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EXCLUSIVE! Beware of Brake Dust!

By Bob Cerullo

MOST MECHANICS GO ABOUT the task of cleaning brake and clutch dust knowing that while doing the job they are inhaling some of this dust. It has been general knowledge that linings and pads are made on the average of 50 to 60 percent asbestos. However, past studies have led us to believe that the asbestos fiber was locked into other materials in the lining and that a change due to the high heat of friction took place during braking or clutch application. This transformed the asbestos fiber into a non-toxic, non-fibrous material called forsterite. The conclusion then was that the dust was harmless.

Studies conducted by the Mt. Sinai School of Medicine in New York City indicate that brake dust may actually contain an average of 3 to 6 percent asbestos with some tests showing concentrations as high as 15 percent. Samples of air were taken under actual working conditions in a taxi-fleet garage and a N.Y. Dept. of Sanitation truck repairshop. These samples were analyzed by electron microscopy and revealed levels of airborne asbestos considerably higher than those permitted by federal law. It should be noted that during the testing in the truck repairshop grinding of brake shoes was carried out.



Fig. 1. REMOVE BRAKE DUST with high-efficiency filtered industrial vacuum cleaner. Wear air-purifying respirator.

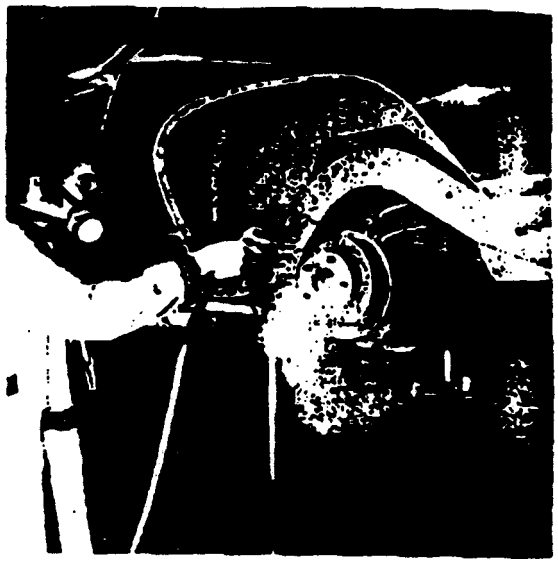


Fig 2. NEVER BLOW OFF dirt from a brake assembly with an air gun. After vacuuming, use a nearly-dry damp rag.

The work of the researchers at Mt. Sinai was discussed at a meeting of the National Institute for Occupational Safety and Health (NIOSH) where the results of physical examinations given to 90 men who had been working as automobile and truck-brake repairmen for a period of 10 years were examined. Of this small group the doctors stated that X-ray examinations showed that over one-quarter had signs of abnormalities consistent with asbestosis disease; the same tests revealed that one quarter had also restricted pulmonary (lung) functions. This evidence prompted NIOSH to issue an alert to the automobile repair industry indicating that while the full extent of asbestos-related disease in brake-service personnel is not known because this occupational group has not been systematically studied up to now, enough scientific data has been accumulated to point out the need to start immediate control measures so that the health hazard of asbestos can be minimized.

There is no doubt that a health hazard exists and that exposure to asbestos fibers can increase the risk

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of developing four diseases: asbestosis—a non-malignant scarring lung condition; cancer of the lung; cancer of the digestive tract and mesothelioma—a cancer of the lining of the chest or abdominal cavities.

There are some authorities and other studies that place the percentage of asbestos in brake dust at a much lower level than those reported by the Mt. Sinai group and disagree with its findings. All authorities agree that no matter how small the concentration of asbestos in brake and clutch dust, there is an immediate need to initiate work practices in every shop that will eliminate any risk to the health of mechanics.

The danger is associated with drilling, grinding and cutting of brake linings. The dust generated during these operations must be collected in a vacuum-recovery system that has a high-efficiency filter. Many older grinders either have no recovery system or are equipped with vacuums that allow tiny particles of asbestos fiber to be blown into the air. Buying pre-ground shoes will minimize the need for grinding.

Where possible, a separate area should be set aside for brake and clutch work and a sign posted at the entrance that reads:

ASBESTOS
DUST HAZARD.
AVOID BREATHING DUST.
WEAR ASSIGNED PROTECTIVE EQUIPMENT.
DO NOT REMAIN IN AREA UNLESS YOUR WORK REQUIRES IT.
BREATHING ASBESTOS DUST MAY BE HAZARDOUS TO YOUR HEALTH.

