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Datasheet for the decision of 6 September 2007

Case Number: T 0983/05 - 3.2.01

Application Number: 99968485.5

Publication Number: 1140571

IPC: B60R 21/20

Language of the proceedings: EN

Title of invention:
Recyclable airbag module housing

Patentee:
Delphi Technologies, Inc.

Opponent:
ZF Lemförder GmbH

Headword:
-

Relevant legal provisions:
EPC Art. 56

Keyword:
"Inventive step (no)"

Decisions cited:
-

Catchword:
-

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Case Number: T 0983/05 - 3.2.01

D E C I S I O N
of the Technical Board of Appeal 3.2.01
of 6 September 2007

Appellant: (Opponent)
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Representative:
-

Respondent: (Patent Proprietor)
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Decision under appeal:
Decision of the Opposition Division of the European Patent Office posted 16 June 2005 rejecting the opposition filed against European Patent No. 1140571 pursuant to Article 102(2) EPC.

Composition of the Board:

Chairman: S. Crane
Members: C. Narcisi
T. Karamanli

Summary of Facts and Submissions

I. The opposition filed against European patent No. 1 140 571 was rejected with the decision of the Opposition Division posted on 16 June 2005. An appeal against the decision was filed by the Opponent on 22 July 2005 and the appeal fee was paid at the same time. The statement of grounds of appeal was filed on 26 October 2005.

II. Oral proceedings took place on 6 September 2007. The Appellant requested that the contested decision be set aside and the patent be revoked in its entirety. The Respondent requested that the appeal be dismissed or that the patent be maintained in amended form on the basis of the first or the second auxiliary request as filed on 12 July 2007.

Claim 1 as granted reads as follows:

"A housing assembly for an airbag comprising an inflator housing (12,62,112) and an airbag retainer (14,64), whereby the inflator housing being a unitary structure made of a plastic which incorporates integral supports for an inflator (16,66) and, characterized by said plastic being a recyclable plastic and the airbag retainer being made of the same recyclable plastic, and including cooperating fasteners (46,36,96,82) formed on the housing and the retainer for securing the retainer to the housing, such that the housing, the retainer and the airbag can be recycled together without disassembly."

Claim 1 according to the first auxiliary request reads as follows:

"A housing assembly for an airbag comprising an inflator housing (12,62,112) and an airbag retainer (14,64), whereby the inflator housing being a unitary structure made of a plastic which incorporates integral supports for an inflator (16,66) and, characterized by said plastic being a recyclable plastic and the airbag retainer being made of the same recyclable plastic, and including cooperating fasteners (46,36,96,82) formed on the housing and the retainer for securing the retainer to the housing, such that the housing, the retainer and the airbag can be recycled together without disassembly, further characterized in that said housing, said airbag retainer, said cooperating fasteners are formed of a nylon or polyester material; and the airbag being secured by said airbag retainer across an open top of said inflator housing, wherein said airbag is formed of a material such that said housing, said airbag retainer, said cooperating fasteners, and said airbag can be recycled together after only removing the inflator from the housing."

Claim 1 according to the second auxiliary request reads as follows:

"A housing assembly for an airbag comprising an inflator housing (12,62,112) and an airbag retainer (14,64), whereby the inflator housing being a unitary structure made of a plastic which incorporates integral supports for an inflator (16,66) and, characterized by said plastic being a recyclable plastic and

the airbag retainer being made of the same recyclable plastic, and including cooperating fasteners (46,36,96,82) formed on the housing and the retainer for securing the retainer to the housing, such that the housing, the retainer and the airbag can be recycled together without disassembly, further characterized in that a cover (48,116) is secured over said airbag retainer, said cover, said housing, said airbag retainer, said cooperating fasteners are formed of a nylon or polyester material; and the airbag being secured by said airbag retainer across an open top of said inflator housing, wherein said airbag is formed of a material such that said cover, said housing, said airbag retainer, said cooperating fasteners, and said airbag can be recycled together after only removing the inflator from the housing."

