



VEE LINE

NUMBER 48

SEPTEMBER 1968

FIRST RETURNS ARE IN

DIRECTOR'S CORNER

Since the tabulation of the ballots was written, a good many more have come in (51 in today's mail) but we won't have time to count them now. This stuff has to be in the mail to the printer tonight, because by this time tomorrow I'll be on my way to Germany!

That's right! I've been invited by Formula Vee Europe and by VW to attend the race at the Nurburgring as part of Bill Scott's cheering section! How about that? If next month's issue mentions "Auspuffrohre" instead of "exhaust pipes," you'll undersand why.

If my wife (bless her little heart!) works as hard as she says she's going to while I'm gone, perhaps we'll be able to get the ballots counted, this issue in the mail and the next one to the printer somewhere near on time, anyhow; but I'm going, regardless. Wouldn't you?

WELL, I ASKED FOR IT!

I said, "If there's anything you don't understand about the Little Wonder Formula Vee Volkswagen Head Volume Reduction Tool, let me know." And a lot of you did! I don't blame you—that drawing, especially, did leave a lot to the imagination. SO—here are answers to the questions I've received so far. If you have some more, fire them in.

The "hook" in the cutting edge of the bottom cutting tool is there because aluminum alloys cut a lot easier with a tool edge having lots of "rake." Brass cuts best with the tool face perpendicular to the surface; steel takes a "rake" of several degrees, but for aluminum the ideal shape is almost a knife edge. With only hand pressure to feed it downward, a square edge would probably scrape the metal away eventually, but the knife edge will do it much faster and easier.

The upper tool is fed outward, and cuts only on the end, which is ground to a shape much like the end of the clamp which holds it in place. Because the slot which holds it is offset from the center, the "rake" is automatically provided. On the bottoms and ends of both tool bits, be sure that the bevel behind the cutting edge is ground so that *only* the cutting edge contacts the metal. Otherwise the bit will slide on some other area and won't cut. (That's a mini-lesson on tool grinding, which is an art in itself.)

"Allen" socket head machine screws were used for the tool clamp and the adjusting screw because I had them. Plain old stovebolts would work just as well, probably, except that some difficulty might be encountered in reaching the adjusting screw (in the slot) with a screwdriver. In the two views of the clamp shown on the drawing, the screws should have been the same length, of course—I ran out of room on the original. I can't explain the arrow pointing toward one of the holes, labeled "1/8x1 FB." The hole is 3/4", of course, to match the other, and the material is 1/8"x1" Flat Bar.

Holes to match the clamp are drilled and tapped in the body, as can be seen in the photo.

The "bushing" welded on top is the large hex nut mentioned in the text. It was welded on the inside because that tends to pull it down and hold it square while the welding is completed, while welding on the outside lifts the opposite side unless it is clamped tightly. Also, it leaves more room for gripping it in the lathe chuck and milling machine vise. However, as mentioned in the text, it could be welded carefully on the outside, and screwed onto a matching bolt chucked in the lathe, if desired.

One writer pointed out that the gaskets aren't really needed, so cutting the extra depth for them could be omitted. This is probably true, but a ten-cent gasket is pretty cheap insurance for a \$50 head. And if you don't get the mating surface *perfectly* flat you'll *need* gaskets. It will probably be necessary, either way, to recess the head enough to clear the shoulder on the cylinder which is sealed by the gasket. Better check this clearance before you put your tools away.

The threading of the adjusting ring is not critical at all. It can be a loose fit, because tightening the clamp while a cut is being made will take the play out of it anyhow, if there is any. The thread-per-inch (I used 20) isn't critical, either. With a coarser thread you'd merely turn the ring less distance for each cut. Turning it "one inch" referred to the distance a point on the circumference would move, of course, which would lower the cutter bit by about .005".

Cutting the bottom slot (keyway) *after* the set-screw hole was drilled and tapped raised some questions. If you're sure you can hit the slot so that neither the drill nor the tap will catch on the bottom of it, OK. But if they break through into the slot as is shown in the drawing, you'll be in trouble. You'll break the bit, and probably the tap, and won't be able to tap the hole deep enough. It's an axiom in machine work that you can't drill half a hole. (It can be done, but not on an ordinary drill press.) So to be safe, drill and tap first, and if the keyway takes part of it later nothing is lost.

