



VEE LINE

NUMBER 89

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A LITTLE BIT OF HISTORY

So far there have been only three letters and two phone calls in protest against the proposed "changes" in the suspension rules, the implication being that we're somehow tampering with a long established law. However, this isn't the first time, by any means, that inventors have pointed out the need for a "change" in the wording of the suspension rule in order to retain its original meaning. Let's look back a bit.

In 1964, when we were just getting started, all that was required for rear suspension was a "Single Trailing Arm type, with coil springs and telescopic shock absorbers providing the springing medium". The controversial use of chains, cables, straps, etc., to limit rebound forced the addition of "Camber limiting straps may be used", for 1965. So many variations of "straps" appeared that year that a change to "Camber control devices" was made for 1966. This really opened the door for experimenters, to the extent that "An anti-roll bar" was added for 1968. Note that in each case the rules were liberalized, rather than tightened, in order to accommodate the new developments.

Within the broad limits of "camber control devices" and "anti-roll bars", almost anything could be claimed legal—and was. We had transverse leaf springs, torsion bars (Z-bars) which carried the full weight of the car, and even coil springs stretched between the rear wheels below the transmission. In most cases, but not all, the shocks were retained in their usual position, but some had coil springs made of coat hanger wire, and a few had none at all. The D-13 wasn't the first Auto dynamics with "zero roll stiffness" incidentally—the "Camber Compensator", as featured in modified form on earlier AD's, had a two-leaf transverse spring which pivoted under the transmission and carried most, and in some cases all, of the weight of the car.

This, and the torsion-bar (Z-bar) suspension were finally recognized as going too far afield from the intent of the rule, and it was changed again—this time, however, in order to return Formula Vee to "conventional" suspension. Since 1969 the requirement has been for coil springs to "provide the primary springing medium", and for those springs to surround the shocks. Further, they have been required to "perform functionally" if all the "camber control devices" are removed.

Each of these changes was prompted by

inventors finding some way to circumvent the *spirit* of the rule, until finally *some* owners were forced into returning to conventional suspension, to the accompaniment of loud and plaintive cries, "It isn't fair to change the rules so that they make my car illegal!" It is sad to note, however, that only enough change was made to correct existing conditions, with apparently no thought of anticipating future ingenuity.

The evolution of the body rule has followed the same pattern. At first, all that was specified was that the body had to "fully enclose the engine" and not fair in the wheels or suspension. For 1966 use of air ducting was authorized. For 1967 the driver had to be able to enter the car without "manipulation of any part or panel", probably because someone, somewhere, installed a "bubble" over the cockpit.

In the meantime, since it was obviously impossible to "fully enclose" the engine, all pretense at compliance had vanished. The "body", from the firewall back, had become in some cases merely a horizontal panel with a hump for the fan shroud. In other designs, streamlining was covering the trailing arms and shocks. For 1968, then, a drastic rule "change" was made. Instead of "fully enclosing" the engine, the body had to "surround" it from the bottom of the valve covers, the rear deck had to extend back to the "rear of the transmission", and "no fairing-in of the suspension" was spelled out more clearly.

That last part was probably inspired by the Zink, which has the major portion of the rear shocks enclosed (shielded, hidden?) within the body shell. Since the Zink design was the only obvious reason for its winning most of the major races during that period, it was protested a couple of times, and finally a Court of Appeals ruled that the "Semi-monocoque" construction (body skin performing part of the function of the frame) was illegal, so that was incorporated into the rules for 1969 (The Court decided that "fairing-in", as applied to the rear shocks, was still too indefinite so nothing was done about that. And the wording has never been changed to make it any more definite.) Also, for 1969, body width was restricted to the centerlines of the tires.

Since the "rear of the transmission" was subject to debate, the body, for 1970, was required to extend at least "16" behind the centerline of the rear axle". Airfoils were

(Continued on page 2)

MEMBER'S SOAPBOX

"Dear Don—In general I agree with your attempt to clarify the Vee rules... However, I have a few objections and questions:

1. Based on my interpretation of your rules on weight, rear suspension, overall body and firewall, you are going to do exactly the opposite of what you want. These changes will make most present Vees illegal or at least outdated.

