

## ENERGY MARKETING



Winning vehicle in the all-electric class was an Electric Fuel Propulsion sedan (left) driven by Cornell students. Runner-up, also an EFP van, was driven by students from Stevens Tech. Bob Rice (Left) standing by Sten Hanson

## **Detroit dominates Clean Air Car Race**

Only two of the six pure-electric cars entered in the Clean Air Car Race completed the 3,600 mile cross-country run from Boston, Mass., to Pasadena, Calif. According to sources close to the race, however, the electric cars not only performed better than expected, but they performed better than in the 1968 "Great Electric Car Race."

While the electric cars did not fare as well on the basis of time (about 2 days behind) or point score (less than half), when compared to internal-combustion engine (ICE) cars, the race is considered to have made positive contributions to their development: It reinforced the idea that electric cars that can go cross-country can perform satisfactorily in the less-rigorous city driving for which they are designed; student interest and enthusiasm has stimulated corporate activity; and techniques that would not have been looked into otherwise have been evaluated or tested.

Some 43 cars started out in the seven day cross-country race. Of these, 36 were "scored" by the race committee. The dropouts were in the electric, hybrid, steam-

of the race coordinators at the finish line, "were just not designed to travel the distance at the pace we set."

The Cornell team commented that their car "runs very well. But it is primarily designed for short hauls. It can go longer distances that we proved. But at, present, it really hasn't been designed for that type of driving." And a race participant from the University of Michigan called the electrics the "right cars in the wrong race."

The two electric vehicles completing the race were both manufactured by Electric Fuel Propulsion Inc, Detroit. The winning electric vehicle, even though it came in second, timewise, was a 1970 sedan driven by Cornell University students. The first electric vehicle to cross the finish line was a converted Swedish mail truck driven by students from Stevens Institute of Technology. Because of the scoring system used, it was placed second.

The van, sponsored by American Smelting & Refining Co, made the trek across country without any unusual problems. About halfway through the race, it was still some 100 miles behind the Cornell car, but jumped ahead when the sedan

part of the motor burnt out because we were driving it too hard," commented one of the student drivers.

The car was able to continue, but broke down just outside of San Diego. Team members spent about two hours trying to repair the motor, but finally, exhausted and already two days behind, gave up. The car was towed the last 120 miles to Caltech.

Observers expected one of the big tests for the electrics would be their performance through the hot desert areas of the Southwest, but the Cornell team reported no overheating problems. Carl Swartz, a contestant in the 1968 race and an observer for EFP commented that the lead-cobalt batteries used in the Cornell car "are much superior to anything we used then. . . . We had to [put dry ice on them] in 1968." Other electric cars in the race, which did not make it across the finish line, included cars driven by students from Georgia Tech, Boston University, Oakland University, and Iona College. The Georgia Tech car was a modified 1970 VW fastback sedan powered by 24 6-v Prestolite batteries and a 25-hp dc series motor. A chase truck carrying a diesel engine-

turbine, and gas-turbine categories. Most of the cars were powered by modified internal-combustion engines. Overall winner was a Ford Capri\* modified by Wayne State University students to run on unleaded gasoline. It was also equipped with exotic catalysts and other experimental systems to control emissions.

By and large, as the entrants began crossing the finish line on August 30, the electric cars were conspicuously out of sight. "The electrics," remarked one

broke down. Electric supply from its lead-acid batteries was 120 vdc driving a 15-hp dc motor.

The winning Cornell EFP sedan performed "well" over most of the route. It took about 33 hours to complete the first leg to Toronto, due mainly to the time required to recharge the 26 6-v tripolar batteries.

Between MIT and Champaign, 111, the Cornell car had no breakdowns or major problems. "Somewhere in Texas,

generator was to keep the batteries charged. In operation, 8 of the car's 24 battery packs were to be changed at a time.

Although the car was running well, between Toronto and Detroit it encountered trouble with a circuit breaker on the generator used to charge the batteries and lost two days. Since the car was not using the charging stations along the route, loss of its support vehicle was critical.

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