

1. MSR Snow Shovel Because of the bulk and lack of durability of the snow shovels that were available, MSR designed its own. This large capacity shovel is made of heat treated 6061-T6 aluminum with a stainless steel clamp for durability and light weight. The MSR Snow Shovel is designed to fit directly onto your ice axe to save the weight of a handle. It may also serve as a sturdy "deadman" snow anchor or as a stove platform. The shovel is 11 inches square. The best snow shovel for the winter traveler. #6040, 1 lb. 2 oz.

2. MSR Lock Link The MSR Lock Link, with an abundance of room for ropes, slings, and harnesses, is ideal for tying into a climbing harness or for use with a friction hitch. The threaded lock nut slides up to make the opening — no swinging gate to jam against ropes already inside. We tried to cause a running rope to open the lock nut but could not! The rope rides on a flat and does not get a grip. Made with aluminum rod with forged ends. Test strength 5000 lbs. with the gate closed. (2a.) 4 5/8" long. #4201, 2 1/2 oz.

3. MSR Rescue Pulley A unique brass bearing in the MSR Rescue Pulley prevents the Delrin plastic pulley wheel from pinching between the side plates. This importantly reduces friction common in many other rescue pulleys. Extra wide aluminum side plates on the MSR Rescue Pulley prevent rotation which results in twisted ropes. The large carabiner hole aids attachment of the pulley to anchors. Test strength of the MSR Rescue Pulley is 3000 lbs.

In crevasse rescue or hauling heavy loads, a pulley must be strong, should have low friction, must not bind and must keep from rotating and twisting the rope. The MSR Rescue Pulley was designed with these needs in mind. #6042, 2 oz.

4. MSR Avalanche Probes MSR Avalanche Probes are valuable tools in performing avalanche victim search. For rigidity and light weight, the probes are made of aluminum alloy tubing. They are available in two foot and four foot lengths, with a separate point section, all of which screw together to form probes of various lengths. Equip each member of your party with one or several sections and a probe point. MSR Avalanche Probes are excellent for search and rescue teams, ski patrols, or anyone venturing into an area where an avalanche may occur. Convenient carry sacks available.

#6001, 2' section, 4 oz.
#6002, 4' section, 7 oz.
#6004, point section, 1 oz.

5. MSR Snow Flukes The MSR Snow Fluke is a dynamic snow anchor which can sail down into the snow on overload, absorbing the energy of the fall as it goes. Thus it does not exceed the strength of the snow and is not pulled out as is the case with an overloaded ice axe anchor. It has two cables which fix the angle keeping the plate from tilting forward and flying out. Be sure to pre-test the holding power in soft snow with a hard crust.

#6031, 5' x 10", 9 oz.
#6032, 8' x 12", 11 oz.

