Citrosqueeze is available from various wildland and structural fire equipment retailers.

Repairs

Clean all chaps before repairing them. Repair cuts and holes in the outer shell as soon as possible to keep sawdust and petroleum products from contaminating the protective Kevlar pad.

Seam Grip, a commercially available product, is recommended for repairing damage to the chaps' nylon shell. Seam Grip provides a flexible, waterproof, abrasion-resistant patch that will protect the Kevlar pad from contaminants.

To repair cuts shorter than ½ inch, apply a dot of Seam Grip over the cut, and allow the Seam Grip to dry. To repair holes and cuts in the nylon shell that are longer than ½ inch:

- Cut a piece of notebook or printer paper that extends about 2 inches beyond the edge of the damage. Slip the paper inside the hole or tear in the nylon shell so the paper covers the Kevlar pad.
- Lay the chain saw chaps on a flat, level surface and press the nylon shell onto the piece of paper.
- Squeeze Seam Grip onto the paper and onto the sides of the tear, covering all sides of the tear or cut.
- Allow the chaps to dry for at least 12 hours before using them.

Seam Grip is available from numerous outdoor retailers. To learn of the retailers in your area, contact:

McNett Corporation
1411 Meador Ave.
Bellingham, WA 98229
Phone: 360–671–2227
Fax: 360–671–4521
Web site: http://www.mcnett.com

This brochure is on the Internet at http://www.fs.fed.us/t-d/pubs/htmlpubs/htm05672816/ (Username: t-d, Password: t-d).

More information about chain saw chaps can be found in the tech tip *Inspecting, Cleaning, Repairing, and Retiring USDA Forest Service Chain Saw Chaps* (0451–2324–MTDC). This tech tip is on the Internet at: http://www.fs.fed.us/t-d/pubs/htmlpubs/htm04512324.

To order copies of this brochure or the tech tip, contact the Missoula Technology and Development Center:

USDA Forest Service, MTDC
5785 Highway 10 West
Missoula, MT 59808–9361
Phone: 406–329–3978
Fax: 406–329–3719
E-mail: wo_mtdc_pubs@fs.fed.us

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Inspecting and Repairing Your Chain Saw Chaps

User Instructions

Since 1965 the U.S. Department of Agriculture Forest Service has provided cut-resistant, protective chaps for chain saw operators. The chaps have prevented thousands of serious injuries.

Redesigns in 1981 and 2000 led to the current design, which provides more protection for the saw operator's legs.

This guide explains how to inspect, clean, and repair these chaps so they can provide years of protection.

How Chaps Protect the Sawyer

Chain saw chaps protect the saw operator by slowing and stopping the chain. Fibers of the protective pad are pulled into the saw's drive sprocket, jamming the saw.

The new chaps are designed to protect the operator's legs from saws with chain speeds of up to 3,200 feet per minute. Earlier designs did not provide protection at such high chain speeds.

The chaps' back-coated nylon shell resists water, oil, and abrasion. The pad inside the shell consists of five layers of Kevlar (figure 1) in the following order (from the outside of the chaps):

1. Woven Kevlar
2. Felted Kevlar
3. Woven Kevlar
4. Woven Kevlar
5. Felted Kevlar

Kevlar is a synthetic fiber (aramid) similar to the Nomex fiber used in firefighters' clothing, but Kevlar is even more flame resistant. When the chaps are exposed to temperatures of 500 °F, the nylon shell may melt, but the Kevlar pad will not.

These chaps are available in 32-, 36- and 40-inch lengths to ensure proper sizing. Chain saw operators need to wear chaps long enough to reach at least 2 inches below the boot tops.

Figure 1—A chain saw chap has five layers of Kevlar that jam the chain saw's drive sprocket, stopping the chain saw and preventing injuries.

The waist and leg straps should be adjusted for a snug fit that will keep the chaps positioned correctly on the legs. Always use these chaps in conjunction with all other required personal protective equipment (PPE). Most protective properties of the chaps cannot be tested by users in the field.

The contractor warranties the chain saw chaps to be free from defects in workmanship and materials for the useful life of the garment. The warranty assumes that the garment is used by trained personnel.

Inspection and Retirement

Inspect the chaps frequently and retire them from use when appropriate. Retire chain saw chaps when:

- The outer shell has numerous holes and cuts. Holes allow bar oil to contaminate the Kevlar pad. The oil acts as an adhesive, reducing the level of protection.
- Wood chips and sawdust are evident inside the layers at the bottom of the chaps.

- Improper repairs have been made, such as patch jobs that stitched through the Kevlar pad. Machine or hand stitching the pad prevents the fibers from moving, lowering the level of cut-through protection.
- Chaps have been improperly cleaned. Using detergents with bleach additives decreases the level of cut-through protection. High-pressure washing destroys the pad.
- The first layer of yellow Kevlar has a cut that is longer than 1 inch.

Care and Cleaning

Treat your chaps as a piece of **CRITICAL** safety equipment. Do not use the chaps as a chain stop. Keep them as clean as possible. Correct and timely cleaning reduces flammability and general wear and tear.

When cleaning the chaps, use a commercially available citrus-based product called *Citrosqueeze*, approved to clean Nomex and Kevlar. Do not machine wash or machine dry chain saw chaps.

Hose and brush chaps to remove dirt and large contaminants. For light soiling, use Citrosqueeze solution in a spray bottle containing 1 part Citrosqueeze concentrate to 10 parts water. Spray the solution on the area to be cleaned and scrub with a bristle brush. Wait ½ hour. Thoroughly brush the chaps, hose them off with cold water, and allow them to line dry.

For heavy petroleum contamination, fill a soak tank with 10 to 15 gallons of diluted Citrosqueeze solution. Soak the chaps for at least 4 hours (overnight if possible). After the chaps have soaked, scrub them with a bristle brush, rinse them thoroughly with cold water, and allow them to line dry. Many pairs of chaps can be cleaned in the soak tank.