CORVETTE NEWS

Vol. 7
No. 5

FOR CORVETTE ENTHUSIASTS

A BP Ogre in the pits. Out comes the 4.11, in goes the 4.56. See page 4 for related story.

VOLUME 7
NUMBER 5

CORVETTE NEWS

(Old Corvettes never die—they go out and win SCCA National Class B Production championships. We thought our readers might be interested in the story of how Canonsburg, Pennsylvania's Don Yenko acquired and put together his car—and what sort of plans he has for this year.)

by Don Yenko

THE CANONSBURG OGRE FACES LIFE

In the past few years, I've lost count of the times that people have asked me, after I got back from a race, "How much did you win?" It's an incomprehensible point to try and get over to most people that we race just for trophies. And if they knew how much time and money were involved in preparing to go out and run for "nothing," they'd be even more puzzled. Of course the people who ask that sort of question have no way of knowing the feel of a good car at racing speeds, the exhilaration of competition, the joy of winning, the frustration of losing (and the determination that comes from it), the great people you associate with, the whole wonderful world of sports car racing. And the ones who do understand don't ask.

A sports car race starts weeks, even months, before the actual event. My own 1964 racing season started well back in '63 when we took a 1957 Corvette in trade on a newer model. The car was the basic 220-horsepower three-speed version – but it was clean, and it represented the lowest possible weight (2,731 pounds) of all SCCA Class B Production Corvettes. We decided to go racing with the car.

The cost of the initial acquisition was low, but, like marriage, the long-term investment immediately began to turn into a different story. Major surgery, Yenko Chevrolet style, was called for. We lifted the body from the frame, stripped the latter bare, and installed new front and rear brake and suspension components. The body got a similar thorough going-over. Windows and windshield came out, and all the doodads and curlycues were eliminated. We installed a 24-gallon gas tank, and very carefully fitted a big fat roll bar. (I started making these roll bars in 1957, before they were mandatory for SCCA racing. I was chicken. But at least five out of the 200 that we have sold have been inadvertently crash-tested successfully. Not by me, thank goodness.)

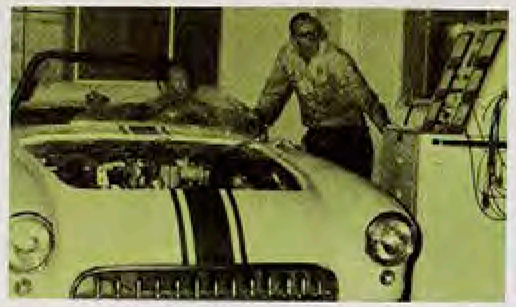
Upgrading a 1957 Corvette to 1961 specs is quite an enjoyable process, like some kind of legalized cheating, I guess. Big brakes, sway bar, aluminum radiator, and those easy-breathing engines certainly make the little '57 come alive. Probably the greatest amount of preparation time was spent on the engine, in long and tedious hours of meticulous hand and machine work, preparing the heads, fitting the pistons, degreeing the cam, etc. It's a wearying and irksome process, but the time spent in special care here usually pays off on the track.

The first year of racing for the car was very successful. We won nine out of 13 races, had mechanical troubles at three and didn't go to one. Only eight of those races counted toward a possible championship – that's all they'll let you score – so we finished with a perfect record in points.

This year, liberalized SCCA production regulations allowed us to go back into the engine and do some experimenting. So we put into effect a couple of ideas that we thought might give us a little gain. Finally the day arrived when the Ogre was ready for its lie-detector test; we wheeled it into the chassis dynamometer room to see how well we'd wrought. We usually prepare a "high-pressure" number one engine and a low-pressure spare. The big machine told us we were getting 45 more horsepower at the rear wheels from the high-pressure engine than we were getting from last year's low-pressure spare, so we felt pretty good. Both engines were given exhaustive simulated road tests. I must say that mechanics Bill Hartley and Harold Rider deserve special medals for bravery; if you've ever been in an 18 x 20-foot room with a chained-down racing car producing better than 250 rear wheel horsepower, turning 6000 RPM and over 100 MPH rear wheel speed, you'll know what I mean. At one time during the process our body refinisher came running in, complaining that we'd just ruined a new paint job with the chips we were shaking loose from the paint shop ceiling.

After we had the car completely re-assembled and ready to go, we took it to the local grain merchant's scales and weighed it. To our horror, we discovered we were 100 lbs. under legal racing weight. So it was back on with some of what we had so painstakingly removed; Bill Hartley shed an ounce of tears I know for every pound we had to put back. It turned out to be a good thing that we did, though, because the cars were weighed at the new car's very first race.

The first event of the year was at Marlboro, Maryland, and immediately upon our arrival we set a new course record – for blowing an engine while backing



Far left. You'd look nervous, too, with 250 rear wheel horsepower and over 100 mph rear wheel speed churning away in a chained-down Corvette on a dynamometer. Left center. Harold Rider and Bill Hartley, Yenko's two mechanics, have a consultation over one 283-cubic-inch Corvette engine. Right center. The Canonsburg, Pennsylvania, Ogre in the pits prior to a race. Far right. Doc Blatchley (left) and Don Yenko get the scoop at a driver's meeting.

the car off the trailer. At least we thought we did. The car began producing so much smoke that we had serious doubts that we'd even get it on the course. I tried nursing the smoking cripple around Marlboro's twisty 1.8 miles, but after three laps I felt like I needed an oxygen mask, and I was black-flagged off the course because nobody else could see to drive through the screen I was laying down. The engine evidently had to come out.

Where to do it? Where does one go to pull 535 pounds of engine on a weekend in a strange town? In 1917, during World War I, the fighter pilots often shared a strange sense of comradeship toward their adversaries. They saluted each other in the air before and after engaging in combat, and they even sent congratulatory telegrams back and forth across the lines. In 1964, the mechanic (for my arch-rival in Class B Production, Bob Mouat) suggested that the only logical place for us to think about doing a thing like an engine swap was in his garage in Baltimore. So not only did we use mechanic Bill Huffman's facilities, but he also helped us with the actual work, which took until midnight! You can't explain things like that to the people who don't understand why we race for "nothing," either.

Race day was a bittersweet affair. With no practice, I started from the No. 12 grid pad, and managed to coax the spare-engined beast up to a final second place in class. There was one fellow I just didn't quite manage to catch, which ordinarily would have had me quite peeved – except in this case his name was Bob Mouat, and the whole thing was so fitting that I didn't mind so much. Then we got home, and discovered to our dismay that we had an inaccurate dipstick in the high-pressure engine, and we'd been two quarts of oil overfull, which explained the smoke. That's racing.

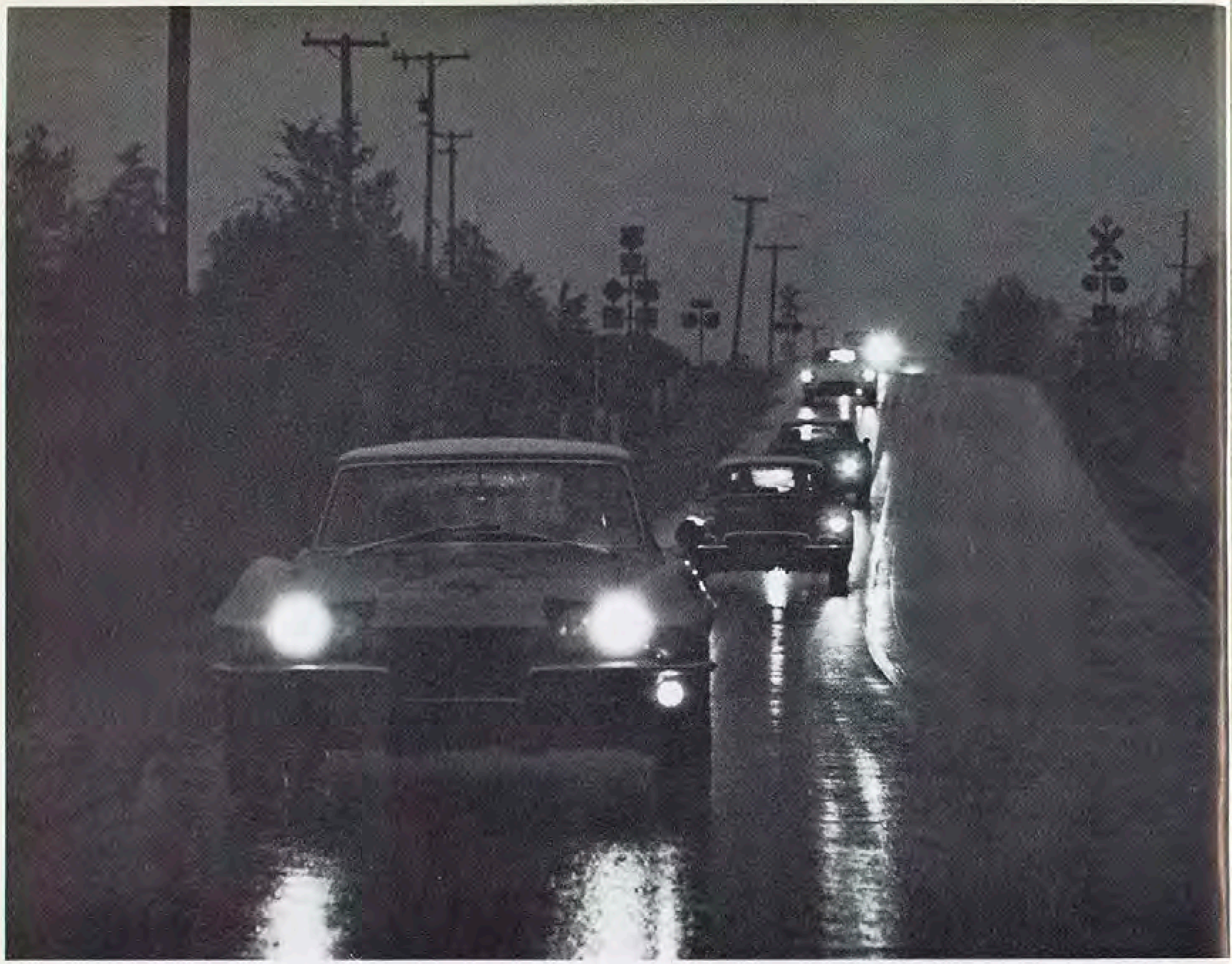
The second National of the season was Virginia International Raceway at Danville, and it was only a week later. Preparation for the race was necessarily a bit hurried, and we ended up racing again with the spare engine. Bob Mouat's '57 Corvette was gridded beside me, Bob Grossman's A Production GTO Ferrari ahead of him. The Cobra in front of me got off fast and, making maximum use of the Corvette's good initial acceleration, I got the jump on Grossman before the first turn. The GTO got around me soon afterward, but he'd been sandwiched between Mr. Mouat and me long enough to provide some useful interference. At the end of the first lap, Bob's Corvette was within a couple of seconds of me; he was harassing me as much as he could and picking up seconds by going deeper into the turns than I was. I figured he'd try to pass on the first turn of the next lap, so I went as deep as I dared myself, a good 50 feet farther into the apex than usual for me. Mouat evidently had decided that he was going to shut off after I did; he went in even deeper and then bobbled.

That caper cost him 30 seconds and gave me some breathing room for a change. As Dick Thompson once told me, during my formative years (last year), "If you can't see your adversary, it's much easier. When you pick him up in your mirror, it's awfully hard to stay calm." That certainly held true for me; I managed to get things in hand somewhat and try to do a better and smoother job for the remainder of the 45-minute race. It's an amusing thing, how easy it is to go way past peak RPM during the heat of the chase – then when the pressure gets off and you can make a deliberate effort to stay under the red line, you begin hearing all kinds of imagined noises. It's a lot like my airplane engine – whenever I get over mountains, it goes on "automatic rough."

So those were the first two races of the season in what once was a tired-out used car but is now a pretty fair racing machine. It's a very satisfying thing to take a well-used piece of equipment and make it go. The great pair of mechanics I am lucky enough to have get a lot of satisfaction out of it, too. They ought to, because they play an awfully large part in the whole thing.

There's another thing, too. The score is now even between Bob Mouat and myself. The score being even doesn't mean Bob won't keep on trying. And because he'll keep on trying, I get a lot of fun out of racing for "nothing." Wouldn't you?

the good guys go to Indy



Undaunted by downpour and darkness at the start, the caravan made the 10 o'clock "E.T.A." on the nose, but got caught in the middle of miles of milling multitudes.

"The Good Guys Go to Indy" was the theme for the Kalamazoo Corvette Club's trek to watch the first day of time trials. Start-off scheduled for 4:00 a.m., start-off on schedule. Unscheduled torrential rains heralded the start of the caravan comprised of approximately fifty Corvettes. Rendezvous with other clubs en route brought the total caravan number to approximately 75.

