VEE LINE

NUMBER 74 NOVEMBER 1970

MEMBERS' SOAPBOX

Dear Don–I am building my first Vee. Most builders seem to use Girling master cylinders. What's so great about them? Is there anything wrong with VW master cylinders? If Girling is the thing, where can I get them? How about a dual cylinder as used with late-model domestic or imports, with a proportioning valve?

Next, coil/shock units. There just has to be a cheaper way than $100-plus for Konis. Again, if you have any suggestions, makes and part numbers, please.

Would you advise packing the fuel tank with polyurethane foam? Is a shut-off valve necessary at the tank outlet? Is it OK to use a ball-bearing clutch throwout, or is the old carbon type required?

James G. Earle, New Baltimore, Mich.

Probably the greatest thing about Girling cylinders is that they are small, light, easily mounted, self-contained (no separate tank and hoses) and reasonably priced. They were listed in the Beach Vee parts book (several years ago) at $15.25 each. The old (single) VW cylinders would be about equal, except that they require a separate tank for the brake fluid. The original Formcar had a dual brake system before it was even considered mandatory, using a dual Rambler cylinder. There are any number of this dual type available, now, including the later Volkswagen.

The drawback to the dual cylinders is that there is no provision for proportioning the braking effort between the front and rear wheels. This is probably not too *serious, as equal braking pressure seems to be very close to the ultimate, anyhow; but there is no doubt room for some improvement. An adjustable "balance bar" between two separate cylinders allows the pedal pressure to be distributed as desired between them. I'm not familiar with the "proportioning valve" you mentioned, but it might serve the same purpose.*

If you use two separate cylinders, side by side, the braking effort (pedal pressure) will be twice as great as it would be if you used a "dual" cylinder, with the same size pistons.

You can correct this by using (1) smaller cylinders, or (2) more "leverage" in your pedal linkage. Or you can simply push harder.

Probably your best source for Girlings would be one of the British car agencies, or one of the Vee builders who use them. (See the booklet "All About Formula Vee" for their addresses.) Or try your luck at your local wrecking yard, of course, for Girlings, VW, or anything else you might convert to your use.

As to shocks–if you have to have adjustable shocks you might as well face it–Konis (or Armstrongs) are expensive! And unless you are the kind of racer who will take the time to experiment scientifically and determine the proper setting for each track, under both wet and dry conditions (and who is experienced enough to recognize the proper settings when you find them), what's the point of using them? I'd suggest you use standard VW shocks in front (if they're somewhat worn it won't hurt anything, as long as they're worn equally, and don't show signs of leaking). For the rear, Monroes (#LL-56, with the heaviest–light blue–springs) have been used on all Formcars and don't seem to be noticeably deficient. However, they are longer than the units now used on most Vees, so if you plan to go to Konis or Armstrongs later on, you might do better to use a shorter shock combined with overload springs and clamps, available at most auto parts stores. There will be some trial-and-error involved, of course, but for a start, look for springs with 5/16" coils if they're mounted behind the axle, or 3/8" if you're putting them ahead of it. (There's a difference in leverage between the two locations.) If you can't find appropriate springs, you might try getting the springs, only, from one of the Vee builders, or getting them wound to your requirements. Check with a local speed shop or parts house for sources.

No, I wouldn't recommend foam in your gas tank. It's only function is to prevent the spread of flame (explosion) inside the tank, which is very unlikely under normal circumstances–or even abnormal ones. (About the only such chance you'll encounter is welding or open flame near an open empty *tank, when the air/fuel ratio is just right for an explosion.) I* would *recommend placing the tank inside the frame rails, providing a roll-over-proof venting system, a non-vented tightly-fitting cap, and steel straps–rather than welded-on clips–to anchor it firmly in place. There's no need for a shutoff valve–the line should enter the top of the tank, of course, and with the fuel pump and carburetor as high as the top of the tank, there's no danger of leakage.*

Ball-bearing clutch throwouts are now the only listed replacement for the 1200cc engine and are OK.

