



VEE LINE

NUMBER 55

APRIL 1969

VW DISTRIBUTORS SET \$30,150 VEE SUPPORT

STILL AN UNSOLVED PROBLEM

Well, we finally licked the cutting-out-in-the-corners problem, but most of us still avoid looking at the oil pressure gauge in a long, hard turn because we can't bear to see it fall off to zero, with the engine pulling its little heart out. Baffles help; some claim that an extra quart of oil will solve the problem; and there has been some agitation for the addition of an extra sump on the bottom of the crankcase. Some kind of swing-type oil pickup for the pump will probably be the ultimate answer, although it is no doubt illegal at present as it is not specifically authorized in the rules. Like the loose carburetor float, however, it would no doubt be accepted by SCCA if it proved to be the answer to this problem. (Incidentally, both the extra sump and the swing-type pickup were included on last year's ballot, but received only about 50% support.)

Here's another partial solution, especially if used in conjunction with a good set of baffles: Replace the 1500 pump you are no doubt using with the 1200 model. Wait—don't shoot! Read the rest of this first, at least! The 1500 pump, which is generally considered to be one of the primary "modifications" for the Vee engine, pumps about 25% more oil—right? So it pumps whatever oil is available to it in a turn in about 80% of the time that it would take for the 1200 pumps; so it runs out of oil that much sooner. Does that make sense?

Yeah, but how about keeping the oil pressure up? Well, are you sure you *need* the oil pressure up? The common impression of engine lubrication is that the pump shoots a constant stream of oil into the bearings, and that the more it shoots, the less chance there is of bearings burning (or beating) out. Well, the designers of the VW engine didn't see it that way. In fact, they deliberately designed the engine so that the pump *couldn't* shoot a constant stream of oil to the bearings! Did you ever notice that the main bearings have a couple of recesses in them on the inside, matching the oil holes? And that they extend only part way around the bearing shell? Did it occur to you that oil can enter the crankshaft drillings only while they are matched up with those recesses? In other words, the con-rod bearings can receive oil under pressure from the pump only about half the time. (Not that they're starving the other 50% of the time—centrifugal force alone on the oil in the crankshaft bores will create as much as 45 lb. pressure at 5000 rpm.)

The reason for this intermittent-pressure system would have to be to insure pressure to all parts of the engine, regardless. In other words, it would prevent one or more loose bearings from providing an easy passage for most of the oil, at the expense of the other parts of the engine. This same concept is applied to the valve gear, too—oil flows to a rocker arm only while the circular groove in the cam follower is lined up with an oil passage in the crankcase casting. Probably not more than one or two of the final destinations for the oil are actually under direct pressure from the pump at any given time. Very ingenious!

This probably explains why there is no obvious pressure drop directly resulting from a disintegrating bearing. The pressure drops, all right, but probably this is due more to the excessive heat than to loss of oil through the bearing. Did you ever start an engine up again after shutting down for signs of the fatal symptoms, and seen the pressure back to about normal again after the engine has cooled? You may even, like us, have decided that the unusual readings were due to weather conditions or the earth's magnetic flux or something, and tried running again until that death rattle finally convinced you that something must be wrong somewhere.

OK, so even if you don't really *need* all that extra oil from the larger pump, what can it hurt? Well, aside from the fact that it has to take more power to run the larger pump, would you believe that your oil temperature will run lower with the smaller pump? Those Black Forest elves are thinking all the time! They had a reason for designing the 1200 pump to go with the 1200 engine!

You're aware, no doubt, that when your pressure goes up to 40 lb. (or whatever it goes to) with the engine cold, and stays there even at idle speeds, it's because the cold oil isn't going through the bearings and stuff as fast as the pump is supplying it. The excess is being by-passed back to the crankcase by means of the spring-loaded relief valve, which opens a by-pass port when it is subject to that 40 pounds of pressure. OK? Now, what happens when the oil warms up a bit, and the pressure drops a couple of pounds?

