



DEPARTMENT OF TRANSPORTATION

National Highway Traffic Safety Administration

Petitions for Exemption from the Federal Motor Vehicle Theft Prevention Standard

AGENCY: National Highway Traffic Safety Administration (NHTSA), Department of Transportation (DOT).

ACTION: Grant of petitions for exemption.

SUMMARY: This document grants in full eight manufacturers' petitions for exemption for eight model lines from the Federal Motor Vehicle Theft Prevention Standard (Theft Prevention Standard) beginning in model years (MYs) 2020 and 2021. The manufacturers, vehicle lines, and model years are as follows: BMW of North America, LLC (BMW) for its 2 series vehicle line beginning in MY 2020; Jaguar Land Rover North America LLC (Jaguar Land Rover) for its Jaguar E-Pace vehicle line beginning in MY 2020; Nissan North America, Inc. (Nissan) for its QX55 beginning in MY 2020; Tesla Motors Inc. (Tesla) for its Model Y vehicle line beginning in MY 2020; General Motors Corporation (GM) for its Chevrolet Trailblazer vehicle line beginning in MY 2021; Mazda Motors Corporation (Mazda) for its CX-30 vehicle line beginning in MY 2021; Mitsubishi Motors R&D of America (Mitsubishi) for its Outlander vehicle line beginning in MY 2021; and Toyota Motor North America, Inc. (Toyota) for its Venza vehicle line beginning in MY 2021.

DATES: The exemptions granted by this notice are effective beginning with the 2020 model year for BMW, Jaguar Land Rover, Nissan, and Tesla, and effective beginning with the 2021 model year for General Motors, Mazda, Mitsubishi, and Toyota.

FOR FURTHER INFORMATION CONTACT: Carlita Ballard, Office of International Policy, Fuel Economy, and Consumer Standards, NHTSA, West Building, W43-439, NRM-310,

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SUPPLEMENTARY INFORMATION

Under 49 U.S.C. Chapter 331, the Secretary of Transportation (and the National Highway Traffic Safety Administration [NHTSA] by delegation) is required to promulgate a theft prevention standard to provide for the identification of certain motor vehicles and their major replacement parts to impede motor vehicle theft. NHTSA promulgated regulations at Part 541 (Theft Prevention Standard) to require parts-marking for specified passenger motor vehicles and light trucks. Pursuant to 49 U.S.C. 33106, manufacturers that are subject to the parts-marking requirements may petition the Secretary of Transportation for an exemption for a line of passenger motor vehicles equipped as standard equipment with an anti-theft device that the Secretary decides is likely to be as effective in reducing and deterring motor vehicle theft as compliance with the parts-marking requirements. In accordance with this statute, NHTSA promulgated 49 CFR Part 543, which establishes the process through which manufacturers may seek an exemption from the Theft Prevention Standard.

49 CFR 543.5 provides general submission requirements for petitions and states that each manufacturer may petition NHTSA for an exemption of one vehicle line per model year. Among other requirements, manufacturers must identify whether the exemption is sought under section 543.6 or section 543.7. Under section 543.6, a manufacturer may request an exemption by providing specific information about the anti-theft device, its capabilities, and the reasons the petitioner believes the device to be as effective at reducing and deterring theft as compliance with the parts-marking requirements. Section 543.7 permits a manufacturer to request an exemption under a more streamlined process if the vehicle line is equipped with an anti-theft

device (an “immobilizer”) as standard equipment that complies with one of the standards specified in that section.

Section 543.8 establishes requirements for processing petitions for exemption from the Theft Prevention Standard. As stated in section 543.8(a), NHTSA processes any complete exemption petition. If NHTSA receives an incomplete petition, NHTSA will notify the petitioner of the deficiencies. Once NHTSA receives a complete petition it will process it and, in accordance with section 543.8(b), will grant the petition if it determines that, based upon substantial evidence, the standard equipment antitheft device is likely to be as effective in reducing and deterring motor vehicle theft as compliance with the parts-marking requirements of Part 541.

Section 543.8(c) requires NHTSA to issue its decision either to grant or to deny an exemption petition not later than 120 days after the date on which a complete petition is filed. If NHTSA does not make a decision within the 120-day period, the petition shall be deemed to be approved and the manufacturer shall be exempt from the standard for the line covered by the petition for the subsequent model year.¹ Exemptions granted under Part 543 apply only to the vehicle line or lines that are subject to the grant and are equipped with the antitheft device on which the line’s exemption was based and is effective for the model year beginning after the model year in which NHTSA issues the notice of exemption, unless the notice of exemption specifies a later year.

543.8(f) and (g) apply to how NHTSA’s decisions on petitions are to be made known. Under (f), if the petition is sought under section 543.6, NHTSA publishes a notice of its decision

¹ 49 U.S.C. 33106(d).

to grant or deny the exemption petition in the Federal Register and notifies the petitioner in writing. Under (g), if the petition is sought under section 543.7, NHTSA notifies the petitioner in writing of the agency's decision to grant or deny the exemption petition.

This grant of petitions for exemption considers the following manufacturers' petitions for the following model years: BMW of North America, LLC (BMW) for its 2 series vehicle line beginning in MY 2020; Jaguar Land Rover North America LLC (Jaguar Land Rover) for its Jaguar E-Pace vehicle line beginning in MY 2020; Nissan North America, Inc. (Nissan) for its QX55 beginning in MY 2020; Tesla Motors Inc. (Tesla) for its Model Y vehicle line beginning in MY 2020; General Motors Corporation (GM) for its Chevrolet Trailblazer vehicle line beginning in MY 2021; Mazda Motors Corporation (Mazda) for its CX-30 vehicle line beginning in MY 2021; Mitsubishi Motors R&D of America (Mitsubishi) for its Outlander vehicle line beginning in MY 2021; and Toyota Motor North America, Inc. (Toyota) for its Venza vehicle line beginning in MY 2021.

