Auto Repair Shop – General Safety

Loss Control Bulletin

Auto repair shops typically encompass a variety pf service activity presenting a wide range of hazards and exposures to employees. General repair shops are those that perform maintenance and repair work on mechanical parts of vehicles. Other repair shops may specialize in performing work on specific vehicle components or cosmetic repair work. Examples of specialty shops include: transmission repair shops; muffler and exhaust repair shops, radiator repair, and body and paint shops. The list of hazards stemming from these various operations is quite expensive.

This bulletin will touch upon some of the more basic hazards and control measures that need to be implemented in repair shops.

General Repair Shops

The service provided by general repair shops will typically include: engine tune-ups, oil and lubrication maintenance, brake repair, exhaust system repair, steering and suspension alignment and repair, engine cooling service and repair, tire replacement and repair, battery service and replacement, and other general mechanical repairs. Many of the above listed services require that specialty tools and equipment be used if the tasks are to be performed safely. The key to using any tool or equipment is always proper training.

Some universal safety rules for everyone to follow in repair shops include:

- Wear closed toe or safety shoes with slip resistant soles.
- Do not wear loose clothing or jewelry.
- Contain long hair by using a hat or hairnet.
- Wear eye contact protection whenever working under a vehicle or operating abrasive cutting or grinding equipment.
- Do not wear synthetic fabric apparel.
- Do not use compressed air to clean clothing or any working surface.
- Follow proper body mechanics when lifting and get help when needed.
- Do not use electric tools that have damaged electric cords or missing grounding pins.
- If your hands are wet or you are standing in water, do not use an electric tool.
- Wear shoulder harness at all times during test drives.
- Do not smoke near batteries, recharging area, or areas where fuel or oil are present.
- Use appropriate protective clothing and equipment when working with flammable, corrosive, or caustic chemicals.
- Prior to adjusting or replacing any power tool attachment, the pneumatic or electrical power source should be disconnected.

Housekeeping

Maintaining an orderly and clean service area can make a big difference when it comes to worker safety and overall profitability. Oily slippery floors, congested or cluttered work areas set the stage for costly slip and fall injuries that cut revenues and contribute to increased medical and insurance costs. From a costumer’s point of view, poor housekeeping can raise concerns about lack of professionalism and competence jeopardizing long-term costumer relations.

Important housekeeping measures include:

- Seal concrete floors to prevent oil impregnation and facilitate cleaning.

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- Clean oil, fuel, and grease spills immediately when they occur.
- Provide convenient refuse containers at each workstation.
- Establish and enforce safety policy against leaving tools, parts, and packaging material on the floor.
- Install ceiling drop retractable hose reels and lines for oil, lubricants, water, and extension cords.
- Require that large discarded parts be removed immediately to centralized refuses storage area.

Tool Safety

Use only industrial quality, well-maintained, power and hand tools, in the workplace. Damaged or improperly maintained tools can cause serious injuries to employees and damage to vehicles. It is also important that technicians have proper tools available for the task performed. If the correct tool is unavailable employees may improvise unsafe solutions, setting the stage for an injury.

An effective tool safety program requires:

- Quality standards for all hand, power tools, and other equipment used in the shop
- Periodic Inspection and maintenance program for tools and equipment
- Reporting and replacement of damaged tools and equipment

An effective tool and equipment inspection and maintenance program includes periodic inspection, replacement, and repair of the following:

- Frayed or damaged electrical power cords and extension cords
- Electrical power cords with broken grounding pins
- Power tools with cracked or broken handles or housing
- Screwdrivers with won or damaged handles and bits
- Cracked or loose hammer handle
- Mushroomed Hammer heads or chisels
- Sub-standard or poor-quality tools and equipment
- Loose or leaking pneumatic or hydraulic hose lines
- Floor jacks with hydraulic fluid leak
- Hoists with missing or damaged hook safety clip
- Corded lights with bulb protectors

Cutting and Welding

Whenever oxy-acetylene cutting equipment is used in an automotive repair shop, special precautions must be taken due to presence of oil, grease, gasoline, and corrosives. Specific safeguards include:

- Do not store oxygen cylinders near oil, grease, or rags contaminated with petroleum products.
- Do not handle oxygen cylinders with oily or greasy gloves
- Do not weld on or near gasoline tanks
- Do not use gas-welding equipment in a service pit unless the pit has been properly ventilated and the air is continuously monitored.

