

WORLD CAR GUIDE

OCTOBER
1970



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ROAD TESTS;

- DATSUN 240 Z •VOLVO 1800 E•
- AMANTE GT/VW •W FASTBACK WITH AIR•
- VEGA, CHEVY'S NEW SMALL CAR•
- JAPAN'S NEW CARS•
- ROUGH'N TUMBLE HARDY-FERODO 500•

Start them down life's highway together.



The first few months of driving are the toughest on your car's impressionable young engine. Those initial 1,000 miles probably produce more heat, friction and wear than the 10,000 that follow. Without proper lubrication, your brand new baby can begin

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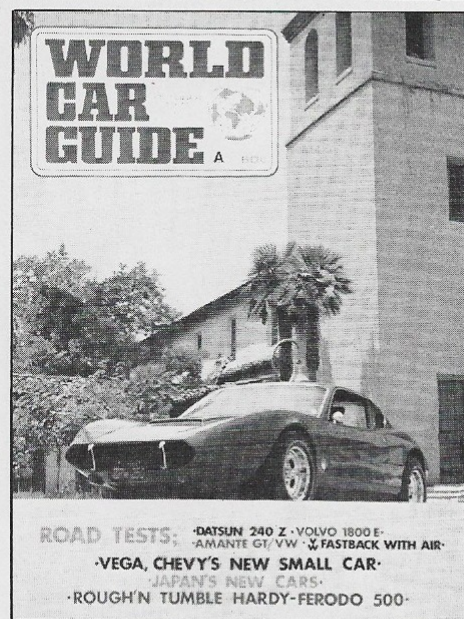
**The
racer's
edge.**



OCTOBER 1970

No. 152

READERS FORUM	6
MEMO FROM THE EDITOR	41
ROAD TESTS	
Datsun 240Z, Nippon's most rapid transit system	8
Volvo 1800E, improved version of a proven theme	12
VW Fastback with Air Conditioning—a brief test	11
Amante GT, sleek special with VW power	16
NEW CARS	
Vega 2300, Chevrolet's entry into the anti-import battle	18
From Japan—Mazda and Datsun 1200	20
CONTROVERSY	
The Case for Front Wheel Drive	22
VOLKLORE	
Squarebacking on Cape Hatteras	24
VWCA Newsletter	27
BABOW ON CAR CLUBS	28
WORKSHOP	
Rubber Parts, their care and repair	30
Let Dave Do It	35
THINGS FOR CARS	38
MOTORSPORT	
Hardie-Ferodo 500, rough and tumble down under	42



OUR COVER CAR: In front of the bell tower at historic Santa Clara Mission is the Amante GT, a limited, to-order production of Voegelé Industries. A different type of VW-powered conveyance, Amante surprised WCG with its many futuristic features. Ekta-chrome by staff photographer, Duncan Maxwell.

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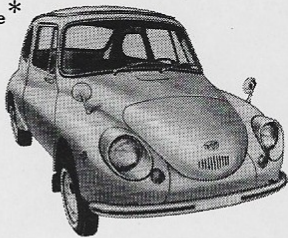
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Subaru 360

Scoots up to 70 mph, gets anywhere on a teacup of gas, and seats four in style.

SPECIFICATIONS: 4-speed transmission, heater/defroster, push-out rear windows, padded dash, concealed radio antenna, fully reclining vinyl seats, independent 4-wheel suspension.

\$1,297_{poe}*



The Star 2-Door

Road-taming elegance and economy. Zero to 60 in 13.9 seconds, cruises at 70, and rockets to 90! **SPECIFICATIONS:** Front-engine, front-wheel drive, complete safety package, hazard lights, reclining seats, 2-speed windshield wiper/washer, vinyl interior, back-up lights.

\$1,699_{poe}*



The Star 4-Door

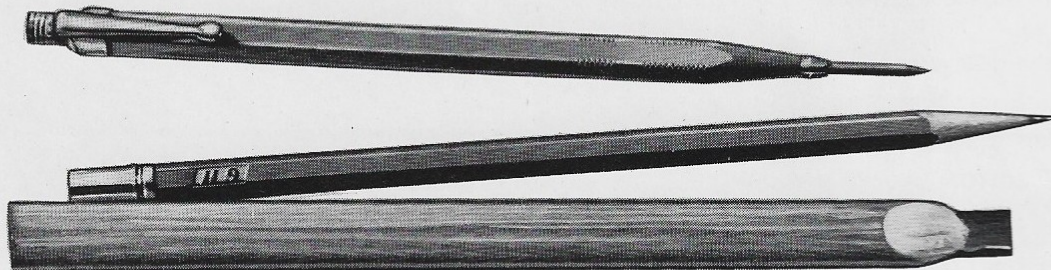
Luxury, comfort, styling with ultra-wide doors, flat floors in the rear for more leg room, and a unique dual radiator system.

SPECIFICATIONS: Independent 4-wheel suspension, front-wheel drive, courtesy lights, flow-through air, rear-opening windows, bumper guards, and 18 cu. ft. trunk.

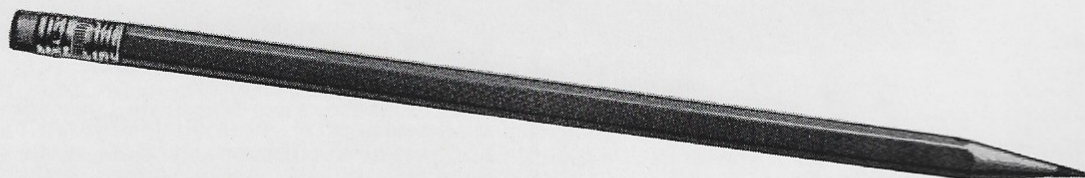
\$1,799_{poe}*



OK Detroit:



Grab your pencils and start copying...

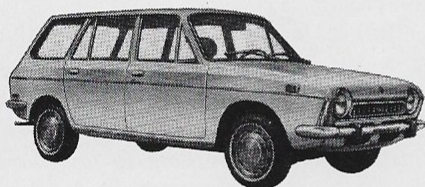


The Star Wagon

Luxury and utility in a family-size station wagon. And, at a price any family can afford!

SPECIFICATIONS: Seats two or five. Complete with 4-cylinder, 4-stroke, horizontally opposed engine, dual radiator system, 4-speed synchromesh transmission, heater / defroster, foam cushion seats.

\$1,899 poe*



We're not a bit surprised that the midnight oil began to burn in Motor City . . . once The Star arrived. The Subaru Star is something special. A sporty little car shining in a class all its own . . . an amazingly comfortable cross between a spunky sports machine and a luxuriously appointed family-sized automobile.

Carpeting, flow-through ventilation, all-vinyl interiors, reclining front seats and a gigantic 18-cubic foot trunk . . . these make The Star beautiful to own.

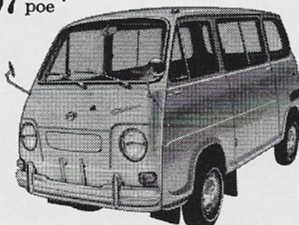
Front-wheel, front-engine drive, independent 4-wheel suspension, dual radiator system for faster warm-ups and no overheating . . . these make a Star beautiful to drive. And **\$1699** poe* . . . makes a Star just beautiful!

The Subaru Van

The only 5-door import van in the country—a mighty midget that'll haul four people plus a big payload, anywhere, on drops of regular gas.

SPECIFICATIONS: Hauls two or four with fold-down rear seat, 900 lb. payload capacity, heater / defroster, dual wiper/washers.

\$1,397 poe*

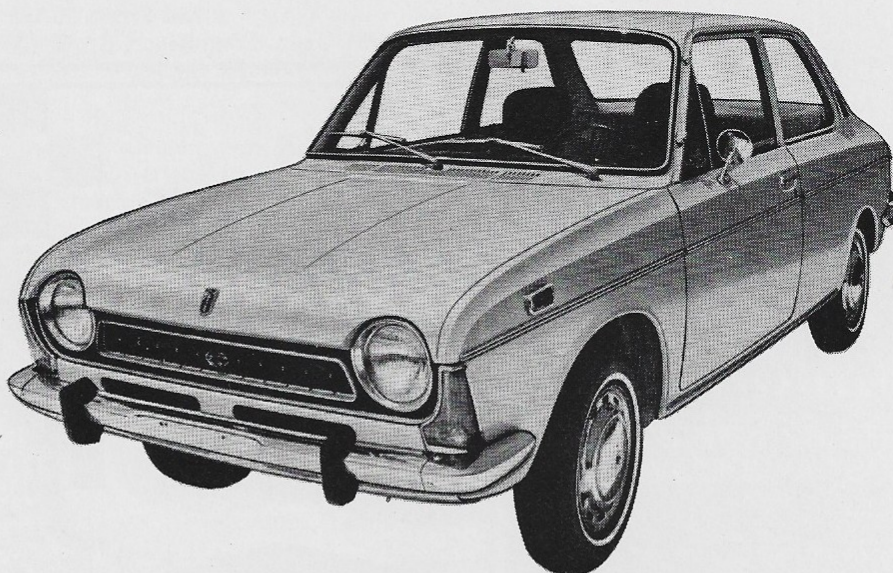
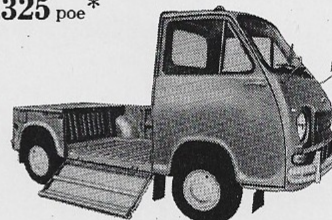


The Subaru Truck

Perfect for deliveries in city traffic or suburbs, in-plant and between-plant transit or on-site construction jobs.

SPECIFICATIONS: Removable side gate, heavy gauge steel 2-level bed, hauls two passengers, 900 lb. payload capacity, heavy duty chassis, outside mirror, mud flaps.

\$1,325 poe*



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READER'S



Dear Sirs: I have subscribed to your magazine since 1959 because it featured Volkswagen and has had many helpful and interesting articles about VW. However, these VW articles have dwindled down to where I'm lucky to find one in each issue. I know the VW has not gone out of style so I can only figure that you are no longer searching for these VW articles as you used to do. Unless the situation improves in the next twelve months, I feel that this is my last subscription renewal.

L. R. Miller
625 E. Lee Drive
Santa Maria, Calif. 93454

Mr. Miller, we certainly are searching for good VW articles. For other types of material too. The problem is that there are comparatively few professional writers, or avocational writers for that matter, who seem to know much about

VWs. The new editor would like to receive several dozen good VW features—how-tos, experiences out of the ordinary, VW travel, etc., etc.—each month from which to select three or four of the best for inclusion in each issue. Even though I've been a pro writer for twenty years and heavy in cars of all kinds, I can't write everything myself. How about some of you VW owners who would like to try writing VW features for WCG? Send in your feature ideas in condensed form for review and include a stamped, addressed envelope. Your ideas will get prompt attention. Remember everything must be accompanied by first class photos so our readers can see what you're writing about. WCG will entertain features and ideas, but we cannot answer queries which arrive without return postage; that would run into a small fortune each month.

WCG Back Issues

Sir: I would like your address enabling me to obtain back issues of WCG. Where can I buy WCG on newsstands in Long Beach area? What is charge for back issues? Have you done test on Renault 16? Thank you for the information.

Don Miller
784 Freeman Ave.
Long Beach, CA 90804

Address of Editorial Office is 319 Miller Ave., Mill Valley, CA 94941. Suggest you bug your favorite newsstand operator to display WCG more prominently. We are bugging distributor. Back issues are available at \$1 each; please send money order or check with order. Yes, Renault 16 was road tested in June issue.

Wants Road Tests

Sirs: How about road tests on Avanti II, Citroen sedan, Mehari and new Citroen-Maserati. Your magazine is outstanding in my opinion.

Ron Knepp
11818 E. Doug
Wichita, KA 67206

Thank you very much. We shall continue, if I have anything to say about the matter, to merit your favor. Road tests often depend on factors not under our control. I have requested an Avanti II for testing. Have a Citroen D-21 or DS-21 coming up soon. Perhaps we'll do a Mehari but the last, now called "SM" (see Show feature July issue) must await availability.

Honda Inquiry

Dear Sir: I am a proud owner of a Honda SC600 2 dr. sports car. As of yet I found no dealers or parts store that carry Honda car parts. Could you please give me addresses of nearest Honda

RACIMEX

Whatever turns you on,

Baby!

Solid, snap-toggle-action switches... original rugged European design... use your dash or bunch 'em up on our under-dash panels... with or without indicator lights (locate the light wherever you want). For RACIPARTS or RACICESSORIES, just turn on RACIMEX.

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Dealer Inquiries Invited



dealers or part centers? Thank you.
Sincerely yours,

Lawrence B. King
263 Hunnewell St.
Needham Hts. Mass. 02194

We do not have a list of dealers but you can write (and we suggest you do) to American Honda Motor Co., 100 West Alondra Blvd., Gardena, Calif. 90247. The importers will be glad to be of service.

Dear Sirs: Sorry about the Reader's Survey, but I messed up the other one. I've numbered them accordingly. I hope it helps some. Thank you for letting us express ourselves. You print a very honest magazine.

Craig Vincent
M115 M55
Cadillac, Mich. 49601

Many thanks, Mr. Vincent. Just as with cars, quality cannot be equated with quantity. We try hard to produce an honest magazine. Your words encourage us.

VW Bus Service Manual

Dear Sir: I would like to know where I can get a Manual on the 1970 VW Bus. Thank you.

Carl G. Knaub
Mountain Wolf Rt. 1
Pennsylvania 17347

If your nearest dealer cannot assist you in this matter, we suggest you write to the Customer Relations Dept., Volkswagen of America, Inc., Englewood Cliffs, New Jersey 07632. Incidentally we receive scores of letters similar to Mr. Knaub's. All those needing manuals are advised to write to VOA.

Calling Bruce M. Chetty

Gentlemen: May I please ask for your help. In your Tech Clinic of February 1970 you suggested that a Mr. Bruce M. Chetty of Reno, Nevada, query me regarding a modified VW shop manual. Mr. Chetty wrote to me on February 5th and I passed his letter on to our customer relations supervisor for reply. However, our customer relations supervisor could not locate Mr. Chetty, who did not have a return address on his letter.

Then just recently, I received from Mr. Chetty another letter, copy of which is attached. Once again, Mr. Chetty has neglected to let us know his address..

Our customer relations supervisor's reply, if we could contact Mr. Chetty, would be along the lines of the attached copy.

Possibly you have some way of conveying this information to Mr. Chetty. If so, your assistance would be greatly appreciated. Yours sincerely,

V. Frank Segee
Public Relations Manager

Volkswagen Canada Ltd. Golden Mile
Toronto 375, Ontario, Canada

The above letter indicates the importance of accurate addresses. Manufacturers and WCG receive countless unidentified letters.

Formula Vee Fan

Dear Sir: This will supplement my request for a copy of the 1970 Volkswagen Owners Annual.

If such information is at your disposal, please let me know the addresses of all companies that manufacture and sell Formula Vees, in either kit or completed forms.

Also, I would appreciate your letting me know where I can obtain a copy of the rules for the preparing of, and the title and publishers of any book or pamphlet that would provide suggestions for the tuning and modifying of, a Formula Vee.

Thank you very much for your assistance, it is greatly appreciated. Yours truly,

W. L. Jackson
285 Blake Blvd. No. 7
Vanier, Ontario Canada

Yours is one of recent many letters WCG has received inquiring about Formula Vee. The picture changes rapidly but all of your questions will be answered on a continuing basis if you contact Formula Vee International, 1347 Fairmont St., East Wenatchee, Wash. 98801.

BMW

Dear Gentlemen: For some time now I have been trying to get some unbiased information on the BMW 1600 and 2002. My wife and I are considering the purchase of another car and we would like to know more about the BMW 1600 and 2002. Could you please send us some information on the BMW 1600 and 2002? Your help in this consumer project will be appreciated. Respectfully yours,

James L. Hartmann
418 Holmes Circle
Memphis, Tenn. 38111

Sorry, Mr. Hartmann, but we cannot undertake to supply data, brochures, etc. We would be inundated with requests. However, WCG knows BMW cars to be excellent. We plan road tests in forthcoming issues. In the meantime you will find a BMW dealer in the Yellow Pages covering your metropolitan area.



"How stupid! That policeman's directional signal is indicating a right turn but there's no car behind him."



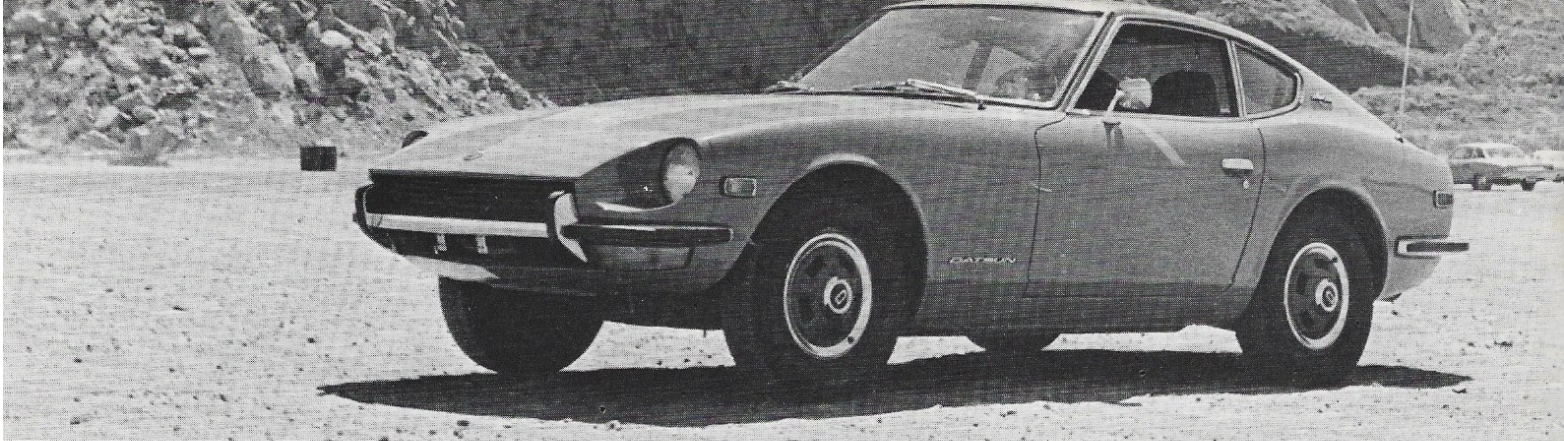
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WARD
FOR
YOUR VW.**

HURST'S NEW SHIFTER FOR VOLKSWAGEN.

Here's what it does: Reduces the size of your 'shift pattern' by one-third to short-throw, positive-action gear changing. Ends the 'search-for-reverse'... pull the patented 'Saf-T-Trigger' and slip into reverse instantly. Comes on with an antique copper finish that looks like twice what you paid for it. And what you pay is under \$50. Way under. You install it in ten minutes with one half-inch wrench. That's the easiest giant 'step floor-ward' you can make. Hurst shifters for VW are available at all authorized Hurst outlets. Send 50c for a VW bumper sticker and Hurst/wagen decals.



**HURST
PERFORMANCE
INC.**
Department 33
WARMINSTER, PA. 18974



240Z

NIPPON'S MOST RAPID TRANSIT SYSTEM



CAR AT A GLANCE: As rapidly as we could legally travel all day long, 240Z produced from 21.3 to 23.4 miles per gallon including desert heat and mountain driving. City traffic and bumper-to-bumper fun during metro rush hours dropped mpg to 18.5 and during performance tests 240Z used exactly 16.0 mpg. An exhilarating car, difficult to fault seriously or to top at the price.

Taking stock of one's surroundings after first getting into the 240Z is as satisfying as was a somewhat similar experience when the writer found himself in the driver's seat of an XK-120 Jaguar back in 1952. In many respects the 240Z is as revelatory of a new age in sports cars as was that XK-120.

The first thing of which one is aware is that everything in the 240Z is where it should be except vent windows; they are absent. The steering wheel is at precisely the correct angle and the well-sized rim fits both hands on the ends of extended arms. The vinyl upholstery on the two individual seats is soft and looks and feels much like leather but, of course, does not smell like hide. The seats adjust through long courses and the backrests tilt by means of knurled knobs on the inside of each seat.

Let the right hand stray slightly downward to the right and the shift lever fills it. The "H" plus reverse pattern is sufficiently small for fast shifting but not so tight as to be fussy. The foot pedals are well proportioned and the accelerator pedal is spaced properly far enough to the right of the brake pedal to prevent stabbing for either and getting both. The unique choke control, a lever, is on the center console.

A no nonsense two-seater—there's not even a hint of an occasional seat aft of the office—the 240Z's space beneath the large, slanting back window has the capacity of the average sports car's luggage boot and then some. The makers have considerably installed nylon luggage belts to hold down whatever inanimate objects one might cart along.

The long, seat-level center console is padded on each side, a welcome leg rest for the driver's accelerator foot. The top of the console also contains the pull-up handbrake, an edged tray in two sections toward the rear, and the radio and heater/fresh air controls well forward beneath the dash. The flow-through system is excellent. The ash tray—if that item interests you—is large and sits on an angle just forward of the shift lever where it's out of the way of knuckles, blasts of fresh or warm air, and the like.

Full instrumentation includes everything necessary unless one desires oil operating and cylinder head temperature indicators. At night there is not the slightest reflection from any of the dials; they're well hooded and covered with

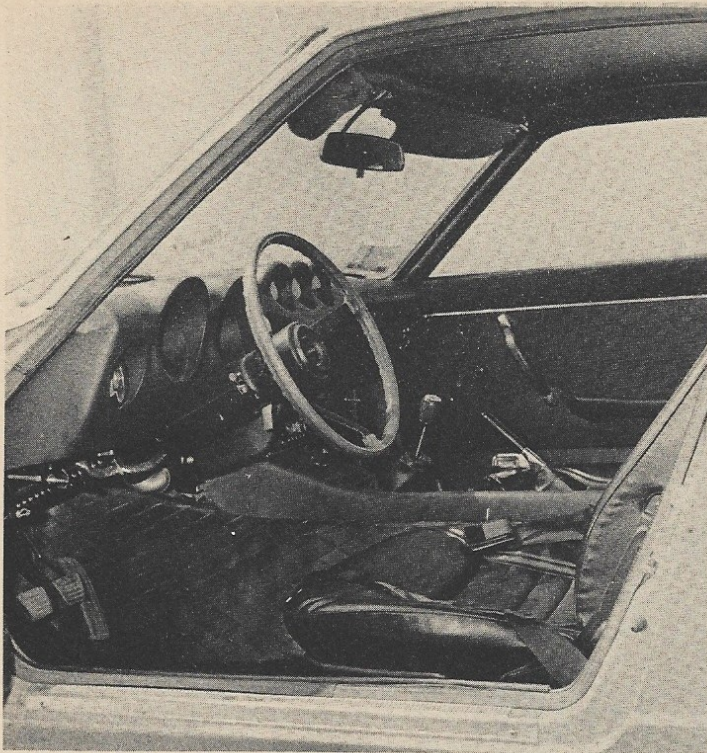
convex glass set on an angle. Extending from the right side of the steering column on a horizontal arm are the headlight switch and windshield wiper controls. The 240Z is my first test car in years with properly adjusted lights. Everything is practical and well thought out even to the horn button which is on the wheel center which eliminates any accidental honking.

This efficient arranging of all components and controls extends beneath the engine bonnet which unlatches beneath the dash. Owners who prefer to do their own servicing and maintenance will find plenty of elbow room around the 2.4 litre 6-in-line engine which is rather quiet for an overhead camshaft job. Once the air cleaner is removed to reveal all of the twin SU carburetors, there is no impediment to tuning or other under-hood chores. As a matter of fact, one can remove the oil filter without beginning to stand on one's head. About the only routine reason for putting the 240Z on a hoist would be to drain the crankcase and to check the levels in the gearbox and the differential. This is about the cleanest, least cluttered engine compartment we have examined in recent years. What's more, there's ample space for air.

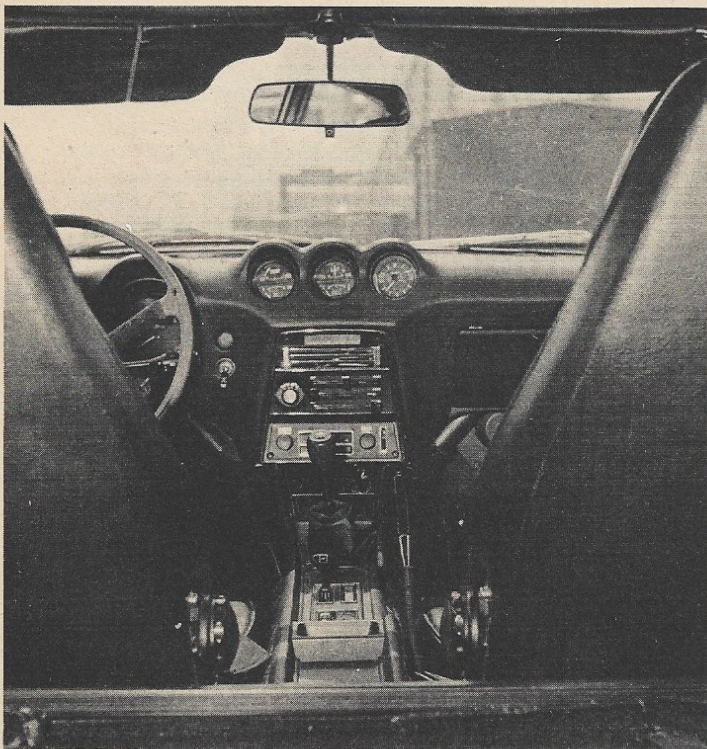
The 240Z in action is as pleasing as it is under close examination. We tried several variations in tire pressures and settled for 32 p.s.i. all around for the best handling; the ride remained uncannily good. True, road irregularities were felt, but not severely and control was quick and certain. When we finally got around to checking vital statistics in the Service Manual, we felt even better about our choice of tire pressure although our chosen 32 p.s.i. is listed for "over 100 mph."

