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**TOYOTA MR2 SPYDER CHALLENGES THE MAZDA MIATA**

# ROAD & TRACK

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# Blast Off!

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7000-bhp Top Fuel Dragster  
1300-bhp Pro Stock Car  
1100-bhp Nissan  
850-bhp Pikes Peak Toyota  
720-bhp Honda  
650-bhp Viper  
530-bhp Lamborghini  
490-bhp Porsche  
420-bhp Corvette  
350-bhp Mustang  
900-bhp CART race car  
700-bhp IRL race car  
300-bhp Subaru rally car  
157-bhp Kawasaki



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# Kings OF THE Quarter Mile

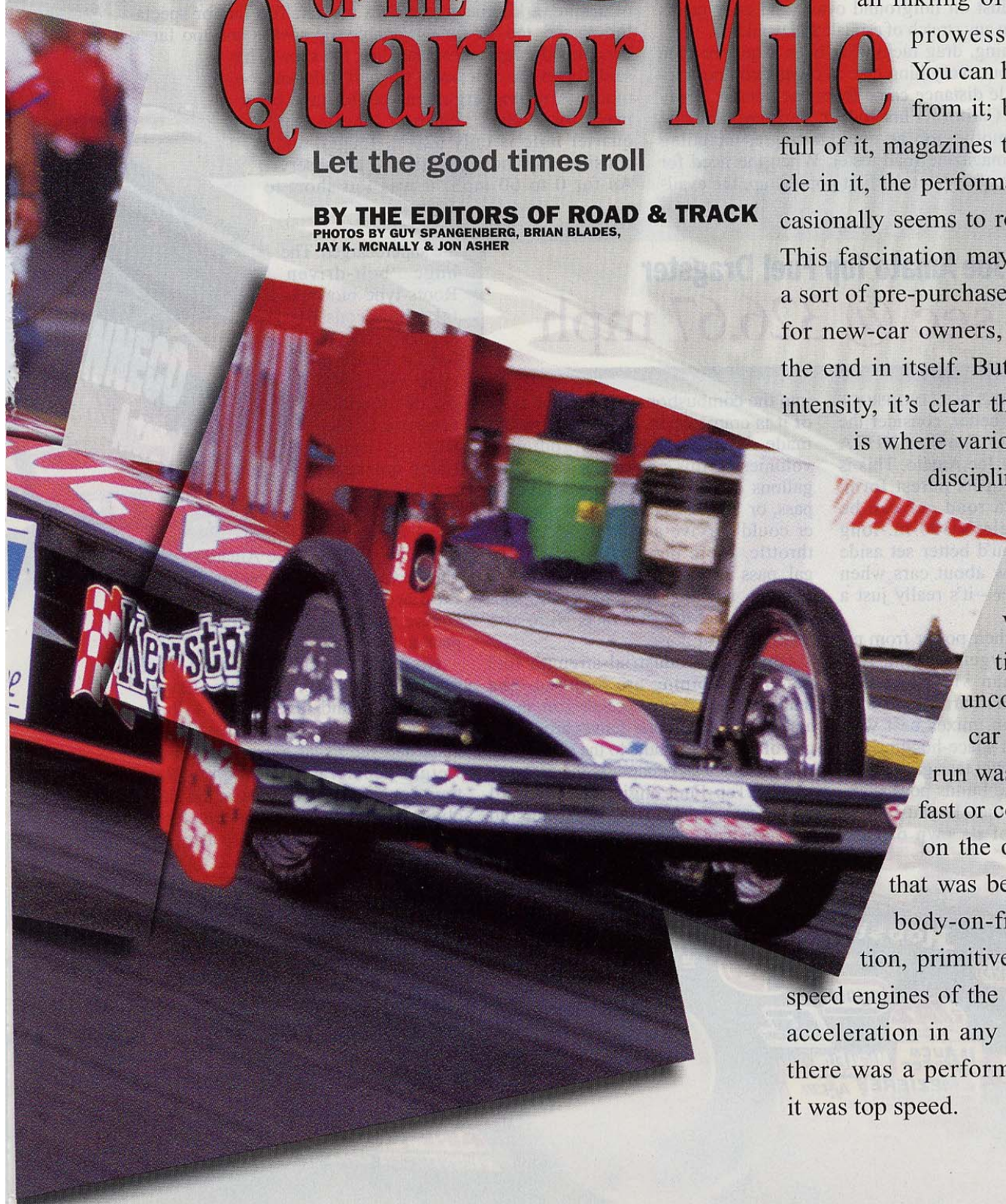
Let the good times roll

**BY THE EDITORS OF ROAD & TRACK**

PHOTOS BY GUY SPANGENBERG, BRIAN BLADES,  
JAY K. MCNALLY & JON ASHER

"WHAT'LL SHE DO IN THE QUARTER?" Is there a more primal call to the enthusiast? From casual street jockeys to the most tightly laced string-backed sports-car aficionados, automotive enthusiasts have at least an inkling of their mounts' prowess in the 1320. You can hardly get away from it; bench racing is full of it, magazines test every vehicle in it, the performance world occasionally seems to rotate around it. This fascination may be academic, a sort of pre-purchase entrance exam for new-car owners, or it could be the end in itself. But no matter the intensity, it's clear the quarter mile is where various automotive disciplines cross paths.

It wasn't always this way. Before World War II, automotive testing was uncommon. That a car would start and run was good; if it felt fast or could make time on the open road, then that was better. The heavy body-on-frame construction, primitive tires and low-speed engines of the day didn't favor acceleration in any case, and so if there was a performance standard, it was top speed.





# Top Fuelers burn prodigious volumes of nitro, four gallons

This emphasis on high speed—and never mind how long it took to get there—played well with prewar hot rodders who initiated their straight-line efforts on the dry lakes of Southern California. Inevitably, however, those hot rodders encountered each other on the streets around Los Angeles, and then the raspy blat of glass-pack exhausts could be heard as the discussion of “who’s faster?” took material, if illegal, form on side streets. Acceleration was off and gaining rpm.

Postwar prosperity detonated an explosion of automotive exuberance sufficient to kick-start nearly all forms of autosport enjoyed today. Sports cars zoomed around Air Force runways, stock cars raised dust on fairground ovals, and drag racers started pairing up on any stretch of asphalt that would do.

From the beginning, drag racing has been a quarter-mile sport. Like just about everything else in organized drag racing, the quarter-mile distance came from one person: Wally Parks. A Southern California hot rod, Parks worked any performance automotive job he could wrangle, including the odd stint as a magazine road tester. When the need for an acceleration test of a street car first popped up, the avail-

able road allowed a quarter-mile test along with some room left over for a shut-down zone. The quarter-mile distance felt about right for an acceleration test, and when Parks helped promote the first major drag race not too much later, the quarter mile was selected again.

No doubt a quarter mile felt right because it was a reasonable distance for a car to approach its top speed, plus as a simple fraction of a mile, it’s easy to relate to. Who hasn’t run one lap of their high school track? Parks could have chosen other distances or speeds. Europeans had occasionally published standing-start kilometer figures. But at 0.62 of a mile, a kilometer stretches too far. Too far for spectators to see, too far for reasonable top speeds and too far to keep aerodynamics from stealing the show. That said, forget the mile; even the half mile was too much. A strong argument could have been made for 1000 ft., but how long is that? A quarter mile is only 320 ft. longer, and is considerably more intuitive to an observer. As for 0 to 60 mph, it was too short to

## Joe Amato Top Fuel Dragster 4.51 sec @ 326.67 mph

IF THERE EVER WAS ROLLING PROOF that more power is better, consider the Top Fuel dragster of five-time NHRA Top Fuel champion Joe Amato. This is quarter-mile fury in its purest form. Not a vestige of a road car can be found along a fueler’s 300-in.-long chassis. In fact, you’d better set aside whatever you know about cars when considering a fueler—it’s really just a quarter-mile rocket.