III. The arguments presented by the Appellant may be summarized as follows:

E1 (US-A-5 639 112) is to be regarded as the closest prior art. The differences between granted claim 1 and E1 are to be seen in that according to claim 1 (a) the inflator housing and the airbag retainer are made of the same recyclable plastic and that (b) the housing, the retainer and the airbag can be recycled together without disassembly. Further prior art E3 (EP-A-0 856 437) discloses an inflator housing and an airbag retainer being integrally formed of a molded plastic material (column 4, line 52-column 5, line 5) and having an opening for insertion of the inflator (column 2, lines 49-52; column 5, lines 28-34), wherein the plastic material is recyclable and the inflator may be separated from the inflator housing for recycling

purposes (column 3, lines 34-42; column 4, lines 4, lines 35-38) without disassembly of the housing assembly comprising the inflator housing and the airbag. Moreover, as may also be inferred from E3 (column 1, lines 36-40; lines 48-52) the use of plastic material for the housing assembly and providing an opening for inserting the inflator can both be regarded as common and known measures in the art. In view of the object of the invention the skilled person would thus obviously be led to the combination of E1 and E3, and the recycling of the airbag together with the inflator housing and the airbag retainer results as an immediate consequence from the technical teaching of E3 and from the endeavour of the skilled person to optimize recycling of materials. The subject-matter of granted claim 1 therefore lacks an inventive step over the combination of E1 and E3. The same conclusion is arrived at if the combination of E1 and E2 ("Das Opel Recycling-System", Juli 1997) is considered. In fact, E2 clearly indicates (see paragraph "Sortenrein muß es sein", page 6) that the use of like or compatible materials is necessary for recycling purposes and that this principle has to be followed, as far as possible, for the choice of materials forming the components of one and the same specific construction unit of a vehicle.

The subject-matter of claim 1 according to auxiliary request 1 likewise does not involve an inventive step over the combination of E1 with E3. While it is true that the feature implying that the inflator housing, the airbag retainer and the cooperating fasteners are formed of a nylon or polyester material is not explicitly disclosed in E1 and E3, nevertheless

considering that airbags are commonly made of a nylon or polyester material, it would be obvious for a person of ordinary skill in the art, following the known principles mentioned in E2, to use these same materials to produce the inflator housing, the airbag retainer and the cooperating fasteners. The further feature that said airbag is secured by said airbag retainer across an open top of said inflator housing is already known from E1.

For the same reasons, the subject-matter of claim 1 according to auxiliary request 2 additionally including a cover made of nylon or polyester material secured over the airbag retainer lacks an inventive step over the combination of E1 and E3.

IV. The arguments presented by the Respondent may be summarized as follows:

The object of the invention is to simplify the recycling process of a housing assembly for an airbag comprising an inflator housing and an airbag retainer and to avoid disassembly of the housing assembly. The disassembly of the housing assembly shown in E1 is cumbersome but necessary to separate the gas inflator from the inflator housing, and moreover the inflator housing, the airbag retainer and the airbag cannot be recycled together due to the specific choice of plastic material according to E1. E3 admittedly discloses recycling of the inflator housing and airbag retainer, both integrally made of the same recyclable plastic material. However, in this respect it is particularly stressed that E3 does not give any suggestion to form the inflator housing, the airbag retainer and the

airbag out of a material permitting recycling all these three elements together. Moreover, none of the further documents relied upon in the appeal proceedings, envisages or suggests the possibility to recycle these three constructive elements together. Consequently, this technical aspect is considered as being of inventive significance in its own right. Finally, E3 does not even disclose that the inflator housing, the airbag retainer and the airbag can be recycled together without disassembly since in column 4, lines 35-38 disassembly of the housing assembly is clearly mentioned in E3 in conjunction with the recycling process. Consequently, the combination of E1 with E3 would not lead in any way to the subject-matter of granted claim 1.