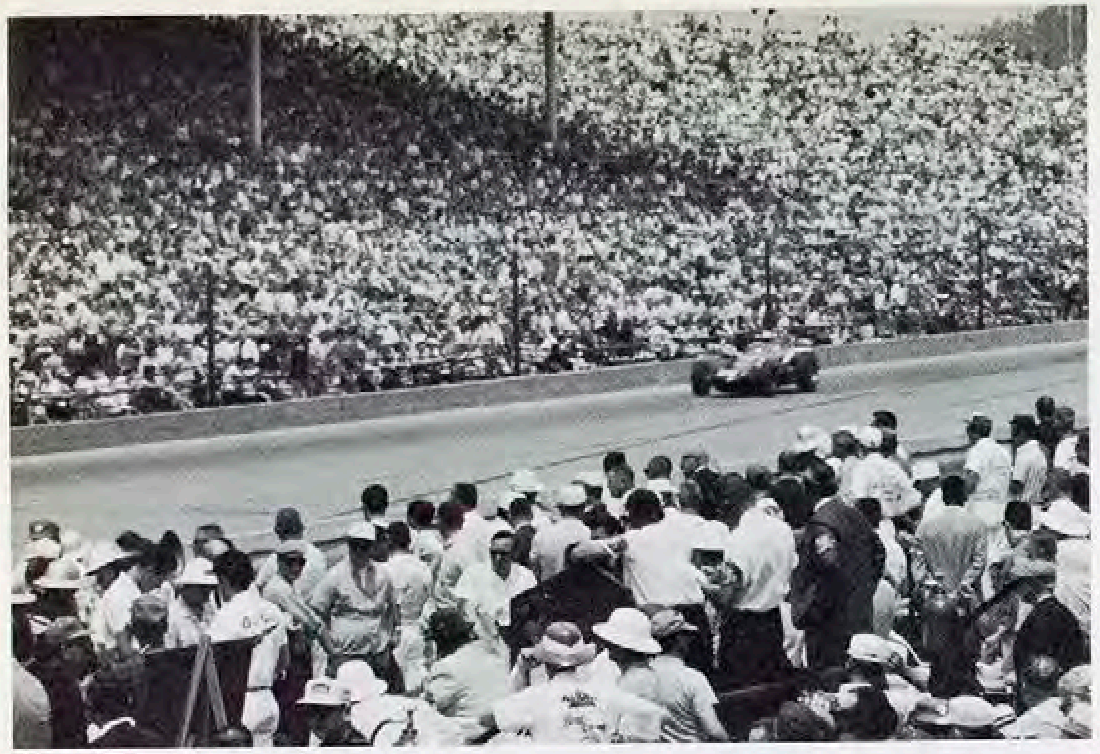
It took only one hour to travel the one-half mile to the Corvette Corral and sign up. From Kalamazoo, Grand Rapids, Fort Wayne, Chicago; from Central Ohio, Capital City, greater Dayton, they came. Michiana, Kentuckians . . . even Jacksonville, Florida, were part of the representations.

"The Good Guys Go to Indy" boldly lettered on many of the Kalamazoo Corvette Club members' cars.

Think-alike minds mesh gears. Now and then someone mentioned food. Otherwise, the talk was of your Corvette, my Corvette, his Corvette and her Corvette.

Rally 'round the flag, boys . . . and girls. The Kalamazoo Corvette Club on target . . . the stands at Indy for a firsthand look at the exciting preliminaries.

If the 4:00 a.m. start and the long drive through the torrential rain didn't do it, Nick Newell's car was sure to make onlookers see double.



The Kazoo Club and guests at automobile Eden — the track at Indy. Everyone was hot; no one was bothered. The mood was light.

Jim Clark, after a record dash to win the pole, spent a raceman's holiday at the controls of this pint-size replica of the big cars.

The 4:00 a.m. start got to some in other ways. Trouble was, they paid a second price for too-long a sleep in the bright hot sun.

As long as you're picking alleys, why not pick the world's most exciting Gasoline Alley, Indianapolis.

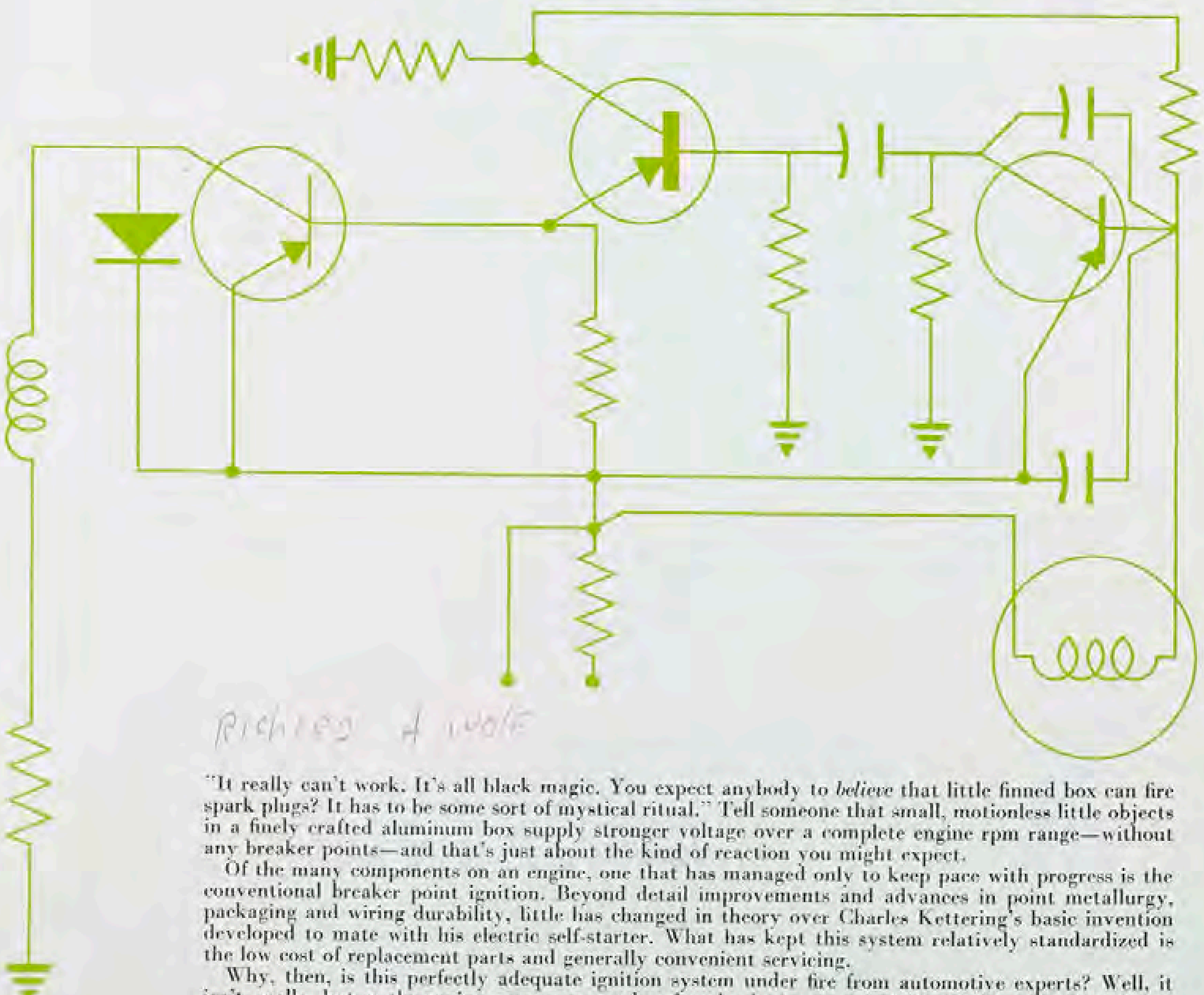
The Trophy, only one of the reasons for it all.

Checking the sign-in ledger after a successful Kalamazoo Corvette Club event. Left to right: Betty Korzillius, Secretary; Bob Mc-Allan, President; Don Bisceglia, Vice-President; Dave Brandt, 2nd Vice-President; Jim Harvey, Past-President and event Co-Chairman; Lenora Brady, Treasurer, and Frank Cooper, event Co-Chairman.

The exclusive inner circle - prelude to a *planned* hootenanny, limbo contest and camp-out at nearby Raceway Park. However, the weatherman, who shut off the rain for the time trials, unleashed bucketfuls moments after this picture was snapped.

BREAKERLESS IGNITION

sophisticated circuitry on Corvette engines eliminates points



"It really can't work. It's all black magic. You expect anybody to *believe* that little finned box can fire spark plugs? It has to be some sort of mystical ritual." Tell someone that small, motionless little objects in a finely crafted aluminum box supply stronger voltage over a complete engine rpm range—without any breaker points—and that's just about the kind of reaction you might expect.

Of the many components on an engine, one that has managed only to keep pace with progress is the conventional breaker point ignition. Beyond detail improvements and advances in point metallurgy, packaging and wiring durability, little has changed in theory over Charles Kettering's basic invention developed to mate with his electric self-starter. What has kept this system relatively standardized is the low cost of replacement parts and generally convenient servicing.

Why, then, is this perfectly adequate ignition system under fire from automotive experts? Well, it isn't, really, but as the saying goes, someone has found a better way—with transistors. In themselves, transistors aren't the end-all for automotive ignition. They have to be used with other equally new developments in order to realize all benefits that can accrue. Generally, these are higher spark plug voltage available at high engine speeds, improved plug life, fast starting in cold weather, somewhat improved overall fuel mileage and, as in the case of Corvette, elimination of conventional breaker points.

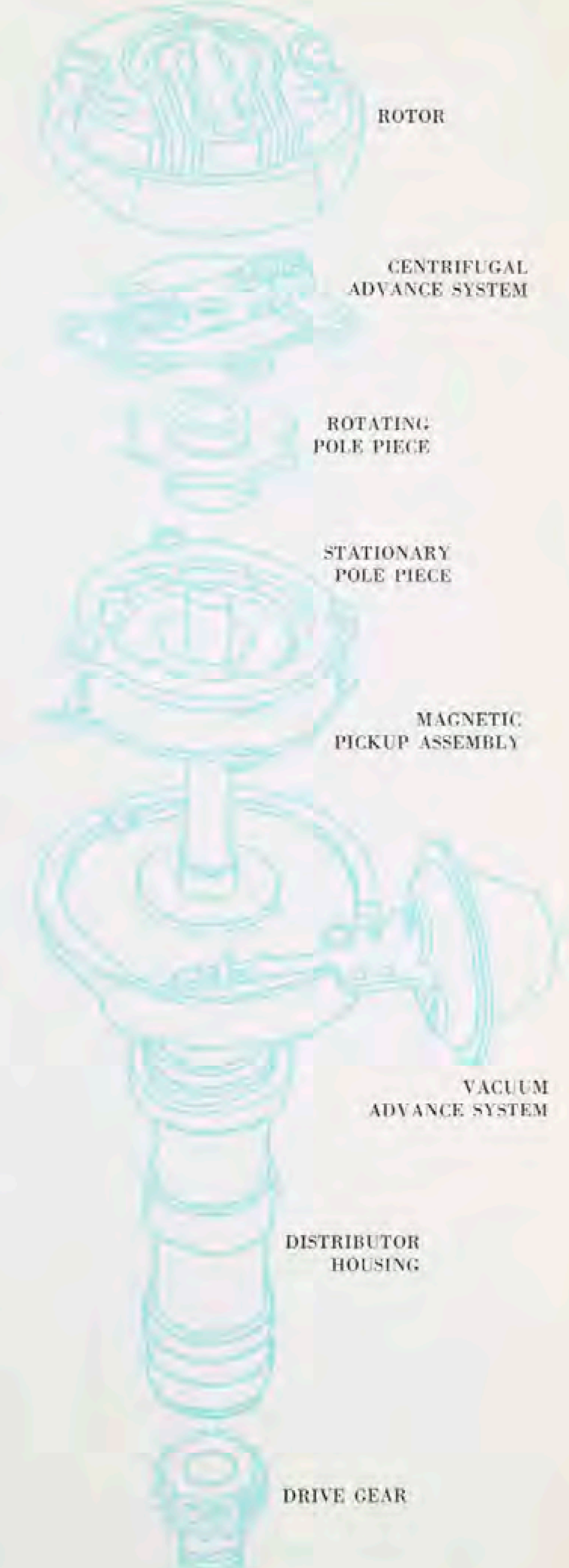
It would be well to define some terms now in order to avoid confusion in following parts of this article. The *primary* circuit encompasses the points, capacitor (often called the "condenser"—but "capacitor" is the preferred term), and primary winding in the ignition coil. This winding takes in comparatively few turns of heavy wire and carries low (10-12 volts) voltage at high (up to 4.5 amperes) current. Another part of Corvette's primary ignition is the ballast resistor which drops the normal 12 volts down to about 9 to 10 volts. The secondary circuit includes the secondary winding in the coil (many turns of fine wire that carries very high voltage at extremely low current), the distributor rotor, cap, high tension lead, spark plug wiring and spark plugs.

