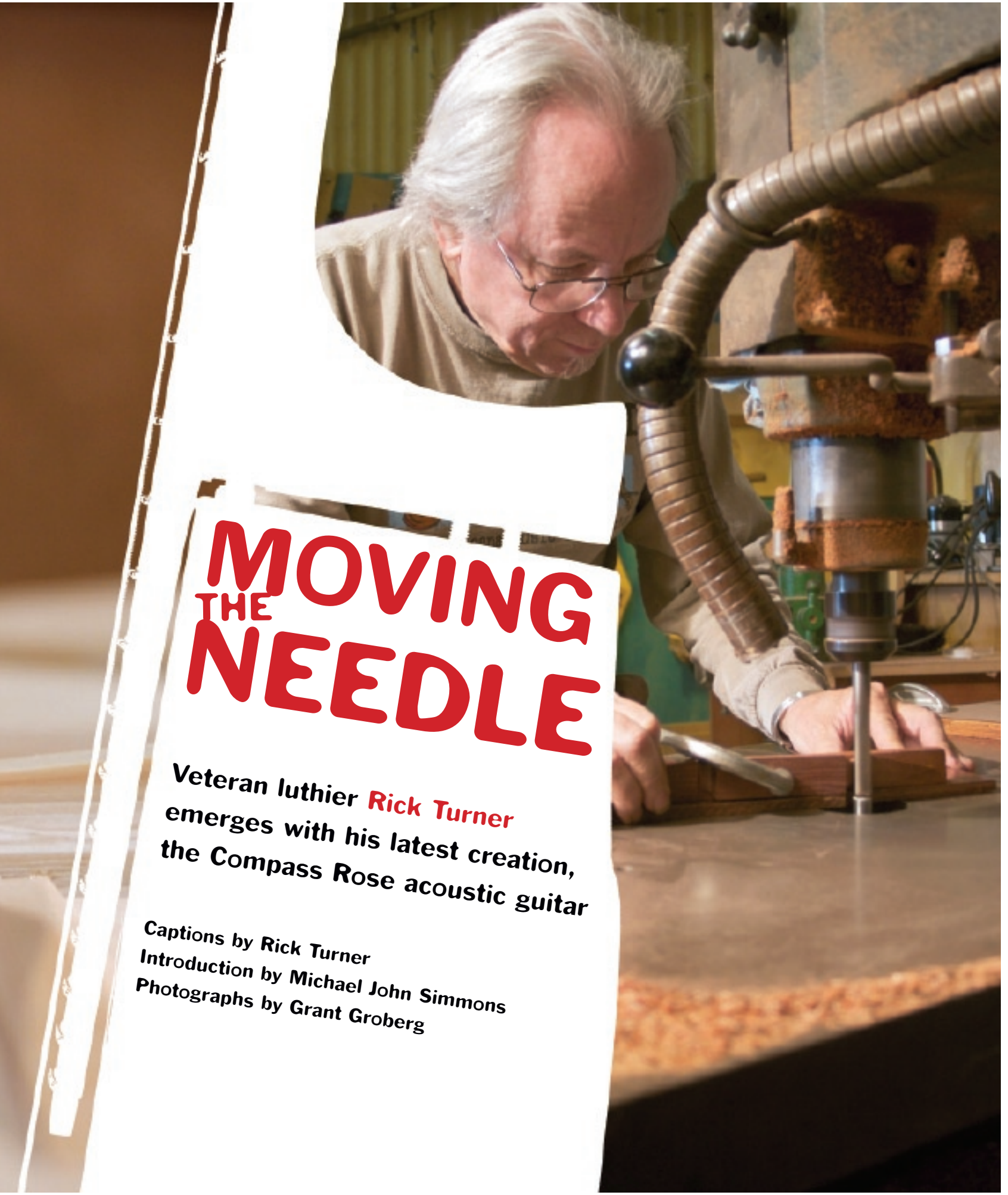

MOVING THE NEEDLE

Veteran luthier Rick Turner emerges with his latest creation, the Compass Rose acoustic guitar

Captions by Rick Turner
Introduction by Michael John Simmons
Photographs by Grant Groberg

YOU only have to spend a few minutes at Rick Turner's company to realize he's full of restless energy and blessed with an insatiable urge to Get Things Done. His passion for invention has made him one of the most notable electric-guitar innovators of the last 40 years.

Turner co-founded Alembic Guitars in 1970, developed the acoustic/electric Renaissance Ampli-Coustic line of instruments and designed the Turner Model 1 — best known as Lindsey Buckingham's main guitar. And, if that's not enough, he was president of Gibson Labs West Coast R&D Division in the late 1980s, where he worked with the guitar world's greatest tinkerer, Les Paul. He also co-founded Highlander Musical Audio, worked on the Grateful Dead's legendary Wall of Sound rig in the 1970s and partnered with Seymour Duncan to produce the D-TAR acoustic amplification system.

