



# VEE LINE

NUMBER 45

JUNE 1968

## INTERNATIONAL VEE ADVISORY BOARD MEETS

### ANOTHER CHAPTER

“. . . and restrictive in specifications so as to emphasize driver ability rather than design and preparation of the car.” (Sec 4.1 of the Vee rules, in case you didn't recognize it.) Certainly design and preparation are still factors in Vee races — so important, in fact, that the emphasis on them has not only resulted in faster cars, but in much more equal cars than we had several years ago. All right, so there are still faster and slower ones, but it's unusual any more to see one Vee lapped by another. So let's take a whack at driver ability again — maybe we can make some of them even more equal.

Anyone can drive down a straight, and if he's close enough he can even keep up with a faster car (we'll discuss drafting sometime), but coming is the name of the game, in Formula Vee, especially. Anyone can get through a corner, too, (usually) as far as that goes, but the goal is to get through it in the fastest possible manner. “The Line” is the common name for the unmarked route which makes this possible, and the trick is to find it — and then to use it to the best advantage. This isn't easy, evidently — watch *any* race, from the Can Ams on down, and you'll note that perhaps one driver out of ten will take the same line through a given corner every time. The rest, evidently, either haven't found it yet, or can't remember where they left it. Each time around they do it differently.

As we noted last month, centrifugal force is the limiting factor in taking a corner (or should be, at least — sometimes it's the driver). Centrifugal force increases with speed at a given radius, but decreases as the radius increases at a given speed. Obvious, isn't it, but have you ever *really* thought about it?

Now, how many radiuses (radii?) are there for your favorite corner? Well, as we mentioned before, there are obviously hundreds of them, but let's consider just a few. A true radius probably won't be the best line for any corner, but let's start from there anyhow. Let's consider a 180 degree turn on a track 36 feet wide (an airport course, probably) with the inside radius 237 feet and the outside 273 feet. And let's assume that the tires have a grip on the track of one “g”. (It takes a force equal to the weight — opps! *pressure* — on them to make them slide.) Without going into the formula involved, it turns out that

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### “THAT” MEETING

In case you've wondered about the Formula Vee advisory board meeting mentioned in the March issue, it was postponed until May 23 and 24, when it was held at Volkswagen of America headquarters, at Englewood Cliffs, N.J. Attending the meeting were Col. George Smith, acting as Chairman, Arch McNeil, of the SCCA competition Board and your Director, representing you (?). Also present were Herb Williamson, Publications Manager for VWoA (and liaison man for FVI) and Joe Hoppen, also of VWoA, whose duties there include special attention to the technical aspects of Formula Vee.

Generally, the purpose of the meeting was to discuss ways and means for achieving uniform Vee rules throughout the world. No specific recommendations for such rules were discussed — rather the formation of an international body to compile and propose them was the primary objective. It was agreed that the formation of such a body should be attempted during the visit of the U.S. racing team to Europe in late July, and the subjects discussed were considered primarily as items for an agenda for that meeting. Naturally, however, the discussions wandered at times to other aspects of Formula Vee.

As has been mentioned before, support and promotion of Formula Vee is now the official policy of Volkswagen. In Europe the parent company has been publicly backing the Class for over a year now, and VWoA openly acknowledged their interest in it at Freeport last December. This meeting was held at their request, and at their expense, as a part of that support, but while they offered some suggestions and opinions, it must be understood that in no way did they try to use that support as leverage to force their acceptance.

I'm afraid your Director was somewhat of a disappointment to most of those present. As you may have noticed, I don't mind admitting that I think Formula Vee is a pretty fair racing class just the way it is, so you can imagine, then, that I was able to conceal my enthusiasm whenever possible change was discussed. I do agree that a uniform set of international rules is a desirable objective, and I can even consider the possibility of some compromise with the Europeans along the present lines. However, the consensus seemed to be that this international Board should consider not only presently used components, but the possibility of even more recent ones. After some sparring, it was agreed the minutes would read as follows:

“. . . Any transition to any new components should only be made if certain conditions were met, including: 1. availability of components; 2. the expense of these components and 3. the performance and safety of these components. There was, as indicated earlier, a feeling that changes should not occur overnight, that they should not suddenly obsolete cars presently in operation. It was also felt, however, that Formula Vee should not remain stagnant, that it should be up-dated as appropriate from time to time to preserve interest in the class, and to reflect, as it did initially, current Volkswagen production.

