



## 5. TOOL ATTACHMENT SELECTION AND INSTALLATION

The P-16X™ Rescue Tool is designed to change from spreading to cutting in seconds using interchangeable tool attachments. These attachments are safely secured to the P-16X™ powerhead lugs through the use of special-grade steel pins. Use only Power Hawk Technologies, Inc. authorized attachments with the Power Hawk® P-16X™ Rescue System.



S-1601X  
Spreaders



CS-1602  
Power Blade



C-1604  
Shredder Cutter



C-1603  
Hatchet Cutter

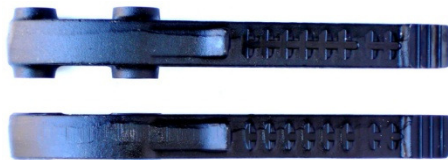


C-1601  
Curved Cutter

### 5.1 INSTALLING P-16X™ TOOL ATTACHMENT(S)

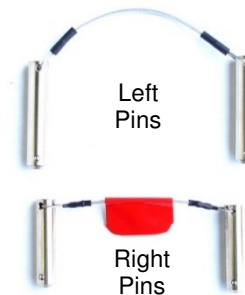
#### General

- Tool attachments have “left” and “right” designations. The sides are different sizes, and cannot be installed incorrectly.
- The attachment pins are also left and right side specific. The left pins are longer and have a larger diameter than the right pins. For clarity during use, the right pin set has a red ribbon attached to it.  
**Remember Red = Right.**
- Loosen the clutch and rotate the powerhead as necessary for better accessibility to the pins. **Be sure to re-tighten the clutch prior to operation.**



Left Spreader Arm

Right Spreader Arm



Left  
Pins

Right  
Pins



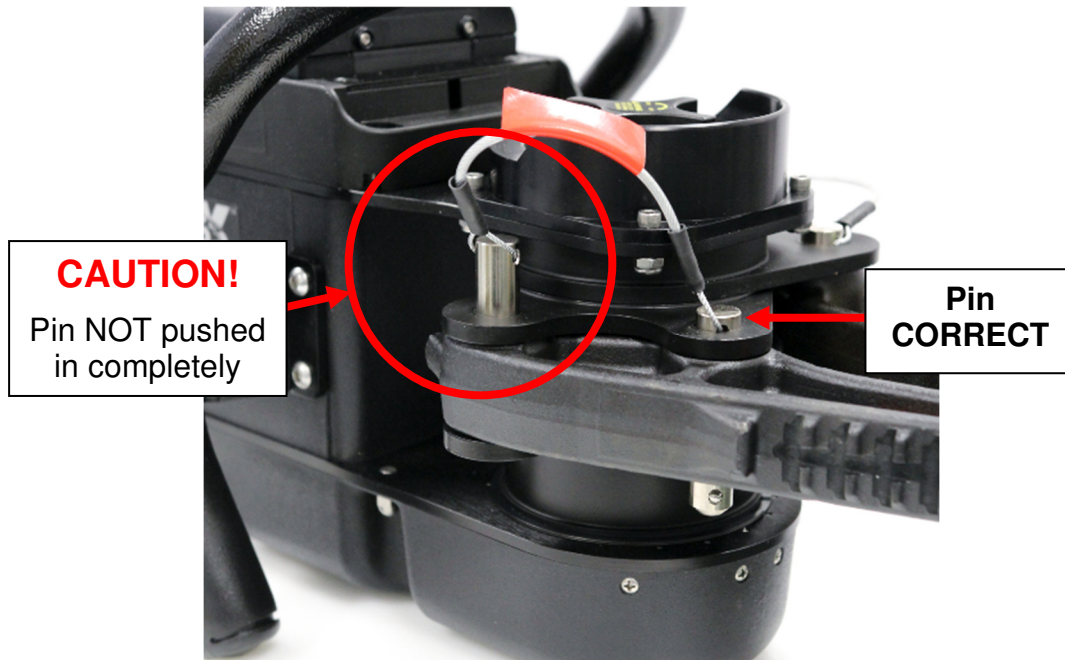
**WARNING**

**The attachment pins supplied with the P-16X™ Rescue Tool are made from special-grade steel. Use only pins supplied by Power Hawk Technologies, Inc. Use of unauthorized pins can result in product malfunction causing serious personal injury and/or damage to property and/or equipment.**

- Attachment pins must be completely inserted. Check by lightly pulling up on the pins to ensure the ball detents are below the bottom lugs on the powerhead.

