

# AFFORDABLE STRENGTH: WOODY'S HOT RODZ BETTER BUDGET 9"

Time: 8-10 hours  
Skill level: Moderate

By Ian Bowman

It's no secret the factory 10 bolt offered in 1955, '56, or '57 was no strong piece. Even in its respective time, the dinky factory 10 bolt was commonly swapped out for a larger Olds or Pontiac 9.3" unit to increase longevity in hot rod applications. With a 8.2" ring gear, and input shaft-esque 17-spline axles, it was far from the epitome of durability when faced with additional horsepower or spirited driving. And now some 60 years later when your average street engines make what many race engines did at that time, the factory rear simply isn't long for the world in many (read: most) performance applications.

Even if it's a car that's driven like a normal, sane human being (unlike mine), the factory rearend leaves a lot to be desired. Tiny axle bearings generate a tremendous amount of heat at prolonged highway speeds, turning the axle ends oblong, essentially ruining the bearing's ability to seal and making for a smelly mess all over the inside of the rear wheel.

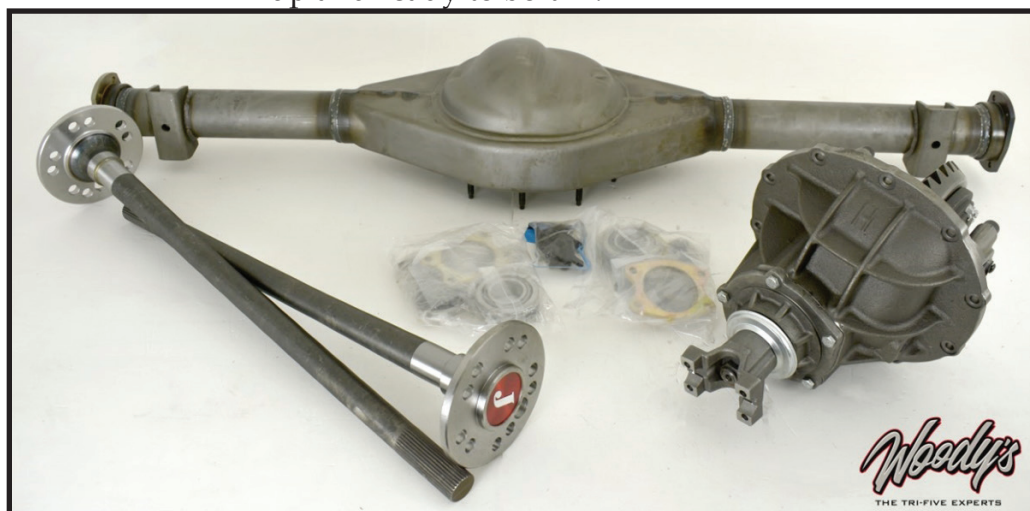
As mentioned earlier, rearend upgrades are nothing new. People have been stuffing the "big Olds" under the back of these cars almost since they were new. Outside of that, you were left with welding leaf spring pads onto a more modern 10 or 12 bolt to make for more strength. But even they have their flaws; A failure on stock axles meant a bad day for your quarter panel, as once the axle itself breaks, the c-clip that holds the axle into the differential is rendered useless, and the axle/brake/wheel/tire are free to move outward and destroy everything in its path. In modern times, we've been

American Tri-Five

afforded the luxury of bolt-in 9" rearends. Unfortunately, as with most luxuries, many of these options aren't the cheapest thing in the world. If building a car on a budget, even one that's not built with performance in mind, upgrading the rear to a stronger, more reliable unit is out of the cards.

Fortunately, whether you're headed to the strip, or headed across the country, Woody's has an answer that won't break the bank with the Better Budget 9" rearend (P/N WHR-BB9). This rearend features a true bolt-in housing, built to factory width with pre-welded leaf spring pads, hardened 31 spline axles, and assembled third members with clutch-type posi units and your choice of gearing. And if you're building a strip terror, they even offer the option of a beefed-up aluminum third member. Combine this with the Woody's 9" brake kit (P/N WHR9BK), and you've got an all-inclusive bolt in package for even the most discerning gearhead at roughly HALF the cost of every other 9" option. And I'm here to show just how straight forward the install really is!

As delivered, the BB9 only requires minimal assembly. Third member comes completely set up and ready to bolt in.