“Mr. Cheesman described his position as follows:

“It was my position that any transition to any new components should be made only on the basis of *unavailability* of *current* components, with the possible exception of some compromise with Europe along present lines if U.S. Vee owners can be persuaded to make a change. If, due to *obsolescence*, a change *is* indicated, I approve the testing and recommendations procedure proposed by George (Col. Smith), with the provision that the components so considered would presumably be available for an extended period of time.”

“Mr. Cheesman added:

“. . . Formula Vee couldn't possibly survive, as a popular class, at least, if subjected to annual changes to keep up with the latest developments.”

While the concept of Formula Vee as a demonstrator of annual model year VW components didn't get support from anyone, the possibility of eventual need for a change, due to obsolescence of the current 1200 and 1300 models; *was* considered. It was agreed to propose to the International Board that *at such time* the parent Volkswagen company should be requested to test and evaluate components of the various VW models then current, from the standpoint of suitability for racing, and make recommendations

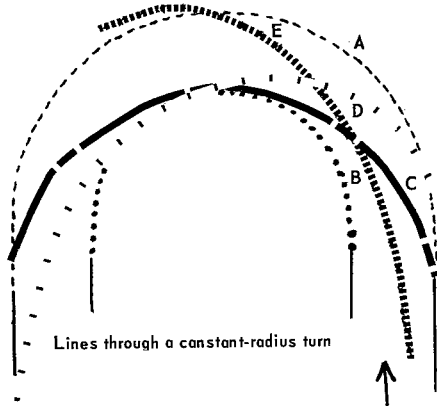
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## ANOTHER CHAPTER

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a car just clipping the outside edge (line "A") takes this corner at 65 miles an hour, while another, taking the extreme inside, (line "B") can only make it at 60. You want to bet on the outside car? Well, he'll have to travel 95 feet farther, which even at the higher speed will take  $\frac{1}{4}$  of a second longer. OK, the inside one, then? Not necessarily! The one taking the outside at sixty-five can not only brake later than the one slowing to sixty, but he'll come out on the straight on the opposite side five miles an hour faster! And he'll maintain that five-mile-an-hour advantage, theoretically, until he reaches maximum speed, which will give him a sizeable lead which is *not* due to an Isky cam.

Let's take another alternative on this corner and assume that car "A" is alone, so he can take any line he wants. This time he takes the same radius, but starts it 30 feet sooner which causes him to clip the *inside* (the "apex") at the halfway point (line "C"). This shortens his lap by 30 feet going in, and another 30 feet coming out of the curve, and saves another six-tenths of a second. In a 15-lap race, this alone amounts to a gain of 900 feet! This is a very wide track, remember, but even a gain of 10 feet per lap — or one — can decide a race.



Now let's consider a more practical line. We've been talking, so far, about theoretical lines — true radii, just to illustrate the possibilities. There's an even faster way of taking this corner, however, using a "parabolic" line ("D"). In line "A" the speed is limited to 65 miles an hour throughout the curve, which is, at first glance, the largest possible radius. However, by slowing down a trifle more at the start of the corner, and taking a sharper turn there, it is possible to constantly increase the radius, and thereby to accelerate constantly, throughout the entire turn, coming out on the straight at even more than 65 miles an hour. This line can't be defined exactly — you'll have to search it out for yourself. Basically it is similar to line "A", in that it should start and finish at the outside edge of the track, but the "apex" should be well *past* the center of the turn, and the return to the outside will be some distance past the end of the curve itself. The trick on this one is to find the *fastest* way of doing it. If the first part is taken too sharply (and too

