

Conducting Brake Repair Operations

1985

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A Safety Support Pamphlet



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ACCIDENT PREVENTION WHILE CONDUCTING
BRAKE REPAIR OPERATIONS

A SAFETY SUPPORT PACKET

Industrial Safety Fact Sheet

SUBJECT: Accident Prevention While Conducting Brake Repair Operations

1. The National Safety Council estimates that the value of goods and services each worker must produce to offset the cost of work injuries is \$350. In 1985, work injuries in the United States cost \$37.3 billion. According to the National Health Interview Survey, over 13 percent of all accidents occurred in industrial places. This equates to approximately 9 million injuries per year.
2. Injuries, death, and disability are the results of accidents. Costs combined with worker pain, disability, and loss of life emphasize the importance of accident prevention on all levels of industrial maintenance operations.
3. Proper training, use of technical manuals, compliance with safety and OSHA requirements, teamwork, and individual awareness are necessary to minimize unnecessary disabling injuries or death.
4. Good judgment and proper supervision are instrumental in accident prevention. Incidents of burns, loss of vision and hearing, and death can be avoided by controlling hazardous conditions, educating workers, and following established guidelines. No one can prevent accidents like you can!

TAILGATE SESSIONS FOR
PERSONNEL INVOLVED IN
BRAKE REPAIR OPERATIONS

Tailgate Sessions

Short Safety Briefings for Personnel Involved in Brake Repair Operations

1. What is a tailgate session? Tailgate sessions got their name from employees sitting on the tailgate of a truck while receiving a short safety briefing for an upcoming job.

2. The use of this type training for maintenance personnel has obvious advantages:

- a. It shows safe performance is one of the work standards.
- b. It allows sharing of safety information about upcoming jobs.
- c. It can be done with minimal planning during nonpeak work hours.
- d. It shows supervisory support of safe activities.
- e. It can be keyed to specific individuals or work groups without requiring entire unit participation.
- f. It lends authenticity to the safety program by keying on the job at hand and therefore avoids generalization.
- g. It raises the safety awareness level of personnel.

3. Implementation:

- a. Identify topics that are pertinent to the unit's maintenance activities.
- b. Develop hip-pocket tailgate sessions on selected topics.
- c. Distribute tailgate sessions to supervisors and discuss when and where they are to be used (sessions are included in this kit).
- d. Have individuals from the command group or element occasionally conduct tailgate sessions to reiterate and reinforce their concern for safety.
- e. Continually revise and update the tailgate sessions to ensure applicability.

HANDTOOL SAFETY

Handtools cause a lot of maintenance injuries. Most technical manuals specify the correct tool for the job. TM 9-243 contains information on handtool safety, required personal protective equipment, tool maintenance, and what tool should be used for what task.

It takes more than manuals to use handtools safely. Consider this recent accident: A mechanic was working on the engine of an air compressor. While he was trying to replace rubber motor mounts, his screwdriver slipped and punched a hole in his left hand. The screwdriver was an inappropriate tool for the task. This accident could have been prevented if the mechanic had used the tool listed in the TM for the task.

Here are some specific actions to take to reduce your chances of being injured when working with handtools:

- . Use handtools correctly and only for the job specified. Check the technical manuals. They tell you which tools to use for each job. Don't use a screwdriver on components held in your hand. Don't pull knives toward you. Don't use a sledgehammer when a nail hammer is needed. If you use a socket wrench that is too big, you'll round off the corners of the wrench or nut. In an emergency, you've caused yourself a problem.

- . Keep each tool in its proper storage place. A tool is useless if you can't find it. The time it takes searching for a tool is wasted.

- . Keep your tools clean and in good condition. Keep them free of rust, nicks, burrs, grease, dirt, and breaks.

- . Never use damaged tools. A battered screwdriver can slip and spoil the screw slot or gouge the flesh out of your hand. A gauge strained out of shape will result in inaccurate measurements.

- . Keep your tools within easy reach (but not where they can fall on the floor or in machinery). Don't place tools above machinery or electrical apparatus. A tool that falls into running machinery can cause damage and injury. Additionally, tools that fall from scaffolds can kill someone below.

- . Keep your tool set complete. When you're not using a tool, put it in the toolbox. Lock and store the box in a designated area. Keep an inventory list in the box and check it after each job. This will help you keep track of your tools. Replace missing tools after your mandatory inventory or, better yet, as soon as you find one missing or defective.

- . Look to TM 9-243 for proper handtool usage. TM 9-243 contains information on handtool safety, personal protective equipment, and the care and use of tools.

HAMMER SAFETY

Hammers are often used instead of the correct tool, or the wrong type hammer is used. Using the wrong hammer for a job can cause it to bounce off the equipment and cause injury. Poor hammer strikes cause back strain, cuts, bruises, and hand or head fractures.

Choose the right hammer. Nail hammers are meant to drive nails; ball peen hammers are used for striking chisels and punches; and sledges are commonly used for striking wood, metal, concrete, and stone.

Use a hammer properly. Using a hammer correctly means using the face of the hammer for striking, gripping the hammer near the end of the handle so you will have maximum force, and never using one hammer to strike another. Tools should be handed to another person, never thrown. Do not use the handle as a pry bar or to knock sharp edges together. Set nails with gentle taps before striking driving blows.