Can you be more specific, Bill? MOST Vees? This certainly wasn't the intent, so if there is any doubt, let's make some more changes until it is perfectly clear. What would you suggest?

2. I do not agree with your total effort to make the rules completely restrictive. It will take any inventiveness or sound engineering out of Vees. Designers will be discouraged from working on new ideas because they will be so limited they can't come up with a "better mousetrap".

That's the whole idea, Bill. Should Formula Vee become another "car of the year" class or remain stable? Or even "stagnant", as some earlier sports writers put it? Should it become a builder's and professional driver's class, like Super Vee, or remain a class for "amateurs"?

3. Why try to make the rear suspension so limited? Wouldn't this make the D-13 and the "Shadowfax" illegal?

If the new rear suspension is as great as is claimed, won't it make the present Lynx and Zink and Zeidler and Beach (and Formcar!) obsolete?

4. Doesn't your wording about steering prohibit parallel steering?

It wasn't meant to, if you refer to "no-Ackermann" steering. If you're talking about tie-rods in front of the axle, or something radically different, yes. Either way, if you have some question, the wording obviously isn't clear enough. How about, "Steering arms on the steering knuckle may be modified as desired, but must remain in their normal location at the rear of the king-pin center line, and be used for steering in the normal manner"? OK?

5. My interpretation of the wording on "BODY" would make both the present

(Continued on page 2)

The VEE LINE of FORMULA VEE INTERNATIONAL

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1972 Formula Vee International

A LITTLE BIT OF HISTORY

(Continued from page 1)

forbidden, also, as was "fairing-in" of the front suspension. (Despite the fact that the Court of Appeals had declared the wording too indefinite in regard to the rear axle, the identical wording was used for the front suspension!)

Not many of the changes in the rules required as much change in the cars as did the rejection of the Zink body-frame design, but each change was made in response to some deviation, and some cars were "made illegal by a change in the rules".

Under our system of once-a-year rule changes, and do-it-yourself interpretation of the rules in the meantime, it's not possible for the originator of a new idea to go to SCCA and say, "Look at the great new idea I just came up with! Is it legal?" On the other hand, if he goes ahead and uses his great new idea, it's not fair to the majority for a small minority to say, "Hey! You can't change the rules now to correct that loophole—too many owners would have to make changes!"

In Formula Vee, if in no other class, every builder and every buyer is expected to know that the basic reason—the *only* reason—for its eight-year history of success is the fact that SCCA has *not* allowed "new ideas" to make older cars obsolete. If the time ever comes when some new development is allowed to draw a definite line between "new" Vees and "old" ones (like the line between front and rear engined Formula Juniors) this class will be dead, too. Anyone building—or buying—a car with some radically new feature should consider carefully whether or not it can be considered as crossing that line. And should be prepared to get it back on the other side, if it turns out that it does.

THE CURRENT TIRE SITUATION

If you've been holding off buying tires, waiting for the "new" ones, forget it. With the exception of the Goodyear Slicks, the situation is about the same as it was this time last year.

Our nearest Firestone dealer reports that he is able to get only a limited supply of Firestones, and that they are the same as those available last year. At a sales meeting in Los Angeles, a "new" tire was promised, but no dates were given.

Incidentally, he reported that there will be additional competition for the supply of Vee tires this year. Seems that there have been several serious accidents in the "funny-car" set recently, due to the radials they were using not being up to the 200 mph speeds. This year only approved racing tires will be permitted, and the popular size is the 15" Vee tire.

Don't wait any longer for Continentals. The U.S. distributor has just received word that the European factory has discontinued production of racing tires.

MEMBER'S SOAPBOX

Zinks and Lynx's illegal. Not allowing any part of the body to extend outside of the vertical plane you suggest would make the Zink nose too wide to be legal. (I think—based on my pictures.)

