

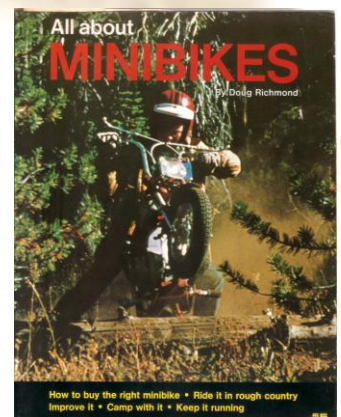
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The first book I ever read on mini bikes back in 1973. I got it at the Library. I bought the kids a mini bike for Christmas several years ago, [Sarah loved riding](#) and I got back into mini bikes. Hence, the name of our FaceBook page and Website... "All About Mini Bikes" thought you might get the connection. Thanks for your patronage in our hobby and feel free to write us anytime at Przyojski@yahoo.com

Your Mini Bike Friends, Dan & Sarah

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MINI-BIKE NATIONAL CHAMPIONSHIP

MINI BIKE

GUIDE

Incorporating Modern Karting

3 BIG TESTS

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APRIL 1970 — 60c



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MINI BIKE

Incorporating Modern Karting



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COVER: Our colorful cover, different from the usual treatment, features the three test machines in this issue - the tiny Indian Bambino (on the left); the HPE Slingshot (bottom right); and the Clark Manufacturing Cyclops (top right). We would appreciate hearing whether you prefer this cover in relationship to previous issues.

JACK PELZER / *Publisher-Advertising Director* — **PATRICK J. MACKIE** / *Editor* — **CHRIS MOSSMAN** / *Art Direction*

DICK BUSHE / *Photo Editor* — **JIM TANJI, RANDY DELUCA** / *Staff Photographers* — **PAM McCLUNG** / *Circulation Manager*

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editorial

MANUFACTURERS ARE ON "QIP"

It seems that many, if not most, mini-bike manufacturers are hooked on QIP. And it all seems to have happened since the re-vamping of their 1970 models. So many have become hooked on it at the same time, that authorities believe there is a pusher in the group - it hardly seems likely that there would be so much QIP around unless somebody was organizing it.

There is another explanation that we think is more likely. The mind-expanding effects of QIP can catch on very quickly. In the mini-bike industry the people are always watching very closely what the other guy is doing. All it needs is one manufacturer to start going around with that peaceful expression on his face, humming as he walks through his plant, singing in the shower, looking happily at his face as he shaves in the morning, sleeping well at night - and the others want to know what he's on. Eventually, they find out its QIP - and soon everybody is looking for ways to get in on it.

We want, at this point, to deny a rumor - MBG is not responsible for the general addiction to QIP (Quality Improvement Program). True, we have been pushing its joys and benefits for the past many months. However, everybody must come to it their own way. And judging from the early word regarding the new models - nearly everybody has.

Many new models have greatly improved power transmission, some have undergone a complete frame re-design, and nearly all are, at least, attempting some quality control during production. It looks like being a better than ever year for the consumer, thanks to QIP.

MEANWHILE, BACK IN MICHIGAN...

Some while back, MBG carried a story by Len Hool, City Manager of New Baltimore, Michigan. Len wrote the story because he was enthused about the effect and pleasure his two sons got out of their mini-bikes. We ran the story because we felt that an endorsement of mini-biking from a man in Len's position would be significant to parents who were considering buying machines for their offspring. Later response proved this to be the case (one dealer told us he showed the article to all the adults who walked into his store - and made several sales because of it).

Now, it appears, Len's enthusiasm for the sport has led him into other areas. Since becoming involved with mini-biking he has become keenly aware of the need for a national organization (being a professional organization man himself, this is no surprise). We here, at MBG, have been trying to get started on such an organization ourselves, for some time, but Len has scooped us with the American Mini-Bike Association - and we wish him all the very best of luck. Perhaps it's best this way - we had to do quite a bit of soul-searching about whether or not a magazine (especially the *only* magazine) should be mixed up in organizing the sport that it serves. After all, if our association was to goof - who would there be to give voice to the efforts to keep it in line?

We will give Len Hool all the support and guidance that we can, to get AMBA off to a good start. He has already shown the wisdom to accept advice and has laid the groundwork for a good Association. We believe that other members of the industry should lend their support to the AMBA because it is to everybody's advantage that the mini-bikers of the country should have their own organization. Further details on the AMBA will be announced later in MBG.

However, we can reveal one of AMBA's pet projects - to build a model mini-bike park on a 64-acre farm as a pilot for other such run-and-play areas around the country. MBG has had several requests from various areas asking for information regarding the building of tracks and trail areas and, although we could hazard pretty accurate guesses about what is involved, we have never been able to supply the results of any experience. With AMBA'S mini-bike park project we may be able to supply the information to get similar places started around the country.

Anyway, it all sounds pretty exciting and we will do our best to help it along.

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WAY
TO
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1970 BUZZER. A mini-cycle for anyone. 65CC engine. Automatic clutch & transmission. Street legal in most states. Folds to suitcase size. Kick starter.

1970 BUZZER JR. Same as above without lights, speedometer or horn.



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Benelli



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(Above, Left) **1970 VOLCANO.** The world's most powerful mini-cycle! 180CC 4-speed, foot shift engine. Long travel, motocross fork. Luggage rack. This one is street legal in most states.

(Left) **1970 DYNAMO COMPACT.** A powerful miniaturized motorcycle. 65CC, 4-speed, foot-shift engine. Street legal in most states. Folding handlebars. Carries 2 adults with ease.

1970 WOODS BIKE. Same as above without lights, speedometer or horn.

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letters

DEALER PRAISE & COMPLAINTS

We have received your magazine at our shop each month since its inception. It is a fine piece of workmanship in this field. We find it an excellent way to keep abreast of the newest products, and the technical reports are something that even we, as a dealer and service center for mini-bikes, don't always get

through our own channels.

Your attention to safety in your articles is certainly commendable.

But, there are a few things that you overlook in testing or fail to note, i.e.: diaphragm carburetors are sometimes more difficult to start than the more expensive float-type; or that almost all of your tests on new bikes with Briggs and Stratton engines are, in all practicality, obsolete because B & S no longer supply mini-bike manufacturers with their engines. This is evident in your "David and Goliath" article on page 20 of February 1970 issue, where the pictures of both bikes show Briggs engines and you even rave about that

engine on the Flexo Super Scrambler. But, in your "Specifications" of the two bikes you seem to up-date your article by saying that they both use the Tecumseh engine.

In regards to the article in the same issue about Pete Mealy's "Tripod" mini-bike - he did a beautiful job of customizing, a field that we are getting more involved in as its popularity gains momentum. But in chroming his cooling shroud, he removed his all-important serial number plate. This is illegal, at least in California, and I must assume elsewhere also. The engine must have an identifying number or the police could impound it immediately as a stolen bike if ownership could not be proved.

Another thing, too, is to make sure that when a person buys a bike that the serial number is recorded on the sales receipt, and that the receipt is filed with your most important papers.

Ed Quinn
Mini-Bike City
Burbank, California 91502

It sure is good to know that MBG is valuable to people in the industry, as well as the mini-bikers, for whom it is written and published. You are, of course, right about the engine situation, Ed, but we have an explanation and our approach is not entirely accidental. You see, because of our lead time (we are just now publishing some photographs taken months ago) many of our test machines are still equipped with Briggs and Stratton engines, although the manufacturer has long ago switched to Tecumseh units. We have to write the tests as they occurred, with the Briggs engines, but try to catch up to date with the specs - just one of those things and from now on nearly all our test machines will be showing Tecumsehs. Then, of course, some other switch in the market (we are not convinced that B & S won't be back before too long) will catch us with our shirt tails out. Didn't know that it was illegal to remove the engine number plate (although, as you say, it is a protection for the owner) - it sure gets tough these days to do anything legally with your own property.

"YOU GET A LOT FOR \$210"

Three months ago my parents gave me permission to buy any mini-bike up to \$210. I had a lot of trouble looking for one (there are not a lot of mini-bike stores in my area) until about two months ago when I visited a friend. He had about five recent issues of MBG and after looking through them, I realized you could get a lot for \$210.

I bought your December issue and one particular mini-bike caught my eye. It was called Mark 1. However, I don't think I should buy a mini-bike just by looking at a picture of it. So, could you

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PUT FAST,
SMOOTH
**TIGER
POWER!**
IN YOUR MINI-BIKE
WITH

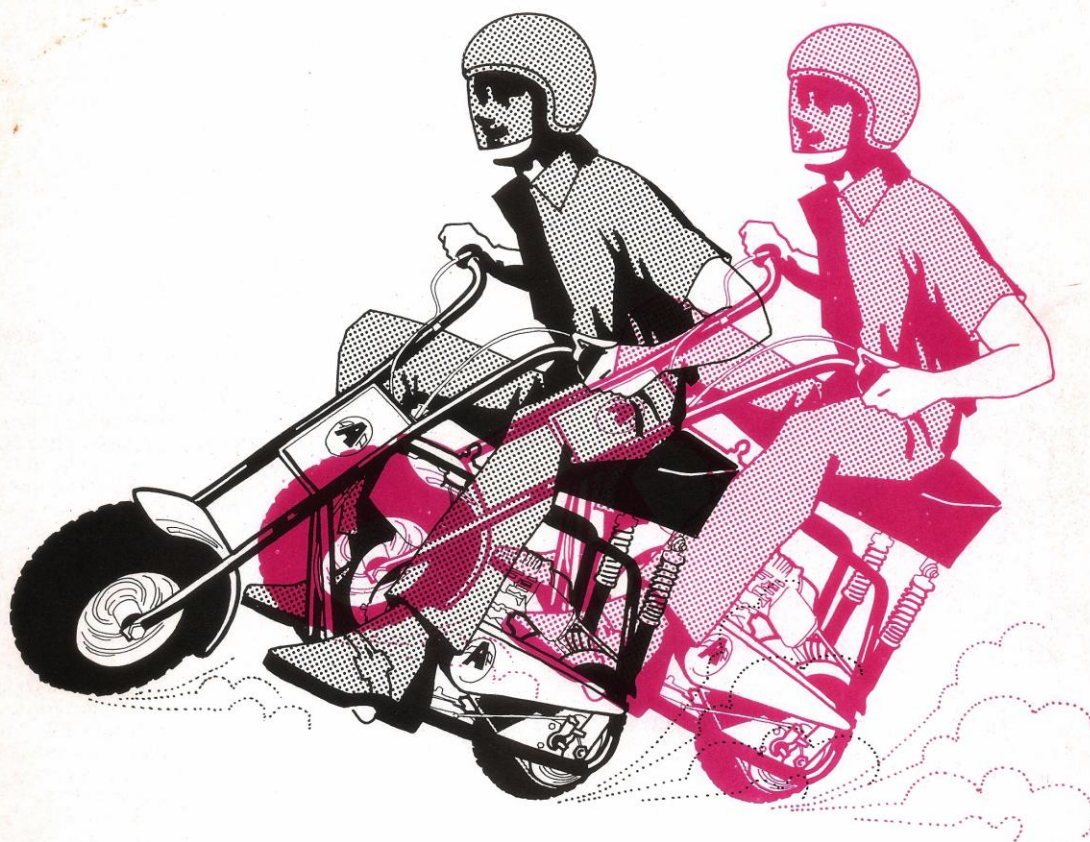
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HPE

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8 / APRIL 1970



LETTERS

Continued from page 6

please do a test on it in one of your next issues.

By the way, my friends did not think you would answer my letter.

Dave Weiss

Woodmere, New York 11598

The test on the Herter's Trail model will be in the next (May) issue and, basically, it is very similar to the Mark 1. However, we are still trying to get the 1970 model of the Mark 1 so that we can double check.

CANADIANS NOT SO BAD OFF

I would like to make reference to the letter from T. W. Chapman in the February 1970 issue. Being one of the first (if not the first) into the Canadian mini-bike market we feel that 99.9% of the mini-bikes sold in Canada have parts readily available from one source or another.

He was quite correct about the high cost of ordering directly. The exchange, Tariff and Federal Sales Tax equals 36.04%, not including provincial sales tax, freight and brokerage fees. However, he failed to mention that the larger distributors offer a better deal. For example, one mini-bike we import sells for \$126.00 in the U.S.A. and is offered for sale at \$160.00 in Canada - about \$10.00 higher on East and West coasts due to freight. This is nowhere near 50% higher.

We are also in agreement with MBG on the scrub brake not being up to par.

The selection of a bike should be based on: 1) what do I intend to use it for, e.g., trail, fun, etc.; 2) Quality and workmanship? and, 3) what am I getting for my money?

Where possible, compare bikes and shop wisely. No Canadian should fear buying a U.S. imported mini-bike - a bad dealer or distributor usually ends up with a warehouse full of unsold machines.

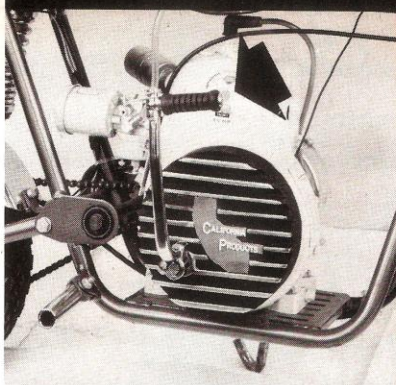
If in doubt about any part or bike write us, we will locate and advise you on where you may purchase same. Our ad appears elsewhere in MBG.

James G. Stiles
SASCO Enterprises
Scarborough, Ontario
Canada

Canadian mini-bikers would do well to note the above letter and the name and address of the writer. Jim Stiles called us on the telephone and talked for about half-an-hour (Toronto to Los Angeles) about the problems and opportunities of the Canadian mini-biker. He came across as a very sincere man trying to do his best for his customers - and in that way he has built a sound business. Jim has many dealers across

Continued on page 10

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10 / APRIL 1970

LETTERS

Continued from page 9

Canada, understands the business in that country better than most, and is not above working all the legal angles on behalf of his customers.

SUGGEST ABOUT 20 MINI-BIKES

Would you please test the Cheetah 4 hp (4-cycle engine) mini-bike. And could you name about 20 different mini-bikes that have power to climb as well as reasonable mini-bike speed. If this request is too large, please name a few dealers that might sell mini-bikes (ranging from \$150 to \$250) in my area.

How should I go about asking my parents for a mini-bike (I plan to buy my own)? My mother thinks I'd be a "miniature Hell's Angel". Anyway, they don't like the idea, so please help me.

Keep up the good mag.

Billy Graveratte

Pinconning, Michigan 48650

Power to climb up what? And with whom? And what's reasonable speed? And only 20 suggestions? Why not 40? We would like to help, but... If you don't weigh more than 180 lbs. your power requirements can be met by any 4 to 5 hp engine with a gear ratio no lower than 7 to 1 with tires up to 14-inches in diameter - with larger tires consider a ratio of 8 to 1, especially if you are a little on the heavy side. As for dealers in your area, there are two courses of action - select some likely machines from the advertisements in MBG and write to the manufacturer for the name of local dealers - secondly try the Yellow Pages or seek advice from local motorcycle dealers. Don't be in any hurry - shopping is half the fun - and you're more likely to find what you want if you look around carefully. As to convincing your mother - in the February issue of MBG, on Page 13, there was a special message for her.

USUALLY WE'RE ALL RIGHT

In your December 1969 issue of MBG you have a letter headlined "It was In September MBG". In this letter a reader asks if you can do a test on Taco Trail 100, and you told him it was in the September MBG.

So, I sent for the September MBG. Then (after it was too late) I found out that I had that issue but I couldn't find the test on the Taco 100.

So, will you please send me the correct issue.

Rory Purdell

The editorial staff hangs its collective head in shame. We test so many machines and in the publishing business the months become a mad jumble. The

Continued on page 12

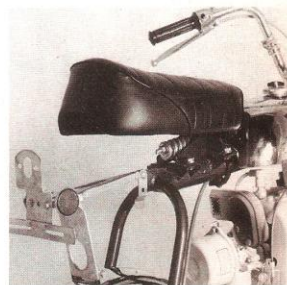
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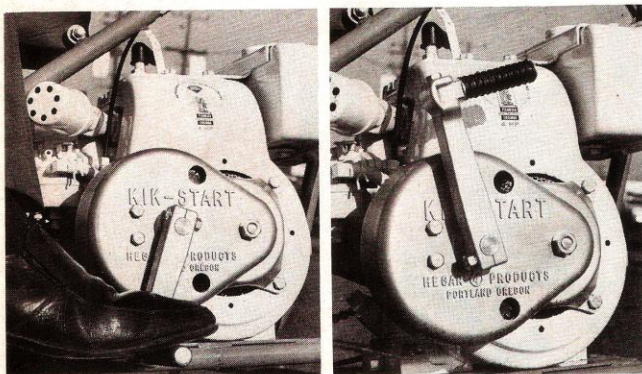


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LETTERS

Continued from page 10

*Taco 100 test was in the...let's see...
yes, here it is...in the November issue...
of which we have about a dozen
copies left...so we are afraid that we
can't send you that issue. Now, could
we interest you in...*

FROM JACK EDWARDS - TO HIS PEN PALS

I want to thank you for starting the "Jack Edwards Pen Pal Club" and I am looking forward to receiving mail from other mini-bikers.

In your letter you asked me for information about myself so that the members of the Club will have some idea about who they are writing to. I am 12 years old and in the sixth grade at school. Your editorial seemed to say that I couldn't ride mini-bikes but, in fact, riding my Honda Mini-Trail is my favorite sport. But I can't play any ball games or any sport with flying objects - I have only partial vision in one eye and if I got hit in the head, in the wrong place, I could go blind for life. Other sports I enjoy are skating and swimming.

I go riding with my dad at an abandoned gravel pit about half-a-mile from my home. The Pit covers about 200 acres and is a sort of small Saddleback Park. Dad rides motorcycles, either a BMW R60 or a Honda 750 four cylinder and I first became interested in mini-bikes when he got his first motorcycle and by going with him to the Pit. Reading MBG helped me a great deal in deciding the mini-bike to buy and in looking after it.

Besides mini-biking I like reading and putting models together. Although I don't know whether it means much, but you did ask who my favorite movie stars are - Mike Parks and Jerry Lewis. I have one older sister, aged 15.

As long as I can, I'll be riding mini-bikes and reading MBG. I am looking forward to receiving the letters from other mini-bikers.

Jack Edwards,
54014 Starlite,
Utica, Mich. 48087

Jack's courage in riding his mini-bike when so much is at stake is an indication of how much mini-biking means to him. He makes no big deal about his disability, just states it matter-of-factly and seems to lead a fairly normal life. He is a credit to the sport and many of us could learn from him. His full address is given above (as it was in the March issue) to enable fellow mini-bikers to correspond with him. From time-to-time we will publish, in this column, letters from Jack Edwards that will be, in essence, Jack's replies to the Club members.

