

CITICAR

Have you heard the one about the Volkswagen?

by Mike Knepper



Pulling away from the stop sign, I thought I could feel a slight decrease in full-throttle acceleration. I heard the familiar three clicks behind my right shoulder as the solenoids cut in, but in top gear something was missing. I glanced at the speedometer. I was still gaining speed, but the needle was having a hard time moving past the 35 mph mark. At the next stop sign the acceleration was very noticeably less. Although I was a good 15 miles within the maximum range of the batteries, it was obvious I was running low on power.

Avoiding the hazards of moving across three lanes of traffic to make a left turn, I turned right, went around the block and headed home. There was nothing to do but keep

my foot to the floor and just hope I made it.

I didn't. A mile from the house my speed, which had been holding at about 15 mph, suddenly fell to a slow walk, and I barely made it into a parking lot before the eight batteries gave their last.

A phone call later, Jan arrived with the Toyota, and a few minutes after that the CitiCar and I arrived home at the end of a tow rope. How ignominious.

I plugged in the extension cord running from the house and left the CitiCar to percolate overnight. I'd have a full charge to play with after 12 hours, or at least that's what the salesman had assured me. He had also assured me I could go 50 miles on a full charge. And he had such an honest face.

In March of last year *Motor Trend*

took a brief look at what was going on in the electric car business and reached one conclusion: not much. There was a lot of development work to be done, we found, and some very rough edges to be smoothed out. Electric cars were promising alternative transportation, but weren't ready then to sweep the nation.

One of the cars we tested was the CitiCar, manufactured by the Sebring-Vanguard company in Sebring, Florida. At the time S-V had produced something like 500 CitiCars, and the principals were adamant about their serious intention of not only staying in the electric car business, but also of being successful at it. Now, a year and a half and 1500 CitiCars later, we can at least attest to their resolve. Sebring-Vanguard is still very much in the electric car business. And, I'm happy to





report, the product is very much improved. Not perfect, mind you, but much improved. And a lot of fun.

Mechanically, the CitiCar is quite simple. It is powered by eight 6-volt, lead-acid batteries especially designed for electric car operation; They are capable of sustaining hundreds of recharge cycles from complete discharge. The batteries are hooked to a 6-hp General Electric series-wound DC motor which, at full speed, turns 4100 rpm. A splined pinion shaft plugged into the back of the motor is attached to a Spicer full-hypoid differential with a final drive ratio of 6.85:1.

There is no transmission. Rather, three solenoids take the place of "gears." There is a three-position toggle switch on the instrument panel. When "forward" is selected and the throttle depressed slightly, the first solenoid kicks on and delivers 24 volts in parallel through a Nichrome resistor to the motor. The resistor bleeds off excess voltage, allowing the CitiCar to creep along without bucking and jerking. With more throttle (pedal, accelerator??) the 2nd speed, or solenoid, comes in to deliver 24 volts in parallel without the resistor. Put the pedal to the metal and the motor gets an immediate charge of 48 volts in series. The motor has terrific torque and moves away smartly from a full stop.

The CitiCar weighs 1300 lb, of which 520 lb is batteries. (Actually a little more than 520 lb. There is a ninth battery used to power the lights, heater, radio, etc.) Its wheelbase is 65.5 in., length is 94 in. and height is 59.5 in.

The suspension is not only simple, it's almost ineffective. The solid front and rear axles are attached to leaf springs (two leaves each) and diminutive Gabriel shock absorbers. Total suspension travel is 3 in. in front, 4.5 in. at the rear.

Steering is via a simple cam and lever set-up, and the turning circle is only 22 ft. There are 7-in. Bendix drum brakes on each wheel, the wheels are 12 in. by 3.75 in. and the tires are 4.80 x 12 Goodyear bias ply. And finally, you will find on the CitiCar just about everything any respectable automobile, regardless of its motive power, should have: windshield wiper (one), turn signals, lights, instruments, even sun visors.

One very apt description of the CitiCar is that it is cute/ugly. Certainly it's different. I asked Bob Sanders, director of operations at Sebring-Vanguard, about the car's styling. His answer was that the style was the most efficient package for a seated human form. Could be. Whatever the reasoning, the CitiCar definitely attracts attention, which frequently manifests itself as sniggers, smirks,

laughter and heads shaken in disbelief.

The thing is certainly easy to get into and out of, so the shape is good in that sense. And certainly visibility is good in all directions. I guess the CitiCar could have been made to look more conventional, but what good is a weird car if it doesn't look a little weird?

There is seating for two adults, and my 5-year-old daughter fit quite comfortably between the two adults, so make it a 2½-seater. The seat is a simple bench with individual backrests. It is also a very hard bench seat—actually a foam-padded cover for the batteries that ride low and in the center of the car.

