



The Southeast Times

By The Falcon Club of America Southeast Chapter

November - December 2008

Editor: Jeff Thomas

The 2008 Southeast Falcon Club Officers

President: Ed Sanders
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Newsletter: Jeff Thomas
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CLUB MEETINGS

December 6th
Christmas Party
Ed and Joanna House
2:00pm

January 4th

Birthdays / Anniversaries

January 8thSandra Tallant
February 5thBetty Goddard

February 3rdBobby & Kathy Chester
March 4thJames & Sheila Cole

EDITOR'S MESSAGE

This year the FCA elected Wally as the new Internet Director and me as the Assistant Internet Director. Wally and I have been busy since late July working on the FCA website. Our first mission was organizing all the files on the server and resizing, renaming and changing compression ratio the photos to help speed up the download time. A lot of reformatting and rewriting the HTML code took place over the next few months before we could see a visual difference. Recently we added Button links on the main page to make the site more navigable. Wally also added a Technical Articles Index page showing the Technical Articles that appeared in The National Falcon News. We still have some ideas to try and make the site bigger and better for the Club.

Leff

For Sale:

1965 Falcon 4-door Futura
170 Engine, Automatic
All Original, 38,000 Miles, Always Garaged.
Papers, \$8000 / OBO, Needs a Good Home

Call Afternoon 770-516-2886 Raymond Riemland

Parts For Sale:

James Cole..... 404-427-8998
Gary Goddard..... 770-560-3964

C4 - The Differences

As you might expect, the C4 evolved throughout its production life. The first significant change was the valvebody when the dual-range feature was eliminated for 1967. You can install a '67-and-later valvebody in a '64-'66 C4 because the valvebody is the only change. With the valvebody change also came changes (detent positions) in the shifter linkage. These should be addressed when swapping by using the proper indicator.



C4 transmissions prior to 1970 had .788-inch, 24-spline input shafts. In 1970, Ford went to a .839-inch, 26-spline input shaft. This involved a corresponding change in the forward clutch hub, which means you have to change all these components. You can't run a 24-spline input shaft in a 26-spline forward clutch hub or vice-versa.

It really becomes tricky with '71-and-later because the input shaft and forward clutch hub became both 24- and 26-spline. From '71-and-later, the torque-converter end of the shaft is 26-spline and the forward-clutch end is 24-spline. Adding to the confusion, there are a variety of different cases that include case-fill dipstick tubes or pan-fill dipstick tubes. Ideally, you should find a complete '71-and-later C4 transmission with all of the improved components so you won't have to hunt down compatible parts.

Two types of flexplates were used with C4 and C5 transmissions: a 157-tooth and a larger 164-tooth along with a larger bellhousing. With some exceptions, 157-tooth flexplates are used with case-fill dipstick tubes, while 164-tooth use pan-fill dipstick tubes. Pan-fill dipstick tubes are more common prior to 1967.

A rule of thumb for C4 bellhousing identification is those that are 5-7/8-inch deep use 157-tooth flexplates, and those that are 6-1/4-inches deep are the larger 164-tooth flexplate. The C5 is an odd duck with a 164-tooth flexplate and a 7-inch deep bellhousing.

There are many C4 and C5 bellhousing types for a variety of applications. Don't make the mistake of picking up a pump-mount bellhousing for a case-mount C4 and vice-versa. It's easy to make that mistake as these bell housings look so much alike at first glance. The most obvious difference is 157-tooth versus 164-tooth flexplates. Check depth first, then casting number.

Another important difference is the five-bolt versus six-bolt bellhousing. Small-block Fords prior to the '65 model have five-bolt bell housings instead of the more common six-bolt pieces from mid-'65 and later. If you're building a 260 or an early 289ci V-8, be mindful of five-bolt versus six-bolt. Five-bolt C4 bell housings are very hard to find these days.

Because there are endless variables in C4 bell housings, not all of them are mentioned here, and not all this information is complete. Ford has a time-proven reputation for engineering changes and plucking old part numbers off the shelf in mass production. Expect anything when you go shopping for a bellhousing, including part and casting numbers not mentioned here. And remember, the C4 was used behind fours and sixes as well as V-8s.

