FRICTION MATERIALS STANDARDS INSTITUTE, INC., E-210 ROUTE #4, PARAMUS, NEW JERSEY 07652

September 27, 1976

TO: Asbestos Study Committee

SUBJECT: Asbestos Dust Control in Brake Service Centers

As a matter of backgroumd we have been asked several times over the past 2 or 3 years by the Asbestos Information Association (AIA) to get something together concerning asbestos in brake linings. Comments have been made concerning the AIA booklet "Asbestos and Brake Linings," that it is purely a reference source providing background for the general public. It does not accomplish anything as regards educating users of asbestos bearing brake linings.

Comments were passed at committee meetings to the effect that the booklet is really of little value. However, no action has been taken by the committee as regards providing AIA with something of more value. In June 1974 I received a memo from Mr. I. H. Weaver concerning a write-up that had been done by Mr. Moalli of Raybestos-Manhattan. It was a general write-up on precautions that could be taken in brake shops when working with asbestos bearing brake linings. Mr. Weaver had several editing changes and I made some changes to the write-up. This subject was dormant since then, but I resurrected it when I received two recent requests concerning recommendations in the brake service shops. One letter was from State Farm Fire and Safety Casualty and the other was from MOTOR Magazine. Copies of the correspondence are enclosed.

I believe if industry is to present its side concerning asbestos, I had to reply to these inquiries. We should make objective and responsible recommendations. For that reason, I went to the files and pulled out this write-up that had been forwarded by Mr. Weaver in 1975. This write-up is the best I have. I took the liberty of using and sending it to those inquiring about asbestos in the brake shops. I indicated that it is in draft form and I do not have a final write-up. Engineers at Raybestos-Manhattan are reviewing this currently to see if changes should be recommended. I would very much appreciate it if members of the Asbestos Study Committee would review this write-up and make recommendations. If there is some significant area we have missed, we would appreciate comments and recommendations in that area. In the meanwhile, until I get a final draft on these recommendations, I will send copies of this draft.

Over the past week or so I have been in contact with Mr. I. H. Weaver who had earlier served as Chairman of the Asbestos Study Committee. Mr. Barry Wagner, present Chairman, has been quite ill for the last several weeks. Thru the President, I have asked Mr. Weaver to serve as acting Chairman of the Asbestos Study Committee until the membership of this committee is settled. I have, therefore, been working with Mr. Weaver concerning this write-up.

PLAINTIFF'S EXHIBIT WV-06047

P-FMSI- 0038

E. W. Drislane
Executive Director

P.S. After preparing this memo, Mr. Weaver sent me the enclosed "Recommended Procedures for Reducing Asbestos Dust During Brake Servicing."

PLAINTIFF'S EXHIBIT WV-06047

ASBESTOS DUST CONTROL IN BRAKE SERVICE CENTERS

INTRODUCTION

Most friction materials in use today contain about 50% to 60% asbestos fiber. A great deal of publicity has been given to the fact that when inhaled or ingested, asbestos fiber may be injurious to your health.

When incorporated into brake linings, the asbestos fiber is "locked" into a matrix of other materials and presents little hazard. Furthermore, studies have shown that as brake linings wear, the great preponderance of the product of that wear is no longer recognizable, physically or chemically, as asbestos dust. The majority of problems that arise in brake service areas of garages are those of precaution and good housekeeping.

PRECAUTIONS TO BE FOLLOWED BY BRAKE SERVICE SHOPS

If it is assumed that there is free asbestos dust in brake service shops capable of being made airborne, and the following precautionary measures are taken on this basis, problems of asbestos dust should be essentially eliminated.

PERSONAL

1. Use coveralls as protective outer clothing. This is done quite frequently by mechanics to save wear and tear on their personal clothing, but if this suggestion is considered as related to asbestos fibers, it would tend to eliminate the transport of any fiber to a mechanic's home or outside of the brake service shop. The coveralls should be laundered frequently, and care should be taken in handling soiled coveralls to prevent generation of airborne fibers.

2. Develop good personal hygiene practices. Washing thoroughly before eating will prevent the ingestion of any foreign matter. Food should not be stored or eaten in the work area.

3. It is a well-published fact that smoking is injurious to your health. When coupled with asbestos dust, problems are accentuated. Do not smoke.

THE BRAKE SERVICE SHOP

1. Keep the entire area dust free by utilizing a vacuum cleaner and/or periodic floor washings. Particular attention should be paid to window ledges, frames, overhead lights, girders, rafters or any inaccessible place that will collect dust. This should improve working conditions and mechanics' morale. NEVER use an air hose or any other method that would tend to cause the dust to become

airborne. This includes sweeping with a broom. If it is deemed necessary to sweep the floors, make sure a sweeping compound or dust suppressant is used to minimize the dust.

