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(74) Gemachtigde:
Geen.

(54) **Method and device to control a motor of an existing vehicle.**

(57) The present invention relates to a method to control a motor of an existing vehicle, said vehicle being provided with a motor management system and an On Board Diagnosis system, comprising the steps of, a) receiving at least one input signal from at least one component of the vehicle, b) determining if said at least one input signal of step a) represents at least one specific condition required to control the motor, c) generating at least one output signal to control the motor, d) receiving at least one input signal from the On Board Diagnosis (OBD) system, e) determining if said at least one input signal of step d) represents a Diagnosis Trouble code, and f) generating at least one output signal able to reset said Diagnosis Trouble Code. The present invention further relates to a device that can be retrofitted into an existing vehicle to control a motor of said vehicle, said device being configured to perform the method described above.

NL C 1039142

Method and device to control a motor of an existing vehicle

Description

Field of the invention

The invention relates to a method to control a motor of an existing vehicle, said vehicle being provided with a motor management system and an On Board Diagnosis system. Furthermore, the invention relates to a device that can be retrofitted into an existing vehicle to control a motor of said vehicle.

Background of the invention

Ineffective use of a motor of a vehicle has many drawbacks. For example, an idling motor, for example during waiting for a traffic light or in a traffic jam, consumes fuel, emits toxic exhaust components, and contributes to the formation of smog, which can be avoided by stopping the motor. By enabling specific control of the motor, this ineffective use of fuel or electric energy can be prevented. However, modern existing motor vehicles are provided with a motor management system already controlling the motor. It is therefore required that an auxiliary method to specifically control the motor, as mentioned above, is compatible with this motor management system.

The methods to control a vehicle motor described in GB 2427655, US6532926 and US7083020 are developed to be implemented in the motor management system by the original vehicle manufacturer (OEM). Devices performing the steps of these known methods can not be retrofitted in an existing vehicle. One system that can be retrofitted independently of the motor management system is described in US 20100131152. In this system controlling the motor results in stopping the motor and turning off other components of the vehicle. To solve problems arising from turning off other components, this system comprises bulky and expensive components. For an user that is interesting in the saving aspects of a retrofit motor control system, this is not attractive.

Many methods to control a vehicle motor, that are implemented in the motor management system, function automatically, which means that when a vehicle is standing still and the motor is idling, for example while waiting for traffic signals to change, the motor will be stopped automatically, without the intention of the driver. Only few known methods to control a vehicle motor function non-automatically and can be activated by the driver.

In GB 2427655 a motor vehicle is described having a motor stop-start system that can be turned on and off by the driver by operating a switch. The driver can not control the use of the start-stop system while remaining his of her hands on the steering wheel. The system, in its operative state, stops and restarts automatically.

For a method to be compatible with the motor management system of the vehicle it is required to communicate with this motor management system. However, the only interface that is able to communicate with the motor management system is an On Board Diagnosis (OBD) system. The OBD-II standard has been mandatory for all cars and light trucks sold in the United States since 1996, and the EOBD standard has been mandatory for all petrol vehicles sold in the European Union since 2001 and all diesel vehicles since 2004. The OBD system is for the technician to down load Diagnostic Trouble Codes (DTC) which facilitates the trouble shooting process during a service. A method to control the motor of an existing vehicle, that is, independent from its motor management system, will each time result in a Diagnostic Trouble Code and consequently in a malfunction indicator light on the dashboard indicating a problem, for example "Check Motor". Furthermore, regularly use of the auxiliary motor control system will result in a vast amount of Diagnostic Trouble Codes stored on the storage medium of the OBD system which will impede the technician during his maintenance service.

While many manufacturers focus on the development of new unique motor management systems, it remains useful to develop methods and devices for existing vehicles.

Therefore, it is an object of the invention to provide a method to control a motor of a vehicle, said vehicle being provided with a motor management system and an On Board Diagnosis system, to increase efficient use of electrical energy and/or fuel. Preferably, the driver is able to initiate this control method intentionally while remaining his or her hands on the wheel. Furthermore it is an object of the invention to provide a device to perform the steps of the method described above, which is cost effective and straightforward to be retrofitted in an existing vehicle.

Summary of the invention

The present invention provides a method to control a motor of an existing vehicle, said vehicle being provided with a motor management system and an On Board Diagnosis system, comprising the steps of, a) receiving at least one input signal from at least one component of the vehicle, b) determining if said at least one input signal of step a) represents at least one specific condition required to control the motor, c) generating at least one output signal to control the motor, d) receiving at least one input signal from the On Board Diagnosis (OBD) system, e) determining if said at least one input signal of step d) represents a Diagnosis Trouble code, and f) generating at least one output signal able to reset said Diagnosis Trouble Code.

