

THE FORGOTTEN THOROUGHbred

By Brian C. Brennan
Photography by the author

The secret to successful four-wheeling is matching the 4x4 to the trail. Pretty simple stuff. Why, then, is it so hard to get your four-by to perform the way you want off-road? There are two variables that must be in harmony for success: driver and vehicle. For the time being, let's eliminate one variable, you the driver. Oftentimes the driver has more to do with success or failure on the trail than the vehicle, but we are stuck with ourselves. That leaves us with correcting, adjusting or manipulating the other variable, the vehicle.

Now, there are any number of suitable starting points: a good Jeep, maybe a V8-powered CJ, or how about a solid IH (preferably a Scout), an early Bronco or early Toyota Land Cruiser, maybe a late-model pickup. Here the list is endless with Chevy, Ford, Chrysler or one of the imports. Hey, how's this for an idea? A Bronco II?

What was that thud I heard? Maybe it was you falling out of your chair in laughter. No kidding, if Ford ever made a mistake, it was the Bronco II. It has been referred to as a four-wheel-drive Edsel. Hindsight tells us the Edsel was actually a sophisti-

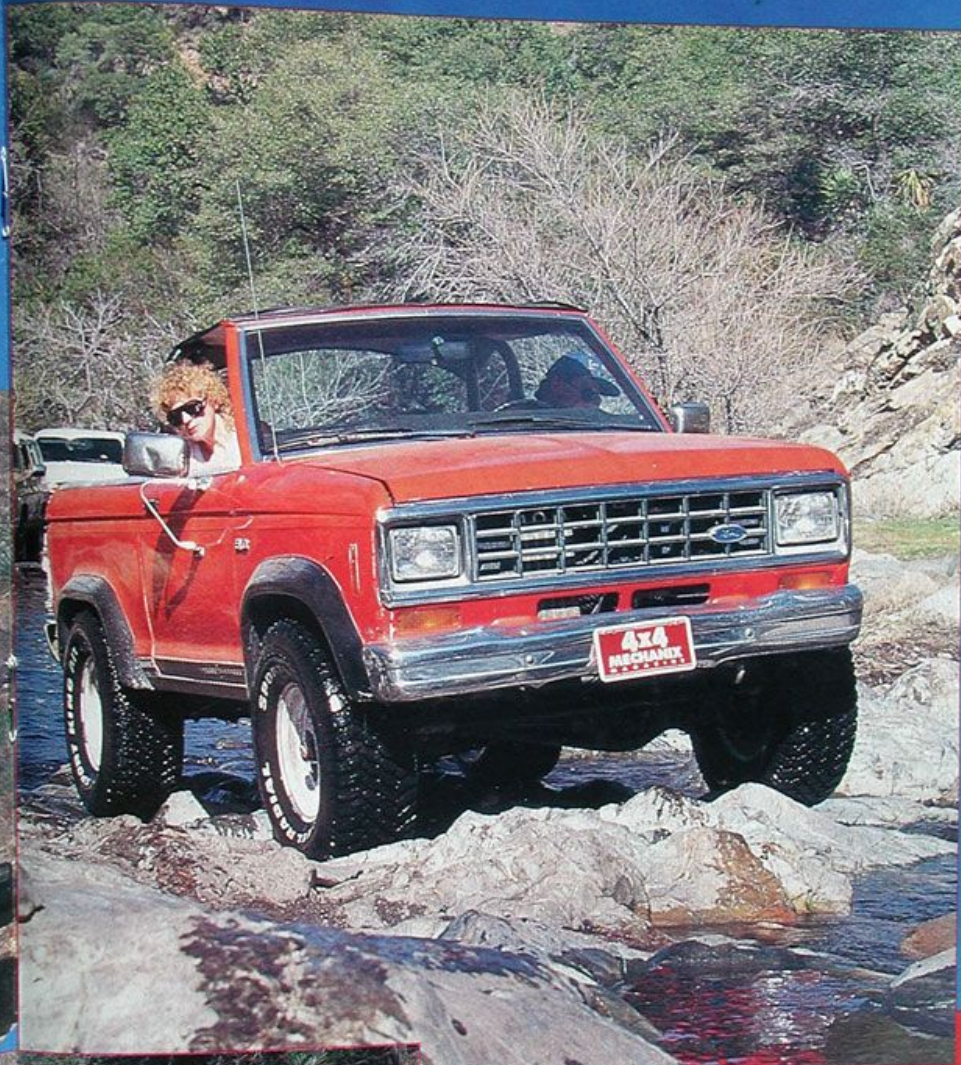


The Bronco II continually suffers as a result of its predecessor's success. But it, too, can be made into a top-performing 4x4.



