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ON THE COVER

Ward Gappa procured a former "barn-find" Hemi Challenger for a customer, and then proceeded to bring it back to better than new. West Coast Editor Jeff Koch photographed it in Arizona.

COLUMNISTS

DEPARTMENTS

HEMMINGS MUSCLE MACHINES

ISSN 1550-0691 • www.hemmings.com
Published monthly by Hemmings Motor News
222 Main St., Bennington, VT 05201

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E-mail: hmnsubs@hemmings.com
Online: www.hemmings.com
Subscription rates in the US and Possessions; 12 issues for $18.95. Canada $30.95; (CDN price includes surface mail and GST tax). All other countries $32.95 in US funds.

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POSTMASTER: send address changes to:
Hemmings Muscle Machines, PO Box 2000, Bennington, VT 05201
Hemmings Muscle Machines is a publication of American City Business Journals, Inc.,
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RAPID PUMP® 3 TON LOW PROFILE HEAVY DUTY STEEL FLOOR JACK

Customer Rating ★★★★★

- Weighs 73 lbs.

NOW $79.99 ~~$97.99~~

COMPARE TO HUSKY $149.98 MODEL: H30912S — SAVE $69

ITEM 61253/62326
61282 shown

21712169

LIMIT 5 - Coupon valid through 7/16/18*

PREDATOR — SUPER COUPON

8750 MAX. STARTING/ 7000 RUNNING WATTS 13 HP (420 CC) GAS GENERATOR

Customer Rating ★★★★★

ITEM 68530/63086/69671/63085 shown
ITEM 63087/68525/63088, CALIFORNIA ONLY

- GFCI outlets

SUPER QUIET

Wheel kit and battery sold separately.

NOW $529.99 ~~$599.99~~

COMPARE TO HONDA $2,700 MODEL: EM6500SXK2AT — SAVE $2170

21714493

LIMIT 4 - Coupon valid through 7/16/18*

SUPER COUPON

FREE

WITH ANY PURCHASE

3-1/2" SUPER BRIGHT ALUMINUM FLASHLIGHT

COMPARE TO RAYOVAC $1.50 MODEL: BRSSLED-B

- 9 LED
- Compact, Lightweight

ITEM 69111/63599/62522/62573
63875/63884/63886/63888/69052 shown

21711370

Cannot be used with other discounts or prior purchases. Original coupon must be presented. Valid through 7/16/18 while supplies last. Limit 1 FREE GIFT per customer per day.

SUPER COUPON

20% OFF

ANY SINGLE ITEM*

21698590

LIMIT 1 coupon per customer per day. Save 20% on any 1 item purchased. *Cannot be used with other discount, coupon or any of the following items or brands: Inside Track Club membership, Extended Service Plan, gift card, open box item, 3 day Parking Lot Sale item, compressors, floor jacks, safes, saw mills, storage cabinets, chests or carts, trailers, trenchers, welders, Admiral, Ames, Bauer, Cobra, CoverPro, Daytona, Earthquake, Fischer, Hercules, Icon, Jupiter, Lynx, Poulan, Predator, Tailgator, Viking, Vulcan, Zurich. Not valid on prior purchases. Non-transferable. Original coupon must be presented. Valid through 7/16/18.

COVERPRO — SUPER COUPON

10 FT. x 17 FT. PORTABLE GARAGE

Customer Rating ★★★★½

NOW $169.99 ~~$199.99~~

COMPARE TO SHELTER LOGIC $270 MODEL: 76377 — SAVE $100

ITEM 62859/63055
62860 shown

21720216

LIMIT 5 - Coupon valid through 7/16/18*

CENTRAL PNEUMATIC — SUPER COUPON

20 OZ. GRAVITY FEED SPRAY GUN

Customer Rating ★★★★★

NOW $9.99 ~~$15.99~~

- 1.4mm tip included

COMPARE TO KOBALT $49.98 MODEL: SGY-AIR8TZ — SAVE 80%

ITEM 67181/62300/47016 shown

21725767

LIMIT 9 - Coupon valid through 7/16/18*

YUKON — SUPER COUPON

46" MOBILE WORKBENCH WITH SOLID WOOD TOP

Customer Rating ★★★★★

NOW $239.99 ~~$269.99~~

SAVE $30

- 15,704 cu. in. of storage
- 1200 lb. capacity

ITEM 64023/64012 shown

21730730

LIMIT 4 - Coupon valid through 7/16/18*

CENTRAL PNEUMATIC — SUPER COUPON

21 GALLON, 2.5 HP, 125 PSI VERTICAL OIL-LUBE AIR COMPRESSOR

- Air delivery: 5.8 CFM @ 40 PSI 4.7 CFM @ 90 PSI

Customer Rating ★★★★½

NOW $149.99 ~~$169.99~~

COMPARE TO HUSKY $219 MODEL: C201H — SAVE $69

ITEM 69091/61454
62803/63635/67847 shown

21732218

LIMIT 3 - Coupon valid through 7/16/18*

VIKING — SUPER COUPON

JUMP STARTER AND POWER PACK

Customer Rating ★★★★½

ITEM 62749

COMPARE TO SCHUMACHER ELECTRIC $129.99 MODEL: SL1 — SAVE $60

NOW $69.99 ~~$79.99~~

21740588

LIMIT 5 - Coupon valid through 7/16/18*

HaulMaster — SUPER COUPON

STEP STOOL/ WORKING PLATFORM

Customer Rating ★★★★★

- 350 lb. capacity

NOW $19.99 ~~$29.99~~

COMPARE TO GPL $57.55 MODEL: H-21 — SAVE 65%

ITEM 62515/66911 shown

21746027

LIMIT 7 - Coupon valid through 7/16/18*

PREDATOR — SUPER COUPON

6.5 HP (212 CC) OHV HORIZONTAL SHAFT GAS ENGINE

Customer Rating ★★★★½

NOW $99.99 ~~$119.99~~

COMPARE TO HONDA $329.99 MODEL: GX200UT2QX2 — SAVE $230

ITEM 60363/69730
ITEM 69727 shown
CALIFORNIA ONLY

21756052

LIMIT 4 - Coupon valid through 7/16/18*

PITTSBURGH — SUPER COUPON

TORQUE WRENCHES

Customer Rating ★★★★½

- Accuracy within ±4%

Item 239 shown

DRIVE	ITEM
1/4"	2696/61277/63881
3/8"	807/61276/63880
1/2"	62431/239/63882

~~$19.99~~ YOUR CHOICE $9.99

COMPARE TO HUSKY $84.97 MODEL: H2DTWA — SAVE 88%

LIFETIME WARRANTY

21756420

LIMIT 8 - Coupon valid through 7/16/18*

CENTRAL MACHINERY — SUPER COUPON

20 TON SHOP PRESS

- Pair of arbor plates included

Customer Rating ★★★★½

NOW $149.99 ~~$189.99~~

COMPARE TO MAXWORKS $222.49 MODEL: GP2002 — SAVE $72

ITEM 32879/60603 shown

21765313

LIMIT 5 - Coupon valid through 7/16/18*

SUPER COUPON

Customer Rating ★★★★½

7 FT. 4" x 9 FT. 6" ALL PURPOSE/WEATHER RESISTANT TARP

NOW $2.99 ~~$4.99~~

COMPARE TO BLUE HAWK $8.58 MODEL: BG6X10-Y — SAVE 65%

ITEM 69249/69115/69137/69129/69121/877 shown

21768798

LIMIT 8 - Coupon valid through 7/16/18*

HaulMaster — SUPER COUPON

18" x 12" MOVER'S DOLLY

- 1000 lb. capacity

Customer Rating ★★★★★

NOW $7.99 ~~$10.99~~ SAVE 51%

COMPARE TO BUFFALO TOOLS $16.43 MODEL: HDFDOLLY

ITEM 61899/63095/63096
63098/63097/93888 shown

21769440

LIMIT 7 - Coupon valid through 7/16/18*

EARTHQUAKE XT — SUPER COUPON

1/2" COMPOSITE PRO EXTREME TORQUE AIR IMPACT WRENCH

Customer Rating ★★★★★

1190 TORQUE FT. LBS. BOLT BREAKAWAY

- Weighs 4.4 lbs.

NOW $129.99 ~~$149.99~~

COMPARE TO SNAP-ON $524.95 MODEL: MG725 — SAVE $394

ITEM 62891

21774427

LIMIT 3 - Coupon valid through 7/16/18*

Bauer — SUPER COUPON

10 AMP DEEP CUT VARIABLE SPEED BAND SAW KIT

Customer Rating ★★★★★

NOW $99.99 ~~$139.99~~

COMPARE TO DEWALT $299 MODEL: DWM120 — SAVE $199

ITEM 63763/63444 shown

21783594

LIMIT 5 - Coupon valid through 7/16/18*

CHICAGO ELECTRIC WELDING — SUPER COUPON

AUTO-DARKENING WELDING HELMET WITH BLUE FLAME DESIGN

Customer Rating ★★★★★

NOW $39.99 ~~$49.99~~

COMPARE TO HOBART $129.99 MODEL: 77054 — SAVE $90

ITEM 61610/63122/91214 shown

21784428

LIMIT 4 - Coupon valid through 7/16/18*

SUPER COUPON

Customer Rating ★★★★½

4 PIECE ANTI-FATIGUE FOAM MAT SET

- Each pad measures 25" x 25"

NOW $6.99 ~~$8.99~~ SAVE 65%

ITEM 61607/62389
94635 shown

COMPARE TO NORSK $19.99 MODEL: 001119346

21786388

LIMIT 9 - Coupon valid through 7/16/18*

SUPER COUPON

HEAVY DUTY FOLDABLE ALUMINUM SPORTS CHAIR

Customer Rating ★★★★★

NOW $19.99 ~~$29.99~~

COMPARE TO COLEMAN $49.99 MODEL: 2000020293 — SAVE 60%

ITEM 62314/63066
66383 shown

21786398

LIMIT 7 - Coupon valid through 7/16/18*

PITTSBURGH AUTOMOTIVE — SUPER COUPON

VEHICLE POSITIONING DOLLY

Customer Rating ★★★★★

- 1250 lb. capacity

NOW $69.99 | $89.99 | SAVE $199

COMPARE TO $269 GOJAK MODEL: 5211

ITEM 62234/61917 shown

21815670

LIMIT 5 - Coupon valid through 7/16/18*

PITTSBURGH AUTOMOTIVE — SUPER COUPON

2 TON CAPACITY FOLDABLE SHOP CRANE

- Boom extends from 41" to 61-3/4"
- Crane height adjusts from 73-5/8" to 89"

Customer Rating ★★★★★

NOW $189.99 | $239.99 | SAVE $50

ITEM 60388/69514 shown

21530835

LIMIT 4 - Coupon valid through 7/16/18*

WARRIOR — SUPER COUPON

29 PIECE TITANIUM DRILL BIT SET

Customer Rating ★★★★★

NOW $9.99 | $17.99

COMPARE TO DEWALT $60 MODEL: DW1369 | SAVE 83%

ITEM 62281 61637 shown

21530922

LIMIT 8 - Coupon valid through 7/16/18*

PITTSBURGH MOTORCYCLE — SUPER COUPON

1000 LB. CAPACITY MOTORCYCLE LIFT

Customer Rating ★★★★★

- Diamond plate steel platform and ramp
- Lift range: 7" – 29-1/2"

NOW $299.99 | $429.99 | SAVE $500

ITEM 69904 68892 shown

COMPARE TO $799.99 DIRECT-LIFT MODEL: 873100

21842725

LIMIT 5 - Coupon valid through 7/16/18*

BADLAND Battle Tested — SUPER COUPON

2500 LB. ELECTRIC WINCH WITH WIRELESS REMOTE CONTROL

Customer Rating ★★★★★

- Weighs 14.3 lbs.
- 11-1/8" L x 4-1/2" H

NOW $49.99 | $79.99

COMPARE TO $179.99 SUPERWINCH MODEL: 1125220 | SAVE $130

Voted Best Winches

ITEM 61840/61297/63476/61258 shown

21846032

LIMIT 3 - Coupon valid through 7/16/18*

SUPER COUPON

30" SERVICE CART WITH LOCKING DRAWER

Customer Rating ★★★★★

- 350 lb. capacity
- Locking storage drawer with two keys

NOW $59.99 | $74.99

COMPARE TO $265 BLUE-POINT MODEL: KR8CSTD | SAVE $205

ITEM 61161/90428 shown

21857854

LIMIT 5 - Coupon valid through 7/16/18*

Haul Master — SUPER COUPON

12 VOLT MAGNETIC TOWING LIGHT KIT

Customer Rating ★★★★★

SAVE 70%

$18.99 | NOW $9.99

COMPARE TO $33.59 OPTRONICS MODEL: TL21RK

ITEM 63100

21859012

LIMIT 9 - Coupon valid through 7/16/18*

PITTSBURGH AUTOMOTIVE — SUPER COUPON

3 TON HEAVY DUTY STEEL JACK STANDS

- Perfect for repair work or storage

Customer Rating ★★★★★

NOW $17.99 | $23.99

COMPARE TO $34.99 ACDELCO MODEL: 34124 | SAVE 48%

ITEM 62392/69597/38846/61196 shown

21861870

LIMIT 6 - Coupon valid through 7/16/18*

HARDY — SUPER COUPON

POWDER-FREE NITRILE GLOVES PACK OF 100

- 5 mil thickness

NOW $5.99 | $7.99

12¢ PER PAIR

Customer Rating ★★★★★

COMPARE TO VENOM $13.32 MODEL: VEN4145 | SAVE 55%

ITEM 61363, 68497, 61360, 61359, 68498, 68496 shown

21864058

LIMIT 8 - Coupon valid through 7/16/18*

CENTRAL MACHINERY — SUPER COUPON

36" METAL BRAKE WITH STAND

Customer Rating ★★★★★

NOW $189.99 | $229.99 | SAVE $90

COMPARE TO $279.99 NORTHERN INDUSTRIAL MODEL: 426282

ITEM 62518/62335 91012 shown

21872119

LIMIT 4 - Coupon valid through 7/16/18*

HERCULES BEATS DEWALT — SUPER COUPON

20 VOLT LITHIUM CORDLESS 1/2" COMPACT DRILL/DRIVER KIT

Customer Rating ★★★★★

- 576 in. lbs. of torque
- 2.5 amp hour battery
- Weighs 3.6 lbs.

NOW $99.99 | $109.99

ITEM 63381

COMPARE TO $179.99 DEWALT MODEL: DCD780C2 | SAVE $80

21872910

LIMIT 5 - Coupon valid through 7/16/18*

PITTSBURGH — SUPER COUPON

18 PIECE SAE AND METRIC T-HANDLE BALL END HEX KEY SET

Customer Rating ★★★★★

NOW $12.99 | $17.99

LIFETIME WARRANTY

COMPARE TO $32.10 HUSKY MODEL: HTHKSM14PCN | SAVE 59%

ITEM 63167/63166 96645 shown

21874340

LIMIT 7 - Coupon valid through 7/16/18*

CHICAGO ELECTRIC WELDING — SUPER COUPON

170 AMP MIG/FLUX CORED WELDER

Customer Rating ★★★★★

EVERYTHING YOU NEED TO WELD

NOW $159.99 | $179.99

ITEM 61888/68885 shown

COMPARE TO $549.99 HOBART MODEL: 381204099 | SAVE $390

21875079

LIMIT 3 - Coupon valid through 7/16/18*

drill master — SUPER COUPON

4-1/2" ANGLE GRINDER

Customer Rating ★★★★★

NOW $9.99 | $14.99

SAVE 61%

COMPARE TO $25.80 PERFORMAX MODEL: 2411-1

ITEM 69645/60625 shown

21879885

LIMIT 9 - Coupon valid through 7/16/18*

CHICAGO ELECTRIC POWER TOOLS — SUPER COUPON

10" SLIDING COMPOUND MITER SAW

- Powerful 15 amp motor

Customer Rating ★★★★★

NOW $84.99 | $117.99

COMPARE TO KOBALT $199 MODEL: SM2507LW | SAVE $114

Blade sold separately.

ITEM 61971/61972/98199 shown

21885622

LIMIT 4 - Coupon valid through 7/16/18*

PITTSBURGH PRO — SUPER COUPON

1/2" DRIVE 25" BREAKER BAR

Customer Rating ★★★★★

- Chrome vanadium steel construction
- Head swivels 180°
- Polished finish

LIFETIME WARRANTY

NOW $8.99 | $12.99

COMPARE TO $21.99 DURALAST MODEL: 72-121 | SAVE 59%

ITEM 60819 67933 shown

21893739

LIMIT 6 - Coupon valid through 7/16/18*

CEN-TECH — SUPER COUPON

AUTOMATIC BATTERY FLOAT CHARGER

NOW $4.99 | $9.99

Customer Rating ★★★★★

SAVE 50%

ITEM 64284/69955 69594/42292 shown

21896973

LIMIT 9 - Coupon valid through 7/16/18*

Haul Master — SUPER COUPON

4000 LB. CAPACITY CABLE WINCH PULLER

Customer Rating ★★★★★

For dead loads only. Not for lifting.

NOW $14.99 | $18.99

COMPARE TO $24.88 AMERICAN MODEL: 18600 | SAVE 39%

ITEM 63448/69854/30329/61964 shown

21901149

LIMIT 7 - Coupon valid through 7/16/18*

CENTRALPNEUMATIC — SUPER COUPON

3/8" x 50 FT. RETRACTABLE AIR HOSE REEL

Customer Rating ★★★★★

NOW $59.99 | $79.99

COMPARE TO $99 KOBALT MODEL: SBY-AIR184 | SAVE $39

ITEM 69265/62344/93897 shown

21902788

LIMIT 5 - Coupon valid through 7/16/18*

drill master — SUPER COUPON

1500 WATT DUAL TEMPERATURE HEAT GUN (572°/1112°)

Customer Rating ★★★★★

NOW $8.99 | $14.99

SAVE 67%

COMPARE TO $28.06 BLACK & DECKER MODEL: HG1300

ITEM 62340/62546 63104/96289 shown

21910504

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tmcgean@hemmings.com

Cars and Costs, Compared

After another evening of perusing the usual online haunts dedicated to interesting cars being offered for sale, I found myself once again thinking about the stories we often hear from people who were buying muscle cars back when they were new or slightly used. What often strikes me is that, in the recounting of those days, money rarely comes up as a hindrance to automotive escapades. Did they really have it that good?

> "…my 'late-model' daily driver was built in 2000, so it's essentially the same age as that '56 was in '74."

Common threads always seem to involve young-ish guys in the 1960s with moderately decent employment, who went out and bought some sort of hot car from the local dealer. These weren't "starter" cars—the ones that either had six-cylinders or, at best, a two-barrel carb feeding a V-8. No, these were indulgent, with big engines, meaty tires, and probably some flash, too—rally wheels, stripes, scoops, etc. Sometimes these young car buyers were already involved with real responsibilities—kids, homes… the usual life stuff that stakes a claim on a paycheck. By this point in the story, I'm usually fixated on trying to figure out how they juggled those finances.

Some of these young car owners even managed to trade in their two- or three-year-old rides for another new one, getting back maybe half of what they paid for the first. The depreciation is often astounding for "specialty" cars, but back then the automakers were still pretty effective at convincing consumers that their three-year-old car was an obsolete relic. Rapidly evolving styling had been an effective tool since the start of the postwar era, but the '60s horsepower arms race certainly helped when it came to muscle cars. A '65 GTO with a 389 four-barrel probably seemed ancient and anemic when sitting next to a new '70 Judge with a 455.

But what about the practical side of buying a new car back then, even if it was a factory hot rod? Did its "useful life" factor in to justifying the investment? The heavy-duty nature of '60s American performance cars would seem to have made them ready for the long haul, so long as they weren't being pummeled in speed contests every week. That should have meant that, even if you didn't care about keeping up with the Joneses, or the guy in the other lane, you might possibly have been able to make that new car last longer than the typical three-year turnover, right?

Viewed from the rust belt, it didn't look good. By the late '70s in my hometown area in southern New York, you pretty much never saw a '60s car without a decent-sized hole behind each wheel. And in spite of those beefy mechanical bits, '60s cars were built during a period when most people thought a rolled-over odometer (since almost none of them registered beyond 99,999 miles) was a sure sign that the car was getting ready to fall to pieces, kind of like Elwood's Dodge cop car does toward the end of *The Blues Brothers*. Strong as they were, '60s V-8s often needed freshening by the time they'd hit the high side of the odometer's century mark, and even the strongest of the period's automatic transmissions were often wearing themselves out at around the same mileage marker. The moderately skilled mechanic, either of the pro or driveway sort, could freshen it all back up without too much trouble, but the average consumer would take such failings as a sign that it was time to trade up again.

So, a 10-year-old car in the '70s was generally seen as old indeed, and a five-year-old model was probably about as far as someone accustomed to having a new car was willing to push it. Everyone is different of course, but I'm thinking of the average consumer during that period.

Those thoughts always put me in mind of a car our neighbors had when I was in elementary school. Sometime around 1974, they bought a '56 Chevy as a second vehicle, just to run around town. When they got it, we kids thought it was the neatest thing—so old and wild looking! Meanwhile, it had been one of the most common cars on the road when it was new, and that was less than 20 years prior. Look at any photo of an American street scene from 1955 to 1962, and if there are any cars in it, at least one will be a Tri-Five Chevy. By the mid-'70s, they seemed nearly extinct in my area, save for the occasional sighting of one rotting in a backyard.

Today, the car I use as my "late-model" daily driver was built in 2000, so it's essentially the same age as that '56 was in '74. Nobody looks twice when I roll by—there's nothing unusual about seeing a car of its vintage, even in Vermont, where the earth and a prodigious amount of road salt are doing their best to reclaim anything not created by Mother Nature. It seems cars need to be a lot older in order to qualify as "old" these days.

So, times have changed. Late-model specialty cars require a bigger percentage of our paychecks to purchase new, and don't depreciate quite so fast for those of us looking for a good deal on a used example. But, while newer car purchases may not be taken so lightly today, we probably have more choices of where to put our gearhead funny money than ever before. There's still plenty of old iron out there that can be had without going broke—you just have to dig around to find the deals. Meanwhile, Detroit has been churning out interesting muscle-inspired models for over a decade now, and depreciation does still favor the second owner.

Overall, between the vintage parts availability for our old cars and the vast market of late-model performance models out there, these could wind up being tomorrow's good old days. In the meantime, tell us your story of car buying back in the day.


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By Jeff Koch

FORD MOTOR COMPANY

RANGER RAPTOR: IT'S COMING

Ford's new baby pickup will pack 2.7-liter, twin-turbo V-6 power

Ford is bringing back the Ranger pickup, starting in 2019. In truth, it never really went away: In Australia, Africa, Europe, and South America, an all-new, different-from-ours Ranger pickup went on sale years ago. It just never came to America. But that's changing. Sales of the midsize pickup market have grown nearly 85 percent in the last five years, and Ford wasn't about to miss out on a slice of that pie. Ranger was ready to go.

The standard '19 Ranger, now considerably bigger than the long-lived compact truck that shared its name here in the States, will come standard with a turbocharged 2.3-liter EcoBoost four. Power hasn't been announced, but we suspect Ford might trade in some of the 2.3-liter EcoBoost's 310 hp (as seen in the EcoBoost Mustang) for some down-low torque. We'll see. Still, sounds pretty good, right?

Except there's something far hotter on the horizon: a Raptor-edition Ford Ranger pickup. It should look almost exactly like the photo seen here, taken on the vehicle's launch in South Africa (hence the steering wheel on the other side of the cabin). Visually, it's got lots of cues that tie it to its F-150 Raptor big brother: flared wheel openings, the Ford name in all-caps in the black grille, a tall ride height, and more.

International versions of the Ranger Raptor will run a twin-turbo 2-liter diesel four, an improvement on the five-cylinder diesels they're normally saddled with, but that engine won't come to the States. Instead, our Ranger Raptor will get the twin-turbo, 2.7-liter EcoBoost V-6, essentially the same engine that will be powering next year's Ford Edge ST (discussed in this column last month). We expect power to at least match, if not better, the 335 hp and (more crucially) 380 lb-ft of torque that this engine puts out in the Edge ST. Consider: A standard F-150's 3.5-liter, twin-turbo EcoBoost is a 375-horsepower machine; the Raptor is tweaked to 450 hp. That's a 16-percent bump in power. Assuming the Ranger Raptor's twin-turbo power is allowed to spike in similar proportion, you're looking at around 390 hp. The sole transmission choice will be a 10-speed automatic.

The Ranger Raptor looks like its big brother, and it will share some of the same features. Six driving modes will be available, including "Baja" mode that takes the traction control off red alert. Fox Racing Shox internal-bypass shocks are also expected. Wheel track is said to be nearly 6 inches wider than the standard Ranger, even though overall width grows by less than an inch (thanks to the big wheel flares). Specific 17-inch wheels will run on BFGoodrich 285/70R17 all-terrain rubber (taller tires and suspension allow 11 inches of ground clearance), and brake rotors grow nearly half an inch all around as well.

ELECTRIC MUSTANG, OR...?

Rumors have been circulating for some time about the possibility of an upcoming hybrid version of Ford's iconic Mustang. That might seem a natural progression, even to hardcore fans of fossil fuels, but hints dropped at the North American International Auto Show in January seemed to suggest something else might be afoot. During a presentation that was focused heavily on the new Bullitt Mustang, there was mention of another storied Mustang: the Mach 1. Fans have been waiting for the Mach's next appearance, and were likely rattled to hear that it would be a fully electric vehicle, or BEV (battery electric vehicle) in the parlance of the industry. Ford reps won't commit to details, but more recent mentions seem to indicate the name may be used on some sort of electric SUV, rather than a Mustang, causing pony fans new consternation. Stay tuned.

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Compiled by Kurt Ernst

HHP/HAROLD HINSON FOR CHEVROLET

2018 MOTORSPORT HALL OF FAME OF AMERICA CLASS INDUCTED

What do "Lil' John" Buttera, Carl G. Fisher, Jeff Gordon, Howard Hughes, "Flyin' Fred" Merkel, U.E. "Pat" Patrick, and Bob Tullius have in common? Previously, the ambiguous answer was "motorsports," but on March 13, the seven formed the class of 2018 at the 30th-annual Motorsports Hall of Fame of America (MSHFA) induction ceremony.

The seven honorees come from six different disciplines, prompting MSHFA President Ron Watson to remark, "Howard Hughes and Jeff Gordon in the same class—that is probably the best example we've ever had to illustrate the breadth of our inductee roll."

John Buttera (better known as "Lil' John" Buttera to his followers) needs no introduction to drag-racing fans, as the constructor's dragsters, Funny Cars, and pro stockers were campaigned successfully by Don "The Snake" Prudhomme, Tom "The Mongoose" McEwen, Danny Ongais, Don Schumacher, and many others.

Carl G. Fisher, a founding member of the Indianapolis Motor Speedway, understood that racing was a sure-fire way to promote the automobile, and he also helped to develop the Lincoln Highway and the Dixie Highway.

Jeff Gordon began racing quarter midgets at age five, amassing 35 victories in his first year. Later, in NASCAR, Gordon was crowned Winston Cup Champion in 1995, '97, '98, and '01, and at the time of his 2016 retirement was the third-most successful driver in Cup Series history, with 93 wins.

Howard Hughes is best known for his financial achievements, but the billionaire set numerous aviation speed and distance records as well, earning the Harmon Trophy (twice), the Collier Trophy, the Bibesco Cup, and even a Congressional Gold Medal for advancing the science of flight.

"Flyin' Fred" Merkel dominated the AMA Superbike Series in the mid-1980s, capturing three championships before moving across the pond to take a pair of championships in the FIM's equivalent, the Superbike World Championships.

U.E. "Pat" Patrick made his fortune in oil before turning to Indy Car racing as a sponsor in 1967. Patrick Racing would go on to win the Indy 500 in 1973, '82, and '89, along with series championships in 1976 and '89, and Patrick was also instrumental in the founding of the Indy Lights feeder series.

Bob Tullius, racer and owner of the legendary Group 44 team, created the contemporary model for sports car racing success. His Group 44 team would capture over 300 victories, 14 series titles, and three Trans Am championships. *— Kurt Ernst*

LAST "SINKHOLE" 'VETTE RETURNED TO DISPLAY

Four years after a sinkhole under the Skydome at the National Corvette Museum in Bowling Green, Kentucky, swallowed eight Corvettes, work on the final damaged car to be restored — a Tuxedo Black 1962 model — was completed in time to mark the event's anniversary. On February 12, the last of the "Great Eight" Corvettes was returned to the exhibit floor four years to the day after the cave-in.

Of the Corvettes swallowed by the earth in 2014, five were deemed beyond reasonable repair, those being a 1984 PPG Indy Car World Series Pace Car; a 1993 ZR-1 Spyder; a 1993 40th Anniversary coupe; a 2001 Mallett Hammer Z06; and the 1.5-millionth Corvette assembled, a 2009 convertible. Instead of being scrapped, the cars were preserved in their damaged state and placed on exhibit in the museum, where they remain a popular attraction with visitors.

GM agreed to restore two of the remaining damaged Corvettes, the 2009 ZR-1 Blue Devil prototype and the millionth Corvette built, a white 1992 convertible. That left the 1962 Corvette, donated to the museum in 2011 by its original owner, David Donoho. Last February, the National Corvette Museum announced plans to tackle much of the restoration in-house, taking advantage of the facility's recently expanded maintenance and preservation area. Specialist work — such as frame straightening — was handled by outside contractors.

During the restoration process, the sinkhole-damaged '62 became an exhibit of its own, with employees such as Vehicle Maintenance and Preservation Coordinator Daniel Decker frequently fielding questions from visitors as he worked on the car. After nearly a year of effort — and countless man-hours of time from project volunteers — the Tuxedo Black convertible was ready for its closeup on the fourth anniversary of the sinkhole collapse. *— Kurt Ernst*

THOMPSON LSR

CHALLENGER 2 RETURNS TO BONNEVILLE FOR ONE LAST RECORD ATTEMPT

In 1968, Mickey Thompson debuted his Autolite Special streamliner, built to set a wheel-driven land speed record at Bonneville. It was not to be: Poor salt conditions kept Mickey from running that year, while loss of sponsorship and, ultimately, his tragic 1988 murder, kept the car off the salt for the next 46 years. In 2014, his son Danny returned to Bonneville, running the restored car as the *Challenger 2.* In 2018, the 50th anniversary of the *Challenger II's* first record attempt, Danny will be back for one final shot at a new speed record.

