

The Joy of Six

**Affordable Performance
wants to improve
your six life**

Text and Photos by Dale Amy

They're as common as mosquitoes in a Florida swamp, and evidently almost as highly regarded. We're talking about those pesky 3.8 V-6 Mustangs—driven by many, loved by few. Despite ongoing improvements in its factory power output, the 3.8 bent-six seems destined to be regarded as an impotent little wheezer that hard chargin' 'Stang bangers will resort to only to appease their wallet-pillaging insurers. Being seen at the wheel of a V-6 apparently has all the status of dating your buck-toothed cousin.

According to Tom Morana at Affordable Performance (www.mag1.com/~can_web/morana/), it doesn't have to be that way. In this world of specialization, Tom's niche is the 3.8 V-6. Though he can't make your six-banger sound like a Flowmaster'd V-8, Tom—the veteran machinist and inveterate tinkerer—swears he can make it run like one, and he uses his own 12-second V-6 as proof. If this sounds intriguing, the icing on the cake is that your Yankee bucks will go a long way in Scarborough, Ontario, where Affordable Performance is located.

Six-therapist Tom Morana thinks a longer stroke is a good thing. Here, the mad doctor of displacement poses with customer Jeff Ahrens' under-construction 4.2 stroker, based on a '95 3.8 block fitted with one of Affordable Performance's stroker kits and topped with ported Split-Port heads and intake.

Horse Sense: Why not just go to the wrecking yard, pick up a complete 4.2 from an F-150, and slide it into your 'Stang? Well, mostly because it won't fit (although Tom Morana is concocting a kit to make it fit). Aside from the intake clearance problem, the 4.2's tall main caps and oil pan are the biggest impediments to a Mustang swap. Electronics, too, are an issue as the truck Split-Port engines use secondary throttle plates, while the Mustang's do not. By the time you read this, Tom should have a kit worked out to make the swap practical—though, as yet, there aren't likely too many 4.2 assemblies cheaply available in the junkyards anyway.

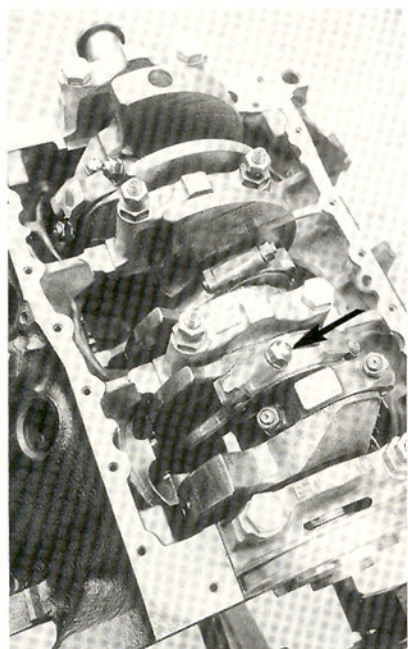
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Tom is serious enough about 3.8 V-6 performance to have developed a slew of stroker kits offering a number of displacements and a wide range of rod/piston combinations to suit every application and budget. He offers porting services on EFI intakes as well as on both the latest Split-Port heads and the conventional-port castings, and he can even fit a larger, 2.02x1.60 valve package to these older

canted-valve heads. Cams? No problem. Tom offers a surprising selection of reground stock units, with profiles roughly paralleling the Ford Racing Performance Parts specs for 5.0 bumpsticks. Also available are traditional bolt-ons such as underdrive pulleys and roller rockers in a couple different ratios.

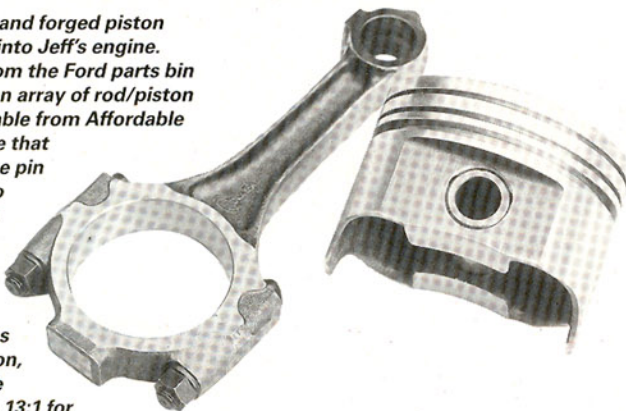
On our most recent visit, Tom was in the process of building a 4.2 stroker for customer Jeff Ahrens' '98 Mustang. The car was to be teamed with a Vortech blower, presumably in order to put the

hurt on those smug, unsuspecting V-8 owners. In this case, Tom was utilizing the crank from Ford's larger 4.2 V-6, as found in the F-150 (the 3.8 and 4.2 share an identical bore diameter). Sounds like a simple drop-in for a displacement boost, right? Wrong. Factory 4.2 V-6s are balanced internally, whereas the 3.8 is externally balanced. That—and clearance issues—means the 4.2 crank requires extensive machining to make it function without generating loud, metallic noises in the 3.8 block. The required 3.74-inch

