

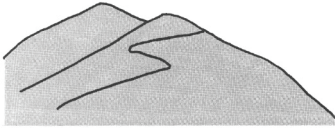
A scenic view of a steep, rocky mountain trail. In the foreground, a stone wall made of irregular stones runs along the edge of the path. The trail itself is narrow and appears to be made of dirt or small stones, winding up the side of a steep, rocky mountain. The mountain face is covered in lush green vegetation, including ferns and other plants. In the background, more mountain peaks are visible, some shrouded in mist or clouds. The overall atmosphere is one of a rugged, natural landscape.

*TRAIL SERVICES, LLC*

*[www.trailservices.com](http://www.trailservices.com)*

*2023*





## ***TRAIL SERVICES, LLC***

**499 Broadway #169  
15 Westwood Road  
Bangor Maine 04401**

**Griphoist® Products  
Stone Tools  
Rock Drilling Equipment  
Trail Tools**

Trail Services has been providing quality, hard-to-find products for building trails for 30 years.

Trail Services specializes in Griphoist® equipment, rigging, stone cutting and shaping tools. I have a full selection of hand tools and specialty tools for nearly all trail building applications. This catalog has informative articles that share knowledge and techniques.

The prices in the catalog are likely to change. I will provide a quote with current pricing to confirm your order whenever it is needed.

I welcome calls for further information about tools and techniques. Trail Services promotes good information and good tools for good trails.

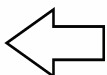
To all of you in the trail world, be you a volunteer, government, or professional— be safe, be well and have fun. After all, if building trails was not fun, no one would want to do it.

Working smarter, not stronger,

Lester C. Kenway - Trail Services



"Ditch and Drain" near South Pond  
Letter "E" Township  
Maine Appalachian Trail Club.  
Photo by LC Kenway



On the Cover: Not bad for being 600 years old. Inca Trail, Peru



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2 :1 Mechanical advantage to roll a bridge stringer onto a pier. Pre-Griphoist days. Baxter State Park, 1978  
Photo by LC Kenway





## HOISTS & ACCESSORIES

### GRIPHOIST® LIFTING AND PULLING MACHINES WITH UNLIMITED WIRE ROPE

Griphoist lifting and pulling machines have found applications in trail work throughout the United States. These hand powered hoists utilize a pair of wire rope grips to pull any length of wire rope. Longer lengths of wire rope can be used for high lines or where blocks are used to build up the mechanical advantage.

#### HEAVY DUTY HOISTS

##### GRIPHOIST® TU-17

2000 lb. capacity • 5/16" wire rope • telescoping handle • frequently chosen unit • 18.5 lb., lightweight wire rope, and robust construction make this a good choice for trail projects

##### GRIPHOIST® TU-28

4000 lb. capacity • 7/16" wire rope • telescoping handle • 41 lb. • convenient carrying handle • rugged tool that is powerful and effective in situations where weight is not a main concern.

##### GRIPHOIST® TU-32

8000 lb. capacity • 5/8" wire rope • telescoping handle • 59.5 lb. • applications for moving huge boulders or entire structures.

#### INDUSTRIAL DUTY HOISTS

##### GRIPHOIST® T-508

2000 lb. capacity • 5/16" wire rope • 14.5 lb. • telescoping handle • small and less expensive • many applications

##### GRIPHOIST® T-516

4000 lb. capacity • 7/16" wire rope • 30 lb. • telescoping handle • suitable for most trail work applications

##### GRIPHOIST® T-532

8000 lb. capacity • 5/8" wire rope • 51 lb. • telescoping handle • applications include lifting bridges for abutment repair.

##### GRIPHOIST® SWIVEL HOOKS

#21851 for T-508 • 1.3 lb.

#21877 for T-532 • 5.4 lb.

#21861 for T-516 • 3.3 lb.

#SWVHK for TU-32 • 5.4 lb

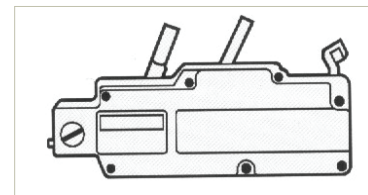
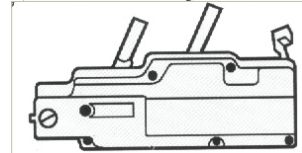
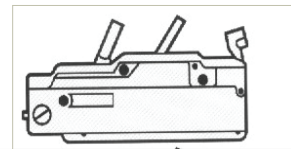
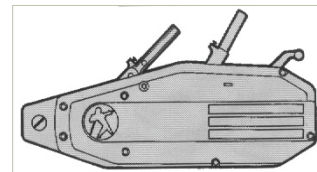
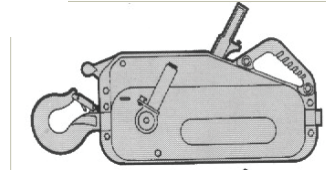
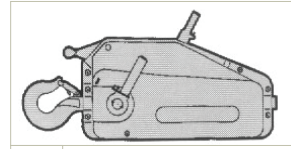
##### GRIPHOIST® TELESCOPING REPLACEMENT HANDLES

#11338 for T-508 • 2 lb.

#11348 for T-516 and T-532 • 5 lb.

#508 for TU-17 • 2 lb.

#18 for TU-28 and TU-32 • 5 lb.



#### SHEAR PINS:

#29506 for T-508 (10 pak)

#29516 for T-516 (10 pak)

#6866 for T-532 (10 pak)

#8836 for TU-17 & TU-28 (30 pak)

#6866 for TU-32 (10 pak)



### GRIPHOIST® WIRE ROPE

Replacement or additional wire rope is available in any length for all models of hoists. Standard assemblies include hook and swaged thimble as well as tapered welded point.



### GRIPHOIST® WIRE ROPE REELS

Available in four sizes, these reels are convenient for storing or transporting wire rope.

**#899** small • 1 lb. • 7in.    **#909** medium • 2 lb. • 8in.

**#939** large • 2.5 lb. • 9in.    **#8993** extra large • 4 lb. • 13in.



### MAASDAM POW'R-ROPE PULLER

Ratchet style come-along uses a v-groove sheave to grip fiber rope • 1000 lb. capacity • no drum! • unit uses 1/2" Polypropylene rope (4200 lb. breaking strength) • excellent for securing loads on vehicles • many applications • 8-3/4 lb. with 20 ft. of 1/2" rope.

**#A-20 with 20 ft. of rope**

**#A-50 with 50 ft. of rope**



### BLACK RAT® SNATCH BLOCK

**#003-201** Simple twin plate style block • attach to load with shackle • steel bushing • remove cotter pin to service sheave • 5" sheave fits up to 7/16" wire rope • WLL = 3,520 lbs • 8 lb.

**Not Rated for Lifting.**



### COOPER SWIVEL HOIST HOOKS

**395-2615** 3 ton swivel hoist hook with Gate Latch—**3 lb.**

**395-2915** 7 ton swivel hoist hook with Gate Latch—**10 lb.**

hook with gate latch • can be used with Black Rat and Skookum blocks •





### Picking the Right Snatch Block

A *snatch block* can be opened on one side to accept a line or wire rope. On “Drop Side” snatch blocks, the side plate rotates to create an opening. “Steel Plate” blocks have a hinged link that can be opened. All snatch blocks have a grooved wheel called a “sheave”, which cradles and turns with the line.

#### Three factors when choosing a snatch block:

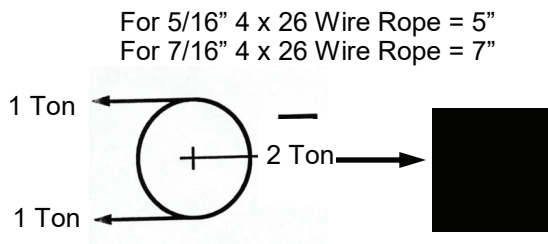
1. What size & type of wire rope will be used?
2. What function will the snatch block serve?
3. What loads will the block be subject to?

#### 1. What size and type of wire rope will be used with the snatch block?

The wire rope and snatch block must be carefully matched, to prevent damage and accelerated wear.

***“Undersize sheaves are probably responsible for more rope failures than any other single cause” - W. E. Rossnagel - Handbook of Rigging***

Running wire rope over too small a sheave results in displacement of the strands of the rope and overstresses the wires. For 4x26 Griphoist wire rope, the minimum sheave diameter is 16 times the diameter of the wire rope:



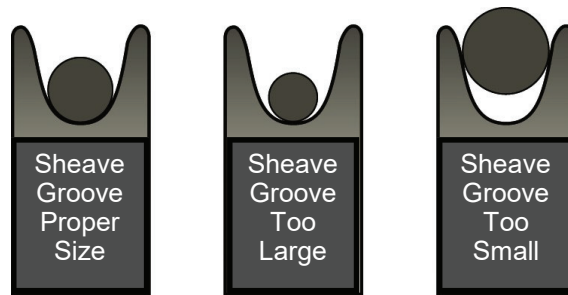
For 6x19 IWR (commonly available) wire rope, the minimum sheave diameter is 18 to 20 times the diameter of the wire rope.

If the diameter of the sheave's groove is too small, the wire rope will bridge across the groove, causing the wire rope to damage the sheave. If the groove is larger than the diameter of the wire rope, the wire rope will be flattened, as it rolls around the sheave.

#### 2. What function will the snatch block serve?

- Double the line for a 2:1 advantage?
- Support a high line?
- Roll loads along a cable?
- Provide a change in direction?

**The sheave diameter of a snatch block used for a 2:1 pull must meet minimum standards.**



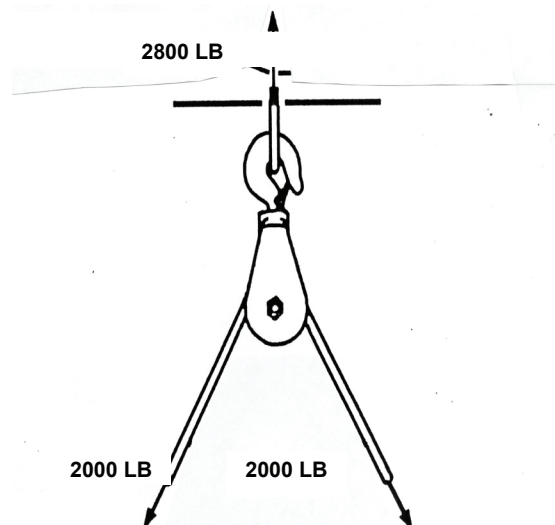
Note: Deep corrugated grooves, worn into the sheave over time can cut into wires and damage the wire rope. Be sure to replace the sheave when corrugations are pronounced, or when it is time to replace the wire rope with a new one.

Smaller blocks used for high anchors, that roll along tight wire ropes, or that provide changes of direction greater than 90° may often be employed with no harm to the wire rope, thereby reducing expense and weight carried by the crew. If smaller diameter snatch blocks are to be used, they still should have the proper diameter groove, to avoid damage to the sheave.

#### 3. What loads will the block be subject to?

Snatch blocks are generally rated at 1-1/2 to 2 times the safe working load of the wire rope. A snatch block used to lift loads on a highline will be subject to a load equal to the weight being lifted.

A snatch block used as a high anchor will be subject to loads greater than the line tension. For example, if a skyline cable passes through a high anchor at a 45° angle, the snatch block will be subjected to a force 140% of the line tension. A 2000 LB tension applied through the angle will apply a downward force of about 2800 lb. on the snatch block.





## **CAMPBELL® DROP SIDE SNATCH BLOCKS**

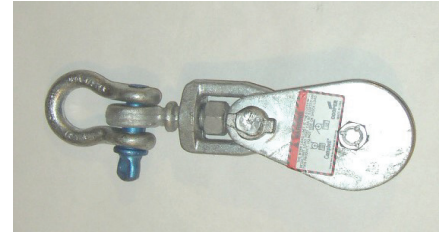
Rugged, long lasting, all galvanized block suitable for outdoor or marine settings • bronze bushings • side plate will swing open for wire rope • bolt cannot be lost • hook swivels. Working Load Limits are rated at a safety factor of 5.

### **SNATCH BLOCKS WITH SHACKLE**

Gate latches are often damaged when lines are used to move snatch blocks along high lines. Swivel eyes allow the use of one or more shackles to make attachments to the block.

**#733-9752** With shackle swivel eye  
3" sheave fits 5/16" - 3/8" wire rope • WLL 4000 lb. • 5 lb.

**#733-9762** with shackle swivel eye  
4-1/2" sheave fits 7/16"-1/2" wire rope • WLL 8000 lb. • 12 lb.

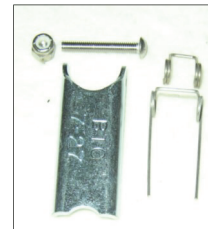


### **GATE LATCHES**

The hooks on CAMPBELL® blocks will accept a spring loaded latch that will keep attachments secured inside the hook • very sturdy latch • will fit other brands.

**#399-1403** for 3" blocks      **750-6495** for 3" blocks

**#399-1405** for 4-1/2" blocks      **750-6695** for 4-1/2" blocks



## **CROSBY/McKISSICK DROP SIDE SNATCH BLOCKS**

Captive bolt allows side plate to open to accept wire rope • bronze bushing • hook swivel allows full rotation.

**#108038** #418 hook w/out gate latch • 3" sheave fits 5/16" - 3/8" diameter wire rope • WLL 4000 lb. • 3 lb.

**#109037** #419 swivel ring (1-1/4" ID) 3" sheave fits 5/16"- 3/8" diameter wire rope • WLL 4000 lb. • 3 lb.



**#108065** #418 hook w/out gate latch 4-1/2" sheave fits 7/16"- 1/2" diameter wire rope • WLL 8000 lb. • 13 lb.

**109064** #419 shackle swivel eye • 4-1/2" sheave fits 7/16"- 1/2" diameter wire rope • WLL 8000 lb. • 13 lb.



### **GATE LATCHES**

**Notch and cotter pin style for newer hooks.**

**1096421** - S-4320 latch kit for 1-1/2 Ton Carbon Steel Hook

**1096468** - S-4320 latch kit for HA/HC ID Hook

**1096515** - S-4320 latch kit for 3 Ton Carbon Steel Hook

**Smooth tip gate for older hooks.**

**1090081** - SS-4055 latch kit for 3 Ton Carbon Steel Hook

**1090063** - SS-4055 latch kit for 2 Ton Carbon Steel Hook



### **ROCK ANCHORS**

Expanding rock anchor fits into 1-7/8" diameter hole • anchor is expanded by turning the threaded rod and then pulled • anchor can be temporary or permanent • **placements in granite observed to fail above 12,000 lb.** • nominal SWL = 4,000 lb. • suitable for anchoring Griphoist® or lifting boulders out of hard to reach places • furnished complete with 3/4" rod - 15" long • Wt. = 5 lb.

**#HPS R315** 3/4" rod by 15" AB Chance Rock Anchor

**#J3436** 3/4" rod by 15" Joslyn Rock Anchor



## SHACKLES & WIRE ROPE CLIPS

### SHACKLES

Shackles are used to make sling connections, extensions, and load hangers. A shackle can gather several slings together for a single anchor point. Load ratings only apply when the shackle is loaded at a right angle to the pin. When the shackle is loaded side ways there is no load rating.

#### CAMPBELL® SCREW PIN ANCHOR SHACKLE

Quality forged at a competitive price • galvanized • load rated • size equals diameter of screw pin.

#541-0835 - 1/2" with WLL = 4,000 lb. - wt. = 0.7 lb.,

#541-1035 - 5/8" with WLL = 6,500 lb. - wt. = 1.3 lb.

#541-1235 - 3/4" with WLL = 9,500 lb. - wt. = 2.0 lb.

#541-1435 - 7/8" with WLL = 13,000 lb. - wt. = 3.3 lb.

#541-1635 - 1" with WLL = 17,000 lb. - wt. = 5.0 lb.

#541-2035 - 1-1/4" with WLL = 24,000 lb. - wt. = 10.0 lb.

#541-2435 - 1-1/2" with WLL = 34,000 lb. - wt. = 16.0 lb.



#### CROSBY® SCREW PIN ANCHOR SHACKLES

Galvanized • load rated • size equals diameter of screw pin.

#8473 - 5/8" with WLL = 6,500 lb. - weight = 0.63 lb.

#8491 - 3/4" with WLL = 9,500 lb. - weight = 1.38 lb.

#8516 - 7/8" with WLL = 13,000 lb. - weight = 2.25 lb.



#### CROSBY® FIST GRIP (DOUBLE SADDLE TYPE)

#499 For 5/16" wire rope

#514 For 3/8" wire rope

#532 For 7/16" - 1/2" wire rope

#550 For 9/16" - 5/8" wire rope



#### CROSBY® WIRE ROPE CLIPS (U TYPE)

#1010079 For 5/16" wire rope

#1010097 For 3/8" wire rope

#1010113 For 7/16" wire rope

#1010131 For 1/2" wire rope



#### CAMPBELL® WIRE ROPE CLIPS (U TYPE)

#699-0534 For 5/16" wire rope

#699-0634 For 3/8" wire rope

#699-0734 For 7/16" wire rope

#699-0834 For 1/2" wire rope

#699-0934 For 9/16" wire rope

#699-1034 For 5/8" wire rope



#### CAMPBELL® HEAVY DUTY WIRE ROPE THIMBLES

Whenever an eye is formed in the end of a wire rope, a thimble should be used to protect the rope from damage.

#626-0202 For 5/16" wire rope

#626-0203 For 3/8" wire rope

#626-0204 For 7/16" wire rope

#626-0205 For 1/2" to 9/16" wire rope

#626-0206 For 5/8" wire rope





## SKOOKUM® BLOCKS

Skookum has been supplying blocks and rigging supplies to industrial, logging and marine operations since 1890.

When Griphoist wire rope is 7/16" diameter (TU-28 and T-516) and is used in a 2:1 pull, the sheave diameter must be a minimum of 8 inches. A 5/8" wire rope (TU-32 and T-532) must have a minimum sheave diameter of 10 inches.

## HALF SIDE BLOCKS - BRONZE BEARING

**A-8** 8" diam 1/2-5/8" sheave 29 lb. 16,000 lb. SWL

**A-10** 10" diam 5/8-3/4" sheave 35 lb. 16,000 lb. SWL



Chugatch

## FULL SIDE BLOCKS - BRONZE BEARING

**A-8T** 8" diam 1/2-5/8" sheave 29 lb. 16,000 lb. SWL



Annapurna

## LIGHTWEIGHT SNATCH BLOCK - BALL BEARING

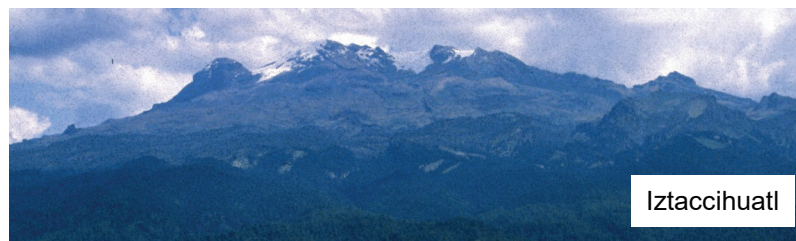
**8" 10T** 8" diameter snatch block with swivel hook 5/8" to 3/4" sheave 31 lb. 20,000 lb. SWL



Bigelow

## ALLOY SNATCH BLOCK - BALL BEARING

**8" 8T** 8" diameter snatch block with swivel hook 5/8" to 3/4" sheave 35 lb. 16,000 lb. SWL



Iztaccihuatl



HALF SIDE BLOCK



FULL SIDE BLOCK



LIGHTWEIGHT SNATCH BLOCK



ALLOY SNATCH BLOCK

**WORKING SAFELY WITH GRIPHOIST® POWERED SYSTEMS**

by Lester C. Kenway - Illustrated by Julian Wiggins

Many trail crews roll heavy loads along cables tensioned by Griphoist®. Described as "high lines", these systems can be used to lift 400 pound step stones 100 feet up a steep slope to a new staircase on the trail.

These systems contain 4 basic components:

1. 1 or more Griphoist® with wire rope.
2. Towers or trees for vertical supports.
3. Anchors - usually trees, stumps, or boulders.
4. Accessories - slings, blocks, shackles, etc.

In order for any of these "high line" systems to work well, and to *prevent the failure* of any of these four components, several safe practices must be maintained.

**1. Use wire rope in good condition that meets specifications for the Griphoist® machine being used.**

The wire rope provided with Griphoist® machines has a breaking strength that is 5 times the rating of the winch. The shear pins will release at 150% capacity. On a 2000 lb. winch, the pins break at 3,000 lb., well below the 10,000 pounds needed to break the wire rope. The following could lead to breaking a wire rope:

- Disabling the safety shear pins in order to use a longer handle
- Using damaged, or inferior wire rope
- Shock loading - such as pulling a rock off a cliff while it was attached to a tight high line.

