

**Gale Banks Engineering**

546 Duggan Avenue

Azusa, California 91702

ph 626-969-9600

Mon-Fri, 6:00am-6:00pm (Pacific Time)

Product Information • Sales • Test Reports

ph 888-635-4565

fax 626-334-1743

email sales@bankspower.com

Mon-Fri, 6:00am-6:00pm (Pacific Time)

bankspower.com

Proudly offered at:



SIDEWINDER[®]

TURBO

Ford 6.9 & 7.3L, '82-94
Chevy/GMC 6.2L, '82-93

- » Ram-Air[®] Intake
- » Sidewinder[®] Turbocharger
- » Dynaflow[®] Muffler
- » Monster[®] Exhaust
- » TransCommand[®]
- » DynaFact[®] Gauges

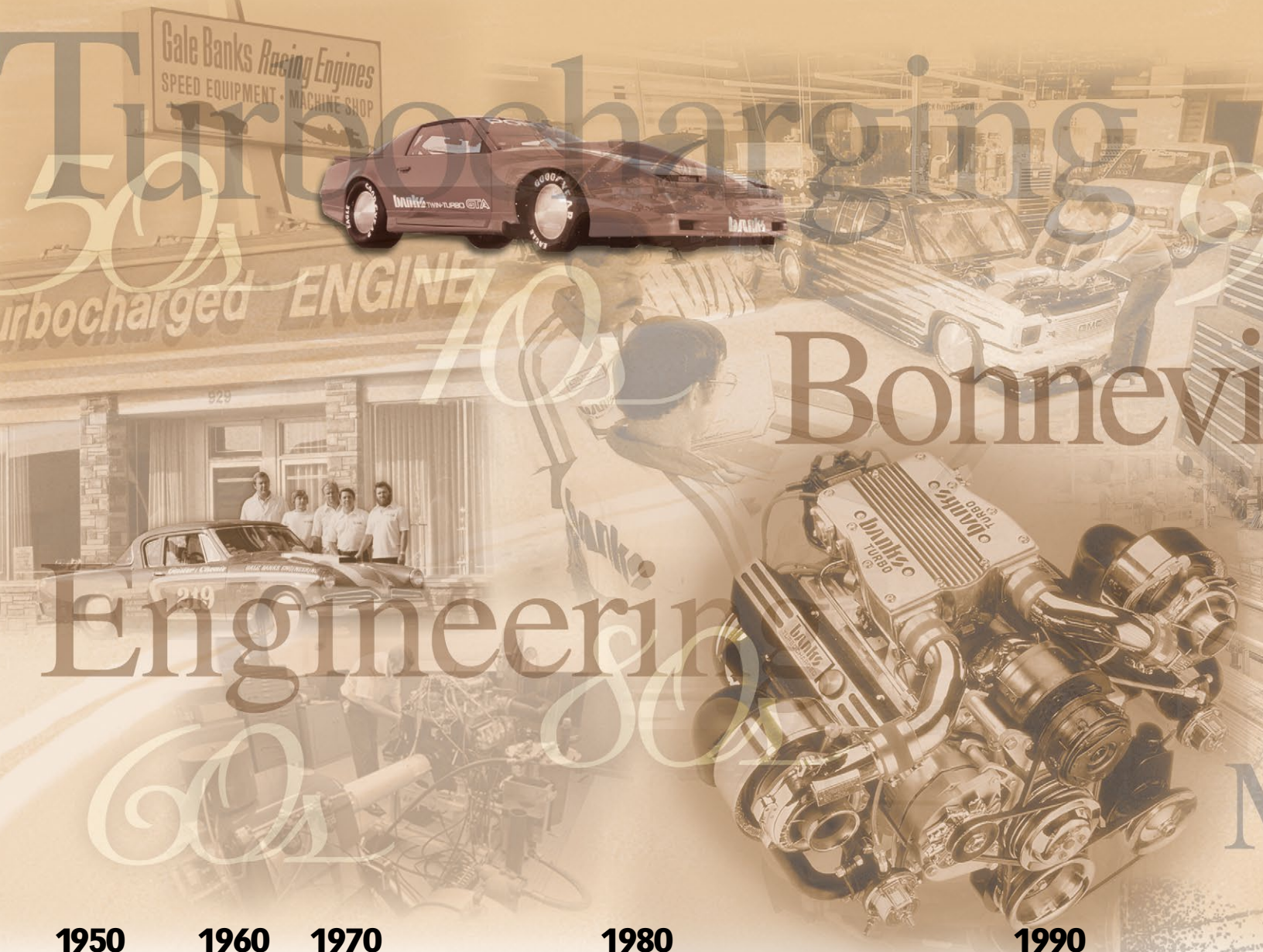


CATALOG and TEST REPORT

PERFORMANCE
FUEL ECONOMY
DURABILITY

banks

SINCE 1958



1950

1956

14-year-old Gale Banks modifies Mom's '31 Ford Model A from 60 to 104 hp

1960

1960

Banks expands to auto and marine speed equipment

1970

1974

Fuel crisis hits USA
Banks responds with first gasoline Power Pack

1977

Commissioned by Volvo of Sweden to design turbocharged engines
Banks-built powertrain for National Highway and Traffic Safety Administration meets 1985 emissions and fuel economy standards, eight years early