Since returning to Bonneville in 2014, Danny has experienced mechanical and weather-related setbacks, but also achieved an AA/FS record of 406.769 mph at Speed Week in 2016. Last year's Speed Week run of 435.735 mph showed how much potential the *Challenger 2* still has, but an engine failure on the return run left him without a new record.

The car was repaired in time for last year's World Finals, but, once again, poor salt conditions prompted the cancellation of the event. Thompson gave serious thought to retirement, but with family business on the salt unfinished, he will take the newly rebuilt *Challenger 2* to Bonneville one last time, running at Speed Week in August.

Much needs to go right for Thompson to claim a new record, though his ultimate goal — a new piston-powered, wheel-driven world record — would require a two-way average above 439.024 mph. That may be out of reach, but could there be any better story to tell next August than Danny Thompson setting a new record in the car his father debuted a half-century earlier? *— Kurt Ernst*

By Mark J. McCourt

ACME COLLISION AND RESTORATION

DUELING TRANS AMS

THE POWER OF DARKNESS

Steven Macy • 847-640-6315 • www.stevenmacystudios.com • $425

A fascination with engineering and a life-long passion for hands-on mechanical work come through in every piece of automotive fine art that comes from the Des Plaines, Illinois, studio of Steven Macy. Lauded for his architectural and automotive illustrations, Steve works in acrylic paint on cold-press illustration board to create incredibly photorealistic scenes that celebrate America's most iconic classic and high-performance cars. He's sharing two of his newest paintings with us, and these pay tribute to some of the most popular Plymouth and Pontiac muscle machines built.

"Acme Collision and Restoration" is a tongue-in-cheek reference to the Warner Brothers' cartoon bird that gave Plymouth's Road Runner its name and mascot. This piece shows a mint 1970 Road Runner, along with a derelict 1969 Road Runner and a 1957 Plymouth Belvedere awaiting restoration, outside of a shadowy building. That setting is one of his hallmarks, as Steve tells us, "I design the background color and graphics to draw the eye to the car, because I think that darker backgrounds give them a rich, tailored, sensuous feel." This signed and numbered (out of 100) limited-edition print can be purchased in a custom 31 x 29-inch frame with mat.

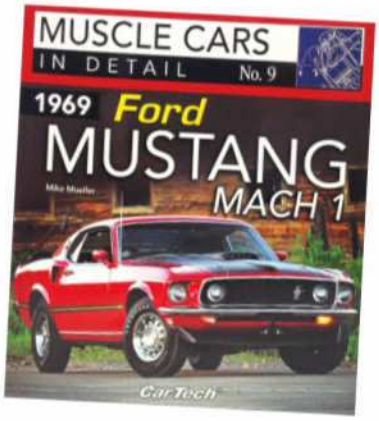
That cloak of night also underscores the illicit excitement of "Dueling Trans Ams." The 1969 and 1973 Firebird Trans Ams launch on a highway while the assembled crowd cheers on the drivers, with a modern Mustang and Challenger, plus a 1970 Chevelle SS, ready to follow. This 1-of-100 art-quality print can also be custom-framed (32 x 27 inches). Both original paintings remain available for purchase.

1969 FORD MUSTANG MACH 1

By Mike Mueller • CarTech • 800-551-4754
www.cartechbooks.com • $18.95

As hard-core enthusiasts, we all can appreciate a deep-dive into the history and specifications of our favorite muscle cars. This is what makes CarTech's "Muscle Cars In Detail" series such good reading. We recently received the ninth edition of that set, focused on Ford's 1969 Mustang Mach 1, written by noted automotive journalist and Ford historian Mike Mueller, and it's a real page-turner.

An instant sales success, the new Mach 1 combined an upscale interior and sleek SportsRoof styling with bold graphics and styled steel wheels, offering the buyer engine choices that ranged from the standard 351W 2V all the way up to the 428 Cobra Jet. Regardless of engine choice, this hot car immediately established itself as a Mustang legend. In this generously illustrated 96-page softcover (ISBN 9781613253182), Mueller walks us through the 1969's back-story and contemporary reception, before getting into the car's mechanical options, interior features, and underpinnings. "The Latest Word" chapter offers good buyer's guide information, including production figures, value discussions, and a generous list of specs, options, colors, and a warranty plate decoding key. This book is an inexpensive, but valuable, resource for early Mustang lovers.



SHIRLEY MULDOWNEY THROW BLANKET

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Hemmings Muscle Machines' own four-time NHRA world champion, the incomparable Shirley Muldowney, has added a practical and decorative new item to her online merchandise store. This blanket (item THROW) prominently features her trademark hot-pink Top Fuel dragster and the slogan, "First Lady of Drag Racing." It's made in the U.S.A. by ThrowGo, in a blend of 80-percent premium regenerated cotton and 20-percent acrylic. The throw is generously sized at 50 x 60 inches, and can be machine washed and dried without harm. It would be equally at home on the couch or bed, and would look great hanging on the wall.

SS FOUR-FIFTY FAUX

A big-block, four-speed Monte Carlo that wanted to be an SS 454... but became something rarer

Words and photography by Jeff Koch

Once upon a time, you could actually order the car you wanted in the manner that you wanted it. Most of us remember the time and lament its passing; it was a time of seemingly endless possibilities and potential. Far from the anodyne three-level option tiers you get with modern cars, you could get all kinds of weird combinations at the stroke of your salesman's Bic Crystal: a blue exterior with a green interior, station wagons with four-speed-manual gearboxes, individually selected power assists for any number of functions from brakes to door locks to trunk releases. There were also bewildering arrays of choices of powertrain options, with the ability to mix and match engines and transmissions seemingly at will. Obviously, some combinations weren't recommended, some weren't allowed, and others just didn't make sense. There were limits.

Sometimes, the reasoning behind those limits isn't apparent, and may not seem to make a lot of sense on first blush. The original owner/orderer of this Monte Carlo really wanted a four-speed SS 454—

with a 360-hp LS5 big-block under the hood, and all of the trappings that made an SS 454 the melding of luxury and performance that it was. Checking that box would have made this a rare bird indeed: Just 3,823 SS 454 models were built in 1970, barely a blip on Chevy's radar and a drop in the river compared to the nearly 150,000 Monte Carlos built that year.

Beyond the 10.25:1-compression big-block, the SS 454 mandated F41 suspension, which included heavy-duty shocks and springs, boxed lower rear control arms, a fat 1⅛-inch front anti-roll bar, a .88-inch rear anti-roll bar, and additional frame stiffeners. It also brought in Automatic Level Control, which added a compressor, rear-leveling sensor, and rear air shocks with air-line shielding. A set of 15 x 7 steel wheels and turbine wheel covers with white-stripe G70-15 Wide Oval Firestones were the standard rolling stock in 1970, though most SS 454s we see today use the 15 x 7 Rally wheels that were also available.

A Saddle Strato Bucket Seat interior and a console with a chrome-ball-topped four-speed shifter poking up into the cockpit are not the usual items you associate with a personal-luxury car like a Monte Carlo. Only 589 400/four-speed Monte Carlos were built for '70.

You remember the first Monte Carlo, of course. Chevy's first concerted effort into the personal-luxury game, on a car that was essentially a Chevelle underneath (and on top too, as the windscreen, backlight, and trunk lid were all shared). However, the Monte Carlo's 116-inch wheelbase chassis wasn't shared with the GM A-body sedans and wagons, as you might suspect, as that made the interior too roomy and not personal enough. Monte Carlo used a unique 116-inch chassis that moved the front wheels 4 inches forward (keeping all of the engine and transmission mounts where they were), and then added an additional 4 inches ahead of the front suspension for the in-vogue long-hood look. *Car and Driver* unkindly called it "a sheet metal atrocity" and seemed baffled by it until Chevrolet folks explained that the Monte Carlo was designed to bring in new buyers rather than siphon off Chevelle or Impala sales. (The gambit may not have worked: Chevelle sales were down four percent for the year, while full-size Chevy sales slipped a whopping 20 percent year to year.) How a 360-hp SS 454 Monte Carlo fit into that scheme wasn't really explained.

At any rate, there was only one problem this particular buyer had attempting to order an SS 454: Although the Monte Carlo was available with a manual transmission when combined with other engines, the top-end performance model was only available with the Turbo Hydra-Matic 400—an automatic transmission. The buyer wanted to shift for himself. How the Turbo 400 came to be the only available transmission in the SS 454's arsenal isn't certain. Perhaps an automatic was more in keeping with the Monte Carlo's carefully cultivated upscale "personal luxury" image than a stick? Perhaps it was one more way to differentiate it from the similar-but-downmarket Chevelle SS? Perhaps the whispered-about-but-never-arrived LS6 version of the Monte Carlo SS 454 would have received a stick instead, giving engineers just two engine/trans combinations to sort out for

Second-from-the-top engine on the order sheet was the 330-horse, 410-lb-ft 400 codenamed "LS3"; unlike the bigger 454, this engine was available with a four-speed manual.

a low-production model instead of four? But this is one of those times that the option sheet wouldn't let a buyer run amok and order whatever he damned well pleased. Alas.

But where the paperwork closed a door, it opened a window (of opportunity!). Rather than accept an automatic, the original buyer worked that order sheet and built a Monte Carlo to his liking—the big-block stick car that he had hoped Chevy would build, but didn't. The 330-hp 400 (codenamed "LS3," and actually 402 cubes) was available with the Muncie M20 four-speed. This is the powertrain that appears in our feature vehicle.

There isn't much of a gulf in horsepower—just 35 gross horses separate the two. However, it's the torque rating where things really make a difference, and where you feel it in the pit of your stomach on launch: The 500-rated pound-feet of the LS5 were sacrificed for "just" 410 pound-feet in the LS3. Maybe the engineers had it right: Let the big 454 saunter forth in a cloud of torque, with the idea that anyone who wanted to bang big-block gears would be better off doing so in a 300-pound-lighter (and slightly cheaper) Chevelle. Maybe the smaller-bore, smaller-stroke 400 *was* better suited to a four-speed stick. Or maybe Chevy didn't want the engineers spending the time and money to have multiple SS 454 variants available. Nearly half a century later, who knows?

It is here where the trip through the options list helped the original buyer assemble his SS four-fifty-

The original owner ordered this car to get what he wanted, because you couldn't get a Monte Carlo SS 454 with a four-speed. So he outfitted it like a Monte Carlo SS, just without the SS 454 option: bucket seats, dash with gauges, console, Rally wheels, heavy-duty suspension, all of it. Someone did a frame-up restoration on it, then it was in Louisiana for a while. The maroon and Saddle was a killer color combination. Basically it's an oversized Chevelle. They made fewer than 600 big-block four-speed Monte Carlos for 1970, and I've never seen another one. ***—Kevin DeWitte***

faux. The F41 suspension is a big piece to the puzzle—it brought in the big springs and sway bars, firmer shock valving, and white-stripe Firestone tires on 15 x 7 wheels. (The automatic level control stayed home.) The standard 3.31 ratio in the rear axle remained in place, aided by optional Positraction.

And, while strolling through the option sheet, the owner continued to make his Monte Carlo as sporty as he could manage. Vinyl Strato Bucket Seats (in Saddle, to complement the subtle Black Cherry exterior) and a console. The U14 "Special Instrumentation," which included a tach, was also selected—although it's a little surprising to see it nestled into an instrument fascia covered in Carpathian Burled Elm. (These chosen interior trimmings were optional on SS 454s, too.) The only things missing to make our feature car an SS 454 was some subtle rocker badging… and a 454.

The vehicle that rolled out of the factory turned out to be far rarer than an SS 454. As noted previously, Chevy made fewer than 4,000 SS 454s for 1970, and when it comes to high-performance early Monte Carlos, they get the bulk of the ink and the attention. But compare that production number to a four-speed big-block Monte Carlo: just 589 made for the 1970 model year. And it's a sleeper: Rally wheels are so common on old Chevys now, whether they were put there from the factory or not, that they don't even register as a hint as to the car's performance potential. Black Cherry paint and whitewall Firestones don't exactly scream "Come at me, bro" at the Main Street red light either. The lack of vinyl top hints that the owner spent his time on mechanical components that he could feel and command with his own two hands rather than the visual fripperies of a padded roof.

It was this rarity and this unusual combination of performance options on a personal-luxury machine that attracted Kevin DeWitte. The Fountain Hills, Arizona, resident knows his four-speed muscle-era Chevys (he's got a couple of midyear Corvettes, too), so it takes something remarkable to get him to pay attention, much less break out his wallet.

"Bucket seats, dash with gauges, console, Rally wheels, heavy-duty suspension… it's exactly like an SS 454, except it has an LS3 400 in it," Kevin tells us (see Owner's View sidebar). The tone in his voice, all these years later, remains one of astonishment at his good fortune, one of 'can you believe that someone optioned a Monte Carlo like this?' What's more, over the course of its life, the four-speed Monte Carlo had not been modified, as best as he could tell. It also had multiple long-term owners, retained both build sheets that matched the options on the car perfectly, and had been body-on-frame restored to look as good as it does in these pictures.

The days of the curiously optioned, highly individualized automobile seem sadly behind us now, individuality sacrificed in the name of production efficiency. And so, machines like this Monte Carlo, an SS 454 that swapped the big engine for the driver's ability to manually control the engine revs, likely won't be built again. Lament the passing of the era if you must, but look to cars like this four-speed big-block 1970 Chevrolet Monte Carlo to help us remember a time when such things were possible. Such days will likely not come again.

The 15 x 7 steel Rally wheels were optional for any model during the Monte Carlo's inaugural season. Staying true to its personal-luxury roots, the replacement tires remain Firestone whitewalls.

1970 CHEVROLET MONTE CARLO

330 HORSEPOWER @ 4,800 RPM

410 LB-FT TORQUE @ 3,200 RPM
1/4-MILE: 14.9 SECONDS @ 92 MPH*

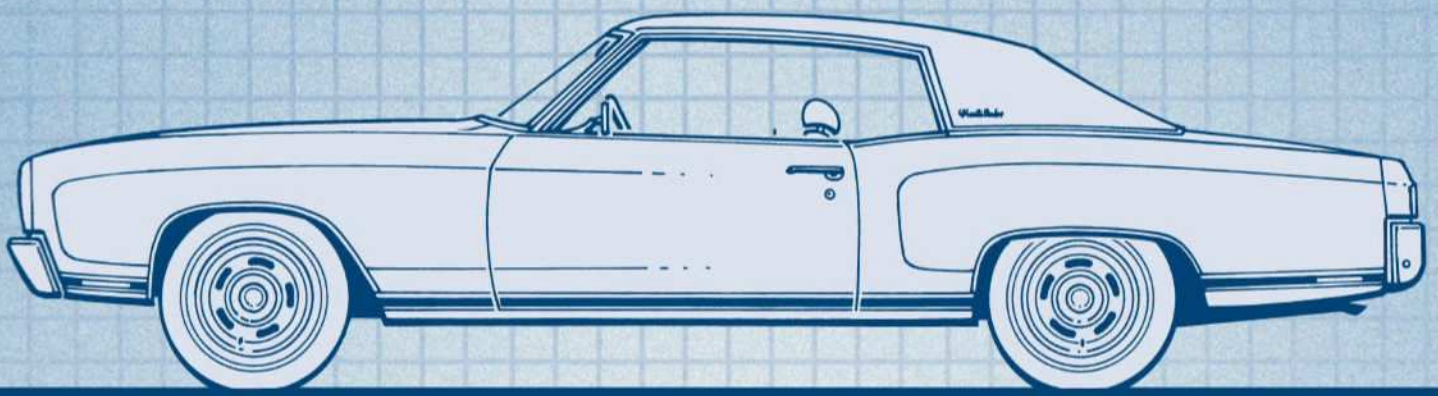


ILLUSTRATION BY RUSSELL VON SAUERS

SPECIFICATIONS

PRICE

Base price	$3,123
Options on car profiled**	400-cu.in. Turbo-Jet four-barrel ($325); console ($54); Rally wheels ($36); Muncie M20 four-speed manual transmission ($184.80); G80 Positraction rear axle ($42.15); N40 power steering ($105.35); U14 special instrumentation ($68.15)

ENGINE

Type	Chevrolet Mark IV "big-block" OHV V-8; cast-iron block and cylinder heads
Displacement	402-cubic inches
Bore x stroke	4.126 inches x 3.76 inches
Compression ratio	10.25:1
Horsepower @ rpm	330 @ 4,800
Torque @ rpm	410 lb-ft @ 3,200
Valvetrain	Hydraulic valve lifters
Main bearings	Five
Fuel system	Rochester Quadrajet four-barrel carburetor
Lubrication system	Full pressure; gear-type pump
Electrical system	12-volt, negative ground
Exhaust system	Cast-iron manifolds and dual exhausts

TRANSMISSION

Type	GM Muncie M20 four-speed manual, all synchromesh
Ratios	1st 2.52:1 2nd 1.88:1 3rd 1.46:1 4th 1.00:1 Reverse 3.11:1

DIFFERENTIAL

Type	Chevrolet 12-bolt hypoid type with Positraction and semi-floating axles
Ratio	3.31:1

STEERING

Type	Variable ratio; recirculating ball with power assist
Ratio	16:1-12.4:1; 18.7:1 (overall)
Turns, lock-to-lock	2.9
Turning circle	45.5 feet

BRAKES

Type	Hydraulic disc/drum with power assist
Front	11-inch discs
Rear	9.50 x 2.00-inch drums

CHASSIS & BODY

Construction	Body on frame
Body style	Two-door coupe
Layout	Front engine, rear-wheel drive

SUSPENSION

Front	Independent; unequal-length A-arms, coil springs, telescoping shock absorbers, 1⅛-inch anti-roll bar
Rear	Coil springs, telescoping shock absorbers, .88-inch anti-roll bar

WHEELS & TIRES

Wheels	Chevrolet stamped-steel Rally wheels 15 x 7 inches
Tires	Firestone bias-ply white stripe (stock) G70-15

WEIGHTS & MEASURES

Wheelbase	116 inches
Overall length	205.8 inches
Overall width	75.6 inches
Overall height	52.6 inches
Front track	60.3 inches
Rear track	59.3 inches
Shipping weight	3,460 pounds
Weight	3,563 pounds

CAPACITIES

Crankcase	5 quarts
Cooling system	22 quarts
Fuel tank	20 gallons
Transmission	1.5 quarts

CALCULATED DATA

Bhp per cu.in.	0.82
Weight per bhp	10.79 pounds
Weight per cu.in.	8.86 pounds

PRODUCTION

Total Monte Carlo production was 145,976 (1,973 with manual transmission).

PERFORMANCE*

0-60 mph	7.0 seconds
1/4-mile ET	14.9 seconds @ 92 mph

*Source: Motor Trend November 1969 test of a '70 Monte Carlo SS 454 with 3.31:1 axle ratio.

**May be a partial list; does not include fees.

SUNSHINE SUPERCAR

This 1970 GS 455 Stage 1's owner-added sunroof was an early 1970s birthday gift

Words by Thomas A. DeMauro
Photography by Thomas A. DeMauro and Terry McGean

As convertibles began to disappear from the new-car landscape of the 1970s, sunroof and moonroof installations gained in popularity, as did T-tops later in the decade. Automaker- and aftermarket-offered designs provided at least a semi-open-air driving experience for those who craved drop-tops.

Some of the diverse styles included the folding vinyl type and the manual- or power-actuated metal sliding-panel sunroofs, (and there were multiple glass moonroof designs). Their quality also varied by manufacturer and installer. Art James' Buick GS 455 Stage 1 was retrofitted with a well-engineered American Sunroof Corporation (ASC) unit early in its life.

Growing up in a Buick family, Art's first car, at age 16, was a '69 Skylark handed down from his father. He also warmly remembers a high school friend's '71 GS 350. So when Art spotted an ad for this GS in June of 1998 in the *Bargain News*, the local bible for Connecticut car nuts in search of the muscle-car deals of the day, he took note of it.

Art's enthusiasm was mildly tempered, however, by the asking price of $20,000 in late 1990's money, which would be about $30,400 today. He'd also been fortunate to buy original muscle cars in the past, but this one was already restored. Nevertheless, he contacted the owner, Larry D'Angelo.

Soon thereafter, Art and his wife Anna drove from their Newtown, Connecticut, home to Wolcott, about 30 minutes away, to check out the prospect, and Art liked what he saw. Then again, what Buick guy wouldn't like a body-off restored Fire Red 1970 GS 455 Stage 1 that was loaded with options?

Then he noticed the non-stock sunroof—ASC's electrically operated sliding metal unit. It wasn't until 1972 that Buick offered an extra-cost sunroof on its various A-body models. Though it could be ordered as a standalone option, adding the Sun Coupe package highlighted its presence with a vinyl top, striping, and badging.


GS
MUSCLE MACHINES

Reproduction upholstery covers the seats, the carpet and headliner were replaced, and so was the dash pad, since the original had warped. The side panels and the console, however, are original. The ASC sunroof's switch is also shown.

Listed in the 1972 dealer brochure as being "hand operated" and featuring a "soft folding vinyl" design, it was different than that of this GS. Buick, however, contracted the same company, ASC, to install it. (That brochure also listed an optional electrically operated metal sunroof for the Riviera and Electra 225 sport coupe.) ASC had already been doing sunroofs for various automakers, and would continue for many years.

Art says, "When I first saw the sunroof, I said to myself, 'What's that doing there?'" Knowing that its presence could negatively affect the value of the car to a collector, he was at least heartened by the fact that it looked like a professional installation. "The sunroof's design was better than some of the more generic aftermarket units, and you can hardly see it on the car when it's closed," he reasons.

Another consideration that weighed heavily in the GS 455's favor was the enduring quality of its then 10-year-old restoration. Larry worked at Frank Buick in Naugatuck, Connecticut. Commenting on what ultimately was a 42-year career there, he tells *HMM*, "I did just about every job in that place, except sign the checks."

When original owner Larry saw a Glacier White GS 455 Stage 1 for sale at Reaves Auto and Motorhome Sales in Venice, Florida, in 1987, he thought it would make a good at-home project.

Larry's assessment when he found it was that the frame was good, but the Buick had rust in the radiator support, at the bottoms of the fenders, in the inner fender wells, around the rear wheel wells, in the trunk, and a little in the floors. He laments, "People think cars don't rot out down south, but this car was in Venice, right on the water, so it rusted in Florida just as bad as it likely would have up here in Connecticut."

Once home, the Buick was disassembled, the body was separated from the frame, and the parts were bagged and tagged. The frame and major chassis parts were sandblasted, everything was repainted, and the suspension and brake systems were rebuilt with new GM parts (remember, Larry worked at a Buick dealer), but the brake lines were upgraded to stainless steel.

The original Stage 1 engine was torn down for inspection, and Larry relates that it showed very little wear inside. Its cylinder walls didn't require over-boring and the crank didn't need to be cut. The block was hot-tanked and its cylinders honed, fresh freeze plugs were put in, and the original reciprocating assembly was cleaned up and reinstalled with new rings and bearings. The larger-valved cylinder heads were rebuilt and the valve springs were replaced. A new Stage 1 cam was installed, according to Larry, as was a new front cover. The original Stage 1 carburetor and distributor were rebuilt. The Stage 1-spec Turbo 400 and the 3.42-geared 10-bolt Positive Traction rear-end were overhauled, and the latter was dressed up with a chromed cover.

The Stage 1 455 was rebuilt in 1988, and the chrome air cleaner lid was installed in place of the stock black lid at that time. The engine bay has been detailed multiple times over the years to keep it show- and road-ready.

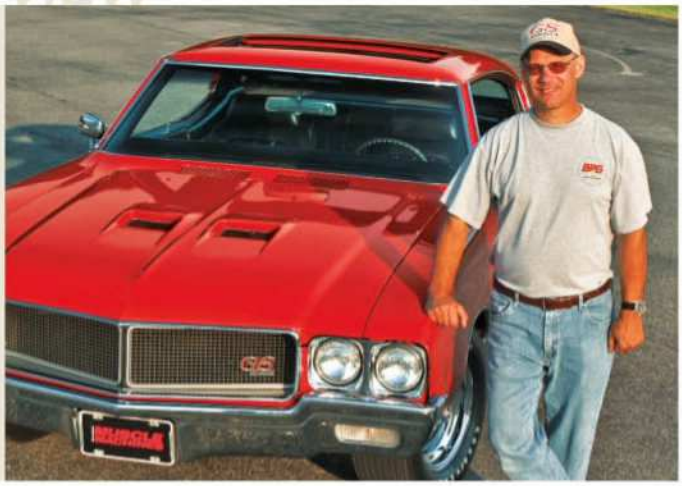
Larry says that the bodywork was the most challenging part of the restoration. He replaced the rusted sheetmetal with new fenders, fender wells, radiator support, full-quarter panels, and trunk pan, and he repaired the floors by welding in small patches cut from replacement Chevelle floor pans. He did all the bodywork himself and then had the body painted by a friend's shop.

Three coats of single-stage Dupont lacquer in Buick Fire Red were applied over epoxy primer. The finish was later wet-sanded using progressive paper grades up to 2500, and was then buffed and polished. "I was in the business, so I didn't care for white," Larry says, regarding the color change. "Everybody paints cars white so you can't see the bodywork. This car is as straight as an arrow. Also, I had a '65 Skylark Gran Sport that was red with black interior, and I really liked that color combination. And that 1970 Fire Red really glows at sunset."

During the restoration, Larry added desirable factory options including front disc brakes, 15-inch chrome-plated wheels, G60-15 white-letter tires, four-way power seat, AM/FM radio, 8-track stereo tape player, convenience group, Rallye steering wheel, Rallye Ride Control Package, instrument group, remote-control outside rearview mirror, and floor mats.

The GS 455 was completed around the end of 1988, and he enjoyed driving and showing it over the next decade before deciding to sell it. Art made an offer on the

I've always liked Buicks and the GS styling. I grew up with muscle cars, and, though I have owned many different makes, Buick's combination of power, handling, and luxury is what keeps me coming back to them. The 455 is substantially lighter than a Chevy 454, for instance, and the Buick just feels better to drive..—*Art James*



Buick the day he saw it in 1998, but Larry declined. Before Art was able to counter, Larry had already received a deposit on it.

Art and Anna were discouraged at having missed their opportunity. But that feeling wouldn't last too long, as a little less than a month later, the ad reappeared in the *Bargain News*. It turns out that the buyer who'd left the deposit couldn't come up with the rest of the money, so Larry had to relist his Buick. The Jameses wasted no time contacting him again, and they finalized a deal.

Tracing the history of his new prize through a paperwork package purchased from the Alfred P. Sloan Museum back in 2004, Art learned that his GS was originally sold through Krajenke Buick in Detroit, and it resided in Flint (apropos considering it was built there) with its first owner. Factory-installed options included the 360-hp 455 Stage 1 engine; Turbo Hydra-Matic 400; custom trim; full-length console; power steering, brakes, and windows; tilt steering wheel; cruise control; Sonomatic radio; rear speaker; Super Sport wheels; G70-14 Red Line tires; A/C; and Soft-Ray tinted glass.

The bumpers were rechromed, the exterior trim was restored, and a new grille was installed as part of the late-1980's restoration. The tilt wheel was added during that process, but Cruise Control was specified on the original order.

Art learned, through a phone conversation he had with the wife of second owner Raymond Like in 2004, that less than a year after it was built, they purchased the Buick. For a birthday present, Mrs. Like had the ASC sunroof installed in her husband's GS 455.

Copies of titles revealed that in January of 1978, the couple retitled the Buick in Florida after moving there. Following about 15 years of ownership, the Likes either sold or traded-in the Buick to Reaves Auto and Motorhome Sales in Venice, Florida, in January of 1986.

Larry bought the GS in July 1987 and initially put it in the name of his employer, Frank Buick Inc., so he could drive it for a few days using a dealer plate. After he left for home, his brother drove it over to load it onto the truck for transport to Connecticut. The mileage statement on the back of the title revealed that the car had 61,580 miles on it at the time.

As we now know, Larry restored the GS 455 and held onto it until 1998, when Art purchased it.

Aside from basic maintenance, the Buick has required amazingly little work over the 20 years and 8,000 miles Art and Anna have put on it. The Fire Red paint applied in the late 1980s remains as shiny as ever, the engine runs well, the transmission shifts precisely, and the suspension is tight.

Art has detailed the engine compartment a few times and installed air shocks in the back to give the car a more pleasing stance. The original Stage 1 carburetor was out for rebuilding when *HMM* photographed the Buick, so a standard GS 455 carb was in its place. Currently, this muscle car is driven about 500 miles per year.

"The performance capabilities are the best aspects of these cars," Art explains. "A good GS handles better than most of its counterparts from the era, and when you floor it, you know you've got something that's fast, yet still smooth."

He continues, "I was hooked on Buicks, but they were always tough to find compared to other muscle cars. I'd owned '69 and '71 4-4-2s, and even a '72 Mustang Mach 1, among others. Once I bought this GS 455, however, it seems like Buicks started to find me instead."

Art currently owns a black-on-black '70 GS 455 with just 59,000 miles and an '86 T-Type with WH1 Designer Package, 22,000 miles, and tons of other options. True to his Buick roots, Art is also a member of the North East GS/GN Club and the Buick Club of America (BCA), not to mention the treasurer of the Lower Hudson Valley chapter of the BCA.

Any initial trepidation regarding the non-stock sunroof was replaced with a treasured memory soon after Art bought the GS. "We won First Place at the Barnum Festival, one of the first car shows we went to, and as we were leaving, my six-year-old son, Tom, was standing up, holding the trophy out of the sunroof. I know there are pictures of that out there somewhere, and wish I had one."

Tom is 26 today, and has a 27,000-mile '87 Turbo T-Type of his own. And the '70 GS 455's sunroof still offers an added point-of-interest on what's already a captivating Buick. Art reflects, "I had been regularly buying, driving, and selling muscle cars for a long time when I found this car, but I knew it was a keeper. It was my first GS and it's a Stage 1, so it was definitely worth waiting for."

