REAR-END GAME CHANGER: NEW 8.8-INCH DROPOUT CASE

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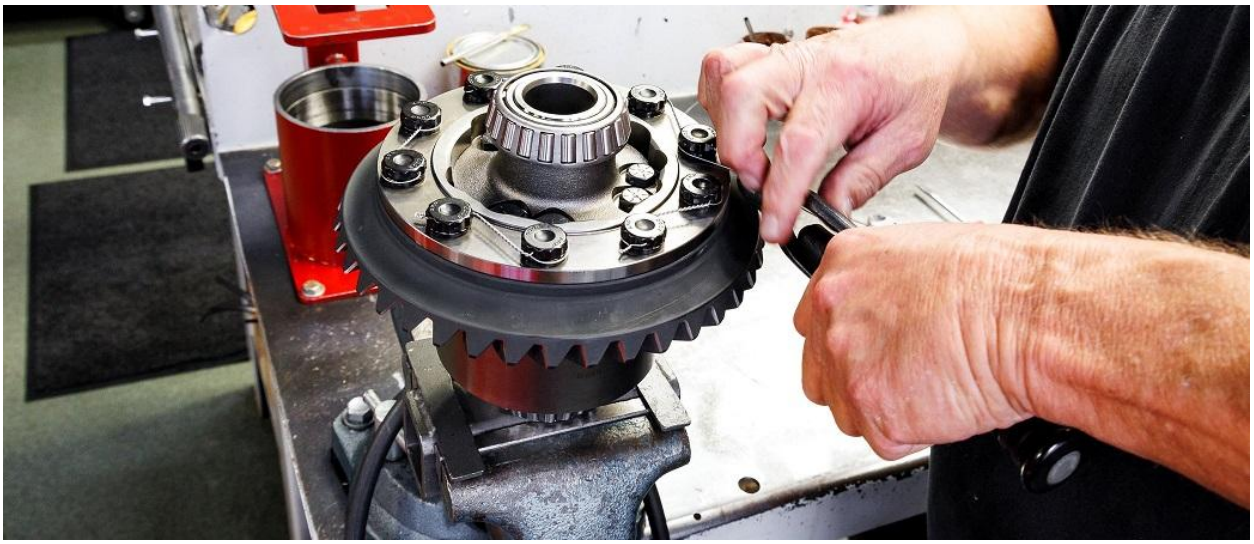
If you look under almost any kind of modified performance car, chances are you're going to see a Ford 9-inch rear end in back. It's one of those all-time megahit performance pieces that transcends model, make, and genre. And with good reason. The Ford 9-inch offers a uniquely compelling blend of strength, affordability, aftermarket support, and convenience. Given those advantages, it isn't surprising that it has become the typical first choice in everything from street rods to pro mods.

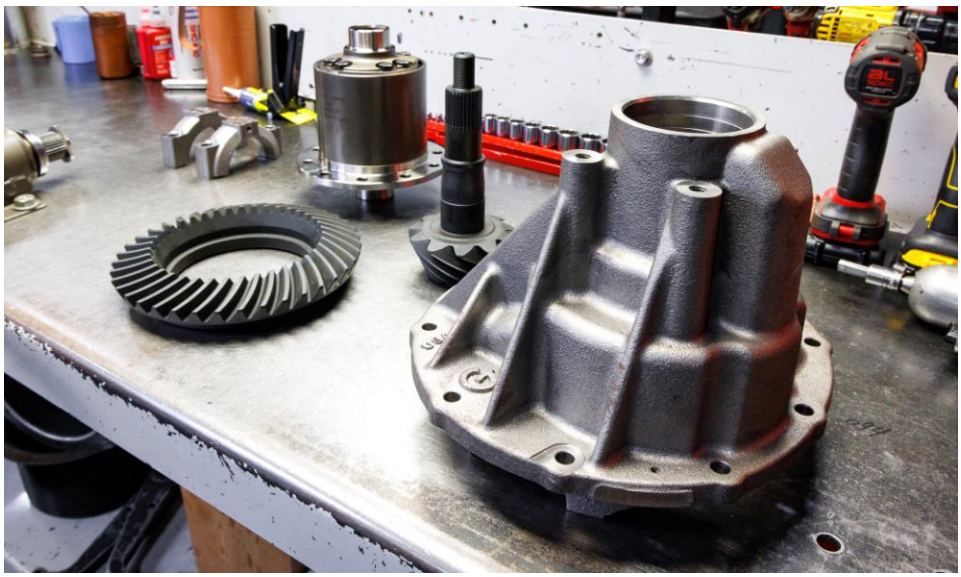
But that's not to say the 9-inch is perfect. The very thing that helps make it so strong – its low-mounted pinion – also creates a lot of gear noise. Even fresh-from-the-shop, newly assembled 9-inch rear ends with all-new components have some amount of the characteristic whine this venerable design is known for. Many car builders have just learned to live with the sound. But car builds of all types have gotten increasingly sophisticated over the years, often looking to leather-laden, tech-filled European performance sedans for inspiration. In that pristine environment, gear noise from a rear-axle assembly stands out like the proverbial sore thumb.