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cated car for its era. Unfortunately, once upon a time a magazine writer took his trusty manual Smith-Corona to hand and pecked out that it reminded him of a Buick sucking on a lemon. So much for the prowess of the Edsel; its lot in life was cast.

Is the Bronco II the forgotten thoroughbred? It didn't fare well in terms of model longevity. It was introduced in late '83 and sold as an '84, and continued until '90. Off-roaders who enjoyed the early Bronco scoff at the Bronco II. No wonder; it was a poor substitute. In fact, it was an aberration. It would take some effort to turn this sow's ear into a silk purse, but it can be done, and affordably.

The upside to our downsized friend is that the non-four-wheeling crowd looks upon it today as totally undesirable, hence it can be had for a fair price. In my corner of the planet, you can get a sharp-looking '84 with V6 and all the goodies for under \$4,000, while an '86 in prime condition with V6 might bring upward of \$6,000. If you are willing to hold out, I have seen '87s or '88s with V6 and four-wheel drive in the \$3,500 range.

Conversely, a medium to good-quality early Bronco that is 12 to 15 years older will start at \$4,000 and go up from there. In fact, prime early Broncos are beginning to push \$10,000. Scary!

Back to the Bronco II. Remember, the operative thought here is "made into" a good four-wheeler. In stock form, it isn't much to look at, is woefully underpowered and the suspension is a mixed bag of good and not good. There are a number of aftermarket manufacturers who can make the suspension come to life, but that isn't the inherent problem. The problem with the Bronco II rests be-



Advance Adapters offers three different C4 adapters, which vary in length from 6 1/4 inches to 11 1/2. This allows your stock Bronco II transfer case to stay in its stock position and retains the stock driveshafts.

neath the skin, at the root or soul—its powertrain and drivetrain.

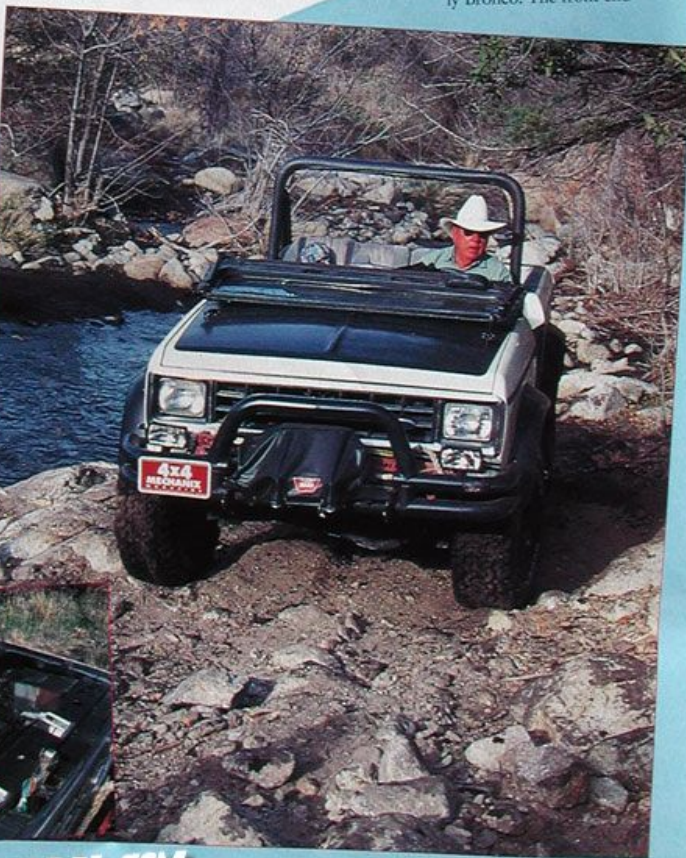
That brings us to the twist in our story. Long-time friend Brad Searer and I go back to our days of hanging around the world's premier Bronco shop, Bill Stroppe and Son, in Long Beach, Calif. Ac-

tually, I hung around while Brad punched a time clock. Well, that was 20 years ago. Now Brad works for San-Man Ford-Mercury in San Manuel, Ariz., about 45 miles north of Tucson.