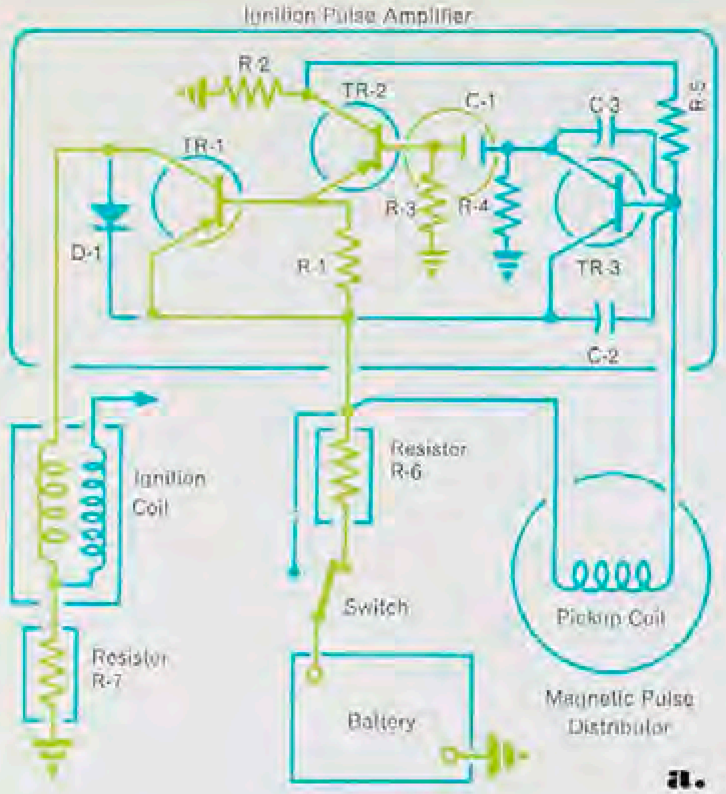
To understand why transistorized circuitry can improve ignition efficiency, it would be well to review the operation of conventional breaker point ignition. From the ignition switch, battery voltage passes through the ballast resistor to the positive side of the ignition coil. From the coil, the wire is routed to the distributor housing where it is connected to the breaker points. When points close, the circuit is complete and current passes through the *primary* ignition coil winding creating a magnetic field around the coil. When the points open, the primary magnetic field collapses and induces a high voltage in the *secondary* winding of the coil. The voltage in the secondary winding fires the plug at the exact time the secondary is connected by the rotor through a wire to a spark plug. When the points close again, the magnetic field builds up; when the points open, the field collapses, firing another plug. The time interval when the points are *closed* is commonly known as the "dwell" period. An important idea to keep in mind: the sequence of coil-buildup-coil-discharge is *identical* in both Corvette conventional and transistor ignition; only the *means* of accomplishing this goal differ.

Corvette's Delcotronic full-transistor ignition (Option K-66 for 365- and 375-hp Corvette V8 engines) utilizes most known advances in ignition engineering. There are no breaker points, capacitor or breaker point mounting plate. Refer to the exploded view of the Delcotronic distributor at right. At the top, enthusiasts will recognize the rotor. Below that, the centrifugal advance mechanism. Then a rotating pole piece, a magnetic pickup coil assembly (connected to the vacuum advance mechanism), distributor housing and drive gear. Visually, the unit differs from conventional distributor assemblies in another way—*two* wires come out from under the cap. (The tachometer drive has been omitted in this drawing for simplicity.)

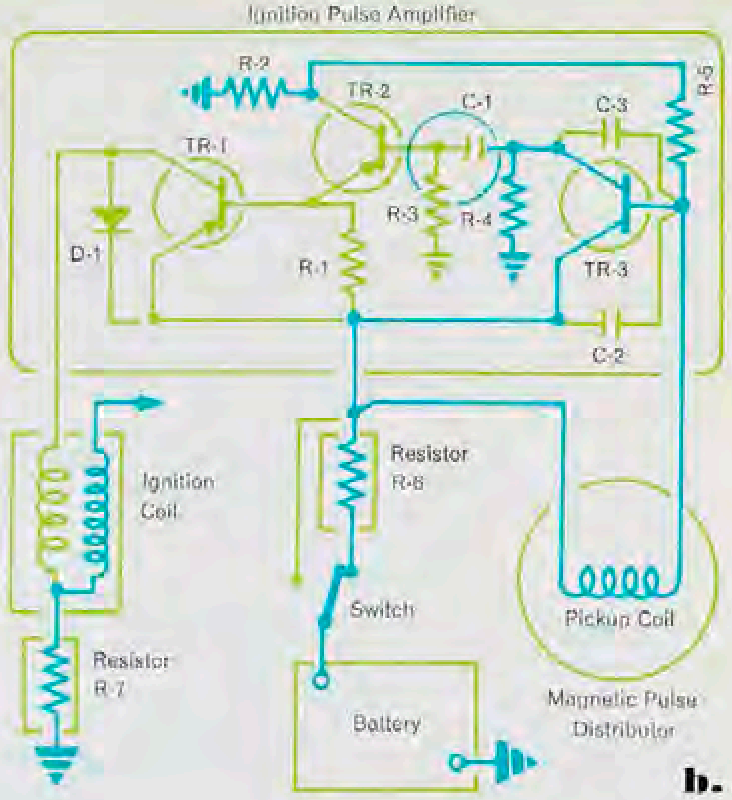
In a conventional distributor, the rotating distributor shaft has eight lobes (on an eight-cylinder engine) which open and close the points. In the Delcotronic unit, the eight-pointed pole piece is connected to the rotating distributor shaft. No cam lobes, as in conventional distributors, are necessary. The eight-pointed rotating pole piece passes by the eight projections on the stationary pole piece (one point for each cylinder) and induces a small voltage in the magnetic pickup assembly coil. From the distributor, two wires connect the stationary magnetic coil pickup assembly to the transistor ignition amplifier unit.

In total, the units of the Delcotronic full-transistor ignition system include the special distributor, coil, resistors and transistor amplifier. The Delcotronic should not be confused with accessory systems that use conventional breaker points to trigger an auxiliary transistor amplifier—as most of these systems do. Delcotronic full-transistor ignition is an all-electronic device. How the Delcotronic system works and its advantages over conventional ignition systems are detailed on the next pages.





a.



b.

three-transistor circuit handles almost twice the current of conventional breaker points

One of the biggest advantages that Corvette's Delcotronic full-transistor ignition system has over conventional ignition is its ability to deliver a tremendous wallop of primary voltage at extremely high current to the coil primary. Another is durability and uniform spark intensity. Conventional breaker points are limited to a maximum of 4.5 amperes of primary current during each ignition cycle. Higher current tends to cause excessive oxidation leading to short point life and rapid ignition system malfunction. Ignition experts feel that the present 4.5 amperes of current flowing through the points is about as high as is practical. However, for high-performance engines, even higher primary current is necessary in order to maintain consistent and high spark plug voltage at very high engine rpm. It is in this service that the transsistor circuit shines.

The Delcotronic system develops about 7.0 amperes of break current in the primary winding of the coil. This high primary current is almost twice what conventional ignition systems can deliver. And because the system is entirely electronic, without breaker points, it is possible to maintain this high primary current over a very wide engine speed range—to 6,500 rpm, for instance—in the case of some Corvette engines. With this high primary current, secondary voltage to the spark plugs remains high (nearly 25,000 volts) throughout the engine speed range.

A three-transistor circuit alternately builds up high primary current in the coil, then abruptly shuts it off by a pulse sent to it from the pickup coil in the distributor; just as the opening of breaker points in conventional ignition shuts off primary coil current. The transistor circuit has the ability to switch high primary current on and off with greater consistency and accuracy than conventional breaker point ignition; in fact, Delco-Remy engineers indicate that tests at 6,000 rpm prove the unit, in their words, "Very satisfactory," which is engineer talk for, "Wow! Does this job put out!"

So much for what it does. How does it do it? Look at the two schematic diagrams across. Note that there are three transistors, labeled TR-1, TR-2 and TR-3. Note, also, various other cryptic symbols. Of these, the ones to be discussed are C-1 and R-3 (circled together), and D-1. The rest, while vital to the circuitry, would involve unnecessary digressing discussion to pinpoint their functions. In Diagram **a**, the green trace through the circuit shows current flow with the ignition on and the engine not running. TR-1 is called the "output" transistor, TR-2 the "driver." Both the driver and output transistors are conducting current, and the coil has current flowing through its primary winding, through a resistor R-7 to ground. C-1, a capacitor, has charged up to its rated value and current is also flowing through R-3 to ground. This portion of the circuit has greatest significance when the plug fires.

Now look at Diagram **b**. This shows current flow when a spark plug fires. TR-3, the "trigger" transistor, is "turned on" by an induced pulse from the magnetic pickup coil in the distributor. This action causes both the driver and output transistors to "turn off." And very abruptly. The primary field collapses and causes the secondary to fire itself off through a spark plug wire and plug to ground. The *rate of off time* is controlled by the discharge rate of C-1 through R-3. In electronic terms, this is known as an R-C (Resistance-Capacitance) network which has the ability to discharge the circuit *in a mathematically precise rate of time.* In the Delcotronic unit, the values of C-1 and R-3 govern off time and indirectly govern dwell, or "on", time as well. Electronically, it is the equivalent of setting the point gap mechanically in conventional breaker point ignition. D-1, a zener diode, protects the output transistor against high voltage from the coil—a condition that occurs every time a plug fires in either system. In conventional ignition, the capacitor helps prevent arcing across the points when they open to break the primary circuit.

After the plug fires, the trigger transistor "turns off" and both the driver and output transistors turn back on, resembling the circuit shown in Diagram **a**.

The reader can see now that since off time and dwell time are controlled electronically, the Delcotronic unit can maintain consistently high spark plug voltage. Referring to Chart **c**, note the comparison of conventional versus Delcotronic ignition. The green line shows the conventional breaker point performance. Only between idle speed and about 2,500 rpm does ignition secondary (plug) voltage remain above 20,000 volts; beyond 2,500 rpm the voltage steadily falls off to less than 16,000 volts at about 5,500 rpm. Contrast this with the Delcotronic system which starts right off at idle with over 25,000 volts of spark plug voltage and never falls below about 23,000 volts—even at 6,000 rpm!

This consistent high spark plug voltage is very important to high-output Corvette engines due to the increased demand for high plug voltage brought about by super-high compression (11.0:1), gasolines with large amounts of additives and capabilities of more than 6,000 rpm. Beyond about 5,500 rpm, conventional ignition systems often run into the problem of "point bounce"—a condition where the points make poor contact because they tend to bounce against each other like two springs. This action reduces the amount of primary current to a virtually useless amount, and the plugs stop firing properly. The Delcotronic system, with its electronically controlled dwell period, eliminates this problem.

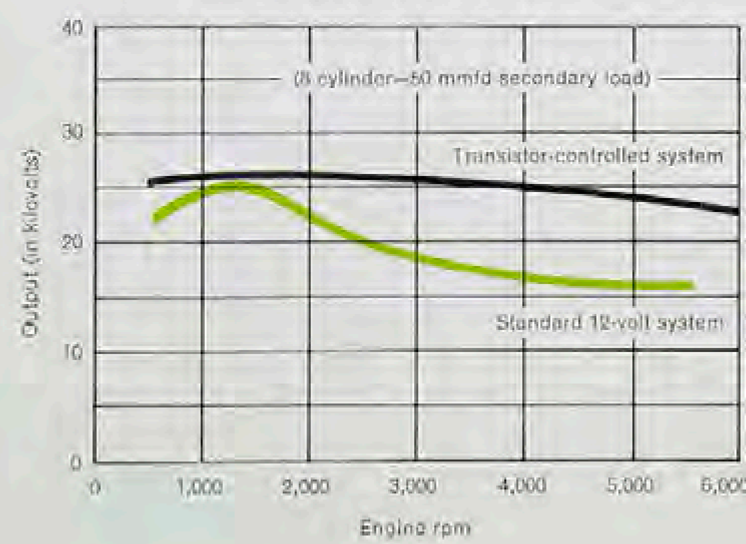
In general, once the Delcotronic unit is timed to engine specifications (in the same manner a conventional distributor is timed), no further adjustments are necessary until engine overhaul time.

How about service? The distributor shaft and bushings have sealed-in lubricant, eliminating periodic maintenance. Of course, there are no points nor capacitor to service. The only items to look at from time to time are the distributor cap, rotor, spark plug wires and plugs.

But what if the engine does suddenly quit? Ordinary service procedures and a cool head should prevail—check the fuel system and associated components to determine whether the engine is indeed receiving its normal share of fuel. If, after general checks determine that the fuel system is operating normally, refer to Diagram **d** below. Note that two special resistance wires are in this circuit: one shown as R-6; the other indicated as R-7 is in series with the coil negative (—) lead. Check for loose, disconnected or broken primary circuit wires. In most cases, a majority of troubles can be traced to these causes. Further test procedures should be performed with correct equipment designed to check out the amplifier and coil. Note: if either R-6 or R-7 proves defective, it *must* be replaced with an identical resistance wire. Also, on conversions, R-6 replaces the conventional ballast resistor.

