Automobile comprising a jamming system

Automobil das ein Störsendersystem beinhaltet

Automobile comprenant un système de brouillage

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• Al Ali, Khalid Obaid Salim, Alothman Sharjah (AE)

Representative: Plöger, Jan Manfred et al
Gramm, Lins & Partner GbR
Theodor-Heuss-Strasse 1
38122 Braunschweig (DE)

References cited:
EP-A- 0 426 345
US-A- 6 044 923

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Description

[0001] The invention relates to an automobile according to the preamble of claim 1.

[0002] It is known to provide automobiles comprising a jamming system with two or even more alternators to increase the power production in those cases, when additional electrical components are provided in the automobile. These two alternators are mounted separately to a motor of the automobile. However, it has turned out that existing automobiles with two or even more alternators do not meet the requirements regarding liability and robustness. This is a particular problem, if the auxiliary alternator is used to supply electrical power to a sensitive application as the jammer system. Automobiles with jammer systems are used to protect convoys of endangered persons by jamming potential bombs in the vicinity.

[0003] US 2007/0063886 A1 discloses an automobile with a jamming system. From EP 0 426 345 A2 a generator system is known, which comprises two alternators, wherein one of the voltages is electrically floating. This aims at increasing the passengers safety.

[0004] US 6,044,923 disclose an electric power generation system for limousine with two alternators, both sharing the same grounding.

[0005] From US 2004/006/7803 A1 a belt-drive system driven by internal combustion engine mounted on automotive vehicle is known. In this system, one single belt is used to drive separate alternators.

[0006] The invention aims at enhancing the jamming system. The invention solves the problem by an automobile according to claim 1.

[0007] It is an advantage of the present invention that the main alternator and the auxiliary alternator are fixed and cannot move with respect to each other. It is therefore possible to firmly fix both alternators with respect to a motor pulley of a motor of the automobile. Even under extreme conditions, a driving belt driving the main alternator and/or the auxiliary alternator safely links the alternators to the motor. Advantageously, the alternator holder according to the invention also eases upgrading an automobile from one alternator to two alternators. No qualified stuff is required. Also, once tested, the alternator holder according to the present invention may be used without further testing each upgraded automobile. Thus, the holder according to the present invention is a means for reproducible fixing two alternators to an engine of an automobile.

[0008] In a preferred embodiment, the main alternator support and the auxiliary alternator support are arranged, such that the main alternator and the auxiliary alternator are drivable by means of a joint driving belt. This eases upgrading an automobile with an auxiliary alternator, as an existing motor pulley of the automobile’s motor may be used for also driving the auxiliary alternator.

[0009] The main alternator is electrically insulated with respect to the auxiliary alternator or to the alternator holder. For example, an insulating element is placed between the auxiliary alternator and the alternator holder. The alternator holder is used in an automobile comprising a jammer system. The auxiliary alternator drives the jamming system comprising a jammer antenna. Thus, the jammer antenna does not interfere with a possible electrical potential of a chassis of the automobile. Alternatively or in addition, the holder may comprise an insulating part between an adapter for mounting the holder to the motor and the support for the auxiliary alternator.

[0010] The alternator holder is part of an alternator assembly additionally comprising a main alternator supported by the main alternator support and an auxiliary alternator supported by the auxiliary alternator support.

[0011] Preferably, the alternator assembly comprises a main battery electrical connected to the main alternator and an auxiliary battery electrically connected to the auxiliary alternator. The main alternator is electrically insulated with respect to the auxiliary alternator. The auxiliary electrical circuit comprising the auxiliary alternator and the auxiliary battery has a floating earth with respect to a main electrical circuit that comprises the main alternator and the main battery.

[0012] It is preferred that the main alternator comprises a main pulley and the auxiliary alternator comprises an auxiliary pulley, wherein the auxiliary pulse has a smaller diameter than the main pulley. The auxiliary alternator then has a higher power output than the main alternator.

[0013] The alternator assembly is part of an automobile, in particular a car, wherein the main alternator is earthed to a chassis of the automobile and the auxiliary alternator has a floating earth. The automobile comprises a jamming system. The auxiliary alternator is used to power the jamming system. Thus, the jamming system has a floating earth and is independent from possibly changing electrical potentials of a chassis. The main alternator is connected with the electrical components of the car, such as igniting system, steering system, and motor components.

