

Tire Tornado™

Problem

1. Unpredictable tire pressures and stagger changes as the result of moisture in the tires.
2. Slow re-starts after yellow or red flag periods because bleeders have bled off pressure while tires were up to temperature.
3. Bleeders which malfunction.

Cause

When a tire is mounted to a wheel, the ambient air with 40 - 100% relative humidity is trapped in the tire cavity. Even if the air in the tire is evacuated, when bottled nitrogen or compressed air is used to fill the tire, the cold gas may cause the moisture in the remaining air to precipitate onto the inside rubber surface of the tire and/or the metal surface of the wheel. No matter how many times the tire is purged, the moisture will remain trapped in the cavity of the tire.

Challenge

1. Eliminate unpredictable tire pressure build-up due to increased tire temperature by drying the air in the tires.
2. Eliminate the problems of malfunctioning bleeders by eliminating the need for bleeders.

Solution

Circulation of a reasonable volume of dry warm air through the tire is the key to removing moisture from the air in the tire. However, it is not possible to circulate a significant volume of air through a tire using standard tire valves because of the small bores in these valves. As a result, we have designed large bore valves which allows heated dry air to be circulated through the tire at approx. 7 cu.ft./min.

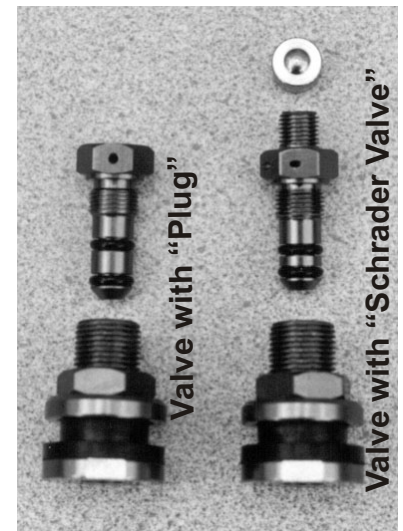
“Large Bore Tire Valves” allow rapid air circulation through the tire cavity. Valves are CNC machined from 6061-T6 aluminum and fit a standard 5/8 inch wheel hole. The plug and Schrader valve inserts both have double o-ring seals and can be safety wired for added safety.

Eliminates Bleeders

Predictable Tire Pressures

No Bottled Nitrogen Required

Caution: Evacuating the air from the tire allowing it to collapse around the wheel can cause structural damage to the tire carcass. This system does not collapse the tire.



Large Bore Tire Valves

(These valves replace tire valve and bleeder)

Valves fit into $\frac{5}{8}$ in. wheel holes
\$12.50 per set of 2 valves

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Closed Loop Circulation System:

Air from the tire is compressed -- chilled -- filtered --dried -- heated and returned to the tire. This process is repeated for approx. 15 - 30 minutes for each tire.