Well, the spring pushes the relief-valve piston upward in its bore until the by-pass port is covered and all the oil is going to the engine. At this point it has a choice of two routes—it can go either directly to the moving parts through one port in the relief valve, or around through the cooler and from there into the same oil gallery, through another port, both of which are still open. Does it take the tortuous path through the cooler, or the freeway? Well, which way would you go?

So it takes the shortcut, of course, and warms up some more, passing more easily through the bearings and lowering the pressure a couple of more pounds. The piston in the relief valve is pushed farther upward with the reduction in pressure until it starts to cover the port to the direct passage, still leaving the one to the cooler wide open, so that some of the oil, at least, *has* to go through the cooler. At this point the oil acts as its own thermostat—if it is cooled too much the increasing pressure opens the port to the direct route, by-passing the cooler. If it gets hotter the pressure drops, the direct port is closed entirely, and *all* the oil goes through the cooler. Isn't that clever?

Now what happens when you put in that big hairy 1500 pump and 40-weight oil? Look, Ma!

(Continued on Page 3)

Pay Top Ten in Nationals; Regional Activities Also Benefit

Volkswagen distributors and VWoA have announced a joint program of financial support for FV and Vee drivers totaling \$30,150. Key feature of the program is a unified National Competition Fund of \$15,000 which will pay prize money to the top ten drivers in each National race held this year. Checks will be distributed at season's end to qualified drivers. First place will pay \$50; 2nd, \$40; 3d, \$30 and 4th through 10th, \$20 each.

To be eligible to share in the National Competition Fund, each National license holder who expects to compete in a Formula Vee should send his name and address right away to: Formula Vee, Public Relations Dept., Volkswagen of America, Englewood Cliffs, N.J. 07632.

To simplify reporting of results, the Vee drivers who place at each National race should get together and select an individual (the overall winner, probably, since he has the most to gain) to pick up a copy of the official results of the race. The official results must be signed by the Chief Steward or his assistant and then sent to the Volkswagen of America address. Awards will be made only on the basis of official results received at VWoA; checks, as mentioned above, will be sent to individuals whose names and addresses are on file there.

The National Fund was created by contributions from VW distributors and VWoA.

The \$15,000 National Fund is being supplemented in distributorships with amounts totaling \$15,150. Depending on the distributorship, that money will support regional drivers, provide prize money at special Vee races or go toward other support of the class. Details on the regional program are available from the public relations manager at your region's distributorship. The \$30,150 does not include funds allotted by VWoA for Vee support.

VWoA's Vee program is of a broad national and international character. It includes \$2,500 as prize money at the American Road Race of Champions, \$5,000 in prize money at the Daytona "World Championship" and support for U.S. drivers who have been invited to race in Europe (see page 4).

FROM DAYTONA

"Dear Don: . . . We do plan to run the World Championship of Formula Vee in Daytona again. It will basically be the same program as last year. You may feel free to list January 30, 1970 (the day before the start of the 24-Hours of Daytona) as the date. We will send you more specific details when they have been arranged.

"Again, thanks for your help."

Bill France

MEMBERS' SOAPBOX

"Dear Don: I have just been beaten in my first Regional race because of the other car having a wild 3rd gear. Where does one find such a gear? I have heard it's from a VW Bus, but VW people tell me the gears are now the same in all VWs.

"Love the VeeLine, and constantly talk up FVI."

Dan Whalen, Mankato, Minn.

Well, first-off, Dan, it may be painful, but let's face it—there *might* be some other reason for your not winning your first Regional race, even if you meant by your reference to "the other car" that there were only the two of you. If you meant that you came in second in a large group of cars, you're doing fine! You're not *supposed* to win your first Regional—it's bad manners!

As to the "wild" transporter third gear, it's practically standard practice in Formula Vee! Your VW dealer is correct in stating that all VWs use this gear *now* (probably due to the demonstration by Formula Vee that it is *right*); but it is *not* the same third gear that was used in the 1200 transmissions, or the 1300's either, for that matter. It was used in the transporter in the 1960-1966 models.

If your dealer can't remember back as far as the 1200's, tell him you want a set of third gears with 23 and 28 teeth. (The 1200 "sedan" gears have 22 and 29.) This changes your third-gear ratio from 1.32:1 to 1.22:1, which, at any given engine speed, will give you either 8% more speed, or 7½% less acceleration, whichever way you prefer to look at it.

Actually, there's not enough difference to be apparent, either to a competitor, or to the driver himself. In fact, as far as third gear considered alone is concerned, the sedan gearing is the best—it gives better acceleration. The difference in performance is more apparent in fourth gear than in third, really. This is because the "higher" transporter gear allows you to stay in third longer, so that when you shift to fourth you don't get as much drop in engine rpm's.

To be more specific, let's assume that you and that "other" car were using the same shift points on your tach—say 5000 rpm—for all the shifts, and everything else is equal. OK? (This is a standing start.) So you come off the line together, shift into second at the same time, and then into third. At this point you would start gaining on your competitor, because of your lower third gear. By the same token, you'd reach 5000 rpm before he would, and would shift into fourth gear. Assuming no change in road speed during the shift, your engine rpm would drop to 3380, which is well below your horsepower peak (in a Vee it is somewhat above 4000). At this point your competitor starts getting even with you. He's still in third gear, while you're in fourth; and at perhaps 4700 rpm he probably has as much horsepower as you do at 3400 so his acceleration is still pretty good, while yours is considerably diminished. When he reaches 5000 in third and shifts into fourth, his tach will drop only to 3650 because he's going faster when he shifts, while you're struggling along—several feet behind by this time—at perhaps 3600. From here on, he has the edge. He's ahead and is going faster, and he will be going faster at any given *point* than you will, which means he will continue to draw away from you until his engine peaks

out. If the straight is long enough, you may gain a little on him before your engine, too, reaches its top rpm, but you'll never catch him. This is all theoretical, of course, and ignores such tactics as drafting, blocking, crowding and throwing rocks. And again, it presupposes that *everything* else is absolutely equal, which it never is, quite. In actual practice, you'll never be able to pick out the cars which do or don't have the "transporter third gear."

Now, there is always a possibility (if you are *sure* his third gear was really *way* out) that someone may be using something that's not even Volkswagen. There are "close ratio" gears used for drag-racing, there are special gears made for the modified Volkswagen transmissions used in other classes of racing (usually with five speeds), and with enough money anyone could get gears made to order. It would be hard to improve on the present setup (with only four speeds) without being obvious about it, I would think, but there are probably those who would try.

So—if you suspect someone in your crowd of using really illegal gearing, I'd suggest that you first find out if anyone else shares your suspicions (getting beat isn't admissible evidence). If the suspicion is general, pass the hat for the \$25 protest fee, arm yourself with a degree wheel and the recent issues of the VeeLine covering the subject, and protest!

In the present case, though, if you suspect your competitor only of using stock VW transporter third gears, I'd suggest you do the same. And don't try to install them yourself unless you have all the jigs, fixtures, dial indicators, etc., that are required—this one is a job for a fully equipped VW shop.

"Dear Don: I just read in the British magazine, *Motor*, that members of England's Formula Vee Assn. can purchase brand new 1300cc engines for 59 pounds, which I believe is about \$170. Why can't FVI members get parts at a discount? Here in the Detroit area I have to drive about 30 miles, bypassing 4 or 5 VW dealerships, to reach a dealer who will give me a 10% discount. One parts manager said, 'Why should we give Vee owners discounts? They will buy the parts anyhow, discount or not.' The Central Division VW Distributor doesn't even put up a prize fund for National races like they do on both coasts. (See P. 1—don) I can't remember you ever writing about this problem in the VeeLine. Would you please use your influence with VWoA about this? Do I understand that VWoA is giving out free megaphone exhaust extractors? Who do I write to for one?"

"I look to FVI to get a better break for its members. So far, I been rather disappointed. I wish you would comment on my letter in January *Sports Car*."

"Regarding engine removal on '64 Audodynamics, most of these cars were built on the short end of the wheelbase tolerance, so it is possible to stretch out the engine bay by 2 inches. Another possibility is to make one of the top side rails removable. Otherwise, it is necessary to remove the crank pulley, valve covers and rocker arms, as well as tilt the transaxle unit."

Mike Adams, Roseville, Mich.

Yours isn't an unusual complaint, Mike—in fact, it's fairly common. So, not only for you, but for everyone who shares your views on Volkswagen's contributions, or lack of them, let's put this whole thing into the proper pers-

pective, shall we? Where do you get the idea that Volkswagen of America, or the VW distributor in your area, or your local VW dealers *owe* you something? Why *should* they give you discounts, or prize money, or do anything else for you? What did you ever do for them? Are you driving Formula Vees in order to promote Volkswagen sales, or for your own satisfaction? If you do get a discount somewhere, do you reciprocate by showing your dealer's name on your car? If you do, that makes you even—if not, *you* owe him something, not vice versa. Discounts to other dealers are fairly common in the automotive world, as in other lines of business. They're expected, and they work both ways. However, if you're *not* a dealer—if you come in once or twice a year and spend twenty, thirty, fifty dollars, and your dealer gives you five or ten dollars out of his own pocket (which is what it amounts to, actually) what's in it for him? He's just done you a great big favor, that's what; so let's be appreciating even a ten percent discount, especially if we're not doing anything to earn it. It is no doubt true that Formula Vee has had some effect on Volkswagen sales, but how many have you sold for your local dealer?

Most of this applies to your area distributors, too. No doubt they do benefit to some extent from the Formula Vee publicity, but on the other hand they could probably buy more and better publicity with the several thousand dollars a year which several of them have been contributing as prize money for Formula Vee. So what right have any of us to even comment on the way they decide to spend their advertising budget? To those who do choose to contribute part of it to Vee owners, we owe a vote of thanks—not criticism because it isn't more!

Now for Volkswagen of America. They seem to come in for a lot of criticism, on several counts. First, as you pointed out in *Sports Car*, Mike, they are criticized for the way they choose to make their cash donations. But, which event do you suppose they got the most advertising mileage from—the ARRC, or the Vee races at Daytona and the Nurburgring? Second, it seems to be a common impression that if VWoA would only *tell* their dealers to give fat discounts to Vee owners, that would take care of the whole problem. Well, do you recall, several years ago, when a little Buick dealer took on General Motors in the courts and convinced them that they couldn't tell him *anything*? The court decision in his favor said, in effect, that his place of business was his own, that the cars and parts he bought from GM were his own, and that he could sell them, as well as any other product he wished to handle, as he darned well saw fit. It also ended the "quota" system (which had long been standard practice) whereby the manufacturers *told* the dealers how many cars and parts they had to sell. As a result, dealers are pretty independent, and the distributors, factories (or importers) don't stick their necks out, legally speaking, by trying to influence their activities in any way. Well, not much, anyhow—VWoA does, in their dealer publications, mention the activities of dealers who are active supporters of Formula Vee; but they do *not* order, request, suggest, or even imply that VW dealers *should* do *anything* for Formula Vee. On the other hand, they can *ask* their distributors about their respective support programs, and compile the results for you, as they have done in this issue. OK?

No, VWoA doesn't have a giveaway program for exhaust systems, either. They bought one system from a European manufacturer, had it tested by a couple of our Vee builders with the thought that if it proved to be effective FVI could spread the word, and gave it to me as a personal gift when the testing was finished. As was mentioned in a previous issue, it proved to be nothing exceptional, but you benefitted (?) to the extent that you now have the dimensions of the megaphone and directions for duplicating it if you so desire. The original megaphone is now a part of Petunia's plumbing.

In Europe things are somewhat different. Many of the officers of the Formula Vee associations in the various countries just happen also to have positions with the Volkswagen organization which allow them to spend some time on Formula Vee. In Great Britain, for instance, the original address for the Formula Vee Association of Great Britain just happened to be (and probably still is) the same as that of the Volkswagen distributor for that country. Some of their early correspondence with FVI was on VW stationery, signed by an official of the VW firm; and some of it was on FVofGB stationery, signed by the same individual, as an officer of the Vee association. So they can evidently tell their dealers how much they can charge for Vee engines, too.