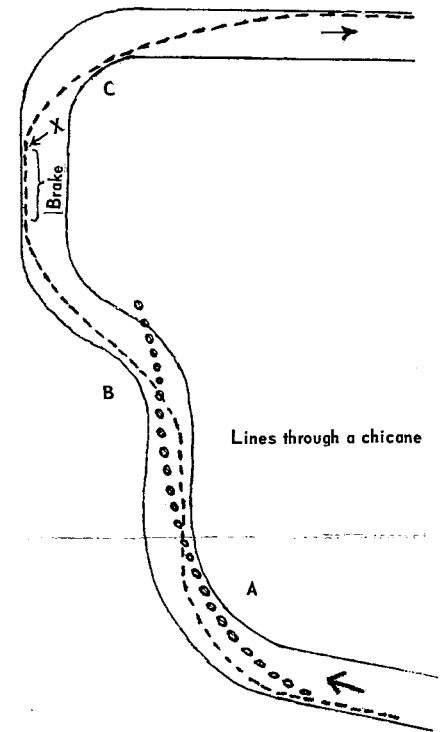
slowly), it may lose more time than can be regained by acceleration. Sliding into a corner sideways is spectacular, but it requires starting off in the new direction from a near-stop. Vees aren't very well adapted to go-kart turns. Brake *before* the turn and stay on the throttle while you're in it. A little twitch of the wheel at the beginning of the turn a moment before getting off the brakes will "set up" the car by "kicking the rear end out," but don't overdo it. There are a number of variations and refinements to this line, recommended by some of the "name" drivers, but this basic line will do for a start.

In practice, try holding your car to the inside as you come out of the corner. If you can do it easily, you could have been going faster. If you were about on the limit in the first part of the curve, you probably started it too late — next time start it a little sooner. This will allow more acceleration in the first part, making you go faster in the later part, so that the centrifugal force is more equal throughout the entire curve. That's what this is all about — adjusting the radius of your turn to the centrifugal force, which increases with acceleration. In other words, this line isn't something you can see, or draw on paper — it's something you feel. When you get to the point where you're accelerating all the way, and the line you're taking is such that the increase in radius just matches the increase in centrifugal force so that you're right at the limit of adhesion (or as near to it as you want to be) throughout the entire curve, that's IT!

In case the tracks you drive aren't composed of curves like these illustrations, the same general ideas apply to any curve. If it is one you have to slow down for, use the "parabolic" line and accelerate through it. If it's a "full-bore" corner, take the shortest possible true radius. This may mean that you can start and finish it at the middle of the track, rather than the outside edge, or you may even be able to follow the inside edge. In any case, clip the apex on the inside to shorten the distance as much as possible.

Like any good rule, there are exceptions to this one, too, aside from the obvious fact that you can't take the proper line with another car alongside. Like how do you take a chicane? ("Chicane" is defined in the dictionary as "a trick or deception," which is appropriate when used in racing to describe a series of opposite turns adjacent to each other.)

The deception in a racing chicane is the fact that a good line through one of the corners may lead to disaster in the next. The obvious conclusion, then, is that in some of the corners some other type of line must be used. Probably the best way to solve the problem is to pick the most critical corner — usually, but not always, the last one — as the one for the "perfect" line, and then work backwards on the track through the preceding ones. (At Pacific Raceways, for instance, the proper line through the "critical" right-hander brings you into the next left-hander on the *inside* edge of the track, but it is a wider turn which can be taken from that position with no trouble.)



First, then, determine your line through that "critical" corner ("C"). Then analyze the preceding one, and figure out how you're going to take it to get to the proper starting point for the critical one. If you're going to have to brake, include a straight line in your plan for that purpose, too.

Probably you will find that your line will include some turns like A and B, which are all wrong, technically, but will keep you out of trouble and get you to point X in the shortest possible time. The "proper" line for "A," considered by itself, (circles) would get you to curve "B" in a hurry, but in no position to take it.

When you're practicing, then, make it count for something — don't just go out there and drive! Analyze each corner, each time you take it, but concentrate particularly on the one that's giving you the most trouble. While other classes are practicing, go and watch them. See if you can find someone who is obviously doing it right, pick out his spots, and then try to use them when it's your turn on the track.

A quarter-mile lead in a 30-minute race represents about a second a lap. Let's see — five turns, at about two-tenths of a second faster on each one. . . adds up, doesn't it?