This method is able to control a motor of an existing vehicle such that, in specific conditions, it circumvents the motor management system of said existing vehicle. Furthermore, regular use of this method will not result in a vast amount of Diagnostic Trouble Codes stored on the storage medium of the OBD system which will impede the technician during his maintenance service.

Preferably, the at least one output signal is generated before the On Board Diagnosis system generates an indicator signal. The advantage of such a method is that a motor of an existing vehicle can be controlled without the On Board Diagnosis system alarming the driver each time the method is performed.

As used herein, the term "motor" refers to the motive power source of a motor vehicle that may be a gasoline engine, a diesel engine, an electric motor or other power source.

As used herein, the term "On Board Diagnosis" or "OBD" system refers to a On Board Diagnosis system that is used in existing vehicles. Nowadays, the standard OBD system is the OBD II system.

As used herein, the term "indicator signal" refers to a signal resulting in a indication for the driver a Diagnosis Trouble Code (DTC) has been diagnosed, for example a "Check Motor Light" indicator or light on the dashboard. The DTC's related to the motor specifically result in activation of the "MIL" (Malfunction Indicator Light) on the dashboard.

Step b), determining if said at least one input signal represents at least one specific condition required to control the motor, prevents a condition wherein the motor will be controlled unsuitably and a DTC will be reset unsuitably. Preferably, a plurality of specific conditions related to the vehicle are required to control the motor (see hereunder).

As used herein, the term "existing vehicle" refers to a vehicle that is already produced by the original equipment manufacturer (OEM), for example an aftermarket vehicle or every kind of new conventional vehicle.

Preferably, the at least one input signal from step d) can be all possible signals an OBD system is able to generate in relation to the motor. Preferably, the at least one output signal referred to in step f) can be all signals to enable resetting of all possible DTC's relating to the motor.

One example of at least one signal to control the motor can be a signal to stop the motor by turning off the fuel pump to interrupt fuel pumping. To control the motor different components can be involved, so different signals can be generated. The

variety of components and signals that can be involved is dependent on the manufacturer of the vehicle and the vehicle type.

The standard OBD system, OBDII, is able to use multiple discrete communication protocols dependent on the manufacturer of the vehicle. Preferably, the at least one input signal of step d) and the at least one output signal of step f) are compatible with the communication protocol used by the OBD system of said vehicle.

Preferably, a lag time is inserted between step b) and step c). Preferably, the method comprises a step, between step b) and step c), of generating an audio signal to make the driver aware that the motor will be controlled. This audio signal can be generated in the beginning of this lag time.

In a preferred embodiment of the method according to the invention, the at least one output signal of step c) is at least one signal to stop the motor. By stopping the motor under specific conditions electrical energy or fuel can be saved, for example while waiting for the traffic light or while waiting in a traffic jam. Stopping the motor will also help to reduce smog formation.

Preferably, the at least one input signal from at least one component of the vehicle of step a) is a plurality of signals representing a speed condition with a speed lower than a predetermined value, and a depressed clutch pedal condition. Preferably, the vehicle speed is zero.

By depressing the clutch pedal while having a low speed or while decreasing the speed, the driver is able to intentionally control the motor via the method according to the invention. Therefore, the driver should adjust its driving behaviour to specifically control the motor. On the other hand, he or she can maintain his or her hands on the steering wheel.

Furthermore, it is preferred that this plurality of signals further represent a signal selected from the group consisting of at least one signal representing a non-reverse

gear condition, at least one signal representing a condition of a motor temperature being higher than a predetermined value, and at least one signal representing a battery charge being higher than a predetermined value. The requirement of the non-reverse gear condition prevents the motor from being stopped via the method of the invention while the driver is planning to drive backwardly. The requirement of the condition of a motor temperature being higher than a predetermined value prevents the motor from being stopped while the motor is still (too) cold and perhaps relatively difficult to restart. The requirement of the condition of a battery charge being higher than a predetermined value prevents the motor from being stopped while battery charge is too low to maintain the functions of the heating, air conditioning, lights, etc. or even too low to restart the motor. Preferably, the method comprises the step of generating a warning signal for restarting the motor, after step f), in a condition the battery charge becomes lower than a predetermined value due to functioning of other components while the motor being turned off. Furthermore, it is preferred that the at least one input signal referred to in step a) is one signal or a plurality of signals that can be expected.