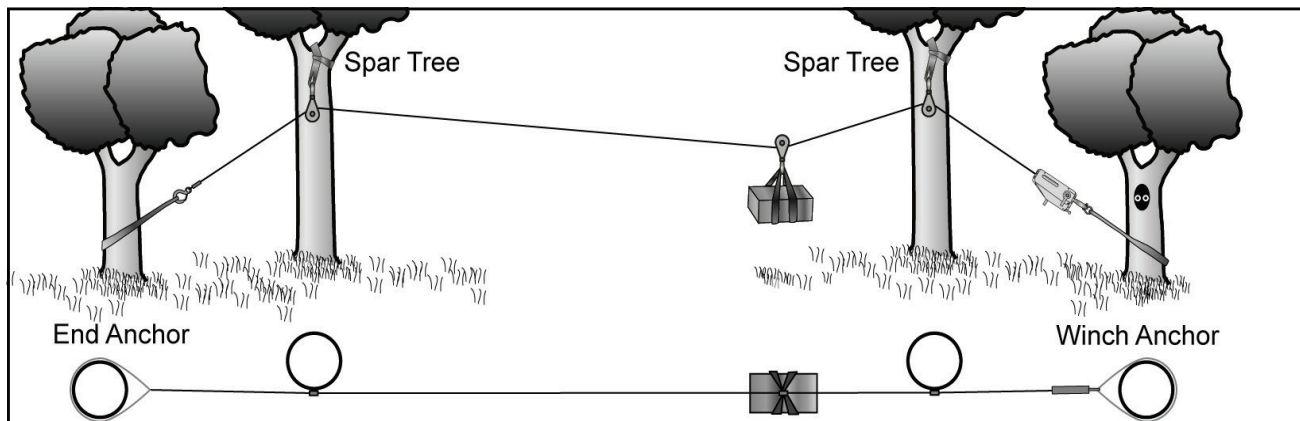
The danger of breaking a wire rope is minimized when properly maintained hoists are matched with the appropriate wire rope.

**2. When using trees as vertical supports, always analyze the forces being put on the tree and use appropriate guy lines to prevent toppling or breaking the tree.**

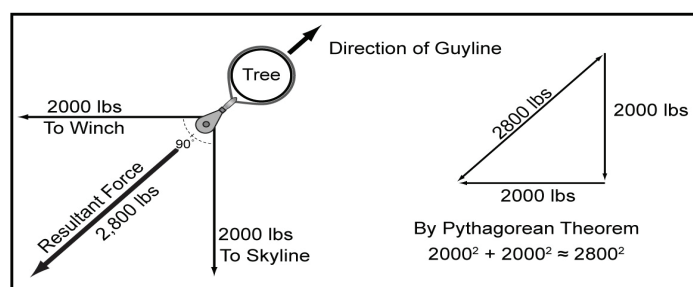
It can take 2000 pounds of tension to lift a 300 pound load in a typical 100 foot long high line system. If this horizontal force were to be applied to a tree 12 to 16 feet off the ground, it could pull the tree over. The simplest way to prevent excessive sideways force on the "Spar" tree is to layout the system in a near linear fashion.

With a linear arrangement, the force on the spar trees by the line is matched by the tension from the Griphoist and end anchor. With this set-up, the spar trees experience a downward force.

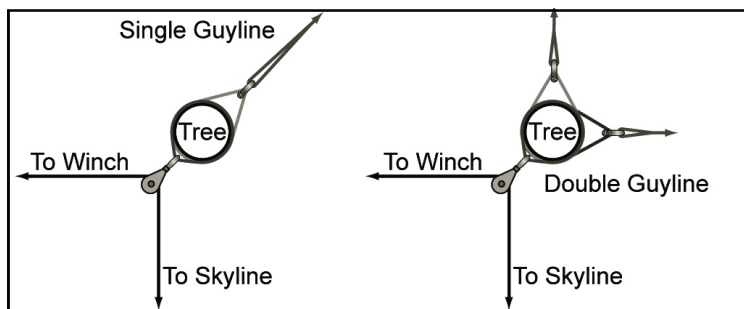
When spar trees are the focus of a horizontal change in direction of the cable, the angles must be studied and a guy line(s) or backstay(s) applied that will oppose the **resultant** force that will be applied to the tree by the wire rope.



A line running through a 90 degree angle will create a resultant force that is 40% greater than the line tension! —————>







Since an angled line multiplies the resultant force experienced by the spar tree, at least one guy line made from lifting slings, chain or wire rope may be needed. If it is difficult to estimate the direction of the resultant force, two guy lines can be used, each one directly opposite of the two cable directions.

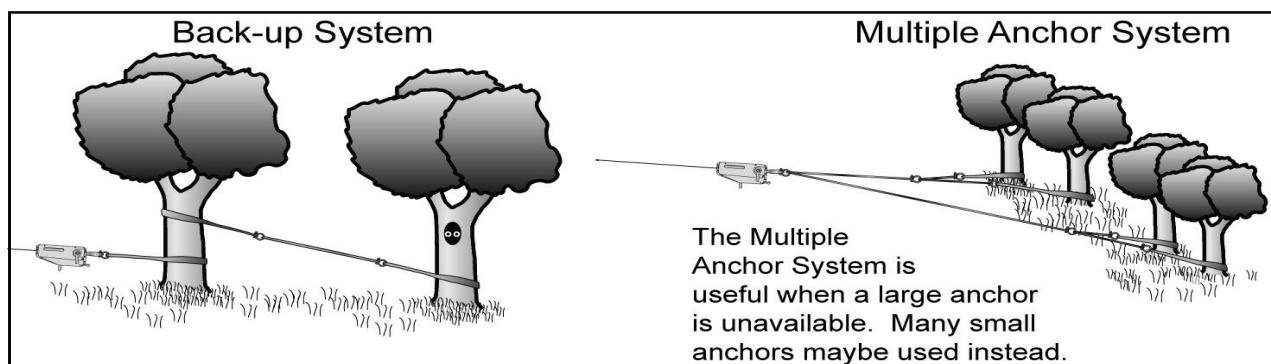
### 3. Pick solid anchors, and monitor them for changes. Use multiple anchors when in doubt.

The most common anchors are stout trees or large boulders. Even smaller trees can serve well as anchors if the lines are attached at ground level. Things to monitor:

1. Excessive *tilting* of trees or movement of boulders.
2. Evidence of impending tree fracture (*cracking noises*).
3. Slings *creeping* up the anchor - provoked by too steep an angle towards a spar tree.
4. Progressive *abrasion damage* or cutting of slings by rough edges on the anchor.

When the available anchor points appear to be small or questionable, use multiple anchor points:

Good, (as climbers say - "*Bombproof*") anchors are the foundation of these systems. It pays to do the best job possible with the anchors. **Anchor failure is likely to hurt someone.**



### 4. Maintain a safety factor of 5 when applying all accessories and hardware to a system.

Quite simply put this means "Use the right tool for the job". Only load rated components should be used in these systems, and attention should be paid to avoid exceeding these limits. (Note: the WLL "Working Load Limit" marked on many products is 1/5 of the breaking strength of the part.) The safety factor of 5 is standard throughout much of the rigging industry. Examples:

- A Griphoist® machine that produces 2000 pounds of tension needs an anchor sling rated at 2000 pounds WLL (breaking strength of 10,000 pounds)
- A 4000 pound WLL snatch block (breaking strength of 20,000 pounds) is certainly OK for lifting a 500 pound boulder.

Griphoist powered rigging systems can help trail crews move rock, wood, and other materials to work sites, up steep slopes, and across many barriers. They are tools that can empower people of many ages and abilities to do impressive things. It is important for those who work these machines to be attentive to safe work principles. It pays to learn as much as we can about safe ways to use this equipment. As with many endeavors in life - **knowledge is safety.**

**Drawings by Julian Wiggins**

Many Trail Crews who work in the backcountry are substituting Amsteel Blue synthetic rope for their high lines. Amsteel Blue serves as the overhead line which is then pulled by a Griphoist with a shorter wire rope. Amsteel Blue is stronger than a wire rope of the same diameter and 1/7th the weight. Synthetic rope needs to be handled with care as it is not as durable as wire rope.

**CHAIN** for rough service - dragging and lifting freshly cut stone • many applications with heavy equipment • available in general purpose and alloy (suitable for overhead lifting) types.

### CAMPBELL® GRADE 3 CHAIN

General purpose chain • frequently used for tow chains, binding chains, and logging chains • available in self colored (SC) or Hot Galvanized (HG) • sized according to diameter of steel wire used to forge each link.

**#5/16PC** 5/16" SC • WLL = 1,900 lb. • 10 ft. weighs 8.3 lb.

**#5/16PC GALV** 5/16" HG • WLL = 1,900 lb. • 10 ft. 8.3 lb.

**#3/8PC** 3/8" SC • WLL = 2,650 lb. • 10 ft. weighs 14.2 lb.

**#3/8PC GALV** 3/8" HG • WLL = 2,650 lb. • 10 ft. 14.2 lb.



### CAMPBELL® GRADE 10 ALLOY CHAIN

Specifically recommended for overhead lifting • alloy steel • heat treated • shot peened finish • high strength to weight ratio • smaller chain can be used when equipment will be backpacked to remote sites.

**#3/8A-10** 3/8" • WLL = 7,100 lb. • 10 ft. weighs 14.2 lb.

**#9/32 A-10** 9/32" • WLL = 4,300 lb. • 10 ft. weighs 8.3 lb.

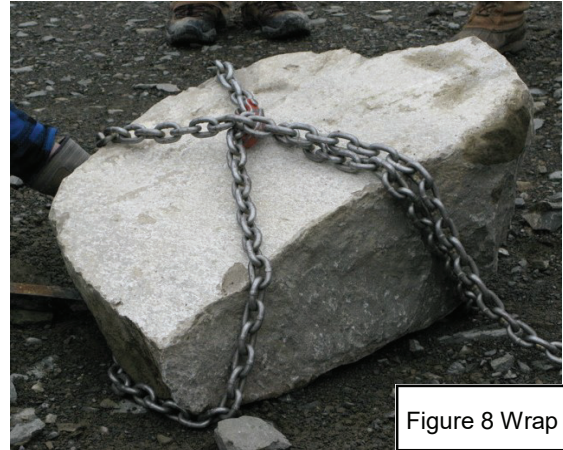


Figure 8 Wrap

High lining with chain- Baxter State Park - 1980 - Photo by L.C. Kenway

### CHAIN HOOKS - CARBON STEEL - CLEVIS STYLE (G3)

**#440-0504** 5/16" slip hook      **#450-0505** 5/16" grab hook

**#440-0604** 3/8" slip hook      **#450-0605** 3/8" grab hook

### CHAIN HOOKS - ALLOY STEEL - CLEVIS STYLE (G10)

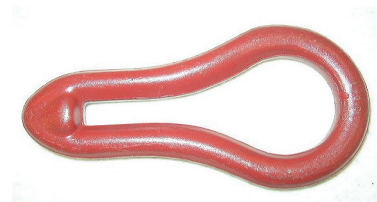
**#574-6495** 9/32" slip hook      **#572-4415** 9/32" grab hook

**#440-3515** 3/8" slip hook      **#450-3515** 3/8" grab hook



### DIXIE™ CHAIN SADDLE GRAB LINK

Often called a "keyhole ring", will provide a lifting ring at any point along a 3/8" chain • chain slides through the large part of the ring, but locks in the slotted section • can greatly speed up wrapping and lifting stone • SWL = 7300 lb • 2 lb.



### ROCK ANCHORS

Expanding rock anchor fits into 1-7/8" diameter hole • anchor is expanded by turning the threaded rod and then pulled • anchor can be temporary or permanent • **placements in granite observed to fail above 12,000 lb.** • nominal SWL = 4,000 lb. • suitable for anchoring Griphoist® or lifting boulders out of hard to reach places • furnished complete with 3/4" rod - 15" long • Wt. = 5 lb.

**#HPS R315** 3/4" rod by 15" AB Chance Rock Anchor

**#J3436** 3/4" rod by 15" Joslyn Rock Anchor





## PORT-A-WRAP by Buckingham Manufacturing Company

For most rigging situations, good friction systems can be built using shackles anchored to trees and boulders with lifting slings. For high load and difficult situations, we can take a page from the Arborist book and utilize Port-a wrap lowering devices. These tools are available in steel or aluminum models. The units featured here have safe working loads of 2000 lbs.

MINI PORT-A-WRAP, 601MN, 2 LB, 5.5" LONG, ROPE UP TO 1/2", WLL 1,000 @ 7:1, NICKEL PLATED



PORT-A-WRAP III, 601N, 4 LB, 7.25" LONG, ROPE UP TO 5/8", WLL 2,000 @ 6:1, NICKEL PLATED



PORT-A-WRAP, 601L, 7 LB, 9" LONG, ROPE UP TO 3/4", WLL 2,000 LB @ 6:1, POWDER COATED



PORT-A-WRAP III, 601LN, 7 LB, 9" LONG, ROPE UP TO 5/8", WLL 2,000 LB @ 6:1, NICKEL PLATED



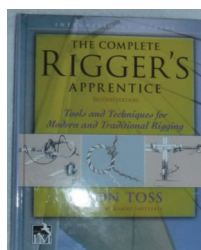
PORT-A-WRAP, 601, 4 LB, 7.25" LONG, ROPE UP TO 5/8", WLL 2,000 @ 6:1, POWDER COATED



PORT-A-WRAP, 601XN, 18 LB, 13" LONG, ROPE UP TO 7/8", WLL 6,000 LB @ 10:1, NICKEL PLATED

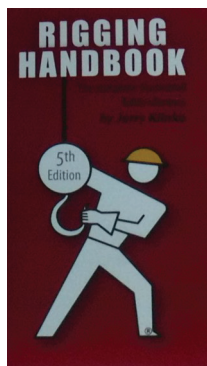


## Books



The Complete Rigger's Apprentice  
Second Edition  
Tools and Techniques for Modern and Traditional Rigging  
Brion Toss

- A comprehensive reference for all types of lines.
- Professional treatment of advanced topics
- Knots & splices for natural/synthetic fiber ropes.
- Instructions for different splices in wire rope.
- Selecting, sizing and safe use of blocks.
- Attachments and accessories.
- Illustrated with line drawings
- Specialized tools for the work.
- Focus on Marine applications



Rigging Handbook  
The Complete Illustrated Field Reference  
5th Edition  
Jerry Klink

Sized to carry with you and well indexed. Illustrated with Line drawings and Tables From slings & hitches to Crane Operations. Hardware with Safe working loads. Safe Use and care of Wire Rope. Selection and proper sizing of Blocks. Best Practices for Hoists and lifting loads. Leverage and Mechanical Advantage Weight of Materials Load and Tension Calculations Hitches and Load control Voice and Hand Signals OSHA regulations and standards



Maine Trail Crew  
Photo by Jodi Dunn

## LIFTING SLINGS

### LIFTALL® NYLON WEB SLINGS

Nylon lifting slings are the anchor and lift system of choice for many trail crews. Wide "eye and eye" slings can be used to anchor Griphoist® machines to trees. Endless loops work well for cinching rocks and logs for transport. Much lighter and stronger than chain, they are much favored for packing to remote sites.

EYE & EYE WEBMASTER 1600 SLINGS			LOAD RATING IN POUNDS		
CODE	WIDTH	LENGTH	VERTICAL	CHOKER	BASKET
#EE-1-802X4T&T	2 IN	4 FT	3,200	2,500	6,400
#EE-1-802X6T&T	2 IN	6 FT	3,200	2,500	6,400
#EE-1-802X8T&T	2 IN	8 FT	3,200	2,500	6,400
#EE-1-802X10T&T	2 IN	10 FT	3,200	2,500	6,400
#EE-1-802X12T&T	2 IN	12 FT	3,200	2,500	6,400
#EE-1-803X4T&T	3 IN	4 FT	4,800	3,800	9,600
#EE-1-803X5T&T	3 IN	5 FT	4,800	3,800	9,600
#EE-1-803X6T&T	3 IN	6 FT	4,800	3,800	9,600
#EE-1-803X8T&T	3 IN	8 FT	4,800	3,800	9,600
#EE-1-803X10T&T	3 IN	10 FT	4,800	3,800	9,600
#EE-1-803X12T&T	3 IN	12 FT	4,800	3,800	9,600
#EE-1-803X20T&T	3 IN	20 FT	4,800	3,800	9,600
#EE-1-803X30T&T	3 IN	30 FT	4,800	3,800	9,600
#EE-1-804X4T&T	4 IN	4 FT	6,400	5,000	12,800
#EE-1-804X6T&T	4 IN	6 FT	6,400	5,000	12,800
#EE-1-804X8T&T	4 IN	8 FT	6,400	5,000	12,800
#EE-1-804X10T&T	4 IN	10 FT	6,400	5,000	12,800
#EE-1-804X12T&T	4 IN	12 FT	6,400	5,000	12,800

ENDLESS LOOP SLINGS		LOAD RATING IN POUNDS			
CODE	WIDTH	LENGTH	VERTICAL	CHOKER	BASKET
EN-1-802X4	2 IN	4 FT	6,400	5,000	12,800
EN-1-802X5	2 IN	5 FT	6,400	5,000	12,800
EN-1-802X6	2 IN	6 FT	6,400	5,000	12,800
EN-1-802X7	2 IN	7 FT	6,400	5,000	12,800
EN-1-802X8	2 IN	8 FT	6,400	5,000	12,800
EN-1-802X10	2 IN	10 FT	6,400	5,000	12,800
EN-1-802X12	2 IN	12 FT	6,400	5,000	12,800
EN-1-802X20	2 IN	20 FT	6,400	5,000	12,800
EN-1-803X4	3 IN	4 FT	11,500	9,200	17,200
EN-1-803X6	3 IN	6 FT	11,500	9,200	17,200
EN-1-803X8	3 IN	8 FT	11,500	9,200	17,200
EN-1-803X12	3 IN	12 FT	11,500	9,200	17,200

### SAMPSON AMSTEEL BLUE HIGH STRENGTH DYNEEMA FIBER® ROPE

Diameter Inches	Weight of 100 feet Pounds	Sampson Avg Strength Pounds	Sampson Min Strength Pounds	SWL Safety Factor 5	Min Sheave Diameter Inches	Min Groove Diameter Inches
5/16	2.7	13,700	12,300	2,740	3	3/8
3/8	3.6	19,600	17,600	3,920	3	1/2
7/16	4.2	23,900	21,500	4,780	4-1/2	1/2
1/2	6.4	34,000	30,600	6,800	4-1/2	5/8
9/16	7.9	40,500	36,500	8,100	4-1/2	5/8



Sheave and Groove  
Diameters are translated  
into standard block sizes



## BOULDER SLINGS

For lifting or lowering boulders in steep or difficult terrain • good for dragging rocks in water • effective for lifting smooth, round or pyramid shaped rocks, sometimes 4 or 5 at a time

- #B1 18" x 9 ft. 2" web with steel rings • tie straps at 10" spacing • WLL 12,000 lb.
- #B2 18" x 9 ft. 2" web • tie straps at 10" spacing • WLL 12,800 lb.
- #B3 18" x 9 ft. 1" web • tie straps at 10" spacing • WLL 6,400 lb.
- #B4 9" x 8 ft. 2" web • tie straps at 9" spacing • WLL 12,800 lb.
- #B5 9" x 6 ft. 2" web • tie straps at 9" spacing • WLL 12,800 lb.
- #B6 9" x 6 ft. 1" web • tie straps at 9" spacing • WLL 6,400 lb.

### B6 BOULDER SLING



4 boulders in a B4 custom sling.

## HAND CARRY SLINGS

Net style sling can be carried by 2 to 6 people • available in 3 ft, 4 ft. and 5-1/2 ft sizes. • can also be lifted by a highline • good for short distances or where a highline would not be worth the effort • SWL 5,000 lb.

- #B7 5-1/2 ft x 5-1/2 ft x 2" hand carry sling
- #B8 3 ft x 3 ft x 2" hand carry sling
- #B9 4 ft x 4 ft x 2" hand carry sling



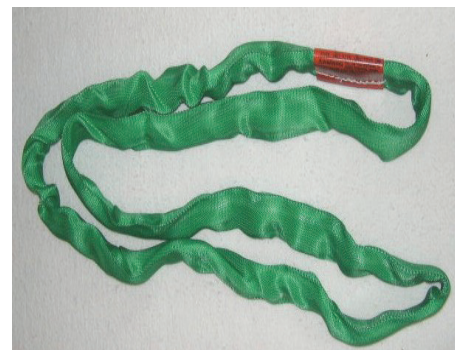
B9 Hand Carry Sling in use, Rainbow Dead-Water Maine  
Photo by Hilary Dees – 2014



## TUFLEX POLYESTER ROUNDSLINGS

Endless loop slings • continuous loop of polyester yarns surrounded by a cordura nylon jacket • high strength with low weight • no loss of strength from abrasion to cover • low stretch (about 3% at rated capacity)

TUFLEX ENDLESS ROUNDSLINGS				CAPACITY - LBS.	
ITEM NO	COLOR	DIAM	VERTICAL	CHOKER	BASKET
EN30 X 4 FT	PURPLE	5/8"	2600	2100	5200
EN30 X 6 FT	PURPLE	5/8"	2600	2100	5200
EN30 X 8 FT	PURPLE	5/8"	2600	2100	5200
EN30 X 10 FT	PURPLE	5/8"	2600	2100	5200
EN60 X 4 FT	GREEN	7/8"	5300	4200	10600
EN60 X 6 FT	GREEN	7/8"	5300	4200	10600
EN60 X 8 FT	GREEN	7/8"	5300	4200	10600
EN60 X 10 FT	GREEN	7/8"	5300	4200	10600
EN90 X 6 FT	YELLOW	1-1/8"	8400	6700	16800
EN90 X 8 FT	YELLOW	1-1/8"	8400	6700	16800
EN90 X 10 FT	YELLOW	1-1/8"	8400	6700	16800



## HAND TOOLS

**AMES/TRUE TEMPER® SHOVELS** - Parkersburg West Virginia and Camp Hill Pennsylvania since 1774

### ROUND POINT SHOVELS

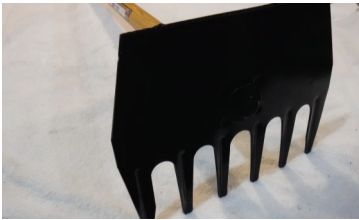
- #12-375 Forest Fire" beveled edge, 41" • 4 lb.
- #13-096 Kodiak" 30" Armor D-handle • 5 lb.
- #15-740 Landscaper" 48" ash handle • 4 lb.
- #19-411 Ideal" 48" ash handle • 4 lb.
- #ATE45000 "Razorback" 48" Fiberglass • 5 lb.