Since my delivery sports a roughly 500HP small block up front, I opted for the upgraded

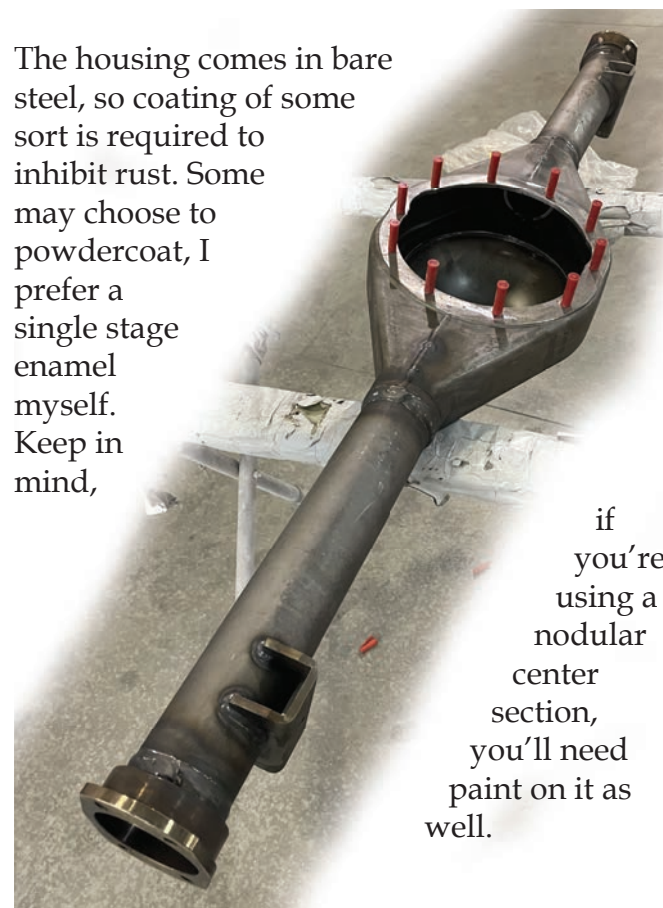
aluminum third member. And this thing is a beast! Featuring thru-bolt construction, a 10-bolt billet pinion support, and a billet 1350 yoke, this thing is definitely capable of taking some abuse. And it's no secret to anyone who follows me on any social media (@speedkillsian) that the Speed Kills wagon doesn't lead an easy life!

Flip side features a clutch-type posi and billet caps. With components like this, there's no worry of carrier failure in the slightest, ever under the highest stress.



The housing comes in bare steel, so coating of some sort is required to inhibit rust. Some may choose to powdercoat, I prefer a single stage enamel myself. Keep in mind,

if you're using a nodular center section, you'll need paint on it as well.



A DA sander with some 180 grit is my weapon of choice for scuffing up a bare surface. This will help promote mechanical adhesion, making sure my paint never flakes.



Once scuffed, a generous helping of lacquer thinner or paint prep will make for a clean surface.



I prefer an etching primer on any bare metal surface such as this. Again, promoting mechanical adhesion is key to making paint live, especially in a scenario of under-car use.



And color! Majic 8-2959 is my go-to, easy to spray, and tough as nails. This can be found at most local farm stores, such as Tractor Supply, and is very affordable.



As mentioned, the trusty Speed Kills test mule is the recipient of our 9". Since the gasser stub was done, and the rowdy BES Racing Engines built 355ci SBC was installed, I knew sooner than later, driveline upgrades were going to be a must.



Removal of the existing rearend starts by getting the wheels and tires out of the way. I receive many questions on this one. The current wheel/tire combo is a Wheel Vintiques 15x7, 4" backspace, shod with M/T (soon to be Firestone) 8.20-15 cheaters. It's a bear to get them out, with them being so tall you do have to let the rearend hang and deflate them, but they do go in and out!



With the wheel and tire out of the way, you'll notice I'm already equipped with rear disc brakes....



.... that's because long ago, I swapped the factory rear to a 8.5 10 bolt out of a second generation F-body. Where this was great for a mild streetcar and will find a new home in my 4-door sedan, it was definitely living on borrowed time with 6000RPM clutch dumps on a tall slick. So, this was most certainly a preventive endeavor.



Driveshaft's gotta make way! So, u-joint straps are first to go.



Remove the driveshaft and put it somewhere safe. We won't need it for a bit.



Next, take your shocks loose from your spring plates. Also, if you have a traction bar in play, now is the time to remove it.

You can just pull the shocks up and out of the way if you'd like, though on a normal passenger car, I'd go ahead and remove them completely. Being as this is a little more difficult on a wagon, I chose to "let 'em hang!"



Next will be to remove the spring plates. These get reused with the 9", though if yours are crusty, consider swapping them out with a fresh set, P/N CPP-5557LSP



Remove the spring plates and u-bolts completely; the weight of the rearend will keep it on the pins and keep it from going anywhere.