1970 BUICK GS 455 STAGE 1

360 HORSEPOWER @ 4,600 RPM

510 LB-FT TORQUE @ 2,800 RPM
1/4-MILE: 14.40 SECONDS @ 96 MPH*

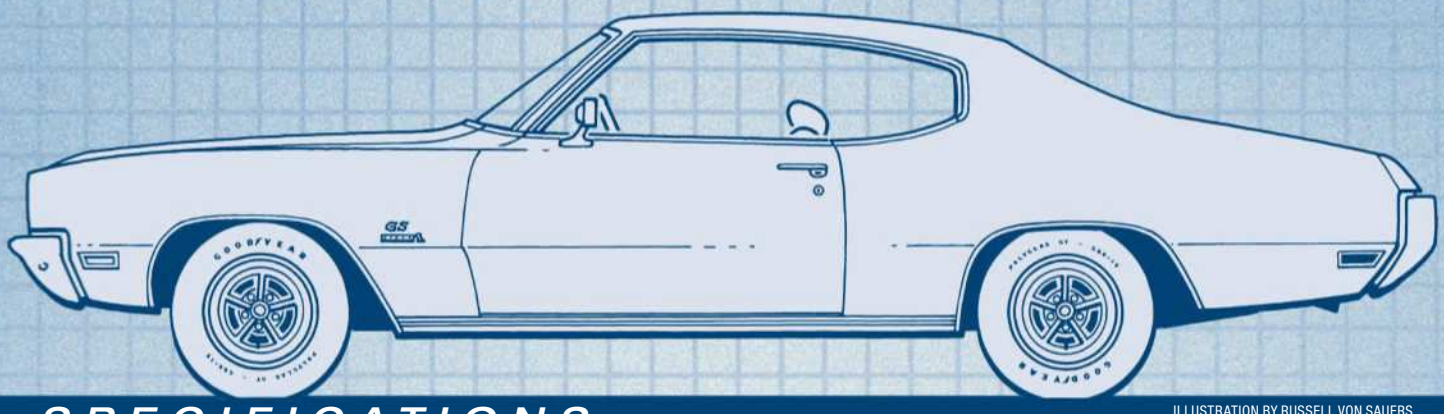


ILLUSTRATION BY RUSSELL VON SAUERS

SPECIFICATIONS

PRICE

Base price	$3,283
Options on car profiled**	360-hp 455 Stage 1 engine with special ornamentation, Positive Traction performance axle, HD radiator, and low restriction dual exhaust ($199.05); Turbo Hydra-Matic 400 ($227.04); full-length console ($61.09); power steering ($105.32); power front disc brakes ($64.25); power windows ($105.32); tilt steering wheel ($45.29); cruise control ($63.19); A/C ($375.99); Soft-Ray tinted glass ($38.97); G60-15 white billboard-letter tires and 15-inch chrome-plated wheels ($230.65); four-way power seat ($73.72); AM/FM radio ($133.75); 8-track stereo tape player ($116.91); rear speaker ($16.64); Rallye steering wheel ($31.60); instrument group ($57.93); Rallye Ride Control Package ($15.80); remote-control outside rearview mirror ($10.53); carpet savers and handy mats ($14.54); convenience group ($6.32); Custom Trim ($133.76)

ENGINE

Block type	Buick "big-block" OHV V-8; cast-iron
Cylinder heads	Cast-iron; 2.125/1.75-inch valves
Displacement	455 cubic inches
Bore x stroke	4.3125 x 3.90 inches
Compression ratio	10:1
Pistons	Aluminum alloy
Connecting rods	Forged steel
Crankshaft	Cast nodular-iron
Horsepower @ rpm	360 @ 4,600
Torque @ rpm	510 lb-ft @ 2,800
Camshaft	Stage 1; hydraulic lifters
Valvetrain	Shaft-mounted rocker arms, valve springs, pushrods
Fuel system	Mechanical fuel pump
Induction system	Rochester Quadrajet four-barrel carburetor; cast-iron intake manifold
Lubrication system	Stock oil pan, gear-driven oil pump
Ignition system	Breaker-point distributor
Exhaust system	Cast-iron manifolds; Gardner dual exhaust

TRANSMISSION

Type	Turbo Hydra-Matic 400
Ratios	1st 2.48:1 2nd 1.48:1 3rd 1.00:1 Reverse 2.08:1

DIFFERENTIAL

Type	10-bolt, Positive Traction
Ratio	3.42:1

STEERING

Type	Recirculating ball; power assist
Ratio	Variable
Turns-to-lock	3.4
Turning circle	39.9 feet

BRAKES

Type	Drum system, power assist (currently front disc)
Front	9.5 x 2.5-inch drum (currently 11-inch disc)
Rear	9.5 x 2-inch drum

SUSPENSION

Front	Independent; unequal-length control arms, coil springs, anti-roll bar, shocks
Rear	Solid axle, four-link, coil springs, anti-roll bar, shocks

CHASSIS AND BODY

Construction	Body on perimeter frame; welded and bolt-on body panels
Body style	Two-door hardtop
Layout	Front engine, rear-wheel drive

WHEELS & TIRES

Wheels	14 x 6-inch steel Super Sport (currently 15 x 7-inch steel, chrome-plated)
Tires	G70-14 redline (currently G60-15 Goodyear white-letter)

WEIGHTS & MEASURES

Wheelbase	112 inches
Overall length	202 inches
Overall width	77.3 inches
Overall height	53.1 inches
Front track	59.4 inches
Rear track	59.0 inches
Curb weight	Approximately 3,738 pounds

CAPACITIES

Crankcase	5.0 quarts with filter
Cooling system	19.67 quarts
Fuel tank	20 gallons
Transmission	3.8 quarts (pan)
Differential	3 pints

PRODUCTION

Stage 1 hardtop	2,865 including 400 Stage 1 GSXs
Stage 1 convertible	232

PERFORMANCE*

60 feet	6.4 seconds
1/4-mile ET	14.40 seconds at 96 mph

*Source: Hot Rod November 1969 test of a 1970 Buick Stage 1 with automatic transmission, 3.64:1 rear gears, and A/C; outside temp near 100 degrees; two people aboard

**Some options added during restoration.

LUCKY DART

Good fortune comes with four wheels, a four-speed, and a 340 under the hood

By Terry Shea
Photography by Thomas A. DeMauro

Talk to Tim Winnie about his 1969 Dodge Dart Swinger 340 and the word "luck" comes up about as much as any other in the conversation. From the way he found it, to the parts that found him, to the incredible way the car was reunited with its original engine block, the luck never seems to run out when it comes to Tim's Swinger 340.

Let's start with Tim's somewhat unusual timing with his purchase of the Dart. The Jeannette, Pennsylvania, resident regularly attended the late-summer swap meet south of Cleveland in Canfield, Ohio. In late September of 2001, it's safe to say, the mood to play with cars was rather muted by the attacks in New York, Washington, and Pennsylvania. But Tim and a friend thought it a good idea to get out of the house and poke around the swap meet to distract themselves from those horrible events.

"Walking around the swap meet," Tim says, "we happened to look over at the road where the cars pull in. A guy pulls in with a Dart on an old trailer. I said, 'Oh, man, there's a Dart.' And I had a '69 Dart when I was in high school. I said, 'I gotta go look at that.'"

Before the pickup and its Dart in tow could even make it to the car corral, Tim—a big Mopar fan—and his friend were all over it. "He started telling me it was a '69 Dart 340, four-speed," Tim recalls. "I thought it was a '69, but it had some other stuff on it that was kind of weird. And then he said, 'The end is coming soon. So, I'm getting rid of everything I have.' And I said, 'The end is coming soon?' And he said, 'Well, yeah, you know what happened in New York three weeks ago.' I said, 'Well, what do you want for the car?' And he said, 'I'm asking $4,000.' And I said, 'Don't even get out of your truck.'"

Though the Dart Swinger 340 was a high-performance model, it was hardly the luxury version. All Swingers—340 or Slant Six under the hood—came with bench seats, making this quick Dart a six-passenger, four-gear speedster.

Tim met up with the owner the next day and left with the '69 Swinger 340 four-speed and a stash of parts. While no one would wish ill will on anyone quite so shaken up by the 9/11 attacks, betting against this country's resiliency was probably not a wise move. Tim's timing at spotting the fire sale Dart and intercepting the owner before anyone else was just the first of many lucky moments with the high-performance A-body.

Dart represented Dodge's low-price, compact, entry-level model, and between it and corporate-cousin Plymouth's Valiant and Barracuda models, Chrysler Corporation sold a ton of A-bodies, from the basic four-door Dart sedan to the Custom two-door hardtop and four-door sedans to the more style- and luxury-oriented GT to more powerful GTS, which included the amenities of the GT along with either a standard 275-hp 340-cu.in. small-block V-8, a 330-hp, 383-cu.in. big-block, or a special-order, quarter-mile-crushing 375-hp 440-cu.in. big-block stuffed between the fenders.

Where the confusion sets in is with the Swinger models, which were new for 1969. All Swingers were two-door hardtops. Beyond that, the base Swinger—which truly was the base two-door Dart model—came with a Slant Six standard or an optional 273 V-8, the mildest two-barrel V-8 on the entire Mopar menu. Dodge also elected to use its new low-line compact variant to create a budget performance model with the Swinger 340, as a lower-cost alternative to the GTS. Owing to their high-performance intentions, both the Swinger 340 and the GTS got a significant suspension upgrade as standard equipment. That beefed-up Rallye Suspension included heavy-duty torsion bars, heavy-duty ball joints, heavy-duty six-leaf rear springs, a front sway bar, and firmer shock absorbers all around.

Dodge differentiated the cars in a few ways beyond the name and trim. While GTS buyers could opt to bump up from the standard 340 to a 383, the Swinger 340 had no engine options. And while the GTS came standard with a heavy-duty TorqueFlite 727 three-speed automatic, the Swinger 340 came standard with an A833 four-speed manual transmission. Buyers could still option the Swinger 340 with the TorqueFlite just as the GTS could be ordered with the four-speed. The stripped-down nature of the budget Swinger meant that only a bench seat was offered, while the GTS hardtop came with bucket seats and a console-mounted shifter for the automatic.

Car Life magazine summed up the 340 in its 1969 road test: "Swinger is a budget-semi-Supercar, a compact with a factory-tweaked mid-range engine, four-speed transmission and stiffened suspension, but without the usual accessories that run the price up." With a suggested retail price starting at $2,819, the Swinger 340 substan-

tially undercut the more kitted-out GTS's $3,209 price of entry.

But calling the 340 a "factory-tweaked mid-range engine" misses the point of the most potent of the small-block Chryslers. You'd never have found a 340 in a wagon, taxicab, or other run-of-the-mill Mopar as you would virtually every other engine available, save for the Hemi. The 340 was strictly a high-performance mill. There was no two-barrel, economy-minded version. There wasn't even a mild version with a four-barrel! All 340s in 1969 came with a forged crankshaft, a double-roller timing chain, a high-performance camshaft, a four-barrel carburetor, dual exhaust, and an unsilenced air cleaner. With its stout 10.5:1 compression ratio, it also required premium fuel and produced 275 horsepower at 5,000 rpm and 340 lb-ft at 3,200 rpm.

That potency was exactly what Tim was looking for. That original '69 Swinger that served as his first car was equipped with just a Slant Six engine. "I always wanted one that ran better, but that was my baby that I learned to drive on," Tim says. Rotting fenders surely would have done it in had Tim's older brother Bill not blown the engine on the way back from college the one time Tim loaned it to him. "It went straight to the boneyard," Tim recalls.

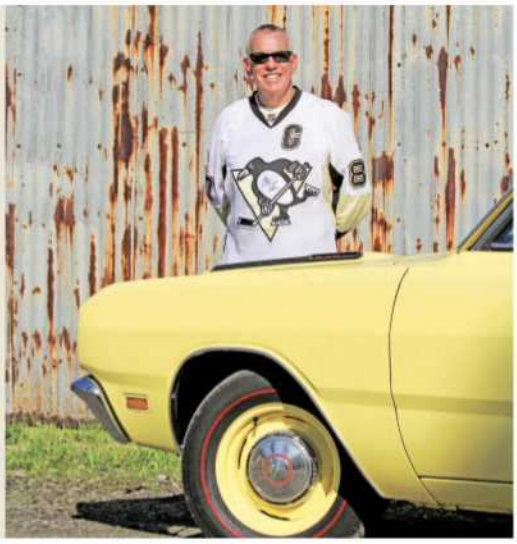
And visits to the swap meet and the boneyard were on Tim's agenda once he acquired the Sunflower Yellow Swinger 340. The "weird" part that Tim had noticed while the Dart was still on the trailer had to do with the car sporting a pair of '68 fenders and a '68 grille, likely the result of a front-end collision. Tim's search for fenders yielded essentially nothing worthwhile, until he found more luck in the pages of *Hemmings Motor News*. (Really, we aren't making this up.)

"I saw an advertisement in *Hemmings*," Tim says, "and the guy had '69 fenders for sale. He was outside of Indianapolis. I called the guy and he said, 'I bought this Dart brand new, and it's only got 100 miles on it, one quarter-mile at a time.

Mopar's 340, available for '69 only in Dodge Darts and Plymouth Barracudas, was a high-performance powerplant with a special reinforced block, a forged crankshaft, a more aggressive cam, and unique heads with larger valves.

I love the car. It runs like a top. By far, my most favorite thing about it is its four-speed. All of my other cars are automatics. It's just so much fun going through the gears; it's got 3.55s. I could care less about getting on the highway. I could just hit it, revving it from gear to gear from one neighborhood to the next.

It turns a lot of heads. You just don't see a lot of Darts anymore. That's another thing I like about it: When I show it, it seems like everybody at the car show that stops says, 'Oh, I had one of these… My grandmother, my grandfather had one of these.' Yeah, theirs was probably a six-cylinder. It's so much fun. ***—Tim Winnie***



It's been a drag car since the day I bought it. I've decided to go all fiberglass and I bought fenders for it.' I met with the guy at Carlisle, and we opened the tailgate of his truck and these two fenders were just in perfect shape. They were from a drag car! It sat in the winter in the garage. They were perfect. All I could think was 'Okay… Cha-ching! Cha-ching!' I said, 'What do you want for them?' He said, '$300.' I said, 'Okay, $300 apiece?' And he said, 'No, $300.' And I couldn't get the money out of my wallet fast enough. We had been looking at junk for $400. These things couldn't have been better if you had bought a set of NOS ones." Tim also managed to find a decent '69 grille at Carlisle to match his near-new fenders.

Tim lucked into a few more deals while assembling the parts for his Swinger 340. Through some simple horse trading, he found the right wheels, actually swapping parts at a swap meet rather than buying them. But his luck with finding the correct engine seems akin to winning the lottery, but perhaps with even steeper odds.

As bought, the Swinger had a 1970 model-year 340 under the hood. Not only was it not date correct, as enthusiasts have been pushing for in their restorations in recent years, but the '70 version had some significant differences, such as the water pump exiting on the driver's side and not the passenger's side, as on '69-and-earlier 340s. That change meant different heater hoses, radiator, and associated bits and pieces. And Tim wanted it right, so he set about finding a correct '69 340.

His search yielded a purveyor of used engine blocks based in Arizona named Bob. Tim called and mentioned that his car was an early build for '69, so anything cast in June, July, or August of '68 would work. Bob suggested he had 19 blocks and told Tim he would check the serial numbers and get back to him.

After about two weeks of radio silence, Tim got a call back from Bob: "'I've found three of them from around the time you want. Give me your VIN and I'll pick the one that's closest to yours.' I gave him the VIN, and he had told me he wanted $400 for the block. And he starts snickering on the other side. 'Did I miss a joke or something?' And he says, 'Believe it or not, the price just doubled.' 'What do you mean the price just doubled?' He says, 'I have your block.' And I said, '*What?!*'" Sure enough, the original engine block from Tim's Dart had made its way to an engine boneyard in Arizona. The lottery, indeed, has better odds.

Tim and his friend, Gary Klotz, an expert body man and former instructor at WyoTech, worked on the restoration together, though the engine build was outsourced to another expert. Gary's skills with metal, prep, and paint helped turn the few rough spots (trunk floor, lower rear quarter panels) into the yellow-and-black beauty it is today.

Tim mostly attends shows and cruise-ins with the Dart, including one event that happened to be on "Steeler Night," when the event coordinators gave him the first-place trophy based on the cars' color combination. That one might be better termed "coincidence" rather than luck, but Tim's good fortune with the Dart wasn't done yet. While attending a drag-racing exhibition, Tim's steering broke while making a 90-degree turn to get into the staging area immediately before his scheduled run. And by "broke," Tim explains, "The steering wheel just snapped, and it spun in my hand, completely around, sort of like a steering wheel on a shopping cart a kid would get on. I couldn't steer, and I couldn't move. I couldn't go anywhere." Had that happened just a couple of minutes later, with Tim hitting close to 100 mph on a pass, there might be no Dart and no Tim to write about.

Tim's not-quite-near-death experience at the strip is just one of many examples of the "whirlwind of luck" that this 1969 Dodge Dart Swinger 340 has meant to him. Who needs the lottery when this sort of car is what you would get were you to win anyway?

During the restoration, owner Tim Winnie and his friend/body man Gary Klotz accurately matched the Sunflower Yellow paint by removing the black tail stripe to reveal the original, unmolested, unweathered factory paint below.

1969 DODGE DART SWINGER 340

275 HORSEPOWER @ 5,000 RPM

340 LB-FT TORQUE @ 4,200 RPM
1/4-MILE: 14.8 SECONDS @ 96 MPH*

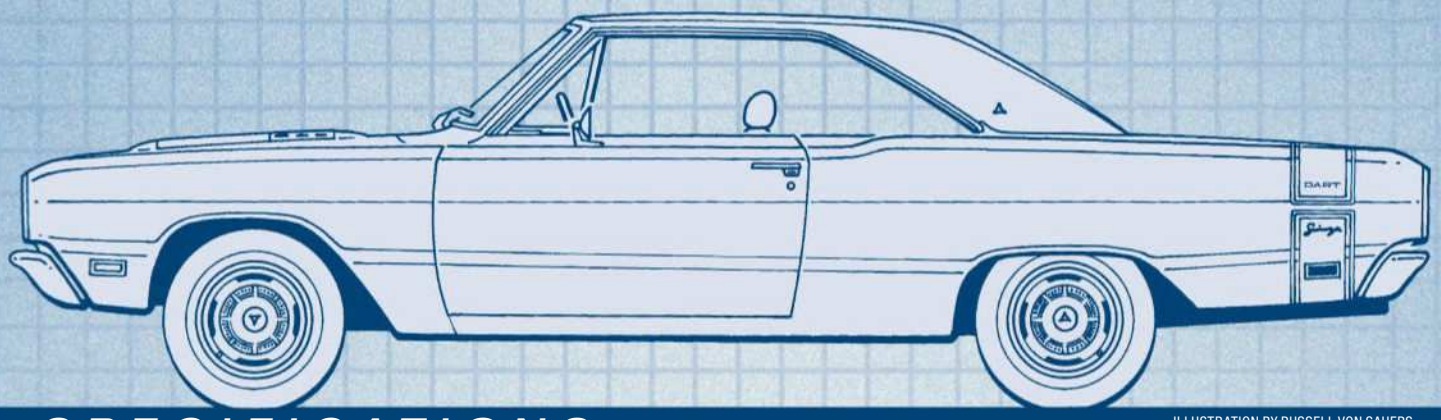


ILLUSTRATION BY RUSSELL VON SAUERS

SPECIFICATIONS

PRICE

Base price	$2,819
Options on car profiled	Unknown

ENGINE

Type	Chrysler LA-series "small-block" V-8, cast-iron block and cylinder heads
Displacement	340 cubic inches
Bore x stroke	4.04 inches x 3.31 inches
Compression ratio	10.5:1
Horsepower @ rpm	275 @ 5,000
Torque @ rpm	340 lb-ft @ 4,200
Valvetrain	Hydraulic valve lifters
Main bearings	Five
Induction system	Carter AVS 4612S four-barrel carburetor
Lubrication system	Full-pressure; gear-type pump
Electrical system	12-volt
Exhaust system	Cast-iron high-flow exhaust manifolds with dual exhaust and 2.25-inch reverse-flow mufflers and 1.88-inch tailpipes

TRANSMISSION

Type	Chrysler A833 four-speed manual
Ratios	1st 2.65:1 2nd 1.93:1 3rd 1.39:1 4th 1.00:1 Reverse 2.57:1

DIFFERENTIAL

Type	Chrysler 8¾-inch hypoid, semi-floating with limited-slip
Ratio	3.23:1 (currently 3.55:1)

STEERING

Type	Recirculating ball and gear
Ratio	24:1
Turns, lock-to-lock	5.3
Turning circle	38 feet

BRAKES

Type	Four-wheel hydraulic drums, unassisted
Front	10 x 2.25-inch drums
Rear	10 x 1.75-inch drums

CHASSIS & BODY

Construction	Unitized body with front subframe
Body style	Two-door, six-passenger hardtop
Layout	Front engine, rear-wheel drive

SUSPENSION

Front	Independent; torsion bars with lower control arms and upper A-arms with heavy-duty hydraulic shock absorbers; 0.88-inch anti-roll bar
Rear	Live axle with parallel six-leaf, semi-elliptic springs and heavy-duty shock absorbers

WHEELS & TIRES

Wheels	Stamped steel 14 x 5.5 inches (currently 14 x 6 inches)
Tires	Goodyear bias-ply (currently BFGoodrich redline radial) D70-14 (currently 205/70R14)

WEIGHTS & MEASURES

Wheelbase	111 inches
Overall length	195.4 inches
Overall width	69.6 inches
Overall height	54.4 inches
Front track	57.4 inches
Rear track	55.6 inches
Curb weight	3,310 pounds
Test weight	3,605 pounds*

CAPACITIES

Crankcase	5 quarts
Cooling system	17 quarts
Fuel tank	18 gallons
Transmission	15.5 pints

CALCULATED DATA

Bhp per cu.in.	0.81
Weight per bhp	13.11 pounds
Weight per cu.in.	10.60 pounds

PRODUCTION

It is estimated that Dodge produced just over 16,000 Dart Swinger 340s for the 1969 model year, out of a total Dart production run of approximately 197,700.

PERFORMANCE*

0-60 mph	6.9 seconds
1/4-mile ET	14.8 seconds @ 96 mph
*Source	Car Life *January 1969 road test of a 1969 Dodge Dart Swinger 340 with a TorqueFlite three-speed automatic transmission.*

1970 Dodge Challenger R/T Hemi

By Mike McNessor

Photography by Jeff Koch • Restoration photography provided by Ward Gappa

Intact, unrestored, Hemi-powered 1970 Challenger R/T hardtops don't turn up every day. So, when one of the fewer than 300 produced surfaces—and you have the means as well as the desire to own it—you either make a move or miss out.

When Ward Gappa of Quality Muscle Car Restorations in Scottsdale, Arizona, got an email from a customer interested in buying this month's feature car back in 2013, he knew the Challenger's days on the market could be numbered. So, he made contact with the seller, then hopped on a plane to the Midwest where the scruffy Hemi E-body had been hibernating for years.

"I walked around that car and in five minutes I knew it was the one," Ward said. "It hadn't been

This 1970, Hemi-powered Challenger R/T passed through the hands of several owners, but didn't change very much from the time the original owner sold the car in 1974. The repaint, the mags, and some engine modifications were all performed when the car was new or nearly new.






1. On the lift at Quality Muscle Car Restorations, a hint of Plum Crazy paint is visible in the cutout for the license plate. The original Dana 60 axle is missing as well, replaced with an 8.75-inch axle. **2.** Rust repair was needed on the lower quarters and fenders. Also, the wheel openings had been modified to make room for wider rubber. **3.** The Challenger's K-member, Hemi, and TorqueFlite were extracted as a unit. The headers didn't return to the finished car, but almost everything pictured here did. **4.** The body was sent out for media blasting, revealing no major surprises. **5.** After a coat of epoxy primer, Steve Dunn cut out any afflicted areas like this portion of the quarter panel forward of the wheelhouse and stitched in replacement metal. **6.** The Challenger's original front fenders were repaired with sections cut from a set of used, donor fenders.

wrecked, it had two build sheets, it had original titles taking it all the way back—a really neat paperwork trail, plus an original key fob (from the dealer). The interior was all there, I pulled the air cleaner off and liked what I saw. All of the important stuff was in place, nothing had been screwed with—it was just a really, really nice old car."

The Challenger was still up for auction on eBay with the price climbing into the high five figures. After some of the usual hemming and hawing that can accompany a deal, Ward said he made the seller a really serious offer.

"I told him—'I'm ready to go there. So, what's the number?'" Ward said. "We danced around for about five minutes. It was 3 p.m. and I had a 6 p.m. flight. I wanted to pick that car up, get it out of there—I even had a bill of sale on me, all made out."

The seller and the buyer's agent came to an agreement, and soon the Challenger was trucking off to Ward's shop in Scottsdale—another stop on this iconic performance car's long trail of ownership.

Not to overstate the obvious here, but over the last 40-plus years, the most desirable cars from muscle era version 1.0 went from being hot new cars, to fun used cars, to collector's items, to precious commodities. A 1970 Hemi Challenger is a poster child for that trend. Amazingly (or perhaps not so much), this particular example saw its asking prices between owners skyrocket from four figures to six figures in less than a decade. Meanwhile, its condition deteriorated—ultimately to the point that it looked bad enough to be featured on the cover of a national car magazine in 2013. "HEMI BARN FIND" the all-caps headline screamed. "THEY'RE STILL OUT THERE!"

New, this nicely optioned Challenger stickered for $5,156.55. One of its extras was High Impact Paint in Plum Crazy. Other goodies included: the 426 Street Hemi with a TorqueFlite and the Super Performance Axle package (Dana 9.75-inch axle with 4.10s and Sure Grip, plus power disc brakes, etc.); tinted glass; 15-inch Rallye wheels; Rim-Blow wheel; Pedal Dress-up trim; console, chrome mirrors; hood pins; Rallye instruments; vinyl roof covering; Space Maker spare; and more.

After rumbling off the lot at Stew Hansen's Dodge City in Des Moines, the original owner began modifying his Challenger to better suit his tastes. The Plum Crazy was covered with a sober silver-gray, and a lumpy Racer Brown camshaft was stabbed in, as was an aftermarket distributor. The Rallyes were sidelined in favor of American mags shod with fat H60-15 rubber and, for additional tire clearance, the wheel opening lips were rolled. Finally, perhaps tired of the tachometer-twisting 4.10s, the owner swapped in an 8.75-inch Chrysler axle packed with a taller gearset.

In 1974, Jim Anderson of Des Moines was a lucky 16-year-old kid with $3,000 in his pocket, and he became the Challenger's second owner. The car served him well through his high school prom and graduation, but in 1977 he sold it for $3,500 to another Des Moines-area man. Our feature car's third owner held on to it for 30 years. At some point he stashed it away, then, while coping with health issues, he sold it to a friend for the token sum of $1,000.

That fourth owner kept the car in a shed until 2013 when

7. The block was bored .010-inch, and Greg Greulich rebuilt it with stock-spec parts including a hydraulic camshaft. **8.** The factory heads were reconditioned with hardened valve seats and mild porting. **9.** The restored K-member was loaded with the rebuilt engine and transmission, complete with accessories and exhaust as well as the suspension parts. Other than bushings and lower ball joints, virtually everything up front was refurbished and reusued. **10.** The driver's seat back was ripped and split, so it was disassembled and repaired by Joe Reece. The cockpit is largely original except for the carpet and headliner. **11.** One of the key components missing was the rear axle, so a Dana 60 was tracked down, restored, and setup with 3.54:1 gears. **12.** A new fuel tank and lines were installed for safety's sake; leaf springs are refurbished originals.

he was approached by Chad Maskrey, also of Des Moines. Maskrey bought the car for $25,000 and contacted *Car Craft* magazine about featuring his barn find. *Car Craft* put the car on the cover of its October 2013 issue, but weeks before the ink was dry, Maskrey had posted the car on eBay. Before the auction ended, he sold it to its current owner—Ward's client—for "considerably more money," as Ward told us.

Obviously, this Challenger also required a considerable amount of work and some valuable, hard-to-find parts to bring it to its current condition. One of those parts was a Space Maker spare tire, which was missing at the time of the sale, though it turned up afterward.

"The day after the deal was made, the guy flipping the car tried to sell us the original spare for $1,200," Ward said. Did they buy it? To paraphrase an unprintable response, uh… no.

The Challenger then sat on a four-post lift in Ward's shop until April 2015 when it was completely torn down. The body was sent out for media blasting at Pro Strip in Mesa, Arizona. Then Steve Dunn applied epoxy primer to the bare sheetmetal.

The front fenders required rust repair behind the wheel openings, so Steve stitched in AMD repair panels. The front-fender wheel openings had been modified to make room for bigger tires, so Ward tracked down a set of used Challenger fenders, and Steve cut the metal he needed from those, then welded it into the originals. The quarter panels were rusted fore and aft of the wheel openings—the wheel opening lip was damaged too, from being rolled outward—but rather than replace the quarters, Steve repaired them using small sections from AMD panels. The car's floors were solid, as were the doors and hood, but the decklid was replaced with an NOS unit; Steve also had to repair rust in the front windshield channel.

With the sheetmetal intact, Steve applied body filler to any rough spots and then block sanded it smooth. That was followed by multiple coats of PPG primer, numerous block-sanding sessions, and finally, three coats of PPG urethane base and three coats of clear.

The Challenger's Hemi was trusted to Greg Greulich at Greulich Engine Machining in Scottsdale. Greg tore the engine down and determined that the block was still on its original bore. However, the harmonic balancer had been improperly installed at some point in the car's life, and the nose of the crankshaft had been damaged. Greg bored the block .010-inch, stuffed it with new pistons swinging from original connecting rods and a new Eagle crankshaft. The race cam was exchanged for a stock-type hydraulic stick, while the original heads were reconditioned and replaced along with the original intake. The dual AFBs were likewise rebuilt and replaced.

Jesse McHugh rebuilt the car's TorqueFlite transmission to stock specs, but the missing rear axle presented a problem.

"It had an 8.75 in it with 3.55:1 gears when we bought it, but this is a factory 4.10 Dana car," Ward said. "Luckily we found an E-body Dana that came out of a Pro-Streeted 1967 Camaro. We had to straighten the tubes and reinstall the spring perches for a Mopar. But it had the right date on it. That we found one with the date codes for this car is amazing."

The K-member was stripped and shot with a low-gloss black, then reconnected to the rebuilt Hemi. With the body assembled, Ward raised the front end with an engine crane

This Challenger's living quarters sported a number of options, including Rim-Blow wheel, Pedal Dress-up trim, Rallye instruments, console, and more. A set of 15-inch Rallye wheels were located to replace the car's mags.