In yet another preferred embodiment of the method according to the invention, the at least one input signal from at least one component of the vehicle of step a) is a predetermined amount of signals each representing a covered distance condition, whereby the total amount of signals represent a distance that is higher than a predetermined value. This method applies to the situation the motor has been started recently after a stop and has covered a low distance. This condition required to stop the motor is to prevent the motor from being stopped in a situation that the distance covered after the vehicle stood still is very small. For example, when the driver is crossing a roundabout point. Each one of the predetermined amount of signals represents a single distance. The predetermined amount is dependent on the distance each one of the signals is representing, which is again dependent on the manufacturer of the vehicle and the vehicle type. For example, a signal representing a distance condition originates from a gear box or ABS related sensor.

In yet another preferred embodiment of the method according to the invention, it further comprises the steps of, g) receiving at least one input signal from at least one component of the vehicle, h) determining if said at least one input signal of step g) represents at least one specific condition required to start the motor, and i) generating at least one output signal to start the motor. The steps g) – i) are performed after the motor has been stopped via the method according to this invention. The difference between the at least one input signal from at least one component of the vehicle referred to in step a) and referred to in step g) is that the signal referred to in step a) is a signal of a component of the vehicle in a condition the motor of the vehicle has not been stopped via the method according to the invention, and the signal referred to in step g) is a signal of a component of the vehicle in a condition wherein the motor of the vehicle has been stopped via the method according to the invention. This method not only controls the motor by stopping it under specific conditions but also by starting the motor under specific conditions.

Preferably, the at least one input signal from at least one component of the vehicle of step g) is at least one signal representing at least two consecutive short depressed brake pedal conditions. Preferably, the short depressed brake pedal conditions last for a maximum of 2 seconds, more preferably for a maximum of 1 second.

One of the advantages of the at least one output signal of step c) to start the motor being at least one signal representing at least two consecutive short depressed brake pedal, is that the driver, again intentionally, can start the motor while maintaining his or her hands on the steering wheel.

In another preferred embodiment of the method according to the invention, it further comprises the steps of j) varying the at least one output signal to start the motor referred to in i); k) determining the resulting length of the time period during which the start motor is activated, and l) deducing an optimum time period during which the start motor is activated. Using a method to control the motor according to the

invention, as described above, results in regular activation of the start motor. Consequently, the performance of a start motor may decrease. By determining an optimum time period during which the start motor is activated, and consequently applying said time period, a decreasing performance of the start motor due to regular use is prevented or delayed. Furthermore, by applying said deduced time period to start the motor, the start motor is used more efficiently saving electrical energy and/or fuel.

The present invention further provides a device that can be retrofitted into an existing vehicle to control a motor of said vehicle, said device being configured to perform any one of the methods described above. The device according to the invention consists of hardware, having a housing and specific connectors, see below, and a processing system. The device comprises a program comprising software code portions for performing any one of the methods described above, when the program is run on the processing system.

In a preferred embodiment of the device according to the invention, it comprises a DB9 connector pinout and is configured to use at least one communication protocol of a standard OBD. The OBD connector can be plugged into the Data Link Connector (DLC) of the OBD. Conventionally, this cable is meant to be used by a technician in a service centre to read out the DTC's during service. The technician uses some sort of hardware interface reading the DTC's and, after fixing the problem, resetting them. The basic of said DB9 connector pinout and the OBD connector pin out is known by the person skilled in the field of automotive technology.

Using the DB9 connector pinout a standard OBD cable having an OBD connector on one end and a DB9 female serial connector on the other end can be used to transmit the DTC and DTC resetting signals from and to an OBD. That is, the at least one input signal from the On Board Diagnosis (OBD) system of step d) can be received via the OBD cable. The at least one output signal able to reset said Diagnosis Trouble Code of step f) can be transmitted via the OBD cable to the OBD

system. The OBD cable is useful for receiving and transmitting the signals mentioned above.

One pin of the DB9 connector pinout, battery power, can be used to monitor the battery charge, for example to give a warning signal preventing the battery charge will become too low to start the motor. A battery charge being higher than a predetermined value can be a required condition of the battery (a component of the vehicle) to stop the motor in a method described above.

Preferably, the device according to the invention is configured to, upon connecting the system of the invention to the OBD port of the existing vehicle, determine the communication protocol of said particular port.

Retrofitting such a device comprises the steps of connecting said system to the OBD system present in the existing vehicle by using a standard OBD cable having an OBD connector on one end and a DB9 female serial connector on the other, and electrically connecting the system to at least one component of the vehicle.

