



# VEE LINE

NUMBER 23

AUGUST 1966

## DIRECTOR'S CORNER

Well, here we go again with the Annual Rules Edition! This opportunity to express your wishes for Formula Vee to SCCA is the only reason you joined this organization in the first place. Wasn't it?

The ballot this year is much shorter and, I hope, simpler than last year's. It contains only two really controversial proposals. Most of them are merely re-wording for better definition. To those who have been living with Formula Vee for a while, some of them may seem so unimportant as to be not worth considering, but most of these have been included because of questions asked by people who are new to the game. Australians, especially (who are now running under these same rules) ask embarrassing questions like, "Is it legal to place the tie-rods underneath the steering arms?" The proper answer, under the present rules, is "No—not if you have to ream or enlarge the holes, which you would have to do if you use the VW ball-joints, and there is no authorization for using any other kind."

It is my position that the rules should be specific on every point which can possibly be brought up. In the case of tie-rods, for instance, there is no excuse for half or more, of the Vees in the country being technically illegal, even if there has been no controversy about it. For the benefit of the newcomers, at least, the practice should be specifically allowed.

Last year, from about 150 members, 103 ballots were returned. This was an outstanding achievement (ask your regional secretary!). This year, with over 250 members, let's shoot for 200! Associate members are not allowed a vote in elections, but inasmuch as they have joined this organization primarily because they intend to have Vees eventually, they certainly have a stake in the future of the class, so unless there are objections, their votes will be counted, too, on this ballot.

As last year, the ballot is already stamped and addressed, so all you have to do is get out your copy of the rules (for comparison) and a pencil, and make a few little marks, and have your wife mail it for you. Isn't that simple? No possible reason for passing up this opportunity to help shape the destiny of Formula Vee, is there? Okay, so DO it! Now, before you forget! If you don't, I'll have to send you a postcard or two, nagging at you, which takes a lot of time and postage (both scarce around here) and could make the next VeeLine even later than usual. If you simply can't be bothered with figuring out what you want, please sign the "proxy" line anyhow, and I'll even do the marking for you.

The first step in consideration of the 1967 rules is taken at the October meeting of the "Car Classification Committee", so we'll have to have *all* the ballots back by September 30. This means that if I don't have *yours* by September 15, I'll have to mail you a reminder. *Please*, don't make it necessary.

Some of the comments *against* the "weight with driver" proposal lead to suspicion that it is not fully understood. In the first place, the present 825 pound minimum "dry" weight *should be retained*. This proposal, then, would not affect a 175 lb. driver with a minimum weight car, nor a 150 lb. driver with a car 25 lb. overweight, nor a 125 lb. driver with an 875 lb. car. A 200 lb. driver would have to weigh in at 1025 lb., even if he could get his car's weight down to the 825 lb. minimum. It will *not*, therefore, really *equalize* the class, but it will help. It is not intended to *give* anyone any advantage, but to *revoke* that advantage now enjoyed by a few. Consider this—at Kent, last weekend, a midget who couldn't have weighed over 50 pounds was asking some pretty serious questions about our Vee. Do you think *that* wouldn't make for an advantage?

Allowing any group of Vee drivers a 10% compression advantage or a 10% overbore would be unthinkable, but there are some who now have much more than a 10% weight advantage. In the only class which equalizes every other aspect of the cars, shouldn't some attempt be made to equalize weight too?

## SO THERE!

Here is a letter from Volkswagen, in Germany, forwarded by VWoA in response to an earlier question—

".....In connection with Formula Vee, you asked us for technical data on the 1.2 liter and 1.3 liter engines. We are enclosing specifications for these engines. (Actually copies of FIA homologation forms, in German. don)

Changing a 1.2 engine to 1.3 is not possible. All important parts of the 1.3 liter engine, such as crankcase, crankshaft, piston rod, cylinder head, etc., could not fit the 1.2 liter.

All parts required for 1.2 liter engine can be furnished indefinitely. Statements to the contrary are not true.