**! WARNING**

**Pins not properly locked in place can cause uneven loading and tool failure, which may cause serious personal injury and/or damage to property and/or equipment.**



## 5.2 INSTALLING SPREADER ARMS

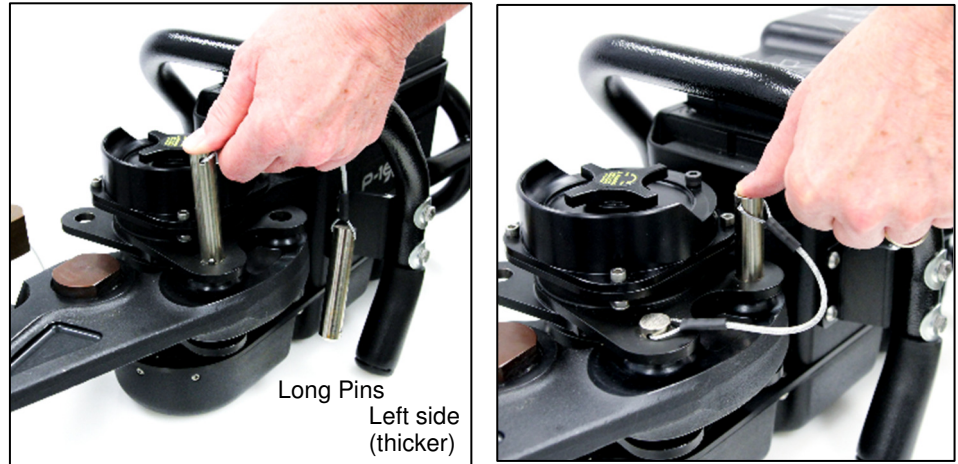
- Note decals indicating “Left” (thicker) and “Right” (thinner) sides of the spreader arm set. Align the holes in the arms to those on the powerhead. Insert the correct attachment pins. If the holes do not line up, you may need to operate the trigger switch of the P-16X™ Rescue Tool in the direction that will allow hole alignment.



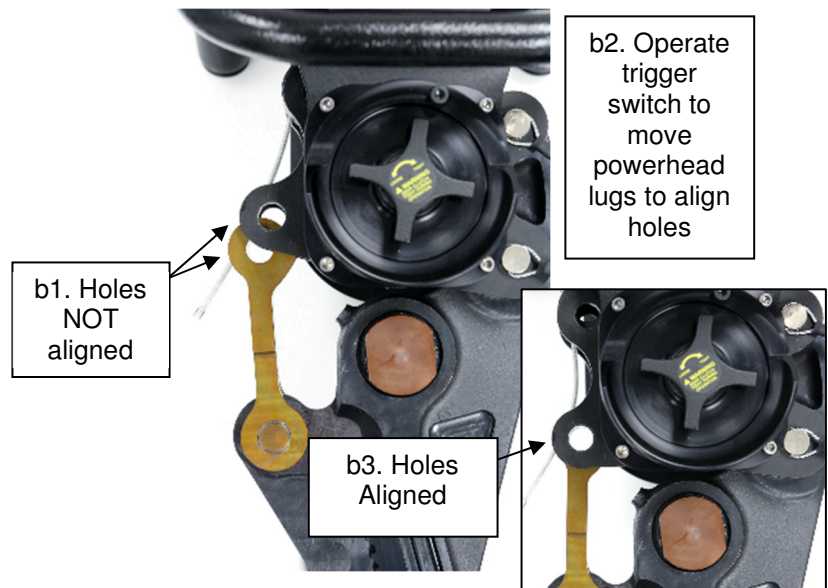
*HINT: Use your thumb over the top of the pin to facilitate insertion.*

### 5.3 INSTALLING CUTTER ATTACHMENTS

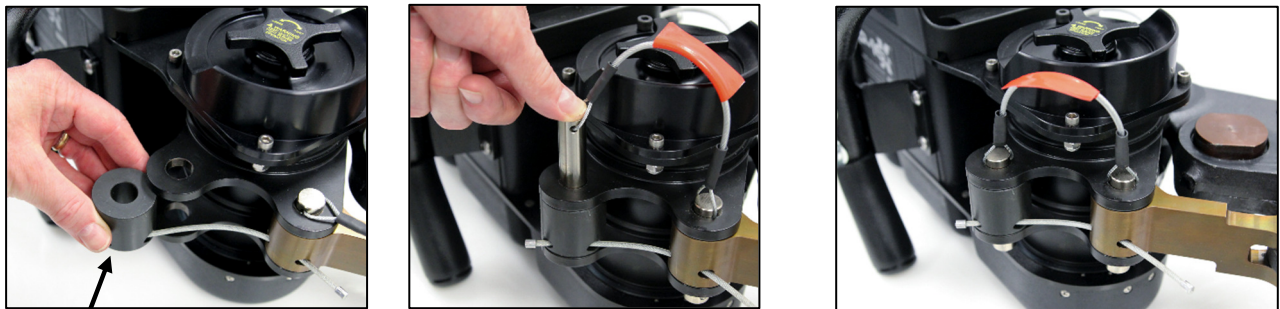
- a) Install the left (thicker) side of the cutter first, aligning the holes and using the long pins.



