CORVETTE NEWS

Vol. 7
No. 4

FOR CORVETTE ENTHUSIASTS

HOUSED IN THE CORVETTE CORRAL A HUNDRED STRONG, THEY CAME TO SEBRING

FOR THE TRADITIONAL CLASSIC. TWELVE TORTUROUS HOURS OF PAVEMENT-

POUNDING COMPETITION, TWELVE SPECTACULAR HOURS OF SPORTS CAR RACING.

THEIR INTEREST WAS OBVIOUS; DISTANCE IRRELEVANT; DEVOTEES TO A MAN.

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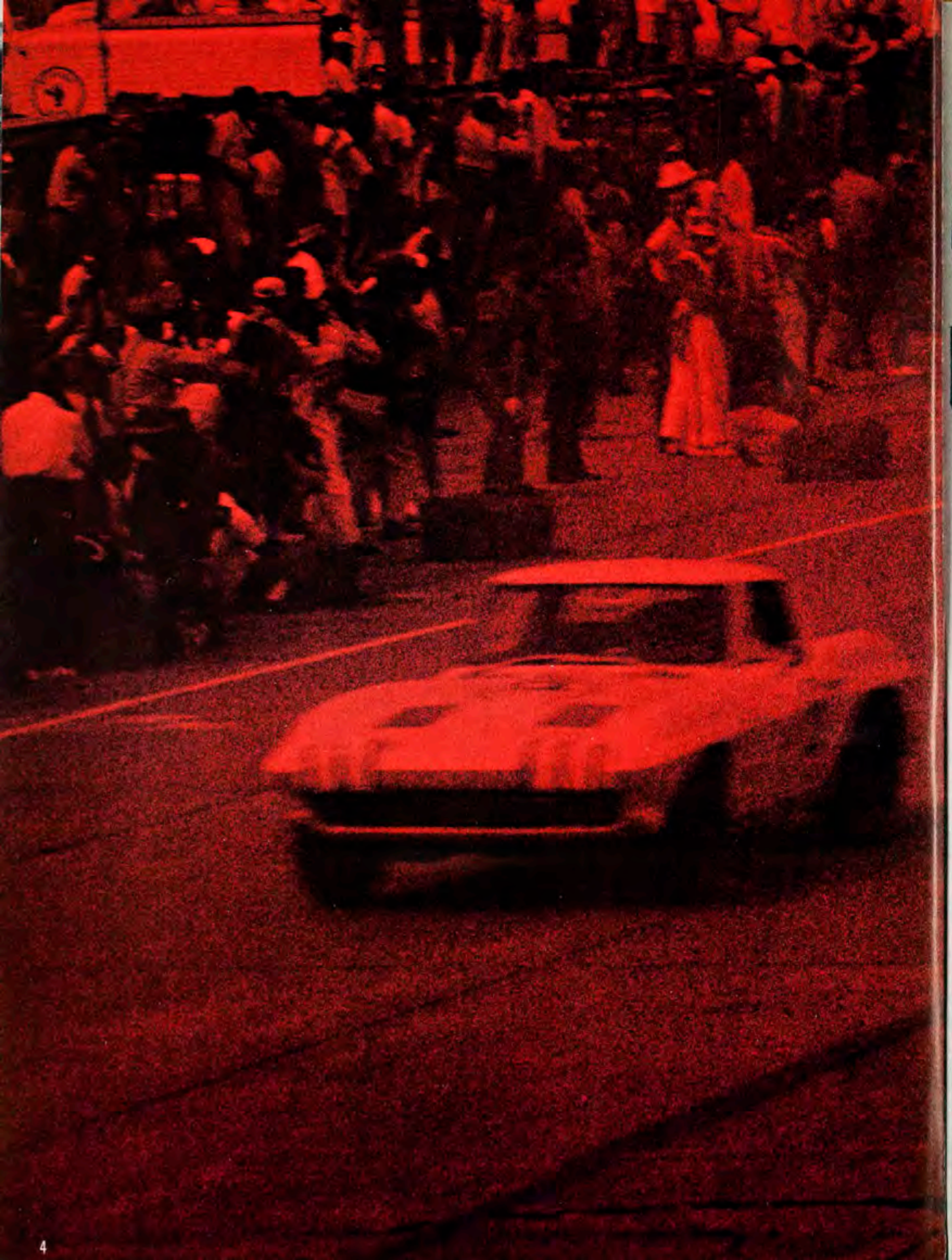


this is the twelve that was...

sebring '64

Twelve hours! It's a lot of race, even for the initiated. Intolerable for those with a short span of attention. Without lap charts, total mental recall and mechanical paraphernalia, you're in vexville. And for those on an economy kick, just getting there, plus the gaff at the gate ($5), cuts into the green plenty deep. So, what makes for such magnetism? A record-busting 50,000 Sebring buffs could tell you in a word—excitement!

For the neophyte, it's not instantaneous, but definitely contagious. First felt in a sweeping view from the entrance. Under the Saturday morning sun, flags flying, helicopters chopping, a fat blimp blurping, a loose balloon just leaving. The people: walking; driving; running; searching. Their cars: roaring; revving; steaming; spitting. Everywhere there's action and anticipation. Excitement is the visible theme. It's wild and you like it. It's 9:55 a.m.

In the pits, drivers and pitmen battle with intestinal butterflies. The hopped-up iron is ready, pushed to the line, looking every bit angry and anxious. Sebring's torturous 12 is now minutes to the starting flag. Drivers are walking across the track opposite their cars like they were going to the store for a loaf of bread, taking their positions for a Le Mans start. It begins.

In a jerk, conditioned wheelmen are half-way across the concrete before the starter bottoms his green-flag swing. Italy's ferocious Ferraris, numbers 21, 24, 22 and 23, wait in the front four positions. American challengers—the #4 Corvette,Cobras 11 and 10, #2 Corvette and #14 Cobra —hold down fifth through ninth place. The #25 Ferrari fills slot 10. A total of 66 machines wait for the jolt that'll put them to work. Ignition!

Suddenly there's noise, ear-splitting, like a giant rocket roaring to life. First off the pad and under the Mercedes-Benz pedestrian bridge is the #17 Cobra, holding a slight edge over Roger Penske's #4 Corvette. A high-speed traffic jam trails, thinning out on the swing through three fast turns; then single file weaving the wavy Esses. A hard brake at the slow hairpin, then down to the 90° right and left of Webster turn. Leaving the blacktop, guiding right on the concrete, another hard right, past decaying W.W. II flying boxcars, now a refuge for the birds. Flat out down the 4,705-foot straight, cornering again for the backstretch. A big U turn, shooting beneath the Martini-Rossi Bridge and by the pits where it all began.

The crowd at the start-finish line enthusiastically voices its favoritism (or, is it nationalism?) as Penske's #4 Corvette Grand Sport powers by the control tower in first place. The display of emotion, however, is short-lived when Ferraris, four of them, thunder past Penske in the first hour. Other Corvette marques are holding their own. In the #2 Grand Sport, A. J. Foyt is in 8th place. Delmo Johnson's #3 Corvette Grand Sport, 15th. Slot 18, the #9 Corvette Sting Ray with Skip Hudson driving. George Robertson's #6 Sting Ray is 45th.

With 11 hours to go, Ferraris are king. But keeping the crown is another thing. Strategy is an integral part of every race, especially one of endurance, and especially this year. Victory-hungry Americans are tired of viewing the annual Sebring classic over the blunt rear end of the high-revving Ferraris. The plan is to set a fast early pace for the Italians' pride in hopes they will break under constant pressure. The strategy is logical, but the results back-fire. What the Ferraris break is the course record three times in the first two hours. Hottest of the hot ones is the #21 Ferrari piloted by John Surtees of England, one-time motorcycle champion of the world and last year's Sebring winner. Surtees' record lap time is 3 minutes 6.2 seconds (100.537 mph).

From the second hour on, segments of the crowd intermittently realize that the half-day grind has set in. Knowing nothing will stop it, they look for a change of pace or new vantage point. Some look for other entertainment, old friends, girl friends or a swill of suds. Whatever, a great movement begins.

To reach the Esses, you thread through a non-symmetrical maze of cars, buses, trucks, trailers and tents. When you stop seven feet from the track fence, you're there —behind people seven deep. Of course, if you're 6'3" you have a definite advantage; you can see the race. And what you see under a bright 1:30 sun are some of the world's fastest cars covering a kink in the road that's shaped like an S. A #82 Ferrari is scrapping for position with the #6 Corvette driven by Dick Boo. The Ferrari shoots too wide, a rear wheel hits the stationary tire abutment that swings the rear end sideways. Boo takes the advantage and leads going into the hairpin. A dollar bet is made between two fence-hangers that the Ferrari will show first on the next go round. About 3½ minutes later, #6 Corvette negotiates the kink with the Ferrari nowhere in sight. The buck is paid, but not without a face-saver, "He's probably taking a coffee break."

No one at this 5.2 miles of twisting track really sees the total race, nor do they even see it in the same perspective. Seconds after the aforementioned bet, the Ferrari's pitmen watch #82 come down the pit lane without brakes. They are helpless as it shoots by and climbs the back end of the stopped #32 Ferrari. The cars are pulled apart, #82 gets its brakes repaired, takes on fuel and rear tires, and is track bound in an amazingly short time.

Watching master pit mechanics perform is nothing short of witnessing miracles. If you're a disbeliever and mechanically inclined, get a friend or two and try changing a blown head gasket in 58 minutes. A set of spark plugs in 4 minutes. Or rebuild the right rear suspension in 45 minutes. As far as the race is concerned, the pit crew sees little. (To quote a Delmo Johnson-Dave Morgan pitman, "We get our kicks from keepin' #3 going.") Their sight is restricted at best to the stretch starting at the U turn and ending just past the Mercedes-Benz Bridge.

Best viewing at the U turn is in the Corvette Corral, reserved for Corvette owners. By 3:00 p.m., there are over 100 Corvettes lining the fences, with license plates from Maine to California, Louisiana to Quebec, Canada. And did they like the facilities? "This Corvette Corral is terrific; best spot on the track. It's like a big fraternity; everyone is friendly and helpful," said Steve Kerner from Brooklyn, New York. Tom Young, Stamford, Connecticut: "When we first drove up to the gate and saw the sign, Corvette Corral, we thought it was special parking for a club or something. Then we found it was for Corvette owners. We really appreciate it." Dale Martin, Secretary of the Kansas City Corvette Club, said, "Chevrolet really knows how to take care of its Corvette owners. . . . I enjoy races, especially with Corvettes in them. I guess I like owning a car that's considered a race car. Most people here feel the same way. Although it would be nice if they could win once in a while."

Not everyone finds the race enjoyable. A woman at a refreshment stand near the track harbors a negative attitude. "I don't understand it. Besides that, it's hot, dusty and

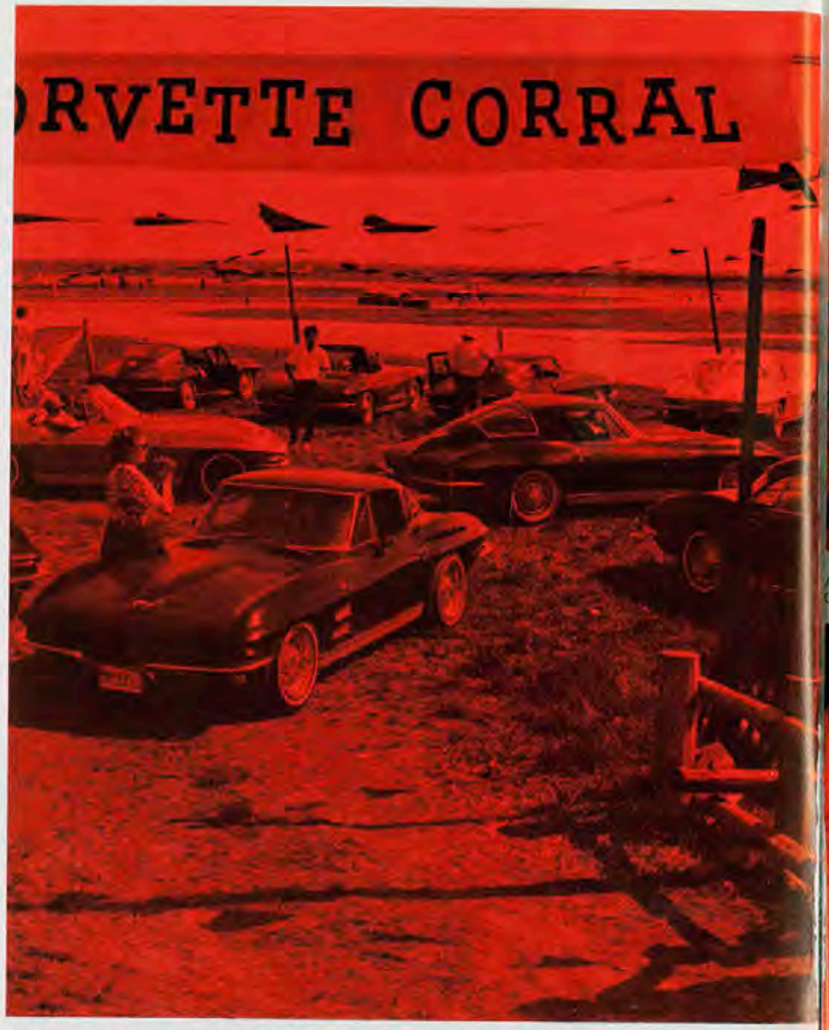
Corvette driver John Cannon watches activity in the pit.

noisier than anything I've ever heard. What? No, I don't know who's winning and really don't care. Worse yet, I don't know where my husband is or where we parked the car. Would you pass the mustard, please? Thank you. What? Come back? You're kidding! The way it looks, I'll never leave."