PERSISTENT CHALLENGE

It’s a challenge that leading rear-axle builder GearFX and fellow Holley division Detroit Speed & Engineering have been facing for years. GearFX has developed an entire methodology for building the quietest 9-inch rear ends humanly possible. Their system includes brutally rigorous testing and selection of components, meticulous assembly methods by seasoned experts, and precise break-in procedures on the company’s one-of-a-kind differential dyno.

From this tireless work, GearFX can say with confidence that they offer the quietest 9-inch rear ends available anywhere today. Even so, both companies have long ago conceded that they’ll never make a completely silent 9-inch. “Depending on how your car is, even with loud exhaust, sometimes you can hear a 9-inch whining back there,” says Chris Stein-Martin of Detroit Speed & Engineering. “That’s what some people are frustrated by. I’ve heard of guys swapping multiple gear sets in and out of their 9-inch trying to get rid of that whine because it was driving them crazy.”



Building great gear assemblies takes great components. GearFX's testing of parts borders on the fanatical, with technicians choosing not just the highest-quality brands, but then taking it a step further and selecting the best pieces from batches of those components. The FN988, shown here, is assembled with that same meticulous attention to detail.

ENTER THE 8.8

Faced with customer demand for strong rear ends that are quieter than the 9-inch, GearFX and Detroit Speed began considering alternatives to the famed Ford design. Among the options they explored was the Ford 8.8-inch rear end. These units can withstand considerable abuse, as proven for decades by the Ford racing community.

And, unlike the 9-inch, the 8.8's pinion gear doesn't have the extreme low offset on the ring gear, so it runs more quietly. And, besides the reduced noise, the 8.8's higher pinion location is more efficient, sapping less power than that of the 9-inch. And perhaps most important, there are OEM parts available for it. "You can still get Ford-built gear sets for an 8.8," says Stein-Martin. "They're the quietest – even quieter than aftermarket. So you can get an 8.8 to be dead silent, like an OEM application."

One of the main differences between the 8.8 and the 9-inch is the pinion location. The 9-inch's pinion is offset lower on the ring gear than that of the 8.8. This low position adds strength, but it saps power and creates noise, making the 8.8 relatively silent by comparison. Further adding to the 8.8's quietness is the availability of OEM gearsets for it.

THE GREAT DROPOUT

Up to this point, however, the 8.8 has lacked one of the 9-inch's more beloved design characteristics – its removable dropout housing, which allows relatively quick servicing and gear-ratio changes. The 9-inch's dropout case also allows mixing and matching of cases and axle housings, resulting in a practically unlimited number of potential rear-end configurations.

So, in a brilliant stroke of inspired design, GearFX and Detroit Speed have combined the best of both worlds, developing an 8.8-inch Ford rear end mounted in a dropout third member. This new design, which the company calls the FN988, uses standard Ford 8.8 components in a dropout case that bolts into any 9-inch format axle housing.