Did we top that figure? Yes, on a course that has been used for competition. Datsun claims (rather modestly) 125 mph maximum for the 4-speed model tested and 129 mph for a 5-speed model (see specifications) which is not likely to be imported this year. On the road course we attained 111 mph (true) and would have done better had the straight stretches extended further. With the 3.36 to 1 rear axle ratio, each 1000 rpm in top (4th) gear gives 21 mph.

The 8000 rpm tachometer is yellow-lined for caution at 6500 rpm and red-lined at 7000 rpm. Theoretically a flat out run at 7000 rpm will produce 147 mph although top end performance usually falls a bit below the theoretical potential. WCG feels that extended in suitable surroundings and under the best conditions, one should have no trouble coaxing 135 mph or more out of a well tuned 240Z. The gear speeds in the bottom three ratios support this contention. Peaking to a maximum of approximately 7000 rpm in 1st gear produced a true corrected speed of 43 mph. Repeating this procedure in 2nd and 3rd gears resulted in 66 and 103 mph respectively.



Interior arrangement is difficult to fault; Datsun designers have put everything in the proper place for high speed comfort. RIB says: "This is a wonderful car; lots of fun and easy for a woman to drive for shopping or anywhere. I love it." Bettye Wherry.



Small lever this side of shift lever is choke. Three dials centered on dash contain water temperature, oil pressure, ammeter, fuel level and clock. Two large dials over steering column (other interior photo) contain 8,000 rpm tachometer and 160 mph speedometer; total and trip odometers are with speedometer. Console contains radio (standard) and lever controls for heating and fresh air system. The knurled knobs (bottom center) adjust the rakes of the backrests.

Minus styled wheel covers, 240Z was put through cornering tests. Generally neutral steering with very moderate understeer and resistance to leaning over indicate car is potential road racing mount.

Acceleration was a bit disappointing; without doubt the test car could have used a new set of spark plugs, points and a bit of tuning for it had been vigorously used as a demonstration example prior to being turned over to WCG. Having heard reports of zero to 60 (the speedometer said 62) in around 8.0 seconds, we would like to report that we achieved this figure. With two aboard during acceleration runs as is our custom, the best we could do in a succession of two way runs to average out any wind was 9.8 seconds.

This figure is good but the 240Z will do better. I would say that zero to 60 should be 8.5 seconds. From zero to 45 mph took 6.6 seconds; obviously the 43 mph maximum in 1st gear required an up-shift to 2nd. Passing speeds, making use of the smooth and quiet gearbox, took 6.5 seconds from 40 to 60 mph, 5.9 seconds from 50 to 70 mph, and 11.6 seconds from 50 to 80 mph where the speedometer was only 5 mph off true. The latter is a passing check we rarely use but the snappy Datsun is the type of car that wants to go and to do so rapidly.

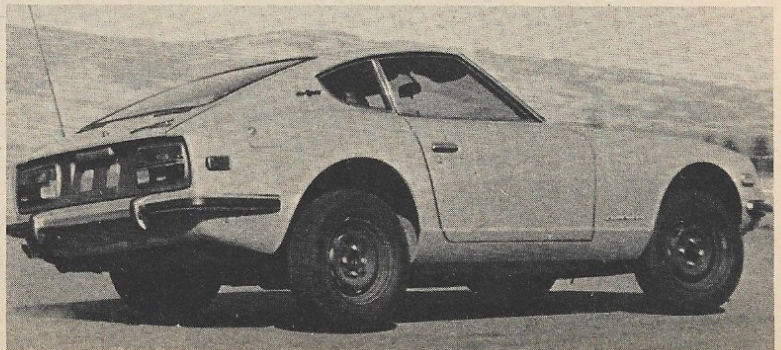
The brakes proved as nearly fade-free as one is likely to find on a production car. Rapid stops were made after each acceleration run and the brakes were still capable of stopping the car from 60 mph in 200 feet which is admirable. During our total test time we experienced several rain showers; the brakes were not adversely affected, the wipers did their chore without floating off the windshield at speed and the suspension (which has been criticized in some quarters) displayed no annoying tendencies. On rough roads, the ride is quiet.

Roadability of this fastest Datsun is excellent. In tight corners there is mild understeer, a virtue on mountain roads. The rack and pinion steering with just 2.7 turns lock-to-lock is sufficiently quick and the car is fun to drive and secure on the road. Straight line tracking on flat, uncrowned surfaces is good; it should be with a caster angle of 3 degrees.

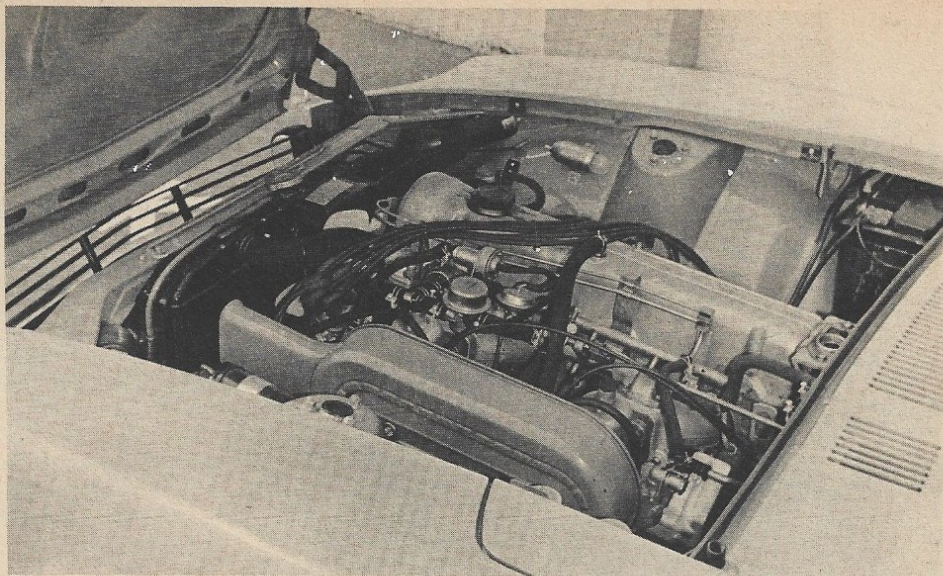
One can force the 240Z to lift the inside rear wheel in a hard, full bore turn but it takes a bit of doing and accomplishes nothing. Our favorite tight corner for photographically recording lean is usually entered at approximately 30 mph in firmly suspended sports cars. The 240Z will enter this corner, a perfectly flat hairpin, at 35 mph and can be throttled through in 1st or 2nd gear without sliding, a tribute to the independent rear suspension. The lean is not excessive as the accompanying photo shows.

Our road test covered 1,575 miles from Datsun's national headquarters in Gardena, California to the San Francisco Bay area, throughout the North Bay counties and into the Coast Range. The North-bound first leg was via US-101 and the return to Southern California was through the hot and smoggy Central Valley and over the lower, desert end of the Tehachapi Mountains. The climate variations included sea level with spotty fog, dry heat and hot winds off the Mojave Desert to nearly 5,000 feet above sea level. No adjustments were made at any time.

Near the end of the test, one quart of oil was added; we learned later that the car had not been thoroughly serviced before we began our tests. The greatest fuel consumption was during the day of performance testing when premium fuel was consumed at the not surprising rate of 16.0 mpg. On the open road, consumption ranged from 21.3 to 23.4 mpg during which times liberal use was made of 3rd gear for



Behind air cleaner are a pair of SU carburetors. Access panel (bottom right) covers dual brake master cylinders' reservoirs. Similar panel, opposite side, covers battery. Efficient layout provides generous work space for owner-mechanics.

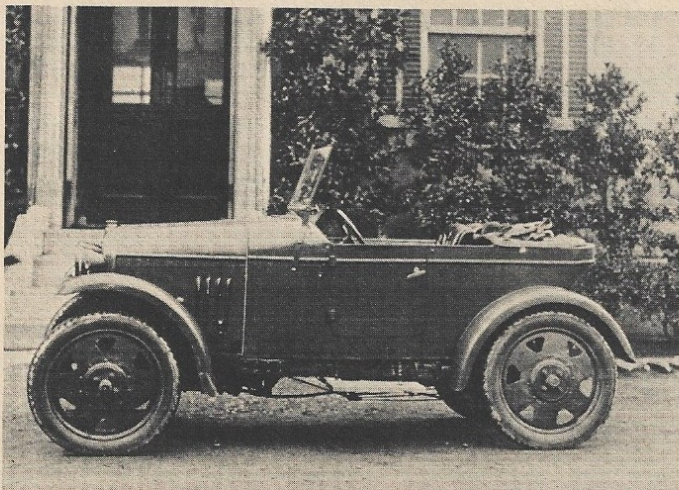


overtaking other cars. City driving dropped as low as 18.5 mpg. The overall average was 20.52 miles per gallon. Conservative driving would have bettered this figure considerably but the 240Z is fun to drive, is the type of car that clears the head of an enthusiast once car and driver have gained to the relative freedom of the open road.

Quality of workmanship and assembly on the test car was excellent throughout. There were no unsightly lumps of dum-dum or filler visible in the engine compartment or elsewhere. The styling pleased us and must have pleased lots of people. Only the Amante GT garnered more onlookers demanding off-the-cuff press conferences. Most frequently asked questions were, "How fast will it go?" and "What's the horsepower?" as if this is all that matters.

When such curious types learned that the rated horsepower was 151, they invariably allowed as how such a weakling was unlikely to be a success and when we told them that the 240Z would exceed 125 mph we were not believed. Of course these horsepower types had learned from all the domestic advertising that 300 or more horses was necessary for status and to do much more than 100 in any case.

There were enthusiasts, on occasion, who knew the score. They asked to see the engine, expressed approval of the entire layout, and were surprised to learn that Datsun U.S.A., Inc. has suggested a delivered Port-of-Entry price of \$3601 (see specs.). Several, including a waitress at a lunch stop, said they had tried to get their names on waiting lists and were told, by various dealers, that signing such a list means plunking down anywhere from \$100 to \$400 and that the delivered price is around \$4400. Of course this included



Ancestor of the 240Z was this sporty two-seater of 1917. Loose brake cables can be seen beneath chassis. Note wheels' design is perpetuated in 240Z's wheel covers. First "Dat" cars were closed town car types in 1916. (Courtesy Jidosha Kogyo-Kia)

"mag wheels and a lot of other things I don't want." Don't blame Datsun; the dealers are independent merchants.

I must say that mag wheels would be nice but the stock wheels look great with the covers removed (see the cornering photo herewith). At test time, the only options listed were the tinted glass and the rear window defroster; the radio is standard. Air conditioning is in the works.

Datsun's 240Z is an excellent car, a value-packed sporting vehicle of excellent quality, and an economy car at that. It deserves success.

by Joseph H. Wherry



DATSUN 240Z SPECIFICATIONS

ENGINE: front, in-line 6 cyl, overhead camshaft; cast iron block, aluminum head; 7 main bearings. Bore and stroke 3.27 x 2.90 in. (83.0 x 73.7 mm.). Displacement 146 cu. in. (2393 cc.). Compression ratio 9.0 to 1. Carburetion dual 1-bbl SU; premium fuel. BHP (SAE) 151 @ 5600 rpm. Torque 146 lb. ft. @ 4400 rpm.

TRANSMISSION: Manual 4-speed fully synchronized, floor lever. Ratios overall: 1st - 11.93, 2nd - 7.38, 3rd - 4.77, 4th - 3.36. Rear axle ratio: 3.36 hypoid bevel; swing axle.

SUSPENSION: Front independent with transverse links, MacPherson coil spring struts around telescopic shocks, compression rods and anti-sway bar. Rear independent with transverse links and MacPherson coil spring/shock struts.

STEERING: Rack and pinion, ratio 17.8 to 1; 2.7 turns lock-to-lock, 31.5 feet diameter turning circle.

WHEELS AND TIRES: 14 inch steel disc, 4 lug bolts. 175 SR 14 Bridgestone radial ply.

BRAKES: Front 10.7 in diam. discs. Rear 9 in. diam drums. Power assisted.

CAPACITIES: Fuel 15.9 US gal. Oil 4.5 US qts. incl. filter. Cooling system 8.4 US qts. Transmission 3.2 US pints.

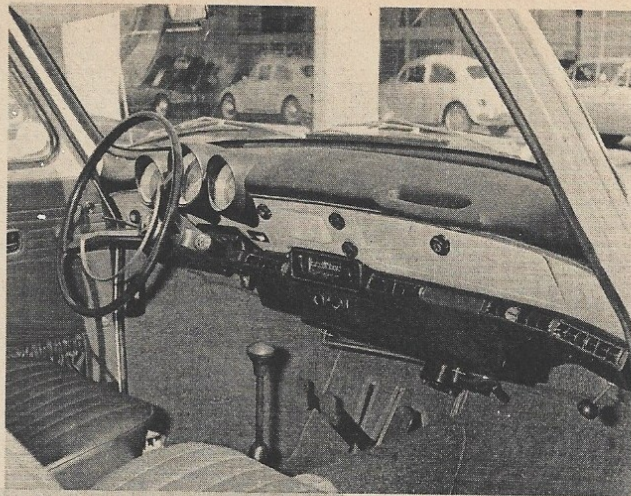
BODY AND FRAME: All-steel integral.

DIMENSIONS: Wheelbase 90.7 in. Track front/rear 53.3/53.0 in. Length overall 162.8 in. Width 64.1 in. Height 50.5 in. Ground clearance 6.3 in. Curb weight 2340 lbs..

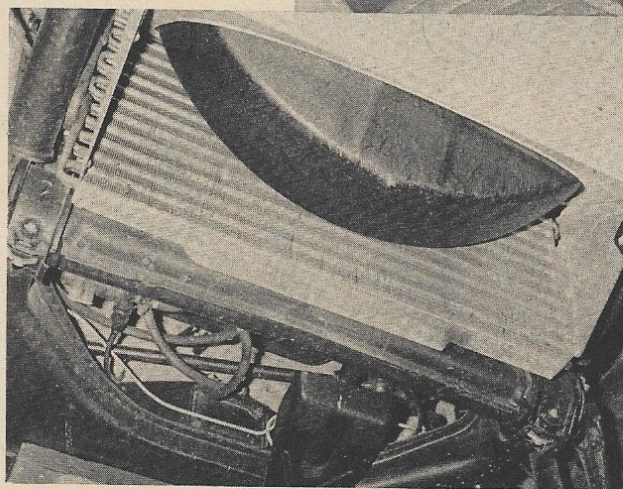
PRICE: Basic suggested list incl. radio and dealers' make-ready \$3601. Optional equipment: tinted glass \$30.00; back window defroster \$40.00 (A 5-speed transmission with 3.90 rear axle is manufactured but Datsun U.S.A. states no plans at present for making this option available.)



Five frigid air outlets are provided; fifth outlet is at far left.



stick FASTBACK with AIR



Protective shield is removed for this view of the condenser which is mounted in front behind spare tire.

The writer is a firm believer in air conditioning. Consequently, in view of the fact that around one-fifth of all new cars—including imports—are delivered with air conditioning, it is high time to report on Volkswagen of America's new system.

First and foremost, the price is right. Suggested retail price for these units—designed specifically for Volkswagens—is \$265 installed in Beetles, \$285 in Karmann Ghias, and \$398 in Fastbacks and Squarebacks.

Manufactured in Houston, Texas by a factory which recently became the property of VW of America, Inc., these systems are installed at the dealer level and they are compatible with older VWs as well as with all of the new models. This includes convertible Beetles and Ghias. Because of the recognized quality of VW drop heads, air conditioning is far more effective in them than in domestic rag tops.

No air conditioned test car was available through VOA, Inc. or the Northern California Distributor, the Reynolds C. Johnson Co. in Pleasanton. Therefore, the VW Owners Annual is indebted to Veale Volkswagen in Santa Rosa for the use of the frigid Fastback shown.

With more than 5000 miles on the odometer, the car was a stick shift model with the current 1584 cc fuel-injected engine. Merchants specializing in

gross domestics like to claim that "air conditioning takes so much power that those little foreign cars can't handle air." VWs can!

To prove VWs can, my wife and I set off for the nearby mountains on a muggy, 100-degree Saturday afternoon. With all windows closed, we turned the controls to "HI" and went from near sea level to 3250 feet altitude over a steep, twisting, two-lane blacktop road.

For an hour and a half we traveled, mostly in third gear. Rarely were we in top gear during the climb. On the return down hill, the steepness and sharp curves kept us in third gear for the most part. Not only was this a rather severe test of the effectiveness of the engine's air cooling, but the use of the lower gears eliminated any chance of low fuel consumption. Thus, we consider 23 miles per gallon to be good under the conditions imposed: mountain grades and the air compressor operating all of the time.

For a comparison of the performance figures we obtained, zero to 60 mph required 21.1 seconds and from 50 to 70 mph took 16.3 seconds in the no-air automatic Fastback which was road tested and reported on in the February '70 issue of *WORLD CAR GUIDE*. That automatic Fastback's fuel consumption was an only slightly better 23.3 miles

per gallon—a figure that would have fallen considerably below our stick with air example had the former's engine been saddled with an air compressor. We also checked performance with air off.

We have owned several cars with air and we've driven dozens of others. Experience points to the excellence of VW's air system. With air pollution, heat in summer and foggy windows in winter ("air" removes windshield fog more quickly than heat on a cold morning), we recommend this optional extra.

By the way, the only time the "air" was off was during half of the acceleration tests. The speedometer error of 3 mph at 60 mph was stripped, acceleration was performed on an old air strip.

Joseph H. Wherry

PERFORMANCE

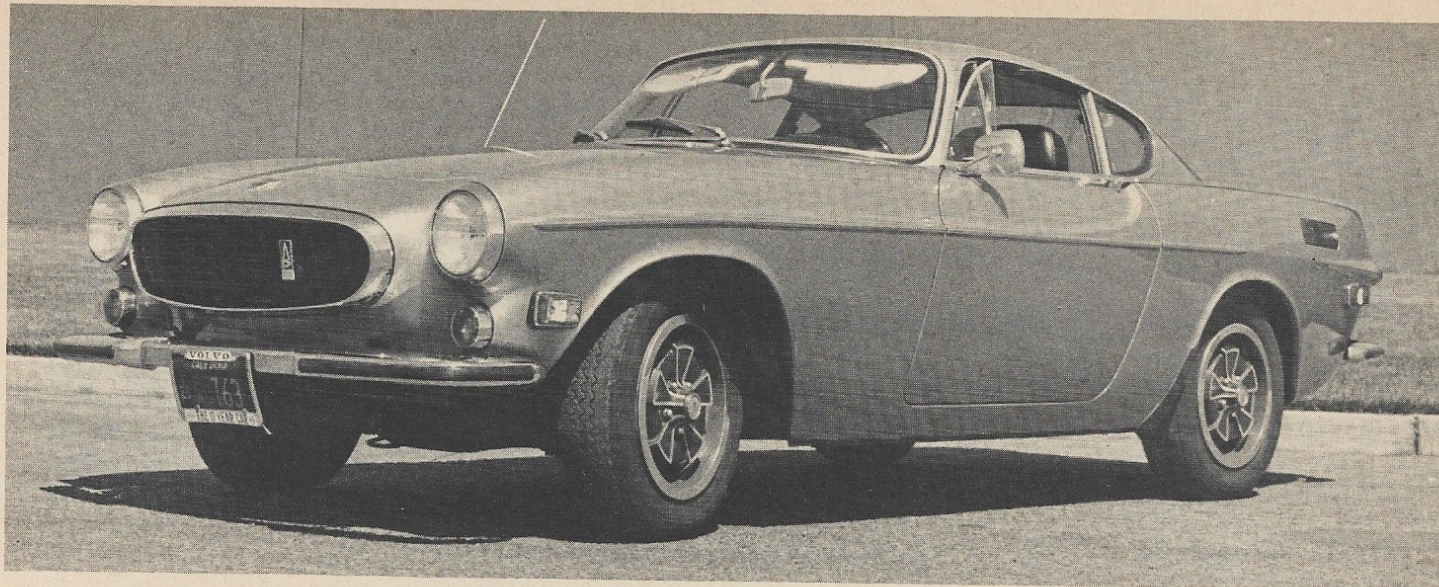
Zero to 60 mph
Air OFF: 18.8 sec.
Air ON: 20.3 sec.

PASSING TIME 50-70 MPH

Air ON: 15.7 sec.
Air OFF: 17.0 sec.

FUEL CONSUMPTION

165 mountain miles with Air ON continuously
23.01 miles per gallon
Maximum speed attained: 82 mph.



VOLVO 1800E

CAR AT A GLANCE: Sporting ride and handling, sufficiently fast with zero to 60 mph in 9.9 seconds. Remarkable fuel economy with "Einsprutning" ranging from least (during performance testing) of 20.0 mpg to best Overdrive cruising at 26.5 mpg. Average of 24.3 mpg for 1,412 total miles on all kinds of roads.

This 2-litre, fuel injected sports model of "the eleven year car" should be a credit to the marque. The 1800E is tough, fast (extended it should top 115 mph although the speedometer is less than accurate), and it handles exceptionally well.

Volvo got off to a bad start with their initial effort to produce a sports car. The author drove one of the open-mouthed grille jobs back in 1956. The firm was interested in fiberglass bodies at that time and a few dozen soft top examples were built through 1958. These were based upon mechanical components of the type 122 Amazon sedan. That initial effort was not an outright failure but neither was it a howling success.

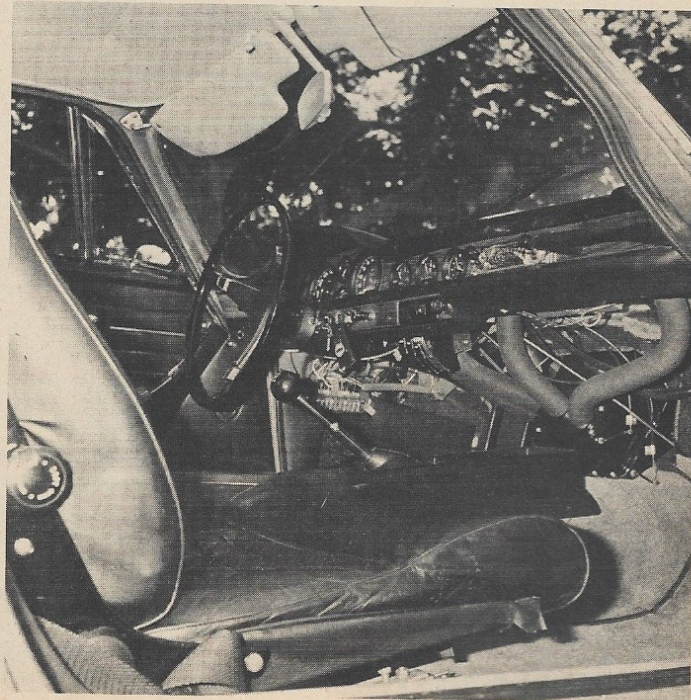
In 1959 the P-1800 all-steel sports coupe was introduced. Until 1963, chassis were shipped from Gothenburg, Sweden to the United Kingdom where the coachwork was built and installed in the Jensen works in West Bromwich. When factory space became available, the P-1800 was built from start to finish in Sweden. The new 1800E is clothed in the same sheet metal styling that graced the "P" model but new grille, bumpers and trim have been added. Underneath and inside, however, the changes have been extensive. Not apparent, the weight has increased by approximately 160 pounds.

Torsional rigidity is a Volvo hallmark as is the customary submersion of the integral body-frame unit in an enormous tank containing rust-proofing primer. Next comes three coats of paint, inside and outside. The color exterior is sprayed on three times, each coat building up on the previous wet layer. The rigors of Sweden's famous winters necessitates heavy salting of all roads. Consequently, as is the case with Volvo sedans and wagons, the entire underside of the 1800E is sprayed with a unique sealing wax after which rubber-based undercoating is applied. With such finishing given to the basic structure, which is built around box-section pillars, the Volvo is one of the World's sturdiest cars. The manufacturer's claims are as true as any and more so than many.

Obtaining a well run-in example for road testing is always a pleasure—and a rather rare one at that. Collecting the 1800E from the West Coast distributorship in Los Angeles was facilitated by the need to return the Datsun 240Z to Nissan Motor's USA headquarters in neighboring Gardena. The famous six-digit odometer read 008186 miles.