Top Fuelers get their power from nitromethane, an oxygen-bearing fuel that costs more than \$15 per gallon when bought in bulk, burns as slow as a Georgia afternoon, mixes best with the atmosphere at a space-hogging 4:1 ratio, forms a passable tear gas around an idling engine and builds power better than Charles Atlas. Because nitro backpacks some of its own oxygen

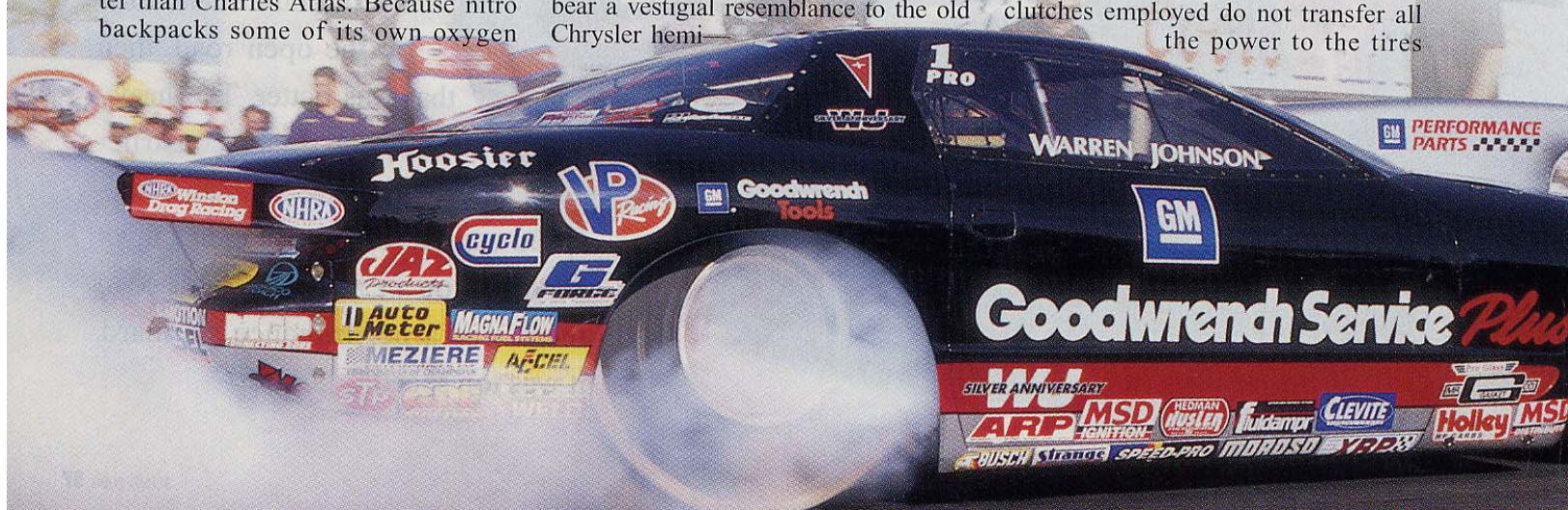
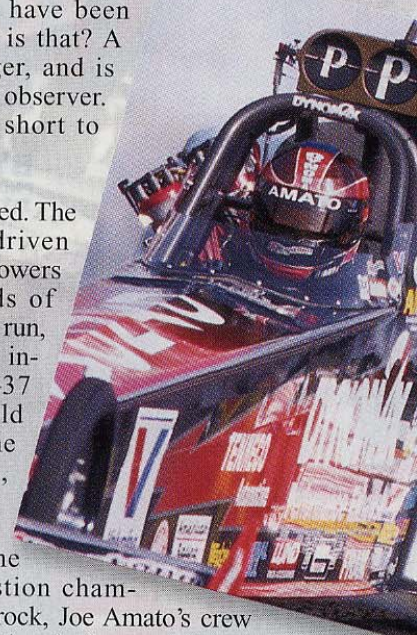
into the combustion chamber, the more of it is crammed in, the more power is made. Thus, fuelers burn prodigious volumes of this poisonous stuff, four gallons during the actual quarter-mile pass, or 16 gal. to the mile, as if a fueler could survive a mile at wide-open throttle. More practically, around 10 gal. pass through the engine during the burnout, backing up, staging and running of a fuel-dragster race. Nitro also makes a lot of noise.

Obviously, industrial-strength fuel pumps and piping are required. The main fuel line easily exceeds 2 in. in diameter and the pumps deliver around 63 gal. of nitro per minute to the engine.

As if this wasn’t enough, the 500-cu.-in. V-8 Top Fuel engines—which all bear a vestigial resemblance to the old Chrysler hemi—

are supercharged. The huge belt-driven Roots-type blowers take hundreds of horsepower to run, but fan nearly instant boost—37 psi of manifold pressure at the starting line, rising quickly to 43 psi down track—into the 6.0:1 combustion chambers. Jimmy Prock, Joe Amato’s crew chief, explains that the low compression ratio aids in controlling detonation. It also allows more physical room to pack in the air and nitro.

No one knows precisely how much power results from all this. Engine dynos large and fast enough to hang onto such instant power aren’t available, and the usual approximations of weight accelerated through a given time don’t work well because the slider clutches employed do not transfer all the power to the tires





# during the actual quarter-mile pass, or 16 gal. to the mile...**??**

showcase healthy power-to-weight ratios, even in the early days. Likewise, any promoter could see an eighth-mile contest would be like selling tickets to lightning strikes—You all wanna see another one?—so a quarter mile it's become.

Even as performance has increased tremendously in the intervening 50 years, the quarter mile has retained its legitimacy. Any fears promoters may have harbored about too-short races have been erased by the sonically massive, slow-motion bomb-burst spectacles of modern dragsters. More on them in a moment.

Make no mistake, the standing quarter is much more than Biggest Engine Wins. Traction, or handling if you will, plays a huge role. All the power in the world counts for nothing more than tire smoke unless the suspension can plant the driving tires against the pavement. Likewise, the number and location of the driving wheels, gearing, transmission efficiency, shifting speed and accuracy, chassis balance, weight and aerodynamics are vital considerations.


Of these factors, weight, weight trans-

fer and chassis balance play larger than expected roles. Weight counts. There is no coasting, no momentum in quarter-miling. Every gram must be accelerated during the entire event, so the less weight, the quicker the acceleration. Even with massively powerful drag-racing machines, weight is chased fanatically. In more everyday terms, every 200 lb. of vehicle weight removed is generally worth 0.1 second of elapsed time to the average performance car.

Chassis balance and weight transfer are important in achieving the all-important traction at the tires doing the work. As any vehicle accelerates, physics shifts its weight rearward. That's why dragsters do wheelies, and it's also why they drive their rear tires. Front-wheel-drive cars are at a huge disadvantage at the drag strip because the harder they accelerate, the more weight, and thus tractive force, is shifted away from their driving tires. For a generic fwd commuter, weight transfer is hardly a limiting phenomenon, but as power builds it becomes a serious concern.

But, yes, if you want to accelerate, you've got to have power, of course. In the real world, more power definitely helps.

■ Joe Amato unleashes the fury that is modern Top Fuel drag racing. Note the incredible tire growth.



for the entire run. Accelerometers, or "g-meters," along with magnetic-pick-up "strain gauges," which detect torsional distortion of the drive-shaft, show up to 9300 bhp and 7000 lb.-ft. of torque. Prock, just like everyone else, has a difficult time believing such huge numbers, preferring a 7000-bhp rating for his dragster, while everyone in the sport agrees 6000 bhp is the minimum figure.

Making 875 bhp per cylinder is tough on the hardware. Fuel engines are completely rebuilt after each run, normal maintenance requiring new rings and bearings every quarter mile. Heavier items fare little better; crankshafts last eight runs, connecting rods somehow withstand 15 passes. The billet aluminum cylinder heads tend to melt between the valves, with Prock admitting he's gone through 10 heads in one particularly detonation-prone weekend.

To limit the mechanical carnage to provide a more predictable, faster-paced television package, the National Hot Rod Association limited the nitro content this year to 90-

percent nitro and 10-percent methanol. Amato typically ran 96-percent nitro last year, by comparison.

Prock says this

makes the engines easier to tune because they aren't so detonation-prone, and by upping the static compression ratio slightly and turning the blower a bit faster he's recouped all of his power.