Make sure to remove your flexhose from your brake hardlines, and from the tab on the frame. You can leave everything hooked up on the rearend.



Now's where it gets fun; what goes in, must come out! If you have a 2-post lift and a transmission jack at your disposal, simply supporting the rearend and taking the leafsprings loose at the front eyelet is the easy answer. If you aren't privileged enough to have such at your disposal, a second set of hands will make quick work of lifting the rearend over the leaf springs.



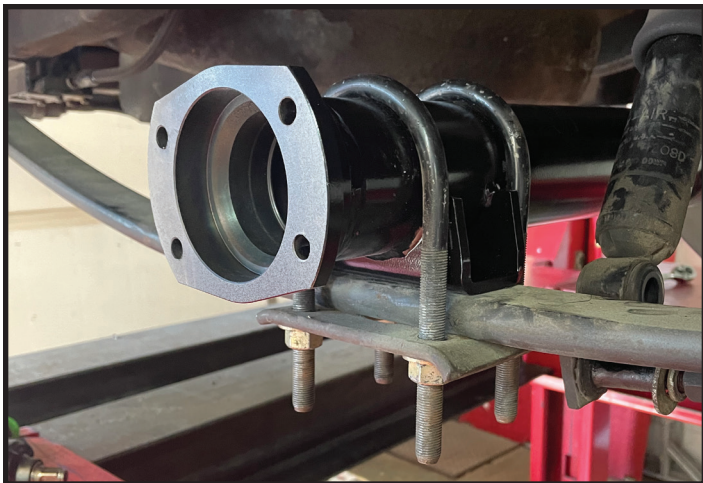
That big empty hole won't be empty long!



Some may choose to assemble their rear completely, then install. I prefer to do so in the car, so you'll notice bare housing is the first to go in.



The BB9 housing set down perfectly onto my leaf spring pads. There may be some level of pushing or pulling required with your particular application in order for it to fall into place. Do note, these pads dictate pinion angle, so the rearend should NOT be level.



With the housing in place, reinstall your u-bolts. Remember, u-bolts inherently stretch, so no need to bang on these things with your biggest impact. A solid 70-80ftlb is what you're looking for.



Next come your shocks. Again, this isn't wildly necessary at this point, but since I'm already working over here, I prefer to simply button up one area at a time, especially since I left my shocks hanging.

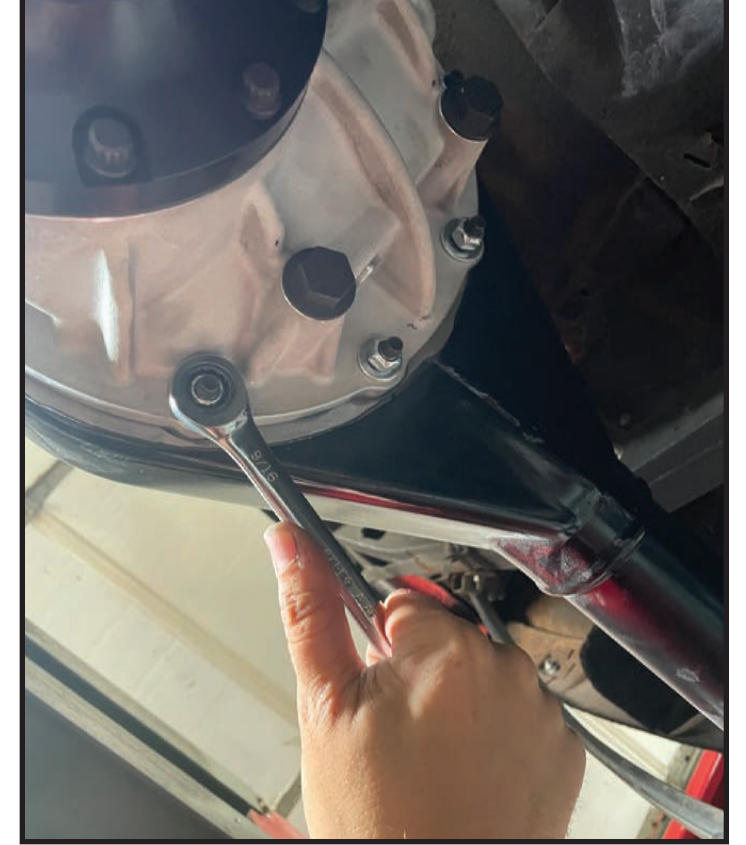


You're ready for some gears! Always prep the housing and third member both with your favorite cleaning solution for maximum sealing. No one likes a puddle of gear oil under their car!

