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Abstract
The purpose of this study is to practically make a comparative analysis between nitrogen-filled tires and compressed air-filled tires in terms of riding comfort, fuel consumption, and after-driving variation of tire pressure and tire temperature. Those findings can provide automobile-related business personnel and the public with useful information by which people can learn correct and effective knowledge and concept in automotive maintenance, lengthen its service life, reduce vehicle owner’s economical burden and enhance riding comfort and safety. During the experiment, we choose Toyota Corona 1600cc as a test car and measure its maximal acceleration value by means of palm vibration noise analyzer, on conditions of the same tire pressure, speed, load, and road section and measure fuel consumption in a fixed speed and mileage. In addition, by using tire pressure gauge and infrared thermometer, measure after-driving tire pressure and tire temperature to make a comparative analysis. Finally, we use 185/60 R-14 Goodyear tire to measure tire sinkage in an empty car and a loaded car and obtain tire compression ratio to explain the difference of riding comfort and economical consideration of fuel consumption between nitrogen-filled tires and compressed air tires.
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