

IN THE UNITED STATES DISTRICT COURT  
FOR THE DISTRICT OF COLUMBIA

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 UNITED STATES OF AMERICA )  
 United States Department of Justice )  
 950 Pennsylvania Avenue, NW )  
 Washington, DC 20530, )  
  
 Plaintiff, )  
  
 v. )  
  
 DAIMLER AG )  
 Unternehmenszentrale )  
 Mercedesstraße 120 )  
 70372 Stuttgart )  
 Germany; and )  
  
 MERCEDES-BENZ USA, LLC )  
 One Mercedes-Benz Drive )  
 Sandy Springs, GA 30328, )  
  
 Defendants. )  
 \_\_\_\_\_

**COMPLAINT FOR CIVIL PENALTIES  
AND INJUNCTIVE RELIEF FOR  
VIOLATIONS OF THE CLEAN AIR ACT**

Civil Action No.: 1:20-cv-2564

**COMPLAINT**

The United States of America, by authority of the Attorney General of the United States and at the request of the Administrator of the United States Environmental Protection Agency (“EPA”), files this Complaint and alleges as follows:

**I. NATURE OF ACTION**

1. This is a civil action brought pursuant to Sections 204 and 205 of the Clean Air Act (“Act”), 42 U.S.C. §§ 7523 and 7524, and the regulations promulgated pursuant to Section 202 of the Act, 42 U.S.C. § 7521, and codified at 40 C.F.R. Part 86 (Control of Emissions from New and

In-Use Highway Vehicles and Engines). This action seeks injunctive relief and the assessment of civil penalties against Daimler AG (“Daimler”) and Mercedes-Benz USA, LLC (“MB USA”) (collectively “Defendants”) for violations of the Act and regulations promulgated under the Act.

## **II. JURISDICTION AND VENUE**

2. The United States District Court for the District of Columbia has jurisdiction over the subject matter of this action pursuant to Sections 203, 204, and 205 of the Act, 42 U.S.C. §§ 7522, 7523, and 7524, and 28 U.S.C. §§ 1331, 1345, and 1355.

3. Venue is proper in the District of Columbia pursuant to Sections 204 and 205 of the Act, 42 U.S.C. §§ 7523 and 7524, as well as 28 U.S.C. §§ 1391(b)(2) and (c)(2) and 1395(a), because the EPA Administrator’s principal place of business is located in this judicial district and because violations alleged in the Complaint occurred in this judicial district.

## **III. DEFENDANTS**

4. Daimler is a publically-held German corporation with its headquarters in Stuttgart, Germany.

5. MB USA is a Delaware limited liability company with its headquarters in Sandy Springs, Georgia. The company is a wholly-owned subsidiary of Daimler.

6. At all times relevant to this action, Defendants manufactured, sold, offered for sale, introduced into commerce, delivered for introduction into commerce, or imported into the United States the diesel vehicles that are the subject of this Complaint, or caused one or more of the foregoing acts to occur.

## **IV. STATUTORY AND REGULATORY BACKGROUND**

7. This action arises under Title II of the Act, as amended, 42 U.S.C. § 7521 *et seq.*, and the regulations promulgated thereunder, which aim to protect human health and the

environment by reducing emissions of nitrogen oxides (“NO<sub>x</sub>”) and other pollutants from mobile sources of air pollution, including from new motor vehicles.

8. NO<sub>x</sub> is a family of highly reactive gases that play a major role in the atmospheric reactions with volatile organic compounds that produce ozone in the atmosphere. Breathing ozone can trigger a variety of health problems including chest pain, coughing, throat irritation, and congestion. Breathing ozone can also worsen bronchitis, emphysema, and asthma, and can lead to premature death. Children are at greatest risk of experiencing negative health impacts from exposure to ozone. Additionally, recent scientific studies indicate that the direct health effects of NO<sub>x</sub> are worse than previously understood, including respiratory problems, damage to lung tissue, and premature death.

9. Section 202(a) of the Act, 42 U.S.C. § 7521(a), requires EPA to promulgate emission standards for new motor vehicles for NO<sub>x</sub>, and other air pollutants.

10. Section 216(2) of the Act, 42 U.S.C. § 7550(2), defines “motor vehicle” as “any self-propelled vehicle designed for transporting persons or property on a street or highway.”

11. Section 216(3) of the Act, 42 U.S.C. § 7550(3), defines “new motor vehicle” as “a motor vehicle the equitable or legal title to which has never been transferred to an ultimate purchaser” or, if the vehicle is imported or offered for importation, “a motor vehicle . . . manufactured after the effective date of a regulation issued under [Section 202 of the Act, 42 U.S.C. § 7521] which is applicable to such vehicle . . . (or which would be applicable to such vehicle . . . had it been manufactured for importation into the United States).”

12. Section 216(1) of the Act, 42 U.S.C. § 7550(1), defines “manufacturer” as “any person engaged in the manufacturing or assembling of new motor vehicles, new motor vehicle engines . . . or importing such vehicles or engines for resale, or who acts for and is under the

control of any such person in connection with the distribution of new motor vehicles [or] new motor vehicle engines . . . .”

**A. Vehicle Test Groups and Emissions Testing**

13. Light-duty vehicles and medium-duty passenger vehicles must satisfy emission standards for certain air pollutants, including emission standards for NO<sub>x</sub>. *See, e.g.*, 40 C.F.R. §§ 86.1811-04, 86.1811-09, 86.1811-10, 86.1811-12.