A half block down the midway, the Chevrolet experimental Corvair-Corvette display is playing to a full house. The sun that's keeping the track at a searing 105 degrees is cut off by a bright orange and white canopy. Underneath, people are asking, "Can I buy one? Is that what the '65 Corvair looks like? Is that the next Chevrolet racing car?"

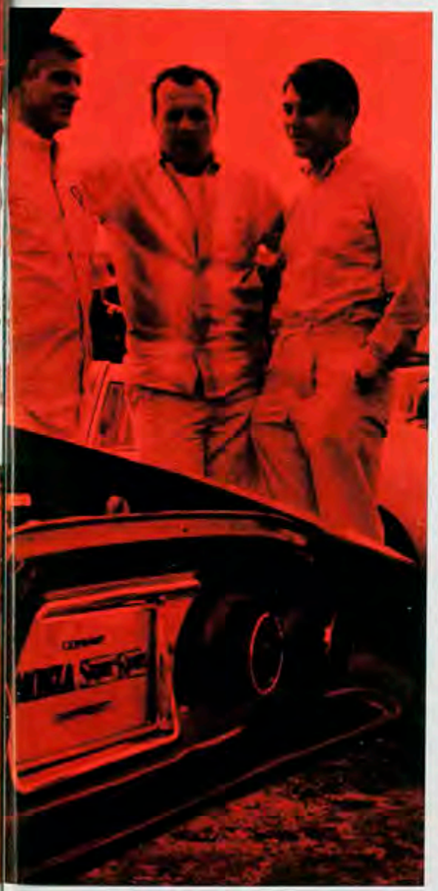
At the halfway mark, 4:00 p.m., Sebring's Enduro has taken a heavy toll. Sixteen cars down and out with a variety of maladies: #6 Sting Ray, broken connecting rod; #17 Cobra, lost wheel and brake failure; #20 Lola Chevy, seized engine; #25 Ferrari, engine failure; #28 Ferrari, burned; #33 Austin-Healy, flipped; #35 Morgan, overheating and timing trouble; #40 Porsche, blown transmission; #46 MGB, rear seal; #49 Volvo, wrecked; #50 Volvo, thrown rod. The #54 Alfa, transmission trouble; #57 Elan, body damage; #64 Spitfire, broken camshaft; #67 Sprite, busted rear axle; and #85 Renault, overheating. With all things considered, only 16 retirements out of 66 is quite remarkable after running for six hours, approximately 600 miles at speeds ranging from 40 mph at the hairpin to 180 mph on the long straights.

A hike across the spectator area, over the MG Bridge by the Esses and one or two blocks further (by 6:00 p.m., it seems like a mile and a half) puts you at the Webster turn. Here, action is on the spectacular side. Car handling techniques are seen up close as drivers maneuver the tight right and left corners. Coming down the warehouse stretch (it's called that because of the string of warehouses on the opposite side of the track) Delmo Johnson in the #3 Corvette is edging in on the #51 Volvo. When they reach the Websters, Volvo gives an inch, Johnson takes the lead, bursts into the right turn, then



At U turn, Mrs. Delmo Johnson, Jr., views race from atop experimental Corvette.

At the Chevrolet display, Roy Gane, A. J. Foyt and John Cannon look over the experimental Monza Super Sport.



the left. With amazing aplomb, while still sliding through the lefty, he takes one hand off the wheel and waves a friendly gesture at the *Corvette News* photographer. Not far behind the Volvo, the little box-like #59 Cortina buzzes through the Websters. At its exit, it lifts its left front wheel off the ground, plops back down on all fours and chases away in search of a couple of seconds on the stretch.

Comic relief at the Websters is not uncommon either. On the first lap out, the #63 Abarth Simca straddles the sand bank at the right turn. Some drivers might have left it as a washout; it looked it. But driver Bill McKelvy found a shovel (a five-foot long 2 x 4) and started tossing dirt aside, cup by cup. Perseverance paid off. Two hours and twelve minutes later and about 45 laps behind the lead car, McKelvy re-entered the contest.

Three quarters of a mile before the Websters is Sebring's meanest corner, the 135°hairpin. And at 8:00 o'clock, in the near dark, it must be a terror for drivers. Several tire marks up the sand bank give evidence of trouble that happened in full light. By now all cars are running with their lights on and the action looks like a photograph taken with a time exposure. The difference is in dimension. You're part of the exposure; and the flashing streaks and sound of speed are continuing elements. The only still things are the silhouettes sitting in the bleachers and standing along the fence. With the coming of night, anticipation builds.

It's over a mile back to the Corvette Corral and the day's sun and distance traveled begin to tell. Faces, arms and legs are fire red. Eyes that earlier showed brightness are dim. Voices that once carried enthusiasm are near silent. Shoulders are stooped, faces haggard, feet tired and dragging. To make it even more miserable it's getting cold, very cold. But the idea of leaving for more comfortable surroundings is never a thought. This is where the excitement is. After the intense heat all day there's irony in seeing several Corvette owners trying to keep warm over a small can of burning Sterno.

Others are wrapped in blankets, even newspapers. As an Alfa and a string of Cobras round the big U turn, a western Corvette owner shouts tiredly, "Sure glad we've got this Corral so we don't have to fight those crowds out there. This is like sitting on a stump waiting out a stampede."

There are only a few laps to go. People start moving to the start-finish line. Across the track in the pit area, crews and co-drivers wait with little emotion for the checkered flag to signal the end. Around the U turn come three Ferraris, numbers 22, 23, and 21, followed by three Cobras, numbers 10, 12 and 14. The flag drops and it's all over. Ferraris take the overall win for the fourth year running; however, a big upset pleased the American car boosters. Cobras took the Grand Touring category which has been held by the Ferraris for the last six years. A Corvette was the last American GT winner, in 1957.

For the record book, Mike Parkes of England and Umberto Maglioli of Italy in their winning #22 Ferrari beat the old race mark of 90.7 mph set in 1961. Winning average: 92.364. Distance covered in the 12 hours: 1,112.8 miles, also a new record over the standing 1,092 miles set in '61.

The glory of a win at Sebring is essentially an intangible and not much else. First prize overall is $2,000, plus a mantelpiece. First in Grand Touring for Prototypes is $1,000, hardly the cost of rubber left on the track. The other 25 negotiable awards might cover round-trip transportation, a small pizza and a jug of wine. But that's the race that was and some of the sights and sounds you can expect at Sebring '65.

DIANA BARTLEY:

A VERY FEMININE LADY WHO DOESN'T HAVE TO RELY ON THE FEMININE VIEWPOINT TO BE A PROFESSIONAL AUTOMOTIVE JOURNALIST

At any given automobile event anywhere in the world, you are apt to spot a lovely dark-haired, flashing-eyed lady who looks about as out of place as a peacock in a prize-fighting ring. She'll be dressed simply in a light cotton dress, perhaps with a sweater and a couple of cameras, and she'll be an absolute vision of cool and collected femininity, no matter how terribly long and miserable the grind has been, no matter how sunburned and parched you happen to feel yourself. She's Diana Bartley, and she's a working journalist getting a story. Ordinarily she'll be there for *Esquire* magazine; occasionally she'll be occupied with trying to arrive at a rational explanation of American automotive doings for various European publications.

The natural question that springs to mind is, how did a lovely girl like that get into the sometimes grubby and grease-stained world of automotive journalism? The natural answer is that Diana Bartley could bring an air of genteel *class* to a West Side street fight, and somehow the world of automotive journalism always seems a little less grubby, a little more glamorous for her presence. But to be factual about it all, Diana came to the field via a roundabout trail through magazine editing ("The truth of the matter is that I still much prefer editing to writing, and firmly believe that I am a better editor than writer")—in marked contrast to a great percentage of the people in the business of motoring journalism. Most of the writers were car nuts first, and journalists second; Diana Bartley is first and foremost a truly professional journalist.

"I have only the vaguest memory of having had something to do with a terrible off-campus college publication at the University of Miami in Coral Gables. I worked in public relations for a time when I first came to New York, then reversed the usual job progression by taking a job with a publishing company. The then-editor told me one Christmas Eve afternoon that he didn't really plan ever to have a lady editor on his staff, but by then I'd already re-written a couple of hundred how-to-build articles and thus was an editor, even if technically I was still paid as a stenographer.

"Anyway, eventually I became managing editor of a really good automotive magazine, *Auto Age*—I'm still a bit proud of it—the death of which had nothing to do with its quality or success. When it folded, I wasn't yet satisfied that I could become a *good* automotive editor or writer (though by that time I was passing for an authority), so I decided to free-lance until I knew yes or no." And there ensued an illustrious career.

That career reaches not only into the pages of *Esquire* and the aforementioned European publications, but also, very occasionally, into the standard American automotive magazines—*Car and Driver, Road & Track, Motor Trend, Automobile Quarterly* and others of that sort—and such widely variegated publications as the *New York Times* and *Saturday Review*. Diana's specialty is the carefully researched, carefully thought

out long view of automotive development, intention, and possibility; a perfect example would be the September, 1963, *Esquire* piece documenting the rise of the Grand Touring Car in international importance. More recent Bartley features were the Stirling Moss/Ogle/Ford Cortina dream car in the March, 1964, *Esquire*, and the current May article on Ford's Mustang.

Diana provides an accurate—and sometimes attractive—picture of the life of the motoring journalist: ". . . an awful mixture of tedious office routines and problems," but ". . . many, many bright spots . . . the people, the brief but delightful and stimulating conversations. Then I like traveling, and while writing about automobiles doesn't mean that I can travel a great deal, it requires and/or allows a good deal more than most jobs. Europe, for example, roughly once every two years. True, I have been to Italy six or seven times and have yet to see Rome, Venice, or Florence, but I know Modena reasonably well, acquired a taste for tortellini in Bologna, and have come to love Turin. And if I haven't seen Rome, I suspect it is my own fault.

"How does an automotive writer work, what is the nonglamorous part of it? I go to Detroit, for example, spend two days talking with the chief project engineer, design team, chief engineer of the division, performance men, and various PR types—and then come back to New York and stew around for perhaps six weeks writing a relatively simple story on a new car. Or, I convince *Esquire* we should do a piece on a certain race, go there, hang about (garages, pits, dining room, etc.) gathering information, and taking endless photographs.

"But I always come back to the people. Famous racing drivers are not necessarily more interesting than totally unknown engineers. Car owners aren't necessarily more interesting than some accessories people. There is no generality to cover any group. I know a tire man who is looking for a good secondhand pipe organ—which I find interesting; there is a president of an imported car company who worked at the United Nations for years before he got in the automobile business—he and his wife are joys to be with; a racing driver I knew read everything Robert Graves ever wrote. There are an amazing number of people from every category of the automotive field with whom I can talk about cars nearly forever without being bored. Naturally there are a predictable number of what Manney calls clots, but I've a private sympathy for most of even those."

