



ASBESTOS INFORMATION ASSOCIATION

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MAY 02 1986

April 25, 1986

Memorandum For: Norman Abbott, Certified Brakes
Shlomo Mevorach, Distex
E. J. Sydor, National Friction Products
Rita Grisham, Nuturn
Skip Carroll, U.S. Automotive Mfg.
Carroll Smith, Brake Supply
Norman Comins, P.T. Brake Lining
Robert C. Miller, Prudential Supply
Francis Barton, Reddaway Manufacturing

Subject: Request for comments on EPA's Draft Brake
Mechanic Education Program

The U.S. Environmental Protection Agency (EPA), beginning in 1981, has been developing a Brake Mechanic Education Program. The current version of this program was received yesterday from EPA with the request that this Association review and comment on the draft texts for these materials and draft script for the videotape.

Please find enclosed the draft materials along with, for your information, a technical document, Guidance for Preventing Asbestos Disease among Auto Mechanics, on which the draft texts and script were based.

Comments to EPA are requested by May 6, 1986. In view of the short lead time, I would greatly appreciate receiving by 'phone any comments and/or recommendations that you wish to make no later than May 5, 1986.

Thank you in advance for your cooperation and assistance.

B. J. Pigg
President

Enclosures

cc: Executive Committee (less encls)
E. W. Drislane, FMSI
W. Krebs, GMC
J. Riopelle, Allied/Bendix
T. Hardy, K&E
G. Nash, The Asbestos Institute

HWMR0026401



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

APR 22 1986

OFFICE OF
PESTICIDES AND TOXIC SUBSTANCES

Bob J. Pigg, President
Asbestos Information Association
of North America
1745 Jefferson Davis Highway, Suite 509
Crystal Square 4
Arlington, Virginia 22202

Dear Bob,

The EPA is developing a fact sheet, a videotape, and a poster under a Brake Mechanic Education Program directed towards vocational/technical high school automotive students and automotive mechanics. We envision the fact sheet and poster for general use and the videotape for use by automotive education programs. We would like to invite your review and comment on the enclosed draft texts for these materials and draft script for the videotape.

I am also enclosing for your information a technical document, Guidance for Preventing Asbestos Disease among Auto Mechanics, on which the draft texts and script were based.

The population of auto mechanics we hope to reach is very diverse, hence our developing a variety of materials. We plan to develop additional materials next year.

As we are working on a tight production schedule, your comments should be made to me in writing or by telephone by May 6. Please feel free to call me with any questions (202 or FTS 382-3949). Your review is most appreciated.

Sincerely,

Steve Shapiro

Steve Shapiro
Asbestos Action Program
U.S. EPA, TS-788A
401 M Street, S.W.
Washington, D.C. 20460

Four enclosures

HWMR0026402

DRAFT FACT SHEET FOR BRAKE MECHANIC EDUCATION PROGRAM

(Format envisioned is one page folded in thirds.)

DRAFT

COVER PAGE

DRAFT

Mechanics and anyone else in a garage where brake and clutch work is done may be exposed to asbestos dust. Some drum brake dust can be seen when a drum is removed from a car, truck, or bus. But there are also many very small dust particles that can't be seen with the naked eye.

These invisible particles may be asbestos or other brake lining materials. Breathing these particles can affect your health. Many years after breathing them, you may become short of breath, they may scar your lungs, or they may give you cancer.

Asbestos is only one of many materials used in brake linings today. The only way to know for sure what is in the dust from a particular brake is to test it in a laboratory. Little is known about the health effects of dust from newer brake lining materials. Some of these materials may be harmless. Others may not be.

THE ONLY PRACTICAL WAY TO PROTECT YOUR HEALTH AND THOSE AROUND YOU IS TO CONTROL BRAKE DUST IN YOUR GARAGE.

WHAT YOU DO TODAY CAN PROTECT YOUR HEALTH IN THE FUTURE.

DRAFT

CLEANING METHODS THAT RELEASE BRAKE DUST INTO THE AIR

Air Hose. DON'T BLOW IT!! NEVER USE AN AIR HOSE FOR CLEANING. This is one of the worst things you can do to put brake dust in the air of your garage.

When brakes are blown out with an air hose, invisible particles of brake dust can stay in the air long after a brake job is done. Any activity in the brake work area can stir up the particles that have settled.

Other Methods. Cleaning with a dry brush or rag, wet brush or rag, garden hose, liquid squirt bottle, solvent spray, or ordinary shop-vac will also stir up visible and invisible brake dust. Many of these particles are so small that they can pass through the filter bag of an ordinary vacuum cleaner and spread throughout a garage.

CONTROLLING BRAKE DUST

Wet Methods. Using specially designed low-pressure spray equipment that wets down brake dust and properly catches the run-off may prevent some asbestos from spreading around a garage. Be sure to use only the liquid recommended by the manufacturer.