A few years ago, Turner was approached by Barry Pearlman with a business opportunity. Pearlman had just started playing ukulele, and so the pair started making ukes under the Compass Rose name. And while doing all of that, Turner managed to repair and restore thousands of guitars over the years, for regular players as well as guys like Jackson Browne, Ry Cooder, David Lindley, David Crosby and Andy Summers.

Since Turner's a guy who knows how to get things done, it's a bit surprising to find that his latest project, the Compass Rose acoustic guitar, has been incubating for decades.

"I didn't want to start building acoustics until I felt I had enough ideas to bring to the table," he explains. "I'm not drawn to making yet another Martin. There are plenty of people making great Martins, including Martin." Turner spent years cogitating over the guitars that inspired him — as well as the ones that disappointed him — and developed a formula for his ideal guitar sound.

Sanding the hand-carved top braces.

"What I came up with was something that was maybe 75 [percent] to 80 percent flattop, 15 percent archtop and then maybe a smidgeon of Maccaferri thrown in," he says. "I've worked with enough acoustic instruments to know that what can be very appealing about some guitars — a huge bass, say, or tinkly trebles — turns into a nightmare in the recording studio. I wanted to have something that would have that midrange punch and cut that you get with a great archtop or the Selmer-Maccaferri-style guitars, but have a little more flattop-friendly bottom end underneath it."

Once Turner had a sound in mind, he began to design his guitar, drawing on classic guitars of the past and melding their design elements with ultramodern materials like carbon fiber. "The body shape of the Compass Rose starts off with Orville Gibson," Turner says. "Orville made a huge 18-inch guitar in this shape in the 1890s. Then the body shape was resuscitated in '34 with the first small-shouldered version of the Super 400."

Turner took that 18-inch silhouette and reduced it so his guitars measure a more manageable 15 or 16 inches across the lower bout. He also used a top-bracing pattern that melds the X pattern developed by Martin in the 1840s with the fan braces pioneered by Torres in the 1850s. Turner's bridge design recalls the sort of thing that might have turned up on an 1820s Parisian guitar or maybe a Maurer from the 1930s.

"I like this little game of putting these little reminders of the past on my guitars," he says. "People will look at stuff like my bridge and they'll say, 'Now where have I seen that before?'"

The most unusual features of the Compass Rose are the neck attachment, which was inspired by the Howe-Orme instruments of the early 1900s, and the "flying buttress" neck support. "I've worked on lots of vintage and antique guitars in my day, and I've seen how a couple hundred years' worth of guitars can fail," Turner says. "More

The flying buttresses come down to the abutments in the waist and fly up to the neck block. You can also see the reverse kerfing, which was developed by Charles Fox, the side doubler and the kerfing for the back. The buttresses relieve the top of the responsibility of supporting the neck and the fingerboard. I first did this with some rebuilt guitars I did a few years ago. I did a Martin, a couple of Gibsons, a Guild when I was in Los Angeles. I think the first one I did was for Jackson Browne. I tried the flying buttresses as a way of trying to separate the issue of engineering architecture from the issue of tone production. These do their job; the top no longer has to support the pressure of 160 to 180 pounds of neck bearing against it.

often than not, the neck-joint area fails in any number of ways. I wanted to come up with a system that offered maximum support without detracting from the sound, so I came up with a flying buttress that takes the tension from the neck and distributes it to the sides.

"I took my inspiration from the Gothic cathedral of St. Denis just outside of Paris. Its walls are supported by flying buttresses, which keep them from collapsing outward from the pressure of the roof. Hey, from 1183 to 2008 without falling down is a pretty good argument for the concept."

The Compass Rose neck attachment is easily tiltable and has a cantilevered fingerboard, features that can be found on the first Martins built in the 1830s, the guitars of Viennese builders like Stauffer and Schertzer and the guitars and mandolins made by Howe-Orme. "The big deal is instant action adjustment," Turner says, "but because the neck joint isn't doing the job of supporting the string tension, it allows us to have the end of the fretboard float above the top without dampening the tone."

One of the Compass Rose prototypes went through what was perhaps the toughest tryout any guitar ever had. In 2001, Henry Kaiser took his new guitar to Antarctica for two and a half months on a grant from the National Science Foundation's Antarctic Artists and Writers Program. Kaiser reports that the guitar performed admirably under the extreme conditions.

After hearing so much about the innovative Compass Rose guitars, we were curious and wanted to get a closer look at one, so we sent photographer Grant Groberg to visit Turner's shop at various times during the construction of a single guitar. Turner had mentioned that his master luthier, Matthew Tolley, was about to start one with cocobolo sides and back and a very fancy bear claw spruce top. We were welcome to stop by as many times as we wanted; Groberg made half a dozen visits to Turner's shop and came back with almost 1,500 images to sort through.

Turner himself was kind enough to explain what was going on in each shot, and together we offer an unprecedented look at the construction of a unique guitar.

Matt Tolley cuts out sections of the back kerfing (to let in the back bracing) as he's fitting the back to the sides.

Milling a flat section on the steel bar that gets welded to the truss rod and winds up in the heel of the neck.

