TIRE MAINTENANCE

LOWER TIRE COSTS WITH RETREADS

OFF-ROAD TIRES are where the rubber meets the road — and the sand, mud, gravel, or hard rock-strewn surface of your construction site. With new-tire purchase prices costing as much as $28,000 for a single Cat 994 loader tire, the cost of owning, maintaining and replacing tires can be your greatest single equipment expense, eating up as much as one-third of your total operating budget.

To minimize tire cost, take the long view. David Wright, chief engineer for off-road tires at Goodyear, says, "The most economical tire isn't necessarily the cheapest tire going in, but the tire with the lowest cost per hour or the lowest cost per mile."

One of the most effective controls for unit operating costs is a comprehensive life cycle program that includes retreading and reuse where feasible.

RECYCLING WITH RETREADS

Retreads make economic sense. About 70 percent of the cost of a new tire is in the casing, or tire body. By discarding the casing when the tread has worn off, you incur a new tire replacement expense while realizing only 30 percent of your original investment. Retreading recoups most of that investment, and it costs significantly less than a new tire.

"The price of a retreaded radial is somewhere between one-third and one-half the price of a new radial tire," says Don Schauer of Bandag. "That [savings] pretty well follows through in other applications."

Retreading a casing that is still in good condition means your cost for the second use is much less, according to Jack Dutcher, national engineering manager for the Bridgestone/Firestone Off Road Tire Co. The overall cost per hour or cost per mile decreases significantly.

Mike Berra Sr., president of Community Tire Co. in St. Louis, agrees. "Retreading a tire even once gives you two life cycles," he says, "and many tires are retreadable more than once. In some operations, if the tread wears out quickly, before [casing] age and fatigue become problems, we can retread two and three times."

Retread cost savings are not automatic, however. "Some applications lend themselves to tires being retreaded," says Dutcher. "But there are others where retreading is just not cost-effective."

The cost of maintaining and replacing tires can be your greatest single vehicle expense, eating up as much as one-third of your total operating budget.

For example, tires used on scrapers in dirt can die of old age before the tread wears out, says Berra. "In those cases, they're not retreadable at all."

However, Berra adds, "Vast numbers of tires are repairable and retreadable. We can put a [retreaded] tire back in service for much less than the cost of a new one, and expect it to perform just as well."

SETTING UP A PROGRAM

A life cycle strategy begins with tire purchase. When making new tire selections, add the potential for

BY JUDITH HARPER

retreading to your list of important selection criteria.

"Look at the retreading option before you buy new tires," says Schauer. "You don't want to go to bargain-basement tires. Start with a quality tire and plan on retreading it. That's the most important initial decision to make."

A major part of any tire cost management strategy is a maintenance program. "Whether you include retreads or not," says Marvin Bozarth, executive director, American Retreaders' Association, "you need a program that maintains tire quality." This includes a schedule of daily inspections, with established policies for catching and repairing minor tire damage and for maintaining tire inflation air pressure.

When you make a daily tire inspection, check:

Inflation, using a pressure gauge on a cold tire (one that has been idle for at least 12 hours). On jobsites where daily cold checks are not possible because of around-the-clock operation, Wright recommends daily hot checks and a weekly cold check.

Bozarth stresses the importance of daily cold checks in a severe operation or with long hauls. "Definitely check the tires every day before you start up," he says, "especially with earthmovers, because they are so expensive. The machine may perform satisfactorily when you run it underinflated, but you'll eventually destroy the tires. And then you'll lose a retreadable casing."

Tire damage, which will cause failure if left unattended. Look for cut tires that should be removed and repaired. Check for rocks stuck in tire grooves and pry them out.

If radial tire cuts or punctures are not promptly repaired, they can allow air and/or moisture to get inside the tire and attack the steel belt package.

