IN THE UNITED STATES DISTRICT COURT FOR THE EASTERN DISTRICT OF VIRGINIA NORFOLK DIVISION

JAGUAR LAND ROVER LIMITED,

Plaintiff,

v.

BENTLEY MOTORS LIMITED, and BENTLEY MOTORS, INC.,

CASE NO. 2:18cv320

JURY TRIAL DEMANDED

Defendants.

AMENDED COMPLAINT FOR PATENT INFRINGEMENT

Pursuant to Fed. R. Civ. P. 15(a)(1)(B), Plaintiff, Jaguar Land Rover Limited ("JLR"), by and through their undersigned counsel, hereby brings this Amended Complaint to protect JLR's patented and award-winning Terrain Response® technologies from infringement by Defendants Bentley Motors Limited and Bentley Motors, Inc. (collectively "Bentley" or "Defendants"). JLR alleges as follows:

NATURE OF ACTION

1. This is a civil action for infringement. This action is based upon the patent laws of the United States, 35 U.S.C. § 1 *et seq*.

THE PARTIES

2. Plaintiff JLR is incorporated and registered in England and Wales, having a principal place of business at Abbey Road, Whitley, Coventry, CV3 4LF, United Kingdom.

 On information and belief, Bentley Motors Limited is incorporated and registered in England and Wales, having a principal place of business at Pyms Lane, Crewe, Cheshire, CW1 3PL, United Kingdom.

4. On information and belief, Bentley Motors, Inc. is organized and existing under the laws of the State of Delaware having a principal place of business at 2200 Ferdinand Porsche Drive, Herndon, VA 20171, USA.

JURISDICTION AND VENUE

5. This Court has subject matter jurisdiction pursuant to 28 U.S.C. §§ 1331 and 1338(a) because this action arises under the Patent Laws of the United States, Title 35, United States Code, including 35 U.S.C. § 271 *et seq*.

6. This Court has personal jurisdiction over Defendants by virtue of the activities Defendants conduct within the State of Virginia. On information and belief, Bentley Motors, Inc. has a principal place of business in Virginia. Bentley Motors, Inc. is the national sales company for, and a wholly owned subsidiary of, Bentley Motors Limited. On information and belief, Bentley Motors Limited, directly or through subsidiaries, imports, manufactures, uses, sells, or offers to sell its products within the State of Virginia. Defendants market and sell cars, including the Bentley Bentayga, in the State of Virginia. *See, e.g.*, Bentayga, Bentley Tysons, *available at* https://tysons.bentleymotors.com/us/en/bentley/info/bentayga (last visited June 14, 2018). Defendants conduct continuous and systemic parts of their business within the State.

7. Venue is proper in this District pursuant to 28 U.S.C. §§ 1331, 1338(a), 1391(b),(c) and (d) and 1400(b).

THE ASSERTED PATENT

8. On May 8, 2018, the USPTO, after full and fair examination, duly and legally issued U.S. Patent No. RE46,828 ("the '828 patent") entitled "Vehicle Control."

9. JLR holds all right, title, and interest in the '828 patent with full rights to enforce the same and to sue and recover for past, present, and future infringement. A true and correct copy of the '828 patent is attached at Exhibit A.

10. The '828 patent is a reissue of U.S. Patent No. 7,349,776 ("the '776 patent"). JLR held all right, title, and interest in the '776 patent. A true and correct copy of the '776 patent is attached at Exhibit B.

Bentley became aware of the '776 patent at least as early as February 5, 2016. On
 February 5, 2016, JLR sent a letter to Bentley identifying that the Bentley Bentayga having a
 "Driver Assistance" system infringes the '776 patent.

12. On or about February 5, 2018, representatives from JLR met with representatives from Bentley, and informed Bentley that JLR had received a Notice of Allowance for the '828 patent and expected it to be granted shortly.

13. On May 24, 2018, JLR sent a letter to Bentley indicating that the '828 patent had issued on May 8, 2018, and reiterating that the Bentley Bentayga infringes.

JLR's PATENTED TERRAIN RESPONSE® TECHNOLOGY

14. For almost seventy years, JLR has manufactured and sold some of the most innovative and technologically advanced four-wheel drive Sports Utility Vehicles (SUVs) in the world. This rich history of innovation continues today and is reflected in JLR's current line-up of award winning SUVs: Jaguar F-Pace, Land Rover Discovery Sport, Land Rover Discovery, Range Rover Evoque, Range Rover Velar, Range Rover Sport, and The Range Rover.

15. Among the groundbreaking technologies in these vehicles are JLR's patented Terrain Response® technologies.

16. JLR's Terrain Response® technology electronically controls various vehicle subsystems (for example, but not limited to, the engine, the transmission, the brakes, the traction control, the suspension and the steering) to operate in a manner that is suitable for driving on a particular off-road surface. A driver-operable input permits the driver to select from a plurality of off-road driving surfaces, such as Grass/Gravel/Snow, Mud and Ruts, Sand, and Rocks, and the Terrain Response® controller instructs each of the subsystems to operate in a manner or mode that is suitable for driving on the selected surface. Unlike prior driving surface modes, and controls multiple subsystems to operate differently depending on the selected surface. *See* Exhibit C, *Technology Guide: Terrain Response*, Land Rover (July 27, 2015), *available at* https://www.landrover.co.uk/explore-land-rover/one-life/technology/technology-guide-terrain-response.html.

17. JLR's Terrain Response® enables the vehicle driver to optimize operation of the subsystems and negotiate different terrains, which permits safer and more effective vehicle progression when driving off-road.

18. In developing the Terrain Response® technology, JLR footprinted 50 differing surface conditions around the world. Exhibit D, Kevin, Hepworth, *First Drive*, The Daily Telegraph (Sydney, Australia) (October 9, 2004).

19. JLR's Terrain Response® technology has received significant recognition in the automotive industry. For example, in 2008, Terrain Response® won the prestigious Queen's Award for Innovation. Exhibit E, *Land Rover Wins Two Queen's Awards*, The Manufacturer

(June 27, 2008), *available at* https://www.themanufacturer.com/articles/land-rover-wins-twoqueens-awards/.

20. JLR's Terrain Response® technology has been included as a standard or costoption feature across several of JLR's vehicles since 2008. Terrain Response® is currently a standard feature on the Land Rover Discovery Sport, Land Rover Discovery, Range Rover Evoque, Range Rover Velar, Range Rover Sport, and Range Rover.

21. JLR's Terrain Response® technology embodies the '828 patent.

22. The '828 patent is a technological improvement to vehicle control systems—it reduces complexity of the vehicle control system to the user and obviates the need for the user to provide specific configurations for each vehicle subsystem, while improving performance and effectiveness of each of the various vehicle subsystems and the overall control and safety of the vehicle. The '828 patent further expands the operating envelope of the vehicle providing preset configurations of various subsystems without constraining the driver to conventional parameters for a vehicle driving on-road and off-road.

23. Prior to the '828 patent, conventional systems were deficient because they could only be used by sophisticated drivers who knew the appropriate configurations of various subsystems to use in order to control off-road driving and on particular driving surfaces. Because these conventional systems required sophisticated drivers to manually operate the subsystems one at a time, less experienced drivers could not get the same benefits and safety from optimizing control of subsystems based on driving surface. And even sophisticated drivers were limited in the number of vehicle control systems they could manipulate at one time. '828 patent at 1:18-40.

24. Further, as "the number of controllable systems increases, the driver will become faced with an increasing number of choices as to which configuration modes to select for each of the systems." '828 patent at 1:36-39. This problem can cause driver confusion and would require that even experienced drivers have knowledge of these additional controllable systems, know the various configurations required to achieve optimal control on a particular driving surface, and be able to quickly manipulate those systems to control the vehicle for driving on a particular surface.

