

Appendix A

**UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE**

SAFETY ALERT

REPLY TO: 6700, 5160

SUBJECT. CHAIN SAW CHAPS

AREA OF CONCERN: RECALL & INSPECTION OF CHAIN SAW CHAPS

DISCUSSION: Missoula Technology & Development Center (MTDC) recently discovered three pair of chain saw chaps that were manufactured with ballistic nylon cloth instead of the required Kevlar cloth. Appropriately manufactured chain saw chaps consist of a nylon duck outer shell, with two layers of woven Kevlar and two layers of Kevlar felt. Three pair of chaps found at MTDC have the two layers of woven Kevlar replaced with ballistic nylon cloth. Chain saw chaps manufactured to specification (two layers of woven Kevlar and two layers of felted Kevlar in a sandwich construction) protect the user to a chain speed of 3,300 feet per minute (fpm) whereas the defective chaps manufactured with the ballistic nylon and Kevlar felt construction protect to a chain speed of 2,450 (fpm).

ACTION: Identify chaps suspected of containing ballistic nylon felted Kevlar construction.

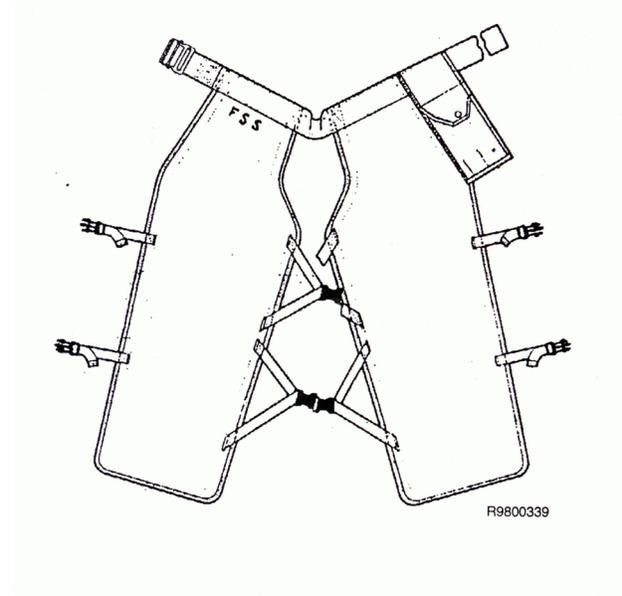
PROCEDURES: Chaps manufactured with the ballistic nylon, felted Kevlar construction, were manufactured under two possible General Services Administration (GSA) contracts. The contract periods ran from September 1987 to August 1988 and September 1988 to August 1989. The contract numbers are GS-07F-17206 and GS-07F-17862. The label with the contract # is attached to the chaps on the waist belt centered between the right and left legs on the inside. These two contracts are the last chaps that were manufactured through GSA in which the 2 inch metal belt buckle was required. Chaps with unreadable contract numbers and metal 2 inch belt buckles may also be defective.

THE ONLY CHAPS TO BE RETURNED TO NIFC FOR INSPECTION ARE:

- #1. Those marked with either of the two contract numbers.
- #2. If the contract number is unreadable those with a 2 inch metal belt buckle.

Inspect your inventory of chain saw chaps and identify chaps that have either of the two contract numbers, or have unreadable contract numbers with 2 inch metal belt buckles. Ship chaps to: NIFC CACHE, 3833 S. Development Avenue, Boise, ID 83705-5346, ATTN: CHAPS. At NEFC the chaps will be inspected. If they contain ballistic nylon your defective chaps will be replaced. The NIFC CACHE will set up an inspection procedure in which your defective chaps will be replaced and good chaps returned ASAP so not to impact your field activities.

If you have questions or comments contact George Jackson at MTDC, 406-329-3967, FAX 406-329-3719, DG: ROIA, Internet, mtdcfire@montant.com.



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Inspecting and Repairing Your Chain Saw Chaps

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Since 1965 the Forest Service has provided chaps for chain saw operators. The chaps have prevented thousands of serious injuries by protecting against chain saw kickback and other chain contacts.

The chaps were redesigned in 1981 to improve protection and comfort.

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

How the Chaps Protect

The chaps protect by offering cut resistance that slows and stops the chain. Added protection is provided if the pad material is pulled into the drive sprocket, jamming it.

Redesigned chaps offer protection against chain speeds up to 3,300 feet per minute (fpm). This compares to 2,200 fpm for the older model.

The chaps' nylon duck shell resists water, oil, and abrasion. Water or oil penetrating into the pad material increases chap weight but does not affect their protective qualities.

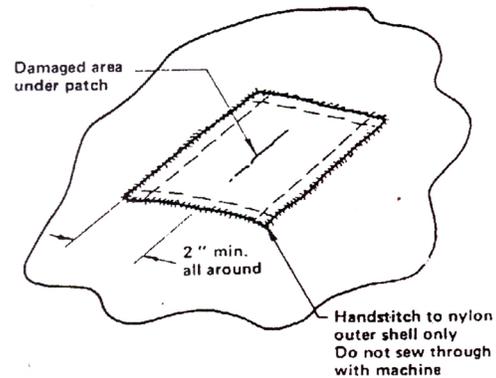
The pads consist of two layers of woven Kevlar and two layers of felted Kevlar between a shell of nylon duck. Kevlar is an aramid fiber like Nomex, but with more fire resistance. When the chaps are exposed to temperatures above 500 °F, the nylon shell can melt but the chaps themselves are not flammable.