It turns out that the off-road gang at San-Man is into Broncos, both early and of the "II" persuasion. General manager Mark Phelps has a traditional early Bronco roadster with a carbureted 351 V8; Brad owns a similar hardtop V8 while the others have "IIs."

THE PHELPS '87

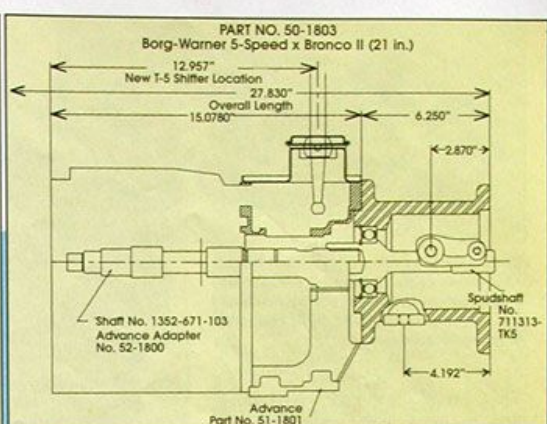
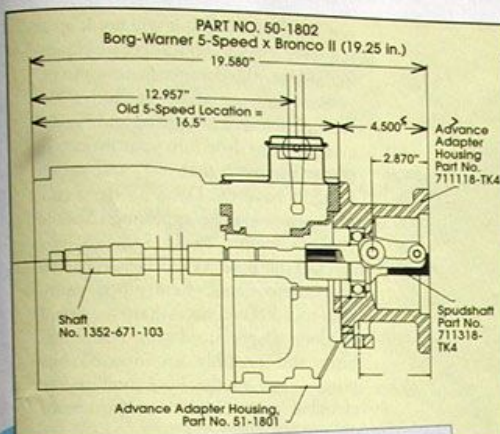
San-Man owner Dick Phelps of San Manuel has a white "topless" '87 "II" outfitted with a 4.0L V6, 5-speed and 1345 transfer case out of a '92 Explorer, coupled with a narrowed 9-inch rear complete with spool and 4.56 gears. Yes, we did say topless. Just cut off the hardtop and you have the makings of an early Bronco. The front end



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Advance Adapters offers a transfer case adapter to allow the Borg Warner World Class 5-speed to be used with its V8 conversions. The adapter will work with the original bellhousing and use all the original clutch linkage, requiring only the change-over to a new clutch disc with 22 splines.

The bed portion is another point of interest. The stock Bronco II floorpan is used, but the taillights, tailgate and top portion of the bed rails (above the character line) are '91 Ranger pickup ('83-'91) sheetmetal; below the character line is stock "II."

Holley Dominator intake and Holley Pro-Jection with a Motorsport 10-inch air cleaner, Advance Adapters headers coupled with a single muffler custom exhaust with two pipes in and two out from Alberts NAPA Auto Care of Tucson. Cooling chores were handled by Industrial Radiator Supply, again of Tucson. A special three-core radiator was fabricated and sandwiched with Bronco II upper and lower brass tanks.

is a Dana 35 rotor to rotor, locked via a TrueTrac with 4.56 gears again. The front end came from a '91 (or newer) Ranger, with the only modification a shortening of the inner axle on the passenger side by some two inches.

