IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

ETHANOL BOOSTING SYSTEMS, LLC, and MASSACHUSETTS INSTITUTE OF TECHNOLOGY Plaintiffs, v. FORD MOTOR COMPANY Defendant.	Civil Action No. _____ **JURY TRIAL DEMANDED**

COMPLAINT FOR PATENT INFRINGEMENT

This is an action for willful patent infringement in which Ethanol Boosting Systems, LLC ("EBS") and the Massachusetts Institute of Technology ("MIT") (collectively, "Plaintiffs") make the following allegations against Ford Motor Company ("Defendant" or "Ford"):

THE PARTIES

1. Plaintiff EBS is a limited liability company duly existing and organized under the laws of the State of Delaware with its principal place of business in Cambridge, Massachusetts.

2. EBS was co-founded by three MIT researchers who work in the field of internal combustion engines: Dr. Leslie Bromberg, Dr. Daniel R. Cohn, and Professor John B. Heywood.

3. During the more than four decades that Dr. Bromberg, Dr. Cohn, and Professor Heywood have been at MIT, they have been widely recognized as leaders in their field, and have published hundreds of articles in academic journals and conference proceedings.

4. For example, Dr. Bromberg is internationally known for his work, including his work in the fields of vehicle engine and pollution reduction technologies, alternative fuels, and plasma-based energy technologies. Dr. Bromberg also has received a number of awards for the

innovative technologies he has invented, and his inventions have resulted in more than 90 granted United States patents.

5. Dr. Cohn also is internationally known for his work on improved engine technologies, alternative transportation fuels, and plasma-based energy and environmental technologies and has received awards for innovation in transportation and environmental technologies. He also is a fellow of the American Physical Society, and his inventions have resulted in more than 80 granted United States patents.

6. Professor Heywood was the Director of the Sloan Automotive Laboratory at MIT and has done research and taught classes at MIT on internal combustion engines for decades. He also literally wrote the book on internal combustion engines. Since first being published in 1988, his textbook—Internal Combustion Engine Fundamentals—has sold more than 130,000 copies and is widely considered a field-defining publication. A revised and updated second edition was published in 2018.

7. Building on its founders' expertise and inventions, EBS has sought to develop innovative internal combustion engines and fuel-management systems that result in cleaner and more efficiently operating internal combustion engines. One of EBS's approaches for accomplishing this improvement is through the use of gasoline internal combustion engines and fuel-management systems that incorporate the MIT/EBS dual port and direct injection technology at issue in this case.

8. Plaintiff MIT is a non-profit private research and educational institution duly incorporated and existing under the laws of the Commonwealth of Massachusetts with its principal place of business in Cambridge, Massachusetts. MIT's mission is to advance knowledge and educate students in science, technology, and other areas of scholarship that will

best serve the nation and the world in the 21st century. MIT commits itself to generating, disseminating, and preserving knowledge, and to working with others to bring this knowledge to bear on the world's great challenges.

9. Defendant Ford is a corporation duly existing and organized under the laws of the State of Delaware that makes, sells, and offers for sale in the United States, or imports into the United States, motor vehicles and related motor vehicles components and accessories, including those products accused of infringement in this matter.

JURISDICTION AND VENUE

10. This Court has subject matter jurisdiction pursuant to 28 U.S.C. §§ 1331 and 1338(a) as this action arises under Title 35 of the United States Code.

11. This Court has personal jurisdiction over Ford because Ford is incorporated in the State of Delaware. This Court also has personal jurisdiction over Ford because Ford regularly transacts business with entities and individuals in the State of Delaware, including one or more of at least four Ford dealerships located in the State of Delaware, and because Ford manufactures and distributes infringing motor vehicles and other infringing products that it purposefully directs into the State of Delaware, including this District, or at least places into the stream of commerce via established distribution channels with the knowledge and expectation that they will be sold in the State of Delaware, including in this District.

12. Venue is proper in this District under 28 U.S.C. § 1400(b) because Ford is incorporated in the State of Delaware.

THE ASSERTED PATENTS

13. This lawsuit concerns Ford's infringement of United States Patent No. 8,069,839 (the "'839 Patent"); United States Patent No. 9,255,519 (the "'519 Patent"); United States Patent

No. 9,810,166 (the "'166 Patent"); and United States Patent No. 10,138,826 (the "'826 Patent") (collectively, the "Asserted Patents").

14. Each of the above patents continues from and claims priority to the application that resulted in United States Patent No. 7,314,033, which was filed on November 18, 2004.

15. Each of the Asserted Patents was invented by Dr. Bromberg, Dr. Cohn, and Professor Heywood, who assigned their inventions to MIT before each patent was issued by the Patent and Trademark Office. Since such assignment, MIT has owned and continues to own each of the Asserted Patents. Further, EBS currently is the exclusive licensee of each Asserted Patent with the right to sue for any infringement of the Asserted Patents and the exclusive right to sublicense any alleged infringer of such patents.

16. Generally speaking, each of the Asserted Patents is directed to engines and/or fuel management systems that improve over prior art engines and fuel management systems through their incorporation of MIT/EBS's dual injection technology, which involves the use of both port and direct fuel injection. For example, each of the Asserted Patents recites ways in which an engine or fuel management system employs both port and direct injection such that, at certain torque values, the engines are fueled by both simultaneously. Further, in some embodiments, the fraction of fueling provided by direct injection decreases with decreasing torque. Further, in other embodiments, port fueling alone is utilized when torque is below a certain value.

17. Such inventions improve over the prior art by, for example, permitting an increase in engine efficiency and reducing emissions as described in their common specification—providing the advantages of port fuel injection, which allows for better fuel/air mixing and combustion stability than direct injection, while also providing the engine knock suppression advantage associated with direct injection.

18. The inventions disclosed in the Asserted Patents have been revolutionary throughout the industry. In fact, the patent family to which each of the Asserted Patents belongs has been cited by over 115 other patents, including dozens of patents filed by Ford and its related entities such as Ford Global Technologies, LLC.

THE PARTIES' PAST RELATIONSHIP AND FORD'S USE OF PLAINTIFFS' TECHNOLOGY

19. Ford incorporated MIT/EBS's patented dual injection technology into its highly profitable vehicles even though (a) EBS told Ford that such technology was patented and (b) Ford indicated to EBS that Ford would not be incorporating the MIT/EBS dual injection technology into its vehicles and thus did not need a license.

20. As described below, Ford's representations were false when made, and Ford has willfully infringed and continues to willfully infringe the Asserted Patents.

21. Ford has had notice since at least October 2014 of a number of MIT and EBS patents and pending applications covering the use of dual port and direct injection.

22. For example, on October 30, 2014, Professor Heywood emailed Dr. Ken Washington (Ford's Vice President of Research and Advanced Engineering) and Mr. Bill Coughlin (Ford's Global Technologies CEO and chief intellectual-property officer) on behalf of EBS—attaching a document titled "Optimized Port + Direct Injection for Cleaner and More Efficient Gasoline Engines."

23. In his email, Professor Heywood explained to Ford that EBS "would like to discuss possible licensing of another important technology to Ford" and that "[t]his technology involves optimized combinations of port and direct injection for gasoline engines," which he explained "could provide a relatively simple and low cost way to reduce particulate emissions in

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