ABOVE: A nice shot of the completed sound port. Side ports work as a personal monitor for the player. Our guitars tend to be very loud out front and tend not to be terribly loud to the player unless we put in a side port. They're designed, really, to project. We have control over the sound dispersion of guitars these days; we can choose to make them punch forward or really envelop the player. This particular series of guitars is designed to punch forward, so to give the player something, I love the side port. There are all kinds of jokes about it: Is it a beer holder, an ashtray or what? You can also see the pillars that reinforce the sides and go down to the back braces. This makes the whole back structure incredibly strong. On the first one that I made with this general kind of internal construction, Henry Kaiser's Antarctica guitar, I was able to flip the guitar upside down at this stage of development and literally stand on the center of the back.

Matt sands the end block with the guitar sides in the mold. Earlier, he put the spreaders into the sides at the upper and lower bouts and in the waist to clamp the sides into the mold. On the edge closest to Matt, you can see the side doubler of rosewood running around what will become the top joint.

The support block for the flying buttresses is glued in place. He's putting in a cross-grain pillar that goes between the top and the back and is then glued to the waist. This is the support end of the carbon-fiber rods that go up to the neck block.

LEFT: This is a classic "go bar" shot. I don't know the history of go bars, but they are a really good idea. This is the same way they glue bracing on a grand piano. They have a go bar deck at Steinway, much larger than this, and it is an incredibly versatile system using the springiness of either wooden dowels or the modern equivalent — fiberglass rods. The great thing about the go bar attach is that you can get anywhere between the two surfaces and you're not locked into a particular bracing pattern or anything like that. It's just a very, very versatile system.

BELOW: The back braces are being glued onto the back using go bars. The back braces are spruce with carbon-fiber tops, and they are bridged over the center-seam reinforcement — see the little gap? — which also has a carbon-fiber top. (The go bars are fiberglass and just happen to be black like the carbon fiber.)

ABOVE: This is a set of the truss rods that we make, and you can see the 3/8" steel dowel that is welded into the rod that goes through the heel of the instrument to take the stress off the cross grain of the heel.

LEFT: Here, we are drilling out the tuner holes after the overlays have been glued to the face of the peghead. So this is sort of re-drilling: The peghead has a five-layer laminate on the back, and there's the core of the peghead, and then there's a single overlay on the face, so these have to get drilled several times in the process of making them.

Matt fits the truss rod. I originally developed the headstock shape for the Model 1 electric guitar, and it just kind of became a signature. When I was working on peghead designs, I was getting all convoluted and baroque, and suddenly I said, "Wouldn't it be nice if I could just do it with a ruler?" And I basically did; I just went for the simplest possible thing that I could do. I like the A-line or snake peghead concept for straighter string pull; it makes final setup easier and it helps keep the strings from binding in the nut.

Matt is hand-bending the binding that will go into the handstop curved area of the peghead. What you see here is the bending iron, which is a piece of brass pipe with a heating element inside, and a wet paper shop towel, which is providing the steam to help soften and bend the wood. This is going back to pretty primitive ways of doing things. Sometimes that's the easiest way.

Gluing on the back binding and purfling. The binding on this guitar was plain maple. We use wood, plastic, fiber and, in this latest guitar, even carbon fiber for purfling, which I really like. We pre-bend the binding in the same side-bender setup that we use for the sides, while the purfling is flexible enough to just bend in place.

Here, Matt is putting in the abalone shell inlay. The lines of purfling have been put in with a sacrificial piece of Teflon in the middle, which gets glued in and then pulled out because the glue does not stick to the Teflon, leaving a perfect channel for dropping in the pieces of abalone shell. Our cosmetic look doesn't really replicate the specific look of older guitars, but it is strongly reminiscent of earlier designs. If there's an overarching aesthetic that I strive for, it's these little memory ticklers of guitars from the past.

This is me on the pin router shaping a bridge. I do at least something on 99.9 percent of the instruments that come out of here. At the very least, I've sprayed the finish. In many cases, I do the more dangerous operations, like this, for instance. You can see my hands awfully close to the bit, which is going 20,000 r.p.m. I do a lot of these more dangerous processes myself 'cause I've been doing it for years and I haven't lost a finger yet.

The guitar is almost complete. Here's the final fitting of the tuners.

And bingo, the guitar is ready to play. Check out the bear claw figure in that top. The legend is that the figure came from bears scratching the trees, which is a wonderful story that just doesn't happen to be true. It's a genetic deformity of the wood that does affect the cross grain (versus long grain) stiffness of the wood. I think that it probably makes the wood stiffer and denser, so there's a tradeoff there, and you could theoretically work the plates a little thinner.

Isn't that cocobolo outrageous? It sounds great, too.

This is a nice silhouette showing the gaps between the fingerboard in the top and the face of the heel and the end of the guitar. You can see, just under the fingerboard, there are two screws, one on either side of the neck, which act as pivot points and are adjustable, so that the entire neck can be moved in and out to adjust overall intonation. The bolt in the middle is the one that actually sets the angle of the neck, and the one closer to the cap of the heel is a locking screw that locks the neck in place once it's set.