**COUNCIL TOOLS** - Lake Waccamaw, North Carolina. Forged tools made in America since 1886

### #MT48 McCLEOD FIRE TOOL

9"x9-1/4" blade • 6 teeth • 48" handle • Classic fire line tool • moves gravel, grades soil and slopes, tamps fill



### #20-374 MCLEOD WOOD HANDLE - 4 lb.

### #LW12-60 FIRE RAKE

Four mowing machine teeth on a 12" blade • 60" handle • wide teeth will not plug up with leaves • aggressive tool good for clearing duff and soil.



### PINCH POINT CROWBARS

The tool of choice for prying and levering rock • chisel shape tip provides leverage in small places • very little flex under heavy load • made in USA.

- #120PP - 1-1/8" x 51" 12 lb. crowbar
- #180PP - 1-1/4" x 60" 18 lb. crowbar



**WARWOOD TOOLS** - Wheeling, West Virginia, Forged Steel Tools since 1854

### #00061 FOREST ADZE HOE

Also called a hazel hoe • 6-1/4" blade • 4-3/4 lb. head • 34" hickory handle • square eye



### PINCH POINT CROWBARS

Warwood crowbars are high quality, and robust.

- #16030 10 lb. 48" Pinch Point Crowbar
- #16040 12 lb. 51" Pinch Point Crowbar
- #16070 18 lb. 60" Pinch Point Crowbar
- #16080 22 lb. 63" Pinch Point Crowbar
- #16090 26 lb. 66" Pinch Point Crowbar



**Note: More Warwood Tools are listed in the Hammers section and on the Discontinued and Overstock Sale Items Pages**



Maine Trail Crew

**AMES/TRUE TEMPER®**

### #ATE1136500 - 5 lb. PICK MATTOCK HEAD

A popular tool for digging and building with stone in New England rocky soils • high carbon steel • imported





**BAHCO TOOLS** South Yorkshire  
United Kingdom since 1862

## BOW SAWS

Strong tubular frame keeps high tension on blade • quality steel blades • hand guard • 5 sizes.

**#331** 21" bow saw with pointed nose - 1.4 lb

**#9-21** 21" bow saw - 1.4 lb.

**#9-24** 24" bow saw - 1.6 lb.

**#9-30** 30" bow saw - 1.8 lb.

**#9-36** 36" bow saw - 2.1 lb.

Replacement blades are available



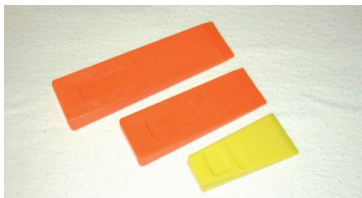
## PLASTIC WEDGES

High impact plastic • slender ramp at tip • very helpful for directional felling or bucking large logs • 3 sizes.

**#1055** - 5-1/2" wedge • 0.3 lb.

**#1080** - 8" wedge • 0.5 lb.

**#1100** - 10" wedge • 0.7 lb.



## #PG-72 FOLDING SAW

7-1/2" teflon coated blade locks in open and closed positions • light and easy to use • can be carried in pocket or pack • good for branches and roots • safer tool for youth projects • 1 lb.  
Replacement blades are available.



## LOPPERS

**#P16-50-F** 1-1/4" capacity • 20 inch handle • 33 oz • bypass loppers



**#P16-60-F** 1-1/4" capacity • 24 inch handle • 36 oz • bypass loppers



**#P116-SL- 50** 1-1/4" capacity • 19-3/4 inch chrome handle • 26 oz • bypass loppers



**P280-SL- 80** 1-3/4" capacity • 31-1/2 inch chrome handle • bypass loppers



**# P172-SL-85** 1-1/2" capacity heavy duty anvil style loppers • 28 in. chrome Handles • Preferred tool for dead and dry brush.





## WOODS TOOLS

### SNOW & NEALLEY AXES

Quality steel that will take and keep an edge • a good choice for those areas where the power tools must be left behind • beautifully made, and a pleasure to use. Each axe is provided with a full grain leather sheath.

**#012S** "Our Best" Single Bit 1-3/4" lb. axe • 24" handle • leather guard

**#016S** "Our Best" Single Bit 2-1/4 lb. axe • 28" handle • leather guard

**#026S** "Our Best" Single Bit 3-1/2 lb. axe • 30" handle • leather guard



### COUNCIL TOOLS - AXES

#### #38PE36 PULASKI

3.75 lb. head • 36" straight handle • Classic fire line tool and favored for trail work.

**#70-013** Replacement wood handle for Pulaski



#### #338PE142FG NFES

#### PULASKI W/ FIBERGLASS HANDLE

3.75 lb head • 42" straight fiberglass handle.

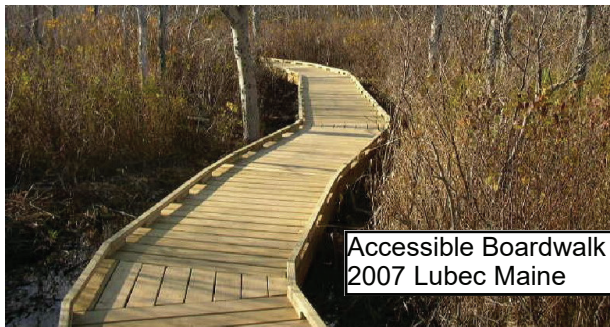


#### #35-2MR MICHIGAN DOUBLE BIT AXE

3.5 lb. head • 36" straight handle •

Classic Woodsman's tool.

**#70-013** Replacement wood handle for Pulaski



Elevated bog bridge, Appalachian Trail, Monson, Maine-photo by MATC-2014



## PEAVEY MANUFACTURING CO. LOGGING TOOLS EAST EDDINGTON, MAINE

Peavey Mfg. has been catering to the needs of people working with wood ever since Joseph Peavey conceived of the original "Peavey" that he developed in 1857 for driving logs on the Penobscot River.

**BANGOR PEAVEY** - One piece forged steel socket and pick fitted with a hardwood handle and Duck Bill hook • particularly helpful for rolling, turning, prying, and positioning logs used in rustic bridge or log home construction • conical tip without a separate spike slides easily between logs • spike cannot fall out.

#0011 4 ft. handle - 7.0 lb.

#0018 4-1/2 ft. handle - 7.5 lb.

#0019 5 ft. handle - 6.0 lb.



**STANDARD PEAVEY** - Forged steel socket and driven pick with hardwood handle and Duck Bill hook.

#0122 4 ft. handle - 7.0 lb.

#0123 4-1/2 ft. handle - 7.5 lb.

#0124 5 ft. Handle - 8.0 lb.

#0125 5-1/2 ft. handle - 8.5 lb.



**SWIVEL TIMBER CARRIER** - Allows 2 or more people to share the load in a comfortable standing position • shorter handle for between trees and longer handles for in the open.

#0421 4 ft. handle - 6.5 lb.

#0422 4-1/2 ft. handle - 7.0 lb.

#0423 5 ft. Handle - 7.5 lb.



**BARK SPUD** - The easier way to peel bark - when the sap is running • 18" handle • 1.5 lb.

#018SPUD



**PULP HOOKS** - For handling pulp & boltwood • provides a portable handle when moving logs or timbers.

#0606 Favorite 606 - 1.4 lb.

#0601 International - 1.3 lb.

#0608 Canadian pattern - 1.8 lb.

#0610 Canadian pattern with replaceable tip.-1.9 lb.

#0609 12 in. Bentley - 1.8 lb.



### DRAW SHAVES

For cutting off bark and shaping wood pieces

#10-DS10 10" Drawshave - 2 lb.

#13-DS10 13" Drawshave - 2.5 lb.

#16-DS10 16" Drawshave - 3.0 lb.



**SHINGLE FRO** Heavy steel blade with in-line handle is designed for splitting wood into shakes or other thin pieces.

#FRO - 3 lb.

## COBRA COMBI

### COBRA COMBI TOOLS.

3083-3228-00	14" UC MOIL POINT
3083-3229-00	19" UC MOIL POINT
3083-3231-00	1-3/4 X 9-1/2" UC NARROW CHISEL
3083-3230-00	1-3/4" x 14" UC NARROW CHISEL
3083-4071-00	1-3/4" X 18" UC NARROW CHISEL
3083-4072-00	3" X 11" UC WIDE CHISEL
3083-3232-00	3" x 15" UC WIDE CHISEL
3083-3233-00	3" X 14" UC DIGGING CHISEL
3083-3234-00	4-3/4" X 11" UC DIGGING SPADE
3083-3235-00	5" X 13" UC CLAY SPADE
9245-2812-90	5" X 18" UC ASPHALT CUTTER

### H THREAD DRILL RODS

3083 4220 00	12" UC DRILL ROD H THREAD
3083 4220 10	18" UC DRILL ROD H THREAD
3083 4220 20	24" UC DRILL ROD H THREAD
3083 4220 30	30" UC DRILL ROD H THREAD
3083 4220 40	36" UC DRILL ROD H-THREAD



Third Mountain  
Appalachian Trail Maine

### COBRA COMBI

Drill/ Breaker similar to the Pionjar 120 • cleaner emissions, less noise and lower vibrations • 50:1 gas/oil mix • 55 lb. • **uses same tools as Pionjar** • 2600 BPM • Maximum drilling depth of 6.5 ft. • Drills 12 in/min with 1-3/8" bit in granite.

### #8318 0800 03 COBRA COMBI GAS POWERED DRILL/BREAKER



### BRUNNER AND LAY SRINGDALE ARKANSAS SINCE 1882.

DIGGING AND BREAKING TOOLS  
7/8" X 4-1/4" HEX SHANKS FOR COBRA COMBI

A01014	14" UC MOIL POINT
A01018	18" UC MOIL POINT
A02014	14" UC NARROW CHISEL
A02018	18" UC NARROW CHISEL
A03014	14" UC 2-1/2" DIGGING CHISEL
A03018	18" UC 2-1/2" DIGGING CHISEL
B00300	14" UC CLAY SPADE
B00500	11" UC 5" ASPHALT CUTTER





# TRAIL SERVICES PRICES - FEBRUARY 1, 2023

Item	Description	Price
<b>AMSTEEL BLUE SYNTHETIC ROPE</b>		
<b>SAMPLE DIAMETERS AND LENGTHS WITH THIMBLES EACH END</b>		
1700-11095 5/16-150	5/16" X150 FT AMSTEEL BLUE WITH THIMBLES EACH END	\$543.00
1700-11095 5/16-200	5/16" X 200 FT AMSTEEL BLUE WITH THIMBLES EACH END	\$662.00
1700-11093 3/8-100	3/8" X 100 FT AMSTEEL BLUE WITH THIMBLES EACH END	\$536.00
1700-11093 3/8-150	3/8" X 150 FT AMSTEEL BLUE WITH THIMBLES EACH END	\$727.80
1700-11100 7/16-100	7/16" X 100 FT AMSTEEL BLUE WITH THIMBLES EACH END	\$634.00
1700-11100 7/16-150	7/16" X 150 FT AMSTEEL BLUE WITH THIMBLES EACH END	\$872.00
1700-11100 7/16-200	7/16" X 200 FT AMSTEEL BLUE WITH THIMBLES EACH END	\$1,012.00
1700-11096 1/2-100	1/2" X 100 FT AMSTEEL BLUE WITH THIMBLES EACH END	\$765.00
1700-11096 1/2-200	1/2" X 200 FT AMSTEEL BLUE WITH THIMBLE ON EACH END	\$1,418.00
1700-11096 1/2-300	1/2" X 300 FT AMSTEEL BLUE WITH THIMBLE ON EACH END	\$1,957.00
1700-11101 9/16-300	9/16" X 300 FT AMSTEEL BLUE WITH THIMBLES EACH END	\$2,664.00
<b>NYLON UTILITY ROPE</b>	1/2" BUFFALO NYLON PER FOOT	\$0.80
<b>BOOKS</b>		
TOSS	THE COMPLETE RIGGERS APPRENTICE	\$49.76
KLINKE	RIGGING HANDBOOK BY JERRY LINKE	\$27.00
<b>AMES TOOLS</b>		
<b>JACKSON SLEDGE HAMMERS</b>		
11-963	3 LB SLEDGE HAMMER WITH 16" WOOD HANDLE	\$18.83
11-968	3 LB DOUBLE FACE SLEDGE HAMMER WITH 16" FIBERGLASS HANDLE	\$25.62
11-969	4 LB DOUBLE FACED SLEDGE HAMMER WITH 16" WOOD HANDLE	\$23.47
ATE 11-970	4 LB SLEDGE HAMMER WITH FIBERGLASS HANDLE	\$27.93
11-976	6 LB SLEDGE HAMMER WITH 34" FIBERGLASS HANDLE	\$49.90
11-979	8 LB SLEDGE HAMMER WITH 34" WOOD HANDLE	\$32.45
ATE201849	8 LB SLEDGE HAMMER WITH 34" FIBERGLASS HANDLE	\$46.00
11-993	10 LB SLEDGE HAMMER WITH 34" FIBERGLASS HANDLE	\$45.46
<b>PICK MATTOCK</b>		
ATE1136500	5LB PICK MATTOCK HEAD ONLY	\$31.45
20-274	FIBERGLASS MATTOCK HANDLE	\$32.45
<b>SHOVELS</b>		
ATE45000	RAZORBACK LONG HANDLE ROUND POINT SHOVEL W/ FIBERGLASS HANDLE	\$42.91
ATE12-375	*FOREST FIRE SHOVEL, BEVELED EDGES, 41" HANDLE	\$81.20
13-096	(D) KODIAK ROUND POINT SHOVEL 30" W/ ARMOR D HANDLE	\$43.18
15-729	(D) LANDSCAPER ROUND POINT SHOVEL W/ 29" D HANDLE	\$28.60
2585600	LANDSCAPER ROUND POINT SHOVEL W/48" WOOD HANDLE	\$25.50
<b>WOODEN TOOL HANDLES</b>		
001-04	36" HICKORY SLEDGE HAMMER HANDLE	\$14.58
OPL432-04	3/4" X 1" EYE X 16" HICKORY WOODEN HAMMER HANDLE	\$6.00
ATE20-374	*HICKORY REPAIR HANDLE FOR LONG HANDLED SHOVEL - FITS MCLEOD AND FIRE FIGHTING SHOVEL- 46" LONG	\$14.71
<b>BAHCO</b>		
<b>BAHCO FELLING WEDGES</b>		
40-1055	PLASTIC WEDGE 5-1/2"	\$4.28
40-1080	PLASTIC WEDGE - 8"	\$8.83
40-1100	PLASTIC WEDGE - 10"	\$10.27
<b>BOW SAWS</b>		
331-21-51	21" BOW SAW WITH POINTED NOSE	\$21.84
10-24-51	21" BOW SAW	\$13.38
10-30-51	24" BOW SAW	\$25.68
9-36-23-KP	30" BOW SAW	\$16.78
9-36-23-KP	36" BOW SAW	\$25.99
<b>FOLDING SAW</b>		
PG-72	7-1/2" FOLDING PRUNING SAW	\$32.76
396-HP-BLADE	7-1/2" REPLACEMENT BLADE FOR PG-72	\$18.90
<b>LOPPERS</b>		
P16-50F	50 CM STANDARD DUTY BYPASS LOPPER - 1-1/4 " CAPACITY	\$76.02
P16-60F	60 CM STANDARD DUTY BYPASS LOPPER - 1-1/4" CAPACITY	\$77.91
P14-60	60 CM STANDARD DUTY BYPASS LOPPER	\$70.07
P116-SL-50	50 CM PROFESSIONAL SUPER LIGHT BY-PASS LOPPER - 1-1/4" CAPACITY	\$90.40
P172-SL-85	HEAVY DUTY ANVIL LOPPER - 1-1/2" CAPACITY	\$110.25

# TRAIL SERVICES PRICES - FEBRUARY 1, 2023

Item	Description	Price
P280-SL-80	HEAVY DUTY BYPASS LOPPER - 1-1/2" CAPACITY	\$102.90
<b>BETONAMIT EXPANDING CEMENT</b>		
TYPE R	TYPE R (LIQUID) NON-EXPLOSIVE CRACKING AGENT (11 LB MIX)	\$58.05
TYPE S	TYPE S (PUTTY) NON-EXPLOSIVE CRACKING AGENT (5 OZ ADDITIVE)	\$6.63
THERMOMETER	25-125 DEGREE THERMOMETER	\$8.16
<b>BRUNNER &amp; LAY</b>		
	TOOLS FOR COMBRA COMBI DRILL/BREAKER - 7/8"X4-1/4"SHANK	
A02024	24" UC NARROW CHISEL	\$30.13
A02036	36" UC NARROW CHISEL	\$42.31
A02048	48" UC NARROW CHISEL	\$54.99
A01014	14" UC MOIL POINT	\$22.00
A01018	18" UC MOIL POINT	\$24.00
A02014	14" UC NARROW CHISEL	\$22.00
A02018	18" UC NARROW CHISEL	\$24.00
A03014	14" UC 2-1/2" DIGGING CHISEL	\$30.00
A03018	18" UC 2-1/2" DIGGING CHISEL	\$33.00
B00300	14" UC CLAY SPADE	\$90.00
B00500	11" UC 5" ASPHALT CUTTER	\$75.00
<b>CHANCE ROCK ANCHOR</b>		
HPS R315	.75" X 15" ROCK ANCHOR - TRIPLE EYE FOR 1-7/8" HOLE	\$78.34
<b>COBRA COMBI GAS POWERED PNEUMATIC BREAKER/DRILL</b>		
8318 0800 10	COBRA COMBI GAS POWERED DRILL/BREAKER	\$6,504.00
9238 27 4350	1 LITER 2 STROKE OIL FOR COBRA COMBI	\$22.51
<b>COBRA COMBI TOOLS</b>		
3083-3240-00	7-1/12" X 7" TAMPER SQUARE COMP.	
3083-3228-00	14" UC MOIL POINT	\$29.30
3083-3229-00	19" UC MOIL POINT	\$26.22
3083-3231-00	1-3/4 X 9-1/2" UC NARROW CHISEL	\$32.84
3083-3230-00	1-3/4" x 14" UC NARROW CHISEL	\$33.53
3083-4071-00	1-3/4" X 18" UC NARROW CHISEL	\$30.30
3083-4072-00	3" X 11" UC WIDE CHISEL	\$64.00
3083-3232-00	3" x 15" UC WIDE CHISEL	\$66.80
3083-3233-00	3" X 14" UC DIGGING CHISEL	\$106.42
3083-3234-00	4-3/4" X 11" UC DIGGING SPADE	\$113.72
3083-3235-00	5" X 13" UC CLAY SPADE	\$118.64
9245-2812-90	5" X 18" UC ASPHALT CUTTER	\$69.24
<b>DETACHABLE H-THREAD BITS - CROSS TYPE</b>		
3083 4223 00	1-3/8" DETACHABLE BIT 'H' THREAD	\$75.75
3083 4223 10	1-1/2" DETACHABLE BIT 'H' THREAD	\$62.54
3083 4223 20	1-5/8" DETACHABLE BIT 'H' THREAD	\$72.10
3083 4223 30	1-3/4" DETACHABLE BIT 'H' THREAD	\$85.49
3083 4223 40	1-7/8" DETACHABLE BIT 'H' THREAD	\$96.82
3083 4223 50	2" DETACHABLE BIT 'H' THREAD	\$125.66
3083 4223 60	2-1/4" DETACHABLE BIT 'H' THREAD	
3083 4223 70	2-1/2" DETACHABLE BIT 'H' THREAD	\$130.81
<b>H-THREAD HOLLOW DRILL RODS</b>		
3083 4220 00	12" UC DRILL ROD H THREAD	\$53.56
3083 4220 10	18" UC DRILL ROD H THREAD	\$89.24
3083 4220 20	24" UC DRILL ROD H THREAD	\$97.54
3083 4220 30	30" UC DRILL ROD H THREAD	\$104.03
3083 4220 40	36" UC DRILL ROD H-THREAD	\$116.45
3083 4220 50	48" UC DRILL ROD H THREAD	\$128.06
<b>INTEGRAL DRILLS</b>		
3083-4210-10	5/8" INTEGRAL DRILL 12" UC	\$99.00
3083-4211-10	3/4" INTEGRAL DRILL 12" UC	\$92.30
3083-4212-10	7/8" INTEGRAL DRILL 12" UC	\$84.79
3083-4213-10	1" INTEGRAL DRILL 12" UC	\$84.39
<b>COOPER HOIST HOOKS WITH GATE LATCH</b>		
395-2515	*3 TON SWIVEL HOIST HOOK WITH GATE LATCH	\$114.33
395-2915	7 TON SWIVEL HOIST HOOK WITH GATE LATCH	\$185.00
<b>CAMPBELL SNATCH BLOCKS AND GATE LATCHES</b>		
399-0601	LATCH KIT, CAMPBELL, 9160, 7/16	\$9.15
750-6695	GATE LATCH FOR 733-9764 NEW STYLE	\$8.63