Vacuum Methods. Another type of device is a special box or drum with clear plastic walls or windows, which fits tightly around a brake assembly. Good brake cleaning can be done without exposing mechanics or contaminating a garage. A special air hose inside the box or drum is used for cleaning. An exhaust hose goes from the box or drum to a special "HEPA" asbestos vacuum cleaner, which draws out and stores the brake dust.

The manufacturer's instructions should be carefully followed for using this device and changing the filters or collection bags. Improper changing can release dangerous amounts of asbestos into the air.

Steps for using this type of equipment on drum brakes are simple:

1. Remove the wheel.
2. Turn on the asbestos vacuum cleaner.
3. Place the enclosure over the drum, being sure it forms a tight seal behind the backing plate.
4. Place hands into the attached rubber gloves.
5. Remove the brake drum. Some equipment allows use of a hammer or other tools when needed inside the enclosure for drums that are hard to remove.
6. Blow dust off the drum and brake assembly using the air gun attachment inside the enclosure.
7. Clean all the inside surfaces of the enclosure.
8. Remove the enclosure and turn off the vacuum cleaner.

Waste. All waste that contains brake dust must be carefully disposed of according to Federal and local regulations for asbestos materials.

DRAFT

Truck and Bus Brake Blocks. Use pre-ground, ready-to-install parts. If a brake lining must be drilled, grooved, cut, bevelled, or lathe-turned, low speeds should always be used to keep down the amount of dust created. All machinery should have an adequate local exhaust dust collection system to prevent asbestos exposures and shop contamination.

BRAKE LININGS SHOULD NEVER BE GROUND because this makes a lot of dust. Slow lathe-turning will get the same job done with much less dust.

Special Areas for Brake Work. No one should eat, drink, or smoke in an area where brake work is done. Smokers who are exposed to asbestos, even while they are not smoking, are at specially high risk of getting lung cancer. If you smoke, you need to stop.

ADDITIONAL INFORMATION

This fact sheet was prepared by the U.S. Environmental Protection Agency's Brake Mechanic Education Program. Other materials include a videotape, a poster, and a technical guidance document.

For copies of these materials or additional information on asbestos, call or write to the EPA office in your region or:

U.S. EPA
TSCA Assistance Office, TS-799
401 M Street, S.W.
Washington, D.C. 20460
Toll-Free: 800 424-9065
In Washington, D.C.: 544-1404

Additional occupational information on asbestos is available from:

OSHA Office of Information and
Consumer Affairs, Room N-3637
200 Constitution Avenue, N.W.
Washington, D.C. 20210

National Institute for
Occupational Safety and Health
4676 Columbia Parkway
Cincinnati, Ohio 45226

DRAFT

DO'S

- DO clean brakes with special "HEPA" vacuum cleaners.
- DO use pre-ground, ready-to-install parts when possible.
- DO lathe-turn brake blocks at a low speed with proper exhaust ventilation.
- DO dispose of asbestos waste according to Federal and local regulations.
- DO wash thoroughly before eating or going home.
- DO change clothes before going home.

DONT'S

- DON'T clean with:
 - air hose
 - dry brush or rag
 - wet brush or rag
 - garden hose
 - liquid squirt bottle
 - solvent spray
 - ordinary shop-vac
- DON'T grind brake blocks.
- DON'T lathe, bevel, drill, or cut brake blocks without proper exhaust ventilation.
- DON'T eat or smoke in work area.
- DON'T take work clothing home.

DRAFT VIDEOTAPE SCRIPT

DON'T BLOW IT!

FADE IN:

INTERIOR, DAY, AUTOMOTIVE GARAGE. It's a large, relatively spacious set-up with a half-dozen bays.

QUICK CUTS

through these bays show a variety of operations in progress: one mechanic is doing an oil change; another is tuning up an engine, complete with the latest electronic equipment; and another is replacing a muffler; another is back-flushing the cooling system.

The variety of SOUNDS and NOISES typical of these operations accompany our quick tour through the garage's operations, and various mechanics exchange comments and greetings.

CUT BACK TO

a WIDE DOLLY SHOT of the entire garage operation, all of the activities continuing. Our dolly shot reveals TWO MEN in the foreground, both dressed as MECHANICS, discussing a work order.

They conclude their conversation and ONE OF THE MEN steps toward the camera with a friendly smile. He's dressed a little differently than the others; perhaps wearing a white shirt rather than a blue one. But his name--'FRANK'--is sewed above his breast pocket like all the others, and you can tell he works with his hands.

FRANK

Yeah, it's a big operation. Six bays, ten mechanics on duty, an average of thirty cars through here a day.

