

# Textbooks, Technicians and Technology

## THE FACTS ABOUT FLEET MAINTENANCE

**Lost revenue, negative customer service, larger repair bills. Not maintaining your golf car fleet has a larger impact on the bottom line than an owner/operator may realize...**

**G**olf cars have come a long way from the old days, with new materials and more power and comfort, yet some things have not changed. Golf car maintenance, particularly a maintenance plan, is an absolute requirement in the overall strategy to generate customer satisfaction and revenue in your business. Deny this responsibility, and you are almost certain to experience two negative end results: 1) An angry customer that didn't get to finish his/her round, and 2) Lost revenue.

Before entering the area of detailed maintenance subjects, it would be hazardous not to first discuss the pillars of golf car fleet management. These are the foundations upon which you build a successful fleet operation. Without them, the small day-to-day tasks will become monsters in the closet. As a Texan author, I would say, "Find a good strong horse before looking for the wagon."

### **PILLAR ONE: GAS OR ELECTRIC CARS**

The decision to have gas or electric golf cars plays quite heavily into the maintenance planning decision. A golf course with any hill of greater than 24° (44 per cent grade on pavement) is too much for an electric car. Hill climbing consumes battery capacity at a rate that is directly impacted by the number of hills on your course. Using more capacity means more battery maintenance, and shorter battery life. Believe it or not, electric cars may require more hands-on maintenance, more often than gas cars. Remember, the lead-acid batteries we use today are the opposite of high-tech - reliable if maintained, very unreliable if not. If you plan on using gas cars, you can greatly simplify your on-site service planning. In most cases, a monthly inspection and a yearly service is all that is required for gas cars. If you plan to have electric cars, plan to have daily on-site service capability.



## PROTECT YOUR FLEET FROM THE FLURRIES

### Winter Preparation and Storage of Golf Cars

Beyond the usual wash and wax job you need to perform, putting your 'family' of golf cars down for its winter nap time requires quite a bit of preparation and some careful technical procedures and staff time.

#### **GAS CARS**

Drain the carburetor completely, and either treat the fuel tank or fill the tank to the top. A full tank will prevent gumming and minimize fuel deterioration, but it also is a large expense. The alternative is to pour a few ounces of motor oil in the fuel tank and plan on cleaning the tank in the spring. If you can afford to fill the tank, good, but it is wise to clamp the fuel hose from the tank, to prevent siphoning during the storage period. After cleaning the battery thoroughly and placing the car in its resting place, disconnect the battery terminals. (See below for more about batteries preparation.)

#### **ELECTRIC CARS**

The same cleaning issues apply to the electric car, but it is a little more complicated, namely, that older technology is the heart of the power system in the form of batteries. Again, whether you choose gas or electric for a fleet depends on personal preference and the course terrain, however electric cars are by far the most vulnerable to the cold.

Giving specific maintenance tips in this area is risky. Shortcuts cannot be taken in battery care and maintenance unless an owner is accepting of having down cars, angry customers and expensive battery replacement costs. Although the following are a few parameters and some background data, a fleet manager must accept the challenge of learning about battery care, including critical safety precautions. Improperly handled battery service can be fatal. At this point, it is strongly recommended that owners seek a copy of the "Storage Battery Technical Service Manual", produced by the Battery Council International.<sup>1</sup>

To prep your batteries, you need to spray them down with a solution of baking soda (1/4 cup to a gallon of water) to neutralize the acids. Waste runoff regulation may prevent you from using soda, and new products are available that are

safer for the environment. Check with your local suppliers.

Wax the tops of the batteries to minimize electrical current leakage then apply terminal protectant spray to the terminals to prevent corrosion. Charge the batteries as in your daily routine.

