



Lithium-ion batteries increase roller performance and have a much longer useful life than standard lead-acid batteries.

CONVERTING ELECTRIC ROLLERS TO LITHIUM-ION BATTERIES

The Santaluz Club | San Diego, Calif. 92127

Jeff Miller, superintendent

ISSUE

Electric putting green rollers offer many benefits over gas-powered models. They eliminate the chance of a hydraulic leak and reduce noise. Although lightweight rolling of putting greens is an excellent way to enhance surface smoothness, not all battery-powered rollers are considered lightweight. At The Santaluz Club, the lead-acid batteries that came with the electric rollers added extra weight to the machines, causing them to leave crease marks on putting green edges, especially during wet conditions. Another drawback of the lead-acid batteries was their short, nine-month lifespan.

ACTION

Superintendent Jeff Miller replaced the lead-acid batteries with lithium-ion batteries to reduce the overall weight of the rollers. He also integrated a battery management system into the existing controller to protect the lithium pack from damage. The batteries and materials were sourced locally and the cost of the 48-volt, 100-amp-per-hour system totaled \$4,500. The batteries were \$2,300 and the battery management system cost \$2,200.

RESULTS

The lithium-ion batteries weigh significantly less than lead-acid batteries – 127 pounds as opposed to 508 pounds. The reduced weight minimizes the effort needed to turn the roller and eliminates ridges and creasing on the putting greens. The new batteries last longer and now one roller can easily roll 14 large putting greens on a single charge. The lithium-ion batteries also require little to no maintenance. They do not require water to be added and they resist corrosion at connection points, making them more environmentally friendly. The initial cost seems expensive, but not when compared to replacing lead-acid batteries every nine months. The cost savings is estimated at \$6,700 over the seven-year lifespan of the lithium-ion batteries.