It took me a while to build it up. I started pumping gas with one little hoist on the side. We did mostly oil changes; a few tune-ups, an occasional brake job. Five years ago we moved here--bought out the former owner when he retired and, well, held our breath. But it's all working out.

CUT TO

another angle, dollying with Frank as he walks past a number of his operations, ending up on a mechanic performing a brake job.

FRANK

We do a lot more here, from tune ups to oil changes to brake jobs. Some things--like replacing a muffler--haven't changed much in the last ten years.

But others--like doing brake jobs--have changed a lot!.

CUT TO

a CLOSER SHOT of the BRAKE OPERATION. It looks almost exotic--the wheel is SURROUNDED BY A DRUM, which is in turn connected by a flexible tube to a VACUUM CANISTER.

FRANK

Brake jobs are pretty high-tech now, but just a few years ago we did them real simple.

Frank goes over to a counter with a glass top. Underneath it are some black and white photos from the old garage, which he points to:

FRANK

Take a look at these snapshots from the old shop...

The camera zooms in on one or two of the still photos; the last shot looks like a still photo but is really a BLACK & WHITE VIDEO FREEZE FRAME. This black & white picture ANIMATES and the brake operation continues--without the "high tech equipment" we saw in the color shots.

FRANK

We did a lot of things wrong back then--and this was probably the worst of them...

The MECHANIC REACHES IN with an air hose and BLOWS OUT the brake drum, BLOWING BLACK DUST into his face and all over the screen.

FREEZE on this frame full of dust and superimpose our MAIN TITLE:

DON'T BLOW IT!

FRANK
(VO MAIN TITLE)

Now the first thing I tell every one of my mechanics is: "DON'T BLOW IT!"

The MAIN TITLE FADES OUT and the FREEZE FRAME REANIMATES and the mechanic continues his work. The pictures continue in BLACK & WHITE.

We here switch to an OFF-CAMERA NARRATOR to describe the way brake jobs used to be done.

NARRATOR

"DON'T BLOW IT" IS RIGHT--BECAUSE THAT DUST CAN BE DEADLY.

YOU SEE, MOST BRAKE DRUMS AND DISCS CONTAIN ASBESTOS. ASBESTOS IS A DURABLE, HIGH-FRICTION MATERIAL--THAT MAKES IT USEFUL FOR BRAKE MATERIALS AND A LOT OF OTHER APPLICATIONS.

IT'S PRECISELY THIS INDESTRUCTIBLE QUALITY THAT MAKES IT SO DANGEROUS. FOR WHEN IT GETS GROUND INTO A FINE DUST BY REPEATED FRICTION IN BRAKING--OR WHEN A MECHANIC GRINDS DOWN BRAKE LININGS--IT CAN BE EASILY BREATHED IN. AND THAT'S WHEN IT CAN DO ITS DAMAGE.

BLACK & WHITE pictures of older brake servicing methods continue over this commentary, illustrating the narrator's information.

NARRATOR

MILLIONS OF PARTICLES CAN BE RELEASED DURING BRAKE AND CLUTCH SERVICING. AND THE LARGEST OF THE VISIBLE CLUMPS

AREN'T THE REAL PROBLEM: IT'S THE MICROSCOPIC,
INVISIBLE FIBERS THAT ENTER THE LUNGS AND CAN DO THE
MOST DAMAGE.

DISSOLVE TO

GRAPHIC or ANIMATED REPRESENTATION OF LUNGS to support narrator's
dialogue.

NARRATOR

ONCE THE FIBERS ARE IN THE LUNGS THEY TEND TO LODGE
THERE, CAUSING THE LUNGS FORM SCAR TISSUE. BUT THIS
SCAR TISSUE ISN'T ELASTIC LIKE THE LUNGS ARE. TOO MUCH
ASBESTOS, TOO MUCH SCAR TISSUE--AND IT GETS HARDER AND
HARDER TO BREATHE.

THIS SCARRING IS CALLED ASBESTOSIS. UNFORTUNATELY, THE
SCAR TISSUE DOESN'T TURN BACK INTO GOOD LUNG TISSUE. SO
THE DISEASE DOESN'T GET BETTER ONCE IT DEVELOPS. ALL
THAT CAN BE DONE IS TO STOP EXPOSURE TO TRY TO KEEP IT
FROM GETTING ANY WORSE--BECAUSE EVEN AFTER EXPOSURE IS
ELIMINATED, THE DISEASE CAN WORSEN.

DISSOLVE BACK TO

brake servicing operations.

NARRATOR

THE ONLY REAL SOLUTION IS TO PREVENT EXPOSURE IN THE
FIRST PLACE, AND KEEP THE DISEASE FROM EVER DEVELOPING.