You have a few options here: One, you can procure a gasket and simply run that (I don't recommend this, a paper gasket is almost always too thin to seal the two surfaces. Two, you can do a gasket covered in a thin layer of silicone. Or lastly, you can simply use silicone. Option three almost always provides superior sealing, so we went that direction. Black Right Stuff in the large can, featuring the squeeze trigger, is usually my weapon of choice here for an oil-resistant seal.



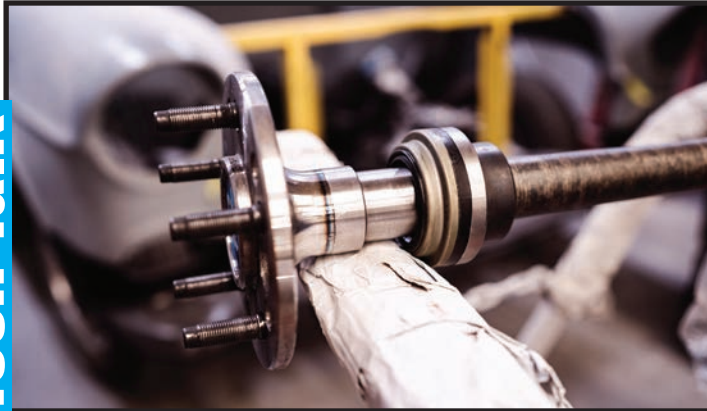
With your silicone applied, you can install your third member. This is one place the aluminum upgraded third member makes it nice; this guy weighs almost 20lb less than its nodular iron counterpart!



Install your nuts and washers, and torque in a star pattern to pull the third member down evenly. These are torqued to +/- 30ftlbs, though it isn't a crucial spec. A few of these nuts, you won't be able to get a torque wrench on at any rate.



And there we are, center section installed! Not only is this dude strong as can be, it's also aesthetically pleasing all the same. Or maybe my former 10 bolt had just become dingy thanks to all the burnouts.... anyways....



It's axle time! The BB9 comes with taper axle bearings, which provide greater side load handing than your standard sealed bearings, as well as superior cooling as they're constantly cooled by rearend grease. Woody's offers these pre-installed for a small upcharge; they come uninstalled in standard format, and same goes for the wheel studs.



Simply slip the axle bearing onto the axle SEAL OUT and use a shop press to push the bearing on. TAKE NOTE: I strongly recommend pressing the bearing and the bearing retainer on separately, unless

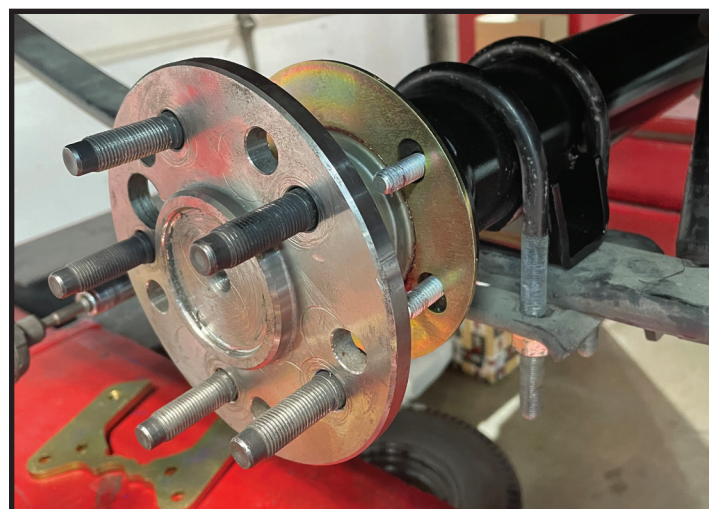
you have a really big press. You'll press the bearing all the way on, until it seats against the flange on the axle, and the retainer on until it seats against the bearing.

With your bearing pressed on, give the seal surface a generous coating of your favorite grease, to keep from binding in the housing. If you're extra nervous about sealing, you can use some silicone here as well, though in my experience with new housing ends and this style seal, it simply isn't necessary.

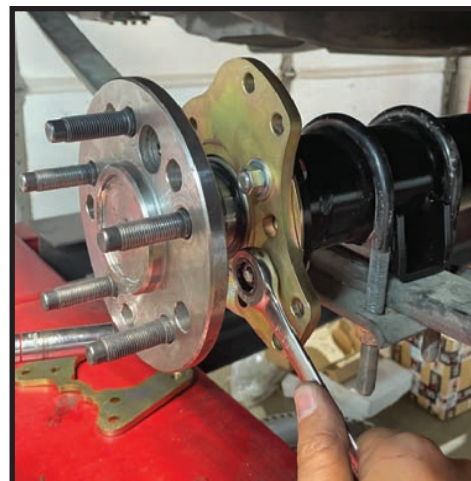
Apply a coating to the axle splines as well. This will help engagement.