You have a good point there, on body width. Now that Petunia is back home for her annual checkup, it appears that even the early Formcars may have been wider than that if assembled according to directions. If the Zinks, UP TO NOW, were wider than that ahead of the axle, that width should be considered legal. (If you're referring to some new design with a shovel nose, that's precisely what this was intended to prevent!) How about, "not wider than 42" at any point behind the front axle, or wider than 31" at any point ahead of the front axle"? In my opinion, those "sports racer" noses on this year's crop of Formula cars are among the things Formula Vee can do without.

6. The firewall wording would definitely make the present Lynx illegal. Why not require the engine to be covered above the lower edge of the valve covers and eliminate any requirement at the firewall? Engines are basically the same size and this should be the limiting factor.

There are, to be sure, some cars which make the minimum body width by the subterfuge of fins, or see-through scoops extending outside the actual body lines. The actual frontal area of these cars is the engine itself, for all practical purposes, and, as you say, that can't be reduced any further. Most cars, of course, can't be brought even close to it. More important than that, though—your Lynx is made to order for direct cooling, especially now that you can remove the cylinder covers, and don't tell me you haven't thought of that. All you have to do is figure some way to get air to the oil cooler, too, and if you haven't already, I'll tell you how next time I see you. That's why the "firewall" is in there—so drivers of cars like yours can't innocently say, "My fan belt is gone? How about that! Wonder why it didn't overheat!" You'd at least have to put in some obvious ductwork.

Thanks for writing, Bill, and please follow up on the rest of this series. You've been helpful already. (Can we call this round a draw?)

"Dear Don — First, in order to clarify my position, let me say that I have purchased a D-13 with the new "zero roll-stiffness" suspension. That will explain why I am against the return to "conventional" rear suspension. Even if I didn't own one, I am not for any rule that would make a car illegal and force the owner to buy a new one or perhaps force him out of racing.

You said that if that suspension is not all that superior, there is no real reason to use it. I can think of one good reason—people have paid a fair amount of money for these cars. In my book, that is as good

a reason as any. These cars were purchased in good faith as being legal. To pass a rule which would make them illegal would be unfair to the owners, and directly against what Formula Vee stands for. I believe this would be the same situation that occurred several years ago when some of the Zinks were made illegal by a rule that was passed after the purchase of the car.

As for a solution, it would be pretty hard to word rules that would limit a builder to making a car only equal to, or inferior to, other cars already on the track. After all, these people are in business to make money, and can only do that by building a better product. Perhaps one answer might be to state that all cars purchased before a certain date would be considered legal.

I think a rule revision that is fair to every Vee owner is a good thing. I only wish it had happened a couple of years ago before our "stock" engines with generators that don't generate, etched manifolds, etc., got to the point where they cost \$1300 in order to be competitive in Nationals.

I can hardly wait to see the rest of the rules.

Tony Spiridigliozzi, Mt. Vernon, N.Y."

I can certainly understand your concern, Tony. However, the fact that a number of cars with some radically new design have been sold to trusting buyers can't automatically be considered justification for considering them legal. Any departure from accepted practice should be considered a risk by a manufacturer, and by a buyer. Otherwise, ANY departure from the rules could be justified on those grounds if a number of them could be sold before any opposition was encountered.

In this particular instance, I don't believe a "change" in the rules which would more clearly spell out conventional Vee suspension would work too much of a hardship on too many people. It would be a lot easier to convert a D-13 to conventional suspension than it would be to convert anything else to the "zero roll-stiffness" type.

Incidentally, the "Zink affair" was brought on, not by competitors on the track, (or by FVI) but by competitors in the Vee-building business who gave the "semi-mono-coque" design (instead of the caliber of several of the Zink drivers) the credit for the Zink's winning ways. In this instance, it is rumored, Ed Zink isn't going to fight 'em, he's going to join 'em—with an even better "zero roll-stiffness" design.

If he does come up with something radically better (which wouldn't be really surprising) where will that leave the rest of us—including D-13 owners?