From where Joe Amato sits, we have difficulty believing he ever felt a lack of power! Using data generated by Amato's onboard Racepak data-acquisition system, we see his 2150-lb. dragster hit 60 mph in 0.8 sec. after leaping a mere 31 ft. down track. One hundred miles per hour comes up before the first second, and by half track, or 660 ft., he's hurtling along at 275 mph. The 300-mph mark whips by at 3.6 sec. and the run is over in 4.51 sec. at 326.67 mph.

When you've digested those facts, try the g-loads. From a dead stop, Amato is pressed back at more than 4g's within a fraction of a second, this chest-constricting, neck-bending force lasting nearly unabated halfway through the run where aerodynamic loads and engine inefficiencies begin a

## Joe Amato Top Fuel Dragster

Price as tested.....	est \$150,000
Engine .....	8128 cc (496 cu in.) ohv V-8 Hemi TFX by Rodeck
Horsepower .....	est 7000 bhp
Torque.....	est 5000 lb-ft
Transmission .....	none, direct drive
Rear suspension type .....	none
Rear axle type.....	Chrisman 12-in., welded to frame
Final drive ratio .....	3.20:1
Tires .....	front: Goodyear Front Runners rear: Goodyear Drag Slicks

rather dramatic tapering of g's. Yet, going over the finish line Amato is still enjoying a 0.75g push into the seat-back. Then the parachutes snap open and Amato gets whapped into his belts by as much as 7g's of retarding force. As fellow Fuel champion Kenny Bernstein puts it, "You never get used to it."

## Warren Johnson Pro Stock Pontiac Firebird 6.82 sec @ 202.36 mph

IF TOP FUEL DRAGSTERS ARE SIMPLY too far out of context for some fans, then the perpetually popular Pro Stock class is the ultimate expression of the front-engine V-8, rear-drive American muscle car. Pro Stock rules dictate 500 cu. in., a single block-mounted camshaft, two valves per cylinder, two

Holley carburetors and gasoline backed by a 5-speed transmission. The chassis are pure race tube-frame units with extensive driver rollover protection, a 4-link rear and MacPherson-strut front suspensions, all covered by production-car bodywork. Competitive times in Pro Stock are 6.8 sec. at a

■ Warren Johnson, the "Professor of Pro Stock," heats his tires with a 1300-bhp blast of throttle.



blink over 200 mph.

Unlike Top Fuel, where too much power is as near as the next smaller blower pulley, Pro Stock is where titanium beads of sweat form on the engine builders' brows as they slave for one more horsepower. Pro Stock fields are extremely tight, with up to 40 cars vying in each 16-car race; it is not uncommon for the 16 qualifiers to be separated by a bare 0.05 sec.

Two decades of rules stability and unrelenting competition have honed Pro Stock to a razor's edge, especially under the hood. These booming V-8s make 1300 bhp, and when whipped to 9300 rpm they display incredible feats of cylinder-head airflow and combustion-chamber efficiency. Thanks to their 5-speed transmissions, Pro Stock engines get by with narrow powerbands that start at 7600 rpm and are finished at 9300 rpm. In this crack of a window a Pro Stock engine can have volumetric efficiencies over 125 percent, a figure seen elsewhere only with a supercharger.

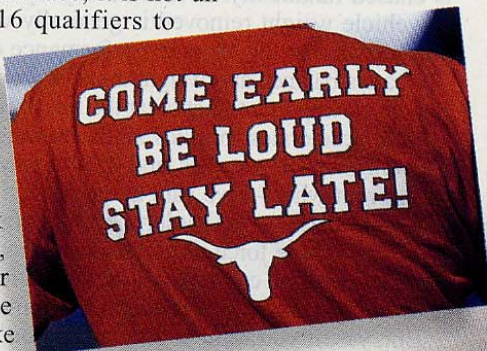
Like the fuel cars, Pro Stocks employ a clutch with predetermined slip adjusted into it. These small, 7- or 8-in.-diameter, 2-disc clutches are attended to before each run by a harried, nervous crew chief using hard data from his in-car diagnostic system and the team's weather station, along with plenty of crystal-ball guestimates of the track condition, how the weather will change by race time and about fifty other things.

## Our Test

OBTAINING QUARTER-MILE TIMES ON professional drag racers is a simple job of checking the official record, but to examine a wide range of other racing and performance street cars, we held our own test at our usual quarter-mile test

strip at Los Angeles County Fairgrounds in Pomona (except for one car in Japan).

The format was simple: Make five runs and lunch was on us. The range of vehicles was more complex. We wanted to span the naturally aspirated and forced-induction powerbands, along



POMONA



### Warren Johnson Pro Stock Pontiac Firebird

Price as tested.....est \$300,000  
Engine .....8194 cc (500 cu in.) ohv V-8  
GM DRCE2 (Drag Race  
Competition Engine 2)  
Horsepower .....1300 bhp @ 8700 rpm  
Torque.....790 lb.-ft. @ 7600 rpm  
Transmission.....5-speed,  
clutchless manual  
Rear suspension type.....live axle  
Rear axle type .....Ford 9-in.,  
custom housing  
Final drive ratio .....4.77 or 4.86:1  
Tires .....front: Goodyear Front Runners  
rear: Goodyear Drag Slick,  
33.0 x 17.0-15



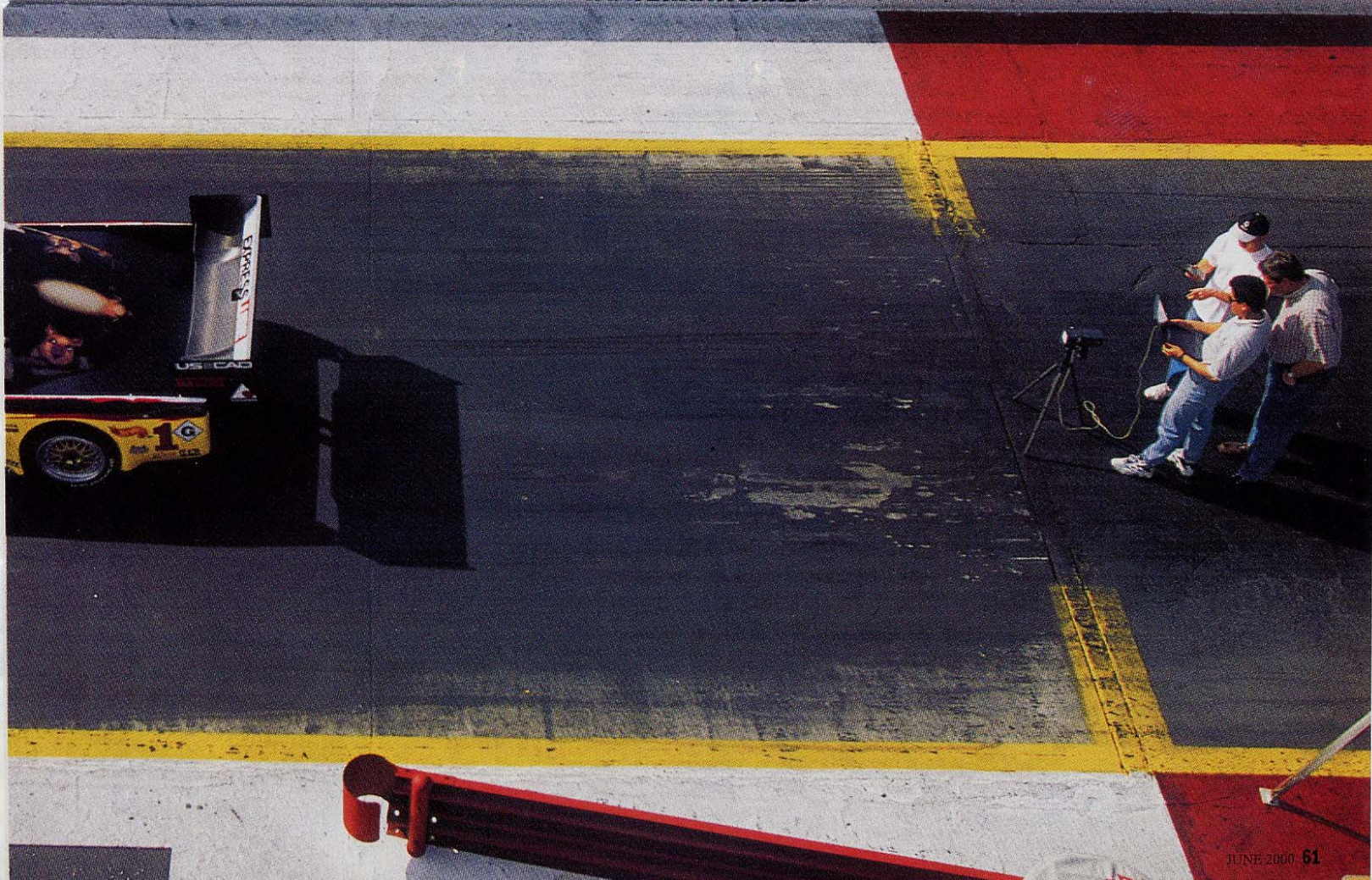
with sampling awd, fwd and rwd powertrains in a combination of racing, production and tuner vehicles. What follows are nine of the most exciting—and informative—ways of getting a Goodyear Drag Slick down the road to the quarter mile in a hurry. Enjoy.



