



## ADDING A LUG NUT

Converting your early Chevy II to five-lugs

By Cole Quinnell + Photos by the author

If you own a very early Chevy II, chances are it has four-lug wheels. While in stock form there isn't really anything wrong with this, there are quite a few reasons you may want to upgrade to five-lugs now. One of the most convincing reasons is that it has become hard to find service parts for these four-lug systems, Searching for rear brake drums can leave you feeling like you're restoring a '48 Morris Minor. Additionally, the rear axle housing used under four-lug cars is unique and had its fair share of weaknesses. If you want to do a disc brake swap for the front, you're looking at a five-lug conversion. In fact, many people only consider a five-lug conversion when they start thinking about changing the front drums out for discs. And if you have (or want) an engine that makes over 350 hp, you ought to think seriously about upgrading the rear axle.

These reasons should cover about 99.9-percent of you reading this magazine. We recently upgraded a '63 Chevy II from four lugs to five, and researched the options for doing it at a reasonable cost. Like most upgrades you can make to a car, one thing can easily lead to another. In this case, the upgrade to fivelugs made the most sense when combined with a front disc brake upgrade and a rear axle swap. And while you've disassembled the front suspension to do the conversion, it's smart money to replace the bushings and ball joints. And why not lower the car a little bit? See how things snowball? Much of this is optional, but just by knowing what's involved in the five-lug conversion, you can decide what else you might like to do at the same time.

At the front, the four-lug wheel hub and brake drum need to go. The easiest way to do this is a disc brake upgrade. We used a kit from Classic Performance Products (CPP) that included a new spindle and steering arm. The steering arm is a critical piece, as there are different ones for manual-steering cars and power systems for the Chevy II. CPP offers both, so you won't run into

fitment or bump steer issues when you're done. The CPP kit also comes with a dual-reservoir master cylinder and all of the brake lines and fittings you'll need. We've done a lot of disc brakes swaps, and this is one of the most complete kits we've ever installed. We literally didn't need one additional fitting or part to make the swap.

The choices for converting the rear to five-lug aren't as straight forward. At first, it may seem like the easiest and least expensive solution is to have the stock axles redrilled and to get new brake drums. However, because of the location of the lug holes, an axleshaft redrilled from four to five is probably not any stronger than a four-lug setup, and it may actually be weaker. In addition, when GM changed from the four-lug to five-lug axle design, they increased the width of the brake shoes and drums, so you can't use the later five-lug drum, and you will have to redrill the 4-lug drums as well as the axles. The last consideration is that the original axle under the '62-'63 Chevy IIs was not great. The center sections and ring gears were the same as what was used in earlier full-size Chevys, so they aren't weak.



Classic Performance Products (CPP) 800-522-5504 www.classicperform.com

Coker Tire 800-251-6336 www.cokertire.com

But the axlehousings under the Chevy IIs had issues with seals and bearings. The consensus in the Chevy II world is that swapping the entire rear axle is the better choice.

Certainly you can have a 9-inch or a 12-bolt custom built for your car. But you can also do a salvage yard or swap meet upgrade. The '64-'67 Chevy IIs used an 8.2-inch Salisbury style 10-bolt that will bolt right under your earlier car. The leaf spring mounts and overall widths are the same. You may find some variation in brake line fittings, but that's about it.

Naturally, converting from four-lugs to five-lug will require new wheels. These cars came with either 13- or 14-inch wheels. Most disc brake swaps won't fit in 14-inch wheels, so you will likely want to upgrade to 15-inch wheels and tires at the same time, although tire clearance at the front can become an issue.

Like we said, one thing usually leads to another. The upside is that the rather mundane swap from four-lug to five-lug will likely net you front disc brakes and new wheels and tires for an upgrade that makes a difference in how your Chevy II drives and looks! \*



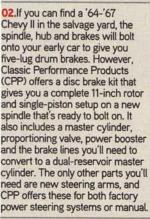








with four-lugs. If you want to keep your car all stock, this isn't too big of an issue. But to make a nice driver you'll want front disc brakes and probably different wheels and tires, which pretty much require an upgrade to five-lugs front and rear.



03. The first step in converting the front is to remove the original drum, hub and spindle. Put something under the car to catch the brake fluid and use line wrenches to disconnect the brake lines. If you are only changing the spindles, you do not need to compress the coil spring or remove the upper and lower control arms. The new CPP spindle will bolt directly to the control arms without any modifications. The same is true if you are

spindles.

04.We're going to replace the control arm bushings, ball joints, shocks and coil springs with new components from CPP in this all-original car, so we went ahead and compressed the coil spring to make removal easier. The springs we chose will lower the front of the car two inches. As we said. you don't have to replace these items to do this swap, but if your components aren't in good condition, it's a smart time to do it.

05. Next, remove the cotter pins and nuts that connect the tie rod ends to the steering arms. You can use a simple tool from Harbor Freight to separate the two pieces. Or you can hit the side of the steering arm with a hammer. It may take quite a few strikes, but it will eventually release the tie rod end.

06. The upper and lower ball joints have a taper fit similar to the tie rod end, and you can release them with either a ball joint tool or with the same technique used for the steering arm. If you use a pickle fork, it will most like damage the rubber boot on the ball joint, requiring replacement. Never hit the threaded part of the ball joint with a hammer as it can damage the threads and the internal workings of the ball joint.













O7. It's easiest if you release the lower ball joint from the spindle first, and then the upper (ask us how we know). The lower control arm won't fall away because of the strut rod. Once the spindle is freed from both ball joints, lean it outward and lift it off of the lower ball joint.

**08.**While we had the front suspension apart, we cleaned the control arms, checked them for cracks, and installed new ball joints and bushings from CPP. The original ball joints were held in place with rivets, which can be a bear to drill and cut out. The new ball joints are attached with 5/16-inch bolts, so you'll need to enlarge the rivet holes slightly with a 5/16-inch drill bit.

09.We gave the underside of the car a quick scrub and coat of black paint while we had the front suspension disassembled. The control arms, spindle, and steering go back together in the reverse order you removed them in. CPP provides Nylock nuts instead of castle nuts and cotter pins for these. Torque the ball joints to 85 lb-ft.

10. Here's the finished front suspension. Using the CPP kit, you not only get five-lugs on the front, but a good disc brake system that uses readily available rotors, pads, and other replacement parts.

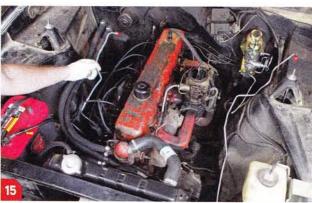
11. The choices are a bit more complicated at the rear. You have two basic options: redrill the original axleshafts and brake drums, or replace the entire axle assembly. Both have their advantages and disadvantages.

12.If you want to redrill the factory axleshafts and drums, you'll need to find a local machine shop capable of doing the work. The upside is that this only costs about \$100, plus the cost of 10 new lugs. The downside is that you still have an axle with weak bearings and seals. And the drums will eventually need replacing, and they aren't easy to find.











13. We scored this '65 Chevy II axle at a salvage yard for \$250. We'll need to rebuild the brakes, and we will probably put new bearings and seals in it before we slide it under our '63. Overall, we think changing the entire axle assembly is the smarter way to go. If you can find a used one from a '65-'67, they will bolt right in. We used 2-inch drop blocks and new U-bolts from CPP to mount this axle and match the 2-inch dropped front coil springs that we installed.

14. The next step in the conversion is to replace the master cylinder and some of the front brake lines. These cars carne with single-reservoir master cylinders for four-wheel drum brake systems. The new CPP master cylinder has dual reservoirs specifically designed for front disc/rear drum brake systems. CPP offers three different diameter boosters if your car has power brakes. Ours has manual brakes, so we didn't need a booster.

15. The remainder of the brake lines included with the kit connect to some of the original lines to complete the conversion. The long engine-bay line (shown) comes bent to fit in the box, but has labels making it easy to tell which bends need to be removed to fit in the car. The only fitment issue we ran into was the line at the master cylinder was extra tight against the firewall. We chocked this up to the line being developed for power brakes instead of manual like we have.

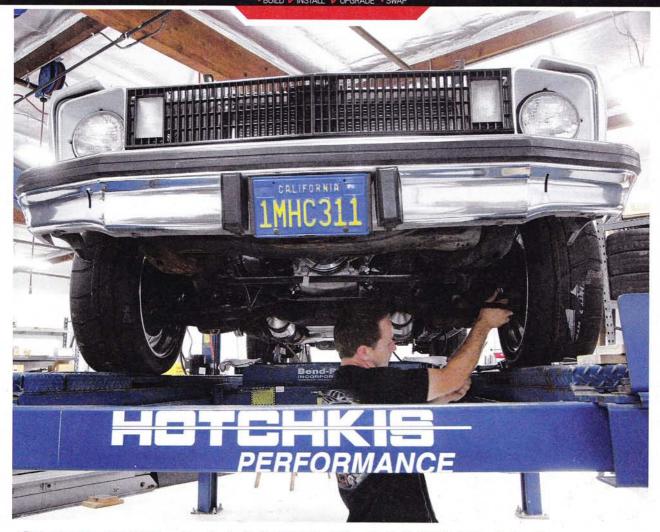
16. The proportioning valve comes attached to the master and the whole assembly bolts to the firewall using the original studs. No modifications are needed here at all. The brake lines are already installed between the master cylinder and prop valve. 17. The last item you're going to need to complete this five-lug conversion is new wheels. As any Chevy II owner knows, fitment of a decent sized tire is pretty tough, and it gets even harder when you lower the car. We used a set of 15x6-inch Chevrolet Rally wheels from Coker Tire. These are only available with a 4-inch backspacing. This isn't the perfect backspacing for a Chevy II, but we were able to fit BFGoodrich Radial T/A 195/60R15 tires under the front and 215/65R15s under the rear, also from Coker.

18. The finished car is easier to find replacement parts for, looks better with the wheels and tires from Coker and a lower stance from CPP. Plus, we have front disc brakes now that make driving the car 100-percent more enjoyable!









## **GETTING A HANDLE ON THINGS**

Hotchkis Performance cures the EcoNova's sloppy suspension and steering

Author: Christopher Campbell + Photographer: Christopher Campbell

• We spend a lot of time hanging out around autocross and road courses throughout the year, watching some of the best handling muscle cars in the country cut corners around cones, so our level of expectation for our own cars gets correspondingly elevated. As a byproduct of this, we just don't have much patience for wallowing, worn out suspension systems. We want to actually be able drive our cars with abandon.

While crawling in and under the EcoNova during the drivetrain swap, wiring, exhaust, fuel system, and so on for the E-Rod LS3 conversion, we noticed that the suspension system was in terrible shape. All the bushings were original and in very poor, disintegrated condition front to rear. No one makes upgraded suspension parts for fourth-gen Novas—or do they?! The key here is that Novas after 1967 were basically parts bin cars that were outfitted with components from other Chevys on the production line. In the case of the fourth and last generation of Novas ('75-'79), the

front suspension, steering, and brakes are all standard second-gen ('70-'81) Fbody stuff from Camaros and Firebirds, since the subframe is very similar in design. In the rear though, they're the same as third-gen ('68-'74) Novas and first-gen ('67-'69) Camaros and Firebirds, so all we had to do is find a company with great bolt-on handling parts for both cars, convince them we were

right, and we'd be in business.