25. The '828 patent improves on the prior art. For example, GB2273580 teaches an integrated control system to control and configure vehicle operating subsystems in response to control signals. However, "drivers often encounter a broad range of surfaces and terrains in both on-road and off-road settings" and "the operating characteristics of such an integrated control system does not provide the driver with the ability to provide direct input regarding the surface terrain in an attempt to better select the appropriate subsystem configuration modes." '828 patent at 1:49-55. For that and other reasons, the prior art "results in the less than optimal stability, handling, and safety performance of the vehicle." *Id.* at 1:55-57.

26. The '828 patent provides specific solutions to this technological problem unique to vehicles by disclosing an improved vehicle control system that provides coordinated and integrated control of a number of subsystems in a vehicle "and in particular in a plurality of different off-road surfaces and terrains such as might be encountered when driving off-road." '828 patent at 1:67-2:2. As one industry article described: "Electronics have allowed engineers to do many things – among them tune a vehicle for improved off-road performance. Perhaps the pinnacle of this evolution, to date, is Land Rovers' Terrain Response System." Exhibit F, Richard Russell, *Seize Control of All Terrains*, The Globe and Mail (May 19, 2005).

27. Among other things, the claimed inventions of the '828 patent improve vehicle control technology by simplifying the way a driver can control various subsystems and allowing the driver to provide direct input to achieve optimal stability, handling, and safety performance. '828 patent at 1:55-57.

28. Each of the claims of the '828 patent further require limitations that, alone or in combination, are directed to inventive concepts that were unconventional and not well-known or routine. When the technology was introduced, there was "nothing like it on the market." Exhibit G, *Terrain Response*, Land Rover Official Magazine, *available at* http://www.landroverofficialmagazine.com/issue01#!terrain-response.

29. For example, claim 21 and its dependents are directed to a vehicle control system that optimizes control of the vehicle on a sand surface. When a vehicle is driven on sand, "the build up of matter in front of the wheels under braking can improve braking performance." '828 patent at 4:54-56. Also, low wheel spin at low speeds "prevent the wheel from digging into the sand" but high wheel spin at high speeds "are less of a problem and can even improve traction." '828 patent at 8:37-40. Accordingly, claim 21 and its dependents recite limitations that would capture these benefits through specific implementations that require "responsiveness to movement of the throttle pedal is lower at relatively low vehicle speeds than it is at higher vehicle speeds" (claim 22), "allow[ing] lower levels of wheel spin when the vehicle is travelling at lower speeds than when the vehicle is travelling at higher speeds" (claim 23), or a brake subsystem which "is arranged to allow a relatively high degree of wheel slip under braking relative to the on-road mode and/or a second off-road mode" (claim 24).

30. As another example, claim 41 and its dependent are directed to a vehicle control system that optimizes control through adjustment of the suspension system based on the

particular driving surface. Vehicle height affects wind resistance and stability. When traveling at high speeds on flat surfaces with good levels of friction, a suspension ride height that "is set at 'low' for low wind resistance and good stability" is optimal. '828 patent at 10:7-11. Accordingly, claim 41 and its dependent recite limitations that would capture these benefits through specific implementations, such as requiring an off-road mode where "the suspension system is arranged to provide a higher ride height than in the on-road mode" (claim 42).

31. By way of another example, claim 46 is directed to a vehicle control system that optimizes control through adjustment of the speed control system. To provide maximum control on hills, a vehicle has "the standard default target speed of 6 kph." '828 patent at 14:53-55. Accordingly, claim 46 recites limitations that would capture this benefit through a specific implementation that requires a speed control system "arranged to control the speed of the vehicle when descending a hill" and "arranged to be switched on in at least one of the off-road modes and switched off in the on-road mode."

32. In each claim, the claimed elements in combination result in a particular vehicle control system that is implemented in an unconventional and non-trivial manner, and which require new vehicle designs. The claimed elements are not merely generic vehicle components, but require an inventive vehicle control system that is not standard and cannot be purchased off-the-shelf. These systems were not well-understood or routine. For example, claim 21 recites a sand mode and claim 41 recites multiple off-road terrain modes with differing ride heights.

33. In each claim, the claimed elements in combination are unconventional for the additional reason that they form an inventive system that makes technical improvements to the coordination of vehicle subsystems suitable for a particular driving surface. Each claim combines the claimed elements in an unconventional way to solve problems related to vehicle

performance on particular driving surfaces, to increase control of the vehicle on that particular driving surface. As one article described when the technology was first introduced, the technology "set new standards in off-road performance." Exhibit H, *Land Rover LR3 Wins* Prestigious *2005 Motor Trend SUV of the Year*, PRNewswire (October 27, 2004).

34. In claim 21, the claimed elements in combination are not conventional, wellunderstood, or routine. For example, this claim requires "at least two off-road modes . . . wherein one of the off-road modes is a sand mode." Prior art systems either required the driver to have knowledge of the optimal configurations for the subsystems for the vehicle to be driven on sand or provided automatic coordination of the subsystems which may not be able to recognize the terrain as sand. The inventive combination of claim 21 improved existing vehicle control systems because it specifically allowed the driver to select the driving surface as sand to more accurately arrange the subsystems for better performance and safety. The technology still provided the driver with ease of use, allowing the driver to select from an expanded operating envelope including at least two other road surface options which was not provided in prior art systems. As one article explained, the "system increases both its off-road worthiness and also the ease of use. . . . Terrain Response automatically optimizes the Range Rover's sub-systems air suspension, Hill Descent Control, etc. – according to five settings [including] . . . sand. Simply choose the setting that most suits the terrain and the Range Rover takes care of the rest. Indeed, even after years of testing Range Rovers, I still marvel at how incredibly proficient the ginormous sport-brute is off the beaten path." Exhibit I, David Booth, 2007 Range Rover A Masterpiece in the SUV Gallery, The Star Phoenix (February 2, 2007).

35. In claim 24, the claimed elements in combination are not conventional, wellunderstood, or routine. For example, this claim requires "in the sand mode, the brake subsystem

is arranged to allow a relatively high degree of wheel slip under braking relative to the on-road mode and/or a second off-road mode." Prior art systems required the driver to have knowledge of how to configure the brake subsystem to obtain the optimal performance in sand. The inventive combination of claim 41 allowed less sophisticated drivers to drive on sand simply by selecting preset configurations that can take advantage of the braking effect caused by building up of material in the front wheel, while stopping the brakes from overheating under a lower braking intervention level that would cause the brakes to repeatedly actuate. This improved the overall performance and safety of the vehicle, while increasing ease of use. One article notes: "The Discovery 3 bristles with new technologies. . . . Terrain response [] automatically selects the most appropriate settings for the vehicle's advanced electronic controls and traction aids." Exhibit J, *A New Age of Discovery*, Gold Coast Bulletin (Australia) (November 17, 2004).

