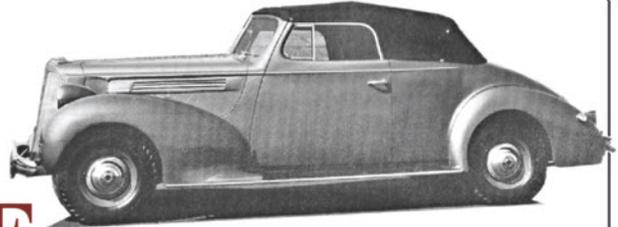


# SAVING THE BRAKE LINES ON A 1938 PACKARD CONVERTIBLE



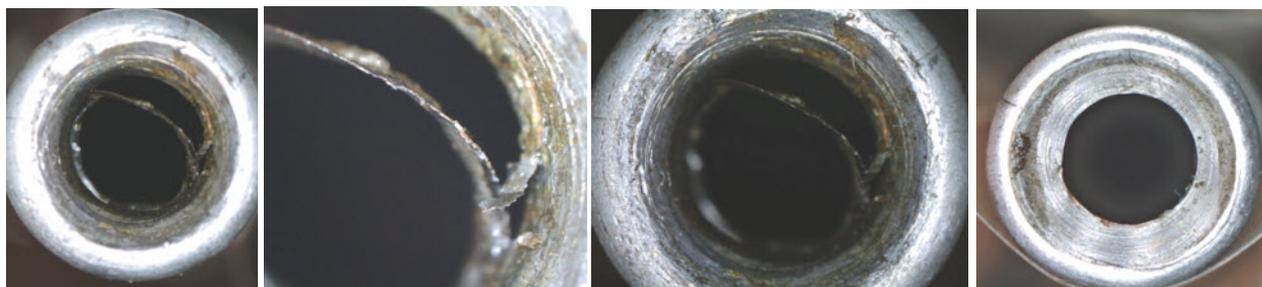
*by Ron Carpenter*

For the last 30 years or so I have been maintaining my buddy Armand's 1938 Packard 8 Convertible. Everyone calls these 120's but the term 110 and 120 was not used until 1940, but most people can identify with that so let's call it a 120. A couple years ago I did a brake job on the car replacing all the hydraulics with new wheel cylinders and a new master cylinder. Now, Armand likes his silicone brake fluid and I am not a fan of it myself, but he has used it forever and he likes it so I cleaned the lines and blew everything out, and when I finished putting everything back together I used silicone. When I did his master cylinder I did not put a re-sleeved unit in as I have had problems with leakage that I determined had originated and leaked from around the brass sleeve which meant I had no brakes. To me it seems that the silicone is "thinner" and so I don't use re-sleeved cylinders on silicone.

On the one I just described I had flushed the system again and blew out the brake lines and put regular Castrol LMA brake fluid in the system and I had no further problems. So with Armand's car I bought a new master cylinder and put everything together and he had good brakes. Now we fast forward a couple years to today, and he needed help getting the car started (that is what happens when you don't drive them regularly) so we got the car started and I thought it was ready to go. I asked him the next Monday morning if he drove the car. He said "NO" as he did not have any brakes... I guess that I won't mention that he said he almost ran into the garage wall before he figured out that he did not have any brakes. Well, it seems that there was a small leak and he had had others working on the car doing oil changes and such and they had tried to stop the leak and thought that they did but what they did was over-tighten the brake lines destroying both the brakes lines and the brass fittings. This gets us to the real problems of what I had to repair, but in the process I discovered a great new tool for making even better brake lines.

I started by having the car delivered to my garage and began to inspect the brake lines and the master cylinder. When we had the car at Armand's garage I had looked on the ground and under the car and I could not find any sign of brake fluid (silicone)