14. Manufacturers organize vehicles into “Test Groups” for purposes of demonstrating compliance with emissions standards. 40 C.F.R. § 86.1803-01.

15. A Test Group is generally comprised of vehicles with similar engine design that are subject to the same emissions standards for pollutants regulated under the Act. *See* 40 C.F.R. §§ 86.1803-01, 86.1827-01(a).

16. EPA uses a series of tests to measure tailpipe emissions, including NO<sub>x</sub>, from vehicles in a Test Group in order to demonstrate compliance with emissions standards. These emissions tests include: (1) the Federal Test Procedure (“FTP”), also known as the “FTP-75,” which EPA uses to evaluate emissions under urban driving conditions; (2) the Highway Fuel Economy Test (“HWFET”), which EPA uses to evaluate emissions under highway driving conditions; (3) the Supplemental Federal Test Procedure US06 (“SFTP US06”), which EPA uses to evaluate emissions under aggressive and high-speed driving conditions; and (4) the Supplemental Federal Test Procedure SC03 (“SFTP SC03”), which EPA uses to evaluate emissions while a vehicle’s air conditioning is in use. *See* 40 C.F.R. § 1066.801(c).

17. Each emissions test has a set of fixed sequences, parameters, and driving cycles used to run the test. *See* 40 C.F.R. §§ 1066.801(d), 1066.810 to 1066.820, 1066.831, 1066.835, 1066.840. For example, the FTP is always run in three phases with, *inter alia*, the same: driving

times, driving speeds, acceleration intervals, deceleration intervals, engine soak times (*i.e.*, non-driving and non-sampling times before or in between phases), engine “key-off” intervals, and ambient air temperature range. 40 C.F.R. §§ 1066.801(d), 1066.815(d); *see also* 40 C.F.R. Part 86 app. I subsec. (a).

18. Some or all of each emissions test is conducted using a chassis dynamometer. A chassis dynamometer, also called a “dyno,” uses a roller or rollers to simulate a road in a controlled environment, like inside a building.

**B. Certificates of Conformity and Prohibition on Uncertified Motor Vehicles**

19. EPA administers a certification program to ensure that every new motor vehicle introduced into United States commerce satisfies applicable emission standards. 42 U.S.C. § 7521. Under this program, EPA issues certificates of conformity (“COCs”) and thereby regulates the introduction of new motor vehicles into United States commerce.

20. To obtain a COC, a manufacturer must submit an application to EPA for each model year and for each Test Group of vehicles that it intends to enter into United States commerce. 40 C.F.R. § 86.1843-01.

21. Each COC application must be in writing and signed by an authorized representative of the manufacturer, and it must include a statement that the Test Group complies with all applicable regulations found in 40 C.F.R., Chapter I. 40 C.F.R. § 86.1844-01(d).

22. Motor vehicles are covered by a COC only if the vehicles are as described in the manufacturer’s application for the COC “in all material respects.” 40 C.F.R. § 86.1848-10(c)(6).

23. EPA issues COCs “upon such terms . . . as [the Administrator] may prescribe.” 42 U.S.C. § 7525(a)(1); *see also* 40 C.F.R. § 86.1848-01(b) (authorizing EPA to issue COCs on

any terms that are necessary and appropriate to assure that new motor vehicles satisfy the requirements of the Act and its regulations).

24. Section 203(a)(1) of the Act, 42 U.S.C. § 7522(a)(1), prohibits manufacturers of new motor vehicles from selling, offering for sale, introducing into commerce, or delivering for introduction into commerce, or any person from importing into the United States, any new motor vehicle not covered by a COC issued by EPA under regulations prescribed by the Act governing vehicle emission standards.

25. It is also a violation of the Act to cause any of the acts set forth in Section 203(a)(1). 42 U.S.C. § 7522(a); 40 C.F.R. § 86.1854-12(a).

**C. Prohibition on Defeat Devices and Tampering**

26. Each COC application must include, *inter alia*, a list of all auxiliary emission control devices (“AECDs”) installed on the vehicles, information about each emission control diagnostic system in the vehicles, and a list of test results for the vehicles. 40 C.F.R. § 86.1844-01(d).

27. An AECD is “any element of design which senses temperature, vehicle speed, engine RPM [revolutions per minute], transmission gear, manifold vacuum, or any other parameter for the purpose of activating, modulating, delaying, or deactivating the operation of any part of the emission control system.” 40 C.F.R. § 86.1803-01.

28. An element of design is “any control system (i.e., computer software, electronic control system, emission control system, computer logic), and/or control system calibrations, and/or the results of systems interaction, and/or hardware items on a motor vehicle or motor vehicle engine.” 40 C.F.R. § 86.1803-01.

29. Each COC application must also include a “justification for each AECD, the parameters they sense and control, a detailed justification of each AECD that results in a reduction in effectiveness of the emission control system, and [a] rationale for why it is not a defeat device as defined under [40 C.F.R.] § 86.1809.” 40 C.F.R. § 86.1844-01.

30. A manufacturer violates Section 203(a)(1) of the Act, 42 U.S.C. § 7522(a)(1), if it sells, offers for sale, introduces into commerce, delivers for introduction into commerce, or imports a new motor vehicle containing an AECD not disclosed in the COC application because such a vehicle is not covered by a COC issued under EPA’s regulations prescribed by the Act.

