



VEE LINE

NUMBER 30

MARCH 1967

DIRECTOR'S CORNER

Well, we have another ballot this month. Doesn't that make you feel like you're "part of it"? This ballot isn't just for the purpose of voting *for* something — a vote *against* is just as important. So don't ignore it, please, just because you're not interested in another class. VOTE — one way or the other!

Only a few "census takers" have reported. How about the rest of you getting in the act, before you get too involved in the racing season? Please include FVI members, as well as non-members, as a separate card file is being set up.

HIS CUP RUNNETH OVER!

Well, how would you feel if, at an age when most people are hoping to retire and spend the rest of their lives fishing, you'd started racing cars, done so well you were tapped for the National Championship race (and had come within shooting distance of winning it), had been elected President of Formula Vee International, and then, to top it off, had been selected for the "Rookie of the Year" award? What are you going to do for an encore, Harv?

By the way, it's been overlooked in all the reports I've seen, but this is the third year in a row that this award has gone to a Vee driver. Kurt Reinold won it for 1965, and for 1964 it was Ray Caldwell.

HERE WE GO AGAIN!

The most — in fact almost the only — controversial subject left in Vee preparation is the camshaft. There are still a few questions on other parts, from time to time, but they are gradually becoming fewer as more and more people seem to be gaining better and better knowledge of VW components, and an increased respect for the rules. However, comment and speculation on camshafts are on the increase, being apparently of more interest now than were the "mystery gears" of a year or so ago.

There have been a few questions as to whether or not it is legal to "reshape the cam within VW specs." I am at a loss on this one, inasmuch as I have never seen any official VW specs on the cam profile itself, and doubt that they are available anywhere this side of Germany (and so far, I haven't been able to get them even from there).

Next in popularity is the question, "Is it legal to relocate the cam in relation to the timing gear to bring it within VW specs?" Various figures are cited to show that the stock assemblies are way off from the specs shown in the VW manuals. Personally, I doubt that they are off enough to make any detectable difference in performance.

In the first place, VW cams are so far from the optimum for a racing cam that a degree, more or less, at any spot (and particularly in the area where the valve is practically closed) couldn't possibly have much effect. Regarding the location of the timing gear in relation to the cam, according to Iskenderian, you "lose it here, and get it there." In other words, with no change in the cam except for advancing or retarding in relation to the crankshaft, the only effect is to move the horsepower peak up or down the rpm scale; and with the slight differences cited, this again would be undetectable.

In either case, *in my opinion*, altering the shape of the cam, or changing the location of the gear on the camshaft, would come under the heading of "modification not specifically authorized."

As to how many cams there are — or have been — until I see some definite proof (like the cams themselves), I'm going to believe VW, as quoted in No. 26 VeeLine, to the effect that there have been only two, with the break at engine #6 864 207 (June 1962). Apparently the "D" refers to the *combination* of the "C" cam and the gear (which has a number of its own — 113 109 111A, and is found on both shafts). The differences in the last three digits are due to the fact that they specify the thickness of the teeth used on the gear (they come with *eight* different "grades" of teeth) for the purpose of selection so that *no* backlash exists between the crankshaft and camshaft gears. The grades are numbered 019, 021, 023, etc., to 035. Thus the number "113 109 019D — 035D." There was evidently a short period when the "C" grind was used on "B" billets (distinguished by yellow and green paint spots), which might account for one of the "mystery" cams, but so far there has been no real evidence brought to my attention which would indicate any additional ones. (Would you believe a cam which will fit *both* the 36 and 41.5 HP engines, for instance?)

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PROBLEM - -

The following is lifted from the Formula Racing Association's "Open Wheels," quoting an unnamed writer in an unnamed British publication:

"Unless some stability returns to motor racing in the very near future, it will lie down and die. Season after season, there are changes in the types of race being run and the class of car being supported. . . . In 1966, Formula 3 racing attained an all-time high in popularity...; in 1967 no financial support will be forthcoming for the Formula 3 teams, and only one Formula 3 race will be run at a major meeting. . . .

