Tack: A Critical Detail

by: Bonnie Kreitler

For want of a nail, the shoe was lost
For want of the shoe, the horse was lost.
For want of the horse, the message was lost.
For want of the message, the battle was lost.

This ancient epigram succinctly describes how the outcome of critical events can hinge on what may seem like minor details in the overall scheme of things. Racehorse owners and trainers know all too well how the devil can be in these details.

Brigid and John Fairman race Arabians in England. They watched in horror as, for want of a stirrup leather, their horse lost a race and almost caused a pile up. "Mareb, one of our fastest horses, was ahead 12 lengths in a flat race at the Towcester Race Course when one of the jockey's stirrup leathers snapped," recalls Brigid. "The crowd gasped audibly as the jockey tried to regain his balance and keep the horse from falling. Meanwhile, the horses pounding down the track behind them tried to avoid running them over." The broken leather not only cost the race but the jockey was also taken before a formal steward's inquiry and reprimanded for unsafe equipment.

The opportunities lost when equipment fails are bad enough. But horse handlers and riders are literally betting their lives on their tack, notes Anna Carner Blangiforti, developer and president of Leather Therapy products. They need to trust that it is strong and sound enough to do the job.

MORE THAN SKIN DEEP

At the microscopic level, leather is made up of a tangle of fibres resembling a pad of steel wool. These fibres are held together with protein bonds. In the tanning process, hides are soaked in chemicals to prevent the fibres and their bonds from decomposing. Leather comes out of tanning solutions literally stiff as a board. Then fats and oils are tumbled with the hides (this was once a hand process known as "currying") to keep the protein bonds from drying out and to make the tanned leather supple. The "fat liquor" used is a blend of animal-based oils whose droplets are thoroughly dispersed in water. This oil and water emulsion penetrates deeply between the fibres of the boardy hide to make the leather pliable.

Keeping those protein bonds lubricated and supple is the key to keeping leather strong, says Carner-Blangiforti. If those bonds dry out completely, they shrink, become brittle and break. Once broken, they cannot be mended. The leather is permanently weakened. "Leather damage usually starts from the inside out," says this leather care expert. "By the time you can see it, the leather's strength is badly compromised."

Storing tack where it is subject to high heat can dry out and damage leather, says Anna. Leather's internal bonds can also be weakened by excess water and by leather care products with an alkaline pH. When water penetrates deeply into the leather fibres, it forms temporary bonds with the oils that are lubricating the leather fibres. The oils then float to the surface as the water evaporates. Without those lubricating oils, the leather dries stiff. Its now brittle fibres are subject to breakage as the leather is twisted or bent. Leather's normal pH is slightly acidic to neutral. Alkaline cleaners or conditioners eat away at the leather fibres. Unfortunately, traditional cleaning favourites like glycerine saddle soap and vegetable oil soaps are highly alkaline. "Over time," says Carner-Blangiforti, "they weaken the leather's fibres."

Anna recommends cleaning leather each time it is used and conditioning it periodically as necessary to replenish lost oils.

CLEANING & INSPECTION

Whether you are using leather or synthetic tack, wiping it off after each use is an essential step in keeping it strong and making it last. Cleaning removes the mixture of dirt and sweat that quickly becomes a breeding ground for bacteria. These bacteria not only destroy leather's internal structure but also weaken stitching and provide a toehold for mould and mildew. Using dirty, bacteria-laden tack can also irritate a horse's skin.

The best cleaners, says Anna, are pH neutral and leave no residue. It's the groom's preference whether to use soft rags or a small sponge for the job but either way, the rag or sponge should be rinsed often in clean water. If grunge builds up in stitching lines or at the base of buckle tongues, use a small, soft brush like on old toothbrush to work it out.

A neutral pH cleaner is even safe to use on sheepskin, Carner- Blangiforti notes, and you don't need to worry about scalding the horse's skin if any residue remains behind. Clean sheepskin by diluting the cleaner in a bucket of warm water then use a soft brush or textured rag to rub away dirt. Swish nylon halters in the bucket then use a brush on the inside surfaces to scrub embedded dirt and sweat.