31. A “defeat device” is an AECD “that reduces the effectiveness of the emission control system under conditions which may reasonably be expected to be encountered in normal vehicle operation and use, unless: (1) [s]uch conditions are substantially included in the Federal emission test procedure; (2) [t]he need for the AECD is justified in terms of protecting the vehicle against damage or accident; (3) [t]he AECD does not go beyond the requirements of engine starting; or (4) [t]he AECD applies only for emergency vehicles . . . .” 40 C.F.R. § 86.1803-01.

32. Section 203(a)(3)(B) of the Act, 42 U.S.C. § 7522(a)(3)(B), makes it a violation “for any person to manufacture or sell, or offer to sell, or install, any part or component intended for use with, or as part of, any motor vehicle or motor vehicle engine, where a principal effect of the part or component is to bypass, defeat, or render inoperative any device or element of design installed on or in a motor vehicle or motor vehicle engine in compliance with regulations under [Title II of the Act], and where the person knows or should know that such part or component is being offered for sale or installed for such use or put to such use.”

33. Section 203(a)(3)(A) of the Act, 42 U.S.C. § 7522(a)(3)(A), prohibits any person from removing or rendering inoperative any device or element of design installed on a motor

vehicle in compliance with the regulations promulgated under Title II of the Act prior to its sale and delivery to the ultimate purchaser. This provision also prohibits any person from knowingly removing or rendering inoperative any device or element of design installed on a motor vehicle in compliance with the regulations promulgated under Title II of the Act after its sale and delivery to the ultimate purchaser.

34. It is also a violation of the Act to cause any of the acts set forth in Section 203(a)(3). 42 U.S.C. § 7522(a).

**D. Reporting Requirements**

35. Section 208(a) of the Act, 42 U.S.C. § 7542(a), requires that “[e]very manufacturer of new motor vehicles . . . establish and maintain records, perform tests . . . make reports, and provide information the Administrator may reasonably require to determine whether the manufacturer or other person has acted or is acting in compliance” with Part A of Title II of the Act.

36. Section 203(a)(2) of the Act, 42 U.S.C. § 7522(a)(2), prohibits any person from failing or refusing to make reports or to provide information to EPA pursuant to Section 208 of the Act, 42 U.S.C. § 7542. *See also* 40 C.F.R. § 86.1854-12(a)(2)(i).

37. It is also a violation of the Act to cause any of the acts set forth in Section 203(a)(2). 42 U.S.C. § 7522(a); 40 C.F.R. § 86.1854-12(a).

**V. GENERAL ALLEGATIONS**

38. Daimler is a “person” within the meaning of Section 302(e) of the Act, 42 U.S.C. § 7602(e), because the definition of “person” includes corporations.

39. Daimler is a “manufacturer” within the meaning of Section 216(1) of the Act, 42 U.S.C. § 7550(1), because it manufactures, assembles, and imports new motor vehicles.



40. MB USA is a “person” within the meaning of Section 302(e) of the Act, 42 U.S.C. § 7602(e), because the definition of “person” includes an association and a limited liability company is a business association.

41. MB USA is a “manufacturer” within the meaning of Section 216(1) of the Act, 42 U.S.C. § 7550(1), because it acts for and is under the control of Daimler in connection with the distribution of new motor vehicles. MB USA is also listed as a “manufacturer” in certain COC applications submitted to EPA for vehicles listed under Table A below.

42. Defendants sold, offered for sale, introduced into commerce, delivered for introduction into commerce, or imported into the United States (or caused one or more of the foregoing acts) the following new motor vehicles (hereinafter collectively referred to as the “Subject Vehicles”):

*Table A (Subject Vehicles)*

	<b>Model Year</b>	<b>Vehicle Make</b>	<b>Test Group</b>
a.	2009	GL320	9MBXT03.0U2B
b.	2009	ML320	9MBXT03.0U2A
c.	2009	R320	9MBXT03.0U2A
d.	2010	GL350	AMBXT03.0U2B
e.	2010	ML350	AMBXT03.0U2A
f.	2010	R350	AMBXT03.0U2A
g.	2010	Sprinter 6-cyl. (OM642), 3.8T and 5T (Freightliner 2500, Freightliner 3500, Sprinter 2500 CDI, Sprinter 3500 CDI)	AMBXT03.0HD1

	<b>Model Year</b>	<b>Vehicle Make</b>	<b>Test Group</b>
h.	2010	Sprinter 6-cyl. (OM642), 3.8T and 5T (Freightliner 3500, Sprinter 3500 CDI)	AMBXT03.0HD2
i.	2011	E350	BMBXV03.0U2B
j.	2011	GL350 4MATIC	BMBXT03.0U2B
k.	2011	ML350 4MATIC	BMBXT03.0U2A
l.	2011	R350 4MATIC	BMBXT03.0U2A
m.	2011	Sprinter 6-cyl. (OM642), 3.8T and 5T (Freightliner 2500, Freightliner 3500, Sprinter 2500 CDI, Sprinter 3500 CDI)	BMBXT03.0HD1
n.	2011	Sprinter 6-cyl. (OM642), 3.8T and 5T (Freightliner 3500, Sprinter 3500 CDI)	BMBXT03.0HD2
o.	2012	E350 BLUETEC	CMBXV03.0U2B
p.	2012	GL350 BLUETEC 4MATIC	CMBXT03.0U2B
q.	2012	R350 BLUETEC 4MATIC	CMBXT03.0U2B
r.	2012	ML350 4MATIC	CMBXT03.0U2A
s.	2012	S350 4MATIC	CMBXV03.0U2A
t.	2012	Sprinter 6-cyl. (OM642), 3.8T and 5T (Freightliner 2500, Freightliner 3500, Sprinter 2500 CDI, Sprinter 3500 CDI)	CMBXT03.0HD1
u.	2012	Sprinter 6-cyl. (OM642), 3.8T and 5T (Freightliner 3500, Sprinter 3500 CDI)	CMBXT03.0HD2