RESTORER'S VIEW

This car made sense to buy and restore. It was a very nice original Hemi Challenger that hadn't been driven for 25-30 years, but only had about four years' worth of rust. It would run, though it wasn't driveable, and had all the important stuff: a documented owner history, its born-with engine and transmission, an unmolested VIN tag and VIN numbers on the core support and cowl. It represents the pinnacle of muscle car-era horsepower, which is why my customer wanted to own his first High Impact Color Hemi car.*—Ward Gappa, Quality Muscle Car Restorations*

and lowered it over the K-member, engine, and transmission. During the reassembly process, Ward took pains to reuse as many of the car's original bits and pieces as possible. Nearly all of the original fasteners were refinished in gray phosphate, silver zinc, or gold iridite, and returned to their factory locations on the car. The car's original brake booster, master cylinder, rotors, calipers, drums, and brake hardware were all rebuilt or restored, then returned to duty. Up front, only the lower ball joints and the control-arm bushings were replaced—the torsion bars and rear leaf springs are the originals as well. Inside, only the carpet and the headliner were replaced. The driver's-side seat back was repaired by Joe Reece using original grain upholstery, but the rest of the car's skins are factory—as is the dash pad and instrument cluster.

Even the factory weatherstrip was carefully removed, cleaned, and reinstalled, ditto for the side windows. The windshield and the rear window are replacements, however—both broke while being pulled out.

Today, the car rolls on a set of correct, original Rallye wheels with F60-15 Polyglas Goodyears. Its distinctive Hemi rumble comes courtesy of a set of factory manifolds and exhaust from Gardner Exhaust Systems.

The former barn find made its debut as a restored car in November at the Muscle Car and Corvette Nationals in Chicago, where it earned 975 out of 1,000 points—taking Gold Concours honors. Jim Anderson, the Challenger's second owner, from 1974-'77, was there to see its unveiling.

Ward has driven the car nearly 500 miles since it's been finished and hopes his client uses it often.

"You get in it and it starts, it stops, it brakes, it handles, it's not a rattletrap—it's as good as it gets for 1970," he said. "We ask our customers to drive these cars, because we aim to make them roadworthy—not just show ponies. If you're not going to drive them and enjoy them, why bother having us restore them?"

The Hemi's distributor had gone missing, but a correct dual-point now provides the spark. The front AFB and an original alternator had to be found and restored as well. Gleaming urethane basecoat/clearcoat paint stands in for the factory Plum Crazy acrylic enamel.

1987-'93 Ford Mustang LX 5.0

By Terry McGean
Photography by Barry Kluczyk and Terry McGean

When Ford unveiled its all-new Mustang for 1979, there was great hope for a return to pony performance. Though the Mustang II is generally snubbed today by enthusiasts, there is no denying it had been a very popular car, and an absolute success for Ford. But by the late '70s, as the faintest glimmers of interest in performance were reemerging, the Mustang II's Pinto origins were showing. The all-new-for-'79 Mustang had a new chassis, internally coded as the Fox platform, and already in use under the Ford Fairmont that had debuted for 1978. With MacPherson struts in front, coil springs in the rear, available metric-sized Michelin tires and a correspondingly tuned suspension, and chiseled, angular styling, the new Mustang seemed positively modern.

When the 1971 Mustang was selected to pace the Indy 500 for the first time since the model's introductory year of 1964, the performance image of the new generation got an instant boost, even if its 5.0-liter V-8 only mustered 140 hp. The Mustang Cobra offered the same engines, but what appeared to be the start of something good quickly lost steam—for 1980, the 5.0 was gone, replaced by a 4.2-liter version of

ILLUSTRATION BY JUDI DELL'ANNO

ENGINE

By 1987, Ford's 5.0L engine had made a name for itself apart from its earlier 302 origins. The '87 engine used roller lifters on a steel camshaft, forged pistons, and new-design "E7TE" cylinder-head castings "borrowed" from the truck engine program. It made 9.2:1 compression and was fed by a sequential electronic-port fuel-injection system, managed by Ford EEC IV electronics, which also controlled the ignition. The intake manifold had separate upper and lower plenums, 19-lb/hr injectors, and a single-blade throttle body measuring 60 mm. From 1987 to '88, a manifold absolute pressure (MAP) type system was used; starting with '89 models, mass-airflow management took over. Starting at some point during the '91 run, forged pistons were changed to hypereutectic.

TRANSMISSION

Ford started using Borg Warner's T-5 manual five-speed in 1983, and upgraded it to the World Class type for 1985. Further upgrades were included in subsequent years, but all 1987-'93 Mustangs used the same ratios, with a fairly low 3.35:1 first gear to help cope with the standard 2.73:1 rear gears. Automatic 5.0 Mustangs used the four-speed AOD (automatic overdrive), which was directly driven in third and OD.

the Ford small-block that only managed 119 hp; for 1981, it could only be paired with an automatic transmission and a 2.46:1 rear gear.

Then came 1982 and the return of the Mustang GT—the first time that badge had been seen since it was obscured by the Mach 1 in 1969. The new GT marked the return of the 5.0, now making 157 hp, though still fed by a two-barrel carb. Nonetheless, it was a big deal at the time—factory performance was back. Ford would continue to improve the Mustang GT for the next few years, giving it a genuine Holley four-barrel to make 175 hp for 1983; later the same year a five-speed manual became available. For 1985, a roller-type camshaft and lifter arrangement was introduced, along with header-style tubular exhaust manifolds and a new low-restriction exhaust system, plus forged pistons and new cylinder heads, all conspiring to make 210 hp. Electronic fuel injection would come for '86, along with true dual exhaust, and though power slipped back to 200, it would jump up to 225 for 1987 with revised "E7TE" cylinder heads.

That was also the year that the Mustang was significantly "facelifted" with new fascia front and rear, highlighted by "aero" styled composite headlamps and a restyled interior. The Mustang GT received a pronounced front air dam, side skirts, and a corresponding skirt incorporated into the rear bumper cover. It also got its own rear wing and taillamps that appeared to have louvered covers.

Perhaps it was the far more ostentatious appearance of the restyled Mustang GT that gave rise to an alternative: the Mustang LX 5.0. Though most buyers hadn't noticed previously, Ford had been allowing the 5.0 drivetrain to be selected for lesser Mustangs for several years.

When the new look for '87 debuted, the base model was badged as "LX," and ordering one with the 5.0 engine transformed it into a mechanical twin to the GT, just without all the frills. Not only was the resulting car subtler to behold, it was also cheaper, and even a little bit lighter. Performance fans flocked to it for the rest of the Fox generation.

INTERIOR

Early 5.0 Mustang LX models received "low-back" reclining seats with cloth upholstery as standard and vinyl upholstery optional. For '88, articulated sport seats could be optioned along with the 5.0 in the LX hatchback and convertible; for '89, the new LX 5.0 model included the sport seats, but still left out the sedan, which finally got them for 1991; leather was optional. Airbags were standard from 1990-on. Speedometers for 5.0 cars initially topped out at 85 mph but were raised to 140 mph during 1989.

CHASSIS

The 1987-'93 Mustangs ride on the Fox platform unit-body chassis, with a modified MacPherson-strut front suspension with a 1.3-inch anti-roll bar, rack-and-pinion steering, and a four-link coil-spring rear suspension. Front brakes on 5.0 cars were larger than four-cylinder models starting with '87, and all 5.0 cars in this period had Quadra-shock laterally mounted dampers in the rear, to quell axle hop on hard launches.

BODY

Styling had been revised for 1987 and remained largely unchanged for the rest of this period. The LX did receive body-colored belt moldings staring in 1992, replacing the former black trim, and the belt-molding stripe option stopped after 1989.

MUSTANG LX FEATURES

For 1987, Mustang came in only two trim levels: LX or GT. Both were available in three-door hatchback or two-door convertible body styles, while the LX could also be had as a two-door sedan. In its most basic form, the LX provided just what the original base-model Mustang did back when it debuted in 1964—it was essentially an economy car with sportier sheetmetal concealing a thrifty engine and riding on practical (read: small) wheels and tires. For '87, the practical engine was a 2.3-liter four-cylinder. All Mustangs had power steering and front disc brakes, and cloth seats became the norm, though all-vinyl seats could be ordered.

All Mustangs also came with full instrumentation, though the tachometer topped out at 6,000 rpm on the four (the V-8 tach went to 7,000). All speedometers read only to 85 mph (until 5.0 cars started receiving 140-mph units during the '89 model year). The dashboard in all Mustangs was completely redesigned for 1987, with paddle-type switches for the lights, hazard flashers, rear defroster, and—on the GT—driving lamps, all flanking the new instrument pod. The console was also new.

Ford was very proud of its new aero look in 1987, and for Mustang, that look meant those composite headlamps, plus the integrated parking lamps that flanked them. The taillamp lenses on the LX were reshaped to form more of a squared off "bubble" effect, though they used the same housings as earlier models. The turn-signals continued to be amber, but now used colored bulbs behind clear lenses. Mustang's side glass was now flush mounted, and covered the entire opening, instead of sharing the space with simulated vent louvers as in earlier models.

The Mustang LX was a decent car, but without the 5.0 engine package, it held no appeal for performance fans—it was simply the latest incarnation of the "secretary's car," a term not so lovingly applied to the earliest base models during the model's original debut.

NOTEWORTHY OPTIONS

According to the 1987 Mustang brochure, the "5.0L EFI H.O. V-8 engine package" made a "very nice enhancement to the engine compartment." It went on to say, "Basically the package includes all the performance equipment that is standard on the GT." Vague as that statement may have sounded, it was actually pretty accurate. The package brought the engine itself, obviously, with its low-restriction dual-exhaust system (ending with the slash-cut brushed stainless tips formerly found on the GT), plus a V-8-spec transmission (five-speed manual or four-speed auto), the 8.8-inch Traction-Lok rear axle, the heavier-rate springs and corresponding

ENGINE

Cu.in./Liters	Horsepower	Torque lb-ft	Cam	Compression
302/5.0	225*	300	hydraulic roller	9.2:1

*For 1993, the 5.0 HO was re-rated for 205 hp, though it is generally recognized that the engine hadn't actually been altered in any significant way.

TRANSMISSION

Type	I.D.	1st	2nd	3rd	4th	5th	Reverse	Notes
5-speed manual	T-5	3.35:1	1.93:1	1.29:1	1.00:1	0.68:1	3.15:1	1987-'89
5-speed manual	T-5	3.35:1	1.99:1	1.33:1	1.00:1	0.68:1	3.15:1	1990-'93
4-speed auto	AOD	2.40:1	1.46:1	1.00:1	0.67:1	----	2.00:1	

DIFFERENTIAL

During the period covered in this guide, Ford used its 8.8-inch differential in all 5.0L V-8 Mustangs. All 5.0 models received the Traction-Lok clutch-type limited-slip differential as standard equipment.

Rear Axle	Code	Comments
2.73:1	M	Standard with all 5.0 Mustangs
3.08:1	Z	Optional with five-speed manual
3.27:1	E	Optional on automatic only

BRAKES

Standard Discs: Front	Standard Drums: Rear	Optional
10.9 inch	9.00 x 1.75 inches	None

WHEELS

The 5.0L package for the Mustang LX included aluminum alloy wheels from 1987-'93. From 1987-'90, these were 15 x 7-inch; from 1991-'93, they were 16 x 7 inch.

Type	Size	Year
Aluminum "10-hole"	15 x 7 inches	1987-'90
Aluminum "pony"	16 x 7 inches	1991-'93

TIRES

Type	Manufacturer	Size	Availability	Comments
Radial VR	Goodyear	225/60-15	1987-'90	All 5.0
Radial ZR performance	Goodyear	225/55-16	1991-'93	Standard: GT; Optional: LX
Radial ZR all season	Michelin	225/55-16	1991-'93	Standard: LX; Optional: GT

PERIOD ROAD TEST

Model	Transmission	0-60	1/4-mile	Source
1988 LX	Five-speed	6.2 seconds	14.8 @ 95 mph	*Car and Driver*, 6/1987
1990 LX	Five-speed	6.4 seconds	14.9 @ 96 mph	*Motor Trend*, 9/1990
1992 LX	Five-speed	6.2 seconds	14.8 @ 95 mph	*Motor Trend*, 9/1992

WHAT TO PAY

	Low	Average	High
1987-'90 Mustang LX 5.0 hatchback	$2,000	$5,000	$9,000
1993 Mustang LX convertible "Feature Car"	$6,000	$9,000	$15,000

Mustang was restyled for 1987 with flush, "aero"-styled headlamps and parking lamps, plus flush quarter glass and revised moldings. The LX could be ordered as a hatchback (above), a two-door sedan (left) or a convertible (below). For 1990, a special edition LX convertible was offered in Emerald Green; a 1992 Summer Edition offered Vibrant Red.

dampers, the quad-shock arrangement for the rear axle to ward off axle tramp, the bigger front disc brakes, and the fast-ratio/high-effort power steering rack-and-pinion unit. The 5.0L package for the LX also included 15 x 7-inch alloy wheels, which were the same "10-hole" design that had adorned the GT for '85 and '86; for '87, the GT got revised turbine-style wheels, though they also measured 15 x 7 inches. Goodyear Eagle VR tires in 225/60-15 were part of the 5.0 package as well.

The LX could also be ordered with an optional body molding stripe. A pop-up sunroof was optional only on the hatchback, as were T-roofs for 1987 and part of '88. In the early years, the articulated sport seats from the GT could not be ordered in the LX, but that would change a year later; leather upholstery could then be ordered as well. Later still, for 1989, Ford's brochure listed a new offering: The LX 5.0L Sport, which now packaged the performance drivetrain and suspension with some other items, including the articulated sport seats from the GT, though only on hatchback and convertible—the sedan still got base seats until 1991. Headrests on the articulated seats changed for 1990 from the large, oval-profile type to a smaller, more conventional design.

Mustang used a new steering wheel for 1987, referred to as the "thick, soft-feel" wheel, which could incorporate speed control switches. Starting with the 1990 models, all Mustangs got steering wheels with driver's-side airbags, at which point, tilt steering wheel was no longer available.

The standard rear axle ratio for all 5.0 Mustangs from 1987 to '93 was 2.73:1, but five-speed cars could be optioned with 3.08 gears. For most model years, automatics could initially be ordered with 3.27:1 gears—3.08s were not offered with the automatic, and the five-speed could not be had with 3.27s.

SPECIAL EDITIONS

During the 1987-'93 run, there were several special-edition models based on the LX. For the Mustang's 25th anniversary, Ford produced anniversary models that were white LX hatchbacks with lower body stripes that were similar to the G.T. 350 design but had the cutout toward the rear instead of the front. In the cutout were the Roman numerals "XXV," for 25 years. Starting on April 17, 1989, all Mustangs received a dash badge proclaiming "25 Years" with the running pony emblem on a red/white/blue background, patterned after the original

Ford's 5.0L HO V-8 received EFI for 1986; for 1987 output increased to 225 hp. This '88 has MAP engine management, with no mass-air meter.

For 1987, the LX got cloth low-back seats as standard. The dash, console, and steering wheel were all newly restyled for that year.

The new dash included revised instruments; V-8 cars have a 7,000-rpm tach. Speedometers changed to 140-mph calibration in '89.

The LX 5.0 had the 15-inch "10-hole" wheels from the '85-'86 GT from '87-'90 (left); starting with the '91 model year, all 5.0 Mustangs got 16-inch "pony" wheels (right), usually in silver clearcoat.

Fox Mustangs received metal tags fastened to the radiator support that listed equipment and trim codes.

Mustang fender badges. This badge would continue for the rest of the Fox era, but the 25 Years element was removed for '91 models. Then, for 1990, Ford introduced a new special-edition LX convertible in a special Emerald Green paint scheme that included the belt moldings. A white top and white leather interior were part of the package, as were GT turbine-style wheels. This is usually referred to as the "7UP car," as these were originally intended to be part of a promotion with the NCAA basketball league and the soft-drink brand, though the promotion never came to fruition. Later, a series of "Summer Special" editions, also referred to as "feature cars," were released in limited numbers for 1992 and 1993. The '92 models were Vibrant Red with white top and interior, and pearl-white wheels. The '93 editions were Chrome Yellow with either a black top and interior or white top and interior, and chrome pony wheels, or you could also get Vibrant White with white top and wheels. All Summer Specials had a rear spoiler to replace the usual luggage rack.

BUCK TAGS

Fox Mustangs were issued metal tags during assembly, generally referred to as "buck tags," which had various stamped wording and alpha-numeric codes to outline how that car was to be built, much like the data plates used with '60s and '70 Chrysler cars. On Fox Mustangs of the period we're covering, these tags were typically attached to the radiator support behind the driver's-side headlamps, often with metal staples. The tags can be spotted with the hood up but can sometimes be difficult to read without removing the headlamp or the tag. The tags included information on engine, transmission, rear axle, and other optional equipment and paint codes. Some cars had more than one tag, especially Special Service Package (police) cars. The specifics of the codes are far too detailed to list here, but there is decoding information that can be found online.

VEHICLE CERTIFICATION LABEL

Ford has used various tags in the driver's door jambs of its cars for years. Mustangs from this period had a decal often referred to as the "vehicle certification label," or VCL. It listed the car's VIN along with codes to identify various parts of the vehicle's specifications. Starting sometime in the 1989 model year, a new, more detailed label was used that included a barcode and more information. Data included covered body style, paint color, top color for convertibles, engine, transmission, rear axle ratio and whether or not it had limited-slip, interior type and color, and more. For 5.0 Mustangs, enthusiasts often use these tags to see which axle ratio a particular car has. While decoding the entire door tag is a bit much to cover in this space, and decoding info is online, for 5.0 models, the codes are all for "locking" type differential (Traction-Lok limited-slip that is): 2.73:1 is M; 3.08:1 is Z; and 3.27:1 is E.

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JUNE 23 - JULY 1, 2018

SATURDAY, JUNE 23
START: Pierce Arrow Museum, Buffalo, NY - 10:30 a.m.
OVERNIGHT: Main Street, Downtown Fairport, NY - 4:30 p.m.

SUNDAY, JUNE 24
LUNCH: Northeast Classic Car Museum, Norwich, NY - 12:15 p.m
PIT STOP: Doubleday Field, Cooperstown, NY - 2:20 p.m.
OVERNIGHT: River Street, Downtown Troy, NY - 5:30 p.m..

MONDAY, JUNE 25
LUNCH: Hemmings Motor News, Bennington, VT - noon
OVERNIGHT: Church Street Marketplace, Burlington, VT - 5:30 p.m.

TUESDAY, JUNE 26
LUNCH: Mt. Washington Auto Road, Mt. Washington, NH - 12:30 p.m.
OVERNIGHT: Water Street, Downtown Gardiner, ME - 5 p.m.

WEDNESDAY, JUNE 27
LUNCH: Owls Head Transportation Museum, Owls Head, ME - Noon
OVERNIGHT: Front Street, Waterfront, Bangor, ME - 5 p.m.

THURSDAY, JUNE 28
LUNCH: Seal Cove Auto Museum, Seal Cove, ME - Noon
OVERNIGHT: Town Pier, Bar Harbor, ME - 4:30 p.m.

FRIDAY, JUNE 29
LUNCH: King Square, City Centre, Saint John, NB - 1 p.m.
OVERNIGHT: Riverfront Park, Moncton, NB - 5:30 p.m

SATURDAY, JUNE 30
LUNCH: Library/Farmers Market, Prince Street, Truro, NS - Noon
OVERNIGHT: Alderney Landing, Dartmouth, NS - 4:45 p.m.

SUNDAY, JULY 1
FINISH: Waterfront Warehouse, Halifax, NS - 1:30 p.m.

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Hemmings Motor News

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THE ROAD LESS TRAVELED

A classic two-lane trip across middle America

Words and photography by Chuck Hanson

There are few things in this world that I'm more passionate about than old cars and travel. Old cars are in my blood… always have been, and always will be. And chances are if you're reading this, you've been similarly afflicted. Travel, too, seems an innate part of my makeup. I've always been curious about what lies just beyond the horizon, and what possibilities the journey between here and there might hold. Whenever I have an opportunity to jump in a classic car and burn gas and rubber on my way to getting to wherever I'm headed, there's very little convincing needed.

My travelling companion is also my life companion for the past 45 years, LaRae. She's great company, and always ready for another adventure. Our trusty '66 Chevelle two-door wagon is a comfortable cruiser, with plenty of room for most anything, and has logged nearly 60,000 miles since its remake more than 15 years ago. It, too, seems always ready for another adventure.

Last September, we were able to take advantage of a nice, empty hole in our schedule that stretched itself out for a couple of uninterrupted weeks. At the beginning of that time frame was a car show that would provide an opportunity to feed my old-car addiction, and even more importantly, a chance to reconnect with many friends I hadn't seen in a while. The event was a Chevelle show in Omaha, Nebraska, about a 12-hour jaunt on the interstate from our home outside of Nashville, Tennessee… a pretty long day behind the wheel, and even longer if you count the food and fuel breaks. But with more leisure time at our disposal now that I am retired, I contrived a different plan, one that would largely keep us off the busy, congested interstates, and on the more leisurely paced, two-lane pavement ribbons that still crisscross our incredible country.

I charted a course that would take us through much of Iowa before heading north into Minnesota. Perhaps not exactly vacation hotspots for many, but we were hoping to reconnect with parts of America that have been largely lost to those choosing airports or straight, fast, four-lanes rather than roads less travelled.

Eventually we found ourselves in southeastern Minnesota, where we stumbled on a terrific family-run bakery in Winona that had been in business for nearly 100 years. Since it was still fairly early in the day, we bought an armload of baked goodies and called it breakfast. We were on a mission, however, to cross the Mississippi River and follow it north a bit to Fountain City, Wisconsin. We wanted to keep our appointment with Elmer and Bernadette Duellman, who are the caretakers of the most amazing assortment of muscle cars, pedal cars, motorcycles, toys, and memorabilia we've ever seen.

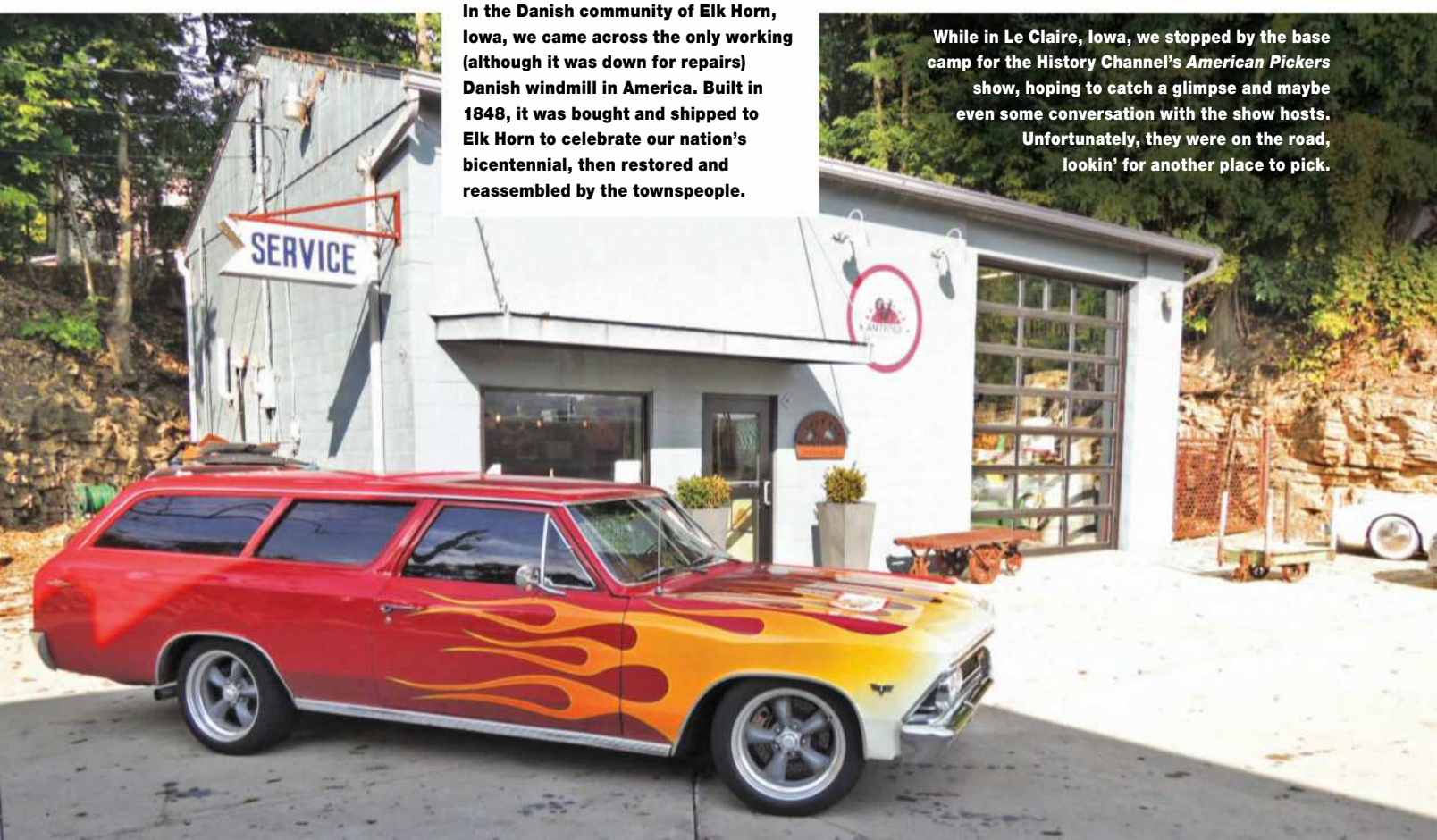
From there, we headed south along the Great River Road, a meandering two-lane that follows the mighty Mississippi and stretches itself from the headwaters all the way to the Gulf of Mexico. Along the northern route are beautiful bluffs that gave us incredible vantage points to assess the magnificence of the river, while further south, they gave way to flat lands that allowed us to drive alongside the river and dawdle in the many small municipalities that continue to thrive there.

Our final stop on the River Road was in Le Claire, Iowa, where we paused long enough to check out

In the Danish community of Elk Horn, Iowa, we came across the only working (although it was down for repairs) Danish windmill in America. Built in 1848, it was bought and shipped to Elk Horn to celebrate our nation's bicentennial, then restored and reassembled by the townspeople.

On our second day we set out at a more leisurely pace; our first stop was Hannibal, Missouri, home of Mark Twain and the inspiration for Twain's *Adventures of Tom Sawyer* and *Adventures of Huckleberry Finn*. As you might expect, the characters and locations in both books have been memorialized extensively.

Fast Lane Classic Cars in St. Charles, Missouri, has a couple of showrooms, each filled with plenty of horsepower and memorabilia. Even if you're not in the market for a collectible, it's fun just to look and drool.



While in Le Claire, Iowa, we stopped by the base camp for the History Channel's *American Pickers* show, hoping to catch a glimpse and maybe even some conversation with the show hosts. Unfortunately, they were on the road, lookin' for another place to pick.

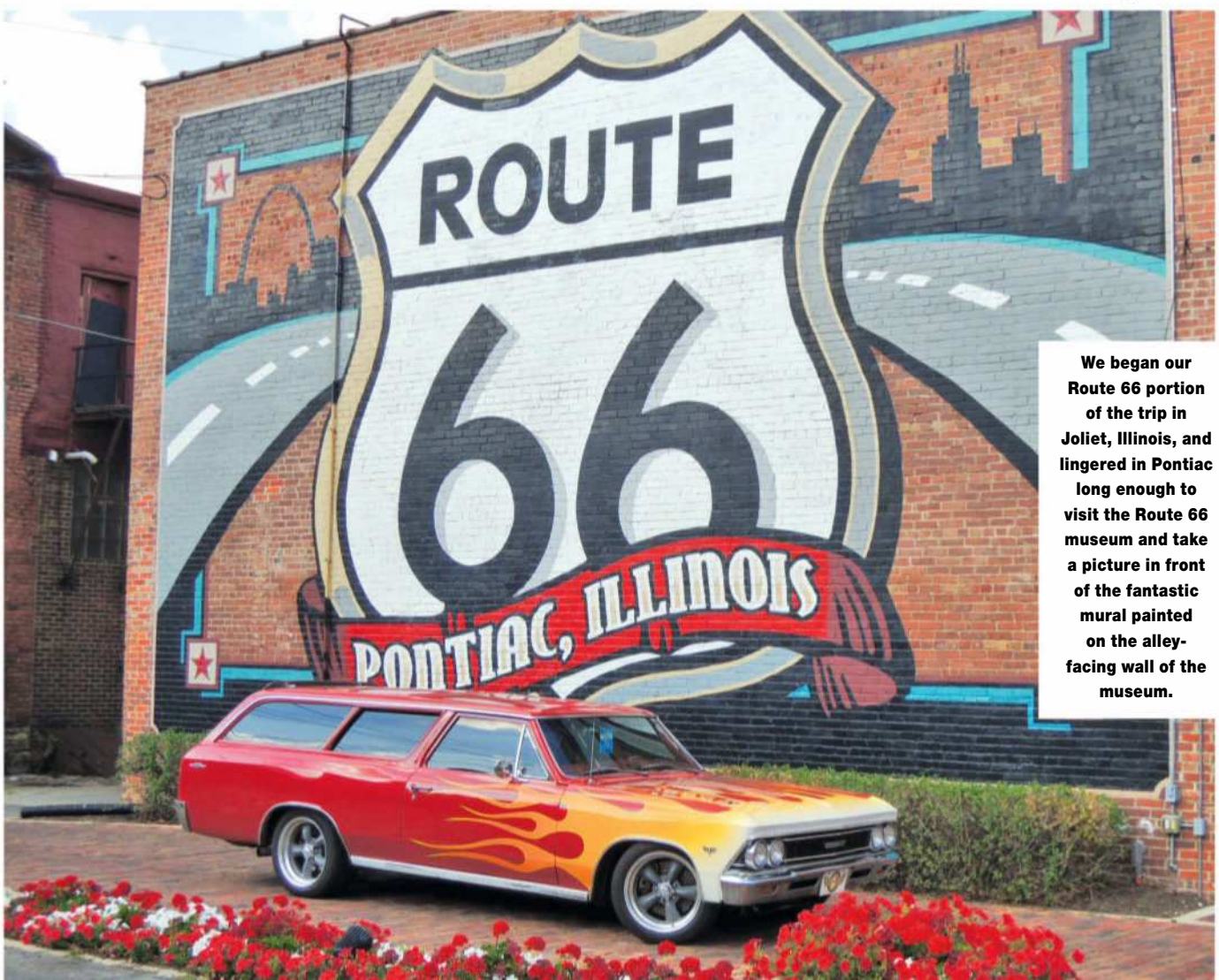
Sprague's Super Service, in Normal, Illinois, is a classic Tudor-style gas station/café built circa 1931. Closed in '71, it has been partially restored. Right: Just outside of Auburn we found this 1.5-mile stretch of Route 66, paved in 1931 with hand-laid bricks over a concrete road bed.

the digs of The History Channel's *American Pickers* TV show before crossing the Mississippi one last time as we headed east across northern Illinois. Our destination? Well, after following the greatest river in America, we thought we'd complete our journey by navigating a portion of the "Mother Road." That's right, Route 66 was calling our name and we were only too happy to respond to her beckoning.

