1968 Golf car guide

With over 135,000 golf cars currently in use, ways to make the club fleet a more profitable operation are at a premium. With this in mind, GOLFDOM has assembled experts who tell you how to cope with the turfgrass problems caused by cars, the question of leasing vs. ownership, maintenance of golf car engines and batteries and the club's safety program. In this issue:

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In March GOLFDOM, additional articles will deal with making your fleet pay off, the design of the golf car building and trends in car paths.

No more wear and tear

With more than 100,000 golf cars rolling on today's courses, the problem of preventing grass damage is mounting—but solutions are in sight.

Since the advent of the golf car, turfgrass problems and, in turn, the problems of the superintendents have increased tremendously. Today, after many meetings, discussions, and clinics, we can begin to draw some conclusions from the experiences of many superintendents, and from the necessary supporting data from the experimental work done at Tifton, Georgia, by Dr. Glenn W. Burton, principal geneticist, Coastal Plain Experiment Station, and graduate assistant, Clarence Lance.

Here are the problems: soil compaction; turfgrass wear; routing of cars; golf car paths; bridges; closing the course to cars; car maintenance, service and storage; budget increases and budget funds for cars. Now for some solutions.

Soil compaction is perhaps the most serious problem created by golf cars. The weight of the cars, the golfers, and their equipment, plus the pounding and thrust of wheels, tend to injure soil structure. The width, size, pressure, and design of the tires is only important to prevent formation of deep ruts. The degree of compaction remains severe no matter what size tire is used. When soils are wet, they puddle. (Puddling is compaction in its severest form.)

Puddling of soil means the almost complete breakdown of soil structure. And without good structure, soil cannot take in water, air or nutrients. Turfgrass cannot survive under these conditions.

by Tom Mascaro

A program of aerification must be initiated to keep up with compaction as it forms. If severe compaction exists, intensive aerification must be done. It must then be followed with an aerification management program that will stay ahead of car compaction. Additional fertilizer must also be used to stimulate aggressive growth.

TURFGRASS WEAR

Turfgrass can take just so much wear. Cell reproduction must keep up or exceed cell destruction. Golf car wheels produce a thrust for propulsion or stopping. This force can be transposed to abrasive action. Thrust or abrasion causes the cell walls to rupture, resulting in the dying back of the blade.

Because of this, each golf hole must be analyzed from the standpoint of golf car traffic. Provisions must be made for convenient car use, but still disperse wear over as large an area as possible.

ROUTING OF GOLF CARS

Generally speaking, it is best not to restrict cars in open areas, but only around tees and greens.

Many devices have, and are being tried to keep cars in their place including fences, rope barriers and painted stakes. However, such devices, although effective, often detract from the beauty of the natural surroundings. Other devices include signs and instructions on the car itself, score card instructions, and signs on the turf. Anything that is effective—without marring the beauty of the course —should be used. Remember, continuing car-user education is really essential.

CAR PATHS

Golf car paths can be a blessing or a curse. An over-all plan carefully executed should be drawn up before money is spent. (Emergency patches of car roads can ruin the appearance of the course.) Car paths should blend with the landscape. They should be used only where absolutely necessary.

Path building materials are many and varied, including concrete, asphalt, wood, fine stone or gravel, sand, tanbark and pine needles. Whatever is used, it should withstand traffic, and require little or no maintenance.

BRIDGES

Golf cars need bridges. Here again the choise of materials ranges from concrete, to wood or steel. Pre-fab concrete slabs have been used very effectively—they are flat and heavy enough to stay put during floods.

Whatever is used, bridges should be wide enough, strong enough and permanent enough, with real consideration given to safety and future maintenance.

CLOSING THE COURSE TO GOLF CARS

Occasionally throughout the year, either because of a drainage problem or foul weather, the course





Above, new this year is the Jato Jr. Executive, in both gas and electric models with automotive steering. The other Jato model, Walker Executive, is available in gas and electric with tiller steering.

