



BULLETIN

NUMBER 12

SEPTEMBER 1965

DIRECTOR'S CORNER

Well, this month marks an Anniversary of some kind--not of the Association, really, as it has actually been in existence for some time. Of its resurrection, perhaps.

Last September on this date the Association had two members--my partner, John Baker and myself. By the end of the month we were joined by Dave Tallaksen, Robert Dender, Jr., Le Roy Melcher, Jr., Eric Harris, Jr. and Wendell Burgess. Since then over 150 others have followed their lead, and they are still doing it at the rate of ten to twenty a month.

During this past year--

1. Formula Vee literature (such as many of you have received) has been sent to over 1500 people in 14 countries.
2. The change in the Vee rules specifying "no modification unless permitted" was made (if not because of our recommendation, at least with it).
3. Certain methods of cheating have been exposed and evidently curtailed.
4. A better understanding of the rules, and of the VW components, has (it is hoped) been attained, resulting in a more tolerant attitude toward faster cars and drivers, and perhaps in some of the members being able to move up toward the front of the pack a few places.
5. The Association has gone "international" in response to requests for assistance from Vee groups overseas.
6. The latest and probably most impressive achievement is the Rule Ballot. By all usual standards a return of 65% on a return-mail item of this kind is incredible, indicating a very unusually cooperative and enthusiastic group of people. Its effect is still to be seen, of course, but as representing the wishes of the people who obviously *care* what happens to FV, it certainly won't be ignored.

All in all, at this time it appears to have been a good year.

Speaking of anniversaries--this is the month when membership renewals start for you "charter members." And speaking of memberships, it bugs me when I read point standings, race results, etc., and realize how many members we *don't* have. How about each of you getting another member during the next month? Take the enclosed application card to your next race and twist someone's arm.

CANDIDATES

We now have a candidate for President and one for Vice President. Any volunteers for Secretary?

"Volunteered" by Dave Tallaksen (present President); *Whit Tharin* accepted the nomination thusly--

".... Well, we mulled it over another Scotch on the rocks and I concluded the following:

1. "If nominated, I will run; if elected I will serve.
2. If elected I will withdraw my car from the market for the duration of my term.
3. If elected, I will work diligently towards bringing about, in the hearts and minds of SCCA, its officials, workers and promoters a better understanding of the philosophy and purpose of the FV and its members by:
 - a. Writing letters, articles or race accounts for any publication that will print them.
 - b. Making my time available to any

organized group with an interest in FV.

- c. Becoming an emissary of good will to SCCA, ACCUS-FIA meetings, conventions, etc., to the extent that my vacation time and finances will allow.
- d. Use any time left after the above to race Hell out of my FVee.

End of Platform!"

I move the nominations for President be closed! (One question, *Whit*--did you write that platform during that session with Dave at the same apothecary's shop?)

For Vice President we have a volunteer with some previous experience in the Association--

"Do you need a Vice President? I hereby throw my hat in the ring! Secretary I've been. *Vi Hendrickson*."

Vi is the gal who held this outfit together for a year or so before reorganization set in.

THAT BALLOT

The overall response to the rules ballot was pretty fair--93 received so far, and I'm hoping for 100 before the deadline. It restores faith that this *is* a Member's organization rather than just a bunch of people who happen to own the same breed of car. (If you *didn't* return one, don't take any bows.)

Results haven't been completely tabulated yet, but it appears definite that our recommendations to SCCA will be to keep Formula Vee what it was intended to be. A complete tabulation will appear in the next *Bulletin*.

It appears that there are very few "typical" Vee owners. *Most* everyone is in favor of *most* of the restrictions--except for one or two little items. It may be an air horn on the carburetor, or Transporter wheels, or any type exhaust system, but somewhere, on nearly every ballot, there was one such item.

However, those who favored the last items in the "Engine" section (permitting modification of valves, cams, compression ratio, etc. were more consistent). If they favored these items, most of them went all the way for any wheels, any exhaust system, any gears, longer body and oversize cylinders. In short, they have outgrown Formula Vee.

This would seem to be a logical development, really, as there are many who never tried racing before, but who, through Formula Vee, have found it to their liking, and who have discovered or developed driving and mechanical skills which are not fully utilized in this Class. However, it was a cheap, simple, and restricted Class when these people found it, and that's the way they should leave it. And "leave" is the correct word!

