

SONIC



MUSCLE



High-Tech Muscledcars For The Nineties



A diversity breeds necessity which, in turn, is the mother of invention. What that boils down to car-wise is that if the regulations, fuel crises, and pollution laws hadn't threatened fast cars, cars wouldn't be as fast as they are today. Ingenuity and a lust for speed will overcome all challenges.

CAR CRAFT and car crafting have reached the point where programming a computer is as natural a way to produce power as boring, stroking, blueprinting, and re-jetting. The power producing potential of modern electronic systems doesn't replace traditional techniques, it complements them. The precise control of a computer system is equally as important in making Keith Eicker's 750-horsepower 573-cubic-inch mountain motor streetable as it is in getting the SHO Taurus' 3.0-liter V6 to produce 220 horsepower.

Before the latest wave of high-tech car crafting, making power was a straightforward attempt to burn more fuel more rapidly. When gas prices never topped 40¢ a gallon there was no substitute for cubic inches. Subtlety stopped at cam profiles; just dump as much air and fuel as possible into the biggest engine and pray for a satisfying bang. It's crude, but it works—even if most of that air and fuel are wasted in the combustion process.

The Clean Air Act of 1970 made it impossible for OEM manufacturers to continue to produce power that way. Even if fuel economy had never become a concern, the simple fact is that the less fuel burned, the less pollution the engine makes. The OEM reaction in the Seventies was simply to make less power, which resulted in some of the most boring low-performance cars the world will (hopefully) ever know.



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But the OEMs don't just build cars, they have to sell them, too.

By the late Seventies, it was apparent that, despite all attempts to dissuade them, car buyers still wanted powerful, exciting performance vehicles. Throughout the Eighties, the automotive industry developed and delivered what would have been impossible a decade earlier: strong but efficient cars. They did it with electronic fuel injection, overdrive transmissions, super/turbocharging, multi-valve heads, a thousand other tweaks, and most importantly, computerized engine management. Today's production Camaros, Firebirds, Mustangs, Talons, Stealths, RX7s, 300Zs, and Corvettes are all performance matches—or better—for anything built during the "classic" musclecar era. And they get up to triple the fuel economy while meeting all current emission requirements.

For car guys, the Nineties are the perfect time to burst out and play with the new toys. Now we can up the boost, tweak the fuel curve, re-program the shift points, and dial-in the suspension with glee—often without leaving the driver's seat. And every performance car, from the screaming 1.3-liter 16-valve Suzuki Swift GT, all the way up to a blown, nitroused, infinite-inch big-block Pro Streeter will benefit. All it takes is a willingness to learn some new tools and new skills.

On the cutting edge of this performance revolution are the high-tech musclecars that follow. None are low buck, but each uses innovative current technology to produce stunning performance from engines that are half the size of typical musclecar-style powerplants. These are just a few of the new breed of high-tech performance pioneers, and it is important to follow their lead because "high tech" today, will be "normal tech" tomorrow. ➤



By C. Van Tune

You know the Buick image: stately cars for well-heeled octogenarians who don't feel flashy enough to own a Cadillac. Yeah...right. Check out Ken Duttweiler's '86 Buick Grand National on its way to a 9.07-second/151-mph run and try to convince yourself it belongs at a country club. Just imagine what'd happen if Gramps accidentally got behind the wheel of Kenny's bad-to-the-bone Buick and punched at the throttle with his cane tip. By the end of the ride, he'd either be ready to order one for himself or be fitted for a pine box. Nothing in between.

Alert CAR CRAFT readers will remember this machine from an article we did in January, 1989. Back then, the Buick was only slightly modified and ran high 13's at 100 mph, which ain't bad for a luxocruiser with a 231cid V6. Today, however, things are quite different. With a hogged-out Buick Stage II motor standing at 274cid (and producing 910 horsepower and 800 lbs-ft of torque!), this is a quarter-mile monster unlike anything else that ever came from Flint, Michigan.

The transformation took place in Duttweiler's Saticoy, California, shop. A pair of Turbo-netics T-04s was wedged into place on the front of the engine, augmented by a huge front-mount intercooler endeavoring to drop some Fahrenheit out of the voracious 25-30 psi of blow. All the plumbing for the setup is very tidy (the Ernie Cross headers are pure art), even though the block itself is totally obscured by a network of pipes, hoses, and wires.

