



VEE LINE

NUMBER 79

APRIL, 1971

DIRECTOR'S CORNER

It may occur to you that there are a lot of "Members' Soapbox" letters this month. You may even recognize one that you wrote some time ago. Many of them are pretty old, saved for times like this because they are of general interest.

From about September to May we're pretty well occupied with the rules ballot, the new rules issued by SCCA, ways to comply with them, the ARRC, officer's elections, etc., so that there isn't space for all the letters we'd like to include. If they're of lasting interest, however, they're filed (piled, rather) for future use like during the next few issues when things are rather slow from a news standpoint.

So don't give up writing if your last letter seems to have been ignored. It may show up on these pages months later. Even if it's never used, you can be sure it's read and appreciated.

OH, SAY, CAN YOU SEE?

It's an axiom in any car—race or highway—that you should "watch your mirror", but it's pretty obvious that the mirrors on some Vees just aren't made for watching. Many of the later cars have the mirrors mounted conventionally alongside the cockpit, but the only view to the rear is the reflection of the wider body section and the rear suspension. Mounting them on the front shock mounts permits a view directly behind the car but at that distance the viewing field is so narrow that cars off to the side can't be seen. Convex mirrors will give a wider field of view, but give a distorted picture, making cars seem farther back than they actually are. This can be embarrassing when you have to judge, within inches, whether a car is behind or beside you.

According to those using them, the new full width mirrors, mounted above the steering wheel, are the perfect solution—full field of vision, not affected by vibration, and require no body-English to use. And not all that expensive, either—around \$15.

If you don't think the additional safety is worth that much, it's likely you can make some improvement in your present system for only a few cents. If you have the type of mirror with a single bolt mounting—the kind which has a sort of ball-joint adjustment—you can improve the visibility considerably by simply welding a four-inch extension on the bolt and a four-inch length of tubing to the washer which goes next to the body. The open end of the tubing then becomes the "socket" for the "ball" on the mirror itself, and adjustment is made the same as before.

If you note that you're in a "blind spot" behind the car ahead, you might drop a hint to your tech inspector. He *might* save you—and your competitor—some future trouble, even without a written protest.

MORE ON "LEGALITY"

Item: In the report of the Court of Appeals on the famous "Atlanta Case" it is mentioned that "Mr. Zink and Mr. Ingle presented the carburetor from Car #34 and demonstrated the manner in which the tube had been tapped with a hammer to make clearance for access to the main jetting. Mr. Zink also presented dynamometer data showing no consistent gain or loss of power from this alteration." If you are having problems getting to your main jet (or even to your air correction jet) because of that vent tube getting in the way of your screwdriver, try holding the screwdriver vertical. Remember, this operation in itself was declared illegal—the Court of Appeals affirmed only that it was OK to levy a \$100 fine for it, allowing the race positions and prize money to remain unaffected.

Item: Formula Ford owners had somewhat the same experience at Atlanta—an illegal gasket was somehow unavailable to the scrutineers.

Item: Frank Schulthies' tech inspections are getting to the point where they're somewhat embarrassing, even to him! Recently shims under the rocker arm supports were noted on a Vee. (Didn't you slip a couple of washers under them to compensate for the metal removed when you cc'd the head?) Obviously, they were "unauthorized modifications", even though, just as obviously, they were necessary, so the car was found illegal. The owner appealed the ruling, and Frank wrote a letter to the Court, endorsing the appeal and recommending that it be upheld. He also recommended that this "modification" be made legal for next year. (Remind us to include it on our Rules Ballot this Fall.)

Item: Just got the April "Sports Car" magazine, which includes a summary of several recent "Court of Appeals" rulings. No, the "Atlanta Affair" isn't included, but remember, it was three months later before they even got around to settling it! Maybe in the next issue?

THE LAST WORD

We've pretty well covered the feelings of the participants and the rest of the "Vee people" regarding the display of SCCA "justice" at Atlanta. Did you ever wonder how Frank Schultheis felt about it? Here's how he expressed it to Bob Tomlin, SCCA's Director of Club Racing:

"Dear Bob:

Having remained silent throughout the entire Terry Gough appeal of the ARRC F/V modified carb matter—for I thought that justice would be done by our highest court—I must now speak out against the result of his appeal, and against the complete lack of attention given to the real points and problems involved in the case.

