

[Www.AllAboutMiniBikes.Com](http://www.AllAboutMiniBikes.Com)

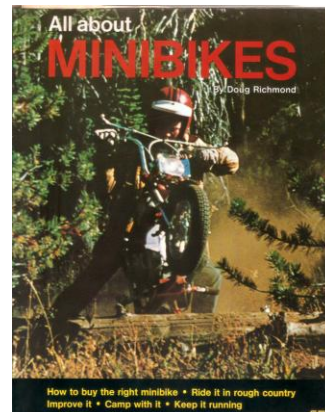


©2019

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



MINI BIKE GUIDE

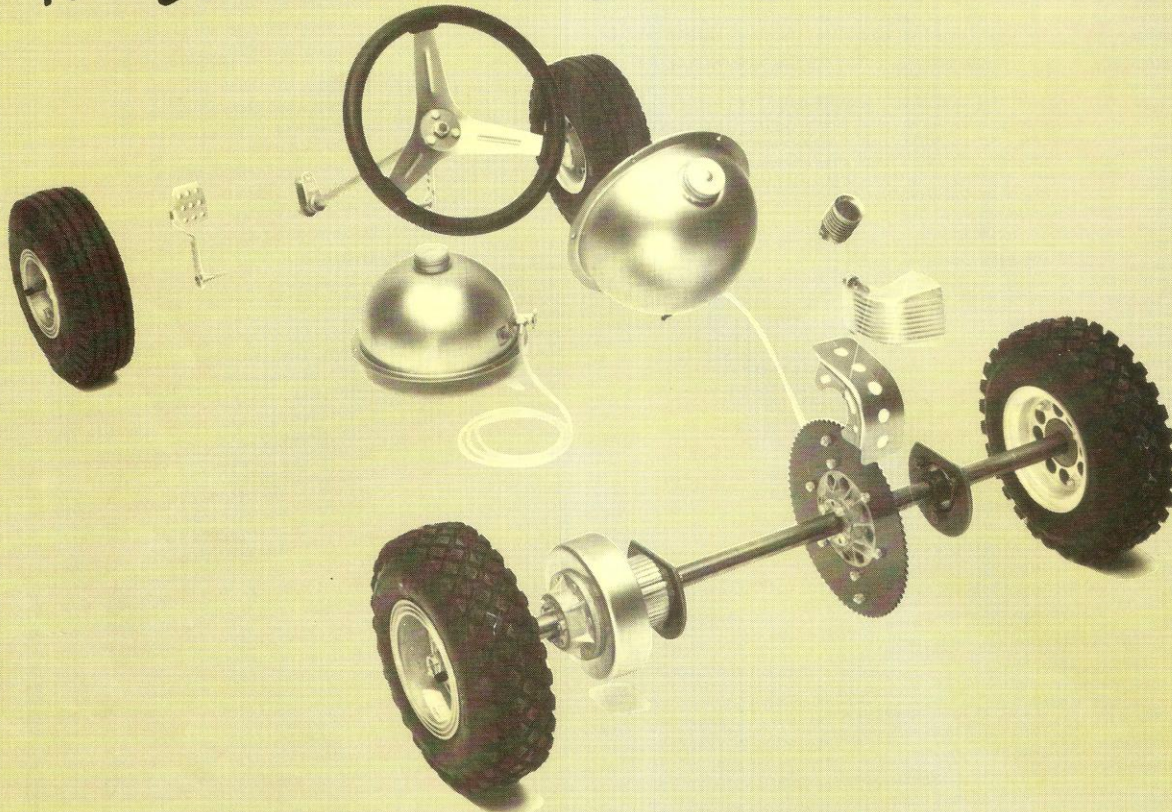
AUGUST 1971 / 75¢
K 47745

**Testing
the three Bee's
Benelli
BeBe
Broncco**

**McCulloch
Engine Swap
Race-Ready
Your Mini
Larkin's
Mini-Boat**

AllAboutMiniBikes.Com

The Skeleton in Our Closet



For years we have been telling you about our quality Mini-Bike parts and accessories. We feature several right here every month . . . Most of you have an Azusa product or two on your machine whether you know it or not . . . we sell many of our products directly to the Mini-Bike manufacturers for use as standard equipment. But, we also have a big line of Kart Parts, as any of you who sent for our catalog, knows. In fact, that's where Azusa Engineering started. The "Skeleton" photo above shows our original line of products . . . many are still being produced, having long since become "standards" for Kart enthusiasts . . . like our Neoprene Steering Wheel, our Live-Axle-Kit and the Tru-A-Line Sprockets. The famous Vari-Hub has changed some, redesigned to save weight . . . and our Wheels are now all aluminum, split-rim design, the best on the market . . . and we still carry both the seat and floor mounted Gas Tanks, Foot Pedals, Chain Guards, Stacks, Headers, and many many more. Send \$1.00 for our current catalog . . . be ready when your generation "rediscovers" Karting . . . Azusa will be!

*Azusa
Engineering
Incorporated*



Write Dept. MG-8 1542 Industrial Park Street, Covina, Ca. 91722

AllAboutMiniBikes.Com

STEEN

FOR 1971 IS

THE BIKE YOU ASKED FOR....!

The STEEN bike has been around for a year. It's been seen, tried, trailed, raced and thrashed. It's been called a mini-bike, a mini-cycle and a motorbike. Even a motorcycle! Maybe they're all right... You talked about our bikes. We listened and we liked what we heard, mostly. What you didn't like, we did something about. Don't look for a lot of changes; you didn't want 'em. But thanks to our "Field Engineers" — guys like Jeff, Allen, Jack, Kelly, Neal, John, Phil, Rudy and many more — we think our STEEN bikes for 1971 are the best you can buy! A lot of stuff rubbed off on our TACO mini-bike models as well, making them the finest we've ever made in our more than ten years in the field.

You asked for it. We did it.... Tougher, greater dependability, better handling, more color and finer detailing. Cap that off with improved pricing and you'll agree that we've done a pretty good follow to our own tough act!

What about next year? You tell us... We listen. Meantime, try our '71 bikes. See your dealer and get the details on the complete STEEN line.

Drop us a note for the latest brochure and specifications, enclosing 25¢ (postage and handling) and requesting STEEN bike pack no. SA-285

STEEN'S No. 10 Catalog — 130 pages (over a pound of product information!) is just out; it's yours for a buck, postpaid. If you want the best for big bikes, "SUPERGOODIES!" will turn you on, with the last word on Rickman motorcycles and Metisse kits, Ceriani suspensions, Magura levers and lots of accessories for bikes and riders. The whole pack of "SUPERGOODIES!" is priced at \$1.00. Get it now!



STEEN'S

INCORPORATED



OFFICES: 1635 WEST VALLEY BOULEVARD • MAIL: BOX 2276
ALHAMBRA, CALIFORNIA 91803 • TEL.: (213) 289-4351

MINI BIKE GUIDE / 3

AllAboutMiniBikes.Com



Super Bronc Comes Through For You

Comes Through With Power,
Traction, Dependability, Comfort!

Here's a real "go" machine, with the power to pack you through sand, mud, brush, snow, or up any hill . . . and do it year around. The all season, all terrain trail bike you'll be proud to ride.

Heavy-duty 7 H.P. engine is followed by a Comet automatic load-sensing torque converter transmission. Rugged #40 drive chain drives a big 21"x12"x8" super-trac air cushion, high flotation rear tire that assures real traction, and ride comfort too. The big 18"x8.50"x8" front tire provides flotation plus handling ease. It's suspended with spring-loaded telescoping shocks. The big well padded seat is mounted on heavy-duty, chrome plated shocks. You float over the rough spots in cushioned comfort, for all-day enjoyment.

Write for FREE BROCHURE on the Super Bronc VT-7 to get the full story on this dependable, easy to build and easy to ride semi-kit. Optional accessories: electric start, lights, ski, front brake, quiet spark arrester muffler.

VT-7 semi-kit is \$269.95. Other Trail Bronc kits from \$169.95.

HEALD, INC.

Dept. MB-8 , P.O. Box 1148
Benton Harbor, Mich. 49022
Phone 616/927-4661

editorial

< db = > e

Less Decibels Equal More Earth

As a matter of self-survival, the Motorcycle Industry Council has decided to regulate itself regarding the amount of noise that motorcycles make. MIC is a manufacturers' association representing more than 90 per cent of the industry. Among the members are Kawasaki, Honda, Suzuki and Yamaha, so it is entirely probable that mini-cycles made by these companies will fall under the new standard. We hope the effect of this campaign will cause all mini-bike manufacturers to toe the line.