"Everybody likes the convenience of the 9-inch's dropout carrier," says Stein-Martin. "And we'd been looking at what we could do to make a 9-inch quiet. Then we thought of just putting a quieter gearset in that carrier. So we laid it out to see if that was something we could package in there. And it turns out, we could. That's where the FN988 started."

The FN988's dropout case is based on the general configuration of the 9-inch, and it fits 9-inch axle housings. But it's an all-new design created by GearFX and Detroit Speed. This made-in-USA nodular-iron case accepts all standard 8.8-inch components. Visible here are pre-drilled holes on the front pinion area for mounting accessories such as speed sensors or pumps.

BUILT FOR SPEED

The FN988 is built on an all-new, proprietary-design case made of high strength nodular cast iron. The unit is cast in the U.S., and machined at Holley's manufacturing facility in Bowling Green, Kentucky. It uses an Eaton Detroit Truetrac differential, and forged alloy-steel carrier bearing caps, along with a solid pinion preload spacer for maintenance-free preload adjustment.

The FN988 accepts all standard 8.8-inch components and uses normal 31-spline axles – with the caveat that the 8.8 differential is offset differently than the 9-inch, meaning that axles may not be interchangeable with those of a 9-inch used in the same axle housing. Initially, the FN988 will be offered with a choice of five gear ratios: 3.08, 3.27, 3.55, 3.73, and 4.10.

To further accommodate different applications, the FN988 has four mounting holes on the front pinion area for bolt-on accessories, such as speed sensors or pumps. Also included are thoughtful touches like threaded jack-bolt holes designed to ease the removal of the case from the axle housing. "Gaskets typically leak on carriers," says Stein-Martin. "So, really, using just RTV works best. But then once you've got it stuck on there with RTV, it's hard to get that housing back off. So that's why we put those bolt holes on the case, so you can just screw some bolts in there to push it off. It makes it a lot easier to get out."

The Ford 8.8 has a long history of reliably handling punishment in drag competition and other demanding environments, especially when prepared with premium components. The FN988 comes with a 31-spline Eaton Truetrac differential, giving it strength roughly equivalent to that of any other rear end with 31-spline axles, says GearFX.

REAL WORLD STRENGTH

According to GearFX, the FN988 is ideal for multipurpose vehicles such as pro-touring, or street/strip machines that see a fairly even blend of brisk performance use and mellow cruising – in other words, the vast majority of modified performance cars of all types.

But then this raises an important question – strength. The inherently stout construction of the 9-inch is one of the big reasons people have been putting up with its somewhat raucous personality for so long.

How strong is an 8.8? “That’s a great question,” says Stein-Martin. “We haven’t broken an 8.8 yet, so we don’t know where the limit is. But the FN988 comes with a 31-spline Eaton Truetrac in it, so the limitation is really going to be whatever power you can run through a 31-spline axle.

“So, I guess my question would be, what is it about the 9-inch that you want?” continues Stein-Martin. “If you want to run a 9-inch because you’ve got 3000 horsepower and you want the strongest thing available, I wouldn’t try to talk you out of that – the FN988 isn’t the rear end for you. But if you’re within a more typical application, there’s no advantage to the 9-inch over the 8.8. And the 8.8 is a quieter, more efficient gear, with less power loss.”

The FN988 is clearly a game changer, finally offering a truly viable alternative to the ubiquitous Ford 9-inch design, while retaining its handy dropout configuration and much of its vast aftermarket support. Best of all, the FN988 offers these benefits at a price comparable to similar, premium-quality 9-inch units.

For anyone who’s tired of the familiar old, “nine-whine,” it could be the biggest bargain to come along in ages.

The FN988 combines the 9-inch's convenient dropout carrier and vast aftermarket support with the quietness and OEM gear availability of the proven 8.8-inch design. Such a winning combination is sure to be popular with car builders who love the 9-inch but don't like its noise.