36. In claim 41, the claimed elements in combination are not conventional, wellunderstood, or routine. For example, this claim requires "at least two off-road modes . . . wherein one of the subsystem is a suspension subsystem and, in a second off-road mode, the suspension system is arranged to provide a higher ride height than in a first off-road mode." Prior art systems either required the driver to have knowledge of how the suspension subsystem impacts ground clearance and stability or coordinated the suspension subsystem with other subsystems without direct input from the driver. The inventive combination of claim 41 improves ease of use for the driver, while still optimizing performance and safety by allowing the driver to adjust the off-road mode for better ground clearance and stability based on preset options. As one article recognized: "The slick part is the programming that went into this. Terrain response sets operating parameters for . . . suspension (firmness and ride height) . . . [which] presets these parameters depending on conditions." Exhibit F, Richard Russell, *Seize*

Control of All Terrains, The Globe and Mail (May 19, 2005). The system can "automatically raise[] the suspension to increase ground clearance . . . to provide wider range of control in anticipation of difficult conditions." *Id.*

37. In claim 42, the claimed elements in combination are not conventional, wellunderstood, or routine. For example, this claim requires "in the first off-road mode, the suspension system is arranged to provide a higher ride height than in the on-road mode." In prior art systems that coordinated the suspensions subsystem with other subsystems, the driver could not provide direct input on the particular driving surface. This limited the ability of the driver to adjust the ride height to a more appropriate setting. The inventive combination of claim 42 allows the driver to select from at least three different ride heights based on the type of terrain. This increased ease of use by allowing the driver to adjust to the ride height without knowing the optimal height for a type of terrain, and improved safety and performance by allowing the driver to adjust the mode as appropriate.

38. In claim 46, the claimed elements in combination are not conventional, wellunderstood, or routine. For example, this claim requires "at least two off-road modes . . . wherein one of the subsystems is a speed control system arranged to control the speed of the vehicle when descending a hill, and wherein the speed control system is arranged to be switched on in at least one of the off-road modes and switched off in the on-road mode." Prior art systems either required the driver to have knowledge of the optimal speed for downhill descent (which differs depending on the terrain) or coordinated the speed control system with other subsystems without direct input from the driver (which may be unreliable descending down certain terrain such as sand). The inventive combination of claim 41 improved vehicle durability, for example, by preventing an inexperienced driver from wearing the brake pads by driving at non-optimal

speeds. Also, unlike prior art systems, this advanced technology also increased safety by allowing the driver to adjust the mode to allow the vehicle control system to more accurately identify the optimal speed to descend down a hill without losing control of the vehicle. The improved vehicle control system also lets the driver choose from multiple off-road options. For some slippery off-road terrain, controlling speed when descending down the hill is optimal because it increases the convenience for the driver and sets the default speed at the appropriate value for the surface. But for other off-road terrain such as sand, it may not be optimal to control the speed down the hill because the surface provides extra drag which will obviate that need. This combination of features also increased ease of use over prior art systems that required the driver to adjust the speed using the brakes, allowing the vehicle control system to control and maintain the optimal speed by simply selecting the appropriate terrain. As one article explained, by allowing the vehicle control system to optimize the speed descending down a hill based on the driver-selected mode, the driver need not know the optimal speed and "lets you crawl your way down the steepest grade without having to use your brakes." Exhibit K, John LeBlanc, Nothing In Its Way: The Land Rover LR3 Can Go Anywhere You Want Thanks to the New Terrain Response System, The Gazette (Montreal) (November 3, 2004).

39. The industry has recognized these unconventional combinations as "a major advance that optimizes driveability and comfort, as well as maximizing traction." Exhibit L, *All-New Discovery 3 SUV Moves Land Rover Forward*, The Record (July 3, 2005). As one industry article states, the technology is a "major innovation" that "delivers the best possible on- and off-road composure and control by optimizing the entire vehicle set-up, including suspension, powertrain, throttle response and traction control." Exhibit M, *A Promise of Performance: Land Rover Concept Vehicle Makes First Chicago Appearance*, PR Newswire (February 4, 2004).

BENTLEY'S ALL TERRAIN SPECIFICATION FOR THE BENTLEY BENTAYGA

40. Bentley designs, develops, manufactures and sells luxury motor vehicles. In 2016, Bentley launched its first SUV, the Bentayga, which is a direct competitor to JLR's Range Rover model. From launch, Bentayga has been equipped with a so-called Drive Dynamics system that is available with a cost-option called "All Terrain Specification" which provides four off-road settings: "Snow, Ice & Wet Grass," "Dirt & Gravel," "Mud & Trail," and "Sand." *See, e.g.*, Bentley Bentayga Mini Brochure, at 19, *available at* http://fblod.com/wpcontent/uploads/2015/05/150908_bentayga-mini-brochure.pdf.

41. On information and belief, the off-road settings in the All Terrain Specification adjust, for example, Bentayga's electronic stability-control system, traction-control system, engine, gearbox, and suspension settings to improve performance on different off-road driving surfaces. *See, e.g.*, Bentley Bentayga SUV Equipment, Accessories & Interior (Aug. 3, 2016), *available at* https://www.parkers.co.uk/bentley/bentayga/features-safety-and-equipment.

42. On information and belief, the All Terrain Specification is installed on all Bentley Bentayga models imported into and sold in the U.S.

43. On information and belief, Bentley knowingly copied the Terrain Response® system installed on JLR's Range Rover.

44. Bentley's Bentayga including the All Terrain Specification infringes the '828 patent either literally or under the doctrine of equivalents. Bentley's manufacture, use, sale, offer for sale, and/or importation of these infringing products is damaging and will continue to damage JLR, causing irreparable harm, for which there is no adequate remedy at law, unless Bentley's wrongful acts are enjoined by this Court.

CLAIMS FOR RELIEF

45. The allegations in the following Claims For Relief have evidentiary support or will likely have evidentiary support after a reasonable opportunity for further investigation or discovery. Plaintiff does not yet have the benefit of any discovery from Bentley.

46. The Court has not construed the meaning of any claims or terms in the Asserted Patent. In providing these detailed allegations, Plaintiff does not intend to convey or imply any particular claim constructions or the precise scope of the claims. Plaintiff's claim construction contentions regarding the full meaning and scope of the claim terms will be provided in compliance with the case schedule and any applicable orders.

47. Plaintiff contends that Bentley directly infringes the asserted claims.

48. Plaintiff further contends that each element of each asserted claim of the Asserted Patent is literally present in Bentley's accused Bentayga product. If the Court's constructions or other determinations indicate that an element of an asserted claim is not literally present, Plaintiff contends that each such element is present under the doctrine of equivalents. If necessary, Plaintiff will provide more detailed doctrine of equivalents contentions after discovery from Bentley or a claim construction order by the Court.

COUNT ONE – INFRINGEMENT OF THE '828 PATENT

49. JLR repeats and realleges the allegations of Paragraphs 1 through 48 above as if fully set forth herein.

50. Bentley has directly infringed and continues to infringe at least claims 21, 41, and 46 of the '828 patent by making, using, offering for sale within the United States and/or importing into the United States its Bentayga.

51. Claim 21 of the '828 patent discloses:

A vehicle control system having a driver input device for selecting a driving surface,

the vehicle control system arranged to control a plurality of vehicle subsystems each of which is operable in a plurality of subsystem configuration modes,

wherein the vehicle control system is operable in a plurality of driving modes in each of which it is arranged to select the subsystem configuration modes in a manner suitable for a respective driving surface, and

further wherein the plurality of driving modes includes at least two off-road modes in which the subsystem configurations are controlled in a manner suitable for driving on respective off-road driving surfaces, and an on-road mode in which the subsystem configurations are controlled in a manner suitable for driving onroad and

still further wherein one of the off-road modes is a sand mode in which the vehicle subsystems are controlled in a manner suitable for driving on sand.

52. On information and belief, Bentley's Bentayga with All Terrain Specification satisfies all the limitations of claim 21 of the '828 patent.

53. Claim 21 of the '828 patent recites: "A vehicle control system having a driver input device for selecting a driving surface . . ."