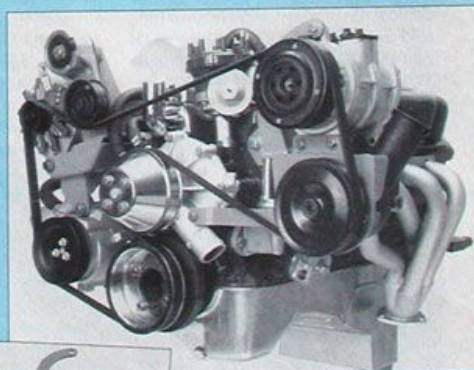
The suspension received a gentle massage via James Duff Enterprises 2 1/2-inch lift plus urethane bushings, Duff front dual shock kit and single Bilsteins in back. Bushwacker fender flares make the necessary room for the 33x12.50x15-inch BFGoodrich Radial All-Terrain T/A rubber mounted on American Racing 15x8-inch wheels.

You will undoubtedly notice a similarity between Dick's Bronco II and any early Bronco. It's no coincidence. Aside from slicing off the top, he had custom half-door inserts made out of fiberglass to give the same general appearance as an early Bronco. Wanting a lay-down windshield like an early Bronco, he fitted a Jeep Wrangler windshield (same width as the Bronco II) to his ride, giving him fold-down glass. Desert Metals of Tucson blended the windshield into the cowl area and created the valance to give a stock-appearing dash.

THE BALDRIDGE DUO

This brings us to Roger Baldrige of Oracle, Ariz., the parts and service coordinator for San-Man, who has a pair of deuces. How's that for commitment!

His off-road machine is an '84 roadsterized Bronco II with James Duff fender flares and brilliant orange paint by San-Man Ford body shop. It is equipped with a 302 V8 sporting a



L&L Products offers a complete mount and drive kit for your Bronco II conversion: a pair of steel pulleys, alternator mount, smog pump mount, A/C compressor mount, power steering mount and a serpentine belt. This kit moves the accessories 1 1/2 inches closer to the block, allowing the use of a reverse rotation flex fan without a spacer.

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Remote oil filter adapter (1 1/2-inch height) and remote canister mount are musts for engine swaps. The L&L units are machined from aluminum billet; they'll fit Ford and other applications.

The C4 tranny is shifted by a Mustang floor-mounted lever, while the narrowed Ford 9-inch rear end is fitted with a LockRight locker and 3.73 gears. In front, similar gearing exists, but this time it is a Dana limited slip residing inside the Dana 35. Rubber comes via Kelly Springfield Sport King A/T's 32x11.50x15 all-terrain tread.

The No. 2 "II" is a "streeter" in white, an '85 hardtop painted by San-Man Ford body shop that has all the creature comforts the Arizona desert requires. It is equipped with a 5.0L V8, outfitted with a '78 Ford DuraSpark ignition system, a SSI cam and valve-train, Edelbrock Performer intake and 625-cfm Holley carb and 14-inch Ford Motorsport air cleaner. The C4 transmission (C5 output shaft used to accept the Bronco II stock transfer case) allows use of the stock driveshafts front and rear. The white hardtop features an L&L engine conversion kit complete with headers. Roadside rubber comes via BFGoodrich Radial All-Terrain T/A's mounted to 15x7-inch Americans.

PICKING YOUR IDEAL

Now, let's get back to selecting your ideal Bronco II, and for what reasons. The first two years, '84-'85, the "II" was outfitted with a 2.8L (173 cubic inches) V6 that sported 115 horsepower and 150 lbs.-ft. of torque. The '86-'90 models saw the power increase to 140 hp and 170 lbs.-ft. of torque. Nowhere do we find an acceptable powerplant for off-roading in this mix.

The front and rear suspensions are basically unchanged throughout the model run, with the front end featuring a twin I-beam configuration. The rear end is a solid axle sporting an over-axle parallel leaf spring mount as



opposed to a Ranger, which used the under-axle spring mount. The front end is a Dana 28, while the rear is the 7.5-inch unit. Neither was intended for extremes resulting from an engine swap or severe off-road use, least of all a combination of both.

Factoring in all the variables, including your budget, where does one begin to make a 4x4 that will perform well both on- and off-road. We agree that the current powerplant will be replaced with either the 4.0L V6 or the 5.0L V8. Any of the model years can be made to work, as shown by the gang from San-Man, but there is a question to be answered.