STRAW BALLOT

Only twelve ballots have been received at this time, and most from the West Coast, of course, so this "cross section" probably isn't too conclusive. However, for what it is worth here are the votes on a few of the questions:

	Yes	No
1000 lb. with driver	5	7
Any 15" VW wheel	4	8
Any VW wheel	2	10
Any wheel	1	11
Two pipes into a single megaphone	5	7
Any exhaust system	5	7
Highway tires only	7	5
Any recaps	10	2
Consider present bodies legal	5	5
Continue FV as is	10	2
Change to European rules	1	11
Update to current VW production	4	8
Additional 1500 class, stock	1	11
Additional 1500 class, modified	5	7

As usual, there are a few trends which defy interpretation. Several people obviously voted for highway-type tires only—but want to recap them with gumball rubber. Several want to keep Formula Vee as it is—but also want to update to current VW production, which in this country, at least, doesn't include the 1200cc engine, pin-and-bushing suspension, etc. However, there is an overall picture shown, especially when the entire count is in, which should be of value to everyone concerned with Formula Vee.

The entire count will have to be presented to SCCA before the October VeeLine is put together, so you'll get it in the next issue.

LOST ANY PIPES LATELY?

In addition to a number of exhaust pipes removed or seriously damaged by contact with other cars (of which more on page 3), several pipes have been shed along the track for no apparent reason. Apparent from the sidelines, that is. Examination in the pits has disclosed several which were obviously destined for disintegration when they were installed.

A number of cars are now running with the engine rigidly mounted, rather than on the original VW rubber mounts. This does seem to cut down on the magnitude of engine vibrations even though they are still present to some degree. With the rubber mounts, especially when in first or reverse, engines usually vibrate rather vigorously. In most cases these thousands of vibrations, rather than any single momentary

(Continued on Page 4)

MEMBERS' SOAPBOX

"Dear Don:...An announcement was made that there would be a pro Vee race at Marlboro on 16-17 of Aug. Prize money to the tune of \$1,500 being offered. Throwing in a sizeable chunk of money makes us a pro group and is surely going to bring some real Pro Drivers into the Vee picture. Money can easily ruin our class of racing.

"I think we have now the greatest class of racing going. I'm not opposed to some change but I am interested in protecting our class for a good many years.... Let's keep it a well populated, economical, fun type amateur racing group. Prizes bring pros, and pros bring change because they have to win in order to race.

"Thanks for the VW blood in your veins."

Dick Calvert, Charleston, W. Va.

"I received your note about special mention for girl drivers. I think I would rather not be 'specially mentioned' until I can drive decently. Thanks, anyway!"

Virginia Benton, Medford, Mass.

OK, Virginia—until then it'll be our secret.

"Dear Don:...I enjoy the VeeLine. Keep it up. I notice that as time goes on fewer and fewer speed secrets are being divulged by the membership. A lot of people would like to know what makes the Zinks so fast.

"Upside down float is working for me. The Z-bar works great except on real rough surfaces. There is more to be learned. If VW wants to help out the poor Vee racer, why don't they give a parts discount rather than prize money at the runoff?"

Ted Schroeder, Birmingham, Mich.

"Gentlemen: ...I have started a Vee Racing Association for the oval tracks. This is not to be construed as rebelling against any other organization, but rather as a fill-in between the approved racing schedules. The interest is very evident, both by the promoters and the spectators, and also by the participants who have run with us during the past three shows.

"Tracks vary in size from ¼ to ½ mile ovals. No entrance fees. Tow money per car ranges from \$15 to \$25, and is paid to every car showing.

"Anyone interested should contact:

Boyd P. Hanauer
4 Elm Drive
Newtown, Conn. 06470
(203)426-5543"

"Dear Don:...Suddenly there was a sharp rap-like noise that sounded like a rod, but turned out to be a broken crankshaft pulley. The spot-welds had broken almost all around and the wobble allowed the pulley to touch the case to produce the sharp rap. When I replaced it I noticed that the new one had been welded all around. A good factory modification.

"The trick on the carb float really does work. It saved me at Indianapolis Raceway Park."

Myron Lee II, Carbondale, Ill.

A complete set of VeeLines could have saved you the trouble with the pulley, Myron. We learned it the hard way, too, several years ago.