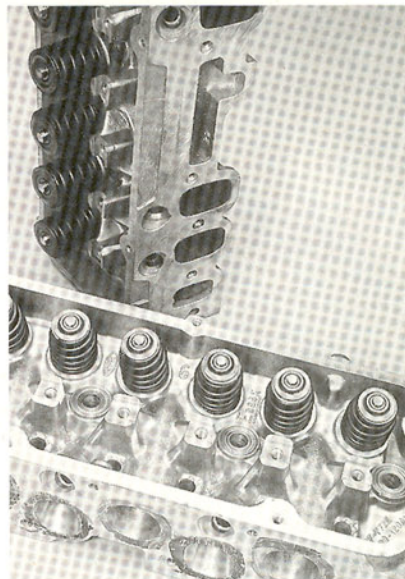


The increase in stroke—from the 3.8's 3.390 inches to 3.740 inches—in Jeff's engine comes from a reworked Ford 4.2 cast-steel crank, but don't think you can just buy a 4.2 crank and bolt it in. The 4.2 cranks (and those of the supercharged T-bird Super Coupe) are internally balanced and must be radically machined to work within the tight confines of a normal 3.8's externally balanced belly. Notice too that the corners of the rod hardware have been radius'd (arrow) in order to clear the windage tray that will be fitted.

Here's the steel rod and forged piston combination going into Jeff's engine. Both are gleaned from the Ford parts bin and are but one of an array of rod/piston combinations available from Affordable Performance. Notice that material beneath the pin has been radius'd to clear the 4.2 crank's counterweights. For the intended supercharged application, Tom dished these pistons for 9.0:1 compression, though versions are available as high as 13:1 for racy, naturally aspirated work.



Shown here are just a few of Tom's rod/piston combos for the 4.2 stroker. On the left is the set we just described, utilizing a Ford rod that is shorter than stock 3.8 length. Of the three pictured, this is the strongest combination. The pairing on the right shows yet another rod plucked from the Ford parts bin, this one slightly longer than stock 3.8 length. It's teamed with a stock 3.8 piston with its pin bore enlarged to fit the rod's larger pin diameter. The slightly less robust pair on top consists of a stock 4.2 piston and Mopar 3.3 rod. This piston has considerably less compression height (pin to piston top) than the 3.8 slug, while the Chrysler rod is notably longer than the 6.091-inch stock Ford 3.8 or 4.2 version.



The intake side of the late-model Split-Port head in the foreground is in stark contrast to the older version behind. The Split-Port head debuted on the '97 Windstar and showed up for big power gains on the '99 Mustang, but without the secondary throttle plates common to the truck applications. For Jeff's supercharged application, Tom performed a mild street porting and fitted stiffer valvesprings good for a cam of up to around 0.500-inch lift.

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stroke can also be achieved by offset grinding a T-bird Super Coupe crank, but that's a story for another day.

Jeff's engine was also receiving a street-ported set of the Split-Port heads and lower intake, as found on the '99-and-up Mustang. But instead of fitting the matching side-entry Mustang upper intake, Jeff thought he'd like a long-runner, front-entry upper, as found on the F-trucks (aluminum) and Windstar (plastic). Without modification, neither of these truck intakes will clear the Mustang's low hood profile because their idle-air bypass valves are located on top, though Jeff

was confident he could adapt one to fit beneath his Cobra R hood.

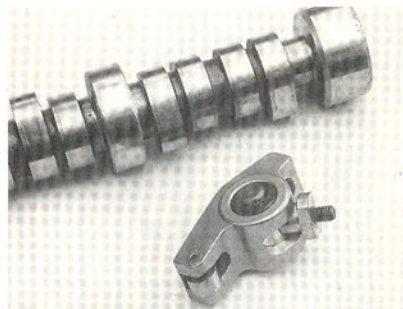
So how much power can be gained by stroking your 3.8 out to 4.2 liters? Tom suggests gains of "at least 50 hp and 60-70 lb-ft" when going stock to stock. Adding a cam, porting, or—if your engine is a '98 or older—upgrading to the newer Split-Port heads can add substantially more. If that's not enough, Tom is working on 4.4 and 4.6 V-6 stroker kits.