For years, Route 66 defined an incredible era of our nation's history, as it traversed nearly 2,500 miles from Chicago to Santa Monica, California. Today, segments of the road in Illinois, Missouri, Oklahoma, New Mexico, and Arizona, have been designated a National Scenic Byway. Sadly, as time has gone by, so has the interest and enthusiasm for preserving the highway once thought of as the "Main Street of America," and we decided that we'd try to drive as much of it as we could, while we could. Even though we witnessed many once-thriving businesses that had been shuttered because of waning popularity, there were still plenty of interesting sights and side trips that kept us engaged.

Our trip came to an end in southern Illinois, where we celebrated our journey with a sumptuous feast at Fast Eddie's in Alton, which sits hard on the eastern bank of the Mississippi, just north of St. Louis. The next morning, we made our move towards Nashville and home.

Looking back now on our journey, I can honestly say there are few things in the world that spin my crank like a road trip in a classic car. So, if this sounds like something you'd like to try, I say there's no time like the present to break out the garage art and give it a shot. After all, why just sit and stare at it, when instead you can get out and stand on it?



We began our Route 66 portion of the trip in Joliet, Illinois, and lingered in Pontiac long enough to visit the Route 66 museum and take a picture in front of the fantastic mural painted on the alley-facing wall of the museum.

Elmer's Auto & Toy Museum in Fountain City, Wisconsin, houses a stunning array of classic muscle cars, along with pedal cars, motorcycles, and memorabilia. Above left: A pair of lime-green, low-mileage Mopar winged wonders. Inset: An incredible assemblage of miniatures.

An enormous selection of most any kind of automobile—from convertibles to coupes and trucks to town cars—can be found on the property of Country Classic Cars, just outside of Staunton, Illinois. Country Classic Cars is a purveyor of vintage iron. Some vehicles seemed to be projects, although there were plenty that could be driven as the repairs were completed. We didn't buy anything, but it sure was fun wandering around and looking at all the vintage tin.

LETTER OF THE MONTH: KEEPIN' IT GOING

I grew up in the Chicago "'burbs" with a group of guys who loved cars. It was the '70's—cruisin', listening to WLS radio and that call of "Sunday, Sunday, Sunday, at Smokin' U.S. 30 Dragstrip, where the big ones run!" Working on cars, downin' a few cool ones, getting ready for Sundays at U.S. 30, Great Lakes or "The Big O:" Oswego dragstrip. Those are great memories.

What I can say now is, take pictures! That's the one thing my friends didn't really think of back in the day. I've attached a few old Polaroids of some of the cars I owned, like my '64 Comet Caliente, '70 Boss 302, '69 Z/28… Gee, wish I had them all back.

There are many stories behind each one of those cars. Would be great to share—I could fill up pages. Trading a set of headers for stock cast-iron exhaust manifolds. What? Trading a 283 small-block for concert tickets… The list goes on. As with most of us, family life took some turns in different directions. I tell my wife and kids, I'll get that '55 Chevy when I retire, to replace the one I had right before getting married in the early '80s.

Well, it may not be a '55 or even a '60s or '70s muscle car, but I found a third-gen Trans Am that is satisfying my car urge. I was sitting at my wife's work Christmas party last year when one of her coworkers mentioned she needed to get rid of a car that has been just sitting in their garage for about 16 or so years. Huh?! Of course I had to ask. Did she say it was an '84 Trans Am?

This was the girl's first car purchase. Never driven in the snow or rain. That thing I mentioned previously that happened to me, also happened to her: life changed. But, she couldn't get rid of her pride and joy, so she parked it in a garage for years. It was just sitting there, bringing back memories.

My son, wife, and I went to take a look. Yup, '84 T/A, 305 G-code V-8, automatic with a lot of options. Checked it over, installed a battery, cranked it up, and it started! Trans engaged, it moved (and kinda stopped). It needed to be gone through and given some TLC. I shot her an offer, but it took over a month before she got back to me, accepting. She says it was a tough decision since she was so attached, but she knew she would have to pay someone to get it back in shape to drive.

The car is now getting back to road readiness. My son especially likes this one, as he's already owned an '87 Firebird that he had bought as a roller. He put a 350 small-block Chevy in it with a bunch of go-fast goodies. It was pretty cool.

Life goes on, huh! Can't wait for that '55…

Frank Wisniowicz
Via email

NEXT BEST THING

It's me again ("Long Term Trans Am," Backfire October 2017, *HMM* #170). I'd like to share some pics of my 1,000 model cars collection with my fellow car guys. I probably have close to that number in scales from the smallest to the largest. My collection started in 1998, when my late daughter gave me a 1:18-scale model '69 GTX for Christmas. I lost her a few months later, and whenever I felt down and depressed, I'd go buy and put together a model or two. It really helped ease my mind. Now, 19 years later, I still love the hobby. Most of us will never be able to afford the real ones, but guys, believe me, model-car collecting is affordable and so much fun. Your dream car or truck is out there in scale model. I've got models of every muscle and classic there is. You can find them in toy stores, big-box stores, flea markets, gas stations, online, and right here in our favorite magazine. Oh! And one more added attraction: When you and the wife go shopping, she can shop while you head straight for the toy section. Even now when I'm out looking for them, I think about my wonderful daughter and that convertible red with black stripes '69 GTX she gave me for Christmas, which I still have and will always cherish. Thanks again *HMM* for your great work.

Larry Pitts
Upper Marlboro, Maryland

DECAL IN ABSENTIA

I really enjoyed the article on the '78 Trans Am SE in your January 2018 issue, but I found what might be one inaccuracy regarding hood-scoop decals and engine designation. The article states that the "6.6 Litre" decal called out the standard L78 Pontiac motor and the L80 Olds motor, with the T/A 6.6 decal reserved for the high-performance Pontiac motor. From everything I've seen, the 6.6 Litre decal was used exclusively on the L80 motor, and the standard L78 motor had no decal at all. I have a '78 Trans Am that I ordered and took delivery of in early March 1978, and it has no decal on the shaker. In the 40 years I've owned the car, it has accumulated 37,000 miles, and all I've replaced are batteries, tires, and water pump, and I recently installed a stainless exhaust system. I still love the car!

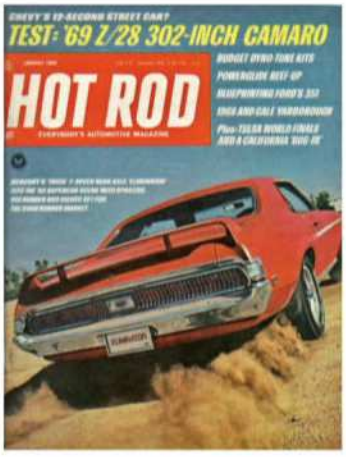
Keep up the great work!

Mark Underwood
Alto, Michigan

We were just about to tell you your car got skipped over on the assembly line, but thought we should first check with contributor and Pontiac fanatic Rocky

Rotella, who told us you are correct. According to Rocky, Trans Ams built with the L78 base 400 engine for 1978 went without a shaker decal at all, just like your car. He also says that he's not sure if Pontiac did that because it was waiting for the 403 to take the "6.6 Litre" label for '79, or if it had something to do with the lawsuit that hit GM around that time regarding sharing of engines between divisions without informing the consumer—perhaps they were gun shy about branding the Pontiac engine with the same term that would be applied to an Olds engine. Rocky did say, however, that some early production '78 models with the L78 Pontiac V-8 may have gotten the 6.6 Litre decal, but he hasn't verified that yet.

MYSTERY SOLVED



The magazine referenced by George Shovlowsky in the April 2018 Backfire section ("Mystery Overdrive," Backfire, *HMM* #176) was almost certainly the January 1969 issue of *Hot Rod*. The cover features a rear view of the Cougar Eliminator prototype peeling out for the camera. Although the car was painted a pearlescent gold-orange, not green, George otherwise remembers it perfectly. Inside, the magazine gave considerable coverage to the car's "streep" (street/strip) rear-axle. Not a Hone-O-Drive or 9-inch derivative, it was in fact a modified Dana-Spicer Model 53, with an integral geared counter-shaft to provide the second ratio. The unit was shifted by means of a push-pull cable connected to a lever set into the console, behind the transmission shifter. Another article on the "streep axle" appeared in the February 1969 issue of *Car Craft*.

Despite the interest generated by these articles, when actual Eliminator production commenced in April of '69, the streep rear axle was not among the options. No specific reason was given, although it is speculated that Mercury was afraid of warranty claims from people attempting to shift the unit "on the fly," something it wasn't designed to do.

The fate of the prototype car and its two-speed axle are currently unknown, but the subject of much interest in the Cougar community. There have been a number of purported sightings over the years, but nothing confirmed. Anyone with solid information is encouraged to contact the Cougar Club of America. They'll be happy to hear from you!

Jay Williams
Siloam Springs, Arkansas

THAT FINE PRINT

You have probably already received emails in answer to the query about a two-speed rear axle for the Cougar Eliminator. It was proposed in a magazine, but never offered as an option, like the Dual Overhead Cam Olds 455. It was a Dana-Spicer prototype labeled in the article as a "streep" for street and strip. (You can find a copy of the story on fordmercurycougarxr7.com).

I also found Terry Shea's column about advertising fine print to be interesting ("The Fine Print," *HMM* #176). He commented on "closed course, do not attempt" warnings on ads. He may have forgotten Chevy's "The Hot One" ads from '55-'57, when Chevy advertised the Power Pack as being "hill climbing power." The good husband/father is using his car wisely to climb steep hills, but, in the background, there's a black-leathered hot rodder, stuck with his radiator boiling over. It was up to the consumer to make a connection.

I have no doubt, the warnings in today's ads have much to do with what we could do in a drum-braked muscle car, things no six-cylinder was going to do except on a rain-soaked road.

Include me in the group of people who enjoy reading your magazine.

G. Gaspar
Via email

NY MUSCLE MEMORIES

Just got done reading the Backfire section in the March issue of *HMM* and had to send a quick note after reading the "Dream Day" letter from Anthony Denaro. I, too, grew up on Long Island in what turned out to be the "perfect time" for muscle cars. I got my license in 1962, and from day one loved muscle cars. In 1967, after graduating from college, I enjoyed my summer off, knowing Uncle Sam would soon be knocking. I had a Daytona Blue 1964 Corvette, 327/365 hp with a crazy 4.56 rear—I loved that car! I, too, roamed Hempstead Turnpike on Long Island and had many, many street runs, which I can still remember from time to time. I raced many a GTO, 4-4-2, and, of course, Chevelles—what fun!

In November 1967, I received my notice to join Uncle Sam, so I sold my Corvette to a friend for $2,000 and got ready to spend two years away. I was in Vietnam from late 1968 to late 1969. I saved my money and purchased a new Corvette from Bay Chevrolet in Queens, New York. It was dark green and had the 350/350-hp engine. It was fun, but not as much fun as my 1964 Corvette.

After getting married, having two kids, and now five grandkids, I thought it was time to treat myself to another nice car. It won't fit in your magazine, but I love it: In 2012, I ordered a new BMW M3. I still have it and still enjoy it, but my favorite car of all time? The 1967 Corvette. Thanks for all the memories.

Roy Garizio
Berwyn, Pennsylvania

MIRROR MENTIONS

Regarding Matt Litwin and David Conwill's 2017 Pebble Beach Auction story in the March 2018, issue of *HMM* (Auction Action, *HMM* #175), I'm wondering what they mean in the discussion about the dashboard placement of the rearview mirror in the 1958 Chrysler 300D. Are they implying this is not the correct location for the mirror? Because this is where the rearview mirrors were placed on the Chrysler products of at least '58 and '59, and maybe even '57. It may have to do with the low profile of the rear window necessitating the lower placement of the mirror than the usual upper center of the windshield. A couple of other cars that used this unusual placement in the early 1950s were the 1950-'54 Chevrolet Bel Air coupes. Studebaker from 1949 to 1952 also placed the mirrors on the dash in its Starlight coupe models because of the rear window.

Eddie Mitchell
Waco, Texas

Litwin and Conwill were just pointing out that the mirror on that particular Chrysler appeared to have been overlooked in the restoration or refurbishment process — the wording may have implied that they thought the placement was odd, but we're pretty familiar with the Mopars of that period. That dash-mounted mirror is sort of a trademark for those models — it's unusual but familiar. Thanks for pointing out the potentially confusing passage so we could clarify.

STAY STRONG

First of all, I would like to congratulate the whole staff at *HMM* for the OUTSTANDING work you folks do putting together a fantastic magazine. I look forward to opening my mailbox each month and scouring the pages to see what super muscle from my past are found. I grew up in the '60s and '70s, and my whole family were drag racers and around old-school muscle cars. I drove a 1962 Pontiac Grand Prix in high school with a 389 and a four-speed, and later, a '69 Chevelle SS 396, just to name a few. Jim McGowan's piece "Muscle-Car Strong" (*HMM* #176) really hit home. I strongly agree that you just can't replicate the '60s and early '70s American muscle-car era. I have a 1969 Chevelle Yenko "clone" that I found in New Jersey several years back. I take it to car shows and cruise-ins and really don't see as many young people as I would like to, but there are plenty of old-school folks like myself still living the past. I'm sure my son (36 years old) will carry on the tradition. Thanks for all the great memories!

Gary Rexrode
Via email

E-TOWN'S INFLUENCE

Great column from Terry McGean in the April issue ("Institutional Memories," *HMM* #176). It never occurred to me how much of an impact my only trip to the 1982 Summernationals made upon me until I read it.

In 90-degree weather, we drove five hours from northeast PA in my rusty '69 Coronet R/T with no A/C, and arrived at the track to the feel of funny cars. We were amazed that we detected that sensation from at least a mile away. Not so much audible as physical. We knew then that the trip that included contact with a hard curb on an exit ramp with no spare was going to be worth it. In those days your ticket allowed pit access, and we were instantly transported to racing utopia. Billy Meyer and Mark Oswald set the Funny Car and Top Fuel records, and the lane rivalry in the stands resulted in some of the fairer sex showing off their assets on several occasions.

It just didn't get any better than that for a gearhead in those days.

Dean Luchaco
Via email

SURVIVING THE STASH

Been a subscriber and Hemmings fan for years. Love Terry McGean's "regular guy" columns.

Here's my "stash car" ("Stashed and Saved," *HMM* #175) that's been with me, still with its numbers-matching engine and still running since I bought it in 1982! It's a 1967 Camaro SS/RS 350 with a four-speed Muncie, power top, power windows, power steering, factory A/C, console gauges, 3.55:1 12-bolt rear, headrests, and bumper guards!

At last count: eight different garages in two states! I bought it from the second owner when it had 29,000 miles on it. Now it has almost 33,000. The engine leaks oil like crazy, but still has original "MS" chalk mark on the cylinder head!

It still runs great and is driven every few weeks, but it needs a restoration. The ultimate survivor!

Terry: Enjoy your '69 and never let it go!

Keep up the great work!

Ivan Danziger
West Palm Beach, Florida

MORE CLUTCHES FOR COPS

Thomas Waddell from California talked about police cars with stick shifts ("A Clutch for Cops," Backfire, *HMM* #176). The sheriff of the county I live in had a 1964 Ford Galaxy 500 with a 390 and a stick with overdrive. My dad bought it from him in 1968. It was pretty fast. Not as fast as my Road Runner: 14.33 at 100.38 mph. Pure stock.

Jeff Woodruff
Walker, Minnesota

CORVETTE #003

Just finished the March 2018 issue, and you did it again! Another homerun. Congrats on the best magazine for muscle car junkies on the planet.

What really caught my eye, though, was that cutaway '53 Corvette on page 36 ("Motorhead Mecca," (MCACN show coverage), *HMM* #175). I read that the VIN ended in "003." In 1971 or so, I was a sophomore in high school and I'd managed to save $1,000 to buy a car. Of course, I wanted something fast and sexy. My buddy Stuart Jorgensen told me he knew about a Corvette that I could buy for $1,000. In my mind, I pictured a sleek '68 or '69 with T-tops.

We drove to Tulare, California, and talked to some old guy who let us in his barn, and there it was, the ultimate barn find: a white 1953 Corvette with a VIN that ended in "003." The old guy told us that it was the first Corvette ever sold to the public. It had chickens living in it, and hay bales stacked on the trunk. It wasn't very pretty. Even through all the dirt, it didn't look like any Corvette I had ever seen. Mind you, it was 1971, I was 16 years old, and didn't know what I know now.

We popped the hood, and there was that Blue Flame six in all its glory. Man, was I disappointed. I was expecting to see a V-8. That's what I wanted, after all: a fast, sexy car. And this old relic had none of that. It wasn't fast, and it didn't look very sexy. I passed on it and ended up buying a '55 Nomad with a 375-hp 327 with Rochester fuel injection on it for $1,200.

Now, all these years later, I run into this exact same car again. I think what the guy did is very impressive with the whole cutaway thing and all, especially that it can be driven. I just wish he would have done it with a '54 maybe—they're much less rare than '53s. And I especially wish that he wouldn't have done it to the first Corvette to ever see the light of day!

Brilliant work, nonetheless. And the guy bought the thing and he ought to be able to do any darn thing he wants to with it. I'm just saying...

But what a trip down memory lane. Thanks for that.

Andy Tallone
Sonora, California

c/o tmcgean@hemmings.com

Farewell to Englishtown

When I earned my NHRA Top Fuel license in 1973 in Cayuga, Ontario, the drag strips that were operating across the country numbered in the hundreds—from big-buck, high-end facilities like Gainesville Raceway in Florida, National Trail Raceway in Columbus, Ohio, and beautiful Bandimere Speedway in Denver, to the many smaller, hard-to-find venues scattered across the map from New England to California. But when I recently learned that Old Bridge Township Raceway Park (or just Raceway Park to most drag racing fans) was ending its drag racing activities this year, it hit me like a bombshell!

"It's always a sad day for a drag racer when a drag strip closes forever, especially when it's a place where so many important and lasting memories have been made."

Located in Englishtown, New Jersey, in an area that splits between blue-collar neighborhoods, industrial parks, and strip malls to the east, and affluent subdivisions and upscale homes to the west, Raceway Park was long considered hallowed ground to the NHRA family for close to 50 years. Owned and operated by the Napp family (the full family name is Napoliello), it had been a track that was always a favorite destination for fans and racers alike, and the fact it was within driving distance of New York City added another element of excitement to competing there.

The history of Raceway Park is one of the richest in the sport's colorful past, with great victories, record performances, intense drama, and, unfortunately, unforgettable tragedy all part of its legacy. There was "Big Daddy" Don Garlits' infamous blow-over in 1986, when he was attempting to back up what would have been a new NHRA Top Fuel elapsed time record. There was Johnny West's horrific Funny Car crash in 1990, which he miraculously survived, and, of course, Scott Kalitta's devastating fatal accident in 2008 that led to the NHRA shortening the racing distance in the nitro categories to 1,000 feet. Extending the track surface was not an option. There just wasn't any more room at the top end for added runoff.

But Raceway Park found itself battling against other forces that were responsible for so many racing facilities elsewhere having to close their gates. Urban development, the rising value of commercial real estate, and, maybe the biggest challenge, neighboring residential communities sprouting up nearby with expensive homes well within earshot of thunderous engines fueled by nitromethane, not to mention the extra traffic these new residents would have to endure on a race weekend. Somehow, the Napps defied the odds—much longer than other track owners were able to.

I have many personal memories of Raceway Park dating back to the very earliest years of my drag-racing resume. When racing with my first husband, Jack, in our twin-engined, blown and injected, Chevy-powered Gas Dragster, my first attempt at qualifying for an NHRA national event was at Raceway Park. I missed the field on that first try, but that only served to motivate me even more to make the cut the next time. I had fought so hard to get my Competition License and to convince the decision makers at the NHRA that I wasn't just some thrill-seeking female, but rather, a serious drag racer. It would take more than a DNQ or two to put out the competitive fire I had burning inside.

The NHRA national event in Englishtown was called by several names over the years, but is best remembered as the "Summernationals." I can recall how hot and humid it could be at Raceway Park for many of those events, but I can also remember the huge crowds the race would draw. The mob scene in the pits made it almost impossible to tow our race car into the staging lanes, and I don't have to tell you how many people would line up for a Shirley Muldowney autograph. That's the way I always want to remember the sport, the grandstands and fences packed with people, when drag racing seemed to play a much bigger role in America.

My fondest memory of racing there has to be my victory on July 10, 1977. That was the year I won the first of my three NHRA Top Fuel world championships, and there was a star-studded list of drivers highlighting the entries at every stop on the '77 tour. There was Garlits, Richard Tharp (who had won the NHRA championship the year before), Gary Beck, and Jerry Ruth, just to name a few. There was also a young driver from Santa Rosa, California, who had won the Summernationals in 1972 at the age of 18: Jeb Allen would go on to win in Englishtown back to back in 1978 and 1979, and two years later would score the NHRA Top Fuel title at the age of 27, going down in history as the sport's youngest professional champion.

So, when I advanced to the final round at the 1977 Summernationals, Jeb was to be my opponent. As luck would have it, his car suffered mechanical problems in the semi-finals and wasn't able to make it to the starting line for our title-round matchup. That win at the Summernationals was the second step in achieving a feat that had never been accomplished before (and only a few times since): collecting three consecutive Top Fuel national event wins. I had won at the previous race in Columbus and followed up my E-town victory with a win in Montreal. That trifecta was very special to me, and Raceway Park played a leading role.

It's always a sad day for a drag racer when a drag strip closes forever, especially when it's a place where so many important and lasting memories have been made. I know I'm not the only racer who mourns the loss of Raceway Park after so many years of providing excitement, entertainment, and memorable moments. Every great quarter-mile star whose name is or has been connected with our outstanding sport has raced at this legendary venue, but now its final chapter has been written.

"Those were the days, my friend, we thought they'd never end..."

BRAKE-LINE BASICS

Freshening the factory hydraulics on a vintage GTO

Words and photography by Jim McGowan

At one time or another, we've probably all been guilty of putting off a job that needs to be done until it becomes absolutely necessary. Over the last few months, I'd noticed that the stopping power of my GTO's power drum brakes had been dropping off. Slightly more pressure, along with a little more time to actually stop, was required. But, since the car still braked well enough, I sort of forgot about the issue, thinking I would get to it soon. Well, "soon" became longer than soon ought to be, and I realized that my lack of action was imperiling both my car and me—brake failure could cause both of us serious contusions.

I asked a friend who is a muscle-car aficionado, and who happens to be a lot younger and a lot more mechanically talented than me, to give me a hand checking the four corners for problems. We began by examining the rear wheel cylinders and found that one was leaking significantly. We replaced both rear cylinders, which were actually in stock at my local auto parts store, and then started to bleed the rear brakes using my friend's handy power bleeder. This revealed that there was an obstruction in the line between the master cylinder and the rear wheel cylinders—no fluid could be pulled to the rear through the brake line. That meant I'd been driving on the front brakes only! We held a war council and decided to pull out the original brake lines (they're only 52 years old, after all) and replace the whole hydraulic system.

The next day I contacted Classic Tube and ordered a complete brake-line replacement kit in mild steel (stainless steel is also available). Luckily, I had a rebuilt stock '65 single-cylinder master in my parts stash, so everything in the hydraulic system would be new.

The parts soon arrived, and we put the car up on jack stands and pulled the wheels, disassembled the rear brakes, and removed the front wheel cylinders and all the old brake lines. Then the real fun began: installing the new lines. After cleaning everything up, we began at the fluid distribution block mounted on the rear-end housing. This subassembly includes two metal lines, one leading to each wheel cylinder, plus a rubber flex hose, which we also replaced, though it was not part of the kit. All were fairly easy to remove and replace.

The long line from the rear to the front distribution block on the frame rail under the master cylinder is shipped with a U-bend to fit the box. This is easily straightened by hand using the enclosed instructions. I thought that replacing this long line would be difficult, but getting the old one out and the new one in place was really no trouble. The most difficult line to replace on this car is the one that goes under the oil pan from the distribution block to the passenger-side wheel cylinder. With a little fiddling, we got it installed over the crossmember and in the correct location.

After the new brake parts and lines were buttoned up, we carefully bled the whole system from each corner. Once the air bubbles were gone, the pedal felt much better than it has in a long time. We installed the wheels and took it for a test drive, and instantly I wondered why I hadn't done this a long time ago. The Classic Tube replacement brake lines not only look great, they have relieved my mind and help my GTO to stop on a dime. Plus, the new lines are probably good for another 52+ years!

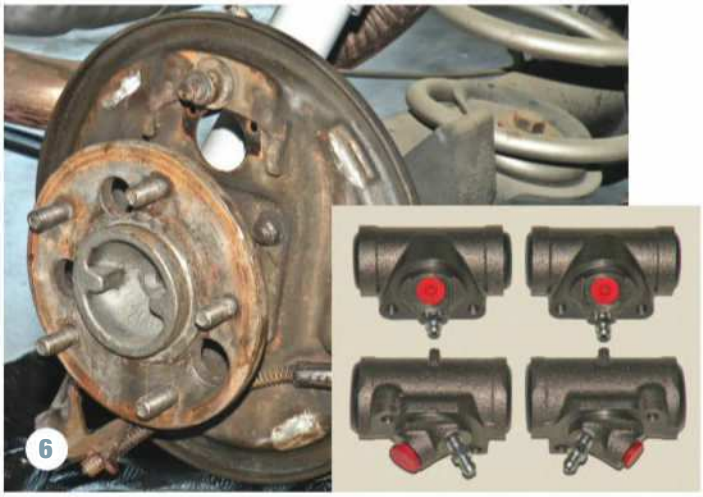
We began by jacking the car up and placing it on four sturdy jack stands before removing the wheels and then pulling the rear drums to inspect the rear wheel cylinders, as we suspected the trouble was in the rear. As soon as the drum was off, we could see that this wheel cylinder had definitely been leaking for a while.

We checked the rubber seals on both sides of this wheel's cylinder and they were total junk. They had been leaking slowly for some time, obviously since before the obstruction in the main line. This wheel cylinder and the surrounding parts will all have to be removed and thoroughly cleaned. Brake fluid also destroys paint, so be careful taking these pieces apart.

After giving everything a good spraying with aerosol brake cleaner from the local auto parts house (for a job like this, you'll probably need a few cans), the brakes were disassembled. Having a pot or other receptacle under the work area will keep your garage floor free of contaminants.

You can change a wheel cylinder without completely disassembling the shoes and springs, but we wanted to clean everything, including the backing plate, and it is a bit easier to get the cylinder out this way. The cylinder bolts and brake line attach to the cylinder from the rear of the backing plate. A movable light is handy for this task.

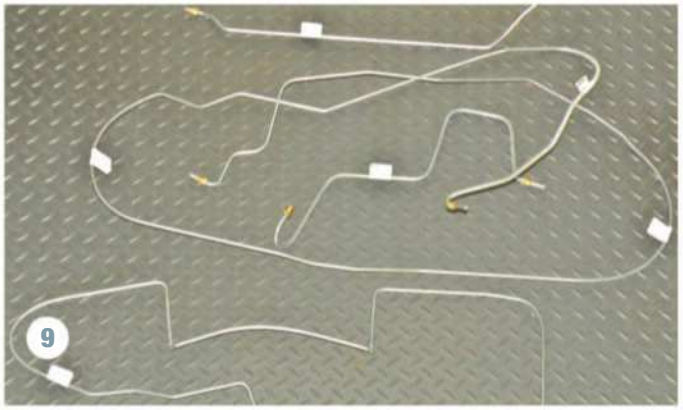
This is the mess we found at the passenger-side cylinder. Funk and rusty fluid was everywhere. If you attempt this work, take time to immediately wash the brake fluid from your hands—it's nasty stuff.



This corner is now ready to receive the new cylinder and cleaned-up brake parts. We purchased a full set of new wheel cylinders—notice that the fronts and rears are not the same. The areas that have the white patches are the pads where the brake shoes make contact—these should be sanded smooth if rusty, and then coated with some white grease.

We'll be installing new brake lines next, so we're not attaching the old lines to the new cylinders. However, if we were, the easiest way to start the threads on the line is to leave the wheel-cylinder mounting bolts loose, so it can be moved around slightly. Once the threads on the fitting are started, tighten up the wheel-cylinder bolts.

With the new wheel cylinder in place, and the backing plates and hardware cleaned and lubed, we can reassemble the shoes and springs. The shoes we removed were nearly new, so they were just cleaned and reinstalled.

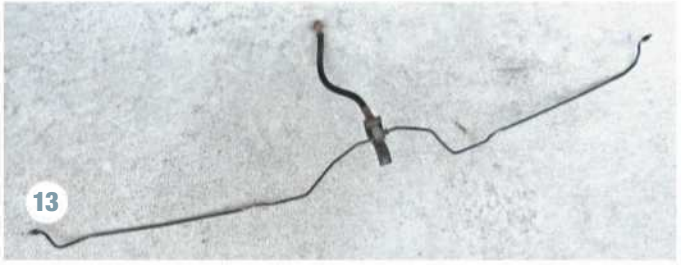


Each of the pieces in our new brake-line kit from Classic Tube comes clearly identified so that there is no confusion during assembly. The long tube with the wide bend is the front-to-rear line, which runs along the frame rail. The broad curve is a "shipping bend" that will have to be straightened prior to installation—this is easily done by hand with some gentle maneuvering.

Here are the basic tools you'll need to accomplish the install. The rubber hose for the rear lines was ordered from our auto-parts supplier. We also discovered that the master cylinder needed to be replaced. Fortunately, our parts stash contained a fresh rebuilt unit.

To remove the original rear lines, the factory tabs on the axle housing need to be opened and bent back slightly so that the line can be lifted free.

The old lines were already disconnected from the wheel cylinders, so after we disconnected the rubber flex hose from the line on the car's frame, all that remained was to remove the rear-axle cover bolt that also fastened the distribution block—then the whole assembly came off the axle.



Here's the tubing assembly after being removed from the car. When possible, it's easier to do this in one piece rather than spend time disconnecting individual tubes. This assembly can also help to determine how the new lines are to be installed. The distribution block will be thoroughly cleaned, as this part will be reused.