■ Rod Millen, left, gives Dick Guldstrand, right, the straight scoop on the record-setting Pikes Peak Tacoma, seen staging below. Meanwhile, R&T's Andy Bornhop, center, makes sure both of these veterans aren't telling tall tales. Veteran racing drivers would never do that, would they?



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■ Two gigantic HKS GT3240 turbos help the 180SX's 2.8-liter inline-4 (lifted from the Nissan Skyline GT-R) provide 1100 bhp of front-end lifting power.

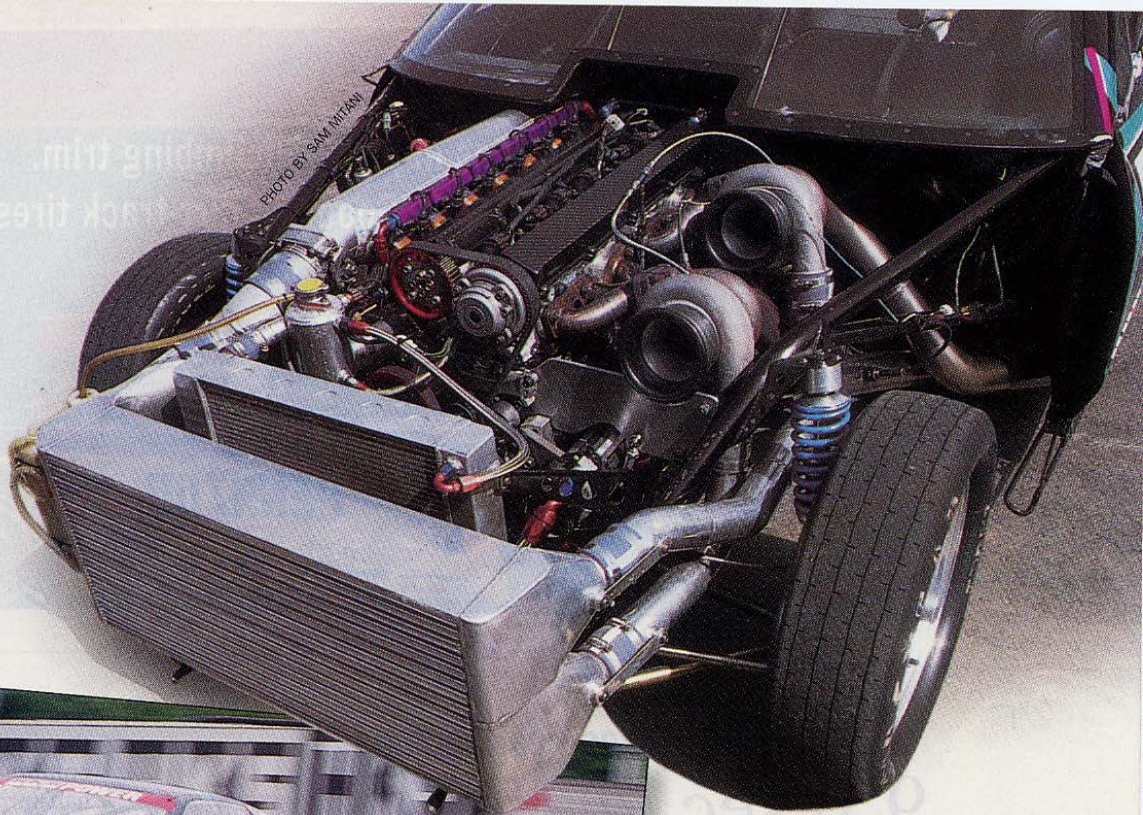


PHOTO BY SAM MITANI



PHOTO COURTESY HKS

## HKS Racing 180SX

# 7.72 sec @ 176.48 mph

WHEN WE EXPRESSED INTEREST TO HKS President Hiroyuki Hasegawa in testing the HKS Racing 180SX for this feature—a car touted as the quickest quarter-mile machine in Japan—we learned there were no plans to bring the car to the U.S. “Why don’t you come to

Japan and test it here?” he asked. “I’ll arrange everything, including the track, crew and driver.” It was an offer we couldn’t refuse, and within a week Sam Mitani was at the Japan Raceway Park in Sendai (about 200 miles north of Tokyo) with test gear in hand.

The weather, however, would not cooperate as snow and rain fell sporadically throughout the day. Tetsuya Kawasaki, Japan’s premier drag racer, never abandoned hope, saying, “All I need is a 30-minute window for the track to dry a bit. I’ll nail it in one run.” A few minutes after noon, we got that window, although there was still a bit of moisture on the track surface. Kawasaki jumped into the 180SX and immediately dropped the hammer.

The rear Goodyear Drag Slicks spun wildly, spewing white smoke like Red Auerbach’s cigar after a Boston Celtics

victory. Then they grabbed hold of the tarmac, the front end popped off the ground and the car disappeared down the runway. Our Stalker radar gun displayed the 180SX’s speed, which seemed to go straight from zero into triple digits (actually it took the HKS 2.54 sec. to reach 100 mph). The quarter-mile mark came up in 7.72 sec. at 176.48 mph. As Kawasaki rolled in, snow began to fall again. There would be no more runs.

Despite the horrible conditions, the HKS 180SX easily cracked the 8-sec. barrier, though it was still far off its best time of 7.28 sec. It reaches 60 mph in only 1.2 sec. Impressive? You bet, especially when you consider that this car was once a Nissan 180SX (a smaller-engined 240SX). Needless to say, not much of the stock 180SX remains in the drag car. The tube-frame racer, which competes in Japan’s pro-stock series, has an inline-6 powerplant rebuilt with mostly HKS parts—everything from the pistons to the two giant turbos that provide up to 31 psi of boost. The output of the 2.8-liter is 1100 bhp at 9000 rpm and 759 lb.-ft. of torque at 6500. Mated to this monster is a 5-speed transmission that features “airshift,” which helps provide an efficient launch and fast, smooth shifts.

The trip to Japan was more than worth our time. Next time, we’d like to see what the HKS Racing 180SX is capable of doing in dry, ideal conditions. A sub-7.0-sec. run is definitely possible.

### HKS Racing 180SX

Price as tested.....	est \$200,000
Engine .....	2772 cc (169 cu in.)
	twin-turbo dohc inline-6
Horsepower .....	1100 bhp @ 9000 rpm
Torque.....	759 lb.-ft. @ 6500 rpm
Transmission .....	5-speed manual
Rear suspension type.....	independent
Final drive ratio.....	5.14:1
Tires .....	front: Goodyear Front Runners
	rear: Goodyear Drag Slick,
	33.0 x 17.0-15



“The Tacoma was in pure hillclimbing trim, including deeply treaded BFGoodrich dirt-track tires.”



## Millen Pikes Peak Tacoma 9.52 sec @ 151.76 mph



■ The midmounted powerplant looks positively tiny but puts out 850 bhp at sea level. Millen fought wheelspin the whole way, partly because he used grooved Pikes Peak tires, not slicks.