By unplugging this standard OBD cable the user is able to remove or disable the device according to the invention.

In yet another preferred embodiment of the device according to the invention, it comprises a 16 pole connector to enable an electrical connection to at least one component of the vehicle. Preferably, the 16 pole is enabling an electrical connection to a personal computer, or to at least one component of the vehicle selected from the group consisting of a battery, a motor start relay, a motor stop relay, a dynamo, a start motor relay, an ABS sensor, a gearbox sensor, a motor temperature sensor, a brake pedal switch or a clutch pedal switch.

Preferably, the at least one input signal of step a) can be received via a wired connection between the 16 pole connector and at least one vehicle component. Preferably, the at least one output signal of step c) that is generated, can be

transmitted via a wired connection between the 16 pole connector and at least one component of the vehicle.

It is preferred that the device according the invention comprises a serial communication connection to enable a connection to a computer or another electronic device. Additionally, the serial communication connection can be integrated into the dash board of the vehicle. Such a connection enables communication with the device according to the invention using a computer, for example to monitor the driving behaviour of the driver.

Furthermore, it is preferred that the device according the invention comprises memory means for monitoring driving behaviour of the driver of the vehicle by storing the at least one input signal from at least one component of step a), the at least one output signal to control the motor of step c), the at least one input signal from the On Board Diagnosis system of step e), and/or the at least one output signal of step f).

Brief description of the drawing

Figure 1 shows a schematic representation of an existing vehicle in which a device according to the invention is retrofitted.

Detailed description of the drawing

The device (2) according to the invention is electrically connected to the OBD system (3) using a OBD cable (5). The OBD cable (5) enables communication between the device (2) according to the invention and the OBD system (3) regarding the Diagnostic Trouble Code(s) and the signals resetting them. The motor management system (4) is already electrically connected to several components of the vehicle (6 – 15) of which a few (6, 7) are directly related to the motor (1) of the vehicle. These latter connections are already present in an existing vehicle. The device (2) according to the invention is, after said device (2) is retrofitted in the vehicle, electrically connected to components that are also electrically connected to the motor management system (4), including the components (6, 7) directly related to the motor (1) of the vehicle. These components (6, 7) can be a motor start relay and a motor stop relay respectively. The other components (8-10) not being directly related to the motor could be, for example, a brake pedal switch, a clutch pedal switch and/or a gearbox sensor.

CONCLUSIES

1. Werkwijze voor het controleren van een motor van een bestaand voertuig, waarbij het genoemde voertuig is voorzien van een motor management systeem en een On Board Diagnosesysteem, omvattende de stappen van,
   a) het ontvangen van ten minste een ingangssignaal van ten minste een component van het voertuig;
   b) het bepalen of het genoemde ten minste een ingangssignaal van stap a) ten minste een specifieke omstandigheid vertegenwoordigt die voor het controleren van de motor is vereist;
   c) het genereren van ten minste een uitgangssignaal voor het controleren van de motor;
   d) het ontvangen van ten minste een ingangssignaal van het On Board Diagnose (OBD) systeem;
   e) het bepalen of het genoemde ten minste een ingangssignaal van stap d) een diagnosestoringscode vertegenwoordigt, en
   f) het genereren van ten minste een uitgangssignaal dat in staat om de genoemde diagnosestoringscode te resetten.

2. Werkwijze volgens conclusie 1, **met het kenmerk, dat** het ten minste een uitgangssignaal van stap c) ten minste een signaal voor het stoppen van de motor is.

3. Werkwijze volgens conclusie 2, **met het kenmerk, dat** het ten minste een ingangssignaal van ten minste een component van het voertuig van stap a) een pluraliteit aan signalen is die een omstandigheid waarin de snelheid lager is dan een vooraf bepaalde waarde en een omstandigheid waarin de koppelingspedaal is ingedrukt vertegenwoordigt.

4. Werkwijze volgens conclusie 2 of 3, **met het kenmerk, dat het** ten minste een ingangssignaal van ten minste een component van het voertuig van stap a) een pluraliteit aan signalen is, welke signalen worden gekozen uit de groep bestaande uit ten minste een signaal dat een omstandigheid vertegenwoordigt waarin de versnelling niet in de achteruit-stand staat, ten minste een signaal dat een omstandigheid vertegenwoordigt waarin de temperatuur van de motor hoger is dan een vooraf bepaalde waarde, en ten minste een signaal dat een omstandigheid vertegenwoordigt waarin de lading van een batterij hoger is dan een vooraf bepaalde waarde.