The line, in this case, is fairly easy to toe. The standard adopted by MIC, starting December, 1971, is 92 decibels at 50 feet. While we are not exactly sure what 92 decibels at 50 feet sounds like, we have been assured that it is considerably lower than most dirt bikes now make. Nevertheless, it is above the legal level for street bikes in California which is set at 88 decibels. In case you are confused about this decibel bit, it is simply a unit used to measure sound (like inches measure length) and it is said that a level of 140 decibels is painful. Since it is painful to stand around some dirt bikes we assume that their sound level is above 140 decibels.

Street bikes have to meet the existing 88-decibel, legal noise level, so it is obvious that the industry is aiming its campaign at the dirt competition machine and rider. The campaign has the theme "Less Sound Equals More Ground" and the people organizing the project have come up with a mathematical equation expressing this theme. We have used the equation as the headline to this editorial. The first symbol means "less"; db means decibels or sound; then the "equals" sign; next symbol means "more"; and the last symbol means earth or ground. MIC is distributing buttons with this equation printed on them to motorcycle dealers. These buttons should be a very "in" way of recognizing fellow riders who are serious about the sport.

We think that the motorcycle industry is displaying good sense in promoting this campaign. If they don't do it themselves, somebody will force it on them or motorcycling and mini-biking will be in serious trouble with the public. On the other hand, if we recognize the rights of others in the use of our machines, the public is less likely to get upset and we are less likely to face obstacles in finding somewhere to run. It's really very simple. Ride quietly or don't ride at all.

When it's put like this, the question of whether or not you get more or less power from a muffled engine is not very important. However, MIC recognizes that their campaign against noise pollution could mean nothing if the riders, themselves, are not behind it. There is no law, yet, that prevents an owner from tinkering with his muffler—except that the warranty is voided. So massive research projects are being rushed ahead to find exhaust muffling methods that do not have a power penalty. Even if they are not successful (and we've been told that they will be) it doesn't matter very much—a five percent cost in power is worth somewhere to ride.

Now, some members of what we call "the mini-bike industry" are also members of the Motorcycle Industry Council. But there are a whole bunch of mini-bike manufacturers who are not tied to the 92-decibels-at-50-yards standard. Some of these manufacturers are producing machines that would meet this standard, some are not. All should. No, all must. And if they lack incentive to toe the line, the consumer ought to provide it. We are not being unnecessarily hard-nosed. It is a matter of self-survival.

This means that a suitable muffler for each of the engines used in mini-bikes must be manufactured and we believe that this responsibility falls on the engine manufacturers. No mini-bike manufacturer should buy an engine unless the stock muffler meets the 92-decibel criterion—as the absolute maximum sound level. Probably 88 decibels would be a better aim.

How about machines already in use? Every mini-biker should take it upon himself to fit a suitable muffler to his machine. Common sense will tell you if your machine is too loud. We are not urging this move in order to make a fortune for some muffler manufacturer. Replacement mufflers should be available at the lowest possible cost. In fact, it would make good business sense for the industry to produce such a muffler as a group project (if they could ever sit down and talk to each other long enough to come to an agreement) and sell it at cost. Revolutionary idea? Perhaps, but it needs something like this to make sure that mini-biking survives.

MINI BIKE GUIDE

VOL. 3 / NO. 8 / AUGUST 1971
AMERICA'S FIRST
MINI-BIKE MAGAZINE

JACK PELZER
Publisher-Advertising Director

PATRICK J. MACKIE
Editor

EINAR VINJE
Art Director

JIM GILBERT
Contributing Editor

MIKE MISHICH
Technical Illustration

CAROL FIGLIO
Circulation Manager

GARY BERTRAM
Production

RANDY DELUCA
Staff Photographer

DAVE GOOLEY
Contributing Photographer

TERRY BALDWIN
Reader Services

MINI-BIKE GUIDE is published monthly by Twentieth Century Publications, Inc., 11044 McCormick St., North Hollywood, Calif. 91603. Telephone Number (213) 877-1195. Reprinting in whole or in part is expressly forbidden except by permission of the Publishers. Second Class postage paid at North Hollywood, California and Sparta, Illinois.

SUBSCRIPTION RATES: \$7.50 one year in U.S. and U.S. possessions. Canadian and foreign subscribers add \$1.00 per year additional. Single copy price 75 cents. Entire contents copyright 1971 by Twentieth Century Publications, Inc.

SUBSCRIPTION SERVICE: All subscriptions and subscription correspondence should be addressed to MINI-BIKE GUIDE, Circulation Department, P.O. Box 978, North Hollywood, Calif. 91603. Please allow at least three weeks for change of address and enclose old address as well as new address, enclosing, if possible, an address label from a recent issue.

EDITORIAL CONTRIBUTIONS are welcome and should be addressed to the Editor, MINI-BIKE GUIDE, P.O. Box 978, North Hollywood, Calif. 91603, accompanied by return postage. All material will be handled with reasonable care, however, the Publisher assumes no responsibility for return or safety of artwork, photographs or manuscripts. All editorial material received at the Publisher's address will be acknowledged.

FEATURES

23 FORTYNINER? SI!

Jim Gilbert details the grafting of a McCulloch engine into a Cat Endura



26 CARRY IT UP FRONT FOR \$2

Solutions to how-to-carry-it problems. This reader suggestion is a basket.

28 PULL IT IN A TRAILER

Contributor Jim Bonell undertakes design project for a camping trailer

38 GETTING IN THE WET

Larkin's mini-bike of boats is new ball for youngsters seeking mobility.

51 RACE-PREPING BONANZA MX

A good machine gets better as Doc Tait hunts down the bugs.

TESTS

18 BENELLI'S MINI-ENDURO

It's a better machine than has come from this line in a long time.



31 THE BRONCCO HERD

Something different in MBG's history, the first review of a manufacturer's line.

32 BRONCCO DIABLO

This machine is devilish and the smell of fire and brimstone is around.

35 BRONCCO RENEGADE

It is a better machine in the mini-bike tradition and has a good future.

36 BRONCCO APACHE

Back to the reservation and the drawing board - or is it already okay.



42 PREMIER'S BEBE

A Moto Beta is just as good by any other name - even this one.

46 DUO FROM TERRA PRODUCTS

A new manufacturer produces machines of surprising quality.

DEPARTMENTS

4 EDITORIAL

Motorcycle industry campaign against noise pollution.

6 LETTERS TO THE EDITOR

Get together for big race; is Mackie a slob; and how about those mistakes.

9 TECH TIPS

Take it off the head or bring things closer together with thin gasket?

56 MISCELLANY

"Teke" kickstarter; keeping fuel clean; and your brains inside your head.

64 CLUB SCENE

And now comes ten days of racing to be held at a County Fair.

71 KARTING KORNER

The racing scene builds men out of boys and families out of individuals.

COVER: A far out interpretation of the Benelli by a dreamy Dave Gooley.

letters

AVOID STUPID MISTAKES, MBG!

First let me say that you make a great mag. Except for one thing. Try to avoid stupid mistakes. Although your tests are usually very informative, detailed, and well put together in general, there are frequently a few unnecessary mistakes.

For example, let's take the reports you did on the Speedway Shrike, Scorpion, and Silver Shadow. In the Silver Shadow report you stated that the only way to drain the oil from the front forks was to "turn the bike upside-down". What about loosening the packing nut, removing the wheel assembly and doing it that way as described by the Shrike and Scorpion reports? Also in the Silver Shadow report, you talked about a "whu-hunnk" that was a result of a heavy rider. In the Scorpion report you said that this was a result of a small loss in hydraulic fluid.

Eric Illowsky
Spring Valley, N.Y.

If you were to give the same test machine to two different test riders, you'd probably get some large differences in the reports. As we have pointed out, time and again, our reports are not the last word, simply the consensus of opinion from a group of experienced riders. As it happened, the Silver Shadow report was not written by the same person who did the Shrike and Scorpion tests. We were aware of some conflicts of opinion but no attempt was made, in the interests of honest reporting, to make the reports coincide. As far as draining the oil from the forks is concerned, look at it like this—now you've got two methods instead of just one. And there is no conflict on this "whu-hunnk" thing—one lost oil and the other went "whu-hunnk". That's not to say we don't make stupid mistakes. It's just that these were not two of them.