Inside, the V6 is equipped with a Buick Motorsports stroker crank, Carillo rods, JE pistons, and an Erson roller cam (0.630-inch lift; 236° duration) with Crane lifters and Smith Brothers pushrods. Stage II aluminum heads have been fully ported and outfitted with titanium valves (2.10-inch intake, 1.65-inch exhaust) and Crane triple valve springs. Mallory electronic ignition and Buick Motorsports digital fuel injection help it all work in harmony.

Power is transferred to the Hoosier 32x14-inch slicks by an Art Carr-modified Turbo 400 with a 9-inch, 5200-rpm-stall converter. The narrowed Ford 9-inch rearend with a 3.89:1 ring-and-pinion (turbos like a tall gear) is located by a modified four-link from PBS Race Cars. The front suspension is stock, but Wilwood discs were added all around.

To make the racing class weight-break of 3000 pounds, Kenny's G/N uses stock steel bumpers, hood, and decklid. Likewise, the interior is closer to stock than you'd imagine. So, for a little fun at the local Saturday night cruise, do you think Kenny ever bolts on a set of street meats and ambles on by? Just to tease the big-blocks at bit? Naaaaw...would you?

And just to show you this performance is no fluke, the wheelstand shot with our test gear attached is one of Kenny's customer's cars. It's a bit slower, but it runs a full exhaust and street tires. That's Ken's car you see in the color intro to this story.—Ed.

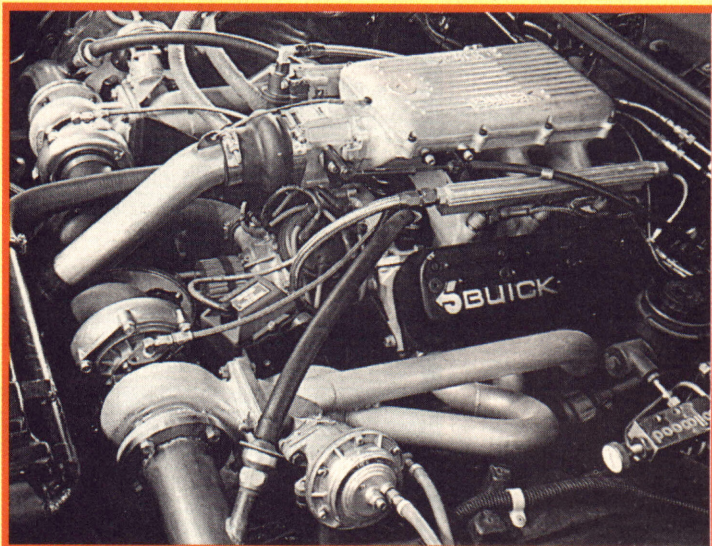
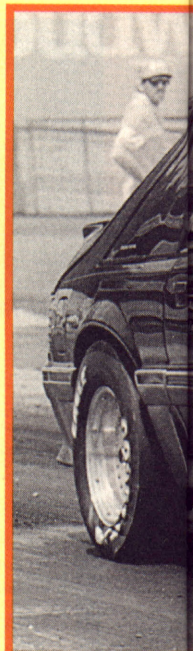


