

Injectronics

Remanufactured Automotive Electronics Components

PRODUCT SERVICE INFORMATION

Document number: P0038

For further technical information regarding testing, repairs or to search for New or Remanufactured Automotive electronic products, please visit www.injectronics.com.au, call our office on (+613) 8792 6999, or email sales@injectronics.com.au

Vehicle: Holden Commodore VS

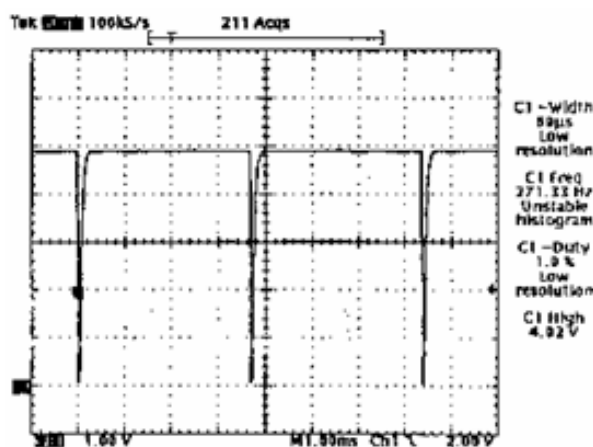
Subject: Mass air flow sensor testing

Unlike earlier Commodores the VS Commodore engine management system utilises a Mass Air Flow (MAF) sensor to measure the Air Mass entering the engine. Internally the MAF employs 2 heated elements, an ambient temperature sensor and outputs a frequency rather than a varying voltage.

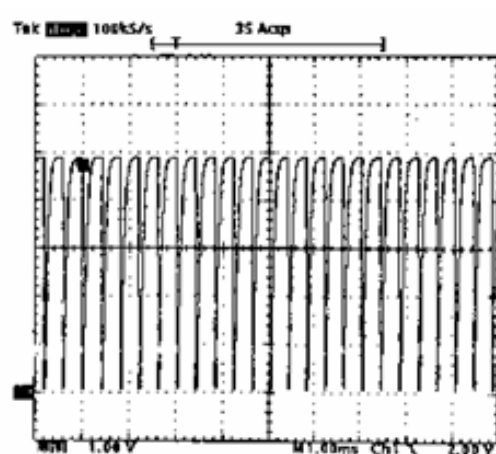
The MAF sensor provides a switching (pulse) to ground. This pulse size remains constant at approximately 50 microseconds. However as the air requirement of the engine increases, the amount of pulses increases (frequency of pulses). At idle the frequency is approximately 2477Hz which equates to 5 grams per second (air mass). With the key on but engine not running the output frequency is approximately 260 - 300 Hz. Injectronics have found, due to the nature of this waveform some Multimeters and Oscilloscopes (even high quality name brands) have problems interpreting this waveform. This may result in incorrectly condemning a MAF. The pulse time is always approximately 50 microseconds, but with the key on and engine off the duty cycle is under 2%. Because of this, some multimeters and oscilloscopes will display zero hertz. When using a data scan tool such as Tech 1, the MAF frequency will be displayed at idle but read zero when the engine is stopped.

If you are unsure whether your multimeter or oscilloscope is capable of measuring this, Injectronics suggests trying it on a known good unit first. Note: There are 3 terminals which are marked + (12v power), - (engine earth) and F for Frequency output.

Key On Engine Off (271 Hz)



Engine Idle (2471 Hz)



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For several years Injectronics has had the ability to flow test and calibrate air mass meters using our uniquely designed, fully automated flow bench. The calibration process involves a technician being guided through a computerized sequence of calibration settings and finally the air mass meter is tested throughout its entire range for any errors.

All Injectronics air mass meters have been precisely calibrated to OEM specifications and only the idle C.O screw if fitted may require adjusting as fuelling requirements differ for each individual engine at idle. A tamper proof plug is provided with each adjustable air mass meter and can be installed once correct idle mixtures have been obtained.

Air Mass Meters can be damaged by engine backfire. This can occur from many influences such as engine tune state, engines running on gas that have been incorrectly tuned, air leaks and ignition faults. Always ensure that all area of concern have been addressed before fitment of this Air Mass Meter as warranty does not cover backfire damage.

For more details on this topic & any other technical matters, please feel free to contact our technical service advisors on 1300 30 80 60.



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