As to FVI "getting a better break for its members," let's just say that VWoA is very much aware of the general feeling about discounts; and now you're aware of why they aren't universal—why they have to be negotiated on a local level. Which is all FVI can do on that subject. Regarding cash prize money, in line with many suggestions and comments from you members, FVI has recommended, to those distributors who *asked* for advice, that the awards be distributed in smaller amounts but further down the list of finishers, in order to benefit more of the drivers. I believe this trend is reflected in the story on page 1.

Farther than that I will not go. I have never *asked* anything of anyone in the VW organization, and I don't intend to. What has been given, whether by VWoA, our area distributor or my local dealer, has been given freely and voluntarily, and has been accepted with thanks. I do not feel that VW *owes* anything to me or to anyone else in Formula Vee. OK?

"Dear Don: . . . On your new exhaust system, even if you don't gain hp one, the impressiveness factor is sufficient to justify fabricating one, especially if the cost can be kept reasonable (\$1.98 or less). From the photos it would appear that the collector box would be a nasty thing to fabricate, even using the sections available from J. C. Whitney. Since I don't have access to a welding rig, I'd have to hire a welding shop to do the work, and it would cost a small fortune. Any suggestions?

" . . . Are the radius dimensions listed for the curved sections actual measured values? The numbers listed in Whitney's seem to be radius to the outside of the bend, which would yield values like $3\frac{3}{4}$ " to the center of a nominal $4\frac{1}{2}$ " bend (for $1\frac{1}{2}$ " OD pipe). All your dimensions are either even, or $\frac{1}{2}$ " numbers.

"The sketch shows one continuous 4" bend, but the photos show a short straight section in that section of piping. How come?"

"Any enlightenment you could shed would be appreciated. Maybe a list of Whitney parts,

with catalog numbers, for the system you'd build if you were to start all over again."

Sam Wood, Richland, Wash.

Well, Sam, let's take your last question first—it will take care of a lot of the others I didn't include here. This is purely a prototype—an experimental model—and as an engineer, you know what that means. "Let's build it first and draw the blueprints later." As you'll note somewhere else on these pages, it's not really finished, yet!

The dimensions shown are what I would have done *at that time*—I'd have used a 4" bend instead of the $2\frac{1}{2}$ ", 90-degree ones with the straight section between. Since then I found that in order to get the rear body section on, the rear pipes had to be shortened and angled toward the center of the car by the addition of an "S" bend (salvaged from those two nineties, which *were* replaced by a single 4-inch, 180-degree bend). Is that clear? Also the pipe length has been changed, first to 96" overall, and—at the race track—to its present 89". We plan to experiment further by shortening in small increments, although it will no doubt require some remodeling, as there is no room between the upper bends for any more "trombone" movement.

As to the measurements, if you check the dimensions in Whitney's catalog, you'll find that their sketch is in error. The actual radius is measured to the center-line of the pipe, rather than being half its outside diameter as the sketch indicates. The outside measurements are correct, as shown.

If you have to hire the work done, this gilhooley is going to cost money. It doesn't take much in the way of material—twenty bucks should cover everything—but it does take time. You can save a lot by hooking it up with slip-joints, as we did; but it will still require some welding. As for the megaphone, by using one of the Whitney collectors, as mentioned before, and a hammer and hacksaw, you could do most of it without a torch, probably. Also, you could use the collector in its original form, without the tapered sections, and it's doubtful that anyone could tell the difference.

At this stage in the game, at least, I'd say it isn't worth the price (especially if it is going to cost you real money) from the standpoint of either noise or performance. On the other hand, if you enjoy monkeying around with this sort of thing, and have the time, money, and equipment for it, your Vee will at least sound *different*, and will *look* more impressive, if nothing more.

BOBSY OWNERS

"Dear Don: . . . Please make it clear to your members that even though I may have stopped building Vees, I will always be on hand to help owners, supply parts, etc."

Gerry Mong,
Vanguard Automotive Enterprises

FOR WESTERNERS

Tired of hearing about all the special events for Vees in the East? OK, how about these?