An unauthorized modification was present on the first and second place Vees, and regardless of whether or not it made them go any faster, this WAS an illegal item, and they should have subsequently been disqualified!

To assess a \$100 fine when over \$1000 was the prize still leaves a sizable award. Are competitors being paid money to have illegal cars? I do hope not! I do hope that a precedent has not been set by the actions of this court—a precedent that can not be "shut off"!

I was looking forward to seeing real justice done by SCCA's highest court, and had faith that I would be "in" on having contributed to a real test of our system. Instead, I am ashamed to have been a part of the matter! It was turned into a sham, and I for one wish that my feelings be made known to those members of the Appeals Court who made the final decision.

The SOM's in the case were even hoping that their action WOULD BE PROTESTED, so that a precedent on such prize money fines would be established!

I only wish that all individuals who sit in final judgment on SCCA matters could work with a Scrutineer when he is attempting to apply his limited knowledge to his duties. Perhaps then some more realistic decisions would be made!

*Respectfully,
Frank Schultheis, Chief Scrutineer
San Francisco Region, SCCA"*

That boy will go a long way in SCCA—if he doesn't get himself excommunicated!

The VEE LINE of FORMULA VEE INTERNATIONAL

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REMINDER

If your Scrutineer hasn't reminded you already, remember that this year you have to have a catch tank for your tranny as well as for your engine. It's not as silly as it sounds, really—Volkswagen spent a lot of time and research on developing a rear cover (front?) which wouldn't throw all the oil out, so it's possible that some of the early ones which did are still around. (SCCA isn't picking on Vees, you understand—this requirement applies to *all* cars.)

If you haven't done it already, probably the simplest way is to find an old piece of plastic gas-line tubing and a bolt of the proper diameter to fit snugly inside it. Cut off all but two or three threads on one end of the bolt (the threaded end!) and all but half an inch or so of the unthreaded part, and drill a hole (1/8" is large enough) through the center of it.

Drill out the little vent hole (just above the shifter shaft) to the proper size for the proper sized tap, and tap the hole. You'll find that the drill—and tap—go in a little way and then stop. (At least they'd better!) That hole doesn't (didn't) go straight into the gear box—it just goes into a passageway cast into the cover, with baffles and things in it. That's why you only want a short thread on the bolt—so it won't bottom on the other side of the passage. Fill the flutes on your drill and tap with soft grease to catch and hold the chips, and you probably won't get any of them into the works. If you do drop a couple, they're soft enough that they shouldn't hurt anything.

Screw the length of bolt in tight with a pair of pliers (using gasket goop) and slip the tubing over it. The rule says you can use one two-quart tank and vent both engine and transmission into it, if you prefer, rather than two one-quart tanks.

MEMBER'S SOAPBOX

(Ed Givler, whose letter follows, had a Vee for a time, but felt it wasn't competitive. He switched to "C Sports Racing", building his car on Vee components, mainly, and calling it a "Vee Sports Racer". Several others followed, so there IS such a class within a class, in his area. He has kept his FVI membership, and interest in Formula Vee, however, and his comments here are for the benefit of Vee owners.)

"Dear Don... You should have watched Earl Nicewarner at the Bryar National, in turn 10. He was using the cornering technique you recently described—about one second faster on that turn alone! He passed most people in the last 50 yards before the turn. His secret—an exceptionally well handling car, properly operating brakes, and great driving. If you are not going through the turns as fast as everyone else—don't bitch about illegal HP!... If you are using the latest Goodyears or Firestones, wear must be even across the tire. How else can you get maximum traction? Lower the tire pressure so that the middle wears off only as fast as the edges. (Change understeer—

oversteer with suspension—not tire pressure—as you can only change it via tire pressure by *decreasing adhesion!*) Camber must be correct *during cornering* for maximum bite.

"The rear must have a good *active* unloaded Z-bar or camber compensator... Rear camber, with driver, should be about zero. Front static camber depends on the amount of body-roll you wish to have. The front (and rear) must operate freely and not bind up.

"There appear to be two successful theories on stiffness—"soft", and "stiff". The suspension must be matched, front and rear, including camber, regardless. "Stiff" uses zero camber front and slightly negative rear. "Soft" must have negative front (I can get lots) and about zero rear, plus a moderate Z-bar (or compensator).