VOLKSWAGENWERK AG"

Any questions, ma'am?

## THIS IS FORMULA VEE

Petunia started the season with the usual oil change and rub down (she's really pampered). We even checked the compression, and found one cylinder at 75 lb. This was no surprise, as she'd developed quite a case of blowby last fall. However, she still seemed to be running well, so we put off any drastic repairs. We shouldn't have.

In practice on Saturday, at the Portland (Oregon) Rose Cup Race, she gasped a few times and died. John revived her enough to coax her into the pits and asked, without really hoping, if anyone knew where he could get some repair work done on Saturday afternoon.

George Sipes (Bob Boyd's mechanic-partner) said he'd worked on VW's a little, so if John wanted to load Petunia on the trailer and haul her up to his house, he'd be glad to see what he could do.

He made a few phone calls, and while John chased down some parts he dismantled the engine. While John cleaned up the crank-case at the local car-wash, he started re-assembling. By eight o'clock he had installed a new piston and cylinder, and a complete new set of bearings, and had Petunia raring to go!

She went, too! John bobbed on the last turn in the last lap, losing second place, but still coming in third in a field of ten Vees (including Bob Boyd's car).

George is still trying to figure why Bob's car won't go as fast, but he's as proud of our engine as if it were his own. At the last race (which John won shamefully), he came up to the post-race huddle and announced, "Well, at least we know he's legal—I rebuilt his engine!"

Petunia's ailment, by the way, turned out to be a hole in the piston as big as a lead pencil, *behind* the rings, down to the oil ring groove, where it entered the inside of the piston! It finally overheated at that spot and seized in the cylinder.

George had worked on VWs a little, all right! He's a VW mechanic! In his spare time he works on VW's at home. Says he would like to build some Vee engines as soon as he gets his Aztec finished. Believe me, he's recommended. His address is 10905 NE Schuyler, Portland, Oregon.

## IN THE BEST CIRCLES

"Club V. France" announces that its president, Maurice Trintignant, has given a Vee to Prince Rainier, of Monaco.

## PREPARATION

I'm ashamed to tell this, really, but it may be of some encouragement to some of you who think money counts, even in Formula Vee. Petunia is probably one of the poorest "prepared" cars racing today, but still one of the faster ones. Here's her history, as far as we know it—

The VW components came from a wrecked '62 sedan with 66,000 miles on it. It had very recently had a valve grind, but was otherwise original. We lightened the flywheel, installed the old-style distributor, and went racing. Won ICNSCC championship in 1964 (John's first year of racing).

In 1965, started with "Brand X" additive in the oil and ruined a rod and the crank at the first race. Put in new crank and 1 rod, balanced rods and pistons. Found we had a "B" cam, so bought a "D" style (according to the box). Didn't notice at the time, but found later that it was a "C". De-glazed the cylinders, and installed new rings and bearings. (Standard bearings on new crank—no "clearances"). Valves passed the "solvent" test, so didn't regrind. Installed crankcase baffles and old-style PCI carb. Had trouble with the carb all the rest of the season. Third place for '65.

1966 history is mentioned elsewhere. Still no valve grind (though it's indicated by the latest compression test—85, 100, 105, 110). Switched to another PCI carburetor. The piston and cylinder were installed right out of the box, as were the new bearings, with no "clearances", and there wasn't time to balance the piston to the others, or to break in the engine. Still using the original clutch, which shows no sign of wear. (Yes, it's a sedan.) Have used the 1500 oil pump since it became legal, changed spark plugs at the beginning of each season (Champions this year). One win and two seconds (one National) in SCCA and presently in first place in Conference. Possibly in another circuit Petunia wouldn't show up so well, but she'll still get up to 5000 if the straight is long enough.