5. Werkwijze volgens een van de conclusies 2-4, **met het kenmerk, dat** het ten minste een ingangssignaal van ten minste een component van het voertuig van stap a) een vooraf bepaalde hoeveelheid aan signalen is, welke signalen elk een omstandigheid van een afgelegde afstand vertegenwoordigen, waarbij het totale aantal signalen een afstand vertegenwoordigt die groter is dan een vooraf bepaalde waarde.

6. Werkwijze volgens een van de conclusies 2-5, **met het kenmerk, dat** deze verder de stappen omvat van,

    g) het ontvangen van ten minste een ingangssignaal van ten minste een component van het voertuig;

    h) het bepalen of het genoemde ten minste een ingangssignaal van stap g) ten minste een specifieke omstandigheid vertegenwoordigt die voor het starten van de motor is vereist;

    i) het genereren van ten minste een uitgangssignaal voor het starten van de motor.

7. Werkwijze volgens conclusie 6, **met het kenmerk, dat** het ten minste een ingangssignaal van ten minste een component van het voertuig van stap g)

ten minste een signaal is dat ten minste twee opeenvolgende korte omstandigheden waarin de rempedaal is ingedrukt vertegenwoordigt.

8. Werkwijze volgens conclusie 6 of 7, **met het kenmerk, dat** deze verder de stappen omvat van,

   j) het variëren van ten minste een uitgangssignaal voor het starten van de motor van stap i);

   k) het bepalen van de resulterende tijdspanne waarin de startmotor wordt geactiveerd, en

   l) het deduceren van een optimale tijdspanne waarin de motor wordt geactiveerd.

9. Inrichting voor het controleren van een motor van een voertuig, welke inrichting nadien in het genoemde bestaande voertuig kan worden ingebouwd, **met het kenmerk, dat** deze zodanig is geconfigureerd dat deze een werkwijze volgens een van de conclusies 1-8 kan uitvoeren.

10. Inrichting volgens conclusie 9, **met het kenmerk, dat** deze een DB9 multipinconnector omvat, en zodanig is geconfigureerd deze ten minste een communicatieprotocol van een standaard OBD kan gebruiken.

11. Inrichting volgens conclusie 9 of 10, **met het kenmerk, dat** deze een 16 multipinconnector omvat om een elektrische verbinding met ten minste een component van het voertuig mogelijk te maken.

12. Inrichting volgens een van de conclusies 9-11, **met het kenmerk, dat** deze een seriële communicatieverbinding omvat om een verbinding met een computer of een andere elektronische inrichting mogelijk te maken.

13. Inrichting volgens een van de conclusies 9-12, **met het kenmerk, dat** deze geheugenmiddelen omvat voor het monitoren van het rijgedrag van de rijder van het voertuig door het ten minste een ingangssignaal van ten minste een

component van stap a), het ten minste een uitgangssignaal voor het controleren van de motor van stap c), het ten minste een ingangssignaal van het OBD systeem van stap e), en/of het ten minste een uitgangssignaal van stap f) te bewaren.