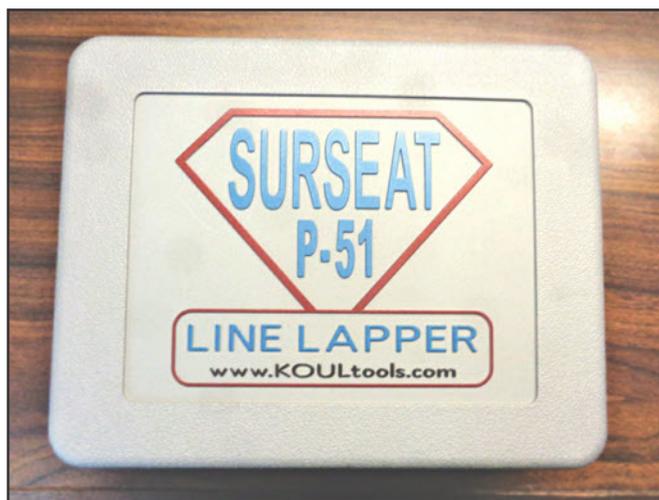
anywhere as everything was dry under the car and all the brake lines were dry as well. If it had regular brake fluid in it I would have found paint on the frame that was eaten off but with the silicone it does not eat any paint which is why people like it so well. Remember the car had basically not been driven very much so I guess that the silicone had just dried out and no trace of it was found. I removed the damaged brake lines and master cylinder and discovered that the lines had been tightened so tight that they damaged the tubing it self.



MAGNIFIED PICTURES SHOWING THE DAMAGED TUBING. FAR RIGHT: LIGHTLY HONED—WHAT A DIFFERENCE!

I started with getting a new master cylinder from Max Merritt Auto Parts, as they had remanufactured the master cylinders when I originally repaired the system so the master cylinder was in good shape but I re-kitted the cylinder. I inspected the brake lines and I could see the damage so I remembered that my machinist John Rankin in Martinez had a microscope that is attached to his computer. The pictures that he took are shown under magnification and BOY do they ever give you an amazing picture of the problem. The pictures speak for themselves. There was cracking of the tubing at the inverted flare and it actually caused the metal to fail. In the process of dealing with the bad brake lines I made new ones, and I was talking my buddy Fred Hill and he had a neat tool for when you're making new brake lines. What this tool does is "hone" the 45 degree face of the brake lines after you made your inverted flair on the tubing. The tool company makes other angles for honing that have 37 degree angles also such as you might encounter on foreign cars.

I remade the lines that went to the front brass cross over for the left front and one to the rear brake lines. Previously I had made these and I made the line in two pieces so it was only just under the driver's seat area that I had to make a line for.

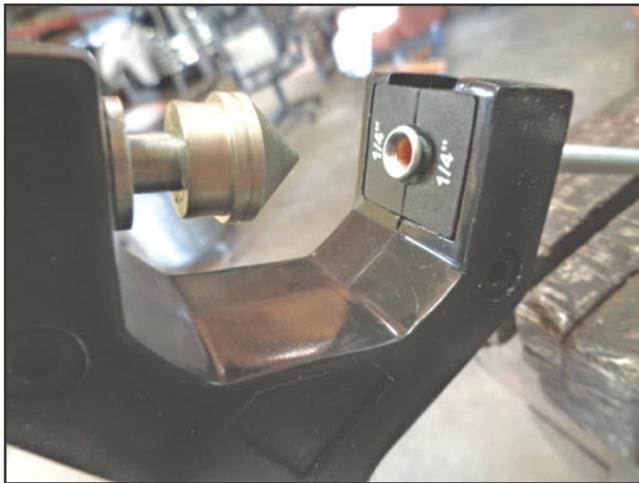


SURSEAT P-51 LINE LAPPER, Available online at [www.koultools.com](http://www.koultools.com)

Once I had the lines made I used the KOUL tool to hone the brake lines. When you tighten up the lines after having honed the 45 degrees they tighten up so nice and just snug right up. I re-bled the system and then started trying to keep the master cylinder banjo fitting dry and it was a problem. I used new copper gaskets at the master cylinder and tightened the fitting slowly, wiping the brass



WHAT COMES IN THE BOX. BOTH 37 AND 45 DEGREE LINE LAPPERS INCLUDED.



1/4" TUBING SET IN THE "JAWS" OF THE FIXTURE SETTING IT UP TO HONE THE 45 DEGREES

banjo every time with a tissue and finally I got it tight enough to stop wetting my tissue.

I really think that there may have been a problem with the "face" of the master cylinder where the copper gasket crushes together (I had even changed the metal fitting that tightens to the master cylinder-- so I did not use any original parts of the banjo fitting) and it still had problem with seeping. All is well now.

I believe that the quality of the parts that we have available today is good, but we have to double check everything to be sure it is safe and reliable. We have more and better parts today than we did when I first started playing with the cars. We have that because vendors such as Max and Kanter work hard to get parts made that are no longer available and help keep our cars running.



HAND-LAPPING THE 1/4" SEAT