

## CHAPTER 14



# HALTECH

### Haltech

**COST:** Approximately \$1,500 to \$2,500

**FEATURES:** The Haltech system is very flexible. It can accept a wide variety of sensors and command many different outputs

**EASE OF INSTALLATION AND TUNING:** The user can choose to either connect their wire harness, or use the universal premade unit. The software is very easy to understand.

Haltech is an Australian company that was started in 1986 by Steve Mitchell with the backing of his father Bill Mitchell. The original intention was to develop diagnostic equipment for electronic fuel-injection systems, but a request by *Modern Motor* magazine to solve the problem of supplying fuel to a supercharged Ford project car led to the development of a supplementary fuel-injection computer. This project opened their eyes to a brand new market place where the need for a user-programmable fuel-injection system existed. This realization led them to develop the world's first real-time programmable



**Haltech is an Australian manufacturer of aftermarket fuel-injection systems. It has become well known for its extremely easy-to-use tuning software.**

engine management system, meaning that the ECU could be programmed while the engine was running.

Screwdriver-adjustable engine management systems had been available

before the first Haltech ECU. There were systems such as the English Zytex, which were very good systems, but they were expensive and weren't programmable in real time. These ECUs could be



*Haltech was the first fuel-injection manufacturer to develop a system that could be programmed by the user in real time, similar to their E6X version shown here. Several other companies had already built systems that could be adjusted with a screwdriver, but Haltech was the first to use on-line programming with a computer.*



*The unit that we are most concerned about for this purpose will be the E6X. This unit is capable of firing four injectors sequentially, up to eight injectors semi-sequentially, or use batch firing. The unit can also handle staged injector combinations on a four-cylinder engine.*

adjusted by simply turning a screw on the side of them to deliver more or less fuel to suit the engine's requirements.

The first system, the F2, was followed by the F3 model, which was produced by the thousands, and there are many of both models still running today. Later, the F7 model was produced originally for motorcycles and rotary engines, but curious customers soon found innovative ways to adapt these systems to their V-8 and V-6 engines with good results. This spawned a whole series of fuel-only computers to follow the F7, consisting of the F7A, F7B, F7C, F9, F9A, to the F10 that we have today.

Then came the E5 fuel-injection computer, which was a big development over the F-series model above, which only controlled fuel. The E5 did not, however, control any of the ancillary devices like the later E6 series. The E5 eventually led to the development of the E6, E6A, and E6S fuel-injection and ignition-timing computers, which in turn gave rise to the current E6X model computer. The E6 series began a whole new era of engine management, because it controlled not only the fuel and ignition, but also the idle speed and many ancillary devices such as air conditioning, nitrous, and VTEC.

The unit that we are most concerned about in this book is the E6X. This unit is capable of firing 4 injectors sequentially, up to 8 injectors semi-sequentially, or 8 injectors using batch firing. The unit can also handle staged injector combinations on a 4-cylinder engine, which is a process of using 2 injectors per cylinder and having only 1 injector work for low-speed and low-power situations, and then turn on both of them when the fuel demand gets higher. This allowed the user to avoid the poor idle and low-speed running characteristics of using one very large injector.

The E6X also has up to 4 ignition outputs available for using 4 sequentially firing individual coils, which means it can provide spark for up to 8 cylinders in a waste-spark configuration. The unit can also be configured to control 10 or 12 cylinders and rotary type engines using spilt spark timing.