5

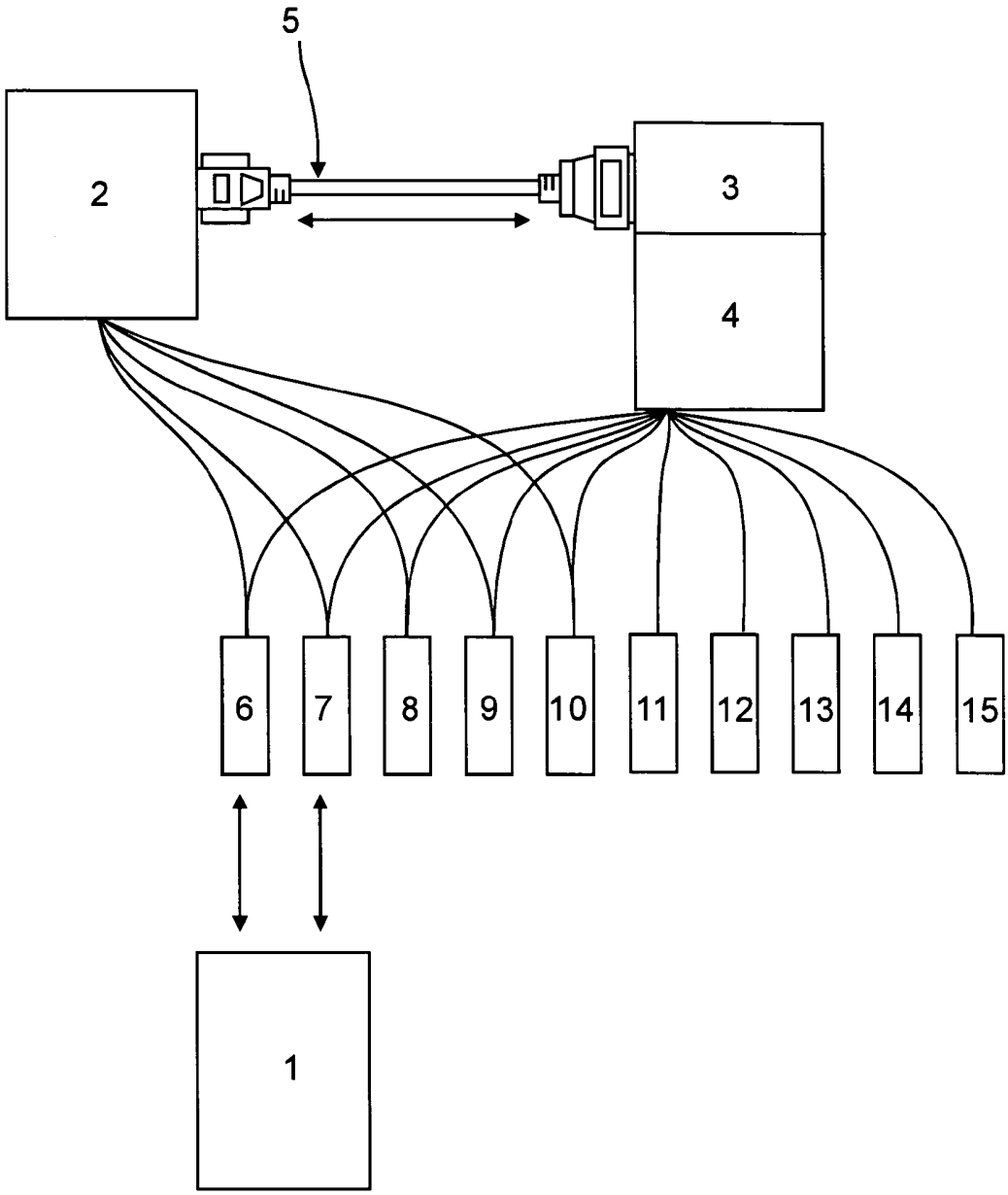

Fig.1

Agentschap NL
Ministerie van Economische Zaken, Landbouw en Innovatie

OCTROOIAANVRAAG NR.:
NO 137925
NL 1039142

ONDERZOEKSRAPPORT

BETREFFENDE HET RESULTAAT VAN HET ONDERZOEK NAAR DE STAND VAN DE TECHNIEK

RELEVANTE LITERATUUR

Categorie[1]	Literatuur met, voor zover nodig, aanduiding van speciaal van belang zijnde tekstgedeelten of figuren.	Van belang voor conclusie(s) nr:	Classificatie (IPC)
X Y	WO 2006/050380 A2 (HEFFINGTON MARK [US]) 11 mei 2006 (2006-05-11) * alineas [0009], [0013] - [0014], [0016], [0020] - [0022], [0071], [0117]; conclusies *	1,9-12 1-13	INV. F02N11/08
Y	US 2010/262357 A1 (DUPUIS A RICHARD [CA] ET AL) 14 oktober 2010 (2010-10-14) * alineas [0006], [0012] - [0013], [0025] - [0027]; figuren *	1-13	
Y	JP 2008 255887 A (CAR MATE MFG) 23 oktober 2008 (2008-10-23) * samenvatting; figuren *	1-13	
Y	DE 93 09 617 U1 (KRAUSE PETER [DE]) 26 augustus 1993 (1993-08-26) * Paragraphs 1 and 2.1 *	1-13	
A,D	GB 2 427 655 A (FORD GLOBAL TECH LLC [US]) 3 januari 2007 (2007-01-03) * het gehele document *	1-13	

Onderzochte gebieden van de techniek

F02N

Indien gewijzigde conclusies zijn ingediend, heeft dit rapport betrekking op de conclusies ingediend op:

Plaats van onderzoek:	Datum waarop het onderzoek werd voltooid:	Bevoegd ambtenaar:
München	16 juli 2012	Ulivieri, Enrico