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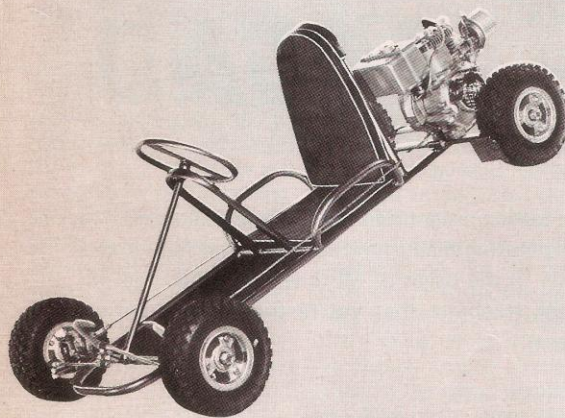
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MINI-BIKE GUIDE / 13



TESTING TIMES ARE AHEAD

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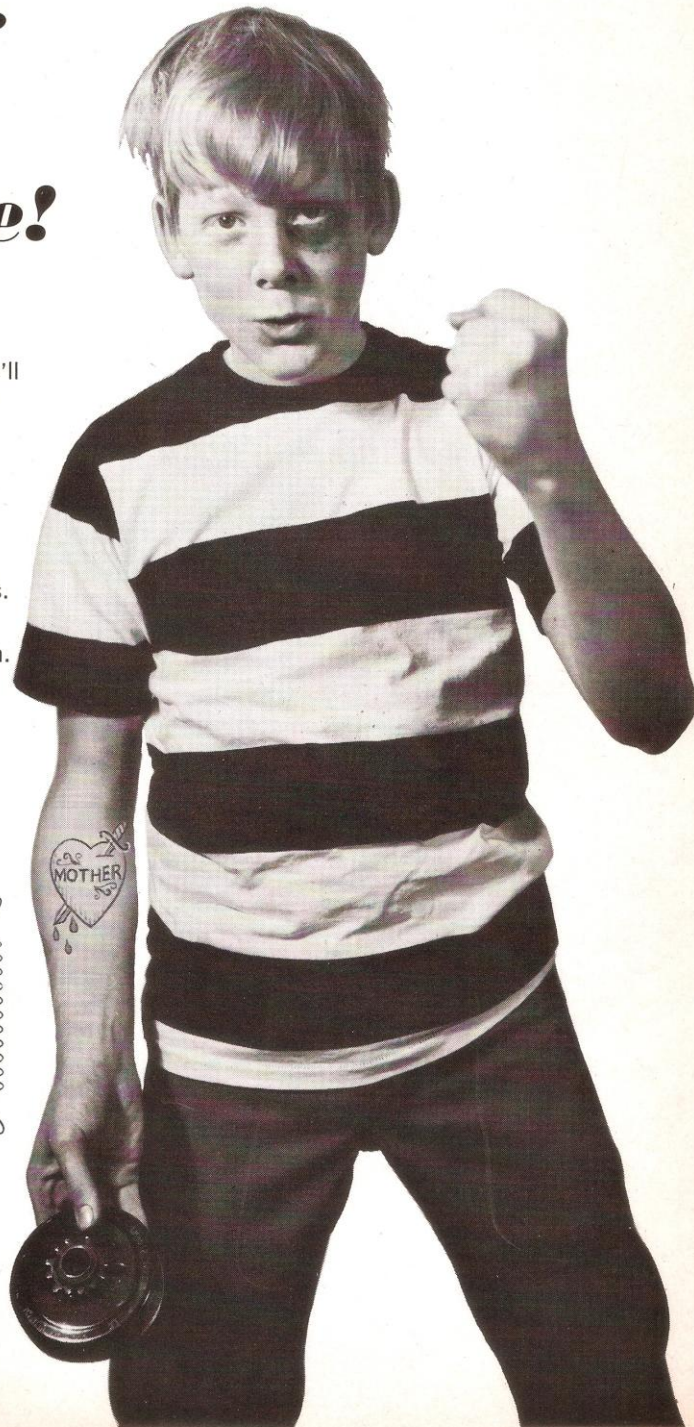
FREE DECAL—it's colorful and really cool and it's packed in each clutch. Get it today!



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TECH TIPS

SHIFTY GUY

I very much enjoy your magazine and would appreciate seeing it on more newsstands.

I am looking for a non-automatic transmission (stick) for my mini-bike. I have a Nova S.S. with a 4 hp Tecumseh, direct drive (Yuch!) I would like a shift like a motorcycle (3, 4, or 5 speeds) and under \$60. Please name a few and how

much work is involved in installing them.

If there is not a gearbox of this type on the market, please recommend a few 3-, 4-, or 5-speed stick engines for under \$100 (as you can see I want a manual shift and clutch).

Gregg Ewing
Anaheim, California 92802

The only gearbox with a toe-shift and manually operated clutch for mounting on mini-bikes, that we know of, is that marketed by Jayco Transmissions of 15266 Stagg Street, Van Nuys, Calif. 91405. It is a very nice three speed unit but the cost is around \$94 - a little more than your \$60

requirement. Motorcycle engines complete with gearbox and clutch might be the answer for your particular needs. Such units are marketed by Floyd Clymer Motorcycle Div., 222 North Virgil Ave., Los Angeles, Calif. 90004 (Minarelli 50 cc 4.8 hp, \$110); Motor Mower Distributing, P.O. Box 516, Reedsville, Penna 17084 (Hodaka 100 cc, 10 hp, \$99.95). The Minarelli has a four speed box and the Hodaka five speeds.

HOW MUCH HP FOR MINI-TRAIL

I've read in several different magazines the horsepower rating of the Honda Mini-Trail at 1.95; 3; 3.5; and our local dealer says 5 horsepower. Could you please tell me which one is correct?

Philip Hammer
Duluth, Minnesota 55812

Factory rating for the Honda Mini-Trail is 1.95 hp. The confusion (and false claims) arises out of Honda's habit of conservatively rating their mills - we assume to prevent the build-up of false hopes and to allow for inaccurate tuning or subsequent power loss. However, the only accurate way to disprove this rating is on a dyno and the dyno reading for one engine would not, necessarily, apply to another. On the other hand, if you don't mind a somewhat educated guess, we'd say anywhere between 2 and 2½ hp might be about right. Look at claims above this with suspicion - unless there have been substantial modifications - and then look upon the engine with suspicion.

GETTING RID OF SCRUB BRAKE

I have bought every issue of your great magazine. It couldn't be better. Well, now for my problem. About a year ago I bought my first mini-bike. It was equipped with a foot-operated scrub brake. I was very pleased with this mechanism for some time until I noticed how quickly it wore down the tread on my knobbies. Now I am interested in getting a disc brake or something of that sort.

Also, with the scrub brake gone I could put in a jackshaft or maybe even a two-speed automatic transmission. Please tell me the manufacturer of such a brake kit and the price of it.

My other big problem is finding a legal place to ride my machine. So far, I have been riding it on our own private property. I was wondering if you could tell me if there were some state parks or tracks in the Chicago area that I could pursue my favorite hobby. I have tried asking police and others the same question and have repeatedly heard the same disheartening "No".

You are my last resort.
Mitch Manker, Age 14
Hinsdale, Illinois 60521

Continued on page 18

**The new Horstman- Krizman
SPARK ARRESTER - for Mini-bikes,
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Just the bike for kids to practice and compete on. 50 m.p.h., weighs only 99 lbs., number plates included. 20 x 2.125 tires, 40" wheelbase, 23" seat height from ground (seat long enough for two kids). Telescopic front forks

and swinging arm rear suspension makes for easy riding. Wire spoked wheels with two brakes make it possible to broadside on this bite much better than on a small scooter or mini. Ready to go ... not a kit, but COMPLETE.

This is a real MINIATURE racing motorcycle, NOT A TOY. It is a "bomb" for the kids to ride on dad's farm, on baseball diamonds, the desert, or for use in other "off-road" activities.

Large shipments by air and boat are enroute. If you want one, mail check or money order for only \$325.00 F.O.B. Los Angeles.



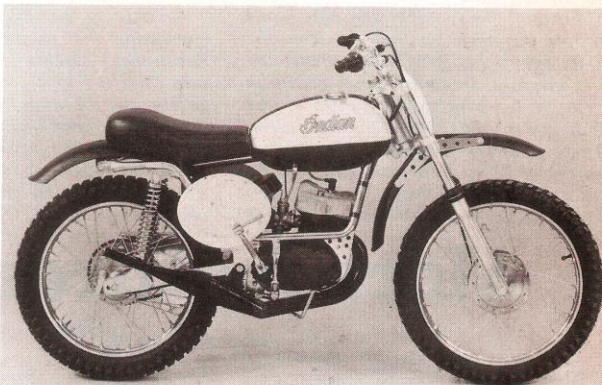
INDIAN BAMBINO MINI-MINI — This miniature bike for 5 to 8-year-olds has 10-12 mph top speed, automatic clutch, full suspension front and rear, two good brakes, kick starter, wire spoke wheels with Pirelli tires. Weight 57 lbs. Immediate delivery. Price \$266. Detachable side car optional - price \$50.



INDIAN SCRAMBLER 100 — This beautiful, high performance, 100 cc Scrambler will compete with the best of any other make. Order now. \$599

SPECIFICATIONS: Engine, Morini 100 cc 2-stroke, 15 hp; Compression ratio, 15:1; Carburetion, Dell 'Orto UB 22 S2; Large aluminum alloy cylinder head; High volume capacity air cleaner; 4-speed, left foot-shift transmission; Wheelbase, 47-inches; Tires, Pirelli Motocross - front 2.50 x 19, rear 3.00 x 18; Weight, 160 lbs; Clymer-Tartarini front forks; Swing back footpegs; Nickle plate frame; Number plates.

INDIAN PAPOOSE — This 4-speed, 4.9 hp, 45-50 mph small motorcycle (bigger than a mini) is beautifully finished in red or blue. Performs more like a 90 cc than a 50 cc - smooth as silk. Dual seat, road or knobby tires. Two brakes, lights. Immediate delivery \$345



INDIAN PONYBIKE — This unique road or trail bike has 3 speeds, 5 hp, 45-48 mph. Full suspension front and rear. Dual seat, road or trail tires, 2 brakes, lights. Red or gold. a large mini-bike. Immediate delivery \$295

RIGHT — Two new Italian-styled large Indians. The **INDIAN-VELO 500** is powered by the finest 500 cc single ever built, the famous Velocette high camshaft, overhead valve 500 cc engine. Now the "Thumper" is back again for the single enthusiast to enjoy! The entire bike is styled in Italy, utilizing Italian frame forks, brakes, tank, fenders, seat, suspension system and Pirelli tires. Immediate delivery. \$1,295,

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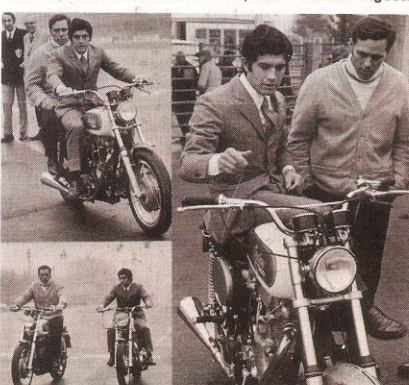
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INDIAN - THE MAKE THE CELEBRITIES RIDE, including Rowan and Martin of "Laugh-In"; Mario Andretti and his sons; STP President and race car owner Andy Granatelli and his brother Vince; Dan Gurney and his son; and many others including Indian owners Cal Rayborn, outstanding H-D competition rider and his sons; Canadian champion Yvon Duhamel; Cycle Sport editor, Bob Hicks; AMA Technical Committeeman and Bonneville speed trials boss Earl Flanders; Car and Driver's editor's son, Gordon Jennings III. Watch for the Indians coming in seven new movies.

CHAMPIONS ON INDIANS AT MONZA — U.S. AMA road racing champion Cal Rayborn and World Champion Giacomo Agostini discuss 1970 Indians at Monza, Italy, and ride them in the rain for impressions. Top left:



Ago shows Cal the way around the circuit. Below: Cal on Indian-Velo 500 and Ago on Indian-Enfield 750 take a rainy lap at moderate speeds. Right: Ago and Cal with Indian-Velo, probably wondering how this 500 cc goes so quick. Cal is a Harley-Davidson works rider and Ago rides an MV Agusta 4. For a report of their comments on Indians with illustrations, send stamps to Clymer.

TECH TIPS

Continued from page 16

Brake kits (internal expansion units) can be ordered from Azusa Engineering, 16265 Arrow Highway, Azusa, Calif. 91702 (under \$12 including sprocket); Flexo of California, 5180 Venice Blvd., Dept. MBG, Los Angeles, Calif. 90019 (approx. \$13). Jackshaft mounted band brakes can be purchased from Comet Industries, Div. of Hoffco Inc. (Dept. MBG), 25 Washington Ave., Richmond, Indiana 47374 (\$7) or a spot disc brake from H-H Products, Division Kelsey-Hayes Co., (Dept. MBG), 8601 North 43rd St., Milwaukee, Wisc. 53209 (various prices). All, except H-H Products, sell jackshaft kits for around \$10. Comet Industries make two-speed automatics.

It's never easy for the police to control illegal street riding of mini-bikes so sometimes they tend to try to make them go away altogether. But, don't be put off by a police stonewall - they often don't know what the state parks people will allow so find out from the State people in Springfield (Illinois) and Indianapolis (Indiana) what provision there is for trail riding - or go to the local motorcycle shop and ask them. There is always somewhere for the trail motorcyclist to ride - and that will do fine for you. Personally, we think it's a crying shame (and an invitation to break

the law) when local police departments don't try to counsel mini-bikers properly - especially when they are concerned enough to inquire.

WHAT MAKES A ROD GO?

Your magazine is just great. That's why I'm subscribing. Would you please answer a couple of questions that have been on my mind for a long time?

I was riding my bike to my friend's house and all of a sudden - "BANG!" I took it to the repair shop and the guy said the piston rod was busted. So, I went to this kart shop and bought a brand new 4 hp Tecumseh motor - with all the trimmings - and some other goodies to bring the price to \$130. Please tell me what I did wrong so it won't happen again.

Second, what kind of brakes do you prefer - internal expansion or caliper-type disc brakes? Please try to answer these questions.

Mike LaChica
Watsonville, California 95076

Sounds to us like you were not lubricating that engine properly, Mike. Remember, besides checking to make sure there is enough oil every time you go out, the oil needs changing now and then. For a new engine change the oil after the first two tanks of gas and every twentyfive hours of running thereafter. Another thing you might check is the condition of the air cleaner on the carb -

if dirt is getting by this could chew up your engine pretty good - although we doubt that it would make the rod go. As to the brakes, a good internal expansion brake is probably the most trouble-free although a well set-up disc brake will do as good, if not better, job of stopping.

ENGINE FOR CUSHMAN

I have just acquired an old Cushman Scooter and I plan to use it like a tote gote while deer hunting. When not deer hunting, my wife and I will be using it around the back roads up north.

What I would like to know is where I can obtain a motor, approximately 10 hp, and a two-speed transmission that I can adapt to the large Cushman frame.

I figure I will have nearly the price of a new bike in it when completed, but I haven't seen one on the market that is large enough for two people.

Richard T. Ferrin

Lansing, Michigan 48917

Tecumseh Products Co., Dept. MBG, 900 North Street, Grafton, Wisconsin 53024, will be able to give you the information on their 8, 10 and 12 hp engines - although we feel that the 8 hp engine should be the upper limit and the seven would be plenty powerful enough. If you don't have experience with these engines you won't know about the thumping torque on the low end. Comet Industries, Dept. MBG, Division of

Continued on page 52

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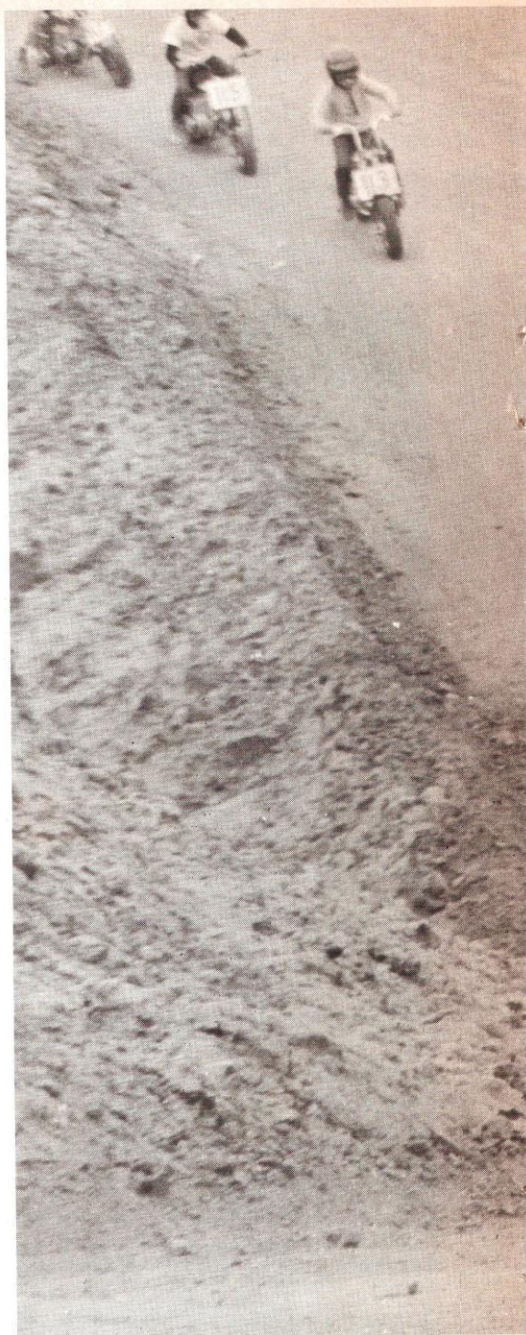


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NATIONAL CHAMPIONSHIP MINI-BIKE SCRAMBLES



UPS AND DOWNS - Some of the most exciting racing took

First "national" mini-bike anything was held recently at Saddleback Park, California. The event was the National Championship Mini-Bike Scrambles organized by the Southern California Mini-Bike and Kart Association as the climax to their year of racing activity at Saddleback. Although the event was more "national" in ambition and future potential than it was in out-of-state entries, certainly it was well attended by Western mini-bikers. Despite the closeness to the Christmas season (December 21) there were no less than



place in the 6 to 8 years old, 1 - 3 hp class as this shot shows. Dave Lamb is in the lead with class winner Bobbie Tryon pushing hard

106 entries. These entries included a large contingent from the Hi-Jackers mini-bike club of Concord, California, nearly 500 miles from Saddleback, and a lot of guys (should we dare to call them a factory team?) wearing Bonanza colors from almost as far. We did see one Volkswagen with Missouri license plates supporting some Mavericks, but we don't know if they came for the Championships or whether they moved to California permanently to be near Saddleback.

The SCMBKA worked hard preparing for the big day and they had behind them more than a year's mini-bike racing experience to help them decide what was needed in the way of rules and race organization. Even so, there were some rough spots although, on the whole, things went very smoothly for a first-timer. And timing was the main reason why things ran a little behind schedule - a few weeks prior to the race it was decided that the only fair way to select pole positions was by timing laps before the race. Unfortunately, while this is the fairest method, the timing dragged out so that the start of the racing was more than an hour late. This, of course, did not effect the racing until towards the end of the day when the officials found themselves in a tight time/light squeeze with darkness falling around four o'clock. The tale end of the trophy presentations were made by the light of truck headlights and any other means of illumination that could be scrounged up.

Once the racing was under way, there were very few hang-ups. Jim Keller, race director was responsible for getting the contestants lined up on the grid and for the starting flag. Paul Bennett, SCMBKA president, handled the checkered flag and the racing-condition flags while scoring was handled by Judith Felber; Pinkey Stanley; Jerry Daniels; Sheri Bixler; Penny Bixler; and Jean Bennett. With as many as 15 mini-bikers on the track at one time, these ladies had a busy time.

Ten classes were run plus a trophy dash with three heats per class - this came to about 10 events an hour - so things moved pretty quickly and the estimated crowd of around 1,000 never had time to allow their attention to wander. The classes were 6 - 8 years, 1 - 3 hp; 6 - 8 years, 4 - 6 hp; 9 - 11 years, 1 - 3 hp; 9 - 11 years, 4 - 6 hp; 9 - 11 years, 7 hp and over; 12 - 14 years, 1 - 3 hp; 12 - 14 years, 4 - 6 hp; 14 years and over, 1 - 3 hp; 14 and over, 4 - 6 hp; and 14 and over, 7 hp and over. Three of the classes had to be split into two sections as there were too many (more than 15) in each of these classes to allow them all on the track at one time. This was a very prudent safety precaution by the SCM-BKA officials.

Race day opened under threatening skies, a low overcast that gave a promise of rain that never materialized. Some of the participation from Northern California had been cut by several days of rain in that area and the forecast indicated that the storms were headed south - however, the gods of mini-biking

BIG BOYS PLAY - Part of the 14-years-and-overs ride their more than seven horse machines through "deadman's gulch" with class winner, Joe Iacabitt on his Hodaka powered Bonanza in the lead.





WILD ACTION - Too fast for the camera to stop, these three competitors drop down into a tight turn at the bottom of the big hill - with fancy footwork.

BELOW - A little out of shape but still determined - 9 to 11 year olds, 1 - 3 hp.

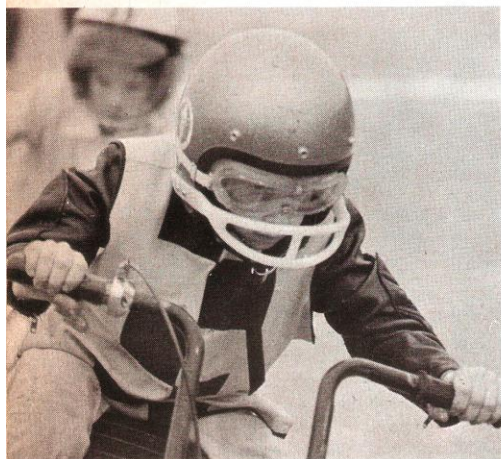


ABOVE - Line-up on the grid with the 9 - 11 year olds waiting for race director Jim Keller to drop the flag - as movie-cameraman gets set.

BOTTOM - Don Wright, class winner of the 14-and-overs, 4 - 6 hp, rides his Honda full bore around one of the easier turns.

TRYING SHUTOUT - Second place man Bill Stone tries to shut out class winner Rod Sibley in 9 to 11 years, 7 hp and over class.

PICTURE OF RACING - at any age - 'nuff said?



permitted the day to go off undampened. However, the cool weather seemed to help most engines perform well and the temperature seemed to spread to the competitors themselves. Nobody seemed particularly excited by the tenseness that could be felt around the starting grid and most riders seemed to behave as though they had been racing every weekend for more years than some of them had been alive.

This coolness did not effect the racing. Out there things got hot and heavy and, while sportsmanship was evident everywhere, the main thing was to be first under that checkered flag. On hand to watch the proceedings and to present the trophies were some big name motorcycle racers, including Skip Van Leeuwen, Dallas Baker, Dick Hammer and Rod Downs and these men could be seen thoughtfully assessing the future competition. Although there were many competitors who were there for the fun of the thing and quite content just to get in a little racing, others were there for one thing - to win - and their riding showed it.

The mini-bike scrambles track at Saddleback has to be one of the most challenging courses in the country and flat-out speed is useless here. The tight corners, most of them on an uphill or downhill grade, require constant concentration and careful use of the throttle. There are passing sections but the best chance for overtaking is when the other guy makes a mistake and it was a thrill a minute to watch the waiting racer jump in as soon as the opportunity occurred. Of course, there were those who got a little over-anxious and got enough out of shape to take a spill - in which case the biggest hazard was the guy behind. However, nobody received more than a few bruises all day long although there was an efficient ambulance crew on hand, just in case. Track conditions were just about perfect, with the damp air laying the usual dust very efficiently and some of the more experienced competitors in the 14 and over classes (including one kart racer used to over-100- mph speeds) said the day was one of the biggest balls they had ever participated in.

At the end of the day everybody who had raced received a participation trophy and many of those who didn't receive one of the five place trophies in each class, vowed to be back next year to take one home. The mini-bike industry, including Mercury Clutch; Aviation Cyclery; Azusa Engineering; Buco Helmets; C.D.'s Speed Center; Carlisle Stationers; Honda Del Rey; Inglewood Kart Shop; Jan-Ho Industries; Long Beach Mini-Bike and Kart Engineering; Maverick Motor Bike Distributors, Inc.; Norm Best Motors; Ron's Mini-Cycle



LINE-UP - Tight course keeps 14-and-overs, 4 - 6 hp, in line. Leading is third place winner in class, Dave Uyahara, while second place man, Stan Gilbert, waits to pounce.



BUNCHED - Racing was tight in the 6 to 8 year old, 1 - 3 hp class. Bobbie Tryon, class winner (No. 107) on the outside.



TENSE - Things get tense (especially for dads) as the 6 to 8 year olds, 4 - 6 hp, wait for line up - but winner Jeff Ward smiles confidently.



SEQUENCE - Fast camera work, all within about three seconds, shows typical spill in which nobody gets hurt. Dave Carlson gets crossed up in corner to avoid another accident further up track. No. 422 takes evasive action and gets by as a bunch of riders come up while Dave scrambles for safety. Dave won C.D. Sports Center sportsmanship trophy..

City; Saddleback Park; Stanton Ave. Motor Parts; Tecumseh Products Co.; Valvoline; and, humbly, Mini-Bike Guide, contributed merchandise to the leaders in each class.

Mercury Clutch's big Trophy Dash award went to Ward Wessels (who wrote the recent MBG article on how he prepared his machine) of Diamond Bar, Calif., riding a Taco 100 with a McCulloch 100 engine. The Championship Sportsmanship Trophy went to Dave Carlson who was riding in the 14 years and over, 7 hp and over class having been bumped up from his own class (12 to 14 years) because of lack of entries in that class. Dave was riding with the leaders when he laid his machine down to avoid hitting somebody who had fallen - and got bumped himself, although he luckily sustained only bruises. The annual Sportsmanship Trophy presented by Aspro (parent company of Mercury Clutch) was awarded to young Glen Spooner who runs in the 6 to 8, 1 - 3 hp class for his year-long racing attitudes at the Saddleback meets. Glen wears braces on both legs following a bout with polio but would be annoyed at the thought of special treatment on or off the track

- and proves it by being a hot performer.

Last year, because the mini-bike racing at Saddleback Park was started by the Park management, there were two points systems running parallel, one for the Park and one for the Association. The Saddleback Park high points award, a Taco 100, was presented at the National Championship Mini-Bike Scrambles to Clay White of Bellflower, Calif., who rides a Taco with a Briggs and Stratton in the 6 to 8 years, 1 - 3 hp class. Skip Van Leeuwen did the honors and remarked that he had been very impressed with Clay's hard-driving riding style.

RESULTS (giving position, name, town, mini-bike and engine)

6 - 8 years, 1 - 3 hp: 1) Bobbie Tryon, Fullerton, Calif., Taco, Briggs and Stratton; 2) Kelly Sapp, Long Beach, Calif., Special, Continental; 3) David Lamb, Torrance, Calif., Taco, Briggs and Stratton; 4) Clay White, Bellflower, Calif., Taco, Briggs and Stratton; 5) Mike Baker, Orange, Calif., Zebra, Tecumseh.

6 - 8 years, 4 - 6 hp: 1) Jeff Ward, Mission Viejo, Calif., Honda, Honda; 2) Darren Penrod, Oxnard, Calif., Honda, Honda; 3) Lane Bixler, Lawndale, Calif., Honda, Honda; 4) Rusty Bixler, Hawthorne, Calif., Honda, Honda; 5) Jay Van Wormer, Los Angeles, Calif., Honda, Honda.

9 - 11 years, 1 - 3 hp: 1) Ivan Oden Jr., Norwalk, Calif., Zebra, Briggs and Stratton; 2) Jim Moore, Fullerton, Calif., Taco, Briggs and Stratton; 3) Don Miller, Yorba Linda, Taco, Briggs and Stratton; 4) Gary Spielberger, Costa Mesa, Calif., Taco, Briggs and Stratton; 5) Ronnie Kelly, Perris, Calif., Bonanza, Tecumseh.

9 - 11 years, 4 - 6 hp: 1) Brian Baugher, Orange, Calif., Honda, Honda; 2) Rod Sibley, Cypress, Calif., Taco, Briggs and Stratton; 3) Gene Woods, Costa Mesa, Calif., Taco, Briggs and Stratton; 4) Greg Lersch, La Palma, Calif., Powell Challenger, Briggs and Stratton; 5) Armond DeLaRosa, Concord, Calif., Honda, Honda.

9 - 11 years, 7 hp and over: 1) Rod Sibley, Cypress, Calif., Special, Hodaka; 2) Bill Stone, Santa Ana, Calif., Bonanza, Hodaka; 3) Dave Henson, Perris, Calif., Taco 100, Briggs and Stratton.

12 - 14 years, 1 - 3 hp: 1) Dirk Fibish, Concord, Calif., Honda, Honda; 2) Scott Dornbos, Compton, Calif., Honda, Honda; 3) Stewart Egli, Costa Mesa, Calif., Special, Tecumseh; 4) Jim Baldwin, Perris, Calif., Honda, Honda; 5) Robert Friese, Perris, Calif., Bonanza, Tecumseh.

12 - 14 years, 4 - 6 hp: 1) Warren Barr, Manhattan Beach, Calif., Powell Challenger, Briggs and Stratton; 2) Guy Erickson, Costa Mesa, Calif., Zebra, Tecumseh; 3) Dave Carlson, Anaheim, Calif., Honda, Honda; 4) Chris Noe, Santa Ana, Calif., Meyers Lynx, Briggs and Stratton; 5) John Van Brenkelen, Costa Mesa, Calif., Taco 100, Briggs and Stratton.

14 years and over, 1 - 3 hp: 1) John Blair, Whittier, Calif., Taco, Briggs and Stratton; 2) Ron Attbury, San Jose, Calif., Bonanza, Tecumseh; 3) Rex Ward, Sunnyvale, Calif., Bonanza, Tecumseh; 4) Steve Bresin, Orange, Calif., Zebra 300, Briggs and Stratton; 5) John Conlan, San Jose, Calif., Bonanza, Tecumseh.

14 years and over, 4 - 6 hp: 1) Don Wright, Lynwood, Calif., Honda, Honda; 2) Stan Gilbert, Long Beach, Calif., Powell Challenger, Briggs and Stratton; 3) Dave Uyehara, Santa Clara, Calif., Bonanza, Tecumseh; 4) Gary Gilbert, Long Beach, Calif., Powell Challenger, Briggs and Stratton; 5) Ron Bair, Bellflower, Calif., Maverick, Yamaha.

14 years and over, 7 hp and over: 1) Joe Iacabitt, Los Gatos, Calif., Bonanza, Hodaka; 2) Gregg Hodges, Los Gatos, Calif., Bonanza, Hodaka; 3) Bob Williams, South Gate, Calif., Special, Chrysler; 4) Ward Wessels, Diamond Bar, Calif., Taco 100, McCulloch 100; 5) Bill Barker, Garden Grove, Calif., Bonanza, McCulloch 91A.

Trophy Dash: Ward Wessels, Diamond Bar, Calif., Taco 100, McCulloch 100.

sometimes, good things come in little packages



Smallest mini-bike that MBG has ever tested - that's Floyd Clymer's Bambino. A mere 42½-inches in overall length, the Bambino is no novelty, cut-price, half-pint machine with nothing going for it but its tiny size. It is an engineered jewel in the tradition of a dime-thin Swiss watch. It is a complete motorcycle that has been left out in the rain and shrunk. It is complete to the last detail (except for lighting) - just a full-blown motorcycle that has been treated to a dose of "shrink juice" so that it diminished to just about half its proper size.

Of course, "proper size" is a relative thing - and the riders of the Bambino have also taken a dose of shrink juice - or, rather, they haven't yet had their full dose of stretch juice. This diminutive little mini-cycle is intended for the 5 to 8 age group and it appears eminently suitable for any youngsters of this age, and a little bit above and below, whose dad has a spare 266 smackeroots. It might be a good investment, at that, because no child of this age is going to want anything else to play with - and just think of all the five buck plastic throwaway, breakaway, want-something-else-another-day, toys that will save.

On the other hand, no dad is going to want his just-out-of-the diaper-stage youngster roaring around the place on a sudden-engined mini-motorcycle - so the 50 cc mill on the Bambino has also been given a dose of shrink juice. Outwardly, the Bambino's engine looks just like any other 50 cc two-stroke (like any other Morini, at least) but without the gearbox. And that is what it is, a 50 cc Morini detuned to produce a modest 2 hp. The detuning is achieved by installing a Dell Orto carb with a more restricted throat than the standard model and by plugging up the breather holes on the air cleaner so that the mixture is running rich at all times. This has the engine four-cycling, that is, firing on every other stroke instead of every stroke, as a normally operating two-cycle will do.

The net result of this de-tuning is that the engine is a very tame and, therefore, very safe for the group that will be using the Bambino. The clutch an automatic, two-shoe, centrifugal of the type familiar to every mini-biker and with the engine detuned this way, there is no possibility of unwanted wheelies, no decernable snatch, and with engagement so smooth that it is difficult to detect - except by the movement of the machine. Of course, with the engine four-cycling most of the time, there is a strong possibility of spark plug fouling. However, we ran the Bambino most of the day and the plug still looked fairly clean when we pulled it. No explanation - just magic.

Top speed of the Bambino with an 11-year-old mounted (we couldn't find

an eight-year-old with enough experience to test the machine) was around 12 to 15 mph - and it arrived there very, very slowly. Our 11-year-old test rider probably weighs a few pounds more than the expected market age-group for this machine but it is our guess that the top speed will be about the same - just that a younger (and lighter) rider will get there a little more quickly.

The controls of the Bambino are as simple as the standard mini-bike with the exception of the kick-start (which looks like becoming more popular on regular mini-bikes). There are no gear shifts to be made as the automatic centrifugal clutch drives an internal jackshaft arrangement with a primary reduction gear. As the handbook on the engine is in the original, untranslated, Italian, we have no way of telling what the overall gear ratio is, however, the final drive (through a lovely No. 40 roller chain) is about 3 to 1. We assume the primary reduction gear is about 2 to 1 - giving an overall 6 to 1 ratio. (If Floyd Clymer continues to dream up these interesting machines for the mini-bike field, we are going to have to learn to read Italian - handbooks lose so much in the translation, you know. Like "Il Controllo Del Livello", which we assume is the lively accelerator, or "Lo Scarico Dell'Olio", which probably means, Lo, the scared oil.)

But we digress. Back to the Bambino. Whatever the overall gear ratio, it is far from lively and far from producing record-breaking speeds - which is how it was designed.

In all other respects, the Bambino looks and handles just like a motorcycle. It has telescopic front forks that don't need to be dropped from a cliff before they will telescope. The upper forks are constructed from 1-3/16-inch tubing and the lower forks from 1-inch tubing - so they are, actually, heftier than the normal mini-bike forks. At the rear are swinging arms cushioned by real, honest-to-God, 9-inch shock absorbers with external springs. These shocks provide, perhaps, the only deviation from the design premise - they are obviously (at least, fairly obviously) stock, off-the-shelf, items and seem to be a little too stiff for a 60-pound youngster to compress very much. Nevertheless, they help in the suspension department and certainly contribute to the overall motorcycle appearance.

Another big step forward in this appearance area are the 8-inch spoked wheels with the front and rear brakes (that's right, front and rear) contained in the hubs. Of course, the length and frequency of the spokes are less than on a motorcycle but, still, the feeling is there. The 2-inch chromed rims are mounted by 13-inch diameter Pirelli universal tread tires with the normal rounded profile of motorcycle tires.



Above the front forks are miniature motocross handlebars with dinky little hand grips at both ends. The brake levers mounted on the handlebars are a joy to behold - real motorcycle design with knurled cable tension adjusters and knobbed ends on the levers. The mounts are welded to the handlebars so that they cannot get out of wack - neither can they be adjusted for position. The twist-grip accelerator reflects the quality of the brake levers and follows the same motorcycle design. The steering head is a fat son-of-a-gun with ball bearings top and bottom and a triangulated bracket welded between the head and the frame, providing a lock-to-lock stop for the steering.

There really isn't too much frame to the Bambino but what there is, is a single backbone member with a near 90-degree angle behind the gas tank providing the base for the engine mount. To the rear is hung a box section that provides the upper anchor point for the rear shock absorbers and a place to put the small, therefore in proportion, seat - a mere 10 1/2-inches long by five inches wide in naugahyde covered foam rubber.

The engine is mounted forward from a box section welded to the down member of the frame. Additional support is given by a bracket hung from the bottom of the nicely shaped metal gas



TOO BIG - Our 11-year-old test rider appears too big for the Bambino, which is intended for 5 to 8-year-olds. In line with the intended age group, the machine has optional training wheels - a nice touch.



tank. On the right hand side of the engine is a beautiful, fancy, upswept muffler fully protected by a sturdy heat shield. The tiny nozzle of the expansion chamber exits just behind the rear shock absorber. Attached to the engine mount bracket are two easy-operating folding footpegs and a strong kickstand. Just under the seat, on the left hand side, is an ignition kill button. The kick start pedal, on the right side, provides us with our only serious complaint - the foot section does not fold back out of the way when the machine is being ridden.

Finish on the Bambino is excellent and the color scheme is bound to appeal to every youngster (and, for that matter, oldsters as well). The frame, chain guard, seat and miscellaneous parts are black enameled, the gas tank and pressed steel fenders are in brilliant yellow, set off by chromed sections such as the wheel rims, handlebars, muffler and so on. The only part not conforming to this color scheme is the white number panel (to make the rider really feel like a hot shoe) mounted in front of the steering crown.

Although our 11-year-old test rider was a little cramped on the Bambino it was still not an impossible situation. It would have been impossible, however,

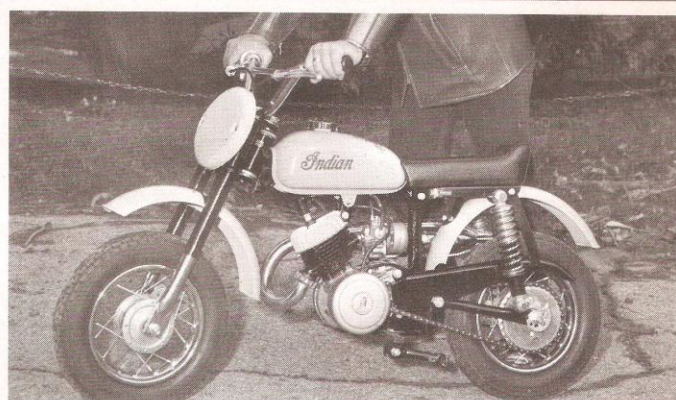
for our regular test rider - and no fair analysis of the machine could have been given under these circumstances. So we compromised. The youngster testing the machine, being the publisher's son, has had plenty of opportunity to ride various mini-bikes and can handle himself very well in just about any riding situation. So, within the limits of size (in fairness to the designers, it should be pointed out that we were unable to lay our hands on a younger rider with sufficient experience), we were able to wring out the Bambino pretty well. First of all, it is no hot performer and was never intended to be such. It starts very easily although we imagine that the younger riders will have to give it everything they've got - unless dad gets it going for them. The carburetor has an automatic choke device that releases itself, after being manually choked, once the throttle is turned full on. Very nice as it prevents the youngster from having to grope around the engine once he is under way. However, with the engine being permanently choked by reason of the restricted air intake, we question the necessity of the choke, at all - although we did use it.

Once started and warmed up, riding the Bambino is simply a matter of twisting the throttle when the rider wants to move and pulling on the brakes (preferably the rear one first) when he wants to stop. The brakes work just fine, no surprises, no lock-up - just easy, progressive, reduction of velocity. On the other hand, velocity is hard to come by. The Bambino, at first, doesn't seem to want to wake up but gradually the centrifugal clutch comes in with no juddering and no sound - and it is rolling steadily along. When everything is nicely warmed up, it is a little more lively but still no ball of fire. Grades should be gentle and well packed - rough ground is too much for the machine to take in the engine department but the suspension seems well suited to the bumps.

Handling is just about perfect and, our test rider reported, a real thrill in the turns. He was laying the machine well over with the throttle cracked wide open (doing about 13 mph) and there was no indication of the rear end breaking loose nor the steering becoming squirrely. And it is handling ability that determines whether or not a machine is safe.

Altogether, the Bambino more than lives up to its appearance and proved to be ideally suited to the age group for which it was designed. It is exceptionally strong, excitingly finished, and its performance is such that it is no threat to life and limb. An indulgent parent who wanted to make his child a once-in-a-lifetime gift (and at the same time provide him with an educational hobby) could do much worse than the Bambino. It's a little engineering jewel - and as such it is diamond tough.

SPECIFICATIONS



Importer:	Floyd Clymer Motorcycle Division, 222 North Virgil Ave., Los Angeles, Calif. 90004
Model:	Bambino
Price:	\$266.00
Engine:	50 cc Morini two-stroke (S5.K), 2 hp
Transmission:	Auto. centrifugal clutch, primary reduction, direct drive
Gear Ratio:	Final drive ratio 3 to 1 (primary not known)
Tires:	13-inch diameter, 2-inch universal tread Pirelli
Wheels:	8-inch spoked, chrome rims
Suspension:	Telescopic front; swinging arm, shock absorber, rear
Brakes:	Front and rear internal expansion, hub mounted.
Weight:	57 lbs.
Overall length:	42½-inches
Wheelbase:	29½-inches
Heights:	Handlebars, 26-inches; seat, 18½-inches
Ground Clearance:	4-inches
Miscellaneous:	Full coverage, pressed steel, fenders; full coverage chain guard; number plate; cam-type chain adjusters; folding footpegs; kickstand; ½-gallon shaped saddle-type gas tank.
Cost/Efficiency Index:	Eight and a half (a subjective evaluation on a scale of ten)

TECHNICAL REPORT

PART TWO IN A SERIES –
OVERHAULING THE FUEL
SYSTEM. MAJOR CAUSE OF
MAINTENANCE WORK,
THE FUEL SYSTEM NEEDS
OCCASIONAL WORK FOR
EFFECTIVE MINI-BIKING –
AND SPRING WILL SOON
BE HERE

SHAPE UP FOR SPRING

TECHNICAL REPORT

tune-up is to thoroughly clean the system, replace worn parts and to make proper adjustments. So here we go.

Ron's first move was to thoroughly clean the outside of the engine after dismantling it from the mini-bike (it is not absolutely necessary to remove the engine from the mini-bike - it's just easier to work that way). Next he disconnected the fuel line at the carburetor (after removing the shroud that covers the line so that it could be inspected for wear). Draining the gasoline from the tank and plugging the end of the fuel line with a bolt, the tank and line were filled with a cleaning fluid - this was thoroughly swished around the tank and drained out. A second cleaning of the tank might be necessary but the cleaning fluid should not be left in the tank or the fuel lines.

The two screws holding the air cleaner cartridge to the plate attached to the carb were loosened and the cover turned counter-clockwise, slightly, to permit removal. Under the cover was a paper filter (later replaced with an oil-wet foam rubber filter) which was removed and thrown away. The backing plate for the filter, attached by two screws to the carb body, was then removed - making it easier to get at the two nuts attaching the carb to the manifold. At this point disassemble the throttle linkage by inserting a screwdriver under the end of the connecting wire where it passes through the throttle lever on top of the carb and prying it down so that the wire can be lifted free. Now the nuts fixing the carb to the manifold were removed and the carb placed to one side. With the carb removed it was a simple matter to remove the manifold by unscrewing the two Phillips head screws that attach it to the engine (if these screws are too tight for hand loosening, a punch and hammer can be used). The manifold should be cleaned (perhaps removing the rough edges) and replaced on the engine, using a new gasket if the old one is damaged, with the screws turned down as tight as they will go.

The engine was now placed to one side and an area on the bench cleared and covered with a clean rag. Clean working conditions are essential when any work is being done on the internal parts of the engine. First of all, carefully examine the outside of the carb, checking for signs of damage and wear and familiarizing yourself with the unit in relationship with the sectional drawing included in this article. Ron Stewart, being already thoroughly familiar with

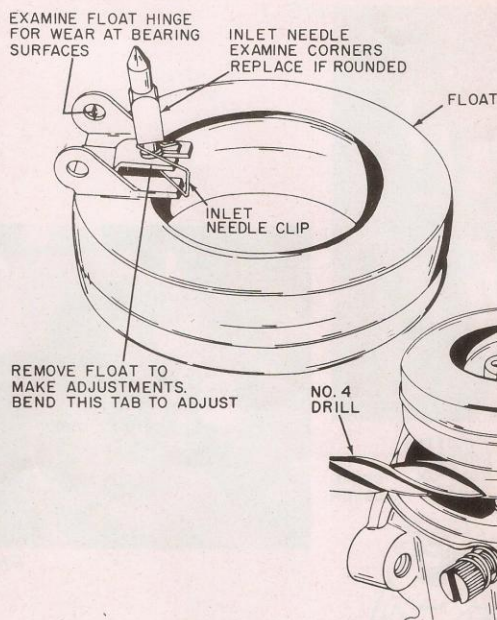


FIG. 5

FIG. 4 - Removal of float hinge pin with tweezers or needle-nosed pliers. Float should be carefully removed to avoid losing needle

FIG. 5 - The float is lifted, gently, straight up off the carb body, taking care not to lose the needle.

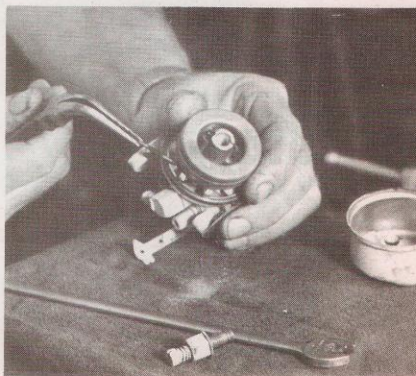


FIG. 4



FIG. 6

FIG. 6 - Showing removal of idle jet needle which should include the rubber "O" ring seat.

FIG. 7 - After removal of all fiber or rubber parts, the carb body can be soaked in solvent to loosen deposits.

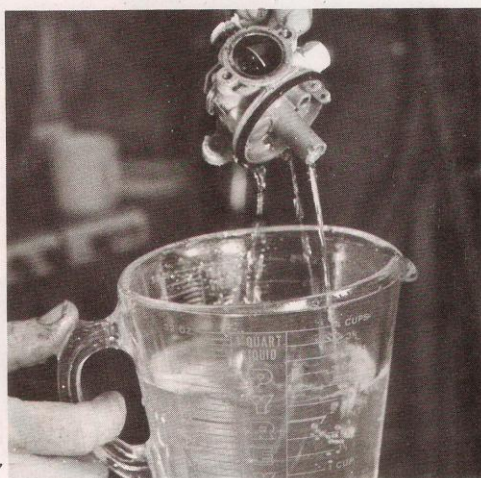
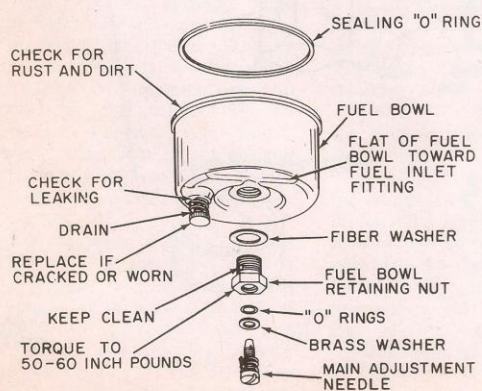


FIG. 7



the carb, went right ahead and started dismantling it. First came removal of the main jet nut on the bottom of the float bowl. This released the bowl and revealed the float inside. Take a moment to examine the float assembly, holding the carb with the float down and working it up and down manually, so that its action can be observed. On the fuel inlet side is a hinge arrangement and the shaft of this hinge must be removed to allow the float to come free - a pair of needle-nosed pliers should be used for this operation. Care should be exercised not to cause damage to the float or the hinge tabs, and not to lose any of the parts. With the shaft removed, gently lift the float straight up, pulling the inlet needle free at the same time.

Lay the float and inlet needle assembly carefully to one side while proceeding with the rest of the work. The inlet needle seats on a rubber seat in the carb body and this must be removed - perhaps the most practical means is using a short piece of hooked wire (such as a paper clip) after oiling the well so that it will slide easily out. If compressed air is available, the seat may be blown out by placing the air nozzle against the inlet fitting. At the same time, remove the rubber gasket from the bowl/body joint (if this gasket is damaged it must be replaced - there are two types, round and square, and the replacement must correspond).

Ron made use of the shop's compressed air to remove the inlet needle seat but indicated that the tire inflator at the local service station could have the same effect. He then moved to the idle adjustment screw on the left hand side of the carb body and turned this all the way out. There is a rubber "O" ring that seals the idle adjustment screw and this must be removed along with the spring - it will usually be fairly easy to pry out.

At this point the carb was free of all rubber gaskets that might be damaged by a strong solvent and, consequently, it was dropped into a container of readily available cleaning solvent (from any auto parts store). Making sure the unit was completely covered, the float bowl, float and adjustment needles were also cleaned in the same fluid, rinsed in water, and thoroughly dried.

While the carb was soaking, the other parts were checked for wear and damage. The float should have no dents or holes and the tab at the hinge that holds the inlet needle should be relatively free

TECHNICAL REPORT

FIG. 8 - Ron Stewart's screwdriver points out possible area of wear on the inlet needle. The same area should be examined on other needles

FIG. 9 - In re-assembly, care must be taken to see that all rubber "O" rings and seats are replaced. Here the idle needle "O" ring is replaced.

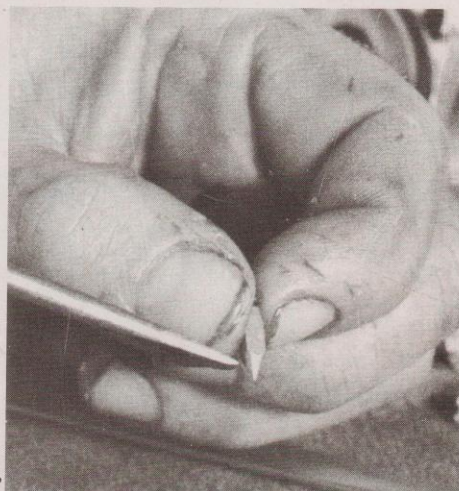


FIG. 8

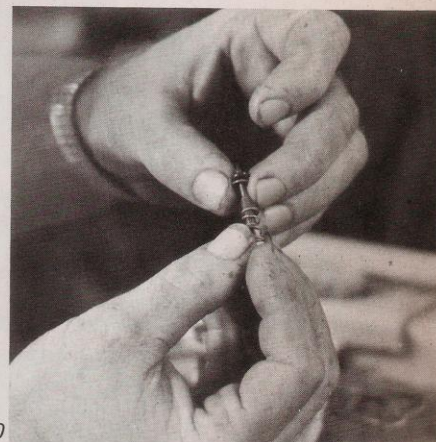


FIG. 10

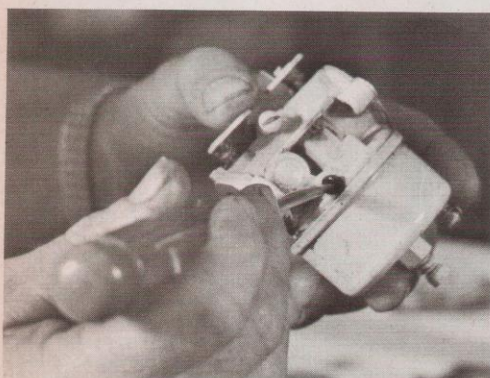


FIG. 9

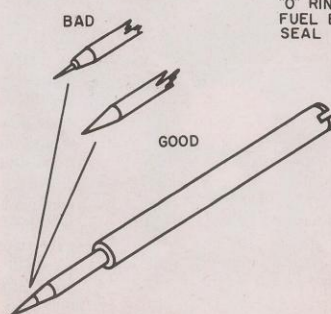
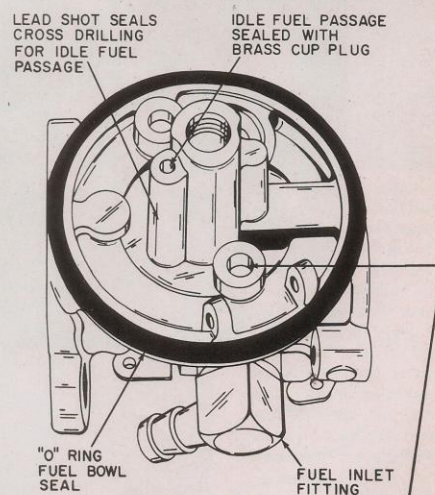


FIG. 10 - Order for replacing idle needle valve is shown - "O" ring, small washer, spring.

FIG. 11 - Showing old paper air filter and the new, oil-soaked, foam rubber unit.

INSERT THIS FACE FIRST



INLET NEEDLE TIP SEATS AT THIS POINT

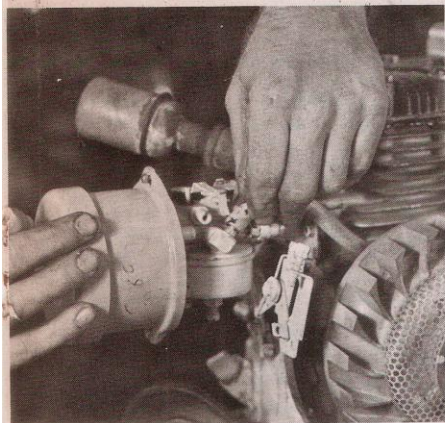


FIG. 1

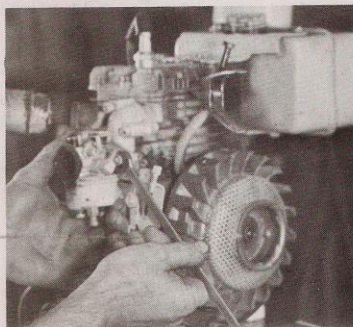
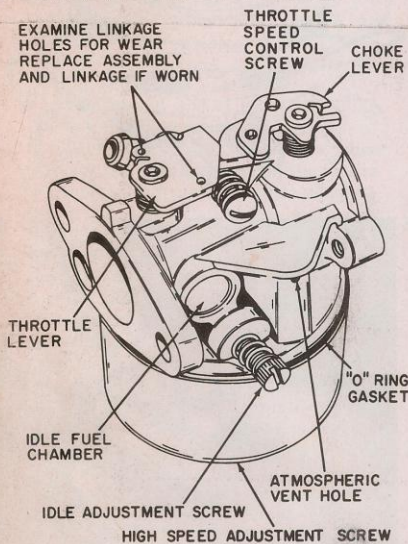


FIG. 2

FIG. 1 - Removing the fuel line at the carburetor. End of line can be plugged with suitable bolt and placed aside.

FIG. 2 With air cleaner removed the carb. can be disconnected from manifold.

FIG. 3 - Dismantling the carb begins with removal of main jet nut that holds float bowl to carb body.

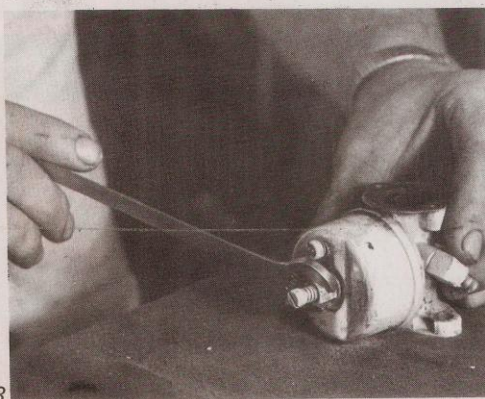


FIG. 3

Last month, in this series on tuning-up the Tecumseh engine, we dealt with the ignition system - guided by Ron Stewart of Ron's Mini-Cycle City, giving us the practical viewpoint. This month Ron is back again - this time talking about the fuel system - that other engine component that needs constant maintenance for effective operation of mini-bikes. Ron tells us that his service department spends about 80 per cent of its time on these two systems - the ignition system (which fires the fuel mixture) and the carburetion system (which meters the fuel mixture into the engine). It follows that if a mini-biker can learn how to maintain his own ignition and fuel systems he will save about 80 per cent of his maintenance costs.

There is nothing too difficult about this maintenance work and with snow or cold weather effecting a good portion of mini-bike-land - it's a good time to get into the garage and start tinkering. Then when the weather warms up you'll be all ready to go - better than ever.

Tecumseh's fuel system is about as simple as any internal combustion fuel system and usually will operate effectively (if not in top form) no matter how badly it is abused. However, the real mini-biker will not be content with anything less than top performance from his machine - and this series is intended to show how he can get it. However, the guys at Tecumseh service centers are there to help and know more about their engines than anybody so if your engine is still under warranty it is wise to remember that working on it yourself will void the warranty. Nevertheless, many of us still prefer to "do-it-ourselves" as there are many advantages to knowing how the engine works. If you are in this category, or if your engine is past warranty, go ahead with this tune-up work - Tecumseh has given its blessing and cooperation to this project.

The function of the fuel system, consisting of a carburetor, air cleaner, fuel tank and fuel line, is to mix gasoline and air in the proper proportion and feed it into the engine at the correct rate in relation to engine speed. Accumulations of dirt, especially in engines used in dusty conditions, and the build-up of chemical deposits from the fuel can throw this function for a loop. Wear is also a factor, although less so because there are few moving parts and the stress on the moving parts is not great. The object of a fuel system

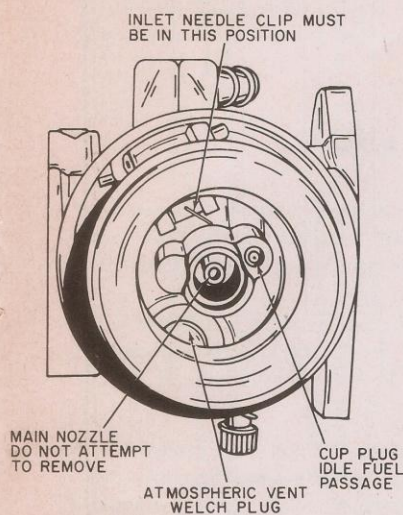
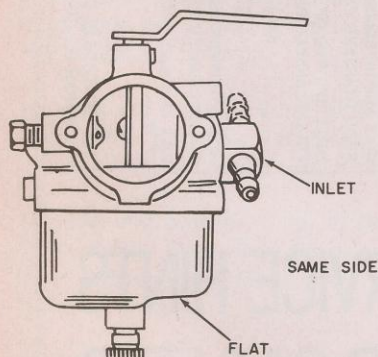


FIG. 11



of wear. If there is any doubts about the condition of the float, it should be replaced.

The tapered ends of the three valve needles should be carefully examined (a magnifying glass would be helpful) for signs of a shoulder build-up where the needles seat. If such shoulders can be detected, either by sight or by feel, or if there are scratches or other damage, the needles should be replaced. If the main jet needle (at the bottom of the float bowl) is damaged, the needle and the bowl retainer nut should be replaced as a unit. The fuel bowl retainer nut carries the rubber "O" ring that seals the needle and care should be taken when cleaning this nut that the ring does not get damaged by strong solvent and if other deterioration is apparent, the "O" ring should be replaced.

After soaking for about half an hour, the deposits in the carburetor body should be sufficiently loosened to allow their removal by dredging the unit through the solution several times. The paint will be removed also if it is left any longer. Carefully examine the body to make sure that all, or substantially all, the deposits have been removed and that all the dirt has been washed free. Now thoroughly rinse the carb body through clean running water to remove all the cleaning fluid. If compressed air is available, blow out the excess water from all the orifices and surfaces. Otherwise, carefully wipe all the exposed surfaces and, by tapping the body in the palm of the hand, remove as much water from the internal passages as possible - then place the carb body in a warm oven (about 125 degrees) long enough to completely dry the unit. Remove the carb body and allow to cool before starting the re-assembly job.

There is a carburetor tune-up kit available from Tecumseh dealers and the careful mini-biker, having done this much work, will probably use it to "make sure". In any case, all the gaskets and rubber parts should be replaced.

Commence re-assembly by checking the inlet valve positioning as shown in the accompanying illustration - the inlet needle clip should be correctly placed as this prevents the needle from bouncing off the seat during the excessive vibration conditions usually found in mini-biking. Insert the inlet needle seat in the body of the carb with a flat-faced punch or bolt of nearly the same end area as the seat - this is to prevent damage to the rubber, especially in the seating area. Make sure the rubber seat is all the way home. Place the needle, attached to

the float, in the inlet hole and replace the pivot shaft in the hinge tabs.

Make sure the float is working freely and then check the float setting. The upper face of the float, with the needle fully open, should be .200" (1/5-inch) from the rim of the carburetor body. This can be checked by placing a drill of the proper size on the rim of the carb body so that it is just under the float (see illustration). If adjustments are necessary, they are made by bending the tab that holds the inlet needle and to do this properly, the float should be removed from the hinge. Care should be taken to make these adjustments gradually - if the tab is bent back and forth unnecessarily the metal could become brittle and break.

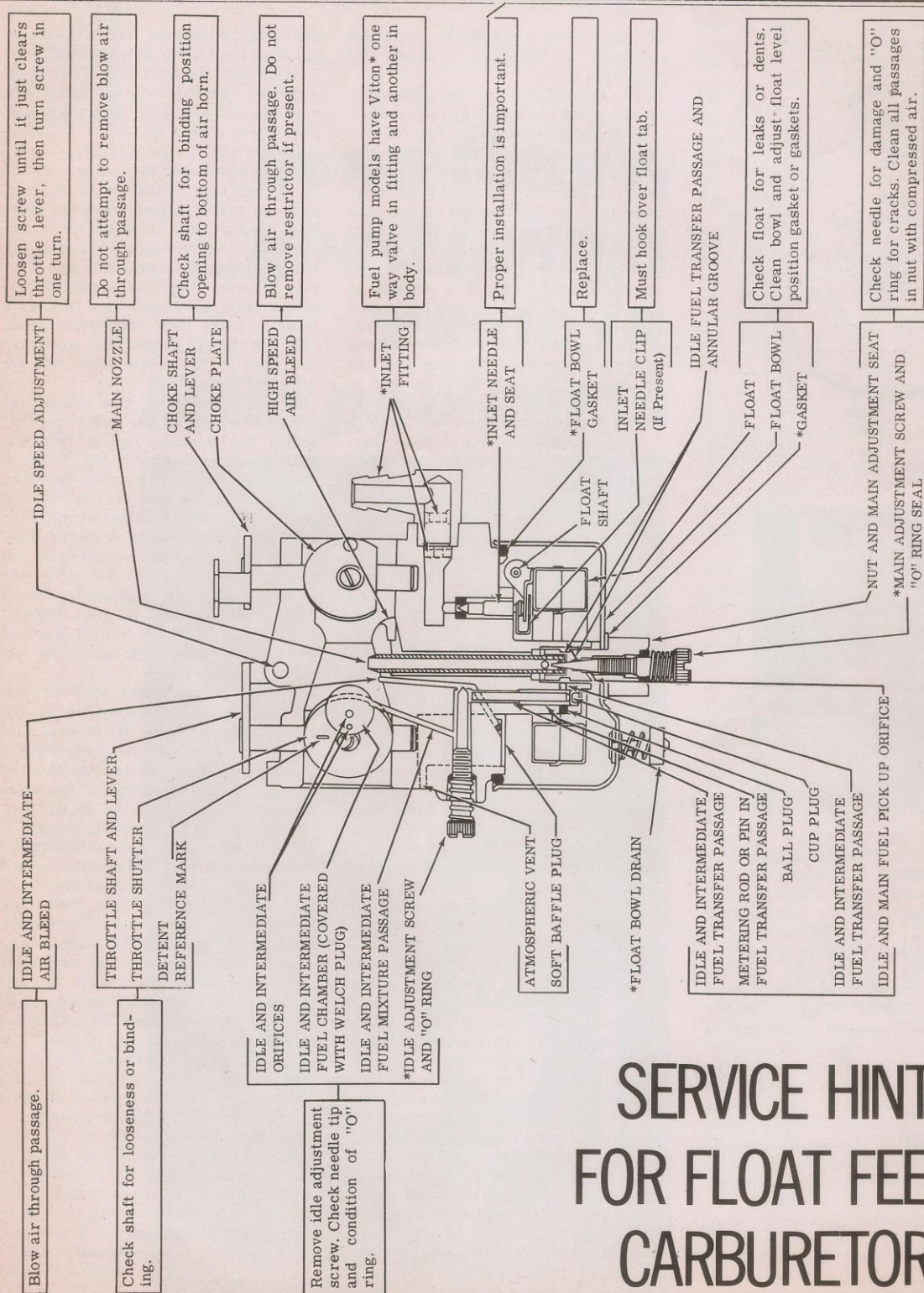
Now replace the idle adjustment screw in the side of the carb body, first sliding the retaining spring, then the small washer and, finally, the "O" ring, over the needle. Then return the float bowl, making sure that the rim "O" ring is seated properly by using a little oil to lubricate it and placing it on the body before tightening the bowl retaining nut (see illustration). The retaining nut should be firmly tightened (torque wrench setting, 50 - 60 inch pounds) making sure the "step" in the bottom of the bowl is on the same side as the fuel inlet fitting.

Check to make sure that the fuel inlet fitting was not loosened by the solvent. This fitting is pressed into place, not threaded, and if loosened it should be removed, cleaned and Loctite applied before replacing in the same direction. Before replacing the air filter, the case should be thoroughly cleaned. If the air cleaner has a foam rubber (polyurethane) cartridge it should be washed in solvent by squeezing several times and thoroughly dried. When dried, soak the element in a generous amount of oil, squeezing it through the pores several times to help remove any remaining solvent, squeeze out excess oil and replace in the case (which should also be coated with oil on the inside). If the air cleaner is equipped with a paper element, it is recommended that it be replaced by the polyurethane unit. Choked air cleaners are one of the most common reasons for loss of power.

Replace the carburetor on the manifold and install the air cleaner. Hook up the throttle assembly by returning the connecting wire to the same hole in the throttle lever and bending it back to prevent it coming loose, as it was orig-

Story continued on page 56

Diagram next page



* NON METALLIC ITEMS - CAN BE DAMAGED BY HARSH CARBURETOR CLEANERS

SERVICE HINTS FOR FLOAT FEED CARBURETORS

Product Review

HEGAR 4 KICK STARTER

One of the things that distinguishes mini-bikes from motorcycles is the sight of guys of all ages pulling on bits of rope to get their machine started. There is nothing wrong with the method - it gets the thing chugging over without much trouble and, probably, it is one of the most efficient methods of starting an engine that there is. It's just that it looks funny.

And if you're not as young as you once were, or if you're not as big as you will be, janking on that rope (especially if you haven't kept the engine in shape) can be a pretty tiring experience. Besides, nobody has satisfactorily solved the problem of pulling on the rope with one hand, goosing the accelerator a little to get it started with the other, and holding on to the brake (in case it gets away) with the *third* hand.

From a physical point of view, the motorcyclists have a much easier starting method. With a downward kick they can get all the body weight behind the action and the leg muscles are much stronger in compressive strength than the arm and back muscles. And the arm and back muscles have more compressive strength than they do contractive strength - and it is contractive strength that is needed to pull on a starter rope.

So there you are. Where are we?

We're in Hegar 4's back room some 15 months ago where one of the guys is nursing a strained back from a weekend's mini-biking. Harry Hegar walks through, stops to inquire about the health of the weary mini-biker, and soon they are doodling out prospective kick-start designs on the backs of envelopes. It's not much of a design exercise for Hegar who makes one of the most respected Warn hubs (for four-wheel drive Jeeps and such vehicles) and who markets a number of sophisticated drive units for the karting field.

However, from design exercise to finished product is a long way and Harry ruefully recalls the dozens of jammed, stripped and broken units in between. "There's nobody like a mini-biker", says Hegar, "for putting the screws to a new product. We'd think we had beefed up every possible stress point and had a kick starter that would have started a Mack truck. Then we'd give it to some little kid to test on his mini-bike for the weekend and on Monday morning, there it would be, in bits and pieces."

Some \$30,000 (in development time and tooling) later, Hegar found that Monday mornings produced no broken kick starters. He waited anxiously for a

while, expecting some of the units then out for testing, to come in with their backs broken. After a time, when there were still no returned kick starters, he began to feel that they had licked all the problems and it was time to polish up the styling a little, ready for the market place. And that's when MBG first heard about the unit.

We immediately asked Hegar to send us one so that we could look it over - we already knew about Hegar's other products and his concern for quality - so we didn't expect to find anything but the best. We were not disappointed.

As Hegar said, there is nothing very complicated about the basic design. There is simply a foot lever with a folding footpeg hooked up to a large internal sprocket-type half-gear that drives a gear attached to the starter dog

the engines using two different methods. One is fixed with four nuts on bolts attached to the shroud - the other is fixed by four rivets. Installation of the kick starter with the four bolts is simplicity itself (with one minor exception that we will deal with later) but if the rope starter is riveted on, the rivets have to be drilled out first, and the kick starter attached with four Phillips heads screws and nuts. This involves removing the shroud, doing the work, and re-attaching the shroud/starter unit.

Naturally, MBG selected the easiest method, digging out an engine with four bolts. The only problem we ran into was in attaching the nuts to the bolts through the two holes in the kick start housing. We used a small socket wrench with an extension piece and in removing

getting your kicks

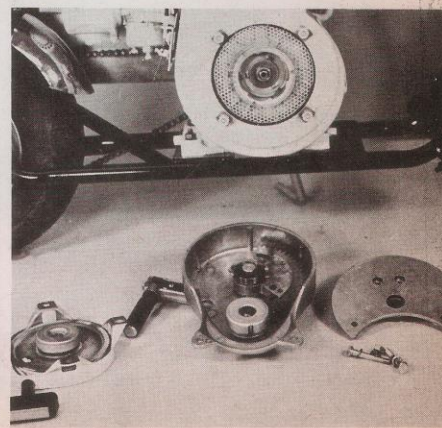
the extension piece we jarred off the socket - and with a sickening clunk, it fell *inside* the starter housing. Fortunately we had a spare socket and, so, were able to remove the starter and retrieve the lost socket. Only thing is - watch it.

Once on, starting is just great. For the MBG people the proper procedure is to stand over the mini-bike (a la motorcycle starting), one hand on the brake, the other applying a little poop juice, and give the footpeg a firm, smooth, easy push. With the Tecumseh's naturally easy turning, stomping on the footpeg is not necessary and may be harmful if done by an adult. For younger, lighter, mini-bikers, the body weight can be used but it should be applied smoothly. A couple of kicks to get the fuel rolling and then the engine fired right up.

You could hardly tell us from motorcyclists.

The housing is die cast from a high strength aluminum alloy that has an overall thickness of about 3/16" with additional strengthening at the corners. All gears are heat-treated steel and the engaging dogs, where all the starting shocks are finally applied, are of heat-treated sintered alloy.

Tecumseh fix their rope starters to



mini bike test



The success that HPE has had with their mini-bikes in the first year of production has amply justified his contention but, let's face it, although the first Cat series was comprised of good, strong, machines - they left something to be desired in the styling department. With a year's production experience behind them the line has been revamped and the results are truly eye-stopping.

Slingshot falls in the middle of the HPE line and comes with a $3\frac{1}{2}$ hp Tecumseh mill (the machine above the Slingshot is called, we understand, the Eliminator and, when we were picking up the test machine, we snuck a look at it. . . wait till you see it). The Slingshot retains the basic simplicity of the previous models with most of the changes being of a styling nature. However, in a mini-bike styling is almost one with engineering design and extensive styling changes automatically makes engineering redesign a necessity. So it was with the Slingshot. Engineering changes on the test machine included laying the steering crown back a few degrees which gives the front forks an extended rake - although not to the extreme of the mini-choppers that are now making the scene. The new angle for the forks gives the Slingshot a wheelbase of 38-inches compared with the $32\frac{1}{2}$ -inches for the 1969 300X. An increase of $5\frac{1}{2}$ -inches. On the other hand, the wheelbase for the average mini-chopper is around 42-inches - so the Slingshot falls somewhere in between - fulfilling the manufacturing tradition of HPE.

Not necessarily an engineering



HPE's Slingshot is the most stylish \$150 mini-bike we have seen. For a company that has been in the mini-bike field for less than a year, they have come a long way in the design department. Of course, their veep in charge of mini-bike activities, Gil Losi, has always had a strong ear for the younger mini-biker - the guy who is not particularly flush with bucks but who wants a good, strong, though fairly simple, machine. We remember talking to him before HPE first hit the market with their Cat series, being shown the brand-new production line (a real, automotive-type, line) and listening to him explain his concept of the market.

It is fairly safe to say that Gil laid his reputation on the line (no pun intended) when he recommended that his company go into mini-bike production (HPE is, believe it or not, a division of U.S. Cement and one of the main occupations is swimming pool equipment). Gil is a former karter (although he is a little too thick around the waist these days to participate) and can point to many years experience in mini-bikes through this sister sport. He was convinced that he could direct the design of a mini-bike that met the demands of the younger mini-biker yet keep the cost within reasonable bounds.

TRAVERSING - Large rear tire on Slingshot digs in pretty well on railroad embankment.

change, but an important handling factor nevertheless, is the new 14-inch diameter tire on the rear. Last year the tire diameter was 13-inches on the 300X. The Slingshot's rear tire is a heavy knobby (inviting trail usage) but has no brand name (unless you count an ambiguous "Made in U.S.A."). The front tire is a smaller (12-inch diameter) tire and this high-at-the-back appearance emphasizes the machine's rakish appearance.