## MORE ON VWoA

There have been a couple of other recent developments at VWoA even more newsworthy than their hosting of the "Steering Committee" meeting. First, VWoA is helping to send three U.S. drivers, with their cars and crews, to participate in two European races — at Zolder, Belgium, on July 28, and at Nurburgring, Germany, on August 4. Glen Sullivan, John Magee, and Bill Scott, who finished in the top three spots in the Northeast Division last year, have been selected. All are members of

FVI. Upon arrival in Europe they will equip their cars with 1300cc engines furnished by Formula Vee Europe, and otherwise bring them into conformance with the European rules. FVE is paying for transport of the cars; drivers pay their own expenses.

Your Director was invited too, but was unable to accept due to the necessity for putting business ahead of pleasure — damn it!

Of even more interest to some of you, at least, is VWOA's announcement of \$2600 in prize money for the American Road Race of Champions in November. (For Vees only, of course!) Awards will be \$750, \$600, \$500, \$400, and \$250 for the first five places, with an additional \$100 for the fastest Vee in the qualifying trials. Stuart Perkins, President of VWOA, announced, "We are not getting into racing. We are not building race cars, or organizing factory teams. We are only helping others to race — not as professionals, but as hobbyists."

### FROM SCCA

Generally, but not always, SCCA rules for the following year are determined and announced around Christmas time. However, when there is a need for more time in order to comply, such changes may be made and announced earlier. This year the Competition Board recommended at its April meeting (and the Board of Governors approved) a number of changes for 1969. Several of them will be of interest to Vee owners:

1. "Safety fuel tanks shall not be required in cars competing in interdivisional, national, regional and driver school events during 1969, except for Formula SCCA, Class A 5-liter cars."

2. "Fire extinguishers in all Formula cars may be mounted in an accessible location other than the cockpit as required in GCR Appendix A, Sec. 1.5. 1s."

3. Appendix A, Sec. 5.8, will be changed to read, "The frame/chassis must be constructed of steel tubing of a maximum diameter or width of three inches and be of safe and suitable design."

"There may be no frame/chassis rigidity or strength derived by means other than the frame tubes. Stressed skin, monocoque or semi-monocoque construction is not permitted, except that:

- The firewall panel may be rigidly attached to the frame tubes; and
- The undertray (belly pan) may be rigidly attached to the frame, provided that the curvature of the undertray measured vertically from its lowest point to the highest point of its attachment to frame members at its sides may not exceed one inch."

4. "For 1969 the displacement limit for Formula Vee will not be changed from the present limit."

A letter from Jim Patterson, Deputy Competition Director for SCCA, accompanied the above rule changes. He makes several interesting comments:

"Dear Don: . . . How about a bit in "Vee-

Line" about adequate battery mountings? We've had several cases this year of batteries coming loose in accidents and slamming around inside the cockpits, doing all sorts of damage to drivers and vehicles. Many marine supply stores stock fiberglass battery boxes that are strong, and additionally prevent acid spillage if the car is rolled."

*(A good point! Not many Vees have the battery actually in the cockpit, but I can state positively that one mounted in front of the axle can spray acid all over the pedals when it gets squashed.)*

"The FVI poll has been extremely helpful to the Committee in the past in defining areas needing clarification and in indicating the desires of Vee drivers. The Committee will be meeting in mid-October, and if you can get the poll results to me around Oct. 6, I'll see to it that they are distributed to the Committee well in advance of the meeting." *(Thanks, Jim. You can count on it!)*

"In the May "VeeLine" on page 3, you indicate that you don't think it's illegal to turn the carb around. Try this logic: Since the rules specify a standard VW power-plant as normally fitted, doesn't this mean that the carb must be installed as normally fitted? Nothing says you can rotate it, so therefore you can't. Right?"

*(Golly, I don't know, Jim. That logic, carried to a logical conclusion, would require the carb to be behind the engine. Nothing in the rules says you can rotate the engine, either. Incidentally, someone with a "wedge" design in mind asked the other day if he had to. How about it?)*

"On the street tire thing, have any of the proponents of such a requirement figured out how to control the rubber compound? Ever hear of cheater slicks?"