	<b>Model Year</b>	<b>Vehicle Make</b>	<b>Test Group</b>
v.	2013	E350	DMBXV03.0U2B
w.	2013	GL350 4MATIC	DMBXT03.0U2A
x.	2013	ML350 BLUETEC 4MATIC	DMBXT03.0U2A
y.	2013	GLK250 4MATIC (OM651)	DMBXT02.2U2A
z.	2013	GL350 BlueTEC - 4MATIC	DMBXT03.0U2C
aa.	2013	ML350 BlueTEC - 4MATIC	DMBXT03.0U2C
bb.	2013	S350 4MATIC	DMBXV03.0U2A
cc.	2013	Sprinter 6-cyl. (OM642), 3.8T and 5T (Freightliner 2500, Freightliner 3500, Sprinter 2500 CDI, Sprinter 3500 CDI)	DMBXT03.0HD1
dd.	2013	Sprinter 6-cyl. (OM642), 3.8T and 5T (Freightliner 3500, Sprinter 3500 CDI)	DMBXT03.0HD2
ee.	2014	E250 (OM651)	EMBXJ02.2U2A
ff.	2014	E250 4MATIC (OM651)	EMBXJ02.2U2A
gg.	2014	GL350 4MATIC	EMBXT03.0U2A
hh.	2014	ML350 4MATIC	EMBXT03.0U2A
ii.	2014	GLK250 (OM651)	EMBXJ02.2U2A
jj.	2014	Sprinter 4-cyl. (OM651), 3.8T and 5T (Freightliner 2500, Freightliner 3500, Sprinter 2500 CDI, Sprinter 3500 CDI)	EMBXT02.2HD1

	<b>Model Year</b>	<b>Vehicle Make</b>	<b>Test Group</b>
kk.	2014	Sprinter 4-cyl. (OM651), 3.8T and 5T (Freightliner 3500, Sprinter 3500 CDI)	EMBXT02.2HD2
ll.	2014	Sprinter 6-cyl. (OM642), 3.8T and 5T (Freightliner 2500, Freightliner 3500, Sprinter 2500 CDI, Sprinter 3500 CDI)	EMBXT03.0HD1
mm.	2014	Sprinter 6-cyl. (OM642), 3.8T and 5T (Freightliner 3500, Sprinter 3500 CDI)	EMBXT03.0HD2
nn.	2015	E250 (OM651)	FMBXJ02.1U2A
oo.	2015	E250 4MATIC (OM651)	FMBXJ02.1U2A
pp.	2015	GL350	FMBXT03.0U2A
qq.	2015	GLK250 (OM651)	FMBXJ02.1U2A
rr.	2015	ML250 (OM651)	FMBXT02.1U2A
ss.	2015	Sprinter 4-cyl. (OM651), 3.8T and 5T (Freightliner 2500, Freightliner 3500, Sprinter 2500 CDI, Sprinter 3500 CDI)	FMBXT02.1HD1
tt.	2015	Sprinter 4-cyl. (OM651), 3.8T and 5T (Freightliner 3500, Sprinter 3500 CDI)	FMBXT02.1HD2
uu.	2015	Sprinter 4-cyl. (OM651), 3.8T and 5T (Freightliner 2500, Freightliner 3500, Sprinter 2500 CDI, Sprinter 3500 CDI)	FMBXT02.1HD3

	<b>Model Year</b>	<b>Vehicle Make</b>	<b>Test Group</b>
vv.	2015	Sprinter 4-cyl. (OM651), 3.8T and 5T (Freightliner 3500, Sprinter 3500 CDI)	FMBXT02.1HD4
ww.	2015	Sprinter 6-cyl. (OM642), 3.8T and 5T (Freightliner 2500, Freightliner 3500, Sprinter 2500 CDI, Sprinter 3500 CDI)	FMBXT03.0HD1
xx.	2015	Sprinter 6-cyl. (OM642), 3.8T and 5T (Freightliner 3500, Sprinter 3500 CDI)	FMBXT03.0HD2
yy.	2015	Sprinter 6-cyl. (OM642), 3.8T and 5T (Freightliner 2500 4x4, Sprinter 2500 CDI 4x4)	FMBXT03.0HD3
zz.	2015	Sprinter 6-cyl. (OM642), 3.8T and 5T (Freightliner 3500 4x4, Sprinter 3500 CDI 4x4)	FMBXT03.0HD4
aaa.	2016	E250 (OM651)	GMBXV02.1U2B
bbb.	2016	E250 4MATIC (OM651)	GMBXV02.1U2B
ccc.	2016	GL350 BLUETEC 4MATIC	GMBXT03.0U2A
ddd.	2016	GLE300 d 4MATIC (OM651)	GMBXT02.1U2A
eee.	2016	Sprinter 4-cyl. (OM651), 3.8T and 5T (Freightliner 2500, Freightliner 3500, Sprinter 2500 CDI, Sprinter 3500 CDI)	GMBXT02.1HD1
fff.	2016	Sprinter 4-cyl. (OM651), 3.8T and 5T (Freightliner 3500, Sprinter 3500 CDI)	GMBXT02.1HD2