CHARGED UP!

I recently saw an electric battery operated "Mini-bike." Can you give me some assistance in locating the manufacturer?

Harold Heidenreich
Rocky River, Ohio 44116

Write to John Meyers, California Marine Jet, 1801 Avenue of the Stars, Suite 1004, Los Angeles, California 90067 or call Area Code 213, 277-4741.

NOT HIP?

You talk about us New Yorkers not being hip but have you ever had your mini-bike taken by the New York Police Department and given a J. D. (Ed. Note: we assume that means juvenile delinquent) to take home. It's not funny. Lots of times we have to outrun them and hide. So I wish that high-and-mighty Mini-Bike Guide would write to them and ask for some park space like a field in Central Park or something. Please help.

Thomas Houze,
New York, N.Y.

Where did you read in MBG that New Yorkers were not hip—and what's that got to do with your problem? We think New Yorkers are among the hippest people in the world. It looks as though you were a bit hot under the collar when you wrote to us because we know it's not funny and we have written to the New York Police Commission but we don't expect anything to happen. Don't you think, though, now that you've had time to cool off, that you brought your troubles on yourself. It sounds as though you knew you shouldn't be riding where you were and, if that's so, you shouldn't cry if you get caught.

SUZUKI BEATS YAMAHA

I was just reading your June edition of MBG and thought it was the greatest! The front cover was really great, Davey and the Indian did a fine job on that jump. I have just started racing (five races—three wins—what happened?) my Suzuki 50 Gaucho (with a hop-up kit given me by the local Suzuki shop) against Yamaha Mini-Enduros. I am seri-



ously thinking about buying the Indian SS54 for more competition. I was wondering, why don't you put more pictures of your test riders going over jumps or popping wheelies? Even my dad enjoys MBG. Say hello to Davey from a "fellow racer".

Phil McCall
Killeen, Texas 76541

What happened was that you ran some good races. Keep it up. Why don't you get the organizers of your races to send us a report and some pictures of the action? We need to know what's going on and so do our readers.

TRAIL BUGGED

In your June 1971 issue of Mini-Bike Guide there is a test on the Trailbug. It does not state where I can buy the Trailbug. Your magazine is great, keep up the good work.

Danny Gac
Depew, New York

Sorry, Danny, and from now on the manufacturers' names and addresses will be in the spec box. The Trailbug is made by Myers Enterprises, 1620 West 227th St., Torrance, Calif. 90501.

TOWARDS CHAMPIONSHIPS

I have a proposal that would lead up to the "Race of Champions". First, a mini-bike racing circuit should be formed in the U.S.A. and Canada by various mini-bike racing tracks. Uniform rules should be drawn up for safety and fairness and a name for the organization should be chosen.

A points system should be set up for rating each event, with the winner of the race getting the most points. These events would be held at least once a week, rotating around the various tracks. One major race would be held at each track, every year, and this major event would carry bonus points. The rider with the most points in each class at the end of the year would have his expenses paid to the Race of Champions.

On another subject. Mini-bikers need to unite so they can be strong against their opposition. This opposition is sometimes unreasonable. People have a right to complain about a lot of noise

Continued on page 17

Introducing BeBe.

The unique, new line of mini cycles designed with big bike features for full-grown fun at midget prices.



This is the great one. A scaled-down motorcycle with all the big bike features: heavy-duty steel drawn tubular frame; swinging arm rear suspension with shock absorbers; special, spring telescopic front fork; and comfort-contour saddle.

BeBe is available in a smart four-speed that's street-legal in most states; and a smooth, automatic transmission version; with your choice of orange or avocado in both.

Get the big bike feel in performance and comfort at a price that's right for you. See BeBe today at your nearest Premier dealer. BeBe, the mini with the big bike features.

---ATTENTION DEALERS!---

Prime territories now available. Complete this coupon and we'll rush you details to set your profits into high gear with a BeBe franchise.

Dealership
Address
City State
Phone Zip
Signature

PREMIER MOTOR CORP.
Hasbrouck Heights, N.J. 07604

MBG-81

PREMIER MOTOR CORP./Hasbrouck Heights, N. J. 07604/Sole U.S. Distributor

AllAboutMiniBikes.Com

MINI BIKE GUIDE / 7

Do it with...

DUNE CAT

Over rough hilly terrain, thru sandy river bottoms, or speeding over dry lake beds, you'll really make the scene in your go anywhere DUNE CAT.

Designed to load easily into any standard station wagon, this cat is constructed to take the torture of the toughest terrain. Check all the features that make the DUNE CAT the number one Mini-Dune Buggy today.

Extra strength fiberglass body • Gleaming metal flake mirror finish • 4 cycle engine with torque sensing torque converter drive • Amazing hill climbing capabilities plus a top speed in excess of 30 MPH • Automotive type differential • Low pressure, high flotation ATV type Goodyear Tires mounted on 8" deep dish steel rims with chrome "Moon" hubcaps.



"Sandy Claws"

Send for your official "Cat Racing Team" jacket in chrome yellow with black racing stripes and embroidered official "Cat Racing Team" patch. — \$9.95 each.

Jacket sizes: Extra Small, Small, Medium, Large, Extra Large. Offer good USA only — Send cashiers check or money order.

Guaranteed Fun in the Sun...



HPE/Muskin
225 Acacia Street, Colton, Calif. 92324,
(714) 825-8200

HPE/Muskin
38 Courtright Avenue, Wilkes-Barre, Pa. 18703,
(717) 825-4501

HPE Industries of Canada Limited
P.O. Box 269, 210 Snidercroft Road,
Concord, Ontario, Canada,
(416) 889-6781



Return to: HPE/Muskin, P.O. Box 311
Colton, California 92324

☐ Jacket ☐ Quantity \$ _____ enclosed
Size: XS S M L XL
☐ Patch ☐ Quantity \$ _____ enclosed

Name _____

Address _____ City _____

State _____ Zip _____

No Stamps — California residents add 5% tax.



TECH TIPS

HOW MUCH OFF THE HEAD?

Q: I own a Briggs three horse and I have had my head milled .030". I noticed that Leon Gogain said, in one of your Tech Tips, that he had taken .040" off his. What I wanted to know is how much can you mill off the head before the valves start hitting it? Will a Dell Orto carb fit my engine? Where can I pick up an engine-mounted gas tank like the one on the Tecumseh engines? When are you going to do a test on the Benelli Volcano?

Now a comment on the "Shadow" racer in the January issue. On page 47, you blew it. The caption said the engine had a Dell Orto carb but the picture showed a stock carb with a velocity stack.

Chas. Gerofsky,
Trenton, New Jersey 08610

A: About .060" is the maximum you can remove with the stock cam and gasket. However, before you lower the head that much, there are plenty of other things you can do to improve performance without becoming too exotic or expensive. Simply cleaning out all the intake and exhaust passages will help greatly, remove the sharp corners everywhere, and, perhaps, relieve the ports into the combustion chamber. See Ward Saunderson's letter regarding Dell Orto carbs. You might try a Tecumseh dealer for the gas tank mentioned but you will have to jury rig it for your machine. On the other hand, an Azusa auxiliary tank might make an easier installation. The Volcano test was done in the April issue. We got out the magnifying glass to take a look at the picture on page 47 of the January issue and, sure enough, we blew it.

MORE GO

Q: What size Dell Orto carb should I get for my five horse Briggs and Stratton? I will grind the intake port to match. Will I need an adaptor? If so,

where can I buy one? Next, I plan on grinding the exhaust port underneath the top for better gas escape and will also polish both intake and exhaust. Thirdly, I am getting Honda 90 valve springs. Would this be advisable and would it give higher rpm without valve floating? Will the bearings, rod, and crankshaft take the rpm? Then I would like to get a Salisbury torque converter. Will it fit the Briggs crankshaft and the jackshaft of my Taco 99?