As rapid an escape as possible was made from Smogsville up over US-99 where continuous maximum legal speed cruising in Overdrive produced 26.5 miles per gallon of premium grade fuel. The hot and humid central valley of California proved the effectiveness of the flow-through ventilation system, particularly with the blower control button pulled out to high speed. Opening vent windows helped fresh air flow and fast cruising was pleasant and relatively comfortable.

A fairly long run—more than 450 miles immediately after signing for the Volvo for example—quickly acquaints one with a car. These observations were recorded, a mixture of



positives and negatives. The seating is very comfortable for a person of the writer's height (a bit over 70 inches), and the nearly vertical plane of the three-spoke steering wheel with three and three-quarters turns lock-to-lock permits nearly straight arm driving with the seat positioned well toward the rear. Because most of this initial run was at night, I found the combined turn signal and headlight dipper lever to be rather short. Several times when signalling a turn for overtaking other cars, the quick stabbing finger overshot the turn signal lever and hit the headlight switch which is directly beneath the latter on the dash. The result was a momentary blackout.

The dashboard buttons are very close to the steering wheel and require some familiarization. On the other hand, another lever on the right of the steering column actuates the electrically operated overdrive when pushed downward. Operative only in 4th gear, the overdrive is recommended for use at speeds over 45 mph. At a true speed of 60 mph (indicated 65.6 mph) the tachometer showed 3,200 rpm in 4th gear, but switching to overdrive while maintaining speed brought the engine speed down to 2,600. Even more impressive—and useful in enlightened Nevada for example—is the decrease from 4,800 rpm at 90 mph in 4th gear to 3,800 in overdrive. At a true 90 mph, incidentally, the speedometer was wild and said 99.

Signalling with one's headlight high beams is an accepted custom in Europe when overtaking for passing. Volvo permits this; lifting the turn signal lever toward the steering wheel lights the lamps temporarily when they are otherwise turned off.

In my opinion, the accelerator pedal should be relocated an inch or more to the right. As it is, the gas pedal is a scant inch to the right of the brake pedal while to the gas pedal's right there is a gap of some two inches between it and the transmission bulge. The throttle foot, therefore, gets weary during long hours at the wheel while a sudden emergency jab at the brake pedal can result in simultaneous (and unneeded) acceleration. Long hours make it desirable to shift one's position too; at such times I found my knees bumping against the steering wheel. The seats could be a bit lower. Fortunately there is a dead pedal footrest for the left foot.

Raising or lowering the side windows can be a clumsy proposition for either driver or passenger because the crank, at high point during turning, comes within one-half inch of the inward extending window sill. Winding the window up can result in a split finger nail. Short people will find, with

the seat positioned well forward, that there is little space for cranking the window because the crank is also located too far toward the center of the door. Happily the 1800E retains vent windows. A mere two and one-half turns raises or lowers a main window.

Full instrumentation merits acclaim. None of the dials reflect, but it would seem that the oil temperature and oil pressure instruments should be adjacent rather than separated because these two conditions are more or less dependent upon each other. Like the optimistic speedometer, the Smith's clock was quite inaccurate but the push-button radio was excellent once I became accustomed to the sound coming forth from the rear of the interior. Essentially a two seater in the grand touring tradition, the 1800E does give the appearance of being a two-plus-two until one tries to cram persons larger than toddlers into the rear occasional seat. The space behind the front seat is best used for extra luggage to supplement the normal luggage boot.

Well padded, the dashboard contains a hand grip for the passenger but lacks a glovecase. The function of the latter missing receptacle, however, is provided by a deep box on the console between the seats which is wide enough to accommodate a 120 mm. twin lense reflex camera or a compact tape recorder with space to spare for other small items. The forward portion of the central console is an open box for other paraphernalia like sun glasses. The gear shift lever grows out of the console and falls nicely to hand; the knob is pleasantly large but the entire lever has the unpleasant habit of turning in its socket which is slightly annoying. Whether AB Volvo is embarked upon a campaign to stamp out smoking is not known but shifting into third gear can produce skinned knuckles if the ash tray is open—a scant inch separates the lever from the ash receptacle.

A twisting road course is as efficiently negotiated in the 1800E as is a super highway at high speed. The worm and roller steering is heavy at low speeds but above 15 mph becomes progressively lighter. The front suspension incorporates a long kingpin which is inclined at 8-degrees and good castoring action makes the steering almost neutral but

(Continued on next page)



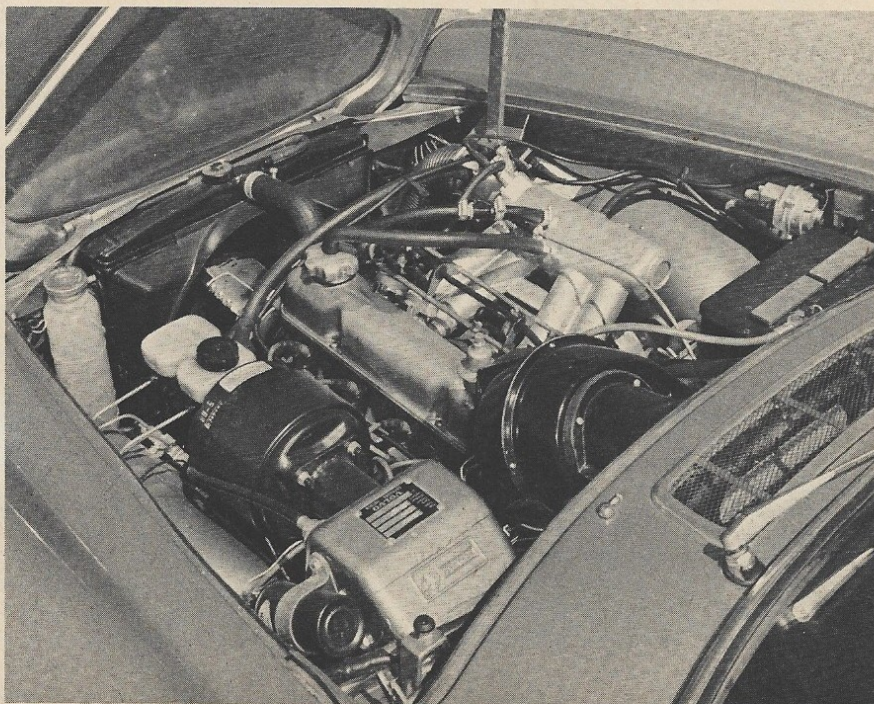
Locking fuel tank access on left rear quarter panel is shared with stylized vent for flow through air; matching vent is on right side. Attractively styled alloy wheels require no bothersome covers.

LEFT:

Leather upholstery on fully adjustable seats, side-swivelling sun visors, opening vent windows, efficient heating and flow-through ventilation system, full instrumentation and easy access to fuse block (on left scuttle side panel beyond gear change lever) evidence Nordic thoroughness.

BELOW:

Coolant expansion container (at left of radiator), large heater blower shroud (on firewall center), dual brake master cylinder reservoir and Bosch electronic computer monitored fuel injection system fill the compartment housing the otherwise compact 1,986 cc engine. Bonnet is unlatched by lever beneath dashboard.



with a slight amount of understeer, a characteristic the writer finds most efficient for rapid mountain driving. The fairly firm suspension keeps lean on tight corners to a minimum. The ride is controlled, moderately sporting and comfortably firm. The car is difficult to bottom, will track straight for at least a tenth of a mile, hands off, as long as the road is level. This is good control and makes driving a relaxing operation.

The Bosch computerized electronic fuel injection never faltered from sea level on hot days to 5,000 foot elevations. The electronic brain eliminates any need to fiddle and adjust for altitude or atmosphere. Response to the throttle is instantly smooth as is the fully synchronized four-speed gearbox. Quietness is another 1800E virtue; it goes and rapidly without noisy showing off. The three bottom gear speeds are 32, 54 and 79 mph.

As mentioned, we were able to clock 111 mph in overdrive at which point the speedometer needle was hard on the peg at the maximum 120 mph indication. No doubt the car will exceed the 115 mph mark relatively easy but a higher figure speedometer is needed. Through the gears acceleration is exhilarating and takes one from zero to a corrected 60 mph. in 9.9 seconds. For the boulevard stop light grand prix, 45 mph from scratch comes in just 6.5 seconds.

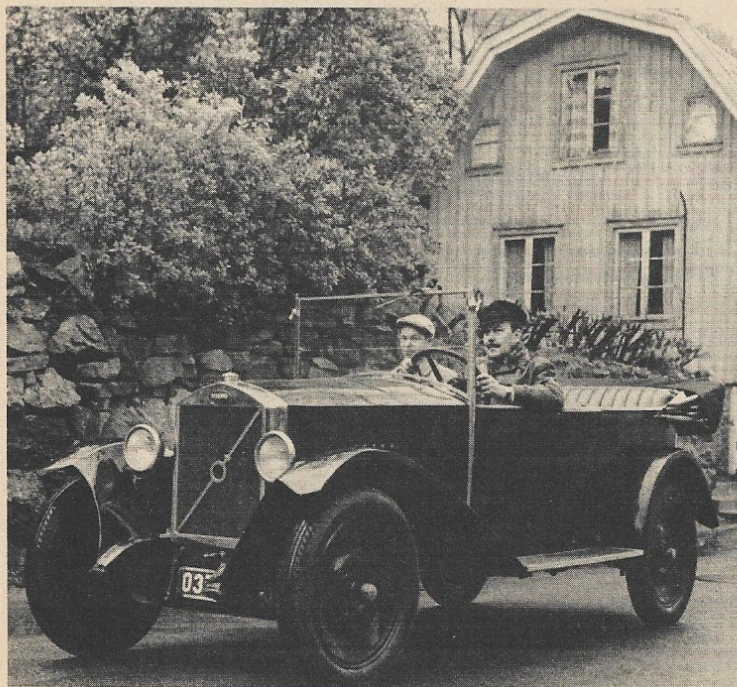
A tune up would have bettered these times fractionally in my opinion. Passing speeds are equally good. Cruising at 50 mph in fourth gear and dropping to third gets the car to 70 mph in 6.4 seconds while the 40 to 60 mph mark comes in 5.6 seconds. Maximum use of gears was made for these acceleration times and two aboard at all times.

Strangely the type 1800E Volvo's styling still takes many motorists by surprise. We found a small crowd gathered after parking for a while in most instances. The impression we gathered is that sales of the 1800E will be limited only by the numbers produced.

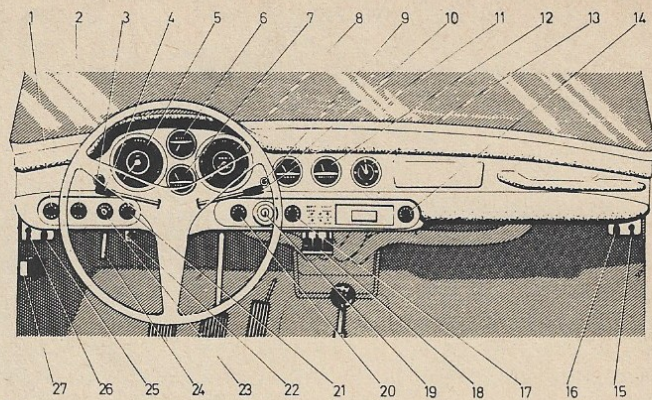
by Joseph H. Wherry

My RIB reports:

"A nice looking car of quality; fast, and good handling. However, it is not built for a short person to drive with comfort. To sit close enough to be able to use the clutch pedal efficiently, one is touching the steering wheel and one's head is too close to the windshield."—Betty C. Wherry



Ancestor of all Volvo cars was this 1.5 litre, 4-cylinder, 1927 open touring model called "Jacob." (AB Volvo)



Dashboard

- | | |
|--|--|
| 1 Control for windshield wipers and washers | 16 Control for direct ventilation |
| 2 Fan control | 17 Switch for electrically heated rear window |
| 3 Warning lamp, handbrake and brake systems | 18 Controls for heating and ventilation |
| 4 Control for turn indicators, lighting switch and headlight full beam flasher | 19 Ignition switch and steering wheel lock |
| 5 Revolution counter | 20 Control for instrument lighting |
| 6 Oil temperature gauge | 21 Switch for for all-round emergency flashers |
| 7 Cooling water temperature gauge | 22 Tripmeter reset control |
| 8 Speedometer (combined instruments) | 23 Lighting switch |
| 9 Warning lamp for overdrive | 24 Control for hood catch |
| 10 Fuel gauge | 25 Control for direct ventilation |
| 11 Control for overdrive | 26 Switch for interior lighting |
| 12 Oil pressure gauge | 27 Fuses |
| 13 Clock | |
| 14 Cigarette lighter | |
| 15 Switch for map-reading | |

VOLVO 1800E SPECIFICATIONS

ENGINE: front-mounted 4-cyl., in-line, pushrod-operated OHV. Bore and stroke 3.50 x 3.15 in. (88.9 x 80.0 mm). Displacement 121 cu. in. (1986 cc). 5 main bearing crankshaft. Cast iron cyl. block and head. Compression ratio 10.5 to 1. Fuel intake by injection. BHP 130 @ 6,000 rpm. Torque 130 lb. ft. @ 3,500 rpm. Premium grade fuel.

TRANSMISSION: 4-speed manual on floor, fully synchronized, with overdrive (4th gear only). Ratios: 1st-14.50, 2nd-8.47, 3rd-5.76, 4th-4.30, Overdrive-3.44. Rear axle ratio-4.30 hypoid.

SUSPENSION: Front independent unequal length wishbones, anti-sway bar. Rear axle solid on longitudinal control arms and torque rod, track rod. Coil springs at each wheel.

STEERING: Cam and roller with 3-¼ turns lock-to-lock. Turning circle 30 ft. Ratio 15.5 to 1.

WHEELS AND TIRES: 15 inch diam. aluminum alloy, steel rims, 5 lug bolts; 165R15 radial ply.

BRAKES: Power-assisted 4-wheel discs; front 10.6 in., rear 11.6 in.; dual circuit.

CAPACITIES: Fuel 12 US gallons. Crankcase 4 US qts. incl. filter. Transmission 3 US pints. Rear Axle 2-½ US pints. Cooling system 9 US qts.

BODY AND FRAME: All-steel, integral.

DIMENSIONS: Wheelbase 96.5 in. Length 171.3 in. Width 67.0 in. Height 50.5 in. Ground clearance 6.1 in. Curb weight 2580 lbs.

PRICE: \$4,560 basic, POE East Coast; \$4,655 Basic West Coast.



World Car Guide News

VOLKSWAGEN scored its second highest monthly sales record of all time during June as authorized VW dealers delivered 54,845 new cars to their customers. 24 percent ahead of June last year and about five percent ahead of May this year, this record was exceeded only during October 1969 when the 1970 model VWs went on sale. Dealers delivered 60,877 new VWs then. Alexander E. Breckwoldt, Volkswagen of America's Vice President for VW Operations, said that "Volkswagens are in great demand in VW markets in Europe as well as in the U.S. and it has only been by working overtime and adding extra shifts that the factories have been able to keep up with orders."

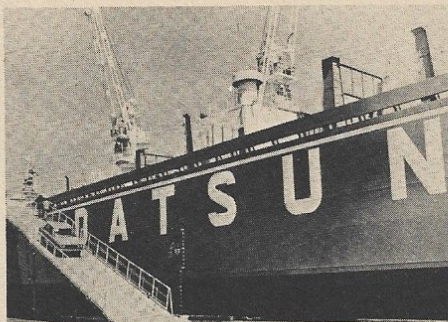
ENGLETON SCHOOL OF DESIGN enters the elite field of auto designing. Norman K. Ellis, Admissions Director, says:

"We have developed a new and unique school of automotive and industrial design... not just another school with extension courses in every field imaginable... and not a mere design school, but an active design studio, where top designers are currently working on trend setting projects, and creating important standards for solving the rapidly increasing problems of this great society."

"We will help those with the ability and ambition to become professional designers, a field that desperately needs qualified, contemporary, creative people."

"For the serious student desiring to enter the field of professional design, or the back-yard hobbyist who wants to add finished professional quality to his home-shop-built furniture, vehicles, etc., Engleton School of Design is the answer."

If this opportunity interests WCG Readers, contact Engleton School, Dept. WCG, P.O. Box 207, Woodland Hills, Ca. 91364.



DATSUN'S SUPER TRANSPORT. NEWARK, NEW JERSEY—At a press conference recently held aboard the Kanagawa Maru, the newest and largest of Datsun's fleet of five car-carriers which just completed the final leg of her maiden voyage to the United States, Soichi Kawazoe, Executive Vice President of Nissan Motor Corp. in U.S.A., pointed out his company's determination to remain an important and integral part of the American car market. "1970 marks our tenth year of selling cars in the U.S.," commented Kawazoe, "and we are here to stay. Evaluating Datsun's current position in this country, I feel abundantly confident in making this statement even knowing full well that the domestic manufacturers are on the verge of introducing cars that will compete directly with ours. The arrival of the Kanagawa Maru here today graphically illustrates our determination to not only remain in the U.S. market place but to expand even in the face of stepped up competition," Kawazoe said. Making reference to gains over the years, Kawazoe noted that Datsun's sales have grown from 1,000 units in 1961 to more than 90,000 last year. As further evidence of his company's optimistic outlook, he cited their Five Year Plan which projects sales of 150,000 units this year and 300,000 units in 1974. (Now if Datsun can get imports up on their fantastic new 240Z, they'll have it made.—Editor)

HOW'S THIS SOUND? Ken Woodard and Bill Denham, owners of Daly City Datsun-Volvo in Daly City, Calif., have indorsed something new in the automotive sales industry which they feel will become law in a short time. In one of their sales training classes, where non-pressure selling was being taught, it was brought to their attention by one of the salesmen, Robert Young, that when a car is sold there should be such an understanding with the customer that the buyer stays sold after the sale. How can one dealer clean up the car business? They can't! However, if all dealers

would follow their method of a 48 hour cooling off period, we believe the job would be done. When you buy a new car from their firm, you get a written guarantee stating that all of your money will be returned within 48 hours if you are not satisfied with the car or the transaction. They know that this is going to eliminate high pressure and misunderstanding. The days of the high rolling salesman is on the way out. (WCG endorses this effort and knows this announcement is genuine. There is too much hanky-panky in car sales. Other dealers should follow suit.—Editor)

RENAULT SPONSORS MED-AID PROJECT. Four North Carolina college students are off on an adventure with humanitarian benefits, thanks to help given by Renault, Inc. and Eastern Auto



Renault Med-Aid team

Distributors of Norfolk, along with several other firms.

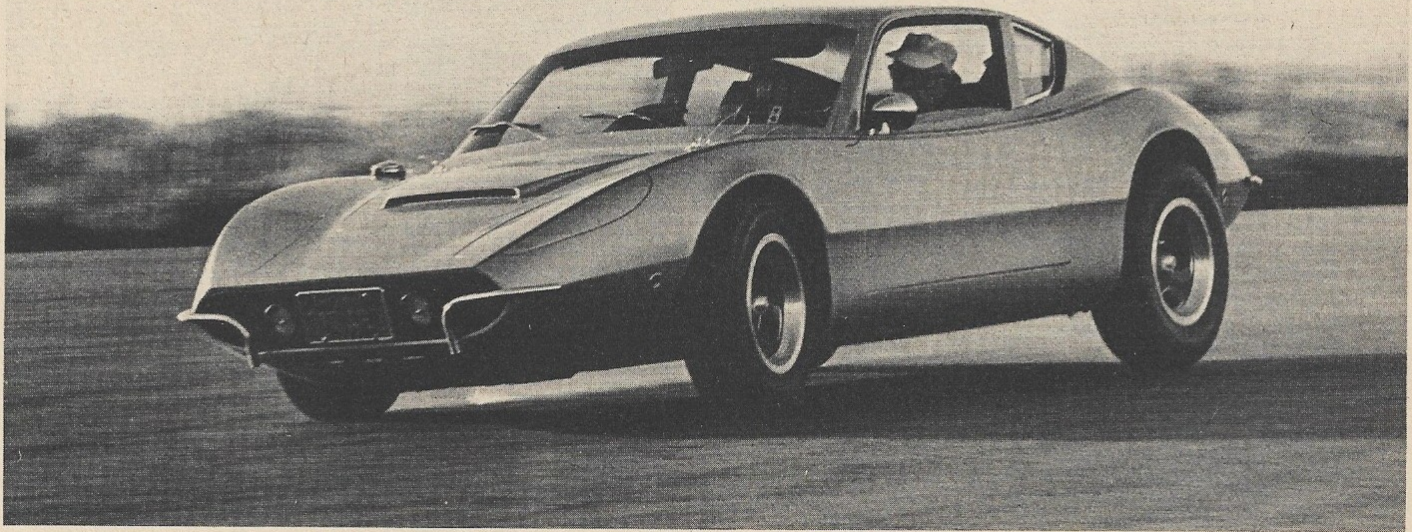
The young men, Walter Kale, Robert Klein, Steve Lett and Buck Winfield, all of Charlotte, will make a ten-week trip through eleven Central and South American countries visiting doctors in isolated communities. They will carry short wave transmitting and receiving equipment which will be left with the doctors so that communications can be established with Duke University's Med-Aid program.

Med-Aid (Medical Assistance for Isolated Doctors) is a service of the University's hospital which provides medical consultation with specialists via radio.

The quartet will use a Renault 16 Sedan-wagon to tow an Airstream travel trailer over the Pan American Highway, which, as one member of the group remarked, "is barely a road in some places, much less a Highway". At the end of the journey the car and trailer will be donated to a charitable organization or local government in one of the South American countries.

the amante GT

ROAD TEST



by Joseph H. Wherry
Photos by Duncan Maxwell

One of the best VW-based GTs

How does a top speed of 105 to 110 mph, genuine grand touring luxury and 30 miles per gallon sound? And with VW reliability, orthopedic-posture perfect seats and flat cornering at high speed?

All this has a price to be sure. \$4900 worth of price for the car pictured herewith F.O.B. the factory of Voegele Industries, Inc. in Santa Clara, California.

If \$4900 is too rich for the purse, one can purchase a complete body assembly for \$2895. Such a kit contains everything except the VW chassis and engine. The body assembly includes luxuriously upholstered seats in Naugahyde, padded door panels and dashboard, thick carpeting, full instrumentation right down to a pair of cylinder head and oil operating temperature gauges, the aircraft-like overhead control panel and everything illustrated herewith. With this outfit, one need only bolt the entire assembly to a VW chassis, connect up to the engine and drive off.

If \$1095 is a happier price to pay for GT status, the basic assembly kit contains what Voegele calls the "Uni-Shell"

body complete with inner lining, steel side rails to beef up the stock VW chassis, headlight covers and mechanical controls, the dashboard, hinges for doors and front and rear deck lids, the seat shells without the padded upholstery, and an unusually well detailed set of instructions for assembly. The body of this basic kit is not externally finished; it must be sanded and painted.

We ran the daylights out of a complete Amante GT for a week. An attention getter wherever we went, the Amante was mistaken for a Ferrari several times. The extractor exhaust system on the 1.6 litre fuel injected VW engine assured sufficient rap to sensitize neighbors and peers on streets and freeways.

Beautifully streamlined, Amante produces very little wind noise at any speed. Everything fits right, too, thanks to steel-framed doors and 18-gauge steel reinforcement in critical body areas.

Structurally sound, Amante has a built-in steel roll bar, tough and stylish Prowler XL magnesium wheels, and it weighs in at 1,900 pounds ready to roll.

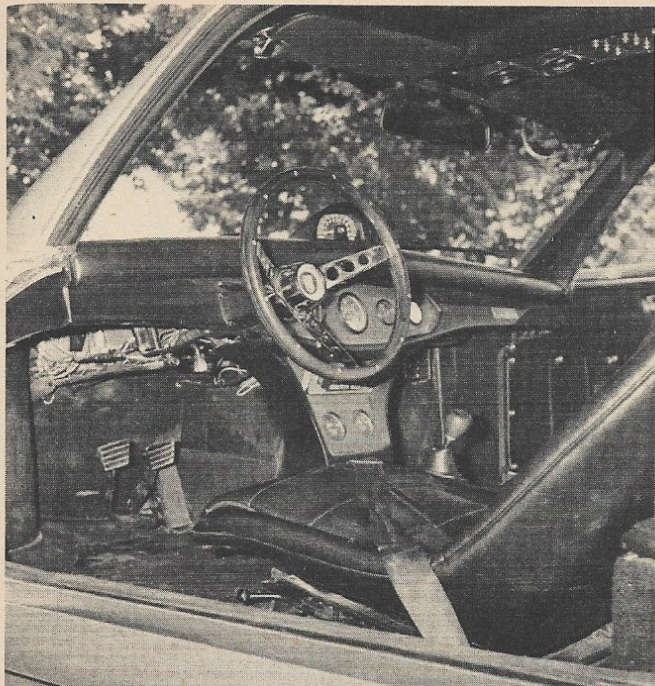
The complete car tested has a Voeg-

ele designed rectangular steel tube frame. Without engine of course, this rigid frame is available for \$344 or \$395. The lower priced frame is designed for a rear engined GT using either VW or Porsche power; the costlier frame is designed for mid-engined cars. In the latter instance, the factory body is of altered design too.