For additional information about the care and handling pressurized welding gas and cylinders, refer to Republic Indemnity's Loss Control Bulletin, "Pressurized Gas Cylinders".

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When arc welding equipment is used, the following special considerations are required for operator safety:

- The welding equipment must be properly installed and always grounded.
- Cables must have sufficient insulation and be in good condition.
- When not in use, welder power should be turned off and disconnected.
- To prevent contact with others or conducting materials, electrodes should be removed whenever the operator is not holding onto the electrode holders.
- Empty electrode holders should be properly stored away from possible contact with employees or conductive materials.
- Only weld where and when there is adequate ventilation.
- Wear fire retardant clothing, shoes and gloves.
- Wear safety glasses or other eye protection at all times.
- Use welding shields to protect nearby employees from flash burn.
- Before beginning, examine the surrounding area and protect nearby combustibles from ignition.

From more compete information on the safety regulations governing arc welding, please refer to website links provided at the end of the bulletin.

Sanding and Grinding

Sanding and grinding operation generate dust, noise, and sparks that can cause injury unless proper safeguards are taken. Basic precautions to prevent injuries include:

- Use safety glasses, goggles, and face shield.
- Use curtains to protect nearby workers or combustible materials.
- Use hearing protection.
- Use a dusk mask or appropriate respiratory protection.
- Inspect and replace damaged or worn grinding wheel, make sure the face shield is in place and the tool rest is adjusted to within 1/8 inch from the wheel.

Engine Service Repair

While working in the engine compartment, mechanics need to remain alert to moving fan, pulleys, and belts, possible shock hazards from the battery, alternator, and ignition coil, hot surfaces, and accidental releases of hot coolant; the occasional flying tool or part that comes into contact with a moving engine part; as well as presence of flammable liquids. In addition to the universal safeguards cited at the beginning of this bulletin, mechanics should also:

- Use care and hand protection when removing the hot pressure cap from a radiator.
- Allow the exhaust system to cool for 10-15 minutes before working on exhaust parts.
- Disconnect any electrical fan prior to working near the fan.
- Be mindful that a timing light strobe or a flickering fluorescent light can make moving fan blades appear not to be moving.
- Be careful not to puncture high-pressure hoses including air conditioning lines.
- Inspect the condition of electric coil and spark plug wires prior to working on or near them.
- When using metal tools, do not allow them to come into contact with battery terminals.

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Brake Service and Repair

A great deal of confusion exists about present day use of asbestos in brake and clutch pads. Many incorrectly believe that asbestos is no longer used in these products and wrongly conclude that OSHA recommended engineering controls are unnecessary for brake service and repair jobs.

When servicing or replacing brakes, always assume that disc brake pads and brake shoe linings may contain asbestos. Some after-market parts contain asbestos. The presence of asbestos cannot be determined by visual inspection. OSHA approved procedures should be always followed to protect against the release of asbestos fibers in the workplace. OSHA requirements for working with asbestos require employers to follow one of these four protocols:

A. Engineering controls employing Negative Pressure Enclosure combined with HEPA Vacuum System(s). This method requires using an enclosure of sufficient size to enclose the brake or clutch assembly. This enclosure must seal tightly and be inspected prior to each use. The enclosure must allow the worker to clearly see the work assembly and provide impermeable sleeves. The enclosure must be equipped with a HEPA-filtered vacuum capable of maintaining negative pressure the operation.
B. Use of Low Pressure/Wet Cleaning Method to remove dust from brake assemblies. This method consists of using a cleaning solution to rinse off asbestos from the wheel, brake assembly, or clutch assembly and catching the run-off in a basin for proper collection and disposal.
C. Methods that can be repeatedly proven to be equivalents to protocol A in achieving control of asbestos exposure.
D. Wet method consisting of gently wetting asbestos dust using a fine mis followed by wiping with a clean cloth. Dry brushing is prohibited in this process.

Regardless of the method used to work with asbestos, all handling and disposal of collected waste must comply with Hazardous Waste regulations. Website links to information about applicable Federal standards are provided below.

Even as manufacturers move to replace asbestos in their automotive parts, some manufacturers caution that the long-term health effects of the substitute materials are substantially unknown. For this reason, the same engineering controls recommended for asbestos should be used when working with brake and clutch parts containing substitute materials.