We have tuned on a dyno a couple of times, but have found that at the track we didn't have even normal performance. Now we tune at the track. If there is any secret, it is to do it in very small doses, checking performance after each change. The distributor is moved probably one degree at a time, and the adjustable main jet is mentally divided into a "clock face", with adjustments being made by only one "hour" at a time. We have seen distributors being "timed" by listening to the engine running at a fast idle, and one competitor in a National race was heard to say, "I opened up the main jet by half a turn, but it didn't seem to be doing as well. I'm going to close it a quarter turn."

### LOVE AT FIRST RIDE

Stanley Evans (Kenosha, Wis.) on his membership application: "I drove a Vee around the track, and then I sold my MGB."

## COMMENTS ON THE RULE PROPOSALS

(These are in the order in which they appear on the ballot.)

"Open cockpit" should be included before someone comes up with an "astro-dome" canopy or something.

The "1192cc VW" isn't 1192cc, and its official designation, according to Volkswagen, is "Volkswagen 1200".

We seem to have only two really controversial proposals, "Weight with Driver" being first. There have been arguments on both sides, especially last year, when it was first brought up. (It was approved on our ballot, 2 to 1, but was rejected by SCCA.)

### AGAINST:

1. It would be hard to enforce.
2. It would require ballasting, in contradiction to the section which says no ballasting is allowed.
3. It would work a hardship where two drivers use the same car.
4. It would penalize a lightweight driver.
5. It would encourage lighter, flimsier cars for heavyweight drivers.

### FOR:

1. It is as easy to weigh the car *with* driver as *without*.
2. Ballast could be removable so two drivers could use the car. (The ballasting section of the rules would have to be deleted as a condition for adoption of this rule.)
3. Everything else in the Vee rules is intended to equalize the class. Only in this area is one driver given an advantage over another, under the present rules.
4. By retaining the 825 lb. minimum dry weight also, no flimsy construction would be encouraged.
5. Very few cars are able to make the 825 lb. minimum anyhow, so in many cases even drivers weighing less than 175 lb. would exceed the 1000 lb. minimum.
6. Where additional weight was required, it could very well be in the form of upholstery, full floor "board", full-size battery, and other desirable goodies.

Many of the kit anti-sway bars are too limber for proper handling. It is difficult to understand why the original VW bar should not be allowed also. Restricting to a single bar (as specified by SCCA last year) would seem to work a hardship on the kit buyer without benefitting anyone else. True, a new, stiffer bar can be installed to compensate for the original two, but why? (It is noted that many cars still do not conform to this requirement.)

For proper steering geometry, the tie-rods should normally be level. To accomplish this they must be mounted on the lower side of the spindle steering arms. The original holes will not accept the VW ball-joint studs without reaming, and will take only 3/8 in. bolts and the corresponding size of aircraft ball joints. A number of 3/8 in. bolts have broken or the joints have failed, and they have been replaced by 7/16 or 1/2 in. fittings, which require enlarging the holes. This has been accepted without question here, but it has been questioned by newcomers, both in this and other countries, and should be made technically legal.

Definition of "steering arm" has been questioned, as the term is generally applied both to the arms on the spindles (steering knuckles) and to the one on the gear box.

"Camber limiting device" is our other controversial subject. Either the Vee uses coil springs for suspension, as the rules now state, or else leaf springs can also be used, as several are now doing. Either way, the rules should be specific, and apply to everyone. So-called "camber compensators" are nothing more than a transverse leaf spring running across the car under the transmission, where it is attached. True, it limits rebound and at some point in the suspension travel it is neutral; but under most conditions it carries a part, at least, of the car's weight and therefore becomes a part of the springing system. In fact, it has been developed to the point where it sometimes utilizes several leaves, and the coil springs have either been discarded or replaced with light wire springs in token compliance with the rules. Inasmuch as probably 90% of the Vees are observing the *spirit* of the rules, it would appear that the other 10% should be compelled to conform. Or else leaf-spring suspension should be made legal for everyone.

At present, "Any lining material may be used on the standard shoes." For racing purposes, at least, better brake linings are available than are furnished by VW, but they are generally only available on pre-lined shoes which are *not* standard VW, even though the only difference is lack of the VW stamp. Brake shoes and linings should be added to the "non-stock-VW" parts list.