ANOTHER CHAPTER

Almost a year ago we discussed some aspects of tires as applied to racing—mostly considering types of tires. Briefly, we concluded that there just might be tires better than the radials which had been making such a splash. You'll note that since that time the "cross-ply" construction has been headlined, and that now the forecast is (for passenger cars, at least) a low, wide tire on a large diameter but very narrow wheel.

Regardless of the type, the tire's only function is to transmit forces from the car to the ground. Which leads to another Profound Statement—"Tires Do Their Best Work When They're In Contact With The Pavement."

That sounds obvious, doesn't it? But how many cars—including Vees—will you see at a race showing daylight under their tires when they hit a slight bump? Bum shocks? Not likely. (We'll kick that around sometime, too.) More probably it's improper air pressure. "Everyone knows" that for racing you should use "higher pressures." Right? But higher than what? How high? Referring only to Formula Vee, now—higher than in the VW sedan (17 and 26 lb.)? Remember that with a full load the VW may have as much as 500 lb. on each front tire. On your Vee you probably have around 150. Did you ever play basketball with a dead ball—and then pump it up to the proper pressure? Or bounce a fully inflated spare tire on the pavement? (You know, of course, how a flat tire bounces!)

Just by way of illustration, we have VW wheels (and the tires from the original car) on our springless trailer—total weight about 1200 lb. We carry from 15 to 17 pounds of air, depending on the temperature, and we estimate we have towed nearly 30,000 miles in the past five years on the same pair of used tires. Why the low air pressure? So it won't bounce, of course. It leaves the ground once in a while going over a large bump, but it floats over railroad tracks and gravel roads just as though it had some kind of suspension. On a car with equal weight, the tires would no doubt be too soft for good handling—there is a slight tendency toward "oversteer." A quick movement of the steering wheel will make the trailer sway a bit as the tires roll sideways, sometimes making two or three oscillations before settling down entirely. However, the front of your Vee doesn't weigh 1200 pounds!

So how hard is too hard—or not hard enough? Whit Tharin had some good advice on this in an early issue. Basically, what he said was, "Find out for yourself. Keep trying lower and lower pressures until you're sure they're *too* low. Raise the pressure a few pounds and try it again. Keep it up until you're *sure* you can't make any more improvement." He also suggested that this procedure be followed for each track, keeping a record of the best pressures for each, and making adjustments for weather conditions.

Tires may very well be the most important part of your suspension. Certainly they're the simplest part to experiment on, so if you can't afford Konis or Armstrongs, at least be sure you've done the best you can with your Firestones or Goodyears (or Pirellis).

GETTING EVEN!

Our boy Bill Scott (Washington, D.C.) is doing his best to make up for the defeats suffered by U.S. drivers at the past two Bahamas races. And his best is pretty darned good!

With Glenn Sullivan and John Magee, he went to Europe in July, and participated in races at Zolder, Belgium, and at the Nurburgring in Germany. Magee and Sullivan were eliminated early, with a blown engine for John and a wreck for Glen, but Bill took a third at Zolder (with the fastest time for one lap). At the "Ring" he had the fastest qualifying time and came in second. His performance gained him an invitation from Formel Vau Europa to return for the season's final at the Nurburgring on Sept. 22.

In the meantime, just to keep in practice, he entered another race in the European international series at Andersdorp, Sweden. At this one he set another lap record—and came in first!

He's driving his own Zink, equipped with a 1300cc engine prepared to European rules by their top builder. The car has been left in Europe between races, so he had to borrow a car in which to run the Formula Vee Grand Prix at Lime Rock—which he also won!

Not bad. See Page 4 for a late report.

NEW BUILDERS

Vee building would appear to be a somewhat hazardous occupation, from a financial standpoint, at least. There have been at least two dozen of them on the scene since this thing started, but probably never more than ten actually in business at one time. A couple of very good designs have been introduced, but have failed to become firmly established; other newcomers have become old timers in a relatively short time.

The newest car on the U.S. market is the "Kellison," built by Grand Prix Sports and Racing, 150 McBean Park Drive, Lincoln, Cal. It's a bit far-out, with a "wedge" design. Really something new and different! They're not exactly novices at building special cars—they've been building dune buggies since they were first introduced.