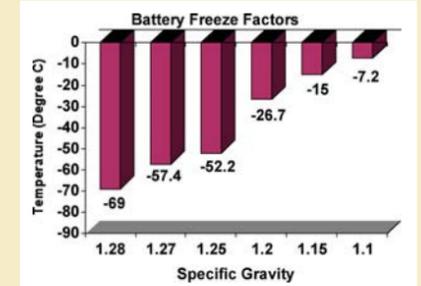
If your electric cars have a regenerative braking system, make sure that you turn the tow/run switch to the "tow" position, removing the current to the motor control unit, thus reducing consumption. Given that the charging unit is plugged in for the duration of the storage term, periodic inspections of the storage area, cars and chargers are



highly recommended. Most manufacturers supply automatic chargers with their cars, and when the voltage level drops to a certain level, the charger turns on, maintaining the needed specific gravity of the acid inside of the battery.

It is at this point that fleet managers demand to know, "What will keep my batteries from dying or freezing over winter?"

The bottom line is, don't let them freeze. A hydrometer is used to determine battery condition for storage, measuring specific gravity. See the Battery Freeze Factors chart that identifies at what temperature and at what specific gravity your batteries may freeze.



Looking at the chart, 1.280 specific gravity is fully charged. At that stage, your batteries should not freeze until the temperature reaches -69°C (-92°F). On the other hand, if the specific gravity gets down to 1.100, your batteries may freeze at -7.2°C (+19°F).

#### **A NOTE ON BATTERY WARRANTIES**

Have you ever read a four-year battery warranty policy? If not, request one, and read it carefully. The warranty normally covers failures caused only by defects in material and workmanship. This excludes dead, worn out, low or any other things that are caused by poor maintenance. If you submit a claim, you must provide detailed maintenance records, and you must be willing to ship (at your expense) a sample of the batteries to the manufacturer for evaluation.

Once you understand the fundamentals and requirements of electric car battery maintenance, you may question how many fleet maintenance programs actually get it right. Understandably, many don't. Golf car manufacturers realize that the warranty would more often than not be refused by the battery manufacturer, so they decided to pay for it themselves.

This may seem like a nice gesture, but often the operator will get new (or used) batteries, but probably not a lesson about why it happened, and it does not eliminate the fact that cars have already been out of commission, with angry customers, or you wouldn't have reported it in the first place. And finally, the owner/operator needs to ask who ends up paying for that cost in the long run? As they say, 'an ounce of prevention...'

#### **REFERENCES:**

<sup>1</sup> STORAGE BATTERY TECHNICAL SERVICE MANUAL, published by the Battery Council International, copyright 1987. Headquarters: 401 North Michigan Ave., Chicago, Ill, 60611, (312) 644-6610/

The overall maintenance costs for gas and electric add up to be about the same, but the key difference is that electric is more labour intensive and maintenance must be performed more often. Gas cars may require a few more maintenance parts, but the frequency of service and labour is reduced over the year.

### **PILLAR TWO: PRODUCT DOCUMENTS A.K.A. SCHOOLWORK**

Once the decision is made between gas or electric, what comes next is to determine key elements of a maintenance plan. We start with the Owner's/Operator's manual. All manufacturers supply scheduled maintenance charts for their product, as well as providing all aspects of usage, safety, maintenance, material handling and storage. Some manufacturers build cars that require significantly more scheduled maintenance than others, and, along with that, more scheduled maintenance costs. Look closely at scheduled maintenance requirements when considering new cars.

From the study of the Owner's/Operator's manual, the next 'textbook' of study should be the factory service manual. This manual is one of the more misunderstood documents in the power motive industry. Why? If you read the opening paragraphs of service manuals, the factory clearly outlines what, and who, that manual is really intended for. It is not necessary to quote it all, but in a nutshell, the manual is designed for use by qualified, trained technicians that possess a thorough knowledge of basic mechanical, fuel and electrical skills. How many of you just decided you don't need to read that manual?

### **PILLAR THREE: HUMAN RESOURCES (THE TECHNICIAN)**

Computers may be consuming the world, but people are still the most critical and valuable asset. Technicians aren't born skilled. They embark on a learning process that continues forever, and skill development on a continuing basis is a fundamental requirement for a technician to grow personally, and professionally.

This is the level of technical support you need. People often dread hearing the word "expert" because it often means that he or she believes, or has the perception, that he or she has "learned it all". This is like thinking that one has achieved the perfect golf score, as if such a thing exists...