54. Bentley's Bentayga with All Terrain Specification satisfies this limitation. The

Bentayga with All Terrain Specification comprises a "Drive Dynamics" vehicle control system

having a rotary switch by which the driver is able to select one of a plurality of driving modes,

each suitable for driving on a respective driving surface. Specifically: "The available modes are

selectable using the rotary switch on the front centre console. The selected mode is indicated by

an illuminated LED around the rotary switch..." See, e.g., Bentley Bentayga Mini Brochure, at

22, available at http://fblod.com/wp-content/uploads/2015/05/150908_bentayga-mini-

brochure.pdf; Bentley Bentayga Owner's Manual at 247-48.



Drive Dynamics



Fig. 172 Drive Dynamics



Fig. 173 Drive Dynamics with Responsive Off-Road Settings Introduction

The Drive Dynamics modes allow you to optimise the car for your preferred driving style. There are four standard modes and four Responsive Off-Road Settings (when the vehicle is fitted with the All-Terrain Specification). Each mode configures multiple vehicle systems to optimise the vehicle response and your driving experience.

The available modes are selectable using the rotary switch on the front centre console. The selected mode is indicated by an illuminated LED around the rotary switch and displayed on both the driver information panel and the Infotainment touchscreen (see Fig. 174, arrowed, page 248).

The Drive Dynamics mode information and setting can be accessed from the Infotainment home page by pressing the function button.

I Note

The Drive Dynamics mode is only available when the ignition is on. When the ignition is switched on, regardless of the last used mode, the system will always default to the **Bentley** mode.



Fig. 174 Drive Dynamics mode - Infotainment touchscreen

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55. Claim 21 of the '828 patent further recites: "the vehicle control system arranged to control a plurality of vehicle subsystems each of which is operable in a plurality of subsystem configuration modes . . ."

56. Bentley's Bentayga with All Terrain Specification satisfies this limitation. The Bentayga's "Drive Dynamics modes allow you to optimise the car for your preferred driving style. There are four standard modes and four Responsive Off-Road Settings (when the vehicle is fitted with the All-Terrain Specification). Each mode configures multiple vehicle systems to optimise the vehicle response and your driving experience." Bentley Bentayga Owner's Manual at 247-48.

57. The vehicle systems controlled include, *inter alia*, the engine, the gearbox,

Electronic Stability Control (ESC), Electronic Differential lock (EDL), Hill Descent Control

(HDC), suspension ride height and lock function, and dynamic ride system. See, e.g., id. at 259.

Driving off-road Please read this section carefully before driving your vehicle off-road.	 Before driving through water, check the water depth, the condition and type of surface beneath it and the speed of the water.
Note Not all of the features mentioned may be fitted to your vehicle.	 Look out for obstacles, such as boulders, holes, tree stumps or channels. Always keep the panoramic roof and the side windows closed while driving off-road.
Guidance for driving off-road • Select a suitable Responsive Off-Road mode (see 'Responsive Off-Road Settings description', page 249).	 Do not deviate from marked routes or paths. Respect nature: Always obey off-limits signs.
 Pray accention to the ground clearance of the vehicle. Select an appropriate ride height before starting to drive off-road. The ride height should only be adjusted when the vehicle is on a level surface. Do not press the brake pedal while adjusting the ride height. 	Ennanced vehicle systems For each of the Responsive Off-Road modes, multiple vehicle systems are optimised for different types of off-road driving: Engine. Gearbox. Electronic Stability Control (ESC) (see 'Switching on/off', page 133)
 Stow or fasten luggage and loads securely. It is not recommended to drive off-road with a loaded carrier system fitted to the roof rails. However, if this is unavoidable, the load must be removed and stored in an alternative location before traversing side slopes. 	 Electronic Differential lock (EDL) (see 'Electronic Differential Lock (EDL)', page 137). Hill Descent Control (HDC) (see 'Hill Descent Control', page 135). Air suspension ride height and lock function (see 'Air
 If unknown terrain is obscured from view, examine it on foot first and drive with extreme caution. This can make obstacles easier to recognise and help to avoid causing dement to the while 	 suspension', page 243). Bentley Dynamic Ride System (when fitted) (see 'Bent Dynamic Ride System', page 139).
 Always drive with the engine running: Power steering is active only with the engine running. 	See 'Electronic Stability Control', page 132 for further information on the functioning of the control systems that help to improve the stability and roadholding of the vehicle
 Drive slowly and consistently. Always make sure that the wheels are touching the ground. 	hop to improve the secondy and reaching of the venice.

58. Each of these systems is operable in a plurality of configuration modes. "With a

choice of more than ten engine transmission and suspension calibrations, variable ride heights

and a highly versatile Drive Dynamics Mode, the Bentayga suits any driving style, on any road.

Even where there is no road." Bentley Bentayga Dealer Brochure, at 27, accessible at

http://images.bentleylongisland.com/web/model-brochures/bentayga.pdf; see also id. at 29.

59. By way of example, the Electronic Stability Control (ESC) is operable in at least three different configuration modes: On, All-Terrain Mode and ESC/ASR Off. *See, e.g.*, Bentley Bentayga Owner's Manual at 133.

A WARNING (continued)	All-Terrain mode
Remember that the accident risk always increases if you drive fast, especially in corners or on a wet or slippery road, or if you follow too close behind the vehicle in front of you. Please bear in mind that even the ESC and the integrated systems cannot compensate for the increased accident risk. When accelerating on a uniformly slippery surface (for instance all four wheels on ice or snow), press the accelerator gradually and carefully. The wheels may otherwise start to spin (in spite of the integrated control systems), which would impair the vehicle's stability and could lead to an accident. IN COE To ensure that the ABS and ASR systems work properly, all four wheels must be fitted with identical tyres. Any differences in the rolling radius of the tyres can cause the system to reduce engine power when this is not desired.	 All-Terrain mode reduces the degree to which the stability control and traction control intervene. It is particularly suited to certain scenarios that arise during All-Terrain driving, such as: Rocking the vehicle backwards and forwards to free it. Driving in deep snow or on loose surfaces. Driving with snow chains. Driving on rough terrain when much of the vehicle's weight is lifted off the wheels (axle articulation). Braking on unsurfaced tracks when driving downhill. To switch on All-Terrain mode, press the [®]/₈ button in the lower centre console briefly. The symbols [®]/₈ and [®]/₈ will be shown in the driver instrument panel. To switch off All-Terrain mode, press the [®]/₈ button in the lower centre console briefly. The symbols [®]/₈ and [®]/₈ will no longer be shown in the driver instrument panel. For safety, you should switch the ESC on fully as soon as All-Terrain mode is no longer required.
sensor system adapts the ESC to the change in the centre of	WARNING
gravicy of the vehicle caused by any loading of the vehicle. Switching on/off The Electronic Stability Control (ESC) is switched on fully automatically every time the engine is started. When the ESC is on fully, there is no light in the driver instrument panel to notify you of this, but the <u>3</u> light will flash when the traction	You should only switch on the All-Terrain mode only if your driving ability and the traffic conditions allow you to do so safely - risk of skidding. The stabilising function is restricted when All-Terrain mode is switched on. The wheels may start to spin, causing the vehicle to lose grip, particularly on slippery or wet roads.
control, stability control, or the trailer stabilisation control intervene. The ESC can also be switched to two other modes:	ESC/ASR off The ESC/ASR off mode switches the stability control and the traction control off altogether.

60. By way of further example, the suspension is operable in at least three different

configuration modes in which vehicle ride height is adjusted: Normal mode, Raised mode and

Off-Road mode. See, e.g., id. at 244-45.



61. In addition, the Hill Descent Control system may be in activated mode or

deactivate mode. See, e.g., id. at 248-49.



