

1957

1967

1977

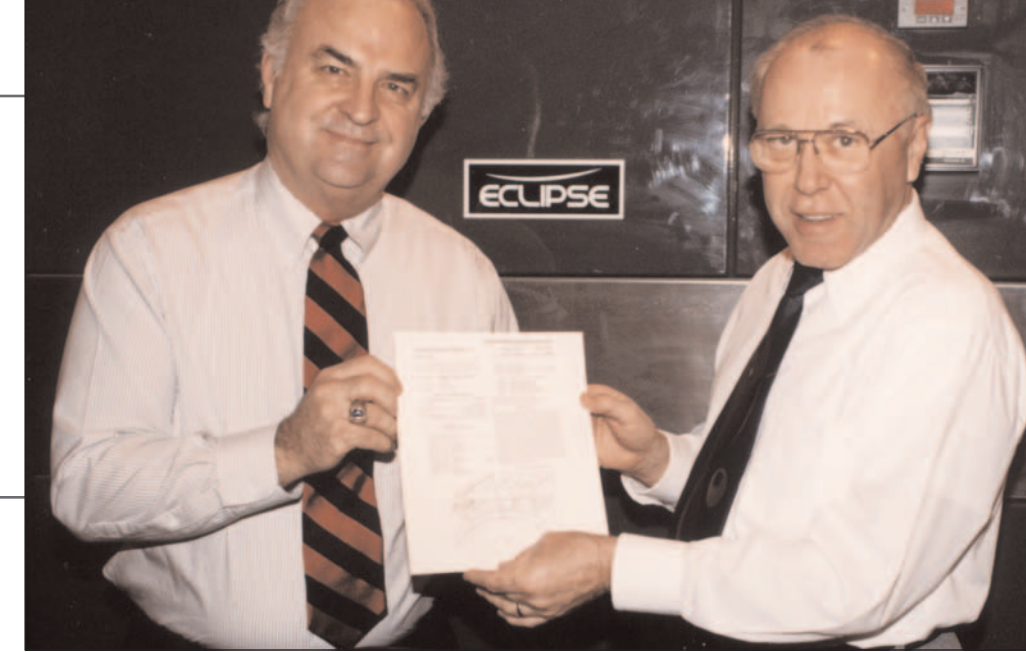
1987

1997

2007

FIFTY YEARS OF INNOVATION IN THE TIRE INDUSTRY

The Eclipse System wasn't a well-defined, visionary Bandag project when research and development experts, Ron Seiler and Herb Roelle, invented it. Their inspiration came from a casual challenge thrown down in a meeting. The challenge was to come up with a contoured retread. Ron Seiler, retired vice president of applied research at Bandag, tells us the story of the unique development process and company-wide innovation that created an entirely new retreading system.



January 1994 – Bandag is granted a 17-year U.S. product patent for Eclipse System tread, after nearly six years of development. Ron Seiler and Herb Roelle pose with the patent document that carries their names. Just a few months later in April 1994, a set of Eclipse System retreads logs 496,917 miles.

The Challenge that Changed the Retread Industry

The unlikely development of the Eclipse System (now called ECL™).



The difference is clear.



About the Author.
Ron started his career at Bandag in July of 1958 when Roy Carver hired him to buff tread rubber. Ron worked many jobs and helped develop many of our products in his 48 years with the company. He retired in 2006 as vice president of applied research.

The Beginning of Eclipse.

In R & D, we are always looking for better ways to do things. During one of these meetings, someone said what we need is a tread with a contour that would wrap around the tire. This was impossible at the time given our existing tread manufacturing and retreading process. After the meeting, Herb Roelle and myself got together and decided we were going to undertake this challenge.

At that time I was manager of development

at Bandag research and development, and Herb was a senior tread design engineer. We both had other projects and duties, so we started working on this new tread concept in our spare time.

Herb made a three-foot long tread mold we could use in the lab. We used it to make some contoured rubber, then we buffed a casing by hand and built a tire. What do you know, we proved we could make a contoured tread and apply it using our standard curing system. It looked pretty good for our first attempt out of the box.

We knew we were on to something so we kept playing with it on our own.

Eventually, we thought it was time to let management in on it. Contoured tread quickly became an official Bandag research and development project.

Innovative Manufacturing.

We had our work cut out for us. Making Eclipse tread posed some unique manufacturing challenges.

The contoured profile of Eclipse tread required a two-piece flat mold to form the rubber. Other companies had used circular molds to build treads with a curved profile, but we weren't about to sacrifice the performance and money-saving benefits of our flat mold process. Working closely with the manufacturing and engineering department at Bandag, we were able to develop a unique two-piece flat mold to form the contoured tread rubber. The pattern side of the tread is formed using the same proven technique we use for all of our treads. That's where the similarity ends. Eclipse tread molds also feature an upper curved piece that forms the signature Eclipse shoulder radius. This was a totally different approach from what Bandag or the industry had ever done. Because of the patent we eventually acquired, we are still the only company making tread with this innovative manufacturing process.

The tapered end of the shoulder skirt created another manufacturing challenge. The rubber on these edges was very thin and difficult to trim. Conventional trimming devices wouldn't do the job. We developed an innovative process using a high-pressure jet of water to trim the bottom of the skirt. This process has two benefits. It provides a very accurate dimension that

BENEFITS OF ECL™ TIRES

Widening the mileage gap. ECL™ tires provide up to 15% wider tread for longer mileage and better performance.

New tire-like appearance and warranty. ECL™ retreads not only look like new, they perform like new, and have a warranty to match.

Strong shoulders. ECL™ tread wraps around the tire shoulder to stand up to lateral stresses from applications such as spread axles.

gives the shoulder a perfectly round appearance when applied to the casing. It also creates a textured surface on the tapered edge that makes sure the skirt adheres firmly and doesn't crack or separate.

A Complete System.

The development and implementation of the Eclipse System (now ECL™) was about more than tires; it took into account the performance of the entire vehicle and the needs of our customers.

The reason it's called a system becomes clear when you see all that is required to produce an ECL™ tire. ECL tread rubber is specially produced in a unique production process. Tight controls are placed on the radial casings selected. Special equipment modifications are required for Bandag dealers. These tires were even launched with a separate warranty (which has migrated to today's Standard Warranty) to underscore their quality.

Of course, none of this would have worked without the follow-through of our Bandag dealer alliance. ECL dealers invest in special buffing equipment to put the proper radius on casing shoulders

and a special stitcher for their Bandag tread builders. They also commit to extra training for their shop technicians and support staff to provide the extra levels of service for this premium system. All this was part of our development plan.

Group Effort.

Herb and I came up with Eclipse tread, but lots of people at Bandag made it happen. I had an opportunity to work with many outstanding people in manufacturing, engineering, compounding, and marketing during my 48 years at Bandag. I was fortunate to come up with some ideas, but there wasn't one thing that I developed by myself. I was just happy to be a part of it.

By Ron Seiler