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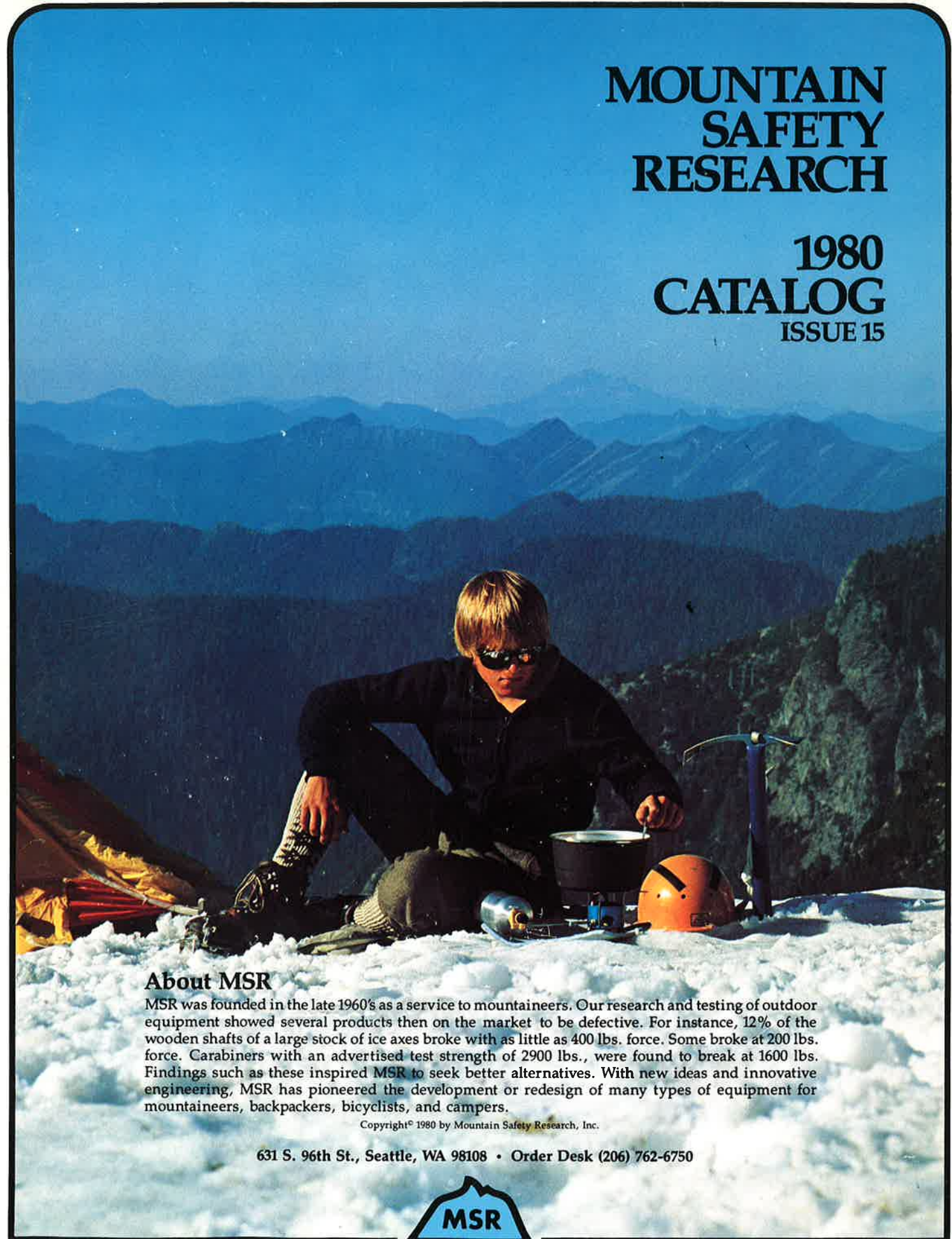
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**MOUNTAIN
SAFETY
RESEARCH**

**1980
CATALOG
ISSUE 15**



About MSR

MSR was founded in the late 1960's as a service to mountaineers. Our research and testing of outdoor equipment showed several products then on the market to be defective. For instance, 12% of the wooden shafts of a large stock of ice axes broke with as little as 400 lbs. force. Some broke at 200 lbs. force. Carabiners with an advertised test strength of 2900 lbs., were found to break at 1600 lbs. Findings such as these inspired MSR to seek better alternatives. With new ideas and innovative engineering, MSR has pioneered the development or redesign of many types of equipment for mountaineers, backpackers, bicyclists, and campers.

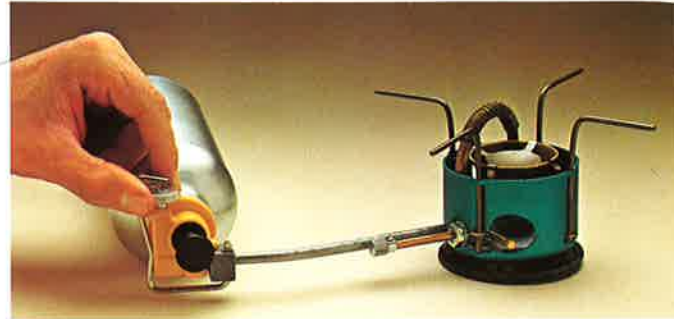
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History of the MSR Stove

The study of Acute Mountain Sickness (AMS) was one of the first accomplishments of MSR. While studying this illness we learned the urgency of the need to supply up to four quarts of water per day per climber. Unfortunately, most of the stoves then available were not able to melt enough snow to water fast enough to meet the need. The first MSR Stove was made to meet the need for Mountain Sickness study. We have made improvements since that first model, and now feel that the MSR Models G and G/K are the finest mountaineering and backpacking stoves on the market. Because of their versatility, the MSR Stoves are also popular among boaters, bicyclists, campers, and many other outdoor enthusiasts.



