Keep Your Tent in Tip-Top Shape: Stain Removal and Repair

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Removing Stains on Tents

Tent cleaning usually does a good job of washing away dirt and grime but the solutions do not always remove the variety of stubborn stains tents can pick up when in use or in storage. However, there are several options for removing most anything from tent fabrics.

**Mystery stains:**
Even purple berry bird droppings, among a variety of mystery stains, can be removed with the Mr. Clean Magic Eraser. The eraser dissolves as you use it and it can be somewhat tedious when cleaning large areas but this product is a marvel. The Magic Eraser can be found in grocery stores in the cleaning section. They work great on resin chairs as well.

**Rust, leaf, hard-water and mineral stains:**
CLR (Calcium, Lime, Rust remover) is an acid but safe for the vinyl. It dissolves any mineral deposits that are left on the surface. If your clear wall or windows have hard water residue or look foggy, a weak dilution of the acids, can remove those deposits as well.

**Mildew stains:**
When a tent has bad mildew stains, a chorine cleaner must be used. Fresh bleach-sodium hypochlorite-from a grocery store works well because bleach weakens quickly the older it gets, however, household bleach or sodium hypochlorite is 200 times more corrosive than calcium hypochlorite. A more stable, stronger and safer chlorine solution is Shipp’s Blitz mildew remover or X-14 mildew remover. These solutions are a calcium hypochlorite and do a better job of “killing’ the roots or spores of the mildew. Always apply any chlorine to a dry fabric for better mildew removal. Only use chlorine when the tent has mildew stains. Chlorine does not white tent fabric like it does cotton t-shirt. Extended constant use of bleach on vinyl fabric will rob the plasticizer and make the fabric stiff. Extended use of chlorine cleaners also can dry rot the polyester stitching on the seams with the help of ultraviolet sunlight.

**Black stains:**
Black stains from aluminum poles are tent eyesores. Tim Cahall of The Main Event discovered that liquid silver polish and tarnish remover removes the aluminum dust and hasn’t had harmful effects on the vinyl. The chemistry makes sense the same product that removes tarnish on silverware should remove metal dust. Tim says the water based silver tarnish remover is safer.
**Duct tape, tar, paint, grease and oil stains:**
These stains can be removed with a pure organic citrus solvent, such as Shipp’s Citro. Do not use mineral spirits, Goof-Off or paint removers because these products are made of petroleum. Since vinyl is a petroleum-based product other petroleum products will permanently yellow and pucker the vinyl. If you have a yellow stain on your tent, it is more than likely someone removed a stain with petroleum and after a few days, the area yellowed. If you are not sure, read the ingredients on the label. If it contains petroleum, do not use it.

**Crepe paper or confetti stains:**
The dyes bleed deep into the vinyl and seem impossible to remove. Tent rental companies in sunny states like Arizona or Nevada have found that the ultraviolet light from the sun can bleach out the dye stains if you put the tents up in the sun for a few days. Jackie Hendricks of Party Pros discovered that using the infrared heating lamps used at meat carving stations. Just set the lamp the normal distance from the surface and let it sit for around 20 minutes. The infrared light has also removed old set in yellow mildew stains and leaf stains. This is a new remedy so be careful not to let the vinyl overheat.

For more on tent cleaning, read the tent cleaning article in the October 2010 issue of RENTAL MANAGEMENT magazine starting on page 53.
VINYL PATCHING METHODS

GLUE PATCHING OF VINYL TENTS

1. Wash the area of the tent to be patched and remove all residue, i.e. dust, grease etc…
2. Define the area of the tent to be patched and lay flat on a clean, hard surface to determine whether all pieces will pull back together into the original shape or form.
3. Cut a patch from vinyl tent material of the same weight of material in a size that is 2" larger than the tear or hole with rounded corners. For good appearing patches, material should be the same material as the tent top. The finished surface of the patch material should be positioned in the same scrim direction as the tent fabric.
4. Lightly mark on the tent, the actual area where the patch is going to fit. In some cases, you may want to use masking tape, and “mask” off the area.
5. Apply HH66 vinyl glue to both the tent surface and the joining surface of the patch. Lay patch on a protected surface so all edges receive glue.
   NOTE: If it’s an extremely large area you may want to apply the glue to a small portion of the patch and glue one portion at one time.
6. Let the glue dry completely until it has a light tack or until the glue no longer sticks to your finger.
7. Apply the patch to the tent. Remember this works like contact cement and once it is in place, it is difficult to move or adjust.
8. Roll down the patch with a hard rubber roller or press it firmly until all bubbles are removed and the patch is in complete contact with the tent top.
9. Remove any excess glue from edges with a rag and solvent.
10. To help prevent the patched area from sticking to other parts of the tent, apply a thin layer of Talcum Powder (baby powder) over the patched area.