[1] CATEGORIE VAN DE VERMELDE LITERATUUR

X: de conclusie wordt als niet nieuw of niet inventief beschouwd ten opzichte van deze literatuur
Y: de conclusie wordt als niet inventief beschouwd ten opzichte van de combinatie van deze literatuur met andere geciteerde literatuur van dezelfde categorie, waarbij de combinatie voor de vakman voor de hand liggend wordt geacht
A: niet tot de categorie X of Y behorende literatuur die de stand van de techniek beschrijft
O: niet-schriftelijke stand van de techniek
P: tussen de voorrangsdatum en de indieningsdatum gepubliceerde literatuur
T: na de indieningsdatum of de voorrangsdatum gepubliceerde literatuur die niet bezwarend is voor de octrooiaanvrage, maar wordt vermeld ter verheldering van de theorie of het principe dat ten grondslag ligt aan de uitvinding
E: eerdere octrooi(aanvrage), gepubliceerd op of na de indieningsdatum, waarin dezelfde uitvinding wordt beschreven
D: in de octrooiaanvrage vermeld
L: om andere redenen vermelde literatuur
&: lid van dezelfde octrooifamilie of overeenkomstige octrooipublicatie

EOB FORM 02.83 (P0414B)

AANHANGSEL BEHORENDE BIJ HET RAPPORT BETREFFENDE HET ONDERZOEK NAAR DE STAND VAN DE TECHNIEK, UITGEVOERD IN DE OCTROOIAANVRAGE NR.

NO 137925
NL 1039142

Het aanhangsel bevat een opgave van elders gepubliceerde octrooiaanvragen of octrooien (zogenaamde leden van dezelfde octrooifamilie), die overeenkomen met octrooischriften genoemd in het rapport.
De opgave is samengesteld aan de hand van gegevens uit het computerbestand van het Europees Octrooibureau per
De juistheid en volledigheid van deze opgave wordt noch door het Europees Octrooibureau, noch door het Bureau voor de Industriële eigendom gegarandeerd; de gegevens worden verstrekt voor informatiedoeleinden.

16-07-2012

In het rapport genoemd octrooigeschrift	Datum van publicatie	Overeenkomend(e) geschrift(en)	Datum van publicatie
WO 2006050380 A2	11-05-2006	US 2006106510 A1	18-05-2006
		US 2007078571 A1	05-04-2007
		WO 2006050380 A2	11-05-2006
		WO 2006050454 A2	11-05-2006
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GB 2427655 A	03-01-2007	DE 102006029914 A1	04-01-2007
		GB 2427655 A	03-01-2007

Algemene informatie over dit aanhangsel is gepubliceerd in de 'Official Journal' van het Europees Octrooibureau nr 12/82 blz 448 ev

Agentschap NL
Ministerie van Economische Zaken, Landbouw en Innovatie

SCHRIFTELIJKE OPINIE

DOSSIER NUMMER	INDIENINGSDATUM	VOORRANGSDATUM	AANVRAAGNUMMER
NO137925	31.10.2011		NL1039142
CLASSIFICATIE INV. F02N11/08			
AANVRAGER Bouma			

Deze schriftelijke opinie bevat een toelichting op de volgende onderdelen:

- ☒ Onderdeel I Basis van de schriftelijke opinie
- ☐ Onderdeel II Voorrang
- ☐ Onderdeel III Vaststelling nieuwheid, inventiviteit en industriële toepasbaarheid niet mogelijk
- ☐ Onderdeel IV De aanvraag heeft betrekking op meer dan één uitvinding
- ☒ Onderdeel V Gemotiveerde verklaring ten aanzien van nieuwheid, inventiviteit en industriële toepasbaarheid
- ☐ Onderdeel VI Andere geciteerde documenten
- ☐ Onderdeel VII Overige gebreken
- ☐ Onderdeel VIII Overige opmerkingen

	DE BEVOEGDE AMBTENAAR
	Ulivieri, Enrico

Aanvraag nr.:

SCHRIFTELIJKE OPINIE

NL1039142

Onderdeel I Basis van de Schriftelijke Opinie

1. Deze schriftelijke opinie is opgesteld op basis van de meest recente conclusies ingediend voor aanvang van het onderzoek.

2. Met betrekking tot **nucleotide en/of aminozuur sequenties** die genoemd worden in de aanvraag en relevant zijn voor de uitvinding zoals beschreven in de conclusies, is dit onderzoek gedaan op basis van:

   a. type materiaal:

   ☐ sequentie opsomming

   ☐ tabel met betrekking tot de sequentie lijst

   b. vorm van het materiaal:

   ☐ op papier

   ☐ in elektronische vorm

   c. moment van indiening/aanlevering:

   ☐ opgenomen in de aanvraag zoals ingediend

   ☐ samen met de aanvraag elektronisch ingediend

   ☐ later aangeleverd voor het onderzoek

3. ☐ In geval er meer dan één versie of kopie van een sequentie opsomming of tabel met betrekking op een sequentie is ingediend of aangeleverd, zijn de benodigde verklaringen ingediend dat de informatie in de latere of additionele kopieën identiek is aan de aanvraag zoals ingediend of niet meer informatie bevatten dan de aanvraag zoals oorspronkelijk werd ingediend.