PHOTO BY DEAN ZATOWSKY



Buick Grand National

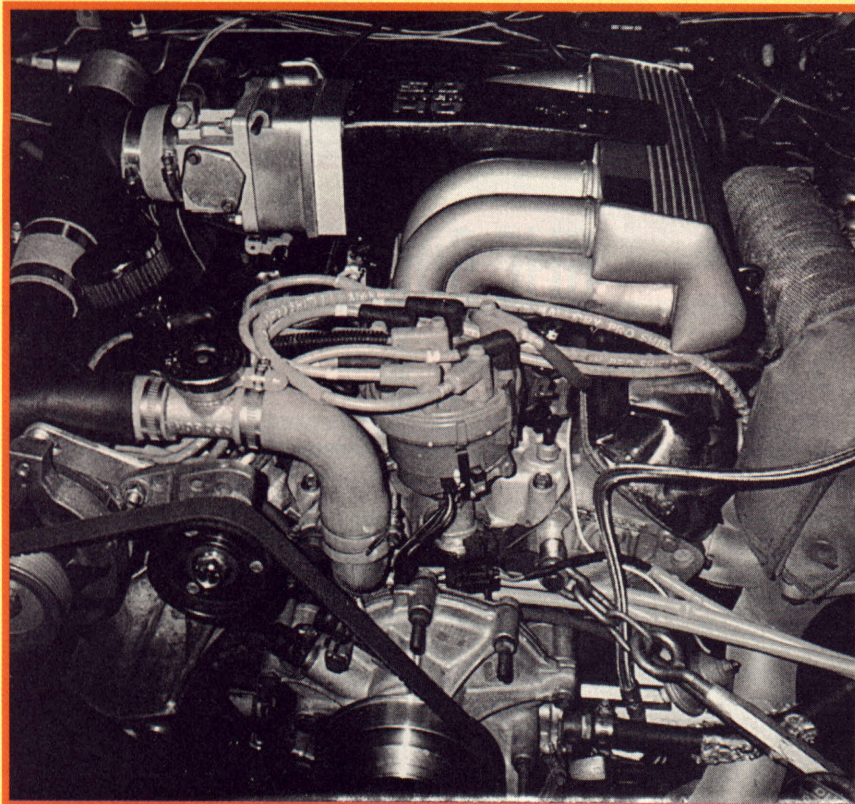
9.07 sec. @ 151 mph

Specifications:

ENGINE 12-valve V6 DISPLACEMENT 4.7 liters (274 cid)
HORSEPOWER 910 @ 5900 rpm (est.) TORQUE (lbs-ft) 800 @ 5000 rpm (est.)
DRIVELINE Front engine, rear drive TRANSMISSION 3-speed automatic CURB WEIGHT 3000 lbs.



PHOTO BY RANDY LORENTZEN



Mustang 5.0-Liter Turbo

10.20 sec. @ 134 mph

Specifications:

ENGINE 16-valve V8 DISPLACEMENT 5.0 liters (309 cid)
 HORSEPOWER 575 @ 6500 rpm (est.) TORQUE (lbs-ft) 485 @ 4000 rpm (est.)
 DRIVELINE Front engine, rear drive TRANSMISSION 3-speed automatic CURB WEIGHT 3270 lbs.

In the street performance wars it's always been Ford versus Chevy, with the late-model combatants usually being Mustang against Camaro. In stock form, a well-driven 5.0-liter 'Stang can turn a 14.40/95 mph pass, whereas the best stock 5.0-liter/five-speed Camaro might manage a similar e.t. at slightly higher trap speeds. Regardless of the exact numbers, fact is, the contest is close with maybe a slight edge for the Mustang.

So, what would Ford fanciers say to a stock-bodied, harmless looking, '89 Mustang GT that runs 10's? Yes, 10's! To be exact: 10.20 seconds at 134 mph—big numbers for even a big-block to manage. But, all this Ford packs under its rear-scooped hood is a 0.040-inch-over 5.0-liter. Okay, so it's a 1970-vintage Boss 302 short-block that now stands at 309-inches, but don't be so picky. What's impressive is that this street-driven Mustang does *not* use nitrous-oxide, and it's equipped with power windows, cruise control, and a complete interior. Oh yeah, and a C-6 automatic trans (Art Carr modified) with wimpy 3.27:1 gears in an 8.8-inch rearend (Motorsport 31-spline axles.) Race weight is a hefty 3270 pounds.

The car is a street/strip test mule for Houston-based Texas Turbo Engineering, and gets its wheels-up grunt from the addition of the company's Street Killer turbo system. The single-turbo setup force-feeds air through an intercooler mounted low in front of the radiator. From there, it travels into a larger (75mm) throttle body connected to a ported Ford Motorsport GT-40 intake, modified by a Texas Turbo plenum spacer kit. The computer was outfitted with specific Texas Turbo programs to accept the 14.5 psi of blast without going into sensory overload. Estimated output is nearly 600 horsepower.

This engine is an excellent example of what can be done using old and new technologies. All the hot rod tricks of the past meld with a turbocharger and computerized fuel injection for outstanding power across the rpm range. A special Lunati roller cam was ground to meet this engine's specs, and ignition is provided by a Ford Duraspark unit augmented by a MSD 7-AL controller (cooled by air ducted from the right fog lamp opening) and MSD adjustable boost retard. The motor was assembled by the company's Joe Rivera with machine work by Richard Warwick, while Craig Gallant did the port and valve work on the TFS Street Heat aluminum heads (2.02-inch intake and 1.60-inch exhaust valves; Ford Motorsport 1.6 aluminum roller rockers, and screw-in studs).

The wheels-up photo attests to this Mustang's launch power. With 10-inch slicks, it'll return 60-foot times of 1.46 seconds, and take you to the Dairy Queen afterward for a celebratory chocolate sundae. Where, of course, you'll scope out the lot for the next Chevrolet victim.