1979

Banks designs marine engines for US Navy SEAL covert operations

1980

1982

Sidewinder Turbo for diesel pickups introduced

1981

Banks Twin-Turbo 454 powers '68 Corvette to 240 mph, to become World's Fastest Passenger Car
Banks-collaborated Buick Regal Turbo debuts

1986

Clocking 268 mph, Banks Twin-Turbo Trans Am breaks Banks' own 1981 record for World's Fastest Passenger Car

1984

4-acre Banks Engineering campus opens in Azusa, CA

1987

First Power Pack for motorhomes

1989

Banks invents and patents DynFact, the first onboard computer data acquisition system

1990

1990

Banks 210-mph Project Sycamore becomes World's Fastest Pickup Truck; it is later marketed as the GMC Sycamore
Debut of TransCommand, electronic control module for automatic transmissions

1992

Banks diesel systems exceed new California emissions standards ahead of schedule

1991

First Power Pack for electronically fuel-injected vehicles and Dodge diesel pickups

1994

10,000-sq-ft manufacturing facility opens; handles tube bending, machining, welding and fabrication

Q's
lle

Manufacturing



Electronics

Racing

2000s

2000

1997

Banks introduces OttoMind electronic fuel-management module

Teague-Welch-Banks streamliner runs 432 mph, becoming World's Fastest Piston-engine Automobile

1998

Opening of newly-expanded electronics research and development lab

2000

Product sales triple since 1990
Banks purchases additional seven acres for campus expansion

1999

Opening of Banks Race Shop for project vehicle development

2001

Banks introduces industry-first computer-controlled exhaust brake
New engine dyno cells opened: a 2000-hp high-speed dyno and high-torque diesel dyno

2002

Cummins diesel-powered Project Sidewinder runs 222 mph, sets five land-speed records and becomes World's Fastest Pickup Truck
New CNC machining center improves manufacturing quality and efficiency

2003

US Navy SEALs hire Gale Banks Engineering to develop a high-power marine turbo-diesel for military service

2004

Partners with Bosch and Garrett to develop both a high-performance all-wheel-drive sport truck and endurance road racing truck

2005

PowerPDA Vehicle Command Center
Banks Sidewinder All-Terrain, industry's first diesel-tuner truck packages
Sidewinder D-Max Type-R —first endurance roadrace diesel truck
Banks-Donahoe offroad racing partnership with Banks-powered Ford F-250

2006

Sidewinder D-Max Type-R qualifies 3rd at its first race
Banks twin-turbo and EFI system for Jay Leno's V-12 tank car