As explained below, the petitions for all eight manufacturers' vehicle lines are granted under 49 U.S.C. 33106, which states that if the Secretary of Transportation (NHTSA, by delegation) does not make a decision about a petition within 120 days of the petition submission, the petition shall be deemed to be approved and the manufacturer shall be exempt from the standard for the line covered by the petition for the subsequent model year. Separately, based on the information provided in each manufacturer's petition, NHTSA has determined that the antitheft device to be placed on each line as standard equipment is likely to be as effective in reducing and deterring motor vehicle theft as compliance with the parts-marking requirements of the Theft Prevention Standard.

I. Petition Approval under 49 USC 33106(d)

As outlined above, if NHTSA does not make a decision on a complete exemption petition within the 120-day period after the date that the petition was filed,² the petition shall be deemed to be approved and the manufacturer shall be exempt from the standard for the line covered by the petition for the subsequent model year.³

Each manufacturer covered in this notice for the specified model year submitted a petition for exemption to NHTSA more than 120 days prior to this decision. Although each petition is accordingly approved pursuant to 49 USC 33106(d), for continuity for manufacturers that petitioned for MYs past (*i.e.*, we are now approximately 7-8 months into MY 2020), or MYs for which production is likely to begin 8 months prior to the start of this notice,⁴ NHTSA evaluated the specific information provided by each manufacturer in accordance with the requirements in 49 CFR 543.6, Petition: Specific content requirements. Based on this information, NHTSA separately determined that the antitheft device to be placed on each line as standard equipment is likely to be as effective in reducing and deterring motor vehicle theft as compliance with the parts-marking requirements of the Theft Prevention Standard.

II. Specific Petition Content Requirements under 49 CFR 543.6

Pursuant to 49 CFR 543, Exemption from Vehicle Theft Prevention, the eight manufacturers described below petitioned for their specified vehicle lines an exemption from the parts-marking requirements of the Theft Prevention Standard, beginning in MYs 2020 or 2021. Each manufacturer petitioned under 49 CFR 543.6, Petition: Specific content requirements, which as described above, requires manufacturers to provide specific information about the anti-

² See 51 FR 706; 52 FR 33821. Since the interim final rule implementing the Theft Prevention Standard, NHTSA has interpreted the filing date as meaning the date on which NHTSA receives a manufacturer's *complete* petition.

³ 49 U.S.C. 33106(d).

⁴ 49 U.S.C. 33106(c).

theft device installed as standard equipment on all vehicles in the line for which an exemption is sought, the anti-theft device's capabilities, and the reasons the petitioner believes the device to be as effective at reducing and deterring theft as compliance with the parts-marking requirements.

More specifically, 543.6(a)(1) requires petitions to include a statement that an antitheft device will be installed as standard equipment on all vehicles in the line for which the exemption is sought. Under section 543.6(a)(2), each petition must list each component in the antitheft system, and a diagram showing the location of each of those components within the vehicle. As required by section 543.6(a)(3), each petition must include an explanation of the means and process by which the device is activated and functions, including any aspect of the device designed to: (1) facilitate or encourage its activation by motorists; (2) attract attention to the efforts of an unauthorized person to enter or move a vehicle by means other than a key; (3) prevent defeating or circumventing the device by an unauthorized person attempting to enter a vehicle by means other than a key; (4) prevent the operation of a vehicle which an unauthorized person has entered using means other than a key; and (5) ensure the reliability and durability of the device.⁵

In addition to providing information about the antitheft device and its functionality, petitioners must also submit the reasons for the petitioner's belief that the antitheft device will be effective in reducing and deterring motor vehicle theft, including any theft data and other data that are available to the petitioner and form a basis for that belief,⁶ and the reasons for the petitioner's belief that the agency should determine that the antitheft device is likely to be as

⁵ 49 CFR 543.6 (a)(3).

⁶ 49 CFR 543.6(a)(4).

effective as compliance with the parts-marking requirements of Part 541 in reducing and deterring motor vehicle theft, including any statistical data that are available to the petitioner and form the basis for the petitioner's belief that a line of passenger motor vehicles equipped with the antitheft device is likely to have a theft rate equal to or less than that of passenger motor vehicles of the same, or a similar, line which have parts marked in compliance with Part 541.⁷

The following sections describe each manufacturer's petition information provided pursuant to 49 CFR 543, Exemption from Vehicle Theft Prevention. Some manufacturers requested confidential treatment for specific information in their petition. Therefore, no confidential information provided for purposes of this notice has been disclosed.

a. BMW

In a petition dated February 22, 2019, BMW requested an exemption from the parts-marking requirements of the Theft Prevention Standard for its 2 series vehicle line beginning with MY 2020. Pursuant to 543.6(a)(1), BMW stated that the antitheft device described in its petition will be standard equipment on 100% of its 2 series vehicle line produced for the U.S. beginning with MY 2020 and beyond.

In accordance with 543.6(a)(2), BMW provided a detailed description and diagram of the identity, design, and location of the components of the antitheft device for its 2 series vehicle line. Under 543.6(a)(3), BMW stated that its 2 series vehicle line will be installed with a passive, electronically-coded, vehicle immobilizer system (EWS) as standard equipment that will prevent the vehicle from being driven away under its own engine power. Key features of the antitheft device will include a passive immobilizer, remote-control w/transponder including a

⁷ 49 CFR 543.6(a)(5).

mechanical key, ring antenna (transponder coil), low frequency antenna (LF), engine control unit (DME/DDE) with encoded start release input, transmission control unit (EGS) and an EWS (BDC) control unit. BMW stated that it will not offer an audible or visible alarm feature on the proposed device.