Think about that—whether or not you have a D-13, and whether or not you consider it to be a menace to the "competitiveness" of other cars. If you think it's OK, then let's at least draw a line just the

other side of it, to prevent further deviations. Let's have some positive suggestions.

"Dear Don—I received the January VeeLine Friday and spent the rest of the evening being calmed down by my wife and crew . . . First, I think some of the new rules are ridiculous (so are some of the old ones) but I must comment on your continuing campaign to discourage homebuilders. I built my first Vee 3 years ago and have enjoyed 3 years of very inexpensive racing.

(My comments on homebuilding are aimed at those who obviously don't know what they are getting into. If they can be discouraged, they should be. If, like yourself, they KNOW they can do it, they won't be.)

I am building a new car which would be totally illegal under your proposed rules. I have several disagreements with the proposed rules—one minor and two major. The minor one concerns the "metal" thrust washers in the front suspension. I am using Teflon, which has held up for 3 years. (Good point! So we'll delete "metal", and just say "thrust washers".)

I am in complete disagreement with your reasoning on returning to "Conventional" Vee rear suspension. You claim unconventional suspension could make all present Vees obsolete. Hogwash! My new car is using an "unconventional" rear suspension so that I could make it completely adjustable without paying the price of the expensive "suspension units". I can now adjust shock rate, spring rate, travel, and camber in less than 5 minutes. I built this suspension according to the present rules, which have been in existence since year one, and now you want to change this long standing rule. Harvey Templeton may also have some comments about this proposed rule change.

My final disagreement is with 5.7 A, "Body width". I measured the old car and found it would be illegal under this proposed rule. Why must you try to change long-standing rules? I assumed the proposed rules were intended to clarify existing rules—not make drastic changes to them . . . Why can't we build cars to the long-standing present rules without wondering if they will still be legal next year? I hope you will reconsider.

I'm terribly sorry, but I can't find the second page of your letter, with your signature on it, in the orderly confusion on my desk. If you'll identify yourself, I'll be glad to give you credit.

If you haven't already done so, please read the section, "A BIT OF HISTORY", and then we'll talk this over. Ready? OK, assuming your car is really legal under the present rule, (the spirit of it, I mean—not by some argumentative interpretation, or the use of "there's nothing in the rule that says I can't do it"), how does this proposal interfere with your design? Note that adjustable mounting to the frame is specifically permitted, which gives a lot of lee-

way. More to the point, how should it be worded in order to include your suspension?

Likewise, where does this proposal conflict with your body design? How would you like to see it worded, assuming you agree that there should be SOME limits? Let's have some CONSTRUCTIVE criticism—some counter proposals.

As for Harvey Templeton, I happen to know that he built his "Shadowfax" fully realizing that he might be shot down, and prepared to accept it. He was pleasantly surprised when it was protested and was NOT declared illegal, under the existing rules.

SUGGESTED REVISION OF FORMULA VEE RULES

(Continued from last month)

5.7 BODY shell shall be of sheet metal and/or fiberglass, and shall incorporate removable panels or sections to permit inspection of all mechanical components.

A. No part of the frame or body may be wider than 42" at any point behind the front axle, or wider than 31" at any point ahead of the front axle.

1. The firewall must be larger at all corresponding points than the cross section of the engine, taken through the fan shroud. Holes may be incorporated only for the passage of frame tubing, wiring, brake lines, fuel and instrument tubing, controls, shoulder harness attachment, and fasteners, provided they are no larger than is necessary in order to serve their primary purpose. Holes for the passage of air are not permitted between the cockpit and the engine compartment. The primary function of the firewall is to isolate the engine compartment from the forward part of the car.

2. From the firewall to the rearmost part of the engine the body must cover the engine down to the level of the tops of the valve covers.

3. From the rear of the engine to a point 16 inches to the rear of the center line of the rear axles the body must cover the transmission assembly. Depth of this section is free, but height shall not exceed the height of the body at the fan shroud.

