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The PC80 - Energy Wise News Oct '95



AN EARLY NEW ZEALAND ELECTRIC

With all the current excitement about the new Tesla, it is a good time to reflect on the fact that there have been a few electric cars made in New Zealand, some more successful than others. This story is about a car that almost made it, but a simple change of ownership of a power company stopped it at the prototype stage.

Although many will have heard of a New Zealand-made sports car called the 'Heron MJ1', few will have heard of the Heron PC80, and what is not so well known is that 'Heron' was not the first choice of name for the marque. Ross Baker's initial preference had been to give the cars he designed and produced the name 'Banshee'. It was on the top of his list until he discovered that a banshee is a female spirit whose high-pitched wailing warns of death. Legend states that a banshee can be heard wailing nearby when someone is about to die. Possibly not the best name for a car, then. Thus, it was changed after Ross heard of a plane called the 'Heron',

which had completed some amazing feat in the South Island. 'Heron' is also the name of a native New Zealand bird known in Maori as the kotuku. He liked this name better, and went on to build several racing cars, as well as farm machinery and electric vehicles, all under the Heron banner.

Unique electric car

Besides cars, Ross Baker has manufactured about 60 electric trucks; 50 electric golf carts; 150 go-karts; and, just to be different, 100 bumper boats. But this article is about his unique electric car called the 'PC80'.

In the past, New Zealand power companies would occasionally express an interest in electric cars, generally via the conversion of a standard production vehicle, with its petrol motor removed and an electric one installed. Such a car would have the power-company logo emblazoned on its side and be displayed for media around the country — more to promote the power company than the vehicle.

Eventually, the vehicle would quietly fade into obscurity after the power company got its return on the investment via the free advertising generated by interest in the car. The company would then return to its core business of selling electricity until some bright spark (pun intended) again suggested that it would be good publicity to reinforce the public perception that electricity is a clean, green alternative fuel.

By the early 1990s, one electric company — Powerco — was a little more serious about the future than others. The Whanganui-based company approached Ross Baker and asked him to design and build a small electric road vehicle. Having had plenty of experience with his own electric trucks, Ross was happy to take on the challenge. Initially, he hoped that the prototype would lead to Powerco commissioning several cars to be built and used by its service personnel in Whanganui. It was thought that seeing these cars being used as everyday vehicles might build public



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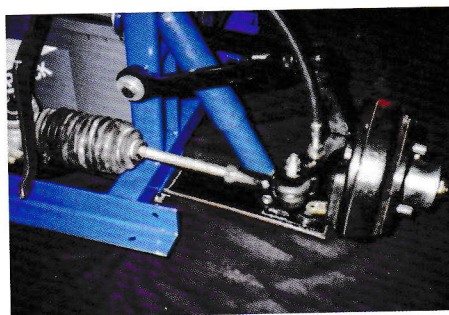
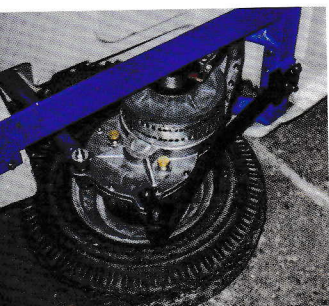
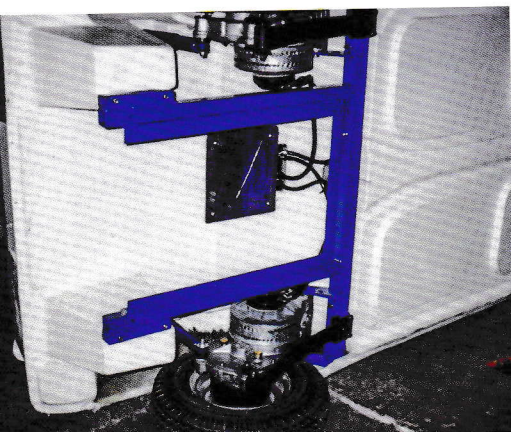
acceptance, and people would view them as a vehicle that could be used every day for city driving.

City car

As it was intended for mass production, a lot of thought went into its design. Like the Heron MJ1, it would have a fibreglass monocoque construction, and, being a city car, it would only have two doors but seat four passengers, with a useful hatchback for holding the shopping. It was similar in size to the Holden Barina of the time, but it weighed in at only 650kg with batteries, which compared favourably with the then-Barina's weight of almost 900kg. At \$22K, it was more expensive than the Barina, but huge savings would be made in terms of running costs — Ross believed the fuel bill would be a third that of the Barina. Two Sonnenschein 12-volt batteries were placed in the front and four in the back, giving a total of 60 volts powering two ceramic magnet pancake motors, one in each rear wheel. These motors were only 200mm in diameter by 100mm but produced 12kW at stall and 6kW under continuous running. They were wired in series and controlled by a 500-amp Curtis controller. The rear suspension consisted of a Heron cast-aluminium swing arm each side, with the motors and nylon reduction gears in the cast swing-axle assembly attached to a subframe with quarter-elliptic springs. This subframe also held the four batteries. The front suspension was designed and fabricated by Heron, with a transverse