*(Simple! "No recaps.")*

### MEMBERS' SOAPBOX

(The "three-(two?) weekend tire" situation has been the subject of more letters than anything else I can recall. For lack of space only a few comments can be printed. So far, only one letter in favor of the "gumballs" has been received, and a couple of "moderates" — the rest have been definitely in favor of some sort of action to eliminate them.

"If I had to go back to radials, I'd quit racing" — Whit Tharin. "So far. . . wear does not seem to be excessive. I guess time will tell." — Carl Closs, Jr. "Am anxious to see if new Firestones will be as fast as the Goodyears, with better wear rate. If not, I think we are going to have to consider some form of tire restriction." — Bob Wenzal. "Honest racing tires are best for racing. Rather than ban racing tires, why not set a minimum wear standard?" — Grant Reynolds. "Although I would miss racing tires, it is worth going to a radial or other high performance street tire to keep expenses down." — A. L. Chute. "Vees are supposed to emphasize driver ability, not financial ability. Tire expense is the latest development in a chain of events which may well end the

popularity of Vees." — Dick Allen.

"The factor between winning and not winning is much more related to driver efficiency than mechanical. . . I let a top-line Vee driver take a few laps in my car, and he went so much faster in it than I did that I almost sold the thing, rather than admit the car had greater potential for competition than I did. . . You can only buy a little bit faster lap time — after that it is up to you." — Wally Reese.

"I suggest a petition directly to the tire companies by FVI if the membership is in agreement as to the undesirable presently developing situation." — F. Nelson Petrey.

"After seeing the amount of wear from one practice session. . . I decided they were unreasonably expensive. . . you could see them pick up about 2 seconds a lap. I gave up and bought a set. They are faster, and they do give me a much more secure feeling. But do they wear fast! In 106 minutes of driving the left rear tire was completely smooth! I propose that only tires listed by the manufacturer for use at over 100 miles an hour be allowed. Some of these may cost nearly as much as the new racing tires, but they will last many times as long." — Harvey Templeton.

*(So much for tires.)*

"Have we created a monster? At New England Regional (June 15) 59 Vee entries were filed but only 30 were accepted. The rest were turned down. NER isn't willing to schedule even two Vee races. Would you believe two heats and a final? Formula Ford is sure to get a "spin-off" from the Vee situation." — Chris Paulhus.

"At our last race last year we had an abundance of broken FV bodies, and the officials were to say the least, upset. Another driver and myself talked to most of the FV drivers, and we recognized that if we didn't police up our class, SCCA would.

With this in mind I went to my first race this year at Meadowdale. During the race there was an accident. In the confusion it was observed that there were cars passing on the yellow flag. At the "consultation" following, the officials stated their opinions, and told us we were disqualified. They went so far as to state that the Chicago Region is considering running restricted races in order to eliminate Vees, because of our past performances, and I really can't blame them! We have all been guilty at one time or another of that over-competitive spirit — just examine your own conscience. This could be the beginning of the end for FV unless we Vee drivers wipe out the discredit we have brought on ourselves and take a pledge for safer, saner racing in our class. I take that pledge.

Tod Knuth, Milwaukee, Wisc."

### UNCLASSIFIED ADS

FOR SALE: 1966 Autodynamics, complete except engine (belts, battery, mirrors, 8 tires and wheels) \$1200. Pete Smith, 104 Prospect St., Newark, New York 14513 (315)331-3664.

FOR SALE: Beach MK5B, with custom trailer. Used once. Both for \$1700. Buddy Sherk, 5708 S. Coolidge, Tampa, Fla.

**INT'L VEE ADVISORY BOARD MEETS**

*(Continued from Page 1)*

back to the board. Its members would then report back to their respective national organizations, and it is hoped that at that time a single set of rules could be adopted, world-wide.

(When questioned as to when the 1200 and 1300 Beetles might be expected to become obsolete, one VWoA official declined to even guess, because, he said, both models are still in production, with no predictable end in sight, and parts will continue to be available for many years after actual production ceases.)