There seems to be no use in Formula Vee of the 30bhp engine in its original form, and no *legal* interchange of parts. This engine definition was written in 1962, when the 30bhp and 34bhp engines had about the same relationship that the 1200 and 1300 engines have now. Presently specified "part numbers" are not even included in the latest VW parts books. If you know of any reason for voting "No" on this section, please include an explanation of why you feel the 30bhp engine should still be included, or where you feel the definition of the 34bhp engine is deficient.

The two carburetors listed are the only ones used on the 1200 engine to date, but there is no assurance that a new one may not be introduced in the future. Besides clarification for newcomers, this could keep *everyone* from having to buy new carbs. As to the "hole", it is described on page 4.

As mentioned here before, valve spring shimming is *not* a standard VW practice, and there are, therefore, no "standard dimensions". If valves were ground so deeply into the head as to appreciably weaken the spring tension, the extra volume in the head would lower the compression ratio. It is difficult to accept the necessity for spring shimming on that ground.

Additional definition of the bore size is indicated because the figure "3.040", which includes an allowance of .008" for wear, isn't readily translatable into VW language. VW sizes are in millimeters, and are specified for new cylinders only, so the average parts man would have as much trouble determining which cylinders are legal as you would, turned loose in the parts room, if he depended only on that figure.

The underlined valve sizes apply to the 30bhp engine, and should be eliminated. The larger figure, *not* underlined, apply to the 34bhp engine ("from serial #5 000 001") and should remain.

Transmission inversion comes up every so often, even after all this time. The only ground on which it can now be prohibited is that it would require some alteration, and that could be circumvented. Why not spell it out?

Ballasting will be required in some cases if the 1000 lb. weight with driver is adopted, so if you vote for that, vote also to delete this section. Probably it could be deleted anyhow—why would anyone want to add ballast if he didn't have to?

The present body rule is being ignored, and, again, is one of those items being questioned by newcomers—"Isn't so-and-so's body illegal?" It would not be possible now to enforce the present rule, so it should be brought into line with present practice and should also discourage further deviations. For better definition, the relationship between over-all length, rearmost part of the car, exhaust pipe lengths, etc., should be clarified. Does over-all length include the pipes? Does "rearmost part of the car"?

Air ducting is evidently here to stay, and whether it is attached to the engine or to the body seems unimportant as long as it is allowed to *contact* the engine components, anyhow, as is permitted under the present rule. The present restriction doesn't prohibit anything—it just makes it more difficult.

As a non-stock VW item, ball joints have been pretty well covered. Master brake cylinders are in the same category—according to the present rules, strictly interpreted, only two VW master cylinders could be legally used. However, the original Vee (Formcar) was equipped with a dual-action Rambler cylinder, and Girlings are used on several makes. Another case of bringing the rules into line with practice. Brake shoes have also been covered elsewhere. Note that the introduction to this section specifies that these parts shall be "normal replacement parts".

Okay, now grab your little pencils and do your homework!

## THE VEE AND ME

WHIT THARIN

They said it couldn't be done! Not many people would have taken you seriously a year or two ago if you had suggested Formula Vee as the feature attraction of a whole race weekend. It seems that the Charleston Region, without a course of its own for three years, made a deal with the Savannah Region to stage a Regional Race on their beautiful two-mile road course. Charleston named the race the "Swamp Fox Runs" to tie in with their annual National rally, but for even more distinction they sought a totally unique angle for the weekend. That angle developed from a suggestion by a non-racing member of the Savannah Region—feature Formula Vee—all the way!

In one stroke of genius they had two all-time firsts. First, they offered the Vees the main event, the longest race, the best trophy, and the lion's share of the publicity, and, second, the Vees were given a LeMans start!

The word was sent out to all in the Southeast, and fingers were crossed—including mine. Twenty Vees came from five states (and one FC from Miami that hadn't heard it was for Vees). Eighteen cars made the grid on Sunday—double the number in any other class—and what a race we did have!