C4 Case Identification

Early C4 transmissions were vented from the main case with a vent tube just above the low-reverse band servo. These get the tailshaft housing without a vent mushroom on top. Later-model C4 and C5 transmission cases eliminate the vent tube altogether, opting for a higher mushroom-style vent on top of the tailshaft housing. Venting prevents heat and pressure from blowing the seals and gaskets. Again, look for the Ford casting numbers on these pieces for more accurate identification.

C4 Performance Basics

The best C4 to build is '70 or newer with the larger input shaft. Both the 26/26- and the 26/24-spline, .839-inch shafts, and forward clutch hubs can take more punishment than the smaller .788-inch, 24/24-spline shaft. Professional builders tell us the 26/26-spline shaft will withstand up to 600 hp. Of course, this doesn't always guarantee your C4 will survive 600 hp and the corresponding torque. A good rule of thumb is to go with a hardened aftermarket .839-inch, 26-spline input shaft (both ends). Some factory 26/26- and 26/24-spline shafts were hardened, but apparently these are few and far between. Your best choice is an aftermarket shaft.

Another important point with C4 performance is case selection. The '70-and-later case is considered stronger than '69-and-earlier because the bellhousing bolts to the case instead of the front pump. Transmission professionals also tell us the '82-'86 C5 case is better still thanks to oiling-system circuit improvements.

You can net the same oiling-circuit improvements in an older C4 by doing some of them yourself. Because the No. 9 thrust bearing in back of the C4 tends to be oil-starved and prone to failure, transmission professionals like to modify the case whenever possible to improve oil flow back there. As we understand it, the solution is to drill a 1/8-inch hole into the case that ties this thrust bearing to the oil-cooler return galley. Ford did this with the C5, along with an additional lubrication hole in the thrust bearing. Mention this to your transmission builder and get their take on this modification. Every builder is of a different opinion.

Another suggested modification is to smooth the oil passages by chamfering each of them to reduce fluid-flow resistance and turbulence. According to a few builders we've spoken with, this improves line pressure and fluid flow.

Flexplate Facts

There are two basic flexplate sizes for the C4: a 157-tooth (left) like we find in most compact and intermediate Ford applications and a 164-tooth (right) more common with heavy-duty truck and full-size Ford applications.



Bellhousing size goes right along with flexplate size. The larger 164-tooth flexplate needs the larger bellhousing.

Also remember offset balance. If you're building an early small-block Ford (before '82), expect a 28-ounce offset (smaller counterweight). After '82, expect to see a 50-ounce offset with the large counterweight. This is common with '82-and-later 5.0L High-Output V-8s.

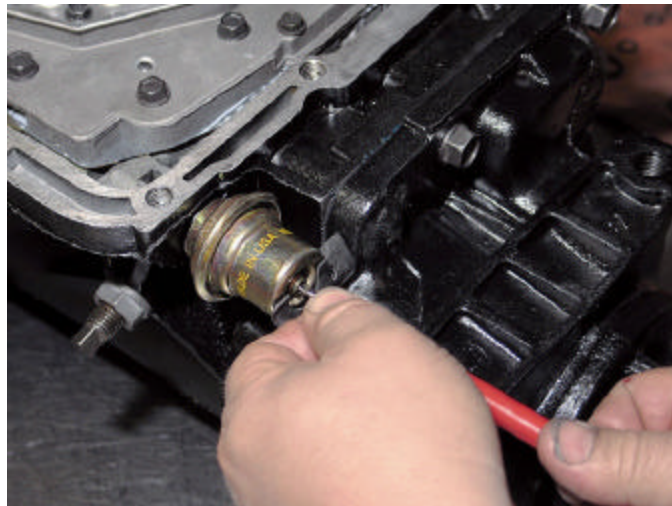
When shopping for C4 cores and parts, be mindful of the following differences:			
Type	Model	Years	Specifics
C4	Dual-Range	'64-'66	Small-dot/large-dot valvebody with 24/24-spline Cruise-O-Matic input shaft; C4, C5, C6 casting numbers
C4	Select Shift	'67-'69	P-R-N-D-2-1 shift pattern with 24/24-spline input shaft; C7, C8, C9 casting numbers
C4	Select Shift	'70	P-R-N-D-2-1 shift pattern with 26/26-spline input shaft; D0 casting number
C4	Select Shift	'71-'79	P-R-N-D-2-1 shift pattern with 26/24-spline input shaft; D1, D2, D3, D4, D5, D6, D7, D8, D9 casting numbers
C5	N/A	'82-'86	The C5 is a C4 with a locking torque converter; D2, D3, D4, D5 and D6 casting numbers