"Formula 3 is the base of the pyramid of British racing, of which Formula 1 Grand Prix racing is the apex. It is in Formula 3 that future British Grand Prix drivers learn their trade. Withdraw the financial support that makes the semi-professional Formula 3 teams possible, and in effect you have closed the nursery slopes of British racing. With the result that in five years time we shall be scratching for British drivers for our Grand Prix teams in a world increasingly dominated by Continental and U.S. drivers."

- - AND ANSWER?

The following is a release from "Club V France." The President of this Club is Maurice Trintignant, who also happens to be one of the greatest of the French Champions in Formula One in the post-war period. He is now retired from Formula One, but is still active in racing activities.

"French auto-sport is being reborn. Certain of our young drivers are earning international acclaim. During the years to come it is necessary that they continue to receive encouragement.

"Automobile racing is no exception to the rules of sport in general: in order to find the elements of valor which tomorrow will make one 'star' will require shaping and training of tens, even of hundreds, of drivers.

"The creation of the 'Club Maurice Trintignant' answers this need: to give to many young Frenchmen who have the desire to participate in single-seat competition, the opportunity to take their first steps in that discipline.

"That opportunity is exclusively destined for young amateur drivers, giving them what amounts to 'the First Chance' to demonstrate their qualities in that type of competition. For that reason, a list of drivers is being established, with particular attention, so that the famous

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1500 CC?

"Dear Don - On FV Super, I don't see any advantage in having two classes of Vees, but if we had to have them I would favor a real 'super' class - dual carbs, free choice of cams, Hewland gears, limited slips, mag wheels, disc brakes, and engine Preparation to SCCA 'Production' specs. All this would add a thousand dollars to the cost of a prepared Vee, but with performance to match. We have no need for another 'stock' engine class. By the way, I would continue to run the '1200' class."

Jim Lindsay, Seabrook, Tex.

Incidentally, Jim was the first to send in his census figures. How about some more of you getting in the act?

TIPS FROM AN EXPERT

Jeff Carlin, of Merritt Island, Florida, sent a page of an English magazine carrying an article about the engines prepared for the Beach cars by Wayne Purdy. Are you still with me? Much of it is routine stuff and some of the items may be disputed, but for a few of the more interesting ones -

"An important thing to keep in mind is that it is quite pointless to use 8000 rpm valve springs if the engine rev limit is 5000 rpm, the extra tension absorbs horsepower. . . ; "skirt clearance (piston) is increased to .007". . . . This engine uses the "B" cam from the 1960-61 engine. . . ; valve lifters are from the same engine - 8/10 of an ounce lighter (*this combination was modified by VW due to the thin heads of the lifters chipping off and tearing up the cams. Whether the extra lift wrecked the cam followers or the followers chipped and tore the cam isn't known, but the combination was good for 10,000 to 20,000 miles, so was replaced.* don); the 29-blade fan is replaced with an early model having 16 blades. . . ; the old transporter distributor (VJR4BR25) is used. . . . The 28 PCI carb venturi is enlarged to 28 (?) mm; 140 or 145 main jet and 170 air correction jets are installed. "The lower two holes in the carburetor emulsion tube are blocked off. Without this modification there is carburetor flooding in a tight corner taken at speed." (*If you try this, let us know if it works.* don) Baffles are used in the Purdy engines, but a picture is also included showing a rubber grommet on the pushrod for the purpose of sealing off the valve chamber to prevent oil sloshing in the turns. Someone else asked about this lately, too. It appears to me that (1) if everyone else has pushrods as far off-center in the tubes as ours are it would be hard to get a seal, and (2) if you could, how would the oil drain back from the valve gear?

PEN PALS?

"....I would be interested in joining FVI, and also in corresponding with some of its members about my own age of 20."

*Greg McKensie
70 Elm Row, Dunedin, New Zealand*

VALVE SHIMMING

"Dear Don - I have a question on Valve Gear. Were the Austrian Vees (at Nassau) shimmed under the valve springs? If so, to what dimension?

The 1.350 loaded height seems ridiculous. 0.150 is required to get this dimension. However, it may be required, as this is the only dimension supplied by VW."

