

Battery Care

By Michael Margolis

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With winter around the corner, this is the perfect time to discuss the proper care and storage of surveying instruments, lasers and levels.

When your equipment is sitting idle, you can use this downtime to have it tuned up for your spring startup. Precision optical and laser instruments have become invaluable tools in our industry and you can ensure their accuracy as well as extend the life of your investment by following simple procedures:

- Be sure to keep all your instruments properly secured in their carrying cases when not in use. This will keep them safe from damage and clean from dust.
- Avoid any jolting of your instrument in or out of its case. Never carry your instrument in the bed or tool box of your truck. Always transport it in a secured area in the cab of your vehicle, preferably out of sight to discourage theft.
- Never carry your instrument on its tripod over your shoulder. This puts undue strain on the levelling base, levelling screw and vertical axis. If you must carry the instrument on its tripod, only carry it in an upright position, and only for short distances.

***"... just like you,
your instrument does not like
to be in heavy rain,
a blizzard or underwater
for too long."***

- Light precipitation is fine but, just like you, your instrument does not

like to be in heavy rain, a blizzard or underwater for too long.

- When cleaning your instrument, always use a soft cloth or tissue. Clean the lenses and glass with a mild soap or window cleaner, but never use strong household detergents.
- Wipe down and clean tripods, rods and poles at the end of each day. Always wipe them clean in the extended position, and then collapse them. Five minutes a day will keep your accessories in good working order and prevent unnecessary wear.
- Never point an instrument telescope directly towards the sun without the proper solar filter. In fact, if the instrument has a built-in EDM system, it could do permanent damage.
- Avoid prolonged direct exposure of your instrument to the summer sun, or the high heat of a closed vehicle. Remember, the level vials contain liquid that can boil and the vial can burst if the temperature gets high enough.
- Do not over-tighten any clamp screws. Snug is perfect for every surveying application.
- Instruments should be calibrated at least twice yearly to ensure accuracy, depending on use and abuse. All instruments and lasers should be thoroughly cleaned, lubricated and calibrated yearly. This will ensure accuracy, dependability and overall working condition.
- Never attempt to disassemble, lubricate or calibrate an instrument yourself. Always consult factory-trained instrument repair professionals. They have tens of thousands of dollars worth of repair and calibration equipment, and can be counted upon to do the right job.

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Any battery-driven instrument, whether the power source is a throw-away or rechargeable, requires some specialized care to ensure the long life of both the equipment itself and the power source. Remember that in cold weather all batteries suffer power loss of about 20 percent, so be prepared for shorter life as the mercury drops. Also, proper care of your batteries will help get maximum life and/or number of cycles from the cells.

- Always store rechargeable batteries at room temperature in a dry place.
- Remove the batteries if the instrument will not be used for more than a few days.
- Frequent use extends the life of rechargeable batteries.
- Completely discharge your batteries before recharging them.
- Do not overcharge a battery.
- Follow manufacturer's instructions for proper disposal of batteries. Old batteries can be dangerous. They can explode in fires, or leak lead into landfills.

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