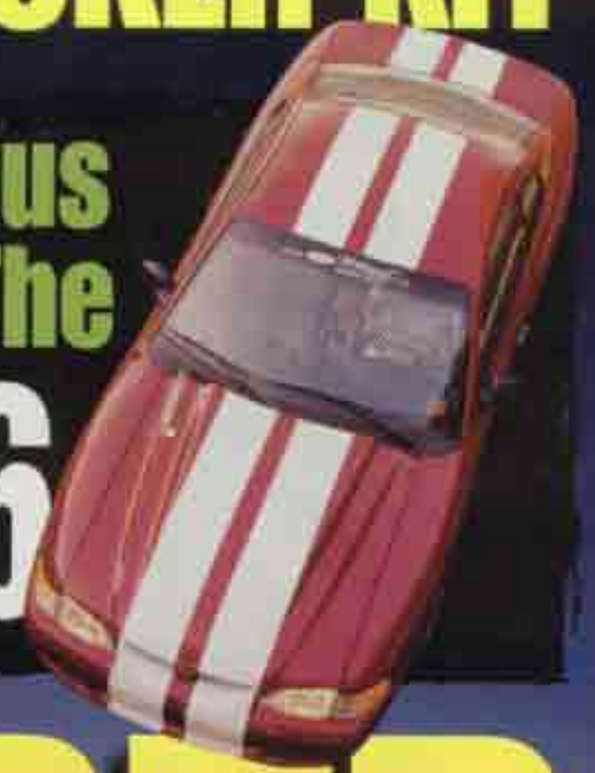
BIG-INCH MUSCLE! NEW STROKER KIT

5.0 MUSTANG

Nitrous For The 4.6



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APRIL 1999
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A PETERSEN PUBLICATION

BLOWZILLA

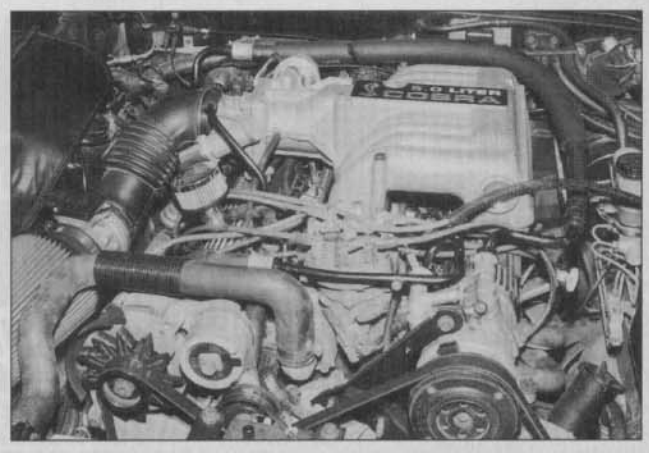
Installing Kenne Bell's monstrous twin-screw supercharger for frightening power and torque

text and photography by Chris Hemer

How the Kenne Bell supercharger kit comes equipped depends on the application, but with the exception of some hoses, clamps, and hardware, this is it. The supercharger comes assembled with the manifold and bypass valve assembly, and bolts into place on top of the lower manifold with help from this billet aluminum support bracket.

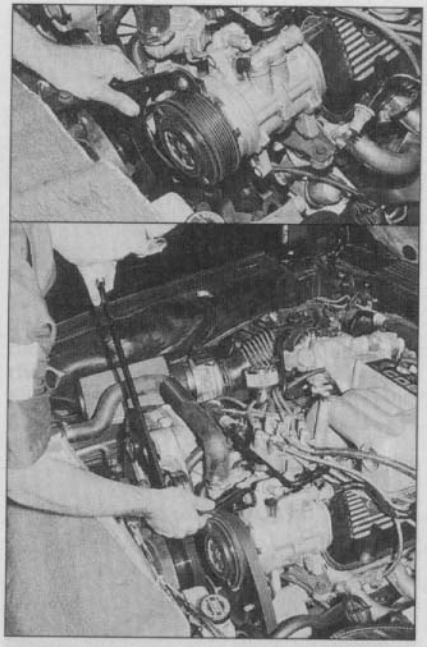
Choosing the right supercharger for your Mustang can be a confusing proposition. Not only are there a variety of manufacturers out there, each with a complete line of superchargers, but there's also the matter of choosing the unit best suited to your application and driving style. To make matters worse, you wonder whether to trust the person on the other end of the phone—after all, they want to sell you a supercharger. And you can't always believe the guy at the speed shop, because if he is a dealer for a certain supercharger company, he's going to try to sell you that unit even if it isn't ideal for your car. Wouldn't it be great if someone would come out and tell you straight up what is the very best supercharger for your application?