Miss Bartley can be depended upon to be explicit, precise and thorough. We asked, for example, what sort of reading she enjoyed most. The answer was "history (not Civil War); novels (I've enjoyed the gamut between *War and Peace* and *Naked Lunch*, though obviously for different reasons. Exception: 'light' novels); fables (Montaigne is better than Aesop, the latter having been badly bowdlerized through the centuries); mysteries (when I travel); biographies . . . and the remainder decided by subject matter, mood, and time pressure. Some parts of the 78 automotive publications I read monthly are particularly enjoyable. The writing of Harry Mundy in *Autocar*, Joe Callahan in *Automotive News*, Paul Frere in various European magazines—I can only get the gist of it in French—Denis Jenkinson in *Motor Sport* and Lawrence Pomeroy whose marvelous pomp appears occasionally in *The Motor* are the best technical articles for me; I eagerly await *Road & Track* for old friend Henry Manney who is at least as entertaining in person as in his writing, who has an equally delightful wife, Anne, and from whom I stole my favorite and over-used epithet 'Nit!' which appears in various guises—He's a nit, you nit, etc. (I tried to steal a different one—'gadzooks'—but it set poorly and I concluded that Manney is the only man in the world who can say it out loud and sound natural.)"

Does Miss Bartley jump right into the automotive wars and compete with the men? We asked about cars and car ownership, about her personal involvement in the sport itself. Diana doesn't presently own a car. "Now," she says, "you've hit on one of the lovely assets of being an automotive journalist . . . the availability of an incredible number and variety of interesting machinery. In New York, owning an automobile is a liability, particularly in terms of costs. Being able to borrow virtually anything (given reasonable consideration as to date, duration and, it is quickly established, moderation in how you use the cars) is really nice enough to support a little honest envy . . . There have been some lovely cars to drive, and a great deal of pleasure from them. I tend to be leery of extremes—I have never touched Chinetti for a Ferrari, nor the Detroit gentlemen for anything in the Cadillac limousine class, but at one time or another during the past six or seven years, I've driven a good representative lot between.

"The biggest kick of the most recent lot was the Mercedes-Benz 230-SL on the Laguna Seca circuit a year ago. It is at least as great a car as you have heard, and maybe a good deal greater. The fastest? I think probably a Corvette on the GM Proving Grounds banked track a couple of years ago. That was also immense fun of a different sort, for I can't say as I've ever had a car at an indicated 130 on the road. I've been driven faster than that, and by experts—but that's very different.

"Why, in light of my work, have I never wanted to race? That requires a fairly careful consideration of difficult things, like why people who race do. A short and perhaps adequate explanation is that there are those who believe, with Ernest Hemingway, that in order to understand anything, you must experience it yourself, fully, completely, and that your understanding can go only so far as that experience. There are others who believe that the world is doomed if people truly are incapable of learning vicariously.

"All I know of automobile racing is vicariously learned. And if you cite Paul Frere or Johnny Lurani as proof that you must have raced to be able to write of it with understanding, all I can do is mention that Canestrini, acknowledged by three generations of racing drivers as the Italian journalist who wrote most correctly about them, never raced. I do not know, but I have, listening to some of my colleagues on some occasions, even wondered if there wasn't an inherent advantage to a racing journalist in never having raced. Never is my view of a driver's skills colored by what *I'd* have done."

When we asked Diana about which events had been most memorable in her career as a motoring journalist, her response was unhesitating: "A very high percentage of all the races I've reported have been really fascinating for a variety of reasons, but when you say 'memorable,' boy, is there ever a clarion answer: the 1955 Monte Carlo Grand Prix. The setting is superb (it's pretty exciting just to be in Monte Carlo, never mind why you're there) as well as beautiful. The town is jammed with racing people and small enough that you can't miss them. It is still dark when they start the six a.m. practice session the day before the race, and I'd like to tell you, being awakened in a chilly, damp, dark room in a strange country by the sound of Formula One Ferraris, Lancias, Mercedes, Maseratis, and 16-cylinder BRMs, as were raced in 1955, *right* under your window—well, really, that's hard to beat. That particular race was a rare one—with a greater variety of car marques on the grid, and probably more truly first-rate racing drivers than were ever since seen in the same place. And more *happened*. The Mercedes were far-out leaders, then Fangio, then Moss both dropped out—and just as the latter retired in the pits, Ascari drove into the Monte Carlo harbor and came up swimming and, to the astonishment of all probably even including himself, nice Maurice Trintignant won. It was my first race.

"If you limit me to *sports*-car events, the first race at Elkhart Lake, also in 1955, was a rouser throughout, finally ending as one of Phil Hill's narrowest and hardest earned victories. The battle between Fangio and Portago in the first Cuban Grand Prix (1957, I think) was as dandy an exhibition of the young not-so-wild-one-any-more challenging the old Master as I've seen—though I wonder to this day if old Fangio was 'allowing' the challenge for the sake of the show. For he was not solely the immensely gifted driver that everyone agrees he was; he was also one of the most astute strategists and wily showmen any sport has seen . . . Ken Purdy and I have argued for years about the relative greatness of Fangio and Nuvolari, and other colleagues besides Purdy and I have wrestled nearly as long with the Fangio/Moss argument. Someday perhaps I'll get around to writing down all my reasons for being on Fangio's side. For a start, Moss thinks Fangio was the better . . ."

It is not in Diana Bartley's make-up to dismiss the point as academic, and she'll defend to the death her own point of view—all the while filled with warm respect for the opposition. Diana may be a professional journalist who only happened into the automotive part of the business, but her credentials—in the sense of a working background and a proper historical perspective—are absolutely impeccable. And there is no one in the field with a livelier interest in, or affection for, the business, the sport, and the people, in the world of automobiles.

Above: Just after a hair-raising ride with Rudi Uhlenhaut of Mercedes-Benz at Daytona Beach—a tire blew on the 300 SLR at 140 mph. Right: Diana talks with the late Indy great, Pat O'Connor—the occasion was Fangio's trial in an Indy car at the Trenton Speedway. Below: Miss Bartley consults with Jean Behra before she tries to make off with someone's trophy at Sebring in March of 1957.

When it comes to making a choice between brands of gasoline, actual selection is sometimes determined by such seemingly irrelevant things as appearance of a station or friendliness of the attendants. Still others might be selected on the basis of the kinds of road maps or the soft drink flavors in the cooler. Even the cleanliness of the restrooms might have a bearing on selection by some drivers. To most Corvette owners, this would probably seem like a far-out way of choosing a gasoline, because performance and even durability can hinge largely on the type of fuel used.

Consider the *Corvette Owners Guide*—where premium-type fuel is recommended for all Corvette engines. The recommendation goes on to mention, "In some areas, grades of gasoline may be encountered which result in severe detonation. Should this occur, consult an authorized Chevrolet dealer so that adjustments can be made to eliminate this detonation or reduce it to a safe level." While this statement might make a person crawl with apprehension, it only means that a few areas of the country may have premium-type fuel with too low an octane rating to perform properly in a Corvette engine. In fact, there might be premium-type fuels in some areas that will have an octane rating no higher than that of regular-type fuel in other parts of the country.

Even though a driver uses only one brand and one grade in a cross-country jaunt, he may notice different levels of performance in certain areas of the country. This would be due, not only to the difference in octane rating (sometimes to compensate for temperature and altitude), but also the amount and kinds of additives used to tailor fuel to certain areas and climates.

Gasoline, in its most basic form, is crude oil. By distillation, which is one of the major refining processes, approximately 10 to 30 percent of the hydrocarbons in the crude oil can be removed to become straight-run gasoline. This straight-run is often referred to as virgin naphtha and is the part of crude oil which boils in the 90° to 400°F. range. In the 90° to 180°F. range, the product has a natural ability that makes it suitable for direct use in motor fuel after blending with other compounds. The parts of crude oil that boil between 180° to 400°F. almost always must be reprocessed to improve their antiknock ability before they are blended. Above 400°F. some of the other well-known fuels such as kerosene and diesel oil start to vaporize as shown in Figure I. These fuels in their natural state have a very poor or almost no antiknock quality and would be unsuitable in any modern engine. In days past, many of the engines had such a low compression ratio that they were able to operate on a mixture of gasoline and kerosene—or even kerosene alone.

Those parts of crude oil that boil at lower than 90°F. are naturally the most volatile, and some can be used after reprocessing to blend with the straight-run gasoline for cold-weather starting. A good example of this is the addition of butane in colder weather.

Besides the process of distillation in manufacture, gasoline can be obtained from heavier fractions of crude oil not needed as lubricant or fuel oil. These heavier and larger hydrocarbons can be "cracked" into smaller ones usually by subjecting them to heat and pressure in the presence of a catalyst. This process increases the yield from crude oil, to help keep costs low.

Modern gasolines are a carefully selected blend of the most volatile compounds for quick starting; medium-boiling compounds for fast warmup; and sufficient high-boiling compounds to give good mileage and power. There must also be provision in the evaporative characteristics to prevent the possibility of vapor lock and excessive loss while in the car's tank. Therefore, these blends will vary from section to section across the country to compensate for differences in temperatures at different times of the year.

Some of the other requirements for a good gasoline include anti-icers to prevent gas line freezing and carburetor icing under certain temperature and humidity conditions. And to prove further that a good gasoline must be all things to all engines, it must have a high enough antiknock to prevent detonation under all load, speed, humidity and altitude conditions. It must also have a low gum content so as not to cause valve sticking or carburetor and manifold deposits. Sulphur content must be low to prevent corrosion, and the fuel must have good stability to prevent deterioration in storage.

While many of the characteristics of a good gasoline are a direct result of the way it is refined, certain compounds must be added for the finished product. Many of the additives are there simply to keep the gasoline from doing something it shouldn't, but tetraethyl lead is like a vitamin, added to give the fuel extra muscles. The compound itself is a clear liquid composed of carbon, hydrogen and lead and gives the fuel added antiknock quality. The importance of antiknock quality, measured by octane rating, cannot be overstressed. Figure 2 shows the relationship of economy and power to octane number. It shows that both economy and power go up as octane number goes higher, but this is the case only if an engine is designed for the higher octane. An engine designed and adjusted for regular fuel would not benefit simply by using higher octane fuel.

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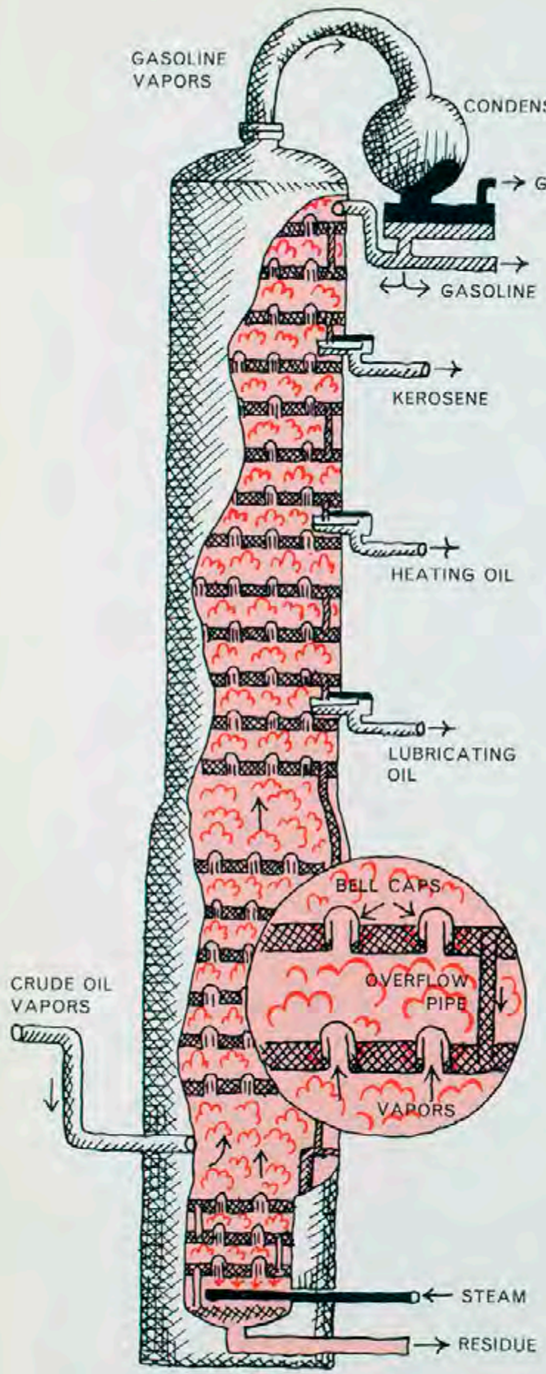
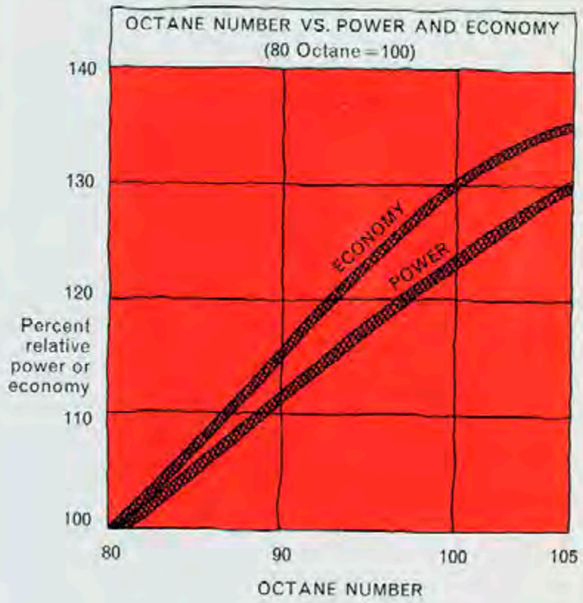


