Inspections and Retreads

CASE STUDY

Old Tires Find New Life at Argonne

Inspections and Retreads Add Up to Savings

By inspecting tires regularly, Argonne National Laboratory's Vehicle Maintenance Group avoids problems that could lead to tire failures. The tires last longer and need less frequent replacement. When medium- and heavy-duty tires become unusable, however, they're replaced with retreads, not new tires. Using retreads costs less, reduces waste, and complies with federal requirements. Argonne has saved $40–100 per tire during the past three years by using retreads and plans to expand its use of retreads to its entire fleet of 300 auto-mobiles, pickup trucks, forklifts, construction vehicles, and fire equipment. Combining frequent tire inspections with the use of retreads helps make Argonne's fleet a cost-effective, environmentally responsible operation.

What's So Good About Retreads?

Retread tires of all sizes are available, from forklift to end-loader size. About 30 million retreads were sold in the United States in 1995.

Before 1993, Argonne primarily bought new tires. But now, purchase contracts stipulate that vendors must be able to supply retreads. The federal government supports the use of retreads in the following:

- The Resource Conservation and Recovery Act requires that federal agencies and government contractors purchase certain items containing recovered materials. One of these items is retread tires.
- Executive Order 12873 mandates the use of retreads on all government vehicles.

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- The General Services Administration's Federal Tire Program has developed specifications, tire testing requirements, and inspections for retreading facilities. Retread tires must meet the same performance requirements as new tires.
- The U.S. Department of Transportation has set safety standards for retreads.

Retreads have several important advantages:

- Each year, retreads conserve more than 400 million gallons of oil needed to produce synthetic rubber. It takes 7–8 gallons of oil to manufacture a new passenger tire, but only 2–3 gallons to retread. A new truck tire uses 22 gallons; a retread uses only 7 gallons.
- Retreads reduce the amount of waste that must be disposed of.
- Retreads generally cost one-third to one-half that of comparable new tires.
- The casing of a tire, the part that can be reused, is 70% of its initial cost. Continued use of a tire (most tires can be retread three or more times) recoups that investment.
- Retreads carry the same warranty as new tires; they perform as reliably and give the same mileage. Thus, their cost per mile is lower than that for new tires.
- Retreads may be stronger than new tires because of their thicker layer of rubber and may need less frequent replacement.

How Argonne Inspects and Replaces Tires

To keep tires in good working condition as long as possible, Argonne's Vehicle Maintenance Group rotates tires regularly and repairs them when necessary. Inspections are the key to success. Tires are inspected three ways:

- Each driver or operator inspects his or her vehicle daily.
- Garage attendants inspect tires when washing cars.
- Regularly scheduled preventive maintenance for each vehicle includes tire inspection.

Inspectors look for the following trouble signs:

- Too much or too little air pressure
- Tread separation and wear (front tires should have at least 4/32-in. tread depth, back tires need 2/32-in.)
- Cuts or other damage
- Cut or cracked valve stems
- Mismatched sizes
- Radial and bias-ply tires used together
- Dual tires that touch each other or parts of the vehicle
- Poor wheel alignment.

Correctable problems are handled immediately. However, tires need to be replaced when the following problems become evident:

- The wear indicators are visible at three places around the tire.
- Cord or fabric shows through the rubber on the tire.
- The tread or sidewall is cracked, cut, or snagged deep enough to show cord or fiber.
- The tire has a bump, bulge, or split.
- The tire has a puncture, cut, or other damage that cannot be repaired because of its size or location.

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