*Jim Bentley,
Mentor-on-the-Lake, Ohio*

In the first place, you'll notice in the Vee rules that no figure is furnished for "the standard dimension," mainly because there isn't any. I understood that this phrase was to be deleted for 1967, but it's still there.

In the second place, if you'll check your VW source more carefully, you'll find that the dimension you quoted is the minimum acceptable height for a valve spring when subjected to a specified load. In other words, it is only furnished for the purpose of testing valve springs, to see whether or not they have lost their bounce. VW furnished a test fixture equipped with a lever for applying pressure on a spring, a gauge for measuring the pressure, and a scale for measuring the height of the spring. Springs not meeting the requirements are to be replaced with new ones. It should require a load of 102 lb. to compress a spring down to 1.350". OK?

Shimming, then, is wide open. If you think it will help, you can shim all you want - just be careful that you leave enough room for the spring to compress without bringing the coils entirely together when the valve is open. It's not a standard VW practice, so no VW shims are available, but you can get them at most auto parts houses.

The only reason for valve springs at all, of course, is to close the valves after they have been opened by the cam. If the springs are too weak, they won't force the valve train back into closed position fast enough to follow the slope on the "back" side of the cam; and if this is delayed too long, it can result in loss of compression, at best, and valves and pistons trying to occupy the same space at the same time, at worst. "Valve-float" is one of the limiting factors in engine speeds, especially in the high-speed racing engines. A point is eventually reached where a spring strong enough to close the valves as rapidly as is required is also strong enough to pull the stem out of a red-hot valve head, or ruin a cam, or otherwise rearrange things.

As far as I can find out, valve-float is one ailment VW engines (legal ones, anyhow) are immune to, and as far as I'm concerned, the less effort needed to operate the valve gear, the more power will be available at the wheels. But suit yourself. Oh - the Austrians may very well have picked the eight strongest springs in a thousand, but they did not use shims. don

If you've suspected that "Nassau" is finished, you could be right. But look for a bigger and better event for 1967 in the near vicinity. With Vee events that make past ones look like local Regionals!

GEARS

"Dear Don - I have a '54 transaxle in my car, and, to put it mildly, I'm over-gear. . . . I would like to know what combination of gears will give me the most acceleration off the corners. I have three transaxles - a '54, a '59, and a '63."

*Ted Stratton,
Staten Island, N.Y.*

Your '54 and '59 transmissions are essentially the same. They have the same third and fourth gears as are used in Transporters - which are higher (faster) than the standard sedan gears used in the '61 and later boxes. Transporter third gear is quite popular, but you'd need a lot of straightaway to take advantage of Transporter fourth. You have no choice of gears in the two older transmissions, but can install any combination of sedan and Transporter third and fourth gears in the latest one. (First and second have been unchanged since way back when. For more dope on gear ratios, see No. 12 VeeLine.)

This is a bit difficult to express, but anyhow - at any given engine speed you will have less road speed, but more acceleration with sedan gears. With Transporter third, however, you can shift to sedan fourth before you run out of revs, and your engine speed in fourth (after you shift) will be a little higher, and a little farther up the horsepower scale. Your acceleration, then, won't drop off as much at, and near, the shift point as it would with both third and fourth gears from a sedan.

To be a little more specific, if, with sedan gearing, you shift at 5000 in third, your engine speed in fourth will be 3371 (at the same road speed). At 5000, your horsepower is about all used up; and at 3400, it's just coming on well. Using Transporter third, you could shift at 4800, and your engine speed in sedan fourth would be 3500 - both of which are substantially higher on the horsepower curve. If you're hanging onto third gear - or any gear - past 5000, you're making lots of lovely noise, but you're giving away feet - or maybe yards - to the opposition.

GOLD STRIKE!

Vee owners in the general area of Northern California will have an opportunity to make expenses, and then some, this season. The Reynold C. Johnson Co., Volkswagen distributors for northern California, northern Nevada, and Utah, are posting \$300 in prize money for each of eight (and possibly nine) Regionals in that part of the country - one in the Salt Lake Region, one in the Reno Region, and six or seven in the San Francisco Region. Vees only, of course. See, call, or write Harriet Gittings, 37158 Blacow Rd., Fremont, Cal., for details.