BMW also provided information on the reliability and durability of its proposed device. To ensure reliability and durability of its device, BMW stated that it conducted tests on the antitheft device which complied with its own specific standards. BMW further stated that its antitheft device fulfills the requirements of the January 1995 European vehicle insurance companies. In further addressing the reliability and durability of its device, BMW provided information on the uniqueness of its mechanical keys to be used on the 2 series vehicle line. Specifically, BMW stated that the vehicle's mechanical keys are unique because they require a special key blank, cutting machine and a unique vehicle code to allow for key duplication. BMW also stated that the mechanical keys cannot be used to deactivate the device but that activation must be done electronically. BMW further stated that the new keys will only be issued to authorized persons and will incorporate special guide-way millings, making the locks almost impossible to pick and the keys impossible to duplicate on the open market.

BMW stated that activation of its antitheft device occurs automatically when the engine is shut off and the vehicle key is removed from the ignition system. BMW stated that a transponder (transmitter/receiver) in the radio frequency remote control communicates with the EWS (BDC) control unit providing the interface to the loop antenna (coil), engine control unit and starter. After an initial starting value, the authentication uses the challenge response technique with symmetric secret key. BMW further stated that when the control unit identifies the correct release signal, the ignition signal and fuel supply are released allowing operation of

the vehicle.

BMW also stated that the vehicle is equipped with a central-locking system that can be operated to lock and unlock all doors or to unlock only the driver's door, preventing forced entry into the vehicle through the passenger doors. BMW further stated that the vehicle can be further secured by locking the doors and hood using either the key-lock cylinder on the driver's door or the remote frequency remote control. BMW stated that the frequency for the remote control constantly changes to prevent an unauthorized person from opening the vehicle by intercepting the signals of its remote control.

BMW further stated that all of its vehicles are currently equipped with antitheft devices as standard equipment, including its 2 series vehicle line. BMW compared the effectiveness of its antitheft device with devices which NHTSA has previously determined to be as effective in reducing and deterring motor vehicle theft as would compliance with the parts-marking requirements of Part 541. Specifically, BMW has installed its antitheft device on several of its vehicle lines which have been granted parts-marking exemptions by the agency.

b. Jaguar Land Rover

In a petition dated December 14, 2018, Jaguar Land Rover requested an exemption from the parts-marking requirements of the Theft Prevention Standard for its Jaguar E-Pace vehicle line beginning with MY 2020. Pursuant to 543.6(a)(1), Jaguar Land Rover stated that the antitheft device described in its petition will be standard equipment on the Jaguar E-PACE model for MY 2020.

In accordance with 543.6(a)(2), Jaguar Land Rover provided a detailed description and diagram of the identity, design, and location of the components of the antitheft device for the Jaguar E-Pace vehicle line. Under 543.6(a)(3), Jaguar Land Rover stated that the Jaguar E-Pace

vehicle line will be installed with a passive, transponder-based, electronic engine immobilizer device as standard equipment beginning with the 2020 model year. Key components of its antitheft device will include a Smart Key, power train control module (PCM), instrument cluster, body control module (BCM), remote frequency receiver (RFR), Immobilizer Antenna Unit (IAU), Remote Frequency Actuator (RFA), Security Horn and Vehicle Horn, Smart Key, Door Zone Modules (Passenger and Driver) (DMZs) and a Security Warning LED. Jaguar Land Rover stated that its antitheft device will also include a vehicle security system that includes an audible and visual perimeter alarm system as standard equipment on the entire vehicle line. The horn will sound and the vehicle's exterior lights will flash if unauthorized entry is attempted by opening the hood, doors or luggage compartment. Jaguar Land Rover further stated that its perimeter alarm system can be armed with its Smart Key or programmed to be passively armed.

Jaguar Land Rover provided information on the reliability and durability of its proposed device as required by 543.6(a)(3)(v). To ensure reliability and durability of the device, Jaguar Land Rover conducted tests based on its own specified standards. Jaguar Land Rover provided a detailed list of the tests conducted (i.e., temperature and humidity cycling, high and low temperature cycling, mechanical shock, random vibration, thermal stress/shock tests, material resistance tests, dry heat, dust and fluid ingress tests). Jaguar Land Rover stated that it believes that its device is reliable and durable because it complied with specified requirements for each test. Additionally, Jaguar Land Rover stated that its key recognition sequence includes over a billion code combinations with encrypted data that are secure against duplication. Jaguar Land Rover further stated that the coded data transfer between modules use a unique secure identifier and public algorithm. Jaguar Land Rover also stated that since its Jaguar E-Pace vehicle line will utilize a push button vehicle ignition, it does not have a conventional mechanical key barrel,

and therefore, a thief will have no means of forcibly bypassing the key-locking system.

Jaguar Land Rover stated that its immobilizer device is automatically activated when the Smart Key is removed from the vehicle. Jaguar Land Rover also stated that its Smart key is programmed and synchronized to each vehicle through an identification key code and a secret, randomly-generated code unique to each vehicle.

Jaguar Land Rover stated that there are three methods of antitheft device deactivation and engine starting. Method one consists of automatic detection of the Smart Key via a remote frequency challenge response sequence. Specifically, when the driver approaches the vehicle and pulls the driver's door handle following authentication of the correct Smart Key, the doors will unlock. When the ignition start button is pressed, the device searches to find and authenticate the Smart Key within the vehicle interior. If successful, this information is passed to the BCM via the Remote Function Actuator by coded data transfer. The BCM will pass the "valid key" status to the instrument cluster, via a coded data transfer and then send the key valid message code to the PCM initiating a coded data transfer and engine authorization to start. Method two consists of unlocking the vehicle with the Smart Key unlock button. As the driver approaches the vehicle, the Smart Key unlock button is pressed and the doors will unlock. Once the driver presses the ignition start button, the operation process is the same as method one. Method three involves using the emergency key blade. If the Smart Key has a discharged battery or is damaged, there is an emergency key blade that can be removed from the Smart Key and used to unlock the doors. When the ignition start button is pressed, the device searches to find and authenticate the Smart Key within the vehicle interior. If successful, the Smart Key needs to be docked. Once the Smart Key is docked/placed in the correct position, and the ignition start button is pressed again, the BCM and Smart key enter a coded data exchange via the

Immobilizer Antenna Unit. The BCM then passes the valid key status to the instrument cluster, via the Immobilizer Antenna Unit and sends the key valid message to the PCM which initiates a coded data transfer. If successful, engine starting is authorized.

