PRESSURE GUARD™
TIRE INFLATION SYSTEMS

No. 1 Reason for Roadside

Second Largest Fleet Expense

Tires live and die by air pressure. Keeping the proper tire air pressure is critical to the successful operation of your tires.

Trailer tires lose air pressure at a rate of 2 to 3 psi per week, whether they are parked or moving. This air pressure loss is due to molecules escaping through the tire sidewall. With properly inflated tires, you avoid costs that quic kly eat into profits. Underinflated tires are the cause of most tire failures — affecting tire life, jeopardizing safety, and impacting fuel economy. The Technology & Maintenance Council (TMC) calculates that tires underinflated by 10% wear out 9% to 16% faster than properly inflated tires. In addition, TMC states in RP 233 T* that underinflated tires create more rolling resistance, which reduces fuel economy byas much as 2%.

Air Pressure Impacts Temperature

A tire's footprint is changed by both overinflation and underinflation. A change in footprint affects tire traction and leads to irregular wear. According to TMC, the lower the air pressure the more a tire will deform or flex, increasing the tire temperature. So, underinflated tires flex more, causing an increase in tire temperature. In fact, previous studies have shown that for every 2 psi in underinflation, the internal temperature of a tire rises 5°F. If a tire that should run at 100 psi, operates at 70 psi, the temperature of that tire could rise to 275°F. This excessive heat will deteriorate tires. If tires are underinflated, the steel cords they are made of will fatigue and break, which attributes to most tire debris found along the highway.

*TMC Recommended Practice (Proposed RP 233 T), VMTS 017, Guidelines for Tire Inflation Pressure Maintenance, ©2002-TMC/ATA.

Service Calls—Tires

Costly Underinflation

In a study conducted by the TMC, the average fleet loses at least $750 per tractor-trailer each year because of underinflated tires.It also showed that a fleet with a consistent problem of underinflated tires required 12% more new tires and 10% more retreads, along with a .6% fuel loss.

Tire Punctures

Trailers equipped with tire inflation systems will overcome small leaks normally attributed to road hazards, such as nails or small metallic debris. Without a tire inflation system, these leaks would result in an abnormal pressure drop or a "run-flat" tire. Both situations create a hazardous condition which can lead to blowouts, breakdowns, costly repairs, and unanticipated delaysin delivery.

A tire inflation system will supply air from the onboard compressor to the leaking tire to keep it inflated during operation. Optional warning lights will alert drivers that they have a tire with a leak. Once the trailer is returned to the terminal or maintenance facility, the leaking tire can quickly be isolated and repaired. This prevents damage to the casing, tread, or in the event of a blow-out, to other vehicles on the road. With these concerns along with sky-rocketing costs to maintain and replace tires, tire inflation systems are becoming more and more popular with fleet managers.

Roadside Tire Debris

TMC conducted a survey of tire debris in 1995 and again in 1998 at 13 different locations of various highway types in nine states across the country. The findings include the following:

- 64% of the tires were truck tires.
- 28% more debris was found in 1998 than was found in 1995. These results were attributed to the Western state speed limit increases up to 75 mph.
- 71% of the failed truck tires were of the type of tire used on trailers.
- 87% of the failed truck tires had been re-treaded but because re-treaded tires are prominent on trailers, they were not over represented.
- 90% of the tire failures examined were caused by underinflation.

When a tire fails due to a faulty retread, its tread separates leaving a plain strip of rubber on the road. However, in 90% of the tires examined, the steel tire belts were attached to the tread rubber. These tires came entirely apart; they did not just fail at their retreads. This type of failure could only be caused by underinflation.

Protecting Your Tires—PressureGuard™ is On

Now, proper tire pressure can be automatic with PressureGuard™ Tire Inflation Systems from Bearing Technologies, LTD. PressureGuard reduces your tire repair costs; extends tire life, allowing tires to wear more evenly; improves fuel efficiency; and produces higher quality casings for retreads.

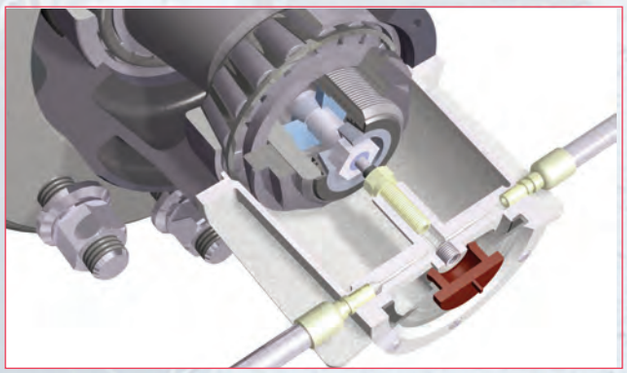
PressureGuard routes air from the trailer's air supply tank to the tires to maintain pressure at preset levels. If a tire's pressure drops below the preset level, compressed air replaces the lost volume.

Advantages of PressureGuard

- Non-pressurized axle avoids wheel end failures due to contamination or blown bearing seals.
- Patented long-life rotary union enclosed and protected by patented aluminum hub cap with integrated air channels.
- Wheel end is easy to work on without dismantling or damaging components.
- Ribs on the hub cap protect fittings and hoses.
- Heavy-duty hoses with stainless steel braiding built to last.
- Oil fill-hole consistent with industry-standard designs.
- Factory preset regulator to customer specification ensures worry-free, accurate tire pressurization.

