



BOX 291
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BULLETIN

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A WORD FROM THE DADDY OF THE VEES

The untimely recent death of Mr. Hubert Brundage has deprived motor sports of a great friend. It was he whose vision caused a Volkswagen engine and transaxle to be shipped to Nardi of Italy. There, the Italian craftsmen fashioned the first Formula Vee and returned it to Hubert. Over a span of perhaps two years this prototype was changed and modified until it very closely approached the design of the first Formula Vees offered by Formcar.

Mr. Brundage at this point asked Bill Duckworth and me to take the car and develop it as we saw fit. We decided on the "Formula Vee" class name, simplified some of the mechanics, and offered the car for sale. Based on my experience with Formula boat racing, I--with Bill Baker (first secretary of the Formula Vee Assn.) and Bill Duckworth--wrote the original specifications for the formula. I drafted the original By-Laws of the FVA, basing them on those of the International Star Boat Racing Association.

As one of the originators of the Class, and as one profoundly interested in its future for other than monetary reasons, I do not feel it is presumptuous of me to offer a suggestion or two based on the 1964 racing season.

I have just returned from the SCCA National Convention in Philadelphia and I am delighted to say that enthusiasm for Formula Vee was very high, and knowledgeable people expressed great optimism for the growth of the Class. This ascent to what may perhaps be the ranking class by numbers in SCCA will be restricted if the owners and drivers do not take the right attitude toward the rules which govern. I think the situation which developed in Nassau, requiring an appreciable number of cars to be examined before the money winners could be determined, was of scandalous proportions.

It has been suggested that I am a philosopher, and that I expect too much of my fellow man in the area of ethics. Maybe so.... However I am not naive and I am certain that unless the great preponderance of competitors in a restricted class want to honor the code by which they race and will turn out the few knaves who may be discovered, we are in for unpleasant times and the class will not prosper.

I ask you, then, to join with me in accepting the basis upon which a class such as the "Vee" can succeed. For non-believers, an inspection system is being provided which will be manned by competent non-partisan Volkswagen experts, present at every National race, which will soon turn out the foxes.

I expect to be at many events in the SE during 1965, and as the Road Race of Champions has been designated for Daytona in Nov. look forward to meeting many of you personally. Keep a good thought!

George M. Smith, Pres.
Formcar Constructors, Inc.

STILL COMING IN

Car builders are springing up everywhere you look! This month we have Lynx Competition Car, in Taylor, Michigan (no details yet) and C&K Crusader in Modesto, Cal. C&K are using Chuck Tatum's Crusader body, with the frame and other components their own.

Price-cutting has begun to show up. But don't get excited--Rad Manufacturing (Viper) is cutting their kit price from \$1100 down to \$995, which is about where the others are, already.

Our racing film is ready for another trip.

The first three issues of the Bulletin leaned rather heavily toward "Join the Assn." Don't think that because it's been neglected lately we've got all the members we need! The more we have the more influence we can exert. The way the Class is growing, I doubt that we represent half the owners yet. If you are not a member, join up now. If you're one already, get someone else to join!

Word from the San Francisco Bay area is that camber limiting straps will be not only permitted but required for this season. Will someone from that area please give us some dope on what and how?

SHHHH!

Here's an "illegal" modification, already in use, I understand on some of the factory-built cars, but if you built from a kit you can use it.

As furnished, the oil temperature bulb is to be screwed into a tee inserted in the oil line to the pressure gauge. This is a simple method, but as there is no circulation in this line, the temperature shown depends only on heat conducted through the aluminum top of the crankcase and the brass tee to the thermal bulb, and has no relation to the actual temperature of the oil.

Drill a 7/16 hole in the crankcase, about an inch and a half above the bottom, and an inch from any corner, using a good sharp bit that will make shavings, not powder. Coat a 1/4" pipe tap with sticky grease to hold the chips, and screw it in about half its depth. Try the thermal bulb in the hole. If it doesn't go, tap a little deeper and try it again. Pipe taps are tapered, so the deeper they go the bigger the hole. Try only about two additional turns each time. It's easy to make it a little bigger, but rather difficult to make it smaller. Make every effort to avoid getting chips in the crankcase, though large ones won't go through the oil strainer and small ones, if not too many, are too soft to do any damage.