- b) Align the hole in the cutter link with the front right hole in the powerhead lug and insert pin. If the holes do not line up, operate the trigger switch of the P-16X™ Rescue Tool in the direction that will move the hole in the powerhead lug toward the hole in the cutter link.



- c) Install the tethered cylinder stop in the right rear of the powerhead lug using the remaining pin.



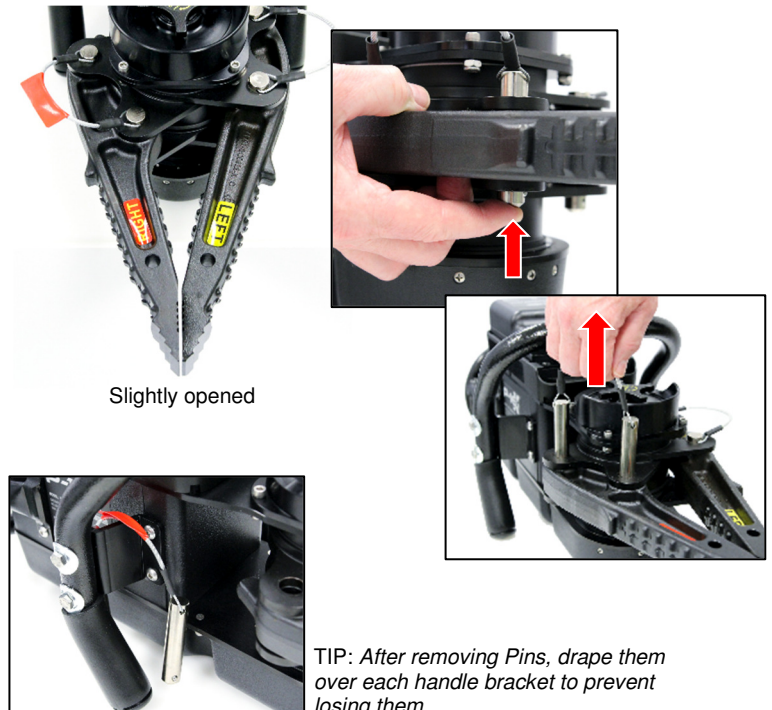
**CAUTION: Failure to install the Cylinder Stop could result in the cutter link hitting the Powerhead, causing serious damage to the P-16X™ Rescue Tool.**



## 5.4 REMOVING P-16X™ TOOL ATTACHMENTS

### General and Removing Spreader Arms

- Relieve tool load prior to removing tool attachment. Spreader arms should be at least slightly open. Failure to relieve load will prevent removal of attachment pins.
- Use the coated steel cable between the pins as an aid when pulling up pins. Pins should remove easily. If not, verify tool load is relieved. **DO NOT FORCE. If load is relieved properly, attachment pins will come out easily**
- Loosen the clutch and rotate the powerhead as necessary for better accessibility to the pins. **Be sure to re-tighten the clutch prior to operation.**

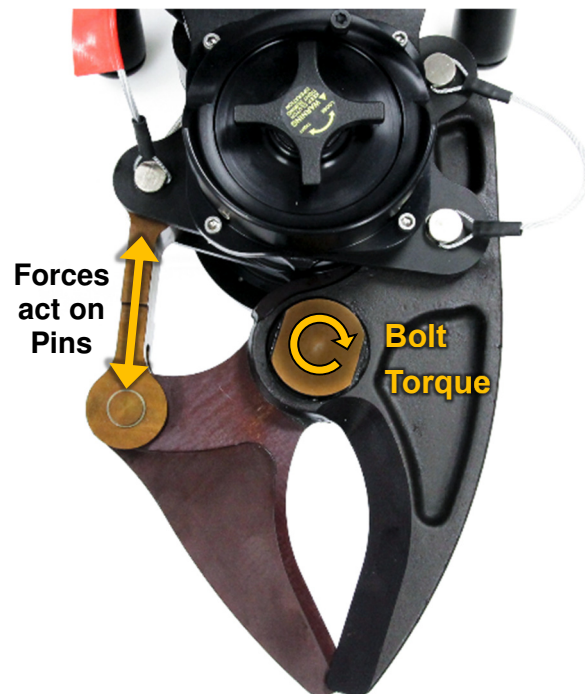


### Removing Cutter Attachments

All Power Hawk cutter blades are held together with a special-steel bolt and nut that is tightened to approximately 150 ft.-lbs. of torque. As the cutter is operated to open or close, there exists a natural load on the pins as the blades “push through” the friction induced by the high torque of the bolt.

