### Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

## **Listing of Claims**

1. (Original) Apparatus for optimizing operation of a vehicle, comprising:

a plurality of sensors coupled to a vehicle having an engine, said plurality of sensors, which collectively monitor operation of said vehicle, including a road speed sensor, an engine speed sensor, a manifold pressure sensor and a throttle position sensor;

a processor subsystem, coupled to each one of said plurality of sensors, to receive data therefrom;

a memory subsystem, coupled to said processor subsystem, said memory subsystem storing therein a manifold pressure set point, an RPM set point, and present and prior levels for each one of said plurality of sensors;

a fuel overinjection notification circuit coupled to said processor subsystem, said fuel overinjection notification circuit issuing a notification that excessive fuel is being supplied to said engine of said vehicle;

an upshift notification circuit coupled to said processor subsystem, said upshift notification circuit issuing a notification that said engine of said vehicle is being operated at an excessive speed;

said processor subsystem determining, based upon data received from said plurality of sensors, when to activate said fuel overinjection circuit and when to activate said upshift notification circuit.



2. (Original) Apparatus for optimizing operation of a vehicle according to claim 1 wherein said processor subsystem further comprises:

means for determining when road speed for said vehicle is increasing;

means for determining when throttle position for said vehicle is increasing;

and

means for comparing manifold pressure to said manifold pressure set point; said processor subsystem activating said fuel overinjection notification circuit if both road speed and throttle position for said vehicle are increasing and manifold pressure for said vehicle is above said manifold pressure set point.

- 3. (Original) Apparatus for optimizing operation of a vehicle according to claim 1 wherein said fuel overinjection circuit further comprises a horn for issuing a tone for a preselected time period.
- 4. (Original) Apparatus for optimizing operation of a vehicle according to claim 1 wherein said processor subsystem further comprises:

means for determining when road speed for said vehicle is decreasing;
means for determining when throttle position for said vehicle is increasing;
means for determining when manifold pressure for said vehicle is increasing;

means for determining when engine speed for said vehicle is decreasing; said processor subsystem activating said fuel overinjection notification



and

and

circuit if both throttle position and manifold pressure for said vehicle are increasing and road speed and engine speed for said vehicle are decreasing.

5. (Original) Apparatus for optimizing operation of a vehicle according to claim 1 wherein said processor subsystem further comprises:

means for determining when road speed for said vehicle is increasing;
means for determining when throttle position for said vehicle is increasing;
means for comparing manifold pressure to said manifold pressure set point;

means for comparing engine speed to said RPM set point;

said processor subsystem activating said upshift notification circuit if both road speed and throttle position for said vehicle are increasing, manifold pressure for said vehicle is at or below said manifold pressure set point and engine speed for said vehicle is at or above said RPM set point.

- 6. (Original) Apparatus for optimizing operation of a vehicle according to claim 1 wherein said upshift notification circuit further comprises a horn for issuing a tone for a preselected time period.
- 7. (Original) Apparatus for optimizing operation of a vehicle, comprising:

a plurality of sensors coupled to a vehicle having an engine, said plurality of sensors, which collectively monitor operation of said vehicle, including a road speed sensor, a manifold pressure sensor and a throttle position sensor;



a processor subsystem, coupled to each one of said plurality of sensors, to receive data therefrom;

a memory subsystem, coupled to said processor subsystem, said memory subsystem storing therein a manifold pressure set point and present and prior levels for each one of said plurality of sensors;

a fuel overinjection notification circuit coupled to said processor subsystem, said fuel overinjection notification circuit issuing a notification that excessive fuel is being supplied to said engine of said vehicle;

a downshift notification circuit coupled to said processor subsystem, said downshift notification circuit issuing a notification that said engine of said vehicle is being operated at an insufficient engine speed; and

said processor subsystem determining, based upon data received from said plurality of sensors, when to activate said fuel overinjection circuit and when to activate said downshift notification circuit.

8. (Original) Apparatus for optimizing operation of a vehicle according to claim 7 wherein said processor subsystem further comprises:

means for determining when road speed for said vehicle is increasing;

means for determining when throttle position for said vehicle is increasing;

and

means for comparing manifold pressure to said manifold pressure set point; said processor subsystem activating said fuel overinjection notification circuit if both road speed and throttle position for said vehicle are increasing and



manifold pressure for said vehicle is above said manifold pressure set point.

- 9. (Original) Apparatus for optimizing operation of a vehicle according to claim 7 wherein said fuel overinjection circuit further comprises a horn for issuing a tone for a preselected time period.
- 10. (Original) Apparatus for optimizing operation of a vehicle according to claim 7 wherein said processor subsystem further comprises:

means for determining when road speed for said vehicle is decreasing;
means for determining when throttle position for said vehicle is increasing;
means for determining when manifold pressure for said vehicle is increasing;

means for determining when engine speed for said vehicle is decreasing; said processor subsystem activating said downshift notification circuit if both road speed and engine speed are decreasing and both throttle position and manifold pressure for said vehicle are increasing.

- 11. (Original) Apparatus for optimizing operation of a vehicle according to claim 10 wherein said downshift notification circuit further comprises a horn for issuing a tone for a preselected time period.
- 12. (Original) Apparatus for optimizing operation of a vehicle according to claim 7 wherein said processor subsystem further comprises:



and

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