Concerning the respective claim 1 of the first and second auxiliary requests it is emphasized that the skilled person knows that airbags are commonly made of nylon or polyester plastic material. Hence it can be implicitly derived from their subject-matter that the inflator housing, the airbag retainer, the cooperating fasteners, for securing the retainer to the housing, and the airbag are all made either of nylon or polyester material. It would not be obvious for the skilled person to produce the inflator housing, the airbag retainer and the airbag out of the same plastic material since these constructive elements evidently have to comply with very different requirements. Moreover, none of the documents relied upon in the appeal proceedings explicitly discloses the use of nylon or polyester for producing the inflator housing and airbag retainer. Further, the subject-matter of claim 1 according to both auxiliary requests now

explicitly indicates that said inflator housing, said airbag retainer, said cooperating fasteners and said airbag can be recycled together only after removing the inflator from the housing.

Claim 1 according to auxiliary request 2 additionally includes the feature that a cover is secured over the airbag retainer and is likewise formed of nylon or polyester material, such that the cover can be recycled together with the other mentioned constructive elements. This is not suggested by the cited prior art and for the same reasons given above an inventive step is therefore implied by the subject-matter of this claim.

Reasons for the Decision

1. The appeal is admissible since it meets the requirements of Articles 106 to 108 EPC in conjunction with Rule 64 EPC.

2. The Board agrees with the parties on E1 being the closest prior art and on the fact that the differences between granted claim 1 and E1 reside in that (a) the inflator housing and the airbag retainer are made of the same recyclable plastic and in that (b) the inflator housing, the retainer and the airbag can be recycled together without disassembly. The subject-matter of granted claim 1 is therefore new.

3. The object of the invention is to simplify the recycling process and to provide a housing assembly for

an airbag which can be recycled without disassembly (patent specification, column 1, lines 39-41). The skilled person will thus turn his attention to prior art dealing with recycling of vehicle components and particularly of housing assemblies for airbags. Document E3 clearly belongs to the same technical field as the invention and undisputedly discloses an inflator housing 1 and an airbag retainer 1 integrally formed of plastic material (column 4, line 52 - column 5, line 5; figures 1,2) such that they can be recycled together, as it may be derived from the disclosure of E3 (column 3, lines 34-42; column 4, lines 35-38). Further, the inflator housing shown in E3 includes an opening for insertion of the inflator (column 2, lines 49-52) which is fixed to the inflator housing by screw means (column 5, lines 38-46) directly accessible from the exterior of the housing. In conjunction with column 3, lines 3-8 it thus results from E3 that the gas inflator can be separated from the inflator housing and from the airbag retainer in an easy way, without disassembling the housing assembly. The skilled person starting from closest prior art E1 and looking for ways to simplify the recycling process would realize that E3 provides for both the technical measure of forming the inflator housing and the retainer out of recyclable plastic material and the measure of allowing the gas inflator to be easily mounted to or separated from the inflator housing without disassembly of the housing assembly, which measures significantly simplify the recycling process. On account of the further fact that it is usual and recommended in vehicle technology, especially for recycling purposes, to manufacture all components belonging to the same construction unit out of the same material (see E2, page 6), it would be obvious for one

of ordinary skill in the art to form the airbag of a plastic material which allows that it be recycled together with the inflator housing and the airbag retainer. The obvious combination of E1 and E3 in conjunction with the general knowledge of the skilled person thus leads directly to the subject-matter of granted claim 1, which accordingly lacks inventive step (Article 56 EPC). Thus the ground for opposition laid down in Article 100 (a) EPC prejudices the maintenance of the patent as granted.

4. The Respondent particularly emphasized that the inventive merit of feature (b) mainly consists in that the choice of materials for the inflator housing, the airbag retainer and the airbag is such as to permit recycling these three constructive parts together. The Board does not see how this aspect of feature (b) could possibly justify an inventive step. It is well known not only in vehicle technology but also in a general manner in other technical fields that use of the same or similar materials will simplify their recycling since by these means additional steps to separate various kinds of materials are avoided. This is confirmed by E2 which reflects relevant aspects of the state of the art relating to recycling processes in vehicle technology at the filing date of the present invention. E2 states (page 6) that components being part of the same construction unit should be made of the same or of compatible materials ("verwertungskompatible Materialien") for recycling purposes, such as to simplify disassembly and separation of different materials during the recycling process ("sortenreine Demontage"). Hence, the fact that according to feature (b) said airbag, said inflator

housing and said airbag retainer can be recycled together directly ensues from the choice of materials made by the skilled person according to E2 and according to known and common recycling practice.