2. Vacuum cleaners for asbestos-containing dust should be in good condition, without leaks, and equipped with extra high efficiency filtering systems capable of screening out the smallest of dust particles.

BRAKE SERVICE WORK

1. When removing the drums or disc brake rotors, place each down carefully so that as much of the dust as possible is contained. For drums, the open end should be placed upward.

2. Remove all parts necessary, including the shoe and lining assembly and place carefully alongside of each drum/rotor. Again, handle carefully so as not to cause any airborne dust.

3. Vacuum each backing plate and drum/rotor with an attachment that will provide the greatest amount of suction (such as the radiator cleaner attachment as used in the home). Repeat the procedure with an attachment that is used for dusting. This usually has bristles or a brush that will loosen the dust particles and draw them into the vacuum. Repeat the procedure for each wheel followed by a general vacuuming of the floor in the general work area. NEVER blow dust away with an air hose. The vacuuming procedure should not take long and will eliminate most airborne dust, creating better working conditions. Make sure that the drum/rotor is vacuumed along with the ancillary parts.

4. Recondition, repair or replace parts of the hydraulic system.

5. Lightly sand the bosses on the backing plates or the appropriate metal-to-metal contact points of the disc brake. Lubricate these points.

6. Remove the newly relined brake shoes from their box and return the used shoes into the same box, being careful not to disturb any dust created by wear or handling of the brake lining.

7. Most brake shoe and lining assemblies received in the service shop for passenger cars and light trucks need not be ground or "arced". Most are already cam or contour ground.

   (a) for drum brakes up to.030" oversize in diameter, use the standard thickness lined brake shoe without further grinding.

   (b) for brake drums .030" and over, an oversize thickness lined brake shoe will fit properly without further grinding.

If grinding is necessary (as may be the case of heavier truck shoes), use only a grinding apparatus which is adequately equipped to collect the dust generated. This is very important and, if a doubt exists, the equipment manufacturer should be consulted concerning suitability of the dust collection system for use with asbestos.

8. If the drum is turned, do not use an air hose to blow out the metal chips. Carefully remove the drum from the lathe, turn over to empty the loose chips and wipe the surface with a clean cloth moistened with denatured alcohol.

9. Reline the vehicle in the normal manner.

You will find that this procedure will not increase the time required to reline a vehicle if the operations are organized properly. Working conditions for all concerned will be more pleasant and safer. This applies as well to other operations surrounding the brake service areas. It should enhance the feeling in the mechanic that should make him better organized with respect to his tools and procedures to be followed. Remember, <u>the air hose should never be used around brake service work</u>. Even though studies have shown that only 2-3% of the products of brake lining wear may be in the form of asbestos fiber and the fibers in the brake linings are "locked in", good work practices can eliminate <u>all</u> dust problems.

September 27, 1976

MOTOR Magazine
1790 Broadway
New York, New York 10019

Attention: Mr. Robert J. Carullo

Dear Mr. Carullo:

This is to reply to your letter of September 20, 1976 concerning Dr. Selikoff's write-up in the Daily News.

In answer to the questions in your letter--yes, most brake linings on today's cars contain asbestos. The disc brake and drum brake linings used on most American passenger cars and trucks contain about 50-60% asbestos. The asbestos is "locked in" to a matrix of resin and other materials. The asbestos by itself is not free. The problem with asbestos occurs if a shop grinds and cuts brake lining segments without good dust collection systems. Also, there is a problem during the removal of old brake linings preparatory to a reline. During removal, dust from the brake system can be inhaled if a mechanic uses a air hose or other procedures that tend to raise dust in the shop. It had been common practice in brake shops to use air hoses to clean off brakes. It is not a good practice.

As regards your question concerning my reaction to Dr. Selikoff's remarks, I did not read the article fully. I did see the headlines in the New York Daily News. I am not a medical authority and am in no position to discuss epidemiological data on which Dr. Selikoff projected this high mortality for people repairing brakes. If those working with brakes in service centers are sufficiently alarmed by Dr. Selikoff's remarks to initiate good work practices in the shop, his remarks may be helpful. As regards the accuracy of his remarks, I don't believe I'm qualified to comment.

Along this line, I might suggest contacting the Asbestos Information Association, (AIA) 1835 K Street, N.W., Washington, D.C. 20006. Because of the proposed OSHA amendments concerning asbestos in the workplace the AIA has undertaken costly consultant studies on the difficulties with the OSHA regulations and the medical evidence in support of the proposed amendments. While they may have data concerning the medical aspects of past occupational exposures to asbestos available, epidemiological data is not conclusive. There

is asbestos dust in the factories that manufacture friction materials. Off-hand, it might be assumed that past dosage and time effects of asbestos in the factories would have been more serious than sporadic high counts that might be present in brake shops. Most of the epidemiological studies on a asbestos in the workplace have been done in the factories that introduce asbestos into products such as brake linings, floor tiles and construction materials. There is very little epidemiological data on brake service shops.