FIG. 1

FIG. 2



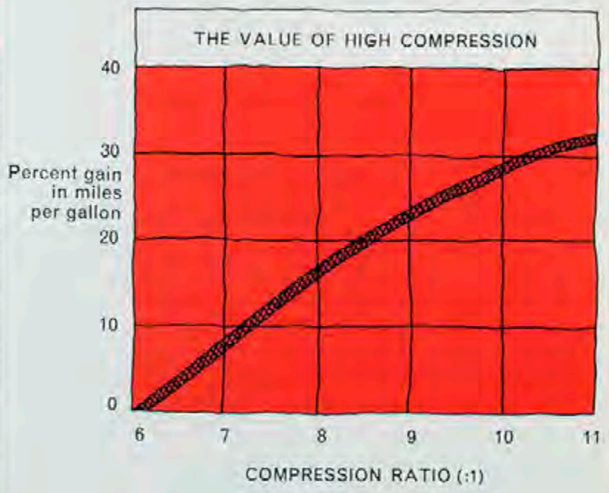


FIG. 3

Oddly enough, octane rating, or number as it is often called, is derived from an arbitrary scale. This scale is based upon matching the performance of a test engine on a commercial fuel with a reproducible laboratory fuel. Octane will usually range in the 80 to 100 number, with premium grade fuels 6 to 10 numbers higher in antiknock quality than their corresponding regular grade fuels in a particular area.

Figure 3 shows economy related to compression ratio. To those who may be unfamiliar with the method of determining compression ratio, it is a comparison of the total volume of a cylinder with the piston at the bottom of its stroke and the volume remaining when the piston is at the top of its stroke. In the 327-cubic-inch Corvette engines, each cylinder has an approximate volume or displacement of 40.87 cubic inches (327 ÷ 8), with the piston at the lowest point in the cylinder. In the compression stroke, with both valves closed, the piston travels to the top of the cylinder, decreasing the volume of that cylinder. In the two top-horsepower Corvette engines, the compression ratio is 11 to 1, which means that the volume of the cylinder is compressed into approximately one-eleventh its original size. The term "approximate" must be used because the volume of the cylinder may vary slightly in production or because of deposits from certain types of driving. These deposits are primarily the product of incomplete combustion, and more will tend to form during low-speed or short-stop driving.

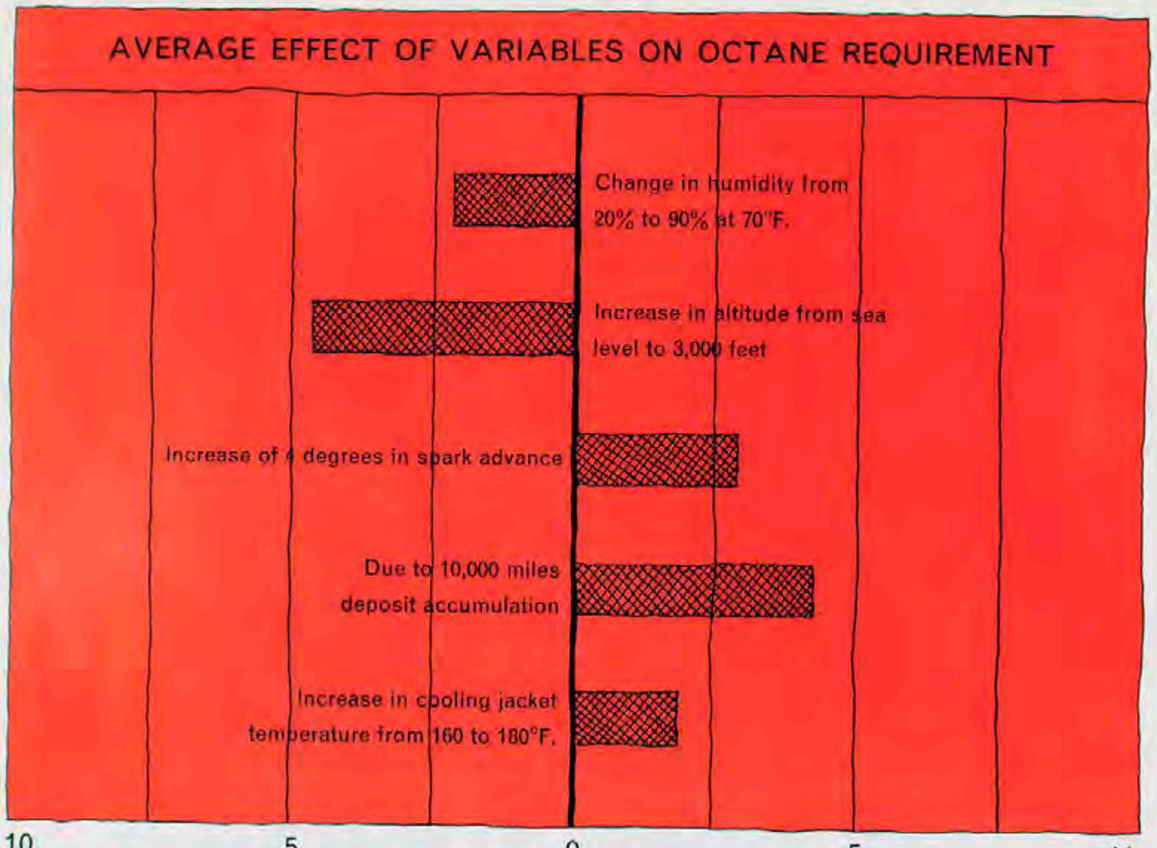
Seldom, if ever, will an engine manufacturer publish a specific octane-number requirement for a particular engine. Usually the recommendation will only specify regular or premium grade. This reluctance to call out a specific octane requirement doesn't come from a caprice or independence on the part of the manufacturer, but rather as a safeguard. As Figure 4 shows, a number of variables can get into the act and this is where trouble could lie. If a recommendation was for 100 octane and the engine was set up to make best use of this level, one or several of the variables shown in the chart could gang up to cause octane to be below requirements, with detonation the result. On the other hand, if conditions were ideal, an engine might tolerate a fuel with a lower *initial* octane rating, but use of lower grade fuels than those specified in the *Corvette Owners Guide* is not a recommended practice. It's purely a case of "better to be safe than sorry."

As most drivers know, an early indication of low octane is fuel knock or "ping." And this is where tetraethyl lead could also be considered as a preventive. Just how much tetraethyl lead is needed to prevent knock depends on a lot of factors, including the natural antiknock quality of the fuel in the distillation or cracking process.

There are still a lot of people who think of gasoline "exploding" in the cylinders to drive the piston down. Actually, fuel knock is an indication that explosion has occurred—and that's bad. Fuel, in order to give the proper power, must start to burn at the spark plug, with a wave of flame moving across the combustion chamber (Figure 5). The resulting pressure rise during combustion is smooth and can be likened to a powerful hand pushing the piston down. If the gasoline does not possess the proper antiknock quality, this combustion process is quite different. In this case, the pressure and temperature rise too rapidly and, instead of burning smoothly and evenly, the last portion of the mixture explodes instantaneously and wildly. Actually, this could be compared with striking the piston with a hammer, and this is where the ping or knocking sound comes from.

The importance of proper spark timing can be illustrated. Initial advance setting on the '64 Corvette engines is 4° before top dead center for the 250-hp job, 8° before top dead center for the 300-hp engine, and 12° for the two top-horsepower power plants. These figures mean that the spark plug should fire the fuel-air mixture just before the piston reaches the top of its travel (with the crankshaft either 4, 8 or 12° away from completing its revolution). During the fraction of a second that the piston is reaching top dead center, combustion pressure also will be approaching full intensity. Combustion pressures actually peak an instant after top center to give the piston maximum push. If the timing is too far advanced, pressure will reach full intensity as the piston is still coming up—causing, in effect, a collision of two forces. This collision causes a loss of power which may or may not be audible to the human ear.

Not only does this uncontrolled burning and knock exert abnormal heat and shock to the top of the piston, but it also subjects the connecting rod bearings to abnormal shock. If allowed to continue, this could burn a hole through or break the piston head, or even pound out the bearings. Under controlled laboratory conditions, it has been determined that this knocking condition also subjects the piston rings to abnormal wear. For example, continued "trace knock" (determined by special instrumentation) will accelerate piston ring wear up to three times normal; a noticeable light knock will accelerate wear up to six times



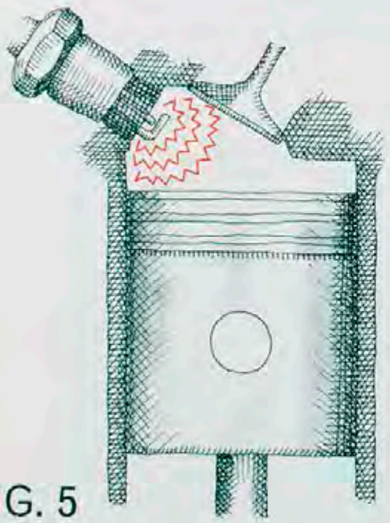


FIG. 5

Flame travel during combustion.

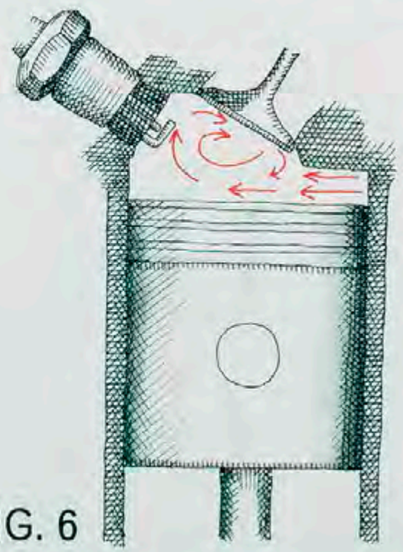


FIG. 6

Fuel-air mixture turbulence during compression.

normal; a heavy knock will accelerate wear up to one hundred and seventy-four times!

Another point: fuel knocking causes a loss of power, overheating and damage to spark plugs as well as pistons and bearings. Because of this, a seat-of-the-pants tuneup should never include road-timing (where spark is advanced until the engine begins to ping on acceleration). The Corvette V8 distributor should be adjusted very thoroughly and with proper instrumentation.

Of course, there are some things that could cause ping other than improper spark advance, assuming that the fuel is as recommended. One of these is overheating, caused possibly by a restriction in the engine cooling system or a slipping belt. Others include worn-out spark plugs, or plugs that are loose or of the wrong heat range. Too lean a fuel mixture is another possible cause, but this would be highly improbable with the standard Corvette carburetor or fuel injection system, unless either had been altered in some way.