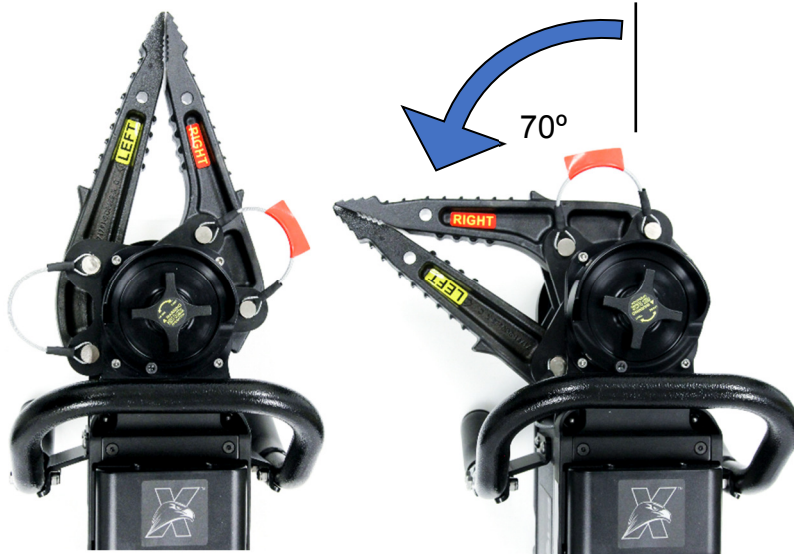
To relieve this load...

- Operate the tool in one direction by depressing the trigger switch.
- Jog the switch (split-second “on” then “off”) in the opposite direction. This will relieve the load on the pins.
- Push up on bottom of pins and then pull up using the coated steel cable. **DO NOT FORCE.** If load is relieved properly, attachment pins will come out easily.



## 6. POWERHEAD 70° VARIABLE POSITIONING

The P-16X™ Rescue Tool is designed with a pivoting powerhead to provide greater access and versatility of the attachment. The powerhead is capable of rotating 70° to the left relative to the tool body when upright. During operation, the powerhead is held in place by a clutch located directly above the powerhead.



To prevent debris from entering the clutch housing and causing damage, do not remove the clutch knob.

To pivot the head...

1. Make sure there is no load on the spreader or cutter attachment (i.e. slight gap between spreader tips).
2. Loosen the clutch knob
3. Swing the Powerhead and attachments to the desired position.
4. Retighten the clutch knob.

To swing an attachment to the right, simply use the tool up-side down. To prevent debris from entering the clutch housing and causing damage, do not remove the clutch knob.



### **WARNING**

**The clutch knob must be tightened prior to engaging and loading the P-16X™ Rescue Tool. Failure to do so may result in sudden movement of the tool and attachments, which may cause personal injury and/or damage to property and/or equipment.**

The clutch is intended to secure the position of the attachments. It has been designed, however, so that if the body of the tool (handles, covers, etc.) should become jammed against other objects and loaded during operation, the clutch will slip within the 70° rotation limits to prevent tool damage, even with the clutch knob tight. There will be times when, in order to prevent the P-16X™ tool body from jamming against other objects, the tool should be used UPSIDE DOWN and the attachments repositioned. Lower handle grips are provided on the tool for this purpose.

**NOTE**

The 70°-rotation limits of the P-16X™ powerhead is maintained through the use of a stop screw. To protect the tool from serious damage, the stop screw is designed to shear should the tool body become jammed against other objects and loaded during operation with no more rotational freedom of the powerhead. If this happens, the tool, though still operational, has lost its safety stop positioning and must be repaired by replacing the stop screw (See section 8.5 STOP SCREW REPLACEMENT). This condition will be apparent since the P-16X™ attachments will be capable of swinging beyond 70° and making contact with the carrying handle when the clutch is loose.



**! WARNING**

**Do not load the P-16X™ Rescue Tool such that the body becomes jammed against other objects and is loaded. Shearing of the stop screw causes loss of the 70° safety stops. Operating the tool in this condition may result in serious personal injury and/or damage to property and/or equipment.**

**7. OPERATION of P-16X™ RESCUE SYSTEM**

THE POWER HAWK® P-16X™ RESCUE SYSTEM SHALL BE OPERATED ONLY BY THOSE TRAINED AND AUTHORIZED BY THE AUTHORITY HAVING JURISDICTION.