DIRECTOR'S CORNER

Members of FVI have probably been the best informed group in racing in regard to the rules for the coming season. Partly because they're members of FVI, of course, but even more so because of the cooperation of SCCA (and Ron Zimmermann, Assistant Director of Club Racing, specifically) in keeping us informed as the rules progressed through their several stages before final adoption.

In the past, there has been some reluctance to disclose the preliminary drafts of the rules ("Don't mention where you got this!"). Last year, for instance, you may recall that the first draft included a requirement for strictly stock venturis for 1970. When this was prematurely revealed in the VeeLine, it started a rash of phone calls to Westport which resulted in a revision of the rule, back to its original wording, before final adoption by the Board of Governors.

I wondered at the time if that would result in tighter security this year, but it evidently had just the opposite effect. Apparently it was considered desireable to encourage response, before final action, rather than announce, as an irreversible decision, a rule which might be universally unpopular.

So chalk up one for "Westport."

Did you see that national poll which showed that 10 percent of the population now considers auto racing their "favorite sport"? And that three years ago it was only *one* percent? Just think! Now only nine out of ten of the people we meet think we're nuts!

Have to get this to the printer tonight, as I'm leaving for Atlanta tomorrow! Yep, going to get to see the ARRC this year, and real live Super Vees! Don't miss next month's exciting account! Also, ballots!

CANDIDATES

Well! For the first time, we have candidates coming out our ears, almost! At least for President we have two candidates, and for Vice President, three! (For Secretary–none, yet. How about *you*?) We also have a possible problem which indicates some change is needed in the Constitution. As has been mentioned every year, the Constitution was written so as to prevent a takeover of the organization by any local "clique"–no two elected officers are permitted to be from the same State. However, we presently have two candidates from Washington, and two from Oregon. What happens if two from the same State happen to get the most votes for their respective offices? Suggestions for an appropriate ammendment will be welcome.

As of now, the candidates for President are Don Reich (Issaquah, Wash., present Vice President) and Bob Boyd (Canby, Ore.). For Vice President we have Rick Bell (Minneapolis, Minn.), George Bell (Seattle, Wash.) and Bob Dunsmore (Portland, Ore.).

(Note with one of the ballots.) "Don–I don't think you can determine right of way under any of the four choices, 23-26. Ditto, 27-30! Contacts are part of racing–can't believe they're deliberate."

Well, I can only remind you again that three-fourths of the drivers don't agree with

(Continued on Page 2)

WHAT ARE YOU GOING TO DO?

Now that illegal generators and manifolds are legal, what are you going to do with yours? There's much choice in regard to manifolds, but you have several options with the generator.

First, of course, is to leave everything alone, which might be the way to go if you have a motorcycle battery. On the other hand you could probably carry a spare one, push-start all weekend, and get by with no generator at all. Petunia is going to be fitted with a mechanical stop-light switch (such as was used on Chevrolets for many years) connected to the throttle linkage so that the generator circuit is cut out only at full throttle. On the track, of course, this means the generator will be out of operation most of the time, but there are a few seconds per lap when it will be in operation, as well as during the off-track driving. The engine could also be operated at fast idle for ten or fifteen minutes if the starter appeared sluggish.

Gutting the generator will remove about six pounds of metal, will reduce your acceleration time, imperceptibly, and there *might* be a measurable amount of air friction between the armature and the field coils which you would eliminate. It will be the "in" thing to do, so if you're not planning to use it, by all means gut it out. If you have access to a hydraulic press, you can simply press the shaft out of the armature. If it is reluctant to move, try pushing it the other way–it has to be moved in the same direction as it was going when it was pressed in. If you have to do it the hard way, just grab the armature in a vise, get a new hacksaw blade, and cut straight down, parallel to the shaft, until you hit it. One cut should be enough to loosen its grip on the shaft so that the shaft can be driven out without damage.

Manifold modification is something else. It isn't going to make as much difference as you might hope, actually. At best, you'll be able to increase the cross section area by about 11%, but this won't increase your power that much, by any means. It will be more like the difference between having your throttle all the way open and almost open, but not quite. You probably won't be able to tell the difference by the seat of your pants, although it may show up on your tach, and probably on your stop watch (those little bitty marks between the numbers). Enough little things add up to something bigger, though, and in this Class you can use every fraction of a horsepower you can get.