Next, we removed the front-to-rear brake line. We first disconnected it from the distribution block on the frame rail under the master cylinder, and then used a screwdriver to carefully pry it free of the frame clip.

We started at the front and pulled the tube from all the frame clips, and then worked it over the rear axle. We thought this would be the toughest part, but it turned out to be fairly easy.

We got a new front distribution block to remedy the clog we discovered in our old one. These blocks are available from most Pontiac restoration-parts vendors, such as Ames Performance Engineering. It's best to hand-thread the new lines into the block, but do not tighten the fittings until the tubing is in place on the vehicle and all the connections are made.

Here's a valuable tech tip: Wrap the end fittings that will be threaded through the frame, installed on the crossmember, and plugged into the wheel cylinders. This will keep grease/dirt/gunk from entering the fitting and threads. Once the fitting is where it needs to be, remove the tape.

To install the new front-to-rear brake line, we started at the rear, loosely connecting the tube to the rubber flex hose after feeding the line over the rear axle tube. We then snaked the tube up to the front distribution block and loosely connected it before snapping the tubing into the tabs on the frame.

Here is the rear distribution block assembled with the hose that connects the front-to-rear line. Once the main line is in place, you can tighten all the fittings.

The rear assembly is reattached to the axle. The lines have been connected to both the rear wheel cylinders and everything has been tightened up.

We found that the toughest part of the job was running the front line from the distribution block across the crossmember, under the engine, and over to the passenger-side wheel cylinder. The line hangs behind the crossmember and is protected there from ground contact and road debris.

Once the front line is in position, it is connected to the front rubber flex hose. You may find it easier to pull the clip fastening the hose so that it can be moved to mate with the threaded fitting of the new line. But, don't fully tighten the fitting until the hose is re-fastened in its bracket.

The new front-wheel cylinders have been installed, and here the front brakes are being reassembled. Again, white grease is used on the backing plate's shoe contact points to ensure smooth operation.

Here is the new master cylinder installed on the firewall. After connecting the new line, we went back through the system from connection to connection, from front to rear, and rechecked all of the fittings to make sure each one was threaded correctly and tight.

My buddy and chief mechanic brought his electric vacuum pump for the final bleeding. After a few tries, we removed all the air bubbles from the system, refilled the master cylinder, put the wheels back on, and went for a ride.

The road test of our '65 GTO convertible demonstrated that the brake system worked flawlessly. Why didn't we do this a few months ago?

SOURCE:

Classic Tube
www.classictube.com, 800-882-3711

ALTERNATE HISTORY

This 1968 Pontiac Firebird represents a car the factory should have built

Words by Dave Conwill
Photography by Bob McClurg

What if? is a powerful question. From big hypotheticals like "What if Studebaker had built cars after 1966?" to those that are smaller in scope, like "What if the Bendix Electrojector had worked on the '57 Rambler Rebel?" Like writing fiction, restoring a car can be a way to explore the answers to questions, only using mechanical bits instead of flowing prose. This is an especially attractive idea when you read your history and realize that some of Detroit's more interesting ideas lived and died only as development mules, show cars, or mere concepts sketched out but never mocked up.

Take the Pontiac PFST. The PFST, or Pontiac Firebird Sport Turismo, was a development mule put together in 1967 as a successor to the famous Banshee concepts earlier in the decade. It's well known that General Motors put the kibosh on John DeLorean's wish to produce a two-seat sports car.

The Banshee was seen as a threat to Corvette sales, and instead Pontiac Division was instructed to develop its own version of the new F-body Camaro.

Engineer Herb Adams was tasked with exploring the possibilities of the new platform, and DeLorean asked him to come up with a balanced car that combined acceleration and handling—something unlike the brutish GTO and more like… the Banshee. To that end, Adams took a pre-production Camaro and began experimentally fitting it with Pontiac mechanical pieces.

The result, featuring Pontiac's famously underappreciated OHC six-cylinder fitted with triple Weber carburetors, a shaker-style hood scoop, a four-speed manual transmission, and all the handling goodies available, was not picked up for production, but is now widely hailed as one of the important progenitors of the 1969 Firebird Trans Am.

Interior looks original but boasts leather upholstery, Camaro console gauges, aftermarket wood-rim steering wheel, and CD changer. Cruise control and overdrive transmission are also concealed upgrades.

If you had read about the PFST in the enthusiast press of the day, it would have been mightily disappointing to know that there was no way to go get a six-cylinder Firebird with that level of performance straight from the dealer. At most, you could purchase the Firebird Sprint, an OHC six-powered model with peppy performance, but not the V-8 beater Adams had created.

Nothing, of course, was stopping the owner of a new Firebird from hopping up his car whatever way he wanted. One such owner was a young man named Dick Hora. In 1967, Dick was serving in the Army at Fort Dix, New Jersey, and had lucked into a cushy station in the motor pool that his brother, Chuck, describes as being much like that of the Sergeant Bilko character from *The Phil Silvers Show*.

Through his connections via the

Triple side-draft Webers and a 1969 "H" camshaft make for get-up-and-go, but the rearmost carburetor also necessitated omitting a vacuum brake booster in favor of a hydraulic unit powered by the power-steering pump. Tach is a six-cylinder-only piece.

motor pool with the local Pontiac dealer, Dick had lucked into an excellent deal on a base-model (i.e. non-Sprint) Firebird with the 230-cu.in. OHC six and a column-shifted three-speed transmission. While others no doubt lusted after a Ram Air 400, Dick was content to drive his cammer six hard and fast. He was fond of removing the fan and participating in gymkhana events at nearby McGuire Air Force Base. "He drove like a cross between Parnelli Jones and Jackie Stewart," Chuck recalls.

Soon, Dick and Chuck (who was at the time a graduate student at the University of Massachusetts) reunited at home in Ohio and elected to make some performance enhancements to Dick's Firebird. The column shifter was replaced with a Hurst floor-shift unit, and their father, a skilled metalworker, fabricated a factory-type console. Accessory gauges were sourced from Kmart, and Chuck built a Delta Products Mark 10 capacitive-discharge ignition system for the car. The hotter spark, well advanced, along with plenty of 104-octane Amoco Super Premium, really woke up the car.

Of course, years went by and Dick moved on to other vehicles. Chuck parlayed his technical skills into a comfortable living as a chemical engineer and business executive. He also became a prolific collector of old cars, with a mixture of restored-stock prewar vehicles and period-looking muscle-era machines. Not long ago, he got the urge to give his younger brother a present, and his thoughts turned to the six-cylinder Firebird they had hopped up back in his grad-school days.

Naturally, Chuck's first stop was *Hemmings Motor News*, and there he found the 1968 Pontiac Firebird Sprint you see here. The Sprint was located in Portland, Oregon, and he called on his friends at Contemporary Motorcar, in Erie, Pennsylvania, to bring it there and begin a restoration. Chuck wasn't looking to recreate Dick's car, but to build something with a more genteel attitude and the nostalgic flavor of the original.

Dick got into the project, bringing along copious reference material when he came to see the start of his "new" Firebird. In the pages of one book, the Horas discovered the PFST and were immediately taken with the idea of creating a should-have-been production version of a 1968 PFST. Enter the concept of building a phantom.

The "phantom" term originated with the street-rod scene in the 1990s, though examples in the restoration community are not unheard of. The idea is to create a car that the factory never produced, but could have.

Initially this was mainly a matter of body styles, like a three-window '37 Ford coupe or a '65 Mustang station wagon, but as history has become a more-important element to car enthusiasts, it has become more common to "restore" cars to configurations that never existed from the factory, but should have. That was the course Dick and Chuck decided to take with the Firebird.

"My next job," Chuck recalls, "was to find a manifold."

After checking the usual sources, Chuck finally lucked out and found that venerable supplier of inline-six horsepower, Clifford Performance.

I've always liked Pontiacs, ever since I was in high school. I had cousins that had money and bought themselves GTOs and stuff. And, of course, my mouth was watering. Once I got a chance to get cars and could afford them, I got Pontiac Bonnevilles and various and sundry other Pontiacs. I've still been looking around for a really nice '66 or '67 GTO with pretty decent straight sides to take apart and restore. I haven't found one yet, but one of these days I'll do that.

Of course, the Firebird now essentially being an orphan car... I was always interested in getting one of the early Firebirds and duding it up, and so was my brother. Dick has always been a Firebird guy.

I'm getting to be older now, and I kinda thought 'You know what I'd like to do? I'd like to get Dick a '67 Firebird and fluff it up and restore the thing.' ***— Chuck Hora***

Clifford, with the motto "6=8," had one remaining example of a run of triple-Weber intakes it had cast up for the Pontiac OHC six. "I got the last Clifford manifold on the face of the Earth," Chuck says.

Breathing through the Italian mixers, the Sprint OHC six was tweaked to benefit from all the development lavished on the engine in its final model year, 1969. An exhaustive search netted a Pontiac "H" camshaft—a longer-duration unit that is coveted for its ability to boost a 250-cu.in. OHC six from its 1967 rating of 215 horsepower to 230 horsepower. Also, in keeping with the Mark 10 ignition installed on Dick's original Firebird, a Pertronix Ignitor unit was slipped into the old breaker-point distributor for stronger spark. The exhaust system of the original PFST was re-created for this car by reference to period photos.

As an added benefit, Chuck's new intake manifold came with a feature the Pontiac engineers were unable to obtain back in the '60s—side-draft carburetors. The original PFST ran a shaker scoop not because it looked cool, but because the only Webers available in Detroit at that time were oriented in a downdraft configuration.

"I was prepared to cut the hood," Chuck says, but it wouldn't be necessary. In reality, that kind of refined carburetor orientation helps set the mood for the entire car—no crude development mule, this '68 looks and feels like a production model. Every aspect of the build then went forward in that vein.

Cosmetically, the Firebird was restored back to stock, with American-made replacement fenders taking the place of the worn originals. The quarters, floors, and trunk, however, are all original, the mild weather of the Pacific Northwest having been kind to them. The body color is not 1968 lacquer, but is a custom basecoat/clearcoat job inspired by 1967's Tyrol Blue. Once the car's shakedown is complete, white stripes and a bodyside PFST logo are planned to round out the exterior.

The other prominent element of the exterior styling is the 15-inch Rally II styled steel wheels, wrapped in radial whitewall tires—a change from the F70-14's standard on Firebird Sprints in 1968. Those Rally IIs also bolt to one of the larger concealed updates to the PFST: the sport-tuned suspension. The rise of the Pro Touring fad has given first-generation F-body owners an incredible wealth of choices when it comes to increasing the handling and stopping prowess of their cars.

Goodies like Global West tubular control arms and a 1 1/8-inch anti-sway bar, QA1 shock absorbers, and SSBC front disc brakes all conspire to dramatically improve on Pontiac's best efforts from the 1960s. The original 10-bolt housing remains but is now filled with new 3.55:1 gears and a limited-slip differential. One

Original PFST was a mule that led to the 1969 Trans Am—in that spirit, modern aftermarket handling bits, along with front discs and radial tires, now reside under the car. The original 10-bolt housing holds 3.55 gears and a limited-slip differential.

element that required some head scratching was incorporating power assist to the brakes. A conventional GM vacuum booster would have interfered with the rearmost Weber carb. In its place is a Hydratech system that utilizes hydraulic pressure from the power-steering pump to aid braking.

With the boxes for power and handling checked off, a final element remained in Chuck's plan to build a phantom PFST: luxury. This is where the car may shine the most, actually, as Chuck resisted any urge to dip into the generic aftermarket parts bins that surround the F-body, instead choosing to refine and perfect what Pontiac built.

The original radio was replaced with a lookalike Custom Auto Sound unit that controls a six-disc CD changer. A set of 1967 Camaro console gauges was installed—an improvement over the Kmart units Chuck and Dick selected way back when, and in keeping with the what-if nature of the build. A cruise-control unit was concealed inside the dashboard and the original shifter was mated seamlessly with the 200-4R transmission that provides decent acceleration along with sedate cruising. Most notable, however, is the replacement of the original Morrokide vinyl upholstery with identically cut-and-dyed leather, courtesy of SMS Auto Fabrics.

That 200-4R may be one piece that raises some questions with enthusiasts. After all, one of the hallmarks of the original PFST, as well as most performance cars of the era, was a four-speed manual transmission. The reason for the automatic is twofold: First, this was originally an automatic car and while a manual-trans swap isn't hard, it was an unnecessary complication. Moreover, it's worth noting that both Chuck and Dick are now in their 70s, and holding a clutch in is no longer as enjoyable an activity for either as it once was.

It's certainly likely that Pontiac itself would have offered clutchless shifting on a production PFST, as even the mighty Ram Air IV was available with Turbo Hydra-Matic drive, even in the 1969 Trans Am. In our world, the Trans Am was the ultimate result of the PFST project, but looking at the car on these pages, it's easy to imagine how things have might have gone differently.

1968 PONTIAC FIREBIRD SPRINT SPECIFICATIONS

ENGINE

Block type	Pontiac OHC inline-six; cast-iron block and cylinder head
Cylinder head	Pontiac SOHC
Displacement	254 cubic inches
Bore x stroke	3.91 x 3.53 inches (plus 0.030-inch overbore)
Compression ratio	10.5:1
Pistons	Stock
Connecting rods	Stock
Crankshaft	Stock
Horsepower @ rpm	230 @ 5,400 (stock)
Torque @ rpm	260 lb-ft @ 3,600 (stock)
Camshaft type	Pontiac "H" cam (1969 OHC Sprint)
Duration	260/260 degrees (advertised)
Lift	438/.438-inch
Valvetrain	1.92/1.60-inch, intake/exhaust
Fuel system	Mechanical pump
Induction system	Clifford Performance intake with triple Weber side-draft carburetors
Lubrication system	Gear-type pump
Ignition system	PerTronix Ignitor electronic conversion
Exhaust system	Recreated Pontiac PFST dual system from split Sprint manifold
Original engine	250-cu.in. OHC Sprint Six; 215 hp @ 5,200 rpm

TRANSMISSION

Type	GM 200-4R four-speed automatic
Ratios	1st 2.74:1
	2nd 1.57:1
	3rd 1.00:1
	4th 0.67:1
	Reverse 2.07:1

DIFFERENTIAL

Type	GM B-O-P 10-bolt with Safe-T-Track
Ratio	3.55:1

STEERING

Type	GM/Saginaw hydraulically assisted recirculating-ball gearbox
Ratio	12:1

BRAKES

Type	Front disc/rear drum
	Front SSBC 11-inch rotors with single-piston calipers
	Rear 9.25 x 2-inch drums

SUSPENSION

Front	Unequal-length Global West tubular control arms with coil springs, QA1 hydraulic shock absorbers, 1⅛-inch Global West anti-roll bar
Rear	Multi-leaf parallel leaf springs with Del-A-Lum bushings, QA1 hydraulic shock absorbers

WHEELS AND TIRES

Wheels	Pontiac Rally II stamped styled steel 15 x 7 inches
Tires	BFGoodrich white-stripe radial 215/70R15

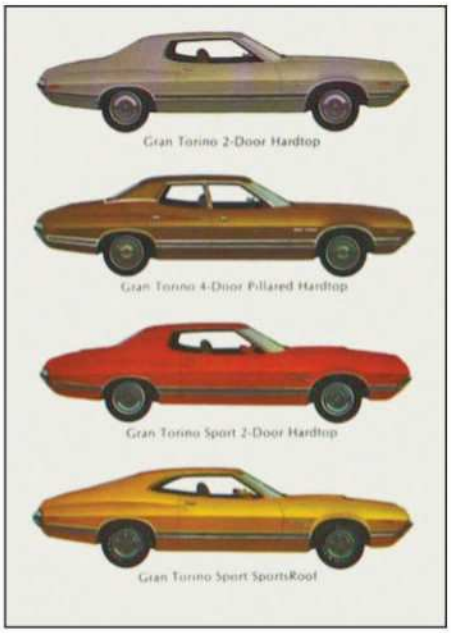
PERFORMANCE

1/4-mile ET	Untested*

*Motor Trend tested a 1967 Firebird Sprint convertible with the 215-hp OHC six and four-speed for its March 1967 issue and achieved 17.8 seconds @ 79 mph.

ASK RAY

By Ray Bohacz • Send your troublesome tech questions to askray@hemmings.com or Ask Ray, P.O. Box 2000, Bennington, VT 05201



NOISY TORINO

Q: I am having an electrical problem with my 1972 Ford Gran Torino Sport that I hope you can help me with. I believe my electrical system is creating "noise," which is causing problems with certain components. My original radio had stopped working many years ago, so I had it converted to operate with modern internals. Ever since then I have picked up electrical noise though the radio system. The new radio allows for a 3.5-mm aux input, and the noise is still present when using this mode. I was able to reduce the noise somewhat when the radio tech installed a filter on the radio. Since then, the noise can still be heard, but it is very faint. The noise varies with engine speed, and also gets much louder when I turn on the headlights, to the point of affecting the music.

I also recently had my tachometer upgraded from a two-wire current-sensing unit to a three-wire voltage-sensing tach. The new tach works fine until I turn on the lights. Once I do this, the tach starts bouncing around and reading much higher than the actual engine rpm. As soon as I turn off the lights, the tach goes back to normal operation. After speaking to the gentleman who did the conversion (Rocketman Conversions), he suggested an improved ground. So, I ran a dedicated ground wire from the tach to the firewall, where it connects to the main ground from the engine block to the body. This made no difference.

I believe both my radio and tach are being affected by the same electrical noise. Here is a summary of my problem:

- Electrical noise is present with the engine running only. It seems to increase with engine rpm.
- There is a significant increase in electrical noise when the lights are turned on.
- There is no electrical noise on the radio with the engine shut off.
- The tachometer works fine unless the lights are turned on. A dedicated ground for the tach made no difference.
- I have replaced the ground wires from the battery to the engine block, and the engine block to the firewall (main body ground).
- I have removed and cleaned the ground connections for the headlights.
- All other electrical components work as they are supposed to.
- The car has a rebuilt factory-style 70-amp Ford alternator (approximately four years old), and uses an external voltage regulator (aftermarket replacement part, electronic).

Any assistance in solving this problem would be appreciated as I have exhausted all other avenues. Everyone I have spoken to has said to just change the ground wires, which I have done, but it has not worked for me.

Vince Corrente
Via email

A: *The root of electrical noise can be very elusive to locate, but since a 1972 Ford is a simple car, there are only two sources to create it: the ignition and the alternator.*

I suggest that you run the engine with a fully charged battery and either the alternator field circuit disconnected or the drive belt removed. If the radio noise and tach issue go away, then we know where it is coming from. If it does not, then it is from the ignition system. Due to the fact that the headlights exacerbate the static, I feel confident that it is from the alternator.

Many charging circuits used to employ a device that appeared physically similar to an ignition breaker-point condenser, but was a dedicated part. It was usually found on the rear of the alternator. Speak to your radio man about this if disconnecting the alternator eliminates the issue.

Another possibility is that the alternator has a weak diode and is feeding unrectified AC into the circuits of the car. This has the ability to create noise and skew the tachometer. The best way to check for a weak diode is on an oscilloscope, so that you can visually see the electrical pattern. A good auto electric shop should be able to do this by simply hooking the scope to the battery and running the engine. The test should be performed with the electrical system unloaded (just the engine running), and then with the high-beam headlights on and other loads, such as the wipers and blower on high. If the diode is weak and passing current both ways, then it may become more apparent under full load.

Replacing the ground wires is one thing, but you also need to perform a voltage drop test on the ground circuit. The integrity of the ground circuit is a culmination of the wire, connections, and the condition of where the ground is completed at the engine or chassis. A rusted, corroded, or painted surface with heavy gauge wires will still be a high-impedance ground. You need to do a voltage drop test on the ground with the circuit evoked. Hook the negative lead of the voltmeter to the battery ground and the positive lead to the ground being confirmed. Use the lowest scale on the voltmeter. There should be no more than 0.20 volt on the ground. If there is, the ground is weak, in which case you should look at the surface of the attachment point and other things mentioned previously that could be contributing to a weak ground circuit.

You make no mention of the ignition system the engine uses, so my suggestions will be limited. The coil resistance may be incorrect or it may be one with no internal suppression circuit. However, my gut is telling me that it is the alternator, and if the diodes are good, it may just need a suppressor, or you may be able to simply reroute some of the wires away from each other so as not to evoke electromotive interference. Please let me know what you find.

FACTS, NOT FICTION

Q: I love your tech column in *HMM*. I have two questions for you that I'm uncertain about.

First, what are your recommendations for starting cars and letting them idle for 10 minutes or so, once a month, while they are stored for the winter? I've heard different suggestions.

Second, what oil would you recommend for a 396 Chevelle? With all of the options out there, it's a bit overwhelming.

Thanks,

Urey Mortimore
Via email

A: *Once you understand the dynamics of engine wear when cold, the question will answer itself.*

When an engine is cold, there are a number of things going on. First, with a carburetor, the mixture is extremely rich. This washes oil from the cylinder walls and pollutes the crankcase with gasoline. The second concern is that there is approximately 1,100 percent more wear in an engine when cold than at normal operating temperatures. This is due to the increased friction, the closing of tolerances, and the oil's inability to be pumped efficiently. This level of wear is at the worst period, and as heat is built or lubrication supplied, the amount decreases in each area independent of others. For example, once the camshaft and rockers receive oil, their wear rate when cold may drop down to only double that when at operating temperature. Meanwhile, the cylinder wall takes longer to build heat, so that particular area may stay at a very high rate of wear for more operating time during warm-up. Thus, it is important to recognize that excessive wear takes place when an engine is cold. The goal then is to limit the exposure to the high wear state.

This is done by not idling the engine to temperature, but instead, driving away slowly under light load as soon as the engine starts, so that heat is built quickly and uniformly. By doing this you greatly decrease the exposure time when excessive wear is taking place. More heat can be built in an engine on a cold day by driving it one mile than by idling for ten minutes. Also, by driving, you are warming up the rest of the driveline as well, including wheel bearings and other moving parts. When idling, these components are not brought to temperature.

If your older engine with a carburetor is balky and does not want to drive away cold, then the issue is plain and simple: the choke is misadjusted. So many enthusiasts make excuses by saying that is how the engines were back then. No, they were not. If this were the case, then the choke was not set correctly. I have never owned a carburetor-equipped engine that was not able to be driven in any cold temperature as soon as it was started.

I always tell people if you are not going to drive your vehicle at least a few miles, do not start it.

When it comes to oil, if the engine was rebuilt, talk to the person who did the work about which oil they would like to see used, based on the internal clearances. Most good engine guys set bearing clearances at 0.0025-inch, and like to see a high-quality 10W-30 oil in the crankcase. Modern engine oil is so good that the days of pouring in molasses-like 20W-50 are gone like the rotary-dial telephone. If you do not know the bearing clearances, I feel very confident telling you to use a mineral-based 10W-30 oil and good filter. For an engine that is not used often, mineral oil has more wettability; it clings to parts longer than synthetic oils, so it keeps rust and corrosion at bay between driving times.

BOGGING DUSTER

Q: I have a 1971 Plymouth Duster with a 225 Slant Six. I am experiencing a problem with the engine. There is a significant lag or bog in the engine between 1,500 and 2,500 rpm, so much so that this makes it undrivable.

It has a Pertronix electronic conversion in the distributor and a Pertronix Flame-Thrower coil. Timing is set at factory specs. I have replaced the carburetor twice, along with the fuel pump, ballast resistor, and vacuum advance unit, to no avail. I manually tested the vacuum advance and it moved freely.

The car starts and idles fine, but if I step on the gas, it will hesitate and bog, starting at 1,500 rpm. If I step on the gas very gently and slowly, there will be little to no hesitation through the rpm range. It has about 120,000 miles on the engine.

Could it be the advance springs or perhaps a timing chain? It didn't do this when I bought it and I have put less than 100

miles on it since. I am at my wits' end trying to figure this one out. Your help would be greatly appreciated.

Rolf Loeffler
Via email

A: *The Slant Six is a great engine — it is very simple in design and has no model-specific diagnostics. Back in the day, what would make a Buick, Ford, AMC engine hesitate or bog was the same for a Chrysler product. It is either fuel, timing, or a combination of both. From reading your letter, I respectfully submit that you are throwing parts at the engine and not diagnosing anything. I always get suspicious when someone says that everything is "to specifications," yet with no actual values attached. If my memory is correct, the base timing on that engine is straight at TDC (top-dead center).*

I would add 5 degrees of advance to the base specification, and then readjust the carburetor mixture and take it for a ride. If it is better, then I would plot the distributor advance curve for the centrifugal weights, and then again with the vacuum advance hooked up. I would confirm when maximum advance is in.

Based on how the engine responds, I would then create a timing curve that the engine likes. I would not be surprised if you find that the weights are stuck partially open in the distributor, and that you are actually retarding the base timing to compensate for that. Pull the distributor out and take it apart. Clean, inspect, and lubricate everything. You may find that the factory curve works well once everything is operating correctly inside.

Since the engine starts and idles fine and you can drive through the bog, I do not feel that there is a vacuum leak. If my suggestions turn up nothing, you may want to try switching back to the breaker points and removing the electronic ignition as another test, in order to eliminate that variable during the diagnosis.

Simply put, I do not think your Duster needs any more parts. It just needs for you to give the fuel and ignition system a little TLC. Good luck and let me know what you find.

CARBURETOR CONFUSION

Q: In the July 2017 issue, there was a 426 Hemi dyno test ("How Hot the Hemi?" *HMM* #167). The engine in question used Edelbrock 600-cfm Performer (p-n 1400) carburetors with the early-style Carter AFB air horns so the original air cleaner would fit.

What would I have to do to use the original '64 to '66 GTO air horns on Edelbrock 750 Performer carbs? I would have the reliability of the new Edelbrock carb, and except for the electric choke, I would pretty much have original appearance, and I could use an original fuel line.

How much would this affect the cfm rating of the carburetor and performance?

Steve Schaeffer
Lancaster, Ohio

A: *I do not know what you would need to do, or if it is possible to use the old-style air horn on a new Edelbrock carburetor. The only way you would be able to determine this is to try it and see what obstacles you run into. I feel that it is important for you to recognize that with many carburetors, the air horn is an integral part of the function, and often houses air bleeds, passages, etc. Thus, while you may be able to get the parts to attach, the carburetor may not function properly. But, as Henry Ford used to say, "Let's try it and see what happens."*

In regard to the airflow, that too will only be determined by the fit of the parts along with the design. However, I feel confident that the impact to airflow — either positive or negative — would not be felt by the engine, and especially not to you as the driver. As I mentioned, I am more concerned with the function of the carburetor when you start mixing and matching parts, with the only goal being to keep an original fuel line and appearance.

I think a better approach would be to get the factory carburetors tuned correctly, since the age of a properly functioning carburetor has no impact at all on reliability. It is either right or the tune is wrong. There is a very good possibility that any out-of-the-box new carburetor you buy, independent of switching the air horn, will require a good deal of tuning to be correct. All replacement carburetors are only a starting point for being tuned, and not the final tune. It is like buying a suit off the rack—for one person in 1,000, it will fit correctly; for everyone else it will need to be tailored.

A TIRED OLD CHEVY

Q: I have always admired and desired a 1960 Chevy Impala convertible with a 348-cubic-inch V-8, with Tri-Power and an automatic transmission. I always visualized retiring with that car. Since I'm 72 years old, I think it's time that I settle down with a good dependable car for cruising. I am very satisfied with the car, except for one thing, and this is my question:

What would you recommend I could do to make this big-bodied car have more kick-down power?

It does not smoke and idles well. I did a compression test and the results ranged from 153 to 156 psi on all cylinders. I've tuned it, timed it, done everything I could, and come to the conclusion that it's a low-horsepower engine. Is there something that I'm overlooking that you might be able to have me check or do? I love the car and I will keep it, but at this stage I feel as though it should have more kick-down when passing other cars. In fact, is it possible, with bolt-ons, to make it equivalent to a 409 horsepower?

I've always been a small-block man, and a damn good one. But I will leave it at that, because I don't have enough time to tell you all my small-block stories that would be hard to believe. Like I told a bragging big-block man when I was running a small-block in a '69 Camaro: You can talk about what a big-block can do, but when you build a small-block to run with—and sometimes outrun—a big-block engine, then you really have bragging rights.

Please give me your input on what I call right now a tired old 1960 Chevy Impala that looks like new.

Jingles Browning
York, South Carolina

A: *Since the engine runs well, and given your age and the limited use the car has, the best thing to do is change the gear ratio in the differential to provide more torque multiplication. Your first step will be to determine what gears are now in it and the carrier model used. Once you have that information, I suggest adding at least one complete turn to the driveshaft through the ratio. For example, if the car now has 2.76:1 ratio gears, that means the driveshaft will rotate 2.76 turns to one turn of the tire. In this case, I would go to a ratio of around 3.76:1 to give you the kick that you want. This obviously will increase the engine speed on the highway, but you cannot have it both ways without the expense and complexity of adding an overdrive transmission. I think that you will find your Chevy to have a gear ratio below 3:1, and adding one turn to the driveshaft will make a world of difference in how punchy the car is.*

To confirm the ratio is very simple: Jack up the rear of the car so both wheels are off the ground. Put a chalk mark on the driveshaft and another one on the tire. Have a helper turn the tire by hand one full rotation while you count the driveshaft rotations. With the model of differential already identified, you can then see what ratios fit that.

Thus, if the driveshaft turns a little less than three turns and more than 2.75 turns, we can look to see that a ratio of 2.94:1 was offered for that differential, so that is probably what you have. It is very simple. If you do change the gears, keep the old set and any shims or washers that were used, just in case you want to convert the car back to stock in the future.

Building horsepower in a 348/409 is very costly today due to the unique design. It is not impossible, but at that point you can drop in a new GM Performance Parts 500-horsepower small-block for a lot less money. The car would not be original, but a hot-rodded 348 would not be either. I would go with the gears. I believe it will give you what you want, and the Chevy will still be virgin.

BAD VIBRATIONS

Q: Hi Ray, I love your column. A while back I tried to replace the oil pan gasket on my GTO. I had that engine jacked up as high as it would go. I tried everything to get that pan out, not realizing I had to pull the engine. So, I pulled the engine—my first engine pull. While it was out I fixed the other oil leaks and installed new motor mounts.

Now, I have a pretty good vibration that starts around 55-60 mph and continues on at higher speeds. It's kind of a pulsating vibration. I have replaced the front shocks, changed wheels and tires, installed new universal joints, and replaced the transmission mount, trying to get rid of this.

Could I have damaged the driveshaft or transmission by jacking up the engine so high without disconnecting it from the trans? Any suggestions on what else could be causing this vibration?