Jaguar Land Rover stated that its immobilizer system on the Jaguar E-Pace is substantially similar to the antitheft devices using similar technology installed on the Jaguar F-Pace, Jaguar XJ, Jaguar F-Type, Jaguar XF, Jaguar XE, Land Rover Discovery Sport and the Land Rover Range Rover Evoque.

c. Nissan

On October 19, 2017, Nissan was granted an exemption from the parts-marking requirements of 49 CFR Part 541, Federal Motor Vehicle Theft Prevention Standard (Theft Prevention Standard) by the agency beginning with its MY 2019 vehicles (see 82 FR 48744). The exemption in accordance with 49 CFR Part 543, Exemption from the Theft Prevention Standard was granted because the agency determined that the antitheft device placed on the vehicle line as standard equipment is likely to be effective in reducing and deterring motor vehicle theft as compliance with the parts-marking requirements. The QX50 vehicle line is installed with a passive, electronic engine immobilizer antitheft device as standard equipment but does not provide an audible and visible alarm system, although the system provides a security indicator light.

On July 29, 2019, Nissan sent the agency a letter informing the agency of its plans to add the new QX55 luxury sport utility coupe model to its existing Infiniti QX50 sports utility vehicle line beginning with MY 2020. Nissan stated that there will be slight exterior styling differences between the QX50 and the QX55 vehicles, however, the vehicle specifications and platform/chassis will remain the same. Nissan further confirmed that its new QX55 model will

also maintain the same antitheft device as utilized on the QX50 vehicle line for which its original exemption was granted.

d. Tesla

In a petition dated August 9, 2019, Tesla requested an exemption from the parts-marking requirements of the Theft Prevention Standard for its Model Y vehicle line beginning with MY 2020. Pursuant to 543.6(a)(1), Tesla stated that the antitheft device described in its petition will be installed as standard equipment on Model Y line vehicles starting with MY 2020.

In accordance with 543.6(a)(2), Tesla provided a detailed description and diagram of the identity, design, and location of the components of the antitheft device for the Model Y vehicle line. Tesla stated that the Model Y vehicle line will be installed with a passive, transponder-based, electronic engine immobilizer device as standard equipment beginning with its MY 2020 model year. Key components of the antitheft device include an engine immobilizer, central body controller, security controller, gateway function, drive inverters and a passive entry transponder (PET). Tesla also stated that the new design of its immobilizer device will have enhanced security communication between its components, prevent tampering and provide additional features to enhance its overall effectiveness. Tesla further stated that in addition to its immobilizer device, it will incorporate an audible alarm (horn) as standard equipment, but will not include a visual feature with the alarm system. Tesla stated that forced entry into the vehicle or any type of unauthorized entry without the correct PET will trigger the audible alarm. Tesla further stated that in addition to an unauthorized access through the doors, the alarm will also trigger when a break-in is attempted to both the front and rear cargo areas.

Tesla provided information on the reliability and durability of its proposed device as required by 543.6(a)(3)(v). Tesla stated that the antitheft device will be an upgraded version of

the successful antitheft system currently installed as standard equipment in all Tesla Model S/X/3 vehicles. To ensure reliability and durability of the device, Tesla conducted tests based on its own specified standards. Tesla provided a detailed list of the tests conducted and stated that it believes that its device is reliable and durable because it complied with its design standards. Additionally, Tesla stated that it has also incorporated other measures of ensuring reliability and durability of the device to protect the immobilizer device from exposure to the elements and limits its access by unauthorized personnel. Furthermore, Tesla stated that the immobilizer relies on electronic functions and not mechanical functions, and therefore expects the components to last at least the life of the vehicle or longer.

Tesla stated that its antitheft device will have a two-step activation process with a vehicle code query conducted at each stage. The first stage allows access to the vehicle when an authorization cycle occurs between the PET and the central body controller, as long as the PET is in close proximity to the car and the driver either pushes the lock/unlock button on the key fob, pushes the exterior door handle to activate the handle sensors or inserts a hand into the handle to trigger the latch release. During the second stage, vehicle operation will be enabled when the driver has depressed the brake pedal and moves the gear selection stalk to drive or reverse, when one of these actions is performed, the security controller will poll to verify if the appropriate PET is inside the vehicle. Upon location of the PET, the security controller will run an authentication cycle with the key confirming the correct PET is being used inside the vehicle. Tesla stated that once authentication is successful, the security controller initiates a coded message through the gateway. If the code exchange matches the code stored in the drive inverters, the exchange will authorize the drive inverter to deactivate immobilization allowing the vehicle to be driven under its own power. Tesla stated that the immobilizer functions to ensure maximum theft protection

when the immobilizer is active, the vehicle is off and the doors are locked. Tesla stated that it will incorporate an additional security measure that performs when the car is unlocked and immobilization is deactivated. Specifically, immobilization will reactivate when there are no user inputs to the vehicle within a programmed period of time. Tesla stated that any attempt to operate the vehicle without performing and completing each task, will render the vehicle inoperable.

Tesla stated that its immobilizer system on the Model Y vehicle line will be similar to the version designed to deter theft on the Model S and X vehicle lines. Tesla also stated that it expects similar results with the Model Y vehicles equipped with a modern immobilizer system that is state of the art in both design and function.

e. General Motors

Pursuant to 49 CFR 543, Exemption from Vehicle Theft Prevention, GM requested, in a petition dated July 19, 2019, an exemption from the parts-marking requirements of the Theft Prevention Standard for its Chevrolet Trailblazer vehicle line beginning with MY 2021. GM stated that its “PASS-KEY III+” antitheft device, discussed further below, would be installed as standard equipment on all vehicles in the Chevrolet Trailblazer line.”