Hotchkis Performance fit the bill with their Total Vehicle System (TVS) suspension kits for both platforms, and having felt firsthand how well they function under other muscle cars, we gave them a call to discuss our plan. They were intrigued since it would be the first time they'd be able to create a new application for a full TVS suspen-



Classic Performance Products 800-522-5004 www.ClassicPerform.com

Energy Suspension 888-913-6374 www.EnergySuspension.com

Hotchkis Performance 877-735-6425 www.Hotchkis.net

sion without designing or fabricating a single new part, but a bit doubtful on fitment since they'd never actually worked on a fourth-gen X-body. So we dropped the EcoNova off at Hotchkis' R&D and installation facility for verification of part numbers to create the first commercially available full suspension system for fourth-gen Novas. You're welcome X-body lovers!













- O1. The end-to-end solution for handling from Hotchkis is their TVS suspension that replaces all the critical components with revised versions developed by Hotchkis. The new fourth-gen Nova kit prototyped on the EcoNova will be using their Stage 2 system for second-gen F-bodies up front, paired with rear components for '68-'74 X-bodies. If you're not ready for the whole shebang, all of these parts are available separately.
- 02. The control arm bushings are made from tough Delrin for minimal deflection; an easy-access zerk fitting makes it simple to keep them lubed for smooth motion and long life.
- 03. Hotchkis' 1.25-inch tubular upper and lower control arms work magic on otherwise stock subframes by increasing caster for better high-speed stability (key in our book) and improving the camber curve to increase front end grip and traction; the arms are built with 1.1 degrees of camber, and 5.2 degrees of positive caster. The

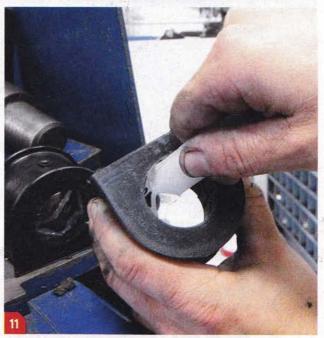
- deep spring pockets in the lower arms also allow for easy tuning of ride height with spacer plates.
- **04.** Here is one of our dry rotted original rubber bushings in the factory control arms. All of the bushings looked similar to this, which is pretty common for 35-year-old rubber—yours may be worse depending on where the car is from.
- 05. Most of the revised geometry is in the upper arm, but together the upper and lower allow up to 3.5 degrees of negative camber and 9 degrees of caster while keeping bumpsteer at a minimum. Note that arms come fully assembled with new ball joints, bumpstops, and sway bar endlinks.
- O6. The silver zinc-plated 4130 chromoly billet cross-shafts on the upper control arms are offset so they can have static negative camber without a large alignment shim stack. It's also great for header clearance since it keeps the shaft tucked as tightly as possible.











07. A little lube on the outside of the bushings and a light tap from a dead blow hammer are all that's needed to install the lower control arm.

- 08. Hotchkis offers shims that can be added under the spring isolator to tailor ride height. A 0.25-inch shim is good for about 0.5 inch of ride height. We left ours out for now since the lightweight E-Rod LS3 and engine setback made the EcoNova's nose lighter than a standard small-block equipped car.
- 09. Hotchkis also recommends Classic Performance Products' (CPP) 500 Series steering box as part of a full TVS package, especially if the original box is exhibiting slop or leaking like the EcoNova's. No one wants a leaker out on the track or autocross course. The CPP 500 box is a completely new part and has a ratio of 14:1, making it quick enough for autocross and suitably stable at high speeds. Make sure to pick up a new ¾-inch 30-spline rag joint coupler as well since it'll also be well worn. We'll reuse the original pitman arm, though.
- 10. The stock springs were rated in the 300-lb/in range for a too-cushyfor-good-handling ride; Hotchkis' sport springs are rated at 600 lb/in. The 2-inch drop will also give us the stance and lower center of gravity that we want for handling, plus the shorter free height makes installing them much easier than the tall stockers.
- 11. Urethane works wonders on sway bars versus squishy rubber mounts, but make sure to apply the required lube preassembly or binding between the bar and bushing will occur.