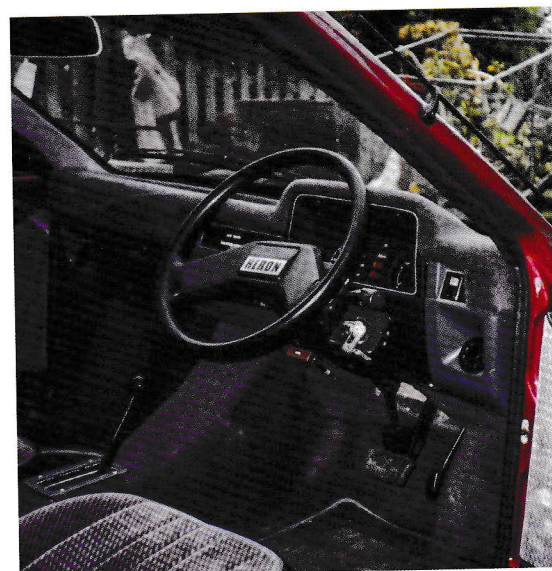
spring and upper wishbones and a shortened Honda City rack and pinion. This was attached to a subframe, which also held the other two front batteries. Both subframes were bolted to the fibreglass monocoque body/chassis using the Heron stainless-steel patented fixing system. The construction of the car was very similar to that of the MJ1, with the top and bottom moulds glued together with a tunnel and two sills. The car was designed to have a range of between 40km and 80km, depending on the terrain, at an average speed of 80kph, though top speed was 100kph. At slower speeds, the range would increase. As most New Zealanders have a commute to work each day of less than 20km each way, Ross did not believe the range would be a significant problem. If the commute were over 40km, three hours would see the batteries recharged ready to make the journey home.

By the '90s, most New Zealand families owned two cars, one of which was the family car for long-distance work, while the other, generally, was a small runabout that seldom left the city. The PC80 — with the 'PC' standing for Powerco — was never intended to be the principal family car.



Top left: The underside of the PC80, showing the electric motors in place

Far left: PC80 electric motor
Left: Front suspension of the PC80
Right: Interior of the PC80





Ross Baker (left), standing with an unidentified employee

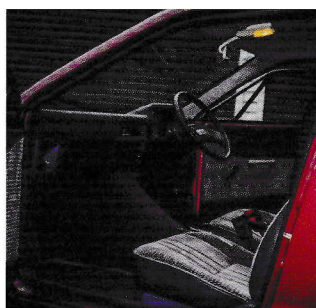
Pulling the plug

So, why did it not take off? By the end of 1995, two prototypes had been made and were undergoing testing by Powerco. Ross was getting ready to go into mass-production mode, having learned many useful lessons from the tribulations he'd had with the Heron MJ1. Ross did not have the capital to promote the car himself, but, with Powerco on board and prepared to order a fleet of cars, Ross would have had the necessary capital to turn his attention to the rest of New Zealand. It all could have been different if Powerco had not decided to merge with the New Plymouth Power Company. The new company was not prepared to pursue the electric-car project, and, without a positive

short-term financial future, the risk was too great, so Ross pulled the plug.

It is unknown what happened to one of the prototypes, but Ross kept and used the other until he left for Australia. This car was sold to Ray Millar of Millar Electrics in Rotorua.

After finishing with the PC80, Ross turned his attention to another car he had been developing called the 'Heron MJ 2+2', which he had been working on since the late '80s. Sadly, despite a good design, it never got to prototype stage, although a second car was built by Roy Hoare and certified by the Constructors Car Club. This was the last vehicle that Ross attempted before retiring to Australia in 2002, where he continues to tinker with cars to this day. ■



Left: Plug for the fibreglass moulds takes shape
Below: Ross tries out body-number-one for size



Other Vehicles designed and built by Ross Baker and Heron Developments



HERON GT MK4

The Heron GT Mk4 was built during the 1970s. There had been three others before it, but this car set the benchmark for the quality of what would follow.



HERON SPRAYMASTER

Three of these amazing fruit-spraying vehicles were built by Heron in 1979 before the rights of manufacture were sold to a Wellington company that built a further 14, many of which survive to this day.



HERON MJ1

This is probably the best-known Ross Baker vehicle. The exotic-looking car was based on Skoda running gear. Twenty-six production cars were sold between 1983 and 1985. An additional five more were sold as kits after production ceased, with some being modified to take Ford Telstar running gear.



HERON MJ 2+2

Intended to be the bigger and better version of the MJ1, this car never made it into production. Two bodies were made between 1987 and 2002. To date, only one has been finished, and it's owned by Roy Hoare of Lower Hutt.