Time to slide the axle in. Install your t-bolts and slide the axle into the housing. Note that the gold spacer from our brake kit (P/N WHR-9BK) gets slipped onto the axle BEFORE going in. In all theory (and if you were installing this brake kit on an existing 9" rearend) you could cut a notch into the spacer and slip it over, but at this stage, it's easier to pre-install.



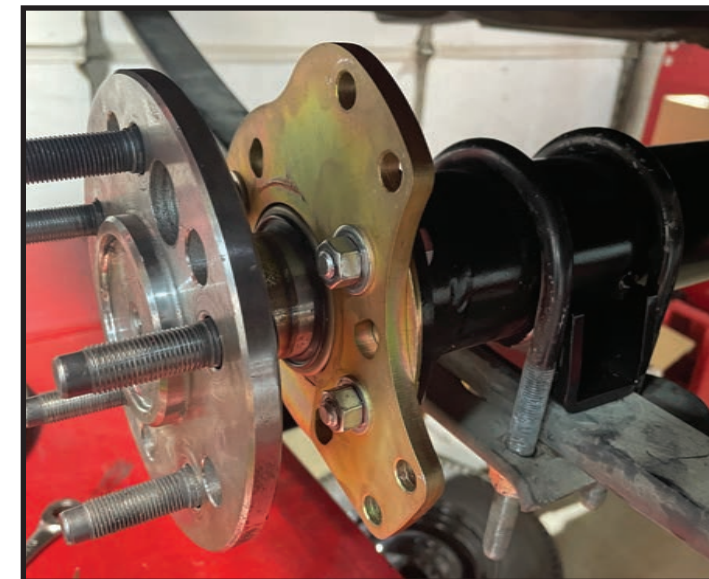
With the axle full seated, the spacer takes up the room left by the ridge in the seal. There will be a small amount of preload here, but just enough to hold the seal in place.



Next comes the bearing retainer, which also serves as bracketry for your caliper bracket. On leaf spring Tri-Fives, this MUST go towards front of the car



in order to provide clearance to install the slide pins in the caliper. On a 4-link application, caliper can be front or rear mounted. Bolt this down using supplied hardware. Once the bracket is bolted into place, remove the nuts one by one and apply a small amount of red loc-tite.



Retainer/bracket is installed!



Note the spacer moving the retainer outward. DO NOT FORGET THIS SPACER! Doing so WILL damage the seal and/or the bracket.

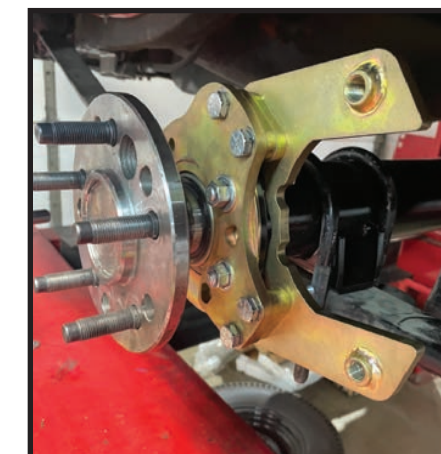


The main caliper bracket will take a little amount of "doing." The 9BK brake kit

comes with an assortment of shims that go from the retainer bracket to the main caliper bracket in order to center the caliper on the rotor. Since there are multiple different axle offsets when it comes to 9" style rearends, and even some amount of variance in brake components themselves, this likely will vary from application to application. With the BB9 and these brakes, I started with two of the large shims. These will be the same top to bottom.

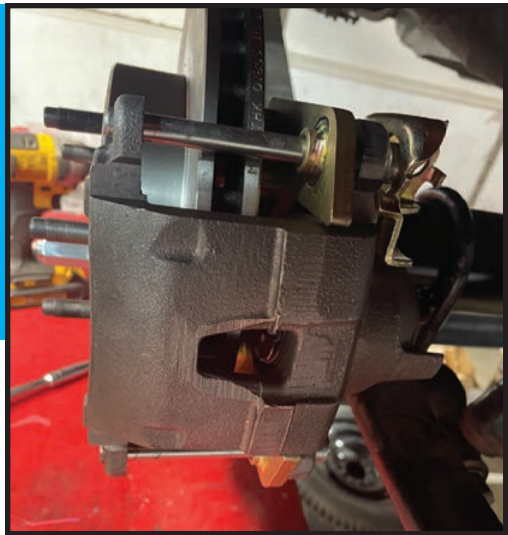


Slide on a brake rotor to start the mockup process. Do note: It is not uncommon for there to be some "clearancing" to the inside hole on your rotor, depending on different brake kits, and different axles. Also note, a handy trick is to use a single lug nut to hold the rotor in place during mockup, and free up a hand to work.