Paul Hawk
Somewhere in Arizona

A: *I doubt if you damaged anything. I will assume that the car is an automatic, and, if so, I will further assume that the transmission was not removed with the engine. I believe the problem is rooted in the engine and transmission not sitting the way they did before you took it all apart. This now is impacting the angle of the driveshaft to the pinion and causing a second-order harmonic vibration. This historically occurs at the road speed range you mentioned. A second-order harmonic means that there are two vibrations for each complete turn of the driveshaft. When the driveline angle is changed, the driveshaft spins in an ellipse, and at its furthest travel — high and low in the ellipse — a vibration is created.*

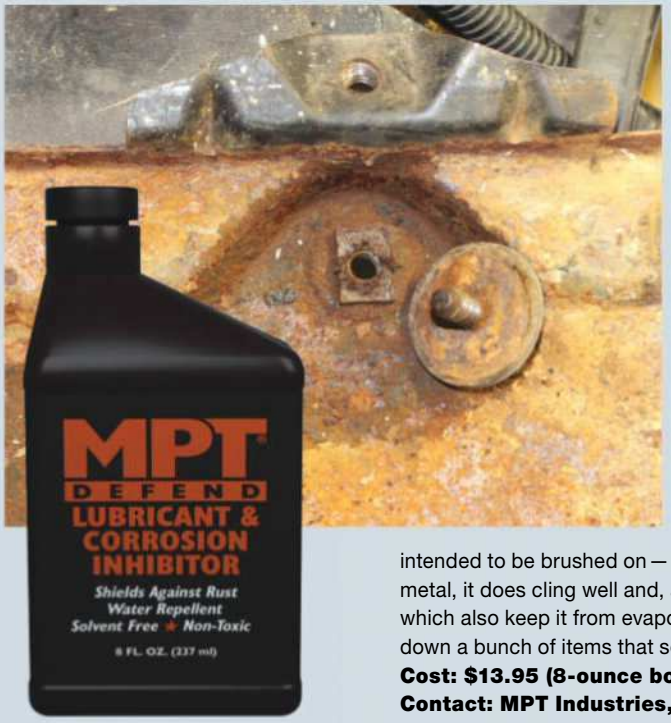
You may want to begin by loosening up the motor and transmission mount bolts and then, from underneath the car, rock the engine around to see if it will find "home." You may also want to make sure that the mounts you installed did not have any different physical properties that are not allowing their respective parts from sitting properly. I have seen this in the past.

If all else fails, then you will need to confirm the driveshaft angle out of the transmission and into the pinion of the differential. The procedure is not overly complicated, and requires a simple angle gauge, but it would be almost impossible for me to describe the steps in this column.

If you find a good race car or street rod shop, they will be able to confirm the angles and make the necessary corrections, which usually requires some shims in the determined locations.

GO-FAST GOODIES

By Tom Comerro
Photography courtesy of the manufacturers



HMM PRODUCT TEST:
MPT DEFEND RUST INHIBITOR

Here in the Northeast, rust is a way of life, as we constantly fight the battle with corroded fasteners while trying to keep the stuff that hasn't yet succumbed to the oxidation process from doing so. MPT Industries offers a broad line of lubricants (as well as auto- and marine-finish detail products), and recently sent us a sample of a new product it has developed for the cause. MPT Defend is a lubricant and corrosion inhibitor, as the label proclaims, and the company explained that it is also solvent free, and engineered to adhere to metal parts to protect them from moisture and caustic substances like road salt. We're told it can be used on rusted metal to stop the process, and that it will also help to clean away the oxidation that has already occurred. We'll admit that we tried to use it as a penetrant before being told that isn't its intended use (that's what MPT Twelve is for), but the rusted battery-tray bolts we coated did seem to benefit. The lube was obvious as we wrenched them out, and the rust did appear to be dissolving from the Defend. The product is of a high viscosity, and is intended to be brushed on — we're going to load a small trigger-type oil can with the stuff. When wiped on metal, it does cling well and, as promised by MPT, it is low odor, in part because of the lack of solvents, which also keep it from evaporating over time. MPT says it's also non-toxic. We like it so far, and are wiping down a bunch of items that see too much moisture and salt exposure for a longer-term test.

Cost: $13.95 (8-ounce bottle)
Contact: MPT Industries, 973-989-9220, www.mptindustries.com

COOLING SOLUTIONS

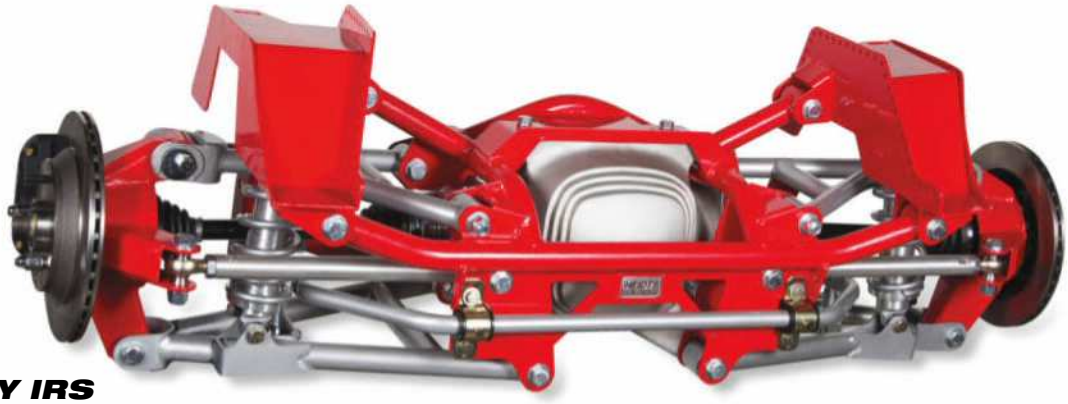
Racing and towing is hard on vehicles, so Flex-A-Lite has introduced a new line of transmission coolers designed for those applications. These coolers feature all-aluminum construction to provide minimal weight but maximum strength, and their dimpled plate and fin design improves cooling efficiency while minimizing transmission-oil pressure drop. Sizes include: 4¼ x 11 x ¾ inch; 6 x 11 x ¾ inch; 7⅞ x 11 x ¾ inch; and 10 x 11 x ¾ inch. They're available with either 6 AN or ⅜-inch barbed fittings. Call Flex-A-Lite for specific applications and pricing. Cost: Starting at $199. Contact: Flex-A-Lite, 253-922-2700, www.flex-a-lite.com

SMALL-BLOCK SAMPLINGS

New billet-aluminum crankshaft and water-pump pulleys for 289 and 302 Fords are now being offered by Vintage Air. With the increased demand for Ford small-block parts, originals are becoming harder to find, so these reproductions come at a perfect time. Machined from high-strength billet aluminum, the double-groove pulley system is stronger and straighter than both OEM and reproduction pulleys, and is simple and easy to install. The new pulleys are said to increase belt life and reduce vibration, and the anodized hard coat gives them an OEM look. Two pulleys are available; a crankshaft pulley (730016) and the water-pump pulley (730014). Each comes with all necessary parts for installation. Cost: $129.99 each. Contact: Vintage Air, 800-862-6658, www.vintageair.com

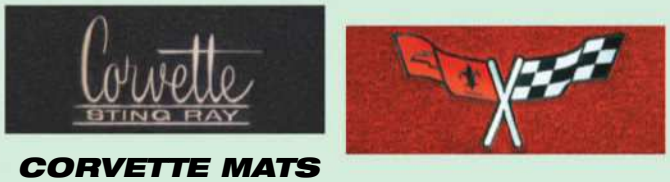
PONTIAC PAN HANDLING

Early Pontiac valley pans have been known to deteriorate, and the only solution for decades was to reuse old ones or refurbish the originals. The sealed units made for a nightmarish task when cleaning and refurbishing, as doing so could create potential hazards to your engine, even with multiple hot-tank and chemical treatments. Ames provides a reproduction valley pan that eliminates all the obstacles to replacing your old pan. The factory-style pan has been meticulously recreated to correctly fit all 1959-'67 Pontiac power plants, including Tri-power and all Tri-power conversions. Call Ames and ask about part number N178WD. Cost: $149. Contact: Ames Performance Engineering, 800-421-2637, www.amesperf.com



F-BODY IRS

Independent rear suspension systems for the 1993-2002 Firebird and Camaro have been added to the Heidts Hot Rod & Muscle Car Parts lineup. This is the first time the fourth-generation F-body platform has been offered, and it is available in both 500- and 800-horsepower configurations, with either the stock 65-inch track width or narrower 62-inch track. Both systems are engineered to install easily, as the saddles line up with the frame and bolt in. Options are included for Corvette C4 rotors and calipers as well as for upgraded Wilwood brakes. The standard kit comes with a cradle, CV shafts, tubular control arms, steering arm, and billet adjustable coilover shocks and springs, with optional brake packages. If you're looking for added grip, a flatter ride through the corners, and increased handling, this may prove to be just the thing. Cost: Starting at $5,395. Contact: Heidts Hot Rod & Muscle Car Parts, 800-841-8188, www.heidts.com



CORVETTE MATS

Lloyd Mats has added 14 period-correct logos for early Corvettes to its catalog. Each model-year-specific logo can be applied to any of Lloyd's plush carpet floor mats. The licensed logos include the iconic crossed flags and the Corvette letter logos used from C1 to C3, as well as insignia from the 1982 Collector's edition. Available with Lloyd's Luxe, Ultimat, Berber 2, Velourtex, and Classic Loop custom-fit carpet-mat models at all Lloyd Mats distributors. Visit the company's website for a vendor near you. Cost: Starting at $100. Contact: Lloyd Mats, customerservice@lloydmats.com, www.lloydmats.com

VERSATILE VACUUM

MetroVac's Vac N Blo is a car vacuum and dryer engineered to provide power and flexibility in your garage. Using a twin-fan, the vacuum has a 4-peak-horsepower motor and is rated with a suction capacity of 95 inches of water lift. The unit comes with 10 attachments, a 6-foot flexible hose, two 20-inch extensions, an upholstery tool, dust brush, crevice tool, blower nozzle, and more—perfect for detailing and cleaning your car's interior. Its air-blasting feature also enables it to be used as a leaf blower or inflation device for rafts or air mattresses. Cost: $385.99. Contact: MetroVac, 800-822-1602, www.metrovacworld.com

DIAGNOSTIC DOINGS

A new line of Zurich's professional automotive diagnostic tools is now available at Harbor Freight. The OBD2 code readers are designed to provide precise measurements and readings, making complex vehicle diagnostic systems easy to understand and fix. Each reader gives you clear trouble codes and lights on virtually every imported and domestic car, truck, SUV, and hybrid made since 1996. Different models, including the ZR4, ZR8, ZR11, and ZR13 are available, offering a range of capabilities for the mechanic to master technician. For full descriptions of each unit, visit Harbor Freight's website and search by the "ZR" part numbers. Cost: $44.99-$189.99. Contact: Harbor Freight Tools, 800-423-2567, www.harborfreight.com

HEAT SHIELD

ROGO's new Heat Shield Protective Gel is formulated to serve as a spray-on heat sink for use in protecting valves, controls, and surrounding areas from heat damage during welding, brazing, or other high-temperature procedures. The non-staining gel clings to all surfaces; thoroughly evaporates, leaving no residue; and is non-toxic, odorless, and won't harm or irritate your skin. Cost: $13.95. Contact: ROGO Fastener, 800-423-7646, www.rogofastener.com

By Donald Decker with Terry McGean
Photography courtesy of Donald Decker

CURIOSITY

An intriguing classified ad leads to a long-term Chevelle

It was the summer of 1996, and I had been thinking about buying another car. Actually, I was always doing that, but I had kept the desire in check, due not to any sense of propriety on my part, but mainly to mollify my wife, who, although a wonderful partner, nevertheless had this strange attitude toward other people's collector cars. She preferred that they remain *other* people's collector cars.

However, as I only had one fun car at the time, I figured I didn't really have a "collection." Adding another would only put me in the position of asking forgiveness, which is always easier than asking permission. This thought pattern was not 100-percent rational, but it was good enough for me to let my curiosity carry me to the classified section of the paper and the ad:

"Chevrolet 1970, Chevelle SS, 396 4-speed, good shape, red-black w/black interior, low mi. $4,500."

A phone call provided the assurance that the car was legit and also had a 3.73:1 differential, good seats, two original SS wheels, and a rebuilt engine with only 12,000 miles.

Some of this was actually true.

Viewing it and running some numbers (the seller had the original build sheet) revealed it to be an original Cranberry Red (code 75), bench seat (775), ZL2 ducted-hood, and full-instrumentation (U14) car. It also had factory power steering and brakes, and the transmission was a wide-ratio unit. This was exactly what I wanted and exactly how I would have ordered the car in 1970.

Of course, by the time I was looking at it in 1996, the Chevelle had strayed from its factory specs a bit. It had been painted maroon, there were '69 Camaro buckets in place of the factory bench, and the big-block was a '69 Camaro 325-hp version of the 396. There were also ladder bars, the claimed original SS wheels turned out to be a pair of Pontiac Rally IIs, and the 3.73-geared Positraction 12-bolt actually had stock 3.31:1 gears.

But I was still interested. It looked solid in spite of being a Wisconsin car from new. I knew I was taking a chance that rust wasn't hidden under the paint, but the seller was only the third owner in 26 years, and he'd had it for 16 of those, so it didn't appear to be a "problem" car being flipped. Once the price dropped to $3,500, my curiosity got the better of me. I wanted to find out if my gut feeling of this being a good car was correct.

I returned the next day, the Fourth of July (a fitting date to acquire "The Heartbeat of America"), to drive the car home from its commercial storage unit. It was an interesting trip. The drivetrain was very good—no smoke or noises and plenty of power. However, the Camaro buckets sat so low in the Chevelle that the position was unnatural, but even so, the 6-inch-tall Hurst shifter required bending down to reach third gear. I started noticing ants, rodent droppings, and acorns emerging from crevices and falling from the headliner. The ladder bars (and taller rear springs) pretty much eliminated any sense of a rear suspension. I bought the Chevelle with the idea of doing a full driver-level restoration, and so I found most of this merely amusing.

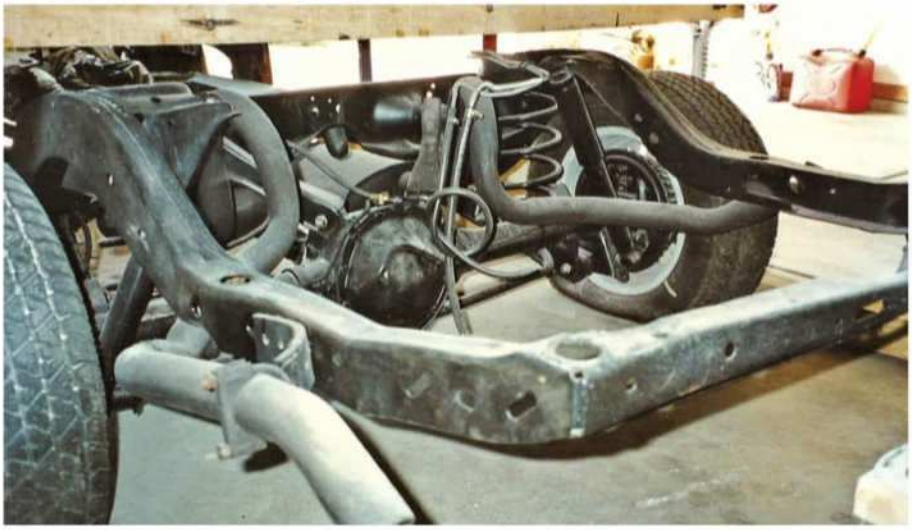
After pulling the body off the frame, I found the entire chassis to be perfectly smooth once the layers of dried red sand were washed off. The body was pretty good, as well. After paint stripping, I saw that the lower quarters had been replaced, a patch had been welded into a fist-sized hole in the passenger fender, and a few other small sections still needed some attention. Apparently, the road crews in the northern Wisconsin city of Brillion only used sand on the winter roads, not salt.

One big surprise was the pile of roasted acorns I dumped from the exhaust pipes. The mufflers were full of them, even after the drive home. I completed the chassis first and, because the Chevelle had totaled about 133,000 miles, I replaced dozens of small parts and wear items with original Chevrolet parts, still

Donald Decker found what seemed to be a solid '70 Chevelle SS after investigating a classified ad, but his intention all along was to do a complete restoration.

available from my local dealer, so the car would be like new mechanically. Fortunately, in the late '90s, salvage yards still had muscle-car parts available, so sourcing a factory bench seat, a windshield with an intact integral antenna, and many of the bright-work pieces, was possible on the cheap.

As complete paint jobs are expensive (my wife's forgiveness had been granted me, but I didn't want to push my luck), I enlisted the help of a good friend, Frank Kaczmarski, to paint the car. He agreed, but I would have to do the prep work. He had been painting cars at his house for years, and I had watched him at times, so I figured I could get the Chevelle's sheetmetal nice and straight with ease. I block-sanded it to what I considered perfection, and he inspected it. Then I blocked again and came back for another inspection. After my third try at perfection, he okayed my work and sprayed the PPG base coat. I laid the SS stripes out, and he painted them and cleared the car. Reuniting the body to the frame and assembling the



Prior to restoration, the SS languished in storage, where rodents and insects left their mark.

Home restoration often involves improvisation, as Donald's solution to storing his body-off effort in a single bay of his two-car garage illustrates.

This Chevelle came with a rebuilt (but non-matching) 396 that proved to be sound once the restoration was first completed. Later, Donald built a 454 to take its place.

(hundreds of) remaining parts took the better part of five months, with the car being completed in the summer of 1998. Total cost: $9,214.14.

Because the 12,000-mile claim made by the seller regarding the Chevelle's engine appeared accurate, I had left that 396 alone aside from re-gasketing it, retaining the M/T valve covers, Torker intake, and flex fan. However, 10 years ago when a 454 engine became available for $1,200, I jumped on it and converted it to a full roller valvetrain—that is what currently powers my SS.

Although the cold-air induction hood is fully functional, I don't have the correct air cleaner on it, as I prefer the look of the chrome unit, and the air induction only added about 5 to 10 horsepower according to contemporary tests. I like a stock-appearing body and interior on my cars, but I don't mind altering the engine. However, looking closely at this Chevelle, you'll notice outside mirrors from a 1971—I liked the body-colored sport-style design so much better than the chrome '70 version. Speaking of mirrors, hanging from the inside mirror is an acorn, reminding me of what this car once was.

I have found this SS to be a really fun ride. The torque is monumental. The ride is surprisingly stable and compliant, given the improvements made in the past four and one-half decades. It is also the only fun car of the four I have that will comfortably fit adults in the rear seat. And, of course, from a purely non-objective point of view, it looks flippin' beautiful.

Do you have photos from "back in the day" of your muscle car(s) and an interesting story to write? It's high school English class assignment time: Submit your images, memories and contact information to Muscle Car Scrapbook, c/o *Hemmings Muscle Machines*, attention: Terry McGean, P.O. Box 2000, Bennington, Vermont 05201, or email tmcgean@hemmings.com.

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Words and photography by David Conwill

BIG CAR SURVIVORS

This pair of 1930s sprint cars tells an interesting tale of regional racing

The gap between road car and race car seems to be ever widening. Professional racers, of course, were early adopters of specialty equipment to give them an edge over, or just to keep pace with, their competitors. Amateur racers held out longer but have been similarly swept up into an equipment arms race that has left the average spectator with little inkling that the machines on the track have anything to do with the mundane transport that will take them home after the race. That evolution probably explains, at least in part, the attraction of older race cars.

Looking at the two cars on these pages, it's not hard to see their Ford heritage. The 1928-'31 Model A and 1932-'34 Model B four-cylinder cars were so common, robust, and full of potential that as soon as they became affordable to racers in the early 1930s, they formed the backbone of amateur and semi-professional motorsport—taking over from the 1909-'27 Ford Model T. The supremacy of the "bangers," as the four-cylinders were called, lasted for the next 20 years before they themselves were replaced by the 1932-'53 Ford flathead V-8.

A stock banger in a lightened chassis might have been enough for some of the jalopy classes that existed, but full-size sprint cars—known as "big cars" to differentiate them from the midget classes—were theoretically capable of competing at the Indianapolis 500. Specialty bodies, chassis, and speed parts were the order of the day. The longer a car was in competition, the

more refined it was likely to become. These cars, both of which date to the mid-1930s, didn't reach their final form until after World War II.

What is perhaps more remarkable is that neither car was scrapped at the conclusion of its racing career, which was the typical fate for a car that could no longer be upgraded. For that we can thank the late Ken Gypson, of North Greenbush, New York, who saw the merit in saving old race cars six decades ago. Back in the mid-1950s, Ken was in the right place at the right time to pick up some of these amazing old racers at scrap prices. He then brought them home, fixed them up, and started racing them in vintage events.

While both cars look similar, in fact one, car No. 2, is an almost purely homebuilt creation, made largely from used parts, and the other, car No. 65, was assembled with a larger helping of aftermarket pieces aimed at the racer. A study of them side-by-side yields an illuminating showcase of period techniques. Current owner, Ken Gypson, the son of that first Ken Gypson, calls No. 2 "the Alexander" and car No. 65 "the HAL," in reference to their respective cylinder heads and one of the most obvious differences between the two.

"The Alexander" takes its name from Colonel E. Alexander ("Colonel" was his name, not a military or courtesy rank), and his eponymous Alexander Automotive Engineering Company of Inglewood, California. Alexander was himself a racer of sprints

The pushrod overhead-valve Alexander (left) uses dual Stromberg 97 down-draft carburetors, a hot-rod favorite. The dual overhead-cam HAL breathes through side-draft Winfields, the period racing carb of choice. Both cars use magneto ignition, push start.

and participant at the Southern California dry lakes speed trials. He began producing speed parts commercially around 1937, and period advertisements tout his cylinder heads as "The Hornet" or "The Aristocrat," and boast that "There never was or never will be a faster Rocker Arm Head for Model A or B Fords."

Whether that claim was true, we don't know, but certainly the Alexander OHV head was versatile. The company offered numerous variations—single or dual intake, single or dual ignition, various combustion chamber sizes, etc.—to suit both race and street applications. The twin Stromberg 97 two-barrel carburetors installed on Ken's Alexander aren't shown in period brochures, but they were an OEM carburetor back then, and the Winfield was the racing carb of choice. Today the 97 is more available and widely understood, thanks to its many years of popularity with hot rodders.

That Alexander head is perched atop a Model B four-cylinder engine. The Model B was an evolution of the Model A engine and debuted for 1932 with an additional 10 horsepower, increased bearing area, a mechanical fuel pump, and pressurized oil to the main bearings. This immediately made it the preferred basis for building hot four bangers for the street and the track. In car No. 2, the B block is mated to a Model A transmission via a special deep bellhousing.

The Model A trans is, in turn, adapted to the torque tube of a 1930s Chevrolet rear axle that has been converted to cross spring to fit into the frame, which was originally under a Ford Model A. Incidentally, the Model A frame may not have been quite up to the task of racing the tracks of New York's Capital District, as early photos show it without the distinctive reinforcement under the front frame rails.

The Alexander's front axle is another Ford piece, along with split wishbones and cross spring. Front brakes were omitted, but straight-spoke 16-inch 1935 Ford wire wheels are bolted to original Ford hubs. In the rear are 16-inch six-lug wire-spoke wheels, presumably off a mid-1930s Chevrolet. Also, out back are the car's only set of brakes, mechanical units controlled either via foot pedal or an external lever.

Bodywork on the Alexander has evolved over the years. Even the earliest images from the 1930s show it with the characteristic sprint-car tail, but the nose it wears currently was added in the 1940s. The elder Gypson went back to the earlier style during his ownership, but Ken the Younger preferred the streamlined nose and reinstalled it.

The original builder of the Alexander was a man named Steve Wayto, of Schenectady, New York. He ran it under the name *Molnar Special* in the 1938 and 1939 seasons. Later, the car moved to Cohoes, New York, and was dubbed the *Garfield Special*. It was active in competition until 1953 and was discovered by the senior Gypson in a garage full of junk in 1956 or '57. Incredibly complete, down to the original single-axle trailer, it was a great find. He quickly had it back on the track, competing with the United Racing Club in the 1957 season, and over the next few decades he traced the history of the car in greater detail than we can go into here.

That same attention to detail came up with the HAL, another 1930s-built sprint car, but one based on Floyd "Pop" Dreyer bodywork and frame, rather than the scavenged and fabricated elements found in the Alexander. Dreyer was an ex-motorcycle racer in the Indianapolis region who had turned to auto racing as a business in the 1930s and was well known for selling parts and complete cars to would-be racers nationwide. Purchasing a frame and body from Dreyer gave any racer a leg up on construction, avoiding some of the heavy fabrication and permitting a focus on the mechanical aspects.

The man who originally purchased the Dreyer pieces was a machinist named George Gravell, also of Schenectady, New York. It's interesting to speculate as to why and how Schenectady spawned two such similar race cars. Certainly, the presence

of the massive General Electric works with its host of well-paying, skilled jobs created an environment where technical skill and disposable income coexisted. Building a race car to run at one of the area's proliferation of tracks must have been an attractive hobby.

The HAL itself is a worthy complement to the Dreyer pieces, and was likely the centerpiece to machinist Gravell's build. Sometimes billed as "the poor-man's Offy," the HAL was the brainchild of Harry "Hal" Hosterman, who built his first speed equipment for Ford Model Ts in the 1920s. The HAL is a DOHC design that came out in the early 1930s. Its flexible architecture permitted both stock and cross-flow intake setups, and the head was capable of a 75- to 100-percent increase in power on a stock Model A block.

Using a Model B block allowed even greater improvement, and later HAL would cast and sell its own five-main blocks when racers discovered that Ford bottom ends would not long withstand the power increases of which the cylinder head was capable. HALs are notable for having taken a shot at Indy as late as 1946 and for remaining competitive in the California Racing Association until 1953.

The 220-cu.in. four-cylinder started life in a Ford Model B and has survived thus far, albeit with a rebuild by Gravell sometimes after it was purchased by the elder Gypson, who had discovered it in an auction where it was being sold as a lot with another race car. As it happened, the buyer was only interested in the other car, and Gypson was able to luck into the HAL, which had last been raced in 1949.

Other goodies on the HAL include Dayton knock-off wire wheels, twin Winfield carburetors, and an in/out box. Like its Alexander stablemate, the HAL uses a hand pump to pressurize the fuel tank, in lieu of the Model B mechanical pump, and a magneto ignition for hot spark and to avoid the dead weight of an onboard battery. The HAL also has a Ford front axle and rear-wheel-only brakes, operated via an outside hand lever.

Nerf bar on the Alexander serves as "starter" allowing pushes from behind; previous practice was to tow start. Extra-deep bellhousing mates Model A transmission to Model B engine.

For weight savings, neither car has a starter, requiring a push start at every race, or, more accurately, a pull start. Before installation of the rear nerf bars, the standard procedure for starting either car was to loop a tow rope once around the front axle. The driver held the other end of the rope tight and the car was towed up to speed. At that point the driver dropped the clutch, the engine roared to life, and the rope was released to slide off the axle.

Interestingly, both cars shared a driver in one Kenny Gallup, who also helped piece together their histories. Additionally, the HAL had the honor of being piloted at one vintage event by Mario Andretti. Vintage racing them is perhaps the best aspect of the story of this pair—they're not mere museum pieces. Admittedly, it has been a while since Ken has had them on a track, but we're sure they'll be back in action soon.

Restoration was generally avoided except where needed, such as replacing decayed original upholstery with new material. HAL features Dayton wheels—pricier than OE wheels on Alexander.

BARRETT-JACKSON SCOTTSDALE 2018

THE NUMBERS

TOTAL SALES:
$116.7 million

TOP MUSCLE CAR SALE:
1965 Chevrolet Corvette Cutaway Coupe; $1,100,000

UPCOMING AUCTIONS BY BARRETT-JACKSON

DATE: June 20-23, 2018

LOCATION: Mohegan Sun; Uncasville, Connecticut

CONTACT: 480-421-6694; www.barrett-jackson.com

LEGEND

CONDITION:
1=Excellent; 2=Very Good; 3=Average; 4=Poor; 5=Major Project

RESERVE:
Minimum price owner will accept

TOP BID:
The highest offer made (but vehicle did not sell)

SELLING PRICE:
What the vehicle sold for

AVERAGE SELLING PRICE:
Average market value of vehicles in similar condition

A plethora of domestic performance cars boost sales to $116.7 million

Words and photography by Matthew Litwin

Mid-January in Scottsdale, Arizona, means only one thing: It's collector-car auction week. For more than a week, this patch of Southwest desert is transformed into a hotbed of gavel action, spurred by bidders and spectators from all corners of the globe. One could argue that the automotive smorgasbord is a venerable barometer of the health of the hobby, if not in total sales in dollars, then certainly in terms of volume.

Leading the charge into this collector-car cornucopia is Scottsdale-based Barrett-Jackson, which held its 47th-annual event on January 13-21 at WestWorld. Their docket was impressive: 1,721 automotive lots, more than 1,100 pieces of automobilia, and 10 charity lots. As is typical of all Barrett-Jackson sales, 99 percent of the lots, no matter the genera, are offered at no reserve, making the company the largest-volume seller in town.

This year, charity sales accounted for $6.21 million, while automobilia brought in over $3.7 million. Which brings us to the $106.8 million generated by the traditional vehicular lots. The collective total tickled $117 million, spearheaded by a 2015 Porsche 918 Spyder that realized $1,430,000 (which includes a 10-percent buyer's premium, as with all sales totals listed in this report). Tied for second on the top-10 list were the $1,100,000 sales (each) of a 1952 Ferrari 212 Europa and 1965 Chevrolet Corvette Cutaway Coupe, the latter of which topped the muscle-car sales chart. Rounding out the top five were a 1969 Chevrolet Camaro ZL1 that brought $770,000, and the 1966 Shelby G.T. 350 prototype #001 that realized $605,000.

In mid-April, Barrett-Jackson hosts its Palm Beach sale in Florida, which will be followed by its annual Northeast sale at Mohegan Sun Casino in Uncasville, Connecticut, in June. For more information about these and other upcoming sales, or full results from Scottsdale, visit www.barrett-jackson.com.

