

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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AUTOLIV ASP, INC.; NIHON PLAST CO., LTD.;  
NEATON AUTO PRODUCTS MANUFACTURING INC.;  
TAKATA CORPORATION; TK HOLDINGS, INC.;  
TOYODA GOSEI CO., LTD.; HYUNDAI MOBIS CO., LTD.;  
MOBIS ALABAMA, LLC; and MOBIS PARTS AMERICA LLC,  
Petitioner,

v.

AMERICAN VEHICULAR SCIENCES, LLC,  
Patent Owner.

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Case IPR2016-01790  
Patent 9,043,093 B2

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Before TREVOR M. JEFFERSON, JENNIFER MEYER CHAGNON, and  
SCOTT C. MOORE, *Administrative Patent Judges*.

CHAGNON, *Administrative Patent Judge*.

DECISION  
Institution of *Inter Partes* Review  
37 C.F.R. § 42.108

## I. INTRODUCTION

Toyoda Gosei Co., Ltd.; Autoliv ASP, Inc.; Nihon Plast Co., Ltd.; Neaton Auto Products Manufacturing, Inc.; Takata Corporation; TK Holdings, Inc.; Hyundai Mobis Co., Ltd.; Mobis Alabama, LLC; and Mobis Parts America LLC (collectively, “Petitioner”)<sup>1</sup> filed a Petition for *inter partes* review of claims 1–44 (“the challenged claims”) of U.S. Patent No. 9,043,093 B2 (Ex. 1001, “the ’093 patent”). Paper 1 (“Pet.”). Petitioner relies on the Declaration of Stephen W. Rouhana, Ph.D. (Ex. 1003) to support its positions. American Vehicular Sciences, LLC (“Patent Owner”) filed a Preliminary Response. Paper 14 (“Prelim. Resp.”). Patent Owner submits a Declaration of Michael Nranian P.E. (Ex. 2005) in support of its positions.

We have authority to determine whether to institute *inter partes* review. *See* 35 U.S.C. § 314(b); 37 C.F.R. § 42.4(a). Upon consideration of the Petition and the Preliminary Response, and for the reasons explained below, we determine that the information presented shows a reasonable likelihood that Petitioner would prevail with respect to all of the challenged claims. *See* 35 U.S.C. § 314(a). Accordingly, we institute trial as to claims 1–44 of the ’093 patent.

### A. Related Proceedings

The parties indicate that the ’093 patent is the subject of the following ongoing district court proceedings: *Am. Vehicular Scis. LLC v. Hyundai Motor Co.*, No. 5:16-cv-11529-JEL-APP (E.D. Mich.); *Am. Vehicular Scis. LLC v. Nissan Motor Co.*, No. 5:16-cv-11530-JEL-APP (E.D. Mich.); *Am.*

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<sup>1</sup> Petitioner identifies Toyoda Gosei North America Corp.; Autoliv, Inc.; and Mobis America, Inc. as additional real parties-in-interest. Pet. 1.

*Vehicular Scis., LLC v. Toyota Motor Corp.*, No. 5:16-cv-11531-JEL-APP (E.D. Mich.); and *Am. Vehicular Scis., LLC v. Am. Honda Motor Co.*, No. 5:16-cv-11532-JEL-APP (E.D. Mich.). Paper 5, 1–2; Pet. 1–2. Petitioner also challenges claims 1–44 of the '093 patent in IPR2016-01794.

*B. The '093 Patent*

The '093 patent is titled “Single Side Curtain Airbag for Vehicles,” and was filed as U.S. application No. 11/930,330 on October 31, 2007. Ex. 1001, at [21], [22], [54]. The '093 patent claims priority, via a chain of continuation-in-part and divisional applications, to U.S. application No. 08/571,247, filed on December 12, 1995. *Id.* at [60].

