



## UNDERSTANDING BRAKE SHOE WEAR PATTERNS

Brake shoes, and the friction material on them, are designed to wear evenly. When removing them from a vehicle for a brake friction reline, it is important to learn to "read" the old shoes before discarding them to the core bin. Brake shoe wear tells a story. That story is important to understanding what is needed to bring the vehicle's brake system back to its original healthy status.

Brake systems that are unhealthy cause rapid wear and overheating!!!

The friction material on the brake shoe should wear evenly around the entire circumference of the brake assembly. They also should wear evenly from the inboard side to the outboard side. If they have not worn this way, there is a problem in the system that needs to be corrected, or the same thing will happen to the new friction being installed. Inspect all linings for the following conditions:

- Shoes showing more wear at the inboard or outboard side, rather than wear that is uniform reveal tapered wear. Worn anchor pins, holes and bushings, or outer S-cam bushings can allow applied force to push the shoes to one side, resulting in tapered lining wear. This condition also is found with outer edge grinding on the brake shoe. This is caused by the brake shoe tracking out of proper alignment due to worn parts. Re-using shoe rollers and anchor pins, therefore, is never recommended.
- Unequal lining wear between the leading and trailing ends of a shoe are the result of weak return springs, worn outer S-cam bushings, or an out-of-arc brake shoe. Attempting to adjust a brake with any of these conditions will result in dragging and high contact pressure at one spot of the lining. This leads to rapid lining wear and heat damage to the brake drum.
- Lining cracking indicates that the lining may be loose on the brake shoe. A shoe that is out of arc, or has rust buildup on the shoe surface or improper riveting can cause this. When replacing the shoes, make sure that the lining is tight and follows the contour of the brake shoe. Always check a replacement shoe's dimensions. Do not assume that it is OK just because it's got new lining. Remember that bargain products are likely to give you more trouble than you bargained for; so insure that the proper lining for the job is being used for the job at hand.

If the linings are contaminated with grease or oil, correct the cause of that contamination before relining the vehicle. The problem is almost always a leaking oil seal, too much grease on a grease-type wheel bearing or camshaft bushing, or careless handling. Never use a lining that has been contaminated, as it will result in brake imbalance, and loss of performance and safe stopping. Never clean off this type of problem and use the new lining!

Professional results are obtained by examination of the friction material wear patterns!