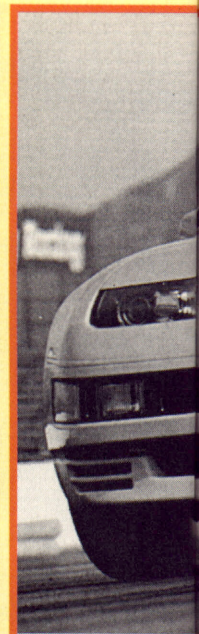
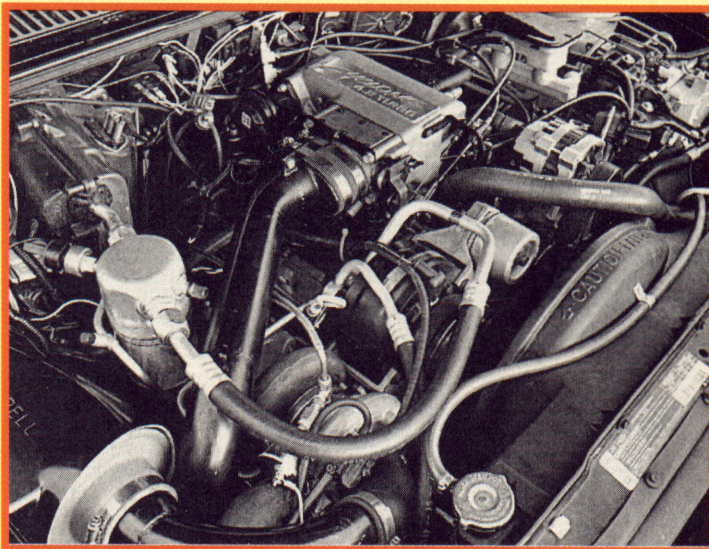
Some uninformed braggards may refer to the Chevy 454 SS as the "pickup from hell," but it's obvious they've never seen Kenne-Bell's GMC Syclone. Merely compare horsepower (230 for the Chevy; 580 from the GMC) and quarter-mile e.t.s (15.85 sec. @ 86 mph versus 11.55 sec. @ 117 mph) and then tell us who's the baddest animal in the truckin' jungle. Hint: it ain't wearin' a Bow Tie.

What's even more impressive about Kenne-Bell's project truck is that essentially only the engine was modified. The factory all-wheel-drive system (including the potentially fragile viscous coupling) and four-speed automatic were untouched. Only a higher 3000-rpm-stall-speed (2100 rpm is stock) K-B converter and shift kit were added. Even the stock street tires were retained.

The 4.3-liter turbo/intercooled Syclone V-6, in stock form, produces 280 horsepower. Its quarter-mile times are a Corvette-challenging 13.6-sec. @ 98 mph. These are strong numbers for a factory-spec street truck, but not quick enough for a veteran drag racer like Jim Bell. With his years of experience in modifying turbo Buicks, Bell set about creating a kick-tail turbo truck. The stock turbo unit and top-mounted water-to-air intercooler went into the scrap bin, and were replaced with a larger Garrett turbo and huge air-to-air intercooler (centered under the front bumper for best airflow). A scoop under the right side of the bumper ducts air to the turbo itself. The weak link in the Syclone, according to K-B, is its fuel delivery system. The fuel pump and pressure regulator must be upgraded. The stock 28-lb/hour fuel injectors are sufficient for most applications, but Kenne-Bell will soon offer 35-lb/hour injectors (they'll also fit V6 Buicks) for even more power. Bell now runs up to 25 psi of boost in this pickup.

The factory-cast pistons are reliable only to about 17 psi, and Kenne-Bell recommends installing forged slugs for up to 25 psi of boost. The stock, fast-burn heads must be replaced for best results, however. This truck wears a set of "229" iron heads, but aluminum Chevy heads returned 10.99-sec./125 mph passes. A K-B 0.450-inch-lift/205° duration cam replaces the mild-grind bumpstick installed by the factory. The exhaust system comprises an intricate set of custom headers ("the only part of this truck that came from Hell," Bell says) and 3-inch stainless piping feeds a pair of K-B "Big Box" mufflers. Kenne-Bell is hoping to emissionize the whole package and sell it as a kit.

With its healthy horsepower and all four wheels grabbin' at the ground, this Syclone launches hard enough to cause neck injuries just *watching* it. It's also got a raspy exhaust blat that serves as a warning not to provoke. Maybe they should call it the Psych-Clone!