ASBESTOS ALSO CAN CAUSE CANCER--LUNG CANCER, AND A RARE
CANCER OF THE LINING OF THE LUNGS OR ABDOMEN CALLED
"MESOTHELIOMA".

SUPER 'ASBESTOSIS', 'LUNG CANCER', and 'MESOTHELIOMA' over shots
of improper brake servicing operations--in addition to blowing
out the drums and brake assemblies, haphazardly sweeping dust
around the garage, letting the dust accumulate on clothing, etc.

NARRATOR

WHILE IT USUALLY TAKES MANY EXPOSURES FOR ASBESTOSIS TO

DEVELOP, VERY SMALL EXPOSURES OVER SHORT PERIODS OF TIME CAN LEAD TO CANCER.

ALSO, YOU DON'T DEVELOP ANY SYMPTOMS OF THESE PROBLEMS RIGHT AWAY. THEY TAKE YEARS TO DEVELOP. FIFTEEN YEARS. SOMETIMES THIRTY YEARS OR MORE.

SO JUST BECAUSE YOU FEEL FINE NOW DOESN'T MEAN ASBESTOS ISN'T DAMAGING YOU.

Switch back to:

FRANK

(VO continuing black & white
footage of improper servicing)

That's another reason why working around asbestos is so dangerous: there's usually nothing to indicate it's hurting you at first. You may not develop any symptoms of disease for a long time, maybe for many years--and maybe long after the problem can be corrected.

And it can get you even if you're doing a short job or two.

DISSOLVE BACK TO

FRANK, IN HIS GARAGE. We simultaneously RETURN TO COLOR PICTURES.

FRANK

(continuing above dialogue)

So the time to stop it is now, when you first start working with the stuff--when you're feeling fine.

But how do you work safely with the stuff?

We DOLLY WITH FRANK as he walks towards the BRAKE SERVICING AREA in his garage. One of his mechanics is doing a brake job, and we use his work to ILLUSTRATE FRANK'S DESCRIPTION of the ENCLOSURE VACUUM METHOD--the correct way of doing a brake job.

FRANK

The most important thing is to prevent exposure in the first place.

And the best way to do that is with the equipment Mike here is using. The enclosure and vacuum canister and other equipment all work together in what we call "the enclosure vacuum method."

But as important as the equipment are the correct procedures for using it.

Mike begins the brake job.

FRANK
(VO Mike's work)

First remove the wheel--but carefully, to avoid disturbing the brake dust.

Turn on the asbestos vacuum. This way loose dust will be vacuumed in right from the start, rather than allowed to escape.

Place the enclosure over the drum, then pull it forward, making sure that it forms a tight seal behind the backing plate. This tight seal will ensure that the asbestos dust is pulled into the vacuum, and doesn't leak out into the work area.

Place hands into the attached rubber gloves and remove the drum. The gloves will keep the asbestos off your hands. Some equipment allows use of a hammer when needed inside the enclosure.

Using the air gun attachment inside the enclosure, blow dust off the drum and brake assembly. Blow the dust towards the vacuum exit on the bottom of the enclosure. Make sure dust is thoroughly vacuumed up through the machine.

Only then, remove the enclosure and turn off the vacuum.

Then Mike can continue the brake operation as he normally would.

CUT BACK

from views of Mike at work to Frank on camera, Mike continuing to work in the background.

FRANK
(continuing)

As you can see, doing it this way doesn't take much longer than doing it the old way.

And doing it with the vacuum method has one very important dividend:

It could save your life.

Frank walks to the next bay, where another mechanic is doing a brake job on disc brakes with the same kind of equipment.

FRANK

You handle disc brakes in much the same way.

CUT TO

close ups and other shots to illustrate Frank's comments.

FRANK
(continuing)

Be sure to vacuum the discs and caliper directly with the crevice attachment and avoid handling before vacuuming.

CUT BACK TO

Frank on camera.

FRANK

The procedures are somewhat different for doing clutch work, but the same risk of asbestos exposure is there, and so is the need for controlling the dust.

Frank walks towards an adjoining bay, and the camera dollies with him.

FRANK

Don't Blow It!

DRAFT Revised Script

There's another approach--called "the wet method"--for reducing exposure to asbestos dust when cleaning brakes.

With this method the mechanic uses a specially designed low-pressure spray gun to collect the dust and prevent it from spreading around the garage.

But the people I talked to before buying our systems tell me that the wet method is not as effective as the vacuum method, so I decided on the vacuum equipment for my garage.

Totally useless--in fact dangerous--are some of the things we used to do in the old days...

DISSOLVE BACK TO

BLACK & WHITE PICTURES to illustrate dangerous brake cleaning methods over Frank's comments:

FRANK
(continuing)

Wiping with a rag or brush doesn't effectively control dust no matter how carefully done. Even wetting these tools doesn't work: they eventually dry out, and then when they are handled or shaken, asbestos is spread around the garage.