[0014] It is turned out to be advantageous to link the auxiliary alternator to the motor in such a way that one revolution of the motor corresponds to at least two, in particular to at least three revolutions of the auxiliary alternator. This yields a high power output of the auxiliary alternator even for an idling engine.

[0015] An embodiment of the present invention is now described with reference to the drawings, in which

Figure 1 depicts a perspective view of an alternator assembly according to the invention comprising an alternator holder according to the invention; and

Figure 2 is another perspective view of the alternator assembly according to Figure 1.

[0016] Figure 1 shows an alternator holder 10 comprising a main alternator support 12 and an auxiliary alternator support 14.
Main alternator 16 electrically contacts alternator holder 10 via screws 20a, 20b via which main alternator 16 is mechanically fixed to the alternator holder 10. In contrast, auxiliary alternator 18 is insulated from auxiliary alternator support 14 via electrical insulators, wherein in Figure 1 only electrical insulators 22a, 22b are shown.

Main alternator 16 comprises a main pulley 24 having a main pulley diameter $D_m$ for cooperating with a driving belt (not shown). Correspondingly, auxiliary alternator 18 comprises an auxiliary pulley (not shown) that is mounted to a shaft 26. Main pulley 24 and the auxiliary pulley are oriented with respect to each other, such that the driving belt can drive both, the main alternator 16 and the auxiliary alternator 18 simultaneously.

When mounted to a motor of an automobile via a fixing part 28, the alternators 16, 18 are only mounted to the alternator holder 10. That is, the alternator holder 10 alone holds the alternator 16, 18 in place.

The alternator holder 10 may be made from e.g. aluminum, cast aluminum, or steel. It also serves as a heat bridge for the alternators 16, 18. In the automobile, alternator holder 10 is arranged, such that an air cooler of the automobile also cools the alternators 16, 18.

To provide for enough electrical power even at idling speed of the motor of the automobile it is advantageous to choose a transmission ratio $t$ between the motor and the auxiliary alternator 18 to be for example $t = \frac{1}{4}$. Thus, the auxiliary alternator rotates faster than the motor. One revolution of the motor equals to four revolutions of the auxiliary alternator 18.

Auxiliary alternator 18 is connected to an auxiliary battery (not shown) and a jamming system. As auxiliary alternator 18 is electrically insulated from an electrical circuit of main alternator 16, main alternator 16 being earthed to a chassis of the automobile, auxiliary alternator 18 has a floating ground. Thus, the main electric circuit of main alternator 16 and the auxiliary electric circuit of auxiliary alternator 18 are completely decoupled and cannot influence each other. An antenna of the jamming system does not interfere with e.g. the igniting system of the motor.

It is also possible to use the alternator holder and/or the alternator assembly e.g. in an ambulance. The alternator holder may be adapted to fit with one type of automobile. If necessary, the alternator holder has been redesigned for use with a different automobile.

List of reference numbers

| 10 | alternator holder |
| 12 | main alternator-support |
| 14 | auxiliary alternator support |
| 16 | main alternator |
| 18 | auxiliary alternator |
5. Automobile according to any preceding claim, comprising a motor, the main alternator (16) and the auxiliary alternator (18) being driven by a joint driving belt.

6. Automobile according to claim 5, the auxiliary alternator (18) being adapted such that one revolution of the motor corresponds to at least two revolutions of the auxiliary alternator (18).

Patentansprüche

1. Automobil mit einem Störsendersystem und einer Generatoranordnung mit

(i) einer Generatorhaltevorrichtung (10) zum Befestigen eines Generators an dem Automobil, wobei die Generatorhaltevorrichtung (10), eine Hauptgeneratorhalterung (12) zum Halten eines Hauptgenerators (16) und

(ii) einem Hauptgenerator (16), welcher von der Hauptgeneratorhalterung (12) gehalten wird,

dadurch gekennzeichnet, dass

(iii) die Generatorhaltevorrichtung (10) eine Zusatzgeneratorhalterung (14) zum Halten eines Zusatzgenerators (18) aufweist,

(iv) die Generatoranordnung einen Zusatzgenerator (18) aufweist, welcher von der Zusatzgeneratorhalterung (14) gehalten wird,

(v) der Hauptgenerator (16) mit einer Zündanlage des Automobils verbunden ist,

(vi) der Hauptgenerator (16) an einem Chassis des Automobils geerdet ist und der Zusatzgenerator (18) eine schwebende Masse besitzt,

(vii) der Zusatzgenerator (18) eine zusätzliche elektrische Schaltung, welche mit dem Störsendersystem verbunden ist, versorgt.

