

Reprinted from *Real Answers*

What's round
and black – and
really complicated?

Special Edition Three

real | real QUESTIONS
real ANSWERS

BRIDGESTONE

trucktires.com

1-800-543-7522

What's round and black – and really complicated



In 1925, Western Electric ran an ad that showed the old-fashioned, black, “candlestick” telephone, along with every one of its 201 separate parts. (And this phone had no dial, no memory, no speakerphone, no answering machine!) The headline read:

“Not so simple as it looks”

We think tires are the same way. If all you ever see is the outside, you may have no idea of the incredible complexity underneath that “round and black” outer skin.



Bridgestone

THE VISIBLE TIRE

BRIDGESTONE

What's complex about a tire?

That's just the trouble. If all you see is the outside, a tire looks pretty simple. In fact, you'd almost think you could make them like angel food cakes.

Unlike angel food cakes, though, tires are literally "built," from parts.

How many parts?

The average truck tire has at least 16 or more components, each of which may be made of several parts. Several different kinds of steel. Lots of different types and compounds of rubber.

And the tire is "built," not "poured."

What do you mean by built?

We're going to take a separate article in this series to cover the tire building process, because right now, we want to focus on the many "parts" that go into a tire.

Think about your arm. There are several layers of skin on the outside, then muscles, fat, sinew and cartilage, together with blood vessels and nerves, all surrounding bones with marrow inside them.

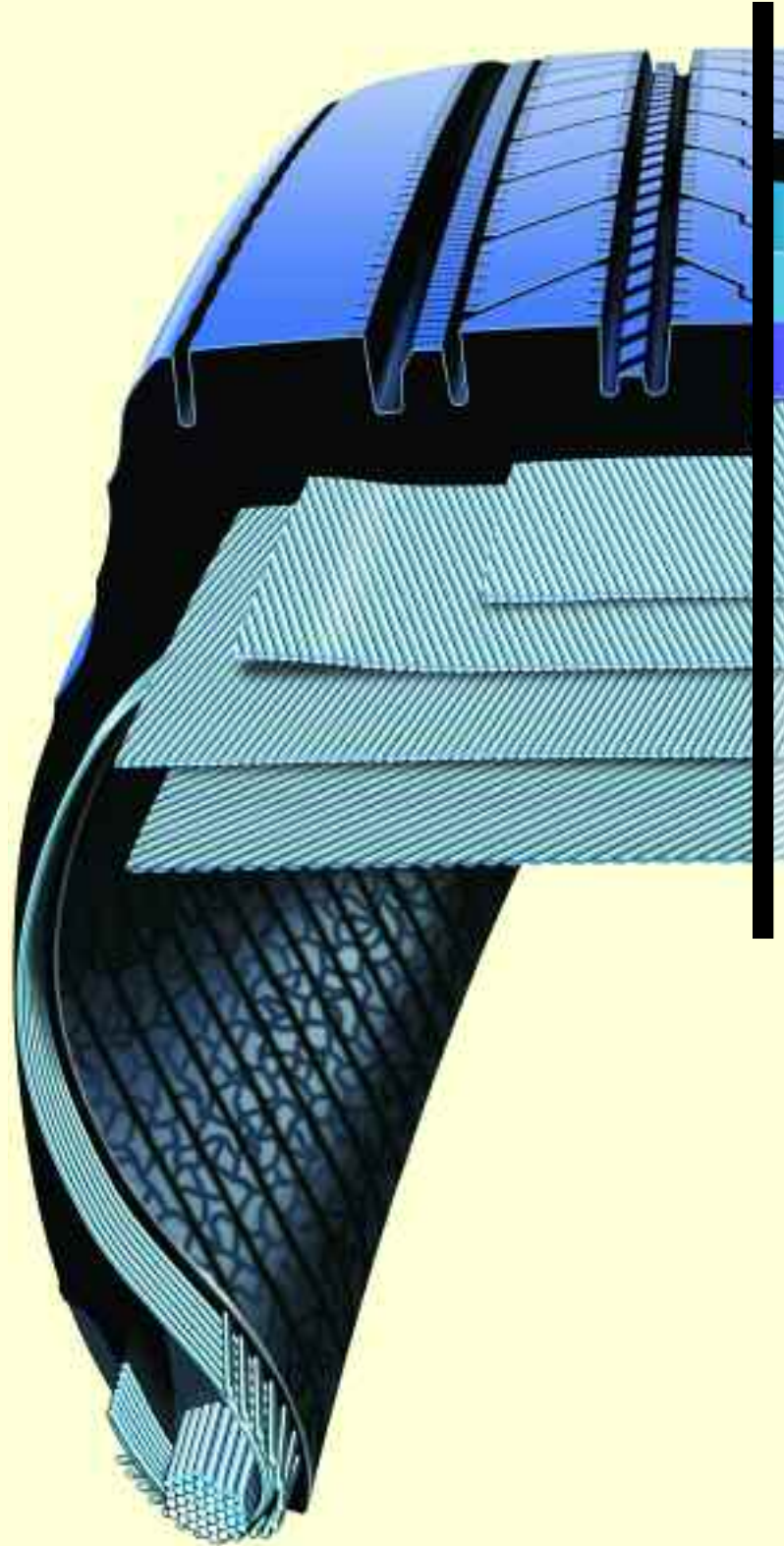
In a tire, you have different rubber compounds surrounding other rubber compounds, surrounding steel wire and steel cable, with maybe a bit of polyester fabric as well.