Your oil temperature will now read about 190, though don't get excited if it is a bit different, if you are sure everything is OK. When you have determined a normal reading, get excited only if, for no apparent reason, it goes higher, indicating a broken fan belt, or bearing siezing, or clogged oil line, or some other little thing like that.

There have been several inquiries about the 24mm venturi for the 28PCI carb, mostly like "was it a mis-print?" No, 24mm is correct. And they're genuine Solex. They are not listed in the VW parts books, nor are most of the 50 available main jets or the 31 air correction jets, but they are in the Solex catalog, along with the seven other venturis.

I am trying to cook up a deal whereby we can furnish venturis and the most popular jets, at least, to the Members. Had hoped to have something definite by "press" time, but can't wait any longer. Maybe next time.

UP FRONT

If you're replacing your sway bar with a new one be sure it's a tight fit in the square hole in the torsion arm. It should require a hammer to put it in or out of the hole. If there is any play at all it will get progressively worse.

Before replacing the torsion arms and spindles get them checked for bends at your VW
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WHAT DO YOU SAY?

We've been kicking around for quite some time the idea of allowing "non-competitive" violations of the rules, without getting specific about it. Let's get specific.

Through the medium of a Driver's Newsletter SCCA has already started along this line a little way. Many of you may have seen this already, but for the rest of you, they---

1. Allow camber limiting straps on the rear suspension. (No definition)
2. In section 4, emphasize "as based on", (but with no further clarification).
3. Add to 4G "Air ducting may be utilized, provided it is attached to body or frame. May not be part of or attached in any way to engine assembly."
4. Add to 5A "and ring and pinion".
5. Prohibit mounting the carburetor behind the engine.

This is a small step, but certainly headed in the right direction. Let's see if we can get them to take a couple more. I am sure that SCCA, if assured that they are favored by those involved--the Vee owners--will go along with us.

In order to cut down on protests, simplify inspection, broaden the appeal of the Class and concentrate our attention on items that really matter, I am recommending that the following items be added to the Formula Vee rules.

Sec. 4 Allowed:

G. There must be a 1" minimum space between any air duct and any engine component.

(A ram-tube is a ram-tube, no matter how it is supported.)

K. The generator must function normally.
(Present rule says you can't do anything to prevent it--not that you have to repair it if it quits.)

L. Any VW clutch or components.

(Standard clutch is adequate. Transporter gives no advantage. Only counteracts lighting of flywheel.)

M. Any VW oil pump.

(Present pump supplies more oil than engine can use. If pressure doesn't remain constant above 3000 rpm you need new bearings--not more oil. No competitive advantage--just takes more power.)

N. Additional (not substitute) oil cooler.

(Present one cools below average passenger car temperatures. No competitive advantage)

O. Oil filter.

(Could extend engine life by a few thousand miles, but at 1000 miles a year, who cares?)

P. Electric gas pump.

(Again, present one is adequate. Only extra weight with no competitive advantage.)

Q. Rocker arms with prefix numbers 111, 113, 211 or 213 only.

(Identification to prevent use of 1500 arms)

R. Compression may not exceed 140 psi.

(Our engine tested 135 to 137 for a while, but if you feel a different figure should be used, please show it.)

S. Manifold mean diameter 25mm (63/64") max.

(Standard size. OK Lew?)

The question has been asked, on items L to P, "If it doesn't help, why do it?" to which I can only answer "Why not?" Evidently some people want to, and if it keeps them happy with FV and hurts no one else, why not let them? On the other hand, the rules need more restriction on the other items, where protection is really needed. Omitting the original restrictions on body styling was the best thing that ever happened to Vees. Any other fields for individuality which do not affect performance should be legal also.

NOW HEAR THIS! I don't expect every ballot to be returned, but I DO expect one from every Active Member. Isn't that what you joined for? For informational purposes ballots will also be welcome from Associate Members, and from those who are not members at all, but it is the opinions of car owners which really count here. DO IT NOW! OK?

Following are my opinions on clarifications or additions to the General Competition Rules for Formula Vee---

YES NO

- ___ 4. "Engine" _____ cc maximum displacement, _____" maximum cylinder diameter.
- ___ 4G Add "There shall be a 1" minimum space between any air duct and any engine component."
- ___ 4K Change to "The generator must function normally."
- ___ 4L Add "Any VW clutch or components."
- ___ 4M Add "Any VW oil pump."
- ___ 4N Add "Additional (not substitute) oil cooler."
- ___ 4C Add "Any oil filter."
- ___ 4P Add "Any fuel pump."
- ___ 4Q Add "Rocker arms with prefix number 111, 113, 211, or 213 only."
- ___ 4R Add "Compression may not exceed _____psi."
- ___ 4S Add "Manifold mean diameter 25mm (63/64") maximum."