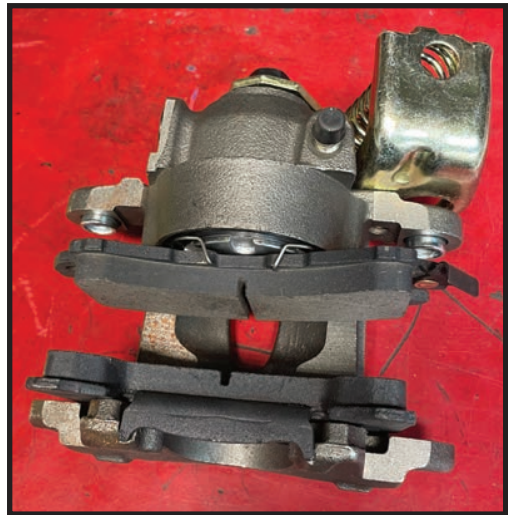


Bolt on the caliper brackets with the raised portion facing towards the outside of the car.

Go ahead and mockup a caliper onto the bracket to check your placement. Luckily for me, my first guess was dang close, and this wound up working right out of the gate. Do note, this may vary



from side to side as well due to production variance, so make sure to check BOTH sides individually.



With your shims figured out, and your caliper bracket bolted down, go ahead and load your caliper up with the supplied pads.



Apply some grease to your brake slide pins to promote free movement.



...and bolt down the caliper!

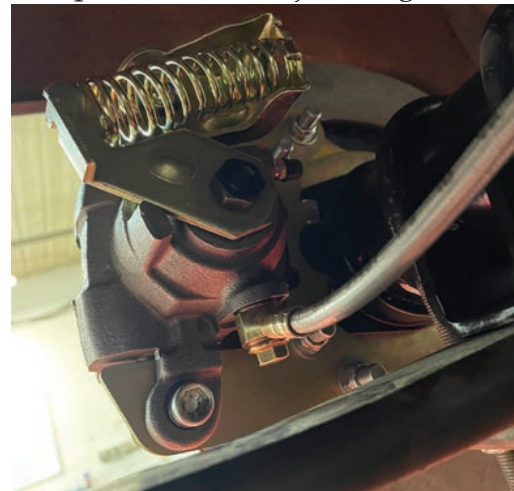


Next comes your lines. Our 9BK brake kit comes with a stainless braided brake hose for the rear.



Make sure to use the supplied copper sealing washers on BOTH side of the banjo fitting. Failing to do so will make one heck of a mess!

Orient the angle of the hose AWAY from the caliper. Flipping this will prevent the banjo fitting from

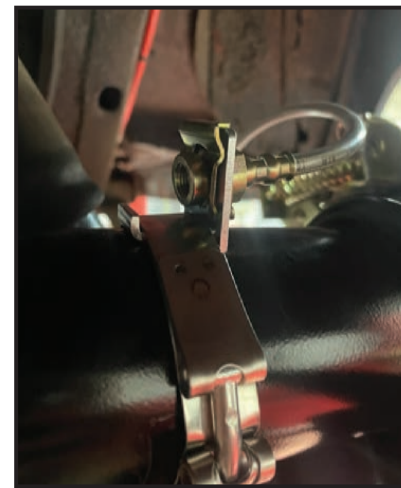


sealing all the way, as it will make contact with the caliper itself before seating.

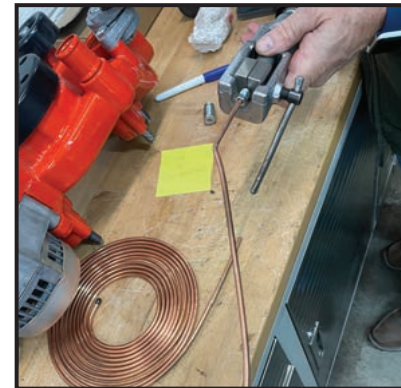
The BB9 does not come with hose retainers pre-welded onto it. You have multiple options here: weld on, or bolt on tabs. For ease of installation, I chose to use the bolt on style from CPP, P/N CPP-RBHTK.



You'll want to position these far enough towards the axle flange to provide room in the hose to remove the caliper from the bracket for service purposes. Once you've got them where you want them, simply tighten down the clamp.