Before operating the Power Hawk® P-16X™ Rescue Tool, make sure that the clutch knob directly above the P-16X™ powerhead is tight and the quick-change attachment pins are firmly seated in place. Do not attempt to adjust the position of the clutch while the arms or cutters are under load (including attachments being fully opened or closed). Remove tension on the attachments before loosening the clutch. This will allow positioning in the complete 70° range of motion.

**7.1 HAND-HELD OPERATIONS**

The Power Hawk® P-16X™ Rescue Tool is operated by turning the trigger switch at the back of the unit.

- Turning the switch to the left (counter-clockwise) will open the attachments.
- Turning the switch to the right (clockwise) will close the attachments.



The P-16X™ Rescue Tool is designed to shut off automatically when it reaches maximum force. When this occurs, reverse direction to relieve load and reposition the tool. After the tool has shut off automatically, DO NOT continue to move the attachments in the same direction without first reversing direction to relieve the load, then reposition the tool.

Do not carry or hold the tool by the trigger switch. Hold the handles and operate the trigger switch with a finger. The round handle is designed to allow easy grasp of the tool and operation of the trigger switch when held in any position.

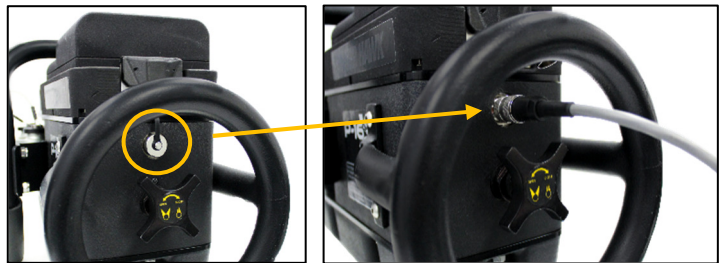
**Remember:**  
**One hand on each handle at all times!**



## 7.2 REMOTE OPERATIONS

The Power Hawk P-16X™ Rescue System also has the capability to operate remotely using the XRC-500 Remote Control Kit.

- Unscrew REMOTE ACCESS cap on back of P-16X™ Rescue Tool. Plug in Connector Cable and screw in to secure.
- Attach Cable Spool and Trigger Switch to the connector cable.
- Holding the switch in the OPEN position (up) will open the attachments.
- Holding the switch in the CLOSED position (down) will close the attachments.



### **WARNING**

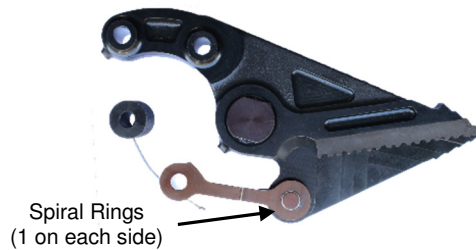
**Continued loading of the P-16X™ Rescue Tool in the same direction after it has automatically shut off, without first relieving the load, can result in over-stressing and breakage of rescue tool components which may cause serious personal injury and/or damage to property and/or equipment.**

### **WARNING**

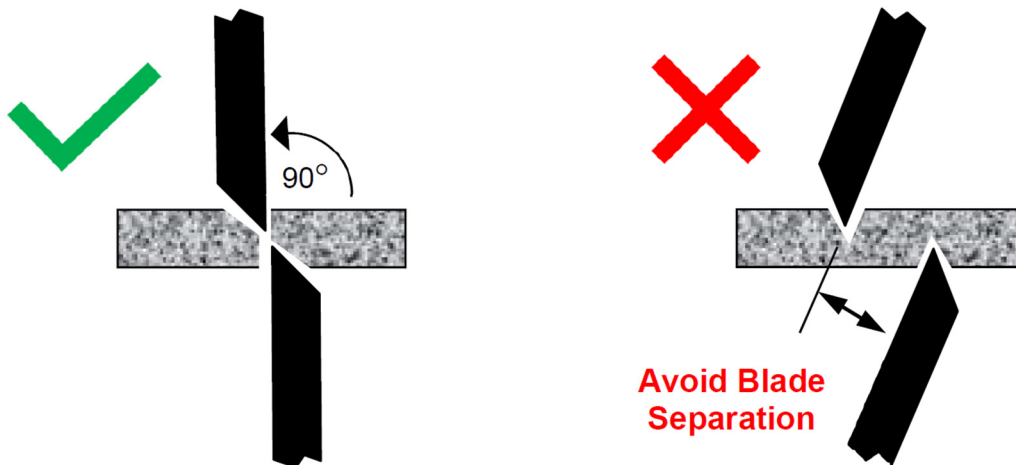
**Never use the tool while holding the cutting or spreading attachments. To avoid risk of serious personal injury, do not under any circumstances place hands or other body parts on or near Power Hawk® attachments when in operation.**