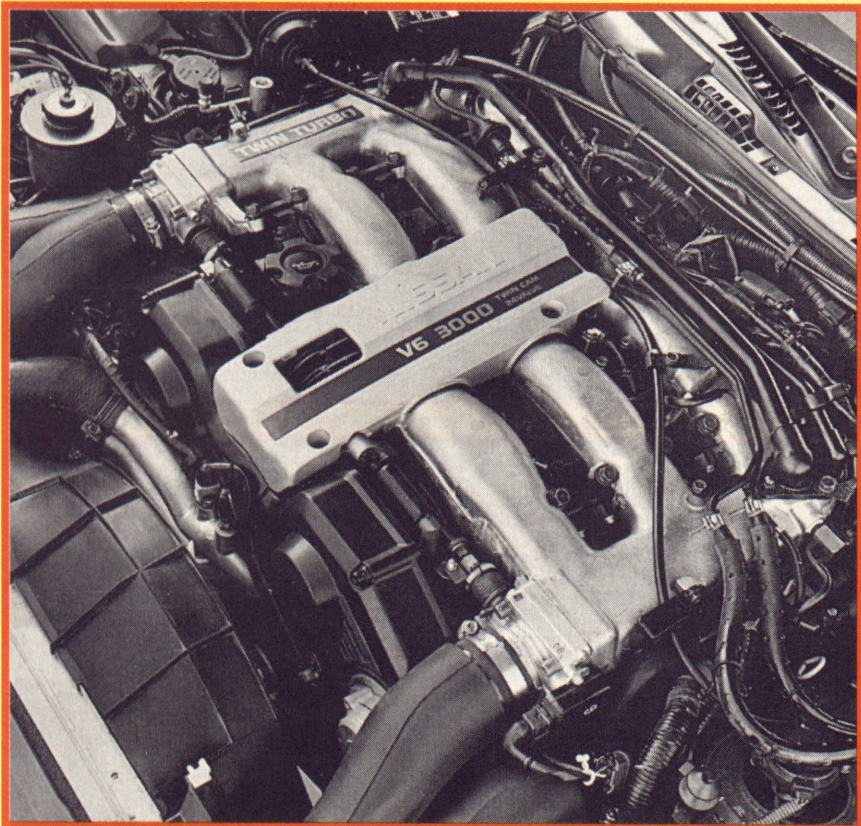
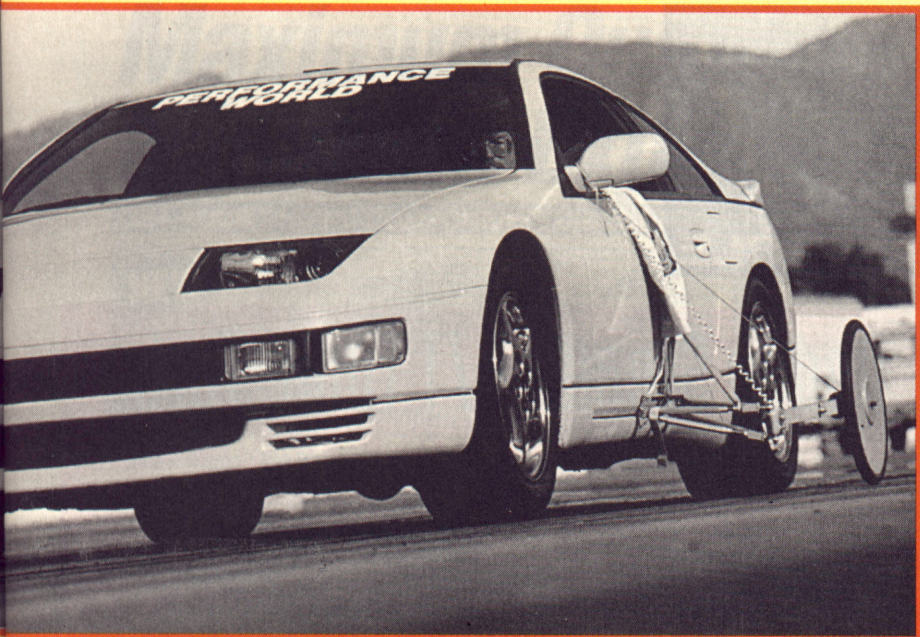
GMC Syclone

11.55 sec. @ 117 mph

Specifications:

ENGINE	12-valve V6	DISPLACEMENT	4.3 liters (262 cid)
HORSEPOWER	580 @ 5200 rpm (est.)	TORQUE	(lbs-ft) N/A
TRANSMISSION	4-speed automatic overdrive	DRIVELINE	Front engine, all-wheel-drive
		CURB WEIGHT	3850 lbs.





