

# Injectronics

Remanufactured Automotive Electronics Components

## PRODUCT SERVICE INFORMATION

**Document number: P0023**

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

**Vehicle: Holden Commodore VL**

**Subject: Air mass meter – mixture adjustment & closed loop settings**

Before proceeding, ensure engine is at normal operating temperature and that base idle and base timing are set correctly.

1. Start the engine and turn the ECM diagnostic mode screw fully anti-clockwise.
2. Run the engine @ 2000rpm for 2 minutes with transmission in Park or Neutral.
3. Make sure the red and green LED's in the ECM flash on and off at least 5 times in 10 seconds @ 2000rpm. If this is not ok, test oxygen sensor circuit. If ok, continue to step 4.
4. Disconnect throttle position sensor and auxiliary air control valve connectors.
5. Rev the engine 2 or 3 times then allow engine to return to idle.
6. Check that both the red and green LED's flash together. If they don't, go to step 7. If they do, go to step 8.
7. Adjust variable resistor screw on air mass meter until both lights flash together. This indicates that the oxygen sensor is in closed loop and no further adjustment is required.

NOTE: If turning the screw doesn't change the mixture, check the voltage on terminal 6 of the air mass meter plug. If the voltage doesn't change, replace the air mass meter.

Reconnect throttle position sensor and auxiliary air control valve. Recheck idle speed. Turn diagnostic screw until a correct controlled idle is achieved.



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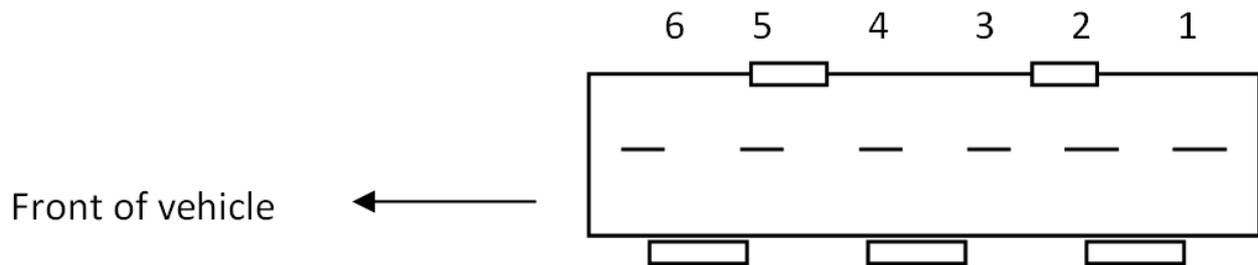
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**Vehicle:** Holden Commodore VL / Nissan Skyline R31

**Subject:** Mass air flow testing on vehicle



Pin 1 - Air Temp Sensor earth to ECM pin 26

Pin 2 - Earth (common)

Pin 3 - Load signal to ECM pin 31

Pin 4 - Burn off signal from ECM pin 12

Pin 5 - Power supply from main relay

Pin 6 -Idle co adjustable voltage to ECM pin 30

N.B: Prior to any testing. Be sure battery voltage is at Pin 5 and a clean earth is present at Pin 2.

## Testing Load Signal

To test the load signal from the MAF sensor to the ECM, connect a voltmeter between terminals 2 & 3 of the MAF sensor, back probing the 6 pin harness connector. With the ignition on / engine off, a voltage of approximately 1.3 volts should be seen. This voltage should also be seen at ECM terminal 31. With the engine idling, the voltage reading should rise to approximately 2.2 volts.

## Testing Burn off Signal

To test the hotwire burn off signal, the vehicle must be driven above 20km and exceed 1500 rpm (do not switch engine off). Once these conditions have been met and the car is idling in the workshop, a voltmeter needs to be connected between terminal 2 & 4 of the MAF sensor. Switch the engine off and check for a voltage signal of approximately 10 volts for a duration of approximately 1 second, approximately 5 seconds after switch off. The hotwire burn off can also be viewed once the air cleaner lid is removed from the MAF sensor housing. The hotwire should glow red for the brief burn off signal duration.

## Variable CO Signal

With the engine idling, connect a voltmeter between terminals 2 & 6 of the MAF sensor and check the voltage. New MAF sensor setting is 3.6 volts from the factory. Adjust the MAF sensor screw to obtain the correct mixture as per manufacturers specifications. If a higher voltage is required, it indicates you have had to compensate for a rich mixture. If a lower voltage is required, it indicates you have had to compensate for a lean mixture. Please note: If mass air flow sensor is found to be faulty, be sure that the hot wire burn off signal is working before fitting a replacement unit and also test that the oxygen sensor is operating correctly before any mixture adjustments are made.

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