B. Air intake openings, scoops, ducts, deflectors, etc., may be incorporated into the body shell, or into any portion of the firewall outside the cockpit body shell and outside of the profile line of the engine.

C. Aerodynamic shapes, including airfoils, may be incorporated integrally into the body shell, but may not be movably or removably attached to it.

1. Aerodynamic shapes above or below the main body structure are not permitted, regardless of supporting means, except that an overhead mir-

ror in a streamlined frame, not more than 5 inches wide and no longer than the width of the body at the point of attachment, may be installed.

2. An opening may be incorporated in the body shell to permit attachment of the rear shock-absorber-spring assembly between the axle and the frame, and that assembly may be thereby partially enclosed within the body, provided that such opening must be higher and wider than any part of the assembly so enclosed, and that neither the opening nor the exposed portion of the assembly may be shielded in any way from the normal air stream.

3. The mounting point for the rear trailing arm pivot may be within the body shell, but no part of the body may extend back over the trailing arm past the centerline through the pivoting points.

D. The driver's seat must be capable of being entered by the driver without the removal or movement of any part or panel.

5.8 DUCTING

A. May not:

1. Be supported by suitable attachment to any part of the car.
2. Be directly connected to the fan intake.
3. Be directly connected to the carburetor intake. A velocity stack is permitted.
4. Admit outside air to the cockpit as desired.

B. May not:

1. Conduct air directly to or toward the cylinders and/or heads, or to the oil cooler, except through the normal fan intake.
2. Provide any supercharging effect from the fan to the carburetor.

5.9 TRANSMISSION-DIFFERENTIAL assembly shall be standard VW sedan, as defined herein, or VW transporter of identical configuration. The transmission must be mounted in the chassis behind the engine.

A. Any mounting means may be used, and mounting at an angle off horizontal is permitted.

B. The ring gear may be transposed to the opposite side of the case to provide proper axle rotation. The transmission may not be inverted.

C. Synchromesh components must be in place and operating on at least three gears.

D. Reverse gear must be in place and operable from the driver's seat.

E. Use of a limited-slip differential device, or assembly of the differential in such a manner as to create the effect of such device, is prohibited. The differential must function freely.

F. The case shall be vented to a catch

(Continued on Next Page)

SUGGESTED REVISION OF FORMULA VEE RULES

(Continued from Preceding Page)

tank of not less than one quart capacity. The standard vent may be drilled and tapped for a suitable fitting.

- G. Exterior of the case may be modified to permit attachment of shifter guard, exhaust pipe supports, battery boxes, frame braces, body brackets, etc.
- H. The shifter rod may be drilled for securing shift linkage. Any linkage may be used.
- I. Only the following gear ratios are allowed:

1. Fully synchronized transmission ("Tunnel Case"):

| Gear | No of Teeth | Ratio |
|---------------|-------------|-------|
| 1st | 10:38 | 3.80 |
| 2nd | 17:35 | 2.06 |
| 3rd | 22:29 | 1.32 |
| | 23:29 | 1.26 |
| | 23:28 | 1.22 |
| 4th | 27:24 | 0.89 |
| | 28:23 | 0.82 |
| Ring & Pinion | 8:35 | 4.375 |
| | 8:33 | 4.125 |

1. Partly synchronized transmission ("Split Case"):

| | | |
|---------------|-------|------|
| 1st | 10:36 | 3.60 |
| 2nd | 17:33 | 1.94 |
| | 17:32 | 1.88 |
| 3rd | 23:28 | 1.22 |
| | 22:27 | 1.23 |
| 4th | 28:23 | 0.82 |
| Ring & Pinion | 7:31 | 4.43 |

- 5.10 ENGINE shall be a standard VW 1200 34 bhp power plant as normally furnished in VW sedans as defined herein. Any mounting means is permitted.