### 7.3 OPERATING SAFETY INFORMATION

- Never use the tool while holding the cutting or spreading attachments. Hold the tool only by the black handles when operating. To avoid risk of serious personal injury and/or damage to property and/or equipment, do not under any circumstances place hands or other body parts on or near Power Hawk® attachments when in operation.
- Operate the tool only with the clutch knob tightened. The clutch is intended to secure the position of the attachments. Failure to do so may result in personal injury due to sudden movement of the tool and/or attachments.
- When spreading with Power Hawk® spreader attachments, make sure objects being spread are stabilized and operator(s) and patient(s) are shielded from any loose debris.
- When stabilizing, use proper cribbing methods.
- Power Hawk® cutter attachments are designed to cut a variety of materials such as door and windshield posts, pipe, sheet metal, steel plate, rebar, etc. Do not attempt to cut hardened metal, such as steering columns, nader pins, seat belt bolts, lock hasps, etc., as this action may result in blade damage.
- When cutting with the Power Hawk® cutting attachments, make sure the object being cut is anchored on both sides and the tool is held firmly.
- Make sure the cutter bolt is tight. The cutter nut should be torqued to 150 foot-pounds.
- Make sure the cutter-link spiral rings are secure.



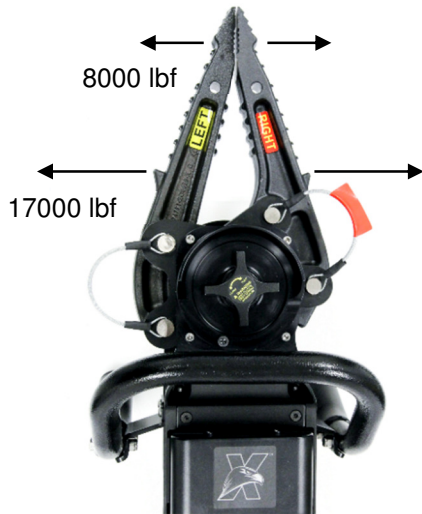
- Position the blades so that the material being cut is perpendicular and do not allow the blades to twist so that they separate while cutting. Failure to do so may result in component breakage, causing serious personal injury and/or damage to property and/or equipment.



### 7.4 HELPFUL HINTS

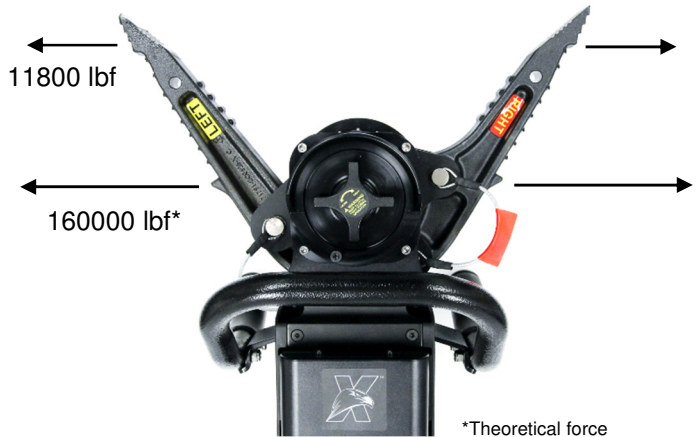
When spreading, forces are greater near the base of the arms than near the tip. Additionally, tool forces increase as the spreader moves from the closed position to the fully opened position due to mechanical advantage. You can use this knowledge to your advantage when performing an operation.

#### 1. Deeper = Greater Force



Moving the spreader arms deeper into the working material increases the spreading force of the tool.

#### 2. Wider = Greater Force



Purchase points that are wider apart deliver higher spreading forces.

When cutting, the greatest cutting forces are available at the base of the cutter (point closest to the cutter bolt). When possible, begin cut as close to the base of the cutter as conditions will allow.



Engage working material at cutter notch for greater cutting forces

## 8. MAINTENANCE for P-16X™ RESCUE SYSTEM

### 8.1 MAINTENANCE AFTER USE:

- Recharge battery pack.
- Clean tool and all accessories. (Note: It is normal for small amounts of grease to leak from the powerhead. This requires no maintenance beyond periodic cleaning.)
- Check all parts for damage, wear, and/or fraying.
- Check that all hardware is securely fastened (i.e. handle bolts, etc.).
- Check cutting and spreading attachments for damage.
- Check P-16X™ to ensure 70° articulation and stop screw are functional.
- Check P-16X™ clutch for proper holding of the powerhead and attachments.
- Lubricate attachment pins and cutting blades with light machine oil or WD-40.
- Check that cutter nuts are tight. If blades can be moved by hand, or if blades display abnormal separation during cutting, the nut is loose. If loose, torque to 150 foot-pounds.
- Check proper installation of cutter-link spiral rings.