Not only that, but if the winner happens to be driving a Crusader, Crusade Cars will sweeten the pot with another \$25.00. Their offer of \$50 to the winner of a National (if he's driving a Crusader) is also in effect this year, again - and presumably these last offers are good anywhere.

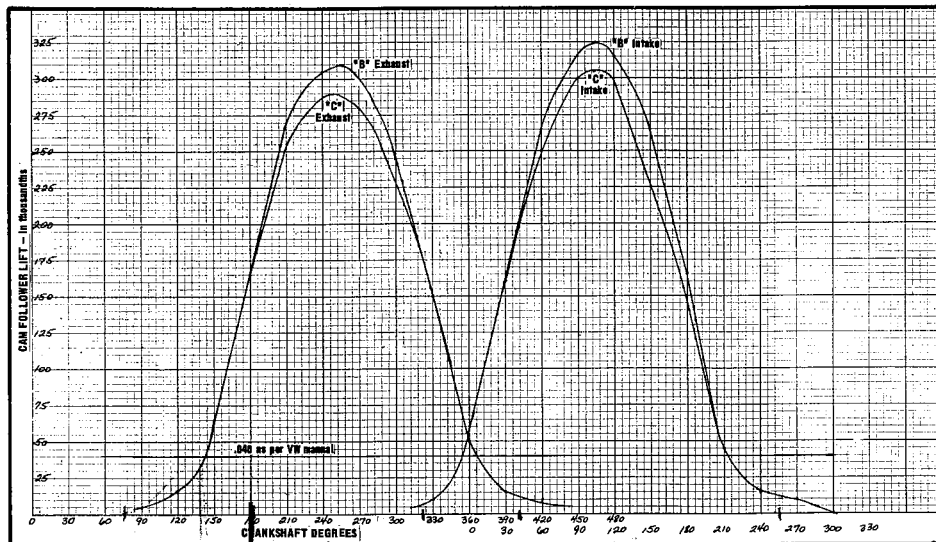
HERE WE GO AGAIN

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The accompanying graph is admittedly based on only two cams which I happen to own — a "B" and one marked with a "C" (could it be a "D"?). It was arrived at by partially assembling the engine — crankshaft and camshaft only — in the two halves of the case, torqued properly. Cam followers were inserted in the respective guides on one side only, and a dial indicator arranged so that the movement of the cam could be observed and recorded. Readings were taken 30 degrees apart (crank shaft degrees, which interpolates to 15 degrees on the cam) except at the top and bottom, where some intermediate readings were taken.

As you will note, the bottoms of the slopes are identical — or as nearly so as could be determined by this method. A cam is essentially round for approximately half of its circumference, and the transition to the curve which forms the "slope" is hard to detect. (You can tell, within a few feet, where the straightaway ends and a curve starts on a track, but would you bet you could point out the exact spot, within an inch?) For this reason, VW specifies that valve timing should be checked with .040" clearance at the rocker arm. That's FORTY thousandths — not FOUR. Therefore, the "overlap" obtained with that method is meaningless. The graph indicates an overlap of somewhere around a hundred degrees with a clearance of .005". The important point here, however, is that it is essentially the same for *both* cams. True, "the book" shows variations between them of a couple of degrees (at forty thousandths), but if you will try to mark this difference on the graph you'll see that it is hard to detect.

By the way, this graph isn't intended to show the actual *shape* of the cams — it's only coincidence that it came that close. A different choice of spacing for either thousandths or degrees would have resulted in an entirely different curve.



MORE EUROPE

An English version of the European Vee rules has finally been obtained. Actually, except for the difference in displacement, we are not too far apart for 1967. They allow 4½ inch wheel rims and "first oversize" cylinders, but their modification limitations are quite similar to ours in most cases. The body rule is much more specific, with definite measurements for the rear portion and the requirement that it cover the engine and transmission. The differential gears are limited to sedan only, and the permissible gears for the transmission are specified by ratio (no "mystery gears"). In general they are much more specific, on all covered points, than are ours — clarity has obviously been considered more important than brevity.

