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## Transmission Swapping Tech

### Swap Any Transmission Into Your 64- 72 Chevelle

By Douglas R. Glad

Photography by Douglas R. Glad



Driveshaft spline count will both help identify the differences between the TH-350 and the TH-400 transmissions and make a swap work. On the left is the TH-350 27-spline slip-yolk, and on the right is the larger TH-400 32-spline model. It's obvious why the TH-

The beauty of 64- 72 Chevells is in their versatility. Wide floor pans and ample transmission tunnels makes installing any gearbox possible. With the proliferation of overdrive transmissions, a steep First gear, and stump-pulling torque, multiplication can be combined with mellow tones and gas mileage on the interstate. Follow along as CHP bench-swaps a myriad of different transmissions.

#### Automatics

If automatics are your passion, there are several that will bolt into a Chevelle with little effort. Models range from the classic lightweight two-speed Powerglide to the 225-pound monster 4L80E. Using the Powerglide as a baseline, CHP will explore how many of these transmissions can be simply bolted in using the same transmission crossmember mount and driveshaft length.

There are three non-overdrive transmissions. The Powerglide is a 27.75-inch-long two-speed transmission with a 27-spline output shaft. It has two versions: the early cast iron, which is universally

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400 is considered heavy-duty.



The Powerglide (top) and the TH-350 use the same 27-spline output shaft and are the same length. The TH-350 has a steeper 2.48 First gear. The two-speed glide offers a 1.76 First. Six-cylinder Glides use a 1.82:1 First gear.



The 200-4R (top) is the same size as the TH-350 (bottom) and the Powerglide. It has a 0.67 overdrive and is perfect for an early Chevelle swap.

ignored, and the later aluminum case. The TH-350 was released in 1969 as a smaller economical version of the TH-400, which was introduced in 1965. The TH-350 has a 27-spline output shaft and is half an inch shorter overall than the TH-400. The TH-400 uses a larger 32-spline output shaft.

The TH-350 is a direct swap for the Powerglide; both share transmission mounting positions, overall length, and spline count. To install a TH-400, use a TH-400 32-spline slip-yolk and move the crossmember back 6 inches. Since the TH-400 is a little more than ½-inch longer than the Powerglide, you will have to shorten the driveshaft.

If a four-speed overdrive automatic is more to your liking, there are four available: the 200-4R, 700-R4/4L60, the 4L60E, and the 4L80E. The 200-4R overdrive trans has a 27-spline TH-350-style output shaft and is commonly found in 81- 90 Chevy Monte Carlo, Malibus, El Caminos and Impalas. These transmissions are durable enough to withstand the punishment of the legendary turbo Buick Grand National from the factory. The 200-4R measures 27.75 inches, with a 26.81-inch mount position. To swap with the Glide, the crossmember must be moved back 6 inches. The good news is that the driveshaft will not have to be shortened.

The 700-R4 is the larger cousin of the 200-4R. It changed its name in the early 90s to 4L60, but the internals remained the same. This trans is a four-speed O/D unit with a 27-spline output shaft. Corvette versions have no provisions for a crossmember mount because of their driveline torque tube design, but can be exchanged for a different extension housing that has a mount provision. To switch a Powerglide to a 700-R4, use the Glide's 27-spline output shaft, shorten the driveshaft 2.75 inches, and slide the crossmember back 1-¼ inches.

The final two automatic transmissions are the 4L60E and the 4L80E. The 4L60E is an electronically controlled version of the 4L60 that retains the 27-spline output shaft and has a 30-percent overdrive. Its overall length is the same as the 700-R4/4L60. The 4L80E uses the larger 32-spline output shaft and offers the highest torque capacity (over 700 ft-lbs in the aftermarket JET model). The down side is its size, at 225 pounds with converter and 31-inch overall length. With its equally huge 29.625-inch mounting location, the 4L80 is a behemoth best left to the big-block crowd. The 4L60E is exactly the same swap as the 700-R4/4L60. To swap in the



The 700-R4/4L60 (top) and the TH-400 can be interchanged using a tailshaft from a 80- 82 Caprice or SS Impala to relocate the transmission mount. The 700-R4 uses a 0.70 overdrive and is longer than the TH-400, requiring a shortened driveshaft and a 27-spline slip-yolk.