If service is required, contact your Power Hawk® dealer or the Factory for assistance.

### 8.2 MONTHLY MAINTENANCE AND INSPECTION:

- Check charge on battery.
- Inspect Power Hawk® P-16X™ Rescue System components for damage.
- Inspect power connections for wear, cleanliness, or damage.
- Check switches for proper functioning.
- Lubricate attachment pins and cutting blades with light machine oil or WD-40.

If service is required, contact your Power Hawk® dealer or the Factory for assistance.

### 8.3 ANNUAL INSPECTION:

(PERFORMED BY FACTORY OR AUTHORIZED SERVICE CENTER)

- Test all connectors for electrical integrity.
- Inspect all terminals and connections; replace as necessary.
- Perform load and amperage draw tests.
- Inspect blades and arms for damage and cracking.
- Replace safety labels as required.
- Inspect and replace fasteners as required.
- Clean and lubricate unit as required.
- Replace battery as required.
- Check torque on cutter nut. Torque to 150 foot-pounds.
- Inspect cutter-link spiral rings; replace as necessary.
- Check P-16X™ to ensure 70° powerhead articulation and safety stops are functional. Replace parts as necessary.
- Check covers and handles; replace as necessary.

To ensure **MAXIMUM PERFORMANCE** of your *POWER HAWK*® P-16X™ Rescue System, contact your Local Dealer or the Factory for information on *POWER HAWK* Maintenance Plans

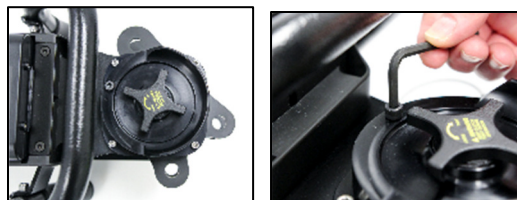
### 8.4 STORAGE:

- Stow P-16X™ Rescue System with 12VDC power supply disconnected and all battery terminals covered.
- Stow P-16X™ Rescue Tool with attachments relieved of any load (i.e. spreader tips slightly separated).
- Protect unit from moisture by stowing in a dry area.
- Stow securely to prevent damage from movement.

### 8.5 STOP SCREW REPLACEMENT:

Loosen the Clutch Knob so the powerhead swings freely. Rotate the powerhead to the position shown below left (approximately 30°).

Using a 3/16" hex key, remove the Stop Screw from the Clutch Housing as shown below right.



Screw the replacement Stop Screw (part number 2C0433-1) into the Clutch Housing.

Confirm that the powerhead rotation is limited to 70° to the left, by swinging the powerhead in each direction until it hits the stops.

### 8.6 REPLACEMENT PARTS

Replacement parts for the *POWER HAWK®* P-16X™ Rescue System can be obtained from your authorized *POWER HAWK®* Dealer or by contacting the Factory.

### 8.7 TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSE	SOLUTION
Tool will not operate	Poor / loose / dirty electrical connections	Disconnect, clean, and reconnect terminals.
	Battery discharged	Charge battery or connect an alternate 12 V DC power source.
	Polarity from 12 V DC power source is reversed	Reverse polarity at 12 V DC power source.
	Insufficient 12 V DC current is being supplied	Check amperage being delivered. Connect 12 V DC power source capable of supplying sufficient current.
Tool has low power	Poor / loose / dirty electrical connections	Disconnect, clean, and reconnect terminals.
	Battery discharged	Charge battery or connect an alternate 12 V DC power source.
	Insufficient 12 V DC current is being supplied	Check amperage being delivered. Connect 12 V DC power source capable of supplying sufficient current.
P-16X™ Attachments swing uncontrolled when loaded	Clutch knob is loose	Tighten clutch knob.
P-16X™ Attachments will not swing when clutch knob is loosened	Attachment is under load	Tighten clutch, operate tool to remove load, loosen clutch, and then reposition Attachment.

If above does not correct problem, contact your authorized *POWER HAWK®* Dealer or the Factory.