12. A well-valved shock is key for making any suspension work effectively, so Hotchkis worked with Bilstein to develop application-specific shocks for most popular muscle cars.

13. The massive 1.375-inch front sway bars is roughly double the diameter of the stock one and offers much more roll control, but remains

lightweight since it's a tubular part fabricated from DOM mild steel. Our mounts are the standard style, but Hotchkis also offers very nice billet versions as well.

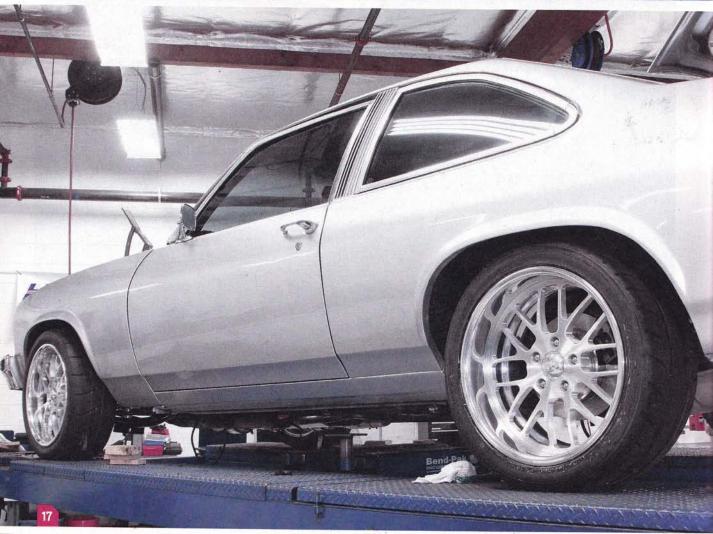
14. A great cornering suspension won't do much good if the steering is sloppy; quick, precise response, and feedback through the steering

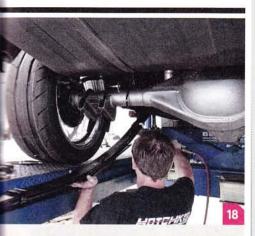
wheel are critical for driver control. That's why Hotchkis carries premium steering linkage components, from tie-rod ends to idler arms and drag links, plus their own very trick hex-shaped tie-rod adjusting sleeves that allow for quick, accurate alignment changes.

## \*\*\*\* IN THE SHOP









- 15. These special endlinks are a big part of the sway bar's effectiveness; by using a Heim joint on the control arm, Hotchkis eliminates the flex and distortion found on endlinks that use urethane or rubber bushings on both ends. The upper bushings still allow the bar to travel with the suspension without bind.
- 16. Speaking of bushings, while under the EcoNova we noticed it had the worst body bushings we'd ever seen. They were so bad the front bumper actually dropped an inch when the car was lifted on a two-post lift due to subframe flex. These urethane body bushings from Energy Suspension will cure that permanently. Look for a full video on the benefits and installation of these on PopularHotRodding.com and our YouTube channel.
- 17. We've still got a little weight (like the hood) to add back into the EcoNova to determine the final stance, but we're really pleased with the look so far on the Boze Pro Touring wheels. Watch for testing in a future issue of PHR, along with video on our website and YouTube channel.
- 18. While fourth-gen Novas use second-gen F-body parts up front, they use '68-'74 X-body springs in the rear. We opted for Hotchkis' 1.5-inch lowered sport leaf springs for now, but a 3-inch drop is available if more drop is needed. The springs are 150 lb/in (versus 100 lb/in stock) with a three-quarter length overload spring to reduce axlewrap, and will work on both mono and multileaf-equipped cars. Typically we'd also have a 0.875-inch rear sway bar to install here, but the Currie Enterprises 9-inch rearend has caused us to seek a less bolt-in route if it's determined to be needed.
- 19. Hotckis' leaf springs use a rubber bushing up front in the spring pocket to reduce NVH, but to control movement in the rear, urethane bushings are paired with heavy-duty shackles almost twice as thick as the stockers.