Above, E-Z-Go's model x-440 electric golf car, built with an all steel welded construction and all steel body with baked on automotive enamel. Model x-440 comes with tiller or wheel steering.

may have to be closed to golf cars. The decision to close the course should be vested with the superintendent. If the superintendent is overruled, then the club should be prepared to supply funds to repair the possible damages.

Planning is the key to success here, and making certain drainage is good is one of the best assurances the golfer can have that the course will be open to cars. Plans should include surface drainage of wet areas, interception of seepage water, and installation of a drainage system that will keep the course open at all times, if at all possible.

MAINTENANCE AND STORAGE The day-to-day supervisory maintenance, service and storage of golf

cars is an important factor in efficient fleet operation. With over 100,000 cars in use, it has become a major responsibility. This vital function should be assigned to someone continually on the job at the club.

If the superintendent is asked to assume this responsibility, the club should be prepared to provide him with funds to cover these additional costs. Equally important, the superintendent becomes worth more.

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Throwing these costs into an already overtaxed budget can be

disasterous. The over-all golf course maintenance budget will suffer. Observations of the policies of many clubs show that there are trends in this direction, and every effort should be made to prevent it.

Funds must be provided for car storage, service, and qualified personnel to handle the job. Golf car servicing and storing are almost full time jobs and also somewhat specialized.

BUDGET INCREASES

Analyzing all these problems, it can readily be seen that each problem presented indicates an increase in costs.

Reviewing them in order, we find that:

1. Compaction means cost of aerifying equipment and manpower to operate it. It also means an increase in the fertilizer budget.

2. Wear means that some reconstruction must be done to disperse car traffic.

3. Routing of cars means that signs must be purchased, and printing must be done to educate the members.

4. Car paths are costly, and whether contracted for, or done by your own crew, expenditures of additional funds are involved.

5. Bridges, in their cheapest form,

are still expensive propositions. 6. Closing the course to minimize the problem of reconstruction for surface drainage, elevating areas, tile drains and sumps represent increased costs.

7. Car maintenance, servicing and storing mean increased costs in buildings, manpower and supervision.

BUDGET FUNDS FOR GOLF CARS

Golf cars definitely have proved a profitable source of added income to most of America's golf courses. Properly planned, budgeted and managed, golf car fleet operations are accounting for worthwhile and welcomed net profits after providing a realistic percentage for attendant car and course expenditures.

Each club should analyze its own conditions to establish an over-all plan for its golf car operations, and drawn up in such a way that new committee members could carry it out on a continuing basis.

In future years, we are bound to see the use of the cars increase. If this is true, we will probably see more and more golf course architects planning the original layout to overcome many of the problems which exist now on our present day golf courses.

Get the most out of car batteries

Keep your fleet charged up and ready to go by following a few simple rules on battery maintenance.

by Lee R. Hill

he proper installation, care and preventive maintenance of golf car batteries are essential for profitable and satisfactory operation. The batteries, the heart of the golf car, are the least understood and the most frequently blamed for car ills. Yet, with good care, two and sometimes three seasons of use can be obtained by fleets, and more by individual golf car owners.

Batteries must be installed so that the positive and negative posts are in the positions specified by the manufacturer of the car. The positive post of the battery is always at the right hand side when the battery is seen from the front or name plate side. Batteries installed backwards or incorrectly may cause chargers to blow fuses, or may result in short range, reduced battery life, or complete failure of the car to run.

The holddown should be firmly tightened but not so tight as to distort the flexible battery case. Too much holddown pressure can cause the case sides to separate from the tar seal and allow acid leaks.

Before connecting the battery cables, the terminals of the batteries and cable ends should be cleaned and wire brushed. Connections must be tight. Loose cables create high electrical resistance, loss of power, improper charging, and, occasionally, melted battery terminals. The spark from a loose connection may cause batteries to explode. Coating the battery terminals and cable ends with a non-metallic petroleum grease will reduce corrosion. Aerosol sprays also are available for the same purpose.

Newly installed batteries, mechanically tight new cars, or batteries that have been stored for the winter will not give maximum range. Cold weather further reduces the power of batteries. These conditions can be overcome by making certain batteries are fully charged and limiting their use to 18 holes for the first several rounds. Placing batteries on charge immediately after use will greatly aid in developing the full battery power.