The '85-'87 units came with C3 transmissions, thereby making it a very easy and affordable swap to a C4. Clearly, if you wish to go the automatic route with a V8, this is ideal. However, if you want the upgraded on-board engine management system, then post-'87 is your choice. There is also one other point to consider: The A4LD automatic, which came with the later models, is not an ideal tranny for off-roading. To swap for a C4 or the 5-speed requires other adapters, thereby increasing the cost of the swap. Here, the decision is yours. The basic vehicle and suspension systems are the same.

The desirability of the '87 and later is in the electronic engine control system. The later models have the EEC-IV, which has a significant advantage over earlier systems (DuraSpark EEC-III) in its capacity to process a million control commands a second through a pair of microcircuits that are integrated into one computer chip. Should you

opt for the 4.0L V6, it will hook up as if it were a stock '90 Ranger pickup using all over-the-counter factory pieces.

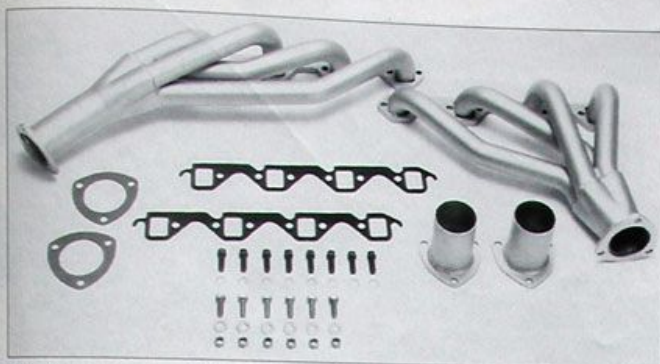
Best bet would be to find a '90 Ranger in a wrecking yard and "grab" everything to drop into your Bronco II. (Keep in mind that '91 and newer Rangers have the Dana 35 front end, which may also be appealing.) Should you opt for an '86-'93 5.0L V8, you can use the Ford SVO EFI wiring harness components. Remember, swapping to a V8 will necessitate the use of headers, a special oil pan, remote oil filter and possibly an inverted fuel pump, such as the L&L unit if mechanical is retained over the use of electric.

This Ford SVO wiring harness is compatible with all factory emission equipment and all Ford SVO hi-po accessories. This wiring harness and its related componentry is intended to be a stand-alone engine management system designed to work with GT-40 and stock 5.0L high-output engines. SVO items you will need are: Main Harness, Engine Harness and Controls Packages (specify 5.0L-HO/5.8L or Non-HO), Computer and Mass-Air Meter Kit (specify auto or manual transmission) and Sensor and Relay Package (engine-mounted sensors not included). Incidentally, we found these items on page 74 of both the '95 & '96 Ford SVO catalog.

A few other tips on selecting your ideal Bronco II: Look for the Safety Compliance Certification Label affixed to the driver's side door. It will provide you with information the owner may not know, or allow you to check his memory!



Oil pan conversion is a must for four-wheel-drive V8 swaps in a Bronco II, moving sump away from front end. L&L pan holds 6 quarts, is baffled, has main cap support.



Whether you use a manufactured engine conversion kit, make your own or employ a combination of both, you will need headers. Available from each of the manufacturers, the L&L gives you everything you'll need to hook up to the exhaust pipes. Primary tube is 1 1/2 inches. Since these were intended for off-road use only, you'll need to have provisions for oxygen sensors, etc., to make sure your vehicle complies with local and federal emission laws.

Engine identification can be verified by looking for the letter "T" in the VIN code for a 2.9L V6 or "S" for a 2.8L V6, or in the Ranger "X" for a 4.0L V6. The transmission code appears as a letter in the "Trans" column on the same label: M = manual 5-speed, while T = 4-speed automatic, V = C3 automatic and W = C5 automatic. To tell what type of gear ratio your prospective forgotten thoroughbred has, check under "Axle" for two codes: the first number is for the front and the second number is for the rear. You can also check the metal tag hanging from the axle cover at the 2 o'clock position. If the number is 42 (3.45s), 44 (3.73s), or 47 (4.10s), it's with an

open differential; limited slip diffs have the number "4" deleted and replaced by the letter "D"; D2, D4, D7.