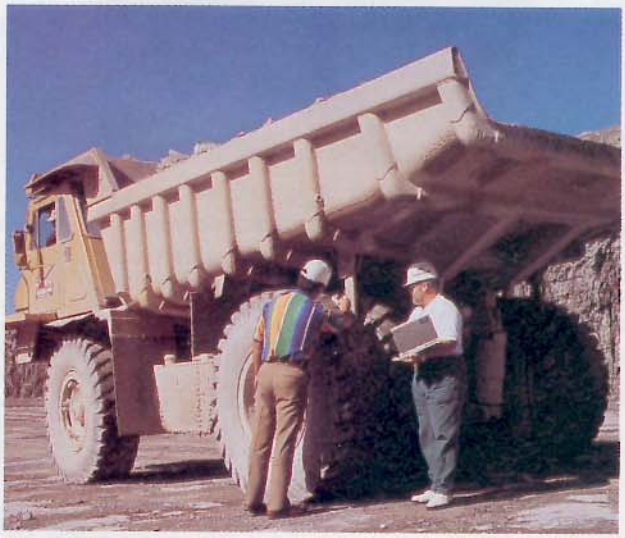
Uneven wear. Make sure tires in a dual position are evenly worn, so one tire doesn't carry all the weight and wear out prematurely. Watch for irregular wear in any tire position; it might indicate a suspension problem.

Without a maintenance program, says Bozarth, "you abuse the tires so badly, they can't be retreaded or repaired."

TRACKING OPERATING COSTS

Complete and accurate records are another important part of your life cycle program. "Record-keeping is probably the number one key to optimizing your cost per hour/cost per mile on tires," says Dutcher. "There's no better way to keep track of which manufacturer, which tread pattern, which compound, or which size in some cases is giving you the best return on your dollar."

Wright advises branding each tire with an account code and sequence number so it's easy to recognize. "We recommend using a branding iron to put the number in the sidewall," he says. In the field, you identify the tire by the brand number; in the tracking system, the brand number is associated with the tire's original serial number, original cost, size, type and other characteristics. Tire records keep track of the vehicle and position where each tire is mounted.



Computerized tire management systems, such as Bridgestone / Firestone's OTR Tire Tracking System, can help you maintain essential tire records.

You can maintain tire records on manual card files, with a card for each tire and a card for each vehicle; or in a personal computer, using specialized software. "PC records are no easier to keep," says Wright. "You still have to do the same work of data entry, but the computer does allow for easier and more comprehensive reporting."

Among the computerized tire management systems available are:

• Goodyear's TYREC program, available to company customers, helps supervisors keep track of tire wear and plan for tire maintenance.

• Bridgestone/Firestone's OTR Tire Tracking System uses a Windows-based graphic format to lead users through data entry and report generation for tire budgeting, inventory control and operating cost analysis for their OTR tire investment.

A word of caution: Good records documenting poor maintenance are as useful as treadless tires. "I've run into situations where they kept records, but didn't do maintenance," says Bozarth. "Record-keeping alone doesn't solve tire problems." When you make a tire record entry, don't stop with the notation. Check the air pressure, examine the tire, and perform the necessary maintenance.

SELECTING AN EXPERT

The linchpin of a successful retreading program is the retreader. "You don't want to trust your tires to just anybody," says Schauer. The retreads will only be as good as the materials and expertise used in their manufacture."

Harvey Brodsky, managing director of the Tire Retread Information Bureau, says the best way to select a retreader is to visit the factory. "In five minutes," he says, "you will know whether you want to do business with that company."

When visiting a retread factory:

• Pay close attention to the incoming casings inspection area. Ask how employees analyze casings to determine which ones are retreadable and which ones are not.

• Try to understand the different retread processes. *(See sidebar).* Find out whether retreading is a significant part of the company's business, or a sideline.

• Ask for references. Who else uses the retreader's service? Who is currently using retreaded tires the same size and type as the tires you want to retread? Who is using retreaded tires in operating conditions similar to yours?

"See how impressed you are with the retreader," says Dutcher. "Does he have a clean, efficient shop? Does he do business like somebody you'd like to do business with?"

THE RETREAD MARKET

ABOUT 30.2 MILLION RETREADed tires (worth $2 billion) were sold in North America in 1993, according to the American Retreaders Association. Of those, 15.4 million were used on medium and heavy trucks; 660,000 were purchased for other vehicles (including off-the-road, farm equipment, industrial and specialty vehicles, but excluding passenger cars and light trucks).

