

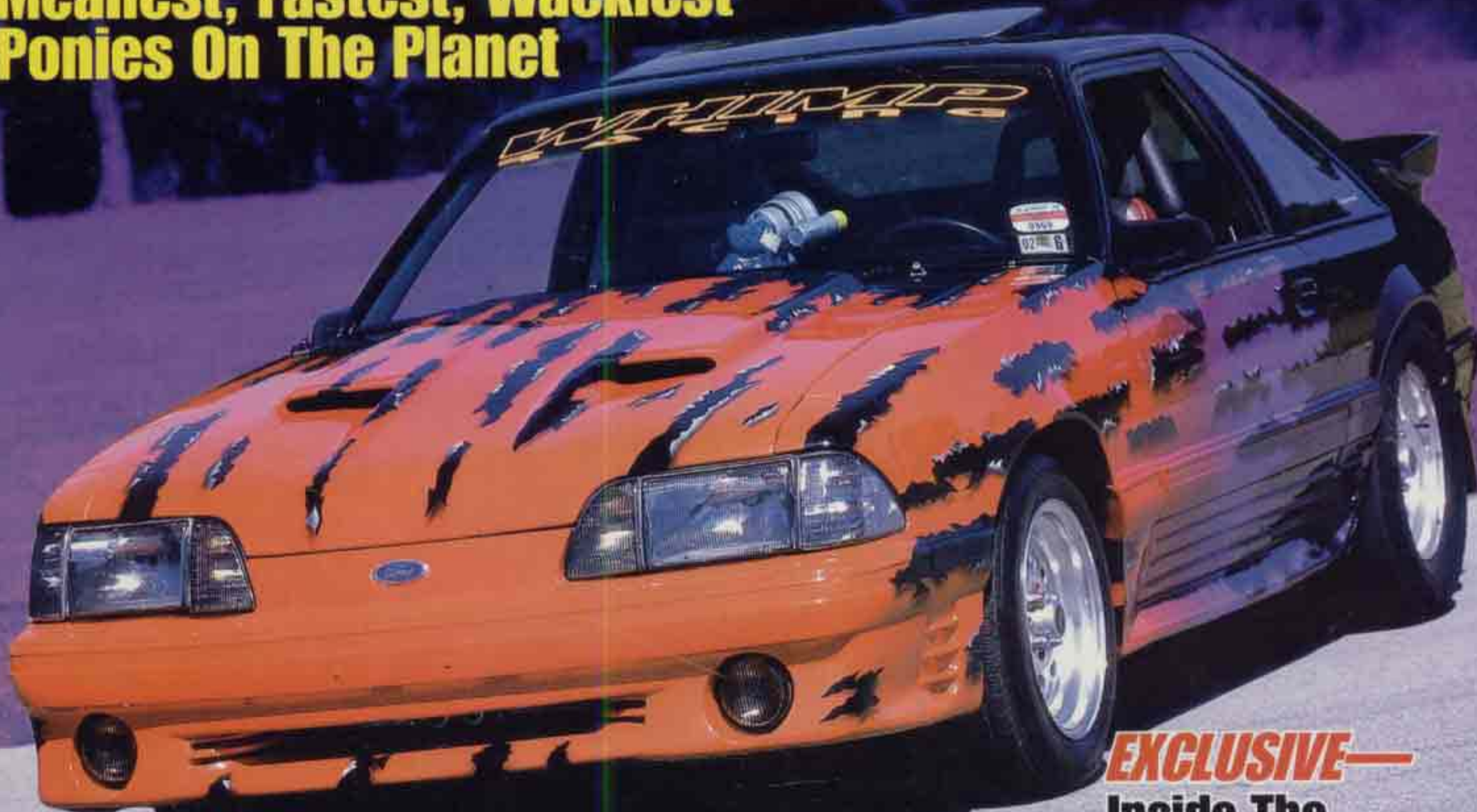
WILLOW SPRINGS FLING: SVT Focus vs. GTI vs. RSX

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UNDER PRESSURE



RICHARD HOLDENER

In my opinion, the most impressive car in Ford's line-up isn't a car at all but a truck. This is quite a statement coming from me as I am certainly not what you would consider a "Truck Guy". My idea of a performance machine has always centered around cars, more specifically sports cars. My ideal car, and the reasoning behind most of my build-ups, has been a well-rounded machine capable of excellent handling and braking to go along with the exceptional acceleration. In all honesty, I usually concentrated most of my efforts on the acceleration part, but what good is a car that goes like a bat out of hell but won't stop or carve canyons? My well-rounded criteria usually excluded any type of truck. Trucks in my opinion were something to be used for hauling your race car, not to become your race car. A recent test on the Ford Lightning has changed my views on trucks, to the point that I would now choose an SVT Lightning over an SVT Cobra any day (until they add a blower in 2003, of course). Maybe I have become a truck guy.