Nissan 300ZX Twin-Turbo

13.10 sec. @ 110.01 mph

Specifications:

ENGINE DOHC 24-valve V6 twin-turbo DISPLACEMENT 3.0 liters (180 cid)
 HORSEPOWER 395 @ 6400 rpm (est.) TORQUE (lbs-ft) 360 @ 3600 rpm (est.)
 DRIVELINE Front engine, rear drive TRANSMISSION 5-speed manual CURB WEIGHT 3514 lbs.

One of the sharpest-looking imports on the street is the Nissan 300ZX. And, in twin-turbo (300-hp) trim, it's a formidable challenger for many a V8 muscle machine. When Gary Thomason purchased this 1990 model, it'd just been through the performance wringer...having been thoroughly thrashed by an independent testing company (Gary's employer) and USAC for use in Nissan advertising. They documented quarter-mile passes of 14.40 seconds at a few clicks over 100 mph.

Having owned a variety of American muscle cars in the past, Thomason decided to apply the bolt-on performance approach to his turbo toy. The internals of the 3.0 liter DOHC V6 remain untouched, but modern electronic tweaks were added. First up was an HKS Electronic Valve Controller that permits driver adjustment of boost levels to well in excess of factory specs (common sense is required here). The engine's computer was also reprogrammed by Jim Wolf Racing to allow it to accept the added boost without trauma. However, the turbochargers, intercoolers, fuel-injection system, ignition, and about everything else are completely stock. Only an HKS low-restriction air cleaner assembly and 2.5-inch-diameter pipes with HKS mufflers change the factory setup. Max boost was increased from 9.0 to 14.5 psi.

Output is estimated to be 395 horsepower. And, even though the car is far from a featherweight (at 3514 pounds), this Nissan is no limp-wristed pretty boy. New Corvette LT1 owners can forget it, and even a ZR-1 pilot should think twice before challenging this import. Zero-to-sixty mph runs of 4.7 seconds, and quarter-mile blasts of 13.10 sec. @ 110.01 mph give Thomason bragging rights at nearly any spotlight in his hometown.

To also give him the edge on autocross courses, Gary added sticky Yokohama A008RS radials (stock sizes) on chromed factory rims, and installed a set of Eibach progressive-rate springs. The standard cockpit-adjustable shocks were retained. The Nissan's notorious wheel-hop was reduced considerably by adding shims in the K-member isolators, but it is still a minor problem in straight-line acceleration. On our slalom and skidpad courses, however, the car was an epoxy-rocket. Average speed through our 600-foot slalom was 70.9 mph (2.8-mph faster than a ZR-1) and lateral acceleration around our 200-foot diameter skidpad was 0.96g.

Even with the addition of a Centerforce clutch, Gary tells us his parts investment into the 300ZX is under \$3000. His next task is to install larger turbos and intercoolers, and increase the boost to 17 psi. That's no small cash outlay, but he expects to see low 12's and the high hundred-teens.

John Hennessey loves technology. His dream car is the 200-mph Porsche 959, but (at its collector-inflated price of \$600,000) it is beyond the grasp of mere mortals. Enter the Dodge Stealth R/T. Though larger and heavier than the 959, it is chock-full of many of the same technologies: all-wheel-drive, 17-inch wheels, and a pair of turbochargers. With 300 horsepower coming from a 3.0-liter DOHC V6, its performance is noteworthy—despite a curb weight of nearly 3900 pounds.

Hennessey wanted more power, but he also wanted a car that remained completely civilized, with air conditioning and 20+ mpg economy. Having gained experience by modifying his Mitsubishi 3000GT VR-4 the previous year (a car that set a Bonneville speed record of 176 mph), and having finished first in the Silver State Open Road Race with an average speed of 166.2 mph, John went to work on the Stealth Project.

Since the factory sets low boost levels (approximately 9 psi max) to ensure against warranty claims, there's plenty to be gained by cranking up the blow. Hennessey Motorsports installed a pair of balanced and blueprinted Mitsubishi TD-04 turbos, an HKS Electronic Valve Controller for cockpit-adjustable boost control, and a high-flow fuel pump. With electronic safeguards keeping a watchful eye on the engine, it was then a simple matter of applying standard high-performance know-how. To get the air into and out of the motor more efficiently, a K&N air filter and 3-inch-diameter exhaust system were added. Support hardware includes a Centerforce clutch, mechanical boost and exhaust gas temp gauges, a turbo-cool down timer, and synthetic fluids throughout the driveline. Carbon-metallic brake pads and cross-drilled front rotors are also smart additions for a car capable of nearly 180 mph.