In the meantime, it was agreed, international competition should be encouraged, with visiting drivers observing the rules prevailing in the host country. (See "More About VW.") In order to provide suitable races for international participation in this country, SCCA is to be petitioned to include events for Formula Vee in the "pro" Formula ("GP Championship") races. (FV has already been included in the one at War Bonnet, Okla., on June 15-16.) Also, all-Vee events such as the Grand Prix for Formula Vee, held for the past two years at Warren, Ohio, are to be encouraged.

**ENCOURAGING SIGNS**

Indications are that race officials are taking more interest in the Formula Vee rules recently. In several areas there have been general inspections, with the offenders thus found being only warned. These spotchecks have revealed such items as missing fan blades, 1500 rocker arms, illegal exhaust pipes, and underweight cars.

There have been several protests lately, too, which have evidently received full cooperation from the officials. In one of these the illegalities had been built into the engine by one of the professional engine builders, according to reports (valve guides cut off, polished crank, combustion chambers too small.) The car was disqualified, of course - even though the owner was obviously unaware of the infractions. (I was recently told of another "pro-pared" engine which was found to

be illegal upon teardown for a rebuild. If I get conclusive proof that any engine builder is furnishing illegal engines habitually, I'll let you know.)

Generally speaking, this attitude on the part of the officials can only be commended. However, it appears that in some instances, at least, the interpretation of the rules made by the officials is at variance with that generally accepted by Vee owners, to put it mildly. For instance, two cars, to my knowledge, have been disqualified for the use of the transporter third gear in the transmission (not "standard sedan") and at least four have been disqualified for oversize carburetor venturis. (Same reason - not standard sedan.)

As I've stated many times before, nothing in this rag is "official" unless it is a direct quote from some SCCA pronouncement, but, *in my opinion*, the rules are quite clear on both of those items - they are among the "specifically authorized" exceptions to the "standard sedan" requirement. ". . .any standard VW gear set. . ." and ". . .any size venturi and jets. . ." (There might be some room for argument regarding the float valve, I'll concede.)

Probably the officials involved were familiar with the Vee rules to the extent that they know the basic premise of Formula Vee - "stock VW sedan components," but haven't yet memorized all the fine print. This is understandable - after all, there are twenty-some other classes, too. However, it seems unlikely that they would ignore those exceptions if they were brought definitely to their attention. (Would they?) Vee owners should at least be familiar enough with their rules to *know* when they are being misinterpreted, and to be able to point out the errors. (And I'm speaking of errors - not differences of opinion as to meaning.) If your officials are unreasonable, an appeal is in order, of course, but try diplomacy first.

The VEE LINE of  
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**FROM FIRESTONE**

"Thank you for your letter showing your interest in our crash resistant fuel system for Formula Vee Race Cars. I have been working with SCCA over the last 2 years, and as you know, they have made fuel cells mandatory in (several classes). . . The Formula Vee class will no doubt be one of the last classes to be included due to the low incidence of fires. . .

I have attended a large number of SCCA races and have personally looked over many Formula Vee cars, and I find that even with the same make of car, the model changes have been very extensive. It would be virtually impossible to build a fuel cell to fit some of the cars being built today. . .

For the past year I have been working with the Bobsy Division of Vanguard Automotive Enterprises, which now will not sell their Formula Vee cars without our fuel system. . . I believe that the cell we build for Vanguard could be used on all Formula Vees. . . It is a 4.2 gal. under-the-knees tank, and I believe it would fit any Formula Vee of the past, present, and future. . .

D.C. Cline, Firestone Coated Fabrics Co."  
(The address is "P.O. Box 2709, Akron, Ohio, 44301.")

**GRAND PRIX FOR  
FORMULA VEE**

"Red" McCurdy, Chairman of the committee responsible for the third annual running of the Vee enduro event at Steel Cities International Raceway, announces that progress is already being made toward making this bigger and better than last year. Arrangements are being made to score by computer, and prize money is being garnered. The date isn't yet definite - probably Oct. 19 and 20, but could be earlier, on the 5th and 6th. At least 100 cars are expected, and with the Bahamas race presumably kaput, it will be surprising if they don't get more than that number. This could become the event that the Bahamas bash was.



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