I'm enclosing some items that may be of help in your work. One is a 3 page write-up entitled, "Asbestos Dust Control in Brake Service Centers." The Friction Materials Standards Institute, with one of its members making the major contribution, has drafted these comments on good dust control in the brake service areas. We believe that with good house-keeping and good work practices that the asbestos dust problem can be essentially eliminated in the brake shop. I'm also enclosing a copy of an article that appeared in Brake and Front End Service in May 1976 concerning asbestos in the workplace and some of the recommended equipment that is being used to control it. I'm also enclosing a copy of a letter put out by the National Institute for Occupational Safety and Health dated August 8, 1975. This letter by Dr. William Lloyd of NIOSH discussed some of the problems in the brake shops and had some recommended procedures for asbestos brake and clutch servicing.

I hope the enclosures and comments are Helpful to you concerning your article to appear in MOTOR Magazine. I'd be most pleased to receive a copy of your article when it is published.

Sincerely,

FRICTION MATERIALS STANDARDS INSTITUTE

EWD/lmc
Encs.

E. W. Drislane
Executive Director

P.S.: I am enclosing also a just-received page from a Raybestos-Manhattan catalog entitled: "Recommended Procedures for Reducing Asbestos Dust During Brake Servicing."

MOTOR

1790 Broadway, New York, N. Y. 10019

ROBERT J. CERULLO

1851-60TH STREET, BROOKLYN, NEW YORK 11204

September 20,1976

Mr.Edward Brislane
Friction Material Standards Institute
E210 Route 4
Paramus,New Jersey

Dear Mr.Drislane,

On September 9th the New York Daily News ran a story about the findings of Dr.Iving J.Selifoff os the Environmental Sciences Labratory of Mount Sinai School of Medicine. In the story Dr. Selikoff was quoted as saying that over 20% of the people repairing brakes on motor vehicles will die of cancer.

Does the brake lining and brake pads used on modern day cars contain asbestos?

What is your reaction to Dr.Selikoff's remarks?

We are planning a strory that will discuss the problem of brake dust and the recommendations of OSHA as well as a look at some of the new brake cleaning devices aimed at cutting down the risk from brake dust.

Your thoughts will be appreciated.

Yours truly

Robert J.Cerullo

Dust During Brake Servicing," from Raybestos-Manhattan catalog.

September 27, 1976

State Farm Fire and Casualty Company
112 E. Washington Street
Bloomington, Illinois 61701

Attention: Mr. Stephen A. Nolan

Gentlemen:

On September 1, 1976 you wrote to the Asbestos Information Association concerning information on asbestos as it relates to brake shoes, drums and assemblies. Mr. Mereness of the Asbestos Information Association suggested that you contact me for information.

I'm not exactly sure what information Mr. Mereness sent you but I would like to enclose some information which may be of help. I've enclosed an article entitled, "Asbestos Dust Control in Brake Service Centers." This is a draft article prepared by the Institute concerning good housekeeping procedures to be used in brake service shops. It is a draft document and is not necessarily final. I believe that it may help alleviate problems associated with the asbestos dust in brake shops.

I am also enclosing an article that was put out by the National Institute of Occupational Safety and Health. This was in the form of a letter from Dr. Lloyd of NIOSH which attached some recommended procedures for asbestos brake and clutch servicing. The NIOSH recommendations are in reasonable harmony with those draft recommendations that I've enclosed. I'm also enclosing a copy of an article as it appeared in Brake and Front End Service in May 1976. This article discussed some of the same items noted by NIOSH. In addition, it discussed equipment used for maintaining minimum dust levels in the brake service shops.

If you have some specific questions concerning the asbestos problem I would try my best to help you. The main emphasis up until this time has been on factories. I believe they had a more serious asbestos dust problem than brake service shops. However, if brake service shops use poor work practices such as an air hose to blow off used parts, or they do not have good dust collection when grinding brake linings, there may be asbestos dust problems in these areas too. It would appear that most brake service shop problems are controllable with good work practices and good housekeeping.

Sincerely,

EWD/lmc
Encs.

E. W. Duisberg
Executive Director

ASBESTOS INFORMATION ASSOCIATION
1525 K Street, N.W., Washington, D.C. 20006 • (202) 223-4855

14 September 1976

Mr. Stephen A. Nolan
Loss Control Representative
State Farm Fire and Casualty
Company
112 E. Washington Street
Bloomington, Illinois 61701

COPY

Dear Mr. Nolan:

In response to your letter of September 1, we enclose some general information produced by this Association which we believe will be of interest.