4. Overige opmerkingen:

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Onderdeel V Gemotiveerde verklaring ten aanzien van nieuwheid, inventiviteit en industriële toepasbaarheid

1. Verklaring

Nieuwheid	Ja:	Conclusies 2-8, 10, 11, 13
	Nee:	Conclusies 1, 9, 12
Inventiviteit	Ja:	Conclusies
	Nee:	Conclusies 1-13
Industriële toepasbaarheid	Ja:	Conclusies 1-13
	Nee:	Conclusies

2. Citaties en toelichting:

Zie aparte bladzijde

Re Item V

Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

Prior art

1 Reference is made to the following documents:

D1 WO 2006/050380 A2 (HEFFINGTON MARK [US]) 11 mei 2006 (2006-05-11)

D2 US 2010/262357 A1 (DUPUIS A RICHARD [CA] ET AL) 14 oktober 2010 (2010-10-14)

D3 JP 2008 255887 A (CAR MATE MFG) 23 oktober 2008 (2008-10-23)

Claims 1 and 9

2 Claims 1 and 9 are not clear.

2.1 The terms "at least one input signal", "at least one component", "at least one ouput signal" used in claim 1 are vague and unclear and leaves the reader in doubt as to the meaning of the technical feature to which it refers, thereby rendering the definition of the subject-matter of said claim 1 and of claim 9 unclear.

Furthermore the claim 1 fails to define an order and a dependency between each step. Namely, when, whether and in which order each step should be performed. For example, it is not clear whether the step c) of "generating at least one output signal to the control of the engine" is produced as consequence of the previous steps a) and b) or is a standard control step performed by the engine management system.

2.2 Furthermore claim 9 should describe a device for controlling an engine of a vehicle, however it includes features which relate to a method of using the device rather than clearly defining the device in terms of its technical features. The intended limitations are therefore not clear from this claim.

On the contrary the application describes a start-and-stop (claims 2 to 8) device which should be integrated in an existing vehicle by a connection with the existing OBD (claims 10 to 13) system and capable of resetting eventual DTCs on the OBD system (step f). The applicant is invited to focus on the

physical interaction between the existing vehicle and the add-on device. Namely, how the device is able to performed the engine control method and to interact with the OBD, the engine management system, vehicle component(s) and/or the engine.

3 Furthermore, the above-mentioned lack of clarity notwithstanding, the subject-matter of claim 1 is not new, and the criteria of patentability are therefore not met.

3.1 Any existing vehicle comprising an engine management system with on-board diagnostic system capable of resetting a diagnostic trouble code (DTC) should be considered novelty destroying. That is because such an existing vehicle would necessarily performs all steps a) to f).

Accordingly claim 1 could not be considered as novel.

3.2 D1 discloses an apparatus 10, which is retrofitted in an existing vehicle 4 and connected to its On-Board Diagnostic. That apparatus does not performs start-and-stop control, but is able to input at least one input of the OBD system, to determine a DTC from that at least one input and to generate at least one output to the OBD system to which is able to reset said fault code, corresponding to the steps d) to f) (paragraph 20). The apparatus reads data from components of the vehicle and could output signal to the vehicle control unit, corresponding to the steps a) to b) (paragraph 71, 117).

Accordingly claim 1 could not be considered as novel with regard to D1.

4 Furthermore, the above-mentioned lack of clarity notwithstanding, the subject-matter of claim 1 does not involve an inventive step, and the criteria of patentability are therefore not met.

D2 discloses an apparatus which could be retrofitted in an existing vehicle (paragraph 26) by means of the (OBD) diagnostic port of the vehicle (paragraph 6, 8 or 25) for providing start-and-stop functionalities to the vehicle (paragraph 1). The apparatus performed a method which includes the steps a) to c) (paragraph 8 to 9).

The steps d) to f) must not necessarily performed by the same apparatus, but could be part of the functionalities of another apparatus/system for example of the apparatus of D1 in order to solve the technical problem proposed in that document.

Furthermore it is believed that the use of an OBD connection between the apparatus and the vehicle would obviously imply the steps d) to f) in order to avoid annoying warning or error messages to the driver or to the technical.