

December 14, 2020

NHTSA Headquarters
1200 New Jersey Avenue Southeast
West Building
Washington, D.C. 20590

RE: 2020 Volvo S60 Tire Pressure Monitoring System

To whom it may concern:

I have owned a 2020 Volvo S60 R-Design sedan for the past year. While I truly like the general design, performance and handling of the car, the technology implemented in the tire pressure monitoring system is of such poor design that I am surprised it is used in any car sold in the United States.

A word of my background: I have spent my entire life in the car business from cleaning cars, repairing cars, selling parts, and selling cars. At [REDACTED] old, I am now retired but still enjoy studying the business.

The Volvo utilizes a scientifically plausible but highly inaccurate system to determine a drop in pressure in the tires. The system, as I understand it, monitors relative rotational speed of all four tires and, should one wheel be turning faster than the others due to a lowering of pressure and therefore a reduction in the rolling circumference, it displays the failure in the instrument cluster as well as the center information display. The system is manually reset once pressures are checked by using the center display.

When I took delivery of the car a year ago this month, no failures or errors were displayed. I thought on the drive home it was handling a bit odd but initially chalked it up to my unfamiliarity with the new car. Later review with a tire gauge when home revealed a 10 PSI variance across the front axle and a 5 PSI variance across the rear with all pressures outside of the prescribed norm of 36 PSI for both the front and rear tires. The monitoring system showed no errors or concerns. It appears that even though the pressures can be well off the mark, if the system is manually reset to clear the fault, the system accepts this as the new norm.

This type of comparative rotation variance determination also fails to take into account pressure changes due to climate. I always learned for reference that a roughly thirteen degree change in temperature is good for about 1 PSI in pressure change. In Iowa where temperature extremes can go from 25 below zero Fahrenheit to 100 degrees above, this roughly 9 PSI variance can grossly affect overall tire wear and tread life, vehicle handling and safety.

In the past several years, I have owned or leased many vehicles dating back to 2004 that have incorporated pressure transponders into the tire valve stem that relay actual pressures to a display inside the car. This technology is not new and is well-tested across a series of platforms that even includes race cars.


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I am surprised that the system that Volvo uses is considered safe and legal for use in the United States (or the world, for that matter), given that the accuracy and reliability of the transponder system is so well known and well used by nearly every manufacturer. The system utilized by Volvo seems overly complex with no visible or real advantage up front and a fairly significant potential for safety or reliability issues as the car ages.

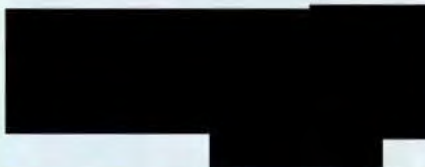
The argument could be made by Volvo that by not using transponders, there is less of an issue with un-sprung weight or tire balancing which both affect handling. As for un-sprung weight, the Volvo S60 uses Pirelli Tires that utilize a fairly dense foam inner liner for a claimed reduction in road noise. The weight of this liner far exceeds the weight of a transponder. As for tire balancing, the technology of transponders has been around for so long, modern balancing equipment has the ability to accurately install counterbalance weights so that this is never an issue.

As much as anything, Volvo presents itself as creating some of the safest and most reliable vehicles in the world. The tire pressure monitoring system they use in their vehicles is clearly not up to any contemporary standard for measuring and reporting accurate and safe tire pressures.

Sincerely,

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Fort Dodge, Iowa 



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