UNCLASSIFIED ADS

FOR SALE: Autodynamics with A-D prepared engine. \$1995. Wm. Denison, 2615 Vista Larga NE, Albuquerque, N.M.

FOR SALE: Autodynamics. Consistent winner. Tom Wingett, Box 123, Meriden Rd., Cheyenne Wyo.

NUMBER THREE

All you people who apparently think a complete collection of VeeLines is necessary for racing, or that it will be valuable enough some time to support you in your old age, or something, please note:

Number three has been reprinted. I'm tired of explaining that it wasn't worth reprinting (though it really wasn't). If you feel that life just won't be worth living without a complete set, it's available, at 25¢ each, as usual. Just don't say you weren't warned — no refunds!

George Eickhoff sends along a 45-item check-list he uses between races, to make sure he is ready for the next one. It's no doubt the way to go, but doesn't it eliminate a lot of the suspense and excitement, George?

FOR SALE: Formcar, good condition, race-ready. \$995, or will trade on Bobsy or Zink in like condition. Jim Lindsay, 118 Cedar Lane, Seabrook, Tex. 77586 (713) 877-1141.

FOR SALE: Viper Vee, perfect body, engine balanced, good tires, 3 and 7 gal. tanks. Bob Mead, 2480 Fisher Rd. NE, Portland, Ore.

THE VEE AND ME

Whit Tharin

How to get started in Formula Vee.
At the first twitch of the Starter's arm, dump the clutch and go! If you do it right and get a better start than the rest of the field it could earn you a couple of positions before the first turn. And a couple of positions could get you past cars that may be faster on the straight. And if you can get into the turns ahead of them you may gain enough to keep them from passing you down the chute. And that might win a race for you!

A good start begins long before that Starter drops the green flag. It begins in your garage, where you adjust and fiddle with your gear shift until it is quick, certain and positive in shifting to any gear. It continues from the garage to a practice strip. You may not think much of drag racing, but if that's the only place that can be conveniently (or legally) used for practice, take your Vee and go. After all, the dash for the first turn *is* a drag race. And those fellows just might teach you a thing or two about how to get out of "the Hole" without burning rubber or dropping revs.

Many factors combine to determine the optimum engine speed for a good start. Concrete, asphalt or macadam surfaces present definite variations. Add a little sand or surface grit and they vary some more. Other variables include the size and type of tires, the rear axle ratio, and the natural slippage of the clutch. But one beautiful piece of luck with Formula Vee is that the VW sedan clutch is just about perfect for this kind of start. It has just the right amount of natural inherent slippage. It need not be engaged carefully or skillfully, but it is still plenty strong enough to spin the wheels and deliver all the power to the transmission. Just dump it — let it out all at once!

What you want for an optimum start is a minimum of wheelspin while keeping the engine above 3400 rpm. Set the rpm and hold steady — goosing the gas will get you nothing but the wrong engine speed when the flag falls. Experimentation is the only way to tell what rpm is best for your Vee. Depending on the variables, I set mine at 3800 to 4200 rpm and slam the gas pedal to the floor as the clutch is dumped, keeping the engine above 3400. Sound simple? Try it!

Among other things that should be learned at the drag strip is the full-power shift. The accelerator pedal should never be lifted during shifts coming off the line. That takes practice and complete confidence in the gear shift. The transmission and clutch will stand it, so learn to do it. If a shift is missed, it probably won't hurt the engine — the first few times. By then, you should have it down pat.

Don't overlook the Starter. All good Starters try very hard not to telegraph the start, but I have seen only one who didn't. They all have their idiosyncracies and you should learn them. When any other class is starting a race, go to the grid

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PROBLEM & ANSWER

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experienced drivers are excluded from the events of the young amateurs.

"The magazine *L'Automobile* has graciously offered to accept the responsibility for that enterprise, contributing thereby a decisive effort toward the democratization of the Automobile Sport....

"Since Maurice Trintignant has always been eager to give young drivers the benefit of his incomparable racing experience, we are giving his name to the Club created for them.

