

FIRST DRIVE



PHOTO BY JEFF ALLEN

TO CAR ENTHUSIASTS, electric cars rank somewhere between a Radio Flyer wagon and a moped on the scale of absolute performance. Efficient and non-polluting, yes, but exciting? Hardly. Or so I thought until I drove Alan Cocconi's 200-bhp Honda Civic CX, powered with electrons, not hydrocarbons.

Cocconi, a Cal Tech graduate and founder of AC Propulsion Inc. in San Dimas, California, is no stranger to all of this—he designed the controller box for GM's Impact electric car and created an electric Honda CRX that we tested in our October 1992 issue. Back for an encore performance, Cocconi showed up at our Pomona test facility with his 1994 Honda Civic hatchback electric vehicle (EV), a whisper-quiet pocket-rocket capable of outgunning all but a handful of gasoline-engine performance cars.

The muscle behind this gentle-looking Civic is the AC-150 Drive System that draws its power from 28 sealed, no-maintenance Optima lead-acid batteries. They are stored longitudinally along the center of the car, and the whole pack can be lowered to the ground,

AC Propulsion Civic

A silent pocket-rocket

BY PATRICK HONG

via hand crank, and replaced in 30 minutes. A full charge can be taken on in just one hour (240 volts, 80 amps) or in two hours from a household washer/dryer outlet.

Pop the hood and notice the controller box—the real heart of the system; underneath lies a high-efficiency induction motor that produces 200 bhp between 6000 and 12,000 rpm. Unlike internal combustion engines, the electric motor's maximum torque of 165 lb.-ft. is constant from zero to 5000 rpm, which translates to rocket launches at the drag strip. The Civic gets to 60 mph in just 6.2 seconds, aided by traction control to keep the narrow, 60-psi Goodyear Invicta tires from turning to a gaseous state.

And since an electric motor makes an excellent generator under braking, Cocconi's regenerative braking system can recover approximately 30 per-

cent of the energy, while reducing the load on the car's standard friction-brake system.

Climbing into the Civic is like learning to drive for the first time. There is no ignition key to turn, no gearshift lever to move, only three buttons—Forward, Neutral and Reverse—next to the steering wheel. The familiar speedometer is surrounded by the unfamiliar analog inverter indicator, motor temperature and “coarse” and “fine” ammeters. A series of battery-monitoring indicators now resides where the gearshift used to be, apprising the driver of each battery's condition. Though the interior space of the Civic is somewhat limited by the battery-pack tunnel, it does retain four seats where four average-size people can travel comfortably.

There is no such thing as idling in an EV; when sitting still, the Civic is essentially turned off. Press the Forward

button, step on the gas (oops! accelerator) pedal, and savor a noise not unlike the whine of a jet engine as you pull away. Because torque is almost constant, acceleration is felt evenly all the way to the top speed of 85 mph.

Urban driving range, as performed by Southern California Edison on the standard Pomona test loop, is 118 miles. And to extend that range, Cocconi has built a prototype trailer with a Kawasaki 250-cc motorcycle engine that drives an alternator, providing extra power for climbing hills or recharging the batteries. In the recharge mode, range is extended to 170 miles at 70 mph.

With this high-performance EV comes a high price tag of \$75,000, which includes the Honda Civic, battery pack, drivetrain and lower-output engine trailer. If you already have the car, a powertrain conversion package is available at \$40,000, a price Cocconi says will drop to \$12,000 if production reaches 1000 per year. With EVs from the major automakers being just promises at this stage, Alan Cocconi has leapt into the lead with a production-ready EV available to the consumer.