QUICKEST OF OUR PARTICIPANTS AT Pomona was Rod Millen in his one-off Pikes Peak hillclimb Toyota “Tacoma.” In reality a purpose-built, tube-frame racer sporting mid-engine turbo 4-cylinder power and all-wheel drive, the Tacoma was prepped for drag duty by fitting taller 4th and 5th gears in its Weismann transaxle—and that’s all. Millen explained he just touches 130 mph “on the hill,” which has no straights a quarter mile long, so he would have been *ta ta ta ta ta* on the rev limiter well before the quarter with his normal gearing. Otherwise, the Tacoma was in pure hillclimbing trim, including deeply treaded BFGoodrich dirt-track tires.

Millen, who is unaccustomed to drag racing, opened with a frenetic 10.3-sec. run that was all over the track

and seemingly on the rev limiter half the time as he came to grips with the combination of asphalt traction, his half-turn lock-to-lock steering and five still closely spaced gears. The second attempt calmed down to 9.7, then Millen elected to make two back-to-back runs “to build some heat in the engine.” This worked, his third attempt was a 9.8-sec. run, followed immediately by his best 9.52 pass.

Helping Millen was his 850-bhp Toyota twincam, coupled with a superbly balanced chassis. Definitely of little assistance were the heavily treaded tires and high-downforce aerodynamic package, which makes 2000 lb. of downforce at 100 mph. Such stability is welcome while trying to keep a half ton of horsepower stuck to a dirt mountain road, but is excessive at the drag strip and produces unwanted aero drag. We also suspect Millen held 1st gear against the rev limiter too long, which would definitely hurt his E.T. (elapsed time).

We’d also wager the awd was more weight than traction; with sticky drag slicks on the rear this combination could trim a half second off its E.T.

### Millen Pikes Peak Tacoma

Price as tested.....	est \$500,000
Engine.....	2131 cc (130 cu in.) turbocharged dohc inline-4
Horsepower.....	850 bhp @ 8500 rpm
Torque.....	ha
Transmission.....	5-speed manual
Rear suspension type.....	independent
Final drive ratio.....	4.17:1
Tires ....front:	335/30ZR-17 BFGoodrich
rear:	335/30ZR-17 BFGoodrich
	slicks: none





The reason for all this skill can be summed up by the 157 rear-wheel bhp and 513-lb. bike weight, or 4.4 lb. per bhp with a 180-lb. rider. This is channeled through a terribly compact contact patch, even if the rear tire is the largest fitted to a production motorcycle, so the rider gets to play three-dimensional traction-control computer the entire run. We'll take this moment to say Gadson dryly noted he has metal plates along the inside toe of his boots. "I use them as outriggers until the front wheel is on the ground," he said.

To keep that front end down, Kawasaki technicians lowered the front end 1.5 in. by sliding the front forks up in their triple clamps, while the rear was lowered 1 in. using different "dog bones" from Rob Muzzy. Still, Gadson had to slip the clutch for a week in 1st gear and make closed-throttle upshifts into 2nd to avoid excessive wheel-standing. The 3rd and 4th upshifts were made power-on, with a momentary flick of the clutch. Gadson also reported 1st gear felt too tall, something the clutch didn't need to hear.

What's most amazing is that the ZX-12R is even quicker than our test would indicate. A pre-production bike hit 9.47 at 150 mph at Gadson's urging a month before our test; it's thought voluntary electronic limiting by Kawasaki was holding our tester back.

### Kawasaki ZX-12R

Price as tested .....	\$11,999
Engine .....	1198 cc (73 cu in.) dohc inline-4
Horsepower.....	157 bhp @ 9500 rpm (rear wheel)
Torque .....	90 lb.-ft @ 7500 rpm (rear wheel)
Transmission .....	6-speed manual
Rear suspension type .....	independent
Final drive ratio.....	chain drive, 18-tooth countershaft sprocket, 46-tooth rear-wheel sprocket (2.56:1)
Tires .....	front: Dunlop Sportmax II, 120/50ZR-17 rear: Dunlop Sportmax II, 200/50ZR-17



■ With Kawasaki's Rickey Gadson aboard, the bone-stock ZX-12R can do repeated sub-10-sec passes. We're glad he did the riding.

### Hennessey Venom 650R

11.17 sec @ 130.01 mph

VIPER TUNER JOHN HENNESSEY WAS eager as always to make the long tow from his Houston, Texas, shop to our California test, and why not? With 8.4 liters—that's 514 cu. in. of V-10 under its multi-acre hood, the Venom was born to drag. Hennessey's efforts, like the Viper they were applied to, represent traditional hot-rodding techniques influenced by the electronic age. Besides boring and stroking, the usual long list of engine-breathing modifications was present, including a more ag-

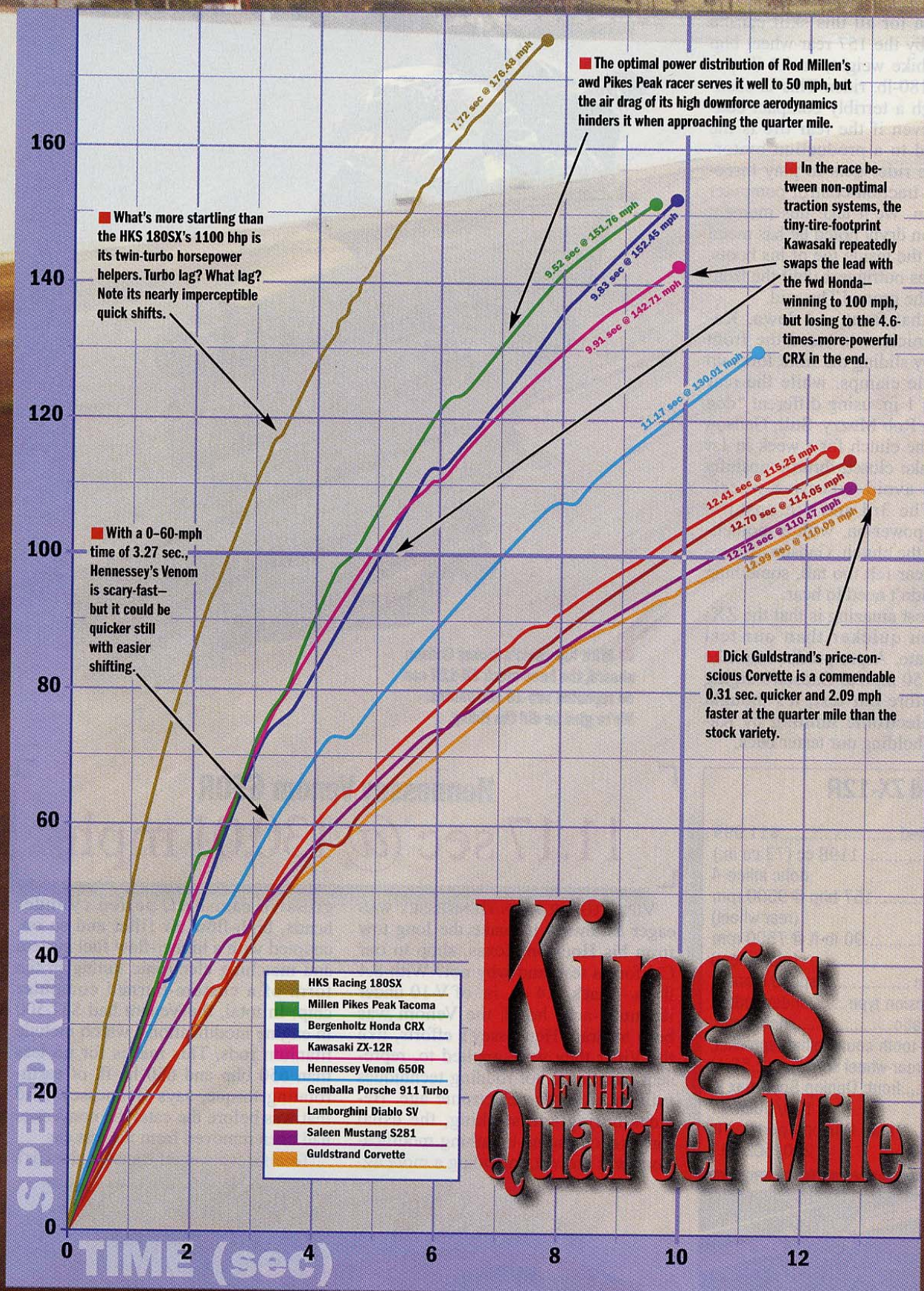
gressive camshaft, ported cylinder heads, high-flow air filter and so on, coupled with a higher-flow fuel system and matching electronic tuning in the form of a custom-burned computer chip. In total, the Venom had \$37,500 in engine modifications, which include titanium rods. This makes for no less than 650 bhp and 650 lb.-ft. of earth-rotating torque, says Hennessey. And that was before the catalytic converters had been removed from the test car.