Keep hammers in first-class condition. Absolutely never use a hammer with a cracked or loose handle. Fix it or replace it. At work, refuse a defective tool and report any that give you trouble. If the head of a hammer shows dents, cracks, mushrooming, or excessive wear, turn it in. It is worn out and could be dangerous.

Protect your eyes. It takes only a small fragment to fly up into your eye and blind you. Wood splinters, metal fragments, stone and concrete chips, and splinters are all part of hammer operations. Always use safety goggles, even if you are only an observer. Those fragments don't know the difference. It may seem a nuisance, but what about blindness?

Don't take hammers for granted. Remember:

. Use hammers and striking tools only for the purpose for which they were designed.

- . Discard or turn in tools showing dents, cracks, or excessive wear.
- . Never use one hammer to strike another.
- . Always wear safety goggles or a face shield.

SAFETY WITH WRENCHES, PLIERS, AND SCREWDRIVERS

Three common everyday tools--wrenches, pliers, and screwdrivers--cause a lot of needless injuries.

Shortcutting or disregarding established work procedures is the most frequent cause of accidents during installation, removal, and modification jobs. Mechanics might knowingly fail to use correct tools and procedures because they are in a hurry to get the job done or it seems too simple to bother with safety precautions.

Using the wrong tools--lengths of pipe as extensions to increase leverage, screwdrivers as chisels, or pliers as clamps or hammers--is a common cause of maintenance accidents.

Wrenches. Mechanics sometimes use the wrong size or type of wrench or socket for the job. Even when they have the correct wrench or socket, they sometimes use it incorrectly (e.g., tool is not properly seated or fitted, rusted or tightly torqued nuts or bolts are loosened incorrectly, unauthorized extensions are added to handles for additional leverage). Using the wrong wrench or socket or using it incorrectly can result in its slipping or breaking, causing injuries. Overexertion can also cause strained torso muscles.

- . Fit the proper socket to nuts or bolts.
- . Never use "cheater bars" or extend handles in any way to increase leverage.
- . Apply penetrating oil to rusted nuts and/or bolts and allow time for it to penetrate.
- . Always pull wrenches.

Pliers. Pliers used as clamps can cause a load to fall and crush a finger. Mechanics sometimes use standard pliers for jobs that require brake-spring pliers, and the pliers slip or the brake spring recoils, causing an injury.

- . Do not use pliers as a clamp or vise.
- . Use the correct pliers for the job.

Screwdrivers. Screwdrivers are often used as levers, causing metal chips and particles to break off and hit the user in the eye.

- . Do not use screwdrivers for prying, punching, chiseling, scoring, or scraping.
- . Wipe grease and oil from handle before use.
- . Do not carry a screwdriver in your pocket unless it has a pocket clip.

. Do not use screwdrivers near live wires to check a battery by arcing or to determine if an electrical circuit is present.

. Do not hold the item being worked on in one hand while using the screwdriver with the other.

. Match the size of the screwdriver to the job and to the type of head on the screw.

TIRE REMOVAL

Improper tire removal can cause injury from back strain, crushed fingers, and injury to other areas of the body.

. When removing large tires, get a wheeled lift truck to use for moving the tire. If the facility does not have this device, ask someone for assistance. Some tires weigh as much as 190 pounds and exceed 30 inches in diameter. Don't become a lifting hazard.

. When handling tires, be careful not to pinch or crush fingers and toes. Safety shoes will be procured for and utilized by workers.

. Do not pull the tire off so hard as to lose your balance or fall backward.

. For those tires that are easily handled by one person, use proper lifting techniques. Serious strains have occurred through improper procedure rather than from the weight lifted.

. Whenever possible, use two people to remove tires to minimize exposure to rim trajectory. Moving and rolling tires to breakdown area should be accomplished so that an exploding rim will not injure the worker or others in the area.

HAZARDOUS MATERIALS USED IN
BRAKE REPAIR OPERATIONS

Asbestos

While actions are being taken to reduce the amount of asbestos in brake shoes and drums, it will be several years before the dangers from asbestos are removed. Studies have shown that personnel exposed to high concentrations of asbestos fibers may develop asbestosis or cancer. In order to protect personnel, Federal Regulation 29 CFR 1910.1001 and TB MED 513 must be observed.

When a mechanic is servicing or replacing components containing asbestos, the "solvent method" or "enclosed cylinder/HEPA vacuum system method" must be used. Both of these procedures effectively reduce the atmospheric concentration of asbestos fibers to below the federal standards. Never use an airhose to blow out brake drums; this will produce a high concentration of asbestos dust. It is also possible to be exposed to hazardous airborne concentrations when sweeping dry dust or when dumping a trash can containing asbestos dust. So, be careful and take precautionary measures.

Brake Fluid

Care must be taken when handling brake fluid. When working on brakes, always wear approved eye protection. Prolonged exposure to the skin, or contact with the eyes, can cause irritation. Inhalation of the mist can irritate breathing passages. If work clothing becomes soaked with brake fluid, change immediately, and shower to remove the brake fluid from your skin.

Never use empty soda bottles to catch brake fluid. If a person is overpowered by fumes, get the person away from the area, administer first aid, and seek medical attention. If a person accidentally swallows fluid, contact a physician immediately. Remember always to read the label for cautions and first-aid procedures.

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Cynthia G. Mast
Print or Type Name
DSN 703-558-2924
Telephone Number