



SAFE WORK GUIDELINES

Working with Batteries

Working with batteries can cause an explosion or serious burns and other 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

- At All Times in Areas with Batteries**
- Prohibit smoking in the work area
 - Charge batteries in a properly ventilated area
 - Make sure an ABC-type fire extinguisher is handy
 - **Do not** work near other sources of ignition, flame, sparks or static electricity
- When Working with Batteries**
- Wear safety gloves and goggles
 - Detach the negative cable first and hook it up last to prevent short-circuits from tools
 - Use a proper size wrench and battery lug puller to remove the cable
 - Shut off the charger before hooking up cables to the battery
 - Connect the negative cable to the frame or motor block instead of 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
 - 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
- 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

Damage to clothing and painted surfaces

At All Times in Areas with Batteries

- Install plumbed eye wash stations, neutralizing solution 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

While You Are Filling and Servicing Batteries

- Wear splash-proof goggles, rubber gloves, rubber boots and a rubber apron
- Inspect the battery for a cracked case or cover and for evidence of leakage, particularly if the vehicle was in a collision
- Loosen corrosion from battery terminals and carefully brush it off; use a brush to clean terminals: **do not** use compressed air; use baking soda and warm water to neutralize any remaining corrosion
- **Do not** attempt to charge or boost a frozen battery
- Remove the battery from the vehicle before filling it with electrolyte (acid) solution; fill it in a proper filling area
- Use a self-leveling filler that automatically fills the battery to a predetermined level
- Use a cable puller to remove a cable clamp from the battery
- Use the correct type of wrench to tighten cable clamp nuts
- When charging batteries with caps, remove vent hole caps and cover the vents with a clean piece of cloth to avoid splash-back of electrolyte

After Working with Batteries

- Clean your hands with soap and water immediately after working with batteries
- Store acid away from hot locations and direct sunlight

If Acid Splashes on Your Body

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

If Acid Gets in Your Eyes

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

► 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 (e.g., instead of leaning from the front bumper to get a battery near the windshield, move to the side of the car)
- Bend your knees slightly before lifting or lowering the battery
- **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 your body and at 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 is between 75 and 90 cm high

► Improper Use of Tools**Details**

Using the wrong tool for the job or using the correct one improperly.

Threat

Hand and foot injuries

Scrapes, cuts, bruising

- **Do not** use loose-fitting wrenches or other tools that can slip
- **Do not** place a tool on top of a battery
- Pull the wrench towards you; if you must push, use an open hand to avoid scraping your knuckles or otherwise injuring your hand if the wrench slips