DRIVING THE AMANTE GT

One stoops low to enter this GT after opening the door with the key. There are no external door handles—the doors are spring loaded—and the car is just 48 inches high overall. Once inside, the torso is cradled in seats not very unlike those of the sensational de Tomasco Pantera. The small diameter racing type steering wheel is grasped with the arms straight forward. Close at hand is the stubby "slip shift" gear change lever that bolts onto the stock VW linkage.

To fire up the boisterous sounding VW mill in the rear compartment necessitates an impressive check of the facilities at hand. The key in the customary column-mounted ignition slot is turned to the on position. Next one must flip on the fuel pump switch; that's the



third switch from the front on the left row of the ten overhead switches. That done, the two ignition switches are flipped and, with your passenger delightfully bewildered, you press the starter switch forward. The next note heard is a healthy roar somewhere behind you.

The driver's legs are straight out—virtually parallel to the ground. The clutch, brake and accelerator pedal are in good GT tradition.

On top of the padded dash is the tachometer; it's red-lined at 5000 rpm for the VW powered job. The speedometer, oil pressure and temperature, and a proper assortment of other gauges

including voltmeter (not an idiot light to be seen) are neatly grouped in a hardwood inset in the dash. Overhead toward the front are a fuel tank gauge, a clock and six indicator lights which assure one that all systems are GO. Behind the latter are the ten toggle switches that control everything except steering, engine speed and brakes.

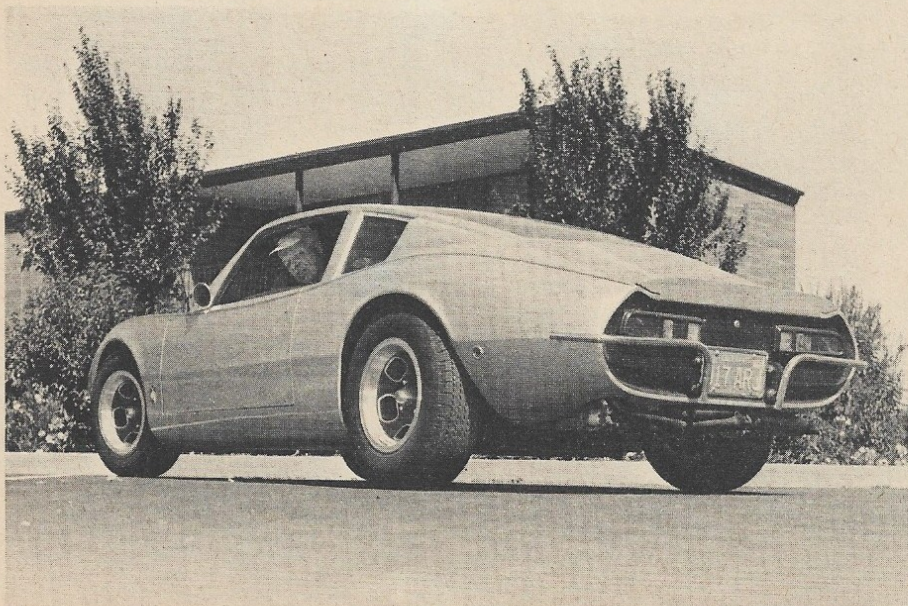
It's difficult to fault a transit system like the Amante GT after driving it for some 400 miles. After discovering how to wear the diminutive speedster (merely getting and reclining does not adequately describe the first ride), how to ignore all the shouted inquiries (in the interest of highway safety), and how to

recover from the fun of an easy 15.2 VW-powered seconds from zero to a true 60 mph, one can rather easily average 28 miles per gallon.

Conservative driving produces 30 miles to the gallon of go stuff and GO is what Amante does best. Handling is light. Lifting the inside rear wheel on a fast hairpin curve is difficult. We never experienced a spin-out although we admit to having tried to do so on our favorite old airstrip test course.

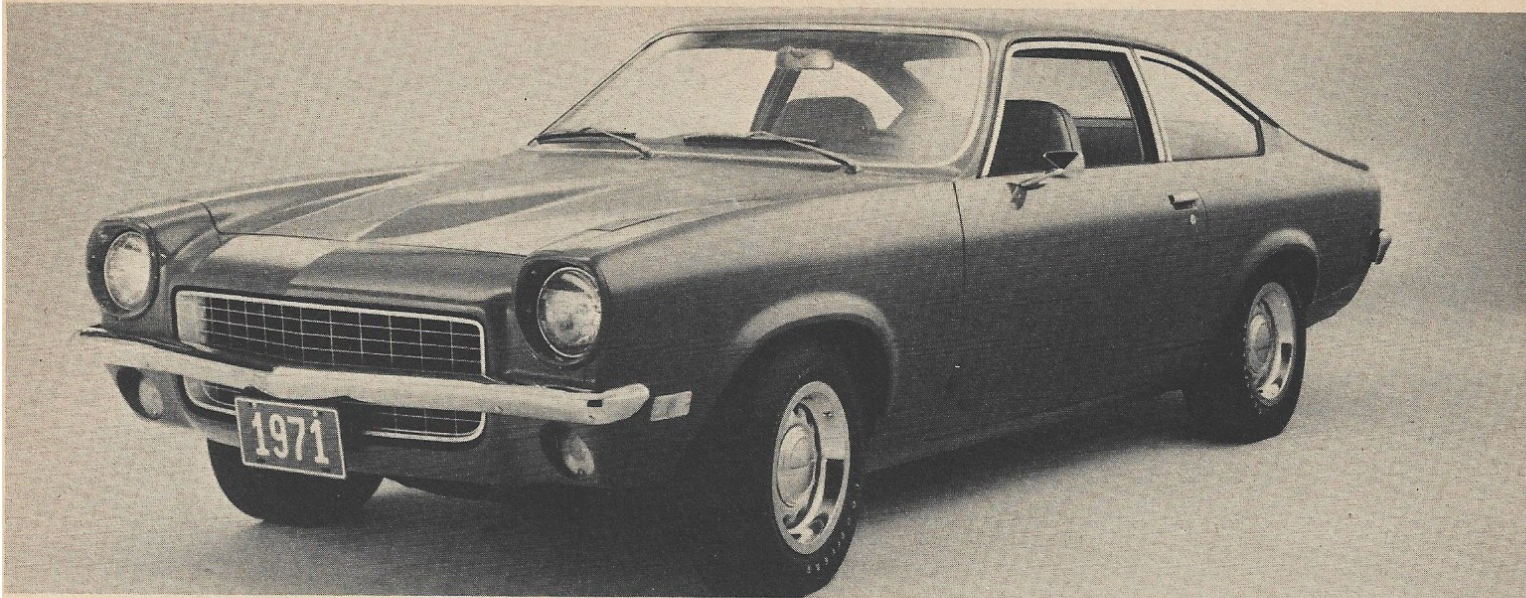
Amante looks and drives like the best VW-based GT to date, just the rig to take to the next International Volks-weekend!

WCG



the amante GT





CHEVROLET'S ENTRY INTO THE ANTI-IMPORT BATTLE **Vega 2300**

Coming at you head on from a distance, the new Vega looks quite like the familiar Camaro—the grille for Chevy's small car obviously was inspired by its hot sibling. The resemblance ends right there, however.

In overall size, the Vega compares well with the major imported marques with which it will compete—and with the Pinto from Ford as was illustrated in last month's WCG. The interior dimensions—head room from 36 to 38 inches, an average of 50 inches of shoulder room front and rear and legroom as extensive as in most medium sized domestics—compare favorably, too, with its major antagonists.

For many years domestic manufacturers have been convinced that styling sells cars. There is a certain amount of logic in this contention when coupled with size and lots of it. But this argument is wearing thin. Quantity is fast losing out to quality. If this were not so, well over a half-million VWs would not have been sold last year, the majority of them the basic Beetle, a vehicle which offers neither style nor quantity. But the Beetle—target of all the Detroit small cars—does offer quality.

If the new Vega can be produced with tight controls on quality, then its attractive styling will be one important factor in the success its manufacturers hope to attain. And let's face reality: the health of the American automobile industry is necessary for a healthy economy in the big

picture. The other important factor with the Vega is potential performance. In this department, Vega seems to have what it takes—a comparatively potent engine with an appetizing specification.

A single basic engine displacing 2.3 litres (140 cubic inches) will be available in single barrel and dual barrel carburetor versions. Compression ratio is 8.0 to 1 for each engine variant but the single overhead camshaft is tailored to give hotter valve timing in the dual barrel carburetor version which is the reason for the additional 20 horses. The camshaft is driven by a fiberglass reinforced belt.

Fore and aft weight distribution should be quite good because the engine block is die cast of new aluminum alloy with a high content of silicon. The cylinder head is cast iron. Some small car enthusiasts have expressed the hope that Chevrolet would see fit to incorporate easily replaced cylinder sleeves but this has not been done.

Aluminum alloy is also used in the pistons which have flat heads with iron plated skirts. Two compression rings are employed and one oil ring. The piston pins are chrome steel and the connecting rods are drop forged steel. The cast nodular iron crankshaft revolves in five 2.3 x .752 main bearings. Crankcase capacity is 4 quarts including the oil filter and operating oil pressure at 1,000 rpm is 40 pounds per square inch. The 11-gallon fuel capacity should give a range of at least 250 miles; hopefully more.

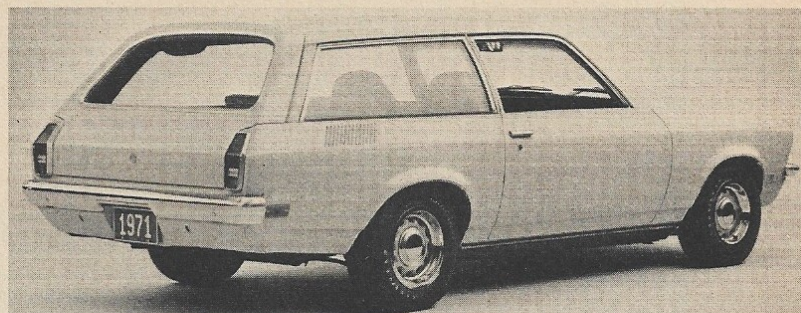
Buyers can opt for any four transmissions including three and four speed boxes with the lever on the floor (where it belongs) or three speed Powerglide or Torque-Drive. Clutches of the manual transmissions have diameters of 8.00 and 9.12 inches for the three and four speed boxes respectively. Rear axle ratios range from 2.53 (standard with three-speed manual) to 3.43 with the four speed gearbox.

Disc brakes are standard in front as are drum types in the rear; wheels are 13-inch diameter steel spiders secured by four lug bolts set in a 4-inch diameter circle. Initially there is no provision for optional power brakes. The handbrake is of the lever type between the front seats. Curb weights range from 2,180 for the basic two-door sedan to 2,268 pounds for the station wagon. Approximately 53-percent of the curb weight rests on the front wheels.



DIMENSIONS

Wheelbase	97.0
Length (overall)	169.7
Width (overall)	65.4
Height (loaded)	51.2
Tread—Front	54.6
Tread—Rear	54.1
Weight (curb) Two Door Sedan	2190
Weight Coupe	2234
Weight Station Wagon	2273
Weight Sedan Delivery	2199



This fairly good weight distribution should make for light steering with recirculating ball gear and an overly generous 4.4 turns lock-to-lock. As might be expected, power steering is optional. With the latter, however, wheel turns come down to a more acceptable 3.25 turns lock-to-lock. Coil springs are used front and rear with the torque of the latter taken by

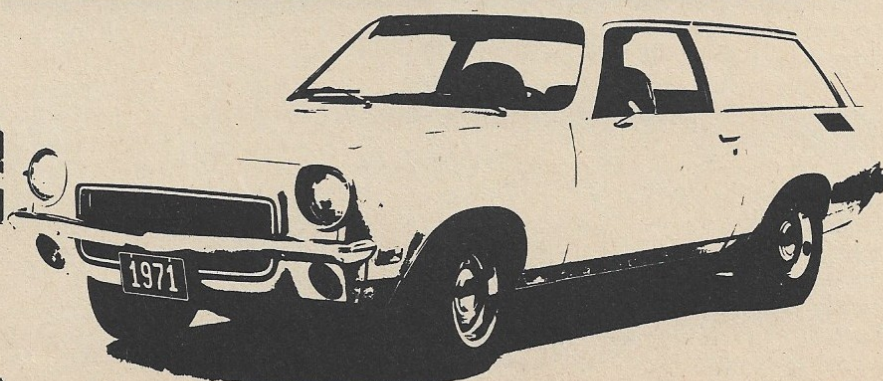
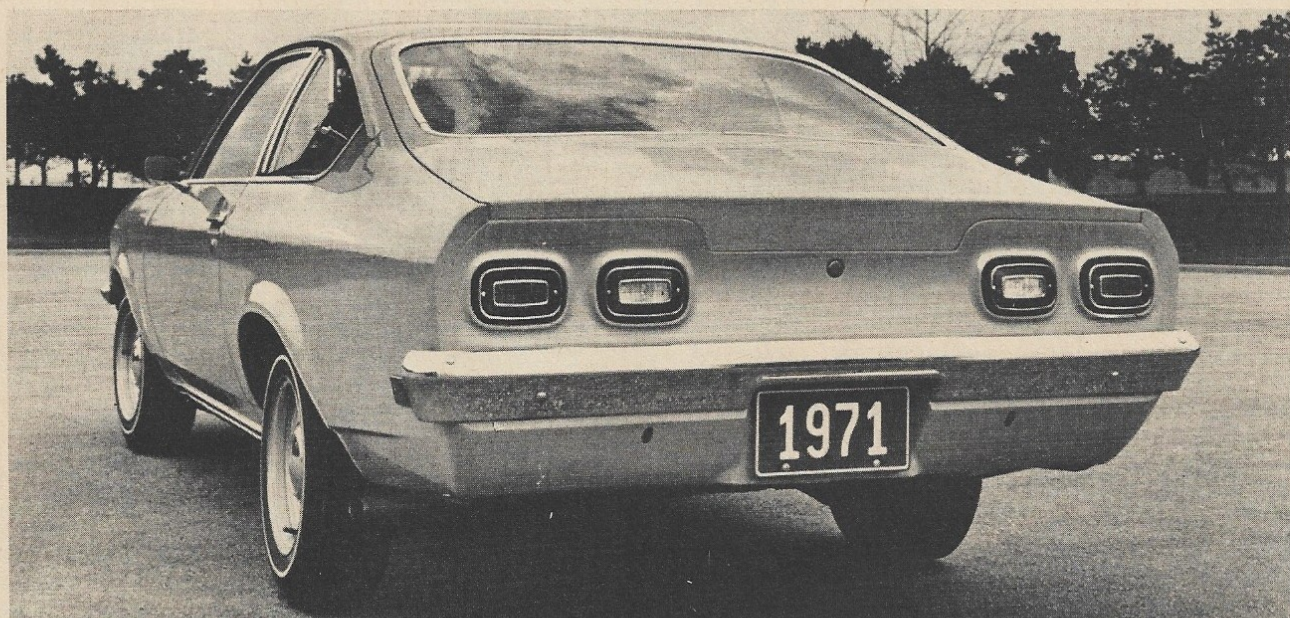
control arms. An optional stabilizer bar is available for the front suspension but is standard in the rear.

With its all-steel welded integral body and frame, with four to five person carrying capacity in all models, with the exception of the sedan delivery (which should be a wildfire best seller for small business utility), the Vega looks good. Performance should be excellent with a maximum close to the century mark. Ever present idiot lights snitch on the electrical, cooling and oil pressure systems and no tachometer is listed as an option. The latter, though, is easily rectified with ready availability through parts houses.

For the present Vega will not be appearing in the increasingly popular under 2-litre sedan racing events; its rival, Pinto, might pave the way for Detroit's new small cars in that category of enthusiasm. But WCG must admit that Vega looks good, the specs are intriguing with the overhead cam engine, and we are anxiously awaiting and example for road testing. We hope it's as good as it appears to be. **WCG**

ENGINES

Horsepower	90 @ 4,800	110 @ 4,800
Torque	136 @ 2,400	138 @ 3,200
Compression ratio	8.0:1	
Carburetion	single-barrel	two-barrel
Camshaft, overhead	General Performance	High Performance



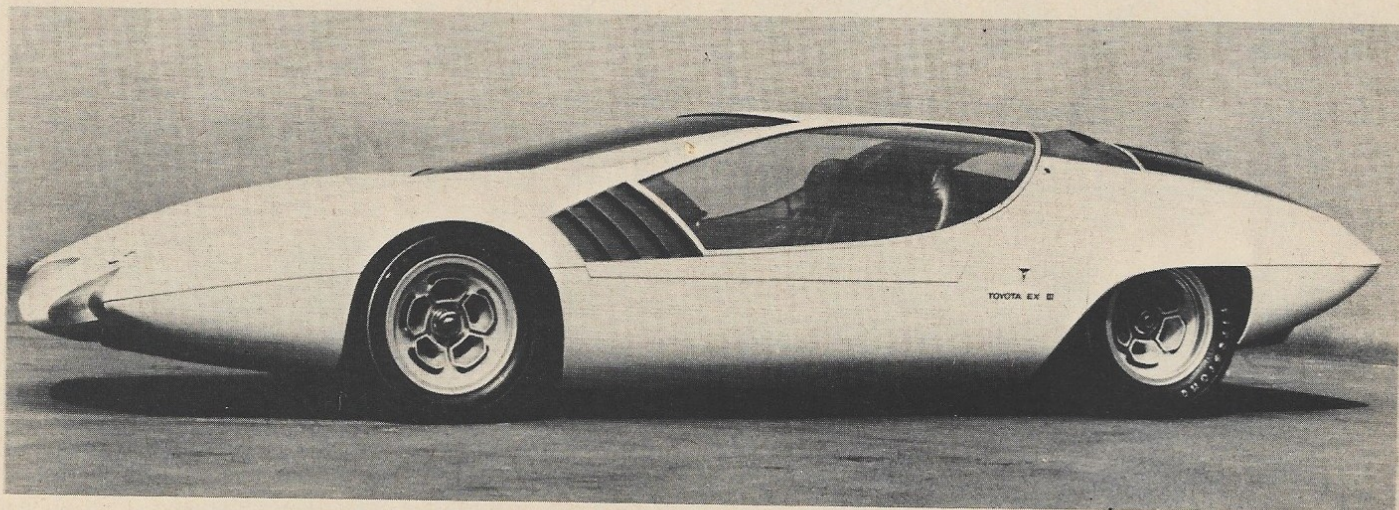


LEFT:

A white Mazda R100 Sports Coupe with rotary piston engine is flanked by reciprocating engine 1200 and 1800 types in front of Mazda Motors of Florida, Inc. headquarters in Jacksonville. (Courtesy Mazda Motors of Florida, Inc.)

BELOW:

Enthusiasts can rest assured that Toyota's brief essay into the high performance field exemplified by the discontinued 2000GT will be resumed in the near future. Evidencing the thinking in Toyota City engineering and design studios is this EX-III which was a hit at the Tokyo Motor Show this year. Toyota executives say that they have "...no plans for production of the EX-III." There will, however, be a new Toyota sports car sometime in 1971. After all, Datsun has the 240Z and Toyota will not stay out of that area of the market place. (Photo courtesy Toyota Motors.)



MAZDA ENTERS THE FRAY

A new marque is making its mark in the USA.

For a couple of years, Japan's excellent Mazda cars have been sold in Canada. As a matter of fact, Toyo Kogyo, Mazda's parent company, manufactured and sold a half-million cars last year in some eighty countries. That's an impressive figure when one considers the fact that Toyo Kogyo introduced its first passenger car, a small three-wheeler, just twenty years ago.

Toyo Kogyo produced the first Mazda motor vehicle in 1931, a three-wheel truck, and in 1940 the firm's first experimental passenger car was built but the Pacific war prevented further development. Headquartered in Hiroshima, Toyo Kogyo successfully negotiated an agreement with NSU in Germany late in 1960 for the licensed production of rotary piston engines based upon the now famous designs of Dr. Felix Wankel.

To make a long story short, Toyo Kogyo's mission to NSU headed by Mr. Matsuda won out over thirty-three other Japanese firms and secured the confidence of Wankel and his associates. Overcoming the "chattermarks"—the scratches on the housing walls of the combustion chamber caused by the swiftly revolving rotor—consumed the combined talents of Kenichi Yamamoto and his engineering team and the technical cooperation of the Nippon Carbon Company.

When a new material called Pyrographite was developed

for the rotor and housing surfaces, the problem was solved, and when the Mazda version of the Wankel rotary piston engine withstood 672 hours of continuous running at 5,000 rpm (equal to 56,350 miles at 84 mph) without scratches or other problems, the decision was made to go into production.

In 1967 the Mazda 110-S Coupe, powered by a 2-rotor Wankel type engine, was exhibited at the Tokyo Motor Show along with several other models. One of the latter was the prototype RX85 which, now fully developed and thoroughly tested in the home market and in other countries, is now on sale in the Pacific Northwest and in the Atlantic Southeast. The first distribution points in the USA are Seattle, Washington and Jacksonville, Florida.

As you read this, some 2,000 or more Mazda cars including the R100 Sports Coupe powered with a rotary engine and types 1200 and the overhead camshaft 1800 with conventional reciprocating engines will be in the hands of dealers in the regions mentioned. Bertone styling distinguishes the range which includes coupes, two and four door sedans and station wagons, and a pickup truck.

Mazda prices span the popular import categories, the product is sufficiently good to place Mazda in a strong number three position among Japanese car producers, and the parent firm and their representatives in the USA give every evidence of being here to stay. WCG will road test the Mazda range soon.

NEW DATSUN 1200 SERIES

Scheduled for release a few days after this issue of WCG goes to press is the new Datsun 1200 series which includes a dashing fastback coupe and a two-door sedan. To meet the rapidly growing demand for four-passenger cars costing less than \$2,000 but still having good performance, Datsun's 800-plus dealers will finally have a competitor to the popular Toyota Corolla fastback coupe.

The 1200 type—so named because of the 1.2 litre engine—is a development of the 1000 type which has not been imported into the USA but which has achieved popularity in other countries. Based upon what we know about the 1000, WCG predicts a maximum speed of 92 to 94 mph and 15 seconds (or less) from zero to 60 mph. We shall see, for sure, in the near future when we make thorough tests of the new import. Here are the technical particulars taken from Datsun's announcement:

Producing 69 up and designed from the company's rally winning designs, the 1171 cc engine pushes the car along easily at freeway speeds. With a favorable power to weight ratio, 23.6 lbs. per horsepower, acceleration nearly matches that of the Datsun 510.

To reduce piston speed and crankshaft load, the powerplant has been designed with an extremely short stroke. A five main bearing crankshaft is utilized to cut down engine noise, vibration and wear. Other special features of the engine include a high compression oil ring made of a special alloy which increases ring pressure and improves compression

while also decreasing oil consumption. The emission control system, while meeting the California requirements (the strictest standards in the world) does not impair performance or efficiency of the engine.

A smooth all synchromesh four-speed transmission comes as standard equipment with gear ratios of: 1st, 3.757; 2nd, 2.169; 3rd, 1.404; 4th, 1.000; and reverse, 3.640. A semi-floating rear axle and hypoid type final gear with a ratio of 3.90 to 1 is standard on both models.

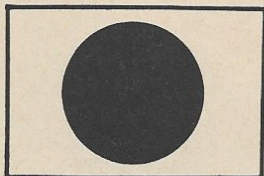
Strut-type independent front suspension with coil springs and tension rods (similar to that used on the popular Datsun 510 series) and a leaf spring controlled "live" rear axle give the Datsun 1200 well balanced handling qualities. Tough rubber suspension bushings are also used to prevent vibration and noise. The bushings also eliminate the need to lubricate many parts.

A recirculating ball steering system is used with a ratio of 15 to 1. The car's turning radius is only 26.9 feet, making it easy to park in even the tightest places. Non-fade stopping is assured using tandem hydraulic operated disc brakes up front and drums in the rear.

The all steel body is of unitized construction. Safety glass, seat belts, heater, front bucket seats with head rests and many more safety and convenience items come as standard equipment.

A wide range of colors and optional equipment are also available on both coupe and sedan with prices of \$1866 and \$1736 respectively.