Gary Orr,
San Leandro, Calif. 94578

A: The 22-mm Dell Orto is the one for your mill and you will need an adaptor (see answer to Ward Saunderson). We are not sure what you mean by grinding the exhaust port "underneath the top" but we assume you mean relieving the exhaust port in the top of the block into the combustion chamber. If so, it's a good move to do the same thing to the intake port, but be sure you don't eat into the valve seats. At the same time, round off any sharp edges you find here and, naturally, cleaning out the exhaust and intake passages, so that there are no obstructions, will also help. We doubt the need for Honda 90 valve springs unless you are going to install a hot cam—and even then if you substitute the regular intake valve with a stock exhaust valve, things should work out okay. There have been instances when people have gone overboard in installing strong springs to avoid the possibility of valve floating, and ended up by damaging the valve spring retainers. We don't know how high you intend revving this engine but, unless you are going all-out, the bearings, crank and rod should be able to take it. However, Ron's Mini Cycle City now has a high-speed con rod that may be good insurance. The trouble with home-installation of the Salisbury torque converter (although it is a good transmission) is that it is a matter of cut and weld. The Comet CAT 99 asymmetrical torque

converter, on the other hand, bolts directly to the engine. July '71 MBG had a story which includes installation of this torque converter on a Briggs engine and on a frame similar to the Taco 99. It will be useful to you and all Briggs owners.

HONDA NOISE

Q: My dad isn't going to stand for the noise from my Honda 70 much longer. Is there some way I could put on a baffler to quiet it a little?

Dick Fallon,
Newton Center, Mass. 02159

A: Sounds to us as though you've gutted the stock muffler or installed a straight pipe since, in stock condition, the Honda 70 is a very quiet machine. Naughty, naughty! And let this be a warning to all who contemplate such modifications of the exhaust system—not much is to be gained in power and a great deal is to be lost in places to ride. A small sacrifice in power is not your problem. Too much noise most definitely is. The simplest solution to your problem is to take your knocks and go buy another stock muffler. If you don't want to go that route, you may be able to fit one of the new motorcycle mufflers, produced for expansion chambers on two-strokes, to make them acceptable for the street. These units fit on the stingers of expansion chambers and you may be able to adapt one for your tail pipe. And here's a secret tuner's tip gleaned from the big four-strokes used in speedway racing that may help to reduce exhaust sound waves to an acceptable level, at least in more open territory. Cut two slots in the exhaust pipe 1-inch long (running in the direction of the pipe) and quarter inch wide. The slots should be about half inch apart and the first one should be no closer than 5-inches from the manifold and the further towards the tail pipe, the more effective they will be. This

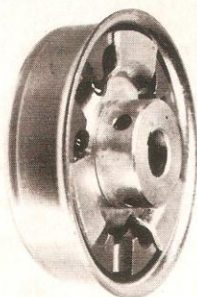
Continued on next page

MINIBIKE HEADQUARTERS

LARGEST SELECTION OF MINIBIKE PARTS & ACCESSORIES IN THE U.S.



- A. BIG BEAR SCRAMBLER**
Complete ready to run with 3 HP Briggs (as illustrated) **\$169.95**
With 5 HP Briggs **\$189.95**

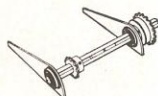


- B. BIG BEAR SCRAMBLER KIT** (not shown)
Contains everything (except engine and engine accessories) required to complete mini-bike. All fine components (illustrated) ready for installation. Even includes chain from jackshaft to engine! **\$99.50**

- C. CLUTCH SPECIALISTS!**
LARGEST STOCK CLUTCHES
Super, long lasting steel shoes. Replacement for every engine — 5/8 or 3/4 bore. No. 35 or No. 41 chain. Smooth engagement — no fade — Flexo discount prices prevail. **\$13.95**



- D. NAUGAHYDE SEAT**
Fits all minibikes... finest material over firm rebonded latex... size: 14 x 7"... contoured for comfort and safety **\$7.95**



- E. MINIBIKE JACKSHAFT ASSEMBLY**
With snap ring, keyed entire length. Complete with bearing holders. Sealed Prec. Bearings, keys. 10 & 15 tooth sprockets and locking collar set screw **\$9.50**



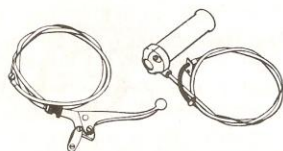
- F. MINIBIKE FRAME & FORK ASSEMBLY**
Rugged, jig-welded tubular frame...superbly engineered spring suspension **\$28.00**



- G. MINIBIKE REAR WHEEL ASSEMBLY**
Finest components available! Go-power aluminum split rim wheel with super 12 1/2" nobby tire and tube, internal expansion machined English motorcycle brake, 60 tooth sprocket, axle, spacers, flex-lock nuts. Assembled **\$29.95**
Matching Front Wheel Assembly only **\$14.50**



- H. 2 QT. (1/2 GAL.) CHROMED TANK**
Complete with shut-off valve, cap, mounting straps and fuel lines. **\$7.95**
As above - unchromed **\$5.95**



- I. MOTORCYCLE BRAKE CONTROL** (left)
With built-in adjuster, 6" lever has ball end. Top quality. Complete with in and out cables, cable stop. 4, 5 or 6 ft. lengths **\$5.95**
MOTORCYCLE TWIST GRIP CONTROL
Complete with in and out cable, compression spring, attached tab, ferrules, nipples and cable stop. 4, 5 or 6 ft lengths (Add 50 cents for dummy grip) **\$4.95**

FLEXO OF CALIFORNIA

5180 Venice Boulevard / Department MBG-8 / Los Angeles, California 90019 / WE 1-1471

Please send item(s) checked. Quantities indicated.

Name: _____

Address: _____

City: _____ State: _____ Zip Code: _____

Enclose check or money order. Send 50% with order, balance C.O.D. California residents add 5% sales tax. Send 25¢ today for catalog.

TECH TIPS

Continued from page 9

may, or may not, make your dad less tough as the exact position and size of the slots on the professional speedway bikes are usually arrived at by the "cut and try" method. Racing mechanics don't have to concern themselves overly with cost, so long as the machine goes fast. We'd much sooner see people leave their stock mufflers alone if they are doing a good job of silencing.

CLUTCH OR TORQUE CONVERTER?

Q: I've had my Bonanza for two years and its time for some changes. I've just got done painting it and was wondering if a torque converter would work better than a centrifugal clutch for speed and hill climbing. It has an overall gear ratio of 10:1 and a four horse Briggs. Also, would a Hegar 4 kickstarter fit my engine? I hope this gets printed because I want to show the answer to a very unsympathetic parent.

Alan Stenger,
Lakewood, Ohio 44107

A: Your present gear ratio sounds good for hill climbing but it will leave you a little short on the speed end of things. A single speed centrifugal clutch is no match for a torque converter in overall performance. With a torque converter you could have a low ratio of, say, 5:1 and a high gear ratio of more than 15:1. Plus better reliability. Of course, the initial cost of a torque converter is around \$60 but a large part of that will soon be saved from not having to replace the centrifugal clutch every so often and once you've got the feel of the increased performance, you won't be sorry. We have a story in this issue about installing a torque converter on a Briggs. The Hegar 4 kickstarter will fit your Briggs but if your recoil starter is riveted on, as some are, you will have to drill out the rivets. To your unsympathetic parent we would like to point out that your obvious enthusiasm is something to cultivate rather than repress—the temptations for undesirable activities are all around our young people and mini-biking is a very acceptable alternative.

MINI-TRAIL BITS & PIECES

Q: A few months ago I purchased a Honda 50-cc Mini-Trail and have enjoyed it very much. However, I'd like to purchase an odometer for my machine, do you know where I can get one? Is there any way that a rear suspension can be installed on it? Can I get a copy of

Continued on page 12

THE LOOK OF A WIN- NER



Distributor and dealer inquiries invited.

SCORPION gets down to the guts of what you're looking for in a minicycle — speed, performance, class that leaves the rest of them eating dust. This one's truly primed for performance . . . actioneered for fun. Competition can't catch it but you can — at your Speedway Dealer's now or send 25¢ for our all new 1971 Speedway color full line catalog.

Speedway
PRODUCTS, INC.

160 E. Longview Avenue, Mansfield, O. 44905
Telephone (419) 522-5078

AllAboutMiniBikes.Com

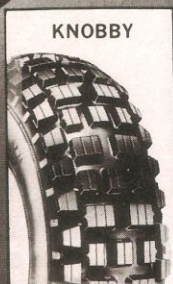
MINI BIKE GUIDE / 11



UNIVERSAL



STUD



KNOBBY

CARLISLE...THE SAVAGE!

Roar into the turns . . . scream down the straightaway . . . tear off in hair-raising starts that will scalp the competition! You're riding on Carlisle—the quality American-made mini-bike tire. Tough nylon cord body construction, deep gripping tread designs, and rounded shapes to bring out the best in any mini-bike. Slip your bike into a pair of these and turn it into a savage, a Carlisle savage!



