

Injectronics

Electronic and Mechatronic Components



→ Remanufactured



→ Research & Development



→ Testing & Diagnosis



→ Repair Service



injectronics.com.au



For over 30 years, Injeronics has been providing supply solutions for automotive electronics to the aftermarket and the OEM. During this time, Injeronics has developed a reputation as Australasia's leading supplier of quality new & remanufactured automotive electronic components.



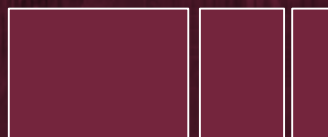
With our own dedicated R&D department, we can test and validate new products and develop testing and remanufacturing processes for the most complex electronic parts.

State of the art equipment and processes enables Injctionics to offer; unique testing and repair services for a variety of products that are both late model or no longer available new.





Our offering



→ Research & Development 4

→ Products 5

- ABS Module and Sensors
 - Airflow / Mass Meters
 - Body Control Modules
 - Climate Control
 - Electronic Control Modules
 - Throttle Bodies
 - Immobilisers and Key matching
 - Instrument Clusters / Information Display
 - Heavy Duty and Diesel
-

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Research & Development

Injectronics has its own dedicated Research and Development department, that is continually developing solutions for many of the latest technologies and designing individual and specific product requirements and enhancements.

The team consisting of scientists, programmers and engineers are constantly developing and designing remanufactured products or repair solutions for the Injectronics remanufacturing laboratory, and also works closely with partners to provide individual and customised services for many worldwide external clients.



Our key services include:

- Design of a total turnkey remanufacturing solution.
- Design and manufacturing of electronic component and prototyping.
- Reverse engineering and re-design.
- New product development.
- Ongoing product enhancement.
- Product validation and testing.
- Continuous product movement and root cause analysis.

Engineering Capabilities

- Full electronic design and manufacturing capability.
- Full 3D mechanical design and manufacturing capability.
- Software development for embedded, PC and mobile applications.
- Developing remanufacturing processes including cleaning, dismantling, repair, testing and reassembling.
- Design and construction of automated test equipment and jigs.
- Capture and reverse engineering of various vehicle communication protocols such as: CAN, LIN, KWP, J1850.
- Seed Key Security investigation for unlocking different levels of security, to enable resetting /flashing /variant programming of electronic modules.
- Understanding / reverse engineering of vehicle immobiliser systems, to allow resetting / repairing and testing modules.
- Reverse engineering and redesign of security key / key fobs.
- Development of OBD programming equipment for security key matching.
- Developing supply solutions for EOL challenges for OE customers.
- Development of LHD to RHD conversion electronic / software solutions for OE.



ABS Modules & Sensors

Injectronics repair, remanufacture, and stock, a large range of these Antilock Braking Systems to suit such vehicles as: Audi, VW, GMH, Ford, Mercedes Benz, BMW, Saab, Volvo, Jaguar, Jeep, Nissan, Subaru, Toyota, Mitsubishi, Mazda and many other vehicles.

The common brands are ATE, Tevic, Bosch, TRW and Aisin.

Early Antilock Braking Systems consisted of a separate ABS Electronic Control Module (ABS ECM or ECU) also known as an ABS computer.

The ABS Module controls the valve body solenoids after processing input signals from the vehicles wheel speed sensors, and in later systems additional sensors, such as steering wheel angle and gyroscopic sensors were used to detect the direction of the vehicle. Mercedes Benz and then other European vehicles, including BMW, Volvo, Saab, Audi, and VW were all early users of Antilock Braking Systems.

Later ABS Modules incorporate the electronics, the valve body and pump as one complete assembly. This ABS Module assembly can also have incorporated Traction Control, (also known as ETC), stability control (ESP), cornering brake control (CBC), along with hill descent control (HDC).





Air Flow / Mass Meters

An Air Flow Meter, AFM or Air Mass Meter, AMM measures the air flow or air mass that is drawn into the intake of the engine. This measurement is transmitted as a frequency or a variable voltage to the ECM, ECU, or PCM, so that it can calculate the correct amount of fuel to deliver via the injectors and ignition timing in relation to the air going into the engine. Other terms used for this sensor are: MAF Sensor, Mass Air Flow Sensor, or Karmen Vortex AFM.



Various designs have been used over the years by different manufacturers to measure the air delivery to the engine, including vane or flap, hotwire, hot film, membrane and karmen vortex type to name just a few.