In accordance with 49 CFR 543.6(a)(2), GM stated that its PASS-Key III+ anti-theft device is a passive, transponder-based, electronic immobilizer, with the following major components: a PASS-Key III+ controller module, engine control module (ECM), an electronically-coded ignition key, a radio frequency (RF) receiver, an immobilizer exciter module, three low frequency antennas, and a passive antenna module and provided a diagram of the locations of the components.

As required by 49 CFR 543.6(a)(3), GM stated that the PASS-Key III+ immobilizer device

is designed to be active at all times without direct intervention by the vehicle operator. GM further stated that activation of the device occurs immediately after the ignition has been turned off and the key has been removed and deactivation of the antitheft device occurs automatically when the engine is started. GM stated that the Chevrolet Trailblazer vehicle line will be equipped with one of two ignition versions. Specifically, the Chevrolet Trailblazer will be equipped with either a keyed or keyless ignition version of its PASS-Key III+ immobilizer antitheft device. GM also stated that the “keyed” ignition version utilizes a special ignition key and decoder module and its electrical code must be sensed and properly decoded by the controller module before the vehicle can be operated. GM further stated that with the “keyless” ignition version, an electronic key fob performs normal remote keyless entry functions and communicates with the vehicle without direct owner intervention. Specifically, during operation of the vehicle, when the owner presses the engine start/stop switch, the vehicle transmits a randomly generated challenge and vehicle identifier within the passenger compartment of the vehicle via three low-frequency antennas, controlled by the passive antenna module. The electronic key receives the data and if the vehicle identifier matches that of the vehicle, the electronic key will calculate the response to the vehicle using the challenge and secret information shared between the key and the vehicle. The electronic key then transmits the response via a radio frequency channel to a vehicle mounted receiver, conveying the information to the PASS-Key III+ control module. The PASS-Key III+ control module compares the received response with an internally calculated response. If the values match, the device will allow the vehicle to enter functional modes and transmit a fixed code pre-release password to the engine controller over the serial data bus, and enable computation and communication of a response to any valid challenge received from the engine controller. If a valid key is not

detected, the system will not transmit a fixed code pre-release password to the engine controller and fuel will not be delivered to the engine and the starter will not be enabled, so the vehicle will be immobilized.

As required in section 543.6 (a)(3)(v), GM provided information on the reliability and durability of its proposed device. GM followed its own standards in assessing reliability and durability and conducted tests to validate the integrity, durability and reliability of the PASS-Key III+ device, including tests for high temperature storage, low temperature storage, thermal shock, humidity, frost, salt fog, flammability and others. GM further stated that the design and assembly processes of the PASS-Key III+ subsystem and components are validated for 10 years of vehicle life and 150,000 miles of performance.

GM noted in its petition that its proposed device lacks an audible or visible alarm and, therefore, does not perform one of the functions listed in 49 CFR Part 543.6(a)(3), that is, to call attention to unauthorized attempts to enter or move the vehicle. However, GM stated that based on comparison of the reduction in the theft rates of Chevrolet Corvettes using a passive antitheft device along with an audible/visible alarm system to the reduction in theft rates for the Chevrolet Camaro models equipped with a passive antitheft device without an alarm, GM did not find that the lack of an alarm or attention-attracting device compromised the theft deterrent performance of a device such as PASS-Key III+ device. GM stated that in these instances, the agency has previously concluded that the lack of an audible or visible alarm has not prevented these antitheft devices from being effective protection against theft.

To support its assertion that the antitheft device would be as effective at reducing and deterring theft as parts-marking, as required by 49 CFR 543.6(a)(4), GM referenced data provided by the American Automobile Manufacturers Association (AAMA) in support of the

effectiveness of GM's PASS-Key devices in reducing and deterring motor vehicle theft and stated that the PASS-Key III+ device has been designed to enhance the functionality and theft protection provided by its first, second and third generation PASS-Key, PASS-Key II, and PASS-Key III devices. Specifically, GM stated that data which provide the basis for GM's confidence that the PASS-Key III+ system will be effective in reducing and deterring motor vehicle theft are contained in the response of the American Automobile Manufacturers Association (AAMA) to Docket 97-042; Notice I (NHTSA Request for Comments on its preliminary Report to Congress on the effects of the Anti Car Theft Act of 1992 and the Motor Vehicle Theft Law Enforcement Act of 1984). In the Report to Congress, AAMA stated the more recent antitheft systems are more effective in reducing auto theft. AAMA also cited the Highway Loss Data Institute (HLDI) findings on the effectiveness of antitheft devices in reducing theft. AAMA noted that vehicles with antitheft devices are less likely to be stolen for joyriding or transportation and therefore, their recovery rates are lower.

GM also stated that theft rate data have indicated a decline in theft rates for vehicle lines equipped with comparable devices that have received full exemptions from the parts-marking requirements. GM stated that the theft rate data, as provided by the Federal Bureau of Investigation's National Crime Information Center (NCIC) and compiled by the agency, show that theft rates are lower for exempted GM models equipped with the PASS-Key-like systems than the theft rates for earlier models with similar appearance and construction that were parts-marked. Based on the performance of the PASS-Key, PASS-Key II, and PASS-Key III devices on other GM models, and the advanced technology utilized in PASS-Key III+, GM believes that the PASS-Key III+ device will be more effective in deterring theft than the parts-marking requirements of 49 CFR Part 541.

f. Mazda

In a petition dated October 1, 2019, Mazda requested an exemption from the parts-marking requirements of the Theft Prevention Standard for its Mazda CX-30 vehicle line beginning with MY 2021.