To improve weight transfer, the car's

(Text continued on page 73)





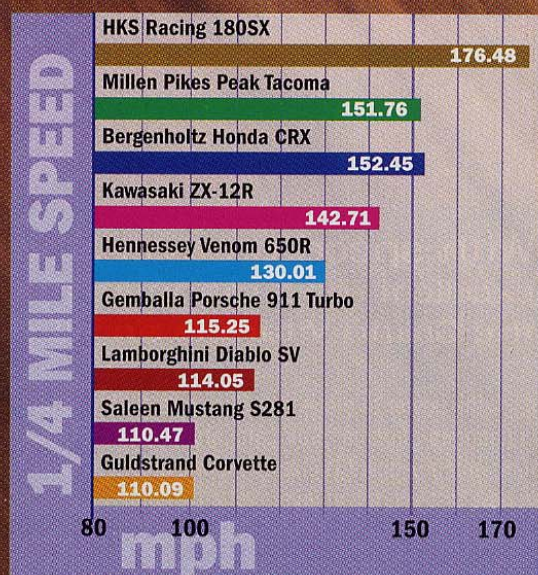
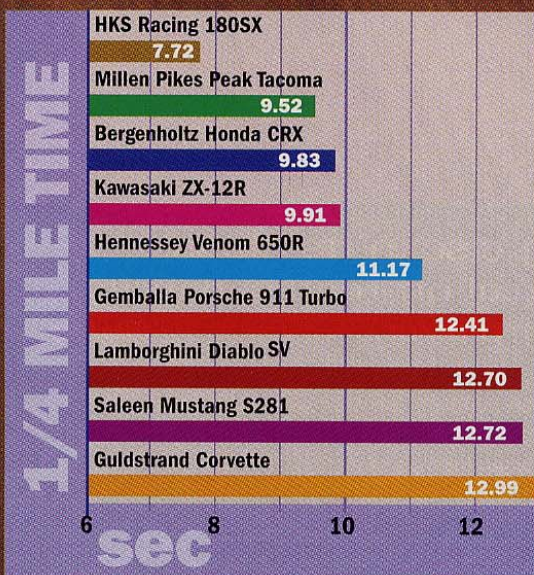
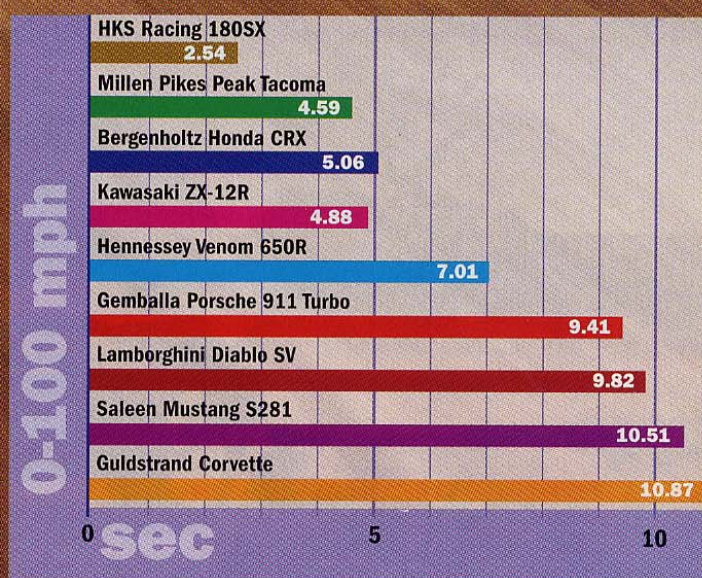
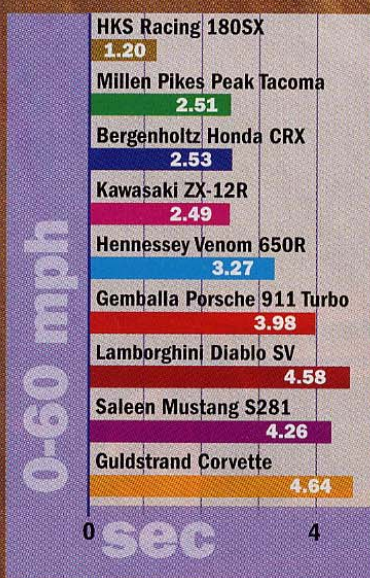
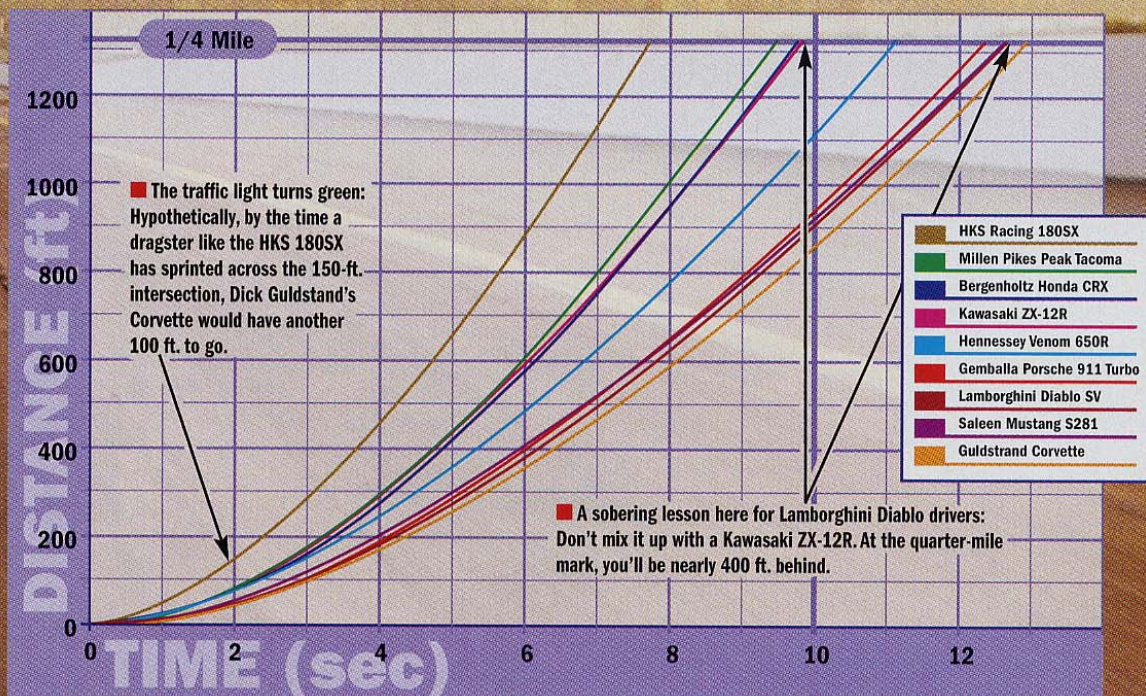


# Kings OF THE Quarter Mile

Looking like subatomic particle tracks in a physicist's bubble chamber are the radar trails left by our sample of nine quarter-mile sprinters—all observed at the drag strip. And it's quite a spectrum of vehicles, ranging from a stock (though mightily swift) production car to a quartet of streetworthy but modified machines, a Pikes

Peak conqueror, a bullet-quick motorcycle and, finally, a pair of purpose-built drag cars (the Bergenholtz Honda CRX and HKS Nissan 180SX). What's best? Rear-wheel drive? All-wheel drive? One-wheel drive? The evidence here supports a good power-to-weight ratio as the ultimate acceleration weapon.





■ At right are the same data shown on the previous page, but here presented in five different forms. At top, acceleration is recast in terms of distance traveled versus time. Below, the results are dissected every which way, showing two facets of velocity versus time (0-60 mph and 0-100 mph), then the quarter-mile result in separate rankings of time and speed.