If you choose to obtain your own technician, you should budget for technical training on a regular basis, or at least once a year. Consider



the cost of flights to and from the training facility, hotel rooms and meals for about a week. The old mentality of, "If I pay to train him, he'll probably just leave and go work somewhere else," is not the correct attitude to take, because what if you don't train him, and he stays?

The key decision for your fleet management program is whether to commit to having your own technician on site, or having that expertise contracted from outside sources, and it is a decision not to be taken lightly, as it will have a lasting affect on your fleet and ultimately your business as a whole.

### **PILLAR FOUR: RISK MANAGEMENT**

Risk management is used to describe various business activities, but for maintenance purposes, we are referring to 1) golf course customer safety, and 2) unexpected maintenance costs.

Scheduled maintenance is the simpler part of golf car service. It's when the human element is brought into the mix that the complexity increases. Many technicians and fleet managers have other ways to describe it, but we like to refer to it as 'unscheduled maintenance'.

Everyday customers, namely golfers, operate our vehicles in an environment that allows things to, shall we say, happen. Anywhere any vehicle is operated, there are hazards. Identify them now or later, but later is guaranteed to cost a lot more.

**Stuff will happen, we know, but there are things that can be done to minimize damage to the cars, while maximizing the safety of the customer.**

Read the Owner's/Operator's manual again. It has tips on how to identify golf car operational safety practices, and how to locate potential areas on your course where caution or warning signs may be appropriate. Simply put, golf car manufac-

turers don't decide how a golf course is designed, and cannot be on hand to supervise the operation of the cars. Manufacturers can and will do their best to help you identify potential hazard areas, however.

Stuff will happen, we know, but there are things that can be done to minimize damage to the cars, while maximizing the safety of the customer. To consider unscheduled maintenance cost is to identify historical damage trends at your course, and if the potential is high, look for the toughest golf car you can find for your next fleet replacements, and analyze how you can use identifiers and signage to guide your customers through those areas and reduce the risks. If you face unscheduled maintenance challenges, the technical expertise of your maintenance staff must be at a higher level, which means higher wage expenses.

### **PILLAR FIVE: CHAIN OF COMMAND**

It's decision time. Do you perform your own maintenance, or hire outside help? It doesn't have to be just one or the other. It can be a combination of both.

A part time professional technician, and a partial service contract with a dealer, is a common practice in many markets. If a dealer is not in your area, then most likely, the manufacturer is. Manufacturers are ready, willing and able to help you design a maintenance plan, and often, they

## **TURF & MAINTENANCE**

offer fully equipped fleet service trucks, with factory-trained technicians.

Research indicates that service contracts have a positive impact on customer satisfaction. The fleet golf car is a beast of burden, a seat for eighteen holes. It performs a task that is redundant, like an air conditioning system in your house, for instance. Service contracts have a positive impact on customer satisfaction in some products, less in others. Golf cars benefit greatly by controlled maintenance, and that is what service contracts do. They offer a "full service" contract, often offering an "inspection contract" at almost no cost for the course. This would involve a periodic inspection of a percentage of the cars, chargers (if electric), the storage area and the staff. A report card like this can be very comforting, or very alarming. The overall goal is to head off problems before the customer becomes involved in them.

There are many courses that are "in-between" inspection levels, and in these cases, a custom plan can be developed to fit the operation's needs, and sometimes, agreeing on a service contract will result in extended warranties. This is because: 1) You will maximize your revenue by reducing down-time, 2) A fleet that performs well due to diligent maintenance will mean that when it is time to consider replacement cars, the same brand will be ordered, and 3) If the manufacturer obtains used cars in trade, it knows that the fleet is in better shape. In that sense, all parties benefit by a well-executed maintenance plan.

### **PILLAR SIX: EXECUTION**

The current climate for golf is stormy these days, and in many markets, golf play has generally slowed a bit. Manufacturers know that golf course operators are keeping cars longer, and generally agree that this is a smart decision. After all, owners have a business to run.

Once all the decisions, organization and staffing are in place, launch the maintenance plan and follow up with good management practices to make sure the cycle repeats itself. Execution is actually the easy part when you have the other 'pillars' in place. Go to work, execute the plan, and enjoy the profits. 🏌️



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