VEE LINE

NUMBER 35 AUGUST 1967

DIRECTOR'S CORNER

This may go down in history as the "roll-bar issue of the VeeLine." Hope it won't be too monotonous – but when you get right down to it, what part of the car is more important?

It's reasonable, I believe, to lay it on the manufacturers for providing inadequate roll bars (even though, as mentioned on page 2, they may even be *legal*); and we are led to have faith in the safety features of a car if they pass technical inspection, even though it is obvious, in some cases, that the inspectors are merely trying to be nice guys in overlooking questionable installations. (And, to be honest about it, on your own car wouldn't you rather have them continue to pass *your* roll bar – even though you may know in your heart that it wouldn't support a go-kart in a real emergency?)

The manufacturers *should* furnish safe cars, and SCCA inspectors *should* condemn the ones which are unsafe – but until this all comes about, what are *you* going to do about the equipment you have *now*? Nine out of ten of you are going to continue as you have been doing – ignoring the obvious, on the ground that "it passed Tech, so it must be okay."

If you're not *sure* your roll bar would keep you separated from the pavement, how about making sure? There are enough Vees around now so that the loss of one now and then probably wouldn't be noticed; but when it's due to unnecessary causes like this, it does give the class a bad name.

(Now that we have finally revised ours I can be a little smug on this subject. Firewalls? Well, ours must be safe, even though it, too, has big gaps along both sides – it's passed Tech for four years now.)

NEW LOOK FOR FORMCARS

There's nothing to stop the rest of the Vee people from reading this – they might even find something which would apply to other makes – but due to the number of Formcars in existence, and the fact that they *are* somewhat deficient in a couple of areas, it was felt that a column giving them special attention wouldn't be out of place. (All right, so I'm partial to Formcars, too!)

Probably not many Vees, of any make, are running with the original roll-bar installations, as very few of them would pass a really rigid inspection unless the owner had a brother on the tech crew. Some were too low, some were too light, and only a few were adequately braced. Formcar, it must be admitted, was one of the worst offenders, with no bracing at all for the upper half of the bar, and only a few drivers can skootch down low enough to claim that it's of legal height. Formcars have another distinction (I don't believe it is shared by any others) in that the steering wheel is higher than a plane determined by the roll bar and front suspension horns, so that in a rollover the steering wheel is the principal point of contact with the pavement. At least two serious hand injuries have resulted from this condition.

As was mentioned here last month, the Chiefs of Tech (on the West Coast, at least) are showing their teeth and ganging up on the poor drivers. They have sworn to protect them as fully as possible, whether they like it or not, by insisting that the roll-bar be as least as high as the top of the driver's helmet, not only at the time of tech inspection but at *all* times. (Isn't that chintzy!) Further, they say, they *will* be adequately braced! John has been driving Petunia for four years with his head several inches above the roll-bar, and has never even scratched a knuckle due to the wheel being in the danger zone; but that apparently isn't going to carry any weight with the inspectors, so we decided to try to conform before we found ourselves spectators at a National race, due to disqualification.

When we built Petunia, we moved the pedals ahead 4 inches, set the seat right on the belly pan, and thought we had reached the limit; so for some time now we have been putting off installing a higher roll-bar. But would you believe a lay-down Formcar for drivers over 6'2" tall? It can be done – the only limitation is the line of sight over the cowl. The present roll-bar is adequately high, and the steering wheel can be brought down into a safe position at the same time.

First, the pedals were moved ahead another 1½ inches, for a total of 5½, so that the reservoir of the master cylinder is against the lower torsion bar tube. The cylinder itself fits very nicely below it. This is done by cutting out the lower frame cross member as close to the welds as possible and moving the entire assembly ahead. The upper cross member is removed and discarded, as the torsion bar tubes adequately perform the

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RULE SUGGESTIONS

While there has been the usual amount of bitching about rule violation this season, there have been very few suggestions for improvement. Most of the current violations are in the "gray" area, where they can be defended on the ground of varying definitions of a word or phrase. It would seem that these loopholes would draw more interest than they have. They'll be incorporated in a ballot with the September issue (hope it will be out sometime around September or October!), so if you have any additional complaints, make them immediately or forever hold your peace.