Where do all these parts come from?

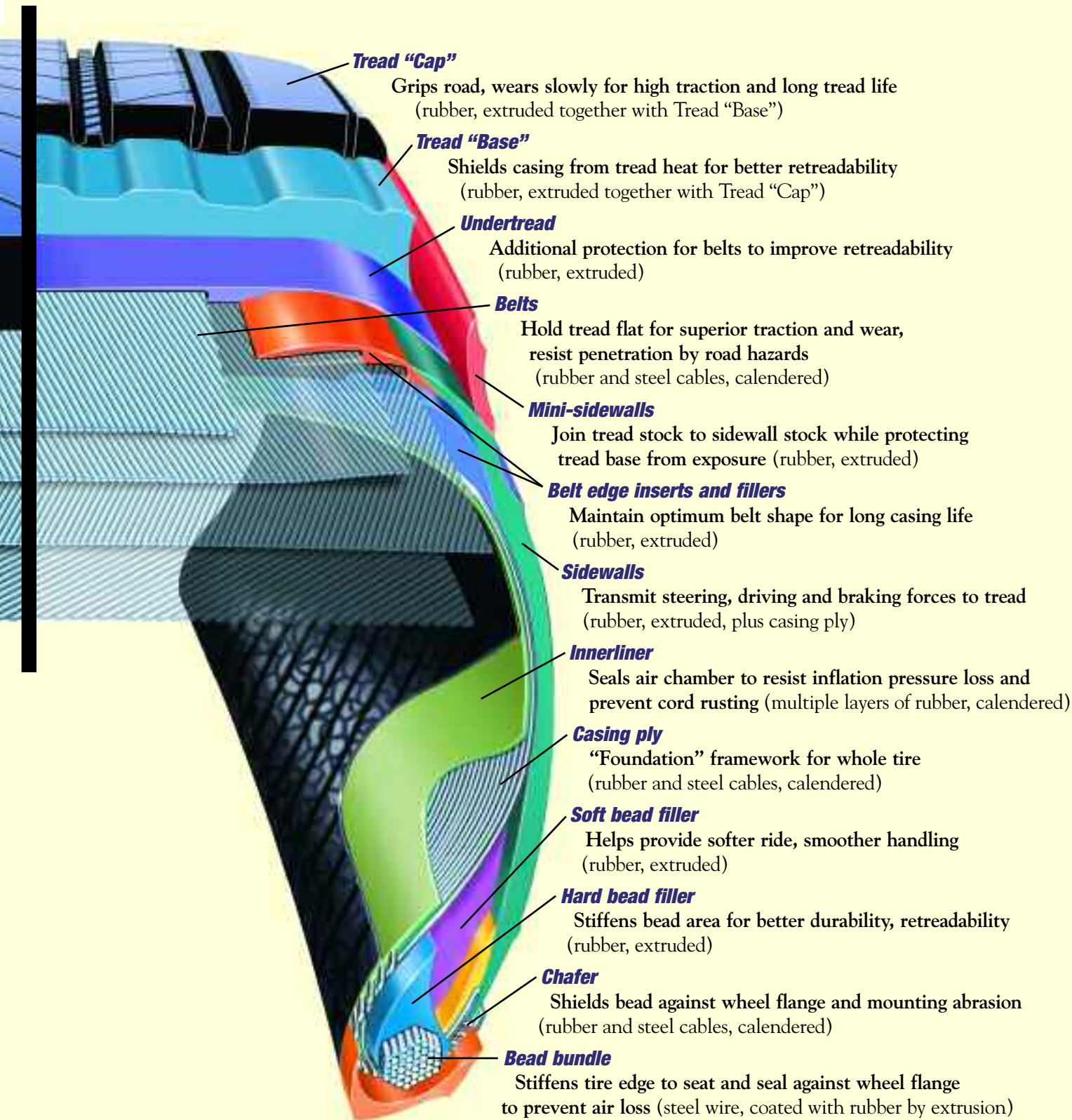
Each has to be made, then brought to the "tire builder." In fact, when you look at a tire factory, it's amazing how much space, how many machines and how many people it takes to make the parts that one person will assemble into a tire.

Most of the parts of a tire are made using either calendering (squeezing things between giant steel rollers), or by extrusion (squeezing rubber through dies that impart their shape to the components).

Let's take a look at a tire, and see how some of these parts are made.



Besides calendering, the other main way tire components are made is by extrusion.



That's a lot of parts!

And we didn't try to show every last one of them either. All of these have to be assembled. Next time, we'll see how they get put together by the tire builder – into something that looks a lot like a tire. (A)