	<b>Model Year</b>	<b>Vehicle Make</b>	<b>Test Group</b>
ggg.	2016	Sprinter 4-cyl. (OM651), 3.8T and 5T (Freightliner 2500, Freightliner 3500, Sprinter 2500 CDI, Sprinter 3500 CDI)	GMBXT02.1HD3
hhh.	2016	Sprinter 4-cyl. (OM651), 3.8T and 5T (Freightliner 3500, Sprinter 3500 CDI)	GMBXT02.1HD4
iii.	2016	Sprinter 6-cyl. (OM642), 3.8T and 5T (Freightliner 2500, Freightliner 3500, Sprinter 2500 CDI, Sprinter 3500 CDI)	GMBXT03.0HD1
ïïï.	2016	Sprinter 6-cyl. (OM642), 3.8T and 5T (Freightliner 3500, Sprinter 3500 CDI)	GMBXT03.0HD2
kkk.	2016	Sprinter 6-cyl. (OM642), 3.8T and 5T (Freightliner 2500 4x4, Sprinter 2500 CDI 4x4)	GMBXT03.0HD3
lll.	2016	Sprinter 6-cyl. (OM642), 3.8T and 5T (Freightliner 3500 4x4, Sprinter 3500 CDI 4x4)	GMBXT03.0HD4
mmm.	2016	GLE350d – 4MATIC	GMBTX03.0U2A

43. Each of the Subject Vehicles is equipped with a BlueTEC diesel engine.

44. Daimler or entities associated with Daimler manufactured and assembled each of the Subject Vehicles with the intent that the vehicles would be imported into the United States, sold, offered for sale, introduced into commerce, or delivered for introduction into commerce.

45. In total, Defendants imported about 174,000 Subject Vehicles into the United States

and sold about 250,000 Subject Vehicles in the United States.

46. Defendants submitted COC applications for each Test Group containing the Subject Vehicles to EPA using the Agency's online database, then known as "Verify."

47. Defendants certified that the vehicles covered by each Test Group, including the Subject Vehicles, were free of defeat devices and strategies.

48. Defendants submitted lists of AECDs for the Subject Vehicles in each Test Group with the COC applications.

49. Defendants represented that the Subject Vehicles complied with all applicable emissions regulations, including the regulations found under 40 C.F.R. Part 86.

50. Each of Defendants' COC applications constituted a "report [and/or] information the Administrator may reasonably require" to assess compliance with the Act, within the meaning of Section 208(a) of the Act, 42 U.S.C. § 7542(a).

51. EPA issued COCs for the Subject Vehicles based on the information provided and representations made by Defendants in the COC applications and on the Verify system.

52. The COC for each Subject Vehicle states on its face that the certificate covers only those new motor vehicles that conform, in all material respects, to the design specifications provided to EPA in the COC application for the vehicles.

**A. Emissions Control Devices and Elements of Design in the Subject Vehicles**

*i. Engine Control Systems and Engine After-Treatment Systems*

53. Engine control systems and engine after-treatment systems can reduce NO<sub>x</sub> from diesel engines. Diesel vehicles may use a combination of these systems to comply with emission standards.

54. Engine control systems lower NO<sub>x</sub> emissions by reducing the amount of NO<sub>x</sub>

formed in a vehicle's engine during combustion. An "exhaust gas recirculation" ("EGR") system is one example of an engine control system. An EGR system recirculates some of the exhaust gas to the combustion chamber, lowering the peak combustion temperature of and the oxygen concentration in the chamber, and thereby reducing the formation of NO<sub>x</sub> in the engine.

55. Each Subject Vehicle contains an EGR system.

56. After-treatment systems lower NO<sub>x</sub> emissions by removing NO<sub>x</sub> from the exhaust after combustion but before emission from a vehicle's tailpipe. A "selective catalytic reduction" ("SCR") system is one example of an after-treatment system. An SCR system injects a urea solution into the exhaust (generically known as diesel exhaust fluid or "DEF"), producing a chemical reaction that reduces some of the NO<sub>x</sub> to nitrogen and water.

57. Each Subject Vehicle contains an SCR system that uses DEF. The DEF used in the Subject Vehicles is frequently referred to as "AdBlue," which is brand-name DEF trademarked by the German Association of the Automotive Industry.

58. Each Subject Vehicle's SCR system operates in two DEF dosing modes: "Fill-Level ("FL") Mode" and "Feed-Forward ("FF") Mode." The amount of DEF dosed in each mode is determined by a variety of defined calibrations based on factors that include: exhaust gas temperature and flowrate, SCR catalyst temperature, NO<sub>x</sub> mass and flowrate, engine temperature, DEF consumption, ammonia storage, engine operating time, and driving patterns.

59. The calibrations operate differently in FL Mode and FF Mode, and a Subject Vehicle may switch between modes during operation.

*ii. Electronic Control Modules in the Subject Vehicles*

60. Modern vehicle engines are equipped with electronic control modules ("ECMs"), also known as electronic control units ("ECUs"), which control functions in the motor vehicles



using software integrated in the ECM hardware. For each function (*e.g.*, the rate of fuel injected into the engine), the software includes algorithms or calibrations that process inputs (*e.g.*, engine temperature) to the ECM and send a control signal to engine components to perform certain actions depending on those inputs.

61. An ECM may have 20,000 or more configurable parameters. These parameters range from “Bits,” which switch a function on or off, to threshold values programmed into the ECM’s software maps to trigger changes in vehicle performance when certain conditions are met (*e.g.*, to adjust emission control functions in a vehicle after the vehicle’s SCR catalyst temperature and exhaust gas mass flow surpass a certain threshold).