All retreads start out the same way: as worn casings shipped off to a retread manufacturer where employees sort them for inspection.

Technicians, using visual scan augmented by nondestructive test equipment, analyze each retread candidate, rejecting casings that are too worn or too damaged for successful processing. The casings that pass inspection move to high-speed buffers, which remove their worn tread and prepare them for retreading.

The two most popular methods of OTR retreading are mold cure and autoclave cure, says Mike Berra Sr., Community Tire Co. "Either method is capable of producing a quality product," he says, "and each offers its own advantages."

Mold cure is similar to the method used to produce a new tire. A worn tire is buffed and wrapped with new rub-

TIMING IS EVERYTHING

After you decide on a retread company, ask them for help in deciding when to pull tires for retreading.

The basic rule of thumb for truck tires is to pull retread candidates out of service before they're worn to the legal tread depth (2/32 inch).

For OTR tires, it is not so cut and dried, says Berra. The type of service and jobsite conditions determine when it is best to pull for retreading. On a dirt job, tires can be safely worn to 10 to 15 percent tread remaining if traction isn't a problem.

"Tires used in a severe application where rock cuts are common may have to be pulled very early – with as much as 20 percent, 30 percent, or even 40 percent of the original tread remaining – because of severe casing damage," Dutcher says. "If this is the case, retreading may not be economical."

Make sure you have an established policy for catching and repairing minor tire damage and for maintaining tire inflation air pressure.

Eighty percent of all tire casing injuries occur during the last 10 percent of usable tread depth, according to Schauer. Following the early pull rule avoids a lot of tire damage and allows you to use the retread option more often.

EVALUATING RETREAD OPTIONS

If you've never used retreads before, says Kevin Lutz, marketing manager for earthmover products, Michelin, the smart thing to do is make a test run. "Work with your dealer and retreader," he says. Try some retreads on a representative

ber, then placed in a mold that contains the tread design. Mold cures can be shoulder to shoulder or bead to bead.

Sidewalls can be rebuilt, and the rebuilt tire has a new tire appearance. The choice of tread designs is limited to the molds of a particular retreader.

With autoclave-cured OTR retreads, the tire is buffed and wrapped with new rubber. In this process, a new tread design is carved or sculpted into the built tire. In some cases, the lugs are placed by hand on the buffed tire. Curing is done in a large chamber, and the tire comes out looking just as it did when it went in. The appearance is not quite as good, but the selection of tread designs is almost unlimited.

A worn on-highway tire is inspected before the retread process begins.

All OTR retreading involves exposing uncured rubber to heat and pressure for a specified time to vulcanize the new rubber to the worn tire casing. The combination of sophisticated equipment, good workmanship and quality materials results in a retread that performs like a new tire.

sample of worn tires from your operation to see if it's cost-effective for you.

Dutcher agrees, adding that your retreaders are the experts. "Watch them analyze the tires you pull. Let them buff the remaining tread if necessary, inspect the casing damage, and decide whether or not your casings are retreadable."

"There are real reasons to retread and keep your tires in play as long as possible," says Brodsky, "not only economically, but environmentally."

For additional information on ...

... tire inspection and maintenance, get "Off-the-Road Tire Maintenance," a 25-minute video walk-around that shows how tire company service representatives and operators should inspect the tires on OTR vehicles. Also featured: a discussion of haul road design, loading techniques, safety issues and TMPH (a temperature and work rating for tires). Available from Department 790, Goodyear Tire and Rubber, (216) 796-2760.

... using tire record-keeping systems, request "Reduce Tire Cost with Record Keeping Systems," an 11-page booklet that specifically addresses OTR tire record-keeping. Originally published by Bridgestone/Firestone, the booklet is now available free of charge from the Tire Retread Information Bureau, (408) 372-1917, fax (408) 372-9210.

... about tire retreading, request "Dispelling Myths about Rubber on the Road," a video produced jointly by the American Retreaders' Association and the Tire Retread Information Bureau. Available with an information packet from the Tire Retread Information Bureau, (408) 372-1917, fax (408) 372-9210.

... about the Bridgestone/Firestone OTR Tire Tracking system, contact the company at (800) 905-2367.