Formula Vee was never intended to be the ideal racing Class for everyone. It was not expected that it could combine economy with high performance. It promised no glamor, and no prospect for "development". It has never been presented as a substitute for any of the other Classes; and it looks, now, as though chances for change are pretty slim, thank goodness!

As has been pointed out before, there are 16 other SCCA Classes to play in, many of which offer opportunity for "improvement". The other Formulas are wide open, and if that is too great a hurdle to make in one jump, the so-called "Formula S" might be made to order for the next step.

Formula S is roughly in the price range of Formula Vee, is faster, and

(continued on page 2)

(THAT BALLOT)

offers almost unlimited opportunity for "improvement". It has not yet been able to merit SCCA recognition, but FV is living proof that it can be done.

It may seem a bit peculiar to invite people into the Class while at the same time inviting others out, but everyone--newcomer and old-timer alike--got into this Class because as it was, as it is now, and as it appears it will remain, it offered what he wanted. So to those who have outgrown it I say--"Please leave quietly--and leave Formula Vee for others to grow in as you have done."

(See the Unclassified Ads)

WHAT'S WRONG?

There have been a number of comments like John Tuit's, that something is wrong this year, and I've had a few suspicions, myself. However, I've been doing a little sleuthing among the VW publications, and believe I've found a clue. Maybe a lot of it isn't wrong, but just smart.

We've all been worrying about cams and compression ratios and camber compensators and ducting; but until the last month or so, gearing hadn't even been mentioned.

There are six possible ratios in fourth gear, and in third and first, and nine in second. Isn't that fascinating? Let's cut this down to where it doesn't look so formidable, by forgetting about first and second and cutting third and fourth down to four ratios each. Okay? Okay, now pay attention!

1. There are three transmissions, but the rules specify "at least three synchromesh gears," so that eliminates the original "crash box." This leaves the three-speed synchro (split case) and the four-speed (one-piece case).

2. In the split case there are two possible ring and pinion ratios, depending upon which company built the gears, but they are so close as to make little difference--(4.43:1 and 4.375:1). There is only one third gear and one fourth. These are the same as the so called "Transporter" gears in the later transmission.

3. In the later model one-piece case there's a great deal more latitude. This transmission is used in both 1200 and 1500 sedans and transporters. The 1200 Sedan uses the lowest ratio, the 1500 Sedan the highest ratio, and both Transporters use the high gearing used in the 1500 Sedan, but it is geared down again through reduction gearing at the wheels. (High and "low" here is going to be used in terms of speed, rather than numerical relations--0.82:1 is "high," 0.89:1 is "low." Okay?)

4. In the late one-piece case, then, there are four possible ratios in fourth gear, and four in third, depending on whether "Sedan or Transporter" gears are used, and in which combination--Sedan ring and pinion with Transporter fourth gears in the transmission, or all Sedan, or all Transporter, or Transporter differential gears with Sedan transmis-

sion gearing. Are you still with us?

Here are the various gear ratios--

Sedan ring and pinion	4.375:1
Sedan fourth	0.89:1
Sedan third	1.32:1
Transporter ring and pinion	4.125:1
Transporter fourth	0.82:1
Transporter third	1.22:1

...and here are the things you can do with them---

Trans.	Diff.	Overall ratio
0.89:1	4.375:1	3.89:1
"	4.125	3.67
0.82	4.375	3.59
"	4.125	3.38
3rd gear		
1.32	4.375	5.77
"	4.125	5.45
1.22	4.375	5.34
"	4.125	5.03

Split case

3rd gear	5.40 or 5.34:1
4th gear	3.63 or 3.59

(depending on which diff. gears)

You will note, if you have come this far, that the standard Sedan gearing is the lowest possible ratio. Whether this is good or bad depends upon what you want to do with it. It is best for acceleration on a short or crooked track, but is likely to let you down on long straights. A rule of thumb is "if you run out of revs before you run out of track, you're geared too low."

MORE TRANSMISSION

Now that you know all about gearing, what are you going to do about it?

If you are considering working on your own transmission, the best way to go about it is to take it to your friendly VW dealer. Like so many other VW features, it, too, is like nothing else in this world, so if your only mechanical experience has been with Linotypes or 3-speed Hydromatics, or something simple like that, you'd better leave it to experts.