CONTENTS

About Banks

4-5

Ford 6.9 & 7.3L

6-9

Chevy/GMC 6.2L

10-11

ABOUT BANKS



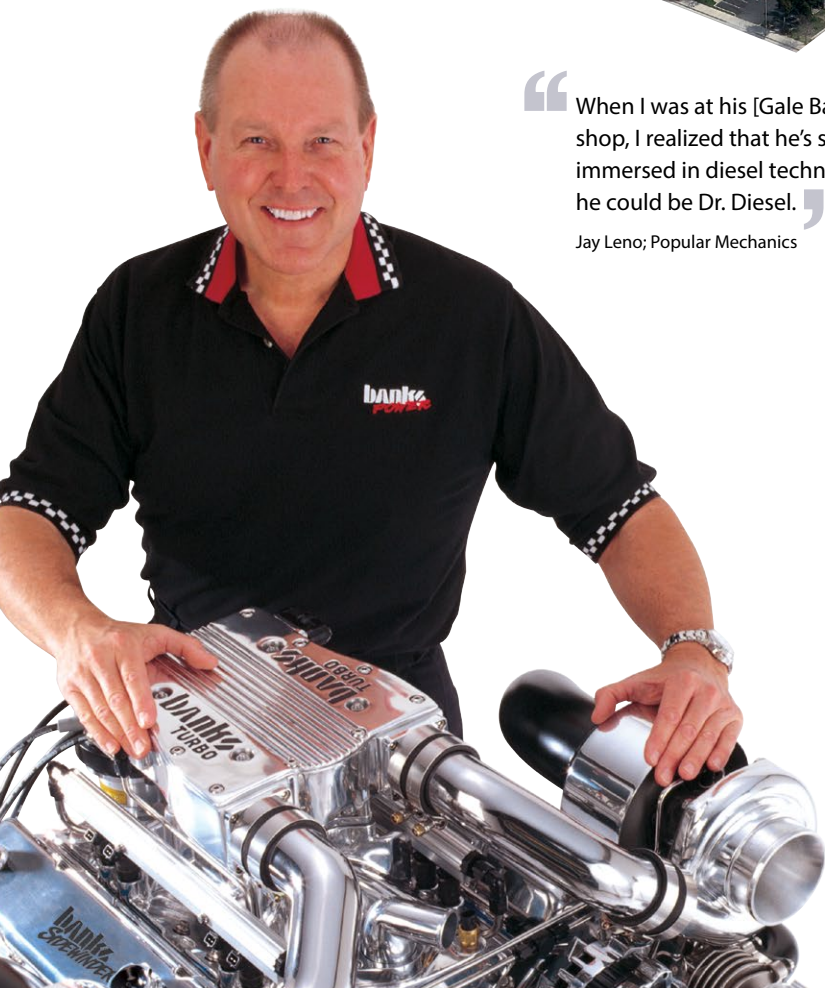
Banks Campus
Azusa, CA



Manufacturing houses tube bending, fabrication, welding and electronics assembly



Unable to find adequate data-gathering equipment, Banks developed the DynaFact onboard computer



“When I was at his [Gale Banks'] shop, I realized that he's so immersed in diesel technology he could be Dr. Diesel.”

Jay Leno; Popular Mechanics

“Banks spares no expense. Engine and chassis dynos. Testing, machining, tooling, fabricating and manufacturing equipment. R & D. And, most importantly, its people—the finest in the world.”

off-road.com

Banks Today

Gale Banks Engineering is the premier producer of aftermarket engine-power systems for pickups, sport utilities and motorhomes. The Banks campus currently occupies four and a half acres in Azusa, California. In Banks Mechanical Engineering department, some of the world's best automotive people design products that define the state-of-the-art in engine efficiency and performance. The Electronic Engineering group develops electronic diagnostics, hardware and software that optimize engine power and fuel economy, while protecting vehicle systems. Banks' in-house Manufacturing assures uniformly top-notch product construction and materials. A 7-acre acquisition in adjacent Irwindale will be developed to include expanded motorhome testing and installation facilities, and an overnight camping park for Banks customers.

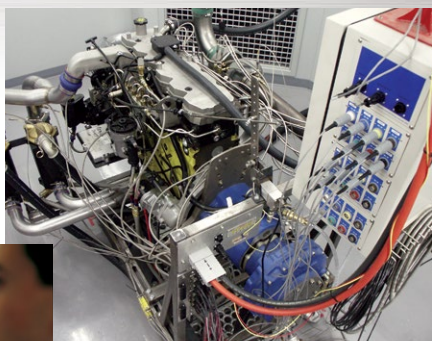
The word 'engineering' is very important here because Banks is not just reselling someone else's products. They have full time in-house engineers and technicians, performing their own research and development on every different type of performance option you can imagine. They develop heads, chips, and exhaust systems just to name a few. Their dyno rooms would impress the guys at NASA.

Toy Hauler Magazine

Banks develops airflow technology in their world-class race shop



The Banks Sidewinder D-Max Type-R, the first endurance roadrace diesel truck, and the Donahoe-Banks Racing Power Stroke off-road Stock Full Class racer successfully demonstrate the performance and durability of Banks Power products under the most extreme conditions. No other competitor races their own products this hard.



Systems are tested on the engine and chassis dynos



New technology is perfected in the Electronic Engineering dept.



The same airflow technology used in Banks power systems propelled the diesel-powered Sidewinder to **222.139 mph**, making it the World's Fastest Pickup Truck

Banks' Reputation

Company founder Gale Banks—a legendary name in endurance racing and engine performance—serves as hands-on President. Since the '60s, Gale's futuristic high-performance engines have shattered world records. His marine engines propelled racing boats to national and world championships, and were chosen as power for the US Navy Seal covert-action boats. Famously durable, Gale's engines withstand years of grueling competition, often collecting multiple records. His fingerprint is on every Banks product, from prototype to market.



Banks Mechanical and Electrical Engineers

FORD 6.9 & 7.3L

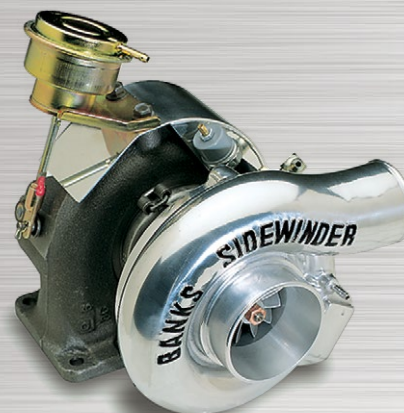
Why spend thousands on a new turbo-diesel truck?