CARLISLE
TIRE & RUBBER DIVISION
Carlisle Corporation/Carlisle, Pa. 17013

TECH TIPS

Continued from page 10

your test report? Is there a company that specializes in accessories for Honda Mini-Trails?

Dan Gallagher,
Lindenwold, New Jersey 08021

A: As far as we know there is no odometer, or speedometer with an odometer, especially made for the Honda Mini-Trail, although VDO Instruments is sending us a unit that might be adaptable to this machine. Watch for the report, probably in the next issue. Failing this, you may be able to jury-rig a bicycle speedo as described in the November, 1970, MBG, by dividing the calibrations on the dial in relation to your tire diameter and the tire diameter the speedo was designed for. It is possible to construct a swinging arm rear suspension on the Mini-Trail (on the theory that anything is possible) but it is a real bear to do and not a project we recommend. The lack of rear suspension is something you should learn to live with and one of the weak design points of the Mini-Trail. We have tested the Mini-Trail twice, once when it first appeared on the scene and again when "improvements" had been made. Both these issues are out of print and no longer available—which goes to show the interest in this machine. As for accessories, try writing to: Dept. MBG, Webco, P.O. Box 429, Venice, Calif. for a list of their bits and pieces.

THIN HEAD GASKETS

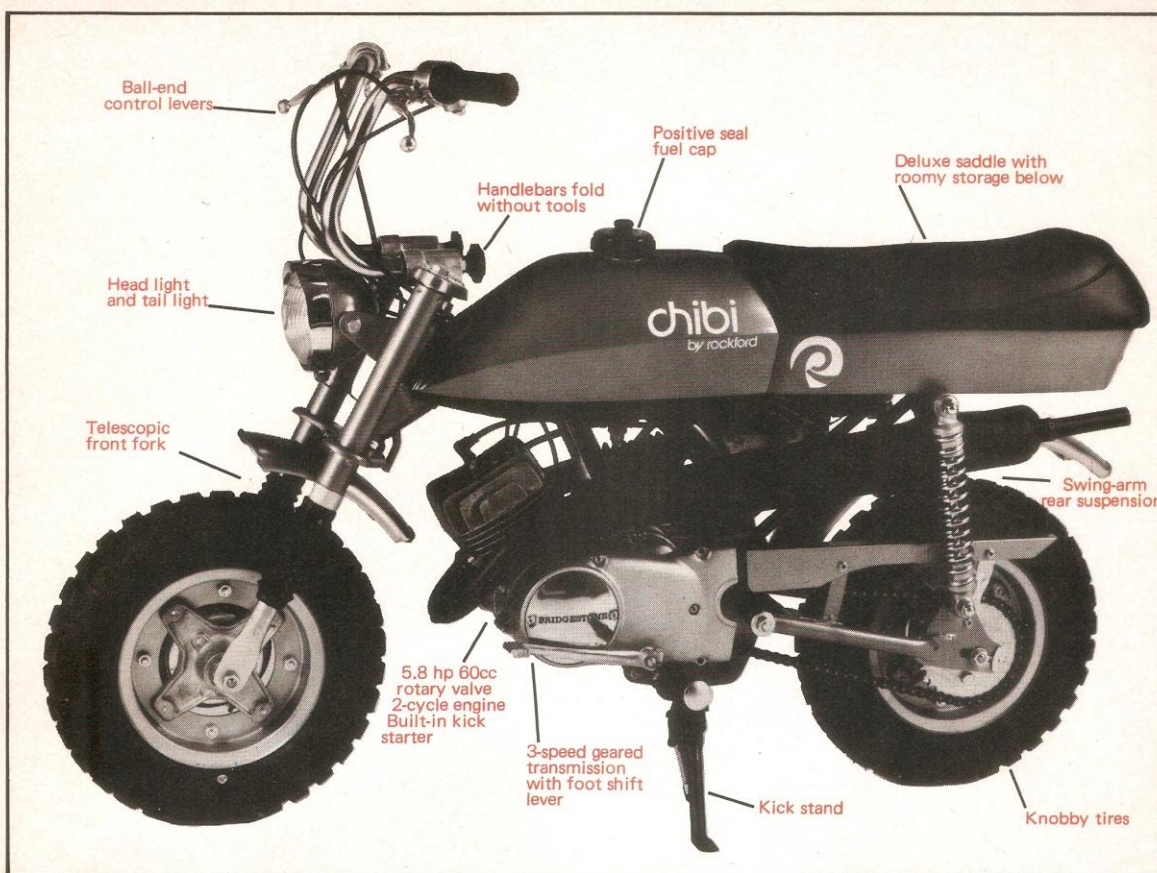
Q: I have a 3½ hp MTD mini-bike with a torque converter and, although I'm satisfied with the machine, I want more power. I've tried adding a "Super-Thin" racing gasket but it blew.

My dad is a very good mechanic and told me that taking off the muffler wouldn't help me any but I went ahead and adapted a straight-through pipe. Now the engine starts but won't run under fast acceleration. My dad said the valves floated from lack of pressure. Is there anything (inexpensive) I could do to hop it up?

Jeff Dean,
Willard, Ohio

A: The thin head gaskets will lower the head and thus increase compression which should, theoretically, increase the "push" on the piston and result in increased power. However, these gaskets are not as rugged as the stock item and if the head is removed once they have been installed, the chances are that a weak spot will be created that will,

Continued on page 14



What really sets Chibi apart from the others is its engine — the proven 60cc Bridgestone rotary valve 2-stroke rated at a full 5.8 h.p. The acceleration and climbing ability are something you have to experience to really believe.

But there's more. A virtually indestructible backbone-type frame; kick starter; built-in 3-speed, foot-shifted transmission; folding handlebars for car-trunk transporting; full suspension front and rear; headlight & tail-light; folding footpegs; knobby tires;

Standard Chibi — Same great engine and a suggested retail price below \$260 P.O.E.



all new
chibi
by rockford

...and the great
new styling
is just part of
the story!



tuned exhaust system; kick stand; internal expanding brakes front and rear — even a replaceable element, automotive-type air cleaner!

It all adds up to this: when you have chosen Chibi, you've set yourself apart from the "backyard" crowd. Because owning a Chibi says quite clearly that you know how good an off-the-road cycle ought to be.

Get full information on both great Chibi models at your dealer today. Or mail the coupon for full information.

Rockford Motors, Inc.
1911 Harrison Avenue
Rockford, Illinois 61101

- [] Please send full information on both great Chibi models
[] Send free booklet, "How to Choose a Mini-Cycle."

Name _____

Address _____

City _____ State _____ Zip _____

rockford motors inc. 1911 Harrison Ave. Rockford, Illinois 61101

AllAboutMiniBikes.Com

MINI BIKE GUIDE / 13

HERTER'S HUDSON BAY TRAIL BIKES

**BUY
DIRECT**

**NO DEALER
OR JOBBER
PROFITS
TO PAY**



TRAIL 1

- Guaranteed to perform as well as or better than any Mini-Bike made in the world. Pays for itself on one trip.
- Will take you any place a packhorse can go. Fits in the trunk of your car. $\frac{7}{8}$ " steel tubing heavy duty twin frame.
- SAE approved lights. Chromed fenders, gas tank, chain and belt guard, and front wheel forks. Beautiful metallic painted frame. No. 41 chain with bolt type adjustment.
- Variable speed Auto-matic. 5 h. p. Tecumseh gives speed to 35 m.p.h. Hauls you and 400 lbs., gets you away from the crowd. Head light and tail light optional at \$12.95.

Send \$1.00 for 600 page Sportsmen's catalog refunded on first \$10 purchase. Address Dept. 8Y.

HERTER'S INC. SINCE 1893 WASECA, MINN. 56093

CHROME SPARK ARRESTER MUFFLER



Part No. 33288

**Made by Tecumseh
for Tecumseh Mini-Bike Engines**



Tecumseh's new chrome spark arrester muffler does more than improve the looks of your bike, it performs beautifully too. It's a must when riding state and federal park trails. Easy do-it-yourself installation. Replacement screen can be quickly changed to maintain official standards. Look for it at your Tecumseh authorized service dealer listed in your Yellow Pages under Engines, Gasoline.