CHEVROLET

Year: 1969
Model: Camaro RS
Condition: Restored/**#1-**
Reserve: None
Selling Price: $66,000
Avg. Selling Price: N/A

We happened upon this COPO Camaro RS minutes after it had crossed the block for what we initially thought was an astounding bargain… until we realized it was a re-creation. Visually, the 427-powered coupe was stunning inside and out, with only a hint of polish scratches in the miles-deep black paint. Mechanically, there was just enough of a sinister rumpety-rump to let you know something serious was below the hood, yet it was smooth enough to manage the tight confines of the preview tent. Re-creations can be tough to pin values on, but a documented factory COPO commands $250,000, in the stated condition above.

FORD

Year: 1983
Model: Mustang GT
Condition: Original/**#2**
Reserve: None
Selling Price: $19,800
Avg. Selling Price: $6,000

You've probably noticed a growing number of Eighties muscle cars migrating out of original-owner collections, many of which — such as this 14,682-mile convertible — have been preserved in original, unrestored condition. Documents here included the window sticker, title, and Marti Report, the latter stating that the paint/interior/options combo made it one-of-three made. Visual demerits — beyond the orange peel in the factory paint — were obvious rub marks from the convertible top on the back end and a wee bit too much buffing on top of the fenders. Convertible GTs were uncommon that year — only around 1,000 were made, but we're thinking the result here was a simple matter of two bidders bitten by nostalgia.

BUICK

Year: 1987
Model: Grand National
Condition: Original/**#1-**
Reserve: None
Selling Price: $42,900
Avg. Selling Price: $38,000

Speaking of Eighties performance, Buick's Grand National has been leading the parade for decades, the pinnacle being from 1987. This example was one of the 20,194 produced in base trim, rather than one of the 547 ASC/McLaren-tuned GNX models that usually tip the bidding balance far closer to six figures, particularly low-mileage examples. This one — touted as being a 7,650-mile original — was presented in a condition that matched the odometer: absolute minimal wear inside, and nary a polish swirl in the paint. It was fully serviced prior to the sale, making it ready for road use. Unsurprising, then, that it was bid to value trends.

PONTIAC

Year: 1973
Model: Trans Am SD 455
Condition: Restored/**#2+**
Reserve: None
Selling Price: $145,200
Avg. Selling Price: $185,000

Does retaining patina during a restoration add value to a car? Let's use this Super Duty Trans Am to launch a study. First, the Pontiac's sale included the window sticker, dealer invoice, and PHS documents that confirmed it as one of 180 built. It was showing less than 44,000 miles and it contained several options, including air, power windows, and deluxe interior. The restorer retained the factory red-oxide finish on the undercarriage. Fine for some, but others might argue against the decision to leave the somewhat aged exterior finish alone on a car that was otherwise refurbished. Alas, bidding stalled below value trends.

FORD

Year: 1969
Model: Mustang 428 CJ-R
Condition: Modified/**#1-**
Reserve: None
Selling Price: $60,500
Avg. Selling Price: N/A

This Mustang was parked in a high-volume spectator area, and given the fact that the Ford had a noteworthy career on the West Coast, one would suspect that nostalgia-inspired bidding would have been big. That career came at the hands of, among others, Lucy Below, several months after the R-code/four-speed pony had been readied for racing, which included an automatic, traction bars, drag shocks, and a litany of other mods, along with a two-tone (left-to-right, rather than top-to-bottom) finish. Lucy set an SS/HA record in the Ford and, far more recently, she and husband Bob (who was also an original team member) helped with its restoration.

PLYMOUTH

Year: 1970
Model: Road Runner
Condition: Refurbished/**#3**
Reserve: None
Selling Price: $38,500
Avg. Selling Price: $22,000

Details pertaining to this High-Impact Mopar were lacking. Though a broadcast sheet was said to accompany the Road Runner, it wasn't visible; bidders could only assume that the 383/TorqueFlite driveline matched accordingly. There was also no mention of either a restoration nor basic visual refurbishment. Whichever approach it was, the effort fell short: Pitted trim was never repaired before it was re-plated; pinholes in the body filler under polish-swirl paint were visible; grinding marks were obvious on the rear cowl; panel fit was an issue; and a number of touch-ups were present on the In-Violet paint, which was an admitted color change.

PLYMOUTH

Year: 1971
Model: Duster 340
Condition: Restored/**#1-**
Reserve: None
Selling Price: $48,400
Avg. Selling Price: $32,000

Not far from the Road Runner discussed earlier sat this Duster 340, which had been optioned with the brazen "340 Wedge" hood decal, full-length side stripes, and Go-Wing spoiler. For the uninitiated, the 340 was a direct reference to the 340-cu.in. V-8 issued as standard equipment — a venerable high-output small-block first issued in 1968. According to the placard, this was a matching-numbers Mopar, restored at an undisclosed date. Its presentation was astounding, save for a hint of age to the quarter-window trim. Clearly, bidders liked what they saw.

OLDSMOBILE

Year: 1970
Model: 4-4-2 W-30
Condition: Refurbished/**#2+**
Reserve: None
Selling Price: $88,000
Avg. Selling Price: $140,000

Here's a result that had us scratching our heads. The W-30-equipped 4-4-2 was a Sports Roof (aka post coupe), making this one of just 262 reportedly built for 1970. Its original broadcast sheet, window sticker, Protect-O-Plate, dealer prep sheet, and other receipts proved that Dr. Olds also installed a four-speed manual and W27 differential. In short, this was a well-optioned go-fast road rocket out of Lansing. Under the dim lighting, however, it was hard to tell just how much of the car was original versus what had been spruced up. Some wear was present, but it was minor and—to some bidders—negligible. We thought the 4-4-2 would have brought more.

CHEVROLET

Year: 1968
Model: Chevelle SS 396
Condition: Restored/**#2-**
Reserve: None
Selling Price: $60,500
Avg. Selling Price: $50,000

Touted as being a genuine SS 396, this convertible received a "ground-up restoration" at an undisclosed time. We can only surmise that the work occurred some time ago, or was more recent and budget affected presentation. The Teal paint was smooth and even, but the prep below left the flanks wavy. Its black upholstery was new, yet one seat had been over-stuffed compared to its compadre. The five-spoke wheels were clean, but the trim rings exhibited road rash. Its header (above the windshield) looked tortured, yet the trim had been polished. And while the engine was said to be original, a far-newer 700-R4 automatic was bolted against it.

PONTIAC

Year: 1965
Model: GTO
Condition: Restored/**#3+**
Reserve: None
Selling Price: $64,900
Avg. Selling Price: $67,000

"No-expense-spared restoration…to exacting specifications," read portions of the placard taped to this second-year GTO. The same placard that outlined the swap from a four-barrel induction system to a Tri-Power arrangement, while alluding to the possibility that the four-speed could have been added during the Pontiac's resurrection. What's more, the "factory-style wheels" were new to the hardtop. But, it was a real GTO replete with a new set of redlines. There were also dimples in the body prep, scratched paint, a wavy front bumper, new plating over damaged trim, and panel fit issues. Still, it brought a figure very close to the average.

CHEVROLET

Year: 1970
Model: Monte Carlo SS 454
Condition: Refurbished/**#3-**
Reserve: None
Selling Price: $15,400
Avg. Selling Price: $20,000

It's hard to ignore the performance prowess of a real-deal Monte SS 454. Though a little bigger, heavier, and more comfortable than a Chevelle, it's still quick and — usually — more affordable to obtain today. This one was restored to its factory-built traits beyond the 454: THM400 automatic, black bucket seats, center console, 12-bolt differential, Rally wheels, black vinyl top, and Cortez Silver paint. The sale price indicated bidders may have noticed some other aspects: thick orange-peel paint; cheap, incorrect antenna; heavily rippled windshield trim; poor body prep; and well-aged mirrors. The overall vibe was that of either a rush job or just an amateur effort.

DODGE

Year: 1968
Model: Dart GTS
Condition: Refurbished/**#3-**
Reserve: None
Selling Price: $28,600
Avg. Selling Price: $15,000

Here was another car that received some level of refurbishment that was either selective in nature or fell short for any number of reasons. For example, the Dart GTS had been repainted over shoddy body prep; most of the trim exhibited at least some pitting; the rear package shelf and center console were worn; and some of the glass was scratched. Also, it was missing its black-out grille with GTS-specific center peak. Conversely, this was a GTS that had been ordered with the 383 and four-speed manual, along with the Sure-Grip diff and heavy-duty suspension, all backed by a build sheet that matched the fender tag and VIN. Someone saw potential with this diamond in the rough.

MERCURY

Year: 1969
Model: Cougar XR-7
Condition: Restored/**#2+**
Reserve: None
Selling Price: $60,500
Avg. Selling Price: $50,000

According to documents, this convertible was a one-of-one Mercury based on its options, including the four-barrel 351 below the hood, the automatic backing it, air conditioning, and power windows. It had been restored, with only 100 test miles rolled onto the odometer since, which did little to explain why the top's weather seals were already sketchy, or the aging of the door handles. More interesting was the fact that — if this was a known, rare, one-of-one car — someone thought it was a good idea to add Ram Air, Sport Stripes, an Eliminator grille and deck spoiler, Magnum 500 wheels, engine upgrades, and aftermarket radio, to the tune of $86,000 in total claimed costs.

OLDSMOBILE

Year: 1970
Model: Cutlass Supreme
Condition: Refurbished/**#3-**
Reserve: None
Selling Price: $26,400
Avg. Selling Price: $18,000

If you're wondering about the disparity between value trends and the sale price of this drop-top Olds, which doesn't even carry a single 4-4-2 emblem, it could be explained — in part — by the fact that the premium Cutlass was claimed to be a documented Indy 500 festival car. One could argue, based on its presentation at the sale, that fact was the only thing going for it. The 310-hp, 350-powered Olds had welcomed only one repaint in 2001; new decals were applied in '17. Which meant the rest was original, including wear throughout the interior and an array of pitted/well-aged trim. The worst visual offender was horrendous panel fit. C'est la vie — history always has a price.

CHRYSLER

Year: 1970
Model: 300H
Condition: Restored/**#2**
Reserve: None
Selling Price: $50,600
Avg. Selling Price: $25,000

Perhaps one of the more misunderstood muscle cars is Chrysler's 300H. It was never a "letter car" like those of yore. The "H" stood for Hurst — or Hurst package — which included a 440/TorqueFlite combo, saddle interior, fiberglass hood skin, fiberglass decklid with integral spoiler, and quarter-panel end caps, as well as a two-tone finish in Spinnaker White/Satin Tan (not gold). Hurst didn't install a shifter. Its late approval meant just 485 to 502 were made (the number varies). This one had been restored, though we spotted pitted taillamp bezels, wavy flanks, and a couple of blisters under the padded vinyl top. Rarity had to be the variable at play with the result.

By Terry Shea

PHOTOGRAPHY: MECUM AUCTIONS

MECUM SCORES IN LOS ANGELES

We sometimes wonder if the people at Mecum ever get to sleep in their own beds, since they're so busy crossing the country selling classic, muscle, and special-interest cars and motorcycles. After scoring $13.9 million in Las Vegas at the tail end of January with a motorcycle-only event that saw 1,207 bikes out of 1,324 go to new homes, the Mecum gang headed to Los Angeles, where they sold $9 million worth of collectors cars (and a bit of automobilia) at the Fairplex at Pomona on February 16 and 17. Though European makes dominated the top-10 list, Mecum's highest-grossing sale was a 2006 Ford GT that pulled in $327,250, including the buyer's premium.

Coming in at number nine on that top-10 list was the next muscle car, a 1968 Shelby G.T. 350 fastback that rang the cash register for a cool $99,000. Other muscle-car highlights we noticed included a 1966 Plymouth Satellite two-door hardtop with a Hemi (date-coded, but likely not original) and a four-speed for $55,000. A far-from-perfect, but still roadworthy, 1970 Pontiac Trans Am (just 3,196 made that year) pulled in $35,200 as a no-reserve lot. Although there were a number of muscle cars that failed to hit reserve (most notably a 1 of 20 1968 Corvette convertible L-88 that still managed a respectable $450,000 bid), the final sale list included several nice first-gen Corvettes that brought home the money along with several late-Sixties and early-Seventies GM A-bodies that also found new homes.

MECUM AUCTIONS

RM SOTHEBY'S

UPCOMING AUCTIONS

Perhaps it's the show season being in full swing by the time we tear April off the calendar and the warm weather is upon us, but May looks to be a little slower month when it comes to live collector-car auctions in the U.S. Though the name on the catalog may be different, the same folks will be conducting the Auburn Spring Auction at Auburn Auction Park in Auburn, Indiana. RM Auctions, which used the Auctions America name for several years, took over the former Kruse operations based out of Auburn in 2010. Though the lots are not yet finalized for the May 10-12 event, the current lineup already includes some interesting muscle cars, such as a 1967 Ford Fairlane XL convertible with a four-speed and a 390, a 1969 Mercury Cougar convertible with a 428 Cobra

FOX SEASON IS OPEN

Like the original Mustang from the Sixties, the performance models of the Fox-era Mustangs, those produced from 1979 through 1993, have been popular with enthusiasts since they were new. Now, either collectors are finally getting wind of the potential upside in such cars or those who couldn't afford them 25 to 30 years ago are now ready to get that dream car from when they were young.

Either way, during the Scottsdale, Arizona, auction's final day, Sunday, January 21, Barrett-Jackson featured 18 such Mustangs in a row, plus one pre-Fox 1976 Mustang Cobra II, with a bunch of them setting records.

The Mustangs came from the collection of Dennis Collins, whose previous batch of Fox (and SN95) pony cars set a record at Barrett-Jackson's Scottsdale sale in 2017. While Collins' collection did not include every year, it was pretty close. The top sale of the collection was a 1993 LX 5.0 convertible in Reef Blue Metallic over white with a white folding top. With just 340 miles on the clock, it sold for a record $53,900. A triple-white '93 LX 5.0 convertible changed hands for $45,100, while a '92 GT convertible pulled in $44,000.

Just for good measure, Collins also consigned an ultra-low-mileage (3,281 miles!) 1976 Mustang Cobra II that sold for a record $38,500, an unthinkable figure just a couple of years ago.

PHOTOGRAPHY: TERRY SHEA

Jet engine offered at no reserve, and 1965 Pontiac GTO convertible with Tri-Power and a four-speed also offered at no reserve.

Louisiana-based Vicari Auction will hold its annual Cruisin' Nocona in Nocona, Texas, from May 3-5. Consigned lots — still far from finalized at the time of publication — already include a pair of interesting Mustangs: a 289-powered 1966 convertible and a customized 1997 Cobra. Meanwhile, Mecum returns to Indianapolis for what the auction house bills as "Dana Mecum's 31st Original Spring Classic." Again, while the consignment list is not yet finalized, the company has already listed such muscle-car beauties as a 1969 Ford Mustang Boss 429, a 1970 Buick GS Stage 1 convertible, and a four-speed, Ram Air III-equipped, numbers-matching 1969 Pontiac GTO Judge. Be sure to check out each house's website for more details on the docket.

MECUM AUCTIONS

AUCTION CALENDAR

MAY

3-5 Vicari
Nocona, Texas
504-264-2277 • vicariauction.com

10-12 RM Auctions
Auburn, Indiana
519-352-4575 • rmsothebys.com

15-19 Mecum
Indianapolis
262-275-5050 • www.mecum.com

Check dates with auction houses before traveling.

By Jim O'Clair

GRANADA TALL-DECK HEADER FEEDBACK

Q: You had a reader, Doug Stahl, write to you in the February 2018 *HMM* Swap Meet section about headers for a Granada. We did this conversion with a 1978 Granada with a 347-cu.in. small-block Ford V-8. We used Hedman #88300 headers for a Maverick, but we had to modify the left header. The right header was a bolt on.

There was plenty of room for the taller 9½-inch Windsor deck, but the steering ram was still in the way. We took the Hedman power-steering ram frame bracket and extended it down 3 inches to clear. The car steers all right, but the bracket hangs down too low for my taste. We also had to use a floor shifter for the C-4 transmission, as it is a manual valve body. You might be able to use a column shift, but the car had the floor shifter in it when the customer brought it to us.

If Mr. Stahl needs some more information, please feel free to give him my email address.

I hope this might help him.

Gary Roughley
Via email

BRAKE FLUID DOTS

Q: Which brake fluid is better to use in my 1968 Olds F-85? I am in the process of converting to four-wheel disc brakes, and I want to know if DOT 3 glycol-based or DOT 4 mineral oil-based fluids are okay to use, or if a changeover to DOT 5 silicone is recommended.

Jack Humphries
Via Facebook

A: *Different DOT-spec fluids should not be mixed, unless you are using the new DOT 3&4 combination fluids that are now available as a top-off to your system. DOT 5 silicone will perform the best, but a complete system flush is in order before you install the new fluid. This will probably be easy since you are removing most of the original brake components and starting from scratch. Just be sure to drain all the steel lines in the system as well. Once you have made the changeover, you need to continue to use DOT 5 on all subsequent refills or top-offs. If you are reusing your master cylinder, brake hoses, and steel tubing, it might be more cost effective to stick with standard DOT 3.*

VAPOR LOCK: AN OCTANE ISSUE?

Q: I have a 1975 XJ Jaguar V-12, and I find that the new gas is crap. After an hour or two on the road, the car gets vapor-locked. I have tried ethanol-laced gas as well as non-ethanol 91 octane, but have had no luck getting rid of this persistent vapor-lock. If I get out of the car and loosen the cap, the fuel system gets enough fuel pressure to restart the car. Do you have any suggestions? I know fuel-injected cars will run on just about any kind of gas available out there, but perhaps the octane rating or contents of the gas are not the issue. I was also an Esso kid growing up—my father was a field rep and in charge of tanker yards for Esso. At that time, they did not mix gas at the tanker yards. Hope you can suggest something.

Happy Motoring,

Steve Thomas
Via email

A: *The first thing we suggest you check is the vent tube on your fuel filler neck. You will have to follow it back to the tank to remove the lower end of the hose, but it could very well be plugged with rust or road grime.*

Barring that, your next area of concern should be the fuel pump. Electric fuel pumps are often rated by psi, but these ratings can differ from actual pressures on various applications, which can also fluctuate with varying temperature conditions; the age of the pump can factor into its actual output as well. We discovered when troubleshooting our own Great Race rally car (1932 Ford Speedster with a 239-cu.in. flathead V-8) that the advertised pressures do not hold up under extreme temperature conditions, or after extended periods of time.

The simplest solution for us, since the pump was mounted inline, was to replace it with a pump rated for a higher psi output. We then added a regulator between the pump and engine to dial back the pressure in the system to the desired level. In that way, even if the fuel pump overheats and its ability to deliver decreases, we might be able to adjust the regulator to take advantage of the pump's additional capacity.

It is not necessary to spend a lot of money on a racing-grade 120-psi pump to fix this situation — there are many options at your local auto parts store for higher-rated inline pumps that can provide the required output for your system. Heat insulation wrap for the steel fuel lines might also help in high-heat situations.

COUGAR ELIMINATOR PARTS RESOURCES

Q: I am a fan of everything Hemmings. Your magazines have featured beautiful Cougars in the past, and now we are building a 1970 Mercury Cougar Eliminator and need some assistance. It seems no manufacturers have caught on to the idea that these are very collectible limited-run vehicles. There don't seem to be any decent quality replacement body panels out there.

Mustangs get the glory, Cougars are the art, the luxury, and the rarity that the Mustangs aren't. Can you suggest anywhere that I can find excellent NOS or repro body panels?

Appreciated,

Dan Thurber
Via email

A: *You've probably found that NOS panels are even more scarce than Cougar Eliminators themselves, but we would suggest that you contact Green Sales Company for any original Mercury body panels. Green has a large selection, including inventories recently purchased from two other*

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Take a Kid to a Car Show

**** Even though we love trucks, imports, street rods and classic cars, this is an AMERICAN MUSCLE CAR show only.***

Ford NOS suppliers: Southside Obsolete in Minnesota and Dealer Auto Parts in Arizona. Additional Cougar-specific suppliers include Ken's Cougars, John's Classic Cougars, and West Coast Classic Cougars. Both Scott Drake and Dynacorn supply quality aftermarket sheetmetal parts for classic Fords and Mercurys, such as floor pans, radiator supports, cowls, rocker panels, frame repair panels, package shelves, and hood hinges. Scott Drake items can also be purchased from CJ Pony Parts or Summit Racing, just two of their many franchised dealers. Coincidently, many of these sheetmetal parts also fit similar year Mustangs, but they do show Cougar-specific items as well.

- *CJ Pony Parts, 800-888-6473 www.cjponyparts.com*
- *Green Supply Company 800-543-4959 www.greensalescompany.com*
- *John's Classic Cougars 616-396-0390 www.johnsclassiccougars.com*
- *Ken's Cougars, 405-340-1636 www.kenscougars.com*
- *Summit Racing, 800-230-3030 www.summitracing.com*
- *West Coast Classic Cougar 503-463-1130 www.cougarpartscatalog.com*

AMC 360 VALVE TRAIN DURABILITY

Q: I am getting ready to tear down my 1974 AMC 360 engine to have valve work performed at a machine shop. I will also be replacing the camshaft and lifters with something a little peppier than stock, and my concern is the bridge or pedestal-type rocker arms that were original to the heads.

With a performance camshaft, do you recommend that the rocker-arm assemblies be converted to 3/8-inch or 7/16-inch stud-type rockers, as with Chevrolet heads? Should stud guide plates be installed while the machine shop is working on the heads? Or do you feel the pedestal-type rockers can handle any camshaft upgrades without fear of breaking one of the bridge assemblies? I would like to use 1.6:1 rocker arms with the new camshaft and, of course, would replace the pushrods as well.

Thank you for any advice you can relate.

Al Rockenstyre
Via email

A: *Whether you should changeover to the stud-type rocker arms will depend on the camshaft you choose; the valve-spring rates are another consideration. Usually, with camshafts having less than .500-inch of lift, you can still use the original pedestal-style rockers arms. The heads should be machined to accept rocker arm studs and guide plates when camshaft lifts are higher than .500. Higher-lift/longer-duration camshafts typically require valve springs with higher spring rates, which will also place a greater load on the rocker arms, and this is why stock rockers are sometimes not recommended with high-performance cams.*

Harland Sharp offers both styles of 1.6:1 roller rocker arms for the AMC V-8 engines. Stud-type roller rockers are available for both 3/8-inch and 7/16-inch studs. As with any camshaft change in any engine, it is wise to measure pushrod length carefully, as the original length may not be correct for use with the new components. You should also consult with the tech helpline staff for the company that offers the cam and valvetrain parts you plan to use for their input.

Harland Sharp, 440-238-3260, www.harlandsharp.com

READER FEEDBACK: MUSTANG II SUSPENSION WOES

Q: I always go to the "Swap Meet" section of the mag first because, over the years, I have found that I enjoy playing Sherlock Holmes and solving (mechanical) mysteries. Usually, as I read yours, I start thinking of a way I would respond; then, before reading much further, I often find that you have included my solution, also.

However, in the February 2018 issue, #174, you answered a question from Nick Biello on Mustang II suspension woes, and I think you left out maybe the most obvious solution, and that is tires.

Eventually, Nick is going to need some tires on his Mustang II, and he can improve the ride quality dramatically with a set of Michelin tires. The reason that happens, and the main reason Cadillac uses them on its luxury models, is the unusually soft and flexible side walls that are incredibly forgiving. It's not easy to build a tire that way, but Michelin found the secret long ago.

If you want a hot-rod type tire, the folks over at Nitto have also gone to that very soft and flexible sidewall in their street drag tires for launch reasons.

The change to the ride (and handling and braking) on Michelins is much more dramatic, and will change the ride immediately, even with old or stiff shocks and not so forgiving spring rates. Plus, you also get high-quality new tires in the deal!

Thanks for the great mag.

Cordially,

Bud Meyers (aka Sherlock)
Via email

All discussions in this column regarding repairs, conversions, parts swaps, etc. are offered as suggestions. Performing any such work should be accompanied by thorough research to verify proper parts compatibility and procedures to achieve a safe, functional result.

We welcome any and all questions related to suspension, brake, engine, differential and transmission upgrades.

Email us at swapmeet@hemmings.com or submit inquiries to our Facebook page, www.facebook.com/HemmingsNews or our website where comments can be made at the bottom of dozens of previous Swap Meet articles posted there.

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10 CRUISIN' & RACING

By Tom Comerro

Taking place first on Memorial Day weekend and then again on Labor Day weekend, Musclepalooza bookends the summer with hot iron. Get there with your car early as the show field fills up quickly!

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May 4-5
Vintage Torque Fest Car Show
Dubuque, Iowa 563-588-1406

May 4-6
Lawrence Swap Meet
Lawrence, Kansas. 785-843-2222

May 4-6
Rhinebeck Swap Meet & Car Show
Rhinebeck, New York 845-876-3554

May 5
Wells Spring Car Show
Wells, Maine 207-985-9287

May 6
Sumter Swap Meet
Bushnell, Florida 727-848-7171

May 10
Hemmings Cruise-In
Bennington, Vermont 800-227-4373

May 10-12
Chickasha Swap Meet
Chickasha, Oklahoma. 405-224-6552

May 10-12
RM Sotheby's Auction
Auburn, Indiana. 260-927-9797

May 11-12
AACA Central Spring Meet
Auburn, Indiana. 717-534-1910

May 12
Silver Auctions
Missoula, Montana 800-255-4485

May 12-13
Lucky Collector Car Auction
Tacoma, Washington 206-467-6531

May 15-19
Mecum Auction
Indianapolis, Indiana. 262-275-5050

May 17-18
Express Auctioneers
Ocean City, Maryland 410-243-9999

May 20
Corvette Show & GM Parts Swap
Joliet, Illinois 815-922-1196

May 20
North Jersey Auto Show
Paramus, New Jersey 201-384-7661

May 20
Three County Fair Swap Meet
Northampton, Massachusetts 413-584-2237

May 24
Hemmings Cruise-In
Bennington, Vermont 800-227-4373

May 25-27
Springfield Swap Meet & Car Show
Springfield, Ohio 937-376-0111

May 26
Volo Auto Museum Car Corral
Volo, Illinois 815-385-3644

May 27
Auto Show & Swap Meet
Sandwich, Illinois 815-405-3656

May 27
Hemmings Musclepalooza XXVII
West Lebanon, New York 800-227-4373

HMM **urges you to contact event organizers in case of date changes or cancellations. Please note that vendor setup days may be included in the dates listed. To add your event to *Hemmings Motor News* and our website for free, go to www.hemmings.com/calendar for details, or call us at 800-227-4373.**

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Signs of the Times

In the area where I was raised on New York's Long Island, during the '50s and '60s, there were relatively few signs on the roadways. Later in life, as I was traveling the country on magazine business during the summer months, I frequently saw signs warning about some upcoming roadway condition or other event that someone thought I should know about.

"Granted, the folks who erect these informational wonders don't have a lot of space in order to go into a full-blown explanation…"

One of the first head scratchers I came across was "Bridge Freezes Before Road" while approaching a bridge *in the middle of summer.* I saw this one in Bowling Green, Kentucky. At first, I had no idea what it meant, so I asked an attendee of a car show I was at what it was all about. He laughed and explained that in winter, the surface of the bridge, with nothing under it but cold air, would ice up before the land. So, the sign cautioned drivers to be wary that there may be a sudden transition from no ice on land to mucho ice on bridge. Then it made a lot of sense. "Ohhh…" was my reply. That's when I started to think about other warning signs that might require a head scratch.

I was traveling between muscle car shows in Indiana one sweltering summer and approached a single set of railroad tracks that had no lights or barriers. It was heavily wooded on both sides of the track, and there was a sign posted that said, "Watch For Trains." Well, sitting in a car at the edge of the approach to the tracks, I couldn't see but maybe 50 or 60 feet in either direction, so I got out of my rent-a-wreck and looked down the track. Nothing was coming from either direction, so I drove over the tracks and went on my way. Now, doesn't that exercise seem a little unnecessary? Maybe a red blinking light, activated by an oncoming train a quarter mile down the line, would work a lot better, or even cutting the forest back to allow a driver to safely see a sufficient distance down the track without having to get out of the vehicle would help.

How about "Watch For Falling Rocks"? This is pretty common in mountainous regions, but unless you're driving a convertible muscle machine with the top down, how are you expected to watch for falling rocks while keeping your eyes on the twisty mountainous road? Maybe a rockslide barrier along the cliff-side stretch of road would do the job better than that sign.

"Rest Area Ahead" is another odd one. It indicates a place where you could pull in and get some sleep, or stretch your legs, or walk your dog. Out here in California, a rest area is a large parking lot, usually with a restaurant of some kind, a few outdoor bathroom facilities, an area for overnighters, maybe a gas station, plus they are usually packed with large trucks and other people trying to get some rest. Just the vehicles starting and driving away would prevent sleep! No possible way.

Another cutie is the dreaded "Roadwork Next 20 Miles," along with a speed limit sign of "35 mph," and this is on a busy two-lane freeway. So you sit in bumper-to-bumper traffic for the next however long it takes to finally drive the 20 miles, and arrive at the work site, where a couple of guys are shoveling blacktop into potholes. Really? Then there is the all-too-scary "Next Gas 50 Miles" sign when you need gas in the next 20 miles. We all are guilty of thinking "Oh, I can make it," until the engine sputters and quits. At least with this sign, the officials can scold you with "We told you so!"

"Speedometer Check Ahead" is another one. Does this, or does this not, imply that someone, somewhere along the road you are driving on, will somehow check your speedo? It took me a while to realize that it was a non-human feature, where a marker could be used to help calculate distance versus time to travel that distance in order to determine if your speedometer is registering correctly. This has always seemed to me to be a miserable waste of time and money—how many people have actually tried to use this supposedly valuable state-provided service? How many would actually care about it? Not me!

Back in the '30s, cars and trucks were much smaller than they are today, and many mid-country bridges were built from natural stone, quarried from that particular area. Today, many of those bridges are still in use 70-plus years later, hence the usually too-late warning sign stating "Low Bridge Ahead." Most of the bottom edges of these bridges are chipped and broken by today's much wider and taller commercial vehicles smacking them while attempting to get through. Maybe the sign should announce the maximum height a vehicle can be, a few miles before the bridge, so the driver can turn around and go another way without damaging the truck or ancient stone. I guess just breaking the bridge apart slowly is cheaper than building a new bridge!

How about the nebulous "Speed Limit is Radar Enforced," or "Watch For Black Ice," or "Hairpin Turn Ahead," or "Don't Feed The Bears"? I'm sure you can add quite a few of your own to this list, depending on what part of the country you inhabit. Granted, the folks who erect these informational wonders don't have a lot of space in order to go into a full-blown explanation, but they might think about spending a little more time working on the wording they use. Or maybe not say anything at all!

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