"While you're cleaning," says Anna, "take the time to inspect the tack carefully." Any piece of tack will only be as strong as its weakest part and that weak part may be a strap, a stitch, a rivet or a piece of hardware. This is your best opportunity to check to make sure all stitching is tight and secure, that every piece of hardware is still strong, and that every leather strap is still dependable.

When in doubt, subject any suspicious parts to a stress test, says Anna. Try to tear the stitching. Twist and stretch the leather. You'll never be able to stress it as much as a horse will, she points out. If you can cause any damage with your bare hands, it is definitely time to repair or replace the damaged item.

CONDITIONING

Periodic conditioning is essential to keeping leather strong and supple. Over time, the oils originally tumbled into the leather fibres during tanning dry out, oxidize, or get flushed out by sweat, water, and repeated cleanings. The leather begins to get stiff again. So the oils must be periodically replenished.

Conditioning moistens and lubricates leather fibres and there is no question that makes them strong, says Carner-Blangiforti. A recent test at the Leather Industries Research Laboratory at the University of Cincinnati showed that dry skirting leather soaked in Leather Therapy Conditioner was 36 percent stronger than the same leather as it came from the tannery.

Until the dyes set, new leather should not be aggressively cleaned or conditioned, Carner-Blangiforti says. She recommends --several light applications of conditioner to brand-new tack. After that, she says, you only need to condition periodically as you feel the leather beginning to get dry. "Over conditioning leather can be as bad as not conditioning it enough," she notes. "Applying conditioner too often can make leather 'mushy' and too soft. Excess conditioner just rises to the surface where it rubs off on clothes and attracts dust."

Carner-Blangiforti does not recommend paste-type conditioners. "They only sit on the surface," she points out. "You want something that penetrates between the inner fibres." Worse still, she says, they get trapped in stitching lines and crevices where they attract dirt and become a breeding ground for bacteria.

She is also not a fan of that traditional favourite, neatsfoot oil. "True neatsfoot oil made by boiling cattle hooves has essentially disappeared from the market," she says, though the government allows manufacturers to apply the term to other oils or blends with a similar chemical structure. "Neatsfoot oil is now made from liquified animal fats or a blend of fats with petroleum-based mineral oils."

"If you want your leather to stay strong," says Carner-Blangiforti, "choose a conditioner that replicates the fat liquors used to soften newly tanned hides." These fat liquors are an emulsion of extremely fine droplets of animal-based oils thoroughly dispersed in water. "A lightweight emulsion can penetrate much deeper into the leather's fibers than any kind of oil, cream, or paste," says the leather expert. "Then the water evaporates leaving the oils behind."

Carner-Blangiforti recalls one groom who described how he used the warmth of his hands to rub a tallow-based conditioning product into his tack then set it in the sun to melt farther into the fibers. "He had the right idea," she says, "but he would have saved himself a lot of time and done better by his leather if he'd used the right product to start with."

Different fats and oils have different properties, she notes. While pastes tend to stay on the surface and do not penetrate very far, neatsfoot oil blends containing petroleum sometimes spread and migrate to rub off on clothing, pads, and anything else they touch. They never stabilise within the leather's fibre matrix and they tend to darken the leather. Emulsion products may cost more than pastes and oils, she admits, but she feels the time saved in tack care and the additional strength they impart to the leather make emulsions the better bargain in the long run.

Like cleaning solutions, some people prefer applying conditioners with a rag, some with a sponge. It really makes no difference, says Carner-Blangiforti, as long as you get the job done. Wipe a thin, even coating of conditioner on all of the leather surfaces you can reach. She recommends using a small paint brush for larger surfaces like saddles or galloping boots to speed the job, taking care not to apply more than the leather can absorb. Give the conditioner a little time to

soak in then recheck the tack. Leather than still looks dry may need a second application. Wipe the leather down with a dry rag to remove any excess conditioner not absorbed by the leather before putting it away.

