

the release of asbestos dust during routine brake service work ... and by avoid service procedures that release dust (such as arcing or grinding shoes).

ASBESTOS SERVICE PRECAUTIONS

Although asbestos brake linings have not been used as original equipment on cars or trucks built in this country since the late 1980s, there are still a lot of older vehicles with asbestos brake linings on the road. The import vehicle manufacturers were also slower to discontinue the use of asbestos linings as original equipment than the domestic manufacturers. And even if a vehicle came with some type of non-asbestos brake linings as original equipment, you have no way of knowing whether or not the non-asbestos linings may have been replaced with asbestos when the brakes were last serviced.

So rule Number One is approach all brake service work as if the brake dust contained asbestos.

Rule Number Two is to observe the following service precautions that will minimize the dust hazard:

- Under no circumstances should an air hose (as shown in Figure 5.2) be used to blow brake dust out of drums or off of other brake parts.
- When disassembling and cleaning brake components, use a "wet" cleaning solvent (aerosol or brush on). The wet solvent will trap most of the dust, preventing it from getting into the air. Catch the drippings in a pan so the fibers don't end up on the shop floor, and dispose of the residue.
- Another technique to minimize the release of dust during routine brake service is to use a special enclosed brake vacuum.

Though not as popular as the wet solvent technique because of the added cost of the vacuuming equipment and the time it takes to set up and use the equipment, the vacuum will trap most of the harmful asbestos fibers in its special high efficiency particulate air (HEPA) filter.

- Under no circumstances should an ordinary shop vacuum be used for this purpose. The asbestos fibers will pass right through an ordinary vacuum filter and be blown into the shop's air, creating a worse problem than if you'd left the dust alone.
- The practice of grinding or arcing brake shoes should also be avoided, since this is a guaranteed way to put millions of asbestos fibers into the air.
- When replacing asbestos brake linings, use replacement linings that are non-asbestos when alternatives are available in accordance with the brake lining supplier's recommendations.

ASBESTOS ALTERNATIVES

Though asbestos brake linings have served us well for many years, they have suffered from one major problem (besides the health issue). Because asbestos is such a good insulator, it conducts heat poorly. Consequently, heat builds up in the linings with repeated brake applications and during hard use. As the linings get hotter, their friction characteristics change and it takes more and more pedal pressure to produce the same amount of friction and stopping power. This is called "brake fade" and it can lead to loss of braking ability if the linings get hot enough.

As the vehicle manufacturers and friction material suppliers have sought to develop new "safe" alternatives to asbestos, a whole new generation of friction materials have been introduced. Linings made with "semi-metallic" compounds are one and non-asbestos organic (NAO) are another.