## 9. SPECIFICATIONS

### P-16X™ Rescue Tool

Powerhead Output Torque	72,000 in-lbs (8135 N-m)
Input / Output Ratio	5958:1
Powerhead Articulation Angle	70°
Motor Type	12 Volts DC – Permanent Magnet
Motor Inrush Current	220 Amps
Motor Current @ No Load	23 Amps
Motor Current @ Max. Load	135 Amps

#### With No Attachments

Weight	31 lbs (14.5 kg)
Envelope (LxWxH)	17" x 10" x 11" (432 mm x 254 mm x 305 mm)

#### With S-1601X Spreaders Attached

Weight	43 lbs (18.6 kg)
Envelope (LxWxH)	25" x 10" x 11" (635 mm x 254 mm x 305 mm)
Travel Distance	16" (406.4 mm)
Opening Time	19 Sec
Closing Time	20 Sec
Spreading Forces:	
1 inch from tips	8,000 - 11,800 lbf (35.6 - 52.5 kN)
At back of arms	17,000 - 160,000 lbf* (75.6 - 711.7 kN)

\*Theoretical force

#### With C-1601 Curved Cutter Attached

Weight	47.5 lbs (20 kg)
Envelope (LxWxH)	24" x 10" x 11" (610 mm x 254 mm x 305 mm)
Opening Distance	5" (127 mm)
Opening Time	18 Sec
Closing Time	21 Sec

#### With CS-1602LW Straight Cutter Attached

Weight	48.7 lbs (21.3 kg)
Envelope (LxWxH)	27" x 10" x 11" (686 mm x 254 mm x 305 mm)
Opening Distance	10" (254 mm)
Opening Time	17 Sec
Closing Time	20 Sec

#### With C-1603 Hatchet Cutter Attached

Weight	45 lbs (20.4 kg)
Envelope (LxWxH)	22" x 10" x 11" (559 mm x 254 mm x 305 mm)
Opening Distance	3" (76 mm)
Opening Time	18 Sec
Closing Time	21 Sec

#### With C-1604 Shredder Cutter Attached

Weight	46.5 lbs (21.1 kg)
Envelope (LxWxH)	25" x 10" x 11" (635 mm x 254 mm x 305 mm)
Opening Distance	4.25" (108 mm)
Opening Time	17 Sec
Closing Time	20 Sec

## SPECIFICATIONS (Continued)

### PWR-Li12X Lithium-Ion Power Pack

Battery Manufacturer	Power Hawk Technologies, Inc.
Battery Type	13.2 V Lithium-Ion (LiFePO4)
Battery Capacity	7.5 Ampere Hour (99Wh)
Charge Indicator Attached	5 LED with test button and fault indication
Charger Required	Power Hawk Technologies, Inc. Model BC-Li12X
Charging Ambient Temperatures	-13 to 131°F (-25 to 55°C) (reduced charge rate below 32°F / 0°C)
Discharging Ambient Temperatures -	-22 to 131°F (-30 to 55°C)
Storage Temperatures	Short-term: -40 to 140°F (-40 to 60°C) Long-term: -40 to 77°F (-40 to 25°C)
Weight:	3.2 lbs. (1.5 kg)
Battery Envelope (L x W x H)	7.6" x 4.7" x 2.4" (193mm x 119mm x 61mm)

### BC-Li12X Battery Charger

(Includes Battery Charger Cradle and AC Power Adapter)

#### Battery Charger Cradle (P/N 2C5410-1)

Battery Manufacturer	Power Hawk Technologies, Inc.
Voltage	9-24VDC
Maximum Input Current	6.5A
DC Input Power Port	Barrel jack, 5.5mm x 2.5mm
Output	
Max Output	Power 90 Watts
Charge Voltage	14.14VDC +/- 0.3V
Constant Current	4.75 ADC Max
Weight	1.5 lb (0.68 kg)
Envelope (L x W x H)	9.25" x 5" x 1.5" (235mm x 127 mm x 38 mm)

#### AC Power Adapter: (UL62368-1)

Input	
Line Voltage, Frequency	100-240 V AC, 50-60 Hz
Maximum Input Current	1.5A AC
Input Power Cord	SPT-2 18AWG*3C detachable power supply cord with IEC-320 C5 to NEMA 5-15P Grounding Connector (rated 10 A), 4 feet (~1.2 m)
Output	
Max Output Power	90 Watts
Output Voltage	19VDC nominal
Output Current	4.74 ADC max
DC Output Power Cord	Attached DC power cable, 5.5 feet (~1.7 m), barrel plug 5.5mm x 2.5mm
Weight	14 oz (0.4 kg) (including power supply cord and output cable)
Envelope (L x W x H)	4" x 3.5" x 1.25" (102 mm x 89 mm x 32 mm)



## 10. WARRANTY INFORMATION

See separate Statement of Warranty provided at time of sale

Power Hawk Technologies, Inc.,  
300 Forge Way, Suite 2  
Rockaway, New Jersey 07866 USA  
Telephone: 973-627-4646 or 1-800-PWR-HAWK (1-800-797-4295)  
Fax: 973-627-4622

[www.powerhawk.com](http://www.powerhawk.com)

A SNAP-ON OWNED ISO 9001:2015 COMPANY

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