MSR Model GK Stove

Lightweight

The MSR Model G Stove System weighs 15 oz. complete with burner, pump, windscreen, and heat reflector. The G/K Stove weighs only one additional ounce. The pint Sigg bottle weighs 3 oz. The quart Sigg bottle weighs 4 oz. This weight is amazing considering the great heat output.

Stable

The low profile (3½ inches high) and the outrigger effect of the fuel bottle provide excellent stability—a very important feature.

Economical

The initial cost may be higher, but you save on fuel cost: a.) less fuel is required for heating a given amount of water; b.) auto gas beats any other fuel for cost per gallon.

Compact

The burner assembly separates from the pump and bottle and can be laid next to the fuel bottle in the heavy polyethelene bag provided or in the optional nylon stuff sack for one neat, easy to pack package.

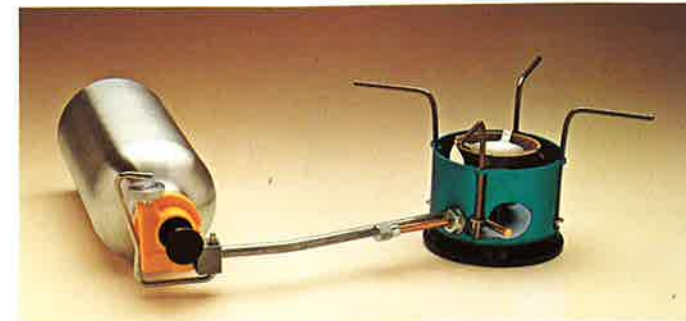
The fuel tank is the standard Sigg aluminum bottle available in both pint and quart size. The pump is moved from bottle to bottle. No spilled fuel!

This long list of features has made these stoves a top choice for mountaineers, backpackers, boaters, bicyclists, and campers.
 #22-101, Model G, 15 oz.
 #22-102, Model GK, 16 oz.



MSR Stove with windscreen in place

Warning: Do not use gasoline in a tent. An explosive atmosphere may result. We do recommend against cooking in a tent, but when you have no other choice, use kerosene in a model G/K for relative safety because kerosene is far less volatile than gasoline.



MSR Model G Stove

The MSR Stove System

Here is a stove that is versatile, dependable, fast, efficient, lightweight, stable, and compact. Consider these features:

Versatile

What good is a stove if you can't find fuel to burn? Not a problem with the MSR Stoves. The Model G will burn white gas (Coleman or Blazo), leaded auto gasoline, unleaded auto gasoline, and even aviation gasoline. In addition to the above, the Model G/K Stove will burn kerosene, deodorized kerosene, stoddard solvent, #1 diesel, and #1 stove oil! This is accomplished with an interchangeable jet, the over-the-burner pre-heat tube, and field maintainability. Such versatility makes this a great stove in situations where the availability of white gas is in question.

Dependable

Sometimes fuel can be low grade or dirty and can easily clog a stove. The MSR Stoves are field maintainable to make unclogging easy. An excellent instruction book explains how.

Fast

A quart of water can be brought to a boil in 3½ minutes! You will appreciate this feature anytime, and especially on those cold mornings and chilly evenings. With the effective windscreen and heat reflector included with each stove, the performance is little altered by wind or cold. The fuel tank and control valve are outside the windscreen, and both stay cool. To make starting easier when using white gas or auto gas, the stove has a built-in sparker — no matches needed.

Efficient

The fast cooking time makes for higher fuel efficiency because there is less time for heat loss. A quart fuel bottle of white gas can boil 48 quarts of water or melt snow to 48 quarts of water. This means you may carry less fuel!



Cookware and accessories to accompany the MSR Stove System

Sigg Fuel Bottles

The Sigg fuel bottle is the stove fuel tank and fuel storage container all in one. The quart Sigg bottle will boil approximately 48 quarts of water or melt snow to 48 quarts of water. The pint bottle boils 24 quarts or melts to 24 quarts.

Note: Do not use the Taiwan bottle which has the deep dished bottom; some have cracked.
 #22-200, Pint Bottle, 3 oz.
 #22-202, Quart Bottle, 4 oz.

