



What's Stopping You? disc brake tech



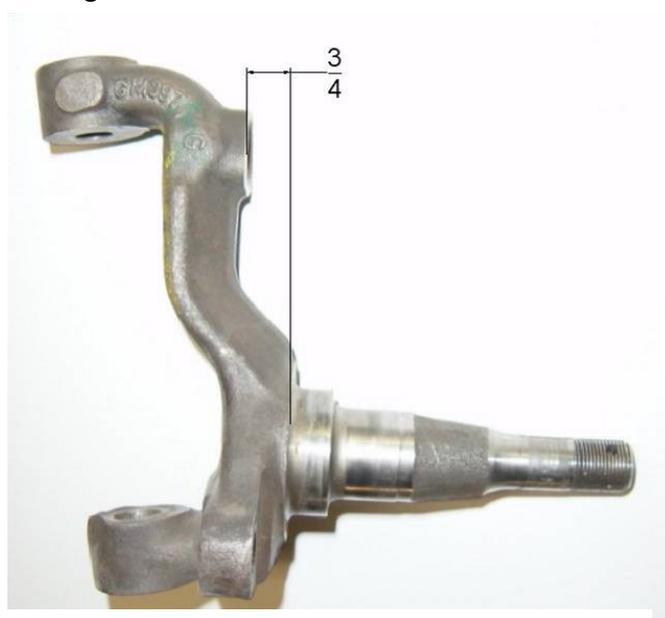
The options are nearly endless for adapting disc brakes to the front of your Chevelle or El Camino. Much consideration must be given to your budget, your intentions for how you'll use the car, and of course your safety when dealing with your brakes. Most of our Chevelles would have come from the factory with drum brakes, with the exception of some '67-72s that had optional discs and all '69-72 SS cars, which came standard with discs. Many of them have been converted, either using original parts, kits, or some of the other popular swaps. Each option has advantages and disadvantages. Hopefully this information will help you decide which setup is right for your car. The most important part of this is choosing your spindles.

Stock Disc Spindles: GM was good at making things interchangeable, and the front spindles were no exception. There are several cars you can look for when searching for these spindles, and they are a direct swap onto any '64-72 Chevelle. You can find them on 67-72 GM A-bodies (*Chevelle, Monte Carlo, El Camino, Skylark, GS, LeMans, GTO, Cutlass, 442*). They were also used on GM's 67-69 F-body (*Camaro, Firebird*) and '68-74 X-body (*Nova, Omega, Ventura, Apollo*). 1967 was the first year for the factory disc brakes, and along with the '68s, they used the very rare four-piston calipers. These are very expensive to rebuild, and are worth much more to someone looking for "correct" 67-68 discs than to anyone just looking to stop well. For this reason, it is recommended to use the '69 and later single-piston calipers. The 11" discs are sufficient for stopping your Chevelle for ordinary type driving, but they will get hot and fade quickly if you do any road-course racing.

Stock Drum Spindles: These are good for more than just scrap iron, so don't throw them out just yet. With a little machining, you can bolt the stock disc caliper brackets on them, and "convert" them to disc spindles for about \$80 if you can do the machine-work yourself. The drum spindles are also very popular for modifying to fit 12" C4 and 13" C5 Corvette brakes. There is some minor machining to be done on the upper bolt boss, custom caliper brackets need to be fabricated, and the Corvette rotors slip on over the drum brake hubs. Access to a machine-shop is helpful, but there have been many "do-it-yourselfers" who have made their own brackets using 5/16" thick flat steel.

S-10 and G-body Spindles: The brakes from 2-wheel-drive S-10s and S-15s and the G-bodies (*Monte Carlo, Malibu, Regal, etc.*) of the 80s are somewhat popular for converting drum brake Chevelles to discs. They are basically a direct swap, except for the lower ball-joint, which requires machining to fit the Chevelle lower A-arms. This swap is not recommended for heavy street-use, because the rotors are only 10" diameter. This is not sufficient to safely stop your heavy Chevelle in traffic. The drag racers like this swap, because the small rotors are light, and reduce rotating mass. Drag racing doesn't require heavy braking, so this is fine for this purpose. The conversion is simple, as you simply use the ball-joints, calipers, rotors, and tie-rod ends from the donor-car.

