



by Steve Hunter

I've wanted a guitar synthesizer ever since I first saw the Roland GR-707 system at the 1984 Anaheim NAMM show. When I heard a Hammond B-3 but saw a weird-shaped guitar, I was pretty much convinced that I needed one badly.

It was definitely a thrill when I finally got my hands on one. After playing the GR-707 at Roland's L.A. headquarters, I decided that I'd like to do an in-depth article in three parts. There are so many conflicting opinions about guitar synthesizers, that it's worth going into in detail. And because this instrument is so unique and such a breakthrough for guitars and guitar playing, I think it merits the extra time and discussion. The GR-707 retails for \$1,150 (with case), the GR-700 for \$1,995.

In this month's column, we'll take a look at the guitar itself, followed next month by a test of the GR-700 unit, and finally, how they work together. It's important to understand that the GR-700 synthesizer unit is not an elaborate effects pedal, it's an extremely complex guitar/synthesizer instrument. In fact, it's actually two separate instruments working together.

To give you an idea of the complexity of what we're talking about, let's just take a look at the triggering mechanism, in theory.

The immediate difficulty to overcome is developing something that will read the fundamental pitch of a string on any fret accurately enough so as to obtain a digital code to trigger a synthesizer.

For the GR-707 system, a pickup had to be developed that would be able to accurately distinguish the fundamental pitch of each string. The final design became a pickup that looks like and fits into the same space as a standard double-coil pickup, but is actually six separate pickups in a row, one for each string. This was found to be the optimum configuration to maximize string separation and minimize extraneous overtones. As it is called, the hexaphonic pickup is placed as close to the bridge as possible (where the fundamental pitch is most predominant) and as close to each string as possible. Through

ROLAND'S 707 SYSTEM GUITAR SYNTHESIZER, PART 1

some very complex circuitry, the pitch that is received by the pickup is converted to digital information which can then be read and understood by the synthesizer section of the GR-707 system.

The problems inherent in this system are staggering. First off, guitar players love guitar strings with lots of beautiful harmonics and overtones. All those extra tones, though, cloud the fundamental pitch and make it hard to hear, especially every time and on every fret.

But the guitar synthesizer is an extremely expressive, dynamic instrument, as far as variety of technique goes. Think about all the ways you know how to make a string vibrate and then change its pitch. With just those examples, can you imagine trying to develop a device that can give you accuracy in spite of all those very ambiguous parameters and still come off sounding like an organic musical instrument? Incredible!

CONSTRUCTION AND FEATURES

As you can see by the photo, the GR-707 is a striking instrument. The first thing to catch your eye is the stabilizer bar screwed into both the headstock and the upper bout of the body. Roland claims it aids in stability, which in turn aids in tracking performance. True, but I just can't see how a bolt-on neck could be more stable with a stabilizer bar than, say, a through-the-body neck. The logic behind a bolt-on neck is dubious.

The neck is maple with a rosewood fretboard, slightly chunky feeling, but otherwise very smooth. It has medium-size frets on it, comfortable and nicely dressed, though larger frets might help the playability.

The pickups are Roland humbucking style and sound very full and rich with an amp, and very clean and clear when used direct. There is a pickup selector switch, a tone pot and a master volume (which is master to the synth as well). The other controls will be covered when we discuss the whole unit.

The body design is really quite unique. When worn with a strap, the guitar is very well balanced, not too heavy and quite comfortable to play. One drawback, though: It's a little uncomfortable to play sitting down. There is a rubber pad along the edge

of the lower bout where the guitar rests on your leg, but I don't think it helps that much.

The guitar features a very smooth-feeling vibrato, but a locking-type vibrato tailpiece and nut would have been preferable, since tuning and intonation are so very important in this application. When I used the vibrato, the tuning did slip.

The finish and overall workmanship are superb, and the wiring inside qualifies as a work of art.

Next month I'll give you a rundown on the GR-700 module and its functions and performance. Until then, remember: Keep makin' music. □

Steve Hunter has recorded and toured with many of contemporary music's biggest names, including Alice Cooper, Peter Gabriel, Lou Reed and Mitch Ryder's Detroit. He is presently involved in several film scoring and studio projects.





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ROLAND'S 707 SYSTEM GUITAR SYNTHESIZER, PART 2

One of the most exciting aspects of the GR-700 is that it's MIDI interfaceable, meaning that for the first time, guitar players can control—with a guitar—sequencers, other synthesizers and even drum machines!

If you refer to the photo of the GR-700, I'll give you a rundown of the front panel controls: The first thing you'll notice is the two rows of foot pedals. The first row contains the hold pedal, the bank pedal and pedals numbered 1-4. The second row contains the edit pedal and pedals numbered 5-8. The top panel contains an array of touch switches that control various functions such as memory write and storage, string dynamics and selection, and chorus and chromatic functions. Next to the touch switches is a large LED readout. Since the GR-700 was designed as a floor unit, this giant LED display is invaluable, especially in a live situation; you always know the status of the synthesizer no matter what the lighting conditions on stage.