Maintenance Kit, for G & G/K

Designed for use with Models G and G/K, the Maintenance Kit aids in minor repairs. We recommend you take a Maintenance Kit on expeditions or whenever you will be away for extended periods of time. Parts include:

- | | |
|-------------------|-----------------------------|
| Surge Damper | O-Ring for Fuel Tube Socket |
| Jet Assembly | Flame Spreader |
| Leather Pump Cup | Package of Flints |
| Pump Cup Retainer | Control Valve O-Ring |
| Jet Cleaning Wire | Set of Instructions |

Note: For previous models of MSR Stoves, use the Spare Parts Kit, listed on this page.

Stove Stuff Sack

Made of durable coated nylon pack cloth, this Stuff Sack is designed specifically for the MSR Stove System. Plenty of room for the stove, fuel bottle, and all the extras.
 #22-052, 1½ oz.

Blackened Aluminum Pots

The Blackened Pot is a fine complement to the MSR Stove System. Unlike conventional pots whose shiny surfaces reflect the heat, MSR Blackened Pots absorb the heat into the pot. This adds speed and efficiency to your cooking. The pots are made of aluminum, are lightweight and nest nicely. Three quart capacity.
 #23-021, 5 oz.

Fry Pan

Teflon II coating on the inside of this 8" diameter fry pan reduces sticking. Sidewalls are 1½" high. Made of aluminum.
 #23-030, 4½ oz.

Aluminum Pot Lids

To fit the MSR 3 Quart Blackened Pot, the Teflon II fry pan, or other pots with an 8" to 9" diameter.
 #23-042, 2 oz.

Aluminum Cup

Lightweight aluminum cup holds 13 oz. Smooth sides, easy to clean. Doubles as a stove burner cover and water dipper.
 #23-100, 1 oz.

Pot Lifter

Convenient aluminum pot lifter. Prevents burning your fingers. Fits most pots and pans. A must for those who cook outdoors.
 #23-104, 2 oz.

Filter Funnel

Since fuel can be of inconsistent quality, MSR recommends the filtering of all fuels. This filter funnel allows you to remove impurities as you fill your fuel bottle. Made of aluminum with a removable felt filter.
 #22-217, 1½ oz.

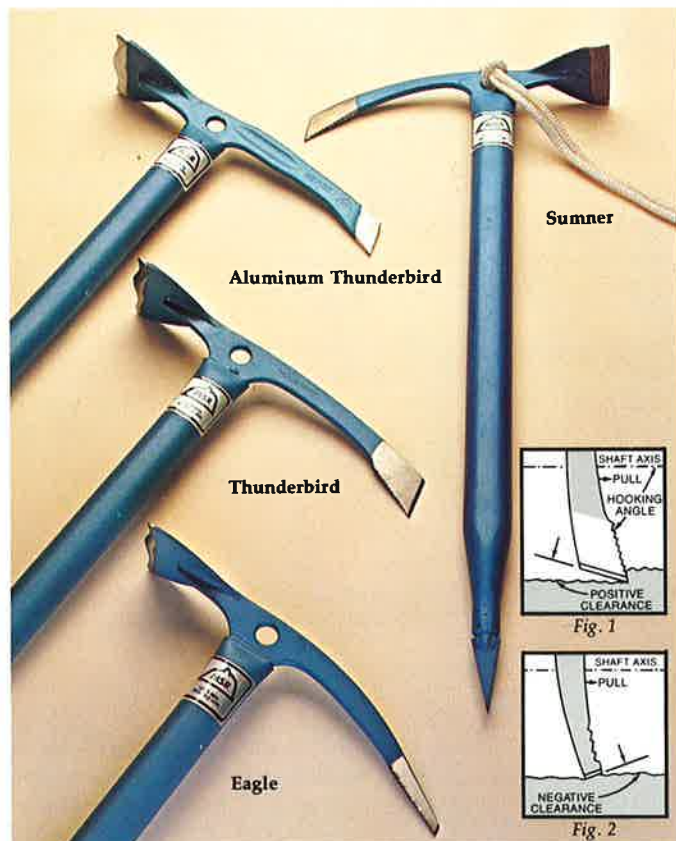
Spare Parts Kit

Designed for use with MSR Stoves other than Models G or G/K, likely purchased prior to September 1977. Parts include:

Jet Assembly	Jet Cleaning Wire
O-Ring for Fuel Tube Socket	Leather Pump Cup
Flame Spreader	Pump Cup Retainer
Control Valve O-Ring	Package of Flints
#23-130, 1 oz.	Set of Instructions

About the MSR Ice Axe

Ice Axes are used for anchors, in boot-axe belays, and in crevasse rescues, all of which place a large stress on the shaft. Failure would be disastrous. All of the MSR Axes use aircraft quality, heat-treated 2024 aluminum tubing for shafts with a shaft strength of over 1100 lbs. These lightweight metal shafts are about 2.5 times stronger than wooden shafts. When the MSR shaft is overloaded it will bend, where wood will break.



For an ice axe to be effective in self-arrest on hard snow, the pick must be able to bite into the surface. If the snow surface is hard, a pick with negative clearance (see fig. 2) may not be able to penetrate the surface, and will act like an ice skate. The picks on MSR Axes have positive clearance (see fig. 1), which causes them to pull into the surface when pressure is applied. The advantage of positive clearance can be demonstrated by dragging an axe with negative clearance over hard snow or ice. It will skid across the surface, chattering and bouncing. Drag an MSR Axe over the same surface. It will furrow itself in.

The hooking angle of a pick (see fig. 1) is an important factor in determining how well an axe will dig into hard snow and ice in self-arrest. Extensive testing has shown that the 68° hooking angle of our Thunderbird and Eagle Ice Axes gives the optimum amount of stopping power required by the average user. The 55° hooking angle of the Sumner is intended for ice climbing.

The combination of positive clearance and hooking angle gives our axes far better stopping capability than many other axes.

All steel ice axe heads and adzes (regular T-Bird, Eagle and Sumner) are made from Chrome Moly 4130 plate. Specially designed teeth are machined into the pick. The complete heads are heat-treated and quenched in oil. This means that the heads have ample strength to self-arrest and chop ice without deforming, yet have enough ductility to avoid brittle fracture.

The Aluminum T-Bird head and adze are stamped from 6061 T-6 aluminum plate. A hardened steel pin is press fit and epoxied to the tip of the pick.

On all the axes the head and spike are first pinned, then epoxied onto the shaft. The head and shaft are coated with Polane-T texturized polyurethane enamel paint.

Thunderbird

Among the most popular ice axes in the world, the MSR Thunderbird has become a standard of comparison. Numerous features combine to make this axe ideal for general mountaineering. The positive clearance pick and 68° hooking angle together provide superb self-arresting capabilities.

The Chrome Moly steel head features a fluted adze to aid in chopping steps. Teeth in the pick improve holding power in hard snow and ice. The aluminum alloy shaft is strong for self-arrests and boot axe belays. Complete with glide ring and wrist loop.

#12-200, 1 lb. 12 oz. (31" Axe)
Available in sizes 26" - 37"; inch increments

Aluminum Thunderbird

The Aluminum Thunderbird, MSR's lightest ice axe, is designed for the weight conscious backpacker or mountaineer. The aluminum model has many of the fine features of the steel head Thunderbird such as a positive clearance pick, 68° hooking angle and strong aluminum shaft, but it is 1/2 pound lighter. The pick of the Aluminum T-Bird has no teeth and is reinforced with a hardened steel insert. Complete with glide ring and wrist loop.

#12-300, 1 lb. 4 oz. (31" Axe)
Available in sizes 26" - 37"; inch increments

Eagle

The versatile Eagle is popular for both general mountaineering and for hard snow and ice climbing. For easier ice penetration, it features a narrow, hollow ground pick with an 8° cleaving angle. For self-arrest, the positive clearance pick and 68° hooking angle create good biting and furrowing in snow and ice. The head is made of heat-treated Chrome Moly steel with teeth machined into the pick for additional holding power. It comes complete with wrist loop and glide ring.