"Tall" Spindles: This topic always creates controversy. Some guys love them, and others equate them to the anti-christ. There are positives and negatives, but overall it's an affordable mild performance upgrade, with parts that are easy to find. The positive aspects of this spindle come from the option of upgrading to 12" rotors, and it's height,



Modified drum spindle machined to adapt OEM caliper brackets. This can be done easily with a basic grinder in your home garage.

...continued **What's STOPPING You? disc brake tech**

which changes the geometry favorably by increasing negative camber gains in compression, giving the tires more bite to the pavement. The stock Chevelle spindles are 2" shorter, and actually create positive camber in compression, causing only the outer edge of the tire to bite the pavement. The negative effects from this spindle are spawned entirely from the steering arm location, which creates bump-steer issues much worse than the stock spindles. The length of the steering arm will also make your turning radius wider, and slow your turning ratio. These spindles will lower your car about 3/4" from stock, and widen your track-width, so larger back-spacing wheels may be needed for fender clearance. Aftermarket upper control arms, or offset cross-shafts will be necessary for a proper alignment. The offset shafts are much cheaper, but some people have clearance issues with them, especially on big-block '64-67 Chevilles with headers.

The choices for donors of "tall" spindles are determined by what size brakes you want, 11" or 12". The '73-77 Chevilles have a tall spindle that uses an 11" brake with a 4-3/4" bolt circle. '77-'90 Caprice (civilian) sedans also had 11" rotors and 4-3/4" bolt circle, however the '77-90 Caprice police-package cars and station wagons, and all '91-96 caprices used 12" rotors and a 5" bolt circle. To adapt to a 4-3/4" bolt-circle, you can use the *1LE police package '89 Camaro* rotors. The '77 model year spindles will not work because the outer bearing was smaller, and will not fit with the 1LE rotors, and the late-95 and all 96 spindles have a 5/8" lower ball-joint rather than a 9/16", so for this swap it is recommended that you use '78-94 Caprice 12" brake spindles. If you are doing this swap, it's worth the extra money to upgrade to the 12" rotors because their larger size allows them to absorb more heat, the increased surface area helps to dissipate the heat more quickly, and the extra leverage allows more stopping power with less effort. The 12" B-body brakes are the largest brakes that will fit inside a 15" wheel. To adapt the B-body spindles, you use the B-body calipers, bearings, and ball-joints, G-body tie-rod ends, and the Camaro 1LE rotors. The lower ball joints need to be machined to fit the chevelle arms. The wheel studs are metric, so metric lug-nuts, or changing the studs will be necessary.

Aftermarket Spindles: There are several companies selling replacement OEM style spindles, and 2" drop spindles. There are also a few companies with better options in the works. Fatman Fabrications (www.fatmanfab.com) is working on a 2" drop "Tall" spindle that uses the stock Chevelle steering arms, so you get the advantages of both the stock steering geometry, and the improved camber-curve of the tall-spindles. ATS (www.t56kit.com) is making an aluminum spindle that uses C5 corvette hubs, with optimized geometry similar to the Fatman spindles. Both of these new spindles are currently in the engineering and testing phase, and have not been released for sale at this time.

Tall Ball-Joints: While using your short OEM spindles, adding Howe Precision "tall" ball-joints from Savitske Classic & Custom (www.scandc.com), will effectively add height to the spindle. You can run tall uppers for slight improvements, or tall upper *and* lowers for more dramatic improvements. You will achieve all the benefits of the tall spindles with none of the drawbacks, and your options for adapting larger Corvette brakes still apply. When using the lower tall ball joints, you will lower your car 3/4" and *decrease* bump-steer.

I'm no brake expert, most of this information was researched on the "Brakes & Suspension" forum on Team Chevelle (www.chevelles.com/forums/) while I changed my plan daily, and had to keep re-researching new options. I have officially decided to use OEM spindles, with stock 11" brakes, until my budget allows for 17" wheels to clear the C5 13" Corvette brakes I *really* want.