Well, we can't really do that, but we are an impartial source for information on the subject (regardless of advertising concerns). We can tell you that if you've got an automatic-equipped 5.0 Mustang that you drive on the street every day, and you want a supercharger that makes immediate, gut-wrenching power and torque, is easy to install, and will grow easily with your needs, then the Kenne Bell "Blowzilla" positive-displacement, twin-screw supercharger kit is probably it.



1 We began the installation on Mike Broder's '90 LX, which features a stock short-block, ported Canfield aluminum heads, and a Cobra upper/lower.

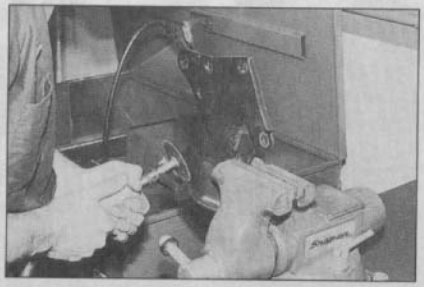
Kenne Bell has been manufacturing its line of supercharger kits since 1991. Based on the Autorotor twin-screw supercharger manufactured in Sweden, KB adds its own intake manifolds, mounting brackets, and hardware to make a kit that bolts on top of a 5.0 powerplant almost as effortlessly as a new intake manifold. The first



***2** Because this supercharger kit requires the modification of the A/C lines, it is necessary to take the car to a shop that is properly equipped to evacuate the refrigerant from the system. With that step completed, Germanson Automotive technician Mike Chavez begins the installation process by removing the accessory drive belt and the front A/C bracket.*

***3** Using the template supplied in Kenne Bell's instructions, the front A/C bracket is first trimmed, then the existing hole immediately behind the cut is enlarged to ½-inch.*

kits were based on the 1.5L rotor design and could develop either 5 or 8 psi boost; the primary difference between the two kits was that the 8-psi TS1000-8 kit was equipped with a smaller-diameter drive pulley for more boost, and included a 155-lph in-tank pump and a Kenne



***4** Next, a 3-inch portion of the lip on the outside edge of the bracket is cut off and ground smooth.*

Bell/Crane ignition retard system. A TS1000-11 (11 psi) version was also available upon consultation.

As the battle of the boost heated up, however, these kits began falling short of some of the competition. With other companies offering kits that were capable of producing 14 psi or more, Kenne Bell found itself in need of a kit that could support the growing need for pressurized power, but would not overlook the fundamental philosophy of low-end power and ease of installation. The answer was Blowzilla.

Based around the same billet aluminum case as the earlier KB kits, the Blowzilla uses a larger 2.2L rotor design that produces 50 percent more cubic feet per minute and is capable of

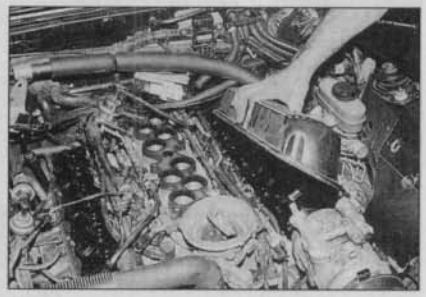
BLOWZILLA

generating anywhere from 6 to 18 psi at only 2,000 rpm by simply changing a single six-rib pulley, according to KB. In addition, all Blowzilla superchargers come assembled with a bypass valve assembly—a butterfly valve configuration of KB's own design and manufacture. According to KB, the bypass valve assembly became necessary due to the supercharger's increased potential. When the throttle is closed, compressed (and therefore, heated) air exists in the intake tract; the bypass valve merely allows it to escape before the engine ingests it. Five to 8-psi Blowzilla kits are 50-state emissions legal, and come with all the necessary brackets and hardware, including a fuel control unit, 155-lph in-tank pump, and boost retard ignition system like most kits on the market. Perhaps the best news of all for the enthusiast is the fact that Blowzilla, like all of Kenne Bell's superchargers, features self-contained oiling and does not require the relocation of any accessories or the installation of an additional supercharger drive system.

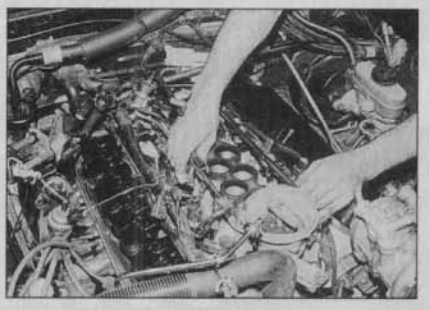
When a Blowzilla kit will be used above 8 psi, it is considered for off-highway use only, and can be tailored to suit the specific needs of the application. That's where Mike Broder's immaculate '90 Mustang comes in. Broder's Mustang features ported aluminum Canfield heads, Cobra upper/lower intake, 65mm throttle body, 190-lph in-tank pump, Crane adjustable fuel pressure regulator, and short-tube headers. To extract the most out of his auto-box equipped 'Stang, he also had it outfitted with 4.10 gears and a massaged AOD/Continental converter from Mike's Transmission (Lancaster, California). But he wanted more. So, the next step was to pay a visit to Germanson Automotive and Performance in Oxnard, California, to see what could be done. Owner John Germanson firmly believes in supplying his customers with the correct supercharger for the application, which is why he is an authorized dealer and installation center for most popular supercharger manufacturers. For Broder's application, John recommended the Blowzilla, because it delivers its maximum, pre-set boost level almost off-idle and maintains it throughout the engine's rpm band. Considering that Broder wanted to extract the most power possible out of the combination on pump gas, it was decided that 10 psi would be about perfect with the aluminum heads.