Bonneville Raceway

"Dear Don: . . . We are organizing a Formula Vee Grand Prix as part of our Regional Races on June 28-29. This race will be held at the Bonneville Raceway, Salt Lake City, Utah. We have thus far raised \$200 prize money, and hope to raise at least \$100 more for allocation to 1st through 4th place. In addition, there will be \$250 support money for the first ten cars. We are also seeking miscellaneous prizes of merchandise.

"If the number of entries exceed the track capacity of 24 cars, we will hold two run off races, with trophies, to determine the Grand Prix contestants. Please tell your members that they can get more information, entry forms, etc. from D.A. Barker, Secretary, Utah Region, SCCA, P.O. Box 291, Salt Lake City, Utah 84110."

Delta Park

Can you name a major city which is working on a long-range plan to make auto racing what football is to Green Bay, or beer is to Milwaukee? Try "Portland, Oregon." Already famous, in the West, at least, for its annual Rose Festival, it is now working on becoming famous as a racing center, also. Delta Park, just a few minutes from the city center, is gradually being transformed into a multi-purpose racing complex, through the joint efforts of the city administration and the permanent Rose Festival Committee.

For some years the Rose Cup Race has been one of the highlights of the Rose Festival celebration, and this year will see one even bigger and better than ever before, for Vee owners in particular. There will be *two* days of racing, on June 14 and 15!

On Saturday the International Conference of Sports Car Clubs (an independent coalition of clubs in Oregon, Washington, and British Columbia) will hold its customary Rose Festival event, with races for all classes.

On Sunday the Formula Racing Association will conduct races for Formula Cars only, with prize and support money, yet! For Formula Vee the prize money is already at the \$1000 mark (to be distributed down to tenth place), and a share of the gate will be returned to all entrants.

Entry fees are \$17.50 for Saturday's race, \$25.00 (for Vees) on Sunday. FRA, SCCA, ICSCC or FIA licenses will be accepted for both events. All members of those organizations on the West Coast will automatically receive entry forms and additional information in the near future. Any of the rest of you who need a good excuse for a vacation in the Northwest can get in the act by writing to our President—Robert Ames, Rose Festival Assn., Hilton Hotel, Portland, Ore. 97201. Don't wait till the last minute—the 2.4-mile track will accommodate only 50 cars, and there won't be time for elimination heats, so first come, first served.

STILL AN UNSOLVED PROBLEM

(Continued from Page 1)

40lb. pressure all the time! Isn't that great! Well, it would look good on most engines, but in the VW it means first, that very little oil is going through the cooler (why should it?); second, that you're wasting horsepower pumping oil from the crankcase directly back to the crankcase; and third, that in a turn the available oil will be exhausted sooner.

Think it over.

PIPES AGAIN

I guess I got carried away somewhat when I gave Petunia advance billing as the loudest Vee in the West. I should have waited to see what the competition was doing. She still sounds wonderful—especially in the garage—and almost as good out in the open; but at the race last weekend, I'm afraid Petunia was *not* the loudest Vee present. That honor would have to have gone to a Bobsy with some kind of a lashup involving two megaphones, one on each side, apparently connected to the conventional crossed-over, equal-length pipes. Second place would have gone to a very healthy Zink with the standard Zink pipes—the later ones with the hump in the rear tubes. Petunia probably sounded *faster*—there's something about this combination that makes the engine sound almost like a go-kart at some speeds—probably due to some kind of echo in the pipes between each of the normal explosions. It has a very impressive "rap" at certain speeds, like when shifting, and really sounds very nice, if I do say so. However it does *not* compel the spectators to stand with their hands over their ears.

As to performance, it is still impossible to say whether or not there has been any definite change, one way or the other. It had been a year since we last ran on this particular track; and while our lap times were about the same as they were a year ago, we were getting a good healthy 5000 rpm on the back straight, which is at least as good as we have ever done on that short stretch. Judging solely on the basis of the sound, it appears that there may be some effect at about 5200. After the next race at Kent (excuse me—Seattle International Raceway), we may be better able to give an evaluation of the performance picture. The straight there is long enough for any Vee to reach its maximum speed.