TECUMSEH PRODUCTS COMPANY • Engines & Peerless Divisions
900 North St., Grafton, Wisconsin • Where Imagination and Innovation Help Shape an Industry

TECH TIPS

Continued from page 12

later, blow due to the increased compression. This can be an expensive proposition. By the time this happens once or twice you will find it cheaper to have the head milled. We suspect your dad was as much concerned about the noise of a straight pipe as he was about the prospect of increased power. And we think he was right. On a four stroke there is some possibility of an increase in power, by installing such an exhaust system, but not enough to compensate for the possibility of reduced riding areas as a result. A straight pipe will cause some changes in carburetion and you probably need to open your high-speed jet a little. Also, the length of the straight pipe affects performance and you probably need to extend it somewhat. All this is a matter of trial and error. But only excessive engine speed (high rpm) will cause the valves to float, not lack of back pressure. Back pressure is only necessary for two-strokes. The most inexpensive thing you can do to increase power from your engine is to go through it and clean it all up, set the valve clearance and timing to factory specs, and reduce possible power loss through friction by oiling, greasing and lining up the power train. The steps for setting up your engine were described in the March, April and May, 1970, issues—we are out of the March back-issues but can supply the April and May issues at 75 cents each.

NOTICE:

**MINI
BIKE**
GUIDE

has moved its

GENERAL OFFICES, CIRCULATION,
EDITORIAL AND ADVERTISING
OFFICES to

11044 McCormick
North Hollywood, Calif 91603
Phone area 213/877-1195

MAILING ADDRESS:
Post Office Box 978
North Hollywood, Calif 91603

NEW SPEED EQUIPMENT CATALOG

SPEED EQUIPMENT – HOP-UP GOODIES
GO FAST THINGS for . . .
MINI BIKES and A.T.V's

THE ALL NEW YELLOWJACKET (5 HP Blocks) Specify Briggs or Tecumseh

These engines now have the Stage III Cam, extended valves, unbreakable rod, high tension valve springs, more porting, relieving, high compression head carbs, injectors, etc.

Stage I \$151.50 . . Stage I - Kit . . \$59.95
Stage II 172.50 . . Stage II - Kit . . 79.95
Stage III 225.00 . . Stage III - Kit . . 98.00

FUEL INJECTION SYSTEM

Kits for Briggs, Tecumseh, Honda 55.95
This kit includes the adaptor, injector, clamps, needles. We also sell air cleaners for the injectors for 10.95.

BILLET RACING CON RODS

We highly recommend the rods be replaced in all engines that will be used for any types of racing or even those that have the governor removed. (UNBREAKABLE)

Briggs (5 HP) 24.95
Tecumseh (2-2½-3-3½-4-5 HP) 24.95

CAMSHAFTS (High performance racing cams)

Briggs 3-4-5HP 21.95
Tecumseh 2-2½-3-4-5HP 21.95

DEL ORTO 22mm CARBURETORS ..17.50

Adaptors for Briggs and Tecumseh 3.50
Stock air filters for Del Orto 4.95

HIGH COMPRESSION HEADS (.030-.060)

Briggs 3-4-5HP - Tecumseh 2-2½-3-3½-4-5HP. 9.95

SUNBURST HEADS (High compression)

Briggs and Tecumseh engines 24.95

DUAL EXHAUST

Briggs 3-4-5HP . . . 9.95
Tecumseh 5HP . . . 9.95

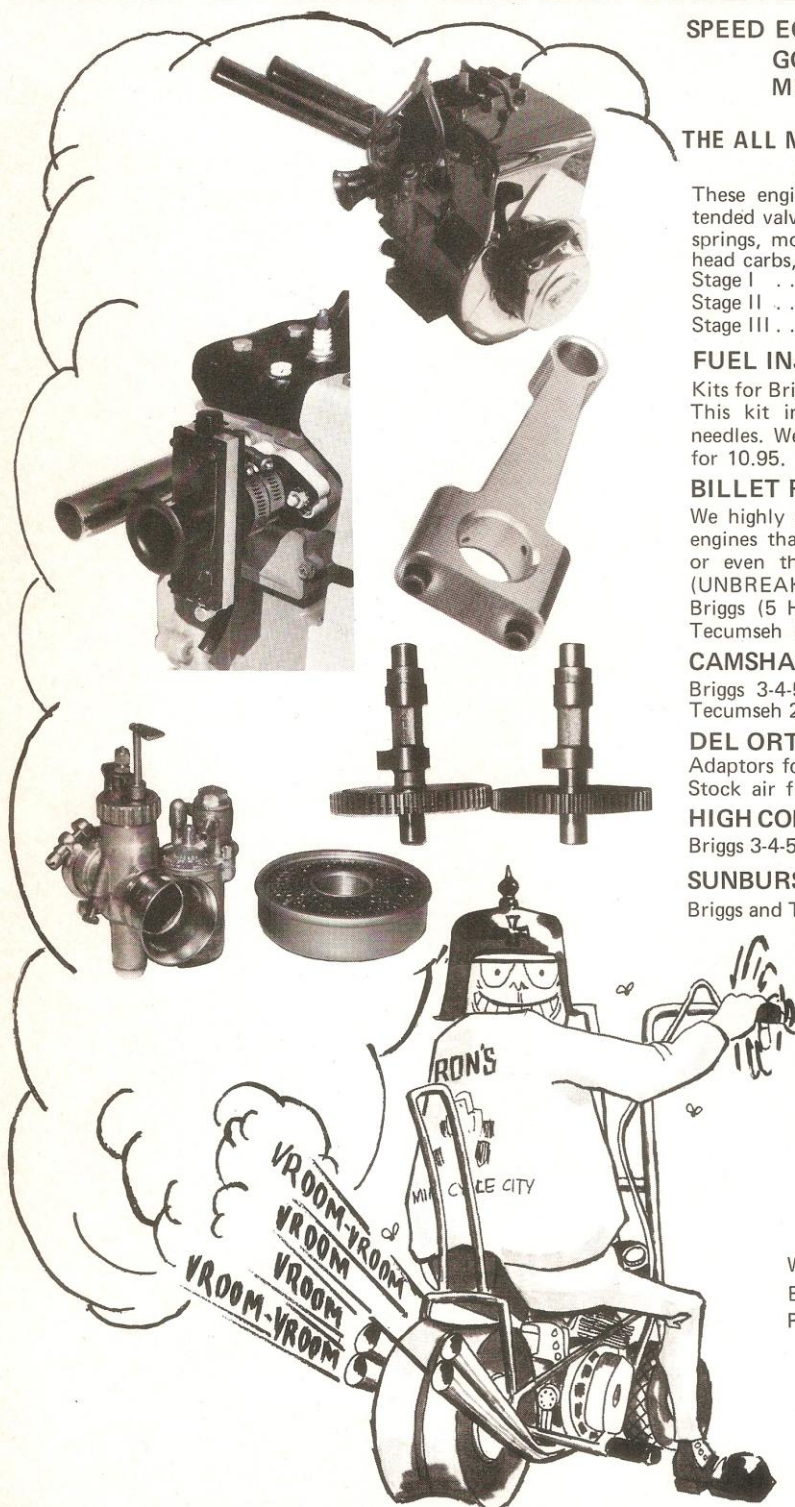
SINGLE EXHAUST

Briggs 3-4-5HP
Tecumseh 2-2½-3-3½-4-5HP . . 5.95

RON'S T-SHIRTS \$1.50

RON'S SWEAT SHIRTS \$4.95

WHEN ORDERING ANY HOP-UP PARTS
BE SURE TO GIVE US THE HORSE-
POWER AND MODEL OF THE ENGINE.