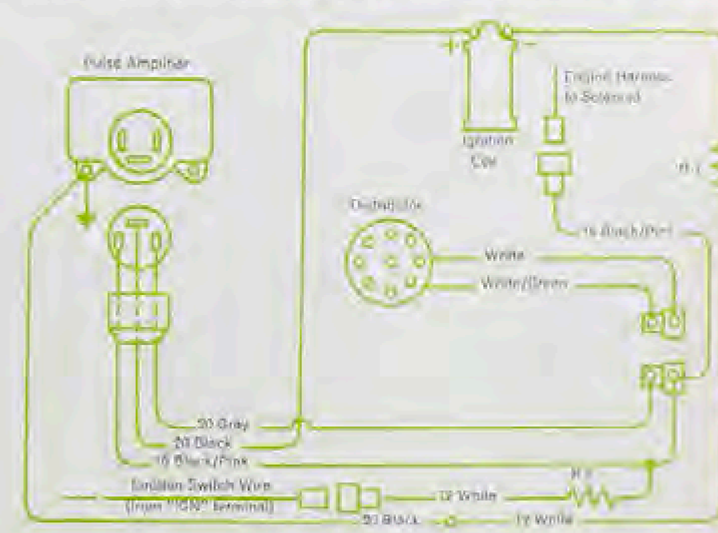
The Delcotronic full-transistor ignition differs from conventional ignition systems drastically. But no weird incantations need be mumbled over the system; it has been engineered to give extremely long and trouble-free service. Its advantages over conventional systems and breaker point triggered transistor systems (those using breaker points carrying low primary current to interrupt an auxiliary solid-state amplifier) should convince the skeptical that space age circuitry is here to stay. In time, ignition points may join the hand crank and kerosene headlamp in the automotive museums.

SECONDARY IGNITION OUTPUT—COMPARISON

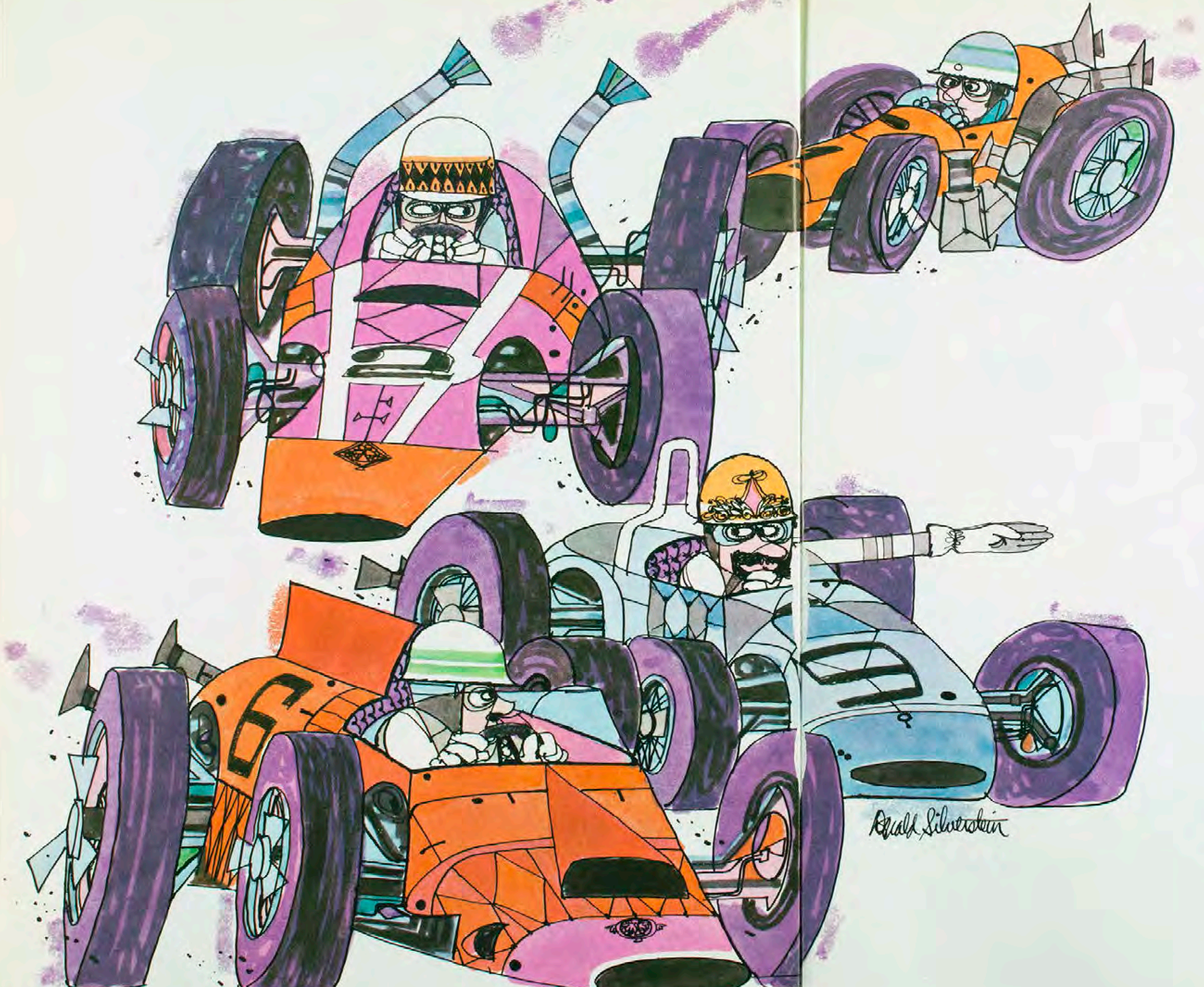


c.

CORVETTE BREAKERLESS IGNITION WIRING DIAGRAM



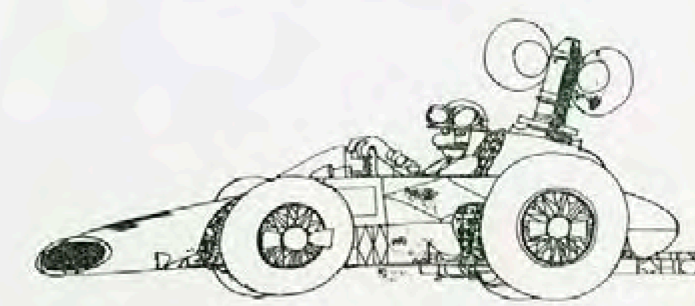
d.



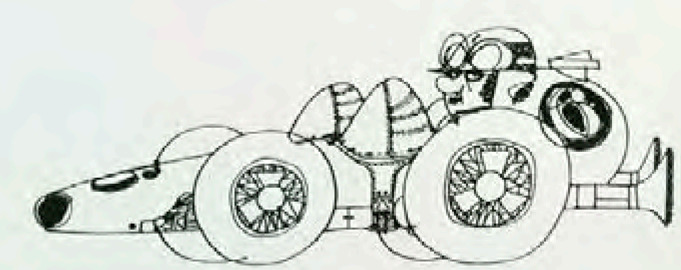
OF CABBAGES AND KINGS AND SHAGNASTY SWOOSH

OR HE WHO LAPS LAST LAPS BEST

'Twas Race Day morn at Bodkin's Glen,
A formidable, serpentine track;
Ya-hooing railbirds mobbed each bend,
Their favorite wheelmen to back.

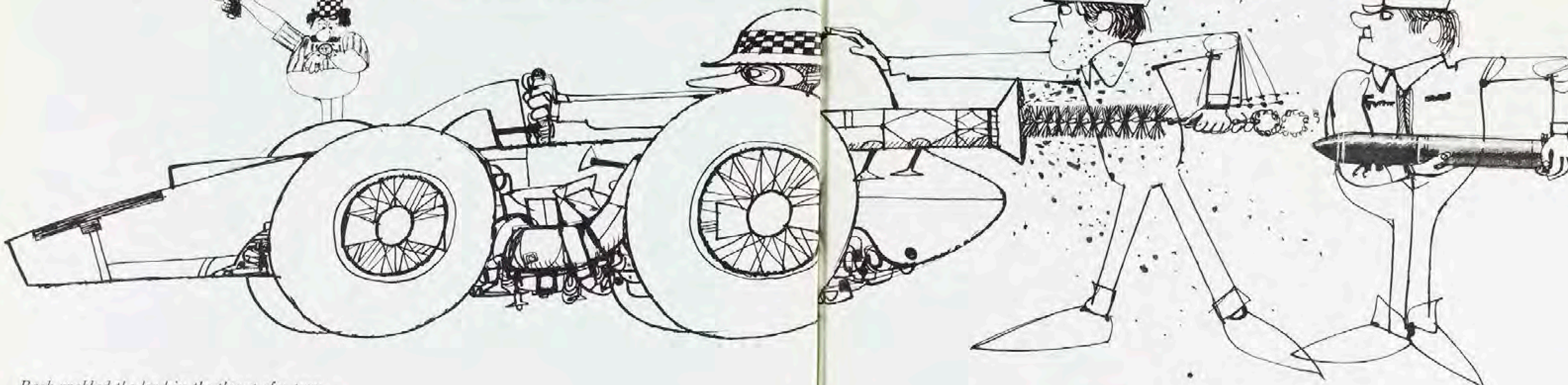


On hand to tour the twisty terrain
Were the giants of automobilia:
Rack A. Pinion, Tach Chicane,
And the comely buff, Ophelia.



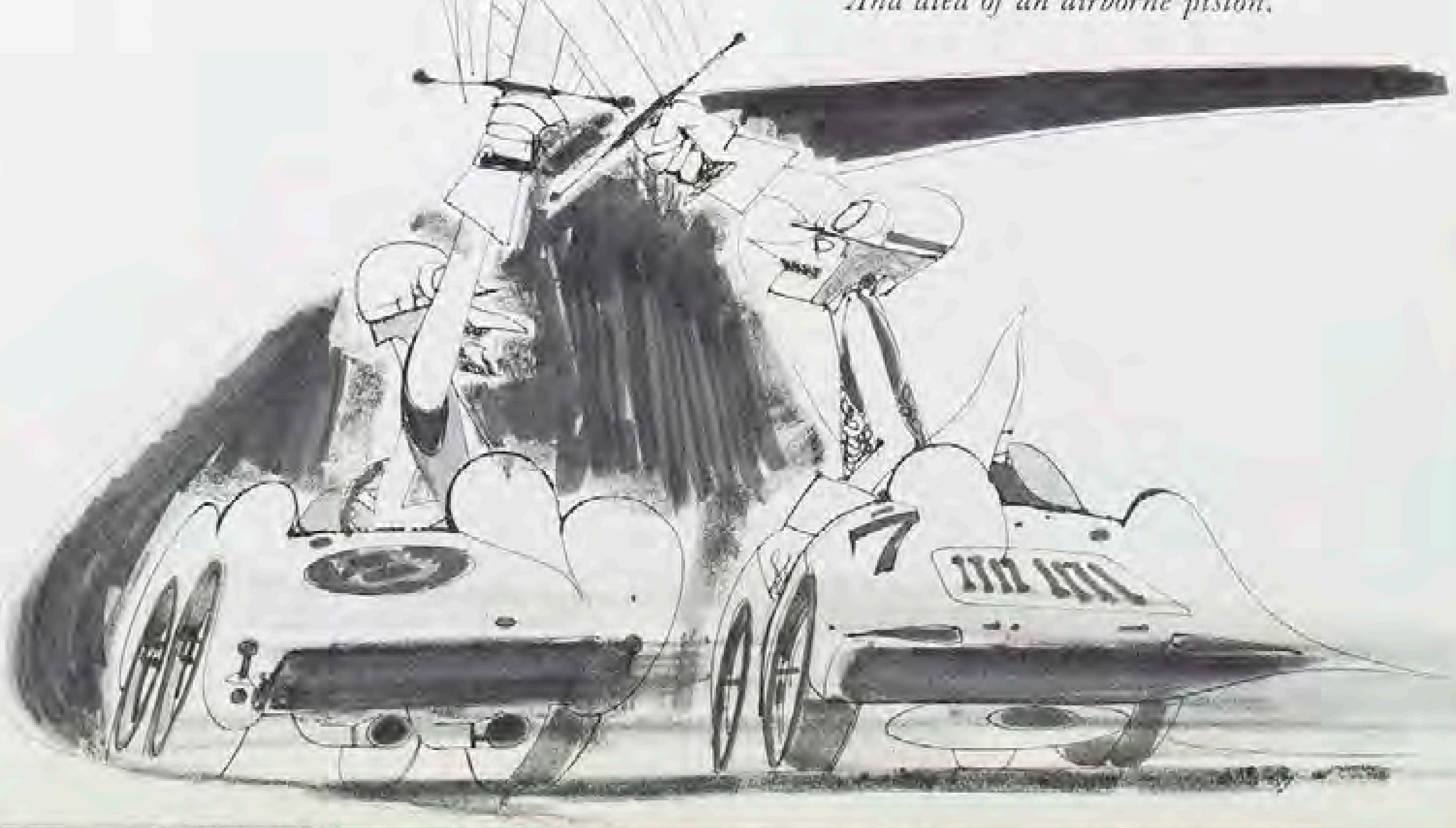
Armed for the fray, they poised on the grid,
Blipping their throttles, antsy;
Eying each other through narrowed lids,
Fame and hardware their fancy.

The starter stepped up with pistol and pomp,
And performed his noisy chore.
Like four-wheeled cougars, their tails stomped,
The cars streaked off with a roar.