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Item	Description	Price
750-6495	GATE LATCH FOR 733-9754 NEW STYLE..	\$7.07
399-0401	LATCH KIT, 916G 5/25	\$3.82
399-1403	KIT, LATCH, UNIVERSAL, 916U, HOOK #4-24	\$9.16
399-1405	KIT,LATCH, UNIVERSAL, 916U HOOK #7-27	\$9.32
COO7339752	3" X 3/8" SNATCH BLOCK WITH SHACKLE SWIVEL	\$209.49
C007339762	4.5" X 1/2" SNATCH BLOCK WITH SHACKLE SWIVEL	\$403.34
<b>CAMPBELL REPLACEMENT SHEAVES</b>		
7020-4342	3" REPLACEMENT SHEAVE FOR 733-9750 STYLE BLOCKS	\$99.40
7021-8402	4-1/2" REPLACEMENT SHEAVE FOR 733-9760 STYLE BLOCKS	\$135.51
<b>CHAIN GRADE 3 (PROOF)</b>		
3/8 PC	SYS3 CHAIN 3/8" (PER FOOT)	\$3.00
3/8 PC GALV	SYS3G CHAIN, 3/8", GALV - PER FOOT	\$6.06
T940-1624	3/8" CLEVIS SLIP HOOK	\$6.15
450-0604	3/8" CLEVIS GRAB HOOK 5400#W	\$7.86
<b>GRADE 10 CHAIN</b>		
C000405412	CHAIN, ALLOY, GR100 3/8" ALLOY (PER FOOT)	\$6.61
440-3515	3/8"A CLEVIS SLIP HOOK	\$21.51
450-3515	3/8" A CLEVIS GRAB HOOK	\$16.09
9/32 A10	9/32" GRADE 10 CHAIN, (PER FOOT)	\$12.51
440-3415	5/16"A CLEVIS SLIP HOOK	\$16.19
450-3415	5/16"A CLEVIS GRAB HOOK 5100#W	\$11.11
<b>SCREW PIN ANCHOR SHACKLES</b>		
COO5410835	1/2" GALV. SCREW PIN ANCHOR SHACKLE	\$13.95
COO5411035	5/8" GALV. SCREW PIN ANCHOR SHACKLE	\$24.80
COO5411235	3/4" GALV. SCREW PIN ANCHOR SHACKLE	\$34.61
COO5411435	7/8" GALV. SCREW PIN ANCHOR SHACKLE	\$43.66
541-1635	1" GALV. SCREW PIN ANCHOR SHACKLE	\$65.85
541-1835	1-1/8" GALV. SCREW PIN ANCHOR SHACKLE	\$64.03
541-2035	1-1/4" GALV. SCREW PIN ANCHOR SHACKLE	\$130.06
541-2435	1-1/2" SCREW PIN ANCHOR SHACKLE	\$146.39
<b>WIRE ROPE CLIPS</b>		
699-0534	5/16" WIRE ROPE CLIP	\$3.96
699-0634	3/8" WIRE ROPE CLIP	\$5.10
699-0734	7/16" WIRE ROPE CLIPS	\$7.27
699-0834	1/2" WIRE ROPE CLIP	\$6.82
699-1034	5/8" WIRE ROPE CLIP	\$7.62
699-1234	3/4" WIRE ROPE CLIP	\$8.87
<b>COUNCIL TOOLS</b>		
<b>AXES</b>		
35-2MR	3-1/2 LB. DOUBLE BIT AXE WITH A 36" HANDLE	\$48.24
38PE136	3-3/4 LB COUNCIL PULASKI WITH 36" HANDLE	\$89.77
38PE142FG NFES	3.76 LBS PULASKI PATTERN WITH 42" FIBERGLASS HANDLE	\$149.62
70-009	36" STRAIGHT (SINGLE BIT) REPLACEMENT AXE HANDLE	\$29.17
70-013	36" PULASKI OR DOUBLE BIT REPLACEMENT HANDLE	\$29.17
<b>DRILLING HAMMERS</b>		
PR2	2 LB DRILLING HAMMER WITH 10" WOOD HANDLE	\$19.68
PR3	3 LB DRILLING HAMMER WITH 10" WOOD HANDLE	\$24.68
PR4	4 LB DRILLING HAMMER WITH 10" WOOD HANDLE	\$28.22
<b>FIRE TOOLS</b>		
LW12H	FIRE RAKE HEAD ONLY	\$44.06
LW12-60	FIRE RAKE WITH 60" HANDLE	\$71.27
70-043	60" FIRE RAKE HANDLE	\$30.65
LW128	REPLACEMENT FIRE RAKE TEETH WITH RIVETS	\$7.76
MT48	McLEOD TOOL WITH 48" HANDLE	\$141.18
70-601	MCLEOD REPLACEMENT HANDLE	\$30.43
<b>PINCH POINT CROWBAR</b>		
120PP	12 LB X 48" PINCH POINT CROWBAR	\$59.41
180PP	18 LB X 60" PINCH POINT CROWBAR	\$91.96
<b>SLEDGE HAMMERS</b>		
PR40	4 LB ENGINEER HAMMER - 15" WOOD HANDLE	\$33.98
PR40FG	4LB HEAD ENGINEER HAMMER - 15" FIBERGLASS HANDLE	\$39.98
PR600	6 LB HEAD STANDARD SLEDGE - 34" WOOD HANDLE	\$42.23

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Item	Description	Price
PR600FG	6 LB HEAD STANDARD SLEDGE - 34" FIBERGLASS HANDLE	\$47.07
PR800	8 LB HEAD STANDARD SLEDGE - 34" WOOD HANDLE	\$50.98
PR800FG	8 LB HEAD STANDARD SLEDGE - 34" FIBERGLASS HANDLE	\$54.60
PR1000	10 LB STANDARD SLEDGE - 34" WOOD HANDLE	\$55.38
PR1000FG	10 LB STANDARD SLEDGE - 34" FIBERGLASS HANDLE	\$74.74
<b>CROSBY GROUP</b>		
<b>CROSBY SNATCH BLOCKS</b>		
108038	3" X 3/8" #418 2 TON SNATCH BLOCK WITH HOOK AND GATE LATCH	\$250.04
109037	3" X 3/8" #419 2 TON SNATCH BLOCK WITH RING	\$203.93
108065	4-1/2" X 1/2" #418 4 TON SNATCH BLOCK WITH HOOK AND GATE LATCH	\$478.40
GSG109064	4-1/2" X 1/2" #419 4 TON SNATCH BLOCK WITH SHACKLE	\$470.50
<b>CROSBY LATCH KITS</b>		
1096609	S-4320 LATCH KIT FOR CROSBY 12 TON SNATCH BLOCK - NEW STYLE	\$22.03
1096421	S-4320 LATCH KIT FOR CROSBY 1-1/2 TON CARBON STEEL HOOK - NOTCH AND COTTER PIN STYLE	\$8.56
1096468	S-4320 LATCH KIT FOR CROSBY HA/HC ID HOOK - NOTCH AND COTTER PIN STYLE	\$8.56
1096515	S-4320 LATCH KIT FOR CROSBY 3 TON CARBON STEEL HOOK - NOTCH AND COTTER PIN STYLE	\$9.00
1090081	SS-4055 HOOK LATCH KIT FOR CROSBY 3 TON CARBON STEEL HOOK	\$10.39
1090063	SS-4055 HOOK LATCH FOR CROSBY 2 TON CARBON STEEL HOOK	\$6.45
<b>CROSBY WIRE ROPE CLIPS</b>		
1010079	G-450 5/16" WIRE ROPE CLIP	\$6.95
1010097	G-450 3/8" WIRE ROPE CLIP	\$6.95
1010113	G-450 7/16" WIRE ROPE CLIP	\$8.00
1010131	G-450 1/2" WIRE ROPE CLIP	\$8.00
1010499	G-429 5/16" FIST GRIP	\$8.00
1010514	G-429 3/8" FIST GRIP	\$9.00
1010532	G-429 7/16"-1/2" FIST GRIP	\$10.00
<b>CROSBY SCREW PIN ANCHOR SHACKLES</b>		
1018473	G-209 5/8" GALV SCREW PIN ANCHOR SHACKLE	\$44.02
1018491	G-209 3/4" GALV SCREW PIN ANCHOR SHACKLE	\$39.57
1018516	G-209 7/8" GALV SCREW PIN ANCHOR SHACKLE	\$63.58
<b>REPLACEMENT SHEAVES</b>		
460110	5/16" X 3" BRONZE BUSHED SHEAVE	\$59.00
460147	3/8" X 3" REPLACEMENT SHEAVE FOR #418 BLOCK	\$50.00
2000232	1/2" X 4-1/2" REPLACEMENT SHEAVE FOR #418 BLOCK	\$51.00
<b>DIXIE TOOLS</b>		
44200	3/8" CHAIN-SADDLE GRAB LINK	\$22.97
<b>EXTREME OUTBACK</b>		
003-201	THE BLACK RAT PULLEY BLOCK	\$76.57
<b>EZEBREAK - MICRO-BLASTERS</b>		
MICRO-BLASTER I KIT	MICRO-BLASTER LOW ENERGY DEMOLITION SYSTEM	\$727.50
MICRO-BLASTER II KIT	MICRO-BLASTER II PORTABLE AND EXPANDABLE DEMOLITION SYSTEM (1 HEAD W/C02 INFLATOR)	\$857.25
MICRO-BLASTER IIX3 KIT	TRIPLE HEAD KIT - 3 MICROBLASTER II WITH 3 HEAD MANIFOLD	\$1,942.13
MBC-B100	100-PACK OF MICRO-BLASTER LOADS	\$148.50
<b>IRWIN SHIP AUGERS</b>		
43907	7/16" HEX AUGER DRILL BIT EXTENSION	\$33.29
47306	3/8" SHIP AUGER	\$28.71
47307	7/16" SHIP AUGER	\$25.49
3043005	1/2" SHIP AUGER	\$29.63
47309	9/16" SHIP AUGER	\$32.62
47310	5/8" SHIP AUGER	\$31.67
47311	11/16" SHIP AUGER	\$25.92
47312	3/4" SHIP AUGER	\$35.46
47313	13/16" SHIP AUGER	\$28.04
47314	7/8" SHIP AUGER	\$30.07
47315	15/16" SHIP AUGER	\$29.87
47316	1" SHIP AUGER	\$35.37
47317	1-1/16" SHIP AUGER	\$37.96
47318	1-1/8" SHIP AUGER	\$38.20



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Item	Description	Price
47319	1-3/16" SHIP AUGER	\$43.33
47320	1-1/4" SHIP AUGER	\$52.08
47321	1-5/16" SHIP AUGER	\$45.65
47322	1-3/8" SHIP AUGER	\$52.31
47324	1-1/2" SHIP AUGER	\$63.30
47326	1-5/8" SHIP AUGER	\$60.77
47328	1-3/4" SHIP AUGER	\$79.92
47332	2" SHIP AUGER	\$90.83
<b>JOSLYN ROCK ANCHOR</b>		
J3436 (E)	3/4 X15" ROCK ANCHOR FOR 1-7/8" HOLE	\$101.84
<b>LEWIS WINCH SNATCH BLOCK</b>		
N1002	2" FOR 3/16' WIRE ROPE	\$66.78
<b>LIFTALL NYLON WEB SLINGS</b>		
<b>CUSTOM BOULDER SLINGS</b>		
LIFCUSTOM - 18" X 108"	B1 18" X 9 FT BOULDER SLING W/ STEEL END RINGS	\$173.66
LIFSWL - EN1-802X110	B2 18" X 9 FT BOULDER SLING - 2" WEBBING	\$207.61
LIFSWL - EN1-801X110	B3 18" X 9 FT BOULDER SLING - 1" WEBBING	\$133.58
LIFB4 - CUSTOM	B4 9" X 8 FT BOULDER SLING - 2" WEBBING	\$215.68
LIFB5 - CUSTOM	B5 9" X 6 FT BOULDER SLING - 2" WEBBING	\$138.54
LIFB6 - CUSTOM	B6 9" X 6 FT BOULDER SLING - 1" WEBBING	\$60.87
<b>HAND CARRY SLINGS</b>		
LIFWS - ENET - FO8	B7 5.5 FT BY 5.5 FT 8 HAND CARRYING SLING	\$117.32
LIF2300-01500S	B8 3 FT BY 3 FT 8 HAND CARRYING SLING	\$85.77
LIF2300-01500S - 4'	B9 4 FT BY 4 FT 8 HAND CARRYING SLING	\$91.07
<b>ENDLESS LOOP WEBMASTER 1600 FLAT SLINGS</b>		
LIFEN1-802NX3	2" X 3 FT ENDLESS LOOP SLING	\$15.78
LIFEN1-802NX4	2" X 4 FT ENDLESS LOOP SLING	\$21.16
LIFEN1-802NX5	2" X 5 FT ENDLESS LOOP SLING	\$20.30
LIFEN1-802NX6	2" X 6 FT ENDLESS LOOP SLING	\$24.07
LIFEN1-802NX7	2" X 7 FT ENDLESS LOOP SLING	\$27.39
LIFEN1-802NX8	2" X 8 FT ENDLESS LOOP SLING	\$34.36
LIFEN1-802NX10	2" X 10 FT ENDLESS LOOP SLING	\$38.34
LIFEN1-802NX12	2" X 12 FT ENDLESS LOOP SLING	\$41.54
LIFEN1-802NX20	2" X 20 FT ENDLESS LOOP SLING	\$64.81
LIFEN1-803NX4	3" X 4 FT ENDLESS LOOP SLING	\$29.81
LIFEN1-803NX6	3" X 6 FT ENDLESS LOOP SLING	\$38.37
LIFEN1-803NX8	3" X 8 FT ENDLESS LOOP SLING	\$47.73
LIFEN1-803NX10	3" X 10 FT ENDLESS LOOP SLING	\$51.67
LIFEN1-803NX12	3" X 12 FT ENDLESS LOOP SLING	\$66.47
LIFEN1-803NX20	3" X 20 FT ENDLESS LOOP SLING	\$109.03
LIFEN1-804NX8	4" X 8 FT ENDLESS LOOP SLING	\$48.29
LIFEN1-804NX10	4" X 10 FT ENDLESS LOOP SLING	\$57.67
<b>EYE AND EYE WEBMASTER 1600 FLAT SLINGS</b>		
LIFEE1-802NTTX4	2" X 4 FT EYE & EYE SLING WITH TWISTED AND TAPERED EYES	\$17.74
LIFEE-1-802NTTX6	2" X 6 FT EYE & EYE SLING WITH TWISTED AND TAPERED EYES	\$21.52
LIFEE-1-802NTTX8	2" X 8 FT EYE & EYE SLING WITH TWISTED AND TAPERED EYES	\$23.74
LIFEE-1-802NTTX10	2" X 10 FT EYE & EYE SLING WITH TWISTED AND TAPERED EYES	\$26.73
LIFEE-1-802NTTX12	2" X 12 FT EYE & EYE SLING WITH TWISTED AND TAPERED EYES	\$26.99
LIFEE-1-803NTTX4	3" X 4 FT EYE & EYE SLING WITH TWISTED AND TAPERED EYES	\$28.36
LIFEE-1-803NTTX5	3" X 5 FT EYE & EYE SLING WITH TWISTED AND TAPERED EYES	\$27.76
LIFEE-1-803NTTX6	3" X 6 FT EYE & EYE SLING WITH TWISTED AND TAPERED EYES	\$38.67
LIFEE-1-803NTTX8	3" X 8 FT EYE & EYE SLING WITH TWISTED AND TAPERED EYES	\$43.09
LIFEE-1-803NTTX10	3" X 10 FT EYE & EYE SLING WITH TWISTED AND TAPERED EYES	\$42.72
LIFEE-1-803NTTX12	3" X 12 FT EYE & EYE SLING WITH TWISTED AND TAPERED EYES	\$47.55
LIFEE-1-803NTTX20	3" X 20 FT EYE & EYE SLING WITH TWISTED AND TAPERED EYES	\$66.82
LIFEE-1-803NTTX30	3" X 30 FT EYE & EYE SLING WITH TWISTED AND TAPERED EYES	\$90.93
LIFEE-1-804NTTX4	4" X 4 FT EYE & EYE SLING WITH TWISTED AND TAPERED EYES	\$37.16
LIFEE-1-804NTTX6	4" X 6 FT EYE & EYE SLING WITH TWISTED AND TAPERED EYES	\$43.77
LIFEE-1-804NTTX8	4" X 8 FT EYE & EYE SLING WITH TWISTED AND TAPERED EYES	\$44.98
LIFEE-1-804NTTX10	4" X 10 FT EYE & EYE SLING WITH TWISTED AND TAPERED EYES	\$55.65
LIFEE-1-804NTTX12	4" X 12 FT EYE & EYE SLING WITH TWISTED AND TAPERED EYES	\$61.81
EE-1-804X16T&T	4" X 16 FT EYE & EYE SLING WITH TWISTED AND TAPERED EYES	\$74.14

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Item	Description	Price
EE-1-804X20T&T	4" X 20 FT EYE & EYE SLING WITH TWISTED AND TAPERED EYES	\$86.47
<b>TUFLEX ENDLESS LOOP ROUNDSLINGS</b>		
<b>EN30</b>		
EN30 X 4 FT	5/8" X 4 FT PURPLE TUFLEX ENDLESS ROUNDSLING	\$15.85
EN30 X 6FT	5/8" X 6 FT PURPLE TUFLEX ENDLESS ROUNDSLING	\$28.87
EN30 X 8 FT	5/8" X 8 FT PURPLE TUFLEX ENDLESS ROUNDSLING	\$29.90
EN30 X 10 FT	5/8" X 10 FT PURPLE TUFLEX ENDLESS ROUNDSLING	\$33.68
<b>EN60</b>		
EN60 X 4 FT	7/8" X 4 FT GREEN TUFLEX ENDLESS ROUNDSLING	\$19.24
EN60 X 6 FT	7/8" X 6 FT GREEN TUFLEX ENDLESS ROUNDSLING	\$27.05
EN60 X 8 FT	7/8" X 8 FT GREEN TUFLEX ENDLESS ROUNDSLING	\$34.88
EN60 X 10 FT	7/8" X 10 FT GREEN TUFLEX ENDLESS ROUNDSLING	\$44.52
<b>EN90</b>		
EN90 X 3FT	1-1/8" X 3 FT YELLOW TUFLEX ENDLESS ROUNDSLING	\$21.05
EN90 X 6 FT	1-1/8" X 6 FT YELLOW TUFLEX ENDLESS ROUNDSLING	\$37.48
EN90 X 8 FT	1-1/8" X 8 FT YELLOW TUFLEX ENDLESS ROUNDSLING	\$52.58
EN90 X 10 FT	1-1/8" X 10 FT YELLOW TUFLEX ENDLESS ROUNDSLING	\$59.43
<b>LUBRIPLATE LU 16892</b>	SAE 90 GEAR OIL TO LUBRICATE GRIPHOISTS	\$7.54
<b>MAASDAM ROPE PULLERS</b>		
MAA-A20	ROPE PULLER WITH 20 FT ROPE	\$111.96
MAA-A50	ROPE PULLER WITH 50 FT OF ROPE	\$132.38
<b>PORT-A-WRAP</b>		
601M	MINI PORT-A-WRAP, 601M, 2 LB, 5.5" LONG, ROPE UP TO 1/2", WLL 1,000 @ 7:1, POWDER COATED	\$148.20
601MN	MINI PORT-A-WRAP, 601MN, 2 LB, 5.5" LONG, ROPE UP TO 1/2", WLL 1,000 @ 7:1, NICKEL PLATED	\$151.45
601	PORT-A-WRAP III, 601, 4 LB, 7.25" LONG, ROPE UP TO 5/8", WLL 2,000 @ 6:1, POWDER COATED	\$176.91
601L	PORT-A-WRAP, 601L, 7 LB, 9" LONG, ROPE UP TO 3/4", WLL 2,000 LB @ 6:1, POWDER COATED	\$184.14
601N	PORT-A-WRAP III, 601N, 4 LB, 7.25" LONG, ROPE UP TO 5/8", WLL 2,000 @ 6:1, NICKEL PLATED	\$205.94
601LN	PORT-A-WRAP III, 601LN, 7 LB, 9" LONG, ROPE UP TO 5/8", WLL 2,000 LB @ 6:1, NICKEL PLATED	\$212.77
601XN	PORT-A-WRAP, 601XN, 18 LB, 13" LONG, ROPE UP TO 7/8", WLL 6,000 LB @ 10:1, NICKEL PLATED	\$326.35
<b>PEAVEY MANUFACTURING</b>		
<b>BANGOR PEAVEY</b>		
T029-048-0017	2-3/8" X 4 FT BANGOR PEAVEY	\$129.04
T029-054-0018	2-3/8" X 4-1/2 FT BANGOR PEAVEY	\$138.66
T029-060-0019	2-3/8" X 5 FT BANGOR PEAVEY	\$142.52
<b>STANDARD PEAVEY</b>		
T029-048-0122	2-3/8" X 4 FT STANDARD PEAVEY	\$113.71
T029-054-0123	2-3/8" X 4-1/2 FT STANDARD PEAVEY	\$118.17
T029-060-0124	2-3/8" X 5 FT STANDARD PEAVEY	\$125.62
T029-066-0125	2-3/8" X 5-1/2 FT STANDARD PEAVEY	\$132.58
<b>WOOD TOOL HANDLES</b>		
DE-009-018-SPUD	REPLACEMENT SPUD HANDLE	\$7.62
RW-023-018-0HUD	18" HANDLE FOR HUDSON BAY AXE	\$13.31
RW-023-028-0HUD	28" REPLACEMENT HANDLE FOR 2-1/4 LB BOYS AXE	\$18.47
RW-047-036-DAYT	36" REPLACEMENT HANDLE FOR 3-1/2 LB DAYTON AXE	\$18.47
RW-047-036-DBIT	36" REPLACEMENT HANDLE FOR DOUBLE BIT & PULASKI	\$18.47
R-000-014-HNDL	14" HANDLE FOR HAMMER	\$6.06
R000-030-MH00	30" MAUL HANDLE	\$12.36
R000-036-MH01	36" MAUL HANDLE	\$13.51
R000-036-PAH1	MAINE ASH PICK/MATTOCK HANDLE	\$18.07
R-000-018-SLDG	18" SLEDGE HAMMER HANDLE	\$8.89
R-000-014-BPHH	14" BALL PEIN HAMMER HANDLE	\$8.89
W1	WOOD WEDGE FOR HAMMER HANDLES	\$0.10
W-029-048-0297	2-3/8" X 48" PEAVEY HANDLE	\$47.35
W-029-054-0298	2-3/8" X 54" PEAVEY HANDLE	\$60.24
W-029-060-0299	2-3/8" X 60" PEAVEY HANDLE	\$66.77