Another car soon to hit the U.S. market is built in Europe—by an American! It's a beautiful thing, with distinctly European styling. (Designed by an ex-Lotus engineer.) Some modification will be made on the export models to conform to U.S. rules. Lt. Frank McNamara combined Vee racing and building with his Army career in Germany for a time, but recently resigned his commission to give full time to his business. For more information, write McNamara Racing, 8172 Lenggies, Marktstrasse 7, Germany.

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

INTERNATIONAL COMPETITION

As was announced previously, a discussion with the European Formula Vee people on international rules was scheduled in connection with the sending of our three drivers to participate in their races. Due to the death of Col. Smith, and to my inability to attend, the "advisory board" was represented by Arch McNeil, who is also a member of SCCA's Competition Board.

Arch reported a very fine meeting with five representatives of European Vee organizations. They are, he said, as dedicated to the general concept of Formula Vee as we are, and are somewhat embarrassed that the originators of the class there chose not to observe entirely the Vee rules we had established here.

As we had agreed here earlier, they, too, feel that under the circumstances the only practical approach to international competition at this time is to race under the rules prevailing in the host country. As they demonstrated in the Bahamas and as our team did in Europe, this really doesn't present too much difficulty after all, and certainly hasn't put the visitors at a disadvantage in either case.

They agreed that it would be desirable to try to attain as much uniformity as possible in our respective rules. There are, to be sure, some areas in which compromise would be possible without much expense or difficulty. Most of these items, however, would appear to be in *our* rules, where the change would have to be made. The consensus was that our adoption of free exhaust systems, ball-joint (1300cc) front ends, and 1300 rear wheels would be a step in the right direction. No mention was made of any possible compromises on their part, but they would doubtless be willing to match our efforts.

Incidentally, they are retaining the same rules in Europe for the third straight year. They are *not* allowing the new double-joint rear suspension, or front disc brakes, as had been rumored.

In the meantime, it is obvious that international competition can take place anyhow. It is hoped that some of the special Vee races here next year can be especially designated as international races, with special emphasis on the participation of foreign cars and drivers.

UNCLASSIFIED ADS

FOR SALE: Beach Mk IV, perfect condition, latest factory modifications, Zink engine. With trailer and 6 "gumball" tires, \$1850. Chuck Fauvre, 10440 Mann Drive, Cupertino, Cal. (408) 253-8688.

FOR SALE: Formcar with zero hours on King engine. Frame professionally rebuilt. Konis and tow-bar included. Trailer extra. \$1200. Ray Garofano, 529 Mundy Lane, Mt. Vernon, N.Y. 10550 (914) MO 7-6878.

FOR SALE: Camber compensators built especially for Formcars. Clears frame and pipes with no alteration. 15-minute installation. \$29.95 postpaid anywhere in the U.S. Specify split or tunnel case transmission. Standard compensators \$18.95. Bob Ames, 12235 SW Bull Mountain Road, Tigard, Ore. 97223.

IT CAN'T HAPPEN HERE?

It should surprise no one, in view of the reputation Formula Vee has been building up, that a driver finally has been killed as the result of wheel-to-wheel contact between two Vees.

I don't have any of the details—I don't know whether his roll bar folded, or his seat harness broke, or his helmet came off, or he was hanging out of the car, out of the protective range of the framework. I don't even know who was at fault (if it is possible to pin it on any one individual). It doesn't matter! What does matter is that he died as the result of a collision between two Vees, when one wheel climbed over another one. He died because two Vees were too close together—because someone didn't slow up soon enough, or didn't allow enough room for the car (or cars) beside him, or overestimated his own ability—or that of the other driver—or else *underestimated* the danger of actual contact, and didn't really try to avoid it. And if you've watched very many Vee races lately, you know darned well that that last possibility is definitely a possibility!

It's a fairly well accepted fact that even an "unavoidable" accident could have been avoided, somewhere along the line. However, an increasing number of Vee drivers apparently aren't even trying to avoid an accident. In fact there are a few who are noted for what appears to be deliberate intent to cause them. It may be that they actually don't *intend* to hit another car—that they really believe somehow the other driver will be able to get out of the way—but the result is the same as it is in poker when one player calls another's bluff. Except that in poker only the bluffing player loses.