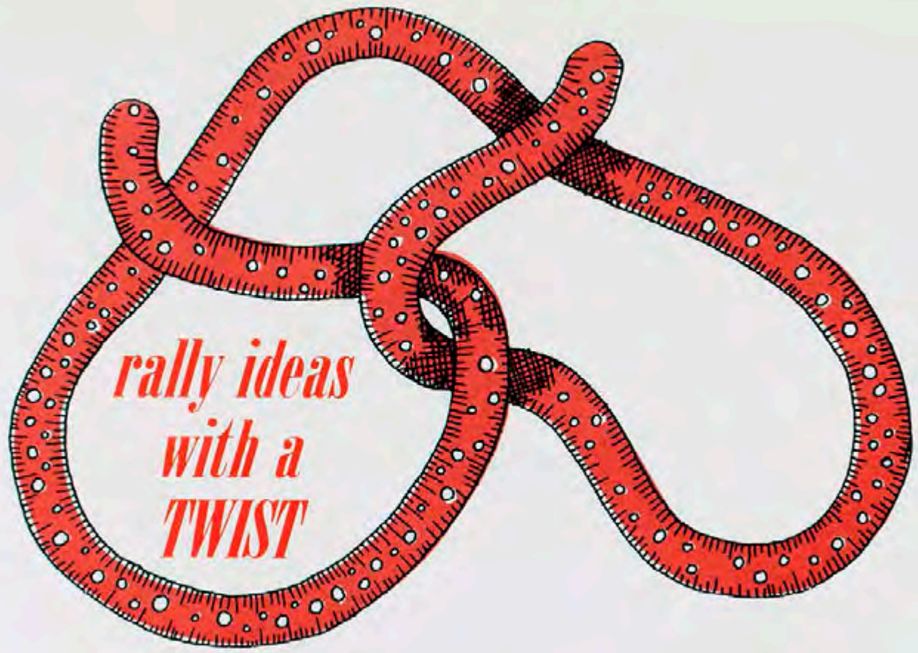
In addition, combustion chamber deposits could cause preignition because deposit particles themselves could "glow" and ignite the fuel-air mixture as the piston is on its way up. However, this last possibility is minimized by one of the preventive additives in the fuel and by the inherent ability of the Corvette engine when properly maintained to prevent this. This inherent ability comes, in part, from the modified-wedge-shape or high-turbulence combustion chamber. As the piston travels upward, the decreasing volume finds the fuel-air mixture being squeezed out of the smaller area at one side of the combustion chamber, and into the side which still has the relatively larger area (Figure 6). This turbulence within the cylinder causes more complete burning of fuel and helps prevent formation of deposits. The anti-"glow" additives in the fuel itself are called ignition-control compounds. These will usually contain phosphorus. Phosphorus modifies combustion chamber deposits so they will not have a tendency to glow or ignite the fuel-air mixture when hot. Phosphorus also helps to make these deposits non-conductive to prevent short-circuiting the spark plugs.

Some of the other "prevention" additives include anti-rust compounds. These help prevent corrosion from any condensation that might form in the fuel tank of the car. Another additive is the detergent type. This helps remove and prevent deposits in the tank, fuel lines, fuel pump and carburetor. Anti-icing compounds are used primarily in fuel where carburetor icing or ice in fuel lines is a problem. As the gasoline vaporizes in a cold carburetor, moist air can cause ice to form on the throttle plates or the carburetor throat. Anti-icing additives either coat the carburetor surfaces so that frost won't adhere, or act to prevent freezing altogether.

One of the last additives, dye, might be considered at first to be strictly window dressing. But dye has a definite purpose: to make gasoline more distinguishable from other relatively colorless liquids and so discourage its use for putting out fires, rubbing on sore muscles or filling kerosene stoves. Premium gasolines are usually a shade of red. Sometimes fuel is more on the purple or blue side. The color or intensity does not necessarily relate to the quality of the fuel. Evidence of this dye can often be seen around the carburetor or other fuel system parts where it will color the dirt particles that collect.

All the things a gasoline does when it should, and doesn't do when it shouldn't, are clear evidence of the painstaking research that has gone into, and will continue to go into, every gallon of gasoline on the market today. Naturally, full value cannot be realized unless the engine is "tuned" to take advantage of the gasoline's potential. The importance of proper settings and maintenance of all electrical, ignition and carburetion components cannot be overemphasized, especially for top performance and economy. The *Corvette Shop Manual* spells out in detail all these specifications, settings and adjustments.

If a Corvette owner has not settled on a particular brand of gasoline, it might pay to find out the difference between brands before making a final selection. A station operator or gasoline manufacturer will usually have information concerning the octane rating, additives and advantages of the particular brand. Based on this, it may be possible to lower gasoline costs-per-mile in the particular type of driving that is done. However, just because one brand has a higher octane than another does not necessarily mean that it is of higher quality. It could be a good indication, but there are other factors to consider, too. These include the way gasoline is handled at the station and what precautions are taken to prevent rust scale, dirt and water from collecting in the underground tanks. Don't hesitate to ask the operator what precautions are taken to safeguard the quality of the gasoline. After these conditions have been met and selection has been made, *then* the driver can make a double check by observing the friendliness of the attendants, the kinds of road maps, soft drink flavors in the cooler and cleanliness of the restrooms!

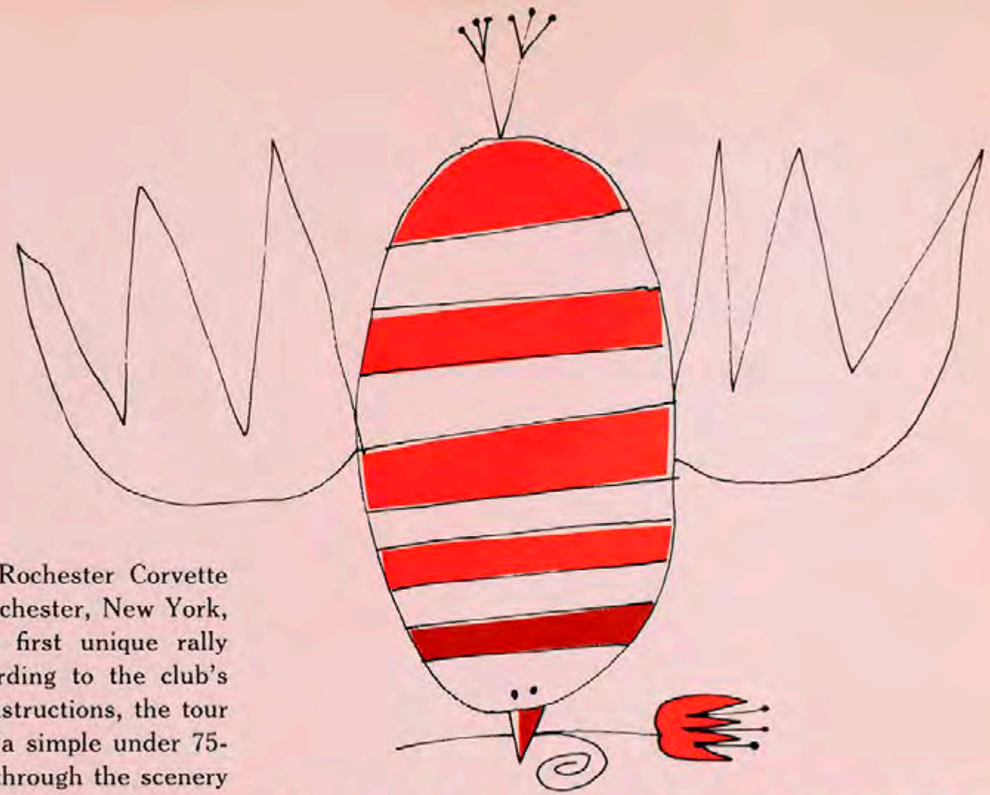


OR

Help for the Harried Activities Chairman

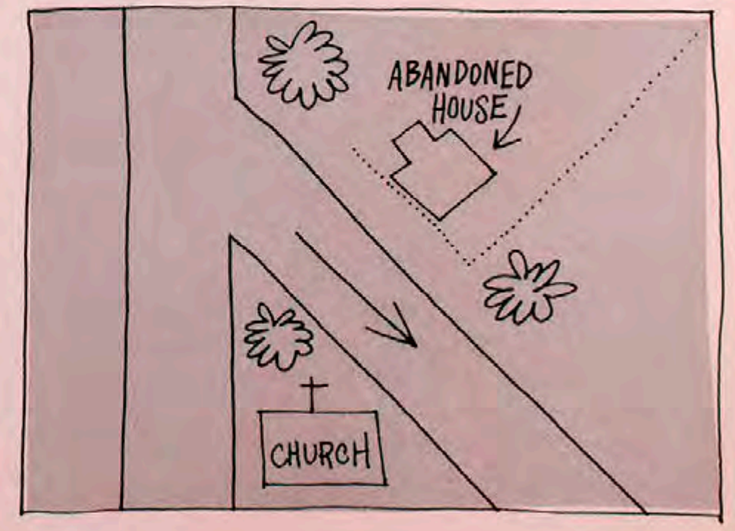
A few issues ago in the Corvette News, we asked for rally idea contributions from Corvette Clubs. The response, as we might have guessed, grossed enough material to fill quite a large file folder. Herewith, then, we present some of the more unusual rally ideas that run the gamut of interest and challenge. It is, we think, in the true spirit of the subtitle, "Help for the Harried Activities Chairman."

Are we interested in hearing from your club about more rally ideas? You bet. And, of course, you needn't confine your communications just to rallying, either. Any suggestion on Corvette Club doings that your club feels meritable would be more than welcome.



HOLD A RALLY WITH A BIRD'S-EYE VIEW

From the Rochester Corvette Club of Rochester, New York, comes the first unique rally idea. According to the club's pre-rally instructions, the tour would be "a simple under 75-mile-rally through the scenery of Monroe County. This easy event will feature one uncomplicated gimmick and will be timed to the nearest minute." The "simple, uncomplicated gimmick" turned out to be rather novel. Entrants were given their instruction sheets with numbered rally directions and a group of 12 overhead drawings of road intersections. The drawings were keyed to instructions on the rally sheet, such as, "12. Diagram C." On diagram C was an aerial representation of the corner with a Y-fork in the road. Alert drivers and navigators had to concentrate on their route to locate the corner. Appropriate clues as well as the direction to drive were indicated on the diagram. Intermixed with the picture puzzles are regular rally instructions on the entrants' sheets.



Like, let's cool it to Rallysville

I mean, come on, squares, and dig our caper on this strictly unsquare rally bit. Us cats (Tri-County Corvette Club of New Jersey—otherwise monikered as the Kar-Vets) want you to shake out your attics and blow a cool tune at your next gig. Just get all the swingers at the same scene and don't make it a hard wrinkle.

cool it. Go.
dig. Get hip, man—like, understand.
caper. Job.
cats. People who swing.
shake out your attics. Think of something new.
tune. Idea.
gig. Event.
swingers. Anyone who's successful.
scene. Location.
hard wrinkle. Tough job.

Dig? Crazy. Cats, grab the pulp and scratchers and make it down to the Man's place. Bring the crumbcrushers for laughs, too. Dig the Man's sound while he cuts a take about the hip caper. (Aside to all Big Men: don't make the gig a konk-buster. Just blow cool and lead the flock down the right strips.) Swingers, make it a bash and don't wail chase choruses if you flip a strip. After all, just make it to the juice scene and then take it out.

pulp and scratchers. Paper and pencil.
Man's place, the. Dealership or club headquarters.
crumbcrushers. Children.
Man's sound, the. Leader's story.
cuts a take. Explains the caper.
hip. Clever, smart.
Big Men. Like the Man, only plural.
konk-buster. Literally, head-breaker.
Too hard to figure.
blow cool. Explain carefully.
strips. Roads.
bash. Party, fun.
wail chase choruses. Complain about getting lost.
After all, like it's a bash.
flip a strip. Get lost. (Flip the road.)
juice scene. Refreshment spot.
take it out. End it.