Turn your 1982-94 diesel workhorse into a thoroughbred. Banks Sidewinder Turbo Systems lead the industry in quality and efficiency. More efficiency means more torque, and torque is what you use to haul. These systems produce their greatest performance in the "sweet spot" — the rpm range in which these diesels make good power. Banks provides more power and a wider sweet spot.

Cruising is more enjoyable. Climbing grades — in fuel-saving higher gears — is far easier. No need for expensive, complicated and heavy auxiliary gear boxes. As the leader in airflow management, Banks designs, engineers and manufactures their systems in-house — they're not parts packagers. Banks sweats the details others somehow forget — or don't care about: things like dipstick access, heat shielding, access to service items and quality of exhaust sound ... and designs-in durability to go the distance.

In developing the Sidewinder turbo systems, Banks engineers devoted major attention to engine durability and fuel economy. Leading-edge technology in turbocharger design was developed, resulting in high-efficiency compressors, and low-inertia, low-drag rotating parts. The goal was to give the most responsive final design, while reducing smoke and improving high-altitude power.

Driving a Sidewinder is a new turbo experience: the engine is alive with power right off idle. Passing with a heavy load is quicker and safer. In short, the Sidewinder series takes diesel turbocharging into the next generation.



Exclusive Banks Features

Sidewinder® Turbocharger Assembly

Named Sidewinder for its angled mount, Banks' inspired design raised the science of turbocharging to legendary status. Thanks to its larger size that moves a larger volume of air, Banks' aircraft 713C Inconel turbine outperforms and outlasts all others. It lessens backpressure and lowers EGTs for more power, mileage and quick response right off the line. Goodbye, turbo lag and diesel smoke! Includes wastegate actuator, pulse-tuned cast exhaust inlet/turbine mount, cast-aluminum air-inlet/vent duct and cast-aluminum air-inlet plenum.

Banks Ram-Air® Intake

A cast-aluminum Hi-Rise filter housing plus lifetime, high-flow Banks Ram-Air filter decrease intake restriction and send more cool, dense ram-air into your engine. Even wet or dirty, Banks' multi-layer filter outperforms conventional ones by trapping moisture and debris on the oiled surface, allowing air to move through with ease. Includes 30-50,000 mile service kit.

Dynaflow® Muffler

Banks' low-restriction Dynaflow muffler with 3½-inch outlet flows far better than the stock unit, and gives your Ford an exhaust note that's authoritative, yet civil.

Monster® Exhaust pipes

Banks' restriction-free exhaust starts with the Monster turbine outlet pipe, which cuts turbo backpressure for quicker response, higher boost and more power. Banks' streamlined Monster tailpipe maintains a constant 3½-inch diameter that slashes backpressure. Includes 4-inch polished-stainless tailpipe tip.