Perhaps the present rules are to blame for this situation. Perhaps those drivers are the ones who are actually familiar with the rules, and are the ones who are driving legally; and those who get hit from behind, or get squeezed off into the dirt are the ones at fault for not knowing and observing the rule. Appendix R, Secs. 4 & 5, states: "...The driver of the overtaken car is obliged to pull to the side, making room for the overtaking car to pass.... The responsibility for the decision to pass rests with the overtaking driver. However, this will not relieve the overtaken driver for responsibility for the safe passing of the other car." Back in the good old days, before Formula Vee drivers demonstrated that passing in the corners was not only possible, but practical—when "performance" depended on acceleration and top speed, rather than maneuverability, and when passing was done mostly on the straights—such a rule was no doubt necessary and proper. Even in Formula Vee today we see some examples of cars weaving on the straights, trying to block the car behind, which this rule was obviously intended to prevent. However to extend this ruling to the corners, where most of the Vee tangles take place, is ridiculous!

A driver committed to a "line" in a corner, if at anywhere near the maximum possible speed, is exactly that—*committed*. He can't brake, or even let up on the throttle, to avoid another car or let it go first, without inviting a spin. If he has to stay out from the apex (instead of cutting it as he intended to do) to avoid a car squeezing in on the inside, he'll have to go wide coming out and take to the dirt. If he has a car coming up on the outside, as he swings to the outside of the turn on the exit, he is unable to make the turn shorter than he had planned in order to make room for

another car beside him. On top of that, it is highly unlikely that he will have time to look in his mirror while in the turn, even if it is of a type which would show a car just off his rear wheels. Obviously, then, in a corner it is not only impractical, but also dangerous, for another driver to expect him to "pull to the side, making room for the overtaking car to pass." If the Vee drivers who are nosing into gaps which they can expect may be closed on them are doing so under the impression that the other driver is required to give way under those conditions, they may be legally right—but dead wrong!

Competition Board, how about making some distinction in the rules for 1969 between blocking on a straight and maintaining a committed line in a corner? Just how far can an overtaking driver expect the driver ahead to go in "making room for him to pass" in a corner? Compared to questions of technical legality, this one would seem to have urgent priority! Also, how about using your influence to get that black flag used more frequently? It's used on occasion for too many off-course deviations, but I've yet to see a driver pulled in for even flagrant body contacts. Rather than chastise an entire field of Vee drivers, as has been done in the past, how about putting the blame—and the penalty—on the driver or drivers who are actually at fault?

DO YOU HAVE TO REBUILD?

There have been a number of questions on what to do with "illegal" Zinks and a couple of other cars built along the "semi-monocoque" lines. Frankly, I don't know just what the answer is.

I have received a number of copies of letters written to the Competition Board by owners of such cars, and certainly if logic has any bearing on the situation, some relief should be forthcoming. It is one thing, in my opinion, to declare a design illegal for *further production* on the ground (rightly or wrongly) that it leads to excessive expense; it is another thing entirely, however, to compel *previous* buyers of such cars to go to *additional* expense to make them conform to the manufacturer's revised design. If, as has been stated, expense is the criterion, such owners should be specifically exempted from this additional outlay. I would hope, then, that the Competition Board would insert a "grandfather clause" (as we are voting on) in the new rule, allowing cars legal when they were bought to remain legal.

In the meantime, however, if I had such a car, I don't know just what I would do. I believe I would wait and see, before undertaking a remodeling job. I'd write the manufacturer and get his suggestions for revision, but I'd hold off on the job until I was sure I had to do it.

Except for the addition of extra tubing to absorb the stresses formerly taken by the skin, I don't believe it would be too much of a job. On the one Zink I examined, it appeared that the entire steel panel could be removed, cut along a line about an inch inside the lower frame rails, and the sides reattached by means of Dzus fasteners to a number of light metal clips welded to the rails. The flat belly pan would have to be replaced, of course, but could be attached with sheet metal screws or pop-rivets. I understand that the sides are rolled to fit, so that there should be no particular strain on the fasteners in order to hold them in place.

LOST ANY PIPES LATELY?

(Continued from Page 1)

stress, are what cause the pipes to separate. So let's consider ways and means.