Somewhere between a style and an engineering change is the inclusion of a kill switch mounted on a consol located on the upper frame member in front of



SLINGSHOT *colorful missile*

the seat. Nothing to do with HPE, although the Slingshot is the first machine we have seen with this feature, is the new location for the choke lever on the Tecumseh engine. Instead of the dog-legged lever that goes over the top of the air-cleaner, the lever on the engine in the Slingshot comes out to the right on a level with the top of the carb. We figure this must be a Tecumseh safety feature designed to prevent mini-bikers from trying to operate the choke lever from the left hand side - where that hot little muffler is situated.

One other design feature is the accelerator twist grip which is injected molded by HPE themselves (along with many other parts for their pool equipment line). This accelerator has a nipple on the collar that tightens down on the handlebars that matches an indentation in the metal. The idea is to prevent the collar from twisting on the smooth metal of the handlebars when it is cranked on hard (a constant problem with some twist grips). The Slingshot's hand grips, incidentally, are made from soft, high ribbed, plastic that are designed to give a good grip for sweaty hands and, in fact, to provide plenty of ventilation to prevent perspiration from building up.

These are the basic engineering improvements on this year's middle-of-the-range model but it is in the styling that the major changes were made. First of all, the Slingshot comes with a really great paint job - some kind of metallic candy apple green that is the most attractive paint job we have seen on a relatively inexpensive (dare we say





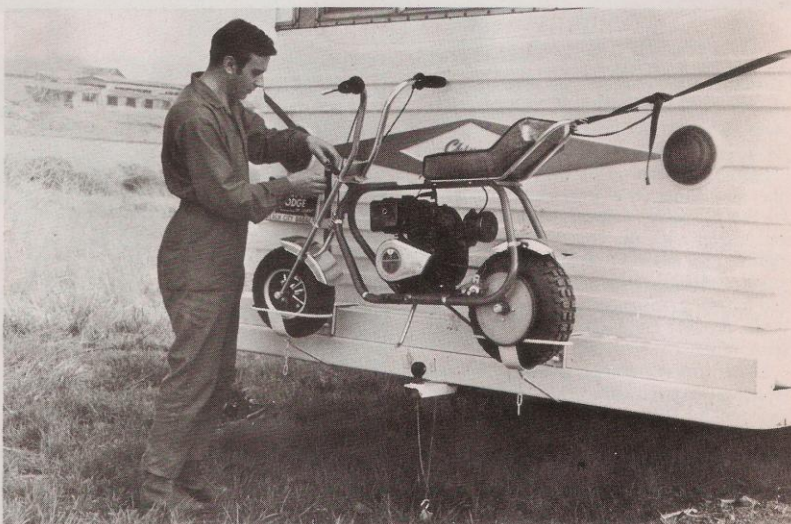
"cheap") model. A two-tone (black with metal-flaked gold/black) seat has a high kick-up at the rear supported by a moderate sissy bar (which, incidentally, provides a very handy lifting bar without being so high as to become a safety hazard). This chromed sissy bar is bolted to the underside of the seat but might have had more practical strengthening abilities if it had been bolted to the frame.

The whole front end is chromed, from the axle-bearing holes to the hand grips. Mounted over the wheels are attractive, though somewhat impractical, chromed pressed steel fenders and other chrome accents include the chain/clutch guard and ignition kill switch consol.

Mechanical carry-overs from '69 include the mechanical spot disc brake which operates on the leading edge of the rear wheel sprocket and the direct drive transmission. There has, however, been a change in gear ratios. Last year's machines had rear sprockets that came awful close to the ground and sometimes, on a more radical turn, touched it. The new models have smaller rear sprockets giving a slightly higher gear ratio - 6 to 1.

Introduced last year, late last year, were the folding footpegs (thank God) and these have been continued on the new machines. Like last year's models, the Slingshot has a rigid rear and a single spring, steering column-mounted, front suspension.

In running the Slingshot, the front suspension came in for some harsh words from the test rider. What they amounted to were "why bother?". There was some cushioning over the



worst bumps (you could tell by the noise the upper crown plate made as it clunked back into position) but a suspension, by definition, should work without having to be dropped off a cliff. Of course, this type of suspension (we have come across it before with the same results) is better than nothing but hardly worthy of the amount of thought that has gone into the rest of the Slingshot.

On the trails the steering worked just fine, but the front suspension acted as a friction plate and although this is considered a good feature by some riders, we prefer not to have to fight for the right to steer. Off trail, where quick steering becomes more critical, the friction plate effect of the front suspension was a sheer nuisance - and its cushioning effect not much better. Okay, guys, we're through bitching - the rest is all downhill.

Although the Slingshot is not, basically, a serious trail machine, it does a pretty fair job in those conditions. As long as the rider sticks to the trail, practically anything can be tackled and ridden with this machine. However, at least with a 160 pound rider (which might be a little unfair considering the modest power package), the rough stuff causes some bogging down. On the other hand, the Slingshot tracks better than most machines (we were even tempted to some hands-off riding) and some traversing of pebbly railroad embankments proved that the big rear tire will dig in just fine and prevent any downhill sliding of the rear end.

With our relatively heavy test rider aboard, the Slingshot was plenty fast enough for trail conditions and the riding position is good, if not perfect. We would have preferred to have the handlebars with a little more forward cant for a really comfortable seat/handlebar relationship but standing on the strong footpegs for the rough sections proved remarkably stable. And we must remember Gil Losi's marketing philosophy - he is not building the Slingshot for full-grown test riders but for "his" people - the younger mini-bike set.

And his people are just going to love the Slingshot. It is, as we said at the beginning of this test, the most stylish \$150 mini-bike we have had the pleasure of testing (that's an average price gathered by shopping at various stores). It incorporates all the lessons of the past year regarding strength and quality of workmanship - plus a move to a more classy-looking machine. It's simplicity, besides contributing to the low price, makes it possible for the owner to find his way around with ease. Anybody shopping around in this price range, with a not too-heavy or too-large rider in mind, would do well to consider the Slingshot - it's one of the best values we have come across.

SPECIFICATIONS



Manufacturer:	HPE Inc., 225 Acacia Street, Colton, Calif. 92324
Model:	Slingshot
Price:	\$150 (approx.)
Engine:	3½ hp Tecumseh four-stroke
Transmission:	Direct drive
Gear Ratio:	6 to 1
Clutch:	Horstman steel shoe (12-tooth)
Tires:	Front, 12½-inch diameter; rear, 14-inch diameter - knobbies
Suspension:	Front, single spring steering head mounted; rear, rigid
Brake:	Mechanical spot disc, rear sprocket leading edge mounted
Accelerator:	Quarter-turn twist grip, soft plastic, positive locking
Weight:	81 lbs.
Length:	51½-inches
Wheelbase:	38-inches
Heights:	Seat, 29-inches; handlebars, 33½-inches
Ground Clearance:	6¼-inches
Wheels:	6-inch pressed steel, split rims, sealed bearings
Seat:	17-inches long, exaggerated rear kick-up, two-tone naugahyde
Miscellaneous:	Ignition kill switch, upper frame mounted; front and rear fenders; chromed chain/clutch guard; folding footpegs; chromed sissy bar
Cost/Efficiency Ratio:	Nine (on a scale of ten, a subjective analysis)

Conyers, Georgia, is a small town, the county seat of Rockdale, and probably would have no significance for the mini-bike world except that Clark Manufacturing is located there. Clark make the subject of this test, the Cyclops L-400 (we suspect that this designation has something to do with the fact that the test machine has lights and a 4 horse engine). Also several other models in the "DeLuxe" line-up, down to \$189, and a full range of economy "Standard" models.

The L-400 is the top-of-the-line for Clark Manufacturing and includes a 4 hp Tecumseh, a full alternator lighting kit (hi/low headlight, brake/rear light) and telescopic front suspension. The rear is rigid. It is a machine large enough for an adult (forgetting riding double) yet it has a quite modest wheelbase (37½-inches). Part of this adult-comfort comes from the high handlebars (38-inches), about 5 to 2-inches higher than comparable machines, and a low seat height (23-inches). To accomodate the larger mini-biker in this handlebar/seat relationship the folding footpegs are mounted well forward.

In first climbing aboard the L-400, the rider has to adjust to this unusual riding position - until you are used to it, it feels all wrong. However, the effectiveness of the riding position is directly related to handling characteristics and, in point of fact, the L-400 handles much better than many trail mini-bikes. The steering is very positive and the machine always goes in the direction in which it's pointed without fighting back. There is a very easily determined amount of lean into the corners that seems to come into action almost automatically with the machine remaining stable as a rock.

This extremely good handling ability seems incongruous in viewing the different, if not distracting, riding position - rather like the old sit-up-and-beg position manufacturers of bicycles used to engineer into their machines - or tending to the position adopted by riders of not-too extreme chopper motorcycles (although we know that Clark, being a conservative organization, will not like that comparison). So we called Cliff Clark to find out what the deal was. Cliff explained that they had spent many months experimenting with the front end before coming up with a final design - a slight positive caster was built into the front forks (he said the smallest fraction of an inch in the angle of the steering head could change the whole character of the steering) and this accounts for the handling ability.

Okay! But there are still those footpegs way out in front and while they may contribute to the overall comfort of the L-400 - they in no way contribute to the rider's ability to stand on them when plowing through the rough



L-400 CYCLOPS

from the deep South

stuff. It can be done by heaving upward and leaning forward over the front of the handlebars - however, this position is not recommended when there is the possibility of taking a spill. Also, standing on the footpegs throws all the rider's weight forward - leaving the rear wheel to dig a groove if it wants to.

No, we have to come to the conclusion that the Cyclops L-400 is more at home on the pavement, country roads, well-worn trails or other such surfaces. Judging by the lack of rear suspension, it looks as though Clark must have come to the same conclusion. Which is kind of a shame because the front suspension works just dandy - there is a good 2-inches of travel and it doesn't need a major crash to cause the forks to telescope. Of course, the tires, being only 12-inches in diameter, would have to be larger for a trail machine but the rounded profile knobbies do a good job considering their size.

Power transmission on the L-400 is via a Fairbanks Morse two-shoe, friction material, centrifugal clutch directly to the rear sprocket on a 6 to 1 gear ratio. Six to one always seems to us a marginal ratio for centrifugal clutches and the sacrifice in top end speed for a 7 to 1 ratio seems worthwhile. This higher ratio helps to promote positive engagement with less slippage and keeps the

***POSITIVE STEERING** - The Cyclops almost steers itself by leaning steadily into the corners - displaying excellent handling characteristics.*



COMFORTABLE - Easy riding position is shown here with high handlebars and far-forward footpegs.



engine operating more in the center of the usable power range so that there is less engine wear.

Brake tests showed the internal expansion, rear wheel-mounted, unit to be very effective with average stopping distances from about 25 mph on firm surfaces around 18 to 20 feet. The only instance of outright bad design we saw on the Cyclops L-400 is the positioning of the brake light switch. This switch is operated by an arm above the fulcrum point of the brake connected by a bent "paper-clip" to the on/off plunger of the switch. This places the switch on a bracket right above the axle - temporarily - because the switch sticks out about an inch beyond the frame line and the first time the machine is laid over - no switch.

For the rest, concern with quality is evident although the basic design follows well-established principals. The frame is conventional double loop design in three sections - the upper member which loops from the steering crown backwards, around the seat (providing a handy lifting handle were it not for the rear light), and back again. The engine cradle is in two sections welded at the bottom of the steering head and the back of the upper loop. The steering head is a big fat unit containing large ball bearing races - another indication of Clark's concern with quality.

In general, construction is of first quality but the finish indicates a certain lack of imagination. The frame and front forks are finished in glossy black enamel with relief provided by chrome on the full coverage fenders (beautifully shaped), chain/clutch guard, and lights. All pretty straight forward.

The Cyclops L-400 is a quality mini-bike in the traditional mold - with not too many exciting features but lots of solid workmanship. Some how or other this all comes out with a \$250 price tag - and it is in this area that we feel it is at its weakest. Cliff Clark told us, when we questioned him about this, that they maintain strict quality control procedures at their plant and we can believe him after running the Cyclops L-400, and that they use only top grade materials. This is important, no doubt about that, and the mini-bike owner who finds some annoying loose bolts on his new machine will agree. Cliff also told us that the lights on the Cyclops L-400 add about \$30 to the buyer's tag - as far as MBG is concerned you can take the lights and . . . junk them - at any price. At the very best, they have marginal practicality - and at worst are just gee-gaws and extra expense - yet, the manufacturers assure us, the market place demands them. Wake up mini-bikers, our machines are off-road machines and lights are not necessary there.

Anyway, without the lights and at \$220 the Cyclops makes much more sense.

SPECIFICATIONS



Manufacturer:	Clark Manufacturing Co., Highway 138 East, Conyers, Georgia 30207
Model:	Cyclops L-400
Price:	\$250
Engine:	4 hp Tecumseh four-stroke
Transmission:	Direct drive
Gear ratio:	6 to 1
Clutch:	Fairbanks Morse two-shoe friction material
Tires:	12-inch diameter, semi-rounded profile knobbies
Suspension:	Telescopic front; rigid rear
Brake:	Internal expansion, hand-lever operated
Accelerator:	Quarter-turn twist grip
Weight:	81 lbs.
Length:	50½-inches
Wheelbase:	37½-inches
Heights:	Handlebars, 38-inches; seat, 23-inches
Ground Clearance:	4½-inches
Wheels:	6½-inch pressed steel, split rims, shielded bearings
Seat:	18-inches long, 8-inches wide, foam rubber naugahyde covered
Miscellaneous:	Full coverage pressed steel chromed fenders; alternator lighting kit; full coverage clutch/chain guard; folding footpegs
Cost/Efficiency Index:	6½ (on a scale of ten, a subjective analysis)

TECH EDITOR'S COMMENTS: Kent Retzlaff, in this Reader's Tips submission, has answered a question bothering many owners of mini-bikes - how to install a front suspension. Older and less-expensive machines are often found with rigid front and rear ends and after a few hours of bumping over rough ground, the owners come to appreciate the benefits of suspension - at least on the front end. This is a good place to start learning about front suspension as instructions for one type of mini-bike usually fit another. If there is any standardization on mini-bikes it is in the method of front fork manufacture - usually using two simple lengths of 7/8" tubing.

Although installing front suspension will not solve all handling problems - it will go a long way towards making things more comfortable.

In the following article we have presented Kent's suggestions exactly as we received them and we have followed with our comments about other ways to proceed - the reader can pick which one he wishes to follow.

INTRODUCTION: I would like to submit the following suggestions for the installation of a simple front suspension in your Readers' Tips Contest. I am 14-years-old and did the drawings and design (and typing) without help. The design is intended for my Taco mini-bike but it should do equally as well for most mini-bikes. In the instructions for the Contest you said to send photographs and a bill of materials but I thought that my drawings might be more explanatory and the materials cost so little that they are not worth listing. Last year I had a go-kart with a West Bend 580 with a Max-Torque clutch - but I finally got smart and decided to go the mini-bike route.

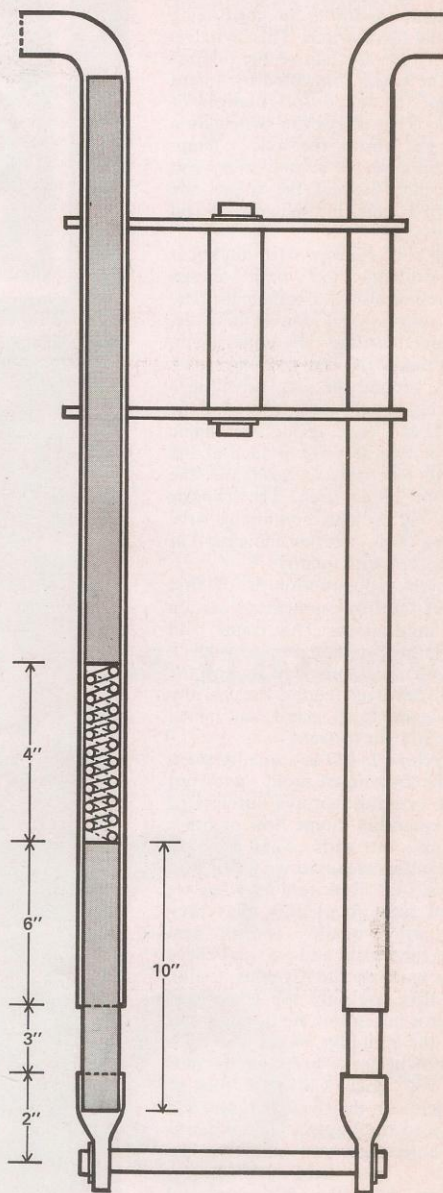
STEP No. 1

Remove the front forks from the frame of your mini-bike and clamp it down, firmly, in a vice. Measure up two-inches from the center of the axle bolt holes. Make a square, straight, cut through the tubing with a hacksaw. File off any rough edges but keep both sides at an equal length.

STEP No. 2

Measure 10-inches up from the cut on both forks. Carefully measure the inside diameter of the tubing. Measure the distance from the first bend (this might be where the handlebars are formed in fixed-handlebar type front ends such as the Taco), or from the upper crown plate (in removeable-handlebar types), or from the first obstruction in the tube, to the 10-inch mark. This can best be done by inserting a stick or straightedge up inside the tube, noting the cut-off point, and deducting 10-inches from that measurement. Go

HOW TO BUILD A SIMP



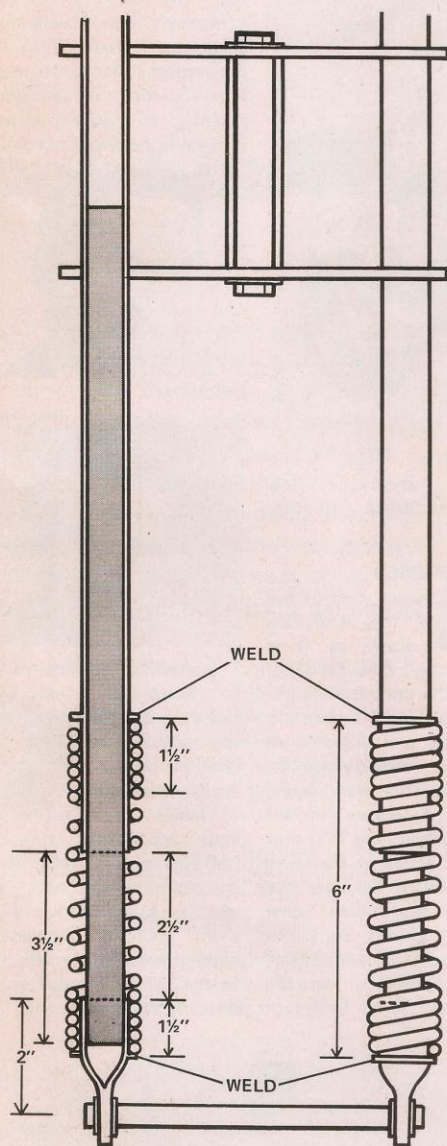
to the nearest machine shop and buy solid rod or tubing to fit snugly inside the tubing but not so snug as to cause binding. The length of the rod should fit into the upper section of the front forks and terminate at the 10-inch mark (two lengths) and another two lengths of the

same rod 10-inches in length. At the same time buy two 4-inch springs the same diameter as the rod.