Chevelle suspension using stock spindles, Howe Precision tall ball-joints, and SPC adjustable upper arms from SC&C.

-by Derek Kiefer

Northstar Chevelle Club EVENTS

Oct. 8th, 3rd Annual Northstar Chevelle Club Fall-Cruise - Stillwater to Taylors Falls.

Saturday, October 8th, the Northstar Chevelle Club will be having our 3rd Annual Fall-Cruise. We will meet at 8:45 for breakfast at Perkins on Hwy 36 and Washington. The cruise will depart at 9:30, and cruise through Stillwater and up Hwy 95 along the scenic St Croix river to Taylors Falls, and back through Osceola and Hudson. Various stops will be identified in a brief driver's meeting before we depart.

Northstar Chevelle Club Gear - Hats, Shirts, etc. - by Derek Kiefer



We have the following items available with the Northstar Chevelle Club logo on them. To order, contact Derek Kiefer (507-438-8907)

Hats - \$10	T-shirts - \$10
Sweatshirts - \$20	Polo Shirts - \$22
License Plates - \$10	

Northstar Chevelle Club News - Sad News - by Derek Kiefer

Most of us know who Chuck Hanson is, but for those who don't, he is the President of A.C.E.S. (American Chevelle Enthusiasts Society), organizer of "Chevell-abration", and co-host on "Horsepower TV". Chuck and his wife LaRae have done a lot for us Chevelle owners. A.C.E.S. is like a big family, which I am proud to be a member of.

On August 18th, Chuck and LaRae lost their only son, Cameron Hanson, at age 23. Please keep the Hanson Family, especially Cameron's son, Christopher (age 2) in your thoughts and prayers. A memorial fund has been set up, with the proceeds going toward Christopher's education. The Northstar Chevelle Club is donating \$100.00 to the fund, and if you feel inclined to donate, here is the information you will need to do so:

CAMERON HANSON MEMORIAL FUND

Wilson Bank & Trust
4736 Andrew Jackson Parkway
Hermitage, TN 37076
(615) 885-0040

Free Classifieds: *call or email Derek Kiefer to list your items.*

507-438-8907
derek@northstarchevelles.com

'67 Chevelle Malibu - 550+hp 454, 700R-4 auto w/ lockup, 3.55:1 posi 12-bolt, Dark red paint, Gray Tweed interior, Bucket Seats, very nice! \$18,000.....Larry Lucast, Coon Rapids, MN 763-757-8089

70 El Camino - Arizona Solid! 307/3-spd with clutch pedal and Z-bar assy. Good doors, floors, frame and RH quarter. LH quarter damaged, no front clip, interior, or title. \$850 obo

Misc. Parts - TH-400 transmissions, PolyGraphite rear bushings, driver quality 70-72 mono speaker black dash pad, nice '68-69 black dash pad, call for details/prices.....Derek Kiefer, Dexter, MN 507-438-8907

68 Chevelle SS clone - Fuel Injected 468 BBC, 700R-4, 4wheel disc, New paint, New interior, much more 15,000

Bruce Matzdorff, Farmington, MN 612-298-0094 / 651-463-8933

64-65 Chevelle/El Camino L&R "1/2 quarters" - patch panels purchased to replace the wheel opening lip and the rear lower extension to the bumper. Unfortunately the people who made them don't know how to read a tape measure and repop'd the wheel opening 1" too short. What these ARE good for is to section/cut up and replace either: The forward curve/wheel lip up to midway, The rear arc/curve wheel lip to the extension, or the rear extension (below the lower styling crease) to the bumper

John Delke, St. Louis Park, MN 952-545-9472

(2) 295-65-15 BFG Drag Radials - approx. 1/3 tread. \$135 or trade for 275-60-15s.....Brad Wilder, Blaine MN 763-784-4129

Wanted - 70 Chevelle Dash & Vortec Heads.....John Enga, Rogers, MN 763-428-4988