An Army 45 gave the signal for the Le Mans start, 36 feet pounded the pavement, 18 shins were cruelly barked, 17 cars roared wildly away—and mine wouldn't start! (Push started on the grass but lost a wheel on lap 14 from a broken spindle. (90 mph in a hard turn. Wow!)

The race settled down somewhat in the last 5 laps, but the first 20 were quite hectic. There was more than enough dueling and dicing going on all through the pack to gladden the heart of any real racing fan. No one seemed to notice that they weren't very fast down the chute—just awfully even—and at the finish the first four were within 5 seconds of each other. (Corky Willis, Folis Jones, Jeff Carlin, Jay Delayney.)

Race Chairman Bob Mercer and his officials were very happy with their experiment, and promised a repeat next year.

## STAND FIRM

".....I am especially interested in Formula Vee because of your stabilization of rules, allowing no new engines, etc. I am a former Go-Karter, and will say this is what ruined the growth of karting. Remain firm in your stand.

Gene Alderson,  
Indianapolis, Indiana"

## NOVICE TIPS

"Dear Don—

I have just completed my first training session with my Formcar Vee. I would like to thank you for all the information you have put in the VeeLine—it really helped me a lot.

"I am in back of you and FVI in keeping Vee stock VW. If it wasn't I couldn't afford to race! I bought my Vee used from a gentleman in New York for \$1200, including a trailer, and estimate I have \$1600 in it now. I have a TR-3 which I thought about racing, but it would have cost about \$2000 just to prepare it. Now I have a race car, and still have a good road car, too.

"I have a couple of questions. Is a small battery legal? I have heard of several drivers using one, but the rules do not say this can be changed.

"I would also like some more information on suspension setting up. I am really at a loss in this department.

"I have had trouble with cutting out on right turns.... I am running a PCIT until I get all the jets for my new PCI...

"What tire pressure should I start at?

Melvin Flint,  
Yucca Valley, Cal."

1. Congratulations! 2. Thanks! 3. That's what we keep telling everybody! 4. The battery wouldn't be considered a part of the "engine, power train, front suspension, or brakes", which are not subject to unauthorized alteration. Several are now using a Honda battery, and to save the weight of the cable, are mounting it right over the starter. It will start a warm engine, but better count on using a booster battery and cables for the first start on a cool day. 5. Whit Tharin had some suggestions on suspension in the Number 17 issue. I'd be ashamed to tell you about ours—it's on a par with the rest of our "preparation". Front shocks came on the VW, rears are the Monroe LL56's that came with the '63 kit, shimmed up from time to time to compensate for the sagging springs. We run "moderate" negative camber (couldn't tell you how much) with rebound limited to zero by a cable crossing the car on a couple of pulleys, tied to the axle at each end. The original front sway bar, furnished with the kit, was replaced with a 5/8" alloy steel bar. We're still running last season's Pirellis, with usually 24 lb. in front, 25 lb. behind. But don't tell anybody—we don't race po'boy because we don't know no better. 6. Your carburetor problem is solved (?) on page 4 of this issue. 7. Tire pressures were mentioned in Whit's article, and in the last issue of this thing. But they won't help you much—boiled down, they say "Experiment, and find out your own best pressures for your make of tires and your track."

### The VEE LINE of Formula Vee International

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## ETERNAL PROBLEM

"Does anyone know what causes the engine to cut out when making a sharp right turn? Does anyone know how to correct this?" That was printed in the first "Bulletin", in October, 1964, and, while there have been a few answers, it still seems to be a problem. At least with some cars. Oddly, some cars seem to be immune, though whether it is due to some difference in carburetors, or driving, or some secret remedy is not known.