TSD 611290 TSD 811290

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62. Claim 21 of the '828 patent further recites: a vehicle control system "wherein the

vehicle control system is operable in a plurality of driving modes in each of which it is arranged

to select the subsystem configuration modes in a manner suitable for a respective driving surface"

63. Bentley's Bentayga with All Terrain Specification satisfies this limitation. The Drive Dynamics system of the Bentayga with All Terrain Specification includes "four Responsive Off-Road modes…designed specifically for poor surface conditions and off-road driving." Bentley Bentayga Owner's Manual at 249. These driving modes include "Snow & Grass," "Dirt & Gravel," "Mud & Trail," and "Sand." *See, e.g., id.*

64. Claim 21 of the '828 patent further recites: a vehicle control system "further wherein the plurality of driving modes includes at least two off-road modes in which the subsystem configurations are controlled in a manner suitable for driving on respective off-road driving surfaces, and an on-road mode in which the subsystem configurations are controlled in a manner suitable for driving on-road . . ."

65. Bentley's Bentayga with All Terrain Specification satisfies this limitation. The Drive Dynamics system of the Bentayga with All Terrain Specification includes "four Responsive Off-Road modes...designed specifically for poor surface conditions and off-road driving." Bentley Bentayga Owner's Manual at 249. The Bentayga's Drive Dynamics system also includes four "standard modes" suitable for on-road driving. These standard modes include "Sport," "Bentley," and "Comfort." *See, e.g., id.* at 248.

66. Claim 21 of the '828 patent further recites: a vehicle control system "still further wherein one of the off-road modes is a sand mode in which the vehicle subsystems are controlled in a manner suitable for driving on sand."

67. Bentley's Bentayga with All Terrain Specification satisfies this limitation. The Drive Dynamics system of the Bentayga with All Terrain Specification includes an off-road

driving mode called "Sand" which Bentley instructs "should be selected for driving on sand."

Bentley Bentayga Owner's Manual at 249.

68. As described in the preceding paragraphs, each limitation of claim 21 of the '828 patent is met by the accused Bentley Bentayga, either literally or under the doctrine of equivalents.

69. Claim 24 of the '828 patent discloses:

A vehicle control system as claimed in claim 21, wherein one of the vehicle subsystems is a brake subsystem and wherein, in the sand mode, the brake subsystem is arranged to allow a relatively high degree of wheel slip under braking relative to the on-road mode and/or a second off-road mode.

70. On information and belief, Bentley's Bentayga with All Terrain Specification satisfies all the limitations of claim 24 of the '828 patent.

71. Bentley's Bentayga with All Terrain Specification satisfies this limitation. The Electronic Stability Control (ESC) system of the Bentayga includes anti-lock braking control, stability control and traction control systems which control the brakes and/or engine torque to manage wheel spin and/or wheel slip. *See, e.g.*, Bentley Bentayga Owner's Manual at 134.



72. The All-Terrain mode of the ESC system on the Bentayga "reduces the degree to which the stability control and traction control intervene. It is particularly suited to certain scenarios that arise during All-Terrain driving, such as: . . . Driving in deep snow or on loose surfaces . . . Driving on rough terrain . . . Braking on unsurfaced track when driving downhill." *Id.* at 133. Thus, when ESC is on, the levels of permitted wheel slip vary depending on whether the All-Terrain mode is switched on or off.

73. When the Snow & Grass mode or the Dirt & Gravel mode is selected by the driver using the Drive Dynamics rotary switch, the ESC mode is unchanged. Conversely, when the Mud & Tail mode or the Sand mode is selected, "ESC All-Terrain mode is activated automatically to improve . . . traction" *Id.* at 249.

74. Thus, the degree of wheel slip in the Sand mode is higher relative to the degree of wheel slip in the Snow & Grass mode of the Dirt & Gravel mode.

75. Claim 41 of the '828 patent discloses:

A vehicle control system having a driver input device for selecting a driving surface,

the vehicle control system arranged to control a plurality of vehicle subsystems each of which is operable in a plurality of subsystem configuration modes,

wherein the vehicle control system is operable in a plurality of driving modes in each of which it is arranged to select the subsystem configuration modes in a manner suitable for a respective driving surface, and

further wherein the plurality of driving modes includes at least two off-road modes in which the subsystem configurations are controlled in a manner suitable for driving on respective off-road driving surfaces, and an on-road mode in which the subsystem configurations are controlled in a manner suitable for driving onroad and

still further wherein one of the subsystems is a suspension subsystem and, in a second off-road mode, the suspension system is arranged to provide a higher ride height than in a first off-road mode.

76. On information and belief, Bentley's Bentayga with All Terrain Specification

satisfies all the limitations of claim 41 of the '828 patent.

77. Claim 41 of the '828 patent recites: "A vehicle control system having a driver

input device for selecting a driving surface . . ."

78. Bentley's Bentayga with All Terrain Specification satisfies this limitation. The

Bentayga with All Terrain Specification comprises a "Drive Dynamics" vehicle control system

having a rotary switch by which the driver is able to select one of a plurality of driving modes,

each suitable for driving on a respective driving surface. Specifically: "The available modes are

selectable using the rotary switch on the front centre console. The selected mode is indicated by

an illuminated LED around the rotary switch..." See, e.g., Bentley Bentayga Mini Brochure, at

22, available at http://fblod.com/wp-content/uploads/2015/05/150908_bentayga-mini-

brochure.pdf; Bentley Bentayga Owner's Manual at 247-48.



Drive Dynamics



Fig. 172 Drive Dynamics



Fig. 173 Drive Dynamics with Responsive Off-Road Settings Introduction

The Drive Dynamics modes allow you to optimise the car for your preferred driving style. There are four standard modes and four Responsive Off-Road Settings (when the vehicle is fitted with the All-Terrain Specification). Each mode configures multiple vehicle systems to optimise the vehicle response and your driving experience.

The available modes are selectable using the rotary switch on the front centre console. The selected mode is indicated by an illuminated LED around the rotary switch and displayed on both the driver information panel and the Infotainment touchscreen (see Fig. 174, arrowed, page 248).

The Drive Dynamics mode information and setting can be accessed from the Infotainment home page by pressing the function button.

I Note

The Drive Dynamics mode is only available when the ignition is on. When the ignition is switched on, regardless of the last used mode, the system will always default to the **Bentley** mode.



Fig. 174 Drive Dynamics mode - Infotainment touchscreen

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79. Claim 41 of the '828 patent further recites: "the vehicle control system arranged to control a plurality of vehicle subsystems each of which is operable in a plurality of subsystem configuration modes . . ."

80. Bentley's Bentayga with All Terrain Specification satisfies this limitation. The Bentayga's "Drive Dynamics modes allow you to optimise the car for your preferred driving style. There are four standard modes and four Responsive Off-Road Settings (when the vehicle is fitted with the All-Terrain Specification). Each mode configures multiple vehicle systems to optimise the vehicle response and your driving experience." Bentley Bentayga Owner's Manual at 247-48.

81. The vehicle systems controlled include, *inter alia*, the engine, the gearbox,

Electronic Stability Control (ESC), Electronic Differential lock (EDL), Hill Descent Control

(HDC), suspension ride height and lock function, and dynamic ride system. See, e.g., id. at 259.