Name _____ Vee owner? _____ FVA Member? _____

dealer. He has jigs and gauges for the job, which will take only a few minutes. Misalignment of the torsion arms isn't too serious, but it will cause excessive wear on the pin bushings. A bent spindle, besides being possibly cracked, will in a short time ruin the wheel bearings.

If your car is using the standard VW tie-rod ends they are no doubt installed in a conventional manner above the steering arm on the spindle. This causes the tie-rods to slope downward to the drop-arm on the steering gear, and this in turn causes a rather drastic change in toe-in (or out) with every up or down movement of the body. The tie-rods should be as nearly level as possible with the driver in the car, which requires that they be installed on the under side of the steering arms.

At first glance this seems impossible, as the hole is tapered and the ball stem will fit only from the top. However, by heating the end of the arm with a torch and using an old tie rod ball, the stem can be driven in the hole from the bottom, making a new taper. It will be necessary to enlarge the hole with a 7/16" drill so the stem will start from the small side. Heat the arm end, have someone hold the spindle over the hole in an anvil, or a nut with a suitable size hole held in a vise, and drive the stem in the hole to its proper depth. Hold it straight with pliers, and immediately drive it out again. If the red hot metal cools with the stem in place you'll have a heck of a time getting it loose. Check to be sure the arm hasn't been bent or twisted in the process. Do the job as rapidly as possible in order to avoid heating the entire piece. As soon as possible wrap the spindle portion with a wet rag, and allow the whole thing to cool. Don't quench it in water as it could cause overhardening and brittleness.

By mounting the inner ends of the rods above the arm, and perhaps rotating the gear box slightly on the cross tube the tie-rods can be leveled perfectly.

If your car uses Heim ball joints rather than the VW type, they are probably already underneath the arms. If not they should be. These joints should be inspected carefully frequently. The balls are held in place by rings screwed or pressed into the body of the joint, and while it is very uncommon, I have seen two of these joints fail due to the rings coming loose, letting the tie rod fall off. If you find one with any play in

it, replace it. Don't wait for it to get worse.

When installing the spindle and torsion arm link on the torsion arms (which you of course won't do without checking the king-pin for looseness) follow the directions in the VW book (which you of course have) except don't pay too much attention to the directions for the multiple spacer washers. Due to the substitution of the sway bar the upper and lower torsion arms may not line up the way VW built them to. Just be sure that the washers are arranged so that the upper and lower pins tighten at the same time. If either end of the link has to be forced into position, shift the spacer washers to where they're needed. With the pins backed out to their limit you should be able to slide the link back and forth by hand, and tell whether either end is butting against its torsion arm before the other.

By the way, don't try to change the VW camber. It can't be done. You can shift the washers around, but all you'll accomplish is to throw the link pins in a bind.

Before replacing the wheels, inspect the bearings carefully, with special attention to the races. Of the eight bearings in four VW hubs inspected for our trailer we saved five, which is perhaps not a typical average but these bearings are not noted for longevity. Any sign of chipping or roughness on either balls or races is cause for replacement. If you find replacement necessary, do as your VW dealer does, and use an "illegal" part--Timken bearings #30304 and #30305. They are adjusted differently than the ball bearings. Tighten snugly, while rolling the wheel, to where there is a definite drag. Loosen and retighten, still turning the wheel, to where there is a definite feeling of resistance. Don't forget to grease them.

To adjust toe-in (front and rear) have the driver in the car. Run a steel tape across, under the car, as high as possible, at the front of the tires. Hook one end in the tread of a tire and measure to a spot on the tread of the other. Mark the spots and roll the car ahead till the spots are behind the wheel at the same height, and measure again at the same spots. Toe-in should be from 1/16" to 1/8". Before each measurement roll the car back several feet, then ahead, to allow the previous change to take effect.

The steering wheel can be centered at the same time, so you can see the instruments through the spokes, by lengthening one tie rod and shortening the other.



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