TIRE INFORMATION SERVICE BULLETIN

TUBELESS TYPE VALVES FOR PASSENGER AND LIGHT TRUCK TIRES *INCLUDING* TUBELESS SNAP-IN TIRE VALVE INSTALLATION PROCEDURE

This bulletin is not all-inclusive; it is intended to illustrate some examples of the wide variety of valves available on the market. Questions pertaining to specific products and applications should be addressed directly to the tire and/or valve manufacturer.

INTRODUCTION

Valves, both standard and high pressure, are manufactured in numerous sizes and shapes. It is important that the proper valve is utilized based on the vehicle application, wheel, tire inflation and wheel cover. If you are unable to determine the proper valve type, please contact the valve, tire, or wheel manufacturer for assistance.

NOTE

Valve pressure ratings may vary by manufacturer. Always verify the maximum pressure rating with the valve manufacturer prior to the installation.

It is critical to use the proper valve that matches the maximum inflation capabilities for the tire/wheel assembly (see Warning). Do not use a valve rated for a maximum of 65 psi (450 kPa) in a light truck tire/wheel assembly or special trailer "ST" that is rated for greater than 65 psi (450 kPa). A high-pressure valve must be used when the inflation pressure exceeds 65 psi (450 kPa). If the incorrect valve is applied, it may detach and result in sudden loss of inflation pressure (see Warning). In the case of performance applications above 130 mph (210 km/h), it is recommended to use a clamp-in valve instead of a snap-in valve.[1]

Always remove and replace used snap-in valves when replacing tires. Never reuse snap-in valves. Only use valves that are compatible with the rim being serviced. Always be sure the valve stem is covered with a sealing valve cap. This helps to prevent moisture, dirt, and other contaminants from entering the valve core as well as providing an additional seal. Any time a tire is demounted for any reason, including repairs, also inspect the valve stem for damage (cracks, tears, etc.) to determine if the valve stem should be replaced.

⚠ WARNING

The valve must match the maximum inflation capability for the tire/wheel assembly. Improper application of tire valves may result in loss of inflation pressure, which can result in an accident, personal injury or death.

In some instances, tire/wheel assemblies may be equipped with a tire pressure monitoring system (TPMS) sensor that is attached to or is part of the valve assembly. When new tires are installed, it is recommended to also replace all components that are included in the TPMS valve replacement kit (see Figure 4D). In addition, whenever the sensor is disassembled for any reason, install a new TPMS replacement kit. Always replace any damaged sensor along with a new TPMS valve replacement kit.

NOTE

Valve pressure ratings may vary by manufacturer. Always verify the maximum pressure rating with the valve manufacturer prior to the installation.

FIGURE 1A and 1B:
Rated Max 65 psi

Tubeless Type Snap-In Valves, Rounded Base

For 65 PSI maximum

Valves rated to 65 psi (450 kPa) or lower are usually constructed out of rubber and metal and exhibit a beveled or rounded bottom. These are manufactured in many lengths and configurations. The two tubeless valves exhibited in Figures 1A and 1B are examples of the most common valves used on the market. Vehicles with full-size wheel covers may require a longer valve stem similar to the photo example (valve 1B).

Tubeless Type Snap-In Valves, Square Base

For use up to 80 PSI and up to 100 PSI maximum

Examples of high pressure snap-in valves are shown in Figures 2A and 2B, where:

- Snap-in valves rated up to 80 psi (550 kPa) use the standard wheel type valve hole, see valve 2A;
- Snap-in valves rated up to 100 psi (690 kPa) for the larger valve hole, see valve 2B.

The high pressure snap-in valve is a molded rubber and metal combination with a square base contour—unlike the 65 psi (450 kPa) maximum valve, which has a rounded base contour. Both valves are installed using the same method by pulling through the valve hole. Metal valve extensions are not to be used with snap-in valves.

FIGURE 2A:
Rated Max 80 psi
FIGURE 2B:
Rated Max 100 psi

Tubeless Type Clamp-In Valves

For use up to 200 PSI maximum

Clamp-in types such as the valve example depicted in Figure 3 are rated up to 200 psi (1380 kPa). The construction of these valves is metal with rubber grommets utilized for sealing. Clamp-in valves are recommended for high performance applications.[1] Metal valve extensions, typically found on dual wheel applications, also require a clamp-in valve.

Clamp-in type valves are installed with a hex nut and rubber grommets that are separate from the valve. Recommended torque at installation is 25-45 inch pounds (3- 5 Newton meters).

FIGURE 3:
Rated Max 200 psi

All of the valves in Figures 1, 2 and 3 are commonly available for both standard wheel valve holes (0.453-in/11.51 mm) and larger wheel valve holes (0.625-in/15.88 mm).

FIGURE 4A: Comparing Standard Snap-In Valve to a TPMS Snap-In Valve with Sensor

FIGURE 4B: Comparison: Valve Cap and Valve Tip Close-Up
Above are the same photos comparing standard valves and TPMS valves with and without their valve caps. Note the larger tapered shoulder on the sensor valve of the TPMS.

FIGURE 4C: Clamp-in TPMS Valve

FIGURE 4D: TPMS Replacement Kit with Valve Assembly

TUBELESS SNAP-IN TIRE VALVE INSTALLATION PROCEDURE

FIGURE 5

STEP 1
Remove any rust and burrs from around the valve hole.

STEP 2
Refer to Figure 5. Lubricate standard snap-in valves (see valve 5A) with a rubber lubricant approved by the valve manufacturer. Do not lubricate high pressure snap-in valves (see valve 5B).

STEP 3
Use an appropriate installation tool to install the snap-in valve into the rim hole until the indicator ring (as noted in Figure 5) clears the weather side of the rim. Figures 6A and 6B shows both a metal and a composite installation tool.

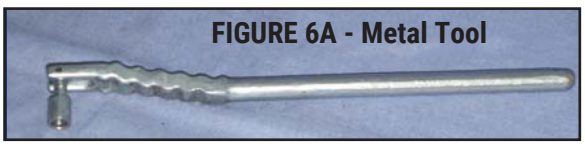

FIGURE 6A - Metal Tool

FIGURE 6B - Composite Tool

Figures 7A and 7B show a tire service professional properly installing the snap-in valve using the composite tool on an alloy wheel.

FIGURE 7A

FIGURE 7B

STEP 4

Inspect valve for tearing or other damage that may have occurred during installation.

STEP 5

If the valve was damaged during installation, remove it and replace it with a new valve. Damage is an indication that the rim hole needs deburring. Then return to Step 1.

ENDNOTES

[1] In the case of applications above 130 mph (210 km/h) it is recommended to use a clamp-in valve instead of a snap-in valve. SOURCE: The Tire and Rim Association.

REFERENCES

The Tire and Rim Association
Phone (330) 666-8121 Fax (330) 666-8340 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.

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