Still doing some research on this one. Bob Dunsmore (one of our VP candidates) has some connections with a metallurgical laboratory, and has promised some dope on the type, strength, etc., of acid to use. This will have to be a chemical or electrical process, or perhaps a combination of both, rather than mechanical. There have been several queries about "grinding out" manifolds, but I can't imagine a practical way of cutting or grinding the inside of a bent tube like we're using.

Basically, this process should be fairly simple–just bolt blind flanges to the ends of the manifold, fill it with acid, wait till it's eaten out to the desired size, dump the acid, rinse, and use. However there may be a few minor details which will take a bit of study and experimenting.

Just for a start, how much metal can you remove safely, and how can you tell when you have removed it? Well, the original dimensions of the manifold are 25mm outside and 23 inside, or a wall thickness of 1mm, which we'll call .040" from here on.

Theoretically, you could boil it out to a thousandth, or less, but as a practical matter you'd better figure on leaving enough metal to support its own weight, at least. (A brace to the fuel pump will be in order, too.) A coffee can is about 0.012" thick, including the paint, if that helps any. We'll probably shoot for 0.015" for Petunia, if we don't find acid leaking out through the walls before then. (There is no assurance that this is going to be an absolutely uniform process.) We haven't checked this out, but we're assuming that the tubing is "ERW" (welded, from a rolled strip of steel) so that the wall thickness will be uniform to start with. If it's seamless, there may be some surprises.

We have an older manifold, on which the vertical leg has been stamped out so as to make a lap fit over the horizontal arms, and has been arc welded in place. We are assuming that that portion of the lap which is inside the joint will be subject to acid action from both sides, in which case it *should* be entirely eaten away by the time 0.025" of metal is removed from the rest of the interior, leaving a nice smooth transition.

Later manifolds are going to present a slight problem, however. The fit of the leg to the arms is the same, but it has been spot-welded (projection-welded if you want to get technical) to the arms in about a dozen places, and probably isn't liquid tight between the spots. (At least one of our rear-axle tube retainers, made by that method, isn't!) For Beetle use that wouldn't be important, because the cast aluminum heat-exchanger would seal the joint, but this is something else.

Let's assume, first, that you leave the heat exchanger in place, and that the joint is *not* completely tight. The acid will then creep between the lapping surfaces of the tubes (except at the welds) eating off the lapped portion of the horizontal tube entirely. and 0.025" from the vertical leg. This will leave a gap between the two tubes, and if the acid attacks the aluminum (and I'm sure it will) there could very well be a pocket in the heat exchanger, extending completely around the joint. There will also be bumps at each of the welded spots, where the metal is thicker.

We're not going to test out this theory unless we have to (we're keeping our fingers crossed), but if we do goof our first attempt and have to start with a late manifold, we'd first remove the aluminum casting (stand it on end in a vise, and with a large torch tip melt a groove down each side of the manifold tube) and then gas or arc weld the leg to the arms, filling in the original weld "dimples" at the same time, lest the acid break through at those points. Again, there would remain some bumps at each weld, but we wouldn't worry about them.

Another thing we're going to do–as soon as the flanges on the ends of the arms are enlarged enough to admit a 15/16" (0.9375") steel ball, we're going to force it through the tubes to the center, in order to take the flattened areas out of the bends, and true-up the rest of the tubing. This is strictly untried, but we plan to bore a couple of 1" holes in a 2x6, near one side and spaced to simulate the ports in the two heads, and use through-bolts to clamp the manifold in place over them. Wood saddles will be fitted snugly under the pipe at the start of the bends and the pipes will be held in place on them with U-bolts. (Otherwise there will be a tendency for the bends to straighten as the ball passes through them.) On the other side of the board a 6" length of 3/4" pipe, threaded at one end and smoothed out inside, will be screwed into one of the holes after the steel ball has been started into the manifold. The pipe will be filled with water, and a wooden dowel, sanded to fit as a piston, will be driven into the pipe with a hammer, forcing the ball ahead of the water. What happens when the ball reaches the "T" and the water is able to flow around it? Well, uh, we haven't figured that out, yet. At that point we *hope* it will pop into the enlarged area where the joint is and fall out of its own accord. If not, perhaps a string of smaller balls, poured in behind it, can be driven against it for the rest of the way. Then, back to the acid for another .008" of etching to a final ID of 0.954.