Good maintenance of golf car batteries should include daily, weekly, monthly, and annual scheduled care. Each day, golf cars should be cleaned and the batteries recharged. Cars used for 9 holes or more should be placed on charge each night. Charging should start as soon as possible after the car's use. Not only are the batteries warm and better able to accept the charge, but the demand current portion of the electric bill will be reduced. Battery caps should be in place during charging.

To insure adequate charging time and maximum battery life, car rotation is essential. The last car to go on charge at night should be the last car to be used the following day. Many cases of short range can be traced to undercharging from failure to follow rotation procedures.

Each week, car batteries should be watered, washed and cleaned. The watering of batteries must be done after coming off charge. They should be filled with water free from minerals or metals; distilled water is preferred. The use of automatic cut-off fillers will help fill to the proper level. This level is usually indicated by a ledge, square, circle or triangle depending upon the brand.

Weekly, bring electrolyte level up to indicator with pure water. All cells must be checked and filled. Overfilling as well as underfilling will shorten battery life and range. Boiling or overflow of electrolyte during charging usually is a result of overfilling the battery.

When the caps have been replaced after watering, a solution of 4 tablespoons of baking soda per gallon of water should be sprayed or brushed on the battery tops, cable ends, battery sides, and carrier to neutralize acid and eliminate corrosion. The soda solution should be applied until the bubbling or fizzing reaction between acid and soda has stopped. The batteries must then be flushed off with water and allowed to air dry.

In very humid climates or damp weather, the tops of the batteries should be dried with compressed air or wiped off. Keeping tops of batteries clean eliminates current drain and corrosion. It also improves charging and range.

Each month the battery connections should be tightened. Twice a year these cables should be removed and cleaned with a wire brush. Monthly, each cell should be checked with a hydrometer, after charge, but before water is added. If the specific gravity is lower by 10 points or more than



that specified by the battery manufacturer for the full charge condition, an additional equalize charge is recommended.

If one battery is lower in all cells by 25 points or more, the low battery should be charged on an individual battery charger to the same state of charge or specific gravity as the other batteries. Should a battery have one or two cells lower by 50 points or more than the other cells, the battery should be individually charged and then given a 75 amp capacity discharge test to determine the condition of the battery. From 60-70 minutes of 75 ampere discharge capacity to 5.25 volts per battery is needed for 36 holes average range.

Should one defective battery need to be replaced in the set, it is better to replace all batteries if the batteries are over one year old. The five good batteries may be used to replace batteries of similar age in other cars of the fleet.

Whether batteries are stored during the winter in or out of the car, both the weekly and monthly maintenance procedures should be followed prior to storage. During the winter, the batteries must be kept fully charged by charging every two weeks. Monthly spot hydrometer checks must be made after charging to be sure batteries are adequately charged.

The cooler the storage area, the less frequent will be the need for charge. Fully charged batteries will not freeze, but partially charged batteries may freeze causing damage to plates and cases.

Proper charging is as important to battery performance as battery care. Adequate wiring, proper fusing and sufficient power supply must be available. Tap set transformer chargers should be correctly adjusted to AC line voltage. All chargers should have good ventilation. All connections, both AC and charger to car, should be tight. Overheating of contacts indicates high resistance and a bad connection.

Excessive water usage indicates overcharging of the batteries. This may cause swelling of battery cases and short battery life. Either the charging rate or the length of the charge time should be reduced to eliminate overcharging. Undercharging, as indicated by low specific gravity or short range, should

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be corrected by a higher charging rate or longer charge time.

Completely discharged batteries need 20-25 amps of initial charge and should finish below 5 amps. Non-automatic chargers should be adjusted so they will operate within the above range.

Proper installation of batteries, charging and scheduled preventative maintenance takes time. With the above program and care, however, your car batteries will give the desired range and long life for economical and satisfactory service.



Above left, the Viking I electric golf car from Versal, Inc. Viking I consists of a three-piece sectional fiberglass body with a hard-finish permanently molded into the body. It features positive automatic breaking system, long-life nylon rearsuspension bushings, single solenoid switch system and a choice of tiller or wheel steering. Viking II golf car, also electric, is made of allsteel construction. Above, Electric Carrier electric golf car available in six models with tiller and automotive steering. It features a vertical bag rack that protects the club grips.

