

FRICION MATERIALS STANDARDS INSTITUTE, INC.

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December 28, 1977

Abt Associates, Inc.
55 Wheeler Street
Cambridge, MA 02138

Attention: Mr. Gene E. Fax

Gentlemen:

This is with reference to your letter of December 2, 1977 concerning the "Trainer's Guide" for Brake Shop Managers. As this had to be reviewed by our Asbestos Study Committee, it necessarily took several weeks to prepare our reply.

We can well understand the value of such a guide for those working with brake linings. I will review this guide by referring to Page Numbers. But first, we believe there is an important "procedure" or "consideration" that should be emphasized. That is, the brake shop should not--if at all possible--do any grinding, drilling, bevelling or other machining of brake linings or clutch facings. Just about all manufacturers can provide brake linings and brake blocks finished without need for further machining. The manufacturer or rebuilder has dust control equipment to meet OSHA standards. Friction materials should be purchased lined to shoes or ready for riveting or bolting to shoes without need for dust raising operations in the brake shop. By taking this approach, the brake shop will almost eliminate any dust levels associated with the preparation of friction materials for vehicular use. This would isolate the problem to procedures for cleaning used brakes for reline, and procedures in heavy duty shops where some machining may still be necessary.

Pages 3, 37, 80

Reference is made to "The Backyard Mechanic." I do not believe the selection of "The Backyard Mechanic" is proper reference material for this guide. "The Backyard Mechanic" is exactly what it refers (a write-up for the amateur interested in servicing his own vehicle). The servicing routines on brakes in this referenced material are not representative of what mechanics in brake shops would encounter. As the draft "guide" is aimed at brake shops, I do not believe reference material should include instructions aimed at the "do-it-yourselfer."

A more appropriate reference might be the repair manuals available from the major car manufacturers or manuals such as "Chilton Auto Repair Manual."

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Page 4

It is stated: "It is now recognized that asbestos can cause several types of cancer among workers who breathe or swallow the fibers." It has unquestionably been proved that cancer can be caused by exposure to asbestos fibers. While there is a correlation between gastrointestinal cancer and exposure to asbestos, I do not believe that it has been established that ingested (or "swallowed") asbestos causes cancer. I think that this sentence might better be expressed: "It is now recognized that asbestos can cause several types of cancer among workers exposed to the fibers." Please refer to the attached presentation by the Asbestos/Cement Pipe Producers Association on "Asbestos in Water--the Risk."

Pages 21 and 61

Comments are made about the increased risks of those workers who smoke as compared to those who do not smoke. On page 21 it says that: "Smokers have up to 92 times the lung cancer risk as non-smokers who do not work with asbestos." On page 61 it says that: "Studies of asbestos workers show that those who smoke have eight times the lung cancer risk of those who don't and about ninety times the risk of the general non-smoking population." I believe Dr. Selikoff and others have stated also that non-smokers working with asbestos have no more susceptibility to lung cancer than non-smokers from the general population. It might be that this statement is called for to put the incidence of lung cancer into proper perspective. It might also be a stronger incentive to the brake shop workers to not smoke or to give up smoking.

Page 25

The draft states: "This picture shows maximum and average asbestos levels which were measured around certain typical brake shop operations." I question the use of the adjective "typical." I believe the shops in question were New York City maintenance shops working on heavy segments for sanitation trucks and the like. This data was developed in the paper by Dr. Rohl entitled, "Asbestos Exposure during Brake Lining Maintenance and Repair." I do not think that the shop referred to in Dr. Rohl's paper is typical. Its uncontrolled operations were primarily in the truck service area. The "Trainer's Guide" for brake shop managers should be tailored to the shops like Sears, Midas, auto dealers and others working on passenger cars and light duty vehicles. It is my understanding, that there have been studies made at some chain automotive repair shops indicating fiber levels well within the OSHA exposure limit, and these shops would more likely be considered as "typical." There is considerably more grinding, drilling, chamfering and cutting in a shop servicing trucks than in a shop servicing passenger cars. I believe that this guide should state exactly what type of shop the chart refers to and point out that this is not a typical brake shop operation. It should be emphasized, as stated earlier, that the brake shop should--where possible--purchase their materials finished, ready for installation without further machining. This is now the practice at many auto work shops.

Page 37

The draft states that the first operation in brake maintenance shops which is "known to produce dangerous levels of asbestos dust in the air" is "blowing out brake drums with compressed air. This is the chief hazard in automobile brake shops."

There is a question as to whether the decomposition products of used brake linings are the chief hazards in automobile brake shops. While this may be the case, I do not believe that it has been established that dust from the decomposition products of brake linings blown out with compressed air is the dangerous form of asbestos dust in the workplace. It is more likely that grinding, chamfering, drilling and cutting of new brake materials may be a more serious problem as regards producing respirable asbestos dust which would be the known dangerous asbestos product in the workplace.