# TRAIL SERVICES PRICES - FEBRUARY 1, 2023

Item	Description	Price
W-029-066-0300	2-3/8 X 66" PEAVEY HANDLE	\$76.43
<b>WOODS TOOLS</b>		
T000-000-0606	FAVORITE 606" PULP HOOK	\$45.57
T000-000-0607	INTERNATIONAL PULP HOOK	\$37.56
T000-000-0608	CANADIAN PULP HOOK	\$37.55
T000-000-0609	12 IN BENTLEY PULP HOOK	\$40.42
T-009-018-SPUD	BARK SPUD	\$80.18
T015-012-0FRO	SHINGLE FRO	\$68.59
T015-010-DS10	10" DRAW SHAVE	\$74.55
T015-013-DS10	13" DRAW SHAVE	\$84.35
T-015-016-DS10	16" DRAWSHAVE	\$90.52
<b>SWIVEL TIMBER CARRIERS</b>		
T029-048-0421	2-1/2" X 4 FT TIMBER CARRIER	\$144.33
T029-054-0422	2-1/2" X 4-1/2 FT TIMBER CARRIER	\$148.74
T029-060-0423	2-1/2" X 5 FT TIMBER CARRIER	\$152.66
<b>SKOOKUM BLOCKS</b>		
<b>LIGHTWEIGHT SNATCH BLOCK</b>		
1007111 - 8" 10T	8" LIGHTWEIGHT SNATCH BLOCK WITH SWIVEL HOOK, 5/8" TO 3/4" LINE SIZE, 16,000 LB. SWL	\$1,545.94
<b>ALLOY SNATCH BLOCKS</b>		
1000135 - 9" 8T	8" ALLOY SNATCH BLOCK WITH SWIVEL HOOK, 5/8" TO 3/4" LINE SIZE, 16,000 LB. SWL	\$1,006.57
1000151 - 10" 8T	10" ALLOY SNATCH BLOCK WITH SWIVEL HOOK, 5/8" TO 3/4" LINE SIZE, 16,000 LB. SWL	\$1,173.44
<b>HALF SIDE BLOCKS</b>		
564200 - A8	8" HALF SIDE BLOCK 8"X1-1/8 SHEAVE, 1/2" TO 5/8" LINE SIZE, 16,000 LB. SWL	\$842.18
564300 - A10	10" HALF SIDE BLOCK 10" X 1-1/4" SHEAVE, 5/8" - 3/4" LINE SIZE, 16,000 LB. SWL	\$1,057.14
<b>FULL SIDE BLOCKS</b>		
680000 - A - 8T	8" FULL SIDE BLOCK 8"X1-1/8 SHEAVE, 1/2" X 5/8" LINE SIZE, 16,000 LB. SWL	\$1,063.37
564400 - A - 10T	10" FULL SIDE BLOCK 10 X1-1/8 SHEAVE, 5/8" TO 3/4" " LINE SIZE, 16,000 LB. SWL	\$1,195.16
<b>SNOW AND NEALLEY AXES</b>		
<b>AXES</b>		
012S	"OUR BEST" HUDSON BAY CAMP AXE 24" WITH GUARD	\$79.04
016S	"OUR BEST" 2.25 LB SINGLE BIT AXE WITH GUARD	\$82.04
026S	"OUR BEST" 3.5 LB SINGLE BIT AXE WITH GUARD	\$89.68
<b>ASH HANDLES</b>		
951H	HANDLE FOR AXE EYE MAUL	\$17.00
012-HANDLE	HANDLE FOR HUDSON BAY CAMPING AXE 24"	\$19.11
016-HANDLE	HANDLE FOR 2-1/4 LB AXE - 28"	\$19.79
026-HANDLE	HANDLE FOR 3-1/2 LB AXE - 30"	\$21.16
035-HANDLE	HANDLE FOR DOUBLE BIT AXE - 36"	\$21.84
951-HANDLE	HANDLE-SLEDGE EYE - OVAL EYE MAUL 36"	\$21.84
<b>ALUMINUM TOOL WEDGES</b>		
TOOL WEDGE - 1"	TOOL WEDGE - 1"	\$0.45
TOOL WEDGE - 1-1/2"	TOOL WEDGE - 1-1/2"	\$0.75
TOOL WEDGE - 3-1/2"	TOOL WEDGE - 3-1/2"	\$0.90
<b>TAMCO</b>		
<b>FIBERGLASS HANDLES</b>		
EPK-0100	TAMCO EPOXY KIT	\$13.50
STM-1400	1"X1-3/8"X34" SAFETMATE FIBERGLASS HANDLE	\$19.92
STM-3400	34"X1"X14" SAFETMATE FIBERGLASS HANDLE	\$33.30
<b>H THREAD DRILL RODS</b>		
44-01450H	12" HOLLOW DRILL ROD, H THREAD	\$53.42
44-01451H	18" HOLLOW DRILL ROD, H THREAD	\$87.22
44-01452H	24" HOLLOW DRILL ROD, H THREAD	\$93.27
44-01455H	30" HOLLOW DRILL ROD, H THREAD	\$65.81
44-01456H	36" HOLLOW DRILL ROD, H THREAD	\$106.78
<b>H THREAD MULTI USE BITS</b>		

# TRAIL SERVICES PRICES - FEBRUARY 1, 2023

Item	Description	Price
HTI-137H	1-3/8" (35MM) H THREAD MULTI USE BIT	\$35.78
HTI-150H	1-1/2" (38MM) H THREAD MULTI USE BIT	\$37.83
HTI-162H	1-5/8 (41MM) H THREAD MULTI USE BIT	\$53.32
HTI-175H	1-3/4" (45MM) H THREAD MULTI USE BIT	\$48.17
HTI-187H	1-7/8" (48MM) H THREAD MULTI USE BIT	\$61.10
HTI-200H	2" (51MM) H THREAD MULTI USE BIT	\$63.65
HTI-225H	2-1/4" (57MM) H THREAD MULTI USE BIT	\$74.35
HTI-250H	2-1/2"" (64MM) H THREAD MULTI USE BIT	\$96.52
HTI-275H	2-3/4" (70MM) H THREAD MULTI USE BIT	\$130.27
HTI-300H	3" (76MM) H THREAD MULTI USE BIT	\$130.66
<b>INTEGRAL DRILL STEELS</b>		
44-01935	5/8"/ 12" UC CARBIDE INTEGRAL DRILL	\$111.15
44-01936	3/4"/ 12" UC CARBIDE INTEGRAL DRILL	\$99.54
44-01937	3/4"/ 18" UC CARBIDE INTEGRAL DRILL	\$111.57
44-01938	7/8"/ 12" UC CARBIDE INTEGRAL DRILL	\$95.61
44-01939	7/8"/ 18" UC CARBIDE INTEGRAL DRILL	\$105.36
44-01940	1"/ 12" UC CARBIDE INTEGRAL DRILL	\$105.01
44-01941	1"/ 18" UC CARBIDE INTEGRAL DRILL	\$106.72
44-01943	1-1/8"/ 12" UC CARBIDE INTEGRAL DRILL	\$103.59
44-01944	1-1/8"/ 18" UC CARBIDE INTEGRAL DRILL	\$106.47
44-01953	1-1/4"/ 12" UC CARBIDE INTEGRAL DRILL	\$129.45
44-01945	1-1/4"/ 18" UC CARBIDE INTEGRAL DRILL	\$112.87
44-01955	1-3/8"/ 12" UC CARBIDE INTEGRAL DRILL	\$120.51
44-01947	1-3/8"/ 18" UC CARBIDE INTEGRAL DRILL	\$113.83
<b>TRACTEL - GRIPHOISTS</b>		
<b>STANDARD DUTY GRIPHOISTS</b>		
<b>T-508</b>		
008699124	T-508 GRIPHOIST WITHOUT WIRE ROPE	\$1,315.71
<b>T-516</b>		
017099124/W/O	T-516 GRIPHOIST WITHOUT WIRE ROPE	\$1,553.31
<b>T-532</b>		
033099124/WO	T-532 GRIPHOIST WITHOUT WIRE ROPE	\$3,033.36
<b>HEAVY DUTY GRIPHOISTS</b>		
<b>TU-17</b>		
8492024/W/O	TU-17 GRIPHOIST WITHOUT WIRE ROPE	\$1,658.25
<b>TU-28</b>		
016099024/WO	TU-28 GRIPHOIST WITHOUT WIRE ROPE	\$2,483.91
<b>TU-32</b>		
032199024/W/O	TU-32 GRIPHOIST WITHOUT WIRE ROPE	\$3,850.11
<b>WIRE ROPES WITH HOOK AND TAPERED END TO USE WITH GRIPHOIST</b>		
712109030K	30 FT 5/16" WIRE ROPE WITH HOOK	\$316.00
712109060K	60 FT 5/16" WIRE ROPE WITH HOOK	\$437.10
712109100K	100 FT 5/16" WIRE ROPE WITH HOOK	\$611.20
712109150K	150 FT 5/16" WIRE ROPE WITH HOOK	\$797.70
712109200K	200 FT 5/16" WIRE ROPE WITH HOOK	\$982.20
712809030K	30 FT 7/16" WIRE ROPE WITH HOOK	\$518.50
712809060K	60 FT 7/16" WIRE ROPE WITH HOOK	\$757.60
712809100K	100 FT 7/16" WIRE ROPE WITH HOOK	\$1,092.00
712809150K	150 FT 7/16" WIRE ROPE WITH HOOK	\$1,508.00
712801200K	200 FT 7/16" WIRE ROPE WITH HOOK	\$1,909.00
712801250K	250 FT 7/16" WIRE ROPE WITH HOOK	\$2,346.00
712909030K	30 FT 5/8" WIRE ROPE WITH HOOK	\$743.40
712909060K	60 FT 5/8" WIRE ROPE WITH HOOK	\$1,051.00
712909100K	100 FT 5/8" WIRE ROPE WITH HOOK	\$1,527.00
<b>WIRE ROPE REELS</b>		
889	SMALL WIRE ROPE REEL FOR UP TO 80 FT OF 5/16 in WIRE ROPE	\$59.90
909	MEDIUM WIRE ROPE REEL FOR UP TO 160 FT OF 5/16" WIRE ROPE OR UP TO 80 FT OF 7/16 " WIRE ROPE	\$65.60



# TRAIL SERVICES PRICES - FEBRUARY 1, 2023

Item	Description	Price
939	LARGE WIRE ROPE REEL FOR UP TO 250 FT OF 5/16" WIRE ROPE OR UP TO 160 FT OF , 7/16 in. WIRE ROPE OR UP TO 80 FT OF 5/8" OF WIRE ROPE	
		\$72.00
899	EXTRA LARGE WIRE ROPE REEL FOR UP TO 250 FT OF 7/16 in. WIRE ROPE OR UP TO 200 FT OF 5/8" WIRE ROPE	
		\$85.80
<b>SHEAR PINS</b>		
29506	T-508 SHEAR PINS (SET OF 10)	\$41.00
29516	T-516 SHEAR PINS (SET OF 10)	\$41.00
434554	T-532 SHEAR PINS (SET OF 10)	\$61.40
6006	TU-17 SHEAR PINS [SET OF 20]	\$28.00
8836-3	TU-28 SHEAR PINS [SET OF 30]	\$41.00
6866	TU-32 SHEAR PINS SET OF 10	\$110.30
<b>SWIVEL HOOKS</b>		
21857	T-508 SWIVEL HOOK	\$300.60
21867	T-516 SWIVEL HOOK	\$385.60
21877	T-532/TU-32 SWIVEL HOOK	\$742.80
<b>TELESCOPING HANDLES</b>		
11338	T-508 TELESCOPING HANDLE	\$246.10
508	TU-17 TELESCOPING HANDLE	\$242.40
11348	T-516/532 TELESCOPING HANDLE	\$285.00
18	TU-28/32 TELESCOPING HANDLE	\$277.60
<b>TROW &amp; HOLDEN STONE TOOLS</b>		
<b>HAND POINT</b>		
CHP34	3/4" HAND POINT, CARBIDE	\$72.15
CHP78	7/8" HAND POINT, CARBIDE	\$78.98
CHP1	1" HAND POINT, CARBIDE	\$83.85
<b>HAND CHISEL</b>		
CHC34	3/4" HAND CHISEL, CARBIDE	\$63.86
CHC78	7/8" HAND CHISEL, CARBIDE	\$76.58
CHC1	1" HAND CHISEL, CARBIDE	\$78.60
<b>HAND TRACER</b>		
CHT12	1" X 2" HAND TRACER, CARBIDE	\$110.04
CHT1182	1-1/8" X 2" HAND TRACER, CARBIDE	\$118.88
CHT1183	1-1/8" X 3" HAND TRACER, CARBIDE	\$138.53
CHT1184	1-1/8" X 4" HAND TRACER, CARBIDE	\$181.76
<b>HAND SET</b>		
CHS12	1" X 2" HAND SET, CARBIDE	\$124.78
CHS1182	1-1/8" X 2" HAND SET, CARBIDE	\$132.64
CHS118212	1-1/8" X 2-1/2" HAND SET, CARBIDE	\$151.31
CHS1183	1-1/8" X 3" HAND SET, CARBIDE	\$163.10
CHS1184	1-1/8" X 4" HAND SET, CARBIDE	\$181.76
<b>COMFORT GRIP TOOLS</b>		
CCG138	1-3/8" COMFORT GRIP ROUND POINT	\$112.99
CCG114C	1-1/4" COMFORT GRIP HAND CHISEL	\$89.41
CCHT1182CG	1-1/8" COMFORT GRIP HAND TRACER	\$134.60
<b>CHISEL WIZARD</b>		
CW78	CHISEL WIZARD FOR 7/8" CHISEL HANDLE SIZE	\$30.46
CW1	CHISEL WIZARD FOR 1" CHISEL HANDLE SIZE	\$35.37
CW118	CHISEL WIZARD FOR 1-1/8" CHISEL HANDLE SIZE	\$35.37
HA-#13SG	13 IN FIBERGLASS SAFETY GRIP HANDLE	\$30.71
<b>HAND HAMMERS</b>		
HCH2	2 LB. HAND HAMMER - HEAD ONLY	\$82.53
HCH3	3 LB HAND HAMMER - HEAD ONLY	\$110.04
HCH4	4 LB HAND HAMMER - HEAD ONLY	\$127.73
HCH2/13CGH	2 LB HAND HAMMER WITH 13" CUSHION GRIP FIBERGLASS HANDLE	\$110.25
HCH212/13CGH	2-1/2 LB HAND HAMMER WITH 13" CUSHION GRIP FIBERGLASS HANDLE	\$117.08
HCH3/13CGH	3 LB HAND HAMMER WITH 13" FIBERGLASS CUSHION GRIP HANDLE	\$137.55
HCH312/13CGH	3 -1/2 LB HAND HAMMER WITH 13" CUSHION GRIP FIBERGLASS HANDLE	\$146.33
HCH4/13CGH	4 LB HAND HAMMER, WITH 13" CUSHION GRIP FIBERGLASS HANDLE	\$155.10
<b>BULL SET</b>		
HBS8	8 LB STEEL BULL SET	\$248.57

# TRAIL SERVICES PRICES - FEBRUARY 1, 2023

Item	Description	Price
HBS10	10 LB STEEL BULL SET	\$282.96
HBS12	12 LB. STEEL BULL SET	\$315.38
<b>CARBIDE EDGE BULL SET</b>		
HBS8CT	8 LB BULL SET CARBIDE TIP	\$332.09
HBS10CT	10 LB BULL SET CARBIDE TIP	\$382.19
HBS12CT	12 LB. BULL SET CARBIDE TIP	\$410.69
<b>SLAB SPLITTER</b>		
HSS6	6 LB SLAB SPLITTER - HEAD ONLY	\$191.40
HSS8	8 LB SLAB SPLITTER - HEAD ONLY	\$247.59
HSS10	10 LB SLAB SPLITTER - HEAD ONLY	\$282.96
HSS12	12 LB SLAB SPLITTER - HEAD ONLY	\$315.38
<b>CARBIDE-TIP SLAB SPLITTER</b>		
HSS10CT	10 LB SLAB SPLITTER WITH CARBIDE TIP - HEAD ONLY	\$382.19
HSS12CT	12 LB SLAB SPLITTER WITH CARBIDE TIP HEAD ONLY	\$409.70
<b>QUARRY BUSTER</b>		
HQB10	10 LB. STEEL QUARRY BUSTER - HEAD ONLY	\$300.65
HQB12	12 LB. STEEL QUARRY BUSTER - HEAD ONLY	\$321.28
HQB14	14 LB. STEEL QUARRY BUSTER - HEAD ONLY	\$354.68
<b>MASH HAMMERS</b>		
HMH4	4 LB MASH HAMMER - HEAD ONLY	\$142.46
HMH6	6 LB MASH HAMMER - HEAD ONLY	\$182.75
HMH8	8 LB MASH HAMMER - HEAD ONLY	\$250.54
HMH10	10 LB MASH HAMMER - HEAD ONLY	\$270.19
HMH12	12 LB MASH HAMMER - HEAD ONLY	\$313.42
<b>CARBIDE-TIP MASH HAMMER</b>		
HMH3CT	3 LB MASH HAMMER WITH CARBIDE TIP - HEAD ONLY	\$185.64
HMH4CT	4 LB MASH HAMMER WITH CARBIDE TIP - HEAD ONLY	\$201.41
<b>CARBIDE BLADE STONE BUSTER</b>		
HSB2CT/V	2 LB VERTICAL CARBIDE BLADE STONE BUSTER HAMMER - HEAD ONLY	\$151.21
HSB2CT/H	2 LB HORIZONTAL CARBIDE BLADE STONE BUSTER HAMMER - HEAD ONLY	\$151.21
HSB4CT/V	4 LB VERTICAL CARBIDE BLADE STONE BUSTER HAMMER - HEAD ONLY	\$166.00
HSB4CT/H	4 LB HORIZONTAL CARBIDE BLADE STONE BUSTER HAMMER - HEAD ONLY	\$166.00
<b>CARBIDE HAMMER SET</b>		
HHS4CT/V	4 LB VERTICAL CARBIDE HAMMER SET - HEAD ONLY	\$166.00
HHS4CT/H	4 LB HORIZONTAL CARBIDE HAMMER SET - HEAD ONLY	\$166.00
HHP4CT	4 LB CARBIDE HAMMER POINT INCLUDES FIBERGLASS HANDLE	\$157.31
<b>WEDGE AND SHIM SETS</b>		
3/8" W/S:3/8 SET	3/8" WEDGE SHIM SET	\$9.00
7/16"WS:7/16" SET	7/16" WEDGE SHIM SET	\$9.50
1/2" W/S:1/2" SET	1/2" WEDGE SHIM SET	\$9.57
5/8" WS:5/8" SET	5/8" WEDGE SHIM SET	\$10.12
3/4" W/S:3/4" SET	3/4" WEDGE SHIM SET	\$10.69
7/8" W/S:7/8" SET	7/8" WEDGE SHIM SET	\$15.17
1" - 1.25" W/S:1" - 1.25" SE	1" - 1.25" WEDGE SHIM SET	\$24.75
1.25" - 1.50" WS:1.25" - 1.50"	1.25" - 1.50" WEDGE SHIM SET	\$36.00
1.50" - 1.75" W/S:1.50" - 1.75"	1.50" - 1.75" X 12" WEDGE SHIM SET	\$45.02
1.50" - 1.75" X 18" W/S:1.50" - 1.75" X 18"	1.50" - 1.75" X 18" WEDGE SHIM SET	\$85.50
<b>WARWOOD TOOL</b>		
<b>TOOL HANDLES</b>		
FIBERGLASS 90023	16 IN. FIBERGLASS HANDLE	\$19.95
FIBERGLASS 90024	34 IN. FIBERGLASS HANDLE	\$28.00
90020	36" HICKORY HANDLE FOR MATTOCKS	\$20.81
<b>HAZEL HOE</b>		
00061 9	FOREST ADZE HOE (HAZEL HOE) WITH SQUARE EYE AND HANDLE	\$93.50
90015	REPLACEMENT HANDLE FOR 00061 9 FOREST ADZE HOE WITH SQUARE EYE	\$24.00
<b>MASON'S HAMMERS</b>		
12810	3 LB HEAD ONLY MASON HAMMER	\$48.18
12820	4 LB HEAD ONLY MASON HAMMER	\$47.74
12830	6 LB HEAD ONLY MASON HAMMER	\$40.08
<b>PINCH POINT CROWBARS</b>		
16030	48 IN. 6 LB PINCH POINT CROW BAR	\$46.52
16040	51 IN. 12 LB PINCH POINT CROW BAR	\$71.71



## TRAIL SERVICES PRICES - FEBRUARY 1, 2023

Item	Description	Price
16070	60 IN. 18 LB PINCH POINT CROW BAR	\$84.90
16080	63 IN. 22 LB PINCH POINT CROW BAR	\$99.98
16090	66 IN. 26 LB PINCH POINT CROW BAR	\$110.25

### HAMMERS

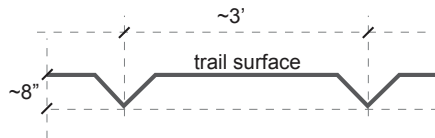
THERE ARE ADDITIONAL HAMMERS WITH WOOD OR FIBERGLASS HANDLES LISTED ON THE DISCONTINUED AND OVERSTOCK SALE PAGES

## Causeway or Turnpike built with Rock

### X-SECTION

#### STEP 1: DIG TRENCHES

Dig two V shaped trenches approximately 8" deep and three feet apart.