Quick Reference Guide to C4 V-8 Bellhousings		
Model Year	Casting Number/Ford Part Number	Specifics
'64	C4AP-7976-A and C4AZ-7976-A	Five-bolt bellhousing, 160-tooth flexplate, two-bolt starter, 221, 260, 289 V-8
'65-'69	C5OP-7976-A and C5OZ-7976-A	Six-bolt bellhousing, 157-tooth flexplate, two-bolt starter, 289 and 302 V-8
'72-and-later	D2OP-7976-AA and D2OZ-7976-B	Six-bolt bellhousing, 157-tooth flexplate, case-fill dipstick, two-bolt starter, 302 V-8, cable kickdown
'73-and-later	D3BP-7976-AA and D3BZ-7976-A	Six-bolt bellhousing, 164-tooth flexplate, pan-fill dipstick, two-bolt starter, 302, and 351 V-8
'75-'78	D5ZP-7976-A and D5ZZ-7976-A	Six-bolt bellhousing, 157-tooth flexplate, small torque converter for Mustang II only, case-fill dipstick, two-bolt starter, 302 V-8
'76-'79	D6TP-7976-AA	Six-bolt bellhousing, 164-tooth flexplate, truck only, pan-fill dipstick, two-bolt starter, 302 and 351 V-8
'77-and-later	D9AP-7976-AA	Six-bolt bellhousing, 157-tooth flexplate, case-fill dipstick, cable kickdown, two-bolt starter, 255, 302, 350 V-8
'77-and-later	D7BP-7976-AA and D7BZ-7976-A	Six-bolt bellhousing, 157-tooth flexplate, case-fill dipstick, two-bolt starter, 255, 302, and 351 V-8
'78-and-later	D7DP-7976-AA and D8OZ-7976-B	Six-bolt bellhousing, 157-tooth flexplate, case-fill dipstick, two-bolt starter, cable kickdown, 255, 302, and 351 V-8
'79-and-later	D9AP-7976-BA	Six-bolt bellhousing, 157-tooth flexplate, pan-fill dipstick, cable kickdown, two-bolt starter, 255, 302, and 351 V-8
'79-up	D9AP-7976-AA	Six-bolt bellhousing, 157-tooth flexplate, case-fill dipstick, cable kickdown, two-bolt starter, 255, 302, and 351 V-8
'82-up	E2TP-7976-AA and E2TZ-7976-A	Six-bolt bellhousing, 164-tooth flexplate, trucks only, pan-fill dipstick, two-bolt starter, cable kickdown, 255, 302, and 351 V-8
'75-up	D5OP-7976-BA and D5OZ-7976-A	For 351M and 400M with big-block bellhousing bolt pattern

There are so many types, C4 bellhousing identification will drive you nuts. Always check casting numbers and the number of bellhousing-to-engine bolt holes just for starters. Check depth, which determines whether you have a 157-tooth or 164-tooth flexplate bellhousing. Ascertain whether the bellhousing is a pump mount or transmission main-casting mount. They will not interchange.



This is the vacuum modulator that controls upshift firmness and timing. Adjusting the modulator clockwise firms and delays the upshift, while counterclockwise speeds up and softens the upshifts. Make your adjustments one turn at a time, then take a spin to evaluate the upshifts. Do not adjust the vacuum modulator any more than four turns in either direction.



C4s came with two types of vacuum modulators. Early versions had a screw-in type; later models have a push-in modulator with a clamp as shown. Weak intake-manifold vacuum caused by a hot cam or torn vacuum hose will adversely affect upshifts.

1960-65 Ford Falcon Ranchero

A Better Idea gives birth to the compact pickup

by Bill Siuru



The '65 was the last, best equipped and most powerful of the Falcon Rancheros.

By the end of the 1950s, the pickup was starting its transformation from work-a-day hauler to weekend fun machine. The metamorphosis began with the '55-'58 Chevrolet Camino Carrier and the '57-'59 Dodge Sweptsides, which had finned rear fenders from cars grafted onto pickup truck boxes. Ford introduced the 1957 Ranchero on its full-size car chassis, and Chevrolet followed with the 1959 El Camino.

