

ADAPTING TO THE TIMES

MATING VINTAGE
ENGINES WITH
LATE-MODEL
OVERDRIVE
TRANSMISSIONS

BY MATT SPROUSE

There's little question about what the hottest trend in rodding is right now: traditional styling. Old speed parts and vintage powerplants have grown from an underground counterculture to one of the most popular trends in the industry. A rebirth of rodding's beginnings and new manufacturing technology spitting out new-old parts have put higher horsepower vintage powerplants on the road.

A lot of the early V-8 engines were fine designs and virtually bulletproof. Naturally, newer developments sent hot rodders scrambling for the latest goodies, and many of the great old powerplants were sent out to pasture. The final evolution of this mindset would mean small-block Chevy engines under everyone's hood, which is pretty much what happened. Today, there's a want to bring back the forgotten powerplants and some of the uniqueness they bring along.

Unfortunately, the original transmissions backing these vintage engines aren't up to current standards. While we can update the internals of a vintage engine to produce respectable power, the old transmissions simply aren't up to supporting it. Furthermore, during the '50s era, when V-8s were flourishing, automatic transmission technology was still in its infancy. Designed for smoothness, the early torque converters were horribly inefficient, and there was no such thing as an overdriven automatic. Early automatic transmissions,

like Chrysler's Fluid Drive, Chevy's Turbo-glide, Buick's Dynaflo, and Oldsmobile's "Slim Jim" earned the not-so-flattering nickname "slush box."

Those same inefficient transmissions were the best things going in their time, and backed up many great powerplants. It was a gas friendly era where fuel prices were at a minimum and long daily commutes weren't the norm. Then, once the first big gas crunches hit, it sent auto manufacturers scrambling to improve mileage and reduce emissions. The creation of the modern overdrive transmission was the answer.

Today, more enthusiasts are putting additional miles under their street machines while driving cross-country to attend car shows and events. The addition of the modern overdrive transmission offers many benefits, including serviceability, reliability, greatly improved fuel economy, and reduced wear and tear on your engine. Unlike vintage transmissions, parts and services for late-model units are readily available almost anywhere in the country. Also, spinning fewer rpm means you can

potentially double the freeway mileage from around 7-8 mpg to 14-16 mpg or even more, depending on the application. Over time, an overdrive transmission is one of the few upgrades that could potentially pay for itself in fuel costs.

Our '62 Olds project is a perfect example of what many enthusiasts face. Here's a car weighing around 5,000 lbs, with a 394ci "Rocket" engine and "Slim Jim" Roto-10 transmission. As GM's first post-war overhead valve engine, the "Rocket" family of V-8s is legendary for their power and durability, boasting up to 330-horsepower and 440 ft.-lbs. of torque. By contrast, the "Slim Jim" automatic rates quite low among transmissions, as it wasn't able to hold high torque loads and only offered two real forward gears. With gas prices raising for the immediate future, our decision to replace the weakest link was an easy one.

Unfortunately, few practical options are available for reliable automatics to back early V-8s. In our case, a unique bolt pattern and the bellhousing being cast as part

of the block (much like the '49-'54 331ci Cadillac and the '51-'53 331ci Chrysler Hemi,) we chose to do what rodders do... adapt! After further research, we decided to use an adapter kit from Bendtsen's Transmission Center.

The folks at Bendtsen's have built a reputation among custom car builders for their quality and well-fitting transmission adapter kits for many makes of vintage engines. Even within the "Rocket" family of early Olds V-8s there were many variations from year-to-year and displacement-to-displacement. Bendtsen's has done years of homework on their 303/324/371/394 kit to ensure it will match every variable. They also offer cross-platform adapters to put modern transmissions (both manual and automatic) behind a wide range of traditional American four- and six-cylinder engines too.

Bendtsen's kit for our "Rocket" adapts the early Oldsmobile bolt pattern to a more-common late-model GM arrangement, and compensates for the bellhousing extension with a long crankshaft adapter.

With our new bolt pattern, and our experience with Gearstar Performance Trans-

missions, we decided to use a 200-4R because it isn't computer controlled, and because its smaller case closely matches the size of the original "Slim Jim." Gearstar's custom-building policy, excellent warranty, competitive pricing, and the completeness of their kits made our choice an easy one. When we ordered the transmission, we shared all of the important information about our project Olds with them, and they were happy to design and custom-build a transmission to suit our specific needs.

Follow along as we see what's required to get the benefits of a modern overdriven automatic without losing the vintage flavor under the hood of our Olds. If you're like us, and you'd prefer to run an engine that's "right" for your car, but you'd like to gain reliability, serviceability, and fuel economy, these transmission adapter kits are right up your alley. As you'll see, there's still some fabrication required under our particular project car, but the challenging task of mating the engine to the transmission is greatly simplified. When backed with a Gearstar GM- or Ford-based overdrive trans, your vintage ride will be propelled into the modern age.

GEARSTAR'S 200-4R

Every Gearstar transmission is built to suit each individual customer. There are no "off the shelf" transmissions; every one is custom-crafted. Gearstar also supplies top-quality torque converters, linkage, and transmission coolers to suit the individual needs of the customer. This headache-saving policy makes upgrading easy!

Be sure to enter this issue's "Garage Giveaway;" you could win one!



STICK KITS



If you'd prefer to row your own gears, Bendtsen's offers kits for you too! The hard work has been done; like developing a starter to work in applications where it originally mounted on the transmission rather than the engine block. The extended throwout bearings and pilot bushings/bearings, which are included in the kit, are all engineered to work flawlessly with today's best four-, five-, and six-speed manual transmissions.

