

# Dealing in “Speed Matters”

STEEDA AUTOSPORTS COLD AIR INTAKE, UNDERDRIVE PULLEYS, AND CHARGE MOTION PLATES IMAGE Text and Photos by Ryan Chisholm



The S197 platform is the best Mustang to date, no doubt. The car is quiet, smooth, and comfortable, but don't let that fool you into thinking the new Mustang is any more subdued than before. The power potential of the 3V motor is more readily available than

mance and the look of the engine bay with their fit-and-finish. The huge bonus here is the improved drivability of the vehicle. We'll expound upon that more at the end of this article. For now, let's follow through as Steeda's Senior Race Engineer, Steve Chichisola, works his magic on our 2007 GT coupe.

removed by pressing the gray release button on each one.

**05:** You'll want to have a shop towel handy to place below the main fuel connector before removing it, because a few drops of gas will spill when you disconnect it.

**06:** After removing the wiring looms from the intake manifold, Steve disconnected the rubber hose above the driver's side fuel rail and removed the four stud bolts that attach the fuel rails.

**07:** The fuel rails and injectors come off as one nice unit.

**08:** Ten bolts hold the intake manifold in place. After removing them, the manifold was carefully removed.

**09:** Since they are re-used in the Steeda parts, the green O-rings from the factory plates were carefully removed and fit into the new Steeda plates.

**10:** Four Torx screws attach each plate to the intake ports, making removal quick and easy.

**11:** The Charge Motion Control Plate actuation arms and actuator drive motor at the rear of the intake manifold can be removed, if your computer has been calibrated for the removal.

**12:** The Steeda plates are installed with the four Torx screws. It's easily noticeable that the new units are void of the “flappers” on the stock units. The air passage is not only larger now, but also totally unrestricted.



**01:** First step was to strap the bone-stock GT to the dyno and get a baseline number for before-and-after comparisons. At normal operating temperature on an 82-degree morning with 46-percent humidity, the car put down 277whp and 288wtq.

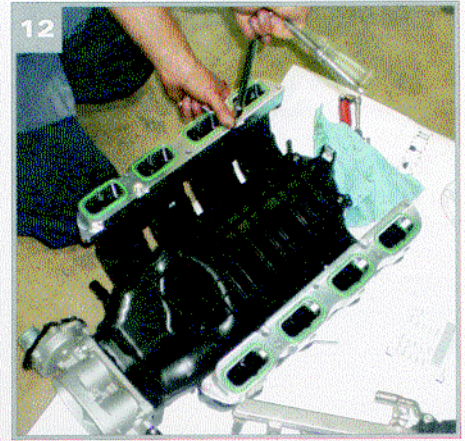
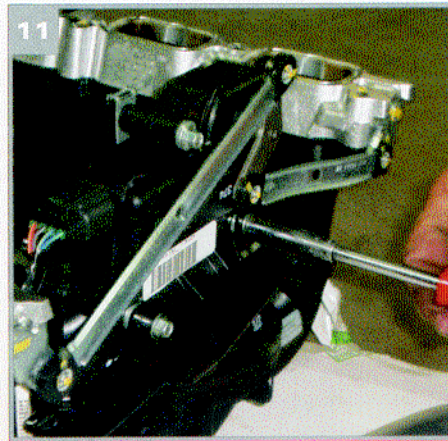
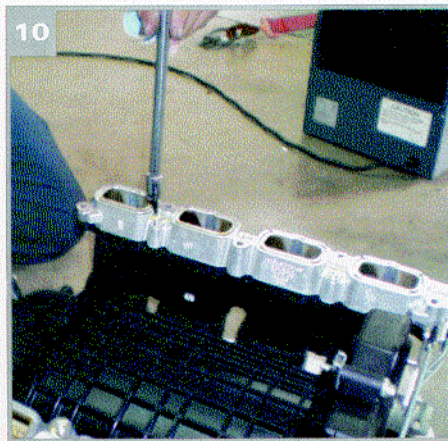
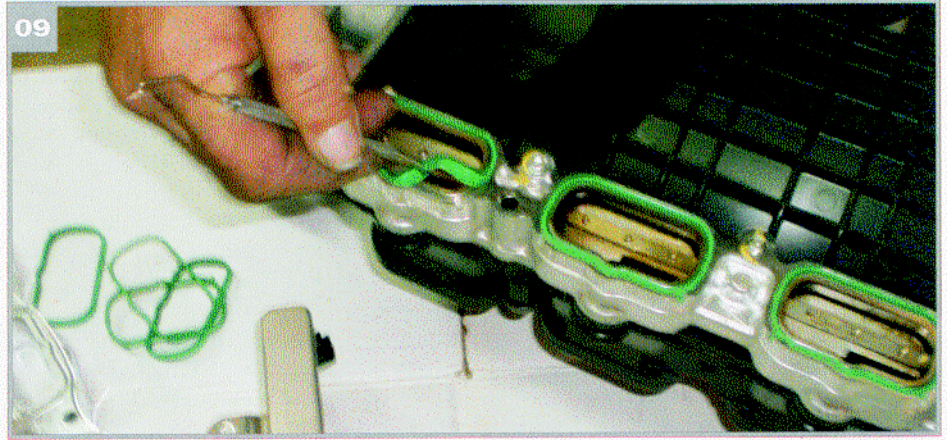
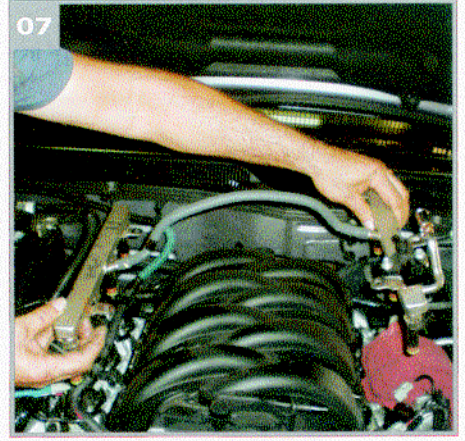
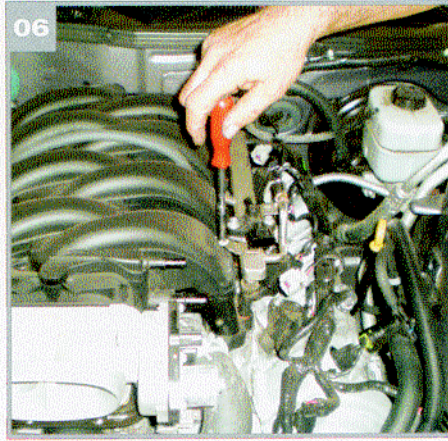
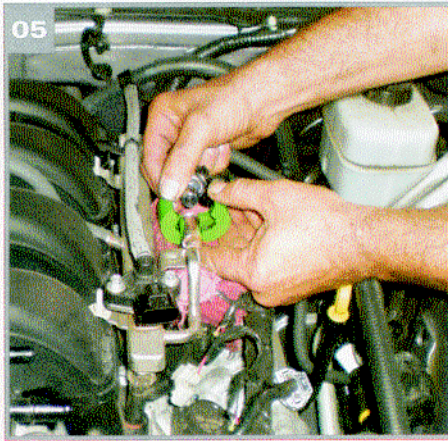
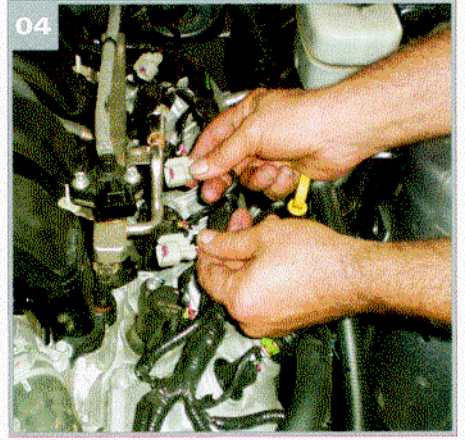
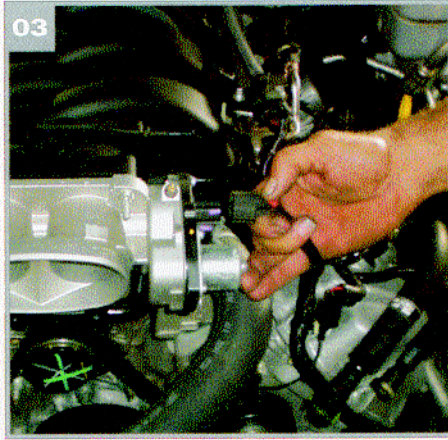
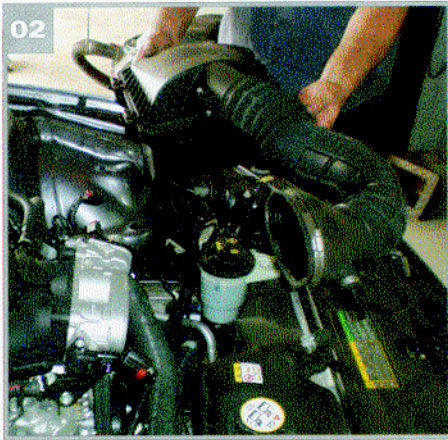
**02:** Because the Charge Motion Plates require removal of the fuel rails, you'll want to make sure the car has cooled to room temperature to eliminate the risk of fire. So after a good cool-down period Steve got right to work removing the factory air filter assembly. Extra care was taken when removing the mass air meter sensor so as not to damage it. Be sure to keep the rubber grommets on the bottom of the assembly for reinstalling the Steeda intake.

**03:** After removing the upper vacuum line for the fuel system, the wiring harness connected to the intake manifold was removed. Next are the two connectors on the throttle body. The second one is a little difficult to get to, being next to the firewall and behind the intake manifold.

**04:** The wiring harness is disconnected from the driver's side fuel rail by a red release on the connector. The connectors on the injectors are easily

anything since the days of the venerable 302. Combining the high-end horsepower capability of the 4V motors and the torque of the 2V motors, Ford's 3V still has surprising power available in its 300-horsepower stock form. However, as we found out after spending a day with the Mustang specialists at Steeda Autosports in Pompano Beach, FL, there is plenty more power to be unlocked by changing just a few parts on the motor.

With the quality standard that Steeda sets for the products they produce and sell, you know you're going to get the best available. The true testament to this is that the parts fit well—the first time—with no “tweaking” needed. Another testament to their quality is how the parts also improve perfor-



**13:** With the new plates in-place the intake manifold is reinstalled along with the fuel rails and injectors.

**14:** Next, Steve pulled out Steeda's underdrive pulley system to replace the factory pieces. The crank pulley is a true replacement, rather than "piggyback" style. The system is designed to reduce parasitic accessory drag on the engine by about 25 percent.

**15:** A torque bar is used to loosen the serpentine belt so that the pulleys can be removed.

**16:** Four bolts hold the water pump on, and Steve makes quick work of them with an air wrench. The stock unit is shown on the left, next to the Steeda replacement.

**17:** You'll need an impact wrench to get the crank pulley off. The only difference in the S197 crank pulley and the SN95 4.6L kit is the addition of a shim (in Steve's hand) that goes on in front of the crank pulley to position it correctly in line with the other accessories so that the symmetry is maintained with the serpentine belt. The factory pulley can be seen in the foreground.

**18:** The crank pulley is much easier to install than remove.

**19:** A shorter bolt is needed behind the water pump pulley so that the belt does not suffer damage from the larger pulley putting it closer to the bolt.

**20:** One of the water pump pulley bolts has a green "dot" painted on the head of the bolt, that's used to help you align the pulley and make sure its replaced the same way it was removed. Once all four bolts are replaced, the serpentine belt can be reinstalled.

**21:** With the plates and the pulleys in place, Steve unpackaged the Steeda cold air intake, and installed the mass air meter into the new, larger housing.

**22:** With the meter installed, the housing was then bolted together with the new high-flow conical filter and heat shield.

**23:** The parts are set in place, using the rubber grommets beneath the heat shield to hold the unit in place.

**24:** Steeda's High-Flo intake tube is installed using the new hoses and

clamps, attaching to the mass air meter housing and the throttle body. The "fit" is tested before fully tightening the clamps completely. The vacuum hose is then reconnected along with the throttle body sensor.

**25:** Everything is back together and the engine bay now looks cleaner and meaner with the new intake easy to notice.

**26:** Using one of SCT's flash tuners, a custom tune is loaded to the car's computer to realize all the new air flowing into the engine, as well as tweak settings like the drive-by-wire response to make the car more responsive to input and improve the driving enjoyment.

**27:** Steve puts the car through its paces on the dyno once more, after the install and tune to show the difference. The proof was undeniable. Even though the temperature rose to 84 degrees (but humidity dropped to 37 percent), the car responded with 301.80whp and 320.82wtq – a 25whp and 33wtq improvement.

Once the Mustang was back on the road it was immediately evident that the new parts were working. Throttle response was much more instant and apparent. Even with 18-inch rims and sticky tires, the car wanted to lose traction in first gear and would lay a nice patch of rubber when power-shifted into second. The growl of the exhaust seemed a little stronger, but was overtaken by the deep growl from the new intake. There was no denying the almost 350 ponies now available from the 3V motor. They were eager to run all the way to redline, where the power was now solid instead of falling off as it did stock.

The drive back from South Florida proved that the GT was now not only more fun to drive, but also easier and more economical. Yes, you read that right— more economical. On the trip down, the car averaged 21 MPG. After the parts and tune, the Mustang averaged 23 MPG, this while running at speeds north of the posted 70 MPH speed limit and even seeing triple digits while passing cars on SR60 cutting back across the state. It was an exhilarating feeling to take full advantage of the new power available. There's no way to beat having more fun in a Mustang while saving on the actual gas you'll use! **MT**