62. Each Subject Vehicle contains an ECM.

63. ECM software is an AECD within the meaning of 40 C.F.R. § 86.1803-01 if it senses inputs, like temperature, speed, or transmission gear, and then sends a message that affects the operation of an emission control system in the vehicle.

*iii. Onboard Diagnostics Systems in the Subject Vehicles*

64. Manufacturers must equip new motor vehicles with an Onboard Diagnostics (“OBD”) system. 42 U.S.C. § 7521(m); 40 C.F.R. § 86.1806-05.

65. An OBD system is computer software that monitors and evaluates various emissions controls and components in a vehicle, like the vehicle’s EGR and SCR systems. *Id.* at § 86.1806-05(b).

66. The OBD system illuminates a malfunction indicator lamp (“MIL”), commonly known as a “check engine light,” on the vehicle’s dashboard if it identifies a deterioration or malfunction in a system that may affect emissions controls, and the system stores codes

corresponding to detected malfunctions. *Id.* at 86.1806-05(b)–(d).

67. Each Subject Vehicle contains an OBD system.

**B. Undisclosed AECDs in the Subject Vehicles**

68. The COC applications for the Subject Vehicles describe elements of design that Defendants installed in the Subject Vehicles to comply with federal emissions regulations, including engine control systems, engine after-treatment systems, and OBD monitoring systems.

69. The COC applications for the Subject Vehicles describe, and each of the Subject Vehicles contains, an EGR system that Defendants installed to control and reduce NO<sub>x</sub> emissions from the vehicles.

70. The COC applications for the Subject Vehicles describe, and each of the Subject Vehicles contains, an SCR system that Defendants installed to control and reduce NO<sub>x</sub> emissions from the vehicles.

71. The COC applications for the Subject Vehicles describe, and each of the Subject Vehicles contains, an OBD system that Defendants installed to monitor emissions control systems.

72. Each engine control system, engine after-treatment system, and OBD monitoring system described in the COC applications and installed in the Subject Vehicles, and each component thereof, is a device or element of design Defendants installed in the Subject Vehicles to comply with regulations promulgated under Title II of the Act.

73. Each Subject Vehicle's ECM uses specific software functions and calibrations that are AECDs. These AECDs rely on inputs, like vehicle speed, temperature of SCR catalyst, duration of engine operation, and NO<sub>x</sub> concentration in engine exhaust, to activate, modulate, delay, or deactivate parts of each Subject Vehicle's emission control system.

74. During the emissions tests required to obtain a COC, the Subject Vehicles' ECM

software functions and calibrations operate the EGR system, SCR system, and OBD system in a manner to produce emission results that are compliant with EPA's emission standards.

75. When the Subject Vehicles are not undergoing the emissions tests, AECDs that Defendants installed in each of the Subject Vehicles cause each vehicle's engine control system, engine after-treatment system, or OBD monitoring system to perform differently than the systems perform on the tests, reducing the effectiveness of the emission control system.

76. For example, during the emissions tests required to obtain a COC, each Subject Vehicle's OBD monitoring system software suppressed, delayed, or accelerated certain functions, such that the functions operated differently during the tests than during normal operation and use, reducing the effectiveness of the emission control system.

77. Defendants' actions have increased NO<sub>x</sub> emissions from the Subject Vehicles during real-world driving scenarios to levels exceeding the NO<sub>x</sub> emission standards to which the vehicles were certified. The magnitude of the increase in emissions depends on, *inter alia*, the type of Subject Vehicle and the driving conditions (*e.g.*, city or highway).

78. Each Subject Vehicle contains one or more AECDs that Defendants did not disclose, describe, or justify in their application for the COC that purportedly covers the Subject Vehicle.

79. In their application for the COC that covers each Subject Vehicle, Defendants failed to disclose at least the following 16 AECDs, which, when engaged individually or in combination with other AECDs, impact each Subject Vehicle's engine control system, engine after-treatment system, or OBD monitoring system:

**Table B (Undisclosed AECDs)**

	<b>AECD</b>	<b>Description</b>
a.	AECD #1 ("SCR dual-dosing system")	Strategy that uses dual modes of DEF dosing (FL mode and FF mode) in the SCR system.
b.	AECD #2 ("Bit 15")	Calibration that switches between FL Mode and FF Mode based on DEF consumption.
c.	AECD #3 ("Bit 14")	Calibration that switches between FL Mode and FF Mode based on SCR temperature and time since ignition.
d.	AECD #4 ("Bit 13")	Calibration that switches between FL mode and FF mode based on NOx mass flow, SCR temperature, and integrated NOx mass flow.
e.	AECD #5 ("Bit 7")	Calibration that switches between FL mode and FF mode before a diesel particulate filter regeneration.
f.	AECD #6 ("Bit 3")	Calibration that switches between FL Mode and FF Mode based on NOx mass flow.
g.	AECD #7 ("Bit 2")	Calibration that switches between FL Mode and FF Mode based on exhaust gas flow.
h.	AECD #8 ("Bit 1")	Calibration that switches between FL Mode and FF Mode based on SCR temperature.
i.	AECD #9 ("Bit 0")	Calibration that switches between FL Mode and FF Mode in response to an error signal.
j.	AECD #10	Calibration map that adjusts estimated NOx conversion efficiency in FL Mode based on factors that include SCR temperature, exhaust gas flow, and integrated NOx.
k.	AECD #11	Calibration that, under certain conditions, increases the amount of DEF injected into the SCR system immediately after ignition when the vehicle is operating in FL Mode.
l.	AECD #12	Calibration that adjusts DEF dosing in FL Mode based on time since ignition, catalyst age, accumulated NOx mass flow, and the amount of DEF previously dosed into the catalyst.