#12-600, 1 lb. 12 oz. (31" Axe)
Available in sizes 26" - 37"; inch increments

Sumner

This excellent ice climbing tool was designed by Bill Sumner for the demanding technical climber. It is made of the same Chrome Moly steel and strong aluminum as the Thunderbird and Eagle, but has several added features. The lower edge of the Sumner pick has a hooking angle of 55°. The upper edge is designed to correspond to the arc of the average arm swing. The pick is thinner and the cleaving angle narrower for easy penetration and less fracture of ice. The pick is designed so that the axe (and the climber) are supported at the deepest point of the hole. The cutting edge of the adze is flat and straight to fracture ice cleanly. The chisel spike is useful when climbing steep terrain and aids in augering holes in boot-axe belays. Comes with 1/4" diameter rope thong.

#12-400, 1 lb. 12 oz. (70cm Axe)
Available in sizes 50cm - 80cm; 5cm increments

Ice Axe Guards (No pick guard for Sumner.)

#12-152 Spike Guard (Also Eagle Pick), 1 oz.
#12-153 Pick Guard (T-Birds Only) 1 oz.
#12-154 Adze Guard (Fits All), 2 oz.



Free Replacement

Mountain Safety Research will replace, free of charge, any MSR helmet that has been in an accident, in exchange for the helmet and an account of the accident. This ensures that the wearer will always have the protection he deserves and gives MSR the data we desire on the performance of our helmets.



The MSR Climbing Helmet

In 1971, MSR set out to design a helmet that would provide the mountaineer with adequate head protection. The following year, as a result of considerable research and testing, the MSR Climbing Helmet was introduced. Since that time, thousands have been put to use.

The shell is made of LEXAN® polycarbonate. We have found this material to have an excellent combination of strength and penetration resistance. A 1/4" brim around the perimeter of the helmet greatly increases side-to-side rigidity (important in mountaineering), and keeps your head further from the rock. Twelve holes, evenly spaced around the helmet provide excellent ventilation.

The padding incorporates three different types of foam. The headband is made of polystyrene foam, a product with excellent impact absorbing qualities. The crown pads are a sandwich of two foams. The first is a polyfoam which is soft and will compress under a minimum of pressure. This facilitates comfort and the cushioning of minor impacts. The second layer, made of Decello foam, is designed to absorb the energy of more serious shocks. The foam sweatband is attached with Velcro® and thereby is easily removable for cleaning.

The best of helmets will be of little value if it falls off your head. Thus, the MSR Climbing Helmet has a very effective chin-strap and nape-strap designed to keep the helmet on your head even in the most serious of falls. The chin-strap attaches to the helmet as far forward as possible without affecting peripheral vision. This, in conjunction with the adjustable nape-strap, does an excellent job of holding the helmet on. The chin-strap fastens with D-rings, and Velcro® strips hold the tail of the strap up and out of the way.

The helmet comes in four sizes and includes self adhesive foam sizing tape to provide you with just the right fit.
#11-100, Small and medium helmets weigh 1 lb. 2 oz.; large and extra-large helmets weigh 1 lb. 4 oz.

Helmet Accessories

Foam Sizing Tape
#10-021 1 oz.
Sweatband
#10-030 1 oz.

Helmet Sizing Chart			
Head circumference in inches			
22	23	24	25
Small	Medium	Large	X-Large

The MSR Bicycling Helmet

MSR made a distinct contribution to bicycling safety in 1974 when it was the first manufacturer to produce a helmet made specifically for bicyclists. The record of performance is excellent. Over 100 heads saved!

The MSR Bicycling Helmet has a brightly colored shell. This accomplishes one of the primary goals of a bicycle helmet: to allow the motorist to see the bicyclist before it is too late, thereby preventing an accident from happening in the first place. Additionally, reflective tape is included with each helmet to enhance its visibility. The shell itself is made of LEXAN® polycarbonate by G.E. This material is found to have an excellent combination of abrasion and crack resistance, is lightweight and together with the design of the helmet provides good side-to-side rigidity, important in impact protection from irregular surfaces such as curbs and car bumpers.

Beware of some brands of helmets whose shells collapse under hand pressure.

The helmet is held onto the head by a chin-strap and a nape-strap with steel D-ring fasteners, thus keeping the helmet on the head even in a tumbling fall where multiple impacts can occur.

Beware of some brands of helmets whose straps have a plastic snap that can be opened with a simple tug. It may not keep the helmet on in a tumbling fall.