Terry Farrell's letter included the following suggestions:

1. Sec. 4.9 The roll bar should be braced in the top fourth of the hoop, and it is strongly recommended that the braces be from the top of the hoop.

A rubber bladder or fuel cell is required.

2. Sec. 4.1 Standard VW parts may be installed in other than standard configuration if no other provision of these rules is violated.

3. Re: VeeLine #33 – why not put that admonition back in the rules?

He explains that the addition to Sec. 4.1 would allow locating the manifold and carburetor behind the engine, turning the carburetor around on the manifold, reversing the spindles "like the Vee Warrior," etc.

REPEAT

The "Second Annual Grand Prix for Formula Vees" has now been announced for Oct. 21 and 22 at the Steel Cities International Raceway (formerly known as Nelson Ledges) near Pittsburgh, Pa. The first event, last fall, was hailed as a huge success, and this year's race is promised to be even bigger and better.

The main event, on Sunday afternoon, is a four-hour enduro for National drivers only. Each car entered must have two drivers, and the co-pilot will be required to drive for at least one hour. (Last year several drivers completed the three-hour race solo.) On Sunday morning there will be a two-hour event, open to Novices and Regional drivers. Saturday will be for continuous practice only. Trophies will be awarded for the first six places in both races.

For further information, entry blanks, etc. write: Thomas K. Morris, 231 Royal Ave., Pittsburgh, Pa. 15235; or R. E. McCurdy, The Daily News, Box 401, McKeesport, Pa.

MORE ON SAFETY

"Dear Don – We finally got the July meeting off – we spent most of the time discussing the accident at the last race. *(? don)* The president of the Formula Racing Assn. spoke in favor of minimum roll bar height and bracing. Although we are not directly concerned with car safety in Formula Vee, it certainly would be a worthwhile consideration. The roll bar of the car in the Riverside accident was bent flat at the brace. Again, this car was a (brand X) with a factory roll bar. It would seem to me, Don, that the Vee manufacturers would be under some obligation to produce a car with a roll bar worth its name. This make is not the only one at fault. I'm sure you will agree that the factory (brand Y) roll bar was unsatisfactory from a brace standpoint. I am wondering what you could do through the VeeLine to promote car safety. I can't help thinking that a death or serious accident has a deleterious effect on Formula Vee.

"The roll bar is only a sidelight to the Riverside accident, since the driver's injuries were due to burns. It now appears that the flexible fuel line was knocked off the fuel pump when the coil came loose on car impact. A standard legal firewall might have saved him, but that is not the case with the factory installation.

"A further practice that should be abandoned is attaching a flexible fuel line to a rigid metal line without flaring the metal line. A final clamping of the flexible line goes without saying.

"Special venting of the gas tank is another consideration. An ordinary vented cap in the driver's compartment is unsatisfactory. A special vent pipe from tank top, down the side of the tank, through the belly pan would provide a safe vent.

"While we are on the subject, a one piece driver's suit and tight fitting gloves should be required.

"We are polling the local drivers during the Riverside National. We should get some word to you on proposed rule changes by the end of August."

Bob Sidlow, Los Angeles

("We" is the "Southern California Chapter of Formula Vee International" which is actually another informally unorganized group of Vee enthusiasts, like the Northern California "group" shepherded by Harriet Gittings. Are there any other such "unorganizations"?)

After the above was written, a letter was received from Terry Farrell, of Lynwood, Cal., who has been heard from here before. He adds a few details:

"The car tangled with another Vee, got airborne and rolled on its side. It hit the wall on the outside of the turn with the top of the rollbar, sliding backward so that the roll bar was bent forward into the cockpit. Although the driver was not injured by the crash (in itself a miracle), he was critically burned in the ensuing fire. 40% of his body sustained third degree burns. You might pass along these comments:

"1. The collapsed roll bar *may* have held the driver in the car for the time necessary to make the fire a factor.

