

# SHOPS

By David Swarts



## BARNETT TOOL & ENGINEERING

The world has changed a lot since 1948. Color television, travel via jet aircraft, human organ transplants, vaccinations to end deadly diseases, the microchip, and the Internet are just a few of the inventions and changes the world has experienced since 1948. Over that same 70-year period, one family has owned and operated an American company that is still going strong. It's called Barnett Tool & Engineering.

Founder Charlie Barnett was an eighth-grade-educated motorcycle enthusiast who started out making parts for his own motorcycles. Soon, friends starting asking him to build them similar parts, and Barnett moved his parts-making operation from the garage at his home to a small shop in Huntington Park, California.

At the beginning, most of his business involved making control cables for British motorcycles. In the late 1950s, Barnett started manufacturing clutch plates. When Japanese motorcycles started arriving in America in the 1960s and motorcycling became more popular, Barnett grew with the industry into the 1970s, right before tragedy struck.

"Charlie had a massive stroke in the 1970s," said Mike Taylor, the current CEO/President of Barnett Tool & Engineering and Charlie Barnett's son-in-law. "He wasn't able to work or ride or drive anymore. His whole right side was paralyzed. He wasn't supposed to

*(Above) Barnett Tool & Engineering's 43,000-square-foot building in Ventura, California. (Below) Former racer Mike Taylor and wife Colleen Taylor, the second-generation owner-operators of Barnett, pose with 70 years of memorabilia in the company's showroom. Photos by David Swarts.*



survive. The doctors told us he wouldn't make it through the night, and he lived for 20 more years.

"After the stroke, we had a family meeting with Afton, my wife Colleen's mom, and talked about things. Did she want to sell it? Because they were the sole owners in the company. Or did she want to try to keep it going? We decided we wanted to try to keep it going, but it wasn't easy.

"Charlie was a guy who had everything in his head. He knew how everything worked here, but nothing was written down anywhere. I had only been with the company for a few years then, and I didn't know s\*\*\*. My first couple of years here I worked in shipping and did a little bit of everything else. Colleen was in the office most

of the time, except when she was younger she would run drill presses and the machines in the back.

"I ended up with a bleeding ulcer the first year because I worried about stuff so much. I spent a lot of time going through old purchase orders. I didn't know what the damn things were made out of or where we bought it. Every time we needed something I had to do some research. But we made it through, and over time it got easier. I just learned on the job. And that's how we've done it."

As the motorcycle industry continued to grow through the 1970s, 1980s, and into the 1990s, so did Barnett, which kept evolving and improving its materials, products, and manufacturing processes to keep up with new



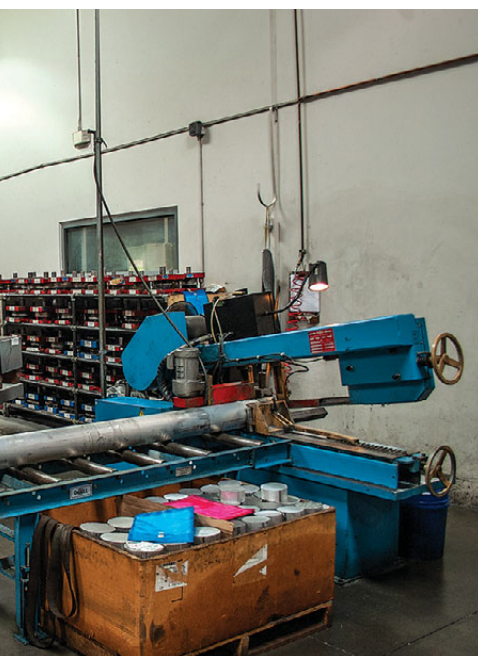
*(Above) Clutch plates with and without friction material applied. (Below) Friction material adhesives are cured by high pressure and high heat inside this blue oven.*



applications, demands, and regulations.

"I came to work here back in 1968, and back then we used cork as the friction material on clutch plates," said Taylor. "It didn't slip, but it was prone to swelling when it got hot. In the late 1980s, we were the first to use Kevlar friction material on clutch plates, and then in the early 2000s, we developed a carbon-based material. The new materials are stable. They keep their shape. They





(Above Left) The blue saw and the green press above cut and stamp clutch plate blanks from aluminum and steel, respectively. (Above Right) A worker assembles control cables. (Below) A cam-driven screw-type lathe carves brass fittings for control cables and hydraulic lines.



don't expand or do weird things like that. We still make plates out of cork for the Matchless and Nortons and bikes like that. That's all that will work for stuff like that. But for the modern bikes, we use the more modern materials."

From its beginnings in Huntington Park, California, as the 12-person company Taylor joined in the 1960s, Barnett moved to a larger facility in Santa Fe Springs, California, before eventually moving to its current location in Ventura, California.

"We didn't run out of room [in Santa Fe Springs]," explained Taylor. "We ran out of the desire to live there anymore. My wife and I bought some beach property in the 1970s. In 1989 we finally had enough money to build a house up here. We used to come up on weekends, and it started getting

more and more difficult to go back to Los Angeles on Sunday nights. So I bought this land in 1995, and we built this 43,000-square-foot building and moved in at the end of 1998."