2. Automobil nach Anspruch 1, dadurch gekennzeichnet, dass die Hauptgeneratorhalterung (12) und die Zusatzgeneratorhalterung (14) so ausgeführt sind, dass der Hauptgenerator (16) und der Zusatzgenerator (18) mittels eines gemeinsamen Antriebsriemens antreibbar sind.

3. Automobil nach einem der vorstehenden Ansprüche, dadurch gekennzeichnet, dass der Hauptgenerator (16) elektrisch isoliert ist gegenüber dem Zusatzgenerator (18) oder der Generatorhaltevorrichtung (10).

4. Automobil nach einem der vorstehenden Ansprüche, wobei in der Generatoranordnung

- der Hauptgenerator (16) eine Hauptumlenkrolle (24) aufweist,
- der Zusatzgenerator (18) eine Zusatzumlenkrolle aufweist und
- die Zusatzumlenkrolle einen kleineren Durchmesser besitzt als die Hauptumlenkrolle (24).


6. Automobil nach Anspruch 5, dadurch gekennzeichnet, dass der Zusatzgenerator (18) so ausgeführt ist, dass eine Umdrehung des Motors mindestens zwei Umdrehungen des Zusatzgenerators entspricht.

Revendications

1. Automobile comprenant un système de brouillage et un ensemble alternateur ayant

(i) un porte-alternateur (10) pour attacher un alternateur sur l’automobile, le porte-alternateur (10) comprenant un support d’alternateur principal (12) pour supporter un alternateur principal (16) et

(ii) un alternateur principal (16) supporté par le support d’alternateur principal (12) ;

caractérisée en ce que

(iii) le porte-alternateur (10) comprend un support d’alternateur auxiliaire (14) pour supporter un alternateur auxiliaire (18) ;

(iv) l’ensemble alternateur comprend un alternateur auxiliaire (18) supporté par le support d’alternateur auxiliaire (14) ;

(v) l’alternateur principal (16) est connecté à un système d’allumage de l’automobile ;

(vi) l’alternateur principal (16) est mis à la terre via un châssis de l’automobile, et l’alternateur auxiliaire (18) a une terre flottante ; et

(vii) l’alternateur auxiliaire (18) fournit une puissance à un circuit électrique auxiliaire connecté au système de brouillage.

2. Automobile selon la revendication 1, dans laquelle le support d’alternateur principal (12) et le support d’alternateur auxiliaire (14) sont agencés de telle façon que l’alternateur principal (16) et l’alternateur auxiliaire (18) peuvent être entraînés au moyen d’une courroie d’entraînement commune.

3. Automobile selon l’une quelconque des revendications précédentes, dans laquelle l’alternateur princi-
pal (16) est électriquement isolé par rapport à l’alternateur auxiliaire (18) ou au porte-alternateur (10).

4. Automobile selon l’une quelconque des revendications précédentes, dans laquelle, dans l’ensemble alternateur

- l’alternateur principal (16) comprend une poulie principale (24) ;
- l’alternateur auxiliaire (18) comprend une poulie auxiliaire ; et
- la poulie auxiliaire a un diamètre plus petit que la poulie principale (24).

5. Automobile selon l’une quelconque des revendications précédentes, comprenant un moteur, l’alternateur principal (16) et l’alternateur auxiliaire (18) étant entraînés par une courroie d’entraînement commune.

6. Automobile selon la revendication 5, dans laquelle l’alternateur auxiliaire (18) est adapté de telle façon qu’une rotation du moteur correspond à au moins deux rotations de l’alternateur auxiliaire (18).
REFERENCES CITED IN THE DESCRIPTION

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• US 6044923 A [0004]
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