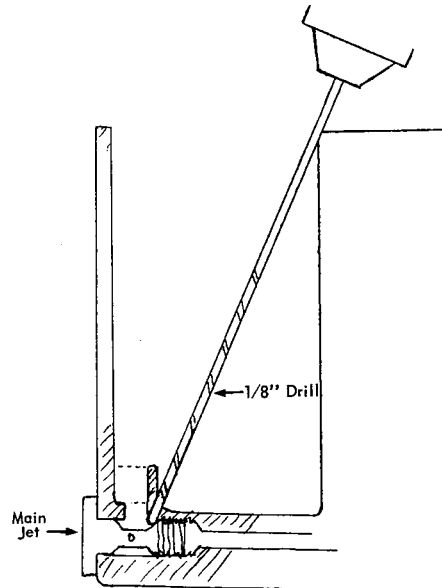
Cutting-out is a problem, not only for the owner, but for all other cars in the vicinity. "Letting-up" in a turn, whether voluntarily or through malfunction, causes "oversteer". When done purposely, to change the car's attitude, it can be helpful, but it seems that cutting-out often happens at just the wrong time, causing handling problems as well as loss of power. A car crossways on the track is a hazard, no matter what the cause.

With the late model carburetor, cutting-out is noticed on right turns, but with the older (PCI) it is only encountered on turns to the left. It is sometimes attributed to flooding under the influence of centrifugal force, but the absence of black smoke, typical of too rich a mixture, would seem, instead, to indicate starving.

A few cases have reportedly been cured by raising the fuel level in the bowl. This can be done by bending the float pivot, omitting the washer under the float valve, or installing a larger float valve (which takes more pressure—a higher fuel level—to close). However, there are still owners who have tried all these ideas with no success.

So here's one more possibility. It's not guaranteed, but like the above measures, it has helped in some cases. It is illegal in that it is an "unauthorized" modification, but in the interests of safety it is to be hoped that it will be overlooked (as are some other such items mentioned elsewhere) until it can be legalized.

All that is required for this "modification" is an electric drill and a bit (1/8" or thereabouts) long enough to reach to the bottom of the bowl, as shown in the sketch. If you can't find one, have an extension brazed or silver-soldered to a standard bit. The hole should be drilled on a slant, as shown, in order to clear the threads on the main jet (or jet carrier, if you're still not using an adjustable main jet). The purpose of the hole is to allow fuel to run directly to the main jet from nearer the center of the bowl, rather than having to go over the little "dam" in the corner. It seems to be more effective on the older carburetor than on the later style, but helps on either. If you have been fiddling with the fuel level, better restore it to standard if you try this route. Remove the main jet, of course, while drilling, and wash out the chips afterward.



## NOT QUITE MAINTENANCE-FREE

"Dear Sir—

After a 2-year absence from racing because of insufficient time to prepare a car, I have considered that a minimum-maintenance car is the only recourse.

"I wonder if you could give me some information about the maintenance schedule for a winning Vee.... My hope is that this will turn out to be not a great deal of tinkering, but I suspect that preparing a winning car in any class is a Tuesday-through-Friday job.

"....I'd appreciate some specific information on tuning, which tires seem generally most suitable, and any differences among the various marques.

Ray Houchins,  
Berkeley, California"

Well, Ray, I'm sure our maintenance schedule, mentioned on page 2, isn't typical, but I doubt that anyone routinely spends a lot of time on maintenance. After all, what can you do to a VW if it doesn't need it? As to tires, that seems to be a matter of local preference. In the SE, it's Goodyears, in the NW, Firestones, and in California, there seems to be a tendency toward Bruce's cheater slicks. (Anyone think I'm kidding? Ask Glen Biren when you see him at Riverside this winter!) If it helps any, the first eight places at the July 10 race at Cotati were taken by one each of the five major makes, and three specials (Biren's first).

## UNCLASSIFIED ADS

FOR SALE: Autodynamics, just painted bright blue. Koni shocks, R-2's, spare engine parts, tire, wheels, etc. Steel trailer with folding ramps. Best offer over \$1300. Will haggle or trade. Mention Vee-Line and I'll pay your membership for the next two years. Scotty Dietz, 30 Ferncliffe Road, Morris Plains, N. J. Phone 201-538-1827.



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