The padding is composed of three different kinds of foam. The headband is made of polystyrene, a product with excellent impact absorbing qualities. The crown pads are a sandwich of two foams. The first is a polyfoam which is soft and compresses under a minimum of pressure, thereby facilitating comfort. This will absorb a minor blow without affecting the second layer of foam. Decello foam makes up the second layer in the crown pads. Being more dense than the first layer, this foam works well to absorb the more serious shocks that are experienced in a bad fall.

Ventilation is important to the bicyclist. Three large ventilation holes in the front, complemented by three large vents in the back, facilitate an excellent flow of air through the helmet. Two more holes in the front of the helmet pass directly to the sweatband to allow rapid evaporation of perspiration.

The sweatband is attached to the helmet with Velcro® to allow easy removal for cleaning.

Finally, the helmet has a raised front brim to allow the bicyclist to have good vision when riding head down.

These features combine to make a helmet which meets the needs of recreational, commuting, and racing bicyclists.
#11-000, Small and medium helmets weigh 1 lb. 3 oz., large and extra-large helmets weigh 1 lb. 6 oz.



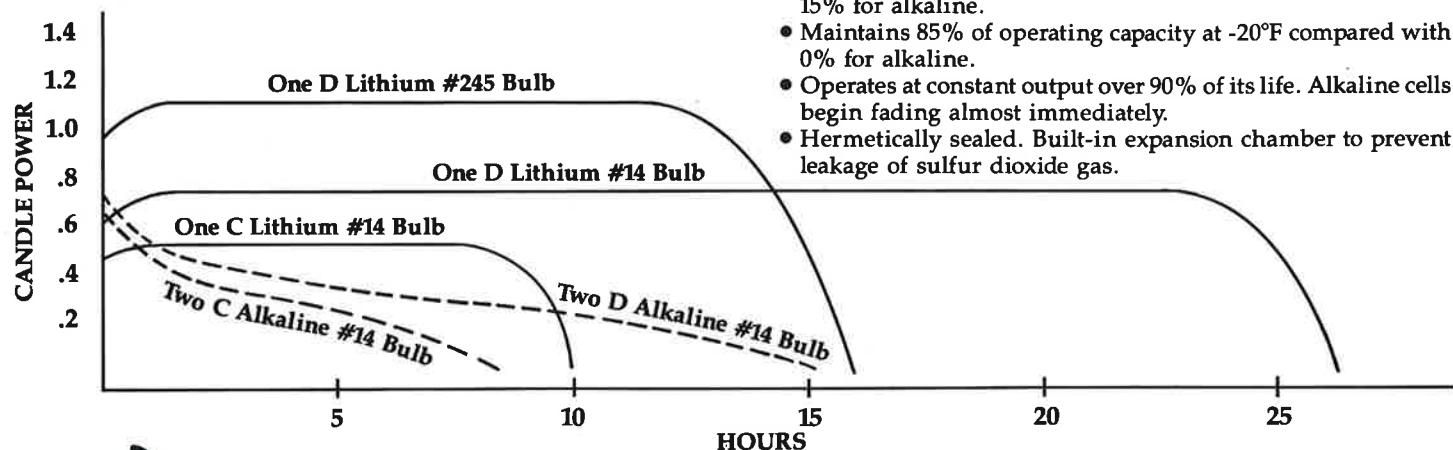
MSR Lithium Cells for headlamp and flashlights

The MSR Lithium Cell provides long life and consistent performance plus it has higher voltage than conventional batteries. **One D Lithium Cell, weighing 2.8 oz., will give you as much light as four alkaline cells weighing 4.4 oz.** The MSR Lithium Cell comes both in size C and size D. A single Lithium Cell used in a conventional flashlight — along with a lightweight, economical dummy cell — will provide the same brightness as two alkaline or carbon zinc batteries, but with much greater life and less weight. Using two Lithium Cells and by changing to a bulb with higher candle power you will have a significantly brighter light. The MSR Lithium Cell will outlive several bulbs so carry spares. Any way you look at it, an MSR Lithium Cell means greater performance. MSR has a unique headlamp using the Lithium Cell. Please see page 6.

#26-219 D size, 2¾ oz. #26-216, Dummy Cell, D size, 1/10 oz.
#26-218 C size, 1¾ oz. #26-208, Dummy Cell, C size, 1/10 oz.