The '093 patent relates to an airbag system for a vehicle, in which “the airbag for the front and rear seats are combined, i.e., the airbag deploys along substantially the entire side of the vehicle alongside both the front seat and the rear seat.” *Id.* at 65:29–32. According to the '093 patent, this arrangement “results in significantly greater protection in side impacts when the windows are broken.” *Id.* at 65:32–34. Further, the airbag system of the '093 patent utilizes a single gas-providing system with only one inflator to inflate the airbag. *Id.* at 187:3–6. The airbag also includes a plurality of compartments in flow communication with each other. *See, e.g., id.* at 169:27–33. As described in the '093 patent, the compartments allow the airbag to be formed of the desired shape, while minimizing stress concentrations, as well as the weight of the airbag. *Id.* at 81:14–19.

*C. Illustrative Claim*

Of the challenged claims, claims 1, 22, 26, 29, 36–39, and 41–43 are independent. Claims 2–21 and 33–35 depend, directly or indirectly, from claim 1; claims 23–25 depend from claim 22; claims 27 and 28 depend from

claim 26; claims 30–32 depend from claim 29; claim 40 depends from claim 39; and claim 44 depends from claim 43. Claim 1 of the '093 patent, reproduced below, is illustrative of the challenged claims.

1. An airbag system of a vehicle, the airbag system comprising:

a single airbag extending across at least two seating positions of a passenger compartment of a vehicle, the single airbag arranged to deploy into the passenger compartment along a lateral side of the vehicle and adjacent each of the at least two seating positions;

a cover interposed between the single airbag and the passenger compartment to cover the single airbag prior to deployment;

a single gas-providing system that has only one inflator that provides gas to inflate the single airbag and which is arranged apart from the single airbag; and

a conduit leading from the single gas-providing system to provide gas to inflate the single airbag, the conduit being arranged to deliver the gas from the single gas-providing system into the single airbag;

the at least two seating positions comprising a first seating position in a first seat row of seats of the vehicle and a second seating position in a second seat row of seats of the vehicle longitudinally displaced from the first seat row of seats, along the lateral side of the vehicle;

wherein the single airbag has a plurality of compartments for receiving the gas, and wherein the plurality of compartments are in flow communication with each other.

Ex. 1001, 186:61–187:18.

*D. The Applied References*

Petitioner relies on the following references in the asserted grounds.

Pet. 5–6.

Reference	Date	Exhibit No.
U.S. Patent No. 3,897,961 (“Leising”)	Aug. 5, 1975	Ex. 1005
U.S. Patent No. 5,273,309 (“Lau”)	Dec. 28, 1993	Ex. 1006
U.S. Patent No. 5,269,561 (“Davis”)	Dec. 14, 1993	Ex. 1007
U.S. Patent No. 5,540,459 (“Daniel”)	July 30, 1996 <sup>2</sup>	Ex. 1008
U.S. Patent No. 5,222,761 (“Kaji”)	June 29, 1993	Ex. 1009
U.S. Patent No. 5,524,924 (“Steffens”)	June 11, 1996 <sup>3</sup>	Ex. 1010
U.S. Patent No. 4,021,058 (“Suzuki”)	May 3, 1977	Ex. 1011
U.S. Patent No. 4,998,751 (“Paxton”)	Mar. 12, 1991	Ex. 1012
U.S. Patent No. 3,966,225 (“Marlow”)	June 29, 1976	Ex. 1013
U.S. Patent No. 5,588,672 (“Karlow”)	Dec. 31, 1996 <sup>4</sup>	Ex. 1014

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<sup>2</sup> Petitioner asserts that Daniel is prior art under 35 U.S.C. § 102(e). Pet. 5. Daniel was filed on October 5, 1994 (Ex. 1008, at [22]), which is before December 12, 1995, the earliest claimed priority date for the claims of the '093 patent (*see* Ex. 1001, at [60], 1:7–21).

<sup>3</sup> Petitioner asserts that Steffens is prior art under 35 U.S.C. § 102(e). Pet. 5. Steffens was filed on November 15, 1993 (Ex. 1010, at [22]), which is before December 12, 1995, the earliest claimed priority date for the claims of the '093 patent (*see* Ex. 1001, at [60], 1:7–21).

<sup>4</sup> Petitioner asserts that Karlow is prior art under 35 U.S.C. § 102(e). Pet. 6. Karlow was filed on October 20, 1995 (Ex. 1014, at [22]), which is before December 12, 1995, the earliest claimed priority date for the claims of the '093 patent (*see* Ex. 1001, at [60], 1:7–21).

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