Using a liquid squirt bottle or a garden hose or solvent spray actually scatters the asbestos, and when the liquid dries, the asbestos is still all over the garage.

filter ~~Vacuuming up with common shop vacuum cleaners doesn't~~ do any good. They don't have bags that can trap the really fine--the most dangerous--fibers; they actually spread asbestos around the garage as much as the compressed air hose!

DISSOLVE BACK TO

Frank on camera, IN COLOR.

FRANK

Speaking of filters--that's what makes this vacuum system work...

Frank walks back towards Mike's work area, where we use Mike and his equipment to illustrate Frank's explanations of the filters and their servicing:

FRANK

The heart of the system is this "HEPA" filter--

We super the letters 'HEPA' and words 'high efficiency particulate' over the pictures of Mike handling this filter as

FRANK
(continues)

↑(NO!)

that stands for 'high efficiency particulate' filter--the only kind of filter that can trap the tiny asbestos fibers that are so dangerous.

Ahead of the HEPA filter are two or three others--this one in the middle is called a "micro" filter. It traps some of the smaller fibers--but not the smallest ones that the HEPA filter gets.

Replacing these filters on time is very important, since they're the heart of the system. Be sure to follow the manufacturer's instructions. The best designed equipment allows filter or collection bag changing with the vacuum running--that draws loose fibers away from the mechanic and into the machine.

Remember: these filters collect asbestos. That's their job. So when you go to change them, they're full of dangerous dust. That makes filter and collection bag changing especially hazardous jobs. Do them carefully and correctly--it doesn't do much good to avoid asbestos exposure while cleaning the brakes and then contaminate the garage when changing the filters or collection bag.

All filters and asbestos waste are handled carefully to avoid spreading asbestos dust, are placed directly into a heavy plastic bag, double tied and put into a separate 55 gallon drum marked according to OSHA regulations.

Don't Blow It!

DRAFT Revised Script

recommended by NIOSH

We see the drum and the label: "CAUTION: contains asbestos fibers. Avoid breathing dust. Breathing asbestos dust can cause asbestosis and cancer."

FRANK
(continuing)

The drum is kept stored and locked between filter changes.

CUT BACK TO

Frank on camera.

FRANK

Using the enclosure vacuum system and correctly replacing the filters are the most important things in reducing asbestos exposure as much as possible.

But we do a few additional things around here just to be safe.

These additional things are illustrated as Frank describes them:

FRANK

The lunch area in the garage is well separated from the work area. None of my mechanics are permitted to eat or drink while doing a brake job--the last thing you want to do is swallow any stray asbestos. Remember: it can cause cancer.

We also keep our work clothes and our street clothes separate, and get special laundering for work clothes.

DISSOLVE BACK TO

Frank, on camera.

FRANK

This seems like a small thing, but a newspaper article I read a few years ago convinced me to do it.

The article said that some scientists had found that some wives and children of some men who worked with asbestos had contracted asbestos-related diseases like cancer.

They got it from the asbestos dust their husbands and fathers had brought home on their work clothes.

So even through we keep asbestos dust to a minimum around here, the last thing I want to worry about is my wife or kids--or those of my mechanics--being endangered by our work. So the few extra bucks a month in laundry bills is worth it.

Frank walks back towards the brake servicing area of the garage, arriving at a big 'NO SMOKING' sign in the brake servicing area.

FRANK
(continuing)

One more thing: I don't allow any smoking around brake jobs.

And if any of my mechanics do smoke, I encourage them to quit...

Frank walks a step or two further to a bar chart placed right next to the 'NO SMOKING' sign.

FRANK

I used to smoke, and I know all the arguments against it.

But this chart is the one thing that convinced me to stop.

We all know smoking is dangerous. And I hope by now you know asbestos is.

But much more dangerous than either of them is their combination.

Just look at this chart.

CUT TO

a close up of the chart as Frank points to the appropriate bars.

FRANK

Here's the incidence of lung cancer among nonsmokers.

As we all know, smokers get much more lung cancer.

So do people who work with asbestos.

But look at this:

The bar Frank now points to is much taller than any of the others:

FRANK

This is the incidence of lung cancer among those workers exposed to asbestos who also smoke. It's five times worse, than asbestos exposure and ten times worse than smoking alone.

CUT BACK TO

Frank, on camera, chart next to him.

FRANK
(continuing)

Like I say, this is the chart that convinced me to quit, and it's done the same thing with a couple of my mechanics.

The way I figure it, I either quit smoking, or quit this business....

CUT TO

Another angle as Frank walks back towards the brake servicing area.

FRANK

One last thing: dust masks--or "respirators".

Frank holds up a supplied-air respirator (or a photo of same), illustrating his comments.