To lease or not to lease

If you have believed that purchase is the only way to fill your car demands, you should look into the advantages of a leasing program.

by John D. Patterson

The thorny problem of whether it is best to lease or to purchase golf cars is one that must be answered by the board of directors of every club in the country. The board must be able to recommend to the membership the most highly profitable and efficient car operation suitable to their club. Therefore, it is not only desirable to take a long, hard look at leasing advantages but also at the lessor or supplier of golf cars.

Let's first consider the advantages to the club of a sound leasing program.

CAPITAL INVESTMENT

There is no capital investment involved to the club that decides to lease. The club's physical investments are basically limited to storage space, maintenance areas and electrical or gas facilities.

There are interest expenses, however, when the club must borrow the money. The five to six per cent interest makes quite a difference and must not only be figured as a cost with car purchase, but as an added income with lease. After all, the old saying, ''A penny saved is a penny earned'' is true, and interest today is no longer pennies.

OWNERSHIP RISKS

To the leasing club there are no ownership risks even if the weather is inclement and the greens fees and car rentals plunge to an all time low.

It does not matter to the leasing club that they were sold a ''bill of goods'' and the wrong kind of cars were purchased. It does not matter that the manufacturer of a certain brand of car has gone out of business and parts are unobtainable or difficult to get. How many clubs have cars that have been purchased but are no longer being manufactured?

Naturally one of the greatest ownership risks is that of obsolescence. The spectacular rise in the popularity of the golf car makes model change a grimy issue to be faced by many clubs.

If your club bought 20 cars two years ago, chances are you now have 40 and undoubtedly will

require 80 in the next two years. This leaves the owning club with either a conglomerate fleet of several brands or several models of the same brand.

With the trade-in market as difficult as it is—who wants the problem? On one hand there is the problem of stocking parts for several brands and on the other the great game, ''Who will ride the old car?''

Also, picture this: the club that scheduled a three day tournament, with no caddies available, 12 rusty club-owned cars, and only six charger outlets. If on lease there would be no problem, for this is one of the lessor's obligations. (To furnish extra cars, upon reasonable demand, is one of the services offered by most lessors.)

THE INTANGIBLES

While many boards of directors have felt it is more profitable to own cars rather than lease, have they considered all the costs? Have they considered the ever-present ''people problem''? It is becoming increasingly difficult to get trained personnel to care for a multi-thousand dollar investment at a price the club can afford.

Because of limited exposure, insurance rates are bound to go up if an accident occurs on the club grounds. Then, there are the intangible costs of keeping maintenance records and costs, rental receipts, depreciation and member billing records.

Is it possible that many clubs have led themselves down the primrose path of ownership only to find themselves still behind the financial eight-ball? Is it possible that they have spent rental income on an addition to the clubhouse rather than the maintenance of the greatest money-maker they have? Cars and facilities purchased and planned three years ago are hardly adequate to meet today's modern requirements. Treading this primrose path explains why there are so many shoddy ill-kept cars on our fairways today.

"Let's buy them—look at the money we can make." This is a beautiful but not always true statement. Is there any better way to make money



than a good lease with no investment, no ownership risks and no worry?

ABOUT MONEY

So far, we have avoided facing head-on the issue of finance. The club has figured in dollars and cents the following way: expected rental life and depreciation; interest on investment; car maintenance man salary; insurance premiums; battery or engine replacement costs; minor repair parts such as seat covers, paint and tires (which turn out to be not so minor). The club can now compare its net income figure to the figure the lessor proposes. Now let's take a look at your prospective lessor.

The lessor of golf cars is no magician. In most cases he is a heads-up businessman who realizes that the leasing of golf cars can be profitable. He is definitely no longer the sporty playboy who wanted to own a bunch of go-cars.

