

supply base,” he continued. “Eventually, we’ll be adding some calibration equipment, and we’re coming up with concepts to measure multiple parts off the same fixture. It’s all part of our value proposition—a design that’s flexible enough to do multiple models with one fixture. If you need to swap out the 3D-printed components, it still cuts down on the storage issues shops face

when separate fixtures are needed to measure each part, not only in the current production but for all past-model production runs.”

RapidFit is focused on injection-molded products ranging from small trip parts to large bumpers and plans to expand the capability of its fixtures to hold light stampings in the near future.

—Evan Jones Thorne

■ Musical machinist gets sweet sounds from CNCs

In 2003, Kevin Burkett was offered \$30,000 for his 1978 Travis Bean “Wedge” guitar and realized it was too valuable to perform with. Most guitarists would make do with using a similar, less-valuable model, but Travis Beans have a distinguishing characteristic that makes them hard to replace—they’re made of metal. So, Burkett did what any self-respecting DIY musician would have done: He visited area machine shops with a hand-drawn schematic and some scrap aluminum, until Will Fitzpatrick at Performance Machining Services Inc., Pensacola, Fla., agreed to teach him the machining process.

At the encouragement of recording engineer and musician Steve Albini, Burkett started his own Pensacola machine shop, Electrical Guitar Co.—a nod to Albini’s Electrical Audio studio in Chicago.

“I love aluminum guitars for two reasons,” Burkett explained. “First, they’re basically indestructible. Myself and a lot of people who played the old generation of aluminum guitars in the ‘90s played them [irresponsibly, but they still survived]. Second, the denser the



All guitar images: Electrical Guitar

A Travis Bean Model TB1000S is roughed in EGC’s Haas VF-4 VMC.



Profiling the resonator plate in the VMC.

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The rear of the finished guitar, showing the resonator plate bolted to the body.



A completed Travis Bean TB1000S.

material you use for the guitar, the better resonance you're going to get. Steel is completely impractical because of the weight, but aluminum can be very light and resonates beautifully."

EGC guitars feature a neck and headstock made of T-6061 aluminum, chrome-plated hardware and a stainless steel bridge plate, with everything but the tuning heads and electronics machined in-house on a Haas VF-4 vertical machining center.

In addition to producing wood and sonically neutral acrylic bodies, which are mounted to the aluminum neck and resonator plate, EGC machines bodies from aluminum. An aluminum body makes the guitar extremely durable and enables sonic nuances not otherwise obtainable. Profiling, detailing and fine adjustments to necks and bodies are made using a pair of Bridgeport semimanual EZ Trak machines, which save time by allowing minor adjustments to be made without reprogramming a CNC toolpath.

"Because of the high speeds and feeds, we've had a ton of different end-mills break," Burkett said, noting the longest-lasting one is from Accupro, which is distributed by MSC Industrial Supply, Melville, N.Y. "When the CAD/CAM guy who programmed the software told me the speeds and feeds it would be running at, I didn't really believe it could handle it at all, but I ate

my words. It's pretty amazing to watch."

The process uses a 1/2"-dia., 3-flute, TiNC-coated endmill run at 10,000 rpm, a 0.800" (20.32mm) DOC and 600 ipm (15.24 m/min.) for roughing. Once the body is roughed, a 1/2" ballnose endmill is applied for finishing.

What started as a way to preserve his existing guitar collection while still getting the sound he wanted has, more than

10 years later, made Burkett the designer of signature instruments for Tom Petersson of Cheap Trick, Brent Hinds of Mastodon, Duane Denison of The Jesus Lizard and Tomahawk, Scott Kelly of Neurosis and Melvins bandleader King Buzzo. In addition, after Bean's death in 2011, Burkett resurrected the beloved, short-lived 1997 design, with the blessing of his former business partners

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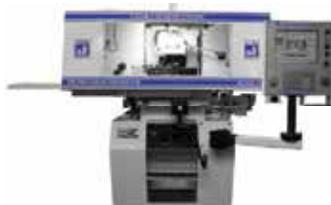
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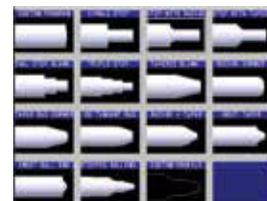
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and Rita Bean, Bean's widow.

"It's amazing and kind of bizarre to get to make the first guitar I was really obsessed with," Burkett laughed. "I'm really glad Rita was supportive of it, because that design is so good."

Yet after all his success and acclaim making guitars, Burkett doesn't consider himself a luthier.

"There are really good luthiers around who know their stuff really well, but it seems like everybody who works with guitars says they're a luthier as though that term carries some sort of inherent weight," he said. "It's like artists—if people come up and tell you they're artists, they probably aren't very good. I definitely prefer being called a machinist."

—E. Jones Thorne

Machine takes a bite out of strapping

Steel strapping is effective for bundling materials, but poses a number of



Rudnicki Industrial

Michael Rudnicki (right) developed the Rudnicki Strap Eater to cut industrial strapping into easy-to-dispose-of pieces.

problems for a machine shop. Its sharp edges make it something of a workplace hazard, while its long, ungainly shape makes storage and disposal difficult. It's also made of mid-carbon steel, so even

though throwing the strapping in the dumpster is the easiest way to handle it, possible profits from recycling are dumped as well.

When Michael Rudnicki, president



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