



APPENDIX O

Safe Operating Procedure

Valid January 18, 2008 – January 18, 2009

Asbestos Containing Brake Inspection and Servicing

~ Use this procedure when removing non-friable asbestos containing brake pads/shoes utilizing University trained employees ~

Purpose. This provides guidance on reducing exposure to asbestos/ceramic fibers during brake inspection and service. This procedure shall be used if less than 5 pairs of brakes are inspected, disassembled, reassembled and/or repaired per week.

General. Some brake pads and shoes contain asbestos or ceramic fibers. The wet method is the most practical way to reduce exposure to asbestos/ceramic fibers during brake inspection/service.

Health Effects. Inhaling asbestos and ceramic fibers can cause serious lung disease and lung cancer. The risk of developing lung cancer is ten times greater if you smoke. Not everyone exposed to asbestos gets lung disease. For those who get an asbestos related disease, it takes 15-20 years to develop. Doctors recommend that you quit smoking if you work around asbestos.

Control. Protecting yourself from asbestos and ceramic fibers when working with brakes isn't complicated or hard. ***Do not direct compressed air onto any brake component or give cause to fibers becoming airborne. Do not sand, dry sweep, dry scrape, drill, saw, bead-blast, mechanically chip or pulverize brake pads/shoes. No eating, drinking, smoking, chewing gum or tobacco, or applying cosmetics in the work area.*** What follows is a step-by-step procedure that reduces your exposure to airborne fibers called the "Wet Method." The "Wet Method" eliminates the need for using a respirator. Use the "Wet Method" for all brake materials since even non-asbestos ceramic fibers carry a potential health risk.

Before Starting. The Departmental Asbestos Coordinator for the Auto Shop shall contact the WKU Asbestos Program Coordinator to determine the current policy for disposal of asbestos waste and to obtain asbestos disposal bags for the operation.

Materials required performing this procedure:

- Disposable Towels or Rags
- Asbestos Disposal Bags
- Spray Bottle
- Liquid Soap
- Duct Tape

Protective clothing and equipment to perform this procedure:

- Safety goggles
- Rubber gloves
- Disposable coveralls

Warning!

Do not sand, dry sweep, dry scrape, drill, saw, bead-blast, or mechanically chip or pulverize brake parts, pads or shoes. Do not direct compressed air onto any brake component or give cause to fibers becoming airborne.

Steps to Perform the Wet Method:

1. Prepare the soap solution by adding two tablespoons of liquid soap to one gallon of water and slowly shake to mix the soap with the water. Place the soap solution in a plastic spray bottle and adjust the nozzle to produce a very fine mist when the trigger is pulled.

Caution!

Wear safety glasses when using this procedure

2. Have enough asbestos disposal bags at the vehicle to use two for each wheel being serviced plus one extra to collect and double bag all the waste generated from the repair. These are special impermeable 6 mil plastic bags with asbestos warning labels printed on each side that can be obtained from the Asbestos Program Coordinator; **they shall not be disposed of in the trash.**

Caution!

**Floors become slippery when wet with the liquid amended solution.
Use caution to contain the solution in the work area.**

3. After the vehicle is raised and safely supported with sufficient capacity rated jack stands, place an asbestos disposal bag flat on the floor directly under the wheel/tire assembly, place disposable towels or rags on the disposal bag underneath the tire before removing the wheel. The rags/towels absorb the asbestos contaminated soap solution dripping from the caliper, rotor, backing plate or brake drum. The disposal bag keeps the water from running off and contaminating the floor.

Warning!

Do not sand, dry sweep, dry scrape, drill, saw, bead-blast, or mechanically chip or pulverize brake parts, pads or shoes. Do not direct compressed air onto any brake component or give cause to fibers becoming airborne.

4. As each wheel is being removed a second person will spray the soap solution on the front of the caliper/rotor or brake drum, and inside the wheel rim with a fine mist. Starting about 18 inches from the surface dampen the area, then move to about 12 inches and thoroughly wet all brake parts. The person spraying shall reach around the tire and shall not get underneath the vehicle at anytime. All re-usable parts should be thoroughly wet then wiped clean with disposable towels or rags as they are removed. If needed, more soap solution can be applied to these parts in order to remove the residue. Keep towels or rags wet to prevent any fibers from becoming airborne. Repeat this process as other brake parts get exposed.

Caution!

**Floors become slippery when wet with the liquid amended solution.
Use caution to contain the solution in the work area.**

5. Place the wet towels, rags and used brake pads/shoes in the asbestos disposal bag. Do not allow the towels/rags to dry before placing in the disposal bag (handling dry towels unduly exposes you to the dust).
6. As each wheel is completed, twist the bag closed and duct tape the top forming a "neck". Do not squeeze the air out of the bag after the top is gathered, bend the neck down and tape again, this forms an airtight seal. The bag is then placed inside a second unsealed bag used to collect all consecutive bags used during this operation.
7. Repeat the above steps (3 through 6) for each wheel being serviced using new disposable towels or rags and disposal bag for each wheel.
8. After the last bag is completed and placed inside the collection disposal bag, twist that bag to tightly seal and duct tape the top forming a "neck". Do not squeeze the air out of the bag after the top is gathered, bend the neck down and tape again, this forms an airtight seal. Print the date, work order number and your name on the outer disposal bag. The double-bagged waste is then placed into the storage drum specified by the Asbestos Program Coordinator prior to starting the procedure.

Note: The procedure described above does not authorize you to disturb asbestos containing materials (ACMs) by such tasks as drilling, sanding, cutting, chipping or otherwise handling an ACM that is not intact or will not be kept intact and only applies to brake pads and shoes.

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