To give you an idea of pricing, Tom's kit that includes the cast steel 4.2 crank, the steel rods with ARP fasteners, the forged pistons, the moly rings, the Clevite bearings, and balancing sells for an affordable \$2,000. He also offers complete short- and long-block assemblies

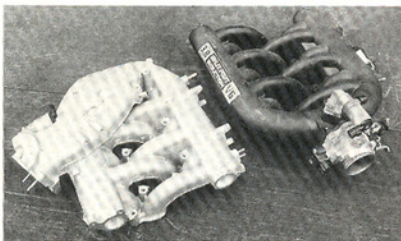
with crank, rods, and pistons tailored to fit your application. And who else do you know offering a half-dozen V-6 cam grinds and unique 1.8:1 roller rockers? The point is, if your six needs a little more life, there are few souls more devoted to modifying the 3.8 V-6 family than Tom Morana at Affordable Performance.



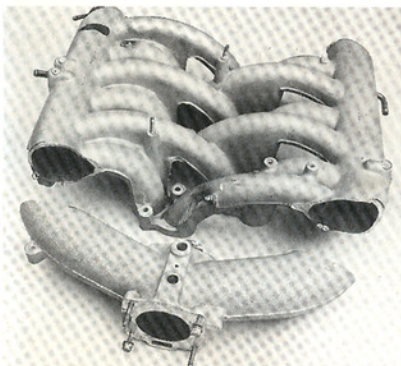
The Split-Port's chamber, on the left, measures 64 cc and has less valve shrouding than the older EFI head's 61cc chamber. Rather than a flat face, the Split-Port's valves are tuliped, adding to the chamber volume. Intake valves are larger (1.860 inches versus 1.780 inches) on the Split-Port, though the exhaust valve remains at 1.455 inches. On the exhaust side, the new heads have a round port, whereas the old head's were D-shaped.



The Affordable Performance 1.8:1 roller rockers are "a sure 20hp" option for those not wanting to swap cams, according to Tom, and they are available in bolt-on or 1/8 stud configurations. On the other hand, Affordable offers no less than six V-6 cam grinds. For use with the blower, Jeff's stroker was receiving a version that Tom says roughly parallels the FRPP 5.0 B-cam specs.



The '99-and-up Mustang side-entry dual-runner upper intake, for use with Split-Port heads, is shown on the left. This is the simplest and most obvious choice if you upgrade to the Split-Port heads. In Windstar use, these heads get the front-entry plastic version with longer runners, on the right. Notice the up-top location of the idle air bypass valve on the Windstar upper, which will not fit beneath a stock Mustang hood.



Because Jeff wanted a front-entry intake, at the time of our visit, Tom was beginning exploratory surgery on an aluminum version as fitted to the F-150's 4.2. The modification would have inverted the intake's snout and placed the idle-air valve beneath, though Tom still doubts this would have cleared a stock hoodline. Instead, Jeff will try adapting a V-8 GT throttle body—which has a different idle-air bypass arrangement—to an unmodified F-truck upper and simply plug the intake's original air-bypass holes. 5.0

Block Talk

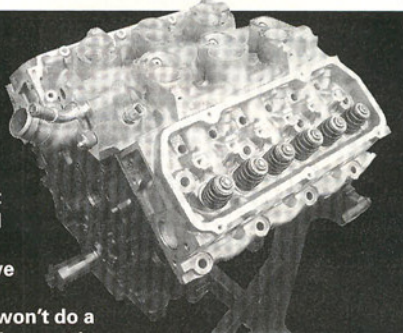
Not all 3.8 blocks are born equal, so if you're planning a scouting trip to the wrecking yard for a block, you might want to consider the following advice as related to us by Tom Morana.

First, though rear- and front-wheel-drive 3.8 blocks are internally similar, their bell-housing patterns differ, so a Taurus block won't do a whole lot of good for your Mustang. Luckily, most have RWD or FWD markings on the rear block face. Tom says the '87-and-up blocks, designed for roller cams, have better bottom-end strength than earlier castings.

The best 3.8 blocks are those from T-bird Super Coupes or their supercharged Cougar XR-7 cousins. Identified by an SC cast into the block's front face, these have main caps like bridge abutments and come with steel cranks and stronger rods, all built for the rigors of forced induction. These cranks can be offset ground for stroker use, but please remember they were originally internally balanced and have different main-journal diameters than any other 3.8, and so require machining for use in any non-SC block.

Tom also thinks the 4.2 truck block will make a strong starting point but notes that these blocks are not yet commonly available on the used market.

Finally, bring your bore calipers along, because Tom warns that these thin-wall castings absolutely cannot be bored more than 0.040 inch beyond their stock 3.810-inch diameter.



SOURCE

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