With 15 psi of newfound turbopower, the Stealth is estimated to be in the 420-horsepower range. And, it's a no-brainer to drive fast. All you do is get 'er staged, twist the tach up to 6200 rpm, and drop the clutch. The tires (all four of 'em!) will spin for a few feet, but you'll hurtle away from the line quick enough to hole-shot Joe Amato if he's not on his best game. Zero-to-sixty mph happens in 4.7 seconds, and the "1320" is history in 13.23 seconds at 105.4 mph. (A quarter-mile improvement of 1.5 seconds and 10.1 mph compared to stock.) Fact is, this Dodge is such a pussycat that even Elvis could get it into the 13's—in the rain. And he's dead! Denigrators of high-technology all-wheel-drive cars should take close notice.

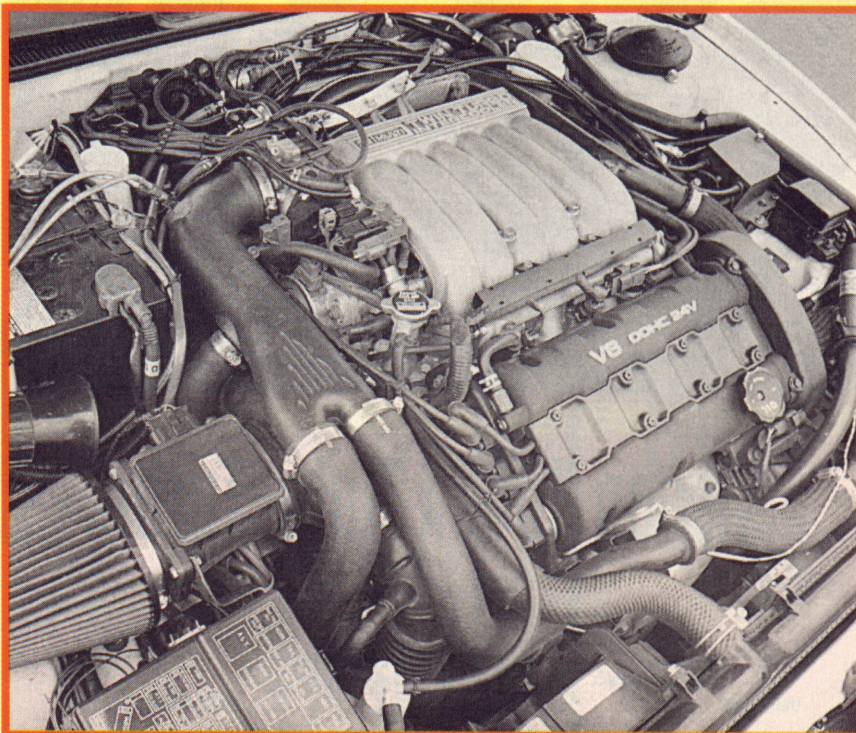


Dodge Stealth R/T Twin-Turbo

13.23 sec. @ 105.4 mph

Specifications:

ENGINE DOHC 24-valve V6 twin-turbo	DISPLACEMENT 3.0 liters (181 cid)
HORSEPOWER 420 @ 6000 rpm (est.)	TORQUE (lbs-ft) 400 @ 3000 rpm (est.)
DRIVELINE Front engine, all-wheel-drive	TRANSMISSION 5-speed manual
	CURB WEIGHT 3850 lbs.




AZR-1, any ZR-1 Corvette, already has supercar performance credentials. Any car that runs from 0-60 mph in under 5 seconds, runs 13-second quarters, and handles just this side of a Formula car qualifies as a supercar in anyone's book. Unfortunately, this performance is only available to anyone who has a large checkbook. Moreover, most people who buy these cars have little desire to use all of the performance potential that exists, let alone improve upon it.