In its petition, Mazda provided a detailed description and diagram of the identity, design, and location of the components of the antitheft device for the CX-30 vehicle line. Mazda stated that its MY 2021 CX-30 vehicle line will be installed with a passive, transponder based, electronic engine immobilizer antitheft device as standard equipment. Key components of its antitheft device will include a powertrain control module (PCM), immobilizer control module, security indicator light, coil antenna, transmitter with transponder key (transponder key), low frequency (LF) antenna, radio frequency (RF) receiver and a low frequency unit (LFU). The device will not provide any visible or audible indication of unauthorized vehicle entry (i.e., flashing lights or horn alarm) as standard equipment however, Mazda stated that its device will incorporate a light-emitting diode (LED) indicator which will provide a visual confirmation on the protection status of the antitheft device.

As required in section 543.6 (a)(3)(v), Mazda provided information on the reliability and durability of its proposed device. To ensure reliability and durability of the device, Mazda conducted tests based on its own specified standards. Mazda provided a detailed list of the tests conducted (i.e., low/high temperature exposure operation, high temperature endurance, thermal cycling, thermal shock resistance, thermal shock endurance, humidity temperature cycling, high temperature and humidity endurance, water, dust, vibration, connector and lead/lock strength, chemical resistance, electromagnetic field, power line variations, DC stresses, electrostatic discharge and push button start strength) and stated that it believes the device is reliable and

durable since it complied with its own specified requirements for each test. Additionally, Mazda stated that its device is extremely reliable and durable because it is computer-based and does not rely on any mechanical or moving parts. Mazda further stated that any attempt to slam-pull its vehicle's ignition will have no effect on a thief's ability to start the vehicle without the correct code being transmitted to the electronic control modules.

According to Mazda, there are two methods of initiating the antitheft device operation process. Specifically, Mazda stated that the immobilizer system checks up on two codes; 1) the transponder code which the immobilizer control module checks with the transponder located in the transmitter; and 2) the immobilizer code, which the immobilizer control module checks with the powertrain's electronic control module. Mazda also stated that there are two means of checking the transponder code; 1) when the immobilizer control module communicates with the transmitter which includes a transponder by LF antenna and receives a reply of transmitter in the RF receiver; and 2) when the immobilizer control module communicates with the transponder by coil antenna which is located in the push button start. If a code of the transponder matches with the immobilizer control module by either method mentioned above, and the ignition is turned to the ON position, the immobilizer control module checks the powertrain's electronic control module with immobilizer code. Mazda further stated that the vehicle's engine can only be started if the immobilizer code matches the code previously programmed into the immobilizer control module. If the immobilizer code does not match, the engine will be disabled.

Communications between the immobilizer system control function and the powertrain's electronic control module are encrypted. Mazda also stated that there are more than 15×10^6 different transponder codes, and each transponder is hard coded with a unique code at the time of manufacture.

Mazda provided data on the effectiveness of other similar antitheft devices installed on vehicle lines in support of its belief that its device will be at least as effective as those comparable devices. Specifically, Mazda stated that its device was installed on certain MY 1996 Ford vehicles as standard equipment, (i.e., all Ford Mustang GT and Cobra models, Ford Taurus LX, and SHO models and Ford Sable LS models). In MY 1997, Mazda installed its immobilizer device on the entire Ford Mustang vehicle line as standard equipment. When comparing 1995 model year Mustang vehicle thefts (without immobilizers) with MY 1997 Mustang vehicle thefts (with immobilizers), Mazda referenced the National Crime Information Center's (NCIC) theft information which showed that there was a 70% reduction in theft experienced when comparing MY 1997 Mustang vehicle thefts (with immobilizers) to MY 1995 Mustang vehicle thefts (without immobilizers).

g. Mitsubishi

On February 2, 2009, NHTSA published in the Federal Register a notice granting in full a petition from Mitsubishi for an exemption from the parts-marking requirements of the Theft Prevention Standard (49 CFR 541) for the Outlander vehicle line beginning with its MY 2011 vehicles (see 74 FR 5891). The Mitsubishi Outlander is currently equipped with a passive, transponder-based, electronic engine immobilizer device and an audible and visible alarm.

On August 6, 2012, Mitsubishi submitted a petition to modify the previously approved exemption for the Outlander vehicle line. On November 28, 2012 (see 77 FR 71030), the agency granted a petition for modification of the previously granted exemption for the Outlander vehicle line beginning with its MY 2014 vehicles. On August 1, 2019, Mitsubishi submitted a second petition to modify the previously approved exemption for the Outlander vehicle line.

In accordance with 543.6(a)(2), Mitsubishi's petition for modification provides a detailed

description and diagram of the identity, design, and location of the components of the antitheft device proposed for installation beginning with the 2021 MY.

For the current antitheft device installed on the Mitsubishi Outlander, Mitsubishi stated that it will continue to offer the wireless control module (WCM) as standard equipment for the entry models for the Outlander vehicle line, but all models other than the entry models will be equipped with one touch starting system (OSS). The features of the OSS are the engine electronic control unit (ECU), electronic time and alarm control system (ETACS ECU), OSS ECU, keyless operation system (KOS) ECU, engine (power) switch keyless operation key (transponder key) and low-frequency (LF) antenna. Mitsubishi stated that the OSS utilizes a keyless system that allows the driver to press a button located on the instrument panel to activate and deactivate the ignition (instead of using a traditional key in the key cylinder) as long as the transponder is located in close proximity to the driver. Once the ignition switch is pushed to the “on” position, the transceiver module reads the specific ignition key code for the vehicle and transmits an encrypted message containing the key code to the ECU which verifies that the key is correct. The immobilizer then sends a separate encrypted state-code signal to the engine ECU to allow the driver to start the vehicle. The engine will only function if the key code matches the unique identification key code previously programmed into the ECU. If the codes do not match, the engine and fuel system will be disabled.