AUTOMATIC ADAPTER INSTALL

01



Bendtsen's automatic transmission adapter kits come complete with a matching adapter ring, extended flywheel, adapter crank extension, and all the necessary hardware in the proper lengths. The instructions are thorough and clearly written to make this upgrade easy. We were impressed by the quality and completeness of Bendtsen's kit.

02



With the stock transmission, flywheel, and lower bellhousing extension removed, our 394 Olds was ready for a modern GM overdrive transmission.

03



Because of multiple variations in crankshaft bolt patterns, Bendtsen's manufactured the flywheel with one offset hole to compensate for the many designs. Also, variations in blocks may cause slight clearance issues; grind accordingly.

06



Adapting our Olds engine to the modern GM transmission required an adapter plate featuring bolt patterns for both. Bendtsen's adapter is made of heavy-duty 3/4-inch steel.

04



Because these "Rocket" engines have the bellhousing cast into the block, a long crankshaft extension is necessary.

07



With Bendtsen's transmission adapter kit fully assembled, we installed the well-built 200-4R from Gearstar Performance Transmissions.

05



We mounted the flexplate included in Bendtsen's kit to the crankshaft extension.

08



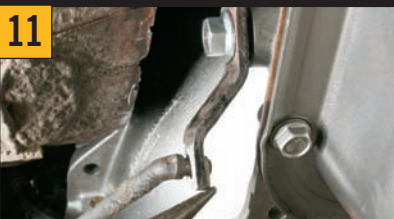
As we expected, the Yank Racing torque converter, which was included with our Gearstar-built 200-4R, easily bolted to the new flexplate.



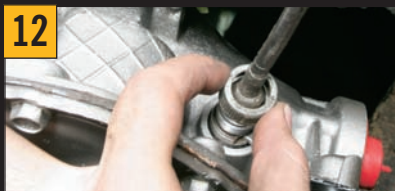
09 Installing the stock starter was a cinch, thanks to Bendtsen's research. Our stock flywheel had 166-teeth; they built this one to replace it.



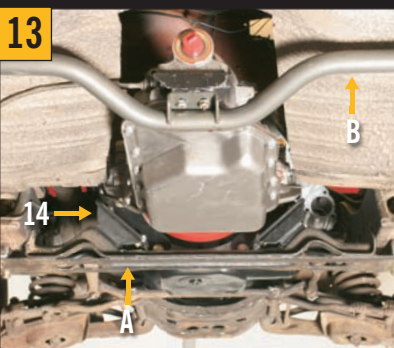
10 After a little creative trimming and hammering, we reinstalled the original 394ci V-8.



11 While our shift linkage from the column to the transmission was dead on, others may have to adapt their shift linkage to work properly.



12 Our speedometer cable fit nicely as well. Until we get the Olds on the road, we won't be able to gauge its accuracy, but a simple speedometer gear swap will be an easy fix.



13 The factory used an oddball single crossmember to mount both the engine and transmission (A). To mount our new transmission, these mounts had to be modified to still support the engine, but not the trans (see 14). To make it work, we shimmed the original crossmember (A) down and attached our custom motor mounts to bolts in the bellhousing. Amazingly, the mount holes in the crossmember lined up with holes in a Turbo 350 trans mount! We fabbed up a tubular crossmember for the traditional rear mount (B).



14 After making a template, we made the new engine mounts with some angle iron and a stock GM Turbo 350 transmission mount.



16 To assist in recreating our transmission tunnel, we worked with the folks at Tin Man Fabrication. The Tin Man made a three-piece paper template before building it out of sheet metal.



17 The three pieces of sheet metal were stitch welded into place, which marked the completion of the new transmission tunnel.

ADAPTERS FROM BENDTSEN'S TRANSMISSION CENTER

BUICK
Nailhead to Chevy (Auto & Manual)
Straight Eight to Chevy (Auto & Manual)
Aluminum Block (215) to Chevy B/O/P (Auto & Manual)

CADILLAC
346 to Chevy (Auto & Manual)
365, 390 to Chevy (Auto & Manual)
331 to Chevy (Auto & Manual)

FORD
Model A & B 4-cyl. to Chevy (Auto)
5-Bolt to Ford Small Block
Y-Block to Chevy or Ford (Auto & Manual)
Ford FE to Chevy or Ford (Auto & Manual)
429, 460 to Chevy (Auto)
429, 460 to Ford Small-Block (Auto)
Flathead to Chevy (Auto & Manual)
T5 to various applications

MERCURY/EDSEL/LINCOLN (M/E/L)
Flathead to Chevy (Auto & Manual)
317/341/368 to Chevy (Auto & Manual)
383/410/430 to Chevy or Ford (Auto & Manual)
462 to Chevy or Ford (Auto & Manual)

STUDEBAKER
Studebaker to Chevy (Auto & Manual)

OLDSMOBILE
303/324/371/394 to Chevy (Auto & Manual)

PONTIAC
'55-'64 V-8 to Chevy (Auto & Manual)
Inline Eight to Chevy (Auto & Manual)

CHEVROLET
Chevy V-8 to Front-Wheel Drive (Auto)
Chevy V-6 to Chevy V-8 (Auto)
Chevy V-8 to Ford (Auto)
S-10 5-Speed to Common Chevy Bolt Pattern

KAISER/WILLYS
'47-'62 Flathead to Chevy (Auto)

GM ECOTEC
Ecotec to Chevy (Auto)

SOURCES

Bendtsen's Transmission Center, Inc.
(763) 767-4480
www.transmissionadapters.com

Gearstar Performance Transmissions
(800) 633-2553
www.gearstartransmission.com

Tin Man Fabrication, Inc.
(763) 753-4265
www.tinmanfabrication.com