

DB

450F MADE BETTER

PROJECT BROAD SCOPE

A SMOOTHER COME-ON

Riding a stock YZ from the pits to the racetrack is an unsettling experience. Throttle response is so abrupt and engine braking is so intense that your very first exposure to the bike can be pretty rocky. Once on the track, you generally keep the motor revved up higher, and this issue quickly disappears. Off-road, it's another story. The transition from "off" to "on" is jerky and unpleasant. We've seen this characteristic in other EFI bikes, but the Yamaha is the worst of all.

Wade Wilcox of Injectioneering has years of experience in the fuel-injection business, actually going back to the original EFI motorcycle, the Honda CX500 Turbo. He understands why fuel-injected motorcycles are so abrupt. "The throttle is a butterfly valve in the YZ, which has flow characteristics that are very different from a guillotine," he says. "In the first

eight percent of throttle opening, the flow increases by 600 percent. Then, in the last 50 percent of throttle opening, flow only increases by 200 percent." Wilcox makes a number of modifications to the throttle body to remedy that problem, including changing the angle of the butterfly and recalibrating the throttle position sensor. "The Yamaha also has a throttle pulley design that makes the problem worse. It's oval, so the pulley turns faster initially." Wilcox makes a new pulley specifically for YZs. Altogether, he makes six separate modifications to a customer's throttle body and promises a three-day turnaround.

The result is impressive. Once the modified throttle body is in place, the Yamaha becomes a different machine. The toggle-switch nature of the power down low is replaced with a smooth and easily

metered transition. Engine braking on deceleration seems to be reduced, and the bike stalls less often. It still doesn't feel like a conventional carburetor, but the modified YZ is worlds better than stock. For the money, we consider the Injectioneering modifications essential for any rider who takes the YZ off-road.

NAME: Injectioneering

PRICE: \$260

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The primary modification performed by Injectioneering is the replacement of the throttle butterfly. The new one (on the right) sits at a different angle and has a compensation bleed hole.



The YZ's stock throttle body pulley is oval-shaped, which results in the throttle opening at a faster rate initially. The round pulley makes the bike easier to manage.