STEP No. 3

Have the two small sections of the previously cut front forks (the 2-inch

LE FRONT SUSPENSION



axle-bearing sections) welded to the end of the 10-inch rod sections after first inserting the rods into the tubes about 1-inch. After welding, make sure the distance from the center of the axle holes to the top of the rods are equal. Insert the other lengths of rod into the

upper fork sections so that the bottom end of the rods reach the ten-inch mark on the forks equally. The other end of the upper fork rod should sit firmly against the handlebar bend in the forks or the upper crown plate (detachable handlebars).

STEP No. 4

Insert the springs inside the upper fork members so that they stop against the bottom of the rod previously inserted. Re-assemble the front axle unit including the short ends of the fork with the axle bearers. Re-assemble the front forks on the steering column. Insert the ends of the plunger rods (attached to the front wheel assembly) into the upper forks. And the job is completed.

TECH EDITOR'S COMMENTS: While Kent's front suspension system is fine, as far as it goes, there are some serious deficiencies. First of all, the whole unit could drop out the first time a bump is taken. Secondly, we are not convinced that it is the strongest arrangement that could be worked out. Our suggestion for an equally simple job, following Kent's basic premise, would be:

STEP No. 1

Same as Kent's.

STEP No. 2

Same as Kent's except: on the upper forks, measure from the cut end to the upper crown plate on machines with non-detachable handlebars or to a point three-inches below the upper crown plate on machines with detachable handlebars. Now, select a spring with an inside diameter that will allow it to fit snugly over the fork tubes (usually this will be an inside diameter of 7/8"). This spring should be about 6-inches in length and with not too close a coil (the intent is to give the fork about two inches of travel, so it shouldn't be too stiff - place one end of the spring on the dealer's floor, put both hands on the other end, and when you put the weight of your shoulders on it, it should give at least two inches). When you find a spring that you think is right, buy three. The rod, like Kent's suggestion, should fit easily but not sloppily, into the fork tubing. Buy two lengths as long as the measurement you made on the upper forks previously, plus 3 1/2-inches.

STEP No. 3

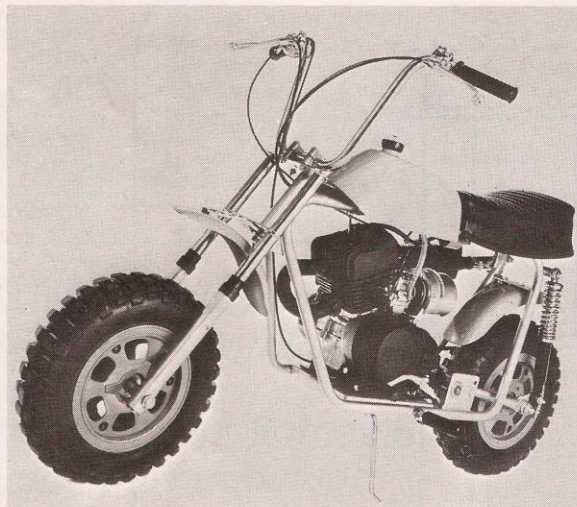
Have the rods welded to the lower axle-bearing members, after inserting them into the lower tubes as far as they will go, as in Kent's suggestion. Next, cut one of the three springs into four equal lengths and weld (or have welded) one of these lengths on each of the lower fork sections, placing the springs so that they seat on the outside of the tubes far enough down to clear the cut ends. Make sure the weld area is confined to the lower loops of the spring, closest to the axle bearing holes. Now weld the two remaining parts of the cut spring to the upper fork members, again confining the welding to the top of the

Continued on page 55

MBG MISCELLANY

BONANZA'S MINI-MOTOCROSS STORMS IN

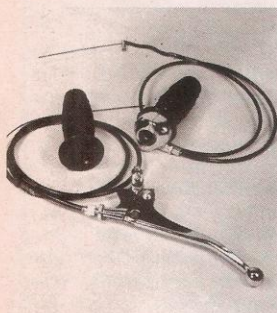
With a front suspension said to have about four-inches of travel, the new Bonanza Mini-Motocross is a replica of the famed European cross-country motorcycles. The specially designed frame (following the pattern of Bonanza's usual double-loop models) is built for cross-country racing - a sport often called the most exciting on wheels. Power comes from the same 5-speed 100 cc Hodaka engine that has won the U.S. Cross Country Trail Bike Championship for the last four years. The knobby tires have among the largest diameter found on mini-bikes and this, combined with the special suspension, makes the Mini-Motocross a superior trail machine for all purposes.



A street model with lights and accessories to comply with traffic regulations is scheduled for production,

soon. Write: Dept. MBG, Bonanza Industries, 1775 South First Street, San Jose, Calif. 95112.

FLEXO CONTROLS



Mini-bike controls featuring precision engineering are available from Flexo of California. The twist grip throttle control features a super

soft waffle grip; built-in adjuster for positive adjustments; pre-lubricated inner cables; and a compression spring and stop for absolute dead-man return. In 4, 4½, 5 and 6 foot lengths, \$4.95. The brake control has a motorcycle type lever, 6-inches long, with a balled end and built-in cable adjuster. Pre-lubricated inner cables with easy-installation cable stop. In 4, 5 and 6 foot lengths, \$5.95. Write: Flexo of California, Dept. MBG, 5180 Venice Blvd., Los Angeles, Calif. 90019.

CCS FUN KART

Central Cycle Supply, manufacturer of the Charger mini-bikes, now produces the Charger Yard Kart. Aimed primarily at the younger set, the Yard Kart is fun for adults as well. It should be driven off the street on private lots. It has a 3 hp Tecumseh engine with an automatic centrifugal clutch on

the chain drive. Finish is blue or burgundy and it comes equipped with automotive type steering; naugahyde upholstery; tube tires; a wheel-base of 46-inches; a ground clearance of 5-inches; width of 35-inches; and overall length of 58-inches. Write: Dept. MBG, Central Cycle Supply, 51025 US 31 North, South Bend, Indiana 46637.



MICHRINA APPOINTS

Recent growth in the activities of Michrina Enterprises and diversification of the company's line of recreational products, has led to the promotion of four staff members, Ray Michrina, president, recently announced. Ernest R. Haney becomes executive



E. R. Haney

Dick Hicks

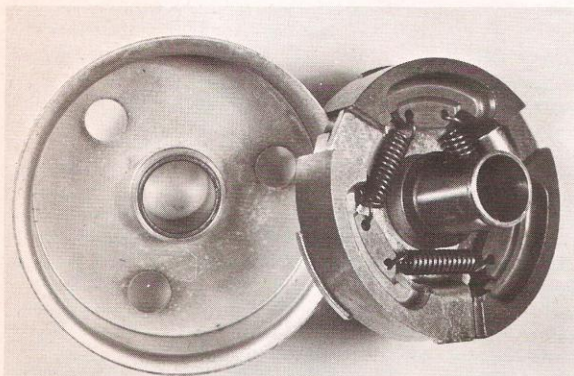


vice-president in the move; Bill Burroughs is now sales manager; Bill Johnston moves to materials manager; and Dick Hicks becomes marketing services manager.

Haney was formerly with a large accounting company, Burrough's was a manufacturer's representative, and Hicks was a sales representative with Michrina. Johnston's appointment was made due to the company's continuing diversification.

AN ERA PASSES

Floyd Clymer, one of the founders of the American motorcycle scene as it is known today, died suddenly towards the end of January. Floyd, who was 74 years old but looked and acted more like 50, was formerly publisher of Cycle Magazine, a leading national American motorcycle magazine and in recent years was active in the mini-bike marketing field. He was proud of the Indian name that had graced American motorcycles for many years in the old days and kept the name alive.



HORSTMAN'S STEEL-SHOE CLUTCH

Hortzman Manufacturing's latest clutch is the sintered metal shoe, heavy-duty, unit. The new clutch has a heavier, heat treated, drum with a flanged mouth to prevent distortion under high heat conditions. The shoes are of specially formulated sintered metal that has high and uniform density so that each shoe weighs exactly the same

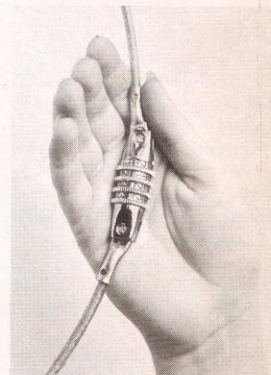
- this means that engagement points for each shoe is uniform. The shoes are specially hardened for long life and the design brings the leading edge of the shoe into first contact with the drum. This prevents chattering on engagement and the design of the shoes is symmetrical so that they will work the same way, no matter in which direction

they are turning. The steel shoe clutch has an extra length bearing that distributes the load evenly and permits the clutch to be mounted inboard or outboard without placing undue stress on the PTO shaft.

Heat escapement is aided by three holes in the face of the drum and the sprocket has an oiling hole for lubrication of the bushing bearing. The steel shoe clutch comes in two shaft sizes, 5/8 and 3/4 inches, and two chain sizes, No. 35 and No. 41. Many experienced trail riders are using this opportunity to swap from No. 35 to No. 41 chain. The No. 35 chain clutches come with 11 and 12 tooth sprockets and the No. 41 chain clutches come with 10 and 11 tooth sprockets. Write: Dept. MBG, Horstman Mfg. Co., 730 East Huntington Drive, Monrovia, Calif. 91016.

COMBO LOCK

Nearly thief-proof combination lock and 40-inch cable can make your mini-bike secure for \$3.75. The lock has a four number combination and is made of stainless steel



while the cable is aircraft steel with a scratch-proof vinyl covering. Write: Dept. MBG, Sport House, P.O. Box 103, Concord, Massachusetts 01742.

ROVAC - RE-VITALIZED M-B INDUSTRY ASSOCIATION

A re-vitalized industry association got going on its "new deal" at the recent fourth annual Motorcycle and Accessory Trade Show/West, held at Anaheim Convention Center in California. This industry association, primarily concerned with mini-bike and mini-bike accessory manufacturing, is called the Recreational Off-road Vehicles of America Association which is quite a mouthful but becomes more handy in initial form - ROVAC.

ROVAC really got started last year at a meeting called especially for that purpose but, after an initial burst of activity, seemed to fade into oblivion. However, it appears that meetings have been going on all along, behind the scenes, and ROVAC seems destined for a new lease on life, following some first-year difficulties.

There has been a complete re-organization of the list of officers. The Association is now headed by Mike Farrand, president of Bonanza Industries, with Art Cornwall of Michrina Enterprises as vice-president and Jim Patronite, president of Azusa Engineering as secretary/treasurer. Bob Ebbling, editor of a trade publication called Dealers' Voice, is the executive secretary. Most of the largest domestic manufacturers are on the membership list but it appears essential that those not already members should be represented.

It is likely that ROVAC will represent the entire industry in legislative negotiations, as it is the only organization that can lay claim to a more than narrow interest, and this means that the widest possible membership will ensure that governmental

bodies will hear the combined views of more than a narrow segment of the industry. One of the prime and immediate objects of ROVAC is to satisfy the demand from Federal authorities of a definition of a mini-bike. As more than a few in the industry itself are confused as to an exact definition, this is liable to be a tough job and many opinions are needed.

ROVAC met again in Columbus, Ohio, on February 23, at eight in the morning, in conjunction with the second annual Motorcycle and Accessory Trade Show/East at the Franklin County Veterans Memorial Building. This Show, being the largest Eastern show of its type, and being held in a central location for all Midwestern and Eastern manufacturers, attracted a large number of industry representatives. At this meeting, the impending mini-

bike definitions were more adequately discussed and two vacancies on the Board of Directors were filled.

This industry association has significance for the consumer because the plans include such consumer protection moves as safety and quality specifications. It will also provide a place for the consumer to air his views regarding products - all of which work to the advantage of the ethical manufacturer. And, in fact, ROVAC is not a closed industry group - membership is available to consumer groups and MBG, as a representative of the consumer, has taken out membership. Other consumer clubs and groups are expected to join as time goes by. In any case, those clubs involved in racing will be interested in the ROVAC definition of a mini-bike as it may help them in their classifications.

TECH TIPS

Continued from page 18

Hoffco Inc., Richmond, Indiana 47374, has a two-speed transmission but you will have to write to them to find out if it will take the torque of a 7 hp Tecumseh (or higher) - normally they are used on mini-bikes with a top of 5 hp. A manual two-speed gearbox is currently in the final stages of preparation for the market so if you like to hang on for a few weeks. . .

TORQUE, 2-SPEEDS & CARBS

Mini-bikes are the most! I am planning to get one in June. Due to personal taste (and inflation) I have dropped all thoughts of sky-hi horsepower super machines and have narrowed my choice to 5 hp models.

I would like to know if it is possible to equip a Bandit TT with a Comet manual transmission, also I would like to know the cc rating of the 5 hp Tecumseh, and if this has more torque than the 5 hp Briggs. Is it possible to equip the Briggs with a Dell Orto carb as is the Tecumseh?

Ed Dorromoea

Woodside, New York 11377

-It's possible to change practically any jackshafted mini-bike to a two-speed, manual or automatic, if there is about two inches clearance from the centerline

of the shaft on both sides. We are without our conversion tables for accurate translation of the 12.2 cubic inches of the 5 horse Tecumseh but it is somewhat over 200 cc. Yes, the Dell Orto carb will fit the Tecumseh but it will void the warranty.

READER EXPLAINS DELL ORTO

You published the story about my bike in the November 1969 issue of MBG on page 12. Here are some answers about the Dell Orto Carburetor I installed on it.

A STICKY PROBLEM - Rupp's Dell Orto carb is a big power improvement but does not provide a place to attach the engine governor. This governor on the standard carb prevents the engine from running over 3,600 rpm and without it the engine guarantee is no good.

It was easy to change carbs. An adaptor is placed on the engine with 2 bolts, then the new unit is slipped over and tightened down with a ring. Simple! The big problem is the air cleaner. There isn't one on the Dell Orto carb. There is only a velocity stack, which stops the big rocks.

If you trail-ride without some sort of an air filter, don't be surprised if you have to clean your engine every so often - like once a week. The damage caused by dirt getting into the engine would be very serious. The spark plug will be

fouled up but even worse is that dirt can damage the valves and valve seats! This can cause low compression and hard starting, not to mention a big power loss. To solve this, I used the filter from the old carb and made a mounting plate to fit the new unit. It works great.

The big difference in the Dell Orto is the 3/4" bore. The stock one is 1/2". The top speed is improved greatly by this larger breathing area. The number for this unit is 121271 and Rupp Manufacturing sells it for about \$20.

The only thing wrong with mine was it didn't work. This unit uses a piston that slides up and down in a tube. It was so tight that I had to use pliers to remove it. Then I had to sand the piston and the tube so it would run freely. At first, I didn't sand it enough and it would still stick open. This thrilled even the most hair-raising riders.

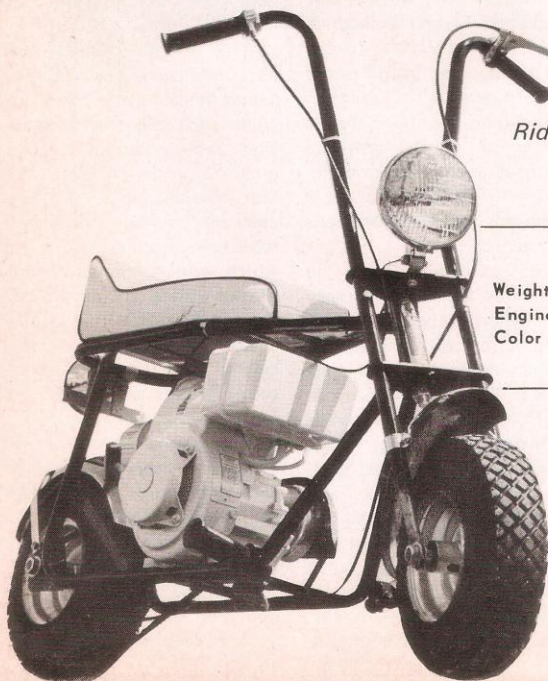
After sanding again, it hasn't acted up. I think Rupp should be more careful in the making of their racing carbs.

James Kawa

Chicago, Illinois 60609

Surprised at the trouble you were having with your Dell Orto - they are invariably very carefully manufactured - although anything is possible. Could be you got some dirt down the tube or possibly scuffed up the piston somehow. Anyway, thanks for your experiences with this unit - judging from the

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number of inquiries we have received, it must be catching on.

MAKING DO

Until recently I did not know you existed. But I was at my cousin's house and we had to go to the drug store for his mother. There you were - the magazine, I mean. I was sure glad I had 60 cents on me. I bought it without even looking inside. Now, that I have, I think it is a fantastic magazine.

I have been interested in go-carts since I was three when my father was going to build one. Then about two years ago I saw my first mini-bike. I thought it looked sharp and I wanted one. I saved but never was able to get together more than about \$15. So, last spring I started building one of my own.

I thought of dozens of ways to make frames and then I got an idea. I took an old 26-inch bicycle frame and cut out the bar from beneath the seat. Of course, I took off the wheels, fenders, pedals, etc. On the part where the frame spreads out for the back wheel I securely mounted a piece of 3/4-inch plywood. For my motor, which I luckily got free because they are so expensive, I used an old gas washing-machine engine (Iron Horse) with, of all things, a kick start. The motor has, I estimate, about two or three horsepower.

For wheels, I used 10-inch by 1-3/4-

inch hard rubber wheelbarrow tires. I didn't have the money for a centrifugal clutch and sprocket so I used a pulley arrangement. There was a 2-inch pulley on the motor and I thought a 4-inch pulley on the back wheel would be okay but I didn't know about gear ratios and it didn't work. I realized that there was too much speed and not enough power. I tried a 6-inch pulley and that didn't work either, so I went to an 8-inch pulley. That worked fine. I also had an idler pulley on a lever and the harder I pushed down on the lever with my foot the faster I went.