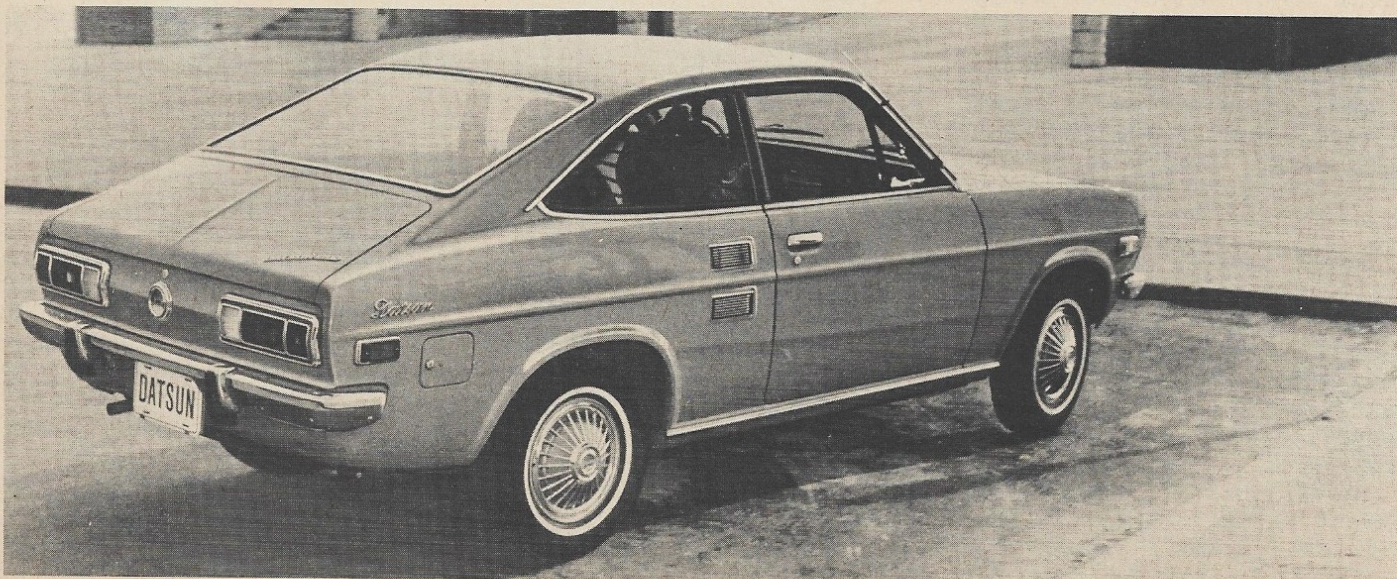
WCG



New Cars From japan



LEFT:
The Datsun 1200 in two-door sedan format.
(Nissan Motor Corp. in USA)



BELOW:
The Datsun 1200 Coupe, a fastback aimed at the popularity of the Toyota Corolla. (Nissan Motor Corp. in USA)

When asked, "What's so great about front wheel drive?" I have to answer with another question.

"Can you tell me one thing that's good about conventional drive?"

There is invariably a long, open-mouthed pause as an answer is contrived.

Why, Detroit? You have been building cars with front engine and rear drives for these many years. What's so great about your system? The probable answer is that the public buys it. So why change?

From a technical standpoint, it seems rather silly to transmit power from the point of weight concentration to a light-weight place several feet to the rear. The immortal Dr. Porsche felt the same way. So, his answer was to put the engine in the rear, over the drive wheels. That is the second best system. However, it leaves you with a light-weight front end and treacherous oversteer problems.

The French claim it was their *savoir faire* that led to the development of FWD. I would be more inclined to think that *une madame d'ingenieur automobile* found it rather unlady-like to straddle the ridiculous hump in the front compartment that accompanies to straddle the ridiculous hump in the front compartment that accompanies conventional drive. I don't mind giving the French credit for perfecting FWD, but for my money, the Swedes honed it to excellence. Of course, many say that about womanhood, too.

The difference between the French system, as seen in Citroen and Renault, and the Swedish system is that the French put the transmission out in front of the engine to achieve low hood profile. The Swedes—or more specifically Saab—put the engine forward.

This method is also used in the German Audi. The forward engine weight serves as a cantilever, adding to the weight concentration over the drive wheels. The French cars have a bit less weight over the drive wheels and an obtrusive hump in the driver's compartment.

Could it be that Detroit is afraid of copying this innovation from abroad? They tried the rear-engine, air-cooled bit and bombed. Is this what is keeping them from offering front wheel drive in a car with less than a six-grand price tag?

Detroit, you are introducing small cars to stem the invasion from abroad. However, you have given no indication of trying to convert those Americans buying the Saab, Citroen, Renault 16, Austin America, Simca, Peugeot, Subaru or Audi. Look out for that latter marque, Detroit.

So far, sales of the first seven listed haven't amounted to a hill of beans compared to the vehicles you push through dealers' doors. But Audi has the

The Case Wheel

by Duane A. Pancoast

Two shots of author's Saab 96 in rather sane gymkanna corner illustrate the way they lean. Two wheel corners are impossible. The worst



backing and marketing genius of Volkswagen, and look at what they did to you the last time. (Saab's position, as mentioned in last month's road test, is expanding rapidly, too. Editor.)

Perhaps, Detroit, the time is right to offer front wheel drive in a sensibly priced family car. By first introducing FWD in two of the most expensive, most prestigious cars as you are doing, you can avoid a repeat of the Corvair mistake. Corvair was designed to compete with a low priced import. Toronado and El Dorado compete with nobody. Why not offer a Chevelle with FWD which is El Dorado inspired, or a

Cutlass with Toronado handling? Better yet, put FWD in Chevy II, Maverick, Hornet or even Gremlin.

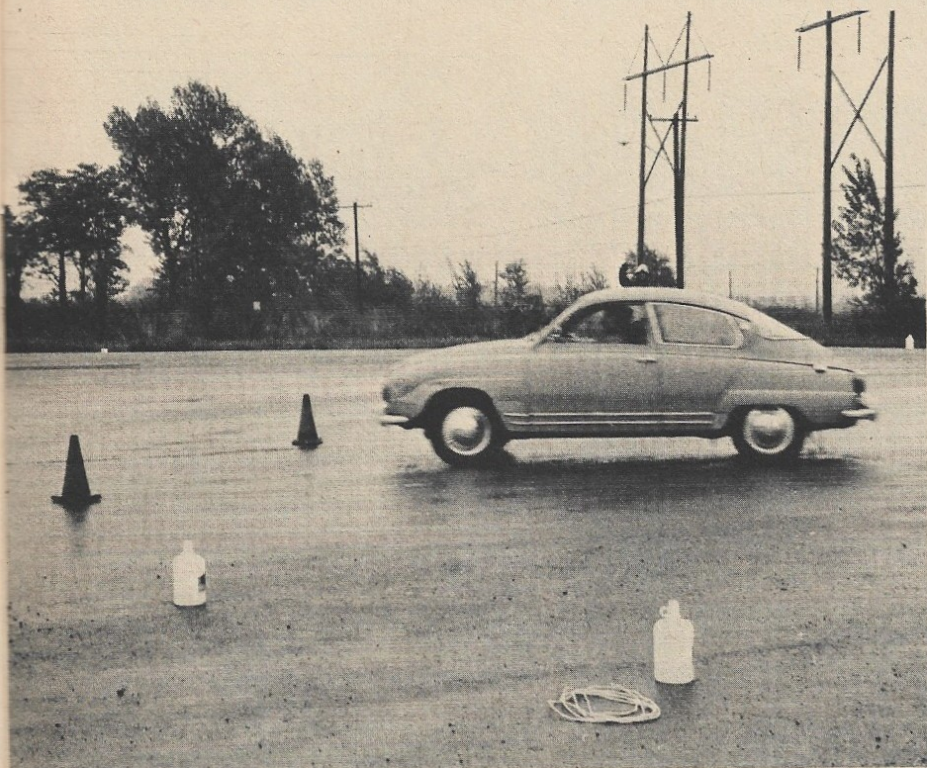
For those readers who have never been behind the wheel of a front wheel drive car, it can be described, but the mental picture will not convey the feel. But, here goes for what it is worth.

The sensation is definitely one of being pulled. After owning four Volkswagens, this was particularly noticeable to me. As you corner, the car seems to glide in the path of the front wheels. This is particularly noticeable on a wet or icy surface. It is impossible to fishtail an FWD car. Fishtailing is caused by the

for Front Drive

THIS IS AN INTENTIONAL EFFORT TO STIMULATE SOME SPIRITED EXCHANGE OF IDEAS. EDITOR

you can do is three wheels. After that, it flips, but one has to work at it to upset Saab.



straight line pushing of the drive wheels. FWD pulls the car in the direction of the drive wheels.

I'll never forget the day I was stopping my VW on what appeared to be dry pavement. All of a sudden, I hit a patch of ice and found myself going in the direction from which I had just come. The only such crisis ever experienced with my Saab was going into an icy corner too late and the understeer phenomenon caused the front wheels to hit the curb.

Actually, FWD cannot be fully appreciated until you drive in snow and ice, particularly if you tend to be lazy

about shoveling your drive. There is a rule around our house that we never shovel until the snow is above the bumper. Last winter was especially tough, so we stretched the rule to midway up the grill. A rule like that can have a secondary effect, too. You will seldom be bothered by company. Uncle Flubber will take one look at that snow-clogged drive, put his Chevy in drive and go home.

For a quick lesson on how it's done for those who will be going through their first winter with FWD, let me first caution you that it is possible to get bogged down in very deep snow, if you

stop. This is especially true if your tires are just plain Pirelli radials instead of snow tires. Before leaving work, it is a good idea to call Mom and have her open the garage door. When you get to the driveway, don't try to go in on an angle, or you'll find yourself off the drive. Rather, line up straight and go.

If the snowplow has been around, be sure you know what's ahead because you'll see nothing but a wall of white when you begin charging through the drift. As a word of caution, don't try backing into the garage. On the return trip, your drive wheels need to get a running start on dry pavement. Although it may not sound like the best treatment for a car, our Saab is none the worse for wear after two winters... nor was our Saab before this. And my blubbery frame has so far escaped a winter heart attack.

For those who rally, FWD can give you the edge over the class competition with equal driving and navigation ability. This was witnessed on a recent rally in which we participated. The route was through a section of southwestern New York's Zoar Valley previously known only to God and the rallymaster. The road was wide enough, but dirty.

The rain of the last three days had made mud of the less stoney sections. Ahead of us were two hunters looking for a spot to run their dogs. Behind us was a VW and a Mustang. The opportunity was right to pass the hunters, so we did. At about 60-65 mph, we crested a hill to see a short downhill stretch, a 90 degree left turn and guard rails keeping us from going over a steep embankment.

Pumping the brake, a quick downshift through the gears to second (free wheeling was locked out, Saab owners), and cramping the wheel to the left got us around the corner, only to be faced with a narrow, wooden bridge and a 90 degree right. Nearing the turn, we could see the 45 degree hill where other cars had sunk down to the hubcaps. So, the only thing to do was to gun it in second.

Without a flinch, we went up, mud splattering out to each side of the front wheels. As we looked into the rear view mirror, we saw the VW making it, although not as easily, and later talks with the Mustang driver revealed that he had to give the hill a second try. That maneuver also helped disprove the theory that FWD cars are hard to steer.

Although I have cited two rather extreme examples of FWD really paying for itself, the same pitch can be used for FWD as we hear about the overkill power of Detroit engines. You may never run into such situations, but it's nice to know you have an advantage when you need it.

When a family crams four kids in a Saab 96 sedan for the pleasure of FWD, it must have something going for it.

WCG

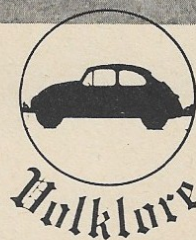
Squarebacking



on Cape Hatteras

by Ronald M. Weiers
Photos by the Author

EXCEPT FOR CARRYING A BOAT, IT'S LIKE
BACKPACKING BUT YOU DO IT WITH A VW



Squarebacking—an activity similar to the camping practice of backpacking—differs from its Scouting counterpart in one important aspect: one can transport many more things in a Squareback than he could ever hope to carry on his person. In addition, the Squareback's 65 horses run to their destination more quickly than even the speediest of backpackers.

As a former Boy Scout who now has a weak back, this writer could think of no better way than Squarebacking to run away from home and spend four wonderful days enjoying the sand and surf of Cape Hatteras, North Carolina.

Accompanied by styrofoam sailboat, English racing bicycle, Coleman lantern, air mattress, sleeping bag, jar of peanut butter, jar of jelly, loaf of bread, many cans of soup and fruit plus dishes, silverware and powdered milk, the Volks and I were on our way.

With the roof-top attachment the sailboat was no burden at all, although during the first 50 miles I was careful to increase cruising speed by small increments to determine if the set-up was sufficiently sturdy. It was, and within

an hour after departure, the sailboat was traveling faster than ever before.

The mast and sail of the 11-foot Sea Snark were exactly the right length for the Squareback. The sail assembly extended from the lower right front passenger's foot rest to the upper left corner of the rear door. As if to remind observers that they were indignant about being squeezed into a Volkswagen, the metal sail supports flexed ever so slightly as the rear door was closed.

While enroute to North Carolina from Pittsburgh, this bumbler of all directions made a wrong turn in the loop surrounding Washington, D.C. and wound up on the main route leading into the city. Wishing to make the best of a sad situation, I decided to stop and have a pizza and root beer for supper.

Except for peanut butter and jelly sandwiches, canned fruit cocktail and apple sauce, this was to be my last meal for a few days. (To a Squarebacker, a meal obviously doesn't have to be very elaborate to qualify as decent.) After referring to the road map and refueling, I resumed my journey.

Somewhere between Washington and Cape Hatteras (all roads look the same to me in North Carolina—straight, flat and beautiful on both sides), the fuel gauge began pointing in the "R" direction. Ordinarily, this would not have been cause for alarm. However, it was after midnight and North Carolinians



Though VW's are known for their floating ability, author's Squareback does it the easy way on a ferry.



Cape Hatteras lighthouse, resembling world's largest barber pole, warns ships of the dangerous shoals of the "graveyard of the Atlantic".

had already rolled up the streets (and, apparently, the gas stations along with them).

With everything closed up tighter than an over-torqued 30 mm nut, it would be a mere 30 to 50 miles (depending on how fast I drove) until the Squareback died of fuel starvation. Oh well, at least I had my bicycle so I could remain mobile if absolutely necessary.

After driving at sub-35 mph speeds for about an hour—during which time the fuel needle slowly sank into the sunset—I came upon an all-night discount gas station with a name I neither recognized nor will ever remember, but to the owners I will always be grateful. Not having seen an open gas station for two hours before and not seeing one for the remaining two hours of night, it was most fortunate that the only one encountered happened to be within the final 10 miles that my fuel tank was able to provide.

Finally, weary but determined to bed down along the Cape, I arrived at a campground called Oregon Inlet. Accommodations were slim, sand was everywhere, and my sleeping quarters at the rear of the car were crammed full of

bicycle, lantern, sailing equipment and a deflated air mattress. After rearranging the sailing gear and other equipment, huffing and puffing into the air mattress, and locking the bicycle to the car's bumper, I settled down to sleep about 3 o'clock in the morning.

Sleeping in the rear of the Squareback was, as usual, fairly comfortable. However, the lack of straight-ahead space necessitates sleeping on a diagonal so as to avoid getting the bends—at least if you're over 5'5" tall. Volkswagen has a neat accessory which makes it possible to have over 7' of sleeping space, and I've got one of them, but somehow I've never found the time to install it.

After sleeping like the long side of a right triangle for 8 hours, I arose to find that most of the other campers had packed up and left. Next to fishermen, campers probably get up earlier than anybody else who makes his home on the outside of a mental institution.

Oregon Inlet is a very sandy beachside campground, and upon looking out the window, I discovered that my Volks, sailboat and English bicycle were in the process of being sandblasted by a fierce Atlantic wind. Later I found that, with such a great quantity of airborne sand attacking my bicycle, the gears began going scrackity-scrack instead of clickity-click. What's worse, English bicycles with gears that go scrackity-scrack are most difficult to pedal. Aside from the pesky sand, Oregon Inlet was a beautiful spot. However, not wishing to endanger the storeroom of sand-free food under the front hood, I chose to leave before preparing breakfast.

Next stop was Buxton campground, at Cape Hatteras itself. Buxton is much less sandy than Oregon Inlet, and this provided an opportunity to ride my bicycle a bit and loosen up my bones and the bike's sand-bound gears. Turning onto a "nature trail" complete with signs and pictures, I rode about a quarter of a mile before descending to a marshy section identified by a huge, opinionated sign announcing "Cottonmouth Country."

This marshy terrain was the home of many an Eastern cottonmouth, very poisonous snakes that would rather not go out of their way either to harm you

or avoid you. They would be watching as you walked by on the trail. Under no circumstances harm them, as you are merely a guest in their home. With darkness approaching, I suddenly decided that I didn't have time to finish the nature trail before dusk and I made a hasty retreat to the road.

From Cape Hatteras proper, the next stop was the free ferry between Hatteras and Ocracoke Island. The ride takes about 40 minutes and is enhanced by the thirty billion seagulls who have found that following free ferry boats is a good way to fill their stomachs. With boats traveling in opposite directions and seagulls following each, the gulls often can be seen switching from one boat to another as the boats pass—a remarkably humanlike characteristic.

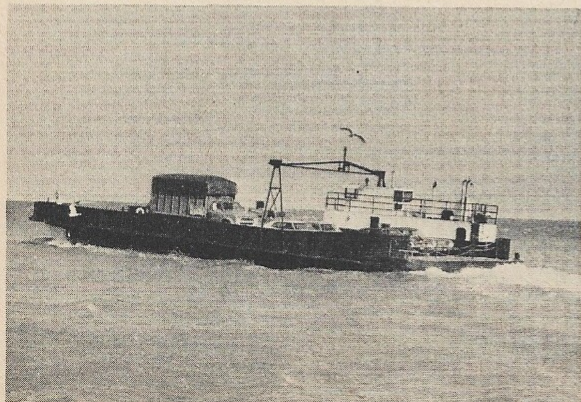
It was at Ocracoke Inlet that the opportunity to sail became most inviting because previous campgrounds had been lacking in terms of calm water in which a person with only two arms could set up a small sailboat without fear of turning the whole works into a styrofoam submarine.

The 40-pound Sea Snark ventured out into the cold Cape Hatteras seas (Pamlico Sound was for sissies) and challenged the "Graveyard of the Atlantic." It didn't take long to find out why this was called the graveyard of the Atlantic—about a mile off shore, the daggerboard ran aground, nearly tipping the boat. It seems that the underwater sand shifts constantly and unpredictably, making it necessary to dredge channels so that even the ferry boats can travel the same route from one day to the next. In addition, the winds are traditionally quite severe on the Cape.

Nevertheless, despite my concern for styrofoam-eating sharks and misgivings about underground reefs, the experience was a lot more worthwhile than sailing in some bath-tub-sized lake patronized by those who are thrilled by 3-inch waves. (I suspect that these are the same people who drive multiple-power-equipped automatic-shift cars and actually believe that they are driving.)

The excitement of sailing in the deep (and unpredictably shallow) blue sea offset being chewed out by an elderly

(Continued on next page)



LEFT: Free ferry of the type which carried author's boat and Squareback to Ocracoke Island. Trailing sea gulls frequently switched boats in mid-stream.

RIGHT: Ocracoke camping site is handy to Pamlico Sound side of Cape, but author chose to tackle the more challenging waters at Atlantic side in 40-pound styrofoam boat.



lady who happened to own the docking area from which I launched my boat. Although she had posted a "no trespassing" sign on the wooden pier leading out to the water, there was no sign on the small section of land near the pier. Therefore, this writer mistakenly thought that the land was public property.

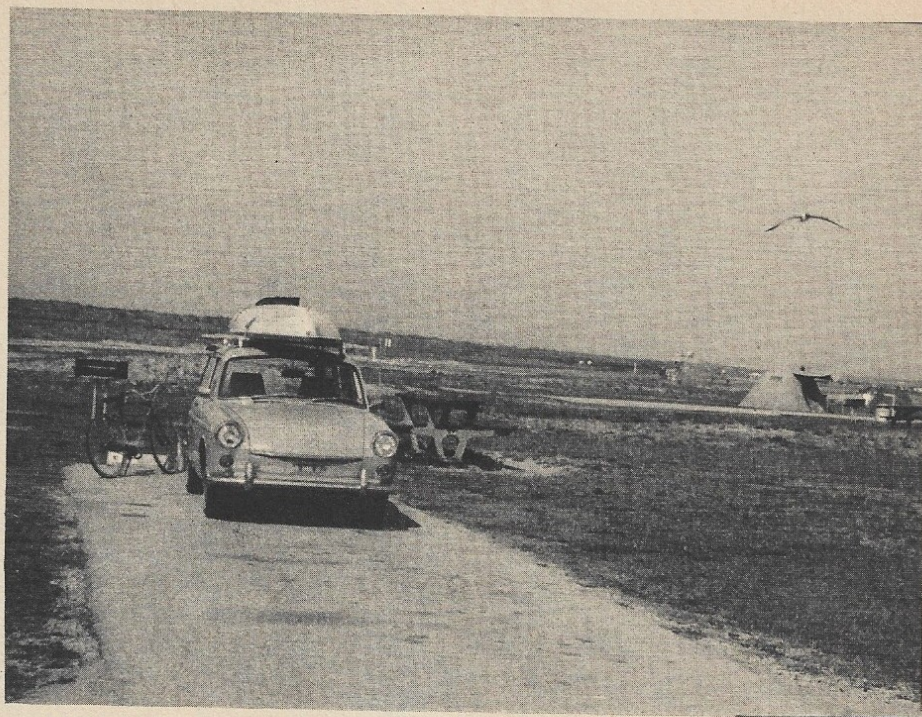
In any event, I managed to soothe her temper, after which she commented on my "Penn State" sweatshirt and expressed her glee that I was "down here having good fun instead of demonstrating someplace." As a father of three who hasn't been in college for seven years, I felt like offering a quarter for the compliment.



Author was given stern lecture by elderly lady for launching boat from concrete abutment near this wooden pier.



Boat remained solidly attached to car throughout journey, bicycle gearing suffered from sand gathered from beach and blown by wind. Fully-packed Squareback looked like mobile rummage sale while enroute.



TOP:

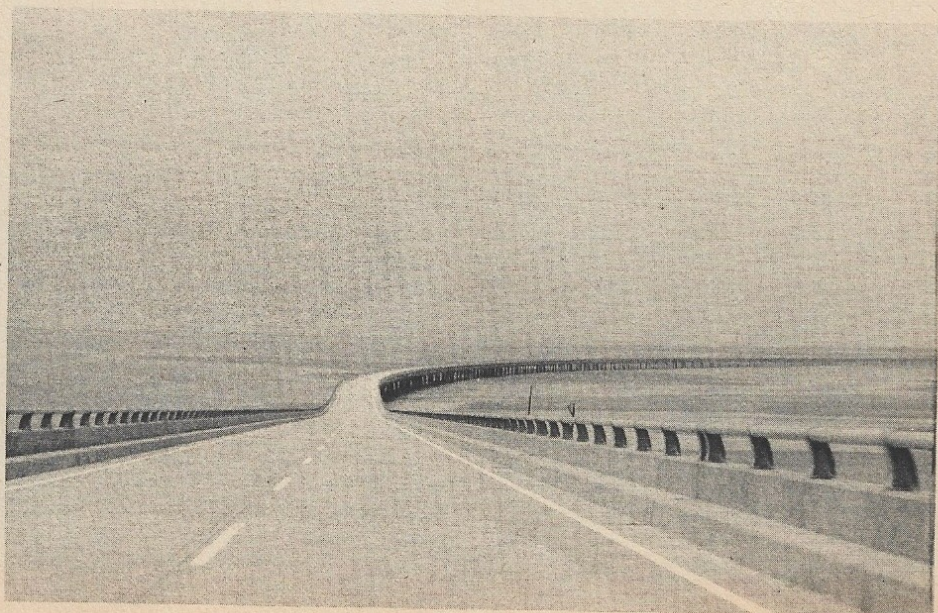
Having subsisted on peanut butter and jelly sandwiches for nearly three days, challenged the graveyard of the Atlantic with a 40-pound styrofoam sailboat, and fearing for the welfare of my wife and kids (I had taken the Right Guard with me), I decided it was time to take leave. The trip had been fun, the Squareback had been comfortable and economical (26 miles per gallon, with boat), and I had gained a deep (no pun intended) respect for the "Graveyard of the Atlantic."

WCG

Squarebacking at the Cape Hatteras Buxton campground provided grand opportunity to bicycle-tour area, sleep in air-mattress comfort, and enjoy peanut butter and jelly sandwiches with nary a care in the world.

BOTTOM:

Road home was taken with great regrets. Cape Hatteras is a beautiful place to visit as well as an inviting place to live.





VWCA NEWSLETTER

Compiled by Carole Kepes

The VWCA, P.O. Box 963, Plainfield, N.J., 07061 is a non-profit organization dedicated to helping the VW owner enjoy his car to the fullest. For more information send 25 cents for postage and handling to the above address. Annual dues \$7.00 plus \$5.00 initiation fee first year. Dues include subscription to this magazine, WORLD CAR GUIDE.



THE 15TH ANNUAL VOLKSWAGEN CLUB OF AMERICA CONVENTION

Over the last decade and a half, the VWCA has grown and prospered mainly through the devotion and confidence of yourselves, the general membership of the club. It is by your attendance at such activities as this convention, that the enthusiasm and camaraderie of VWCA is nurtured and preserved for future generations of VW owners.

*Frank Caruso,
Chairman,*

15th Annual VWCA Convention

The VW Club of North Jersey, hosts for this year's convention, tried to provide VWCA members from throughout the U.S. and Canada with a convention fitting of their devotion and confidence.