Just in case you're still at odds with this printed mania, hunt up a beatnik-type dictionary and make up your own rally instructions like the New Jersey Corvette Club did. Like, it's not a konk-buster, man!

SEND 'EM ON A SHOPPING TOUR

Another idea from the Jersey group is the "Shopping Rally." Give your entrants a list of perhaps 10 low-priced items to purchase, one from each of 10 stores. The gimmick here is two-fold. First, contestants compare prices on their *objets des arts* purchased from the 10 stores. Then mileage is compared. A combination of lowest purchase prices and lowest mileages determines the winner. Your club may be surprised at how much the mileage can vary over a relatively short distance. An aside: you might make the items to be shopped for the ingredients of a little party to be enjoyed by all afterward.

BRUSH UP ON "PASSWORD" FOR THIS BIT

Remember that game called "Password" on the teevee? It's the basis for another rally idea from the Kar-Vets. The word clue should associate closely with a landmark you want your entrants to find. Examples below include:
Caseyville—doctor's office.
Dillonville—Dodge City.
Mooville—dairy.
Doughville—the bank.

Lacing the instructions with words like these can be quite humorous and fun throughout the rally.

CROSS ■ WORD PUZZLE RALLY

How are you at working crossword puzzles? Especially when the answers are part of your rally instructions? That was the gimmick faced by recent members of the Rochester Corvette Club when they held a "C.W.P."—Cross Word Puzzle rally.

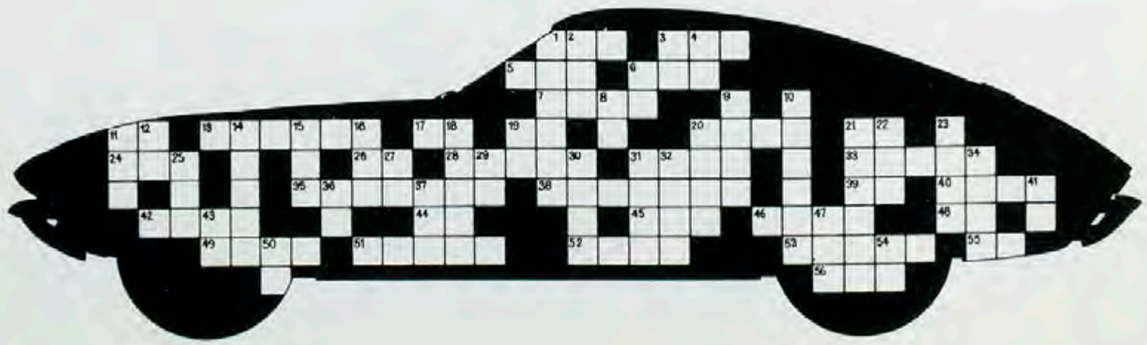
Entrants were given their instruction sheets for the rally that included a crossword puzzle shaped like a Corvette and definitions for the puzzle. Entrants had 15 minutes prior to their own starting time to solve as many of the answers for the puzzle as they could. Quoting from the instructions, entrants were advised, "Not to worry if you miss some. As you go along the route, the answers will become evident.

"Here's how to follow route directions:

"For example, Direction #2 says (7-A), on Route 252. The word which fits 7-Across in the puzzle is 'left', so the direction becomes 'Left on Route 252.' The rest of the directions are just as easy."

All entrants were given a telephone number to call if they got hopelessly lost or had mechanical trouble (in Rochester's case it was the restaurant where the rally finished) and sent on their way.

The Corvette shape below is similar to the puzzle used by the Rochester group. Some of the definitions are given to guide future rallymasters who want to plan this type of rally. Here are some definitions and their answers: 21-down. Structure across a river. (Answer, "Bridge"). 53-across. Correct. (Answer, "right"). 29-down. Road (Abbr.) (Answer, "Rd."). Normally, of course, all "Across" and "Down" listings are printed under "Across" and "Down" headings as in a normal crossword puzzle. Rallymasters with imagination can easily fit words together to make a puzzle that will reflect situations peculiar to their own area.



KEEP IN TOUCH WITH CB RADIO

part two—getting on the air

In a previous article published in Volume 7, Number 3 issue of *Corvette News*, the subject of citizens band (CB) license requirements was discussed. For readers joining *Corvette News* for the first time, complete information regarding CB licenses and station requirements may be obtained from the FCC, Gettysburg, Pa. 17325.

Three main topics will be discussed in this article—antennas; base station and mobile transceiver installation; and noise suppression in Corvettes. To review a few basics, CB radios are limited to five watts power by FCC rules and must be licensed . . . except those with 1/10 watt (100 milliwatts) power or less. While there's no exam to take, a CB license does require a written application to the FCC. Individuals or clubs may apply for a license, and may operate within the limitations imposed by general FCC CB guidelines.

THE ANTENNA—THE FINAL LINK

An antenna both receives and transmits electromagnetic radioation, a somewhat technical term meaning radio waves. The length of the antenna, its shape, height above earth, material and type of connection to a CB transceiver affect an antenna's receiving and transmitting efficiency. Because of the extremely wide range of variables affecting antenna performance, no specific recommendations can be made by *Corvette News*. In fact, the best way to touch off a friendly argument between CB enthusiasts is to ask them simply and innocently, "Which antenna is best?" However, this section will present basic types of antennas and describe their general applications.

MOBILE ANTENNAS (Illustrations 1-6)

1. The 108″ whip. This antenna is popular among experts due to its simplicity and freedom from the corrosive effects of weather. It is usually mounted on a coil spring at its base to prevent damage to the vehicle if the whip should strike low-level tree branches or other objects.

2. The coaxial antenna. A shorter length device, usually about 60″ high. Offers transmission and reception characteristics similar in theory to the 108″ whip and lower wind resistance. May be spring or solidly mounted.

3. Base-loaded whip (shielded coil). The term "loaded" means that a coil of wire of specific size and length is substituted for part of the long whip, lowering the antenna's overall height. In theory, the electrical characteristics of the shortened whip with loading coil should match those of the 108″ whip. This version has the coil placed in a metal box inside the vehicle, directly below the base of the whip. The whip rod can range in size from 18″ to 60″, depending on the coil size.

4. Base-loaded whip (exposed coil). On this antenna the loading coil is mounted above the surface of the vehicle, directly below the whip. This antenna may range in height from 18″ to 60″, depending on coil size.

5. Center-loaded. A stiff rod of precise dimension extends vertically from the vehicle surface to the loading coil. Above the coil, the more flexible whip rod completes the antenna. Height range is similar to the above types.

6. Top-loaded. Among experts, the top-loaded whip finds more favor than types 3, 4 and 5. The coil is mounted on the stiff rod section. No whip rod is used above the coil. Height is similar in range to types 2-5.

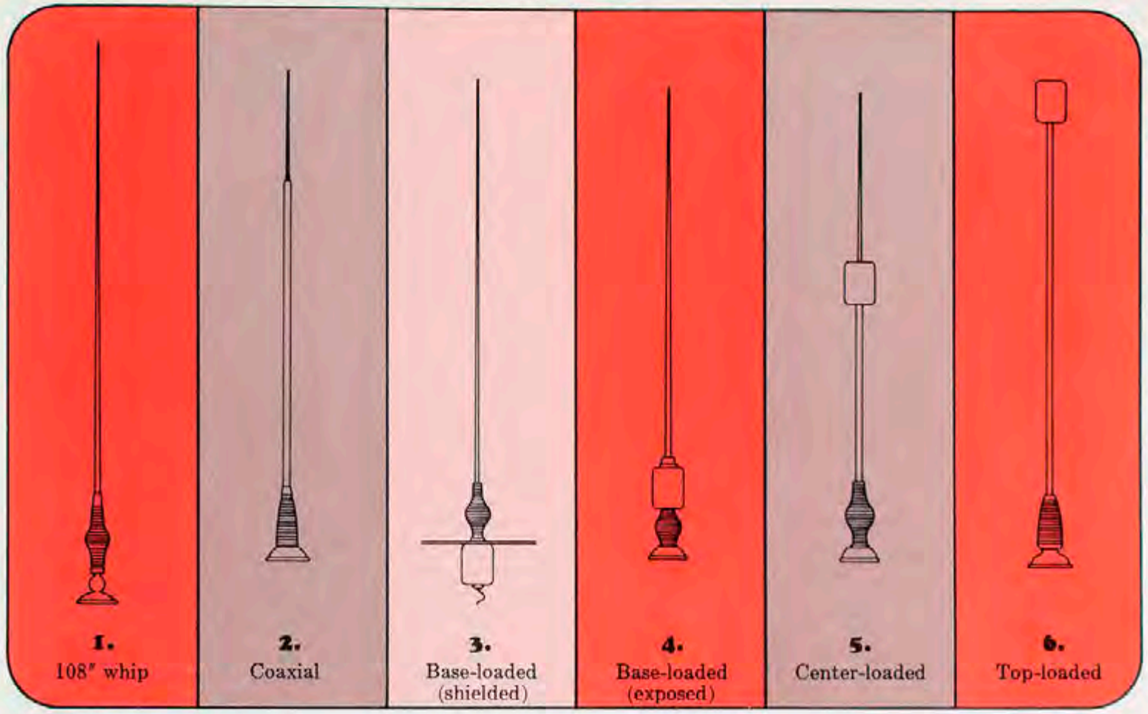
BASE STATION ANTENNAS (Illustrations 7-10)

7 and 8. Identical to (1) and (2) above, only attached to a building structure rather than to a moving vehicle.

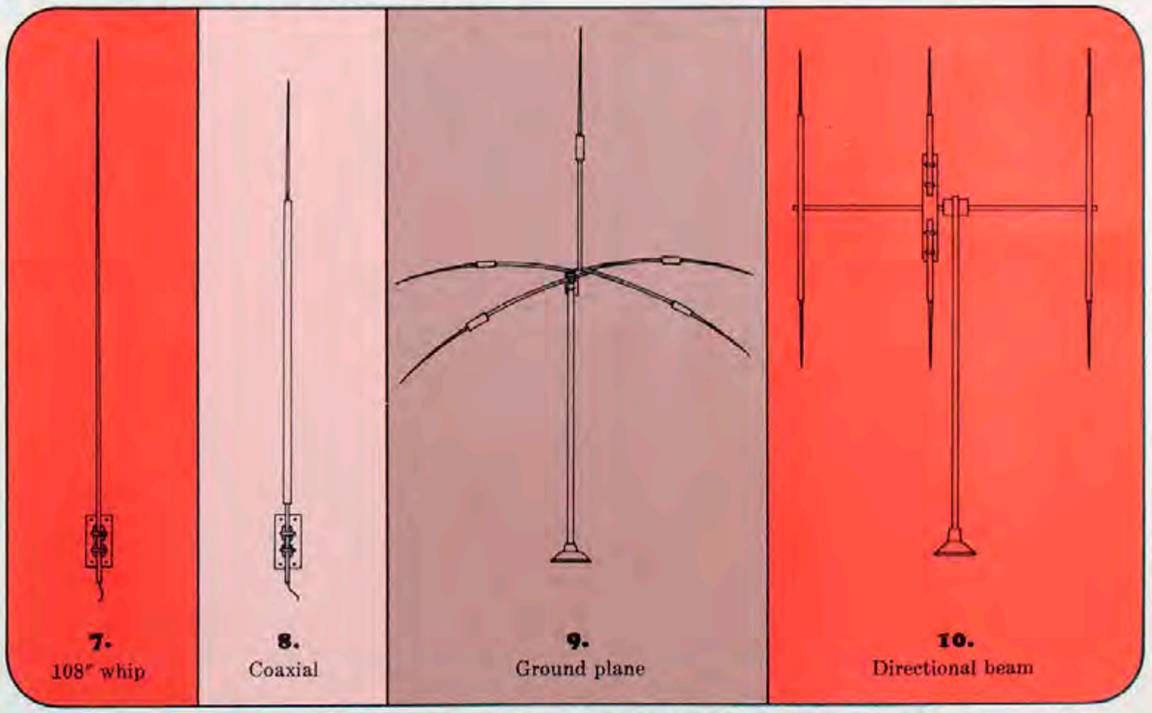
9. The ground plane. This popular CB antenna is generally claimed to have improved transmission and reception characteristics over the plain 108″ whip or coaxial models. In theory, all vertical antennas of the whip type would dissipate maximum CB transmitting power if they were stationed directly at earth level. In practice, of course, whips are mounted on top of a structure. This added height lessens their ability to transmit CB power. The ground plane antenna overcomes this limitation with the four drooping rods extending horizontally from the base of the vertical section shown in drawing 9. The effective electrical result is this: the four rods simulate earth-level ground; and no matter at what height above earth level the ground plane antenna is mounted, the unit still "thinks" it's right down at earth level and transmits more power into the air. Most experts agree that the ground plane has around 50% greater efficiency than a conventional vertical whip.