FRANK

Respirators which use filters to remove asbestos from the air are not as effective as those which supply clean, pressurized air--like underwater, "SCUBA" equipment. And using such equipment properly requires a whole separate program--including special training, medical evaluations, maintenance. Obviously that's not practical in a garage like this.

So a good respirator program is a lot more complicated than just putting one of those paper masks on your face. And even the best respirator will not help others in and around the garage--like customers, supervisors and other mechanics--who are not wearing them. And if you wear them but still spread brake dust around the garage, you'll still be exposed when you take the thing off.

So respirators are not an effective solution.

Frank walks away, towards one of his mechanics working on a brake job. The camera dollies with him, though at a distance. Frank crouches down next to the mechanic, giving him some suggestions for using the vacuum equipment properly.

NARRATOR

AS YOU CAN SEE, FRANK'S BEEN PRETTY THOROUGH IN SETTING UP HIS BRAKE SERVICING OPERATION TO AVOID EXPOSURE TO ASBESTOS.

BUT HE KNOWS THAT THE BEST EQUIPMENT IN THE WORLD IS NO GOOD UNLESS HIS MECHANICS KNOW HOW TO USE IT PROPERLY--SO HE MAKES SURE THEY GET THE NECESSARY ON-THE-JOB TRAINING.

AND HE INSISTS THAT THEY FOLLOW THE MANUFACTURERS INSTRUCTIONS TO THE LETTER.

The camera has dollied in to a medium close up on Frank.

FRANK

Don't Blow It!

DRAFT Revised Script

Remember, asbestos is dangerous stuff.

How dangerous? Well, anyone who works with asbestos without the proper equipment and work practices is in danger.

And the fact that you don't feel bad while you working with the stuff only makes matters worse--because you're not aware of the danger.

But it's there--and it can catch up to you years later--maybe many years after you've quit working in a particular garage, or left the automobile service industry all together.

CUT TO

a wider shot as Frank rises from the work area and walks through his garage as the mechanics continue working around him.

FRANK

I don't only own this garage--I work here too. I want to treat my people right, and I also want to protect myself.

What you've just seen could save your life.

Make sure the garage you work for has the right equipment and follows these procedures. And make sure you use the equipment, and use it correctly.

You know what I mean:

"Don't blow it!"

Frank walks off frame, leaving a a wide view of his garage, mechanics at work as we saw them at the beginning of the show.

MUSIC UP over credits, which are supered over this scene and a reprise of scenes we've seen in the show.

-END-

HWMR0026422

ELEMENTS FOR POSTER ON CONTROL OF DRUM BRAKE DUST

DRAFT

Headline:

It's your health...

DON'T BLOW IT!

Graphic: Photo of a young person blowing compressed air on a drum brake lining. Possible use of colored X across photo or graphic use of the word DON'T to emphasize that what you see in the photo is what you are not to do.

Text:

Breathing brake drum dust particles can damage your health. Most of these particles are so small that you can't see them.

Many years later, you may become short of breath, have scarred lungs, or get cancer.

These dust particles contain asbestos or other substances.

The only way to protect you is to prevent brake drum dust from getting into the air and on your food and clothing.

[Plus the DO's and DON'TS (See draft fact sheet.)]



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF
PESTICIDES AND TOXIC SUBSTANCES

GUIDANCE FOR PREVENTING ASBESTOS DISEASE
AMONG AUTO MECHANICS

April 1986

HWMR0026424

PREVENTING ASBESTOS DISEASE AMONG AUTO MECHANICS

I MECHANICS' EXPOSURE TO ASBESTOS

Friction materials, such as brake linings and clutch facings, often contain asbestos. Millions of asbestos fibers can be released during brake and clutch servicing (1-8). Grinding and beveling friction products can cause even higher exposures (1,8). Like germs, asbestos fibers are small enough to be invisible and they can remain and accumulate in the lungs. When you see a dust cloud during brake work, you are seeing clumps containing thousands of fibers. Most of these fibers will not show up with the methods commonly used for measuring asbestos levels in the air, such as the method used to determine compliance with the OSHA asbestos standard, since most asbestos fibers in brake dust are too small to be measured by these methods (1-3,5-8).

Asbestos released into the air lingers around a garage long after a brake job is done and can be breathed in by everyone inside a garage, including customers. While lowering exposure lowers risk, there is no known level of exposure to asbestos below which health effects do not occur (9-12). Therefore, where asbestos exposures cannot be eliminated entirely, they should be reduced to the lowest possible level (9,13).

Asbestos can be carried on work clothing, contaminating the family car and home. This can cause asbestos disease among family members. A house vacuum cleaner cannot collect these asbestos fibers, since its filter is not fine enough to trap them. In fact, a house vacuum cleaner is likely to stir these fibers up and scatter them into the air.