"2. The fuel line apparently came loose at the fuel pump and was responsible for the fire.

"3. Since the firewall does not extend all the way out to the body shell, the fire could come around into the cockpit.

"4. The roll bar is 21 inches high and the two braces are attached 11 inches up the bar. Both measurements are from the top frame rail. The bar bent at the point where the braces are attached. It is my opinion that this roll bar is illegal, since the braces are not in the top third of the hoop. Why have these cars been allowed to race? Since the tech people have not done anything, I think FVI should. People should be told that the bar has failed in at least one instance, and they should assume that theirs could fail also. This firewall situation should be given a lot of thought, too."

Terry included diagrams, with measurements, of the firewall and the rollbar installation. In the case of the rollbar, it could be argued that it is *legal* if one considers the *overall* height, rather than that of the hoop itself, above the frame. The 1" tubing, of which it is formed, is also *legal* for cars weighing less than 1,000 lb. Nevertheless, as has been pretty well proven, it is *not* adequate!

They have a number of very good points there, but it's a rather sticky subject too. How can I say in the VeeLine that the Leper Vee has an unsafe roll bar, or an inadequate fire wall, when some of them, at least, have received the blessing of tech inspectors somewhere? I'd be sued for libel or something. So I did mention Formcar specifically, but they had some excuse. When it was designed, rollbars were still optional, and the last one was built about the time SCCA started making "suggestions" for safer installations. I certainly agree, though, that there is no longer any excuse for a manufacturer providing safety features which won't even pass a rigid tech inspection, to say nothing of the acid test of actual use.

SCCA has reserved unto itself the prerogative of making and enforcing rules, but we can certainly give them our encouragement, in this field, especially. There is no provision for "SCCA Approved" safety features (though why shouldn't there be?); but with a little devious maneuvering, via the "protest and appeal" route, a manufacturer could get a decision from an Appeal Board that his car was safe. How about it, you builders – who's going to be first to advertise "SCCA Approved"?

CONVERT

"Dear Don – Just received my package as a new active member. Your VeeLines are extremely interesting and helpful. You have suddenly changed my mind about Vee engines.

"Until reading your article on 'standard' engines I was a proponent of jiggling and finding rare and odd parts that would make them go faster, but I now agree wholeheartedly with your reasoning on standard parts. The only trouble is, you aren't going to eliminate the use of special parts unless the rules state specifically by part numbers what a standard engine i

"I personally think that all engine remachining ought to be done away with, except for flywheel lightening. . . .

"By the way, a fellow named John Noble, of Pennsylvania, claims to have the original Nardi-built Vee. Is there anywhere published a complete story of how all this got started? I have seen several articles, and all seem to conflict somewhat. In addition, Joe Vittone, of EMPI, told me that he actually built the first Vee, with Italian bodywork.

Bob Cusick (Venus Racing Cars)
Kent, Ohio

"P.S. Can we really machine heads to obtain the 43cc minimum? It doesn't sound legal."

Gee, thanks, Bob! Write again any time! I agree with you on the machining – to some extent. I'm against porting (and that's what it actually is) partly, I suppose, because I don't know just how to go about doing it myself, and don't have the time if I did. I imagine there are many in the same boat. Anyone care to do an article on it?

I was firmly against "blueprinting" too, but find myself mellowing. I can't see any justice in restricting perfect parts to only those who can find them. In addition, if the parts *are* made perfect through machi ing, how could they be detected even they were considered illegal? So I've come to the conclusion that blueprinting might better be made legal – it's being done, and would be impossible to stop, so it should be approved for those of us with consciences, too.

Regarding the heads, I think this definitely requires some clarification by SCCA. Setting the cylinder deeper into the head to achieve the 43cc minimum, will require a greater "cylinder seating depth in cylinder head" than the standard VW measurement of 0.538" to 0.542" (unless an equal amount is planed off the flat surface of the head, too, to disguise the alteration). If that "depth" figure had been included in the list of standard measurements, there would be no doubt that alteration of the head was forbidden. However, of the number of pertinent measurements easily available, that particular one was omitted, leading one to assume that permission to attain the 43cc capacity is implied, at least.