Barnett's facility houses about 50 full-time workers and is essentially divided into three sections: Office space in the front; assembly, testing, packaging, and shipping in the middle; and a loud metal cutting/manufacturing area in the rear.

"When we were in Santa Fe Springs, it was all one big open space. All of these noisy machines were all in the same room," said Taylor. "So when we built this building we partitioned it off so we have our noisy area for our presses and our screw machines and all that. It was weird. After 20 years of hearing these machines running, I suddenly couldn't hear them anymore."

Barnett Tool & Engineering manufactures nearly every component of every part in-house, and it all starts in the noisy area. There, clutch parts are cut from cylinders of solid aluminum or stamped from sheet metal by presses. Once cut from raw metal, the clutch plates are run through tumblers to be deburred, before they are sent to the middle section of the building.

There, the plates go through more machining and tapering for their specific applications—using machines designed and built in-house at Barnett—before tabs of friction material are put in place on each friction plate.

Once the tabs of friction material (with adhesive already ap-

plied to the backs of the tabs) are added to the friction plates, the plates—separated by spacers—are clamped together in big stacks using 120 psi of force. Many of these big stacks are then placed on large carts, which are then wheeled into a big oven where the plates are baked at 400°F for about an hour to bond the friction material to the adhesive and the adhesive to the friction plates.

And through every step of the process, the plates (like all of the company's parts) are checked for tolerances, before and after the friction materials are applied.

Cables and hydraulic lines are produced almost in parallel with the clutch plates, starting in the manufacturing area. There, an assortment of modern CNC and older cam-driven screw-type lathes cut hundreds and hundreds of line fittings out of stainless steel, brass and even plastic. The fittings then go to the assembly area where they are joined together with wires and hoses to create the desired cables and lines.

"The machine we use to put ball fittings on the ends of cables is over 60 years old," said Taylor. "If it breaks, we have to fix it. And if it needs a part, we have to make the part we need to fix it. This is why we have our own machine shop and fab shop here in-house. And it all goes back to how we like to do things ourselves. Everything you see in here we do ourselves. We don't send anything out except for heat treating and plating, like anodizing. The more we can do here, the better off we are."

The majority of Barnett's business is producing clutch parts and tools for Harley-Davidsons. In fact, Taylor pointed out a batch of clutch parts the company had just produced for a Harley-Davidson engine that hasn't been manufactured since 1986.

"But people don't throw Harleys away. They recycle them," said Taylor. "They made these Harley engines for nearly 50 years with the same basic clutch parts in them, and we still sell them all."

Having said that, Barnett makes cables and clutch parts for just about everything in the powersports world, from vintage machines to modern sportbikes to the engines powering the latest side-by-sides to sidecar racing rigs like the ones Taylor used to run.

"I was never any good on a solo bike, but I raced in sidecar stuff," said Taylor, who did traditional road racing but also enjoyed doing unique events on three wheels. "Larry Coleman and I built this sidecar thing and took it to the Bonneville Salt Flats. And I did the Pikes Peak International Hill Climb with another sidecar

buddy for a few years. Back then, it wasn't fully paved like now. The first year, we took a road race sidecar and nearly killed ourselves. After that we built a purpose-built rig with a Kawasaki Z1 engine in it, and that thing was fine. We had a lot of fun doing that.

"We also had a road race team at one point with Matt Wait and Richie Alexander back in 1997-1998. Richie won the AMA 750cc Supersport Championship on a Barnett Clutches Suzuki. My son, Chris Taylor [Barnett's current head of marketing], also road raced. He was a lot better than I was. He won some Championships with the Willow Springs Motorcycle Club (WSMC) and raced with AMA Pro.

"We still help out some local racers when we can. We don't get much back out of it, but we do it to help the sport because we love it so much."

All that love for motorcycling is on display in Barnett's Will Call showroom. There, special motorcycles from the past and present are surrounded by decades of memorabilia on the walls, including photos of racers Barnett has sponsored in the past, including the late Nicky Hayden, and photos of company founders Charlie and Afton Barnett.

"I'm so damn lucky!" said Taylor. "Colleen and I met on a blind date. Who would've thought that it would have evolved into what it has?"

When asked about the future of Barnett, Taylor, now 76, said, "We're just going to keep doing what we've been doing, which is to keep trying to make better parts. We try not to get stuck doing the same things in the same ways. When I came to work here, we didn't make clutch plates any way close to the way we make them now. Same goes for our cables.

"Now, in the last few years we've started making brake lines because we were making custom cables for dealers with our next day service, and then they were having to wait two weeks for matching brake lines [from another vendor]. Two weeks from now it might be snowing where their customer lives. So we're just going to keep doing what we're doing, keep trying to find ways to make better stuff in better ways, and keep serving our customers."

When you've been in business for 70 years, you must be doing something right. And when you've been in business for 70 years manufacturing the same types of products, you must really be doing it right. It's safe to say Barnett Tool & Engineering, a.k.a. Barnett Clutches & Cables, is doing things right.

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