m.	AECD #13	Calibration mapping that adjusts target NO <sub>x</sub> conversion efficiency in FF Mode based on threshold values that include: SCR catalyst temperature, exhaust gas mass flow rate, DEF consumption, engine speed, fuel injection, NO <sub>x</sub> mass flow, SCR age, hydrocarbon loading, and stored ammonia.
n.	AECD #14 to AECD #16	Three separate OBD functions that each independently control the timing, duration, and frequency of operation of certain OBD monitors.

80. Defendants installed one or more of the undisclosed AECDs listed in Table B in each Subject Vehicle.

81. When engaged individually or in combination with other AECDs, several of the undisclosed AECDs listed in Table B are—as calibrated by Defendants in the Subject Vehicles—defeat devices, because the devices have the principal effect of bypassing, defeating, removing, or rendering inoperative engine control systems or after-treatment control systems in each Subject Vehicle. For example, AECD #2 (Bit 15) and AECD #7 (Bit 2), both of which Defendants installed in every Subject Vehicle, are defeat devices that impact the vehicles' SCR systems. Strategies that appear on some but not all Subject Vehicles may also be determined to be defeat devices upon additional investigation.

82. Each undisclosed AECD listed in Table B above is a design specification that differs in material respect from the design specifications Defendants disclosed in the Subject Vehicles' COC applications.

83. The Subject Vehicles therefore are not covered by a COC.

84. Subject Vehicles not covered by a COC because they contain one or more undisclosed AECD listed in Table B above remain in commerce and use within the United States and within the District of Columbia.

85. Subject Vehicles containing at least one or more defeat device remain in commerce and use within the United States and within the District of Columbia.

**C. Development of Undisclosed AECDs**

86. Defendants developed and installed one or more of the Undisclosed AECDs listed in Table B above to boost sales of the Subject Vehicles in the United States.

87. While increasing NOx emissions from the Subject Vehicles during normal operation and use above levels achieved on the emissions tests, the Undisclosed AECDs allowed the vehicles to perform in a variety of consumer-desirable ways, including allowing for fewer DEF tank refills, better fuel mileage, and fewer MILs.

88. Defendants knew or should have known that one or more undisclosed AECD listed in Table B was part of each Subject Vehicle and that several of the AECDs listed in Table B, such as AECDs #2 and #7, would have the principal effect of bypassing, defeating, removing, or rendering inoperative the engine control system, engine after-treatment system, or OBD monitoring system in the Subject Vehicles in which they were installed.

**VI. FIRST CLAIM FOR RELIEF**

**(Section 203(a)(1): Sale, Offer for Sale, Introduction or Delivery for Introduction into Commerce, or Import of New Motor Vehicles Not Covered by COCs)**

89. The United States re-alleges and incorporates paragraphs 1 through 88 herein.

90. Defendants sold, offered for sale, introduced into commerce, delivered for introduction into commerce, or imported (or caused any of the foregoing) the Subject Vehicles, which are not covered by a COC issued under EPA's regulations prescribed by the Act because the vehicles are equipped with AECDs that Defendants did not disclose in the COC applications that purportedly cover the vehicles.

91. Defendants each violated Section 203(a)(1) of the Act, 42 U.S.C. § 7522(a)(1), by selling, offering for sale, introducing into commerce, delivering for introduction into commerce, or importing new motor vehicles that are not covered by a COC, or by causing any of the foregoing acts.

92. Each violation of Section 203(a)(1) of the Act, 42 U.S.C. § 7522(a)(1), is a separate offense with respect to each new motor vehicle.

93. Under Sections 204(a) and 205(a) of the Act, 42 U.S.C. §§ 7523(a) and 7524(a), and 40 C.F.R. § 19.4, Defendants are each liable for injunctive relief and civil penalties of up to \$37,500 per vehicle for each violation occurring between January 13, 2009 and November 2, 2015, and up to \$45,268 per vehicle for each violation occurring after November 2, 2015.

**VII. SECOND CLAIM FOR RELIEF**  
**(Section 203(a)(3)(B): Manufacturer, Sale, Offer for Sale, or Installation of Defeat Device)**

94. The United States re-alleges and incorporates paragraphs 1 through 93 herein.

95. Defendants manufactured, sold, offered for sale, or installed (or caused any of the foregoing) parts or components, including several of the AECs listed in Table B above, such as AECs #2 and #7, intended for use with, or as part of, the Subject Vehicles where a principal effect of the part or component is to bypass, defeat, or render inoperative a device or element of design installed on or in the Subject Vehicles in compliance with regulations under Title II of the Act, and Defendants “[knew] or should [have known] that such part of component [was] being offered for sale or installed for such use or put to such use.”

96. Defendants each violated Section 203(a)(3)(B) of the Act, 42 U.S.C. § 7522(a)(3)(B), by manufacturing, selling, offering for sale, or installing defeat devices in the Subject Vehicles, or causing any of the foregoing acts.

97. Each part or component that constitutes a defeat device which Defendants manufactured, sold, offered for sale, or installed in the Subject Vehicles (or the causing thereof) is a separate violation of Section 203(a)(3)(B) of the Act, 42 U.S.C. § 7522(a)(3)(B).