### STEP 2: GATHER ROCKS & STACK THEM IN THE TRENCHES

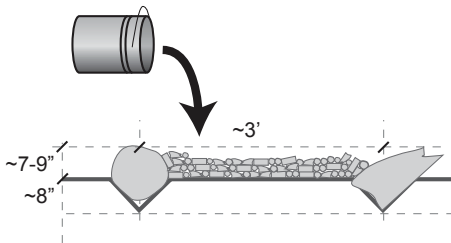
The rocks should be around 12" across in size and should have two parallel flat faces if possible. They should be stacked starting at one end of the trench. Each successive rock should lean on previously placed rock. Try to place the rocks to create a consistent height, around 7-9" above the grade of the trail, so that there are no gaps in the rock wall.



### X-SECTION

#### STEP 3: FILL IN THE MIDDLE WITH ROCKS

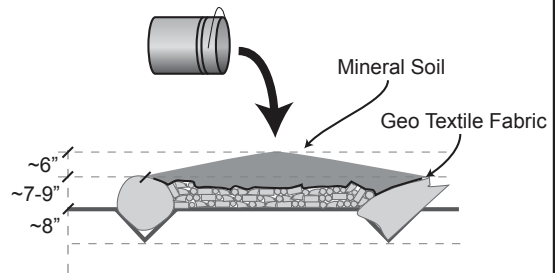
Fill in between the two rock walls with rocks of any size. Fill to within 1-2" of the top of the walls. Try to set these rocks tight together so that they don't wiggle much. If you have geo textile fabric unroll it over top of the rock fill once it is complete.



### X-SECTION

#### STEP 4: FILL IN THE MIDDLE WITH MINERAL SOIL

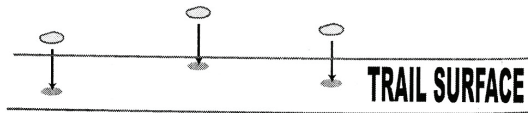
Fill on top of the geo textile fabric (if used) with mineral soil. Pile the soil so that the middle of the trail is crowned 6" above the edges. This will create good drainage allowing the water to flow off the trail. Boot pack the mineral soil to compact it and create a smooth walking surface.



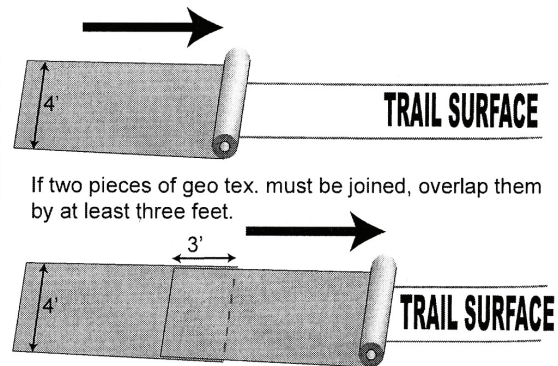
Illustrations by Julian Wiggins

Trail Burritos across wet areas where there are not good rocks for step stones.

**STEP 1: LEVEL THE TREAD WAY**

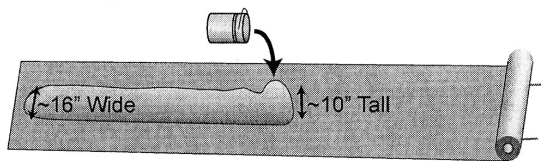


**STEP 2: UNROLL THE GEOTEXTILE FABRIC**



**STEP 3: BURRITO FILLING**

Spread earth or gravel down the middle of the geo tex. 16" wide and 6" high. One 5 gallon bucket will cover approximately one lineal foot of trail. Try to find a gravel source (borrow pit) less than 300 feet distant from the burrito.

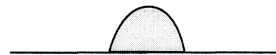


**X-SECTION**

**STEP 4: BURRITO WRAP**

Wrap the sides of the geo tex. fabric over the top of the fill material.

**STEP 1:**



**STEP 2:**



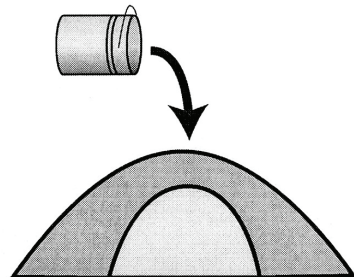
**STEP 3:**



**X-SECTION**

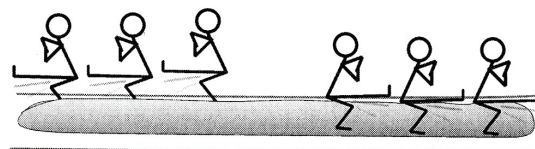
**STEP 5: ADD THE ENCHILLADA SAUCE & CHEESE**

Pour more gravel or soil over the top of the burrito. Use 3 ea 5 gallon bucket full per lineal foot. Be sure to cover the geo tex. fabric completely. To be durable, the fabric must be protected from the sun.



**STEP 6: BOOT PACK**

Perform the russian boot pack dance to pack the loose material down into a solid crowned trail surface. Start by packing the sides first then work up to packing the middle. The final product should be highest in the center of the trail (crown) so that the water drains completely off both sides of the burrito and doesn't pool anywhere on the trail surface. When the trail is completely packed, make one more inspection to be sure that none of the geo textile fabric is exposed.



## CARBIDE TIPPED DRILL BITS

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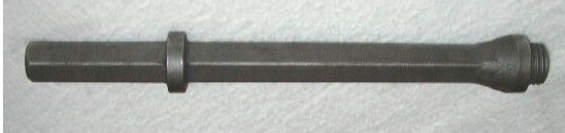
### TAMCO DRILL STEELS

(H-THREAD)

7/8" X 4-1/4" HEX FOR PIONJAR AND COBRA

COMBI drill steels with H-thread connection for detachable drill bits • lengths 1ft. to 6 ft.

#44-01450H	12" HOLLOW DRILL STEEL, H-THREAD
#44-01451H	18" HOLLOW DRILL STEEL, H-THREAD
#44-01452H	24" HOLLOW DRILL STEEL, H-THREAD
#44-01455H	30" HOLLOW DRILL STEEL, H-THREAD
#44-01452H	36" HOLLOW DRILL STEEL, H-THREAD



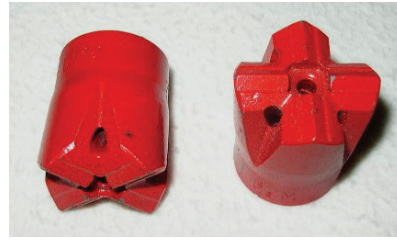
### TAMCO CARBIDE INTEGRAL DRILLS 7/8" X 4-1/4" HEX FOR PIONJAR, COBRA AND COBRA COMBI

One piece drills • single carbide cutting edge • shank is sized for hex chuck in Pionjar, Cobra or Cobra Combi gas powered drills

ITEM NO.	DIAMETER/LENGTH
#44-01935	5/8" X 12" UC
#44-01936	3/4" X 12" UC
#44-01937	3/4" X 18" UC
#44-01938	7/8" X 12" UC
#44-01939	7/8" X 18" UC
#44-01940	1" X 12" UC
#44-01941	1" X 18" UC
#44-01943	1-1/8" X 12" UC
#44-01944	1-1/8" X 18" UC
#44-01953	1-1/4" X 12" UC
#44-01945	1-1/4" X 18" UC
#44-01955	1-3/8" X 12" UC
#44-01947	1-3/8" X 18" UC

### TAMCO CARBIDE BITS (H-THREAD)

Cross pattern 4-cutter threaded bits • economical, only bit needs to be retired when worn out.



#HTI-137H	1-3/8" (35MM) H-THREAD MULTI-USE BIT
#HTI-150H	1-1/2" (38MM) H-THREAD MULTI-USE BIT
#HTI-162H	1-5/8" (41MM) H-THREAD MULTI-USE BIT
#HTI-175H	1-3/4" (45MM) H-THREAD MULTI-USE BIT
#HTI-187H	1-7/8" (48MM) H-THREAD MULTI-USE BIT
#HTI-200H	2" (51MM) H-THREAD MULTI-USE BIT
#HTI-225H	2-1/4" (57MM) H-THREAD MULTI-USE BIT
#HTI-250H	2-1/2" (64MM) H-THREAD MULTI-USE BIT
#HTI-275H	2-3/4" (70MM) H-THREAD MULTI-USE BIT
#HTI-300H	3" (76MM) H-THREAD MULTI-USE BIT

### Baxter Park Trail Crew



Integral Drill



### Lessons from Coastal Maine Granite Quarries

by Lester C. Kenway

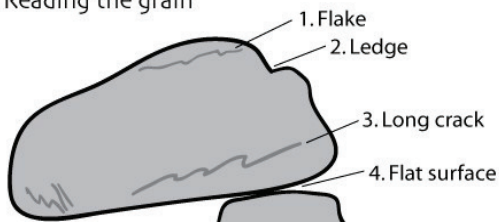
The Maine coast was home to a flourishing granite industry throughout the 1800's and well into the first half of the 20th century. High quality gray granite, was found in numerous locations along the coast. Stone was shipped to eastern cities, used in the construction of buildings, sidewalks and streets.

The demand for granite products was all but eliminated by the move to reinforced concrete architecture after World War II. Almost all of the Maine quarries are now closed, with a handful of craftsmen keeping the knowledge of these techniques alive.

Acadia National Park is engaged in a long term program dedicated to preserving historic stonework throughout its Trail system. This project seeks to duplicate high standard stone trail work completed by stone masons and CCC crews during the early 20th century. A summary of these methods follows:

**1. Read the grain.** This refers to discovering the 3 primary directions of likely breakage in granite by assessing evidence shown in the shape and surface of the stone. These directions were sometimes referred to as "The Lift" (a plane parallel to the surface of the earth), "The Drift" (a plane perpendicular to the Lift), and "The Hard Way" (a plane at right angles to both the Lift and the Drift). Finding these directions when stone is in place is quite straightforward. Boulders are more difficult.

Reading the grain

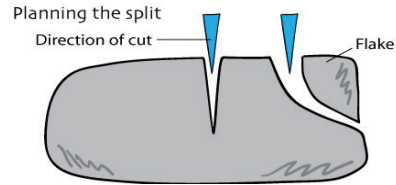


#### Evidence:

- ◆ Flakes on the surface of a rock often run parallel a splitting plane.
- ◆ Small ledges may indicate one of the planes
- ◆ Long cracks may indicate one of the planes
- ◆ The largest flat surface on the boulder is likely to be either parallel or perpendicular to one of the planes. If a boulder is very rounded, evidence will be hard to find.

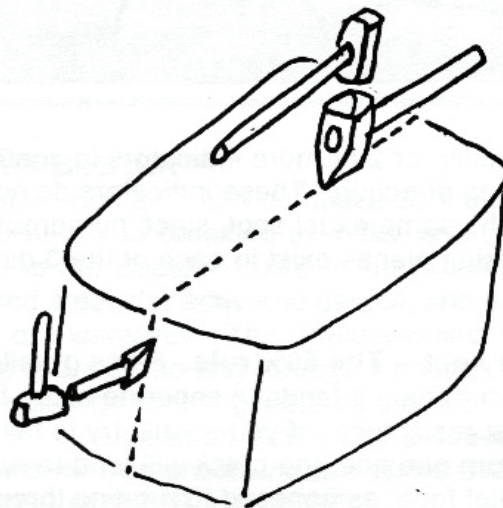
Look especially for 2 or more indicators to confirm the same splitting direction. These indicators do not have to point to the same exact spot, since numerous potential breaking planes exist in each of the 3 directions.

**2. Plan the split - The 50% rule.** Since granite is a crystalline material, it tends to separate along the path of least resistance. If you should try to take a thin slice from one end, the crack will tend to run out to the parallel face, as opposed to running through to the far side of the rock. This will produce a large



unattractive "spalled" surface on the rock, and a worthless curved flake. The safest strategy is to cut each stone into halves. These halves can then be cut in half again, until stones of usable size are produced.

**3. Score the line.** Once the direction of split has been chosen, It is marked on the stone with crayon or chalk. Scoring means repeatedly striking along the line with a bevel edge tool to send shocks through the crystalline stone, weakening the stone along the chosen plane. This increases the likelihood of a successful split, and reduces the amount of force that needs to be applied to part the stone. Small stones can be cut without using wedges at all. A rifting hammer can be used to score big stones. One person holds the rifter in place, while a second one strikes it with a second hammer. The two workers score a line back and forth many times until a distinct groove is worn in the stone. Hand tracers (a wide chisel) can be used by one person to score a line on a vertical surface or on a smaller stone.



**4. Drill holes for wedges** These holes can be drilled by hand with star drills (if you work in a wilderness area) or with various gas, electric or air powered drills that are available. The holes need to be spaced evenly along the score line, and drilled in the same plane as has been defined by the scoring. Experience with the size and type of stone will determine optimum spacing for wedges. Typical spacing for smaller sets (3/4" - 1") would be 4" to 6" apart, while spacing for large sets (1-1/4" to 1-3/8") would be 8" to 12" apart. The more sets of wedges used in a split, the more pushing power available to separate the stone.

♦Holes should be drilled as deep as the straight part of the shim or feather. Shallow holes will result in the feathers being bent by the wedge (or plug).

♦If holes are drilled deeper than the shim, the wedge can drive the shims down into the hole and straighten out the top of the shim.

♦Feathers can be used to spoon stone dust out of holes, and to check the depth of the hole. Do not use a wedge to check hole depth, since it will be difficult to get it out of a hole if you drop it in.

## 5. Place feathers and wedges and split stone

♦All wedge sets are placed in the holes oriented so they all push together in the same plane in order to push the halves of stone apart.

♦Wedges are driven until they are "loaded". This is indicated by each wedge emitting a tone or ringing sound. When all wedges are loaded, the stone is allowed to react to the pressure for 1 to 3 minutes.

♦Wedges are driven equally, a little bit at a time. The sound of the tone of each wedge, when it is struck, can indicate the relative tightness of each wedge. If the wedges seem to be going hard, more scoring can be done between the wedges.

♦Eventually, a crack will show along the scored line.

At this point, drive only one wedge, so other wedges can be retrieved. You can then drive a lone wedge into the crack and retrieve the remaining wedge set. The two halves of stone can be separated with pry bars.



Chimney Pond Trail—Katahdin



Adam Gilbert of Townsend Vermont



Hunt Trail—Katahdin



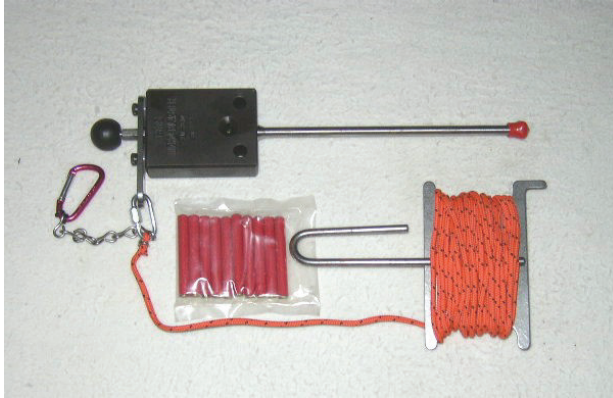
Stone Steps—Nepal



## ROCK BREAKING

### EZEBREAK MICRO BLASTER

Low energy demolition system • utilizes a gas producing cartridge to crack rock and masonry • operated remotely with a 25 foot pull cord • requires a 5/16 inch diameter hole • 10 inch deep hole will accept 1 cartridge • 15 inch deep hole will accept 3 cartridges • packaged in plastic case • Micro-Blaster comes complete with hole blower, bull pins (for wedging apart cracked rock), and release cord • cartridges shipped separately.



### BMS MICRO BLASTER II

This version of Micro Blaster uses compressed air (or CO2) and plastic tubing.



### BMS MICRO BLASTER III - TRIPLE UNIT

This version of Micro Blaster allows multiple charges to be triggered simultaneously with great effect • a tank of compressed air works well at remote sites • The air tank can be refilled with a bicycle pump



### BETONAMIT (beh-tah-na-mite)

A non - explosive cracking agent • non-toxic powder is mixed with water and poured into holes of 1-1/4", 1-3/8" or 1-1/2" • mix hardens and expands, exerting pressures of 12,000 PSI • reinforced concrete, boulders, and ledge are fractured overnight with no noise, vibration or flyrock • no licenses or permits needed • three year shelf life • one product for all temperatures • putty type for horizontal holes or holes with water seeping in • instruction book

#TYPE R liquid (11 lb. mix)

#TYPE S putty additive (4 oz.)

#THERMOMETER 25 to 125 deg thermometer that will fit down a 1" hole.

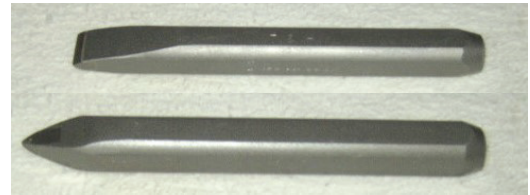


Micro-blaster III demonstration with Carrol Bassett at Dupont State Forest, North Carolina with Professional Trail Builders, 2012, photo by LC Kenway.



Trail crews who work in stone are among the few who still utilize stone cutting tools. While over-reliance on shaping tools can slow down work, there are times when the right tools greatly speed up the process. Pre-scoring stone prior to drilling can greatly reduce the size of the drill holes and wedges that will be needed to cut the stone. Various tools and their uses follow:

**HAND CHISEL:** (carbide tipped) is used to chisel high spots on a stone • trace lines, chip off the edges of drill holes • 3/4" to 1" wide.

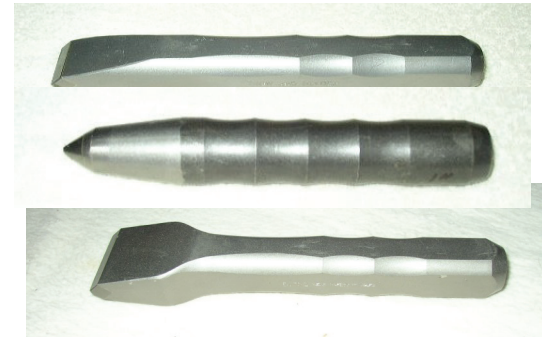


**HAND POINT:** (carbide) is used to take off high spots, or to shape a stone • blows are focused to a point • sizes 3/4" to 1"

**COMFORT GRIP HAND CHISEL**

**COMFORT GRIP HAND POINT .**

**COMFORT GRIP HAND TRACER**



Comfort Grip tools serve the same purpose as the standard stone tools. They have a larger diameter stem with a smooth scalloped surface for an easier grip. The stem is a nominal 1-3/8" diameter

**HAND SET:** (carbide) is used to remove material parallel to the edge of a flat stone • flat faced blade is placed on the stone and slightly angled back before striking. Can be used to trim drill holes • The carbide should **never** be used to cut stone • must be placed against relatively smooth stone or the carbide may fracture • carbide edges up to 4" wide • The tool stem (1" or 1-1/8" ) should be sized to the users hand



**HAND TRACER:** (carbide) is used to score a line on a stone • Tracers are similar to hand chisels, except the blades are much wider • The blade is placed in position and struck with a hand hammer • tracing back and forth will cause smaller stones to split along the line • tracers are also used to mark a line that holes will be drilled into • Tracers are helpful for scoring vertical sides of boulders where **rifting hammers** are difficult to use • carbide edges up to 4" wide • 1" or 1-1/8" diameter tool stem





## STONE TOOLS

**MASON (MASH) HAMMER:** Is used to break stone off the edge of a large stone with the flat face. The blade is used to break up stone into smaller pieces by swinging like an axe. Good tool for making crush/fill, and for breaking off rocks protruding from the trail surface. Available in weights of 3 to 12 lb.