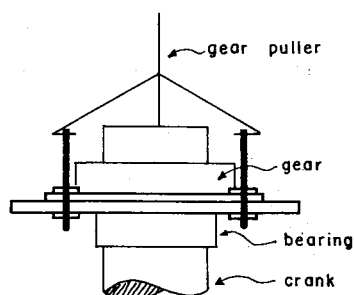
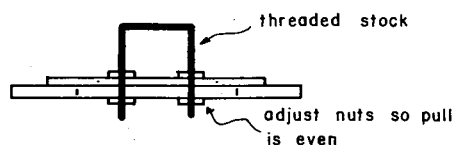
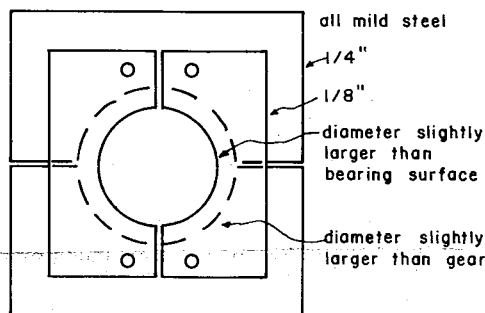
"The rear and front should both have less than 1/8" toe-in or -out. *Bump-steer the front.* Assuming no loose parts, measure toe-in with driver in position (zero to 1/16" in). Push down on the front end, and you should have zero to 1/8" out. Rotate the steering box or use spacers under the tie-rod ends until you get this condition. You now have a mildly behaved car!

Ed Givler, Marblehead, Mass."

(Here's another one from a non-Vee FVI member, who races a 1300cc VW C-Sedan.)

"Dear Don—Enclosed find a drawing of special Vee Tool #66, for removing the cam-gear without cutting the front bearing. I do it this way as I couldn't find a gear puller that could be adapted as you describe in Vee Line #77...

William Gilbert, Corvallis, Ore."



"Dear Don... Carb bodies and upper castings may warp, apparently because of over tightening the four screws, causing possible leaks either to the outside or into the venturi area. To check, remove gasket and float components, place the top casting on the body and hold up to the light and check for gaps. My fix is to secure a flat steel plate and apply lapping compound generously. Press the upper casting (and the body) against the plate and rub in a circular pattern. To check progress, wipe the surface clean and observe the ground area, until the entire surface shows a grinding pattern.

All protruding parts must be removed, of course. Even the emulsion tube housing can be grasped with a pair of pliers and pulled straight out, using a slight rocking motion. "I make no guarantee of the effectiveness of this procedure, but of all the things I have tried, this has apparently cured all carb problems, left, right, fore, and aft.

John Boyles, Waterloo, Iowa"

Thanks, John. I'd been saving this for sometime when I was short, but since you've brought the subject up—this works well on steering gear caps which have been overstressed in combat, too. If you can't find a steel plate, a sheet of plate glass will do, and if it's a piece you don't want to scratch (like your wife's antique mirror) use a sheet of fine emery cloth, instead of the compound. As to the carb cut-out—I've yet to hear of anyone who couldn't cure it by use of the "loose float". Unless you have run across a new one, the problem (as evidenced by lack of black smoke) was starvation, rather than flooding.

(This next letter is one of the older ones, but even though there has been little or no static on tire wear lately, the observations are still valid. The writer is probably the best-known Vee driver in the world. He has driven at every ARRC race, has driven in every Division, on all the well-known tracks and most of the others, and is certainly qualified to make these observations.)

"Dear Don... What happened to the Goodyear "Gumballs" that would last as

UNCLASSIFIED ADS

FOR SALE: Zink, 1½ years old, but brand new—never raced. \$1200, or trade for equal value. Bryan Gergen, 936 N.E. 192nd, Portland, Ore. 97230. Phone 666-2144.

FOR SALE: Autodynamics MK 5B. Pro engine, many spares, other goodies. Frank Schafer, 5 Melrose St., Boston, Mass. 02116. Phone (617) 426-0536.

