Relining replacement Emergency brake linings

By Craig “Vech” Vechorik

The outer axle oil seal failed, and oil and grease got all over the linings of the replacement emergency brake shoes that I bought from Lang's. As far as I know, Lang's does not offer new linings, nor rivets, for these shoes. But having greasy brake shoes does not cut it. Once brake linings are oil soaked, you cannot get the oil out of them. Under use, heat will bring the oil to the surface, and you still have well oiled brakes! Being the kind of guy that fixes things himself, this is what I did. (A personal note, I own a BMW antique motorcycle parts and restoration business, and I relined these emergency brake shoes the same way I have successfully relined antique motorcycle drum brakes for the last 20+ years. And I keep this material and the rivets in stock at all times)
The existing brake rivets that I have, are 1/8 in (3 mm) diameter. The rivets they used were much larger, so I lhad to lay out and drill a new pattern of holes with a 1/8 inch drill. In the photo, you can see the larger original holes, versus the new pattern.

The shoe material that I use, is a modern, soft, semi flexible non asbestos lining, AF 232, that is 5/32 thick, that I buy in 20 foot rolls, from Industrial Brake and Supply. I order it in 1 1/2 inch width, but it is easily cut to any width or length desired.

The first step is to measure the width of the steel shoe, and then scribe a line down the shoe material using the caliper as a scribe.

The next step is to cut the material to width. One must try to do an accurate cut, and error on the side of being slightly too wide, because this soft material is easily cut with a box cutter with a fresh

After cutting the shoe material, not only to the correct width and length, I clamped it on the steel shoe like so:

Using a hand drill with a 1/8 inch bit, you drill through from the back side, each hole for the new rivet.

The next step is to countersink the material for the rivet heads. Because I do this operation at least once a week or more on motorcycle brake shoes, I have set up a 1/4 inch fornster drill bit with a clamp on collar to set the depth of the drill to speed up the operation.

I use 3 mm copper pop rivets (almost the same as 1/8) to attach the lining to the shoes. NEVER use steel rivets, you can cut and destroy a drum, if the lining wears down to the point of contact! (You could get away with using aluminum 1/8 rivets, however) It is also critical to have a pop rivet gun, with a narrow nose, that will reach down into the recessed hole, and rest on the face of the pop rivet!

After riveting the material on the shoe, This photo shows how easily the material can be trimmed to fit the width of the shoe exactly, using a sharp box cutter.

The next step is to bevel the leading and trailing edge of the lining and edges using a vertical belt sander

And, they are hard to find these days, but this KD tool, #3377 is an inside/outside gauge for sizing brake drums, and gauging the outside diameter of mounted brake shoes on the backing plate. It makes life easier, when trying to fit a drum over the shoes on any old drum brake system. Would you believe I found this gauge at a local cheapo tool place NOS! I paid the guy $6.00 for it! He asked me if I knew what it was for! :-D I told him after I paid for it! And yes, I have the Sure Stop disk brakes on both of my T's after having the crap scared out of me in the "hills" of Tennessee on the tour!

But since you will not be able to find this antique tool, and no one has a Sioux brake shoe radius grinding machine for fitting shoes, the way to do it by hand, is to use a black marking pen, and mark and cover the inside of the drum for an area 5 inches long, completely, with the black marker. You can then put one shoe in the drum with your hand, and using hand pressure, slide shoe round in the drum, so it will transfer ink to the lining, showing you the high spots that you can hand sand off with a sanding block and sand paper. No, it is not highly precise, but these are emergency brakes, used mostly to hold the car still, and used in an "Oh my God, I'm gonna crash" stop.
Now you can see exactly where the lining is coming in contact with the drum. You may have to repeat this several times, until the radius of the shoe, comes close to matching the radius of the drum.

The finished shoes installed: