

TECH



MM&FF'S PROJECT Mach 1 turns a few laps on the skidpad at Gainesville Raceway as part of our baseline testing.

IN WITH THE NEW

MM&FF INTRODUCES ITS **NEWEST PROJECT**, AN '03 MACH 1.

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PHOTOGRAPHY BY
TEAM MM&FF

THE INTRODUCTION of a new project car is an exciting event. There's a certain level of anticipation as an idea becomes reality. During a conversation amongst the MM&FF staff, we realized there hasn't been a Four-Valve project since our

beloved Superfly, Destroyer of Hideous Camaros graced the pages of *Muscle* quite a few years ago. Jim Campisano's '97 Cobra was at the forefront of Mustang and Four-Valve technology for its time, and still to this day delivers a level of performance matched by few Four-Valve SN-95s.

This also sparked a discussion about the perfect daily driver. And although if you had this conversation with five different people you would come to five different conclusions, it

gave us a great idea for new project car.

As the majority of the *Muscle Mustang's* staff prepared for the move to Florida earlier this year, I got in gear by selling my clapped-out Jeep. I then jumped in the moving truck, and headed to Tampa knowing I needed a new means of transportation once I arrived. I soon made the decision to get a Four-Valve-powered Pony, so I searched eBay and Craigslist for the perfect candidate. The initial search found a slew of high-mileage '99 and '01 Cobras. Although a few Snakes were near perfect, the good ones seemed to slip away; the rest didn't leave us with that warm, fuzzy feeling.

After a month of looking all over Florida, an '03 Mach 1 came up in a search and I realized I had been overlooking another great Four-Valve Mustang. Luckily for us, the popularity of the Terminator Cobras has driven the price of the Mach 1s down dramatically, placing them perfectly within our budget (about \$10,000). Within two weeks we saw an ad on Craigslist for an Azure Blue '03 Mach 1 with a few mods and just over 84,000 miles on the clock. Wasting no time, we called the number and sealed the deal.

As our newest toy (and my new daily driver) was backed off the trailer, we knew we made the right choice. Our mildly modified Mach was sporting a cold-air intake, Accufab throttle body, Magnaflo X-style pipe and after-cat, as well as some dressier wheels, which complement the exterior hue nicely.

First and foremost, our Mach 1 must serve as daily transportation. Handling and braking will be key, as we plan on running numerous open-track and autocross events, but we don't want to sacrifice ride quality—as there is nothing worse than getting in a car that isn't reasonably comfortable to drive everyday. We also plan on drag racing the





THE FACTORY frame connectors add some stiffness to the chassis, but this won't work for what we intend on putting our Mach 1 through.

A SIDE-BY-SIDE comparison of the factory and Kenny Brown subframe connector shows the difference between the two. The Kenny Brown piece connects to the seat mount, stiffening the floor, and welds in as opposed to the bolted in factory unit.

TEAM MM&FF WASTED NO TIME AND PUT THE MACH TO THE TEST.

car, so the suspension needs to be versatile enough to handle hard launches and power-shifts without blowing the tires off.

Team MM&FF wasted no time and put the Mach to the test. Within the first week, we strapped it to the dyno, drag raced it, and made an attempt at navigating the cones at an autocross before we had parts to change. Our baseline started on the Mustang Dyno at the MM&FF office in Tampa. It spun the rollers to a respectable 285 rwhp and 293 lb-ft of torque, and a second run backed up our numbers. The next endeavor put us at

Bradenton Motorsports Park for its Thursday night test and tune. After a failed attempt to get traction on our first pass, we swapped on a set of Mickey Thompson drag radials in place of the rock-hard (insert your favorite chain auto parts store here) specials that took up residence on the rear wheels. Being one of seven cars heading down the strip when the night got started, we were able to make plethora passes, altering our launch and shifting techniques in an effort to get the best possible time and speed. Once the rain rolled in after our ninth pass, we ended our trip with a best e.t. of 13.52 at more than 102 mph—respectable considering we weren't overly aggressive on the launch, we weren't powershifting, and we were dealing with the tropical Florida climate.

As part of any handling project, numbers on a road course or autocross are very important too. With little notice it's difficult to get track time, but luckily our friends at the Florida Corvette Racing Club invited us to an autocross test and tune at Hernando County Airport in Brooksville, Florida. When we arrived at the airport, the skies decided to open up right after we pulled the Mach 1 out of the trailer.

Torrential downpours would deter most people, but we came to drive. After watching a few cars in front of us spin across the course, it was our turn to head out. Traction was nonexistent and the traction-control system took over with less than minor throttle application. As the rain subsided and the sun came out to dry the track surface, we thought it was time to stop playing games and switch to our trusty Nitto NT01 R-compound tires. I lined up, ready to race, and launched hard out of the gate, but our day would end early as I took hold of the shifter, pulled Second gear, and found most of the assembly in my hand detached from the rest of the transmission.

While most people would be alarmed by such a catastrophic failure, it was a minor concern once the comedic banter and relentless sarcasm from my coworkers started—I



Photo: Kevin Doherty

KENNY BROWN sent out its Extreme Matrix Kit, which includes subframe connectors, jacking rails, and matrix bars to connect the two. Brown also sent out its strut lower brace and rear shock lower brace to stiffen the rest of the chassis.



WE BOLTED the new subframe connectors into place before fitting the rest of the kit in.



MM&FF'S NEWEST associate editor, Marc Christ, dug in and started welding our chassis support system.



THE FINISHED product offers much more rigidity than the factory bolt-in connectors.



A LIGHT coat of undercoating was applied to protect the fresh welds from the elements.



WITH THE panels removed from the truck, we unbolted the shocks and laid the shock lower brace in place to mark the holes. After removing it we were able to drill the required holes to finish the installation.

knew this was something I wouldn't live down any time soon. It goes without saying that our day was done. No problem, we'd go home and make the car better.

BACK AT THE SHOP

With any Mustang project, stiffening the chassis is very important. So much so that we thought it would be the perfect place to get our build underway—in addition to replacing our once mechanically sound shifter.

Kenny Brown has been in the Mustang suspension game for a long time. Even as the Mustang has evolved and its suspension design has changed, Kenny Brown's engineering and principles have remained consistent. Kenny Brown's Extreme Matrix Subframe System will provide all of the chassis support our new project is going to need.

We started by removing the factory-supplied bolt-in frame connectors. Although these add some level of chassis support, the chassis will be far more rigid once the Extreme Matrix kit is welded into place, allowing us to put the car through its paces without twisting the unibody. Kenny Brown's subframe connectors are the first pieces installed in the kit. The connectors bolt on to the front seat bolts, which ties the floor into the chassis and increases the stiffening effect. With the subframe connectors loosely in place, we clamped the jacking rails in place and lined up the holes for the fasteners that hold the rocker panel where it needs to be.

Next up was the Matrix Bars, which add six points of connection between the jacking rails and subframe connectors. After some minor trimming to ensure a tight fit, we tacked our bars into place and got ready to weld.

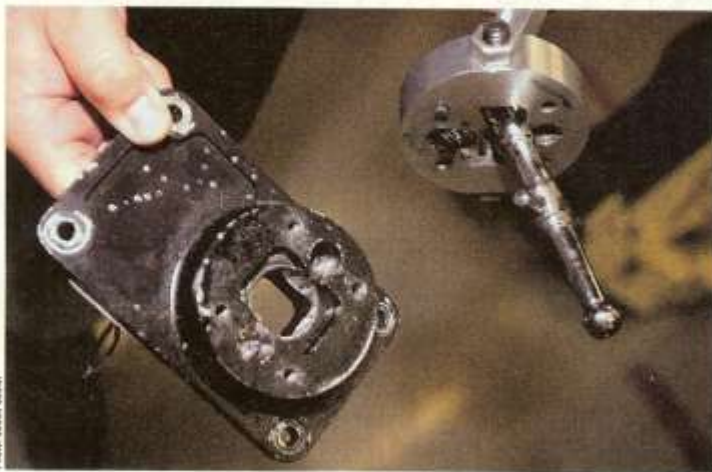


Photo: Justin Coaker

AFTER THE shifter in the car came apart at the autocross, we set out to find a replacement.



Photo: Patrick Hill

UPR PRODUCTS sent us one of its Blue Thunder Shifters for the T45. Yes, T45. Unfortunately, a shop in Florida pulled a transmission switch on the previous owner before going out of business.



WITH OUR new shifter installed, our Mach 1 spun the rollers on MM&F's Mustang dyno to a respectable 285 hp and 293 lb-ft of torque.



UPR ALSO sent us one of its Extreme Pistol Grip shifter handles, which looks great in the Mach 1's retro-style interior.

Next on our list was Kenny Brown's strut tower brace. With Kenny Brown slowly bringing all of its products back to market, one of its customers was nice enough to lend us one for the '03-'04 Mach 1. This triangulated bar connects the front strut towers and the cowl panel at the back of the engine bay. Although this is an important part of the car that responds well to reinforcement, the Kenny Brown strut tower brace was not compatible with the aftermarket caster/camber plates installed on our Mach 1. When we dive into our suspension in a later story, Kenny Brown's Caster Plus kit will take the place of the units currently keeping tabs on our alignment, and we will install the strut tower brace then.

To complete the package, Brown also shipped us a rear shock tower brace. The brace bolts into the trunk and stiffens the rear of the car by connecting the upper shock mounts. Two holes are drilled into each shock tower, along with one hole in the trunk floor, and are used for mounting points and help keep everything tight.

With our chassis stiffening complete, we turned our sights on replacing the defunct shifter. After some investigative time in the shop, we realized our Mach 1 didn't have the Tremec 3650 five-speed it was equipped with from the factory. After a lengthy conversation with the previous owner, we came to the conclusion that a shop had "rebuilt" the 3650 a few months earlier. In reality, said shop simply swapped in a T45. Unfortunately, that shop is no longer in business and we weren't able to reach the owners. Either way, our Mach 1 needed to be restored to running condition. A quick call to UPR Products netted us a new Blue Thunder shifter and its Extreme Pistol Grip handle. The unit dropped right into place and solved all of our shifter issues. The billet pistol-grip handle is very comfortable and looks great in the retro styled interior.

As our project moves forward, we have a slew of testing in store for our new Four-Valve. Once our baselines on the slalom and skidpad are in the books, we'll add some power, improve the suspension, and increase its braking abilities to create the perfect daily driver. ■■■