Further the draft indicates that other dangerous operations are the grinding of used truck brake linings and the beveling of new truck brake linings. These questionable conclusions from a non-typical shop are apparently the result of relying on the Rohl report of operations in a truck shop. My observation is that very few automobile brake shops bevel (or chamfer) new truck brake linings. Most do not even work on truck brake linings. There may be more problems with grinding drilling and chamfering (beveling) operations in a shop which feels that they have to adapt materials to fit particular brakes. As indicated most lined brake shoes are usually ready for installation without additional machining, and this procedure should be recommended.

It might also be commented that with the author's emphasis on blowing out of brake drums and grinding and beveling brake linings, and with illustrations always showing drum brake linings, that the new and now common disc brake linings have not been mentioned. Obviously disc brake linings are widely used and are on over 50% of the brakes on new cars today. The only drum brake linings are on the rears. In many cases these drum brake linings are not relined as often as the disc brake linings.

I agree that blowing out brake drums with compressed air is not a good practice and should be discontinued. I do not believe that it has been established that this is the chief hazard in automobile brake shops. The wording should refer to blowing out "brakes" with compressed air. Most times the mechanics take the air hose directly over to the vehicle with disc or drum brakes and blow out the dust from around the caliper or cylinders before proceeding with the reline. (This is indicated in slide 12). I believe that illustrations and comments should be made of disc brakes as well as drum brakes so that this guide will not be considered a publication of the 1960's.

Pages 32, 34, 36, 64

Illustrations on these pages show a technician taking a sample of asbestos holding a probe or collector. Samples are not taken in this fashion. A sample is normally taken with the worker wearing the sample collector in a fashion that would be equivalent to his breathing the air at his work station.

Page 42

Again the illustrations are for brake drums or lining for drum type brakes. It might be well to have an illustration of someone standing and vacuuming the dust from the disc brake assembly on the car.

Page 43

Again it is stated that the worst offender among brake shop operations is blowing the dust out of drums. I agree that this is a common practice that should be discontinued. However, the wording should also refer to disc brakes and my comments on page 37 still apply.

There is another item on page 43 which I question. The draft states that brake linings also contain silica which can cause lung disease and lead which harms the nervous system. The sentence is not correct because brake linings do not necessarily contain silica or lead. While it is true that some brake linings may contain silica and some may contain lead it is most likely that the majority of brake linings commercially used today do not use either silica or lead.

Page 45

The draft states: "Do not use for cleaning brake drums, surfaces, or equipment." It is referring to compressed air nozzles. Again, the specifying of "brake drums" is not proper because mechanics not only use compressed air for blowing out disc brake assemblies but they also use it for blowing out the backing plate assemblies on drum brakes. If such a label is to be used it should read "Do not use for blowing out dust from brakes, drums, discs, rotors or calipers," or some other wording to this effect.

Page 47

Again the draft states: "The first thing the workers should learn is the proper way to clean out brake drums." Again, the emphasis is on brake drums which are now being superseded by disc brakes. It might also be suggested that shops could remove the dust from brake drums by taking them directly to a workbench and tapping out dust on old newspaper which could then be wrapped and put in disposable plastic bags. This would be prior to the washing out with a wet rag.

Page 65

The draft states that the monitoring tests must be done at least every six months. It is my understanding that the monitoring should be done at least every six months where asbestos concentrations can be expected to exceed the 2 fibers per cc limit. If experience in earlier monitoring and in the introduction of good work practices indicates that the concentrations would not be above 2 fibers per cc, I question whether monitoring must be done "at least every six months."

Page 69

In this section the draft indicated how much it would cost for a proper set of measurements. It indicates that the cost would run about \$20-30 per measurement. To get a proper set of measurements it indicated that one should take two samples per work station and four samples per worker. Using the illustrations of a brake shop with three mechanics and eight work stations they indicate a need for twenty-eight samples. They figured two samples for each of the eight work stations and four samples for each worker. I would think that this would scare off the brake shop from the cost of monitoring. It would seem more proper that a hygienist could select two or three typical work stations and one or two workers. While a work station is being monitored a worker may also be monitored. This would reduce the number of samples taken to six or ten to monitor the brake shop indicated. I believe that OSHA should give some advice to Abt Associates as regards what they would consider proper monitoring for the illustration that was made. It is likely that a small brake shop would take exception to the costs involved in making the number of tests indicated in this illustration.

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Thank you for the opportunity of reviewing this draft of the "Trainer's Guide." If you have any questions on my comments I would be pleased to discuss them further.

Sincerely,

FRICTION MATERIALS STANDARDS INSTITUTE

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E. W. Drislane
Executive Director