This really should have been put off until I could say, "It works." However, we probably, as usual, will get started on it around April 1. and I know a lot of you eager beavers don't want to wait that long. This is just theory, then, for the time being. If it works, let us know. Or if you come up with something better, let us know that, too!

MEMBERS' SOAPBOX *(Continued)*

you. They agree that the car ahead has the right of way. Better bear this in mind next season, whether you're *convinced, or not. It will be safer for everyone–including you. As for your attitude toward contact, if you're who I think you are, several of your fellow drivers intend to have a word with you about that.*

Dear Don–. . .I seem to recall that early 40hp engines had a light connecting rod. . . would you happen to know the numbers on the early rod. . . ?

Mike Boylan, Houston, Tex.

Well, you're partly right, Mike. The early 1200cc engines ('54 through '60) were known as "36 hp (SAE) or 30 bhp." The '61 through '65 engines, even though they have the same displacement, are entirely different and are called either "40 hp (SAE) or 34 bhp." (Also, at times, "41.5 hp.") The earlier engines were somewhat smaller and lighter in all respects, and the con rods were lighter, as you suspected. The number is 111 105 401.

You only wanted that number in order to check out a competitor who might be cheating, didn't you? Because if you find one, it's illegal. In addition to being lighter, it is also 5mm (more than 3/16") smaller at the throw end, which means you'd have to "modify" your crank in order to use it. Grinding to a standard undersize is one thing, but grinding to fit a non-stock rod has been declared illegal.

Dear Don–I've just received VeeLine #71, and thank heaven there are other people who are having as much difficulty (and fun) as I in trying to get the old Vee to go 100%. As you can see by my application, I finally got to race this summer, and was very disappointed by the performance of my "beast." You can also see that I'm an accountant, and the closest I ever came to an engine, prior to a year ago, was to change the oil. My "racing" engine was built for me by a very good VW mechanic, as per the attached sheet.

I've now finished my garage, wired it, and insulated it for the coming winter (it gets cold up here!) and am determined to build that engine myself to turn out better than 5000 rpm, without cheating. Therefore, I may ask some silly questions. . . .

Don Brewster, Sherwood Park, Alberta

Don, I'm not going to attempt to cover all the things you might do, here. You apparently have a practically new engine, and everything you've done so far is to the good, but there are a lot of little things you can do, still. Just with the proper jets, venturi, and timing you should be able to get close to 5000 with what you have, but it will take some experimenting, either on a dyno or on a track.

I'm going to suggest a complete set of back issues to the VeeLine. They're not guaranteed to put you in first place, but one top Northeast driver said once that they should put you among the first ten, even in that area.

I don't believe we ever covered venturi boring before, though, so–. This should be done on a lathe, and it's not really critical, apparently, as cars have been run with the venturi removed entirely. (This is now illegal.) Clamp the venturi in a 3-jaw chuck with enough space between the lower end of the tube and the face of the chuck so you can check your progress at that end. Set the cross slide (or taper attachment) for a 1-degree taper and bore the tube until the end next to the chuck is paper-thin. (OK, say .005", if you want to get technical.) Then set the taper 2 degrees, in the opposite *direction, and bore until the two tapers meet about 3/8" from the outer end. This will leave enough thickness at the rim so that you can round off the edge, fairing it into the taper, using a scraper or the tool bit, and finishing with a fine emery cloth. It will result in approximately a 26mm venturi, which seems to be the popular size.*

With a rat tail file, emery cloth, and a lot of work and patience, you can do the same thing while enjoying a television program, I have been told, so there's no valid excuse for using a stock venturi.