Dust should never be removed from a brake or clutch assembly with an air blowgun or by brushing. The only way to safely clean dust containing asbestos is with an industrial-type vacuum with a high efficiency filtering system (Fig. 1). Don't use one of your wife's old vacuum cleaners because it probably will do more harm than good. The fine particles of asbestos will pass through most vacuum cleaners and you will end up with a higher concentration of asbestos than you would have if you hadn't used the vacuum at all. The vacuum you buy should have a 99-percent efficiency for 0.3 micrometers diameter aerosols. If there is any remaining dust that was not removed by vacuuming, wash it off using a slightly damp rag. Under no circumstances should you use an air gun or dry brush (Fig. 2).

There is no point in being careful about vacuuming the dust if, when you empty the vacuum cleaner bag, the dust blows all around you and the shop. Brake and clutch dust should be disposed of in a special plastic bag marked as follows:

CAUTION:
CONTAINS ASBESTOS FIBERS.
AVOID BREATHING DUST.
BREATHING ASBESTOS DUST MAY CAUSE SERIOUS BODILY HARM.

Even using a high-efficiency industrial vacuum cleaner will not prevent a small amount of dust from reaching some noses and mouths which will inhale it. To prevent this, you should wear an air-purifying respirator of either the throwaway type like those used in body shops or one with a replaceable particulate filter. Before you buy either type, be sure that it is approved by NIOSH or the Mining Enforcement and Safety Administration. Wear the respirator while you are operating a grinder, drill, or when emptying the dust collection bags on your vacuum cleaner.

There is bound to be some brake and clutch dust that falls to the floor while you are working, so be sure to use an industrial vacuum cleaner to pick it up. Don't sweep this part of the shop with a broom. A broom has the tendency to flick the asbestos particles up into the air and that is where they are dangerous. The rest is common sense: If your shop has heavy accumulations of dust on lockers, parts shelves, overhead door channels, beams and on window sills there is a good chance that dust contains some asbestos. Wear your respirator and use your vacuum cleaner to go over all those hidden places carefully and clean up the dust. Change your work clothes regularly and don't bring them home. Have them washed by an industrial laundry. Wash your hands thoroughly before eating and avoid eating in the area where you do brake and clutch work.

Every shop, large or small, is responsible for meeting the requirements of the federal law which calls for industrial hygiene inspections carried out by OSHA representatives. Under this law the level of asbestos shall not exceed 2 fibers longer than 5 micrometers per cubic centimeter of air. (For a list of these firms send a self-addressed stamped postcard in an envelope to: Asbestos, MOTOR, 1790 Broadway, New York, NY 10019.)

Research has determined that smoking increases the rate of lung cancer among people exposed to asbestos dust. In short, if you have been working around brakes and clutches for several years, it would be wise to give up smoking.

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It is gratifying to note that a great deal of money and time is being spent by brake and clutch lining manufacturers to deal with this problem. In addition to OSHA's specific requirements for a label, one firm has included useful extra precautions on the warning label on every box of brake lining and clutch facings it sells. This same firm has recommended procedures for reducing asbestos dust during brake service in their service manual and in a training film.

In the final analysis you are the only one who can protect yourself from the potential dangers of exposure to asbestos dust. If you wear a respirator or mask, use an approved brake vacuum cleaner, dispose of the dust in the prescribed manner, vacuum the floors and use good common sense about house cleaning, there is little to fear from the presence of asbestos dust. The few extra precautions involved could prevent you from contracting a very painful if not fatal disease. Start tomorrow to clean up your act . . . you owe it to yourself, your family and your fellow workers. ■

How to Promote Your Service Department

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the clinic will be favorably impressed and may become customers in the future. A clinic of this type invariably uncovers the need for much service work, and the dealer should get a substantial share of this work.

The best promotion won't be effective unless the service department can deliver what it promises. Among the most frequent customer complaints are: work not done when promised, cars not repaired properly and high cost of repairs. Most dealerships will make good on a job if the work is performed improperly or a part is defective. These "warranties" are usually informal in nature, but some dealers have plans that are specific and widely advertised.

Your shop equipment can also be an important merchandising tool. An optical wheel-alignment machine, for example, projects a "picture" of the front-end setup of a customer's car. Few owners understand the pattern of an oscilloscope, but most are impressed by the dealer's willingness to invest in such sophisticated equipment and train his technicians in its operation.

Finally, never forget that your best merchandisers are your shop personnel. They need not be high-pressure salesmen. If they impress the customer with their courtesy, knowledge and sincerity and back up that impression with their performance, your investment in modern equipment and promotional plans will pay off. ■

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