If you still want to try it yourself, you may find this "background" helpful.

Ball and roller bearings are ruined just as often from being too loose as from being too tight. A properly installed bearing will distribute the load among nearly half of the balls or rollers--all those opposite the load--but a loose bearing carries the load on only one ball or roller at a time. SO--

It is common practice to "pre-load" such bearings by "squeezing" them toward each other slightly. Pre-load is exactly what it says--placing the bearings under sufficient pressure so that when they are operating under load the resulting deflection of shafts, bearing mounts, etc., won't be enough to allow the bearings to run loose. This pre-loading, in the VW transmission, is done by drawing the bearing carriers up tight against the case, using shims to adjust the pressure put on the bearings.

In the VW the total thickness of shims, and their location, is determined by measuring all the parts before assembly, adding or subtracting the amount of pre-load from the specs, and then assembling. This measuring is done with special jigs, dummy shafts, dial indicators, depth gauges, etc., and is not the type of operation you can carry out on the kitchen table after dinner. In addition to the pre-load, in the differential department the pinion gear must be located properly in relation to the ring gear (by taking shims from one end of the shaft and adding them at the other) and the ring gear must be shifted sideways in the same manner. This, too, is done with special equipment.

All this doesn't necessarily mean that you can't operate on your transmission. If you keep this arrangement in mind, and if you do not substitute any parts.

If you want to replace your sedan ring and pinion with Transporter, better get it done. However, if you have acquired a Sedan transmission and want to switch the gear to the opposite side, it can be done, with patience. (If you get a Transporter transmission the ring gear is already switched.)

The ring gear, of course, can be installed on either side of the pinion, but it won't necessarily fit the same on either side. Merely reversing everything could result in the ring gear being so close to the pinion that it would bind, or so far away that the teeth would slide, rather than roll. (That's not an exact description, but it's something like that.) However, that is the way to start.

As you tighten the bolts keep rocking the ring gear back and forth, and if you run out of "backlash" (play between the teeth of the gears) STOP. Get some idea of how far there is to go, take the carriers out again, and transfer shims from one side to the other to make up the deficiency, plus one or two extra and try it again. Keep trying till you find the point where one shim makes the difference between play and no play, and assemble with that shim in the "play" position. DON'T add or remove any shims! Use them all, on one side or the other.

This process doesn't apply in the transmission. If you have nerve enough to get into it, don't shift any shims--put them back where you found them (again assuming that you are not replacing anything except gears). Let me know how you make out--if you get away with it, maybe we'll try it.

The BULLETIN of the
Formula Vee Association
Don Cheesman, Director
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YARDSTICK

As mentioned elsewhere, a complete check list, with appropriate specifications, is being compiled, to assist tech inspectors in determining the legality of protested cars. It will include--

1. Permissible "depth of cylinder in the head" and also a check of the volume of the combustion chamber in the head itself.

2. Dimensions for the distance from the top of the cylinder to the top of the piston head at top dead center and at bottom dead center. This would detect: *shortened barrels, stroker cranks, high pistons, "shaved" crankcases and compression ratio alteration.*

3. Legal gear ratios, and means for determining them by counting rear-wheel-to-engine revolutions.

4. A method for checking cam profiles with a degree wheel and dial indicator, with a chart showing correct readings for the stock cams.

5. Identification marks and dimensions for such items as manifolds, rocker arms, push rods, wheel width, etc.

Does this sound reasonable? Can you see anything wrong with it? Is there anything else that should be added? Please, let's have comments. When this is completed it will be printed up and furnished free to anyone who can use it.

CLAIMING PRICE

The "claiming proposal" balloting has been pretty good. Opinions have been fairly evenly divided--24 in favor, 30 against, at this time, with more coming every day. Comments, especially "against," have been pretty definite. "\$450 wouldn't cover the work involved." "Careful preparation of an engine should be rewarded." "It would be a pain in the neck to have to hunt up a new engine and have it balanced and ported (??) to run a race the next weekend." "I believe personal 'tweaking' and parts selection are a part of racing and shouldn't be discouraged." "\$275 for new valves, springs, guides, bearings, etc., plus balancing, Magnafluxing, etc.--barely enough to prepare another engine--but NO amount can compensate for the hours and hours it takes to hand fit parts, tune, test, and tune some more."