What changed my mind you ask? Does the word supercharger ring any bells? Actually, the Eaton M112 supercharger is only part of the allure of the 5.4 Lightning. It is the entire package that reminds me of another of Ford's beauties, the venerable 5.0 Mustang. Like the original 5-liter Mustangs, the Lightning responds so well to modifications. Blower motors are great that way. But also it does so without any of the usual fuss necessary with the more modern 4.6 motors. Credit Ford for this adaptability. The supercharged 5.4 motors used in the Lightning are blessed with 42-pound injectors (and an old-school return-fuel system), a 90mm mass air meter and dual fuel pumps. We have all come to know and love the adaptability of the Ford EEC systems when it comes to modifications. You can pump up the boost, add a throttle body and change the exhaust without fear of leaning out your precious Lightning motor. The 5.4 just screams, "Bring on the boost!"

MM&FF has run a number of tests on various Lightnings with excellent results. The adaptability was put to the ultimate test recently when we replaced the Eaton M112 with an Autorotor. You can check out the results of the blower upgrade elsewhere in this issue, but one thing is clear—the Lightning came through with flying colors. Try to imagine installing a supercharger on your 4.6 GT without the aide of any fuel management system. Just bolt on the blower, add 150 horsepower and away you go. That is what basically happened when we installed the Autorotor in place of the Eaton. Sure, the motor was already equipped with a supercharger but not one that put out 21 psi of boost. We increased the power output on the Lightning from 348 hp at the wheels to 522 hp at the wheels (with 600 lbs.-ft.) without changing anything on the fuel system. The 42-pound injectors offered plenty of fuel, ditto for the dual fuel pumps, while the 90mm mass air meter offered sufficient flow up to 500 hp. We did top out the MAF electronics (@5 volts), but not before increasing the power output by 174 horsepower. That is some serious flexibility.

Every bit as impressive as the flexibility and power production was the effectiveness of the factory intercooler system. We ran the boost up over 20 psi and saw charge temperatures exceeding 300° coming out of the supercharger. The intercooler acted as if it didn't even care, dropping the charge temperature by as much as 200°. Just like the fuel and management system, the Lightning intercooler was built with extra capacity. I'm sure Ford never imagined a Lightning pumping out 21 psi and 320° charge temperatures, yet the intercooler kept sucking out that heat like nobody's business. Though dyno runs are short, the temperature rise in the water system was minimal. Testing out on the road indicated that the very large heat exchanger used by SVT combined with an ultra-efficient electric circulation pump brought the water temperature back near ambient almost immediately. Even after running up hill under boost for a minute or more, the water temp never climbed more than 10 degrees above ambient. Obviously SVT did their homework on this whole system.

My one complaint about the Lightning was the pulley situation. Obviously SVT did not want Lightning owners swapping the blower pulleys to increase the boost. To that end, they made things difficult by having an interference-fit pressed blower pulley and a nightmare of a crank pulley set-up. Obviously SVT was concerned about the front main bearing, as they added a dedicated bearing on the blower drive. A supercharger can accelerate bearing wear, especially on the front main bearing.

When running the tests on the Eaton supercharger, the quickest route seemed to be to just remove the entire snout assembly and replace it with one that had a different size blower pulley. The physical size of the snout also limited the blower pulley size. The cure was to remove the Eaton and install the Autorotor. The Autorotor did not suffer from the pulley dilemma. Though it would not solve the crank pulley issue, it would allow blower pulleys as small as 2.49 inches (and possibly smaller).

Perhaps the most impressive thing about the Lightning was that all this power was produced through the stock cats and mass air meter, meaning that there is plenty more to be had. Even keeping the engine internally stock, changes could be made to the mass air meter. Both C&L and Pro-M have larger meters capable of not only better airflow, but also skewing the electronics as not to exceed the 5-volt ceiling. The inlet manifold could use a good dose of Extrude Honing to improve the flow rate or it might be possible to simply build a better unit. I'm sure SVT never envisioned the manifold flowing enough air to support 522 hp at the wheels.

The Autorotor has plenty of flow potential left, along with a few smaller blower pulleys to further up the boost. Next on the list would be to axe the stock cat pipe and replace it with an off-road system. I am sure headers would be very beneficial at this power level as well.

The final step would be tuning the combination via a revised chip. The combination should easily exceed 550 hp at the wheels and may even approach 600 hp at the wheels, all with an internally stock motor. Is it any wonder why I think so highly of them? 🐾

My Favorite Ford Is A Truck