10. The directional beam. This device is the only directional antenna of the 10 described. Its main benefit is concentrating CB power in one direction to the relative exclusion of all others. By contrast, antennas 1-9 radiate power in all directions much like an unshielded light bulb. The directional beam concentrates the power similar to the way a flashlight concentrates its light into a beam, hence the name. This antenna is used primarily between

MOBILE ANTENNAS—all on springs



BASE STATION ANTENNAS



NOTE: Technical information used to prepare this article was obtained from the Detroit office of the FCC, Delco-Remy Division, General Motors Corporation, Arthur Francis K8KJP (Assistant Professor at Eastern Michigan University) and Chevrolet Motor Division. Reference books used are mentioned in the article.

base stations separated by long distance or difficult terrain, and where non-directionality (unshielded bulb approach) isn't desired.

WHICH ANTENNA TO USE?

This question must be answered by deciding: 1—how much money should be spent on the antenna, 2—what kind of a job will the antenna be asked to do, and 3—how much maintenance will have to be done in order to maintain peak efficiency. To clarify the situation, many experts subscribe to the "simple and low maintenance" theory which would favor the vertical whips. Other experts are equally adamant in the theory that "if you spend a little more, you'll get more." Antennas 2-6, 8 and 9 would fit the latter thought.

Antenna 10, the directional beam, excludes or reduces reception and transmission from the sides and rear. Where these characteristics are preferred, use the beam.

Now to add final fuel to the fire, the reader must remember that the antennas described are general types only and are not the total extent of units available. In fact, there are enough modifications and improvements which can be added to many of the units described to fill an entire antenna catalog. Which they do. And for the readers who wish to delve more deeply into antenna theory and practice than the scope of this article permits, they would do well to consult the *CQ Mobile Handbook*, from Cowan Publishing Company, 300 West 43rd Street, New York, New York 10036; *The Amateur Radio Handbook*, published by the American Radio Relay League, or the *Citizens Band Handbook*, published by Howard W. Sams. For readers who do not wish to make a career project out of CB, trust the advice of a local reliable radio dealer specializing in CB and other transceiver equipment.

SETTING UP THE BASE STATION

At home (or office, club or other location), the CB unit should be mounted in a convenient place. The antenna should be placed as high as possible, consistent with FCC regulations. The antenna should be firmly attached to the roof or supporting structure, and guy wires are preferred by many operators for additional stability. A good earth ground from the grounded structure of the antenna mast should be made by connecting a heavy gauge wire (#10 or lower) to a copper rod driven 4 to 6 feet into the earth. A secondary, and lesser, choice is to hook the ground wire to a cold water pipe. NEVER hook the ground wire to a gas pipe.

GOING MOBILE IN A CORVETTE

Some owners prefer to mount their units under the instrument panel while others (especially in '63 and '64 models) prefer to mount their transceivers behind the seats. It's strictly a matter of choice.

Once the type of antenna has been chosen for mobile operation, appropriate connections are made for getting on the air.

"Appropriate connections" in a Corvette are more than a matter of passing concern; they are vital to effective and relatively noise-free communication. The following steps are recommended to make sure of good reception and transmission.

Antenna placement: the higher the antenna is on the vehicle, the better the transmission and reception characteristics will be, all other factors being equal. If the owner (with say, a new Sport Coupe) could stand the sight, the preferential mounting position would be square in the middle of the roof. There are obvious disadvantages to this placement other than aesthetic; holes would have to be drilled through the roof and bolts would have to secure the base of the antenna to the roof. The potential for water leakage is obvious; so is a gentle scuffing of the scalp on the bolt-ends. The next best location is on either rear fender. There, the bolt-holes would be less offensive and most aesthetic considerations would be met. Mounting the antenna on the rear bumper is usually most popular, though experts feel it the least desirable of the three locations. However, for most short-range communications, bumper mounting is adequate and enables quick disassembly of equipment.

Electrical connections: Happily, the experts almost unanimously agree on this subject. For permanent mobile installations, the owner would be well advised to take the following steps. Make sure the CB unit is well grounded. Use a flat, braided radio ground strap (Part #3726299 available from any Chevrolet dealer) to connect from the chassis ground on the CB unit directly to the battery ground bolt on the engine bell housing. Similarly, use a braided strap to connect the grounded section of the antenna (the braided wrap around the center conductor) directly to the frame. When attaching any of the braided straps, be sure to clean all paint and dirt off the spot where the strap is connected. Why flat braid? Ground current tends to flow along the surface of the conductor rather than through it. Thus, the flat braid strap offers more "surface" for this job. (For the electronically inclined, the flat strap has less inductance to RF than the round strap.) Hook up the 12-volt lead from the CB unit directly to the battery if possible. Connection to the ignition switch is generally to be avoided because of possible interference with the car's electrical system. All commercially produced CB units have their own on-off switch anyway. For owners who would like to install a battery cable on their Corvettes with an additional positive lead ideally suited to CB connection, Chevrolet Part #2979911 will suit the purpose. Splice the CB 12-volt lead to the extra battery lead, solder securely with radio type solder (rosin core) and insulate the connection.

NOISE IN MOBILE CB—ITS CAUSES AND SOME CURES

In general, Chevrolet and Delco-Remy ignition engineers feel that radio shielding on all radio-equipped Corvettes is designed to do a thorough noise suppression job. And, in general, most high-quality CB units are shielded for maximum noise suppression.

However, there are cases where spurious noise from the vehicle can interfere with good CB operation. The following suggestions to help suppress objectionable noise have been gathered from the collected remarks of both Chevrolet engineers and personnel at Delco-Remy. First, take apart all of the radio shielding and ground straps used for the conventional Corvette radio and clean all mating surfaces thoroughly. Also, scour all attaching points where ground straps connect to the engine. Re-examine the grounding of the CB unit, antenna and battery connection to make sure there are no loose, corroded or dirty connections. Be sure all battery cable connections are clean. Then examine the existing suppression capacitors used in Corvette radio installations. They'll be found at the coil, generator (or Delcotron), regulator, parking brake switch, turn signal switch, stop light switch and ammeter. If any capacitor should be loose from its terminal, reconnect it. If the Corvette is more than a year old or has been subjected to excessively salty or similar corrosive conditions, good practice would indicate replacement of all original capacitors. If the car is new, remove each capacitor and clean the mounting tab and attaching point. Then remount, being careful to make a very tight connection at the capacitor bracket.

On older cars, however, more drastic steps may be necessary. Foremost among these is "bonding." Most electrical devices on Corvettes can generate noise due to poor electrical ground contact to the engine or frame, caused by corrosion at the connections. "Bonding" involves cleaning the connections and housing of any device (motor, coil, generator, etc.) until shiny and attaching a heavy braid ground strap from the shell of the device to either engine or frame ground. Referring to the illustrations below, notice three types of bonding washers. These washers have teeth in them and when installed literally cut into the skin of the ground strap, the frame and the housing to insure a good ground connection. In the steps ahead, "bonding" refers to the above procedure.

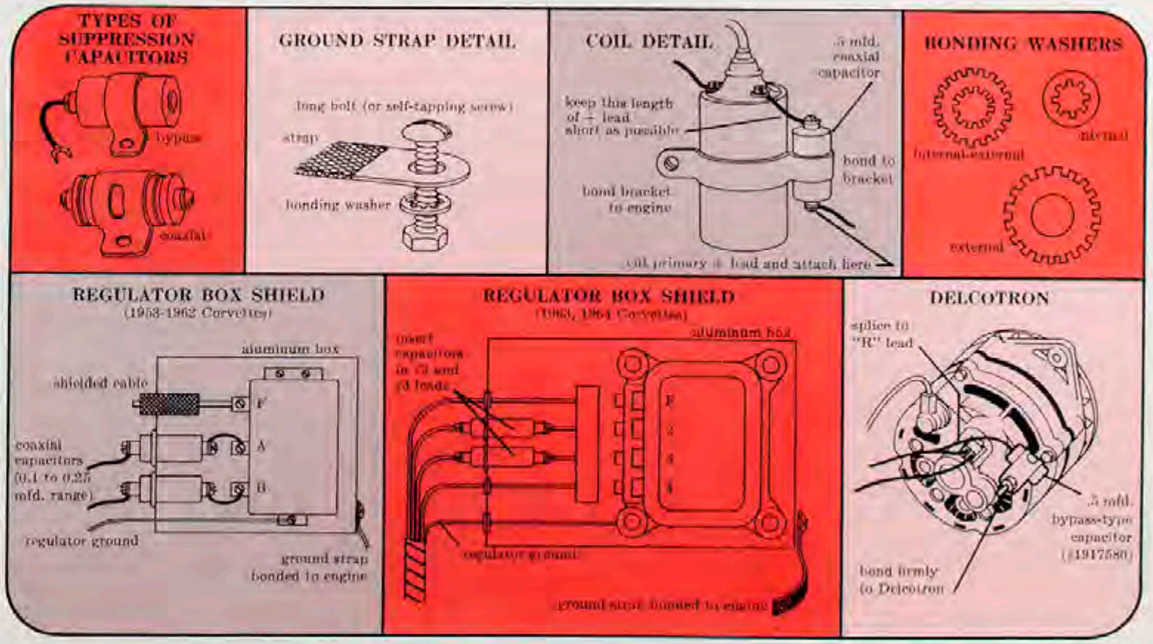
The following steps are adapted from CB information published by a nationally known capacitor manufacturer and do not reflect the views of Delco-Remy or Chevrolet. At the coil, mount a "coaxial" type suppression capacitor (see illustration below) and bond firmly to the coil mounting bracket. Then bond coil mounting bracket to the engine. Note in the coil illustration that the positive (+) lead to the coil is cut and connections made to the coaxial capacitor. When in place, the capacitor allows normal operation of the engine with no detriment to performance, but bleeds off noise that would interfere with CB operation. On generator-equipped Corvettes (through 1962), install a coaxial capacitor in series with the armature lead. DO NOT connect to "FIELD" lead, which is also marked with a red tag, "Do not bypass." On both coil and generator, discard the conventional capacitor when using the coaxial type. If generator "whine" is still heard in the receiver (rises and falls in pitch with engine speed), inspect and replace the brushes if necessary. Then, referring to the diagram below, encase the entire voltage regulator in an all-metal box. Connect coaxial capacitors in series with armature and battery leads. Note that both capacitors are mounted inside the box with connectors extending through. Trace the wiring harness by color code to the generator and make appropriate connections. Bond the metal box firmly to the engine. If noise still persists, a last step may be followed—encasing the entire wiring harness between the generator and voltage regulator box with a braided shield. An alternative would be to remove the field wire (the only generator wire not connected to capacitors) and encase it with a braided shield. Use a feed-through connector at the regulator box and firmly bond the shield braid to the generator case. This will eliminate noise from both the generator and voltage regulator.

Delcotrons generally require little attention, but should noise persist, coaxial capacitors and a fully enclosed regulator will work also. CAUTION!! Do NOT allow grounded braid or straps to come in contact with the "B" or "Battery" lead on the Delcotron. Shorting this lead to ground will damage the diodes inside the Delcotron unit. Observe all regular service precautions.

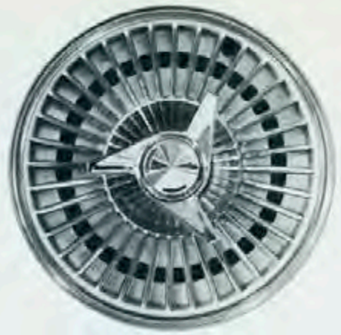
If "popping" sounds still interfere with comfortable CB reception, replace all spark plugs with resistor types in the corresponding heat range. Inspect spark plug wiring and replace if old, dirty or cracked. Some Corvette owners' cars equipped with solid core wiring have discovered that replacing the coil-to-distributor wire with regular "radio" wire lowers the noise level about as effectively as replacing all solid core wiring with radio wiring. It also allows the owner to substitute the solid core coil-to-distributor wire easily for sporting events. Normal driving is not affected with the "radio" wire in place.