The chaps should be properly adjusted and worn snug—not tight or loose—to keep them positioned correctly on the legs. Proper fit and correct length—2 inches below boot tops—maximize protection.

Inspection

Inspect the nylon shell closely for spot melting caused by resting an overly hot muffler against the chaps.

Look for small surface cuts. These occur when resting the chain on the chaps or stopping the chain with the chaps. These telltale cuts are warnings of near misses or improper use. Never allow a moving chain to touch the chaps—even briefly.



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Care and Cleaning

Take care of your chaps. Don't wrap them around the saw bar while carrying your saw. Store chaps away from the saw and gas and oil when traveling.

Keep your saw clean. This will reduce the oil buildup on your chaps. Inspect your chaps periodically for oil, and keep them as oil-free as possible. This reduces flammability and surface slickness, and gloves and clothing stay cleaner.

To remove heavy oil, as well as stubborn dirt and stains, treat first with a dry cleaning solvent like perchloroethylene. Follow with a spray cleaner or detergent and water. Brush with a bristle brush. Rinse thoroughly in warm water. Hang to dry. Do not bleach or machine dry.

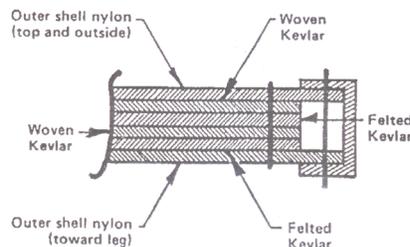
Remove light oil and less persistent stains by washing chaps by hand in warm water and detergent. Use a scrub brush.

To clean off mud or loose dirt, allow it to dry, then remove with a stiff bristle brush. If stains remain, wash as recommended above.

Repairs

Repair melt holes and cuts as soon as possible. Repair techniques depending on whether damage is restricted to the outer layer of green nylon duck or involves the yellow Kevlar too.

If only the nylon is burned or cut through, make a nylon patch that extends at least 2 inches beyond the edges of the damage. Fold the patch under 1/2 inch and handstitch this folded edge to the nylon.



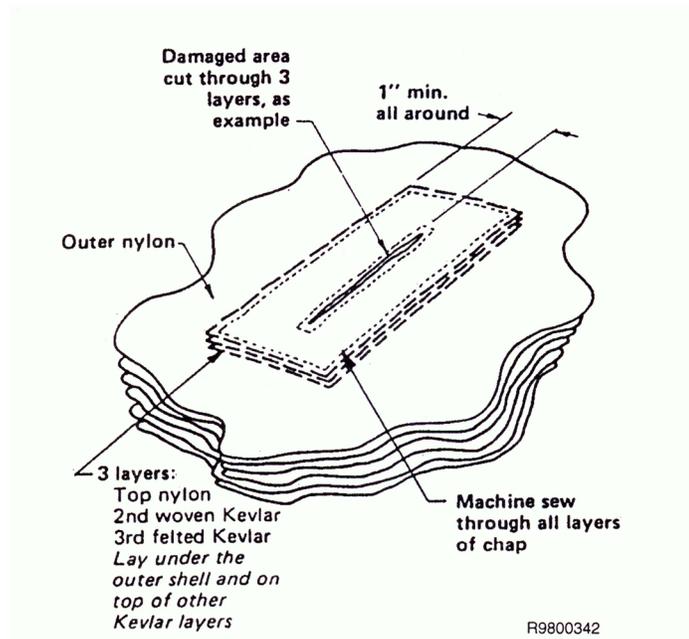
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Appendix A

Handstitching is better than using a sewing machine. When all layers are sewn together, chap protection drops from chain speeds of 3,300 fpm to 2,700 fpm because loosely held pads protect better.

Deeper cuts that involve the Kevlar material must be repaired with a patch equal to the number of layers cut and must be machine sewn. If three layers are cut, the patch must contain these three layers.

Make the patch big enough to extend 1 inch beyond the damaged area. Insert the patch under the nylon, then sew on all four sides and along the cut in the nylon shell.



The extra material in the patch area increases protection, but the protection in the area immediately around the patch drops to 2,700 fpm due to stitching through all layers.

Get patch materials from a pair of previously damaged chaps.

Chain saw cuts are twice as likely on the left side of the body as the right. If, for example, two pairs of chaps are removed from service due to left leg damage, the straps and belt can be removed from one right leg, turned over, and stitched into place as a new left leg on the second pair. This repair is less costly than buying a new pair of chaps.

Extensive repairs should be made by experienced sewing machine operators using industrial machines. Many districts and forests have these sewing machines. Contact a Forest Service source, or contract for repairs with a commercial tent and awning company.

When to Remove Chaps From Service

We recommend no more than five patches per leg (only two of which should be cuts of more than three layers). If any cut into the pad has pulled out material that doesn't easily lay back into place, remove the chaps from service.

Take the chaps out of service if an cut exceeds 7 inches or if the chaps have been cut completely through.

In summary, remove chaps from service when:

1. Either leg has more than five patches.
2. There are more than two patches over three layers deep on one leg.
3. Any cut exceeds 7 inches.
4. Material torn out can't be smoothly put back into place.
5. All layers have been cut through.
6. Other damage occurs that looks beyond safe repair.

With proper care, handling, and repair, your chaps will last many years. If special problems or questions arise, contact the Missoula Equipment Development Center for technical help.