It would seem these people are missing the point. No one is expecting them to build \$500 or \$600 or \$700 engines and sell them for \$450--they are being asked to run with engines that *aren't* worth \$450. Perhaps the proposal should have included a provision that it would go into effect for the 1967 season, in order to give them a chance to cash in on their investment, but discourage future investments of this kind.

There is not much point in kicking it around, as it *has* been voted down. However it is to be hoped that the vote won't be interpreted as a license to steal in the future. It *could* come up again.

COMMENTS

There were more comments written in on the ballots than there were during the past months of discussion. Next time (?) we go this route maybe we'll mail out stamped, addressed blank sheets for comments ahead of time. Anyhow, some of them were quite interesting. For instance--

From one of the "all-out" advocates (who even crossed out the entire Suspension definition and wrote in "Any Type") "upgrade the specs to include the 1300cc engine." There were several other questions on this--"How about the new 1300cc engine?" Okay, how about the 1500cc engine? How about the 1240cc engine? (Oversize cylinders) We have apparently just voted that down by about a 4 to 1 majority. I imagine the 1200 engine will be around at least as long as Model A's, but if we seem to be running out of engines in, say, 10 years or so, we may have to consider updating. It will cause quite a shake up, though, if every one, all at one time, has to change engines.

Another question, on the "Sec. 9-B" gears--"Does this preclude the use of Transporter gears? It is now 1500cc, you know." True, and the 1500 VW Sedan also uses this same transmission, if I interpret my VW literature correctly. However, the same transmission was used in the 1200 Transporter, and in the 1200 Sedan from August, 1960. Only the gears are different, and they are interchangeable (see the article on Transmissions). If you can tell the difference, use only 1200 gears; if you can't tell the difference, what's the difference? It's the gear *ratios* that count.

More of these comments will be taken up later.

Here's one that deserves special attention: "Don, what is lacking is enforcement. Officials are generally unable or unwilling to check protested cars and refuse to accept well-founded protests. Cars should be spot-checked, perhaps by lot.

"Something is wrong this year. I am faster on the same track than Lew Kerr was last year. My car is legal, but diligently prepared, yet there are always the same 5 or 6 cars that have me off the line and down the straight. Maybe they're cheaters; maybe they have the mystery gears. Either way, it's wrong! *John Tuit, Oakland, N.J.*"

There have been a number of comments like this, John. To take your first paragraph--There are probably several reasons for this situation. First, perhaps, is the general attitude (which seems finally to be fading) that if the Vees are ignored they will go away. Second, due to the very nature of the Class, it's protest record is apparently rather high, which has led to a feeling of "Oh, no--not another one!" Mostly, I would imagine, is the fact that many of the officials wouldn't know how to go about inspecting a Vee in the first place. As far as that goes, how would *you* like to be called on to inspect one?

How would you interpret "as based on part number so-and-so"? How would you determine an illegal cam? What would you do if you found a cylinder of the middle or largest *standard* size, which gives a displacement of about 1194 or 1197cc? (Only the very smallest standard size is strictly legal.) What would you do if the exhaust pipes did not end *exactly* at a common plane? (Both of the above items were discussed in Sports Car.) What is a "limiting strap"? Having been drafted for one Vee inspection, I have every sympathy for a tech inspector under our present rules.

It appears, then, that enforcement will depend on three conditions--a set of rules which are clear and undebatable (which it appears we will have), an inspection procedure which can be performed by any mechanic who can read (which is being compiled now) and willingness of the officials to honor protests and make thorough use of the above tools. It will be up to you people, on a local level, mostly, to insist on compliance with the GCR by your officials. If you are not able to get it, with reasonable effort, give me the details, with names, dates and witnesses, and perhaps some pressure can be brought to bear without making a national issue out of it. In the meantime, though--until we see what improvement is made in the rules, put yourself in the inspector's shoes before being too critical. Okay?

(As to "what is wrong?" see the bit on transmissions--maybe you'll find something wrong there.)

FAN BELTS

Check your fan belt frequently and carefully. The heart of this belt is a continuous length of cord wrapped around inside the cover a number of times, and quite close to the cover on the sides. When the cover wears through, the cord is exposed and starts whipping and unwinding, and in a matter of seconds can completely disintegrate the belt.

The response to the request for letters and race results has been overwhelming. Too much so, in fact. I have a stack of them I had hoped to include in this month's issue, but just won't have room. I'll start with them first, next month.