Most lessors are also franchised dealers for some brand of golf car. Therefore, they have the basic mechanical and electrical knowledge not only of the car they are merchandising but of their competition. A club wishing to discuss lease vs. purchase can usually obtain information from the local dealer or factory representative. It is best to contact two or three of these people, eliminate non-essential information, and put together the best plan for the club.

When talking to the dealer here are some tips that might help.

The lessor makes money by dealing in volume. Instead of running a fleet of thirty or forty cars he perhaps is running four or five hundred. The combination of knowledge, purchasing power, skill and service is his profit-maker.

The lessor's stability and community standing should of course be known to the club. One of the best gauges for his stability is to find out what kind of cars he leases and sells. Remember the dealer must have the advice, counsel and backing of the Continued on page 60





Above left, Allis-Chalmers' golf car, available in both gasoline and electric with all white fiberglass body. Both models feature coil spring and shock absorber suspension, black enameled front and rear bumpers. Above right, Harley-Davidson's new gasoline golf car featuring Dynastart, which starts the engine when the pedal is depressed. An electric model is also available which can run all day without a recharge and has an exclusive two year warranty on all components of the electrical system. Above, Vibo's gasoline golf car with tiller steering.

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factory. If the dealer has paid a call to the club with a factory man you can be pretty sure he's O.K. and has the support of the manufacturer.

Beware of the lessor and dealer who can never "reach" the plant, has trouble getting parts, doesn't know the factory representative or has never been to the plant.

Service is of the greatest importance to the club desiring a lease agreement. The dealer's service facility should be investigated thoroughly by a club representative. A well-equipped shop and trained personnel are absolutely necessary for the dealer and the club.

Usually the lessor will insist on a three to five year lease agreement. This, of course, allows him time to amortize his investment, realize a profit, and let the club know that he's the golf car doctor. If the club has found during this period that he can't produce, other arrangements can always be made. However, if the club insists that a lessor take a losing or short term deal, he cannot possibly produce the equipment and service desired.

The lessor (in most cases) furnishes everything except storage facilities and power. This includes: insurance, parts, labor, registry machines and an automatic spying system. He and top club management know that if a car goes out without charge he is not the only loser of revenue.

It is of really little concern if the lease is on a flat fee or a percentage basis; the results all boil down to dollars. The lessor needs so many dollars per car, per year, and if they are not forthcoming he's going to pull cars and relocate them where they will bring in the amount of dollars needed.

Many companies are now in the process of switching from company-owned automobiles to leased autos. This is also true with many clubs that have grown from 10 car-users to 50 car-users. The up-to-date lessor has found that as golf car traffic has picked up over the years, he too has grown. Many lessors are now in a position to buy existing club-owned fleets in return for a good lease. Most lessors maintain tournament fleets to solve heavy demand golf car traffic or tournament play; it's added revenue and service.

Flexibility is the keynote on any leasing program. If you have believed that purchase is the only way to fill your car demands, the lease program is certainly worth investigating. Leasing offers flexibility, know-how, experience, service, and, most of all, clear profit for the club.

The dealer that both leases and sells is the doctor of the industry. He can prescribe the path to follow to meet your car demands. $\hfill \Box$

INTRODUCING THE 1968-PLUS Pargo GOLF CARS

These new models are the result of continuous testing by Pargo's "Million Man Test Team."



Each year over 1,000,000 riders "Team-Test" Pargo's engineering advancements while actually playing golf — using our own Pargo 2,500-car lease fleet — to assure YOU the finest Golf Cars built REGARDLESS OF HOW MUCH MORE SOME OTHERS MAY COST!



LOOK AT SOME OF THE EXCITING NEW FEATURES!

- NEW Lower Center of Gravity for Safety and Styling
- NEW Two shock absorbers for additional player comfort
- NEW Smoother Acceleration from improved electrical system
- NEW Cushions of new molded foam for added player comfort and longer wear
- NEW 8:50 x 8 4-ply tires standard equipment on all 1968-Plus cars
- NEW Front Fork provides added radial movement for real "Floating Action"



Keep those engines purring

Regular maintenance will protect your investment, keep your car operation in the black—and your members happy.

by E. L. Fisher

Do your golf car engines purr after two seasons? If not, can it be that you don't take the few minutes necessary to get top performance.