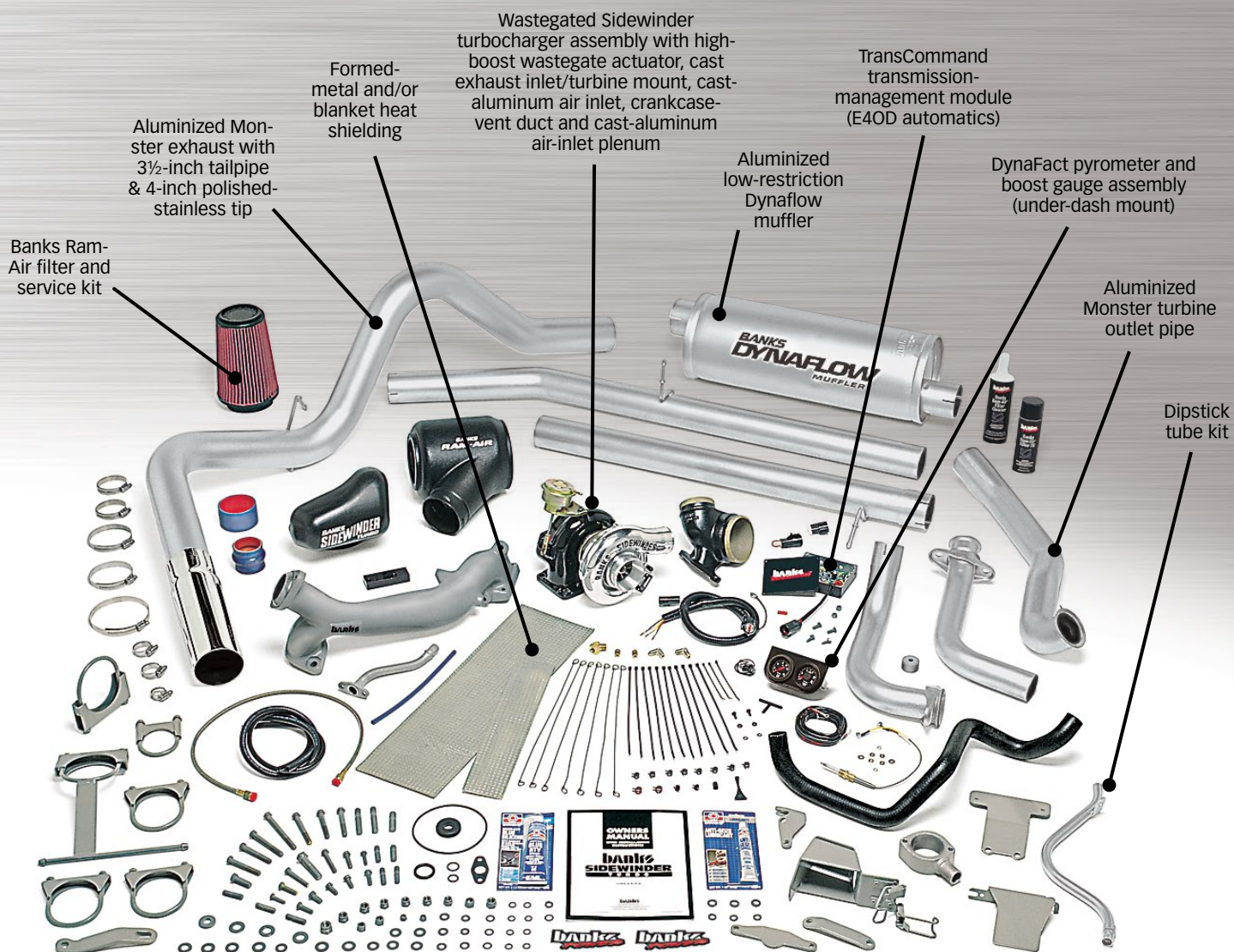
DynaFact® Instrumentation

When you start getting into serious power, it's important to monitor the engine. The pyrometer measures critical exhaust gas temperatures (EGTs), while the boost gauge allows you to optimize your driving for maximum power. Includes 2-gauge mounting panel; optional top-mount available.

TransCommand® Transmission-Management Module

Your Ford's E4OD automatic transmission is tuned for comfortable car-like shifts — fine when you're running empty, but potentially problematic with a heavy load. TransCommand responds to heavy loads by increasing transmission line pressure for firm, solid shifts, reduced transmission temperatures and a more positive torque-converter lock.





Banks Sidewinder® Turbo: Ford 6.9 & 7.3L, '83-94

Introduced in 1983, Ford's IDI (indirect-injection) non-turbocharged diesels earned their reputation as workhorses, but not speed demons. The '93-94 7.3L engines were available with a factory-installed turbocharger, and while they had improved throttle response, their heavy-duty pulling power left a lot to be desired.

Banks has been turbocharging these engines almost as long as Ford has been putting them in trucks. After 20 years the Sidewinder turbo system remains a strong seller. After all, these are 300,000-mile engines—why spend \$35,000 or more on a new truck, when a Sidewinder will make OI® Reliable pull just as well? The Sidewinder adds up to **+82 horsepower, +143 lb-ft of torque and up to 10% better fuel economy**—enough to show those newer trucks a thing or two about pulling a trailer. Sidewinder includes Gale Banks' legendary turbocharger design, plus a full airflow-enhancement system, Monster exhaust and instrumentation. With a Sidewinder, you'll hardly believe you're driving the same truck. (The Sidewinder system can also be used as a replacement for the factory turbocharger on '93-94 turbo engines.)

FORD 6.9 & 7.3L



The Tests

Diesel trucks work hard, so Banks engineers test even harder. First, engine horsepower is measured on the chassis dynamometer using a step-test—a method that gives a realistic power curve, not a sky-high “show number.” Next, Banks engineers load up the truck with ballast and a weight trailer and head for the hills—literally. The 108-mile test-course covers the toughest terrain you’re likely to encounter—long, steep mountain grades, impossibly short onramps, and hot, dry, dusty desert roads. The Banks-designed DynaFact® onboard computer diligently monitors and records acceleration time, merging distance and hillclimb speeds—as well as dozens of engine functions—to ensure that power is being delivered safely.

To evaluate Ford’s non-turbo and factory turbocharged trucks manufactured between 1983-94, Banks conducted two sets of tests, summarized here. Power curves for both trucks, at right.

1982-93 Non-turbo Diesels

Test Vehicle 1992 Ford F350 2wd Supercab dually, 7.3L non-turbo, E40D 4-speed automatic transmission. Loaded weight (truck, trailer and payload): 12,940 lbs.