- A. Any engine part listed by Volkswagen as a current or superseded replacement part for the 34 bhp VW engine, from engine #5 000 001 to #9 800 000, and interchangeable with the original part, may be used. (Note: Certain non-standard combinations of older and

later parts in conjunction with permitted modification may result in failure to meet the required specifications in following paragraphs and in the Scrutineer's Handbook for Formula Vee. In such case the specifications take precedent, regardless of the legality of the individual parts. The Scrutineer is not required to identify the part(s) responsible for such discrepancy.)

- B. Carburetor must be Solex 28PCI or Solex 28 PICT.

1. Choke shaft and butterfly may be removed and the resulting holes may be plugged.
2. Any replaceable jets, including an adjustable main jet, and any emulsion tube may be used.
3. The removable jet in the accelerator pump nozzle (if used) may be drilled or removed, or if none is present the nozzle itself may be drilled oversize.
4. Any venturi not requiring alteration of the carburetor body may be used in the 28 PCI carburetor, or a venturi may be omitted entirely.
5. Any Solex float and float arm may be used. The standard plastic float and arm may be modified.
6. The carburetor may be attached to the manifold in either fore and aft direction.
7. Choke and throttle operating mechanism may be modified or removed.
8. Screws attaching the butterfly to the throttle shaft may be filed flush with the shaft, but no modification of the shaft or butterfly is permitted.

(To be continued next month)

UNCLASSIFIED ADS

FOR SALE: '71 Zink, with '72 Zink engine, never raced. With tools, driving gear and trailer, \$3500. Bob Chiesa, 10317 Santana, Lakeside, Cal. 92040, (714) 449-3745.

FOR SALE: Autodynamics MK II, much modified and updated. SCCA legal. Trail-

er, extra wheels and other spares. Much knowledge and information go with it. Ready to race. John Daugherty, 442 N. Michigan St., DePere, Wis. (414) 336-9244 after 5:30 week days, anytime week-ends.

FOR SALE: Formcar, legal for '72. Will take 275# driver. With trailer, ready to race, \$800, without engine, \$500. Charles S. Schnepf, 18 Gail Lane, Tiffin, Ohio 44883, (419) 448-0172.

FOR SALE: Engine from '71 Midwestern Council Champion Vee (AD No. 56). Top end redone (valves, rings, honed, etc.) Adj. main jet and other goodies. \$650. John B. Haydon, 4713 N. Cumberland Blvd., Milwaukee, Wis., (414) 271-8210 days, 332-7968 eves.

FOR SALE: One of the winningest Vees in the West—the Biren-Kelly Special. Excellent condition, '72 legal, race ready. \$1800 or best offer. John Griesedieck, Jr. 1061 Sierra Drive, Menlo Park, Cal. 94025 (415) 854-2730.

FOR SALE: '70 King Vee, legal '71, never bent. Adjustable Z-bar, Girling master cyls, Goodyears. Without engine, \$1200, with stock engine, \$1300 (negotiable). Tony Spiridigliozzi, 138 Primrose Ave., Mt. Vernon, N.Y. 10552, (914) 664-1152.

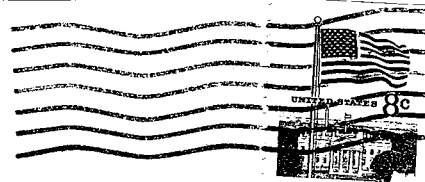
FOR SALE: Modified Crusader, legal '72. With 4 new '71 Goodyears, 8 spares, 4 mounted. Strong fresh engine, Z-bar, Konis, extra tran. Fits '63" driver. With covered trailer \$1200. Ted Vander Hoek, 2615 102nd N.E., Bellevue, Wash. 98004, (206) 822-4297.

FOR SALE: Continental Vee tires, new, never mounted. 2-5.25x15, 2-6.25x15. Set cost \$180, will sell for \$160. Bob Shafer, 403 Dott Ave., Somerset, Pa. 15501, (814) 445-4578.

FOR SALE: Autodynamics kit, completely set up except for VW components. Latest AD mods, Koni shocks, immaculate. \$500. Will deliver in Southeast. W. C. Ross, 1216 Elm St., Orange Park, Fla. 32073, (904) 264-8477.



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7