As for the 4.0L, simple modifications like headers and extruded and honed intake should provide enough added ponies to make the 241-cubic-inch V6 perform. In its stock configuration this engine has 155 hp with 220 lbs.-ft. of torque.

Why do we favor this swap? You can bypass the added expense of a V8 and its required accessories. The 4.0L will drop right into your Bronco II. Starting with the 1990 model year, the Ranger was fitted with the 4.0L and, since the Ranger and Bronco II share the same platform (frame), the factory

SOURCES

Advance Adapters Inc.
P.O. Box 247
335 Santa Bella
Paso Robles, CA 93466
805-238-7000
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(manufacturer of hard parts)

James Duff Enterprises Inc.
261 340 Highway 101
Sequim, WA 98382
360-683-2160
Fax: 360-683-0159
(manufacturer of hard parts)

L&L Products
3210 Century Dr.,
Rowlett, TX 75088
412-475-5202
Fax: 412-475-8063
(manufacturer of hard parts)

Ford Motorsport
Performance Equipment (SVO)
(check with your local Ford and Lincoln-Mercury dealers and
selected independent auto specialty/performance outlets)
Technical Assistance "Hot Line":
313-337-1356

San-Man Ford-Mercury
130 N. Readington Rd.
P.O. Box 610
San Manuel, AZ 85631
520-385-2212
Fax: 520-385-3006
(Special thanks to: Dick Phelps, Mark Phelps,
Brad Seaver, Roger Baldridge)

has already predrilled the holes for the transmission mount to bolt in. That's a mere two inches farther back than your existing mount. The engines use the same mounting points and offer a simple driveshaft modification; the rear needs to be shortened about two inches, while the front is extended two

Continued on page 67

James Duff Enterprises offers three Bronco II suspension systems. One is a heavy-duty, single shock system that retains stock height; the second is again a single shock system but offers 2 1/2 inches of lift; and the third is a variable rate lift coil offering 3 inches of lift and is a single shock system. All shocks feature the custom valved 70/30 Auto Adjusting action with boots designed for coil spring applications.



The Duff twin front shock application for the Bronco II is achieved through the use of a hoop that has been gold zinc plated and requires a minimum number of holes to be drilled for installation. This application greatly improves off-road handling.

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Bronco II

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inches. All the hardware you need is Ford factory. Simple, easy and to the point. You now have a 4x4 that has ample power, good fore and aft weight ratio, and is docile enough to idle over any terrain, all the while getting very good gas mileage. Also, it should be noted that the front and rear diffs should withstand the stress from the new V6 much more easily than a V8.

If you feel the need for speed, aftermarket manufacturers such as Vortec make a supercharger for the Ranger, but it can be adapted to the Bronco II underhood area. Centerforce manufactures a high-performance clutch, K&N makes an air filter, MSD has an ignition system and there are a few other goodies out there, but they are minimal.

The 5.0L V8 does make a combination that is hard to beat. In factory trim, the V8 will have 100 more horsepower and like amounts of torque over the V6. This allows you to have a relatively light 4x4 coupled with a V8 that can easily pull itself up any boulder face, get on top of soft sand or buzz through mud. All this with no engine mods.

But if you feel too much horsepower is still not enough, then the possibilities are limitless. However, as a caveat keep in mind that for both on- and off-road performance, stick with fuel injection. It will give economy, performance and throttle responsiveness. It will also perform in those precarious positions you will undoubtedly get your four-wheeler into without "dying" the way a carburetor might. Both the 4.0L and 5.0L provide ample torque to manipulate 31 to 33-inch tires, giving you additional ground clearance and traction necessary to negotiate various off-road tasks.

Yep, it's all a matter of matching the vehicle to the terrain. Make sure to check out the various conversion kits to see which ones best suit your needs, and make sure to get the assembly manual offered by the manufacturers. Both Advance Adapters and L&L Products have complete step-by-step instructions showing how to accomplish your goals.

Also, remember to check with your local DMV to find out what emission rules you should follow to make your swap legal. The last thing you need is a four-by you can't get registered.



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From: COMP Cams Tech Department
Subject: High Energy Camsahfts

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