Test Results Banks contends that no diesel is truly complete until it’s turbocharged, and Sidewinder does the job admirably. The Sidewinder’s battalion of turbo, intake and exhaust improvements—plus instrumentation—conspires to deliver flat-out power. With the trailer, Sidewinder clipped 37% off the 0-to-60 mph distance. And compare the stock vs. Banks’ turbocharged hillclimb speed: from a poky 47 mph to an astounding 72 mph! Instead of saying “C’mon, Betsy” you’ll be saying “Whoa, Nellie!”



1993-94 Diesels (Replacing the Factory Turbo)



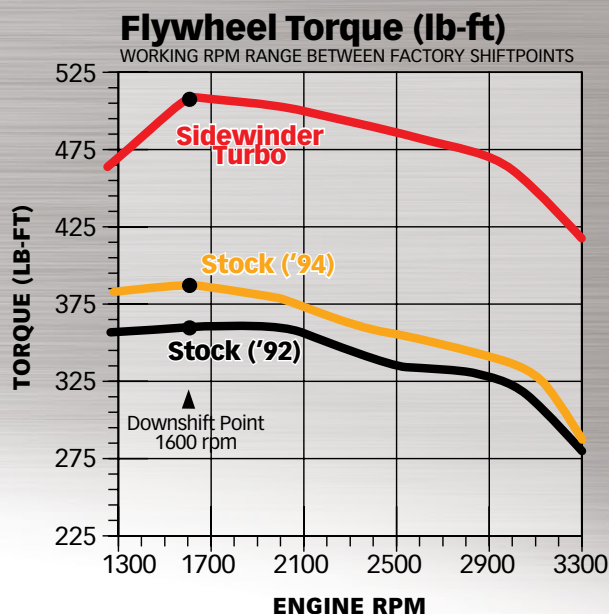
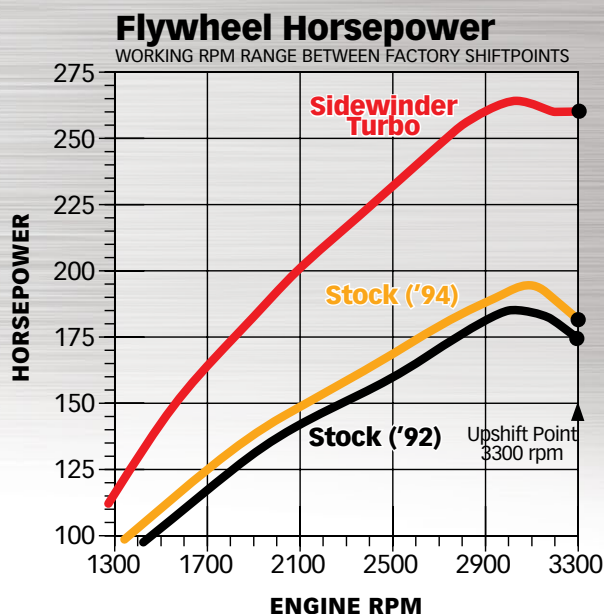
Test Vehicle 1994 Ford F350 2wd Supercab dually, 7.3L with factory turbo, E40D 4-speed automatic transmission. Loaded weight (truck, trailer and payload): 13,290 lbs.

Test Results Sidewinder tests prove that not all turbos are alike—Banks improved Ford’s

factory-turbocharged truck almost as much as the non-turbo truck! With Banks Sidewinder replacing the stock turbo, the loaded truck hustled from a dead stop to 60 mph in well under 1,000 feet that’s 34% shorter. And it took less than 10 seconds to get there.

“The difference in performance created by the new Banks system was like night and day.”
Trailer Life Magazine

“The new Banks Sidewinder system makes the truck go like gangbusters. Turbo lag is almost non-existent.”
Off-Road Magazine