FOR SALE: Unfinished Vee. Kellison body, frame, seat, gas tank, front suspension, transaxle, engine & rims. \$600. Dave Ducret, 3754 East River Rd. N., Oswego, N.Y. 13126. Phone (315) 342-1530.

WANTED: Used Vees to list here. No charge, member or not.

many as three races? ... At Savannah, Ga., new Goodyears lasted just one weekend of practice and racing. The tires on the right side had a little tread but the other side was completely smooth... The weekend at San Marcos, Tex., ruined my two best sets for serious racing... I do not mean that there was no tread left, but what there was was in such ragged condition that it gave very low adhesion on smooth surfaces such as Delta Park (Portland). I had to borrow two old R-5's there from a perfect stranger, bless his heart, in order to have a chance in the main race.

"I knew Ontario the next weekend would be smooth, so I got a new set to use there... There was almost no wear at all—there is that much difference from course to course.

"I know you never have believed the tire wear we get on some courses... You are just lucky to live where the courses are all smooth.

"Savannah is probably the worst, closely followed by Sebastian (Fla.) Clear Springs AFB (Tex.) Cortland (Ala.) and Lake Charles (La.) Daytona and Talladega produce little wear, and new surfaces like Ontario almost none. CDR is another course fairly hard on tires.

Harvey Templeton, Winchester, Tenn."

Goodyear should give you a set of tires, Harv, just for taking them off the hook! Out here, at least, everyone was certain that Goodyear had at least two grades of tires—the ones we were getting and those "gumballs" we kept hearing about, and we weren't very happy about it! Your letter explains a lot. One observation—if you'd slow down some in those corners, your tires would last longer. The way you drive, it's no wonder they don't!

"Dear Don—When it comes to sealing leaking tires, try some condensed milk; works like a charm!

Loren Drago, Grand Rapids, Mich.

"P.S. Try not to have a flat on a hot day—the odor will throw you!"

"Dear Don—Some comments on the tire letter from Tom Haynes and your reply in the August issue. I do use tubes in my Firestones. Several years ago I had a frightening, expensive and potentially painful lesson. The Sprite I was running in a hill-climb had one tubeless and one tubed tire on the right side. After a dumb mistake I got into some loose stuff. The tubeless tire deflated as in a blowout, and a dodgy situation turned into an uncontrollable one. Afterward I found a piece of gravel between the bead and the rim of the other tire, but it had not lost any air, thanks to the tube. Since then I have used tubes in competition.

"In reference to water in the tires, when it evaporates its volume change is tremendous. This might have a definite effect on handling during the first few laps.

Mike Carroll, Tucson, Ariz."

A couple of interesting points, Mike. There's no arguing the extra safety factor of tubes, but I doubt that many will switch to

them, due to the extra weight, friction, heat, etc. As to the water, that would take some research, but I don't believe it causes any problems. At least we haven't noticed any marked change in pressures on Petunia. Might the cooling effect of the evaporation tend to keep the temperature down, instead of the pressure up?

"Dear Don—This may be helpful to owners of AD MK5's with the built in seat tank... I'm 6'0", and with the original set-up I had to sit up straight in the seat in order to operate the pedals. I put in a hydraulic clutch and suspended both pedals from above. This gave me the much needed leg room and lowered my helmet height a good 6". (I mean driving height—not tech inspection height.) On my car, I was able to move the pedals ahead approximately 4".

Bernard Sweeney, Conshohocken, Pa."

On behalf of a number of people who have asked about this same problem, thanks a lot! You've probably doubled the resale value of this particular car.

Dear Don—Here are a couple of tips you may pass on, if they're not already common knowledge:

"1. A piece of 1/4" plate, 3 1/2" OD with a 1-3/16" hole in the center, makes a handy rear main seal tool, used with the flywheel bolt. I ruined one seal with a plastic hammer before I made this tool.

"2. Anyone having trouble finding a source for a '71 rollbar should try a shop in the boiler or steam piping business. I had one made by one of these shops for \$25. (The installation and braces were, of course, additional.)

"3. All the back issues of the Vee Line were a great help in assembling and preparing my engine for this season. I was pleased to get 49.6 HP on the dyno. It certainly will show up my lack of driving ability if the car doesn't perform as well as the engine's potential.

"4. Buying a used car is not only less expensive, but can provide the novice buyer with a wealth of information, if the seller is willing. I was fortunate to have found such a seller last year.