## Hennessey Venom 650R

Price as tested.....est \$126,800

Engine .....8424 cc (514 cu in.)  
ohv V-10

Horsepower.....650 bhp @ 5800 rpm

Torque .....650 lb-ft @ 4500 rpm

Transmission .....6-speed manual

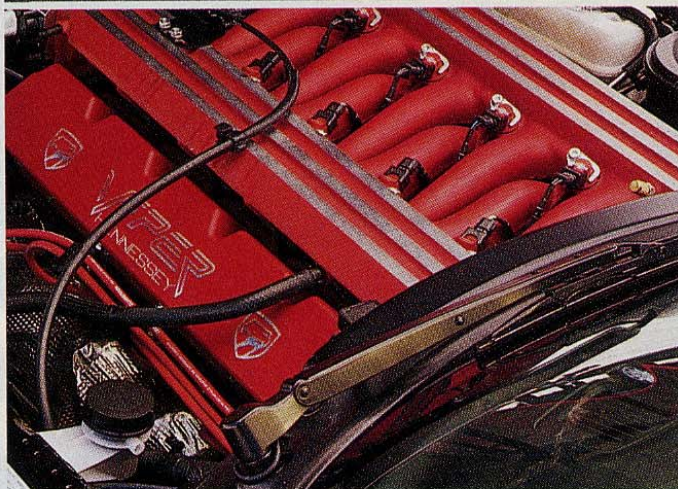
Rear suspension type.....independent

Final drive ratio.....3.54:1

Tires ....front: Mickey Thompson ET Street,  
5.0 x 5.25-16  
rear: Mickey Thompson  
ET Street slicks,  
26.0 x 10.0-16

The Viper opened with an 11.4, then an 11.5, followed by an 11.3 and ultimately the 11.17 record run. None of this pleased the Texan, who said the same car had previously gone 10.47 in a private test, and suspected the clutch. Hennessey further explained the sudden drop in E.T. on his final pass came because he had been unsure about

■ Note the squat and rear tire deflection, top, as John Hennessey's Venom 650R hooks up en route to another 11-sec pass.





# Gemballa Porsche 911 Turbo

## 12.41 sec @ 115.25 mph

TALK ABOUT BLOWING IN OFF THE street, the Gemballa Porsche twin turbo arrived at the drag strip expecting our usual full regime of handling and performance tests, and was therefore hardly optimized for drag duty. A very lightly modified 1997 twin turbo, the Gemballa benefited from just high-flow catalytic converters and mufflers, a high-capacity intercooler, reworked computer chip and larger Brembo brakes—the latter hardly a benefit at the drag strip.

What's more, thinking a high-

mileage day of lapping was in the offing, the Gemballa was full of gasoline, its owner-driver had never been on the drag strip before and no one saw any reason to fiddle with tire pressures or drop a can of octane booster in the tank.

None of this seemed to matter as the dark 911 peeled off a string of mid-12-sec. passes that would have done Funny Car driver John Force proud. To avoid wheel hop, the launch was necessarily soft and followed by a half-second lull while the turbos spooled up. But then the sports car rocketed "out the back door" with impressive top-end speed and acceleration. Thank the rear engine for good traction in the lower gears where wheelspin could have been a problem.

Like the Venom 650R, the Gemballa made its E.T. the old-fashioned way, with cubic yards of power, specifically a generous, flat torque curve. Torque is a natural consequence of displacement, so the Viper's behemoth V-10 could be expected to flex its muscle, while on the Porsche, the turbos supply the necessary cylinder pressure. Once they're spooled up, watch out.

### Gemballa Porsche 911 Turbo

Price as tested.....	est \$118,750
Engine .....	3600 cc (220 cu in.)
	twin-turbo flat-6
Horsepower.....	490 bhp @ 6250 rpm
Torque .....	458 lb-ft @ 5300 rpm
Transmission .....	6-speed manual
Rear suspension type.....	independent
Final drive ratio.....	3.44:1
Tires .....	front: Yokohama
	S1-Z, 225/40ZR-18
	rear: Yokohama
	S1-Z, 285/30ZR-18

**“Once the turbos are spooled up, watch out.”**



■ On the drag strip, the Gemballa 911 Turbo proved, once again, the efficacy of Dr. Porsche's rear-engine design. With most of the weight over the rear tires and plenty of intercooled boost on tap, this Gemballa was a model of consistency.





## Conclusion

AFTER A DAY AT THE STRIP surrounded by turbos, superchargers and cubic inch overdose, it's difficult to see

any way around the obvious: Quarter-mile coronations don't come without goodly amounts of power. It's that way with monarchs, after all. To see how the

cars we've tested compare to our usual road-test production cars, look at our Road Test Summary and see why we've called the cars in this story "Kings."

## Satisfying our curiosity

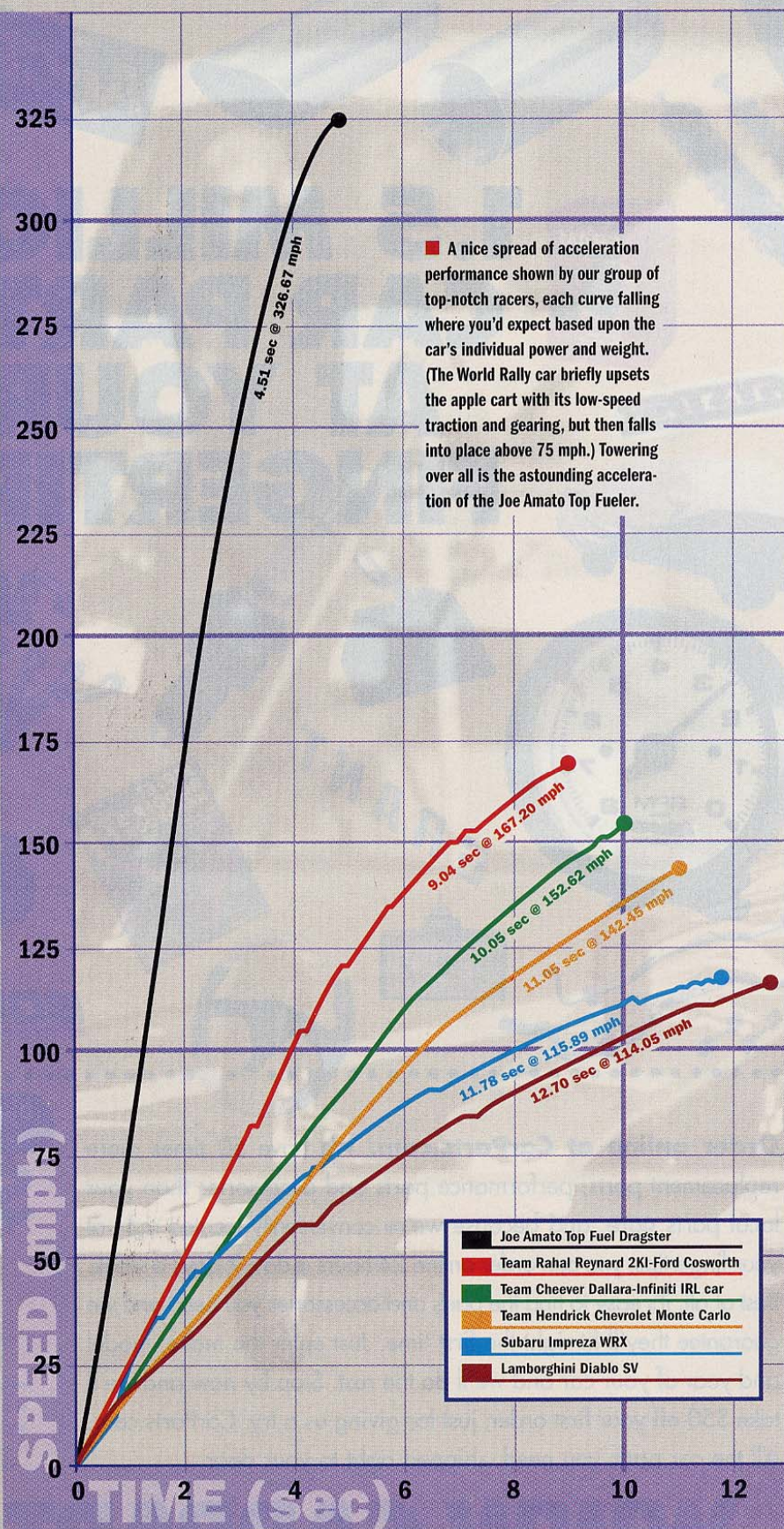
■ How fast are the most familiar types of racing cars compared to a Top Fuel dragster? To find out, we asked a variety of racing teams to provide us with acceleration data gleaned from race weekends and private testing sessions. Although recorded at different times and scattered places, it's interesting data nevertheless, a sort of ultimate fantasy drag race, if you will.