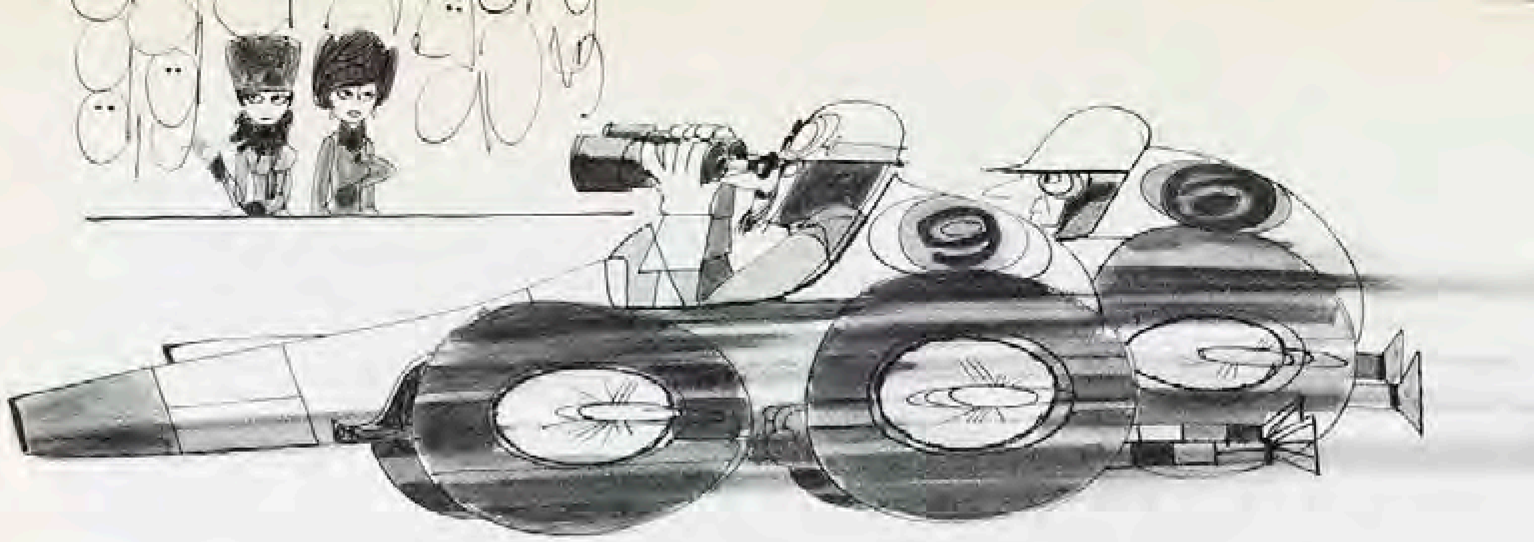


Rack grabbed the lead in the throat of a turn,
But Tach gained ground in the straight;
Ophelia ran third with little concern
In her twin-turret Belchfire Eight.

Soon Rack and Tach were dueling for first,
Shades of Clay and Liston,
'Til Tach's car developed an oil thirst,
And died of an airborne piston.

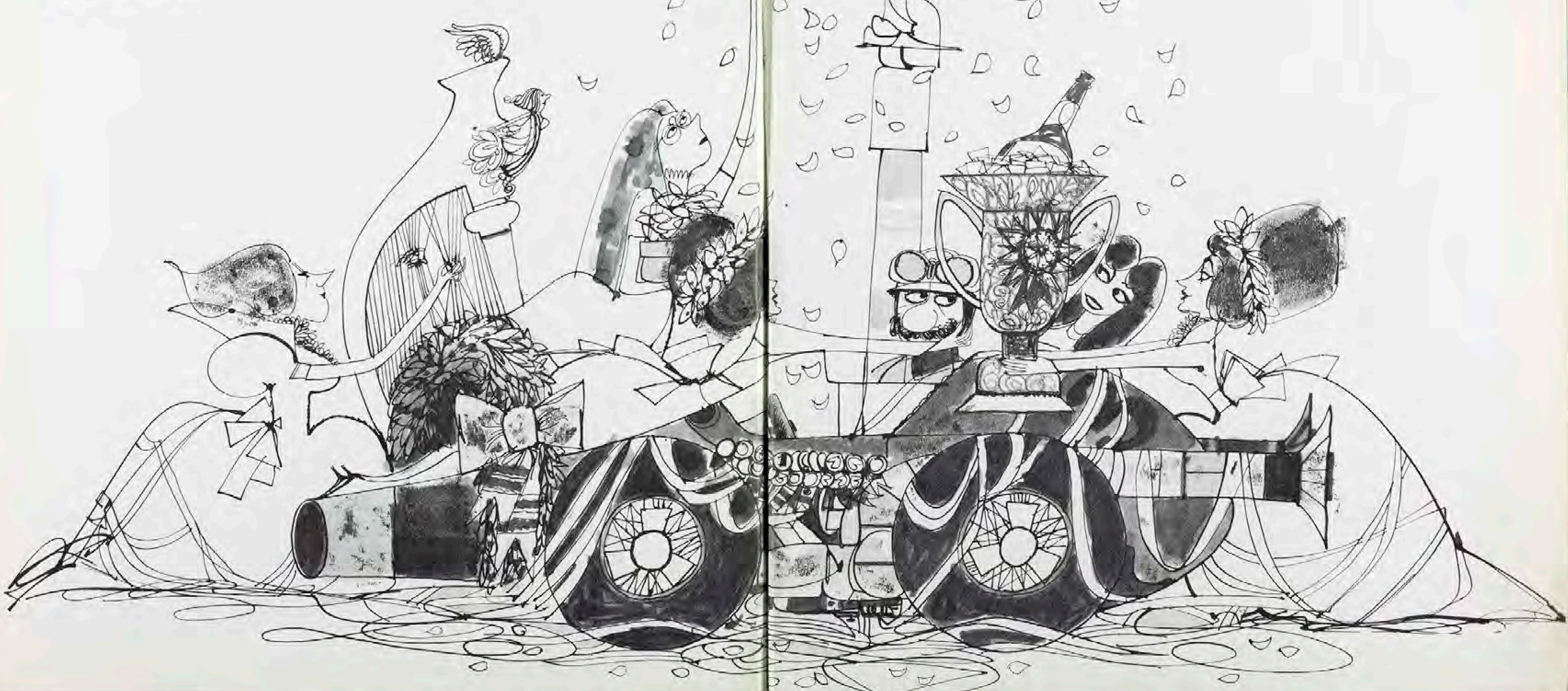


It looked like Rack was a shoo-in to win,
So he slacked a tad on his go,
But he forgot a mirror is for looking in,
And it soon framed a charging foe.



It was Shagnasty Swoosh, a complete unknown,
Barreling from behind like Hades.
On the very last lap he moved out alone
While Rack was ogling ladies.

So Shag sat triumphant, a hero 'twould seem,
Surrounded by females adoring,
But, alas, 'twas only a bookkeeper's dream
Stopped short by, "Shag, you're snoring!"



the realm of Rear Axle Ratios

To many people, rear axle ratios are simply a mysterious grouping of numbers. In reality, they tell the number of revolutions an engine crankshaft makes (with the transmission in top gear) for one revolution of the rear wheel. For example, the Corvette 3.08:1 ratio means the engine crankshaft will turn slightly more than three times for every turn of the wheel. It is considered a relatively high ratio. A Corvette 4.56:1 axle ratio is lower (even though numerically higher), and means the engine crankshaft turns slightly more than four-and-a-half times for each wheel revolution. Throughout this article, references to a "higher" or "lower" ratio, therefore, do not refer to the numerical designation.

Therefore, a high ratio (like the 3.08:1) is generally considered to be better for economy, durability and quietness because the engine is operating at a relatively slower rpm for any given road speed. On the other hand, as the ratio goes lower (like the 4.56:1), acceleration increases while potential economy drops off considerably.

Once a car is delivered to an owner, he learns whether he is stuck on . . . or with . . . the rear axle ratio installed. Changing an entire rear axle isn't easy, so while many owners talk about different ratios, seldom is anything done about altering an existing ratio. And because ratios usually end up being a one-shot deal, it is important that the initial ratio is acceptable for the kind of driving to be done.

The following power team chart shows the complete range of ratios available for Corvette.

Engine	3-Speed Synchro-Mesh	4-Speed Synchro-Mesh	Powerglide
250-300-hp V8s	Std. 3.36:1—General Purpose Axle (No optional ratios available)	Std. 3.36:1—General Purpose Axle (Opt. 3.08:1)	Std. 3.36:1—General Purpose Axle (No optional ratios available)
365-375-hp V8s	(3-Speed not available)	Std. 3.70:1—General Purpose Axle (*Opt. 3.08:1, 3.36:1, 3.55:1, 4.11:1, and 4.56:1)	(Powerglide not available)

Note: Optional Positraction rear axle available in all standard and optional ratios.

3.08:1 (with 250-300-hp engines) recommended only where economy is prime consideration. Less acceleration rate than with standard axle.

3.08:1 (with 365-375-hp engines) for special conditions only—where ultimate maximum speed is desired. Relatively slow rate of acceleration. Not recommended for city traffic.

3.36:1—Similar to 3.08:1, but with slightly better acceleration rate.

3.55:1—Satisfactory when most driving is on open highway.

4.11:1, 4.56:1—Excellent for maximum acceleration. Limited top speed and less economy. *Available in Positraction rear axle only.

All ratios are matched to the power team, and those ratios listed as "standard" are considered best for all-around use. In fact, unless the buyer orders either of the two top horsepower engines and Positraction, the choice is largely limited to this "general purpose" category. When Positraction is specified with either top engine, the choice of ratios runs the gamut from 3.08:1 to 4.56:1. However, unless a buyer specifies some other ratio, he will automatically get the 3.70:1 ratio—the "general purpose" ratio with that particular engine-transmission combination. For a desired level of performance, economy or cruising quietness other than that offered by the standard 3.70:1 ratio, the remaining ratios are offered to cover almost every range. As shown below the chart, each ratio is labeled to give a good indication of where it falls in the area of performance and/or economy.

Prediction of a specific level of performance from a particular axle ratio is difficult because of such variables as tires, condition of the road and even the driving technique of a particular driver. Other than the fact that the *highest* ratio theoretically gives the *most economy* and the *lowest* ratio theoretically gives the *most acceleration* potential, no flat statement can be made. The theoretical levels of performance can be determined by using certain established formulas. For example, theoretical speed in any forward transmission gear with any rear axle ratio can be determined mathematically by using the formula:

$$\text{MPH} = \frac{60 \times \text{engine rpm}}{\text{Wheel revolutions per mile} \times \text{overall gear ratio}}$$

(see Overall Gear Ratio Chart)

Of the formula factors needed to compute theoretical miles per hour, engine rpm can naturally come from the tachometer. Wheel revolutions per mile can be measured if not already known. (Tire or vehicle manufacturers sometimes publish this information.) To get the measurement, mark the floor and bottom of the tire with chalk. Then roll the car until the wheel makes one complete revolution. Again mark the floor in line with the tire mark and measure the distance (very accurately) between floor marks. If, for example, the distance measures 84¼", this distance would be divided into 63,360 (the number of inches per mile) giving wheel revolutions per mile of 752. Of course, this number would not take into consideration any possible wheel slip or tire expansion.

If for some reason the rear axle ratio is not known, jack up one rear wheel and chalk-mark the drive shaft and the tire. Rotate the tire one complete revolution. If the drive shaft makes slightly over three revolutions to one of the wheel, the ratio would then be the 3.08:1 installation, etc. With the rear axle ratio known, the overall ratio (through the transmission gear) can be determined from the chart. Now, let's see how this formula works.

A hypothetical course-problem can be set up to show how a driver could use the formula to arrive at a better ratio for a specific use. This hypothetical course is a twisting two-mile route with severe reverse bends at either end of a straightaway which is less than one-half mile long. The hypothetical car is a Corvette equipped with 6.70 x 15 competition tires for which a 752-wheel-revolutions-per-mile figure has been determined. The engine is either of Corvette's two top mechanical-lifter engines with the tachometer red-lined at 6500 rpm. The car has the "standard" 3.70:1 rear axle ratio with the 4-Speed transmission.

Suppose the driver enters the straightaway in first gear with the tachometer reading 3000 rpm. Using the formula, our figured-out factors and the Overall Gear Ratio Chart (3.70:1 axle ratio x 2.20:1 low gear ratio), the actual would be:

$$\frac{60 \times 3000}{8.14 \times 752} = 29.4 \text{ mph}$$

Next, the driver accelerates through the gears, reaching 5800 rpm in third gear before braking down:

$$\frac{60 \times 5800}{4.73 \times 752} = 97.8 \text{ mph}$$

Through the reverse bends that follow, engine speed drops to 2000 rpm in low gear as the driver enters the short backstretch:

$$\frac{60 \times 2000}{8.14 \times 752} = 19.6 \text{ mph}$$

Suppose the driver feels that road speed cannot be increased in the first and last condition above without losing control of the car on the severe bends. Therefore, quicker acceleration out of the turns or higher top speed would be the logical solution to decrease overall lap times. Acceleration out of the bends could be improved by increasing engine speed through a change in axle ratio to either 4.11 or 4.56. To find out quickly what the resultant engine rpm would be under the same condition, but with a different axle ratio (without working out the formula), use these conversion factors:

From	To	Multiply by
3.70:1	4.11:1	1.1108
3.70:1	4.56:1	1.2324
4.11:1	4.56:1	1.1095
4.11:1	3.70:1	0.9002
4.56:1	4.11:1	0.9013
4.56:1	3.70:1	0.8114

Using the hypothetical driver entering the straightaway in first gear at 3000 rpm, change from 3.70:1 to 4.11:1 by multiplying the 3000 engine rpm by the factor 1.1108. This equals 3332 rpm. Similarly, for a change from 3.70:1 to 4.56:1 ratio, multiply 3000 rpm by factor 1.2324 which equals 3697. Since the 4.56:1 ratio permits the higher engine rpm, it should produce the quickest acceleration out of the bends. On the major straightaway, the increased acceleration would normally permit a shift into the top gear, possibly giving the desired higher road speed. Because of the severity of the bends on a course of this type, the 4.56:1 ratio would probably prove best in cutting lap time.