Asbestos can also get on a mechanic's hands and be swallowed when eating or smoking a cigarette. This is a particularly difficult problem for mechanics, since they often get grease on their hands and asbestos fibers can stick to the grease.

II HEALTH EFFECTS OF ASBESTOS EXPOSURE

Health damage from asbestos can be prevented by using proper controls. It is not possible to predict whether an individual person exposed to asbestos will later develop asbestos-related disease. But studies of disease patterns among large groups of workers exposed to asbestos make general observations possible. The following can be the consequences

example, if one touches a hot stove, one gets burned right away. With asbestos, the damage isn't obvious until many years later. This false sense of security can easily lead a worker and/or supervisor to follow work practices which can cause harmful exposures, since they are not aware that disease may develop later.

III MEDICAL TESTS

Medical tests only discover asbestos-related disease after it has developed. In some cases, where the condition may be curable, especially with asbestos-related cancers of the large intestine and voice box, early detection can be very important.

Asbestosis

Asbestosis, or lung scarring from asbestos, is permanent and cannot be treated. It is diagnosed by chest x-rays, breathing tests (called lung or pulmonary function tests), and/or listening to the lungs, together with a history of exposure to asbestos. Very early asbestosis may be missed by these techniques. Early asbestosis is difficult to see on a chest x-ray and is best evaluated by a doctor who has experience and/or specialized training with asbestosis. (This type of specialist is called a "B reader" of x-rays.)

Lung Cancer

Very often lung cancer from asbestos has already spread by the time it can be seen on a chest x-ray or by tests of the phlegm. This is why more frequent tests for lung cancer do not help the average person who develops this cancer to live longer. Lung cancer is thus a condition needing prevention more than early detection and cure.

Intestinal Cancer

Cancer of the large intestine can often be detected early by yearly exams of the rectum and sigmoid area, with a hemoccult test for blood in the stool. Early detection and treatment of this condition can result in cure.

Voice Box Cancer

Voice box cancer can often be discovered at a curable stage by a medical exam. It may show up as hoarseness that does not go away in a few weeks.

methods can also cause customers to be exposed, since asbestos from brake work can be spread 75 feet away from the mechanic (1).

When grinding is done to renew used brake block linings, concentrations of up to seven million asbestos fibers per cubic meter can be released. Beveling new linings can release concentrations of up to 72 million fibers and light grinding of new linings of up to 4.8 million fibers (7).

V. CONTROLLING EXPOSURES

NIOSH and OSHA recommend that where asbestos exposures cannot be eliminated, they must be controlled to the lowest level possible (9,13). Effective containment prevents problems associated with housekeeping and with stirring up settled dust (13). The best approach is to contain brake dust and prevent its release into a garage.

Brake Cleaning

Enclosure equipment for brake cleaning is available, which slips easily over the brake assembly and forms a tight seal against the backing plate. A compressed air system can then be used inside this type of enclosure system for good brake cleaning without exposing the brake mechanic or others. Clear plastic walls or windows allow easy visibility of the work being done. Brake dust is sucked into a vacuum cleaner equipped with a special filter called a HEPA or "high efficiency particulate aerosol" filter. Only this type of filter can capture the small, invisible asbestos fibers. Non-permeable glove attachments on some equipment allow a mechanic to do work inside the enclosure without getting asbestos on the hands.

How to Use Enclosure Equipment for Cleaning Drum Brakes

Steps for using this type of equipment on drum brakes are simple:

1. Remove the wheel.
2. Turn on the asbestos vacuum cleaner.
3. Place the enclosure over the drum, making sure it forms a tight seal behind the backing plate.
4. Place hands into the attached rubber gloves.
5. Remove the brake drum. Some equipment allows use of a hammer or other tools when needed inside the enclosure for drums that are hard to remove.

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face and clothing. Enclosure equipment with a HEPA vacuum cleaner to prevent this exposure is under development.

Non-Asbestos Brake Linings

The use of non-asbestos friction materials is increasing. Some of these may well be safer than asbestos, but knowledge about their health effects is still very limited. Unless a mechanic is certain before brake work starts that a particular vehicle's brakes are not lined with asbestos, it should be assumed for the sake of caution that there is asbestos in the brake dust. In addition, friction materials often contain adhesives, toxic metals, and other hazardous chemicals which can harm the body (2). Thus, even for non-asbestos friction products, an enclosure system can control exposures to materials which may be harmful.