The concept of the Ranchero/El Camino was not entirely new. Hudson, Studebaker and Willys Overland had offered pickups with passenger-car styling in the late 1930s, and the Hudson continued through 1947. But Ford and Chevy were the better sellers, and Ford took the concept a step further. In 1960, it got a jump on the rest of the Big Three with a hybrid that would foreshadow the compact pickup.

In 1959, the Ford Ranchero could be equipped with the hottest engines and most of the goodies from the Ford performance catalog. But in 1960, import fighters like the Chevrolet Corvair, Plymouth Valiant, and Ford Falcon were big news. So Ford trucks changed direction, too. By mid-model-year 1960, the Falcon lineup included its own Ranchero, built from the Falcon station wagon, just as the original Ranchero had been based on the Ford Ranch Wagon. The full-sized Ranchero was aimed at upscale buyers, but the Falcon Ranchero targeted the budget-minded. At a base price of \$1,882 or \$450 less than an entry-level 1959 Ranchero. Ford touted the '60 Falcon Ranchero as America's lowest-priced pickup. All 1960 Falcons were powered by a 144-cubic-inch, 90-hp six (a far cry from the 300-hp Interceptor 352-cubic-inch V8 that could be ordered in the '59 Ranchero). The Ranchero brochure advertised 30-mpg fuel economy and ease-of-maintenance, including 4000 mile oil change intervals and bolt-on front fenders.

This new direction meant compromises. The Falcon Ranchero's cab accommodations for three were spartan, and its option list was short. It included Full Tone Radio with manual tuning. Fresh Air Heater, whitewalls, wheel covers and a Safety-Package. In 1960, safety meant lap belts, padded sun visors and a padded dash. Power steering, brakes, seats or windows were not available. Air conditioning would not return to Ranchero until mid-1962.

Like the rest of the Falcons, the pickup had a 109.5-inch wheelbase and an overall length of 189 inches. The cargo bed was six feet long—19 inches shorter than the previous Ranchero's—and the truck had an 800-pound hauling capacity.

The Falcon Ranchero sold considerably better than its big brother. And because sales remained strong, Ford didn't change the Falcon much between 1960 and 1963. Revisions were limited to the obligatory facelift—annual changes in grille design and trim. The option list grew slowly. In 1962, Ranchero buyers could order a 170-cubic-inch, 101-hp six.

In 1963, Ford expanded the Falcon line by adding the convertible and hardtop Futura. Ford's new small block made its debut, and the 260-cubic-inch, 164-hp version was available in all Falcons, including Ranchero. Options such as power steering and upgraded trim packages were offered for the first time. Enthusiasts could even choose a British-Ford four-on-the-floor with a six-cylinder engine, or a Borg-Warner unit with the V8.

The Falcon was restyled in 1964, and the Ranchero had a square look, with sculptured body sides. The front end was supposed to look more aggressive, in keeping with Ford's new Total Performance image. For the first time, bucket seats were offered with the Deluxe trim, although only 235 Rancheros came so equipped.

By 1965, the muscle car era was in full swing. The Chevy El Camino, based on the midsize Chevelle platform, returned after a three-year hiatus, with a 250-hp, 327-cubic-inch V8. To keep pace, Ford offered two optional 289-cubic-inch V8s in the Ranchero (one rated at 200 hp, the other, 225). The 170-cubic-inch, 105-hp six was standard, and a 200-cubic-inch, 120-hp six made for a total of four engine choices.

During its years as a Falcon, the Ranchero was consistently a good seller, averaging 20,000 units a year. Yet Falcon muscle was an oxymoron, and after 1965, the Falcon name got dropped in favor of just Ranchero, although the '66 Ranchero was still Falcon-based. The 1967 Ranchero would be based on the Fairlane, and called—surprise!—the Fairlane Ranchero. Over the next few years, the Ranchero traded its compact status for luxury, size and performance. Ford's next compact pickup was the 1972 Courier, built by Mazda. Unlike the Ranchero, the Courier did not pretend to be anything other than a working mini-pickup.

If the Falcon Ranchero was a precursor to the compact pickup, it was also—after a fashion—the spiritual predecessor of the hot rod pickups of the '90s. After all, the Mustang was built on the Falcon chassis, with lots of parts from the Falcon bins. A few owners realized that the Mustang's 271-hp, Challenger High-Performance 289 V8 and front disc brakes slipped nicely into later Falcon Rancheros. So tweaked, the pickup car performed almost as well as the first pony car.

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