Injectronics can test, repair, and remanufacture many brands of Air Flow Meter (AFM) and Air Mass Meter (AMM), including Bosch, Siemens, VDO, Hitachi, Mitsubishi, Delco, Delphi, Jecs, Nippon Denso, Kefico, and Lucas.



Injectronics tests and calibrates all Air Meters using an Air Flow Analyser test bench, which flows air through the meter and precisely checks the output of AMM's and AFM's compared to learnt OEM specifications.



Body Control Modules

Injectronics stocks a large range of remanufactured Body Control Modules (BCM's / BEM's) including Ford EA, EB, ED, EF, EL, AU, BA, BF, FG, Falcon, Fairlane, Fairmont, LTD, UTE and Territory, plus Holden Commodore, Acclaim, Berlina, Calais, Statesman, Caprice and HSV. All models from VR-VZ are supplied with a pre-programmed key fob. The BCM controls many functions such as vehicle security / immobiliser, central locking, electric window operation, windscreen wipers, rear demister, electric aerial and interior lighting etc.

Injectronics can also test, repair, and remanufacture the separate smart lock module used in Ford EB, ED and XG Falcons.

All BCM's are supplied with fitting / programming instructions.

BMW's have a FRM (Footwell Module) which controls many body functions in the vehicle. Injectronics can repair totally in-operable FRM's.





Climate Control

Electronic Climate Controls are used in most of today's vehicles to ensure optimum passenger comfort. Injectronics repairs and stocks a large range of interior fan speed control modules and electronic climate control modules.

These are also known as a HVAC (Heating, Ventilation and Air Conditioning) Modules, and in Ford AU Falcon, Fairlane, Fairmont and LTD they are referred to as a Message Display Centre.

Some common Climate Control Module or HVAC units we repair, test and remanufacture are:

BMW 3 series E36, X5, 5 Series E39, Audi A4 and A6, Mercedes Benz C. Class, Ford Fairlane, Falcon, Fairmont, EA, EB, ED, EF, EL, and the Message Display unit in the AU Ford. Holden Commodore, Berlina, Calais and Statesmen, VN, VP, VR, VS, VT, VX, single and dual zone. Honda Accord, Saab, Porsche, Mazda 3 and Kenworth Truck.





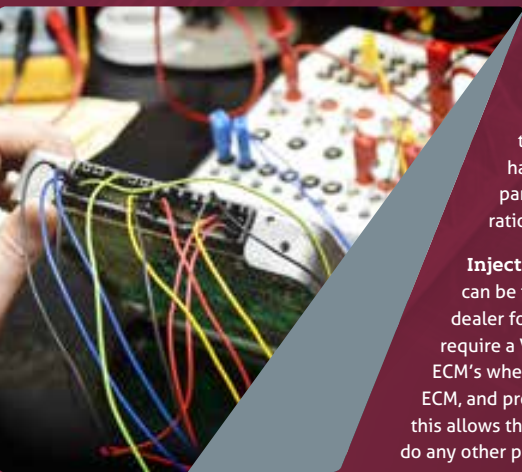
Electronic Control Modules

The engine Electronic Control Module, ECM has been called many things including Electronic Control Unit, ECU, Powertrain Control Module, PCM, Engine brain, Black box.

Common modules can be tested on the Injectronics designed Virtual Automotive Simulator (VAS). This provides accurate pin by pin testing and programming, providing a comprehensive full function test.



➔ ECM PROGRAMMING



Many late model vehicles require ECM's to be programmed to a specific vehicle in order to match or align the ECM to the vehicles BCM or immobiliser system. Other late model ECM's require variant coding, a process that enables manufacturers to use one particular ECM's hardware in a range of vehicles, by programming it with a particular vehicle's variants. These variants may include diff ratio, tyre size, ABS type, cruise control, transmission ratios etc.

Injectronics can pre-program many types of ECM's, so they can be fitted to the vehicle without having to take the vehicle to a dealer for programming with a scan tool. In many cases we simply require a VIN number or certain vehicle options. We can also clone ECM's where we copy all the information from the customer's faulty ECM, and program this information into a new or remanufactured unit, this allows them to plug in the unit and run the vehicle without having to do any other programming operations.



Throttle Bodies

Many late model vehicles use Electronic Throttle Bodies which the ECM, ECU, or PCM controls. This can otherwise be known as drive by wire. Injectronics can repair, and also stocks a range of new and remanufactured Electronic Throttle Body assemblies. The range of vehicles is constantly growing and includes: Mercedes Benz, VW, Audi, Nissan Micra, Ford BA, BF, FG Falcon, Holden Barina, Commodore, Astra, Seat, BMW, Volvo and Suzuki.





