

# CYLINDER WORKS BIG BORE RAPTOR 727



MAKE YOUR RAPTOR  
TAKE OFF LIKE A JET—  
AND SAVE MILLIONS!



**A**s you might expect, Raptor 700 riders don't complain about not having enough power. Even so, the people who ride the big Raptors are not the kind to turn down more. At 686cc, the Yamaha's stock displacement is ample, to say the least, but what red-blooded ATV rider wouldn't want to see what it would feel like with 727cc? Cylinder Works made satisfying our curiosity simple with its bolt-on 727 kit, so we built a big-bore Raptor project machine around it!





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WORKS  
BIG BORE  
RAPTOR 727**

**WHAT DOES IT COST?**

Depending on how many you buy, the F-22 Raptor fighter jet the Air Force uses goes for \$136 million to \$339 million per copy. The heart of the Raptor 727 kit, the Cylinder Works big-bore cylinder and 105mm piston, is a mere \$650 with gaskets—practically a steal by comparison. To make the machine ultra reliable and economical to run, the kitted engine retains the stock 9.2:1 compression ratio, so it runs cool and is perfectly happy with pump gas. Hot Cams' Stage II cam complements the bigger, deeper-breathing motor and broadens the power without the need

for special valve springs or porting. For all its might, the stock 700 does flatten out noticeably at high revs. FMF's full exhaust with Powerbomb header and Powercore 4 muffler adds more power at the bottom, extends the pull on top and gives the Yamaha an authoritative yet responsible roar.

**HOW POWERFUL IS IT?**

It's jet-like. We're sure Yamaha doesn't mind that there's a menacing, insanely fast fighter jet with the same name as its menacing, insanely fast ATV. Cylinder Works probably isn't bothered by its big-bore kit sharing

*Our Cylinder Works project Raptor showcases a group of engine and suspension mods that make sense for anyone interested in economically rebuilding a well-worn machine or upgrading for more performance.*

*Race Tech revalved and tuned the tired stock suspension, and the feel is very much like expensive aftermarket racing shocks. STI tires and beadlock wheels give the big Yamaha the grip and toughness to handle its incredible power.*

*Cylinder Works' 727 kit is a simple bolt-on performance upgrade for the Raptor 700 that requires no costly case machining or head mods, and you get to keep or sell your stock cylinder and cam. Going from the stock 686cc displacement to 727cc produces a serious power boost.*



*The Raptor 727 is amazingly smooth and free-revving for such a big engine. It's more lively and responsive than the stocker, in addition to being much stronger.*

*Believe it or not, Cylinder Works' super-strong-running, great-looking Raptor 727 was built with a sensible spending limit in mind. The key parts of the engine kit—the cylinder, piston, cam and gaskets—are only \$850.*