A major problem with the hotel management and service detracted from the overall smoothness of the event; however, we must remember that this should not reflect upon the VW Club of North Jersey. The club should be commended on the plans and offerings they made toward a very good convention.

Many free items and reduced admissions were provided to conventioners from establishments along the Atlantic City Boardwalk. Emergency VW service was arranged at Specialty Motors in West Atlantic City for anyone needing service.

Friday evening all interested were provided with a free sightseeing boat ride with beer, soda and pretzels. We all felt as though we were riding the "high seas." The weather was a little rough and cold, but everyone had fun.

All hale and hardy members were up for the free bicycling on the Boardwalk Saturday morning between 6 and 9. The less than hardy (or those who got to bed a little later than usual) managed to make it up around 9:00 a.m. to either take the free tour to the historic town of Smithville or to attend the business meeting.

This year's business meeting was quite important. The announcement was made of the results of the election for officers for the next two years.

New Officers

Attending were the new president-elect, Max Goldstein, and VP-elect, W.H. McElroy, from the winning slate submitted by the Dogwood City Club of Atlanta. It was an extremely close election, as the Badger Beetles slate from Milwaukee lost by only four votes. John Eberle was elected national trustee.

Special Events

Saturday afternoon the automotive events were held. Winners in the Concours were Ed Kline, Clint McGraw, Dallas Schumacher, Doug Guernsey and Ray Schiff in that order.

Trophies for the Most Improved Contest were donated by WORLD CAR GUIDE. First place sedans and Ghias was taken by Bill D'Arcy; first place in the bus class by Jack Freeman; and first place for 1,500-1,600's Clint McGraw.

The evening banquet of prime rib was preceded by cocktails and friendly chatter. Awards were presented at the banquet. For the VWCA Best Local Paper and Editor awards, first place went to St. Louis, E. Lindsay, editor. Second place was presented to the Miami Valley (Dayton) club, P. and R. Spaulding, editors.

Special awards were presented to Fred Uzzel, Walter Kuntze, Vera and Cam Morrison, Carole Kepes, Betty Brown, Bill Percival and Harry Ray-

mond for contributions made to the club.

Two new charters were presented, one to Capitol Area VW Club of Washington, D.C. and the other to the VW Club of San Bernardino, California.

National Rally Awards were presented to the top ten drivers and navigators in the point standings for sanctioned events. The top three navigators were Sharon Patton, Shirley Wells, and Pat Spaulding. Top three drivers were Glen Wells, Dick Spaulding and J. Patton.

The Wolfsburg Trophy, awarded to the most active local club, was presented for the second year in a row to the Badger Beetles of Milwaukee. Second place, with only one point difference, was the Miami Valley Club of Dayton.

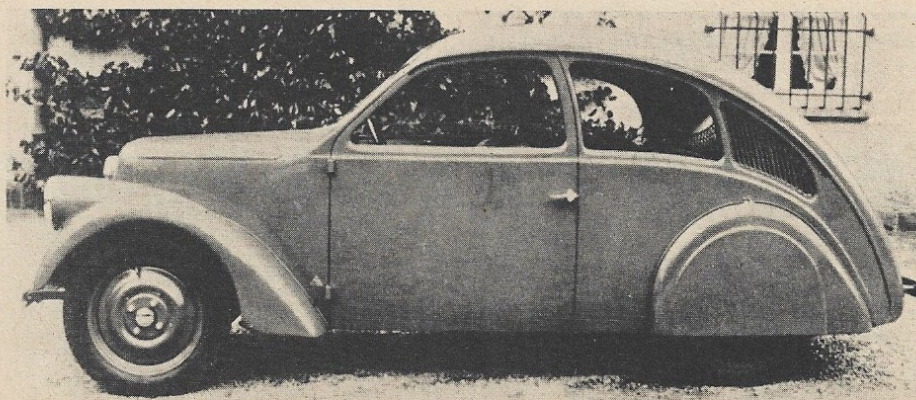
The Woodbury Dunn Trophy, presented to the club with the safest driving record, went to the Iowa Region, VWCA, of Des Moines.

After all the awards were presented at the banquet program, dancing was provided by Paul Mann and his orchestra, the official "Miss America" band.

Sunday morning brought about the "Monopoly Rally" and gymkhana for which awards were given out at the luncheon, then on towards home to plan for the next convention in Atlanta, Georgia.

Our thanks to the North Jersey club for sponsoring the 15th Annual VWCA convention in Atlantic City.

No doubt about it, VWs have come a long way since the late Dr. Porsche designed this prototype in 1932. Built by Zundapp, this early beetle was powered by a rear mounted 5-cylinder radial engine. (Volkswagen Werke photo)



Babow on Car Clubs

Belonging to several automobile clubs and having helped to start others, I have been asked many times what makes a good club. This question is asked in two broad areas. First, how do you start a club and keep it going? Secondly, how do you make an established club better?

I'll start with the formation of a new club, touching on areas that can become problems later on. There's a company in the San Francisco area which uses as a slogan "find a need and fill it." Using this as a basis for a new club is not a bad idea. You must have a need for a club and you must have other people who will join.

It's a great idea to start a Gasmobile Owners Club for example. There's a need for one because there isn't one anywhere in the world. The only trouble is that you may have trouble getting members. The Gasmobile was produced at the turn of the century in small numbers.

A small enthusiastic group of people is what is needed to start a club. Growth Potential is an important prerequisite at this stage. The formal requirements of the club should be accomplished by this small group. The by-laws of the club should be drawn up, using as a guide other club by-laws modified to the new purpose. Well drawn by-laws will insure a solid foundation for a good club and will prevent discussions and arguments that will tear a club apart.

Nothing is more devastating in a club than long discussions on procedure that should be explicit in the by-laws. New and old members as well as prospective members lose interest very quickly in these discussions. Most members join a club to give a little and get a lot. Through cooperation, this goal can be obtained. The by-laws should include (1) name and purpose, (2) members, (3) meetings, (4) officers, (5) committees, (6) amendments.

The name and purpose spells out what the club is. Members should include procedure for becoming members (active, associate, honorary) as well as the dues, structure and fiscal year basis.

Voting rights and expulsion should also be covered. Meetings are a requirement. At least one annual meeting is required, but regular meetings should be provided for as well as special meetings along with procedure for calling a special meeting.

Provision for notice of meeting should be mentioned. Requirement for a quorum should include a percentage of paid membership rather than an actual number. If a large membership is anticipated, then the wording may read at least thirty paid members or 30 percent of the paid membership, whichever is less. The officer and director section should include definition and type, number, method of nomination and election, eligibility and replacement during term.

It's a good idea to have at least one member of the previous directors on the new board. Committees should include those necessary for successful operation like activity, publication, nomination, etc. Amendment procedures should be explicit and provide for thirty days between presentation and voting.

It should, therefore, be apparent that the by-laws are the foundation upon which a successful club is formed. The wording should be simple but factual and meaningful. One slip on a word can change a meaning. A small group can accomplish this, knowing that done correctly the by-laws can be put away and the fun and true purpose of the club can be attained.

The next important step is incorporation. If for no other reason than limited liability, an automobile club should be incorporated. In California the cost runs about \$20. The club should be set up as a non-profit organization at this time. Both aims are accomplished at the same time. Full information can be obtained from your secretary of state. You can borrow the articles of incorporation from another club and, with minor modifications, change them to suit your needs. If there is an attorney in your group, have him look over the final papers.

Now with the basic steps covered, the club should be open for charter

membership and regular membership. I stated earlier an important credo: a good member should give a little and get a lot. The first order of business is to let people know you have a club. Letters and phone calls are a good start. An article in a related magazine or newspaper is helpful. Participation in a local parade or civic function is great.

The first business meeting is important as it will set the mood for the club. Election of officers is first on the agenda. Next should be the club newspaper, then activities committee. An early social function helps get things off the ground. This can be a "do-it-yourself" picnic or get together at a home. As this is to be an enjoyable affair, you should expect many lasting friendships to develop.

Remember, you start off with similar interests. It will be amazing the associate interests which will be similar. To name a few: mechanics, photography, antique collecting, collecting of almost anything, bridge and many others.

Future activities should include joint events with other clubs (not only automotive), tours to local places of interest, weekend jaunts on backroads, campouts, swap meets, auto shows and the myriad of competitive events. At the meeting, get movies, speakers, slides, etc. to make the meeting more of a social event.

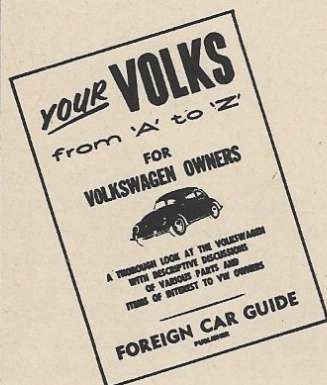
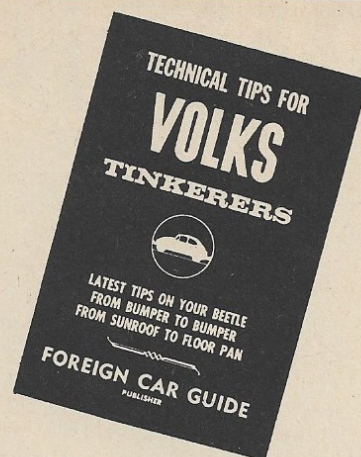
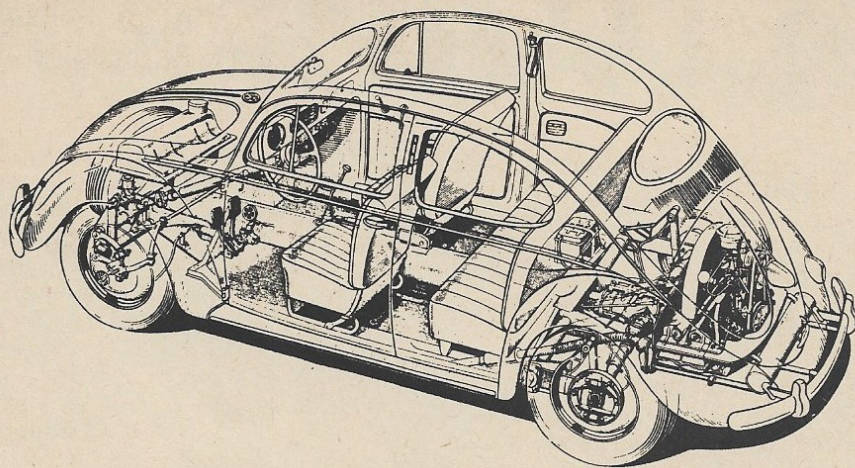
I feel in a social type club, the majority of the business should take place at the board of directors level and the regular members meeting should be a time for summation and announcements. This is not meant to imply that a member cannot express himself under new business or old business at a meeting.

Communication and involvement will really get a club moving. Sitting around and talking about what's wrong won't work. Anyone can be the greatest critic in the world. To get out and do the job is important. Even if a mistake is made, learn from the mistake. An honest smile will help too! By the way, smiles are contagious and car clubs thrive on smiles and that means fun.

by Gene Babow

A one-make club appears in force at a concours — The Morgan Plus 4 Club in this case.





VW FACTS INFORMATION INSTRUCTION VW

contents

Let's Take a Look the Beginning	2
History of VW	
It's All in the Running Gear	10
Body, Chassis, Suspension	
It's the Steering that Counts on the Corners	18
Facts on Steering	
When It's Time to Stop Look for the Brakes	24
VW Hydraulic Brakes	
The Engine Provides Power and Economy	30
About the Engine	
The Fuel System and Carburetor	38
VW Carb and Fuel System	
A Little Lube and a Lot of Fire	46
Lubrication and Electrical	
A Look at Gear Boxes and Shafts	52
VW Drive Train	
When Things Go Wrong	58
Trouble-Shooting in VW	
Build This Simple Tach.	63
Easy-to-build Tachometer	

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contents

A Look At Your Plugs	2
Choosing the right plug	
What To Do In The Clutch	6
Cure for Hard Winter Starting	
1300 vs 1600 VW	12
Guide to the VW 1600	
Blowing Your Own Horn	18
Sounds for Safety	
Auxiliary Lights	24
Typical Installation Hints	
Dolling Up The Dashboard	30
Appearance and functional Improvements	
VW Trailer	36
Compact Carryall	
Supercharge Your Beetle	44
Living with a Blower	
\$50 Engine Analyzer Kit	50
Home Motor Tuning	
Converting VW Windshield Washers	54
Installing a Bulb Pump System	
Put A Radio In Your Beetle	56
Music for the VW	

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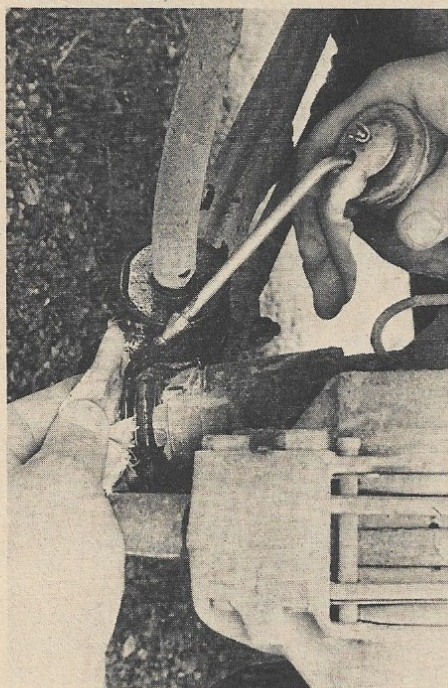
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RUBBER PARTS -



by David N. Wenner

LEFT:

Every time you have the occasion to work under your car, take time to clean and lubricate rubber suspension parts. Helps car last longer, handle better.

Some weird old graybeard once characterized women as nothing more than a rag, a bone, and a hank of hair. But car owners who think that their vehicles are mostly glass, metal and a coat of paint haven't looked at them any closer than the aforesaid scribe did at girls.

Even when we exclude the automobile's all-important tires, rubber must still be recognized as one of the most vital substances that goes into its manufacture. It fact, between 50 and 150 pounds of rubber can be found in every car that you see cruising down the highway.

While one of the captains of the American automobile industry once stated that the only difference between a new car and a worn-out junker was about six ounces of metal, it seems surprising that he forgot to mention the

effects of deteriorating rubber parts. Actually, a great many of the defects typical of the "older" car are directly attributable to the wear and aging of its many rubber parts. Rattles, wind whistles, noisy suspension, sloppy shift action, sagging upholstery, loose steering, erratic handling, water leaks, clutch chatter, overheating, and electrical shorts may all be traced to worn, damaged, or disintegrating rubber. Your car's demise can be considerably delayed by merely giving proper care and maintenance to its various rubber parts.

That New Car Smell

When you stop to think about it, good rubber seems to be something that most people instinctively sense as desirable in a new car. Take, for example, the common used-car-lot practice of painting the tires, radiator hoses, and trunk mat with tire-blackening compound. Shrewd dealers wouldn't take the time to do it if they weren't sure that it

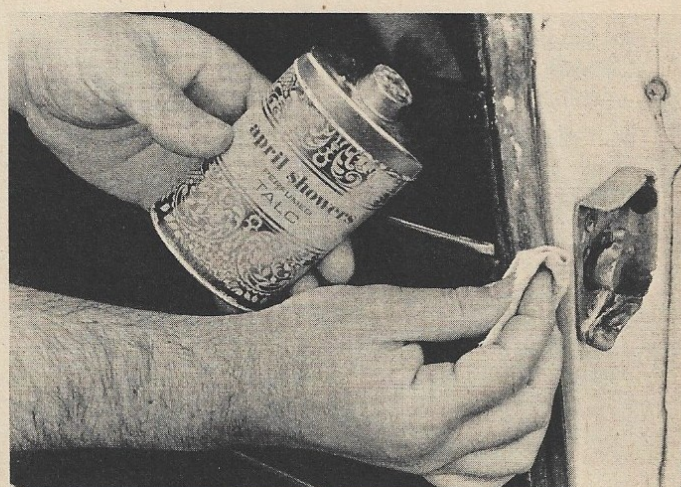
would help to sell the car. Then too, there's that elusive "new car smell" that everyone is so fond of—and which the dealer sometimes supplies on cue from a handy spray can.

In a genuinely new car, this customer-grabbing aroma emanates largely from the solvents and other materials used in different rubber compounds to retard their aging and to give them characteristics that match their particular job. Just as a great many different kinds of metal are necessary for making solid automotive hardware, different types of synthetic and natural rubber compounds are needed to make its soft and resilient parts.

Natural rubbers, for instance, have the best resistance to chipping, cutting and crack growth. Butyl (a compounded synthetic rubber) has the lowest permeability to gasses, while nitrile rubbers will show the least swelling in oils and fuel. Many car interior parts are formed



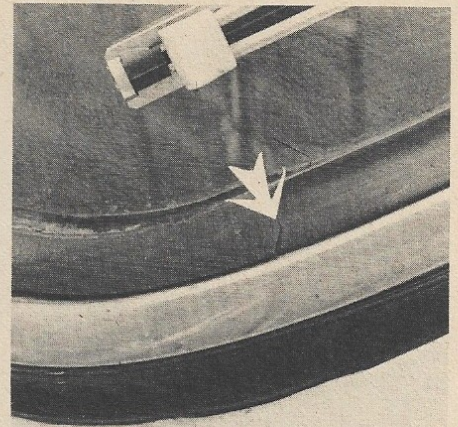
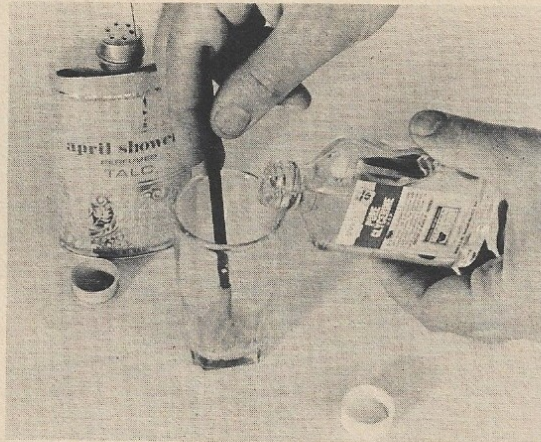
Some handy every-day items for taking care of your car's rubber bits include glycerine, talc, brake fluid, silicone lube, belt dressing and plastic rubber.



LEFT: Rubber parts that have acquired a coat of dirt and dead rubber can be cleaned with brake fluid, but be careful not to get any on the car's finish. RIGHT: Talcum powder is the best substance for treating rubber for a long life. Dust it onto door gaskets frequently to keep them from sticking, tearing, or hardening.

Their Care and Repair

**WORLD CAR GUIDE
WORKSHOP**



LEFT: Talcum powder will not remain on the outside parts of a car very long due to rain and washing. Make it into a paste instead by adding a bit of glycerine. RIGHT: Cracks and joints separations may begin to affect the gaskets around windshield. These can spread and allow the interior of the rubber to decompose if ignored.

from acrylate rubbers (mostly polyethyl acrylate in composition) which have the greatest resistance to dry heat and sunlight damage.

Around the engine and transmission, neoprene is widely used because it is little affected by fuel and ozone. In addition, various organic amino compounds are injected into many rubber mixes to help them resist aging. The "molecule by molecule" departure of these chemical substances, coating materials, solvents, and vulcanizing compounds from the rubber parts of your car are what constitute the bulk of that "new car smell."

When the smell is finally gone, you can bet that most of the car's rubber parts have arrived at a state which will not permit them to remain in continued service without serious wear and deterioration taking place. Therefore, the key to proper rubber care is to (A) slow the loss of life-giving compounds from

the rubber parts and (B) do whatever you can to augment the protection against wear and aging that their presence gives to the rubber.

Enemies of Rubber

Heat, oil, ozone, sunlight, and flexing at extremely low temperatures are the chief enemies of rubber. By keeping the exterior of rubber parts in good condition, a two-way barrier is formed between many of these agents and the rubber's interior. Lubrication, to help limit any mechanical strain placed on rubber components, also greatly extends the service life of those parts subject to movement, impact, and vibration.

Once cracks begin to form, or once the material has become spongy, the ravages of climate, foreign agents, and air pollution are free to begin attacking the vital core of the rubber part. Foam rubber upholstery can be preserved only by avoiding outdoor exposure to sun-

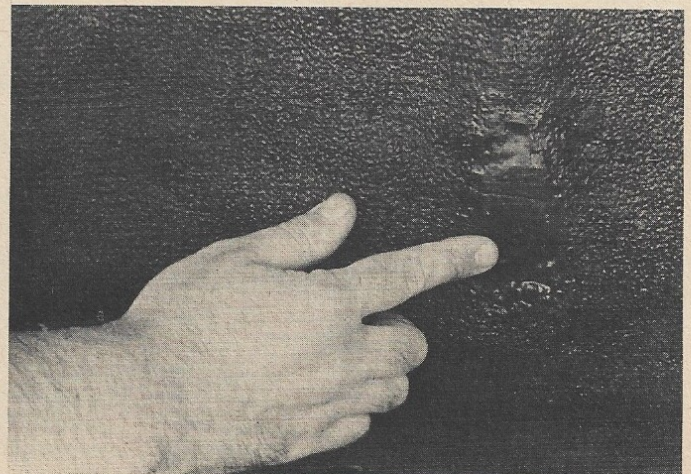
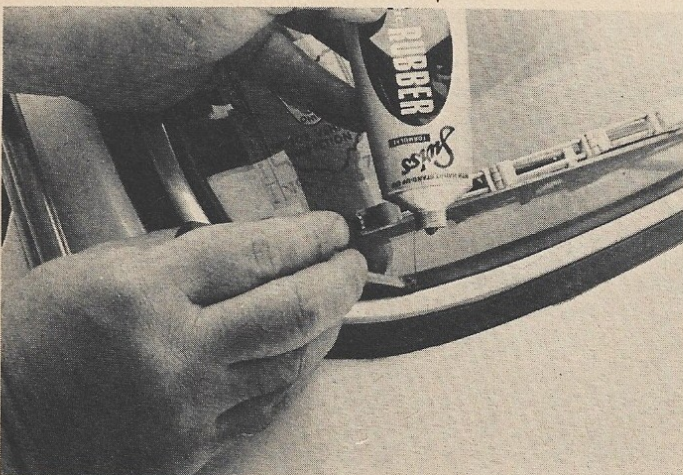
light and excessive heat. Outdoor parking bodes ill for all automotive rubber.

It is indeed unfortunate that good preparations for the care and maintenance of rubber parts are not widely available. One might think that some big additive company could mint a heap of green by marketing a product of this kind. Yet, it's likely that any attempt along those lines would turn out to be a monumental flop. Why? Because the vast majority of car owners would never take time to apply it. By its very nature, rubber care is a type of preventive maintenance. The average American motorist buys "stuff in cans" only when it's able to correct damage that has already been done by earlier neglect.

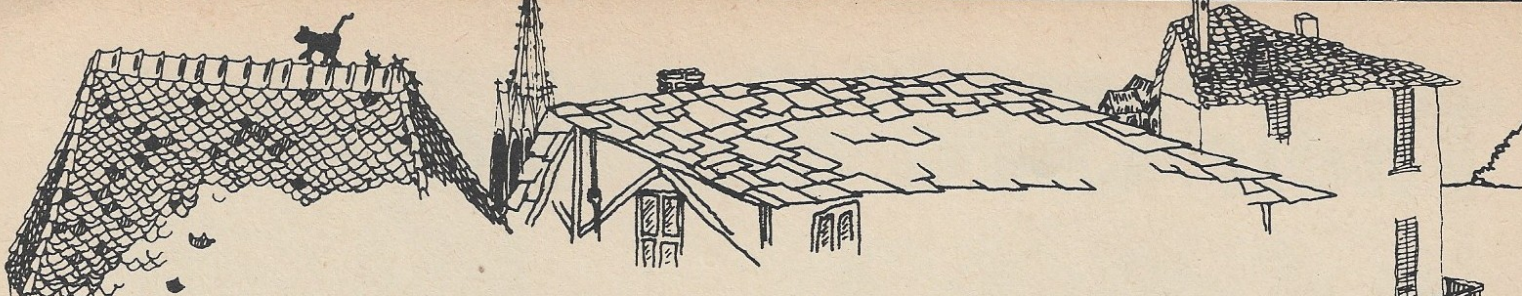
Handy Remedies

Any lesson in rubber care must, therefore, start with a course in medicine chest chemistry. Ordinary talcum powder works very well to preserve and

(Continued on next page)



LEFT: Liquid rubber can be worked into cracks and spread over cracked areas. Some plastic rubber compounds can be thinned so they can be painted on. RIGHT: Large areas can also be repaired permanently with liquid rubber. This worn-through spot in a trunk mat was fixed by applying liquid rubber over a cloth patch.