The Respondent also contended based on column 4, lines 35-38 of E3 that the disclosure of E3 does not actually teach recycling the airbag, the inflator housing and the airbag retainer without disassembly of the inflator housing. In the Board's judgement this argument is not supported by the overall disclosure of E3. In fact this passage has to be read in conjunction with column 3, lines 1-8 and column 5, lines 38-46 making clear that the gas inflator can be mounted in the inflator housing and disassembled or separated from the same in an extremely simple way, without disassembly of the housing assembly. The above mentioned passage can thus possibly only refer to the disassembly or separation of the housing assembly and the gas inflator since, as previously mentioned, according to E3 the housing assembly itself, comprising both the inflator housing and the airbag retainer, is integrally formed out of molded plastic material, so that disassembly is excluded. This view is consistent with the overall disclosure of E3 and with said mentioned passage in E3 (column 4, lines 35-38) emphasizing that this improved construction of the housing assembly complies with more stringent recycling standards.

5. The subject-matter of claim 1 according to the first auxiliary request additionally includes the features that (i) "said housing, said airbag retainer said cooperating fasteners are formed of a nylon or

polyester material; and the airbag being secured by said airbag retainer across an open top of said inflator housing, wherein said airbag is formed of a material such that said housing, said airbag retainer, said cooperating fasteners, and said airbag can be recycled together after only removing the inflator from the housing". It is first noted that E1 already shows that the airbag (reference sign 18 in fig.1) is secured by the airbag retainer (reference sign 26, fig.1) across an open top of the inflator housing (see reference sign 224, fig.7) and that E3 already discloses that the mentioned constructive parts can be recycled together after only removing the inflator from the housing (see points 3,4 above), so that these features cannot contribute to inventive step for the reasons given under points 3 and 4 above.

The remaining added features involving the choice of nylon or polyester material for the inflator housing, the airbag retainer and the cooperating fasteners as well as the possibility of recycling these parts together with the airbag cannot justify the presence of an inventive step either. The Respondent asserted that this feature in conjunction with the overall disclosure of the patent specification has the obvious implication that the airbag likewise consists of nylon or polyester material, since these are anyway the most common materials used for airbags as known by anyone skilled in the art.

In the view of the Board, even accepting this argument, the presence of an inventive step has to be denied. As set out under point 3 above, the skilled person would choose all materials of one and the same construction

unit such that they are the same or at least compatible with each other for recycling purposes. This results from common recycling practice as is confirmed by E2. Consequently, even assuming, as done by the Respondent, that the airbag is made of nylon or polyester material, the choice of the respective one of these materials for the inflator housing, the airbag retainer and the cooperating fasteners as well would be an obvious one for the skilled person. In particular, it is generally known that rigid bodies can be engineered of nylon material, which is a tough, strong and impact resistant material, such that the necessary requirements for forming the housing assembly are clearly met. For these reasons the subject-matter of claim 1 according to the first auxiliary request does not fulfil the requirements of inventive step with regard to the combination of E1 and E3 taking into account the general knowledge of a person of ordinary skill in the art.

6. The subject-matter of claim 1 according to the second auxiliary request further includes a cover secured over the airbag retainer, the cover also being made of nylon or polyester material as the case may be. Taking into account that a cover secured over the airbag retainer and made of the same material as it is already known from E1 (fig.1, reference sign 36; column 3, lines 47-48) this further feature cannot make a contribution to inventive step.

7. Taking into consideration the amendments made by the Respondent in the appeal proceedings, the claims of the auxiliary requests do not meet the requirements of the

EPC. Therefore, the patent cannot be maintained in amended form (Article 102(3) EPC).

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The patent is revoked.

The Registrar: The Chairman:

A. Vottner S. Crane