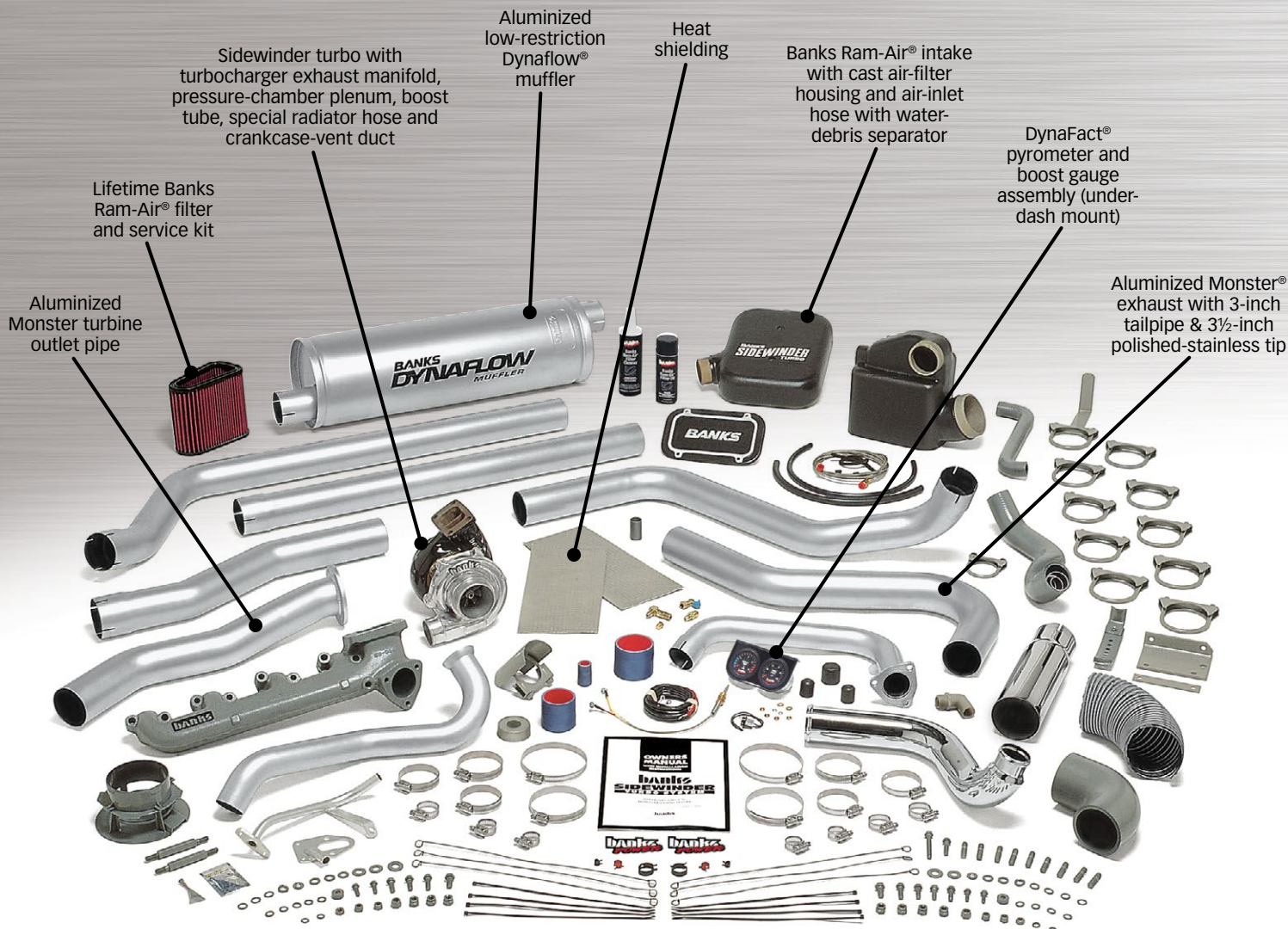


What The Power Curves Mean

If you're accelerating your heavily-loaded stock truck at wide-open throttle, you'll notice that acceleration trails off after 3000 RPM, and it seems to take forever to reach the automatic transmission's 3300 RPM upshift point. You've just run past the horsepower peak. Banks raises horsepower higher in the rev range, so the truck pulls strongly until it shifts. When you hit a hill, the truck decelerates, which slows the engine. With Banks, torque increases as RPMs decrease, allowing the truck to climb hills at higher speeds without needing to downshift.

Data Summary	Stock ('92)	Stock ('94)	Sidewinder® Turbo	Best Improvement
Solo Acceleration 0-60 mph Time	15.57 secs	14.79 secs	9.54 secs	-6.03 secs 39% quicker
Solo Acceleration 40-60 mph Time	7.97 secs	7.57 secs	4.74 secs	-3.23 secs 41% quicker
Towing Acceleration 0-60 mph Time	27.30 secs	25.94 secs	17.24 secs	-10.06 secs 37% quicker
Towing Acceleration 0-60 mph Distance	1507 ft	1432 ft	951 ft	-556 ft 37% less
Towing Acceleration 40-60 mph Time	13.64 secs	12.96 secs	8.65 secs	-4.99 secs 37% quicker
Towing Acceleration 40-60 mph Distance	1014 ft	963 ft	644 ft	-370 ft 36% quicker
Hill-climb Speed, Towing	47 mph	49 mph	72 mph	+25 mph 53% faster
Fuel Economy, Towing	14.13 mpg	13.42 mpg	16.40 mpg	+2.98 mpg 22% better