Driving off-road Please read this section carefully before driving your vehicle off-road.	 Before driving through water, check the water depth, the condition and type of surface beneath it and the speed of the water.
Note Not all of the features mentioned may be fitted to your vehicle.	 Look out for obstacles, such as boulders, holes, tree stumps or channels. Always keep the panoramic roof and the side windows closed while driving off-road.
Guidance for driving off-road • Select a suitable Responsive Off-Road mode (see 'Responsive Off-Road Settings description', page 249).	 Do not deviate from marked routes or paths. Respect nature: Always obey off-limits signs.
 Pay attention to the ground clearance of the vehicle. Select an appropriate ride height before starting to drive off-road. The ride height should only be adjusted when the vehicle is on a level surface. Do not press the brake pedal while adjusting the ride height. Stow or fasten luggage and loads securely. It is not recommended to drive off-road with a loaded carrier system fitted to the roof rails. However, if this is unavoidable, the load must be removed and stored in an alternative location before traversing side slopes. If unknown terrain is obscured from view, examine it on foot first and drive with extreme caution. This can make obstacles easier to recognise and help to avoid causing damage to the vehicle. Always drive with the engine running: Power steering is active only with the engine running. Drive slowly and consistently. 	 Enhanced vehicle systems For each of the Responsive Off-Road modes, multiple vehicle systems are optimised for different types of off-road driving. Gearbox. Electronic Stability Control (ESC) (see 'Switching on/off', page 133). Electronic Differential lock (EDL) (see 'Electronic Differential Lock (EDL)', page 137). Hill Descent Control (HDC) (see 'Hill Descent Control', page 135). Air suspension ride height and lock function (see 'Air suspension', page 143). Bentley Dynamic Ride System (when fitted) (see 'Bentley Dynamic Ride System', page 139). See 'Electronic Stability Control', page 132 for further information on the functioning of the control systems that help to improve the stability and roadholding of the vehicle.

82. Each of these systems is operable in a plurality of configuration modes. "With a

choice of more than ten engine transmission and suspension calibrations, variable ride heights

and a highly versatile Drive Dynamics Mode, the Bentayga suits any driving style, on any road.

Even where there is no road." Bentley Bentayga Dealer Brochure, at 27, accessible at

http://images.bentleylongisland.com/web/model-brochures/bentayga.pdf; see also id. at 29.

83. By way of example, the Electronic Stability Control (ESC) is operable in at least three different configuration modes: On, All-Terrain Mode and ESC/ASR Off. *See, e.g.*, Bentley Bentayga Owner's Manual at 133.

A WARNING (continued)	All-Terrain mode
Remember that the accident risk always increases if you drive fast, especially in corners or on a wet or slippery road, or if you follow too close behind the vehicle in front of you. Please bear in mind that even the ESC and the integrated systems cannot compensate for the increased accident risk. When accelerating on a uniformly slippery surface (for instance all four wheels on ice or snow), press the accelerator gradually and carefully. The wheels may otherwise start to spin (in spite of the integrated control systems), which would impair the vehicle's stability and could lead to an accident. IN COE To ensure that the ABS and ASR systems work properly, all four wheels must be fitted with identical tyres. Any differences in the rolling radius of the tyres can cause the system to reduce engine power when this is not desired.	 All-Terrain mode reduces the degree to which the stability control and traction control intervene. It is particularly suited to certain scenarios that arise during All-Terrain driving, such as: Rocking the vehicle backwards and forwards to free it. Driving in deep snow or on loose surfaces. Driving with snow chains. Driving on rough terrain when much of the vehicle's weight is lifted off the wheels (axle articulation). Braking on unsurfaced tracks when driving downhill. To switch on All-Terrain mode, press the [®]/₈ button in the lower centre console briefly. The symbols [®]/₈ and [®]/₈ will be shown in the driver instrument panel. To switch off All-Terrain mode, press the [®]/₈ button in the lower centre console briefly. The symbols [®]/₈ and [®]/₈ will no longer be shown in the driver instrument panel. For safety, you should switch the ESC on fully as soon as All-Terrain mode is no longer required.
sensor system adapts the ESC to the change in the centre of	WARNING
gravicy of the vehicle caused by any loading of the vehicle. Switching on/off The Electronic Stability Control (ESC) is switched on fully automatically every time the engine is started. When the ESC is on fully, there is no light in the driver instrument panel to notify you of this, but the <u>3</u> light will flash when the traction	You should only switch on the All-Terrain mode only if your driving ability and the traffic conditions allow you to do so safely - risk of skidding. The stabilising function is restricted when All-Terrain mode is switched on. The wheels may start to spin, causing the vehicle to lose grip, particularly on slippery or wet roads.
control, stability control, or the trailer stabilisation control intervene. The ESC can also be switched to two other modes:	ESC/ASR off The ESC/ASR off mode switches the stability control and the traction control off altogether.

84. By way of further example, the suspension is operable in at least three different

configuration modes in which vehicle ride height is adjusted: Normal mode, Raised mode and

Off-Road mode. See, e.g., id. at 244-45.



85. In addition, the Hill Descent Control system may be in activated mode or

deactivate mode. See, e.g., id. at 248-49.



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86. Claim 41 of the '828 patent further recites: a vehicle control system "wherein the

vehicle control system is operable in a plurality of driving modes in each of which it is arranged

to select the subsystem configuration modes in a manner suitable for a respective driving surface"

87. Bentley's Bentayga with All Terrain Specification satisfies this limitation. The Drive Dynamics system of the Bentayga with All Terrain Specification includes "four Responsive Off-Road modes…designed specifically for poor surface conditions and off-road driving." Bentley Bentayga Owner's Manual at 249. These driving modes include "Snow & Grass," "Dirt & Gravel," "Mud & Trail," and "Sand." *See, e.g., id.*

88. Claim 41 of the '828 patent further recites: a vehicle control system "further wherein the plurality of driving modes includes at least two off-road modes in which the subsystem configurations are controlled in a manner suitable for driving on respective off-road driving surfaces, and an on-road mode in which the subsystem configurations are controlled in a manner suitable for driving on-road . . ."

89. Bentley's Bentayga with All Terrain Specification satisfies this limitation. The Drive Dynamics system of the Bentayga with All Terrain Specification includes "four Responsive Off-Road modes...designed specifically for poor surface conditions and off-road driving." Bentley Bentayga Owner's Manual at 249. The Bentayga's Drive Dynamics system also includes four "standard modes" suitable for on-road driving. These standard modes include "Sport," "Bentley," and "Comfort." *See, e.g., id.* at 248.

90. Claim 41 of the '828 patent further recites: a vehicle control system "still further wherein one of the subsystems is a suspension subsystem and, in a second off-road mode, the suspension system is arranged to provide a higher ride height than in a first off-road mode."

91. Bentley's Bentayga with All Terrain Specification satisfies this limitation. The Drive Dynamics system of the Bentayga with All Terrain Specification controls the suspension

to raise the ride height in the Mud & Trail and Sand driving modes relative to the ride height in the Snow & Grass and Dirt & Gravel driving modes. Bentley Bentayga Owner's Manual at 249.

92. As described in the preceding paragraphs, each limitation of claim 41 of the '828 patent is met by the accused Bentley Bentayga, either literally or under the doctrine of equivalents.

93. Claim 42 of the '828 patent discloses:

A vehicle control system as claimed in claim 41, wherein, in the first off-road mode, the suspension system is arranged to provide a higher ride height than in the on-road mode.

94. On information and belief, Bentley's Bentayga with All Terrain Specification satisfies all the limitations of claim 42 of the '828 patent.

95. Claim 42 of the '828 patent recites: "A vehicle control system as claimed in claim 41..."

96. As discussed above, Bentley's Bentayga with All Terrain Specification satisfies this limitation.

97. Claim 42 of the '828 patent further recites: "wherein, in the first off-road mode, the suspension system is arranged to provide a higher ride height than in a first off-road mode."