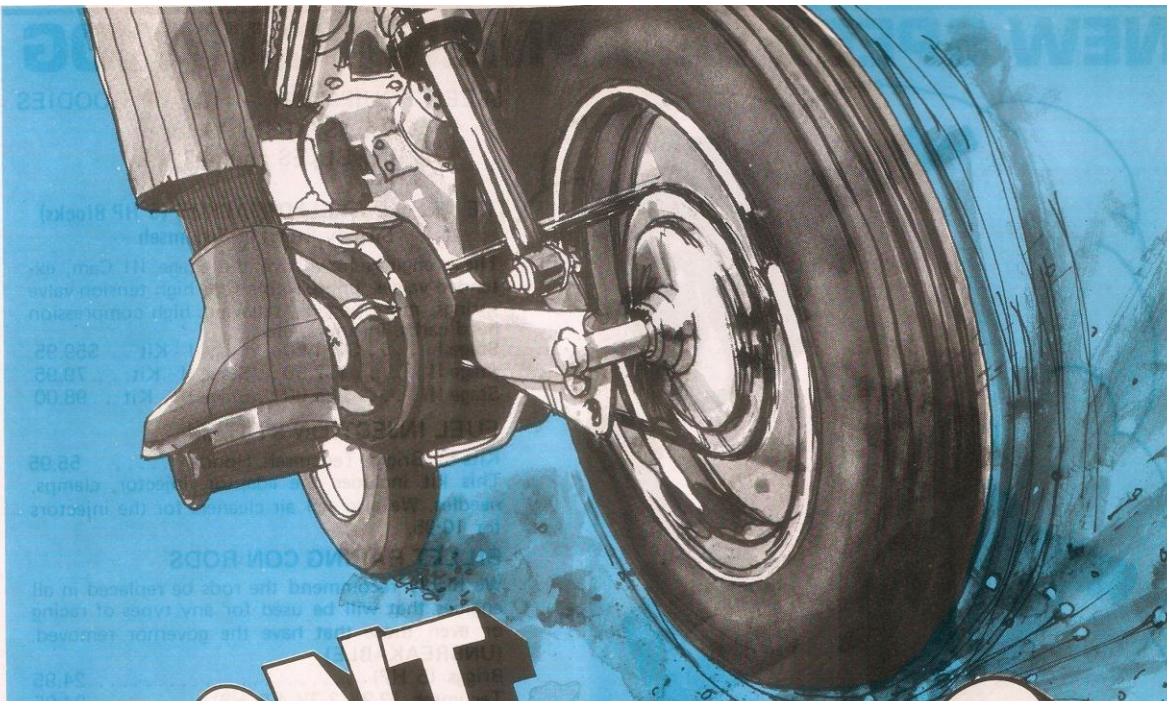
Send 50¢ for catalog

17214 BEACH BLVD., HUNTINGTON BEACH, CALIF. 92647 (714) 842-2111

RON'S
MINI CYCLE CITY

AllAboutMiniBikes.Com

MINI BIKE GUIDE / 15



FRONT RUNNERS

LEAD THE PACK...

Want the smoothest transmission of power that ever bulled a mini-bike up a rough, hilly trail? Want passing speed that will put you out in front of the Sunday riders? You get both with two new, rugged and ready Comet Torque Converters. You'll be best of the regulars with the TC-88 and really wild with the C.A.T.-99 Asymmetric Overdrive. Comet Torque Converters utilize all of your engine's power advantage—automatically—in every speed... and they last and last and last. See your Comet Industries dealer today, or write for complete information.

"The people with all the Go-Goodies"



Division of Hoffco, Incorporated
Dept. M-70, 55 Washington Ave.,
Richmond, Ind. 47374

WITH COMET NO.1 TORQUE CONVERTERS



Model C.A.T.-99
For those who want more than average high speeds—17% overdrive—sophisticated bikes and competition rigs.



Model TC-88
A full power range for everyday use over a wide variety of terrain. Rugged, easy to maintain.

LETTERS

Continued from page 6

but no one has offered a reasonably-priced, noise-killing, muffler. The same people have the nerve to accuse us of air pollution when General Motors has suppressed an automobile pollution killer. Mini-bikes are a very minor part of air pollution, so small I am sure it can't be measured, compared to the millions of cars, trucks, buses and other vehicles.

Then they complain about the dangers caused by a few stupid hot-rodders and street-draggers who don't obey the law. These guys are going to ruin it for the rest of us and they are really a small minority. Of course, there are dangers involved in everything! Even crossing the street or going down the stairs.

Adults wonder why kids turn to drugs yet they never question their own unreasonable attitudes towards something quite harmless like mini-bikes. Mini-biking is something most of us want to do but adults don't seem happy until they've got you doing what *they* want you to do. Better on a cycle than on drugs!

Michael Petri,
Wheeling, West Virginia

Right on, Mike. And maybe we'll get that Race of Champions, yet, although it doesn't seem likely this year.

"... AN' DAT'S DA TRUT'
... BLARR"

The continued use of "God Knows" and incomplete sentences makes your editor sound like an illiterate slob. Is that his picture on page seven of the June, 1971 issue?

M.M. Jones
Melbourne Beach, Florida

As the wife of the MBG editor, I can vouch that he is definitely not the man on page seven of the June issue (Ed. Note: The man shown is actually an overweight model in an Arctic Cat ad.). My husband is quite slim, sleek and sexy for an old man, although I realize I'm prejudiced. As a woman, I hesitate to pass an opinion as to his writing ability but he assures me (often) that he's the best in the business. (Ed. Note: This is a lesson on how to hide behind a woman's skirt—or is it "hot pants" these days?)

**FOREST FIRES
HURT OUR
FOREST
FRIENDS**



The new Heathkit Hilltopper price stops at

\$299.95*



...but the features keep right on going

- 5 hp engine...with alternator
- Tubular steel frame
- Load-sensing automatic torque converter
- Giant 18x8.50-8" rear tire
- Spring-loaded telescoping front fork
- Front and rear brakes
- Load-adjustable, motorcycle type rear shocks
- Handlebar-mounted kill button
- Steel splash shield
- Pillow-soft padded seat
- Sealed vent gas cap
- Sealed wheel bearings
- Optional light and ski

New Low Price On The Popular "Boonie-Bike"

- Briggs & Stratton 5 hp, 4-cycle engine
- Rugged 2-speed chain drive transmission
- Speeds up to 30 miles per hour
- Giant 18x8.50 rear tire for amazing traction
- Optional ski accessory for running in snow



Was
\$199.95*
NOW
ONLY
\$179.95*

FREE 1971 CATALOG!



The latest edition, with many new, exciting kit-building projects... over 300 kits for stereo/hi-fi, color TV, electronic organs, guitar amplifiers, ham radio, marine, educational, CB, home & hobby. Mail coupon or write Heath Company, Benton Harbor, Michigan 49022.

HEATH COMPANY, Dept. 125-8
Benton Harbor, Michigan 49022 a Schlumberger Company

☐ Rush my new Heathkit Catalog
☐ Enclosed is \$_____ plus shipping.

Please send model(s) _____

Name _____

Address _____

City _____ State _____ Zip _____

Prices & specifications subject to change without notice.
*Mail Order Prices; F.O.B. Factory GX-225



MINI
BIKE
TEST

AllAboutMiniBikes.Com

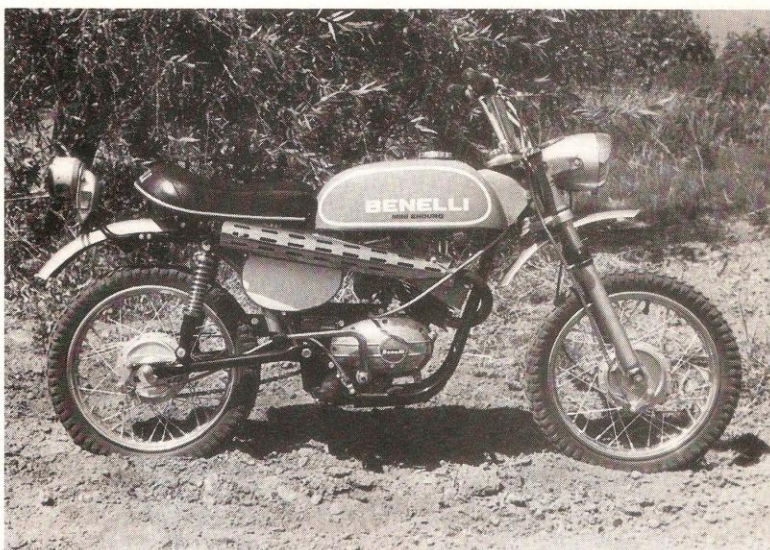
BENELLI MINI-ENDURO

**The name might seem
inappropriate
but the appearance
and performance are not**

Few people will quarrel with the statement that the new Benelli Mini Enduro is one of the best looking mini-cycles to come down the turnpike in a long time. On the other hand, there might be some argument about the "Mini-Enduro" label. With all the goodies on this machine it will have to be stripped down somewhat before it is likely to be used extensively in sporting events such as enduros. It is more suitable for "coming down the turnpike". However, after the success of the Yamaha machine bearing the same name, we might excuse Cosmopolitan Motors' desire to follow an established pattern.