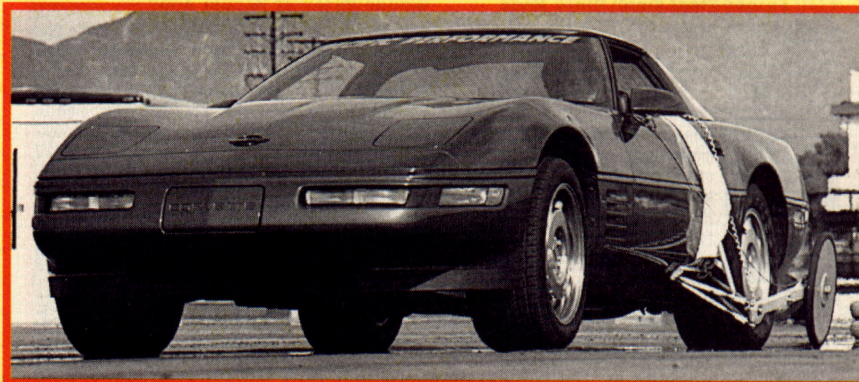
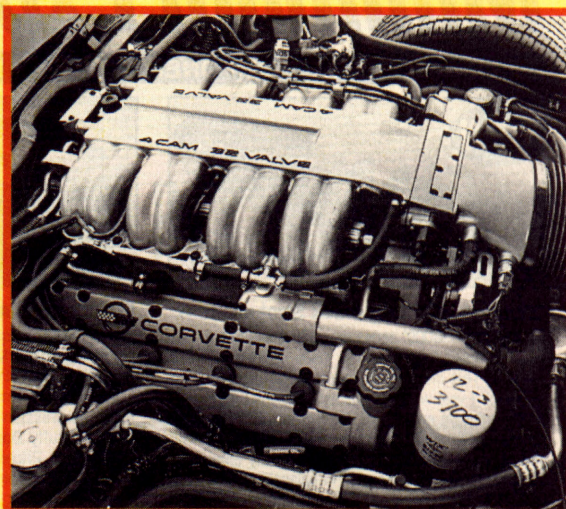
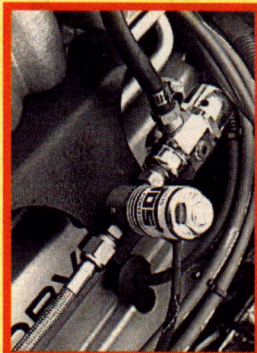
Pacific Performance's ZR-1 is proof positive that some owners are still interested in the fast lane living. The LT-5 motor, high-tech as it is, still responds to the usual performance tricks.

First, a good free-flowing exhaust system is installed after the converters. Borla's stainless steel 50-state-legal system with new inter-cooler tips contributes in the horsepower department and delivers supercar sound. Next, the upper and lower inlet manifolds are ported using the new-tech Extrude Hone process, whereby an abrasive media is forced through the intake passages under pressure by hydraulic machines. The removal of material (porting) is smooth and consistent with up to a 25% increase in airflow claimed in this case.

To tie this enhanced inhaling and exhaling together, a new E-PROM chip is installed which causes the ported throttle (secondaries) to open sooner. A throttle-activated 130-horsepower nitrous system is tied to the throttle opening so that the nitrous cannot be activated in the ZR-1's "Valet" mode, or if a check engine light appears, as the factory computer will not allow the throttle to open under any of these conditions.

With these simple modifications, the car is like an F-15 in full afterburner. The only difference is that the jet doesn't have the ZR-1's severe traction problems. Now the car rockets down the track to the tune of 12.15 @ 121 mph with stock gears and DOT tires. This performance is even more impressive considering the 25 mpg attained driving to and from the track. The only non-turbocharged car in the group, the ZR-1 was quicker than the Stealth and the 300ZX when the nitrous was used, but was only able to muster a 12.95 @ 110 mph without the squeeze. It still outruns its supercar competition, but not by much. A boosted version with high-tech management could be just what the doctor ordered.

—Richard Holdener 



Chevrolet Corvette ZR-1

12.15 sec. @ 121.07 mph

Specifications:

ENGINE DOHC 32-valve V8 DISPLACEMENT 5.7 liters (350 cid)
HORSEPOWER 500 @ 5200 rpm (est.) TORQUE (lbs-ft) N/A
DRIVELINE Front engine, rear drive TRANSMISSION 6-speed manual CURB WEIGHT 3465 lbs.

Blackbird Airpark

Unfortunately, **CAR CRAFT** doesn't own a brace of SR-71 high-altitude reconnaissance aircraft. So we asked the Air Force to lend us a couple of theirs. The two Blackbirds in our photos are part of the centerpieces of the Blackbird Airpark in Palmdale, California. Everyone at the Airpark, especially Director/Curator Doug Nelson, was exceptionally gracious, hospitable, and indulgent of our high-flying fantasies. Located at 25th Street East and Avenue P, the Airpark is open Thursday through Sunday for up-close inspection of the highest flying, fastest airplanes any of us are allowed to know about. Ten years ago, you would have been shot for getting this close to these planes. Now you can ogle them to your heart's content. The Airpark can be reached at 805/277-8050.