**CARBIDE HAMMER POINT:** Fast and easy roughing out stone. Good for removing high spots. Hammer can be swung or struck with another hammer while keeping your hand away from the action. Fiberglass handle included.



**STONE BUSTER:** Used 3 different ways • strike stone cutting tools with flat face • strike with another hammer to deliver a precise blow to the stone • swing carbide edge to trim or shape stone • vertical or horizontal carbide edge



**HAMMER SET:** Similar in application to the hand set • tool hand is away from the striking point • position tool on stone and then strike with hand hammer • vertical or horizontal carbide edge



**HAND HAMMER:** Is used to strike hand tools or wedges and shims • Hammers are hardened for longer wear • sizes from 2 lb. to 4 lb.



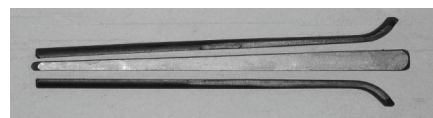
Maine Trail Crew



### STONE SPLITTING WEDGES AND SHIMS

Available in a variety of sizes. With good stone, careful scoring, and good technique, wedges can split stone as thick as 6 to 10 times their own length.

ITEM NUMBER	HOLE SIZE
3/8 WS Set	3/8 IN X 2 IN
7/16 WS SET	7/16 IN X 2-1/4
1/2 WS SET	1/2 IN X 2-5/8 IN
5/8 WS SET	5/8 IN X 2-3/4 IN
3/4 WS SET	3/4 IN X 4 IN
7/8 WS SET	7/8 IN X 5 IN
1-1.25 WS SET	1 IN X 6 IN
1.25-1.50 WS SET	1-1/4 IN X 8 IN
1.50-1.75 WS SET	1-3/8 IN X 12 IN
1.50-1.75 WS SET-18"	1-3/8 IN X 18 IN



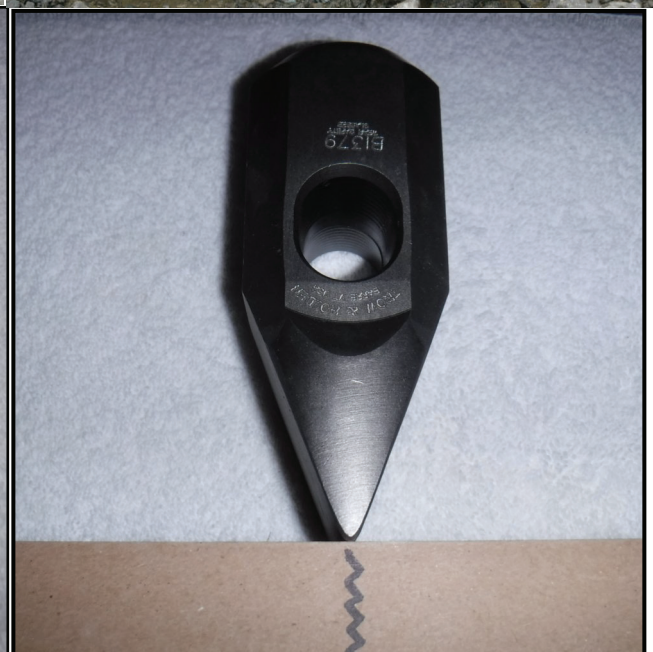
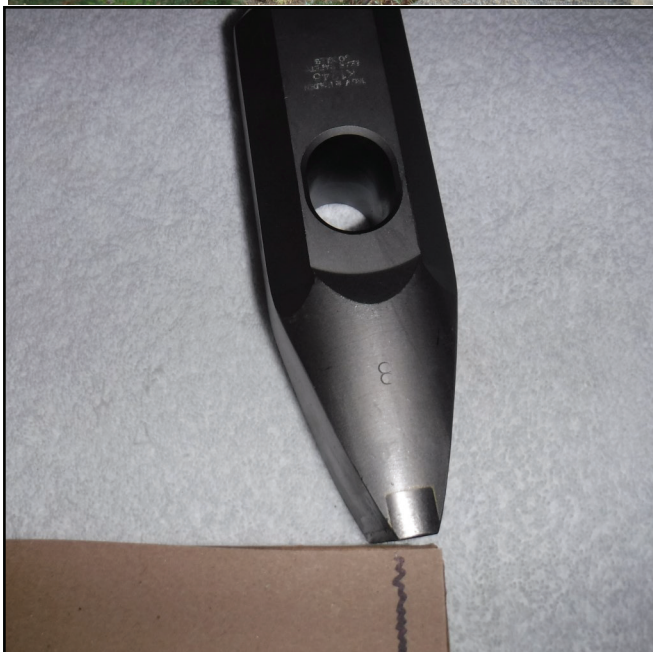


**BULL SET:** Is used to trim the side of a stone.

- The tool has a broad flat edge.
- Shears off the edge of a stone.
- Quick and easy to remove drill holes
- Each stroke removes stone between drill holes
- This operation takes only a few minutes.
- The Bull Set is held by its handle on the stone
- The tool is tipped slightly to use one edge
- A second person swings a striking hammer onto the Bull Set.
- The striking hammer must of equal or heavier than the Bull Set in order avoid shattering the hammer face. (creating high velocity shrapnel).
- Available both in steel or carbide edge in weights of 8 to 12 lb.

**RIFTER OR SLAB SPLITTER:** Is used to trace lines or to cut stone without drilling.

- Originally used to cut sections of granite curb stones (about 6" thick) to length.
- Tracing back and forth by patient workers will cause the stone to split along the scored line.
- The tool is held by its handle on the stone.
- Another person strikes its head with a striking hammer of equal or greater weight.
- When cutting large stones, scoring greatly reduces the size of wedges needed, and increases the chance a of straight split.
- Tool is not designed to be swung like a wood splitting maul.
- Available both in steel or carbide edge in weights of 6 to 12 lb.





**TROW & HOLDEN - BARRE, VERMONT**  
**STONE TOOLS**

Trow and Holden has been providing stoneworkers and artists with quality tools since 1893.

**HAND POINTS, CARBIDE**

#CHP34 - 3/4" Hand Point

#CHP78 - 7/8" Hand Point

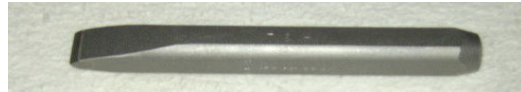
#CHP1 - 1" Hand Point


**HAND CHISELS, CARBIDE**

#CHC34 - 3/4" Hand Chisel

#CHC78 - 7/8" Hand Chisel

#CHC1 - 1" Hand Chisel


**COMFORT GRIP TOOLS, CARBIDE**

#CCG138C - 1-3/8" Hand Chisel

#CCG138 - 1-3/8" Hand Point

#CCHT1182HD - 1-1/8" Hand Tracer


**HAND SETS, CARBIDE**

#CHS1112 - 1" x 1-1/2" Hand Set

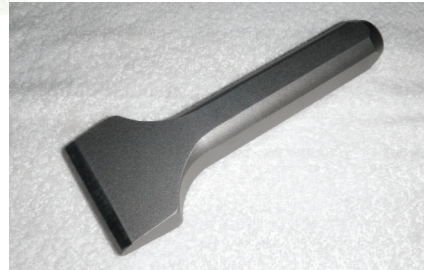
#CHS1182 - 1-1/8" x 2" Hand Set

#CHS118214 - 1-1/8" x 2-1/4" Hand Set

#CHS118212 - 1-1/8" x 2-1/2" Hand Set

#CHS1183 - 1-1/8" x 3"

#CHS1184 - 1-1/8" x 4"


**HAMMER SETS, CARBIDE**

#HHS4CT/V - 4 lb. Vertical - Head only

#HHS4CT/H - 4 lb. Horizontal - Head only


**HAND TRACERS, CARBIDE**

#CHT1112 - 1" x 1-1/2" Hand Tracer

#CHT12 - 1" x 2" Hand Tracer

#CHT1182 - 1-1/8" x 2" Hand Tracer

#CHT118212 - 1-1/8" x 2-1/2" Hand Tracer,

#CHT1183 - 1-1/8" x 3" Hand Tracer

#CHT1184 - 1-1/8" x 4" Hand Tracer


**STONE BUSTERS, CARBIDE**

#HSB2CT/V - 2 lb. Vertical - Head only

#HSB2CT/H - 2 lb. Horizontal - Head only

#HSB4CT/V - 4 lb. Vertical - Head only

#HSB4CT/H - 4 lb. Horizontal - Head only



## CUTTER'S HAND HAMMERS - HEAD ONLY

- #HCH2 - 2 lb.
- #HCH212 - 2-1/2 lb.
- #HCH3 - 3 lb.
- #HCH312 - 3-1/2 lb.
- #HCH4 - 4 lb.

**Trow and Holden HA-13SG**  
13" Safety Grip Fiberglass Handle



## SLAB SPLITTERS (RIFTING HAMMERS)

- #HSS6 - 6 lb. - Head only
- #HSS8 - 8 lb. - Head only
- #HSS10 - 10 lb. - Head only
- #HSS12 - 12 lb. - Head only

## BULL SETS, STEEL EDGE - HEAD ONLY

- #HBS10 - 10 lb. Bull Set
- #HBS12 - 12 lb. Bull Set

## BULL SETS, CARBIDE - HEAD ONLY

- #HBS10CT - 10 lb. Bull Set
- #HBS12 CT- 12 lb. Bull Set



## STONE MASON'S(MASH) HAMMER - HEAD ONLY

- #HMH3 - 3 lb. Mash Hammer
- #HMH3CT - 3 lb. Mash Hammer with carbide tip
- #HMH4 - 4 lb. Mash Hammer
- #HMH4CT - 4 lb. Mash Hammer with carbide tip
- #HMH6 - 6 lb. Mash Hammer
- #HMH8 - 8 lb. Mash Hammer
- #HMH10 - 10 lb. Mash Hammer
- #HMH12 - 12 lb. Mash Hammer
- #HMH14 - 14 lb. Mash Hammer
- #HMH16 - 16 lb. Mash Hammer



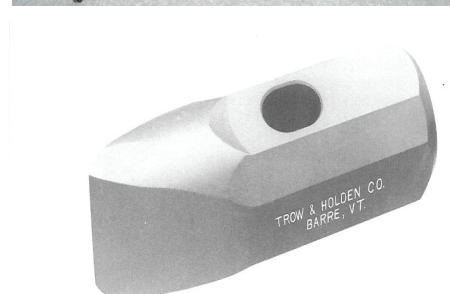
#HHP4CT - 4 lb. Carbide Hammer Point



## QUARRY BUSTER

The Quarry Buster is quite versatile ▪ It can be swung to deliver a powerful splitting blow ▪ the blade can be placed on a stone and struck with another hammer ▪ the quarry buster can be used to strike another hammer or stone.

- #HQB10 - 10 lb. Quarry Buster
- #HQB12 - 12 lb. Quarry Buster
- #HQB14 - 14 lb. Quarry Buster



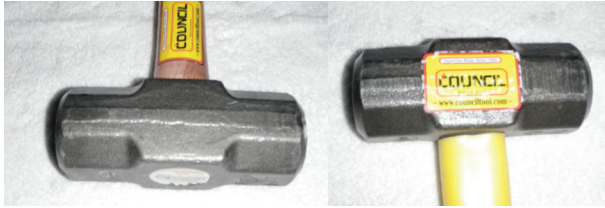


## STONE TOOLS/HAMMERS

COUNCIL TOOLS - Lake Waccamaw, North Carolina.

### SLEDGE HAMMERS

- #PR40 - 4 lb. sledge with 15" wood handle
- #PR40FG - 4 lb. sledge with 15" fiberglass handle
- #PR600 - 6 lb. sledge with 36" wood handle
- #PR600 - 6 lb. sledge with 36" fiberglass handle
- #PR800 - 8 lb. sledge with 36" wood handle
- #PR800FG - 8 lb sledge w/ 36" fiberglass handle
- #PR1000 - 10 lb. sledge with 36" wood handle



Stone wall building workshop - Escalante District -Utah  
- June 2011 - Photo by LC Kenway

### DRILLING HAMMERS

New England pattern • heavy, short handled hammers for use with star drills • permit heavy blows with limited swing • **Not for striking stone**

- #PR2 2 lb. drilling hammer w/ 10" handle
- #PR3 3 lb. drilling hammer w/ 10" handle
- #PR4 4 lb. drilling hammer w/ 10" handle



### AMES/JACKSON HAMMERS

Double Faced Sledge Hammers • average quality with handles



- #11-963 - 3 lb. sledge with 16" wood handle
- #11-968 - 3 lb. sledge with 16" fiberglass handle
- #11-969 - 4 lb. sledge with 16" wood handle
- #11-970 - 4 lb. sledge with 16" fiberglass handle
- #11-978 - 6 lb. sledge with 34" fiberglass handle
- #11-988 - 8 lb. sledge with 34" fiberglass handle
- #11-993 - 10 lb. sledge with 34" fiberglass handle



Scoring Stone with rifting hammer and sledge.  
Arizona Trails Association, Prescott AZ, 2009



## STEEL TRIPODS FOR HIGHLINE SYSTEMS

by L. C. Kenway

Many crews have benefited from the use of steel tripods to support cable systems in treeless areas since the early 1990's. This method involves erecting portable tripod towers that substitute for trees found at lower elevations. A wire rope is stretched between two earthbound anchors (usually large boulders) with a Griphoist winch. This arrangement makes it possible to roll loads along the cable with a pulley. Log tripods, lashed with rope, can provide high anchors for systems in the woods if trees are not in the right place.



18 ft. tall tripod supports high line.

We developed a way of using simple metal tripods at Baxter State Park. Anyone interested in using this method for moving rock in alpine or otherwise tree-less areas may benefit from the following information:

1. We found 2" x 2" x 1/8" (thickness of wall) steel tubing to be strong enough. We moved rocks weighing over 600 lb. with these tripods.



Black extensions level tower on side slope

2. We were able to level the tripods on sloping ground by adding adjustable extensions to the base of each leg. These extensions were made of 2-1/2" x 2-1/2" x 3/16" and slid over the tower legs. A 1/2" x 3" bolt was placed in one of several holes drilled in the extension at 6" intervals.

3. We found ropes to be very helpful in slowing the descent of rocks that roll down a sloping down the line. At one point we had a runaway rock zip down the cable, knocking down the tower and bending one of the legs. The use of ropes also reduces the amount of foot traffic that would be necessary to move the loads back and forth across the tundra.



Rope belay controls descent of boulder

4. Snatch blocks should be used to suspend the cable from the top of the tripods. Not only does this reduce wear to the cable, but also prevents the towers from being pulled over as the hoist pulls in wire rope.

5. Tripods are capable of making heavy lifts, but will not tolerate sideways forces. If the load is not directly under the cable, **it must be moved under the line before a lift is attempted.** Attempting to lift items that are not directly under the cable may result in one or both of the towers tilting over. This can happen suddenly.



Boulder going down the line under belay

6. We found it easiest to set up the system as follows:

- Pick the two anchors, and tension the hoist until the wire rope runs straight between the two end points (in rough terrain, people may have to hold the cable in the air as it is tensioned, so that it does not snag on boulders and other obstacles.)

- Set up the two tripods directly over the cable (two legs aimed at the load, and one toward the anchor).

**Note: If the tripods are too close to the anchor, the tripod will be loaded diagonally, and may tip over or fail.**

- Slack the wire rope and hook the snatch block and cable to the top of the towers.

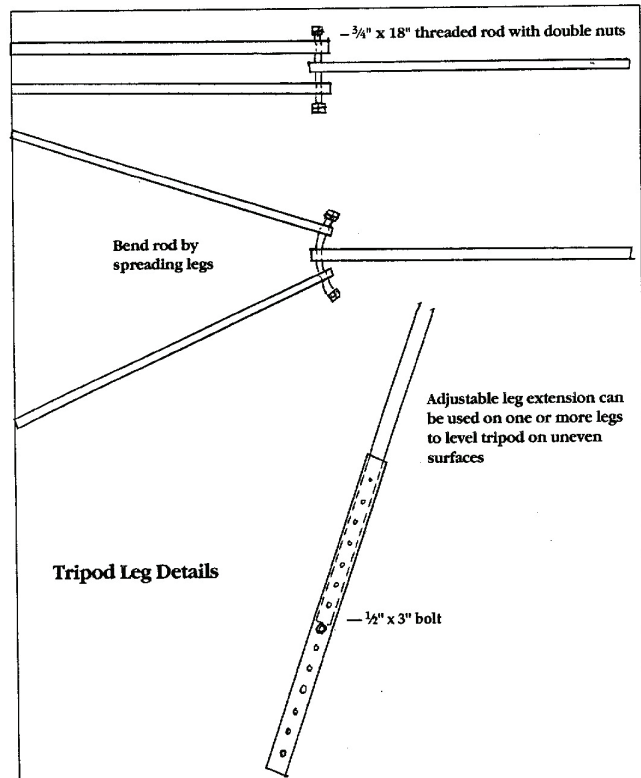
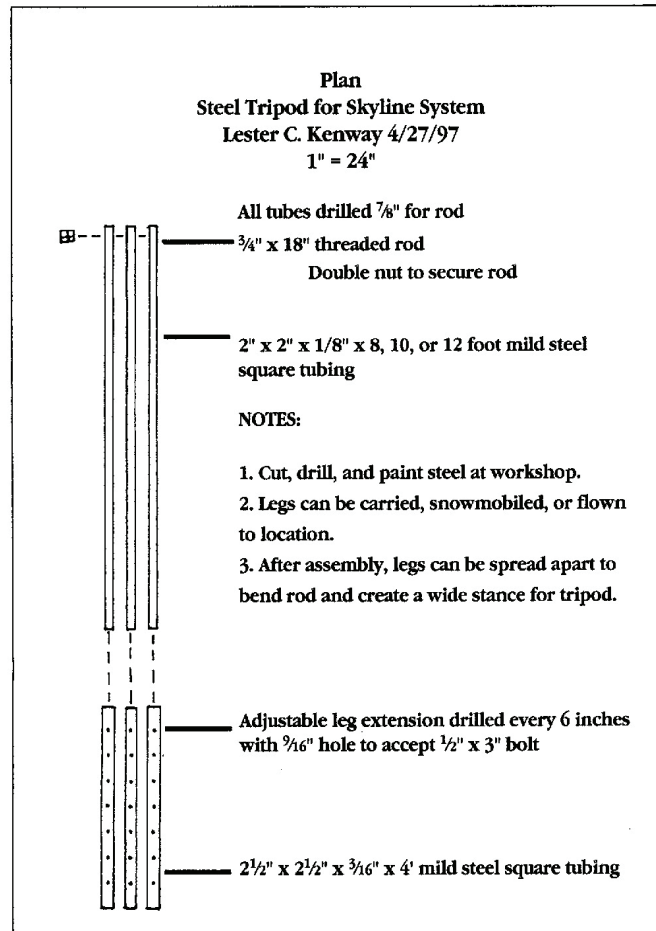
- Test the system before putting a heavy load on it.

7. We were successful in transporting loads of rock over distances as great as 200 feet when the terrain allowed. We learned that we needed to apply up to 2 tons of tension in order to get the high line sufficiently tight. We accomplished this by using 1 ton winch with a snatch block attached to the end of the sky line with a cable grip. This 2:1 arrangement worked very well.

The initial set-up of one of these systems may require some experimentation, but will probably result in increased productivity and reduced impact to special areas. Perhaps these tips will help crews considering this approach.



