

II. EQUIPMENT MAINTENANCE AND CALIBRATION

Service intervals for equipment may be determined by checking the CTC website for [Equipment Servicing Information](#). Repairs are generally conducted by the CTC.

Most equipment is calibrated periodically by the CTC, generally on an annual basis. The CTC applies a calibration sticker which includes the due date for the next calibration. Before using field instrumentation, check the calibration sticker and ensure that the instrument is within its calibration due date. Some equipment must be field calibrated or serviced prior to use. Consult the instrument equipment manual to determine what field calibration is needed. If the equipment fails field calibration, consult the CTC for guidance.

Limitations of Batteries

Proper battery maintenance is essential to ensure proper performance of battery-powered equipment during field use. A variety of battery types are used in different types of portable equipment, as specified by the instrument manufacturer. All battery types will self-discharge to some degree during periods of prolonged storage.

Non-rechargeable batteries need to be removed from the instrument prior to prolonged storage in order to prevent battery leakage which could damage the instrument. Many instruments powered by non-rechargeable batteries will perform a battery life check when first powered on (otherwise, check with a voltage meter before full-shift sampling). If low, replace the batteries as appropriate. Never mix types (alkaline, carbon zinc, etc.), capacity, or age, as this can have negative effects on all the batteries.

Rechargeable batteries should generally be left on trickle charge mode for storage. Overcharging, by charging for too long a time period at a high charge rate, can damage the battery. Conversely, discharging below a minimum voltage can also damage the battery. In general, avoid both overnight discharging and overnight charging at a high charge rate. Closely follow the recommendations in the equipment manual. In some cases an outlet controller (timer) can be used to ensure that batteries are charged for a suitable length of time.

Rechargeable batteries are most reliable when used at least every two to three weeks. Nickel-cadmium (Ni-Cd) batteries are prone to developing "memory" problems, in which the battery will not hold a full charge unless it is fully discharged before recharging. Ni-Cd batteries may need to be reconditioned by charging/discharging two to four times. New batteries should be conditioned in accord with the same process. Nickel metal hydride batteries generally are less prone to memory problems than Ni-Cd, and typically offer longer run time, but they do have a higher self-discharge rate. Lithium ion and lithium polymer batteries typically have higher energy density, lower rates of self-discharge, and are not prone to memory effects.

Be sure to consult the user's manual for proper batter care.