We haven't torn our engine down since that rule was adopted (believe it or not); but a couple of years ago, when comparing our old heads against those "'65" heads, I checked the capacities of both (which were equal) and know that ours run around 43cc. When we do have to tear down (which we do only when absolutely necessary) intend to machine the heads to get the 43cc, and also the .039" head-space in the cylinder. As for degreeing the crank and regrinding to get an extra thousandth

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NEW LOOK FOR FORMCARS – (Continued from Page 1)

same function. Individual stops were provided for the clutch and throttle pedals – a short piece of flat-bar welded to the cross member for the clutch and a piece of 1/8" pipe, tapped to 5/16 NC thread and fitted with a 5/16" bolt, welded to one of the master cylinder supporting angles for the adjustable throttle stop. The brake pedal travel is limited by the master cylinder itself. A new support for the body shell is tack-welded to the upper-torsion-bar tube.

Revising the seat was fairly simple, too. The original seat rails were removed, and an additional square cross tube was welded in with a 10" space between it and the original one. The seat was fiberglassed to the three points where it contacts the two cross tubes and the one running across the firewall. At the same time, three inches was cut off the front edge of the seat to permit easier entry, and the original flange was fiberglassed back on. The seat belt eyebolts were located on the front side of the new cross bar for better lineup with the slots in the seat, and to get them low enough. This has to be done before the tube is welded in – handles of rod, welded to the nuts, hold them while the eyebolts are screwed in, and serve as locks.

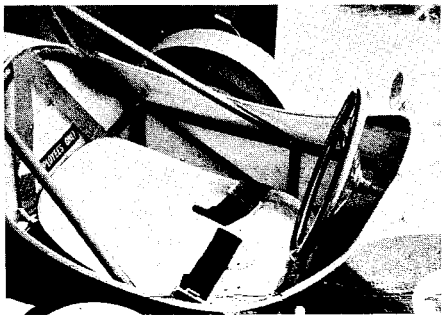
Most drivers probably won't find it necessary, but to fit us more comfortably, the entire roll bar, from the top frame rail on up, was bent back about 2½ inches (measured at the top of the lower hoop) leaving 2 inches between the fire wall and the generator pulley. This is enough so that the engine can still be removed intact with a little gentle persuasion.

All the original "junk" tubing around the cockpit was removed, and the rollbar braces were installed as shown. This location gives good "triangulation" (location of joints so that tubes are under compression or tension but are not subject to bending forces) and provides somewhat of a roll cage for the driver. Under normal conditions the braces are not in the way at all, and under conditions where the driver might contact them, he'll be glad they're there.

The arch supporting the dash and steering wheel was replaced with a new one, located an inch farther forward and curved to conform to the body shape. This was done for my benefit, as I run mostly to legs, but wouldn't be necessary for a "normal" driver. The old 15" wheel is being replaced with a 12" one, with the shaft lowered so that the top of the wheel is just even with the top of the cowl. This gives about 2" clearance between the wheel and the pavement in case of a roll-over, and also makes getting in and out easier for long-legged drivers.

Sound simple? Well, there were no real problems, but there's more work involved than can be done in a couple of evenings, so don't take it on when you're planning to race this coming week-end. It's worth it, though – the car is more comfortable, looks better, meets the tech requirements and, above all, is much safer.

The Director's "Assistant" (5'10") demonstrates the "new look". You can see why the steering wheel was later replaced with a smaller one, located lower.



The shoulder harness had to be relocated after this picture was taken. It now is anchored about 4" down on the firewall, to a tube crossing the roll bar in the engine compartment.

ANOTHER NEW VEE

There have been a number of changes in the list of Vee builders in the past four years – remember the Formcar and the Lynx and the Sardini and the Viper? And I am told that Bobsy is no longer accepting orders for complete cars. However, it seems that every time one drops out another takes its place.

This month it's the "Venus." Unlike most new models, this one started with the body. A number of them were built on order for individuals building their own cars (including one for a Formula B) before it was decided to go all the way.