98. Under Sections 204(a) and 205(a) of the Act, 42 U.S.C. §§ 7523(a) and 7524(a), and 40 C.F.R. § 19.4, Defendants are each liable for injunctive relief and civil penalties of up to \$3,750 per part or component that constitutes a defeat device per Subject Vehicle for each violation occurring between January 12, 2009, and November 2, 2015, and up to \$4,527 per part or component that constitutes a defeat device per Subject Vehicle for each violation occurring after November 2, 2015.

**VIII. THIRD CLAIM FOR RELIEF**  
**(Section 203(a)(3)(A): Tampering)**

99. The United States re-alleges and incorporates paragraphs 1 through 98 herein.

100. The undisclosed AECDs listed in Table B above, individually or in combination with other AECDs, have the effect of removing or rendering inoperative devices or elements of design installed on or in the Subject Vehicles in compliance with regulations promulgated under Title II of the Act.

101. Defendants each violated Section 203(a)(3)(A), 42 U.S.C. § 7522(a)(3)(A), by incorporating the undisclosed AECDs listed in Table B above in the Subject Vehicles, thereby removing or rendering inoperative elements of the emissions control system installed in a new motor vehicle in compliance with regulations promulgated under Title II of the Act, or by causing any of the foregoing acts.



102. Each Subject Vehicle equipped with one or more of the undisclosed AECDs listed in Table B above represents a separate violation of Section 203(a)(3)(A) of the Act, 42 U.S.C. § 7522(a)(3)(A).

103. Under Sections 204(a) and 205(a) of the Act, 42 U.S.C. §§ 7523(a) and 7524(a), and 40 C.F.R. § 19.4, Defendants are each liable for injunctive relief and civil penalties of up to \$37,500 per Subject Vehicle for each violation occurring between January 12, 2009, and November 2, 2015, and up to \$45,268 per Subject Vehicle for each violation occurring after November 2, 2015.

**IX. FOURTH CLAIM FOR RELIEF**  
**(Section 203(a)(2): Reporting Violations)**

104. The United States re-alleges and incorporates paragraphs 1 through 103 herein.

105. Defendants failed or caused the failure to disclose the existence of the undisclosed AECDs listed in Table B above in the COC applications for the Subject Vehicles, information reasonably required by the Administrator to determine whether Defendants have acted or are acting in compliance with Part A of Title II of the Act.

106. Defendants each violated Section 203(a)(2) of the Act, 42 U.S.C. § 7522(a)(2), by failing or causing the failure to disclose one or more of the undisclosed AECDs listed in Table B above in COC applications for Test Groups of new motor vehicles.

107. Each failure to provide reports or information described above is a separate violation of Section 203(a)(2) of the Act, 42 U.S.C. § 7522(a)(2).

108. Under Sections 204(a) and 205(a) of the Act, 42 U.S.C. §§ 7523(a) and 7524(a), and 40 C.F.R. § 19.4, Defendants are each liable for injunctive relief and civil penalties of up to \$37,500 per day of violation for each violation occurring between January 12, 2009, and

November 2, 2015, and up to \$45,268 per day of violation for each violation occurring after November 2, 2015.

**X. PRAYER FOR RELIEF**

WHEREFORE, Plaintiff, the United States of America, respectfully requests that the Court provide the following relief:

a. Permanently enjoin Defendants from selling, offering for sale, introducing into commerce, delivering for introduction into commerce, or importing into the United States (or causing any of the foregoing acts with respect to) any new motor vehicle not covered by a COC issued by EPA in accordance with the Act and the regulations promulgated thereunder.

b. Permanently enjoin Defendants from selling, offering for sale, introducing into commerce, delivering for introduction into commerce, or importing into the United States (or causing any of the foregoing acts with respect to) any new motor vehicle equipped with an AECD, except in compliance with the Act and the regulations promulgated thereunder.

c. Order Defendants to take appropriate steps to remedy and prevent the violations of Sections 203(a)(1) alleged above, including, but not limited to, mitigation of excess NOx emissions from the Subject Vehicles.

d. Enter a judgment that Defendants are each liable to the United States for civil penalties for each violation of Section 203(a) of the Act and assess civil penalties against Defendants as follows:

i. For violations of Section 203(a)(1) of the Act: up to \$37,500 per Subject Vehicle for each violation occurring between January 12, 2009, and November 2, 2015, and up to \$45,268 per Subject Vehicle for each violation occurring after November 2, 2015;

ii. For violations of Section 203(a)(3)(B) of the Act: up to \$3,750 per part or component that constitutes a defeat device per Subject Vehicle for each violation occurring between January 12, 2009, and November 2, 2015, and up to \$4,527 per part or component that constitutes a defeat device per Subject Vehicle for each violation occurring after November 2, 2015;

iii. For violations of Section 203(a)(3)(A) of the Act: up to \$37,500 per Subject Vehicle for each violation occurring between January 12, 2009, and November 2, 2015, and up to \$45,268 per Subject Vehicle for each violation occurring after November 2, 2015;

iv. For violations of Section 203(a)(2) of the Act: up to \$37,500 per day of violation for each violation occurring between January 12, 2009, and November 2, 2015, and up to \$45,268 per day of violation for each violation occurring after November 2, 2015;

e. Award the United States its costs in this action; and

f. Grant such other and further relief as the Court deems just and proper.

Respectfully submitted,

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