- Cylinder Works** ..... [www.cylinder-works.com](http://www.cylinder-works.com)  
(515) 251-4070  
3mm over bore 105mm complete cylinder kit w/ Cometic gaskets and Vertex piston (21004-K01): \$649.95
- Hot Cams** ..... [www.hotcamsinc.com](http://www.hotcamsinc.com)  
(515) 402-8200  
Stage II cam intake cam (4132-2): \$199.95
- FMF Racing** ..... [www.fmfacing.com](http://www.fmfacing.com)  
(310) 631-4363  
Full system with Powerbomb header and Powercore 4 muffler: \$599.99
- Bazzaz** ..... [www.bazzaz.net](http://www.bazzaz.net)  
(909) 597-8300  
Z-Fi MX off-road (fuel mapping tool): \$324.95
- CV4** ..... [www.cv4.net](http://www.cv4.net)  
(800) 874-1223  
Formed silicone coolant hoses in white: \$145.56
- Race Tech** ..... [www.racetech.com](http://www.racetech.com)  
(951) 279-6655  
Rebuilt and revalved stock shocks for heavier weight.  
ATV rebuild front shocks (LQ02FC): \$99  
Front race conversion kit (QFCYA 04S01): \$557.93  
Shock oil-seal KYB 12.5 (SKOS 125S): \$29.99  
Shock gold valve (SMGV QF3609S): \$219.99  
Ultra-slick oil, 5WT (US1): \$14.98  
Race Tech shock spring, 4.0 kg (SRSP 5820040R): \$64.99  
Race Tech shock spring, 10.7 kg (SRSP 5805107R): \$37.99  
ATV rebuild rear shock (LQ02RC): \$90  
Rear sport conversion kit (QRCYA04S01): \$211.46  
Shock gold valve kit (SMGV QR4001S): \$159.99  
Shock seal head (SYSH 4014): \$49.99  
Ultra-slick oil, 10WT (US2): \$14.98
- Blingstar** ..... [www.blingstar.com](http://www.blingstar.com)  
(951) 279-3861  
Front bumper: \$129.95 polished; \$142.95 textured black  
Nerf bars: \$419.95, polished; \$426.95 textured black
- Renthal** ..... [www.renthal.com](http://www.renthal.com)  
(877) 736-8425  
Rear rotor guard: \$149.95  
Rear sprocket guard: \$138.95  
ATV Fatbars: \$89.95 7/8 inches; \$74.95  
Kevlar grips: \$19.95  
Front and rear chain wheels: \$25.95 front; \$64.95 rear  
O-ring chain: \$89.95
- Factory Effex** ..... [www.factoryeffex.com](http://www.factoryeffex.com)  
(800) 866-0709  
Semi-custom graphics kit: \$189.95
- STI Tech** ..... [www.stitireandwheel.com](http://www.stitireandwheel.com)  
4 XC tires: \$59.95, 22x7-10 front; \$79.95 20x11-9 rear
- STI** ..... [www.stitireandwheel.com](http://www.stitireandwheel.com)  
Pro-Lite alloy beadlock wheels: \$189.95, 10x5 front; \$179.95, 9x8 rear

its name with a popular passenger jet, either. One thing's for sure, the Cylinder Works Raptor 727 has serious, jet-like acceleration to back up its borrowed name. In true big-bore style, the 727 starts pulling way down in the rev range. Unlike some huge engines, the power rush builds furiously from there. Where the stock Raptor 700's power flattens out noticeably at high revs, the 727 just keeps pulling, thanks to its more aggressive Hot Cams Stage II cam. The cam would help a stock 700 pull longer and stronger on top too, at the expense of some low-end power. The 727's extra displacement piles on low-end power, while the cam and FMF pipe keep the motor pulling through the top. A Bazzaz fuel tuner calibrates the fuel injection to keep the engine properly fed and running cool.

#### **MAKING IT HANDLE**

Blingstar's bumper, nerfs and other accessories, stylish graphics from Factory Effex, and new tires and wheels from STI transformed the looks of what was a truly tired Raptor with a lot of hard hours on it. The fresh motor made it run like new, but the suspension was due for service. Race Tech came to the rescue and rebuilt the shocks and valved them to our needs. Stock Raptor suspension is incredibly good when the shock oil is fresh and everything is in good condition, but like any system, it deteriorates as the hours pile up. Race Tech can rebuild and tune the stock shocks for your weight and riding conditions for a fraction of the cost of a set of new dampers.

With the suspension valved and sprung for us, the Raptor's ride is more compliant than ever, with far more bottoming resistance for big air and aggressive riding. The feel is very much like a fresh set of expensive high-end aftermarket racing shocks.

#### **THE WAY TO FOLLOW A TOUGH ACT**

The Raptor 700 is a great machine stock; it has abundant, easy-to-use power and one of the best stock suspension setups for all kinds of recreational riding. It's so good, you might wonder what you really gain with modifications. Cylinder Works' 727 big-bore kit and Race Tech's suspension upgrades reminded us how much untapped engine and suspension performance the Raptor can offer, even without expensive upgrades. If your Raptor is reaching the stage where its engine or suspension need attention, or if you're ready to take your Yamaha's performance and appearance to the next level, the upgrades on this project machine are a perfect way to go. □