RETIRING

Harriet Gittings, one of the first Vee drivers in the country, the first one in California, one of FVI's original members and several-times officer, had a wheel-to-wheel flip, last summer, in which the car was demolished and she was hospitalized. She asks that it be stated merely that she is "reluctantly retiring as the result of race injuries." Retiring from driving, that is–she's still in the thick of the other aspects of racing, such as being the Secretary–again–of the Formula Racing Association, writing a racing column, autocrossing a (new) Vee, etc.

She sent along another method for wheel aligning which is simple, cheap, and for an emergency job at a track, the only way to go. It requires only a steel tape, a length of string, and something to tie the string to. You establish two parallel lines with the string, see, along the sides of the car, tying it to trees, tool boxes, jack-stands or other cars, so that it is at hub height. Then (after rolling the car ahead with the driver aboard) you simply measure from the string to the wheel rims. The car has to be centered between the strings, of course, or at least parallel to them, or you'll have it going down the course dog-fashion even though the wheels are perfectly aligned.

ROLL BARS FOR '71

If you've been wondering if your roll bar will make it for next season (and who hasn't?), it probably won't. This should give you some idea of what will be required. The wording isn't official until you see it in the GCR, but this has passed the Competition Board, and needs only the approval of the SCCA Board of Governors to make it official. The following is paraphrased and condensed, and contains only the bare essentials for Formula Vee, so don't pass it on to your neighbor with an "A" Sedan.

The original specs, as published in the September "Sports Car" have been changed somewhat. For one thing, the dimensions given there were for tubing used in Europe, and for another, part of the original text was omitted.

OK–for Formula Vee, then:

1. The top of the roll bar shall be a minimum of two inches above the top of the driver's helmet when he is sitting in normal driving position and shall not be more than 6 inches behind the driver.
2. The roll bar vertical members on Formula cars must be not less than fifteen inches apart, inside measurement, at their attachment points to the uppermost main chassis member.
3. The driver's head must be prevented from striking the underside of the bar in case of a rear-end collision.
4. The Roll-bar hoop must be of "seamless ERW or DOM mild steel tubing, or chrome molybdenum alloy steel. . . . Proof of the use of alloy steel will be the responsibility of the user." (We'll come back to this one in a minute.)
5. The size shall be (for Formula Vee, mild steel) 1.5" OD, 0.120" wall thickness (also called "11 gauge").
6. A 3/16" inspection hole must be drilled in some non-critical area of the bar. (Keep it covered with a piece of black plastic tape to keep out moisture which would rust the tubing on the inside.)
7. If you use gussets, they must be 3/16" thick.
8. One continuous length of tubing must be used for the hoop member, with smooth continuous bends and no evidence of crimping or wall failure. At a point 4" below the top of the hoop, the outside width must be at least 12". If the bend is a true arc, this figures out to an *inside* radius of 5" for 1½" tubing. If you're going fancy, with an eliptical bend, or perhaps two (round) corners with a straight in between you'll have to do your own figuring.
9. You can use one brace, of the same tubing as the bar itself, or two braces of 1.0" x 0.090" tubing. If the bracing must be removable, better wait for drawings and specs in the GCR, or check the dope in "Sports Car," which *may* be changed somewhat. And remember that it is evidently illegal to run braces through the fan housing. Bracing should be attached as near as possible to the *top* of the bar, and must be within the top 1/3 of the bar (measured from the first attachment point to the chassis) or within 6" of the top, whichever is *less*.
10. Choose the attachment points of the bar and braces to the frame so that the strain is distributed to the frame through "triangulated" joints–points where diagonal bracing meets at a joint between two main members. In other words, no part of the roll bar or braces should be simply welded to a frame tube between two junction points, so that the frame member would bend in the middle if subjected to a load. If you *have* to go to the middle of a tube, add diagonal braces at that point to the nearest junctions in the lower frame rail so the upper tube *can't* bend. If you have to attach a 1½" roll bar to a 1" frame member, flatten the end somewhat, to an oval 1" across and perhaps 2" long, and grind it to fit snugly before it is welded.

So much for the requirements. Now let's read between the lines a little.