"In addition to the 'Club Maurice Trintignant' there will be instituted a series open to all the drivers of Formula Vee, without restriction, to reward the better established drivers of Formula Vee.

"For the 1967 season, Club V France is staging, in cooperation with the French Federation of Motor Sport, a calendar of races for Formula Vee including some 60 competitions.

"Under the official leadership of the Ministry of Youth and Sports, and with the sponsorship of the magazine *L'Automobile*, the 'Club Maurice Trintignant' will offer their first chance to young amateur drivers, while the 'Silver Helmet' series will reward, at the end of the season, the better, more experienced drivers of Formula Vee.

"Several tens of thousands of francs will reward the leaders of this second competition."

A list of approximately three hundred drivers not eligible to run in the "amateur" races was attached, and a list of prizes. In the "amateur" series, a Volkswagen camper was the prize for first place, followed by a number of "Driving Scholarships" of varying value. In the "Silver Helmet" series, first place was worth 10,000 francs (about \$2000).

The VEE LINE of
Formula Vee International
Don Cheesman, Director
Box 291 Ephrata, Washington 98823

DOWN UNDER

From Australia's *Racing Car News*, discussing a race at Oran Park -

"Any one of four races could have rated Feature Race for the day, but in my book the one which most impressed, perhaps surprisingly, was the 12-lapper for Formula Vee cars." A full column follows, describing a typical three-or-four-cars-neck-and-neck-to-the-wire Vee race.

And what class do you suppose was the largest at the Australian Grand Prix? Formula Vee, of course, with 31 entries.

Incidentally, Australia too has a list of expert drivers who are not eligible to compete in the "minor" classes, including Vees.

CAN'T KICK THE HABIT

Ex-President Whit Tharin, who "quit" Vee racing in 1965, but ran a few in 1966, just to keep his hand in, finally sold "Old Yaller" and bought a Zink, and is promising the competition nothing but trouble for this season.

SIGN OF SPRING

Spring isn't officially here until some Vee driver is told he has to wall off his gas tank from the engine compartment and from the driver's compartment. Last year it happened in Texas; this year's call was from Rockville, Md.

Once again, if you run into any tech inspectors who throw this one at you, ask them to check the GCR again. This provision is found *only* in the "SCCA Sports Racing Category" rules (Appendix A, Sec. 2) and applies only to that class of automobiles.

RIVAL

Formula Vee, just getting started in England, has a rival, already. It's "Formula Ford", based on "stock Cortina GT engines, etc.," in a Lotus 31 type chassis. It's said to be "patterned after Formula Vee."

OPPORTUNITY

Don't stop me if you've read this before - some of it is new. Anyhow -

Last Summer at Delta Park (Portland) Petunia froze a piston. On Saturday afternoon, yet! A local VW mechanic invited John to take the car to his home garage, called around town to find parts, and by 8:00 p.m. had it running like new - so well, in fact, that the next day it beat the Vee he had been regularly maintaining.

Since then, he has gone into partnership with the owner of the other Vee in a shop specializing in VW (and Vee) work. Heard from him the other day:

"...I will still do a cylinder head job for anyone for \$30 per head (their head). This includes new valves and springs, new guides, if necessary, and the ports polished. I will sell new heads at my price of \$20.50 to anyone wishing to go that route."

So see - or write - George Sipes or Bob Boyd at "Checkpoint Motors." It's located at 600 Super Highway 99, Gladstone, Ore. (That's in Southeast Portland, actually.)

GRAND PRIX FOR FORMULA VEE

This event, which was a huge success last Fall, even though organized on rather short notice, will get the full treatment this year on Oct. 7 and 8 at the Steel Cities International Raceway (formerly Nelson Ledges) near Warren, Ohio.

THE VEE AND ME

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and take a position that will let you watch the Starter work. Study him. Look for his tip-off; it can give you one to three tenths of a second advantage. Does that sound like more trouble than it's worth? Well, one tenth of a second is worth more than ten feet if you reach the first turn at 70mph. You need less than *one* foot to take possession of the first turn. But that's another story!



**Formula Vee
International**

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