Crew loads "rock box" Photo by LC Kenway





## TOOL HANDLES

### Peavey Manufacturing Maine Ash Handles

**R000-036-MH01** 36" Maul Handle



\$13.51

**R-000-030-MH00** 30" to 32" Maul Handle



\$12.26

**R-000-018-SLDG** 18" Sledge Hammer Handle



\$8.89

**R-000-014-HNDL** 14" Hammer Handle



\$6.06

**R-000-014-BPHH** 14" Ball Pein Hammer Handle



\$8.89

**DE-009-018-SPUD** 18" Bark Spud Handle



\$7.62

**RW-023-028-OHUD** 28" Handle for 2-1/4 lb. Axe



\$18.47

**RW-047-036-DAYT** 36" Handle for 3-1/2 lb. Axe



\$18.47

**RW-047-036-DBIT** 36" for Double Bit & Pulaski



\$18.47

**R000-036-PAH1** 36" Pick/Mattock Handle



\$18.07

**W-029-048-0297** 48" Peavey Handle \$47.35

**W-029-054-0298** 54" Peavey Handle \$60.24

**W-029-060-0299** 60" Peavey Handle \$66.77

**W-029-066-0300** 66" Peavey Handle \$76.49



### Council Tools

**70-013** 36" Hickory Handle for Double Bit & Pulaski



\$29.17

**70-085** 34" Fiberglass Handle for Double Bit & Pulaski



\$33.05

### Warwood Tool

**90023** 16" Fiberglass Hammer Handle



\$19.95

**90024** 34" Fiberglass Hammer Handle



\$28.00

**90015** 34" Hickory Handle for Forest Adze Hoe



\$24.00

**02021** 36" Handle for Oval Eye Grub Hoe



\$10.00

**90020** 36" Hickory Handle for Mattock



\$20.81

### Snow and Nealley Hickory Handles

**012-Handle** 24" Handle for Hudson Bay Axe



\$18.85

**016-Handle** 28" Handle for 2-1/4 lb. Axe



\$18.85

**026-Handle** 30" Handle for 3-1/2 lb. Axe



\$20.15

**951-Handle** 36" Handle for Oval Eye Maul



\$20.80

**951H** 36" Handle for Axe Eye Maul



\$19.50

### Ames/True Temper

**OPL432** 16" Hickory hammer handle



\$5.71

**829-19** 30" "D" Chucked/Split Shovel Handle



\$4.00

**20-195** 25" "D" Tapered Shovel Handle



\$12.00

**ATE20-374** 46" McCleod/Fire Shovel Handle



\$14.01

**20-274** 36" Fiberglass Mattock Handle.



\$32.45

ITEM NO.	DESCRIPTION	REGULAR PRICE	SALE PRICE
<b>AMES</b>			
13-096	(D) KODIAK ROUND POINT W/30" WOOD HANDLE	\$41.12	\$17.00
15-729	(D) LANDSCAPER ROUND POINT W/29" HANDLE	\$27.24	\$0.38
829-19	ARMOR D CHUCKED AND SPLIT SHOVEL HANDLE	\$13.50	\$3.00
20-195	25 IN. ARMOR D TAPERED SHOVEL HANDLE	\$29.40	\$10.00
19-450	DELUXE WEED CUTTER (SWING BLADE)	\$23.00	\$6.00
15-328	REPLACEMENT BLADE FOR WEED CUTTER	\$11.15	\$4.00
<b>BAHCO</b>			
3029	HANDLE FOR 3022 CLEARING AXE	\$14.90	\$3.00
23-21	21 IN. RAKER TOOTH BOW SAW BLADE	\$7.71	\$2.55
23-24	24 IN. RAKER TOOTH BOW SAW BLADE	\$6.80	\$1.55
23-30	30 IN. RAKER TOOTH BOW SAW BLADE	\$8.20	\$2.00
23-36	36 IN. RAKER TOOTH BOW SAW BLADE	\$6.23	\$2.00
51-21	21 IN. FINE PEG TOOTH BOW SAW BLADE	\$7.16	\$2.00
51-24	24 IN. FINE PEG TOOTH BOW SAW BLADE	\$7.36	\$2.00
51-30	30 IN. FINE PEG TOOTH BOW SAW BLADE	\$8.74	\$4.00
<b>BICKNELL STONE TOOLS</b>			
14408	8 LB STRIKING HAMMER HEAD	\$169.25	\$55.00
<b>CAMBELL/COOPER</b>			
	REPLACEMENT SHEAVE FOR 3 IN. BLOCKS	\$99.40	\$54.00
	4-1/2 IN. REPLACEMENT SHEAVE	\$135.00	\$70.00
<b>CROSBY</b>			
460110	5/16 IN. X 3 IN. REPLACEMENT SHEAVE #418	\$59.00	\$23.00
460147	3/8 IN. X 3 IN. REPLACEMENT SHEAVE #418	\$50.00	\$16.00
2000232	1/2 IN. X 4-1/2 IN REPLACEMENT SHEAVE #418	\$51.00	\$22.00
1035009	WEDGE SOCKET FOR 1/2" WIRE ROPE	\$86.00	\$28.00
1035000	WEDGE SOCKET FOR 3/8" WIRE ROPE	\$74.00	\$24.00
<b>BOSCH SPLINE DRIVE MASONRY BITS -PICO 14, KANGO 978S, MAKITA</b>			
	7/8 IN. X 13 IN.	\$65.16	\$17.55
	1" X 10 IN.	\$63.00	\$15.50
	1 IN. X 16 IN.	\$63.92	\$17.38
	1 IN. X 28 IN.	\$130.00	\$37.00
	1-1/2 IN. X 22 IN.	\$129.25	\$36.00
	2 IN. X 22 IN.	\$216.19	\$62.00
<b>KANGO HEX DRIVE DRILL BITS</b>			
	5/8 in. X 10 IN.	\$40.04	\$10.00
	3/4 X 16 IN.		
	3/4 IN. X 19 IN.	\$59.23	\$16.00
	3/4 X 22 IN.	\$110.12	\$30.00
	7/8 IN. X 10 IN.	\$65.15	\$18.00
	1-1/4 X 22	\$199.00	\$57.00
	1-3/8 IN. X 16 IN.	\$110.55	\$31.00
	2 IN. X 22 IN.	\$228.24	\$66.00



ITEM NO.	DESCRIPTION	REGULAR PRICE	SALE PRICE
<b>KANGO HEX DRIVE TOOLS</b>			
SHANK		\$30.34	\$12.00
5/8" DRIVER		\$39.95	\$11.00
5" ASPHALT CUTTER		\$97.71	\$35.00
4-1/2" SPADE		\$59.52	\$18.00
<b>KLEIN TOOLS</b>			
1604-20	HAVEN GRIP .125 IN TO .50 IN - RATED 5,000 LB.	\$113.33	\$55.00
1625-20	HAVEN GRIP .28 IN TO .75 IN - RATED 8,000 LB	\$144.95	\$57.25
<b>LIFTALL CUSTOM WIRE ROPE</b>			
	7/16 IN. X 150 FT. 6 X 19 IWRC, WITH THIMBLES	\$290.34	\$145.00
<b>LIFTALL NYLON LIFTING SLINGS</b>			
LIFEN1-803NX20	3" X 20 FT ENDLESS LOOP SLING	\$109.03	\$77.88
LIFEN1-802NX20	2" X 20 FT ENDLESS LOOP SLING	\$64.81	\$46.29
<b>LIFTALL WIRE ROPE CHOKER SLINGS</b>			
SL 7/16X8	7/16" X 8 FT WIRE ROPE CHOKER	\$25.07	\$20.00
SL 7/16X10	7/16" X 10 FT WIRE ROPE CHOKER	\$27.07	\$21.00
SL 7/16 X 12	7/16" X 12FT WIRE ROPE CHOKER	\$29.53	\$23.00
<b>TAMCO STAR DRILLS</b>			
	1/4 IN. X 12 IN.	\$26.00	\$15.00
	1-1/8 IN. X 12 IN.	\$25.00	\$12.00
	1-1/8 X 18 IN.	\$27.00	\$13.00
	1-1/8 IN. X 24 IN.	\$34.00	\$16.00
<b>TAMCO HAMMERS</b>	12 LB. SLEDGE - HEAD ONLY	\$25.00	\$12.00
<b>TRACTEL - GRIPHOIST</b>			
<b>SUPER PULL ALL</b>			
	LIGHT DUTY HOIST - 1,700 LB CAPACITY WITH 35 FT 1/4" WIRE ROPE	\$1,322.00	\$919.00
	1/4" X 15 FT WIRE ROPE WITH HOOK FOR SPA	\$79.83	\$25.53
	1/4" X 32 FT WIRE ROPE WITH HOOK FOR SPA	\$170.30	\$123.82
	1/4" X 100 FT WIRE ROPE WITH HOOK FOR SPA	\$432.20	\$131.35
<b>PULL ALL</b>	3/16 X 32 FT WIRE ROPE WITH HOOK FOR PULL ALL	\$110.80	\$84.60
<b>TROW AND HOLDEN</b>			
HPS4	4 LB. PAVING CUTTER'S SIDE HAMMER - HEAD	\$45.54	\$18.00
HPS5	5 LB. PAVING CUTTER'S SIDE HAMMER - HEAD	\$49.50	\$19.00
HPS6	6 LB PAVING CUTTER'S SIDE HAMMER - HEAD	\$55.44	\$24.00
<b>WARREN TOOL</b>			
1117	12 LB DOUBLE FACED SLEDGE HAMMER - HEAD	\$27.82	\$12.50

ITEM NO.	DESCRIPTION	REGULAR PRICE	SALE PRICE
<b>WARWOOD TOOL</b>			
110	3 LB. CUTTER MATOCK HEAD	\$19.01	\$7.50
12930 - WOOD	8 LB. SPALLING HAMMER WITH 36" WOOD HANDLE	\$76.68	\$42.54
12930 - FIBERGLASS	8 LB. SPALLING HAMMER WITH 34" FIBERGLASS HANDLE	\$76.68	\$49.15
13110 - WOOD	6 LB. STONE SLEDGE WITH 36" WOOD HANDLE	\$56.04	\$32.22
13110- FIBERGLASS	6 LB. STONE SLEDGEWITH 34" FIBERGLASS HANDLE	\$71.21	\$38.83
13110 - WOOD	8 LB. STONE SLEDGE WITH 36" WOOD HANDLE	\$67.93	\$38.16
13110 - FIBERGLASS	8 LB. STONE SLEDGE WITH 34" FIBERGLASS HANDLE	\$83.10	\$44.77
13140 - WOOD	12 LB. STONE SLEDGE WITH 36" WOOD HANDLE	\$78.69	\$43.54
13140 - FIBERGLASS	12 LB. STONE SLEDGE WITH 34" FIBERGLASS HANDLE	\$93.86	\$50.15
13150 - WOOD	16 LB. STONE SLEDGE WITH 36" WOOD HANDLE	\$95.69	\$52.04
13150 - FIBERGLASS	16 LB. STONE SLEDGE WITH 34" FIBERGLASS HANDLE	\$110.85	\$58.65
12620 - WOOD	4 LB. OREGON SLEDGE WITH 18" WOOD HANDLE	\$28.20	\$16.86
12620 - FIBERGLASS	4 LB. OREGON SLEDGE WITH 16" FIBERGLASS HANDLE	\$31.68	\$20.34
12630 - WOOD	6 LB. OREGON SLEDGE WITH 32" WOOD HANDLE	\$35.08	\$21.74
12630 - FIBERGLASS	6 LB. OREGON SLEDGE WITH 34" FIBERGLASS HANDLE	\$50.25	\$28.35
12640 - WOOD	8 LB. OREGON SLEDGEWITH 36" WOOD HANDLE	\$33.08	\$21.04
12640 - FIBERGLASS	8 LB. OREGON SLEDGE WITH 34" FIBERGLASS HANDLE	\$48.86	\$27.65
12660 - WOOD	12 LB. OREGON SLEDGE WITH 36" WOOD HANDLE	\$47.12	\$27.76
12660 - FIBERGLASS	12 LB. OREGON SLEDGE WITH 34" FIBERGLASS HANDLE	\$62.29	\$34.37
1270 - WOOD	4 LB. NEVADA SLEDGE WITH 18" WOOD HANDLE	\$24.33	\$14.93
1270 - FIBERGLASS	4 LB. NEVADA SLEDGE WITH 14" FIBERGLASS HANDLE	\$33.81	\$24.41
12730 - WOOD	6 LB. NEVADA SLEDGEWITH 32" WOOD HANDLE	\$31.21	\$19.79
12730 - FIBERGLASS	6 LB. NEVADA SLEDGEWITH 34" FIBERGLASS HANDLE	\$46.41	\$26.43
12740 - WOOD	8 LB. NEVADA SLEDGE WITH 36" WOOD HANDLE	\$36.82	\$22.61
12749 - FIBERGLASS	8 LB. NEVADA SLEDGE WITH 34" FIBERGLASS HANDLE	\$51.99	\$29.22

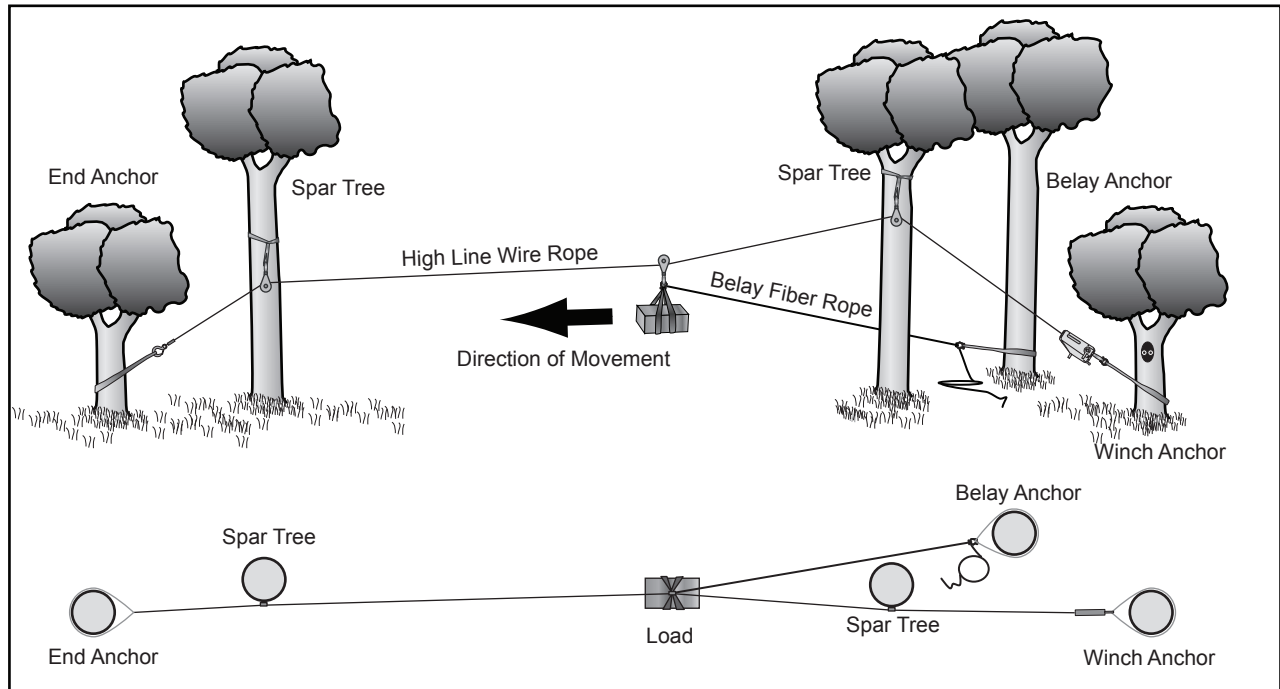




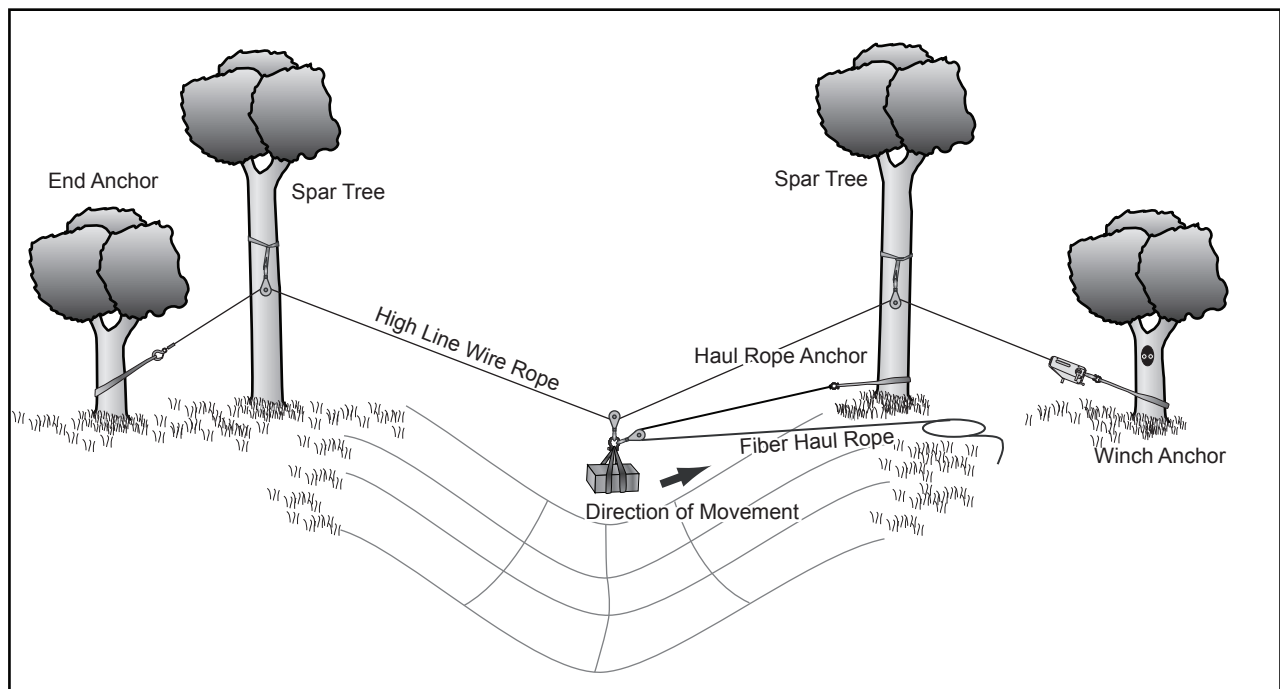
# Ideas for High Line Systems

for use by the Maine Trail Crew  
Created by Julian Wiggins  
julianwiggins@gmail.com

## Simple One Cable Belayed High Line System

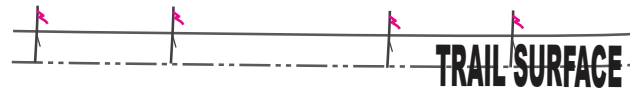


## Simple One Cable High Line System Moving a Load Uphill With a 2:1 Haul Rope



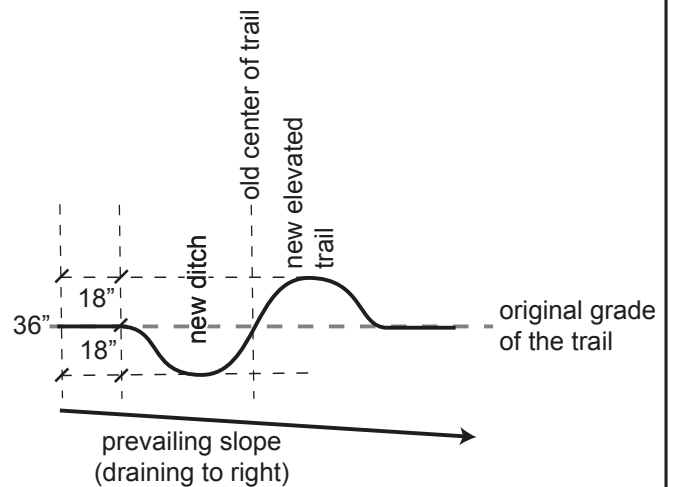
## Building a “Ditch and Drain”

### STEP 1: MARK THE CENTER OF THE TRAIL



### X-SECTION

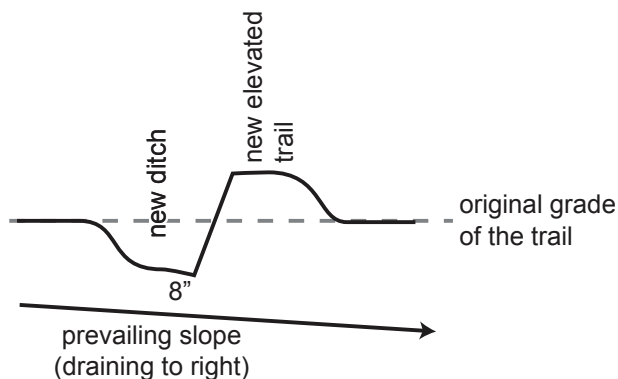
#### STEP 2: EXCAVATE THE UPHILL SIDE OF THE TRAIL



### X-SECTION

#### STEP 3: DIG RIP RAP SHELF

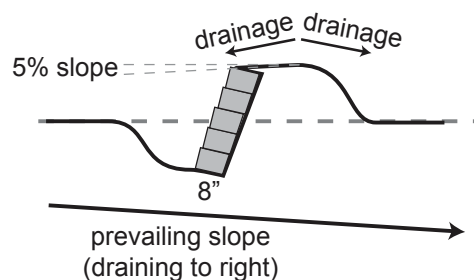
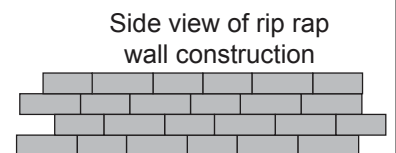
Collect rocks for a rip rap wall. Rocks should be bigger than a brick and up to cinder block size. Dig an insloping shelf 8" wide along the base of the new elevated trail.



### X-SECTION

#### STEP 4: INSTALL RIP RAP & GRADE TRAIL SURFACE

Build a rip rap wall in the shelf that you have constructed. Start with the biggest rocks at the base and work up to the smaller rocks on top. Once the wall has been completed, grade the surface of the trail so that it drains into the ditch at a 5% slope (~2" in 3'). If building a long section of ditch & drain, be sure to provide cross drainage downslope at least every 300'.





# TRAIL SERVICES

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CARD NUMBER

CVV2

EXPIRATION DATE

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ITEM NO.	DESCRIPTION	QTY.	COST	TOTAL AMOUNT

SUBTOTAL



Shipping charges will be added at time of shipment

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**SEEK QUALIFIED INSTRUCTION IF YOU ARE UNFAMILIAR WITH TOOLS AND HAZARDS**

THANK YOU FOR YOUR ORDER!

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