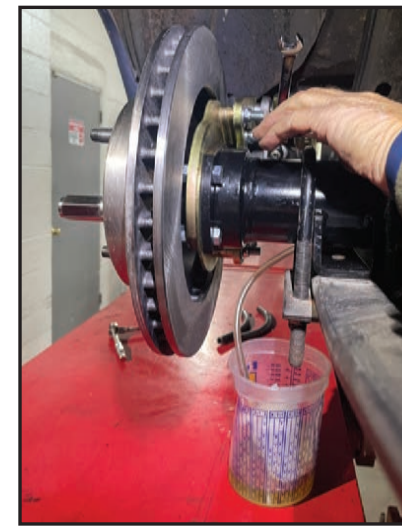


And with them bolted down. Slip the hoses through and install the clips to hold them in place.



There's plenty of pre-bent brake line setups out there, but for prime fitment, I chose to bend my own. NiCopp brake line is my weapon of choice any time I'm running hardline.

(Bottom) One of the perks of running new brake line, is I was able to reuse my existing flexhose/tee fitting. Pre-made kits will always dictate where that lands, and it may or may not be conducive to the pieces in play. Reattach the flex line, and we're all buttoned up!



Go ahead and bleed the system, starting at the furthest point. Be warned, this is my LEAST favorite part. Some of these systems can be a real bear and require gravity bleeding for extended time in order to work out stubborn air bubbles. Fortunately, this one was nice to me.

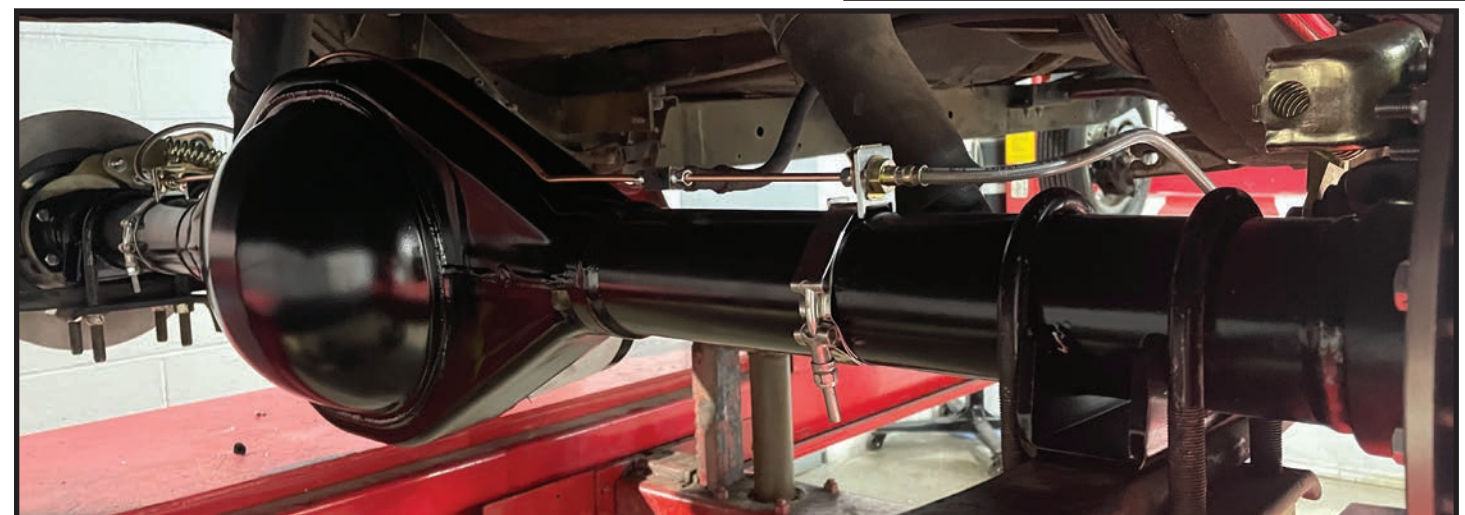


Give everything a gratuitous hose-down with brakekleen, Oils from your hands, brake fluid, and the rust preventative applied to the rotors all will inhibit braking ability and shorten pad life.

The 10-bolt in the Speed Kills test unit had a 1310-style u-joint to start with, so that certainly wasn't going to work with the BB9. Thankfully, when I had the driveshaft made, I knew this day would probably come, and had a 1350-style yoke installed, and had been running a Neapco 3-3140 conversion u-joint. This particular u-joint can be used in reverse to go from a 1310 driveshaft to the 1350 yoke on the BB9 as well.



