



# Radial Firefly Tube DI: Finding the Bottom

By David Morgan

My best Christmas present this year arrived a little late, shortly after New Year's Day. Radial Engineering president, Peter Janis, contacted me by email and asked if I would be interested in testing a new Radial product. He hoped I could relate my opinions to him before the NAMM Show convened in Anaheim, where he planned to roll out the unit. Upon further reading, the email described a new Radial tube DI box called "Firefly" that was being readied for production. As a devoted user of Radial products including the JDV, J48, and JDI direct boxes plus the Tonebone PZ-Pre, I was definitely intrigued and immediately agreed to take part in the evaluation process.

The following day, I called my friend, Mike Gonzales, at Schubert Systems Group in North Hollywood, CA and asked if we could set up some gear to check out the Firefly. Schubert Systems uses many Radial products, and Mike was keen to audition this newest addition to the line. We set up an Avid VENUE console, my desk of choice, and a d&b listen back rig with a single 18-inch sub. Schubert Systems also supplied a Radial J48 DI and a competitor's top-of-the-line DI for comparison to the Firefly.

## The Gear

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The Firefly features the discrete class A input stage used in the Radial top-of-the-line JDV DI. The JDV front end delivers a big, open and accurate sound, making it a great starting place for the signal chain in the new DI. Radial has also included a Drag Control load-correcting circuit that matches the Firefly to the variations in output impedance from differing magnetic pickups.

When Drag is switched to the "out" position, the input impedance is 4 meg-ohms. This lets the Firefly provide the best loading for piezo pickups found in acoustic guitars, violins and upright basses. When the

Firefly is connected to an instrument using magnetic pickups, one switches in the Drag section and then sweeps the control screw to create the optimum audio result.

I have been using the Radial Tonebone PZ-Pre for the last five years on James Taylor's acoustic guitars with fantastic results. I am therefore very familiar with the optimal way the 4 meg-ohm input stage matches to the output of a piezo pickup, so we did not try out an acoustic guitar on test day. In that application, the Drag Control would be switched to the "out" position. Input/output adjustment would then employ a process that I will soon describe of finding the right combination of tube sound added to the drive circuitry.

After the input and Drag stages, the signal encounters a drive section powered by a 12AX7 tube. One uses a combination of input and output gain settings to create a balance that produces more or less amp-like growl and grit from the tube. Okay, Radial, I am already hooked on Firefly, because I just love subjectively turning knobs. It's my life and my passion!

I couldn't wait to get started, eagerly breaking open the shipping box containing the Firefly. And... Wow! You can't help but immediately noticing the distinctive yellow/orange color. Another feature that screams uniqueness is the inclusion of a handle on the top. The obvious implication is that this particular DI is a substantial unit — an advertisement that is quickly verified by lifting it out of the box. The heavy gauge steel in which the circuitry is encased creates a tough, well-designed structure that protects the knobs and switches on the outside and the high-density electronics inside the enclosure. XLR connections, ¼-inch jacks and push button switches on the rear panel are all recessed and very firmly mounted. In addition to the XLR balanced output, six ¼-inch connections provide two independent inputs, a thru output, a tuner output, a TRS insert loop, and a JR-2 remote footswitch input. The external power supply connects through a 5-pin XLR and runs on 100 to 240 VAC.

## The Test

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We chose two test instruments with magnetic pickups: a Fender Precision Bass and my Gretsch White Falcon. The three DIs in the test were assigned to three separate inputs on the Avid VENUE console. We began by connecting the White Falcon to the Radial JDI and set the input gain on the console. We then switched

over to the "other" DI and set the desk for the same input level so our control units matched. All filters and equalizers were switched out.

We then plugged the Gretsch into the Firefly and started experimenting. Output controls on the guitar were set to max, on both pickups and the master volume. We arbitrarily set the input and output gain pots at 12 o'clock and left enough headroom on the console to allow for varying the levels. The more we rotated the input gain clockwise, the more grit you could hear coming from the tube section. In our purely arbitrary test world, we soon found a pleasing combination of amp sound (input gain @ 2 o'clock) and signal to noise ratio (output gain @ 3 o'clock) that also worked well with the VENUE mic preamps.

The next step was experimenting with the Drag Control. I still wanted to listen to the Gretsch because I felt that it would be easier to hear the effect with the higher frequencies from the guitar. We turned the adjustment screw to fully counter-clockwise, punched in the button turning the Drag section on and started slowly rotating the control in a clockwise direction. The result was very similar to adjusting the azimuth on a multi-track tape machine or setting speaker delay times by ear. There was an easily discernable point at which the highs and lows were in balance. The "sweet spot" was obvious and the process of finding it was totally repeatable.

We then set the input gain on the console to match the level of the other two DIs we had connected earlier. While the other DIs are definitely high-quality products, the Firefly demonstrated a presence, wholeness and musicality that made it a hands down first choice for everyone in the room. I love the JDI, so this is very high praise, but the Firefly performed in a league of its own. The sound had strength, character and beautiful resonance. On the electric guitar, it sounded like a great, clean amp.

When we plugged in the Precision Bass, we discovered it was actually easier to do the input/output/Drag setup on the Firefly with the bass signal. Overdriving the input was far



more obvious and less desirable. 12 o'clock on the input side created a strong, clean signal. 2:30 on the output side drove the console well. It was surprisingly easy hearing the Drag lock in as well. All the way counter-clockwise was too dull;

all the way clockwise was too bright. As we passed through the sweet spot with the correct balance of bottom and articulation, it simply jumped right out. With the setup process learned and the sonic superiority clearly demonstrated, it was now time to take the Firefly into the real world.

I was concentrating on the bass guitar application, because rehearsals with Joe Walsh's band were starting at the end of January. It was my intent to use the Firefly on bassist George Reiff's two Jazz Basses. The Firefly has two independent and selectable inputs, but we did not have the optional JR-2 footswitch to employ with our prototype unit. George uses two identical basses with no active circuitry, so this option wasn't really necessary. One bass has round-wound strings; the other has flat-wound strings, and George chooses the instrument by judging the best sound for each song. When George walked in front of the PA and listened to the bass sound coming through the console, he was amazed by the warmth, power and clarity, and became an instant Firefly believer.

During the private show we recently did at The Troubadour to introduce *Analog Man*, Joe Walsh's new CD, the Firefly performed liked a champion. The bass sound it renders is warm and round, yet still big and punchy. The harmonic content is fantastic. It never sounds loose or flappy like some other tube DIs I have encountered. So far, everyone I have introduced to this product has had an extremely positive experience — whether they have been playing, mixing or just listening. I have a strong feeling the Firefly is going to be a very popular product for my friends at Radial. **FOH**

David Morgan is a musician, songwriter and sound engineer. Reach him at [dmorgan@fohonline.com](mailto:dmorgan@fohonline.com).