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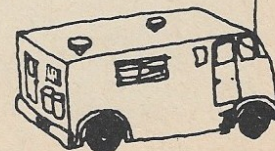
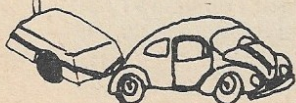
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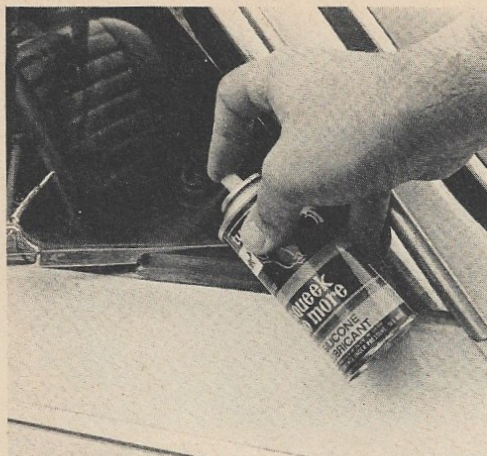
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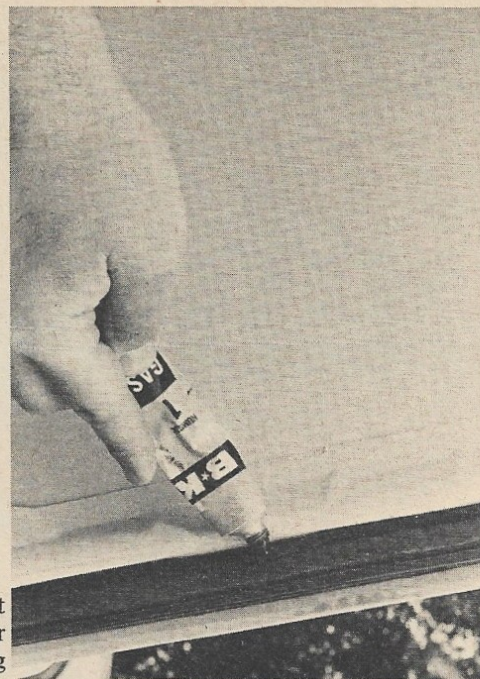
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LEFT: When rubber strips around trunk lids or doors loosen from the metal, glue them back with trim cement. Otherwise they will be damaged by opening and closing.

RIGHT: Glycerine is a good lubricant at points where metal parts move against rubber, but the new silicone lubricants are better. Use in rubber window guides too.



protect the rubber gaskets around doors and trunk lids. Periodically dusting these parts with talc will keep them from sticking and tearing, thereby maintaining a smooth exterior as protection for the porous rubber inside.

Talc can also be rubbed into other rubber parts such as window gaskets. Trouble is, the first rain or wash job will take it right off again. The solution is to go back to the medicine chest for a bottle of glycerine. Despite its oily feel glycerine will not harm rubber (all mineral oils definitely will). Glycerine is actually a fairly good non-staining lubricant by itself for application to squeaky rubber parts like glove box door pads. Mix your talcum into a thick solution with a small amount of glycerine and you'll be able to apply it neatly to the car's rubber parts without creating a dusty mess or having it washed away by the first rain storm.

Rubber parts must also be kept clean. Dirt eventually breaks down the adhesive qualities of rubber parts and initiates surface cracking and discoloration. Keeping the parts clean is exceptionally important on suspension pads and bushings, engine and transmission mounts, and brake cylinder or tie rod end boots. Grease and oil must always be cleaned from rubber immediately. But even window gaskets and interior parts should be cleaned thoroughly before renewing their coating of talcum powder.

Ordinary hydraulic brake fluid is the best agent for scrubbing rubber parts. A clean pump-type oil can is the handiest tool for applying the fluid, and an old toothbrush or an ordinary rag can be used to do the scrubbing. Brake fluid should also be used to lubricate rubber suspension parts that cannot easily be removed for lubrication by other means.

What other means are available? Powdered graphite for one. The rear suspension bushings on VWs and the compliance bushings on the front ends of most cars with strut-type suspensions are

spots where graphite is a must—at least during the installation of new rubber parts or when the suspension is being repaired or adjusted. (See "Decambering The Volkswagen," **WORLD CAR GUIDE**, March, 1970.) Powdered graphite can also be applied to the cable openings in handbrake and steering column boots, or to any other point where rubber is in moving contact with metal.

In the Engine Compartment

Spray-on silicone preparations are also useful on rubber. Binding side windows in pillar-less hardtops can usually be cured by an application of silicone lube. Check the can to see if the product is safe for use on rubber. Those that are so-recommended make excellent lubricants for rubber parts that could soil clothing if coated with graphite.

The life of radiator hoses and fan belts is also important. Hoses are easily damaged by oil vapor. Keep them clean, and avoid water pump lubricants containing soluble oils. The use of a belt dressing compound is particularly advisable on belts that drive generators or alternators and accessory pumps for power steering or air conditioning.

Cracks in Rubber

If the rubber on your car has already started to crack, soften, or loosen from its place, all is not lost. The first step in the battle against rubber disintegration is to restore its protective exterior. Used car dealers usually apply tire black, but this is more cosmetic than protective. A coat of liquid (neoprene) rubber, which is available in both black and white types, will bring about a permanent repair.

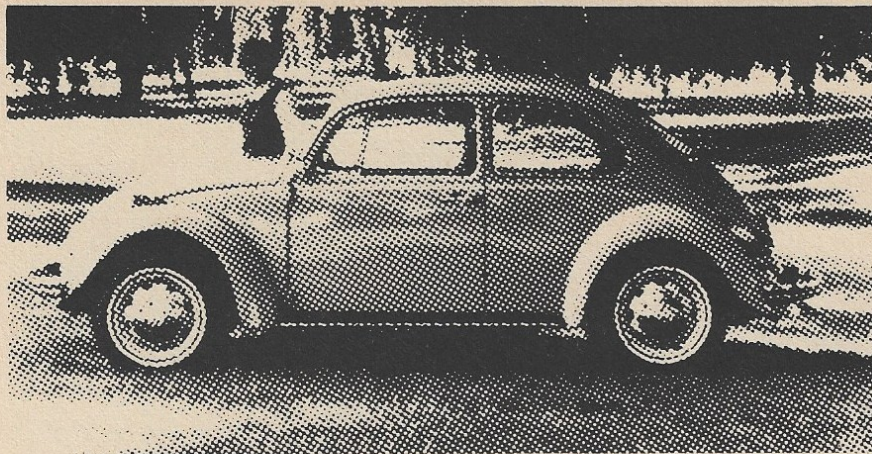
Some liquid rubber compounds can be thinned with solvents (see directions on tube) so that they may be painted on. This material produces a first-rate repair on cracking window gaskets, torn trunk or floor mats, broken rubber parts, and the weathered ends of suspen-

sion stops, bushings, and engine mounts.

Rubber window gaskets that have separated from the car's body or from the glass can be held in place with trim cement. Trim cement also should be used to join metal strips to rubber gaskets and to keep loose rubber grommets in place in metal openings. Trim cement or liquid rubber, when applied over a wrapping of electrical tape, will permanently repair cracked or abraded electrical insulation.

The car owner who treats his machine's shock absorber bushings to a periodic bath in brake fluid, dusts the door gaskets with talc, and keeps all rubber parts clean and coated with lubricant or preservative will never become the driver of a "rattle trap." Repairing or replacing rubber parts that have started to go bad is a further guarantee of a long and useful partnership between you and your car. What's more, those little applications of liquid rubber can even do their part to maintain that "new car smell." **WCG**

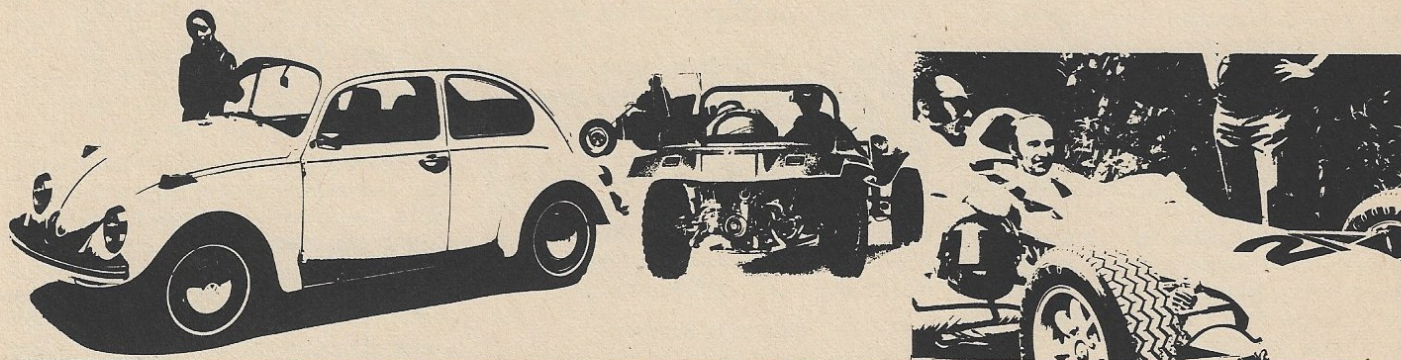
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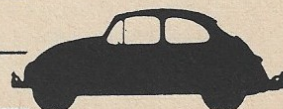
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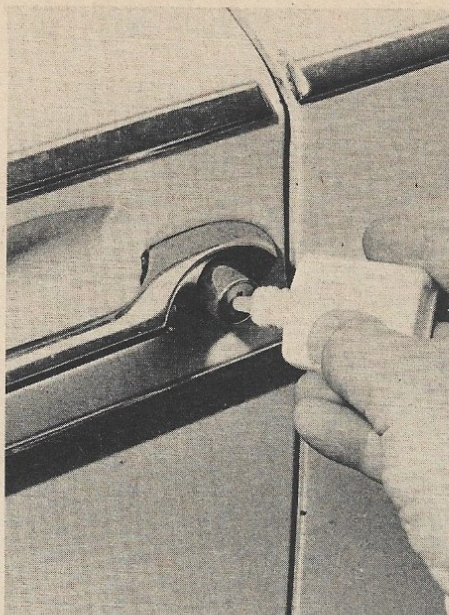
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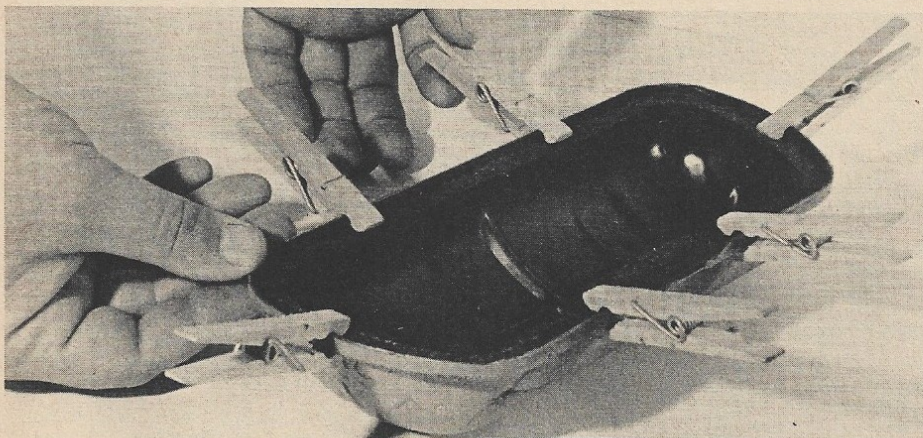
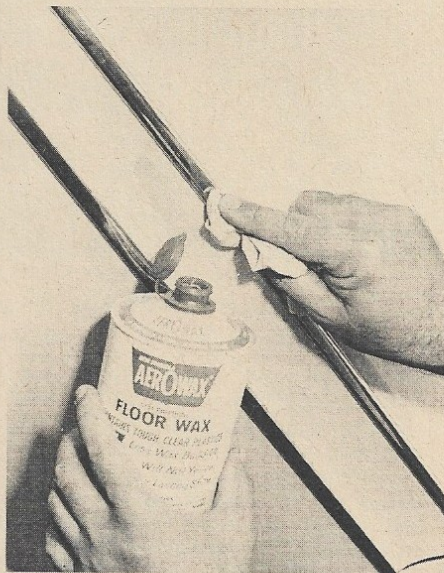


**LET DAVE DO IT
LET DAVE DO IT
LET DAVE DO IT**



FROZEN OUT of your car when winter comes? It happens constantly to people who have to leave their vehicles parked outside in cold weather. All you have to do to spare yourself this misery is to salvage a small plastic squeeze bottle and fill it with windshield washer anti-freeze. Keep it with you in your office desk lunch pail, or at home in an overcoat pocket. When you discover that sleet has frozen the lock cylinder tight, a shot from the bottle will get the ice out quick. Graphite-type lock lubes help too.

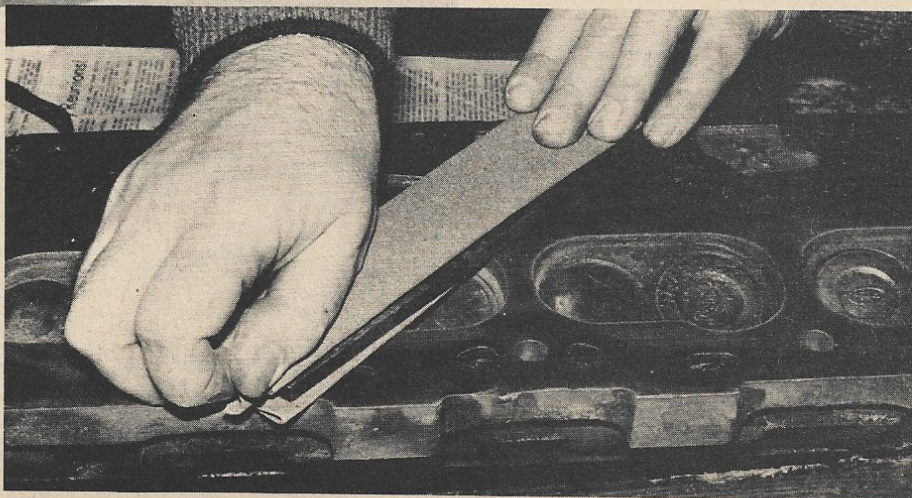
WINTER'S RAVAGES strike first at your car's shiny chrome—especially if highway authorities in your area have a brother-in-law who owns a salt mine. To keep corrosive slush and abrasive anti-skid preparations from doing dastardly deeds to the brightwork of your automobile, try a coating of floor wax. It's much tougher than ordinary car wax, and can be cleaned off when spring comes to reveal the bright trim in all its original glory. Keeps chipped spots from rusting too.



CREEPY GASKETS can be glued into place on rocker arm covers with ease if you scrounge a half dozen of your wife's spring-type clothes pins. These will hold the gasket material in position until the cement has had an opportunity to dry. Be careful not to get grease or glue on the borrowed equipment though, or you might end up shelling out for a clothes dryer and a new wardrobe!

(Continued on Page 40)

MODERN HEAD GASKETS—particularly those of the "shim" variety—have a very low tolerance to nicks and grooves in the head or block surfaces. The practice of cleaning carbon and old sealer off the cylinder head with a scraper or a wire brush may leave scratches that will later cause coolant leaks or possibly a blown head gasket. To clean 'em safely and leave a sheen, take a stiff, flat piece of steel and wrap it with extra-fine grit emery cloth. Scrub away the crud that solvent won't remove with light strokes of this tool. A "must" for avoiding damage to aluminum heads.



AUTOMATIC BOTTOM BOUNCES

WITH A Wiggle

The Birmingham Mail

A bouncing, vibrating bottom has been developed to test car seats.

The mechanical bottom, which cost thousands of pounds and took ten years to develop, is the answer to a problem which puzzled technologists at a car seat manufacturer.

By Brian Groves

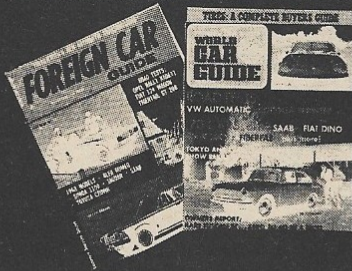
The technologists need someone who could bounce up and down 100,000 times vibrating his posterior at a special frequency.

But, as Mr. Vincent Dennison, tech-

nical director of Intalok, of Nuneaton, Warwickshire, said yesterday: "I doubt very much whether such a person exists."

The mechanical bottom can bounce 24 hours a day.

The firm makes about 2,500,000 car seats for all but one of the big British



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SEPT. 1966—Aztec body on VW Chassis * Amphicar Test * Sand Flea VW * Opel GT Test * Build this Power Timing Light * Horn Repair.

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NOV. 1966—Foreign Car Junk Yard List * Buy Used Parts Right * Saab Comparison * Volvo Factory * 1967 VWs * BMW 2000 Test * Amateur's Oscilloscope Part 1.

DEC. 1966—VWCA Convention * Renault 10 Test * 65 Horses for Bus or Beetle * Rootes Scotland Factory * Wire Splicing * 4-Way Flashers * Oscilloscope Part 2.

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manufacturers each year.

Their scientists wanted a mechanical bottom that would simulate road conditions in a motor car—including the car's suspension, frequency oscillation, road bumps and so on.

Mr. Dennison said: "We have tried to incorporate all these things into a special rig and we believe it will give us all the readings necessary to make more comfortable seats."

(Courtesy *High Gear*, British Leyland Motors, Inc.)

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JULY 1969—Make a Battery-Powered Test Light * Two Quickies for VW Tinkerers * Formula A—Fast Racing on a Budget * Road Tests of Subaru 1100 ff-1, Sunbeam's Anglo-American Arrow, Rambler, Hot Ford Rally Capri, BMW 2500 Six, Morgan Plus 8 and Rover 3500 V-8.

AUG. 1969—How to Test Lights and Wiring * Testing and Repairing VW Fuel Injection System * Profile of a Thoroughbred—the Aston-Martin Mark II * GM's Latest XXXperimentals * San Francisco to Chile in a Beetle * Reports on the Ruger/Sports Tourer, Citroen Ami 8 and Honda 1300.

Golfer Billy Casper, according to Sports Editor Shirley Povich of the Washington, D.C., POST, "has his caddy on a retainer reported to be \$12,000 a year, with bonuses according to his winnings..." Povich quoted another golfer, putting master George Lowe, as saying: "What a help that kid is..." Casper never has to wonder where his clubs or golfing gear are. His caddy has them in a Volkswagen van he drives from tournament to tournament...

Meets Billy at the airports, in the locker room, on the practice tee, the first tee, wherever he is needed. He also has the course and the pin-placements studied."

* * *

According to the Cocoa, Fla., TODAY, "All major U.S. auto makers plan small cars to compete with Volkswagen. Now the second year, men, we'll make it eight inches longer and five inches wider, and the year after that..."

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JULY 1970—New York Auto Show, nine page report. New Dream Cars from England and Detroit. Road Test, a comprehensive report on the Fiat 124 wagon. Motorsport at Laguna Seca and Sears Point. WCG visits new Cord factory. New Monteverdi GT from Switzerland * VW-based Puma from Brazil.

AUGUST 1970—Road Tests of fuel-injected Saab 99E, Audi Super 90 with new more comprehensive evaluation of 100 LS, Austin America with stick. First of new Car Club columns. First look at new Triumph Stag V8, Sunbeam Avenger. WCG Workshop features—Ignition System, Quick Repairs by Dave. Motorsport at Lime Rock and new IMSA sports club for everyone.

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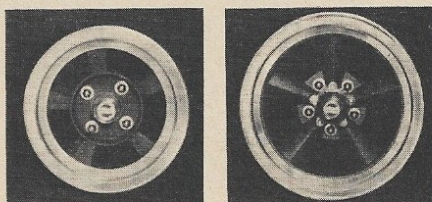
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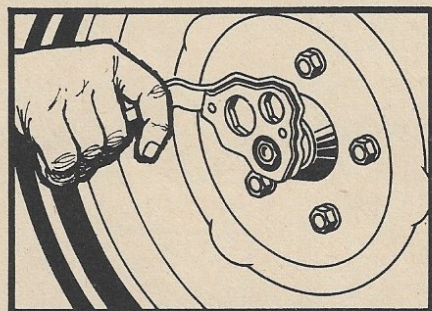
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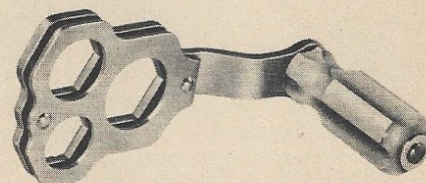


comes complete with chrome dust cover, lugs and washers. For information on this and other 'Silver Streak' Wheels contact: PACER Performance Products, Inc., Dept. WCG, 5345 San Fernando Rd. West, Los Angeles, Calif. 90039.



NEW SPEED WRENCH for front wheel spindle nut offered by K-D Tool. A "3-in-1" speed wrench designed to remove and install front wheel spindle nuts is now being offered by K-D Manufacturing Company. Manufactured with good balance for removing and adjusting front axle nuts, this new tool is a big time saver when inspecting brake linings or doing other repair or replacement work. A special recessed area in the tool holds axle nuts for immediate installation. One wrench does it all. The new tool is designed for speed and durability and fits 15/16", 1-1/16" and 1-1/4" front axle nuts—the three most

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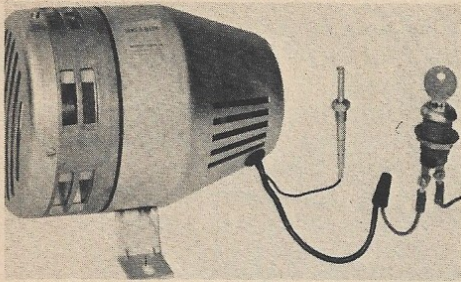
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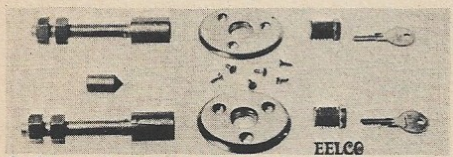
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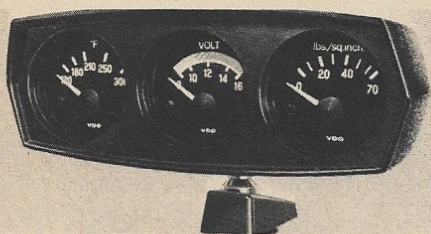
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MINI COCKPIT: A popular item at VDO Instruments in Detroit is an instrument cluster called Cockpit. Now the firm has come up with a smaller gauge combination, Mini Cockpit, only 6 inches long. Built into the black wrinkle-finish package are a temperature gauge, a voltmeter, and an oil pressure gauge. The temp gauge reads either oil or water temps up to 300 degree F. The voltmeter provides a constant battery check, reading from 0 to 16 volts DC. The oil pressure gauge shows in ranges to 70 or 150 pounds per square inch. There is internal lighting and only one mounting point, so the Mini Cockpit will fit on top or under the dash, or just about anywhere else; the unit is adaptable to all cars, and carries the usual



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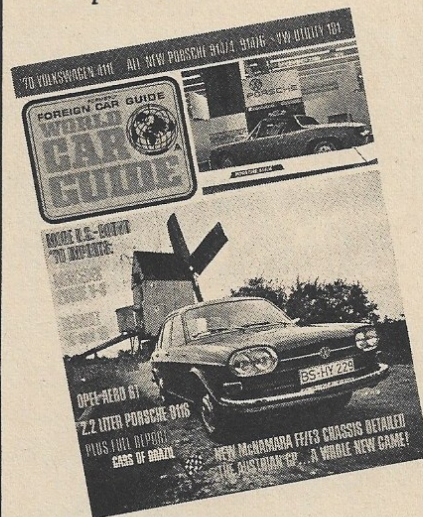
MINIATURE FORD GT40, built by Ford of France, will be marketed in limited quantities by Auto Hobby House in Scranton, Pennsylvania. Powered by a Snow Mobile engine and technically sound with rack and pinion steering, four wheel brakes, a bucket seat and a fiberglass body,



the car is an accurate three-fifths scale working model. Bright with Gulf Oil racing colors and aimed at the 12 to 15 age market, the performance remains a mystery. At a price of \$2,500 it would seem to be just the thing for a boy who has everything. Terry Thompson of Team Auto World poses with the little GT40. Good for kids from 8 to 80.

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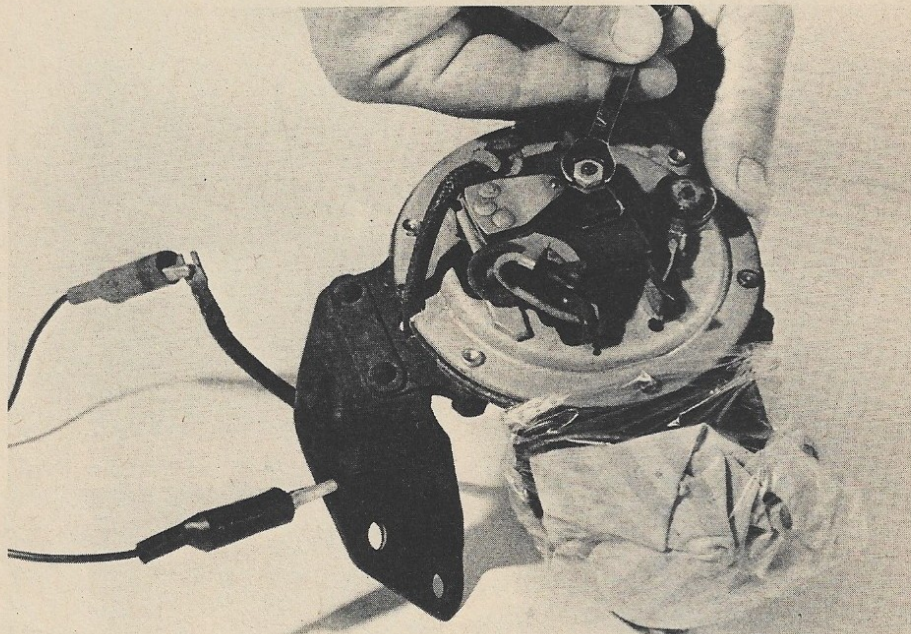
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LET DAVE DO IT...