The next step was to consult with the engineers at Kenne Bell who, after considering Broder's combination, recommended the kit be augmented by 30-pound Motorsport injectors, a recalibrated Kenne Bell 80mm Cobra/Lincoln mass air meter and a Kenne Bell "Switch Chip." The Switch Chip is so named because it features two calibrations, "Power" and "Shootout," each one specifically calibrated from one of 5,400 programs KB has on hand to optimize fuel/ignition curves for the particular application. The "Power" setting is for daily street driving, and features more timing and a leaner mixture at low rpm for improved power and throttle response. As rpm and load increase, the mixture is richened and the timing retarded to keep detonation from rearing its ugly head. When you go to the track, simply fill it up with race gas or octane

***5** With the A/C bracket modifications completed, the next step is to remove the upper manifold. This kit is designed to fit a GT-40–style lower, so it is left in place. Kits to fit stock lowers are also available.*

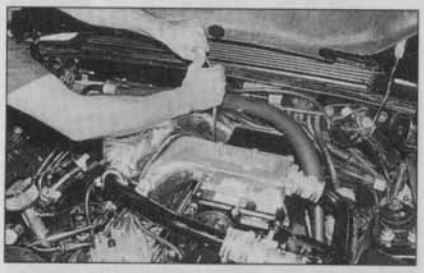


***6** On engines with aftermarket heads and/or manifolds, you may encounter valve cover or blower clearance problems, and perhaps front plate fitment problems. These can be fixed a number of ways: with a special front plate available through Kenne Bell, by changing valve covers, or by using a phenolic spacer between the upper/lower. On Broder's car, the Motorsport valve covers were replaced with stock valve covers (painted black), a Moroso ¾-inch phenolic spacer was used, and the holes in the front plate were made slightly more oblong.*

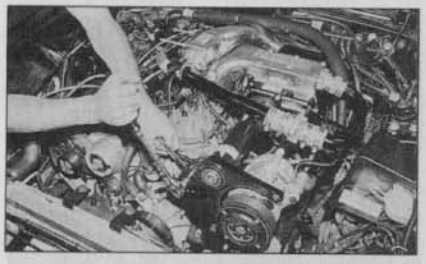


***7** Because this kit was ordered with a 10-pound pulley, the stock injectors were replaced with 30-pound Motorsport injectors.*

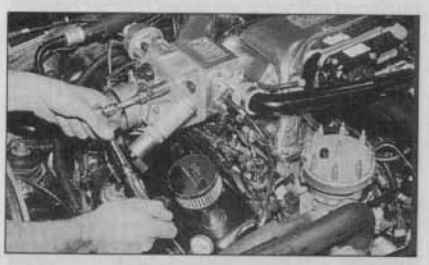
***8** With the new injectors and phenolic spacer in place, Mike Chavez and John Germanson prepare to install the blower assembly. Kenne Bell supplies the fasteners for this step, but Germanson found it easier to fit the lower manifold with studs. This keeps the spacer and gasket lined up while the blower assembly is lowered into place.*



***9** Next, Chavez tightens the intake manifold stud nuts.*



***10** The front supercharger support bracket is then bolted to the modified A/C bracket.*



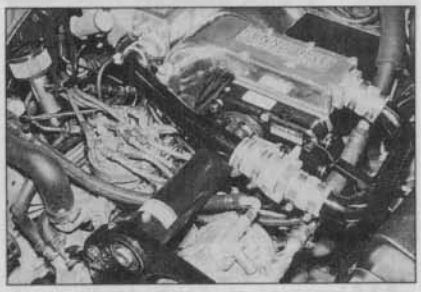
***11** The Cobra manifold comes with the EGR spacer built-in, so in order to reinstall Broder's 65mm throttle body on the Kenne Bell intake, an Edelbrock/BBK 65mm EGR spacer was necessary.*

booster, flip the small toggle switch to the "Shootout" setting, and the engine will receive more timing and an optimized fuel mixture throughout the rpm range. It's the best of all worlds, and there's nothing to adjust.