You will find, when the specs are published, that you can use 1-3/8" tubing if it is "alloy." Forget it! In the first place, it will be subject to cracks and brittleness unless it is properly "normalized" after welding. In the second place, if you do use it (or try to convince an inspector that your present 1-3/8" bar is of alloy steel) note that "proof of the use of alloy is the responsibility of the entrant." You *might* run across an inspector who would insist on a notarized statement from a recognized testing laboratory that they had actually tested a sample of the installed roll bar. He might not be satisfied with just a sales slip for a length of alloy tubing.

Perhaps terminology for tubing is different in the East, but if you're on the West Coast, ask for "cold-rolled electric welded" (CREW) or "hot-rolled electric welded" (HREW) tubing. The only difference is the finish of the surface, which is smoother on the cold-rolled variety. If you ask for "seamless ERW" (electric resistance welded) the man will laugh at you–if it's welded, it has a seam, and if it's seamless it hasn't been welded. Don't use seamless tubing, at all, unless you're sure of what you're getting, and can get a good deal on it. Besides being more expensive, "Shelby" tubing, for example, will probably have the wall thicker on one side than on the other. And don't use pipe–it's made of the same material, and is welded in the same manner, but its dimensions don't correspond to any standard tubing sizes, and someone just might be fussy about it.

Note paragraphs 2 and 8 again. Your frame probably includes a curved section behind the seat, conforming generally to the shape of the top of the fan housing. But don't count on this being considered a "frame member." Some tech inspectors consider only that portion up to the upper frame rail as "frame" and call that cross piece a "body support." If there is any possibility of doubt (not in your mind–in the inspector's) you'd be wise to start your "continuous length of tubing" at one frame rail and run it across the car to the other, adding "body supports" as necessary, after the roll-bar is installed.

And don't fudge on that "2 inches above the driver's head." It's been pretty well established that that measurement applies to actual driving conditions–not to the way you may be able to sit at tech inspection. If you have to raise your head while driving in order to see over the steering wheel, you'd better take your measurements for a roll bar while you're in that position. Aside from avoiding unpleasant conversation with the officials, an extra inch or two just might be rather nice to have over you in case of a flip, anyhow. That's what this is all about, after all!

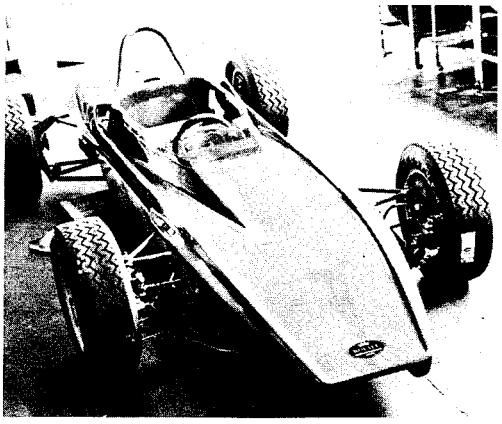
SUPER VEE RULES

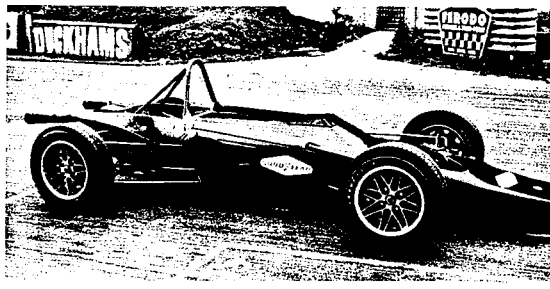
Nothing really new on Super Vee at this time, except that for 1971 the gearing specs will permit use of Hewland boxes, as long as they have only four speeds, plus reverse. Hewland's are built in VW boxes, in case you didn't know.

SUPER VEES FROM OVERSEAS

Some well-known British race-car builders are getting involved with Super Vee: Royale, Hawke, Palliser, Lola, Macon and Baker. Also, from Austria comes the new Austro-Kaimann, and the HVB from the Netherlands.

Pictured here are the Royale (at right) and the Hawke (far right).