Immobilisers & Key Matching

All late model vehicles now incorporate an immobiliser system. These are often failing, causing a no-start situation.

Immobiliser memories can become corrupt, or lose their link / synchronisation to the key, or the engine ECM. Injectronics have exchange immobilisers in stock as well as offering a speedy repair service.

We can also program keys to immobilisers and have a large range of keys in stock as well as resynchronising immobilisers to ECM's / BCM's.

We can also turn off the immobiliser function where required for many types of vehicles.



Many late model vehicles have an electronic ignition switch, proximity keys, immobiliser systems and electronic steering locks which often fail causing a no-start situation.

Injectronics offer a test and repair service, using our in house designed test equipment, of various components and can also supply and program additional keys for your vehicle.

For example; Injectronics can repair Electronic Steering Locks fitted to Mercedes Benz C class W204 vehicles, which are prone to fail, avoiding the need to purchase a new replacement unit and having it programmed by a dealer.

We also repair the Electronic Ignition Switches fitted to Mercedes Benz ML series, Sprinters, C class, E class and more, which are also prone to fail. Injectronics can also supply and program new replacement keys avoiding the need to wait for a dealer replacement to arrive from overseas.





Instrument Clusters / Information Display

Today's vehicles Instrument clusters are becoming increasingly complex and now we are seeing complete LCD displays that can be totally customised to the driver's display preference.

When an instrument cluster fails, you cannot simply fit a second hand unit from another vehicle. This is because specific vehicle data, such as VIN and KLM's, and immobiliser information are electronically stored in the cluster and many other modules including the ignition keys. If these don't match, you may have an inoperative cluster, or even a no start situation. Injectronics can remanufacture your instrument cluster so there is no further installation programming required.

We stock many components, and provide a prompt repair service.





Heavy Duty & Diesel

Injectronics can supply many new and remanufactured types of modules to suit the diesel and heavy duty market.

These include truck and trailer ABS modules, Air mass meters, electronic EGR valves and climate controls.

We can also supply a range of electronic turbo controls including such brands as Hella, Holsat and Mitsubishi.



**Kenworth Truck
Climate Control**



**Electronic Gear
Selector**



**Cummins Holset
Turbo Actuator**



**Wabco ABS Control
Unit**



**VP44 Injector Pump
Control Module**



Turbo Actuator



Toyota Turbo Motor Driver



**Mercedes / Man Truck PLD
Control Unit**



Repair Services

Prompt Repair of Customers Unit

The proliferation of electronic and mechatronic products in today's modern vehicles requires a unique repair solution for products that are either no longer available or offer an expensive supply option. Additionally, individual and vehicle specific programming creates major challenges when replacing an electronic product.

To overcome both the supply availability and programming challenges, Injectronics offer a very unique repair service solution to the original product failure.

Injectronics prompt repair service enables the original failed component to be repaired and returned, enabling refitting to the original vehicle, saving workshops considerable time and money, while removing the need to additionally reprogram the product to the vehicle.

Injectronics repair service can provide a prompt repair service for electronic and mechatronic products fitted to all parts of the vehicles, and the range offered is continually expanding. Visit www.injectronics.com.au or contact Injectronics to see if we have a service available to suit your requirements.

Following are samples of some of the unique services available:



**Mercedes Benz Comand
control switch**



**Mercedes Benz Electronic
selector module**



Bose audio amplifier



**Mazda 3 transmission
control module**



**Mercedes Benz 7 Gtronic
mechatronic conductor plate**



**Nissan Pathfinder R51
transmission controller**



Injectronics Support

Our support team are available to assist you with diagnosing vehicle faults. We can be contacted on our dedicated tech support line 1300 30 60 or email us on techsupport@injectronics.com.au. We also offer online tech support.

The Injectronics website is a valuable source of information. By visiting www.injectronics.com.au you can access a range of technical information via the 'Technical Information' tab. With over 150 'Common Fault' technical bulletins available for download.

These informative technical bulletins have been compiled over many years and can be viewed or printed. The free technical assistance number is there also along with an email address for tech enquiries. The team of technical advisers can provide valuable technical services that include:

- Wiring diagrams
- Fault code interpretations
- Adjustment procedures
- Information on common reported faults
- Testing procedures
- Technical bulletins
- Programming procedures

The website also offers an online catalogue with up to date products available from Injectronics. Search by vehicle application or part numbers for the product you require.

You can also register your item for testing or repair online and print a copy of the registration to send with your item. Saving valuable time.

Toll free numbers:

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Part of the