Although this situation is hypothetical, the same type of follow-through with the formulas can help to solve any actual problem for a specific course. Simply substitute values, either estimated or observed, until the most logical combination can be determined.

When experimenting with various ratios, *avoid* overspeeding the engine. Always *brake down* before downshifting when running at high engine rpm. For example, if an engine is turning 6500 rpm with a 4.11:1 rear axle, a sudden downshift into third gear would make the overall ratio such that engine speed could shoot up to as high as 8000 rpm.

GEAR	TRANS-MISSION RATIO	OVERALL GEAR RATIO					
		3.08:1 axle	3.36:1 axle	3.55:1 axle*	3.70:1 axle*	4.11:1 axle*	4.56:1 axle*
4-Speed (2.20:1 Low—365- & 375-hp engines)							
Fourth (Top)	1:1	3.08:1	3.36:1	3.55:1	3.70:1	4.11:1	4.56:1
Third	1.28:1	3.94:1	4.30:1	4.54:1	4.74:1	5.26:1	5.84:1
Second	1.64:1	5.05:1	5.51:1	5.82:1	6.07:1	6.74:1	7.48:1
First (Low)	2.20:1	6.78:1	7.39:1	7.81:1	8.14:1	9.04:1	10.03:1
4-Speed (2.56:1 Low—250- & 300-hp engines)							
Fourth (Top)	1:1	3.08:1	3.36:1	3.55:1**	3.70:1**	4.11:1**	4.56:1**
Third	1.48:1	4.56:1	4.97:1	5.25:1**	5.48:1**	6.08:1**	6.75:1**
Second	1.91:1	5.88:1	6.42:1	6.78:1**	7.07:1**	7.85:1**	8.71:1**
First (Low)	2.56:1	7.88:1	8.60:1	9.09:1**	9.47:1**	10.52:1**	11.67:1**
3-Speed (250- & 300-hp engines only)							
Third (Top)	1:1	3.08:1**	3.36:1	3.55:1**	3.70:1**	4.11:1**	4.56:1**
Second	1.48:1	4.56:1**	4.97:1	5.25:1**	5.48:1**	6.08:1**	6.75:1**
First (Low)	2.58:1	7.95:1**	8.67:1	9.16:1**	9.55:1**	10.60:1**	11.76:1**

*Available only with Positraction rear axle.

**For illustration purposes only. These ratios not available as factory-installed.

the path of least resistance vs. Corvette Positraction

One rear wheel's on ice; the other's on dry pavement. With a conventional rear axle, which wheel will turn as the driver attempts to pull away? The one with the least resistance—the one on the ice, of course. In fact, it will spin merrily.

Let's, for a moment, take a look at what a really inept driver might do in such a predicament. He will let the wheel spin wildly and, hopefully, the car will inch forward until the spinning wheel hits dry ground. Then, with a loud chirp and a violent lurch forward, he should be underway. He should, that is, unless he has stalled or torn something loose.

For him, a Positraction-type rear axle may help to solve part of his problems as a driver. As far-out as this illustration may be, it does point up only one of the many good reasons why Positraction could be a very wise investment.

With a conventional rear axle, a car will stay where it is if one rear wheel has no grip at all. Even jacking up one wheel just enough so that it barely clears the ground will render a car with conventional axle helpless. This is where Positraction would show its mettle by transferring driving power to the wheel with the most traction. In a spirited car like the Corvette, it makes a good case for Positraction. And buyers seem to be convinced because nearly 85 percent of Corvettes come from the factory with Positraction.

Another case for Positraction is how it helps keep a car under control if one rear wheel drops off the pavement onto the shoulder of the road. With Positraction, the wheel on the pavement will continue to drive the car. As the driver brings the car back on the road, the wheel on the looser surface will just roll along and "walk" right up on the pavement again with a minimum of commotion.

Some of the other advantages of Positraction come with the type of events often engaged in by Corvettes and other high-performance sports cars. In a rally, for instance, weather is liable to be a major factor and it seems roadways have a nasty tendency to get slick. Positraction would mean there's less chance of calculations being messed up by wheels slipping and throwing odometer readings way off. Positraction allows the wheels to get a better bite to keep the car under control in certain kinds of curves, too. Consider the corner where a real hard turn under acceleration has a tendency to lift the inside wheel. With Positraction, the wheel up in the air won't flail away helplessly, and the wheel on the ground will still be doing the driving. This factor of keeping the wheel on the ground doing its work is helpful in gymkhanas, too, where time can be lost trying to get a wheel bite. And, certainly, ice runs are a natural for Positraction where every advantage of traction is essential. Further proof of the pudding: hardly a Corvette entered in a road event doesn't have Positraction. In fact, the 4.11 and 4.56 ratios come only in Positraction rear axles.

The last, but not least, advantage of Positraction is its ability to help keep a car going in mud, snow or sand as long as either rear wheel has traction. If a person is in the habit of getting stuck regularly, the time, effort and money spent in getting unstuck might quickly add up to make Positraction the biggest bargain and wisest investment ever! On the other hand, a driver shouldn't be deluded into thinking that he can't get stuck with a Positraction rear axle. If neither rear wheel can get traction, the car will stay where it is, just as even a 4-wheel-drive vehicle can get itself settled in the goo so it won't go. However, Positraction does just about *double your chances* of getting through the mire as long as there's some grip left.

Under most ordinary everyday driving conditions, it would be pretty difficult to know which rear axle a car has. But as the road starts to get slick, then the difference becomes more apparent. To further illustrate how conventional and Positraction rear axles are similar under certain conditions and different under others, the pictures here tell the story.

Positraction rear axle maintenance

The *Corvette Owners Guide* recommends checking lubricant level at least every 6,000 miles. It should be level with the filler plug hole while cool. If checking while hot, the lubricant should be slightly above the filler hole. Positraction requires special lubricant available through a Chevrolet dealer. *Regular rear axle lubricant should not be used because it could cause etching of the clutch surfaces and subsequent chattering or otherwise erratic operation. Regular lubricant can be used in an emergency, but should be replaced as soon as practical.*

how the '63-'64 Corvette Positraction works

Prior to '63, Corvette Positraction rear axles worked on the ramp principle, where driving force moved cross pins up ramps and applied clutches. This principle divided torque between axle shafts to give the wheel with greatest traction the greatest driving force.

While the '63-'64 unit also gives the same type of power to the rear wheel with the most traction, it is somewhat simpler in design. It uses three long springs to preload the 9-disc clutch pack. Driving force causes the differential side gears to push slightly away from each other, and this puts even more positive load on the clutch pack. When cornering, the faster turning outside wheel relieves the load on the clutch discs, allowing differential action.

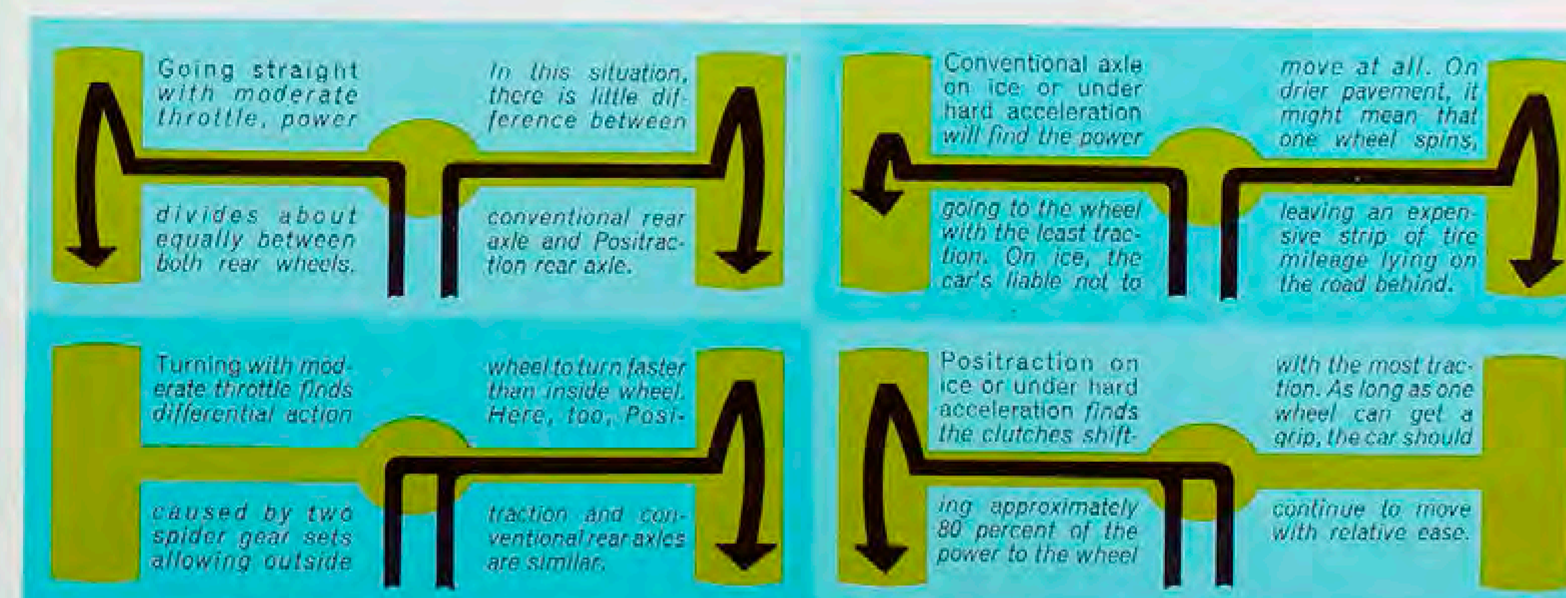
getting the most out of Positraction

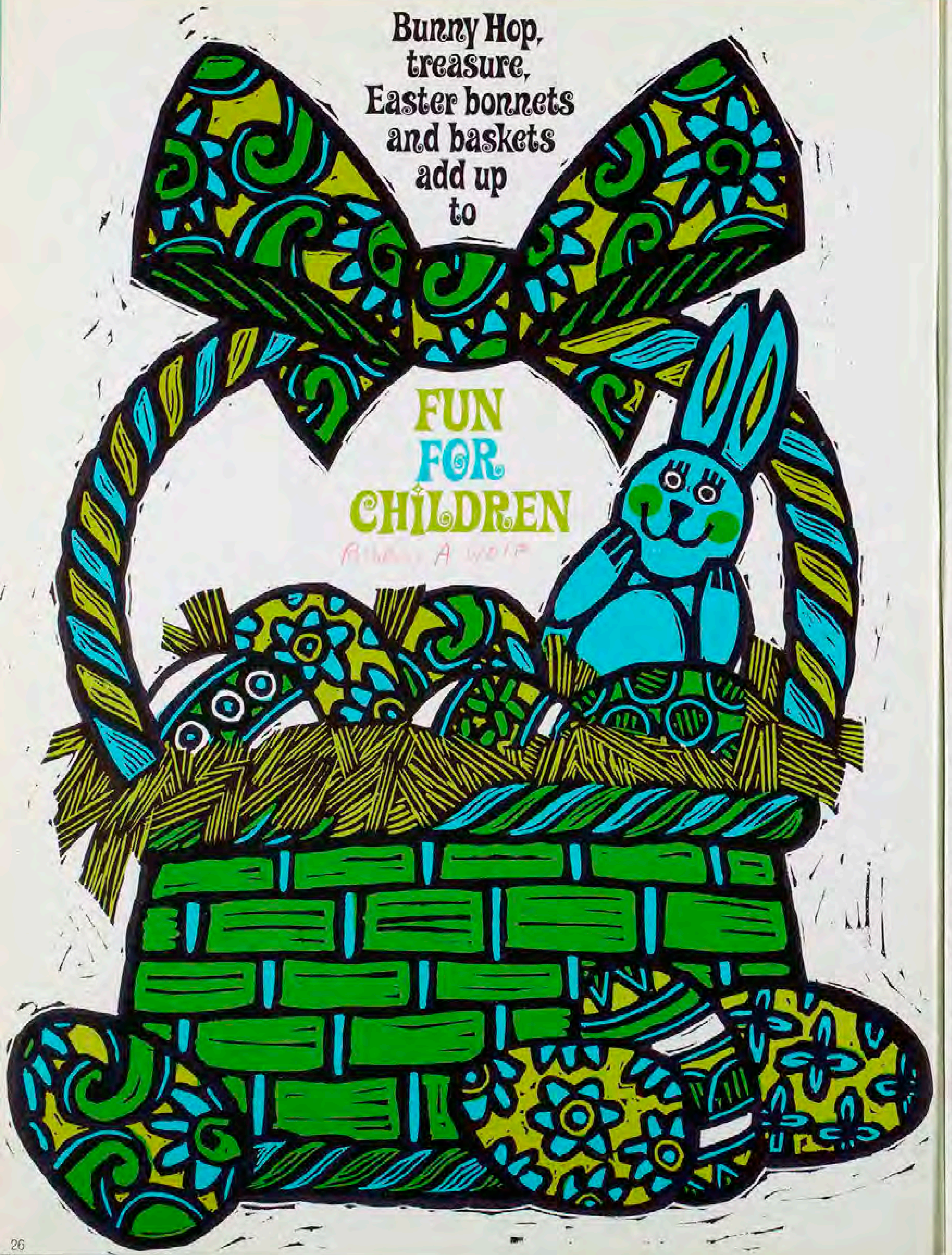
It's a good policy (when there's a choice) to keep one rear wheel on solid ground when driving bad roads. With Positraction you'll keep moving. If the road's all mire and the gumbo isn't so deep that the undercarriage hangs up, Positraction will usually keep you moving. However, if the surface is extremely slippery or the car hesitates to move, apply the parking brake slightly—for just a moment. This will help load the clutches for better traction. If this doesn't work, hindsight should: the *next time*, take some other route!

how to tell for sure that you have—or haven't—Positraction

Especially if a Corvette has been purchased secondhand, the present owner might want to double check to determine which axle the car has. Some rear axle housings have an identifying plastic tag that a dealer may be able to decode. Also, a set of instructions right next to the jacking instructions may have a caution note about having the car in gear with the engine running while jacked up. (With Positraction, the car is liable to start off even though one wheel is jacked up with the transmission in gear.)