The most elementary method, which will at least cancel out most of the up-and-down movement, is to clamp the two pipes on each side together with radiator hose clamps. Use two on each pair of pipes, as far apart as possible, and draw them up tight.

For control of horizontal vibration, add a brace from the pipes to one of the bolts on the transmission case. It can be just a piece of light strap iron, bent at one end to fit under one of the hose clamps, and drilled at the other end to fit over one of the bolts. If your rear pipes cross over, for equal length, clamp them down to the top of the transmission, as well. At first glance, when you consider the flexible mounts common on most passenger cars, it seems that a rigid mount of this type can't be right. However, the engine, transmission, and pipes, are all solidly fastened together elsewhere, so they should all move together, as a unit at all points.

Don't fasten the pipes to the frame of the car, especially if the engine is mounted on rubber. There will be movement of the pipes at the flange end, but none where they fasten to the frame, so that a bending situation at the flange is not only possible, but inevitable.

One more thing—a good brazing job, in my opinion, is as good as welding, or perhaps even better, on thin tubing. However, brass loses its tensile strength at relatively low temperatures, so don't count on it for attaching the flange to the exhaust pipe, where it can be subjected to temperatures nearing its melting point.

STOLEN

From the "Monthly Newsletter" of the Formula Vee Association of New South Wales, Australia:

"If you have gone to the trouble of sealing the speedo drive hole in the grease cap—have you also sealed the hole in the stub? It could save you a set of bearings."

Thank you Jack Bono! (He's also a member of FVI.)

SCOTT BEATS EUROPE'S BEST IN FVE FINALE

NURBURGRING, GERMANY, SEPT. 22 — Bill Scott, a 29-year-old American geologist, raced to glory today as he routed Europe's top Formula Vee drivers and copped first place in Formula Vee Europe's 72-mile end-of-the-season dash over the famed Nurburgring's south curve.

His win at an average speed of 78.24 mph earned the Washington, D.C., driver a 1969 Volkswagen sedan. The car was presented to Scott by the European Formula Vee association which had invited him to enter its major cup races. He took third place in his first European race at Zolder, Belgium, at the end of July and came in second during his initial outing on the Nurburgring on August 4.

During his European trips, Scott set a lap record at Zolder, turned in the fastest qualifying time during his first outing on the Nurburgring and raced off with first place in an International Match race on the Scandinavian Raceway at Andersdorp, Sweden, on Sept. 8.

Scott's win today in his Zink Vee, outfitted with a borrowed 1300cc engine was by a commanding 18 seconds over his closest rival, Werner Riedel of Austria driving an Austro Vau.

Qualifying in the rain, the best Scott could do was to earn 14th starting place. Driving in the rain again today, he pulled up into the lead by the fourth lap and held first place for the rest of the run.

Of the 29 starters, six failed to finish due to minor accidents and a few slides off the track.

Scott's victory was a popular one with the estimated 25,000 fans who lined the course. However, Formula Vee Europe rules prevented him from carrying off the European Cup, it going instead to Riedel who finished second in the day's race.

Finishing in third place was Guenther Huber of Austria, driving a Kaiman Mark III. Huber, last year's Cup winner, had the fastest lap of the race, clocked at 80.84 mph.

Crossing the finish line in fourth place was Austria's Helmut Marko, also driving a Kaiman car, while Nick Brittan of England who had had the pole position finished fifth.

In the Formula Vee record books, Riedel will go down as this year's cup winner with Peter Peter of Austria in second in the standings and Marko in third on the basis of points earned during the racing season.

(We'll have an in-depth report on the European Vee Scene as soon as I have a chance to digest all my impressions — don)

STILL HAVE CUTTING-OUT PROBLEMS?

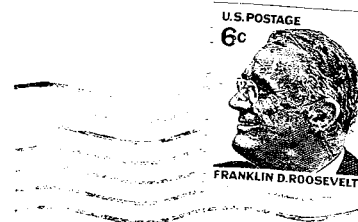
Just a year ago a cure for cut-outitis was presented on these pages. It has worked for almost—but not quite—everyone, evidently. In a few cases the float refuses to remain upside down, turning over on its side instead, which leads to its getting jammed in the bowl, causing

flooding, and all sorts of complications. The solution is another float which will stay inverted. In fact, most floats, after being cut free from the arm, won't remain in any other position. But some, evidently, will.



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