98. Bentley's Bentayga with All Terrain Specification satisfies this limitation. The Bentayga's Drive Dynamics system also includes four "standard modes" suitable for on-road driving. These standard modes include "Sport," "Bentley," and "Comfort." The ride height in the Sport driving mode is lower relative to the ride height in Snow & Grass and Dirt & Gravel driving modes. *See, e.g., id.* at 248.

99. Claim 46 of the '828 patent discloses:

A vehicle control system having a driver input device for selecting a driving surface,

the vehicle control system arranged to control a plurality of vehicle subsystems each of which is operable in a plurality of subsystem configuration modes,

wherein the vehicle control system is operable in a plurality of driving modes in each of which it is arranged to select the subsystem configuration modes in a manner suitable for a respective driving surface, and

further wherein the plurality of driving modes includes at least two off-road modes in which the subsystem configurations are controlled in a manner suitable for driving on respective off-road driving surfaces, and an on-road mode in which the subsystem configurations are controlled in a manner suitable for driving onroad, and

still further wherein one of the subsystems is a speed control system arranged to control the speed of the vehicle when descending a hill, and

wherein the speed control system is arranged to be switched on in at least one of the off-road modes and switched off in the on-road mode.

100. On information and belief, Bentley's Bentayga with All Terrain Specification satisfies all the limitations of claim 46 of the '828 patent.

101. Claim 46 of the '828 patent recites: "A vehicle control system having a driver

input device for selecting a driving surface . . . "

102. Bentley's Bentayga with All Terrain Specification satisfies this limitation. The

Bentayga with All Terrain Specification comprises a "Drive Dynamics" vehicle control system

having a rotary switch by which the driver is able to select one of a plurality of driving modes,

each suitable for driving on a respective driving surface. Specifically: "The available modes are

selectable using the rotary switch on the front centre console. The selected mode is indicated by

an illuminated LED around the rotary switch..." See, e.g., Bentley Bentayga Mini Brochure, at

22, available at http://fblod.com/wp-content/uploads/2015/05/150908_bentayga-mini-

brochure.pdf; Bentley Bentayga Owner's Manual at 247-48.



Drive Dynamics



Fig. 172 Drive Dynamics



Fig. 173 Drive Dynamics with Responsive Off-Road Settings Introduction

The Drive Dynamics modes allow you to optimise the car for your preferred driving style. There are four standard modes and four Responsive Off-Road Settings (when the vehicle is fitted with the All-Terrain Specification). Each mode configures multiple vehicle systems to optimise the vehicle response and your driving experience.

The available modes are selectable using the rotary switch on the front centre console. The selected mode is indicated by an illuminated LED around the rotary switch and displayed on both the driver information panel and the Infotainment touchscreen (see Fig. 174, arrowed, page 248).

The Drive Dynamics mode information and setting can be accessed from the Infotainment home page by pressing the function button.

I Note

The Drive Dynamics mode is only available when the ignition is on. When the ignition is switched on, regardless of the last used mode, the system will always default to the **Bentley** mode.



Fig. 174 Drive Dynamics mode - Infotainment touchscreen

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103. Claim 46 of the '828 patent further recites: "the vehicle control system arranged to control a plurality of vehicle subsystems each of which is operable in a plurality of subsystem configuration modes . . ."

Bentley's Bentayga with All Terrain Specification satisfies this limitation. The 104. Bentayga's "Drive Dynamics modes allow you to optimise the car for your preferred driving style. There are four standard modes and four Responsive Off-Road Settings (when the vehicle is fitted with the All-Terrain Specification). Each mode configures multiple vehicle systems to optimise the vehicle response and your driving experience." Bentley Bentayga Owner's Manual at 247-48.

105. The vehicle systems controlled include, *inter alia*, the engine, the gearbox,

Electronic Stability Control (ESC), Electronic Differential lock (EDL), Hill Descent Control

(HDC), suspension ride height and lock function, and dynamic ride system. See, e.g., id. at 259.

Driving off-road Please read this section carefully before driving your vehicle off-road.	 Before driving through water, check the water depth, the condition and type of surface beneath it and the speed of the water.
Note Not all of the features mentioned may be fitted to your vehicle.	 Look out for obstacles, such as boulders, holes, tree stumps or channels. Always keep the panoramic roof and the side windows closed while driving off-road.
Guidance for driving off-road • Select a suitable Responsive Off-Road mode (see 'Responsive Off-Road Settings description', page 249).	 Do not deviate from marked routes or paths. Respect nature: Always obey off-limits signs.
 Pay attention to the ground clearance of the vehicle. Select an appropriate ride height before starting to drive off-road. The ride height should only be adjusted when the vehicle is on a level surface. Do not press the brake pedal while adjusting the ride height. Stow or fasten luggage and loads securely. It is not recommended to drive off-road with a loaded carrier system fitted to the roof rails. However, if this is unavoidable, the load must be removed and stored in an alternative location before traversing side slopes. If unknown terrain is obscured from view, examine it on foot first and drive with extreme caution. This can make obstacles easier to recognise and help to avoid causing damage to the vehicle. Always drive with the engine running: Power steering is active only with the engine running. Drive slowly and consistently. Always make sure that the wheels are touching the ground. 	 Enhanced vehicle systems For each of the Responsive Off-Road modes, multiple vehicle systems are optimised for different types of off-road driving: Engine. Gearbox. Electronic Stability Control (ESC) (see 'Switching on/off', page 133). Electronic Differential lock (EDL) (see 'Electronic Differential Lock (EDL)', page 137). Hill Descent Control (HDC) (see 'Hill Descent Control', page 135). Air suspension ride height and lock function (see 'Air suspension', page 243). Bentley Dynamic Ride System (when fitted) (see 'Bentley Dynamic Ride System', page 139). See 'Electronic Stability Control', page 132 for further information on the functioning of the control systems that help to improve the stability and roadholding of the vehicle.

106. Each of these systems is operable in a plurality of configuration modes. "With a

choice of more than ten engine transmission and suspension calibrations, variable ride heights

and a highly versatile Drive Dynamics Mode, the Bentayga suits any driving style, on any road.

Even where there is no road." Bentley Bentayga Dealer Brochure, at 27, accessible at

http://images.bentleylongisland.com/web/model-brochures/bentayga.pdf; see also id. at 29.

107. By way of example, the Electronic Stability Control (ESC) is operable in at least three different configuration modes: On, All-Terrain Mode and ESC/ASR Off. *See, e.g.*, Bentley Bentayga Owner's Manual at 133.

A WARNING (continued)	All-Terrain mode
Remember that the accident risk always increases in you drive fast, especially in corners or on a wet or slippery road, or if you follow too close behind the vehicle in front of you. Please bear in mind that even the ESC and the integrated systems cannot compensate for the increased accident risk. When accelerating on a uniformly slippery surface (for instance all four wheels on ice or snow), press the accelerator gradually and carefully. The wheels may otherwise start to spin (in spite of the integrated control systems), which would impair the vehicle's stability and could lead to an accident. Note To ensure that the ABS and ASR systems work properly, all four wheels must be fitted with identical tyres. Any differences in the rolling radius of the tyres can cause the system to reduce engine power when this is not desired.	 All-Terrain mode reduces the degree to which the stability control and traction control intervene. It is particularly suited to certain scenarios that arise during All-Terrain driving, such as: Rocking the vehicle backwards and forwards to free it. Driving in deep snow or on loose surfaces. Driving with snow chains. Driving on rough terrain when much of the vehicle's weight is lifted off the wheels (axle articulation). Braking on unsurfaced tracks when driving downhill. To switch on All-Terrain mode, press the ³/₈ button in the lower centre console briefly. The symbols ⁹/₉ and ⁹/₉ will be shown in the driver instrument panel. To switch off All-Terrain mode, press the ³/₈ button in the lower centre console briefly. The symbols ⁹/₉ and ⁹/₉ will no longer be shown in the driver instrument panel. The ESC will be switched on fully again.
When the roof carrier cross bars are attached to the roof rails, a	Terrain mode is no longer required.
sensor system adapts the ESC to the change in the centre or	▲ WARNING
Switching on/off The Electronic Stability Control (ESC) is switched on fully automatically every time the engine is started. When the ESC is on fully, there is no light in the driver instrument panel to notify you of this, but the <u>1</u> light will flash when the traction	You should only switch on the All-Terrain mode only if your driving ability and the traffic conditions allow you to do so safely - risk of skidding. The stabilising function is restricted when All-Terrain mode is switched on. The wheels may start to spin, causing the vehicle to lose grip, particularly on slippery or wet roads.
control, stability control, or the trailer stabilisation control intervene.	ESC/ASR off
The ESC can also be switched to two other modes:	The ESC/ASR off mode switches the stability control and the traction control off altogether.