In its 2021 modification, Mitsubishi stated that it will offer the one touch starting system (OSS 2) as standard equipment for all Outlander vehicles. The features of the OSS 2 are the engine control module (ECM), intelligent power distribution module engine room (IPDM-ER), body control module (BCM), hands free module (HFM) w/antenna, engine (power) switch w/ring antenna, iKey Fob (transponder key) and a LF antenna. The OSS 2 is a transponder-

based electronic immobilizer system that starts the engine without using a mechanical key as long as the registered iKey Fob is located in close proximity to the driver. Mitsubishi stated that it will also introduce another model into the Outlander vehicle line beginning with MY 2021.

When the ignition key is pushed to the ignition “on” position, the transceiver module reads the specific ignition key code for the vehicle and transmits an encrypted message containing the key code to the ECU or HFM which verifies that the key is correct. The immobilizer then sends a separate encrypted start-code signal to the engine ECU or HFM to allow the driver to start the vehicle. The engine will only function if the key code matches the unique identification key code previously programmed into the ECU or HFM. If the codes do not match, the engine and fuel system will be disabled. Mitsubishi also stated that if the iKey Fob battery is functioning at low power, once the ignition key is pushed and the iKey Fob is close to the engine switch, the ring antenna in the engine switch will supply power by transmitting electromagnetic waves to a transponder built into the iKey Fob by using magnetic coupling. After power is supplied to the iKey Fob it will transmit the ID code to the HFM via the engine switch, once authentication is successfully at the HFM, the HFM will send the outcome to the BCM turning the ignition on and sending the ignition on request to the IPDM-ER.

Mitsubishi further stated that there are 4.3 billion different possible key codes for the WCM system, 250 million for the OSS 1 system and 268 million for the new OSS 2 system making a successful key code duplication nearly impossible. Mitsubishi stated that the immobilizer device and the ECU or HFM share security data when first installed during vehicle assembly, making them a matched set. These matched modules will not function if taken out and reinstalled separately on other vehicles. Mitsubishi also stated that the device is extremely

reliable and durable because there are no moving parts, the key does not require a separate battery and it is impossible to mechanically override the device and start the vehicle.

Mitsubishi stated that the Mitsubishi Outlander has been equipped with the immobilizer device since MY 2007. Mitsubishi also stated that the Eclipse, Galant, Endeavor, Lancer, Outlander Sport, I-MiEv, Mirage, and the Eclipse Cross vehicle lines have been equipped with a similar type of immobilizer device since January 2000, January 2004, April 2004, March 2007, September 2010, October 2011, July 2013 and December 2017 respectively, and they have all been granted parts-marking exemptions by the agency. Mitsubishi further stated that its Eclipse vehicle line has been equipped with a similar device since introduction of its MY 2000 vehicles. Mitsubishi further stated that the theft rate for the MY 2000 Eclipse decreased by almost 42% when compared with that of its MY 1999 Mitsubishi Eclipse (unequipped with an immobilizer device).

h. Toyota

In a petition dated August 19, 2019, Toyota requested an exemption from the parts-marking requirements of the Theft Prevention Standard for the Venza vehicle line beginning with MY 2021.

In its petition, Toyota provided a detailed description and diagram of the identity, design, and location of the components of the antitheft device for the Venza vehicle line. Toyota stated that its MY 2021 Venza vehicle line will be installed with an engine immobilizer device as standard equipment, as required by 543.6(a)(1). Toyota also stated that it will offer an HV with “smart entry and start” system on its Venza vehicle line. Specifically, key components of the “smart entry and start” system will include, a certification engine control unit (ECU), power switch, steering lock ECU, security indicator, door control receiver, electrical key, HV-ECU, ID

code box, and an engine control module (ECM). Toyota stated that there will also be position switches installed on the vehicle to protect the hood and doors from unauthorized tampering/opening. Toyota further explained that locking the doors can be accomplished through use of a key, wireless switch or its smart entry system, and that unauthorized tampering with the hood or door without using one of these methods will cause the position switches to trigger its antitheft device to operate. Toyota stated that its antitheft device will also include an alarm system as standard equipment. Toyota stated that once its alarm system is activated, the horn will sound and its exterior and interior lights will flash if unauthorized entry is attempted.

As required in section 543.6 (a)(3)(v), Toyota provided information on the reliability and durability of its proposed device. To ensure reliability and durability of the device, Toyota conducted tests based on its own specified standards. Toyota provided a detailed list of the tests conducted (i.e., high and low temperature operation, strength, impact, vibration, electro-magnetic interference, etc.). Toyota stated that it believes that its device is reliable and durable because it complied with its own specific design standards and the antitheft device is installed on other vehicle lines for which the agency has granted a parts-marking exemption. As an additional measure of reliability and durability, Toyota stated that its vehicle key cylinders are covered with casting cases to prevent the key cylinder from easily being broken. Toyota further explained that there are approximately 10,000 combinations for inner cut keys which makes it difficult to unlock the doors without using a valid key because the key cylinders would spin out and cause the locks to not operate.

Toyota stated that its HV with “smart entry and start” system is activated when the power switch is pushed from the “ON” ignition status to any other status. The certification ECU then performs the calculation for the immobilizer and the immobilizer signals the ECM to activate the

device. Toyota also stated that key verification is also performed after the driver pushes the power switch. Deactivation occurs after the driver pushes the power switch, the certification ECU and steering lock ECU receive confirmation of a valid key, and the certification ECU allows the ECM to start the engine. Toyota also stated that a security indicator is installed notifying the users and others inside and outside the vehicle with the status of the immobilizer. Toyota further explained that the security indicator flashes continuously when the immobilizer is activated, and turns off when it is deactivated.

Toyota stated that currently, there is no theft rate data available for its new Venza vehicle line. However, Toyota compared its proposed device to other Toyota antitheft devices that NHTSA has determined to be as effective in reducing and deterring motor vehicle theft as would compliance with the parts-marking requirements. Toyota compared its proposed device to that which has been installed on the Camry, Corolla, Prius, Prius v, RAV4, Highlander, Sienna, Avalon, C-HR, Lexus LS, GS, RX, NX vehicle lines. Toyota also stated that the MY 2014 theft rate data for the Toyota RAV4 and RAV4 HV is similar to its proposed device for the Venza vehicle line. Therefore, Toyota has concluded that the antitheft device proposed for its Venza vehicle line is no less effective than those devices on the lines for which NHTSA has already granted full exemption from the parts-marking requirements.