UNCLASSYFIED ADS

(Again, there's no charge for these ads, and they'll be run for non-members, too, as a service to our members. Non-commercial items related to Formula Vee only. Ads will be run once per request, but can be repeated if they are sent in again. To save space, lap records, championships, and other history of past performance will not be included unless you guarantee that the new owner will get the same results.)

FOR SALE: Zink. One hour on engine. New tires and paint. Both transaxles and many other spares. With good trailer, $2395. (Will discuss, or trade for street machine.) Gordon Webster, 3543 Clayphil Ave., Memphis, Tenn. 38111 (901) 324-2946.

FOR SALE: '68 Beach MK 5B. 1 engine 3 races, 1 fully prepared but never used. Goodyears 3 races. 3 extra wheels, extra carb and distributor. Custom "lace" paint job, never bent. Asking $1500 and will help deliver. Kendrick Morgan, 44-12 S. University Pl., Stillwater, Okla. 74074 (405) 377-7684.

FOR SALE: Autodynamics "Nassau" model. One race on fresh dynoed engine. Will deliver in New England. $1300. John Heine, 320 Memorial Drive, Cambridge, Mass. 02139.

FOR SALE: Autodynamics MK III. Engine recently magnafluxed and balanced. Konis, Goodyears, Z-bar, many spares. With towbar, towing wheels and lights, $1000. Also, '69 International Scout tow car, 12,000 miles, $2500. Bill Griffith, 130 Sedgefield Lane, Danville, Va. 24541 (703) 797-3239.

FOR SALE: Autodynamics. Strong legal engine, 8 wheels, 4 Goodyear gumballs, 4 Firestone "Indys," 2 Bluestreak rain tires, all like new, other spares. With custom trailer, $1625. Laurie Burford, 5711 Greenbrier, Dallas, Tex. 75209 (214) 357-4203.

FOR SALE: Autodynamics MK III. Dynoed engine, 1 race. Z-bar, new transmission, front end, YB11 Firestones and Konis. One-year Firestone rains. With trailer and many spares. John Downing, 3347 NE Siskiyou, Portland, Ore. 97212 (503) 281-7726.

FOR SALE: Zink. Fresh pro-built engine. New Goodyears, Firestone rains, glorious spares. Best offer over $1800. Don Bush, 12653 Valley View Dr., Los Altos, Cal. 94022 (415) 968-9080.

FOR SALE: '68 Zink. Legal length and chassis, transporter 3rd, Konis front, Armstrongs rear, 2 exhaust systems, 6 Goodyears, 4 Firestone rains. Don Magdanz, 256 Page, San Francisco, Calif. 94102 (415) 431-1775.

FOR SALE: Lynx. Latest body mods, numerous tires and wheels. Spare transaxle and engine available with car or separately. Terry Gough, 1054 Alberdan Cr., Pinole, Cal. 94564 Eves (415) 758-5487, days 557-0335.

FOR SALE: Much modified Formcar. Fresh Cassis engine, new steering gear box, 2 new Goodyears, Z-bar, some spares. Perfect condition. With trailer, $950. Stan Moore, 63 Bergen St., Westwood, N.J. 07675 Days, (201) 666-2148, eves (212) 576-8954.

FOR SALE: '65 Crusader, without engine, but with trailer, $400. Bell Magnum, size 7½, $20. Nomex suit, 6'1", 180#, $60. Larry Aavang, 608 Hunter, Wichita, Kan. 67207 (316) 685-6170.

FOR SALE: Autodynamics, strong engine, recent tires, new battery, trailer. $1150. '70 Zink, 50hp engine, Koni's and adjustable Armstrongs, fuel cells, 2 sets tires, trailer $2850. Burt Richmond, 111 E. Wacker Drive, Chicago, Ill. 60601 (312) 644-5080.

FOR SALE: Bobsy Vega. Firestone fuel cell, spares galore, excellent condition. $1995. C. R. Haines, 5846 Glen Hill Drive, Bethel Park, Pa. 15102 (412) 833-1584.

The VEE LINE of
FORMULA VEE INTERNATIONAL

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Formula Vee International

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