To finish off the general description, the back panel contains the memory cartridge slot, a tuning knob, a connector for the optional PG-200 programmer, the MIDI-out connector, a memory protect switch, a pitch control jack (using a volume-type pedal), two (stereo) balanced XLR connectors, an out-

put-level switch, two (stereo) unbalanced phone jacks, a guitar-only output jack, a VCF control jack (again a volume-type pedal) and, of course, the ac power cord and switch.

TIME TO PLAY

Simply plug in and lock the 24-pin cable into the GR-707, then into the GR-700. Then plug two guitar cords into the unbalanced stereo output jacks and finally into a stereo power amp and stereo speakers. Turn it on and you're ready for all kinds of fun!

The first thing you'll see in the LED display is "1-1," which stands for bank 1, patch 1. And that happens to be one of the finest, most authentic string sounds you've ever heard; play a regular G chord and out come angels from heaven. I spent the better part of an afternoon and evening going through each patch. There are two different but equally incredible Hammond B-3-type organ sounds, and even a most convincing pipe organ sound that makes you feel as if you're playing a Bach fugue at St. Paul's Cathedral!

What's also great is that the guitar has a separate output all its own, which I sent to a Rockman and then into my mixer. It was sheer bliss being able to do all these great synthesizer licks on a guitar and still have a guitar sound too. It's a remarkable feeling to strum a guitar and hear a guitar plus steel drums, for instance.

The one criticism to make about the GR-700 is its owner's manual, which needs improvement. Now, we've all had problems with Japanese equipment manuals that have obviously been translated from Japanese. But in this case, it's not just the grammar, there are certain concepts that need to be phrased better in order to clarify the more complicated procedures.

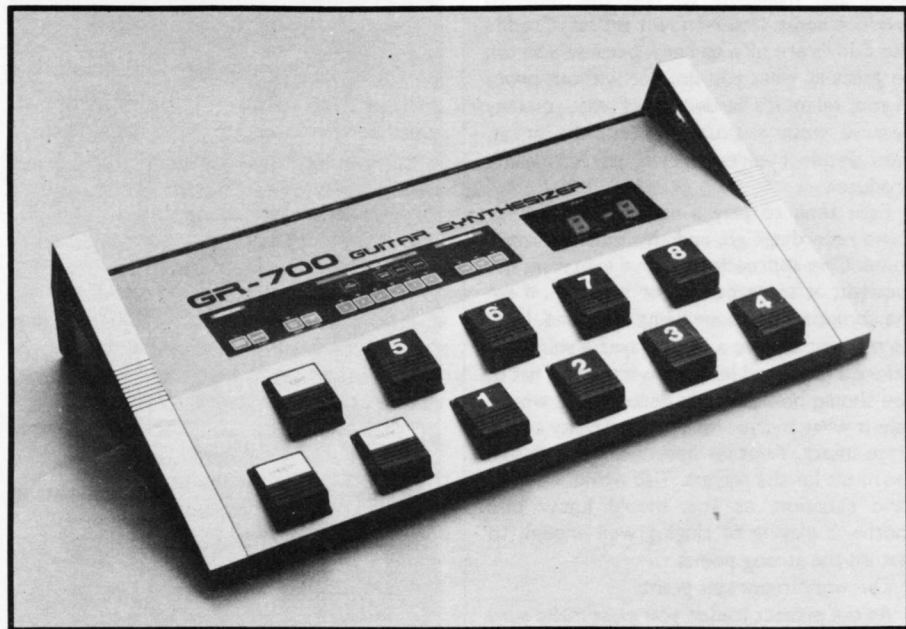
Next month we'll conclude our review of the Roland GR-707 system guitar synthesizer with final impressions regarding programming ease, tracking, etc., and I'll include a list of options, some special Roland consumer information, and various other thoughts and opinions. Until then, remember: Keep makin' music! □

Steve Hunter has recorded and toured with many of contemporary music's biggest names, including Alice Cooper, Peter Gabriel, Lou Reed and Mitch Ryder's Detroit. He is presently involved in several film scoring and studio projects.

This month's installment of "On Guitar" will concern the Roland GR-700 guitar synthesizer unit. Last month we reviewed the GR-707 guitar, and since that is used to control the GR-700, its function as a controller will also be part of this month's review.

The GR-700 unit is the actual synthesizer section of the 700 series. Essentially it's a six-voice, polyphonic, programmable synthesizer—in fact, it's basically a Roland JX-3P. It has 12 DCOs (digital controlled oscillators), six VCFs, six VCAs and six envelopes, with two DCOs and one each of the other parameters for each string.

The unit contains 64 factory programs, plus a memory cartridge for storing your own data. This is an excellent innovation in that unlike cassette tape storage, the transfer of information is instantaneous, so you can actually dump in new programs on stage. Cassette tape storage takes several seconds at best to complete its data transfer, making it bothersome and almost impractical live.



The GR-700 unit is a six-voice, polyphonic, programmable synthesizer with 12 DCOs, six VCFs, six VCAs and six envelopes. It retails for \$1,995.