I had no brake on it because I could never get it to go over about 18-20 mph. But, when my sister rode on it (she's 8 now), she went about 35-40 mph. But still it was nice.

Now I have a Briggs and Stratton 4.5 horsepower, 4-cycle on it with a clutch and sprocket, throttle and I'm getting a brake soon. Next spring, say Easter, I hope to have acquired either a Herter's trail bike or a Honda Mini-trail.

I say again that your mag is "fantasmagorical" and when I get hold of \$6 I'm going to subscribe.

Thanks, you MBG Guys!!

Reg Bergmann

St. Boniface, Manitoba

Canada

Much as we admire your ingenuity and fortitude in putting together your

"mini-bike" we bet you'll be glad to get on your projected, professionally-built, machine. You'll be interested in the test we are publishing next month on the Herter's trail machine. This machine has been causing quite a bit of comment since it appeared in our Christmas Buyers Guide.

WORN OUT AND LEAKING OIL

Is there any place where I can get a catalog on speed parts for my 3.5 hp Tecumseh mini-bike engine? For instance: high-compression piston, a racing cam, dual carbs, headers, velocity stacks, etc.

I recently had trouble with my engine. I get a constant leak out of my valve chamber breather cover. I took my engine apart and found out my cylinder wall is worn. I bought new rings and put those in. Because of the worn wall, I didn't have the specified gap when the rings were put in. I didn't know where to get a set of oversized rings, so I used regular rings. I got it back together and it started very easily. That day I ran it hard and it started leaking again. Could you please help me?

Could you also tell me how to adjust the carburetor on my 3.5 hp Tecumseh engine?

Mark Phillips

Wapping, Connecticut 06087

Continued on page 60

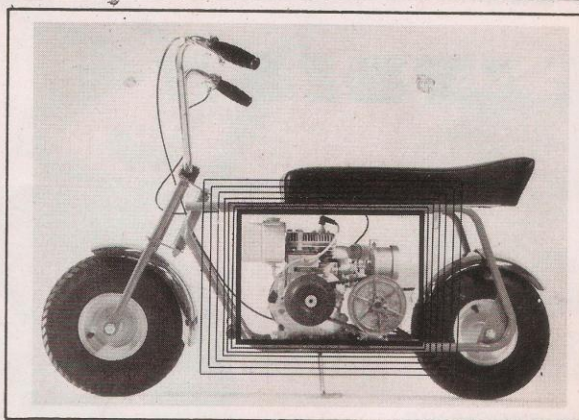
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SIMPLE FRONT SUSPENSION

Continued from page 43

cut spring. To find the approximate correct position measure the distance from the bottom of the cut spring welded to the lower fork members to the cut in the fork tube (should be about 1¼- to 1¾-inches). Add 2½-inches to this measurement and deduct the sum from the total length of the uncut spring - if 6-inch springs are used the cut springs should be welded to the upper fork members with the top of the cut spring about two-inches away from the cut in the upper fork tube.

STEP No. 4

Turn one of the uncut springs onto each of the cut springs welded to the upper fork members (a little grease may help this job). Turn each of the springs on as far as they will go so that they lock into place. Now, slide the rods attached to the lower fork members up inside the upper fork members and turn the lower fork member so that the cut spring welded to the bottom engages with the uncut spring attached to the upper fork member. Continue turning the lower fork members until the upper and lower members are locked together - then adjust the turns so that the axle holes are facing one another. When this work has been done the two cut sections of the tube should be separated by about 2½-inches with the spring, locked top and bottom, preventing the two sections from falling apart. Re-assemble the front wheel and adjust the axle bolts allowing the wheel to turn freely without too much "slop".

NOTES: The springs may have their ends pinched together and, if so, it will be necessary to cut about half the first turn off so that the ends of the spring will feed together. Spring steel is sometimes very tough and it may be necessary to have a machine shop do the cutting. The above method will raise the front end of the machine about two inches and usually this will aid in handling and ground clearance but if the appearance of the raised front end is bothersome, it can be corrected by cutting out two inches of the fork length and proceeding as above.

When the job is complete, provisional testing can be done by placing the front wheel against a wall and bouncing on the front end. Final testing should be done, however, on the trail as sometimes a suspension will appear too stiff when the machine is not running but will work out fine in practice. Minor adjustments can be made to the amount of travel (if the machine is bottoming out) or to equal the amount of travel on either side by turning the uncut springs in or out of the fixed cut springs. However, once these adjustments are made, it will be necessary to make sure that the springs do not move in use.

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see HJM ad on page 11

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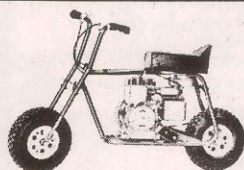
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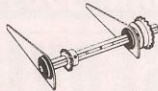
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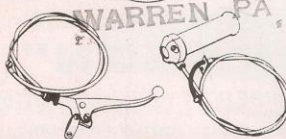
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SHAPE UP FOR SPRING

Continued from page 39

inally.

To set up the carburetor after an overhaul make the following approximate settings. Turn both the main jet needle (under float bowl) and idle needle (side of carb body) completely in, finger tight, then back out one complete turn. The idle speed screw on top of the carb body that provides a stop for the throttle lever should be back all the way out until it is free of the throttle lever - then turn it back until it just touches the throttle lever and from there, advance it one more complete turn.

Now, fire up the engine with the chain disconnected (after making sure that the throttle linkage is adjusted properly and operates freely by applying some light machine oil to all pivot points). Allow the engine to warm to normal running temperature (about five minutes). Running the engine at high speed (around 3,000 to 3,400 rpm), loosen the main jet needle (under the float bowl) until the engine starts to "lope" or change its running sound. Then, counting the number of full turns, turn the main jet needle back in until the engine starts to hesitate or tries to cut out (maintaining the same position on the accelerator). Back out the main jet needle half the number of turns that were counted from the "out" position to the "in" position - and this should be the correct position.

Letting off the accelerator, allow the engine to return to idling. Turn the idle screw in or out an eighth of a turn at a time until the maximum idle speed is arrived at. If the idle speed at this setting engages the clutch (around 1,800 rpm), turn the idle screw counter clockwise until the clutch can be held stationary by hand.

After running the engine in normal conditions for about an hour, it may be necessary to repeat the adjusting procedure. In any case, it is wise to check all fastenings at this point and to make sure that the throttle linkage, choke lever and all component parts are operating properly. By now the mini-biker will have a thorough understanding of the operation of the carb and should have no hesitation about tackling maintenance and repair work of a minor nature.

One final word from your friendly mini-bike dealer, Ron Stewart. If, at any point of this carb check-up, the mini-biker finds himself stumped or in doubt, don't hesitate to call for help from your mini-bike dealer or Tecumseh service center. Usually, he will be swamped with service work and will not mind, at all, that you are attempting your own maintenance work - and will be only too willing to give advice or help - although don't expect too much for free.



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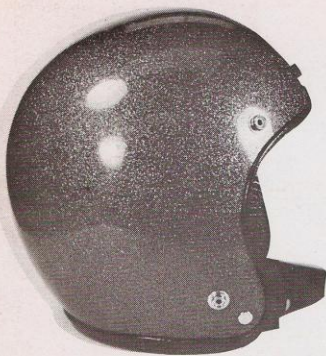
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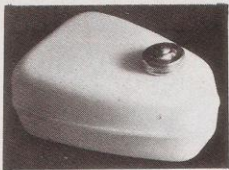
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Club Scene

A CLUB IN BAKERSFIELD - "COOL"

I own a kart at this moment, but it is being prepared for sale, and I plan to get a mini-bike powered by a Hodaka 100. Many of my friends feel that a club in Bakersfield would be pretty cool. But who would you contact to get one organized, and how do you ask them to help or sponsor you?

The letter in your January issue from Robert Wouthard, the president of the SECONN Mini-Bike Racing Club stated flatly that no motorcycles were allowed in his club. My question is, "are motorcycle-powered mini-bikes also restricted?"

Huck Bonsall
3022 Nelson St.
Bakersfield, California 93305

BUYING A 20-ACRE MB PARK

I don't have a mini-bike yet, but I am trying to build one. I just can't get anything done with my mom always complaining that making something yourself costs more money than buying the whole bike complete. She says, and I quote, "you don't need a mini-bike." I tried to get her to read your article on the Seal Beach Police Department and the article on "Should my Sons have Mini-Bikes?". Nothing happened. Not so with my father.

That's why I'm thinking of asking him to purchase this 20-acre lot about 10 miles away from my house. I happened to notice it on our last trip down south. I'm thinking of making it into something useful like a mini-bike track, similar to Saddleback Park. If the other mini-bikers around the Buffalo area, and maybe some of you fellows at MBG who are really interested in starting something, drop me a line.

John Plowy
80 Alturia Street
Buffalo, New York 14220

HELL'S CHERUBS CLUB

Recently, my friend and I formed a mini-bike club. The name of the club is "Hell's Cherubs". We got the idea from a recent article on the Bonanza mini-bike (the mini-chopper). Anyway, are there any good books on mini-bikes (or how to soup them up). We would appreciate any information. Thank you very much.

Michael Pluznick, and
Bill Krauss
714 Summit Avenue
Westfield, New Jersey 07090

MINI-BIKERS IN SEARCH OF A CLUB

Greg Morgan
410 South Edgemont Cr.
Huntsville, Ala. 35811

Ron Whitehead
Director of Youth Services
Davis Police Department
Davis, California 95616

David Stroth
20835 Scofield Dr.
Cupertino, California 95014

Rory Brandt
25 Ford Road
Carmel Valley, California 93924

Frank Grant Chaffee
1290 Millcreek Way
Fortuna, California 95540

Mike McCormick
1 Phoenix Road
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Mark Davis
280 N. Mission Drive
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Larry Medrano
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John Radcliff
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Tom Osborn
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1400 W. Republic
Salina, Kansas 67401

John Miller
1626 Third Street
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Richard Budahor
1923 Valley High Drive N.W.
Rochester, Minnesota 55901

Kerry Greene
802 N. Ballas
Des Peres, Missouri 63131

Michael Pluznick
1714 Summit Avenue
Westfield, New Jersey 07090

Kevin Hodne
49 Wisteria Lane
Wantagh, New York 11793

David Bass
181 Longview Avenue
White Plains, New York 10605

Steve Metcalf
RD 1 Box 226
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Joe Shroyer
Rt. 1, Box 425
West Linn, Oregon 97068

Larry Hughes
2513 Lincoya Court
Donelson, Tennessee 37214

Bob Burditt
6248 Sudbury
Dallas, Texas 75214

Greg Gammon
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Richmond, Virginia 23221

Jeff Steindler
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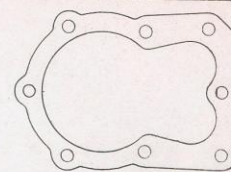
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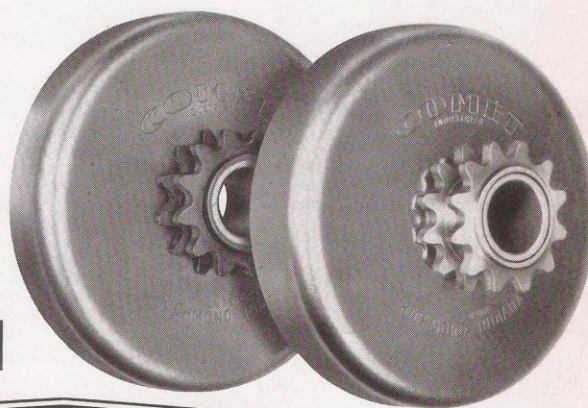
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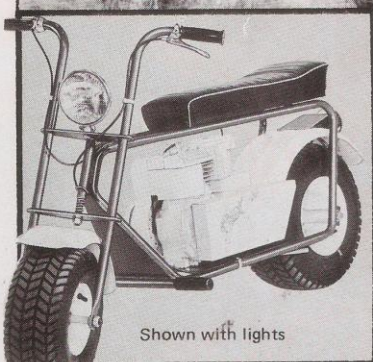
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TECH TIPS

Continued from page 53

As far as we know, the only hop-up equipment for Briggs and Stratton and Tecumseh engines are the Dell Orto carburetor (from Rupp Manufacturing Inc.) and a high compression (thin) head gasket from Albe Co. (see advertisement, this issue). There may be other items we haven't heard about - if so, somebody let us know.

The problem with your leaky valve chamber breather cover (we assume you mean that it's leaking oil), sounds like plain ol' "blowby". This, as the name implies, is when air from the crankcase blows up into the cylinder as it escapes through the gap between worn cylinder walls and the piston rings. In effect, the piston acts like a pump as it lifts air up into the compression area of the cylinder. With this air can come a good deal of oil in the form of mist or, sometimes, as actual fluid (when the machine is laid over in a turn). Now, as the piston starts up on the exhaust stroke, it forces the oil through any worn spots - and, thus, through the valve chamber breather cover.

The only cure for this condition is oversize rings or, better yet, an oversize piston with matching rings. Write to Tecumseh Products Co., 900 North Street, Grafton, Wisconsin 53024, for information regarding oversized pistons and rings or go to a Tecumseh dealer. The specs on these pistons should include information on the amount of oversizing and the cylinder should be honed true according to the specs before reassembling.

There is an article beginning on Page 32 of this issue, entitled "Shape up for Spring", that goes into carburetor tune-up in detail.

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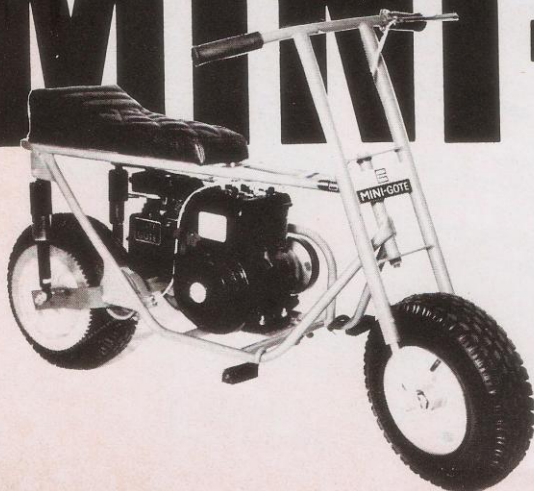
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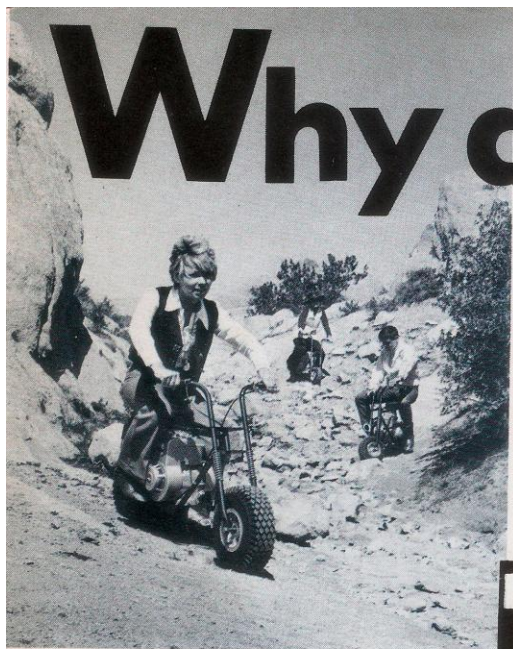
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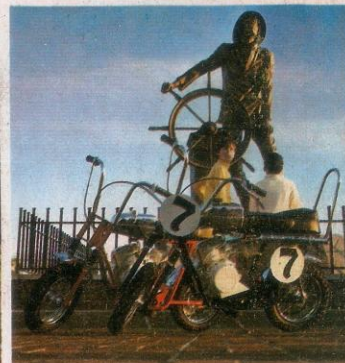
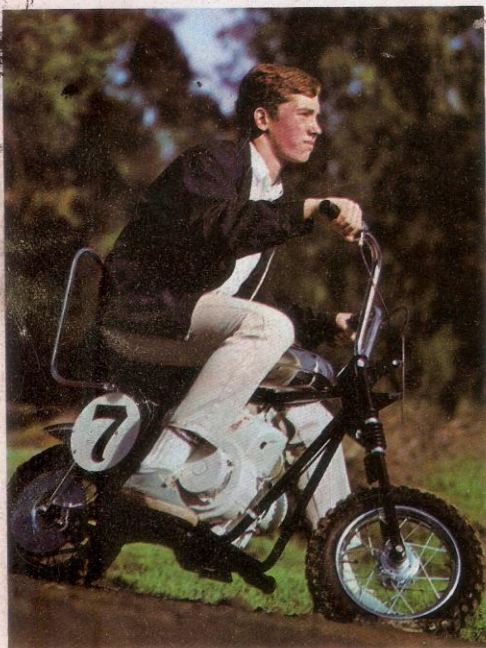
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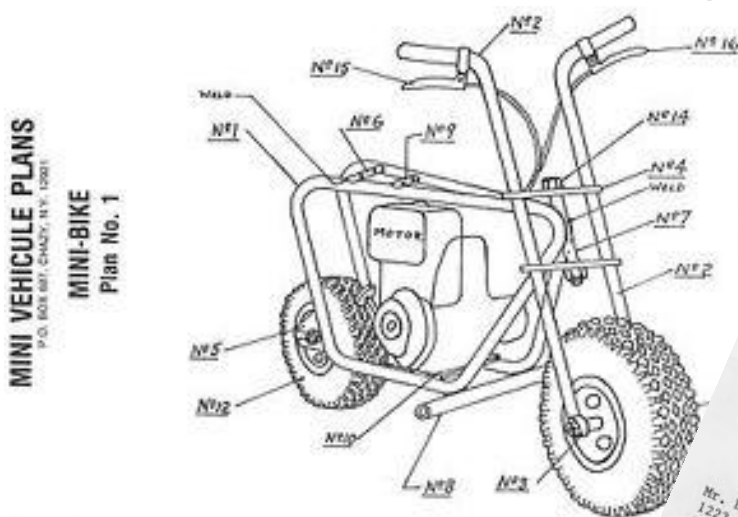
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VINTAGE JB RACING AD FROM 1974

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This is a clean copy of the JB Racers ad that was in the Aug/September 1974 MiniCycle magazine, NOT the original, ad copy. It was an ad that was two pages when you opened up the magazine. I had the center crease photo shopped color filled in because the original ad is on two pages. Suitable for framing. Would look great in your den or garage. Ad will be shipped in a tube so there will NOT be a fold. P.S. THE WATERMARK IS NOT ON THE COPY YOU WILL RECEIVE. Thank you, Dan. <http://www.allaboutminibikes.com/jb-racer-ad.html>

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