



Servicing Batteries

Servicing batteries can cause an explosion, serious burns, electrical shock and musculoskeletal injuries.

HAZARD

SAFE WORK GUIDELINES

► Explosion Caused by Hydrogen Gas

Details

Hydrogen gas is produced when you charge or boost a battery, and can be ignited by a flame or spark.

Threat

Severe burns

Fire

In Battery Charging Areas

- Ensure that the area is properly ventilated
- Prohibit smoking in the work area
- **Do not** work near other sources of flame, sparks or static electricity
- Make sure an ABC-type fire extinguisher is handy
- **Do not** store batteries on concrete floors—put them on shelving to prevent trip hazards and preserve the charge

When You Are Charging Batteries

- Wear chemical-resistant safety gloves and standard goggles with side shields that are CSA-approved for the job
- Shut off the charger before hooking up cables to the battery
- Connect the negative cable to the frame or motor block instead of at the battery terminals
- Check that battery ventilation holes are clear and clean to allow the hydrogen gas to escape and prevent the battery from exploding
- If the battery is not maintenance-free, remove the filler caps to vent hydrogen gas

After Charging Batteries

- Shut off the charger before removing cables from the battery

► Short Circuits

Details

Caused when metal on clothing or in jewellery contacts the battery terminals.

Threat

Electrical shock

- Remove anything you are wearing that is metal, such as rings, watches, chains and bracelets
- **Do not** wear coveralls with metal zippers or buttons
- Ground the negative cable to the frame or motor block to prevent short circuits

► Sulphuric Acid

Details

Contained in the battery. Exposure can occur while filling a battery with acid (electrolyte) or while charging or boosting it.

Threat

Severe burns

Damage to and permanent scarring of the skin

Blindness

Lung damage through inhalation

In Battery Charging Areas

- Install plumbed eye wash stations, neutralizer containers and wash basins near where you handle the batteries so that you can administer first aid treatment for acid and alkali burns if necessary

See Regulation 851: Regulation for Industrial Establishments (S. 124)

- Know where the deluge showers are located
- Know proper first-aid treatment for dealing with acid splashes
- Make sure that an ABC-type fire extinguisher is handy
- Clean battery work areas safely—first with a solution of sodium carbonate or sodium bicarbonate (baking soda) to neutralize any spilled acid, and then with water to rinse the area clean
- Wear the proper personal protective equipment—specifically splash-proof goggles, a rubber apron and rubber gloves – make sure that it is clean before using it and remove any acid that spills on it
- Rinse the batteries and clean the terminals with a wire scrub brush before charging
- **Do not** attempt to charge or boost a frozen battery

While You Are Filling and Servicing Batteries

- Wear splash-proof goggles, rubber gloves, rubber boots, a chemical-resistant rubber apron and, in poorly ventilated areas, a NIOSH-approved air-purifying respirator (see the material safety data sheet)
- Use a self-leveling filler that automatically fills the battery to a predetermined level
- Remove the battery from the vehicle before filling it with electrolyte (acid) solution; fill it in a proper filling area
- Use a cable puller to remove a cable clamp from the battery
- Use the correct type of wrench to tighten cable clamp nuts

After Filling and Servicing Batteries

- Store acid away from hot locations and direct sunlight
- Clean battery areas safely—first with a solution of sodium carbonate or sodium bicarbonate (baking soda) to neutralize any spilled acid, and then with water to rinse the area clean
- Clean your hands with soap and water immediately after servicing batteries

If Acid Splashes on Your Body

- Immediately remove all contaminated clothing and flush the burned areas thoroughly with water

If Acid Gets Into Your Eyes

- Immediately flood your eyes with water for at least 20 minutes, paying particular attention to the areas under the eyelids. Get to a doctor as soon as possible. Call an ambulance if necessary (see the material safety data sheet for more information)

HAZARD

SAFE WORK GUIDELINES

► Weight

Details

Batteries are heavy and must be handled properly to avoid injury.

Threat

Back or other musculoskeletal injuries

- Get your body as close as possible to the battery before lifting it from or lowering it to the engine
- Bend your knees slightly before lifting or lowering the battery from or to the engine
- **Do not** lift a heavy battery alone--get help from a person or use a lifting device
- Use the battery carry straps to lift or carry a battery
- Carry the battery close to and in the centre of your body
- **Do not** twist your body: first lift the battery and then move your feet to move the battery
- Watch for slippery floors and obstructions as you move with a battery
- Make sure that your battery work bench height is between 75 and 90 cm



4950 Yonge Street, Suite 1500
Toronto, Ontario M2N 6K1
Tel: (416) 250-9111 Toll Free: 1-888-478-6772

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