The 4L60E (left) and 4L80E (right) are similar in name only. With incredible strength, the 225-pound 4L80E is more of a truck transmission. The quick way to spot a 4L80 is the electronic terminal on the driver side of the case. Both

4L80E, the driveshaft will have to be shortened 3-¼ inches and a 32-spline slip-yolk must be used. The crossmember will need to be moved almost 9 inches toward the rear of the Chevelle.

### Manual Transmissions

There are five manuals worth installing in a Chevelle, and for each type of gearbox there are variations that may or may not be worth the time and money to install. We'll briefly outline the group and leave the final decision to you. The Saginaw four-speed is essentially a cast-iron three-speed design with an extra gear designed for applications under 300 hp. If you run across a Saginaw, let it go.

The Muncie is an aluminum case four-speed transmission introduced in 1963. Interestingly, there are two distinct versions of the Muncie that many Bow Tie enthusiasts may not be aware of. With a 10-spline input shaft and a 27-spline output shaft, the early Muncie was less durable than the '71-and-later models with its 26-spline input and 32-spline output shaft. The Muncie came in three flavors: the M20, M21, and M22 (the Rock Crusher). Many think all fine-spline Muncies are Rock Crushers, which is not the case. After 1971, all Muncies were fine splined. The M22 was a rare model offered in supercars like the '67 427/430hp Corvette. Because owners of these cars rarely part them out, the likely available transmissions will be the M20 and M21.

The primary difference between the M20 and M21 models is their gear ratios. The '71 M20 wide-ratio transmission has a 2.54:1 First gear ratio and the M21 close-ratio has a 2.20. The early Muncies have an overall length of 21.5 inches and a case-to-trans mount measurement of 14 inches. To swap in a pre-'71 M20, M21, or pre-'70 M22 for a Glide, add 6-½ inches to the total length to account for the bellhousing, making the total length of the trans 28 inches and 20.5 inches to the mount. Using the Glide slip-yolk, move the crossmember forward ¼ inch.

In 1970, the M22 for Chevilles was lengthened to 22.25 inches and the M20 and M21 followed suit in 1971. To swap a '70-and-later M22 or a '71-and-later M20 or M21, use a 32-spline slip-yolk, shorten the driveshaft 1 inch, and move the crossmember forward ¼ inch.

The Borg Warner T-10 cast-iron case four-speed was introduced in 1957. Until late 1963, T-10s had a cast-iron housing, 10-spline input, and 16-spline output-

computer-controlled, requiring a black box to operate.



Muncie transmissions have grooves cut into the shafts so assembly line workers can identify them. These input shafts are from early-style 10-spline Muncies. The way to identify the Muncie is the rings are machined into the input shaft and the two 1/2-inch circle markers on the side of the aluminum case



The pre- 71 Muncie has the same dimensions as the T-10 and the Saginaw. The post- 71 boxes are 3/4-inch longer and will swap directly with the Super T-10.

shaft with an overall length of 21.5 inches and 14 inches from case to mount. These boxes disappeared from Chevrolet production cars until its triumphant return in 1974. Renamed the Super T-10, or Second Design, the new trans featured a 22.25-inch overall case length and kept the 14-inch trans mount location but switched to an aluminum case. The splines followed Muncie's lead and picked up the 26/32 input/output shaft configurations.

The Super T-10 has a Borg-Warner stamp and all factory Super T-10s have aluminum main cases. The T-10 will need a 16-spline slip-yolk to work in the Chevelle; the overall dimensions are that of the pre- 71 M20 and M21, and the pre- 70 M22. The Super T-10 needs a 32-spline output shaft to work; it has the same dimensions as the 71-and-later M20 and M21, and the 70-and-later M22.