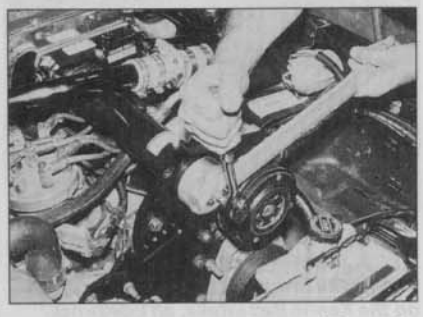
Because the Kenne Bell kit features self-contained oiling and does not require the relocation of any accessories, installation time on an otherwise stock 5.0 Mustang can be as little as five hours, including fuel system modification. The results are impressive to say the least; Broder's Mustang developed nearly 110 extra horsepower and over 90 lb-ft of torque at the rear wheels, and it drives as if it had a big-block under the hood—no boost lag whatsoever.

If you've got a stick shift or an automatic-equipped race car, your choices for supercharger supremacy are almost too numerous to mention. But if you've got an automatic-equipped daily driver, and you want a supercharger that can deliver the best of all worlds, the Kenne Bell Blowzilla is it.

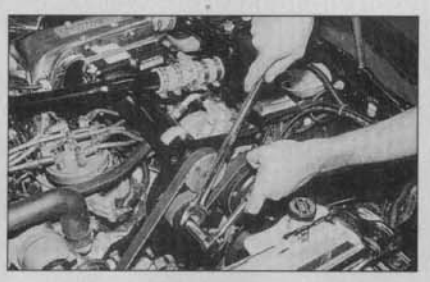
12 *Remember when we said that the kit involves the modification of the A/C lines? Actually, the whole section of hard line is cut out and discarded on both hoses, and is replaced by a supplied heavy-duty rubber hose suited to this purpose.*



13 *Here, you can see where the original hard-line sections were replaced with the supplied rubber hoses.*



14 *Next, the supercharger drive pulley is installed with the supplied pulley wrench.*



15 *The final step is to install and adjust the tensioner assembly. This trick piece is fully adjustable through the use of an eccentric and multiple mounting holes, allowing you to go up or down in pulley size without changing the belt.*

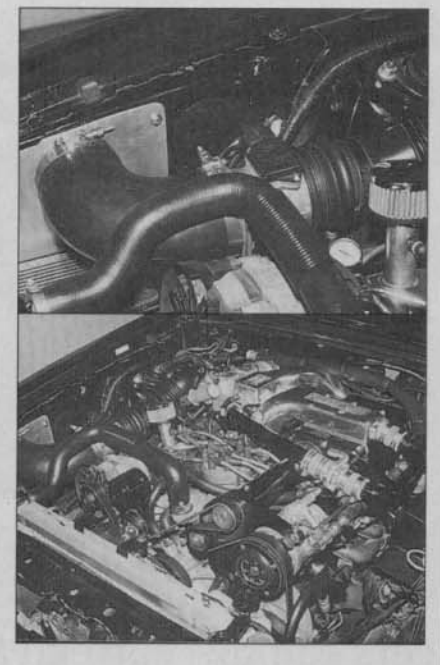
16 *Because of the bigger injectors, a recalibrated mass air meter was required. Kenne Bell's specialty is its 80mm Cobra/Lincoln mass air meter that is recalibrated to function with KB's own Switch Chip.*

17 *Here is what the completed installation looks like.*

Sources

Germanson Automotive and Performance
Dept. 5.0
4082 N. Southbank Rd., Unit A
Oxnard, CA 93030
(805) 981-1055

Kenne Bell Performance Products
Dept. 5.0
10743 Bell Court
Rancho Cucamonga, CA 91730
Orders: (909) 941-6646
Tech: (909) 941-0985



18 *Later, Chavez tidied up the engine compartment even more by installing this fabricated ram air set-up. The aluminum plate bolts to the stock air box holes and features a section of 4-inch pipe welded into the center. A K&N cone air filter clamps to the other side, and a large piece of rubber elbow with heavy-duty clamps (available at diesel truck parts supply outlets) clamps to this side and to the mass air meter. If you don't have the resources to fabricate such a setup, no worries—Kenne Bell offers their own ram air system as well.*

19 *Broder's Mustang was dyno tested on Germanson's 500hp in-ground computerized chassis dyno before and after the Kenne Bell supercharger installation. With a stock short-block, ported Canfield heads, Cobra upper/lower, 65mm throttle body and short-tube headers, the car made 240.5 hp at 5,000 rpm and 277.4 lb-ft of torque at 3,750 rpm. By bolting on the Kenne Bell Blowzilla (10 psi), 30-pound injectors, and a Kenne Bell-calibrated 80mm mass air meter with Switch Chip, power increased to 349.8 at 5,500 rpm, and torque jumped to 367.7 lb-ft at only 3,500 rpm.*