

VORTEX X10 ECU & DUNCAN RACING GO-FAST PARTS INSTALL

A stock YFZ450R gets the star treatment

By the staff of Dirt Wheels

More than 20 years ago you could have told us that four-stroke ATVs would one day overtake the two-stroke ATVs and we would have had a good laugh with you—or at you. Now, the four-stroke has done just that and has been doing it since the early 2000s. A big part of four-strokes winning most championships is support

from aftermarket companies and engine builders. Duncan Racing International is one such company and is known for building race-winning championship quads and engines for some of the biggest names in racing for 40 straight years. With a track record like that, you can imagine they know their stuff.



The traction was greatly improved from the Vortex X10 ECU by adding enough fuel to the engine. This made it more tractable in long, sweeping corners.

YFZ450R



The best thing about the Duncan Racing performance mods that were added to the YFZ-R is that it gave us more confidence in our riding and in the machine over rough terrain.



The Duncan Racing Fat Boy 4 full-exhaust system has the looks and sound of a winner. We felt big power gains with this and the Pro Design air filter kit installed.

Duncan Racing is also a distributor of the Vortex X10 ECU and ignition system. Vortex is an Australian company that builds ECU and ignition units for carbureted and electronic fuel-injected machines that are meant for closed-course competition race use only. If there is a full Duncan four-stroke race build, you can bet it has a Vortex ECU or Vortex ignition installed.

Leonard Duncan of Duncan Racing International invited us out to a closed course to test a bone-stock, off-the-showroom 2017 Yamaha YFZ450R. The purpose of this test was to experience the power increase and rideability of the YFZ-R by adding just a Vortex X10 ECU system. Of course, we couldn't pass up a fun and informative day with the race guru himself.

WHAT DOES

THE VORTEX X10 ECU DO?

The Vortex ECU is designed to make your fuel-injected four-stroke ATV run the way it should. It's pre-programmed with 10 performance fuel and ignition maps. Each setting

(0-9) is changed by using a small flat-head screwdriver to turn the adjustment dial to the desired power setting. In addition to fuel metering, the X10 ECU also controls spark timing and voltage output. The result is more power, the quad starts easier and eventually turns faster lap times. There are also three additional switches for adjusting the fuel—low, mid and high throttle openings. The X10 ECU plugs directly into the quad's OEM wiring harness and interfaces with all the standard engine sensors.

The X10 allows the quad to adjust fuel and spark timing for optimum power delivery in all weather, altitude and load conditions. Typically, the power gains are most easily felt in high-rpm power and bottom-end throttle response, which means smoother, more rideable power. The X10 is also fully programmable by purchasing software at an additional cost. This means if you're a mad computer scientist and understand the mechanics of a race engine, you can create some crazy maps.

The best-selling point of the X10 is that Vortex and Duncan Racing have done all the development work on the dyno and the track. That means that all the guesswork is done for the average joe. You just choose a setting that works for your riding style from their included instructions and go ride! The Vortex X10 ECU for the Yamaha YFZ450R retails for \$699.99.

INSTALL AND TESTING

We arrived at the closed course and unloaded the YFZ450R. It was time for the back-to-back comparison of the YFZ-R's power. The first ride would be a bone-stock YFZ-R, the second would be the YFZ-R with the Vortex installed, and, yes, there was a third test ride that we weren't expecting.

The 2017 Yamaha YFZ450R is still one of the best quads we've ridden for power, handling and the smoothest ride in stock trim. We knew what to expect, but it was good to ride it back to back in this testing situation. We rode it around a desert-type course with whoops, turns and long, fast fire-road sections. The quad did well, but we were excited to see what the Vortex X10 would do. After jumping off the quad, Leonard went to work installing the X10.

First, he removed the three plugs on the OEM ECU, which is located behind the airbox. Then he removed the OEM ECU. The X10 ECU was a direct plug-and-play as promised. It mounted nicely to the stock bracket via a rubber boot that Vortex provides in the kit. Then we started the quad and let it idle for about three minutes so the computer could recalibrate itself. The YFZ450R was ready for test number two.

Leonard suggested that we do the exact same loop as we had before. Right as we descended into the wash, it was apparent how much better the quad felt just by adding the X10 ECU. The throttle delivery was smoother, it had better power range, a more rideable feel, and it made the quad's suspension feel better since it could power through the rough sections. One big part of the power comes from the X10 raising the rpm from 10,450 to 11,300. We were very impressed! We were a few seconds faster around the same course.