However, there is a positive way to tell, too. Put the car on a hoist or jack up both rear wheels where they're free to turn. Turn one wheel by hand, and if the other rear wheel turns in the *same* direction, it's Positraction; if the other wheel turns in the opposite direction, it means the rear axle is of the conventional type.





CALIFORNIA CLUBS HOLD BENEFIT RALLY FOR CHILDREN'S HOME

As the hour of 7:00 p.m. approached on a particular Wednesday, nearly 50 children of the Albert Sitton Home in California grew restless. They were watching for the first signs. After what seemed like an eternity to the kids, one of them spotted the objects of their vigil. Corvettes from clubs in nearby Orange County, California, hove into sight. When all of the cars had arrived, the next hour and a half was spent with the kids, entertaining and talking to them, and plying them with delicious homemade punch and cookies. As 8:30 departure approached, each Corvette participating couple donated about $4.00 worth of clothes and fresh fruit to each child.

For the children and Corvette Club members as well, the time seemed much too short. There seemed to be almost endless questions by curious boys about the fuel injection; seemingly endless requests by all children to "just sit behind that steering wheel for a little while, please . . ."

A special event? Not for members of the "Albert Sitton Chapter of Corvettes"—a unique blending of couples from three Corvette Clubs in Orange County, California: Corvettes of Southern California, Corvette Super Sports and Coureur d' Corvette, all located near Los Angeles. Since last November, various couples from these clubs have aided the children in the Albert Sitton Home (a place for children who are temporary wards of the court) located in Orange County. Heading up this venture has been Mrs. Ann Taniguchi, long an enthusiastic Corvette booster.

The decision to aid the home came over coffee one night last year. Mrs. Taniguchi contacted the director of the Sitton Home, Mrs. Margaret Boston. She was delighted with the idea proposed by Mrs. Taniguchi that Corvette Club couples would visit the home and entertain the children. A schedule—every second Wednesday of every other month was quickly worked out. Plans included punch and cookies for the children, as well as $4.00 worth of pajamas, socks, underclothing or fresh fruit for each child. The reception by the children, as noted earlier, was immediate and enthusiastic. Never had so many Corvettes descended upon so few children all at one time.

The Sitton Home normally has space for between 15 and 20 children, whose ages normally range between one month to 18 years. On one occasion, though, the Corvette visitors found nearly 50 youngsters in the home, a condition that forced some of them to sleep in the halls. The overcrowding stirred the Corvette members to some deep thinking about further aid. Result of their confab was to stage the Bunny Hop Fun Rally on March 22, Palm Sunday. Each entrant was to donate $2.50 for the home.

Palm Sunday dawned chilly, overcast but dry. Thirty cars showed up, with entrants not sure of exactly what to expect from the event. One thing they knew in advance, though—they were going to make a lot of children happy. Registration was completed in the parking lot of the Disneyland Hotel, where the rallyists received their instruction sheets. It was then that they learned the nature of the competitive "events." They were off to a local park for a Grand Prix Easter egg hunt, then to the "Riverbottom Raceway" for a few laps on foot; thence to a precision bunny hop contest followed by a good old-fashioned treasure hunt. To finish these madcap activities, every contestant had to write "Bunny Hop Fun Rally" backwards while looking into a mirror. And just in case they had a little spare time on their hands, all navigators were given raw materials to concoct outlandish and ridiculous Easter "bonnets."

As each car left the Disneyland Hotel parking lot, an Easter basket complete with a chocolate bunny was given to the occupants. With mock warnings not to gnaw on the succulents within the basket, the cars drove to the various events in any order. One of the funnier stops was the "Riverbottom Raceway." A course, covering all of maybe 30 square feet, was laid out with strings marking about a two-foot-wide "circuit" which bore a fascinating resemblance to its obvious Riverside namesake. Navigators had to talk their blindfolded drivers around the course. The race was against a stopwatch. The treasure hunt took the competitors to a stable. Inside the door of "Sweet Pea," a local horse, was the treasure—a robin's egg. A precision bunny hop—with points lost for missteps—brought out the best in this modern-day tripping of the light fantastic. The final chore was the writing of the event name backwards while looking into a mirror. Think it's easy? Try it some time and don't look at your hands. Just watch the mirror!

The results ended in a tie for first. Undaunted, rally organizers quickly sketched a new "Riverbottom" course on paper, and the two contestants had to trace the course while looking in that mirror again. After the prize for the most outlandish Easter bonnet had been awarded, the rallyists went to the Albert Sitton Home and presented their baskets to the wide-eyed children. Ann Taniguchi presented Mrs. Boston with a $118.50 check, and the children looked in awe at the cars, the people and played with their gift baskets. In addition, about 20 rallyists turned over their $1.00 photographic release money—adding to the total donation. After Mrs. Boston expressed her thanks, and the kids theirs, the rallyists left for the day.

There is a slogan used by the Big Brothers, another fine charitable organization, which states: ". . . a man is never so tall as when he stoops to help a boy . . ." Readers can quickly identify it with those generous Corvette Club members who made some lonely children very happy.

A. "Hmmm. Let's see. 7,000 in first and second . . . " B. Ann Taniguchi, rally organizer, checks off a car in the Bunny Hop Fun Rally. C. Blindfolded driver is "steered" over the Riverbottom Raceway course by her navigator. D. Kids, cool coats, chapeaux and Easter basket trimmings at the Albert Sitton Home. E. Exercise in precision bunnyhopping. Believe it or not, points were lost for missteps. This was one of the checkpoint events; others included an Easter egg hunt and a treasure hunt at a nearby stable.

F. Ann Taniguchi turns over a check for $118.50 to Mrs. Margaret Boston, Director of the Albert Sitton Home. G. A trunkful of Easter baskets for the kids at the Sitton Home. H. Who says the latest fashions come only from Paris? I. Corvettes, kids and rallyists outside the Sitton Home. By this time, most of the children were comfortably ensconced in the cars. J. "What's that you say, fella? The ratio lever should be set to .019" instead of .015"?" K. "Gee, four-on-the-floor, a tach, a 270 engine, bucket seats . . . 'n' everything!"

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Norman P. Pascarella, President
2050 North Miami Avenue
Miami, Florida

The Corvette Club of South Florida
Joel Brandwein, President
1900 N. E. 186th Drive
North Miami Beach, Florida

GEORGIA

Atlanta Corvette Club
Ernest D. Troutman, President
115 Piedmont Avenue, North East
Atlanta 3, Georgia

Corvettes of Macon
Barney L. Shipman, President
P.O. Box 2371
Macon, Georgia

IDAHO

Idaho Corvette Association
Don Dillard, President
208 College Courts
Boise, Idaho

Idaho Falls Corvette Club
Ted A. Greer, President
1300 Susanne
Idaho Falls, Idaho

Treasure Valley Corvette Club
Kent Maehlmann, President
507 Logan Street
Boise, Idaho

The Intermountain Corvette Association
Roger Galagher
c/o Intermountain Chevrolet Co.
650 West Center
Pocatello, Idaho

ILLINOIS

Chain-O-Lakes Corvette Club
Dick Kerr, President
913 Woodland Terrace
Grandwood Park
Gurnee, Illinois

Chicago Corvette Club
Thomas G. Juricic, Secretary
731 Sibley Boulevard, Apt. 5
Calumet City, Illinois

North Shore Corvette Club
Edward Hoglund, President
1020 Lois
Park Ridge, Illinois

Mid-West Corvettes
Matthew Murrin, President
Ruth Lowrence, Secretary
4224 19th Avenue
Rock Island, Illinois

Corvettes of Peoria
Mark E. Cohen, Secretary
105 Dallas Street
Washington, Illinois

Corvette Club of Joliet
Richard L. DeJarld, President
1416 Campbell Street
Joliet, Illinois

Sting-Rays
Miss Judi Kruzsela, President
1523 North Cleveland Avenue
Chicago 10, Illinois

The Thundering Vettes
T. Ambrose Dell, Jr., President
22 West 644 Poplar Road
Glen Ellyn, Illinois

Piasa Corvettes, Inc.
Edward May
69 D'Adrian Drive
Alton, Illinois

Windy City Corvettes, Inc.
Miss Candace Harvey, President
4206 West Henderson
Chicago, Illinois

INDIANA

Michiana Corvette Club, Inc.
Terry Tetzlaff, President
4030 York Road
South Bend 14, Indiana

Indianapolis Corvette Club
Frank Hash, President
1124 North Broadway
Indianapolis, Indiana

Sting Ray Vettes
Donald A. Tretter, President
39 North Belmont Avenue
Indianapolis 22, Indiana

The Amberly Castle Corvette Club
Richard D. Sullivan, President
316 South Lyons
Indianapolis 41, Indiana

Lafayette Corvette Club
Bruce S. Helfert, President
172 Littleton Street
West Lafayette, Indiana

IOWA

Regal Vettes
John From, President
Plymouth, Iowa

Corvette Club of Iowa
Robert Rishworth, President
6402 Madison
Des Moines, Iowa

Cedar Rapids Corvette Club, Inc.
Lowell E. Phelps, Secretary
R. R. #1
Palo, Iowa

KANSAS

Corvette Club of Kansas
A. J. Robinson, President
9723 W. Ninth
Wichita, Kansas

Mid-America Corvette Club
Les Barnhart, President
103 Gardner Street
Pratt, Kansas

Corvette Club of Kansas City
Jim LaGrotte, President
5318 West 77 Terrace
Prairie Village, Kansas

KENTUCKY

Kentuckiana Corvette Club
J. A. Beckman, President
4104 Hillbrook Drive
Louisville 20, Kentucky

Northern Kentucky Corvette Club
James B. Schnorer, President
1919 Russell Street
Covington, Kentucky

LOUISIANA

Creole Corvette Club
James N. Fritze, President
221 Traffic Street
Bossier City, Louisiana

Crescent City Corvette Club, Inc.
Maurice F. Claverie, Jr., President
Gusle, Barnett & Little
National Bank of Commerce Bldg.
New Orleans, Louisiana 70112

MAINE

Corvettes Limited
Doreen M. McCafferty, President
P.O. Box F168
Mattawamkeag, Maine

MARYLAND

Corvette Club of Baltimore
Fred C. Tucker, President
2114 Meadowview Drive
Baltimore, Maryland 21207

Potomac Valley Corvettes
Bruce H. Hough, President
Rt. #1, Box 225
Boyds, Maryland

MASSACHUSETTS

Corvettes of Western Massachusetts
Jerrold McCarthy, President
88 Price Street
Springfield, Massachusetts

South Shore Corvette Club
Glenn M. Thompson, President
55 Cedarcliff Road
East Braintree 84, Massachusetts

Corvettes of Massachusetts
John P. Bushell, Jr., President
3 Amherst Road
Beverly, Massachusetts 01915

MICHIGAN

Corvette Club of Michigan
Ralph Henning, President
Box 34
St. Clair Shores, Michigan 48083

Capital City Corvette Club, Inc.
James P. Hoppin, President
P.O. Box 148
Lansing, Michigan 48901

Kalamazoo Corvette Club
Robert M. McAllan, President
P.O. Box 852
Kalamazoo, Michigan

Corvette Club of Battle Creek
Paul Barber, President
P.O. Box 1097
Battle Creek, Michigan

Jackson Corvette Club
James L. Sell, President
2663 Lakeview Drive
Clarklake, Michigan

Corvette Club of Ann Arbor
Bill Schwarz, President
1112 West Madison Street
Ann Arbor, Michigan

Grand Valley Corvette Club
William J. Theile, President
P.O. Box 87
Ada, Michigan

Barons Corvette Club
Kenneth W. Stokes
Wurtsmith AFB, Box 2376
Oscoda, Michigan

MINNESOTA

Corvettes of Minnesota
Jim Whelan, President
525 Wildwood Ave.
White Bear Lake, Minn.