Features of the MSR Lithium Cell:

- Twice the voltage of regular cells: MSR Lithium Cells, 2.7 volts; alkaline and carbon zinc, 1.35 volts.
- Maintains 96% of operating capacity at 20°F compared with 15% for alkaline.
- Maintains 85% of operating capacity at -20°F compared with 0% for alkaline.
- Operates at constant output over 90% of its life. Alkaline cells begin fading almost immediately.
- Hermetically sealed. Built-in expansion chamber to prevent leakage of sulfur dioxide gas.



LEXAN® Sunglasses

Everyone who ventures outdoors should carry a pair of sunglasses. With these features, there is no excuse not to have a pair:

- Weighs 3 ounces including sturdy carrying case
- Fits over most regular eyeglasses
- Tinted side shields to protect from peripheral sun and wind
- Available with either grey or green lenses
- Ample air circulation to minimize fogging
- Compact size — carry a spare
- Retail for under \$4.00

#6214, Green, 3 oz.

#6215, Grey, 3 oz.

Featherweight Goggles

These lightweight, compact, and economical sun goggles fit easily in a pocket, first-aid kit or the corner of your pack. You will appreciate having a pair of Featherweights if you lose, break or forget to bring a pair of sunglasses. **Folded, the goggles measure 2 inches by 3 inches by ¼ inch, and weigh only ¼ ounce!** The goggles are held comfortably in place by an elastic headband. The dark green lenses and vented side shields protect your eyes from the sun and wind and minimize fogging.

Inexpensive — everyone should carry a pair. Invaluable — worth ten times the price when you don't have sunglasses.

#6211, ¾ oz.



MSR/Eveready® Headlamp



MSR Double Battery Pack

MSR/Eveready® Headlamp

A headlamp is a great way to lighten things up. The light is directed where you are looking and it leaves your hands free. The MSR/Eveready® Headlamp is lightweight and versatile, casts a bright beam, and uses the powerful, long-lasting MSR Lithium Cell (see page 5). The aluminized reflector will fit a variety of bulbs ranging from 0.1 to 3.1 candle power (see bulb usage chart).

The on/off switch is conveniently located just below the lamp. The elastic headband holds the headlamp in place, and we have added extra padding behind the lamp for added comfort. The battery pack for the single cell unit is mounted on the headband. This eliminates both the need to carry the battery pack in a pocket and the long connecting cord. One Lithium Cell provides plenty of power for a bright light.

The double cell unit provides even more power for a very bright light. The double battery pack is carried in a parka or shirt pocket.

Both the single and double battery pack unit come either with or without the cells. When purchased without the cells, the PR-13 bulb is provided. When purchased with the cells, an assortment of bulbs with various candle powers is included.

- #26-200 Sgl. Headlamp without cell, bulbs, 5 oz.
- #26-240 Sgl. Headlamp with cells, bulbs, 8 oz.
- #26-241 Dbl. Headlamp with cells, bulbs, 12 oz.
- #26-242 Dbl. Headlamp without cells, bulbs, 7 oz.
- #26-238 Sgl. Battery Pack with cell, 5 oz.
- #26-225 Sgl. Battery Pack without cell, 2 oz.
- #26-239 Dbl. Battery Pack with cells, 9 oz.
- #26-226 Dbl. Battery Pack without cells, 3½ oz.

BULB USAGE CHART

Using One Size "D" MSR Lithium Cell:

Candle Power	Bulb Life (hr.)	Cell Life (hr.)	Bulb No.	Order No.
0.1*	200	120	PR395	26-296
0.25*	45	55	PR9	26-292
0.45**	10	25	PR6	26-291
0.6 **	3	20	PR4	26-290
1.2 ***	5	14	PR2	26-289

Using Two Size "D" MSR Lithium Cells:

Candle Power	Bulb Life (hr.)	Cell Life (hr.)	Bulb No.	Order No.
2.2***	60	17	PR12	26-293
2.6***	11	13	PR15	26-295
3.1***	3	14	PR13	26-294

*Suitable when less light is needed, such as in camp.

**Recommended for most applications, such as following a trail.

***For situations demanding extra light, such as following unmarked climbing routes.