Stan Czacki, Trenton, N.J."

A couple of good tips, Stan. We've been using the hammer (but with a short chunk of 2 x 4) but your method beats that all to heck! There probably aren't such boiler shops as you mention in every small town, but it's certainly a good tip if you can find one.

What did you do that WASN'T in the Vee Lines? If we knew how to get that HP out of Petunia's mill, we'd be more than just "pleased"!

A good point if you're SELLING a used Vee, too! Include in your ad that all your acquired wisdom and knowledge go with the car.

"Dear Don—Your "Self-Evaluating Driver Test" and helpful hints for under \$10 was great. How about one dealing with mods under \$30?

"Please send me one of those "balls". I

can't figure out how to use it (get the damn thing out when I get it stuck) so any advice would be appreciated.

"A local ace down here advocates cutting the valve guides off in the port. What do you think?

Jim Whitton, Reseda, Cal."

What do you mean? If it's under \$10, it's under \$30, isn't it? OK, I couldn't resist that—how about CC'ing your heads, acid-etching your manifold, or five dollars worth of carb jets and two-and-a-half hours of dyno time?

Don't miss the next exciting issue of this thing—it SHOULD tell you how to get that ball unstuck, I hope. We're about to embark on that project. (Petunia now has 16 races on last year's engine, so it's about time!)

If you cut off your valve guides, don't race in Schultbeis Territory! (That's the Bay Area.) Valve guides are among the "non-standard-VW" parts you can use, but note that they must be "normal" replacement parts. A number of Vee drivers can testify that tech inspectors do not consider cut-off valve guides "normal".

"Dear Don—I'd like to comment on cam grinding and head porting. Because of the problem of policing engines I feel the more practical and less expensive way to go is to allow the use of reground cams and to permit grinding out the ports as long as no welding, etc., is done.

By allowing a reground cam anyone can go to any of the cam manufacturers and get whatever is best. By putting limits on cam lift and valve lift you can easily check for legality and eliminate jimmying the rocker arms. (It is being done, isn't it?)

Allowing these two modifications, while keeping everything else stock, should make for easier inspection and should narrow the horsepower gap between the hot cars and the rest of the field.

As for relocating the carburetor behind the engine, I'm for it. Besides making it easier to work on, from a safety standpoint it lessens the chances of the driver getting a bowl full of fuel down his neck in a flip.

Have you considered getting all of your tips published?

Clarence Gilmour, Ivyland, Pa."

I'll go along with you on the reversed manifold—I've never seen a single plausible argument against it, and yours is the best one I've seen in its favor. Nevertheless, it has been shot down a couple of times on past ballots, and by SCCA. Mention it again at ballot time, will you?

As for the heads, apparently many are doing at this time just what you suggest—not legally, but "everybody's doing it", and it doesn't, as you say, seem practical to police. Without building up the port walls, which is pretty hard to do undetected, the process is fairly well self-limited, anyhow. Flow-tested heads are apparently accepted as legal everywhere (even at Atlanta) so us pore-

(Continued on next page)

MEMBER'S SOAPBOX

(Continued from preceding page)

boy types might as well come as close to them as we can.

As for cams, I can see no point in your proposal—now that we finally have a cam inspection procedure available, especially. By "putting limits on cam lift and valve lift" in order to detect "jimmied" rocker arms you're right back to where we are now, aren't you? Instead, lets work for more attention to STOCK cams at tech inspection—get your local tech crew to contact Frank Schultheis and adopt his procedure (which also detects jimmied rocker arms).

Which reminds me, Fleet Underwood (Detroit, Mich.) called the other day. Among other things, he said he was informed of a Crane cam which worked wonders

VW SUPPORT PROGRAM

I'd have sworn I mentioned this some time ago, but I can't find it anywhere in the back issues, so—the Volkswagen area distributors have again kicked in a kitty for Formula Vee. \$10,000 worth! Again, it will be paid to the front runners in all National races, but this year the distribution will be somewhat different. Previously it has been paid down to tenth place, which has caused a lot of difficulty due to lack of complete lists of finishers, failure of drivers to register with VWoA, so their addresses weren't available, etc. This year, for simplicity, the money will be awarded at the end of the season on the basis of the official SCCA list of National points. This cuts the winning places from ten down to six—you have to finish sixth or better in order to get any points. No word from VWoA on registering this year—with SCCA's cooperation they'll probably seek you out if you're eligible.

