

# VALVE RECOMMENDED PRACTICE GUIDELINES

## TPMS READY TUBELESS TYPE VALVES FOR MEDIUM / HEAVY DUTY TRUCK / BUS

This guideline is not all-inclusive; it is intended to illustrate some examples of the conditions that can adversely affect TPMS valve integrity and performance.

### INTRODUCTION

Valves for the use in medium / heavy duty truck and bus applications have, until recently, not directly accepted a screw for the installation of a tire pressure monitoring system (TPMS) sensor. Valves used in typical medium / heavy duty truck and bus applications are defined in **The Tire and Rim Association, Inc. (TRA) © Annual Yearbook** and in the **European Tyre and Rim Technical Organisation (ETRTO) © Standards Manual**. Due to the addition of an M6 x 1.0 threaded hole in the base of the valve, there are special considerations that need to be considered in the installation, use and service of these valves to ensure the valves do not get damaged or broken.

There are several valve design types for both aluminum and steel wheel types with a 15° drop center configuration. The valve types are mainly grouped to fit by rim hole diameter and rim thickness at the valve hole. Most typical valve types defined by the TRA for rim applications with a nominal 0.390" diameter rim hole and a 0.218/0.330" thick rim hole are the 540 series and 550 series valves. For rim applications with nominal 0.625" diameter rim hole and 0.156/0.312" thick rim hole, the use of 500, 501, and 570 series valves is typical (see pictures below).



540 Series



550 Series



570 Series

**Differences between non-TPMS and TPMS ready medium/heavy duty truck/bus valves.**

554D Standard



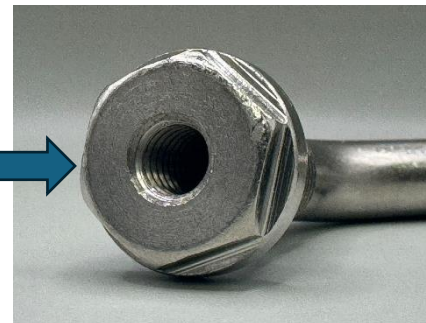
554D TPMS



No external  
changes



M6 X 1.0 Thread



**NOTE:**

The addition of the M6 x 1.0 threaded hole in the valve base in the 550 series truck valves reduces the valves effective wall thickness. While the thread also reduces the wall thickness of the 500, 501, 540, and 570 series valves, the 550 series effective wall thickness after the thread is most reduced due to valve body geometry to accept the sealing grommet and fit properly in the 0.390" rim hole diameter.

## PROPER VALVE INSTALLATION / REPLACEMENT / USE PROCEDURES

It is imperative that during valve installation and replacement proper lubrication and torque is applied. Detailed valve guidelines / procedures can be found by referring to **Truck Maintenance Council's® Recommended Practice document RP 234C – Valve Hardware Selection Guidelines**.

Additional guidelines for TPMS threaded valves are as follows:

### Proper Torque:

- Aluminum wheels:
  - o The torque ranges for 540 and 550 series truck valves is 80 to 125 in-lbs. Proper installation with a calibrated torque wrench is necessary when servicing tire valves. **OVERTIGHTENING** of valves can lead to valve stem cracking or breakage.

### Valve Stem Extensions:

- If valve stem extensions are used, it is imperative that an extension stabilizer be employed to reduce vibration of the extension and excessive stresses on the valve stem that can lead to valve stem breakage and / or loosening of the valve stem nut.

### Valve Stem Replacement:

- Replacement of the complete valve stem with a new valve is recommended:
  - o When a tire is removed or replaced from the tire and wheel assembly.
  - o Each time the TPMS sensor and TPMS screw are removed or replaced.

### Air Chucks:

- The use of a properly oriented air chuck is necessary to service the various wheel positions so that **NO** valve manipulation is required to properly adjust inflation pressure in the tire and wheel assembly. **DO NOT** manually manipulate valve position to adjust inflation pressure. This can lead to loosening of the valve or result in valve breakage.
  - o Various forward and reverse air chucks are available for steer, inner and outer wheel positions.

In case of any doubts, need for clarification, or questions related to this Guideline, please contact us, attention: Vice President of Engineering

## **WARNING**

Failure to follow recommended procedures and guidelines can result in TPMS valve damage or breakage on the tire/wheel assembly. This can result in loss of inflation pressure, which can result in an accident, serious personal injury, or death.

## REFERENCES

### The Tire and Rim Association

Phone (330) 666-8121 • Fax (330) 666-8340 • [www.us-tra.org](http://www.us-tra.org)

The Tire and Rim Association is an organization whose purposes include the establishment and promulgation of interchangeability standards for tires, rims and allied parts for the guidance of manufacturers of such products, designers and manufacturers of motor vehicles, aircraft and other wheeled vehicles and equipment, and governmental and other regulatory bodies. Contact the TRA for more information about their “Year Book” and other publications.

### Tire Industry Association

Phone (800) 876-8372 or (301) 430-7280 • Fax (301) 430-7283 • [www.tireindustry.org](http://www.tireindustry.org)

TIA is an international association representing all segments of the tire industry, including those that sell, service, manufacture, repair, recycle, or use new or retreaded tires, and also those suppliers or individuals who furnish equipment, material or services to the industry.

### U.S. Tire Manufacturers Association

Phone (202) 682-4800 • Fax (202) 682-4854 • [www.ustires.org](http://www.ustires.org)

U.S. Tire Manufacturers Association is the national trade association for tire manufacturers that produce tires in the United States.

### Technology and Maintenance Council

Phone (703) 838-1763 • [www.tmc.trucking.org](http://www.tmc.trucking.org)

For more than 60 years, TMC’s member-driven Recommended Maintenance and Engineering Practices have been setting the standards that help trucking companies specify and maintain their fleets more effectively. TMC’s industry best practices also provide guidance to manufacturers in the design of their equipment.