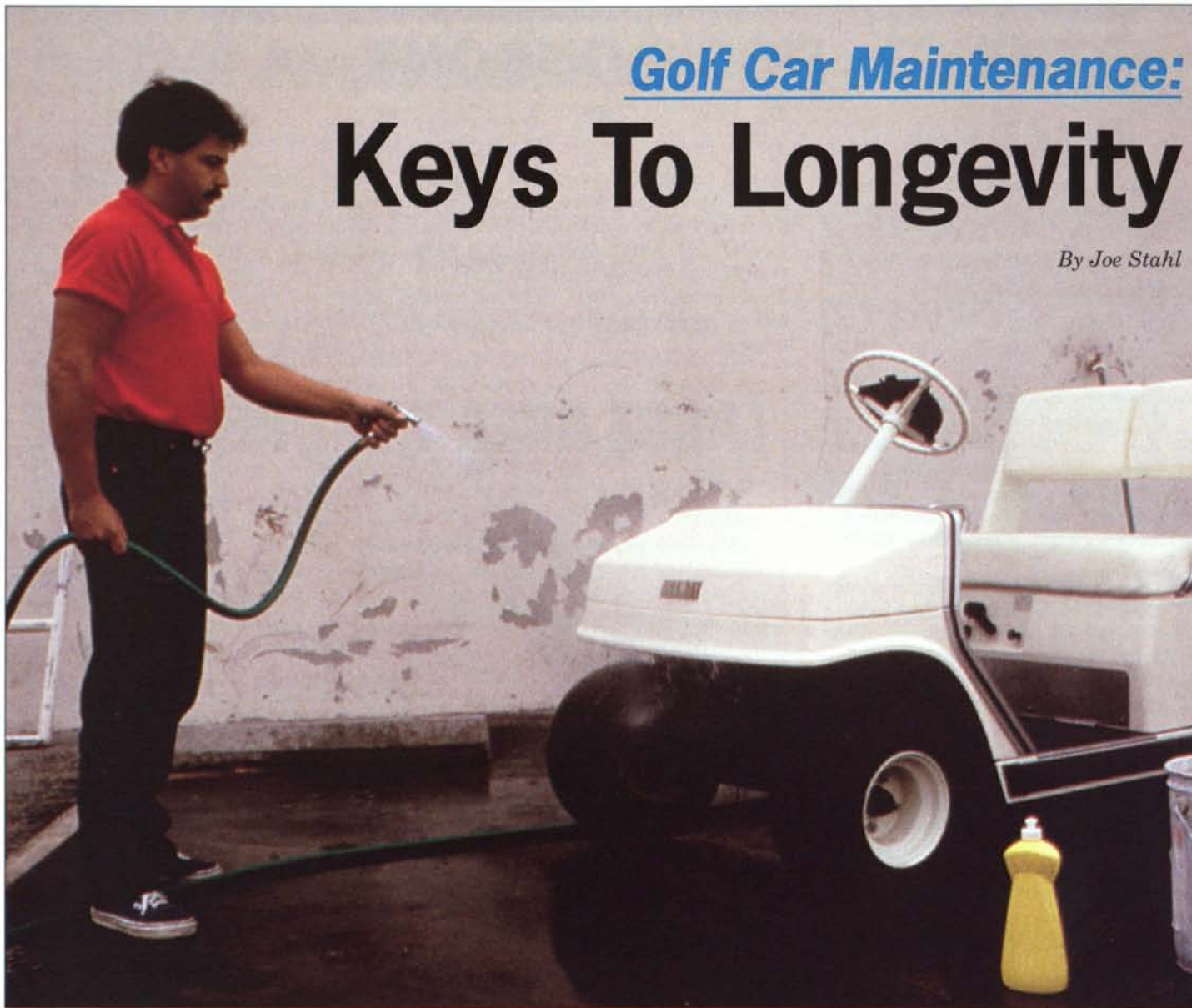


Golf Car Maintenance:

Keys To Longevity

By Joe Stahl



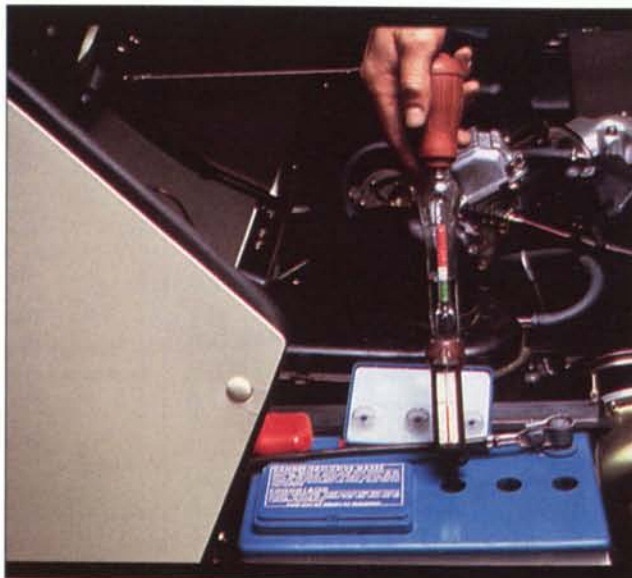
Golf cars should be cleaned regularly, since a well-maintained appearance can encourage golfers to treat them more carefully. Photos courtesy Yamaha Golf Cars.