The body is very sleek and low, with a hint of European styling. The publicity pictures show the engine enclosed all around, but open on *top*, like a Sports Racing type. Bob Cusick explains, though, that the engine cover is furnished with the car.

At the price they're asking they shouldn't have any trouble selling cars – if they can build them for that and stay in business. Their basic kit is priced about the same as the other makes – but includes a "modified" engine!

If you're shopping for a new Vee, better put the "Venus" on your shopping list. Venus Racing Cars, 311 N. Mantua St., Kent, Ohio 44240 (216) 673-1160.

STILL MORE ON ROLL BARS

Probably one reason for not replacing undernourished roll bars is the difficulty in getting a new one bent. Most any electrical shop can bend pipe or conduit, but tubing comes in sizes specified by outside diameter, while pipe and conduit are measured inside, and the tools made to fit their outside diameter don't work very well with tubing. Tubing bent on a pipe bender, then, is likely to be flattened, and possibly wrinkled in spots.

Ideally, tubing is bent on a "mandrel bender" – a machine on which a ball or plug inside the tube follows the bend and insures the tube remaining round. However, if you are not near a shop doing this work (and they aren't too plentiful), you might try a commercial refrigeration outfit. They might have tools the right size for tubing.

As a last resort, you could even try bending your own. It's really not too difficult, though you might want to get an extra piece of tubing to practice on. First, fill the tube with dry sand, as tight as you can pack it in. Weld a plate on each end to retain it, but don't weld solid – leave a crack for escaping steam. Heat thoroughly the portion to be bent until not only the tube, but also the sand inside, is a nice cherry red. If the tube darkens rapidly when removed from the heat, heat it some more – the sand is still too cool. A fire of charcoal briquettes, long enough to heat the entire length, should do the job.

An old tricycle wheel of suitable size, with the tire removed, would make a good form for bending, though it could be done on a plain cylinder, such as a five-gallon paint bucket. Allow plenty of excess tubing, in case you don't get the bend exactly in the middle.

In my opinion, the tubing sizes specified by SCCA are much too light – a three-foot length of the 1" x .060 tubing specified for light cars can be bent over your knee if you grunt a little. It's okay for bracing, where it is presumed that it will be resisting only push or pull; but where the tube is subject to bending, it should be much heavier. I wouldn't use less than 1¼", or even 1½" tubing, with at least 11 gauge (.120) or 1/8" (.125) wall.

Bracing, of course, should start as high as possible on the bar, and run to some point on the frame which is not subject to bending – a junction point where two or more frame members join, for instance.

Incidentally, if you run across a tubing expert who would be interested in bending up custom roll bars, tailored for specific makes of cars, tell him he can get free advertising in the VeeLine.

FROM OUR VEE P.

A note from Vi Hendrickson, our Vice President: They have given up racing (active, that is) but can't stay away from it. She and Dave have been working at Drivers' schools at Thompson Raceway in Connecticut. She enclosed names of ten prospective members, and asked that their Vee be listed for sale.

CONVERT
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or so of stroke – huh-uh. It wouldn't be worth the effort, in my opinion.

As to the "Nardi" – Col. George Smith would be the logical source for a story on the real birth of Formula Vee. How about it, George – would you give us the real low-down, with details, on what took place *before* you unleashed Formula Vee on an unsuspecting racing world?

Oh – standard parts numbers! I think this is a problem which has arisen from the constant claims that such and such a part "came on a 1200 VW." A claim like that is very hard to disprove. However, as has been mentioned here before, rather than try to prove that a part did *not* come on a 1200 VW, it is much easier to consult the VW parts book and determine the "standard" part which *should have* come on it. With the further clarification from SCCA that the rule specifies "standard" parts for "U.S. models," I can't see where there should be any difficulty. In case of dispute, adjourn the meeting to your friendly VW dealer's parts room, and find out what the "standard U.S." part actually should be. Now if you can just get that over to your Stewards. . . .