108. By way of further example, the suspension is operable in at least three different

configuration modes in which vehicle ride height is adjusted: Normal mode, Raised mode and

Off-Road mode. See, e.g., id. at 244-45.



109. In addition, the Hill Descent Control system may be in activated mode or

deactivate mode. See, e.g., id. at 248-49.



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110. Claim 46 of the '828 patent further recites: a vehicle control system "wherein the

vehicle control system is operable in a plurality of driving modes in each of which it is arranged

to select the subsystem configuration modes in a manner suitable for a respective driving surface"

111. Bentley's Bentayga with All Terrain Specification satisfies this limitation. The Drive Dynamics system of the Bentayga with All Terrain Specification includes "four Responsive Off-Road modes...designed specifically for poor surface conditions and off-road driving." Bentley Bentayga Owner's Manual at 249. These driving modes include "Snow & Grass," "Dirt & Gravel," "Mud & Trail," and "Sand." *See, e.g., id.*

112. Claim 46 of the '828 patent further recites: a vehicle control system "further wherein the plurality of driving modes includes at least two off-road modes in which the subsystem configurations are controlled in a manner suitable for driving on respective off-road driving surfaces, and an on-road mode in which the subsystem configurations are controlled in a manner suitable for driving on-road . . ."

113. Bentley's Bentayga with All Terrain Specification satisfies this limitation. The Drive Dynamics system of the Bentayga with All Terrain Specification includes "four Responsive Off-Road modes...designed specifically for poor surface conditions and off-road driving." Bentley Bentayga Owner's Manual at 249. The Bentayga's Drive Dynamics system also includes four "standard modes" suitable for on-road driving. These standard modes include "Sport," "Bentley," and "Comfort." *See, e.g., id.* at 248.

114. Claim 46 of the '828 patent further recites: a vehicle control system "still further wherein one of the subsystems is a speed control system arranged to control the speed of the vehicle when descending a hill . . ."

115. Bentley's Bentayga with All Terrain Specification satisfies this limitation. The Drive Dynamics system of the Bentayga with All Terrain Specification controls the operation of

the Hill Descent Control (HDC) system in dependence on the driving mode. Bentley Bentayga

Owner's Manual at 249. HDC "regulates the speed of the vehicle on downhill gradients, and

maintains constant speed so the driver can concentrate on steering the vehicle." Id. at 135.

 The ESC, the brake system, or the electrical system are not fully functional.

Roll Over Mitigation

Roll Over Mitigation detects critical situations where the vehicle is in danger of rolling over, and brakes appropriate wheels to reduce the likelihood of the vehicle rolling over.

Hill Descent Control

Hill Descent Control (HDC) regulates the speed of the vehicle on downhill gradients, and maintains a constant speed so the driver can concentrate on steering the vehicle. It can be used when driving forwards or in reverse.

Switching on/off the Hill Descent Control

To switch on the Hill Descent Control (HDC), press the \Longrightarrow button. The LED in the button will light up. Press the button again to switch off HDC.

HDC will also be switched on automatically when certain Responsive Off-Road Settings modes are selected using the Drive Dynamics control.

When switched on, HDC will become active when the vehicle is on a gradient of 10% or more, and the vehicle speed is between 1 mph and 25 mph (2 km/h and 40 km/h). Initially HDC will maintain the vehicle speed from the point at which it becomes active, but the chosen set speed can be adjusted using the accelerator pedal and the brake pedal. HDC can operate on gradients up to 100%.

135

116. Claim 46 of the '828 patent further recites: a vehicle control system "wherein the speed control system is arranged to be switched on in at least one of the off-road modes and switched off in the on-road mode."

117. Bentley's Bentayga with All Terrain Specification satisfies this limitation. In the

Bentayga's All Terrain Specification, the default configuration mode for HDC, as used in the on-

road driving modes, is deactivated or "off" but "HDC will also be switched on automatically

when certain Responsive Off-Road Settings modes are selected using the Drive Dynamics

control." Bentley Bentayga Owner's Manual at 135.

118. As described in the preceding paragraphs, each limitation of claim 46 of the '828 patent is met by the accused Bentley Bentayga, either literally or under the doctrine of equivalents.

119. Bentley has infringed and continues to infringe the '828 patent by making, using, selling, offering for sale, and/or importing into the United States the Bentley Bentayga covered by one or more claims of the '828 patent. Bentley is liable to JLR for infringement of the '828 patent pursuant to 35 U.S.C. § 271 (a).

120. Bentley has been aware of the '828 patent (or the originally-issued '776 patent) at least since as early as February 5, 2016. Bentley's infringement has been willful and deliberate, entitling JLR to enhanced damages pursuant to 35 U.S.C. § 284 and recovery of attorneys' fees and costs pursuant to 35 U.S.C. § 285.

121. Bentley's infringement of the '828 patent will continue to damage JLR's business, causing irreparable harm, for which there is no adequate remedy at law, unless Bentley's wrongful acts are enjoined by this Court pursuant to 35 U.S.C. § 283.

122. Bentley's infringement has caused and continues to cause damage to JLR and JLR is entitled to recover damages in an amount subject to proof at trial pursuant to 35 U.S.C. § 284.

PRAYER FOR RELIEF

WHEREFORE, JLR respectfully requests that this Court enter judgment that:

A. Bentley infringes the '828 patent;

B. Bentley, its officers, agents, servants, employees and attorneys, and all persons acting in concert or participation with them, be preliminarily and permanently enjoined from further acts of infringement;

C. JLR be awarded damages adequate to compensate for Bentley's infringement, pursuant to 35 U.S.C. § 284, including prejudgment and post-judgment interest;

D. JLR be awarded treble damages for Bentley's willful infringement, pursuant to 35 U.S.C. § 284;

E. An accounting and/or supplemental damages for all damages occurring after any discovery cutoff and through the Court's decision regarding the imposition of a permanent injunction;

F. An award of attorneys' fees based on this being an exceptional case pursuant to 35 U.S.C. § 285, including prejudgment interest on such fees;

G. Costs and expenses in this action; and

H. An award of such other and further relief as the Court deems necessary, just and/or proper.

JURY TRIAL DEMANDED

JLR respectfully demands a trial by jury on all issues triable to a jury.

Dated: November 1, 2018

Respectfully submitted,

/s/ Robert A. Angle

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CERTIFICATE OF SERVICE

I hereby certify that on the 1st day of November, 2018, I electronically filed the

foregoing pleading with the Clerk of the Court using the Court's CM/ECF docketing system,

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