With the exception of Joe Amato's Top Fuel car, the rest of the lineup really have performance goals other than pure acceleration; low-speed acceleration is required primarily after a race car has exited the pit lane to achieve racing pace. (In three of the cases—Eddie Cheever's IRL car, Bobby Rahal's Champ car, and Rick Hendrick's Winston Cup Monte Carlo—their speed is actually limited while in the pits.) Nevertheless, these are powerful, light-weight, big-tired, fast machines.

How fast? Quickest (besides the dragster, of course) is the Champ car; no surprise, given its roughly 900 turbocharged bhp wrapped in a 1550-lb. package (1525 lb. at super-speedway venues). Compared to the similar-looking IRL Indy cars, CART cars need quicker low-speed acceleration as a little more than half of their schedule is held on road courses. Consequently, they'll use gear ratios better suited for lower speeds (though both CART and IRL cars employ 6-speed transmissions). While IRL cars compete on ovals only (and also weigh 1550 lb.), their most notable handicap is power, their normally aspirated V-8s delivering about 700 bhp.

The NASCAR stocker produces about 700 bhp, but crucially weighs roughly 3500 lb., more than twice that of the open-wheel CART and IRL cars (although Winston Cup cars' massive safety cages allow for particularly exciting door-handle-bumping racing). The awd World Rally Subaru Impreza WRX is propelled by a turbocharged 2.0-liter engine delivering about 300 bhp, this power notably limited by a turbo inlet restrictor. Weights for these cars depend upon engine displacement; in this instance the Subaru's minimum weight is 1940 lb.

A quarter-mile run is almost the last thing a car like the Impreza is designed to do. Nevertheless, it manages to keep ahead of the Lamborghini Diablo SV (we've added here for comparison)—as any self-respecting race car should.





Still, we learned that quarter-mile kings are well rounded in their own way. Traction is paramount for quick elapsed times. The first foot of 1320 is easily the longest, most obstinate foot to conquer. Cinch that first foot up with excellent traction, and the remainder will definitely come more easily.

Today's kings are quicker than yesterday's too. Amato's Fueler is quicker at half-track today than at the finish line in 1987, while Warren Johnson has lopped a half second off his E.T. in the same

time. Hennessey's Venom 650R would have been a wild dream to enthusiasts a generation ago, and when the first muscle cars were brought down to their steering knuckles by the first fuel crisis and insurance backlash, who could have imagined a 12-sec., affordable, emissions-friendly Saleen Mustang would ever sit in a showroom?

What will tomorrow bring? Who knows. But when tomorrow's cars arrive, they'll still be measured on the quarter mile.

PHOTO BY ROBERT LABERGE/ALLSPORT

■ The Top Fuel dragster is still the king of quarter-mile sprints compared with some of the world's fastest race cars. Neil Ressler, Ford's vice president of advanced vehicle technology and the person who oversees racing activities, tells us that the 1322-lb. 800-bhp Jaguar Formula 1 car can reach the quarter-mile mark in 9.4 sec. at 181.0 mph with a full tank of fuel. This is similar to Ferrari's numbers given to us by the factory with times recorded also near the 9-sec. range. Keep in mind that cars in Formula 1, as well as NASCAR, CART, IRL and World Rally, are designed and optimized for their specific racing venue, so their strength is performing at higher speeds, not doing smoky burnouts off the line at the drag strip.

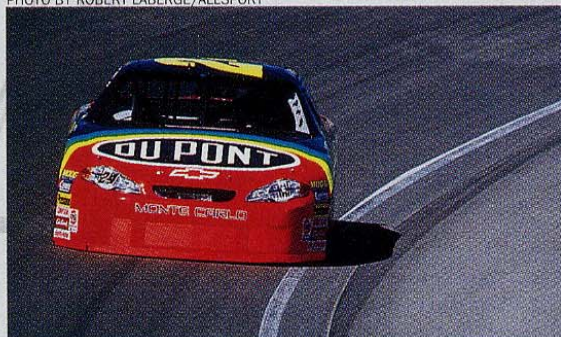


PHOTO BY ROBERT LABERGE/ALLSPORT

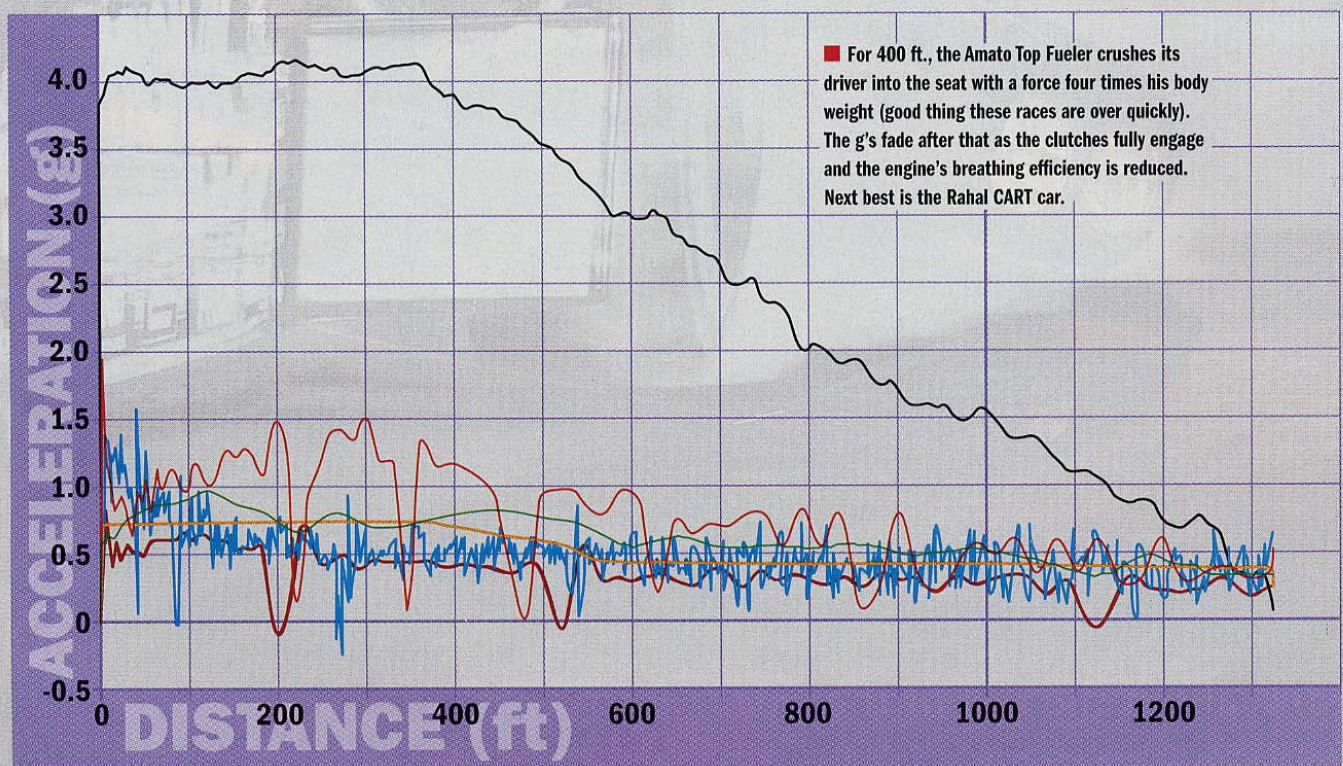


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