ON TANKS

Bob Sidlow's recommendation that tanks have special vents leading outside the car, rather than just a loose or vented cap in the cockpit, is certainly worth attention.

For a really effective vent, which will prevent loss of fuel under practically any condition – or position – take the vent from a spot near the front of the tank, and lead the line, with some upward slope, to the back of the tank before turning it downward through the belly pan. During extreme braking, the fuel will not be forced out through the vent (any fuel in the line is subject to the same forces as that in the tank); and under acceleration the vent is, of course, uncovered. In fact, in any condition in which the vent in the tank is covered with fuel, some point in the line is above the fuel level.

CALLING ALL GIRLS (DRIVERS, THAT IS)

"Dear Don – . . .Please see what you can do about promoting more interest in female Vee drivers. I am the only one I know of, and I see no reason why more women don't find out just how much fun Vees can be."

Ann Purucker, Shark Vee Team
Shawnee Mission, Kan.

Well, you're not alone, Ann, but you do have a point. Let's see – there's Harriet Gittings, of course (who has driven more Vee miles than most of the men) and Sue Payne and Dianna Carter and Vi Hendrickson (our Vice President who had to quit due to an accident) and – uh – well, there *must* be some more. How about it gals? Come out, come out, wherever you are. With pictures.

Incidentally, Ann, the first Vee race in Great Britain, at Silverstone, this summer, was won by a girl, Jenny Nadin. Another girl from Holland, Liane Engeman, came in seventh. Jenny's win was no fluke, either – she also had the best times in practice.

UNCLASSYFIED ADS

FOR SALE: Bobsy, good components, camber compensator, R-2's, upholstery. Never bent. Dick Patton, 2940 Neil Ave., Columbus, Ohio. Phone (eves only)(614)263-3744.

FOR SALE: Bobsy, engine reworked from crank out, completely balanced, legal. Good overseas – sacrifice for less than cost of components – $1495. Thomas G. Bee, 8409 Fenwood Dr., Springfield, Va. (703) 451-3296.

FOR SALE: '65 Beach, two races on new, balanced ergine. Tonneau cover, excellent trailer, some spares. $1200. David Jones, 1939 W. Gray, Houston, Tex. JA 8-2447.

FOR SALE: Formcar, factory built, towbar and lights, spare wheels, spares box and helmet. $1200 for all. David Hendrickson, 360 West St., Needham, Mass. (617) 444-4641.

MORE FOR FORMCAR OWNERS

"Dear Don – In calling on some of my automotive distributors I ran into some good information on Monroe shocks. As you know, Formcars came equipped with LL56 Load Levelers in the rear. This number is now LL-456. These units can be purchased directly from Monroe by using a form letter available from the local Monroe distributor. The nice thing is that the price is $16.50 per pair when this form is used. The retail price is around $40.00.

"For another thing, the springs alone can be replaced individually, for around $4.00 each. They are available in three different tensions. The units normally come with a 'variable rate' spring, painted black. Also available are two other springs – 40 lb., painted light blue, and 60 lb., painted dark blue. Variables are a little stiffer than the 40 lb. units. Supposedly, the 60 lb. units are primarily for truck use. So we do have some choice for adjusting the rear suspension, other than hose clamps. Do hope this may be useful to some members."

Dick Calvert
Charleston, W. Va.

Thanks, Dick – I'm glad to hear about it, too. We've been on the original Monroes since 1964, even though Whit Tharin has been giving me a bad time about replacing them since 1965. He replaced his, he said, after about every 10 races. Not having $40.00 to spend on such luxuries, we haven't even checked ours out. Now maybe we will.

Incidentally, our original springs sagged considerably, at first, and are still doing so, to some extent. They're now shimmed up about an inch and a half. I wrote Monroe a nasty letter several years ago, and received a new pair of springs, but have never gotten around to installing them. Hate to start over on adjustments.

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

Formula Vee International
BOX 291
EPHRATA,
WASH. 98823

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UNITED STATES WASHINGTON 5¢

Warren A. Roberts
1208 Swan Drive
Bartlesville, Okla. 74003

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