Preventive maintenance is the key to long life for golf car engines, and 99 per cent of this is routine servicing, the daily check any reliable attendant can make to see that engines get a proper diet of gasoline, oil, and clean air.

Like an automobile engine, a golf car engine is built for hard work and long hours. It needs no more attention than your car gets or should get at the corner filling station—a quick check of the oil level, an oil change periodically, a quick cleaning to free the engine of dirt and chaff, and a change of spark plugs and air filters when needed.

Simple? Yes. Time-consuming? No. Whether you have five cars in your fleet, or 50, each car needs only minutes of attention a day. With a minimum of care, the engine in a golf car will give top performance week after week and season after season. Without daily servicing, on the other hand, you jeopardize your entire investment.

Neglect ruins engines a thousand times faster than hard use, as anyone who has burned up an engine for lack of oil will testify. Remember, the investment you are protecting by routine maintenance of the engines in your fleet is an investment that may total many thousands of dollars.

Daily servicing keeps a new engine in top condition. It do is not keep an engine forever new, of course, and sooner or later engines must be repaired or replaced. Most golf car engines will operate for 1000 hours or more without overhaul. By that time the engines have paid for themselves several times over, and the logical question becomes: Do I overhaul the engines or buy new ones?

Large fleets of golf cars may justify the hiring of a competent mechanic and the setting up of shop facilities for engine overhaul. Most golf course operators, however, prefer to work with a nearby engine dealer who can keep parts and replacement engines in stock and who is skilled in engine repair. Such a dealer can determine quickly whether it is more economical to repair an engine or more economical to replace it with a new engine.

One factor which influences the decision to repair or replace is the labor rate in the area. In those parts of the country where labor rates are low, extensive overhauling of an engine may be feasible. Where labor rates are high, buying a replacement engine may be more economical than an extensive engine overhaul.

An engine dealer is helpful in another way also. If an engine was defective when it left the factory, the dealer is authorized by the engine manufacturer to handle warranty work on the engine.

Major maintenance aside, it is still the routine servicing day by day that spells dividends or deficits



Above, the new Gran Cushman, available in both gas and electric models. It features heavy wall steel frame, and individual sports car style bucket seats.

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with golf car engines. Maintenance instructions come with each engine in a manual supplied by the engine manufacturer. The following check list is typical:

Each Day

- a) Check fuel supply and oil level in crankcase. Add oil only as needed to keep the level between the marks on the dipstick. (Use type of oil specified on engine instruction plate.)
- b) Clean oil and dirt from external surfaces. On air-cooled engines, it is especially important that the rotating air screen, flywheel fins, and cooling fins on the cylinder head and block are maintained in clean condition at all times to ensure proper air circulation.
- c) If necessary, clean or replace the filter element in the air cleaner. Dirt is the No. 1 enemy of engines, and the filter keeps dirt out. When the engine loses power or runs erratically, chances are that the filter is clogged. Under extremely dusty conditions, it may be necessary to clean or replace the filter daily. Even on a clean, green course, a filter may need replacing once a month.

Every 25 Operating Hours

- a) Change oil in crankcase. (Change more often under extremely dustry conditions.) Be sure that there are no air leaks at gasket joints between air cleaner, carburetor and cylinder block.
- b) Remove, clean, and replace sediment bowl.



Above, Stevens "Four-Bagger" golf car made of fiberglass. An aluminum bracket was mounted on both the right and left rear fenders to the standard Club Car allowing easy access to golf clubs in both bags.

c) Wipe oil and dirt from engine block, spark plug, and oil fill.

Every 100 Operating Hours

- a) Perform usual 25-hour maintenance.
- b) Check spark plug and reset gap to .025. If plug is dirty, replace it instead of trying to clean it.

Your instruction manual includes a check list for 500-hour maintenance also. It is more comprehensive and should be done by a competent mechanic. Most golf car owners rely on authorized engine dealers for this service.