(Continued from Page 35)

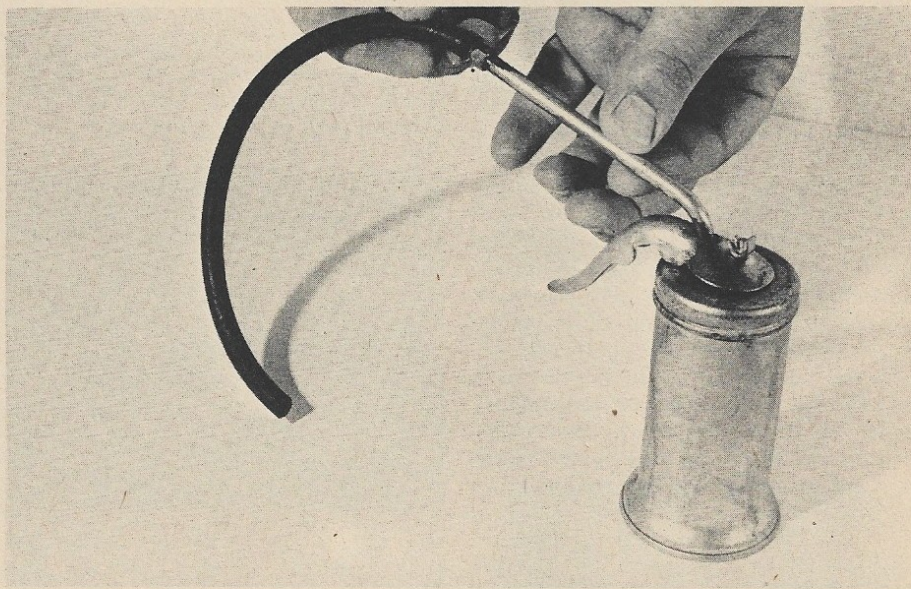
WRACKED NERVES and outraged neighbors will be yours instantly if you attempt to test and adjust your car's

horn without taking this simple precaution. Before you start tinkering with the old hooter, fill a plastic sandwich bag with rags and place it over the horn's sound opening. A rubber band will hold it in place. Now you can test and adjust in peace. Ah! sweet muse, thy muted tones doth fill my soul with joy!



HARD TO REACH lube points got you down? If you've been neglecting your car's carb linkage, handbrake mechanism, or generator bearings just because there's not enough room around them to permit the use of an ordinary oil can, try this: Obtain a length of neoprene

tubing from a parts store that will fit snugly over the spout of your oil can. This can be directed into the tight surroundings with one hand while you pump happily away with the first finger of the other. Six inches of tubing and a little oil is cheaper than new parts.



Movie Critic Vincent Canby of the New York TIMES in an article on motion picture "ratings"—G, GP, R and X—wrote that Shelley Plimpton removes her blouse in one scene in "Alice's Restaurant" and "is frontally exposed for about as long as it takes a man to realize that the battery in his VW has gone dead..."

The Providence, R.I., JOURNAL reported that Mary O'Connor of Aberdeen, Scotland, drives a Volkswagen, but has "Dodge" lettered on its front fender. Mrs. O'Connor explained that "the sign does not refer to the name of the automobile. It was put there by my husband and is advice to pedestrians and drivers who see me coming."



MEMO FROM THE EDITOR

Thanks to loyal WCG readers, answers to the survey printed in the July issue continue to arrive. Among other things, we are learning that road tests and "how-to" articles lead in the preferences of readers.

The majority of WCG readers are in the over-thirty age bracket and annual incomes comfortably top the \$10,000 mark. All readers prefer broad coverage of imported cars. However, the survey shows a decided interest in Detroit's new small cars. Consequently, we will be road testing Ford's Pinto and Chevrolet's Vega when the cars become available.

Many readers have asked for reports on high performance imports so the rather comprehensive tests of the Datsun 240Z and Volvo 1800E in this issue should begin to fill the bill. Other readers are interested in performance and luxury adaptations of Volkswagens—thus the Amante GT test.

By mid-1971 expect to see large numbers of air-conditioned imports. Also expect to see price-packing of sports and GT models. This practice is in full swing on some models now and will become acute unless potential buyers let dealers know what they think by keeping their wallets zipped.

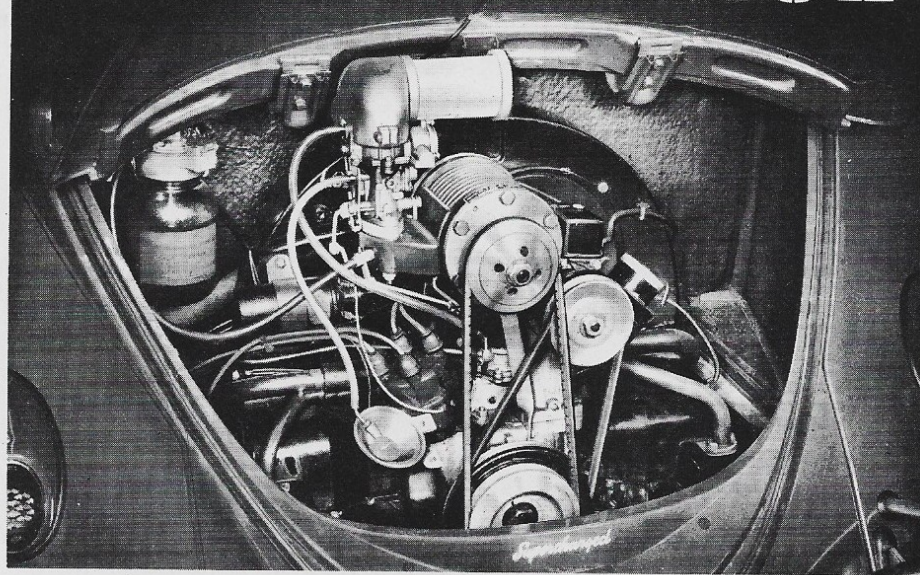
COMING NEXT MONTH

WCG reacts as quickly as possible to readers' requests. Thus the featured road test cars in November will be two station wagons, the Opel Kadett and Datsun 510. Also the dual purpose Simca 1204 sedan with wagon capability is road tested in two forms: the four-door with air conditioning and "automatic" stick shift, and the straight 4-speed two-door. We'll also have a driving impression of one of the first NSU-Ro80 Wankel rotary sedans. Vastly under-rated—little known to many in fact—the NSU-1200 is also on our road test for the near future as are the new Mazda rotary and conventional cars.

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OCT. 1970 WORLD CAR GUIDE 41

by Bill Tuckey

THE HARDIE-FERODO 500

WCG Australia
correspondent.

One of the participants tells it like it is in Australia's tough stock car race.



Class E winner in the '69 event was Kevin Bartlett, the Australian driving champion, in his 1750 Alfa Romeo.

Students of automotive history may recall the recently-deceased US Mobil Economy Run, wherein stock standard models were earmarked by the organisers in showrooms, stock yards and production lines, run in and tuned under close supervision, and then sent off to produce fuel consumption figures that would do credit to a Kawasaki 150, let alone a four-wheeler.

Now, can you imagine getting 60 cars under similar circumstances and sending them off on a 500-mile race? No soap! But the mad, bad, silly, wild try-anything Australians do it. Every year.

Down-Under they have a race called the Hardie-Ferodo 500. Run on the first Sunday every October, it is the only race of its kind in the world—a unique, mind-bending, car-ruining, reputation-destroying, empire-building, public-arguing doozie of a race. It is probably the only auto race in the world that intimately involves the great unwashed, the vast majority of the general public who would not know a race car if they woke up in bed with one.

Many thousands of Australians actually hold off buying a new car until they see what wins the Five Hundred. All the car makers are in it right up to the hilt—Ford, Chrysler, Toyota, Datsun, Alfa-Romeo, British Leyland, Mazda and even the hallowed General.

An outright win carries enormous prestige and visible sales chart reactions.

In 1969, Ford spent more than 300,000 Australian dollars in a bid to win the race with its Falcon GTHO and failed because imported American Goodyear racing rubber failed under the cars.

The cars in the race have to be stock standard—not NASCAR stock standard, where a life-sized photograph of a cardboard replica might do as well, but showroom floor standard. Rigid post-race scrutineering works through complete pull-downs of the first six cars in each of the five classes.

Winning cars have been ousted for things as minor as one size carburetor jet too large, half-an-inch too much length in the rear springs, and valve springs over the rated tension. If it doesn't match the workshop manual exactly, right down to the last millimetre, then it's out.

To top off this lot, the race is run over a four-mile public road circuit that for all but two weekends of the year is a 35 mph limited scenic drive around a mountain on the outskirts of Bathurst, a rich, pastoral city 140 miles west of Sydney. This famous circuit, baptised in 1938 by Peter Whitehead in an ERA, climbs 800 feet for its first mile, runs another mile around three big sweepers across the top of the mountain, about two-thirds of a mile through eight downhill esses, and then more than a mile along a steep downhill chute called, appropriately, Conrod Straight.

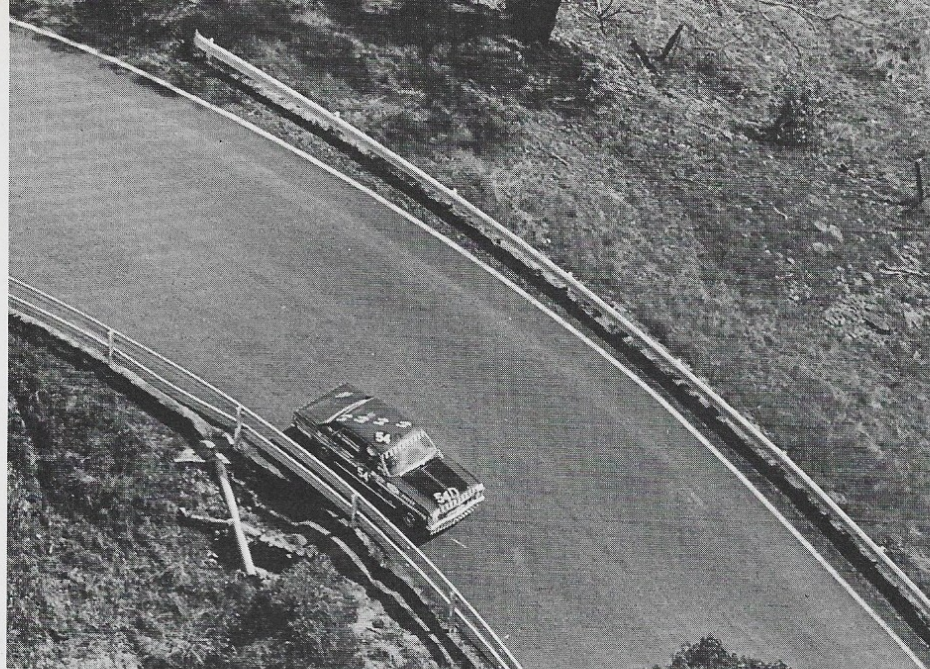
Down this hill the intrepid Aussie

drivers rush their showroom floor sedans at prodigious speeds. The quickest last year was a GTHO Falcon at 136 mph. The problem is confounded, somewhat, by the fact that there are 60 cars in the race and the slowest will be a Mini doing 85 and the road is only 35 ft. wide and things tend to get a little crowded.

About 40,000 people go to the circuit to watch this seven-hour mechanical orgasm, but something like three million—around *one-quarter* of the country's population—watches it live on a TV hookup going 1400 miles west to Adelaide, 600 south to Melbourne and 140 east to Sydney. In 1970 the TV net goes 600 miles north to Brisbane and by 1972, they say, will be piped live color by satellite to Japan, Australia's largest supplier of cars from outside.

The race has caused an exaggeration in the rate of model growth in the motor industry. The current GM-Ford-Chrysler marketing range is cars on wheelbases of 111 and 115 inches with engines ranging from 161 CID sixes to 308-inch V8s. Of the Holdens, Falcons, and Valiants—all of them now completely Australian styled, designed and built and bearing no relationship to their US namesakes—the market still takes around 60 percent with six-cylinder power.

The first local super-car appeared in 1967, when Ford lobbied the 289-inch V8-engined Falcon with four-barrel



ABOVE:

Bruce McPhee piloting a GM Holden GTS 327 won the 1986 event. (Lance J. Rutting photo)

BELOW:

Here's how they come leaping down the "Dipper" hill. Sometimes all four wheels touch terra firma. (Ray Simpson photo)



A Falcon GTHO, sponsored by Wright Ford Motors, in the esses. (Ern McQuillian photo)

carbide, a cam, good manifolding, wider rims and four slots and called it the Falcon GT. General Motors-Holden and Chrysler weren't in the race then, and Ford won comfortably with the GT to get back from British Leyland's Mini-Cooper S-types the supremacy they had held in 1962-3-4-5.

In 1968 GM-H came out with its first two-door coupes for the market, called them Monaro and topped the range with a 327-engined hot-shot version. Ford simply upgraded its four-door GT sedan a little more, but the GM factory team, running as the Holden Dealer Team, were a little quicker, even though the race was eventually won by a privately-entered Holden.

Ford in 1969 made the big effort
(Continued on next page)

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when they released a 351-inch engined Falcon GT, and then a GTHO (the HO standing for Handling Option). The result was a \$4000 fire-breathing horn-box, with matt-black bonnet panels, real locking pins, dog-killer front panel spoiler, three-inch side stripes and a Super-Roo decal motif to rival Chrysler's road-runner. The General simply produced a 1969 version of its Monaro range, with the top car using the 350-inch Chevy mill—all on a 111 inch wheelbase like the Falcon.

Chrysler's first step into the race also came last year with its three-speed, 225-inch, six-cylinder Pacer as one lone factory-backed entry, but the factory has already mounted a big attack.

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ABOVE:
Sixty hot stockers blast off for 500 miles of racing that manufacturers both love and hate. (Wheels magazine)

BELOW:
Aerial view of the debris accumulated on the first lap in the 1969 H-F event. A Ford Falcon GTHO is on a salvage wagon but a pair of 1750 cc GTV Alfa Romeos and a Cooper S are wrecked. (Ern McQuillan photo)



Toyota came in with two Corollas in Class A, Datsun with two 1000s in A, and two 1600s in B, and everybody had a piece of the action.

The result is history, of course. Half the field got screwed up in a monumental first-lap smash on the top of the mountain that wiped out six cars. But the GM-H dealer team won after all the bright orange factory Fords had blown tire after tire. The Holdens were on imported Michelin XAS radials, but Ford's Al Turner, freighted in 'straight from Ford Advanced Vehicles, went for the Goodyear racing rubber. The result

was a Ford disaster lending truth to the decals that appeared on every Holden bumper in the land—"Hoo-roo, Super-Roo."

Even so, the GTHO, or Ho-Ho as it is now named, and the Holden GTS 350, are dynamite cars. Pound for pound, they're as quick as anything in the world. It is doubtful whether Mercedes' much-vaunted 6.3 litre 300 SEL would stay with one of these around a circuit. They will cut out a standing quarter in mid-14s and 0-100 in 19 secs.

I drove a dealer Holden 350 in the 1969 race, and never ceased to be

staggered at the handling. They're like a formula car to drive, because they can use up all the available power and will steer on the right foot. As an indication, the fastest lap in 1969 by Ian Geoghegan in a GTHO was 2 mins. 48.6 secs. That's only 23 seconds slower than his circuit record with his full-race Mustang, which currently is beating two 1968 Trans-Am Ford works Mustangs.

Why the 500 grabs everybody by the shorts is certainly because it is broken up into five classes on price. Engine size, wheelbase and all the folderol doesn't count. These are cars in the market place racing against cars that cost around the same, and the public loves it.

For instance, *Class A* is for all cars costing up to \$1800, and drags in all the small four-cylinder jobs like Toyota Corolla, Datsun 1000, Hillman Imp, Mini and such. *Class B* on price covers the Datsun 1600, Toyota Corona, Hillman Gazelle and similar-sized fours. *Class C* gets the six-cylinder cars plus others like Mazda's R100 rotary coupe, the 1275 Mini S-types and so on. *Class D* fits the super-car V8s and *Class E* is the province of the over \$4500 imports like Alfa's 1750 GTV coupe.

It is a complete shop-window, a public coliseum that the car makers half love and half hate because it can do them so much good or so much harm. But they can't avoid being in it—not now. When the race first started in 1960, they could ignore it. But not now.

The sponsor, Hardie-Ferodo Pty. Ltd., is an Australian associate of the big British brake lining manufacturer, Ferodo Ltd. The rules insist that all cars run on HF materials, and the company gleefully admits that the race is a public affirmation of faith in the product, despite the fact that braking behavior has a lot to do with winning or losing the race.

For 130 laps the big cars have to pull down from over 130 mph to around 45 mph for the corner into the starting straight. They generally average two front pad changes during the event.

Rules are strict to the point of fanaticism. The only deviations from production standard allowed are competition brake pads and linings, laminated windscreens, internal roll bars—not cages—optional rubber, full seat harness, bonnet locking pins and removal of hub-caps. That's it.

Preparation, however, makes the difference. The pro's cars (about half to two-thirds of the field) undergo a complete pulldown and rebuild to manufacturer's blueprint, getting right up to tolerances and balancing, although no metal can be removed. There are a few minor cheater tricks like chroming valve stems, toughening hubs, wheels and so on, and crack-testing every component.

(Continued on next page)



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Generally, however, the best cars are those put together with painful attention to detail.

Total cost is about \$2000 to get a car to the line for the 500. Sponsorship for the race is far less generous than for normal races because any benefit to sponsors like oil and plug companies is far overshadowed by the brouhaha surrounding the outright and class winners. Prize money is nothing marvellous, either. The outright winner gets to take home around \$3000, even though the total purse is over \$30,000 and increasing each year.

The race is a fantastic spectacle, almost as breathtaking as *that other* 500. The 60 multi-colored cars explode off the start line and into a huge traffic jam at the first corner just 300 yards away. When the leaders reach the top of the mountain halfway around they have a brilliant tail, perhaps a mile long.

Each car fights furiously for a good starting place within its class area. Practice time determines grid positions, the fastest cars to the front, but these generally sort out into classes, with some overlapping.

The race starts at 9 a.m. and finishes around 3:30 p.m. after 130 laps. About a quarter of the field is gone by then, through smashes, mechanical failure or fatigue. If a car stops out on the circuit, only the driver can get it home. Many are the heroic tales of drivers running two miles to the pits in 90-degree heat to pick up the parts and tools necessary to replace a broken hub or a broken axle. They run back again and spend an hour or so rebuilding the car on the edge of the track as the field roars by.



The distaff side was represented in the 1969 event by Lyn Keefe (left) and champion Chris Cole. (Lance J. Rutting photo)

Last year a 5-foot Formula Vee ace called Bernie Haehnle spent an hour righting his upside-down Mazda R100, with the help of a nearby fence-post, screaming at press photographers and officials to stay away from him. When Bernie got the car back on its feet, he found the carburetion system full of oil, so he stripped and cleaned that.

Then he found he needed engine oil, so he ran half a mile to the pits and back for a gallon of oil. When he finally drove the car back to the pits, the stewards refused to let him continue because he had lost the windscreen and didn't have a replacement. Tough rules!

The only danger to the race now lies in the important regulation specifying

eligibility numbers. For the last three years the rules have demanded that 200 identical cars be registered if the model is locally-made, or 100 if imported. Critics have claimed that the car makers are building 200 "race specials," just like Ford did in 1965 with the Cortina GT500, a normal GT with modified engine, close-ratio Lotus gearbox and twin fuel fillers.

GM-H's GTS 327 that won in 1968 went on to sell 1200 units, and its GTS 350 had sold 500 by December, 1969. Ford's 1969 GTHO, however, just wasn't available to buy after the required 200 had been registered. For 1970 the organisers, the Australian Racing Drivers Club, has renewed the 200/100 formula, mainly because the normal "series-production" sedan race formula was altered for 1970 from 500/5000 to 200/100.

As a GM-H senior engineer says: "If we want to bring in 200 of the 427-inch engines and build those into Monaros on a 111 in. wheelbase, we will. We'd like to see a limit of 500."

And that's how important this race is down under.

WCG

* * *

Charles Lewis told readers of his "Up the Pass" column in the Concord, Calif., TRANSCRIPT that "It's a toss-up whether the Volkswagen pharmacy delivery bug or a congenial cement truck has the label with the most piquant overtones. The Volks seen hither and yon is called 'The Medicine Dropper.' The cement truck (also quite a gadabout) urges other travelers to 'Find a Need and Fill It.'"

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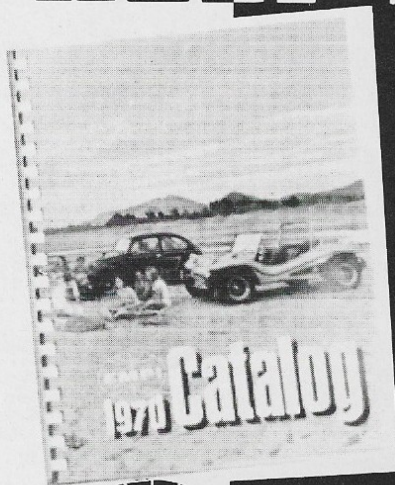
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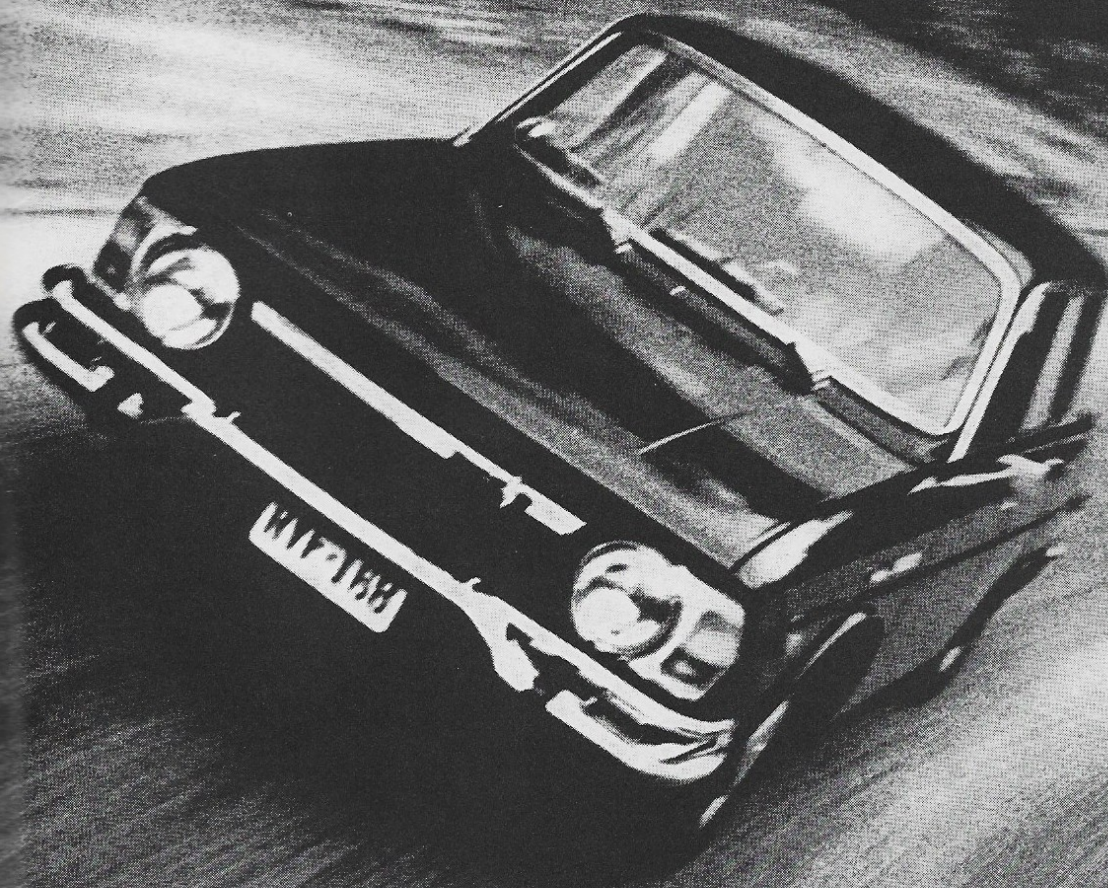
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