The instrument panel is a study in simplicity. Its wood-grain vinyl covering is as good, probably even better, than on most mass-produced automobiles. There is a speedometer and a voltmeter. The voltmeter is there to measure "state of charge" and has "E" and "F" markings at either extreme, just like a fuel gauge. There are also controls for the heater, headlights, emergency flashers, etc. Everything is plainly labeled and within easy reach.

Although I found myself generally thinking positive thoughts about the CitiCar, I was really put off by the quality of construction and the fit and finish. I realize that when cars of any type are produced on a very limited basis, costs can easily get out of hand. To keep the price down the limited producer has to take some short cuts to save a dollar here, 50 cents there. This is obvious in the CitiCar.

For example, the Cycloc plastic body is composed of three main sections. The front and rear sections are simply caps that slip on either end of the passenger compartment and are pop-riveted into place. The exposed edges and rivets give the body that home-workshop look that shouldn't be part of a \$3000 car. The door edges were very roughly finished off, and a very thin coat of paint applied. The driver's-side door on the version I drove had at one time been slammed very hard, according to the salesman at Speight Buick in L.A., and would only latch by turning the lock on the inside.

The headlights are surrounded by square backing plates that are amateurish in design and installation. The individual seatbacks are secured to a crossbar—part of the roll-cage construction—by a crude bent-wire device with little rubber things on it. The removable side curtains—which could have come off a 1962 TR-3—still show the marks of the workman's grinding wheel.

I was assured by a factory spokesman, however, that many of the rough spots will be taken care of in the 1978 versions.

To drive the CitiCar all you have to do is insert the "ignition" key, release the handbrake, flick the dash-mounted toggle switch into "forward" and depress the accelerator. The first few times I tried this process I was really confused by the lack of noise. There is complete silence throughout the entire procedure until the accelerator is depressed. And I mean silence. In fact, the first time I drove the car, I was so sure nothing was going to happen when I hit the throttle that I almost centerpunched a brand new Buick Electra sitting on the dealer's lot.

I had some trouble learning just how much throttle to use, and my first couple of trips occasioned much jerking and clicking of solenoids and such. I solved that problem by adopting a very subtle throttle technique: wide open all the time.

The next event after almost T-boning the Electra was almost collecting a yearling Chevy that was driving along beside me. When I got on the brakes for a stoplight, the CitiCar didn't pull to the left; it jumped. So along with my full-throttle technique I added a brake-and-steer-right routine. The car had only 39 miles on the odometer when I picked it up, and as I put more miles on it, the brakes came around. They apparently just needed a little workout.

I drove the car home from work on Friday evening and used it all weekend just as I would any car: to the supermarket, to the beach, wherever. It easily handled the hills in my area, some of which are pretty steep, and with an easy cruising speed of 35 mph I had no trouble keeping up with traffic.

The CitiCar is designed for the environment its name obviously implies: the city. It's just too slow for use outside the urban/suburban area. In its element it's great. A couple of times I caught myself grinning like a fool as I scooted through parking lots, darted around a corner or pulled into a tiny parking space. (Words like "scooted" and "darted" readily come to mind when one drives a CitiCar).

I must admit I wasn't overjoyed about running out of juice and having to be towed home. I later learned that that 50-mile cruising range I was expecting applies to a vehicle that has about 1000 miles of loosening up under its belt. With a new car 30 to 35 miles is about all that can be expected. I made 36.

If being inconspicuous is your thing, don't buy a CitiCar. Not only does everyone stare at it, they all want to ask questions. I found a lot of genuine interest in the CitiCar in particular and in electric cars in general.

Most of that interest centered around two things: economy of operation and low pollution. Somewhere

in the pile of information I got from Sebring-Vanguard is a claim that driving a CitiCar 25 miles a day, 365 days a year would cost less than \$9 a month, based on the national average of 4¢ per kilowatt hour. That's cheap.

Sebring-Vanguard has also compiled statistics that claim 54% of all car trips are less than 5 miles long, that 92% of all trips are less than 20 miles one way and 38% of all families that own an automobile also own 2nd or 3rd cars that travel no more than 21 miles a day. That means a 38 mph CitiCar with a 50-mile range (after it's broken in) fits the transportation requirements of many Americans.

Sebring-Vanguard's statistics also claim a comparative mpg of crude oil of 296, based on the amount of oil needed to generate the electricity required to charge the CitiCar. That's an impressive savings. Although there is certainly no pollution coming out of the CitiCar's tailpipe, burning that gallon of crude oil at the generating plant may be worse than burning it in a V-8.

Despite the crudeness of construction, the rather high initial cost—my test car delivered for \$3400—and the peculiar styling, the CitiCar makes a lot of sense. If a lot of your family's driving is short commutes to work and general running around town, the CitiCar may well be for you. I can guarantee one thing. You'll have a lot of fun. ■