HOT AIR WELDING METHODS

Equipment needed:
- Hand held hot air welder, Leister brand or others
- Hand roller
- Scissors, for trimming out patches
- Wire Brush for cleaning the air welder’s tip

Preparing for surface:
Vinyl patch repair requires a smooth and hard surface to lay down the vinyl tent. Ideal surfaces are stainless steel counters, linoleum or vinyl floors, some hard compound boards, or at least a very smooth, dense plywood. Area should be clean of all dirt and foreign matter. All surfaces should be clean and unpainted.

Preparing the tent:
Tent surface needs to be washed clean of dirt and foreign matter.

HELPFUL HINTS / WARNINGS

Vinyl tents can be patched from either side, but are generally patched on the top surface. If the damage is extensive, you may want to patch on both sides, creating a “sandwich” effect around the damaged area.

If load tape or webbing is involved, they should be re-sewn immediately to provide their full strength.

When tears are 4 feet long or more, or holes are larger than 12” in diameter, the entire panel should be replaced at a repair facility.

Do not use glue to attach webbing that has been sewn in place. Glue patching can not produce the mechanical holding power of stitched components.

TURN OVER FOR MORE...
VINYL PATCHING METHODS

HOT AIR WELDING METHODS (Continued)

Preparing the Patch:
The patch repair will either take place from the top or underside of the tent, depending on the severity of the damage. Choose the one that gives the best visual result to the patched area. Patch should always be cut 1" – 2" larger than the area to be repaired. The larger the patch, the easier and safer it is to work with. When the patch is cut out, all corners should be slightly rounded so it lays down smooth and easily.

Preparing the Hot Air Welding Gun.
Turn up heat to the appropriate setting for the weight of vinyl being used in repair. 15oz – 16oz laminated vinyl works best on setting #6, specific to Leister Hot Air Welder.

Testing your welding ability.
Prior to beginning your welding, take some scrap fabric of the same weight and set the gun, heat range and run a practice test to make sure it is hot enough to get a sufficient weld, yet not too hot to burn and scorch and shrink vinyl fabric. After running a test weld, pull on both pieces. If vinyl separates from the scrim, you know you have a strong weld.

Welding process:
Lay out tent parts to be patched and put the cut out patch in place, making sure it covers the hole or tear.

HINT: Use a piece of tape to flag it or hold in place while you prepare to work with the welder. Insert the tip of the hot air welder under the patch, along one side holding the patch with roller. As the vinyl heats up, press down and move the roller to hold down the melted vinyl tight to the tent surface. Continue around the path at the speed required, to get a good weld. After welding all sides, if edges are still loose, go back and warm the area with a welder and roll them down for a second time. Turn tent over, heat up any loose edges around the patch area and roll down from the opposite side.

Tips on Hot Air Welding Maintenance.
At the finish of any hot air welding session, turn the heat control to zero, but leave the fan on for several minutes to cool down the heating gun. When your welding tip gets burnt on vinyl, clean it immediately with chemicals or a wire brush. Following these two steps will ensure safe use and longevity of the heating element. See our website for a video demonstration:
www.rainier.com/tent/tech-tips/videos/ (Vinyl Fabric Repair)

STICKY BACK VINYL PATCH
In today's market, there are 2–3 manufactures of adhesive vinyl patches that simply peel and stick. This is undoubtedly the easiest way to get a quick patch. With sticky back patches you still contend with a certain amount of adhesives squeezing out from the edges under the patches, they should be powderred with Talcum Powder (Baby Powder) once they are applied.

CAUTION: On sticky patches, life of patch may be shorter than glued-on patches and definitely shorter than hot air welding patch. Pressure sensitive patches tend to let go of adhesion after a few years of aging and wear and tear. It is simple to pull them off, clean the area with appropriate solvents and stick on a new patch.
KEDER REPAIR FOR ALL “SLIDE-IN” TOPS

Preparation:
Survey the damaged area and fabric to determine the extent of repair. If the damage is larger than 3ft. to 4ft., it is ideal to replace the entire keder edge.

NOTE:
This procedure is for replacing the exterior wrapper around the keder core rod.
For rips and long tears, use masking tape on the opposite side of the area you are going to weld. This will help keep the rip or tear in place while you hot-air weld the seam or patch into place.
After the repair is completed, remove the tape and use #861 spotter to remove any tape residue.

Removing Old Keder Wrapper:
1. Remove pull rings, webbing and/or loopens from keder flange area.
2. Trim the keder wrapper at the actual fabric edge until you are past the worn or damaged point.
3. Working at a right angle, carefully cut around the keder rod, making sure not to score or cut in the keder rod.
HELPFUL HINT: Using only scissors or sharp knife, work carefully!
4. Strip off old keder wrapper to the trim point.