A heavy-duty Spicer 1350 joint will add additional strength for high-RPM launches.





Install your u-joint using your favorite means.



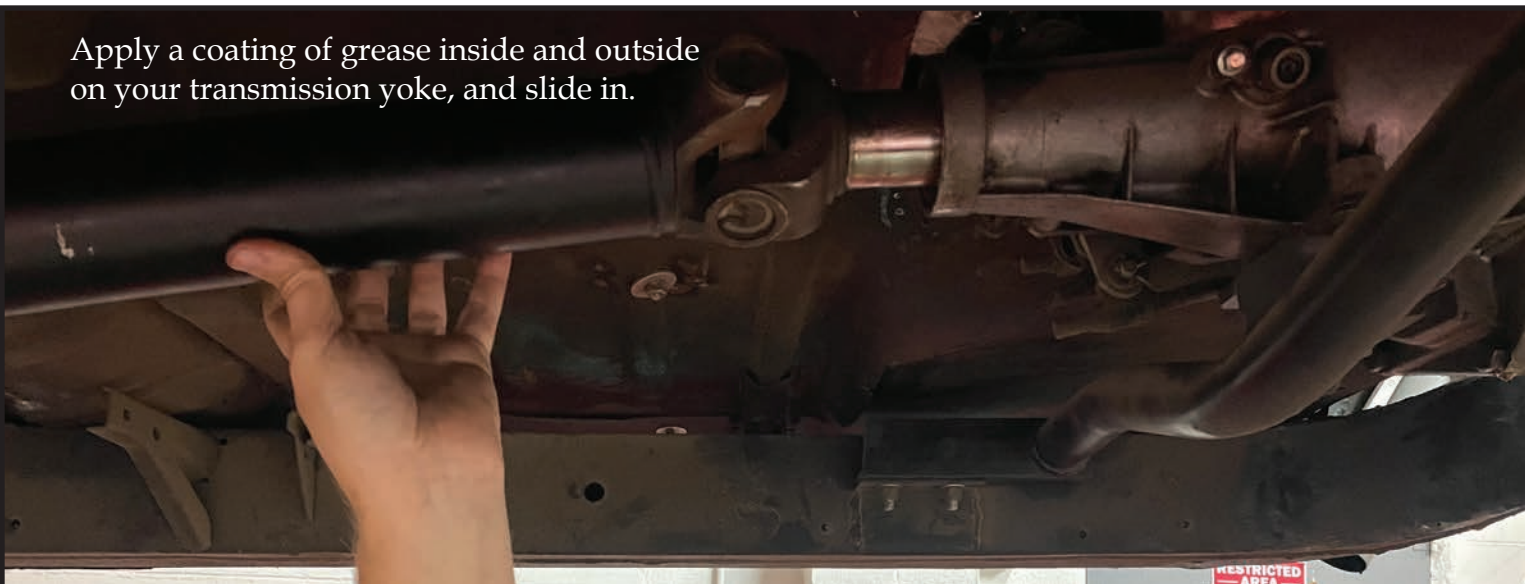
...and finish off by using the supplied u-bolts to install at the rearend. Again, just as your axle u-bolts, these WILL stretch, and do not need to be torqued stupid tight.



And ready to slide back in! Apply a coating of grease to the caps to prevent seizing in case of future service. Note: your driveshaft shouldn't need shortening, but all applications do vary.



From here, you'll fill with fluid of your choice. Valvoline 80/90 is my fluid of choice (many positraction manufacturers recommend against slick synthetic oils), along with.... gasp..... Motorcraft positraction additive as this is a clutch-type posi. Capacity should be something close to 2.5-3qts.



Apply a coating of grease inside and outside on your transmission yoke, and slide in.

If using the aluminum center section, remember to anti-seize your plug in. Remember, the plug and the third member are two different metals, and if you want any hope of ever removing this again, this is safe practice.



Me personally, I prefer to do a static break-in for new gearsets as opposed to driving around. Put the rearend up on jackstands and run the car at low speed for 5-10 minutes. Allow the rearend some time to cool, then cycle again. From there, you should be seated. I've used this break in procedure for years with no adverse effects, though personal preferences certainly can vary.



Go ahead and bolt your wheels back on and set 'er back on the ground. Coming in at the same 60" width, there was no worry of changes as far as wheel fitment is concerned.

Just like that, we're all wrapped up! Note our cool blue caps included with our axles. Coincidence they match the Hot Rod Flatz used on my delivery!



And we're ready for more cruising, dragstrip passes, burnouts, or whatever we feel like throwing at the old wagon. **A/E**