There's one, at least, of the area distributors who really supports Formula Vee! In addition to the contribution to the National Points fund, the Reynold C. Johnson Co. (Distributor for Northern California and surrounding territory) awards \$25 to each of the top ten cars in any race in their area.

and still was legal. Out of curiosity he ordered one, and while it was not actually specified as legal, the implication was there. When he got it he found that it was a re-ground VW cam, with the base circle (most of it) reduced in radius by .030". This gives that more lift, of course, and also accelerates the lift because the sides are left standard width, which makes for a "fatter" and faster cam. I guess you know this wouldn't pass the Schultheis test! Even if the gear wasn't bolted, instead of riveted, in place.

And that reminds me of something else. There's a current myth in VW circles that the marking on the cam side of the gear (a plus or minus sign, followed by a number) has something to do with the timing of the cam. Not so! Those figures refer to the thickness of the gear teeth, and are used at the factory for matching the cam gear to the crankshaft gear for no-backlash fit. (I doubt that your local dealer follows that procedure.) A zero is standard, plus indicates thicker teeth, minus thinner ones, and the number indicates how much. The total variation is a matter of ten-thousandths of an inch, which would have no detectable effect on your valve timing.

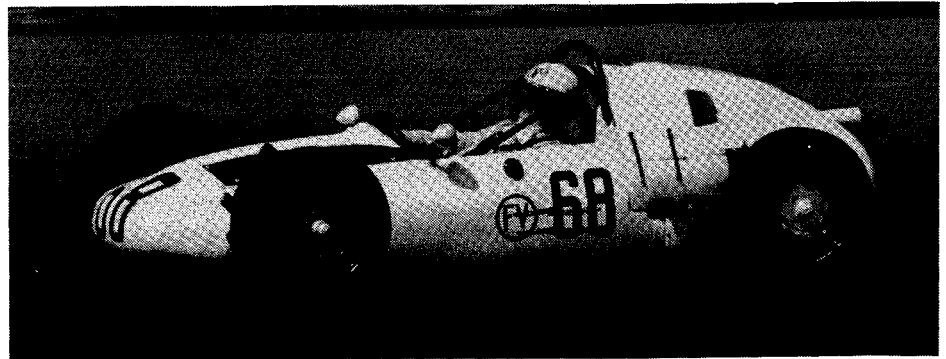
As to a book of tips, yes, I've considered it, but just haven't had the time, and besides, every month something new comes up. May-

be when I have learned it all . . .

"Dear Don—We have mounted a Super-8 movie camera on our roll bar, with a remote controlled release. You should see the pictures! Terrific! As we're starting to go a little faster, we've threatened to put another camera on facing backward. If anyone would like advice or help on this subject, I'd be glad to help.

Gale Mielke, The Camera Spot, 113 W. Wisconsin Ave., Neenah, Wisc. 54956"

Thanks, Gale—I'll take advantage of your offer, right now. We did this, too, last year, and as you say, the results are fantastic! Just like "Grand Prix"! Our setup could stand some improvement, though. First, I hooked up a switch to a little "sandwich" wafer (two metal contacts with insulation between) which I inserted in the battery compartment between one of the batteries and its normal contact. It's a sometime thing which doesn't always work, like when three cars ahead spin out. Is there any simple way of wiring the switch through a radio-type jack, like the one for a battery charger on the side of the camera? Second, is there a better transparent lens shield available than a piece of plexiglas taped over the lens? Third—could my Keystone Super-8 be hooked directly to the car's 6-volt system, instead of using the pen-light cells?

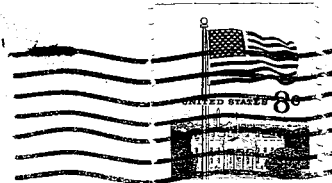
**FORMCAR, MODEL D**

("D" for "Fourth Remodeling Job). Due to the press of more urgent problems (like an engine rebuild) Petunia is presently running nearly nude. She's been promised a new paint job, however similar to the original one (see VL #1) which will make her look even lower and longer.



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