Here are some additional helpful tips:

- a) Keep a separate maintenance record on each golf car to ensure regular maintenance and help you spot trouble before it becomes serious.
- b) If oil consumption increases suddenly, have the engine reconditioned immediately. Otherwise, the engine may run out of oil on the course and be ruined.
- c) Newer engines are equipped with automatic compression releases for easy starting. When an old engine is reconditioned, have the dealer add an automatic compression release.
- d) Clean air is so important to an internal combustion engine that it deserves extra emphasis. The filter in dry element-type air cleaners is vital protection against dirt. Learn to recognize when a filter needs replacing. Learn to replace it properly. Remember that more engines are wrecked by dirt getting into the combustion chamber than by lack of oil.

Take time to service our golf car engine—just a few minutes a day. Follow the instructions in your engine manual. Your golf car operation will be in the black—and your golfers will be happy. \Box



Above, Taylor-Dunn's new electric golf car. The Tee-Bird features tiller or wheel steering, six 170 amp hour electric vehicle batteries, mechanical brakes and a wide choice of colors.

The need for driver safety

With ever-increasing golf car traffic, drivers must be made to heed the 'rules of the road.''

by Harold K. Howe

Executive Secretary, American Golf Car Manufacturers Association

C ertainly no one wants accidents, neither the course management, nor the golf car manufacturers and not even the users themselves. With over 135,000 golf cars currently in use on golf courses in the United States and Canada, the first and most important facet of the safer operation of golf cars is "User Education."

The golfer has his mind on his game and it is not easy to get through to him with a safety message. So the message must be brief—for almost instant comprehension. And it must be placed before him so he sees and absorbs the message almost without knowing it. The best places for such messages are:

- On the golf car itself.
- At significant points on the course.
- In the pro shop.
- In locker rooms.
- At point of delivery of golf cars.
- At the "19th hole."

The rules for safer use of golf cars are generally based on common sense—things we all know but forget to practice. Here are some of the most significant rules. You might call them the ''Ten Commandments'' of safer golf car operations:

1. Be sure you know the controls and operation of the car before you take it out on the course. All cars are not the same. Improvements are constantly being made by the manufacturers. If in doubt, check with the man in charge of the cars.

2. Try the brakes before leaving the first tee. All cars should be in good safe condition before being turned over to the golfer, but mistakes sometimes happen. It only takes a minute to check the brake action.

3. Do not carry more than two passengers in a two passenger car, nor more than one passenger in a single passenger car. The golf car is designed with the proper stability and center of gravity for one or two passengers. More than two passengers will change the center of gravity and crowding may make it difficult to operate the car properly.

4. Keep both feet inside the car. A dragging foot with spiked shoes can catch the turf and result in painful and serious injuries.

5. Put golf clubs in golf bags when riding in golf cars. Some places on every course are rough and bumpy to golf car riders and loose clubs can give you some pretty bad jabs.

6. When driving always avoid sharp quick turns. While golf cars are designed to make sharp short



Above, Toro's electric golf car. The Golfmaster measures $92'' \times 44\frac{1}{2}''$ and weighs 937 pounds. It features adjustable seats and 4-wheel suspension.

turns, your passenger may not be expecting them and be thrown out of the car.

7. Always drive slowly and carefully, on hills and slopes, and especially when going down inclines. More accidents happen from fast careless driving on inclines than from any other careless act.

8. Be sure to set the brake before leaving car, especially if parking on slopes. Actually, cars should be parked on as level a place as possible, so there is no chance of them rolling onto greens or into traps or water hazards.

9. Do not allow children to operate cars on the course. Club management should set minimum age limits for teenagers to operate cars.

10. The Golden Rule—Be Courteous, Considerate, and Careful! Always observe the etiquette of the wonderful game of golf. Be as careful of the course as if it were your own. Be as considerate of the other golfer as if you yourself were playing his shot. Drive carefully and follow the routes marked for golf cars.

There are many other factors, of course, that are important in the safe operation of golf cars—proper maintenance of the cars, careful routing on the course to avoid potential danger areas, landscaping by course superintendents and golf course architects to eliminate hazards of terrain and, of course, the design of the golf cars themselves. But above all else, it is the golfer who drives the golf car who is the single most important factor in the safe operation of golf cars.