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U.S. Patent No. 11,908,250 entitled “Tire Damage Detection System and Method” issued February 20, 2024 to Bridgestone Europe NV/SA of Zaventem, Belgium. Invented by Marco Pascucci and Lorenzo Alleva both of Roma, Italy. Abstract: A tire damage detection method includes a tire damage detection stage comprising: outputting quantities indicative of speeds of a vehicle and a corresponding wheel from an acquisition device to a processing device; computing, based on the received quantities, a normalized wheel speed indicative of a ratio of the wheel speed to the vehicle speed; and detecting a potential damage to a tire based on a predefined tire damage model and on the normalized wheel speed. A preliminary stage comprises: performing tests involving test tire impacts against/on different obstacles at different vehicle speeds; measuring/acquiring test-related wheel and vehicle speeds during the performed tests; computing test-related normalized wheel speeds based on the test-related wheel and vehicle speeds; and determining the predefined tire damage model to be used in the tire damage detection stage based on the test-related normalized wheel speeds and the test-related vehicle speeds that correspond to the test tire impacts.

U.S. Patent No. 11,904,982 entitled “Method for Determining an Operative Shift Configuration of a Drive Mechanism of a Gearbox of a Saddle-Ride Type Vehicle” issued February 20, 2024 to Piaggio & C. S.p.A. of Pontedera, Italy. Invented by Piero Soatti and Stivi Peron both also of Pontedera, Italy. Abstract: The present invention relates to a method for determining an operative shift configuration of a drive mechanism (1) of a gearbox (G) of a saddle-ride type vehicle (4). In particular, this method is applied to a drive mechanism (1) comprising a pedal shift lever (12) and a quick-shifter device (5) that connects, directly or indirectly, the lever to the gearbox, where this device includes a rod (10) and first sensor means (SM0, SM1-SM2) that detect the variation of the tension state of said rod (10) following a gear shifting. The method according to the invention includes acquiring a first signal (S1) generated by said first sensor means and determining, based on said first signal, whether the rod is in a traction tension state or in a compression tension state. The method also includes acquiring at least a second signal (S2) generated by second sensor means (SM3) and determining, based on this



second signal (S2), the gear engaged following said gear shifting and/or the direction of said gear shifting. Finally, the method includes determining the operative shift configuration of the drive mechanism based on the tension state determined in the step B) and the gear engaged and/or based on the direction of said gear shifting determined in the step D).