For more specific information on asbestos and brake components may I suggest you communicate with Mr. Edward W. Drislane, Executive Director, Friction Materials Standards Institute, Inc., Bergan Mall Office Center, East 210 Route #4, Paramus, New Jersey 07652, (201) 845-0440. Mr. Isaac H. Weaver of Raybestos-Manhattan, 123 East Stievel Street, Manheim, Pennsylvania 17545, (717) 665-2211, a member of our Standards and Technical Committee, may also be of assistance to you. I am sending a copy of your letter to each of them.

Sincerely yours,

R. H. Mereness
Executive Director

cc: Mr. Edward W. Drislane
Mr. Isaac H. Weaver

RHM:gp

Enclosures

State Farm Fire and Casualty Company

112 E. Washington St.
Bloomington, Illinois 61701

September 1, 1976

Asbestos Information Association
1660 L. Street, NW
Washington, DC 20036

Dear Sirs:

I would like to obtain any printed information you may have available on asbestos as it relates to brake shoes, drums and assemblies. I am particularly interested in any associated hazards and potential means of control--suggested by your association.

Thank you for your cooperation in this matter. I will be looking forward to you response.

Sincerely,

Stephen A. Nolan

COPY

Stephen A. Nolan
Loss Control Representative

SN:ff

RECOMMENDED PROCEDURES FOR REDUCING ASBESTOS DUST DURING BRAKE SERVICING

Because studies have indicated that exposure to excessive amounts of asbestos dust may be a potential health hazard, OSHA has set maximum limits of levels of airborne asbestos dust to which workers may be exposed. Since most automotive friction materials normally contain a sizable amount of asbestos, it is important that people who handle brake linings and clutch facings understand the nature of the problem and know the precautions to be taken.

1. Areas where brake work is done should be set aside if possible, and entrances should be posted with an asbestos exposure sign as follows:

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

2. The amount of asbestos in the dust from brake lining wear is normally at an extremely low level because of chemical breakdown during use, and if machining of friction material *does not* take place, simple procedures will minimize exposure. During brake servicing, the mechanic should wear an air purifying respirator, either a throwaway or one with replaceable particulate filter(s), as approved by the mining Enforcement and Safety Administration or NIOSH. It should be worn during all procedures starting with the removal of the wheels and including reassembly.

3. During disassembly, all parts should be carefully placed on the floor to minimize the possibility of creating airborne dust. Dust should first be cleaned from the brake drums, brake backing plates and brake assemblies using an industrial type vacuum cleaner equipped with a high efficiency filter system. After vacuum cleaning, any remaining dust should be removed by using a rag soaked in water and wrung until nearly dry. Under no circumstances should compressed air or dry brushing be used for cleaning.

4. Of extreme importance are the precautions which must be taken during machining of friction material. This is the operation in brake servicing when exposure to asbestos dust is at its highest. In addition to the approved respirator, there must be local exhaust ventilation such that the worker exposures are maintained at least below the 1976 OSHA asbestos standards. If there is any question as to the efficiency of asbestos dust removal by the machine, the manufacturer should be contacted.

5. Industrial vacuum cleaner bags containing asbestos dust and cloths used for wiping brake assemblies should be sealed in plastic bags and labeled with the following warning label printed in letters of sufficient size and contrast to be readily visible and legible:

Caution
Contains Asbestos Fibers
Avoid Breathing Dust
Breathing Asbestos Dust May Cause Serious Bodily Harm

All asbestos waste should be disposed of in accordance with the OSHA asbestos regulation. During removal of vacuum bags, an approved respirator, as described in (2) above should be worn.

6. All floor cleaning in areas where brakes are repaired should be done with the high efficiency industrial vacuum cleaner as described in (3) above. Under no circumstances should dry sweeping take place. Grinding (arcing) machines should also be cleaned with such a vacuum cleaner and any remaining dust wiped with a damp cloth. An approved respirator, as described previously should be used during this cleaning.

7. Although adherence to the above procedures should minimize any contamination of work clothing, it is necessary that the appropriate sections of the OSHA regulations on asbestos be followed when ceiling levels on asbestos dust exceed current standards. This could involve special clothing, change rooms, etc. At the very least the work clothes should not be taken home but should remain at work for industrial laundering.

8. Proper hygiene practices will help minimize exposure to asbestos dust. Wash thoroughly before eating and do not eat in the work area. Remember, smoking is harmful to the health, and smoking coupled with breathing asbestos dust is extremely dangerous.

CAUTION: DO NOT BREATHE ASBESTOS DUST