Golf car fleets are among the largest and most reliable sources of income for golf courses.

The fees they generate from rentals can significantly impact operational budgets and affect overall course revenues.

Just as with other machines, routine care and common sense affect their reliability. Even if out-of-pocket repair expenses are covered by warranty, properly maintained cars can minimize the inconvenience associated with a breakdown or other repair. Preventive maintenance should be a high priority for every fleet operator.

The specific gravity of both gas and electric batteries should be measured every three months with a hydrometer, which extracts electrolyte from the cell. Read the hydrometer at eye level with liquid surface.



Accurate Records Imperative

The first step in your maintenance program is to keep accurate and detailed records of each car's use. This enables you to monitor expenses aimed at extending service life and identify the nominal costs associated with good upkeep and its relationship to fleet longevity.

Maintenance charts should divide vehicle operational costs into two categories:

Operations—labor, fuel, and parts associated with operations.

Maintenance—labor and parts that contribute to vehicle longevity and long-term performance, including tire rotation, filter replacements, engine valve adjustments, and more.

In terms of general maintenance, both gas and electric cars should be rotated equally. Avoid the "last car in, first car out" trap, which unevenly distributes car work load. Well-designed storage facilities use a uni-directional flow of the cars, making rotation relatively simple. In addition, you may find it helpful to number each car and utilize schedule charts to document use and maintenance.

Other procedures include checking brake operation and pedal play, checking park brakes, and inspecting tires for pressure and uneven wear. Clean the cars regularly, since well-maintained vehicles encourage golfers to treat them more carefully. Also, clean battery terminals and inspect electrical wires for damage on a weekly basis.

Electric Car Maintenance Principles

Because electric cars have fewer parts, their maintenance is easier than that of gas cars. Several procedures can extend an electric car's service life and enhance its reliability. The service life of the battery pack will be significantly affected by how well your car personnel perform the maintenance required for maximum battery life. The following steps are vital.

- To ease batteries into service, break them in by running the cars a maximum of 18 holes between charges during a new car's initial break-in period. This period lasts for at least the first five cycles of the batteries, or about one

week. The idea is to avoid deep discharges during the break-in period.

- Check water levels in electric car batteries at least once a week. Use only distilled, purified water since chemical contaminants and water hardness will "poison" battery fluid. Add water to fully charged batteries only.

- Measure and record the specific gravity of electrolyte in each cell periodically with a hydrometer or boost charge every three months. Recharge the battery when it reaches 1.220.

- To test the batteries, connect a 36-volt load tester to the battery set, discharge batteries at 75 amps and record the time that elapses until the terminal voltage reads 31.5 volts. If batteries

flexible end walls of the battery's plastic container can cause electrolyte to spew from the cells. Never lift batteries by the terminals, since this can break the post sealant, potentially causing acid to leak.

Incidentally, safety dictates storing electric cars indoors or in some kind of covered facility. The storage space must be well-ventilated to release hydrogen gas, a natural by-product of battery charging.

Gas Car Care

For gasoline engines, items like gas, oil, spark plugs, filters, and more must be added or replaced consistently. By establishing regular intervals for in-depth gas car service, preventive maintenance will increase the chances of

maximum uptime and contribute to vehicle longevity. The manufacturer's reputation for reliability is also an important factor to consider when examining vehicle reliability and should be reviewed carefully prior to purchase. Adhering to the following procedures will maximize gas car life and operational efficiency—both of which have significant economic advantages.

- Change air filters and oil regularly (at least once

a year, more often with frequent use and dusty conditions).

- If a car isn't being used regularly, keep the fuel tank full to prevent stale gas and condensation.

- Rinse torque converter with water weekly. Inspect exhaust system for leaks.

- Check oil level at least once a month, adding when necessary.

- Inspect fuel lines for leaks.

Keeping your golf car fleet running at its best ensures maximum revenue-generating performance. All these aforementioned procedures should be performed—and performed regularly—in addition to regular servicing by your dealer. With a little care, your fleet can go a long way toward increasing course revenues and customer satisfaction, while providing you with the highest value at trade-in time. □

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run less than 40 minutes, they have either reached the end of their lives or a defective battery is in the circuit.

- Inspect batteries for corrosion, loose connectors, and broken or frayed cables. Wipe away any corrosion, dirt, or rust with a wire brush. Remove debris from the battery top with a cloth moistened with baking soda and water. The removal of corrosion is important since its presence can create a high-resistance coating, which can contribute to batteries overheating and possibly melting the lead connection.

- Check charger plugs and receptacles for damage daily, and inspect battery terminals weekly, washing and removing all corrosion with baking soda or another suitable substance.

- Use battery carriers that do not place undue strain on battery terminals. A recommended carrier for plastic-cased batteries is a clamp-type with rubber pads, which grip the side wall just below the lip of the cover. Gripping the