Richmond Gear also offers an updated version of the Super T-10 four-speed; it weighs in at a slight 70 pounds, will tolerate up to 375 ft-lbs of torque, and has an overall length of 22.61. If this trans is used as a replacement for the Powerglide, a 32-spline yolk will have to be used and the driveshaft will have to be shortened 1-1/2 inches. The Richmond uses the same 14-inch mount location. This leads us to the five-speed. Richmond builds what used to be known as the Doug Nash five-speed, but is now called the Richmond Street Five-Speed. Its overall length is 21.57 with a mount length of 16.5 inches. The Street five-speed is not an overdrive unit, because of its 1.00:1 Fifth gear. The Street Five-Speed uses a 26-spline input and a 32-spline output shaft and is essentially the same length as the early Muncie, T-10, and Saginaw, making it an ideal candidate for a swap.

The T-5 offered in the 83- 92 Camaro is an overdrive unit, but due to its inherent weakness it will be quickly killed and eaten by a motor with any kind of power.

For a durable overdrive gearbox, there are the T56 and the Richmond six-speeds. Within the T56 gearbox family there are two different boxes: the Viper box and the 93-and-later Camaro setup. The Dodge Viper box has a larger output shaft with 30 splines. For Chevy swapping purposes, the T56 from a 94-and-later Camaro is the ideal candidate because of its strength and 26/27 input and output shaft splines. Because of different lengths and bellhousings, T56 dimensions may vary. The 94 Camaro has a 26.37-inch overall length and a 21.08 trans-mount length.



Spotting an early factory T-10 is easy, since the T-10 is stamped into the cast-iron case. If you're lucky, you'll find an aluminum case T-10 that came in the Corvette and 409-equipped cars. The Richmond four-speed is an improved version of the Super T-10. The Richmond box is available with six different First gear ratios. The original Super T-10 used an aluminum case and was offered in a 2.43:1 close-ratio version and a 2.64:1 wide-ratio version.



The early Muncie, T-10, and Saginaw boxes used a 10-spline input shaft. The late-model Muncie, Super T-10, and Richmond four-, five-, and six-speeds all have 26-spline

The Richmond Six-Speed is available in 10- or 26-spline input shafts and a 32-spline output shaft. With the Richmond box you can also select overdrive ratios from 0.91:1 to 0.50:1, along with a choice of different First gear ratios. To install a Richmond in place of a Glide, move the crossmember back 3.25 inches.

Another six-speed is the Zahnradfabrik Friedrichshafen, or ZF for short. This transmission first appeared in the '89 Corvette. To install it in an early Chevelle, for example, requires a Corvette bellhousing, flywheel, hydraulic clutch assembly, drive-shaft yolk, and a custom crossmember. The ZF is 2 inches longer and 3.5 inches taller, requiring the floorboard in the car to be heavily modified and making it a less-than-ideal candidate.

This obviously isn't all the information it will take to swap these transmissions into your early Chevy, but it is a good start. Shifter selection will obviously make matters a bit more complicated. The overall dimensions and trans-mount locations are a good introductory guide to which transmissions will put up the least amount of fight. In the end, it's up to you to decide if a 283 and a 200-4R overdrive is the way to go, or if a 383 and a Richmond six-speed is more to your liking. The cool thing is that with a little ingenuity, any of the transmissions outlined here will bolt onto a trick Chevelle.

input shafts requiring a 26-spline clutch disk like this one from Centerforce.



The T56 is the hot setup for swapping into early Chevys. With three available First gear ratios and two overdrive ratios in Fifth and Sixth, the T56 allows for steeper rear gears with good mileage. The Get Six stories in the Sept. 98 and Feb. 99 issues outlined the swap in detail.



The Richmond is arguably the easiest six-speed to swap into an older Chevy. It comes with a Long-built shifter and will directly replace the early Muncie, T-10, Doug Nash, and even the third-generation Camaro T-5 with little modification. Overdrive ratios are

available from 0.91:1  
to 0.50:1.

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