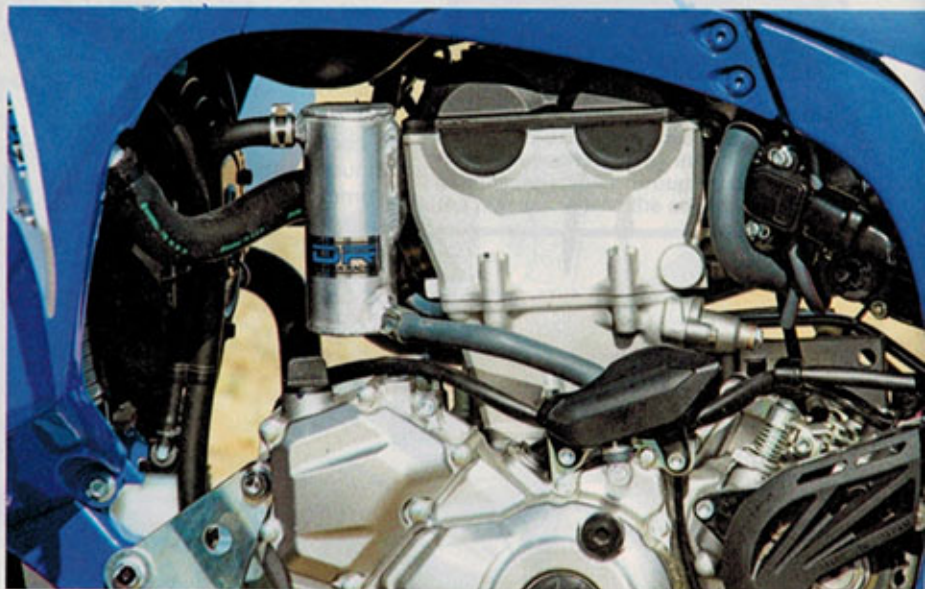


The Vortex X10 ECU mounts where the stock unit usually resides. It's simple to adjust each knob by inserting a flat-blade screwdriver through the top of the plastics where the seat latches on.

YFZ450R



YFZ450R



(Top) The 2017 Yamaha YFZ450R is already a powerhouse out of the crate, but with the Duncan Racing mods and the Vortex X10 ECU, we found an 8-10-horsepower increase. (Bottom) Duncan Racing has this trick billet-aluminum oil catcher that replaces the stock plastic unit. The plastic unit can become damaged over time, and this is a great fix for it.

We were excited to report to Leonard that it felt like a completely different quad. In fact, it felt like we were getting close to what a race quad should feel like. However, Leonard had another surprise for us; he was going to install a Duncan Fatboy 4 exhaust, a Duncan oil-catch bottle (this is great since the OEM unit can break over time), a Pro Design Pro Flow K&N filter kit and a GYTR smog removal kit. It took Leonard all of half an hour to install these parts. The only change he had to make to the Vortex X10 ECU is he moved the X10 knob to the number two position, which is recommended for stock engines with an aftermar-

ket exhaust and a filter kit. However, Duncan also suggests using this map for a built engine as well. Duncan Racing states that an 8-10-horsepower gain is made for the YFZ-R.

It was time for the final test. Like before, we did the same loop as the previous laps. On startup, the quad had a different, throatier exhaust note bellowing from the Duncan Fat Boy 4. We took off, and we knew this would be the fastest and the most fun lap when we dropped into the wash. The Duncan-tuned YFZ-R had great bottom end—so much that it would pull the front end up in abrupt corners, but the power was rideable. It climbed through

YFZ450R



Once we got it tuned, the YFZ-R made quick work of rough sections like these whoops much better than before. The quad felt more alive.

the top end much better than before, and we could tackle the whoops with more speed and confidence. Now that we had more power on tap, we could jump and clear most of the larger whoops and road crossings. We were having so much fun that we did a few extra laps on the Duncan YFZ-R just for good measure. After our laps were completed, we rode back to Leonard for our final opinion. The Duncan parts, in concert with the Vortex, were the quickest way around the desert loop by two to three seconds compared to the previous loop with the OEM exhaust. That doesn't seem like much, but it's a huge advantage in the racing world. The price for the Duncan Racing parts with the X10 included is around \$1500.

OUR OPINION

We were ecstatic from start to finish with this machine. Like we said, the YFZ450R is a great quad even in stock trim. The difference in power that the YFZ-R had just by adding the Vortex X10 ECU to the mix was amazing. It was a completely different quad, and it made it better. The biggest thrill was the Duncan Racing parts installed with the Vortex X10. We felt like we were on the back of a rocket ship! If you're looking to start doing some closed-course racing on your fuel-injected sport ATV, we suggest you give Duncan Racing a call to get your Vortex X10 ECU unit or any of Duncan's other great parts. □