MISSISSIPPI

Mississippi State Corvettes
Rick Harrison, Secretary
508 University Drive
Starkville, Mississippi

Vertigo Vettes
Richard Gaspard, President
1405 Broad Street
Columbia, Mississippi

MISSOURI

Corvette Club of St. Louis
Mrs. Mary A. Spillman, Secretary
10307 St. Matthew Lane
St. Ann, Missouri 63074

South St. Louis Corvettes, Inc.
Paul D. Callahan, Secretary
12248 West Big Bend, Apt. B
Kirkwood 22, Missouri

Corvette Association of Missouri
Jon M. Lott, Secretary
1001 South 33rd Street
St. Joseph, Missouri

NEBRASKA

Cornhusker Corvette Club
William L. Simpson, Secretary
4671 Oak St.
Omaha, Nebraska 68105

NEVADA

Corvette Club of Las Vegas
Richard L. Lamb, President
P.O. Box 675
Las Vegas, Nevada

The Twin Cities Vettes
Alex "Kay" Ferrenburg, President
2460 Nelson Way
Sparks, Nevada

NEW HAMPSHIRE

Granite State Corvette Club
Daniel Fitzgerald, President
672 Huse Street
Manchester, New Hampshire

NEW JERSEY

Corvette Sports Car Club
Henry Steinman, Membership Chairman
1051 Woodland Avenue
Plainfield, New Jersey 07060

Tri-County Corvette Club of New Jersey (Kar-Vets)
Chet Morley
Burlington Bridge Motors
Rt. 130
Burlington, New Jersey

The Jersey Corvette Club
John Molnar, President
21 Liberty Street
Woodbridge, New Jersey

Monmouth County Vettes
Wayne Jesel, President
8 Avalon Drive
New Shrewsbury, New Jersey

Surf Corvette Club
Jack Hansen, President
Box 1706
Point Pleasant Beach
New Jersey

Queen City Corvettes
Dave Saunderson, President
Box 1045
Plainfield, New Jersey

NEW MEXICO

New Mexico Corvette Assn., Inc.
Jack W. House, President
820 California Street, South East
Albuquerque, New Mexico

NEW YORK

Thundervettes Sports Car Club of America
Lester Bauman, President
43 Bridle Avenue
Hicksville, Long Island, New York

Long Island Corvette Owners' Association (LICOA)
Warren H. Sniper, President
306 West Merrick Road
Merrick, Long Island, New York

Northeastern Corvette Owners' Club
Joseph E. Nichols, President
Nichols Notch—P. O. Box 245
North Creek, New York

The Rochester Corvette Club
Warren Frear, President
1742 Stone Road
Rochester 15, New York

Western New York Corvette Club
Mrs. W. H. Elss
213 Buckeye Road
Buffalo, New York

Corvette Unlimited
Steve Hess, President
Windsor Gate
Great Neck, New York

Hudson Valley Corvette Club
Peter W. Hardin, President
P.O. Box 587
Glenham, New York

Northshore Corvette Club
Leland Gaylor, President
90 Southview Drive
Port Jefferson, New York

Spa Corvette Club
Neal S. Henson, President
R. D. #2, Mann Road
Ballston Spa, New York

The Ja-Vette Club
Patrick M. Pacitti, President
401 Charles Street
Jamestown, New York

South Shore Corvette Owners Association
Miss Catherine Lott, Secretary
50 South Gillette Avenue
Bayport, Long Island, New York

Corvette Club of Syracuse
Louis H. Leonard, Jr., President
202 Ridgecrest Road
Orvilton Heights
DeWitt, New York 13214

Westchester Corvette Club
Robert Bell, President
P. O. Box 171
Mamaroneck, New York

The Gentlemen Vets of East Meadow
Ronald R. Remis, President
808 Wenwood Drive
East Meadow, Long Island, New York

Empire Corvettes
John Palladino, President
80-57 160th Street
Jamaica, New York 11432

NORTH CAROLINA

Corvette Club of North Carolina
Steven H. Bold, President
102 Lake Street
Shelby, North Carolina

OHIO

Tiretown Corvette Club
Chuck Slondach, President
P.O. Box 331
Cuyahoga Falls, Ohio

Buckeye Corvette, Inc.
Alan Haas, President
P.O. Box 323
Canton, Ohio

Queen City Corvette Club
Herb Popp, President
P.O. Box 12228
Cincinnati, Ohio 45212

Corvette-Cleveland
Ronald Gumm, President
P.O. Box 64
Brecksville 41, Ohio

Central Ohio Corvette Club
Brooke Van Fossan, President
1553 Barrington Road
Columbus, Ohio 43221

Corvettes, Inc.
Tom McGuire
3627 Burton Avenue
Toledo 12, Ohio

Mahoning Valley Corvettes
Donald N. Sutyak, President
4564 North Leavitt Road
Warren, Ohio

Wooster Vettes
Harold Geiser
R. D. #1, Township Road 221
Orrville, Ohio

Hamilton Corvettes
Boyd Furgeson, Jr., President
170 Gregory Lane
Hamilton, Ohio

The Greater Dayton Corvette Club
Kenneth J. Kinderman, President
275 Valley View Dr.
Dayton 5, Ohio

Fort Findlay Corvette Club
Lewis Bosgard, President
1031 Selby
Findlay, Ohio

Indio Corvettes
Chad Bible, Secretary
106 W. Lawrence St.
Montpelier, Ohio

OKLAHOMA

Oklahoma Corvette Club
Mrs. Mary Kay Leslie, Secretary
210 East Myrtle Drive
Midwest City, Oklahoma

Tulsa Corvette Club
Scott Meadows, Secretary
1611 South Owasso
Tulsa, Oklahoma

Weatherford Corvette Club
George Gorton, President
301 North Custer
Weatherford, Oklahoma

OREGON

Emerald Empire Corvettes
Russell E. Cook, Chairman
2779 Elinor Street
Eugene, Oregon 97043

Capital Corvette Club, Inc.
Dan Allen, President
791 Ewald Avenue South
Salem, Oregon

PENNSYLVANIA

Corvette Club of Delaware Valley
Cliff Allen, President
P.O. Box 6326
Philadelphia, Pennsylvania

Schuylkill Valley Corvette Club
Mrs. Grace Bingaman, Secretary
Gordon, Pennsylvania

Corvette Club of Western Pennsylvania
Ross M. Harris,
Publicity Director
1224 Carson Street
Pittsburgh 3, Pennsylvania

Delaware Valley "Vets"
James A. Good, Secretary & Treasurer
676 Rennard Street
Somerton
Philadelphia 16, Pennsylvania

The Mason-Dixon Vettes
John R. Wood, President
Clarence Street, P.O. Box 326
Hyndman, Pennsylvania

Checkpoint Corvette Club
Albert J. Loquasto, Jr.
3676 Mountain View Avenue
Easton, Pennsylvania

Rock-Valley Vettes
Ruth L. Smith, Secretary
118 Clearview Avenue
Huntingdon Valley, Pennsylvania

Corvettes Unlimited
James Matteson, President
104 Madison Avenue
Prospect Park, Pennsylvania

Fox Chase Vets
Dennis F. McCarthy, President
716 Disston Street
Philadelphia, Pennsylvania 19111

RHODE ISLAND

Corvette Club of Rhode Island
Miss Susan Grinnell, Secretary
162 Lorimer Avenue
Providence 6, Rhode Island

SOUTH CAROLINA

Corvette Club of Greenville, S.C.
Bill Pickelsimer, President
63 Blue Mountain Drive
Greenville, South Carolina

TENNESSEE

Corvette Club of Tennessee
Curtis Person, Jr.
Curtis Person Chevrolet Co.
Millington, Tennessee

Cumberland Valley Corvette Club
G. B. James, Jr., President
Capitol Chevrolet Co.
Nashville, Tennessee

TEXAS

Corvette Club of Texas
Kenneth A. Bradley, President
9830 Parkford
Dallas 18, Texas

San Jacinto Corvette Club
Tom Beaver, President
10203 Chatterton
Houston, Texas

Corvette Club of Dallas, Inc.
Garland Brown, President
c/o Mahr Chevrolet
999 N. Central Expressway
Dallas 4, Texas

The Lubbock Corvette Club
Steve Self, President
c/o Jackie's Automotive
2014 Fourth Street
Lubbock, Texas

UTAH

Corvette Club of Utah
Paul Cummings, President
1208 South 13th East
Salt Lake City, Utah

VIRGINIA

Corvette Club of Richmond
James P. Scott
P.O. Box 6813
Richmond, Va. 23220

WASHINGTON

Pacific Northwest Corvette Association
Gary W. Anderson, President
3766 South 198th
Seattle, Washington 98188

Corvette Marque Club of Seattle
Richard Stanley, Chairman
12138 Shorewood Drive, South West
Seattle, Washington 98146

WISCONSIN

Wisconsin Corvette Club, Inc.
La Nor Diego, Secretary & Treasurer
P.O. Box 1115
Milwaukee, Wisconsin 53201

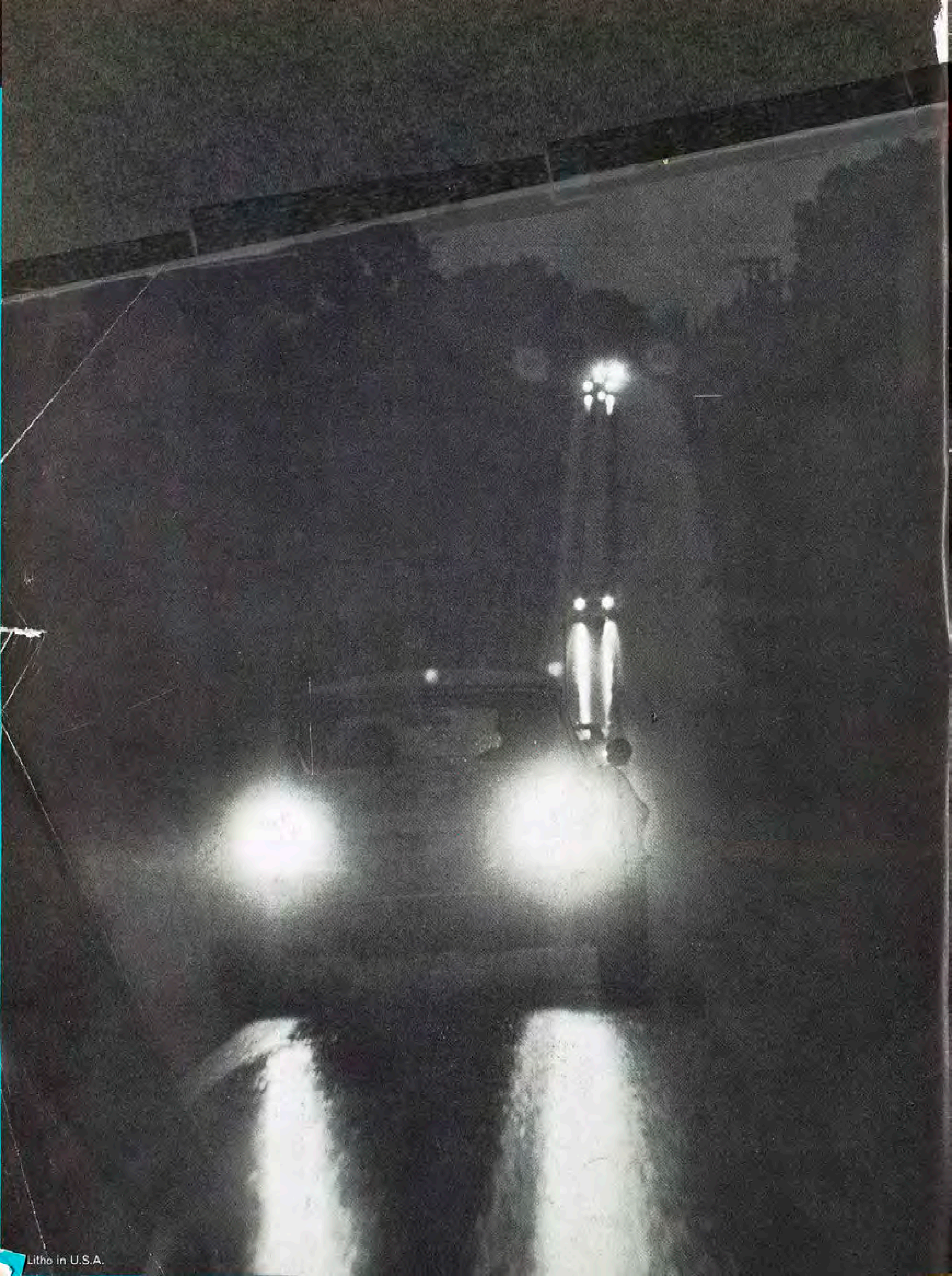
Indianhead Corvette Club of Wisconsin
Dick Bergh, Secretary
P.O. Box 447
Eau Claire, Wisconsin

Corvettes d'elegance
Miss Carole Jacobs, Secretary-Treasurer
3419 West Wisconsin Avenue
Milwaukee, Wisconsin

Corvettes Limited, Madison
The Reverend Lou Novak, President
808 East Washington Avenue
Madison, Wisconsin 53703

CANADA

Corvette Club of Ontario
Ken Adams, President
14 Rethwin Place
Toronto, Ontario, Canada



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