Affixing New Keder Wrapper:
1. Cut new keder wrapper piece to length that covers the exposed area.
2. Hold around existing keder rod and check fit to the roof panel.
3. Glue new keder wrapper to rod, using HH66 vinyl cement glue.
HELPFUL HINT: Be sure to coat both parts first, let dry to a “tacky” surface.
4. Wrap the core first, then close together at inside of core. Glue down flanges to existing roof panels.
5. Using a roller, squeeze down all flat area as tight as possible.

Finishing Touch:
• Now that your keder is restored, remove any excess glue and dust the area with talcum powder (baby powder).
• Sew any pulls rings, webbing or loops back into the same position as before.
• Panels are now READY FOR USE!
Keder Maintenance

Keder tops are the most important innovation in tents and structures, saving labor and making the installation process more efficient. However, the very feature that glides a new top into the frame can, without regular attention and upkeep, also become the installer’s worst enemy. The keder track in the aluminum extrusion, the fabric wrapper, and the flexible vinyl rod must all receive regular attention to ensure long life and maintain the cost saving benefits.

The keder track and crown castings should be inspected before every installation, paying close attention to the opening at the end of tube. The entry port of the keder track should be smooth to the touch with no sharp edges. Burs can rip or cut the fabric as it slides into the track. Severe burs will need the use of a round file first and then polished smooth with a green Scotch Brite or similar scouring pad. Though less common, dings and burs can also show up along the length of the track and should also be polished out to insure the fabric’s integrity as it slides along the length.

Age and repeated strain from folding take their toll on the keder, resulting in small stress tears and cuts at the folds, exposing the flexible vinyl rod. The first solution is to apply a liberal amount of HH-66 to the cut and between the wrapper and the flexible vinyl rod. Be sure the fabric immediately surrounding the cut is saturated. This will insure the fibers lie down and resist tearing further. Over time, the ends of the keder can become frayed from feeding and can be dressed the same way.

To repair cuts or tears at the keder that are under 2”, lay the damaged fabric panel onto a smooth, even surface free of dirt, moisture, and debris. Using a box knife or scissors, trim away the loose keder wrapper fabric hanging off the flexible vinyl rod. Do Not Cut the flexible vinyl rod. The patch should be the width of the keder base fabric, cut 1” to 2” longer than the tear. Generously brush half of the rubber side of the patch with HH-66.

Next, brush the HH-66 into the panel area surrounding the tear until the keder wrapper is saturated on the side of the fabric panel facing up. Lay the glued portion of the patch down onto the saturated portion of the wrapper so the edge of the patch lines up with the edge of the existing wrapper and the vinyl. The tear should be centered beneath the patch. Use a silicon roller to press and smooth the patch over the original wrapper. Roll continuously and evenly until dry, paying close attention to working the bond right up to the crease of the bead. FLIP the fabric panel over so the vinyl side of the patch is face up. Repeat the process of applying glue to both the vinyl side and the woven wrapper as before. Fold the wrapper around the bead making it very, very tight to the existing bead. The patch should align or be just shy of the vinyl and wrapper border of the second side. Roll this second side as you did the first, paying close attention to the patch wrapper. Make sure there are no air pockets or gaps between the patch wrapper and the flexible vinyl rod, especially at the crease. A good patch tightly follows the fabric on both sides and shows no signs of puckering around the flexible vinyl rod.

Keder bullets protect the end of the keder, and make pulling the top through the frame somewhat easier. Keder Bullets can sometimes be ripped out and should be replaced immediately. Tops that have never had bullets can be tapped with the help of a drilling jig to retrofit bullets correctly. This will help make an older, difficult-to-pull panel a little less stubborn to install.

Proper maintenance of the keder track and the keder on your slide track tops will reduce labor at set up, and extend the life of your tops. Maximizer Tent Products has a variety of tools to help you maintain your tracks and tops. For more information contact the Rainier Tents.
Drilling the Keder

- Install drill bit in hand held electric drill
- Slide the keder drill guide over end of keder so that the flange bottoms out in the guide
- Arrange to hold the keder and guide firmly. Drill the keder core (rod) through the guide, moving the drill in and out to remove the PVC core material. Then remove guide.

Installing the Keder Bullet

- Holding the drilled keder in one hand, insert the bullet into the core using a screw action
- When it has turned in as far as possible by hand, use an allen wrench to turn until it bottoms near the core end.
Events & Tents Reception at the World of Coca-Cola
6:45 p.m. – 8:45 p.m.
Advance registration and ticket required