III. Decision to Grant the Petitions

As discussed above, the petitions for all eight manufacturers' vehicle lines are considered approved under 49 U.S.C. 33106. Separately, NHTSA believes, based on the supporting evidence submitted by each manufacturer, that the antitheft device described for each vehicle line is likely to be as effective in reducing and deterring motor vehicle theft as compliance with the parts-marking requirements of the Theft Prevention Standard.

Pursuant to 49 U.S.C. 33106 and 49 CFR 543.8(b), the agency grants a petition for exemption from the parts-marking requirements of Part 541, either in whole or in part, if it determines that, based upon substantial evidence, the standard equipment antitheft device is likely to be as effective in reducing and deterring motor vehicle theft as compliance with the parts-marking requirements of Part 541. The agency finds that each manufacturer has provided adequate reasons for its belief that the antitheft device for each vehicle line is likely to be as effective in reducing and deterring motor vehicle theft as compliance with the parts-marking requirements of the Theft Prevention Standard. This conclusion is based on the information each manufacturer provided about its antitheft device.

The agency concludes that each described device will provide four of the five types of performance listed in section 543.6(a)(3): promoting activation; preventing defeat or circumvention of the device by unauthorized persons; preventing operation of the vehicle by unauthorized entrants; and ensuring the reliability and durability of the device.

Moving forward, to facilitate the agency's consideration of complete petitions in a timely manner, NHTSA is planning to publish a Federal Register notice clarifying the type of information that can serve as a valid basis for granting a request for exemption from the Theft Prevention Standard. Specifically, NHTSA will be providing this clarification because it has received a few petitions in which the petitioners have sought to support their request for exemption with data comparing the theft rate of a particular vehicle line to the industry median or average vehicle theft rate. The notice will not impose any new requirements for manufacturers seeking exemptions from the parts-marking requirement or otherwise change Part 541. As will be explained further in that notice, 49 CFR 543.6(a)(5) does not refer to NHTSA's considering comparisons of the theft rate of the subject vehicle in a petition to the industry-wide median or

average theft rate when evaluating a request for exemption under Part 543. Instead, under 49 CFR 543.6(a)(5), NHTSA is to consider “any statistical data that are available to the petitioner and form a basis for petitioner's belief that a line of passenger motor vehicles equipped with the antitheft device is likely to have a theft rate equal to or less than that of passenger motor vehicles *of the same, or a similar, line* which have parts marked in compliance with part 541” (emphasis added).⁸ The notice will clarify this provision of Part 541.

The agency notes that 49 CFR Part 541, Appendix A-1, identifies those lines that are exempted from the Theft Prevention Standard for a given model year. 49 CFR Part 543.8(f) contains publication requirements incident to the disposition of all Part 543 petitions. Advanced listing, including the release of future product nameplates, the beginning model year for which the petition is granted and a general description of the antitheft device is necessary in order to notify law enforcement agencies of new vehicle lines exempted from the parts-marking requirements of the Theft Prevention Standard.

If any manufacturer listed in this notice decides not to use the exemption for their requested vehicle line, the manufacturer must formally notify the agency. If such a decision is made, the line must be fully marked as required by 49 CFR Parts 541.5 and 541.6 (marking of major component parts and replacement parts).

NHTSA notes that if any manufacturer listed in this notice wishes in the future to modify the device on which this exemption is based, the company may have to submit a petition to modify the exemption. Section 543.8(d) states that a Part 543 exemption applies only to vehicles

⁸ This is because, to make a valid comparison, NHTSA must carefully choose two sets of vehicles that are as nearly similar as possible so that the agency can be reasonably certain that any differences or similarities in the theft rates of the two sets of vehicles can be attributed to the presence of an anti-theft device or parts marking and not to extraneous, confounding variables.

that belong to a line exempted under this part and equipped with the antitheft device on which the line's exemption is based. Further, section 543.10(c)(2) provides for the submission of petitions "to modify an exemption to permit the use of an antitheft device similar to but differing from the one specified in the exemption."

The agency wishes to minimize the administrative burden that section 543.10(c)(2) could place on exempted vehicle manufacturers and itself. The agency did not intend in drafting Part 543 to require the submission of a modification petition for every change to the components or design of an antitheft device. The significance of many such changes could be de minimis. Therefore, NHTSA suggests that if any manufacturer listed in this notice contemplates making any changes, the effects of which might be characterized as de minimis, it should consult the agency before preparing and submitting a petition to modify.

For the foregoing reasons, the agency hereby grants in full the following petitions for exemption for the following manufacturers' vehicle lines for the following model years: BMW of North America, LLC (BMW) for its 2 series vehicle line beginning in MY 2020; Jaguar Land Rover North America LLC (Jaguar Land Rover) for its Jaguar E-Pace vehicle line beginning in MY 2020; Nissan North America, Inc. (Nissan) for its QX55 beginning in MY 2020; Tesla Motors Inc. (Tesla) for its Model Y vehicle line beginning in MY 2020; General Motors Corporation (GM) for its Chevrolet Trailblazer vehicle line beginning in MY 2021; Mazda Motors Corporation (Mazda) for its CX-30 vehicle line beginning in MY 2021; Mitsubishi Motors R&D of America (Mitsubishi) for its Outlander vehicle line beginning in MY 2021; and Toyota Motor North America, Inc. (Toyota) for its Venza vehicle line beginning in MY 2021. Issued in Washington, DC, under authority delegated in 49 CFR 1.95 and 501.8.

Raymond R. Posten,

Associate Administrator for Rulemaking

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