How about range? Experts qualify any statement by saying that conditions in the area have to be considered. Car-to-car city range is about one to three miles under adverse conditions; a mile or two better under ideal conditions. For country communications, expect double, triple or, under ideal circumstances, even more mileage. Walkie-talkies are limited in car-to-car use to only a few blocks, generally due to ignition interference. If used outside the cars, though, their distance can be extended to more than a mile.

With all components in place, owners should experience little or no difficulty with good CB transmission. A final note: be sure to observe all FCC regulations regarding proper station identification, observe the "five-minute rule" and you'll enjoy the CB unit to its fullest.



ALL ABOUT ALUMINUM WHEELS



Since their introduction for Corvettes, the extra-cost aluminum wheels with knock-off hubs have gained wide favor. Their aesthetic beauty is enhanced by the fact that the knock-off spinner hubs are "for real," adding function as well. The knock-off feature makes these cast aluminum wheels especially popular in sports-car events where quick changes are vital.

With these optional wheels, balancing is somewhat more exacting than with regular wheels. Of course, regular checks of balance, alignment and tire condition are a must for any car to assure the best performance, safety and tire mileage. Corvette owners are usually more conscious of these factors than the average owner and will check or have checks made on a periodic basis, without being reminded. In order to see that the job is done right, wheels and tires should be balanced while *still on the car;* they must also be balanced *dynamically* as well as *statically.*

When balancing front wheels, the front of the car can be jacked up and the wheels spun with an on-the-car balancer. This shows up any unbalance that might occur at higher speeds (Figure 1). A piece of masking tape is used in conjunction with a vibration-sensing device and a strobe light which determines location and amount of unbalance, if any (Figure 2).

The balance weights themselves are different from those used on regular steel wheels. A special balance weight is designed to fit on the thicker rim of the aluminum wheel as shown in Figure 3.

Part numbers for the special weights are given at the end of this article. If the proper weights are not available, regular steel wheel weights should not be substituted. Strictly as a temporary measure, some aluminum wheels have been balanced with weights that are no more than a strip of lead of the proper weight. These have been attached on the inside of the rim in several different ways. Epoxy-type cement works best. If the weights are placed on the flat part of the rim which is parallel with the road, centrifugal force will tend to help keep them from departing.

When installing weights, greater precision can usually be obtained by "splitting the difference" when large weights are necessary. For example, for a two-ounce unbalance, one 1.0-ounce weight should be used on the outside and another on the inside of the rim.

Balancing aluminum rear wheels is slightly different than with steel wheels, too. For this operation, the wheels must be powered by the engine to spin them at proper speeds (approximately 70 mph simulated road speed). This is done by putting the entire car on a hoist to eliminate the possibility of the car taking off. This method also makes it easier to level the car fore-and-aft. As shown in Figure 4, jack stands have been placed under the trailing arms and

figure 1

figure 2

the rear of the hoist has been lowered in order to keep axle shafts as level as possible. If the axle shaft universal joints have too much angularity, they may set up extraneous vibrations to throw the strobe-light readings off. When balancing one rear wheel, the wheel on the opposite side should be removed.

When the front and rear wheels are balanced on the car in the fashion described, you will balance wheels, tires, brake drums and axle shafts.

Any time the wheels are removed, great care must be taken to mark the wheel and hub to make sure the wheel goes on in the same position it came off. This way, proper balance will be kept.

CARE OF ALUMINUM WHEELS

Plenty of water and a soft-bristled brush is about all it takes to keep the wheels sharp-looking. Abrasives should never be used because they will dull the shiny surfaces. It is important that the spinner nuts be kept as tight as possible with the lead hammer.

A note of caution: a lead hammer should always be used. Never use a steel hammer; it damages the ears of the spinner. In an emergency, some owners have used a brass or other soft, heavy hammer.

Another caution: spinner nuts for the right side of the car are tightened in a counterclockwise direction (left-hand thread); in a clockwise direction (right-hand thread) for the left side. With this arrangement, wheel rotation will tend to keep the nuts tight. Hubs should never be reversed from right to left or vice versa.

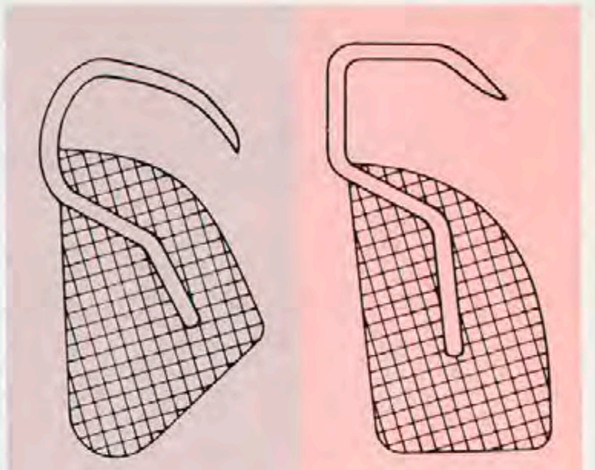
Actual recommendations call for tightening the nuts to 450-ft.-lbs. torque. Of course, a torque wrench with this kind of capacity is anything but common. Therefore, a good rule of thumb can be followed. After the spinner nut is hand-tightened, tap nut with lead hammer until seated. Then strike the nut eight hard blows for a final lock. Some owners use a grease pencil to put three small indexing marks 120° apart on the circumference of the hub and spinner—after the spinner is tightened. For a quick visual check at any time, all an owner has to do is make sure the marks are lined up (Figure 5).

Because of the fact that rim width is six inches with aluminum wheels, a little harsher ride is liable to be noticed. Even though it might be harsher, it means that the tire has greater stability because the sidewall is more perpendicular to the road. For street driving, some owners have reduced the cold pressure of the tires one or two psi to get a little softer ride. On the other hand, many owners don't mind the extra harshness and feel that a few *extra* pounds of pressure improve handling.

Aluminum wheels with knock-off hubs also are available for all earlier Corvettes. Components for converting are available from Chevrolet. An adapter bolts to the present brake drum, but special nuts must be used. All the other ingredients are listed below, except the lead hammer.

CORVETTE ALUMINUM KNOCK-OFF WHEELS

RPO-P48 Wheel	Part No. 3852552
Hub Adapter Left	Part No. 3847763
Hub Adapter Right	Part No. 3847764
Wheel Lock Nut Assembly Left	Part No. 3853795
Wheel Lock Nut Assembly Right	Part No. 3853796
Special Wheel Nuts	Part No. 3852554
Spare Wheel Carrier Bolt ('63, '64)	Part No. 3833383
Special Lead Wheel Weights:	
½-ounce	Part No. 3830798
1-ounce	Part No. 3830799
2-ounces	Part No. 3830801



Conventional weight — Weight for aluminum wheels

figure 3

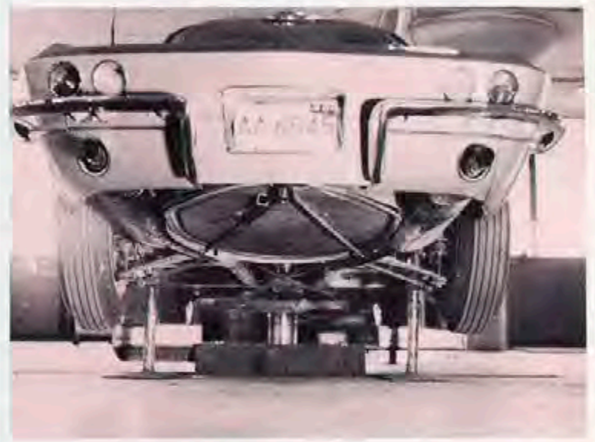


figure 4

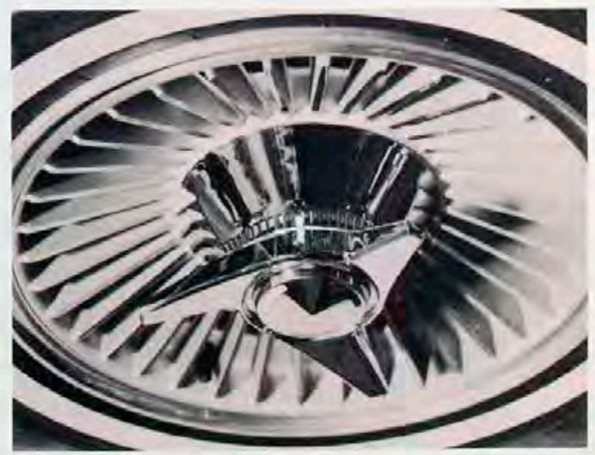


figure 5

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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
Richard Hall, President
218 Canterbury Drive
Kettering 29, Ohio

Fort Findlay Corvette Club
Louis Klingaird, President
1001 Selby
Findlay, Ohio

OKLAHOMA

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

Tulsa Corvette Club
Scott Meadows, Secretary
1411 South Owasso
Tulsa, Oklahoma

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

OREGON

Emerald Empire Corvettes
Russell E. Cook, Chairman
2775 Center Street
Eugene, Oregon 97043

Capital Corvette Club, Inc.
Dan Allen, President
291 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
1324 Carson Street
Pittsburgh 3, Pennsylvania

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

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

Checkpoint Corvette Club
Albert J. Lesnieski, Jr.
3021 Mountain View Avenue
Easton, Pennsylvania

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

Corvettes Unlimited
James Mattison, President
104 Mansion Avenue
Prospect Park, Pennsylvania

Fox Chase Vets
Dennis J. McCarty, President
116 Dasson Street
Philadelphia, Pennsylvania 19111

RHODE ISLAND

Corvette Club of Rhode Island
Miss Susan [illegible], Secretary
142 [illegible] Avenue
Providence 6, Rhode Island

SOUTH CAROLINA

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

TENNESSEE

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

Cumberland Valley Corvette Club
D. B. Vermont, Jr., President
Smith Chevrolet Co.
Nashville, Tennessee

TEXAS

Corvette Club of Texas
Kenneth A. Bradley, President
9830 Parkford
Dallas 28, Texas

San Jacinto Corvette Club
Jerome Moore, President
8800 Tanglegan
Houston 27, Texas

Corvette Club of Dallas, Inc.
Gordon Brown, President
c/o Mahr Chevrolet
3911 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
Rexford D. Rockwell, Jr.
P.O. Box 6131
Richmond 30, Virginia

WASHINGTON

Pacific Northwest Corvette Association
Gary W. Anderson, President
3715 South 156th
Seattle, Washington 98188

Corvette Marque Club of Seattle
Richard Stanley, Chairman
17138 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

State Line Corvette Club
Ron Wiesner, President
Route 2, Box 478
Kenosha, Wisconsin

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

Corvettes Limited, Madison
The Reverend Lind Novak, President
606 East Washington Avenue
Madison, Wisconsin 53703

CANADA

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

1.

2.

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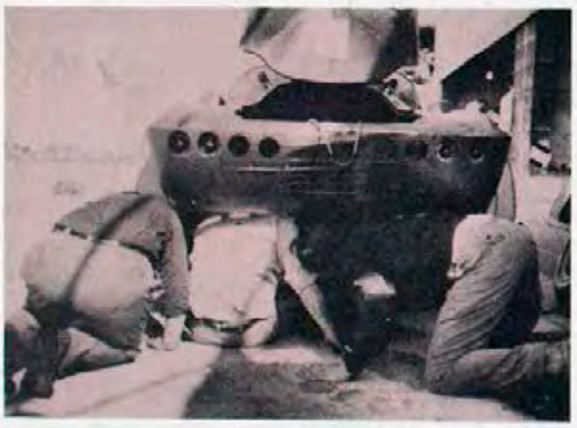

1. I can't get it loose!
2. Maybe a tap on the rear'll move it.
3. I'd forget it . . . drive with it in.
4. What you guys need is the soft touch.
5. Here kitty, kitty.

5.