“Caring for leather is a balancing act,” says Anna. “You don’t want to neglect the tack but you don’t want to overdo things, either.” Maintaining a cycle of regular cleaning and occasional conditioning will keep tack sound and supple. Just keep things in balance--use just enough water to sluice away dirt but no more and just the amount of conditioner the leather can absorb but no more. “That’s the formula” she says, “for keeping your leather at its strongest and best."

FIGHTING TRADITION

Leather Therapy products grew out of Anna Carner Blangiforti’s business frustration with the leather care products then available in the market. “The cleaners simply didn’t work,” she says. “They were so sudsy that rinsing them took more time than rubbing off the dirt. Some stripped the oils out of the leather and left it very dry while others left sticky residues on the surface that had to be removed in an extra cleaning step.” And, she felt, elbow grease was really doing most of the work. The cleaners didn’t lift dirt easily at all.

“Worse still,” she says, “as I researched what was good for leather, I was appalled to learn how alkaline traditional products like glycerine soap can be. Leather leaves the tannery with a very slightly acidic pH. Alkaline products alter that natural pH which starts to break the leather down.”

Conditioners that came off on clothes or gummed up stitching were just as frustrating. She was also fed up with fighting mould and mildew. “You can find books describing old home remedies that tell you to wipe the leather down with mild solutions of bleach or rubbing alcohol,” she says, “but either one of those chemicals damages hide proteins, dries out the leather and can even remove dyes.”

Carner-Blangiforti hit the books, pestered chemists, and literally mixed trial formulas in her kitchen sink to develop products that did their jobs without excuses. She realises it is almost heresy to ask horsemen to give up their bars of saddle soap, bottles of oil soap, and cans of neatsfoot oil. But she has become a tireless crusader for change. “It’s a safety issue with me,” she says. “If you aren’t using effective products, how can you bet your life on your leather? Why go to the trouble of cleaning and conditioning if you are doing it with products that damage the leather on a microscopic level?”

“And,” she emphasizes, “it’s really important to buy decently tanned leather in the first place.” Then she smiles, “But that’s another story.”

ANNA’S RECOMMENDATIONS

· Clean tack after each use with a mild, pH-neutral cleaner that doesn’t leave any residues. This is the single most important thing you can do for your tack. Not sure about the pH? Most manufacturers have toll-free 0800 numbers. Call and ask.

· Condition tack periodically as it begins to feel stiffer and drier or begins to “squeak.” Use a neutral pH emulsion that penetrates deeply without leaving any oily residue in stitching lines, around buckle tongues, or in any other crevices. Again, call the manufacturer for pH information if it’s not on the label.

· Avoid over conditioning. It only makes leather mushy and more prone to stretch.

· Where humidity is a problem, choose products that contain leather-safe mildewcides to keep mould and mildew at bay rather than using bleach or rubbing alcohol. Store tack where there is good ventilation.

· Avoid storing tack under extremes of heat or cold. That can include trucks and trunks in the heat of summer or dead of winter.

· If waterproofing is desirable, avoid products containing silicone which tend to dry out leather or greasy barrier products which just sit on the leather’s surface and attract dirt.

TACK INSPECTION CHECKLIST

- Is any leather strap stretched or deeply cracked, especially where it wraps around a bit or buckle or iron?

- Have stirrup irons or buckles scraped or cut into the leathers?

- Do the leathers show signs of stretching or wear at their attachment point to the saddle?

- Are billet strap stitches still tight?

- Are there stretched or torn holes in saddle billets or any other strap goods?

- Are all buckles still stitched securely?

- Have layers of doubled and stitched leather stretched at the same rate or is uneven stretching of the layers stressing stitching lines?

- Has soft brass hardware worn thin in any places?

- Are rusty steel buckle tongues eating away at the leather?

- Do snaps operate easily and close properly?