"Don, could you publish the engine number of the first 40HP VW engine? I've obtained some very confusing data from local VW dealers! Don Williams."

The first 40HP engine (also called 34bhp, and now 41.5HP) was #5 000 001.

INTERNATIONAL

"Just a note to let you know how the Formula Vee movement is getting along in South Africa. We held our first race meeting at Kyalami on 3rd July with 16 cars entered and 12 started. The winner was Peter de Klerk, driving a Capital Vee. He is one of our local Formula I stars, having been runner-up in the S.A. Championship for the last couple of years.

The movement is gaining rapid momentum and we should have 25 to 30 cars entered for the Sept. 11 meeting. A number of our other Formula I stars are going to compete; John Love, Champion in 1964 and who has won the Championship for this year will be driving, as well as Tony Maggs, who has retired from serious competition, and will race Formula Vee as a hobby.

Two manufacturers have entered the field on a commercial basis. These are Capital Motors, who have sold quite a number of cars and kits, and Peco, who are still playing around with their prototypes but expect to be in production at the end of the month.

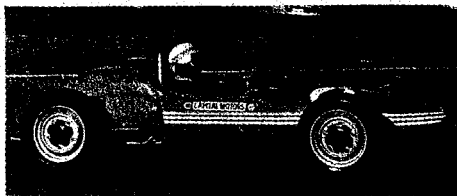
The best design, chassis-wise, I consider is the Veegos car, built by a group of enthusiasts known as Scuderia Los Amigos. They clubbed together and built five identical cars. They resemble number 11 in the photos.

I wonder if you could let us have the SCCA regulations concerning roll bars, as I think we will probably have to introduce something similar here.

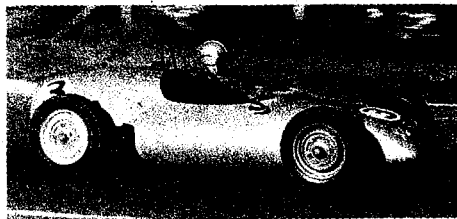
*D. P. Clapham, Secretary
Formula Vee Register of South Africa.*

EMBLEM CONTEST

The contest for emblem designs for the Association is still open. A prize will be awarded to the winning designer. Any suggestions?



Peter de Klerk in the Capital Vee. Have you ever seen a better looking car? (You can understand their interest in roll bar rules though.)



Horst Thane, in a one-off car of his own design--one of the first in South Africa. His suspension and roll bar wouldn't pass inspection here, but look at that smooth body!



Eric Brockhoven in one of the "Veegos" cars, during the filming of a newsreel. No identity for the car behind. Looks like he's bending the "no fairing-in the suspension" rule a bit, doesn't it? (South Africa)

41.5 HORSEPOWER?

There has been a great deal of speculation as to where the change was made to increase the power of the '65 engine. 1500 valves or rocker arms? Nope. They are both different, but not so they would affect performance. The exhaust valves are polished all over, except for a small circle in the center, and the rocker arms now have an oil passage to the adjusting screw end, but that is all. They are the same size as the previous ones. Ports? No, they are the same size. Same for compression ratio. Cam? Again, the same as in '64. In short, the only change is on paper. There is no explanation--perhaps some engineer rechecked his figures and found a mistake. (SAE horsepower is strictly theoretical, anyhow, and is determined by formula. It has no definite relation to brake horsepower.) If it helps any, your '60 or '63 engine is now 41.5 Horsepower too.

UNCLASSIFIED ADS

FORMCAR: built from new suspension components, 4 races, garaged all summer. Trailer and spare parts, 10 tires (6 new). Won't wash out on turns. Best offer takes it. Dr. Wesley Olson, Box 146, Lennox, S. D.

SPLIT-CASE TRANSMISSION: reversed for Vee. New bearings, gears, brake shoes, \$125. Ed Meloni, 66 Van Buren Ave., Metuchen, N.J. (after Oct. 1--81 Sagamore St., Hamilton, Mass.)

TRADE: 1962 Lotus 7A. 2 Sprite engines, 950 and 1100cc. 11" Volvo brakes, front; Volvo rear end w/10" drums. Extra brakes and wheels, \$1800 or will trade for a Vee. Pete Barbus, 11620 74th Ave. So., Seattle, Wash.

WASH.
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