CHEVY/GMC 6.2L



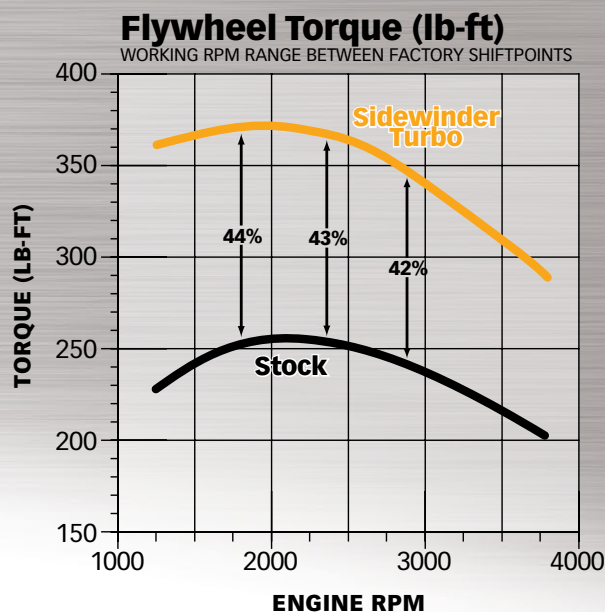
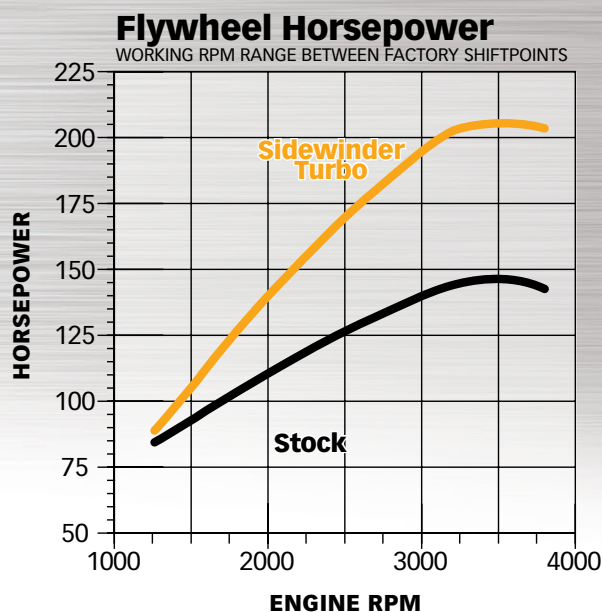
Banks Sidewinder® Turbo: Chevy/GMC 6.2L, '82-93

In 1989, GM selected Banks as the 6.2L factory-turbo option, and remained so until GM released their own 6.5L turbo-diesel. To this day, Banks Sidewinder out-performs GM's 6.5L factory-turbo—or any other turbo. Banks' ultimate upgrade for 6.2L workhorses provides best gains of **+60 horsepower and +115 lb-ft torque, plus 10% better fuel economy**. That's 40% greater towing power—sparkling performance—even at high altitudes. Additional benefits include increased engine efficiency, cooler exhaust temperatures and enhanced transmission life (due to less downshifting). That's no smoke!

Banks Sidewinder is the most complete system available. Sidewinder combines engineering expertise with premium-quality components for performance, reliability and easy installation.

“The turbo increases performance without suffering any mileage penalty for its newfound power.”

Four Wheeler Magazine



Sport Truck Magazine Puts Sidewinder® to the Test

A normally-aspirated diesel 6.2L GMC Suburban and a Banks-turbocharged Suburban were tested, both pulling a 5000-pound boat and trailer. The results? Here's what Sport Truck wrote: "The Banks turbo unit provides almost instant throttle response, with no lag, so your diesel feels more like a big-block gas engine than an oil burner."

In test after test, Sport Truck found that the Banks-equipped Suburban ran circles around the standard Suburban: 38% quicker 0-60 mph in 42% less distance ... 37% quicker passing performance in the critical 40- to 60-mph range ... and a whopping 19% improvement in fuel economy. So the performance gains definitely didn't come at the expense of fuel economy!

"What did the increased airflow do to engine operation? By taking temperature readings while climbing a 4% grade, we found that the turbo motor wasn't working as hard as the naturally aspirated diesel. We recorded a decrease in exhaust temperature of 13%, a decrease in engine oil temperature of 7%, and a reduction of transmission fluid temperature of 12%."

Sport Truck concluded: "It almost sounds too good to be true: increased engine performance with a corresponding increase in efficiency and a decrease in engine wear."

Data Summary	Stock	Sidewinder® Turbo	Best Improvement
Towing Acceleration 0-60 mph Time	42.73 secs	26.63 secs	-16.10 secs 38% quicker
Towing Acceleration 0-60 mph Distance	2500 ft	1448 ft	-1052 ft 42% less
Towing Acceleration 40-60 mph Time	25.10 secs	15.81 secs	-9.29 secs 37% quicker
Fuel Economy, Towing	11.8 mpg	14.0 mpg	+2.2 mpg 19% better