We did notice, on the streets of our abandoned airport, that power in third gear seemed to hold well to 5200, but at that point it quit—that was all. Even running the engine up under no load, there is a definite loss of power just past the point where the pipes "rattle," at 5200. It will take some more experimenting to really get an answer to that one.

(Late note.) Well, let's say Petunia has never run better at Seattle International, and, except for the pipes, all we've done since last Fall is tweak the adjustable jet a couple of times. Before Sunday's race we shortened the pipes 7 inches by means of the slip-joints, which certainly didn't hurt anything. Next comes a slight remodeling job to permit another shortening for further comparison.

UNCLASSIFIED ADS

FOR SALE: '68 ASP Vee, green & yellow. Built & maintained by Wayne Purdy. \$2000 for car, trailer and spares. Mike Walker, P.O. Box 503, Lake Wales, Fla. 33853 (813) 638-1138.

FOR SALE: Autodynamics, balanced engine, clean. \$1295. John Antons, 420 NW Canyon Road, Beaverton, Ore. 97005.

FOR SALE: VW-Aztec, modified 36hp engine, full instruments, radial tires. \$1800, or trade for competitive Vee. Edward Givler, 67 Grassland St., Lexington, Mass. 02173.

FOR SALE: New factory built '69 Zink. Konis and adjustable Armstrongs, Zero hours on engine, rebuilt after Daytona race. Porsche "Butterscotch" paint. \$3000. Burt Richmond, 75 E. Wacker Drive, Chicago, Ill. 60601 (312) 263-6884.

FOR SALE: Formcar, three races (two trophies) on complete engine/chassis rebuild. All legal modifications, cyclé battery, Konis, two sets tires—Firestones and Goodyears. Race ready, with towbar and spares, \$775. Gerald Day, 634 Summit Ave., Monessen, Pa. (412) 684-4221 after 6:00 P.M.

FOR SALE: Very lightweight Vee trailer by Zink. Small wheels, like-new tires, with one spare. Tilt bed, with winch. \$200. Also, two 5.00x15 R4's, like new, mounted and balanced, \$45.00. Daly Bales, 2409 S. Main, Madisonville, Ky. (502) 821-3057.

NOW HEAR THIS!

Jim Patterson, SCCA's Director of Club Racing, announced in the latest issue of *Sports Car*, "The Formula Vee rules don't say you can rotate the carburetor 180 degrees, so you can't."

Since the Formula Vee rules don't say you can rotate the engine 180 degrees, either, this probably means that the carburetor must be used in its original position, "as normally fitted to VW sedans," with the throttle linkage on the left side as you sit in the car. All you people who have installed the engine in front of the transmission, take note!

EUROPEAN INVASION

Last summer, you may recall, Volkswagen of America helped Bill Scott, John Magee, and Glen Sullivan go to Europe to participate in a couple of Formula Vee races, and then returned Bill Scott in September for a rematch (which he won) at the Nurburgring. That was just for openers!

This year they are sending six cars, drivers and mechanics to participate in a Vee race at the Grand Prix of Germany at the Nurburgring on August 3. Those selected are: Bill Campbell (twice National Vee Champion), Bill Greer (Central Division Champion), Harry Ingle (Southeast Division Champion), Jim McDaniel (Northeast Division Champion), Steve Pieper (First at Daytona "World Championship" in January), Ray Weaver (South Pacific Div. Champion).

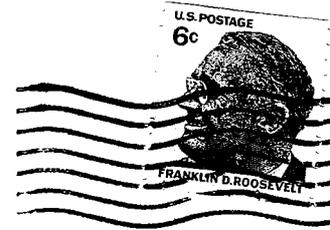
Their own cars will be modified to some extent to meet the European specs—by mutual agreement, these International Vee races are held under the home rules—and they will either build their own 1300cc engines, or rent them from European builders, as Bill Scott did last year.

The VEE LINE of
FORMULA VEE INTERNATIONAL
Don Cheesman, Director
Box 291
Ephrata, Washington 98823



Formula Vee
International

BOX 291
EPHRATA,
WASH. 98823



Warren A. Roberts
3513 NE 67th Terrace
Gladstone, Mo. 64119

A

7