What to Look for in Enclosure Equipment for Brake Cleaning

Desirable features to look for in selecting enclosure equipment include:

1. Features which prevent hand contact with asbestos, including rubber (or other non-permeable) gloves to cover both hands. Look for attached gloves with no spaces for leakage.
2. Enclosures large enough to fit around the biggest size brake drums likely to be encountered to prevent exposure during drum removal.
3. Reports of air sampling with analysis by transmission electron microscopy that show no release of asbestos fibers when using this equipment during brake maintenance. This helps ensure against design defects.
4. A sturdy seal behind the backing plate to prevent leakage during blow out.
5. A pressure gauge indicating when vacuum filter change or cleaning of renewable filter is needed. This helps ensure effective suction during use.
6. Safety of filter change or renewable filter cleaning. Ideally, future models of these devices will have a feature that prevents opening the filter housing while the vacuum motor is switched off.

Enclosure system manufacturer information is discussed in references 32-35.

Additional Information

This guidance was prepared to support technical materials being developed as part of the Brake Mechanic Education Program under EPA's Asbestos Action Program. The following are additional sources of information on asbestos:

EPA Regional Asbestos Coordinators

EPA Region I
JFK Federal Building
Boston, Mass. 02203
(617) 223-0585

EPA Region V
230 S. Dearborn St.
Chicago, Ill. 60604
(312) 886-6003

EPA Region IX
215 Fremont Street
San Francisco, CA 94105
(415) 974-8588

EPA Region II
Woodbridge Avenue
Edison, N.J. 08837
(201) 321-6668

EPA Region VI
First Int'l Building
1201 Elm Street
Dallas, Texas 75270

EPA Region X
1200 6th Avenue
Seattle, Wash. 98101
(206) 442-2870

EPA Region III
Curtis Building
6th and Walnut Streets
Phila., Penna 19106
(215) 597-9859

EPA Region VII
726 Minnesota Ave.
Kansas City,
Kansas 66101
(913) 236-2835

EPA Region IV
345 Cortland St., N.E.
Atlanta, Georgia 30365
(404) 881-3864

EPA Region VIII
One Denver Place
999 18th St., Suite 1300
Denver, Colorado 80202
(303) 293-1730

Toll-Free Numbers

EPA
800-424-9065 Where general public
can get technical
assistance

CPSC
800-638-2772 For information on
asbestos in consumer
products or homes

NIOSH

National Institute for
Occupational Safety and Health
4676 Columbia Parkway
Cincinnati, Ohio 45226

OSHA

OSHA Office of Information and
Consumer Affairs, Room N-3637
200 Constitution Avenue, N.W.
Washington, D.C. 20210

14. Nicholson, W.J. Investigation of Health Hazards in Brake Lining Repair and Maintenance Workers Occupationally Exposed to Asbestos. NIOSH Contract No. 210-77-0119. February 1983.
15. McDonald, A.D., Harper, A., El Attar, O.A., and McDonald, J.C. Epidemiology of Primary Malignant Mesothelial Tumors in Canada. Cancer 26:914-919. 1970.
16. Greenburg, M. and Lloyd Davies, T.A. Mesothelioma Register 1967-68. British Journal Of Industrial Medicine 31:91-104. 1974.
17. Newhouse, M.L. and Thompson, H. Mesothelioma of the Pleura following Exposure to Asbestos. British Journal of Industrial Medicine 22:261-269. 1965. (Table on p. 269, case #58.)
18. NIOSH. Asbestos: Asbestos Exposure during Servicing of Motor Vehicle Brake and Clutch Assemblies. Current Intelligence Bulletin 5. August 8, 1975.
19. Langer, A.M. and McCaughey, W.T.E. Mesothelioma in a Brake Repair Worker. Lancet 8307:1101-1103 November 13, 1982.
20. Ziem. G. Three case reports of mesothelioma in brake mechanics. In: Castleman, B. Asbestos: Medical and Legal Aspects. Harcourt Brace Jovanovich. 1984. (Four additional cases in mechanics and a case in a mechanic's wife in publication.)
21. Yorkshire Television. "Alice: A Fight for Life." July 14, 1982. (Mesothelioma in a ten-year old son of brake mechanic described and filmed.)
22. EPA. Asbestos; Proposed Mining and Import Restrictions and Proposed Manufacturing Importation and Processing Prohibitions. Federal Register Vol. 51, No. 19. January 29, 1986.
23. Seidman, H., Selikoff, I.J., and Hammond, E.C. Short-term Exposure to Asbestos and Long Term Observation. Annals of the New York Academy of Sciences 330:61-90. 1979.
24. EPA. Support Document for Final Rule on Friable Asbestos-Containing Materials in School Buildings: Health Effects and Magnitude of Exposure. January 1982.
25. Stell, P.M. and McGill, T. Asbestos and Laryngeal Cancer. Lancet 7826:416-417. August 25, 1973.

36. NIOSH. Guide to Respiratory Protection for the Asbestos Abatement Industry. (in publication) 1986. This contains NIOSH's most extensive recommendations for a program of respiratory protection against asbestos.