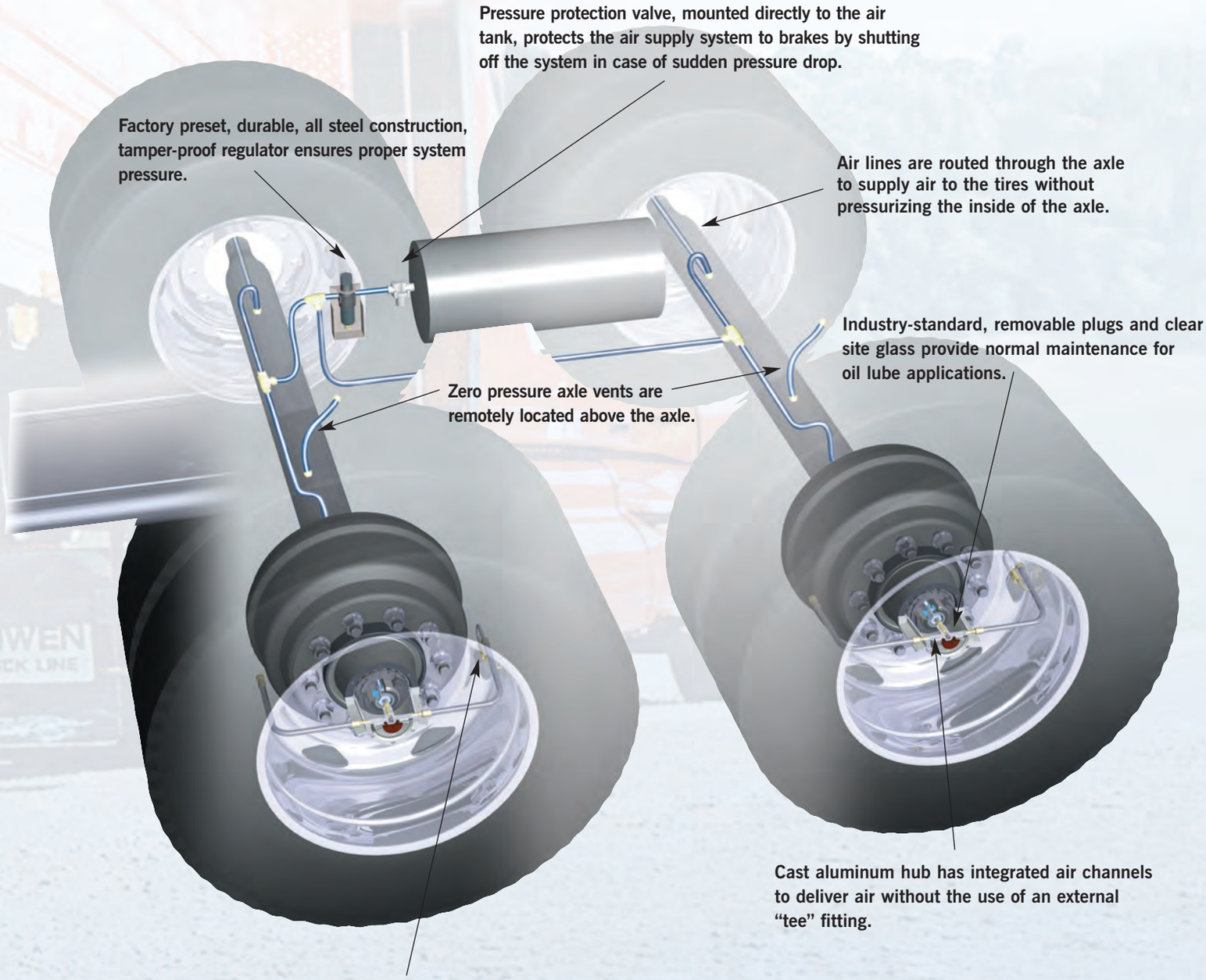
Unavoidable Blowouts

In the event of a tire blowout due to a large puncture or sidewall cut, the PressureGuard system's pressure protection valve senses the sudden pressure drop, and closes to prevent air loss from the reservoir so that the rest of the trailer air system will remain unaffected. The system then triggers an available trailer-mounted warning light that will alert the driver immediately.



One-piece aluminum design with built-in air channels and ribs to protect hose fittings during wheel end work.

Duty



A dropped trailer will lose an average of 5 psi per week. When the PressureGuard Tire Inflation System is attached to the truck/tractor, the system automatically releases compressed air to inflate the tires back to the manufacturer's suggested inflation without using an outside air source.

Fleet Minimizes Tire Costs

Like so many fleets, the second largest fleet maintenance cost for RFK Transportation, Inc. has been tires. To remedy this situation, the 150-truck fleet installed PressureGuard Tire Inflation Systems to reduce tire expenses. Now, if a tire's pressure drops below the preset pressure level, PressureGuard releases compressed air from the tractor's system to replace lost volume. And, integrating PressureGuard with the Vistar data terminal, a trailer satellite system, allows dispatchers to be notified by satellite email immediately when PressureGuard is activated.

A pioneer in installing tire inflation systems, Robert F. Kazimour, CEO of RFK Transportation, Inc., said, "PressureGuard not only maintains the preset tire pressure levels for each trailer tire, but replenishes the tire pressure once a dropped trailer has been picked up—saving both the time and money of inflating trailer tires at an outside service." Both through PressureGuard's leak detection capability and the system's ability to keep tires properly inflated, RFK has added 20% to 40% to each tire's life. "The savings of reduced out-of-service downtime is an added benefit."

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