Looks can be deceiving, however. Although this machine is fancy-looking, our experience during this test indicated that it was very tough. A lot tougher than one member of our test team. It was one of those series of silly mistakes that happen to most bike riders at some time or other. This MBG rider up-ended the Benelli Mini Enduro over a four-foot waterfall (fortunately dried up) and went flying. When the dust settled, it turned out that nothing on the Benelli was broken but something in the rider's wrist was.

It was a very rough day for everybody and everything. The only way out of the spot where the accident happened was down a mile or so of dried-up creek bottom. The rocks and falls were something to behold. Yet at the end of it all the Mini Enduro was as bright and shiny as ever—while the riders were battered, scarred and worn out. The following day the machine was cleaned off at a two-bit car wash and, with hardly a scratch on it, shipped to Dave Gooley's studio for the unusual and imaginative



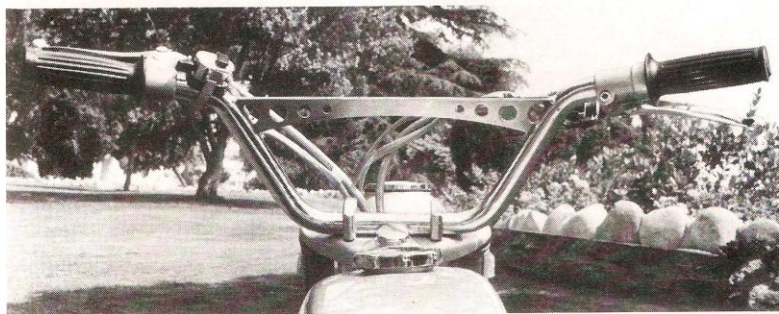
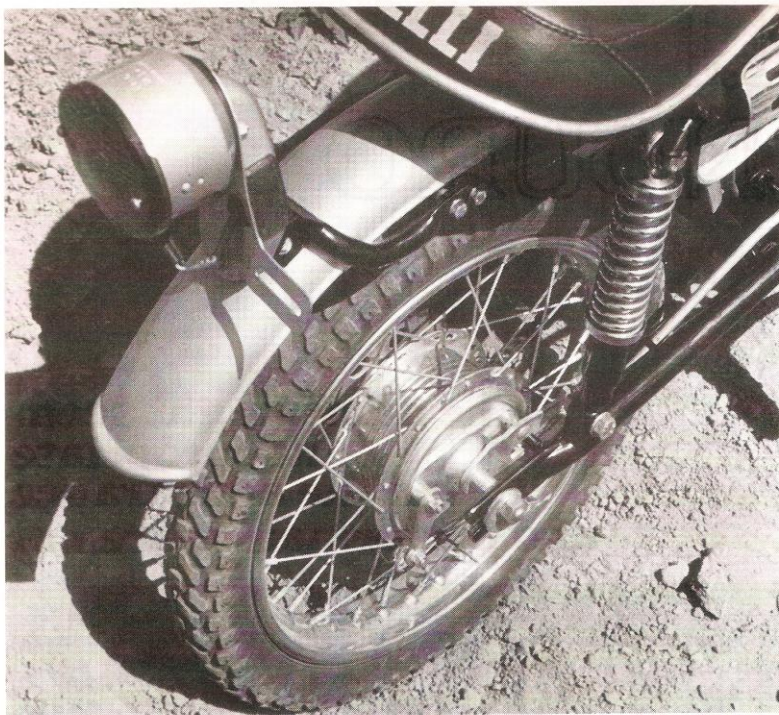
cover on this issue.

Benelli has long been in the position to create a machine such as the Mini Enduro. It may be just the way things happened but it looks as though it took the success of the Yamaha machine to prod them into action. The Benelli machines are, of course, made in Italy where the lightweight motorcycle has long been predominant on the streets of that Mediterranean country. Basically, the Mini Enduro is an ultra-lightweight, or scaled down, motorcycle incorporating all the features of the larger machines. Benelli is one of Italy's largest motorcycle manufacturers, producing machines up to 650cc, so they had all the necessary technical background to produce the Mini Enduro. And they had the experience. They have been making

mini-cycles for the American market for many years. We understand that the other models of mini-cycles in the Benelli line will still be available.

The Benelli Dynamo Compact, one of the old style machines, and the Mini Enduro share the same engine. This is a 65cc two-stroke in a very mild state of tune. It is a piston-ported engine, that is to say, the piston opens and closes the intake and exhaust ports and there is no rotary valve or reed valve. The design is fairly conventional and has been well-proven in a number of Benelli machines and should supply long, trouble-free operation.

The Mini Enduro drives through a four-speed gear box with the ratios arranged to provide a top speed of about forty miles per hour. The spread of gear



ratios is good and provides flexible operation of the machine. The gear box is one of the nicest things about this machine and never once gave us any trouble throughout the test. Neutral was easy to find and shifts were made rapidly, in some cases without use of the clutch lever, whenever necessary. This business of shifting without use of the clutch is a controversial one and the practice is not recommended until the owner of the machine is thoroughly familiar with the transmission and the bike in general.

Frame design on this machine deviates completely from previous Benelli designs. This one shows sensible adherence to motorcycle practices whereas the former Benelli mini-cycles had some very unusual quirks. It has a single backbone main member with a double loop engine cradle. The double loop engine

cradle is particularly good for a dirt machine as the forward down members provide protection for the machinery. The engine is mounted low in the cradle, getting the weight down near the axle line, and contributing greatly to the machine's stability. The rear swinging arms are long enough to provide an easy ride with the shock absorbers mounted several inches ahead of the axle and, at the top, to a bracket beneath the seat. Front suspension is provided by telehydraulic forks with an easy four-inches of travel. This is far above the average for a mini-cycle and for really rough country use possibly a slightly stiffer front end will be necessary. This could be simply a matter of adding heavier oil to the forks.

The one-gallon capacity gas tank is saddle-mounted over the backbone member which is, in turn, triangulated

with the steering crown. Behind the gas tank is a short, though comfortable, well-sprung naugahyde seat.

One of the major differences between this machine and previous Benelli mini-cycles are the fourteen-inch spoked wheels. These wire-spoked wheels, with front and rear hub-mounted brakes lend considerable authenticity to the motor-cycle styling of the Mini Enduro.

The muffler/expansion chamber does an excellent job of taming the sound waves but we feel that performance suffers from the amount of stuffing inside the muffler. No doubt the competition-minded mini-biker will substitute this muffler for a scientifically designed expansion chamber. If this is done some provision should also be made to attach a silencer to the stinger so that the bystander will not have his eardrums pierced by the noise. Carburetion is via a Dell Orto carburetor and, as near as we can figure, the throat size is 16 mm. This is somewhat restrictive for this machine and a considerable bonus in power would be gathered by installing a slightly larger carburetor.

Mounted on the upper crown plate are motocross type handlebars with a brace welded across the bars. This brace gave us some cause to worry as it is stamped from sheet metal and we feel a tubular brace would have been better.

Up to now we have described a machine that would be eminently suitable for competition events with some mild modifications. But the lighting kit added to this machine provides us with a large contradiction. The very fancy headlight which incorporates an 80 mph speedometer is liable to find itself an early victim of dumping. And the rear stop/brake light seems to be begging for an early demise. Of course, the lighting kit tends to make the bike more acceptable to state licensing authorities and if that is what the bike is to be used for, well and good. However, for dirt riding competition events, living up to the machine's name, the lights will have to go.

Still, in all, the Benelli Mini Enduro displays a very racy appearance. The styling is unmistakably Italian and the appearance is lean and workman-like. The finish on this machine is beyond criticism and will be the pride and joy of all its owners.

However, we were mainly concerned with the machine's performance (appearance is important but secondary in consideration) and we soon established that on our test date. As we got ready to set a spark to the engine we were impressed by the little details around the fuel system and carburetor. A cut-



off valve, with a reserve section, is provided at the gas tank, and the choke is automatic (it is depressed to close and opens by itself when the accelerator is cranked hard). Our particular test machine had been used by a local branch of the J. C. Penney Company as an example of future things to come from Benelli. It has seen considerable use and was well broken in. For this reason it seemed that the choke was practically unnecessary. The machine coughed into life after one or two kicks.

Starting this Mini Enduro revealed our first major criticism in the design. The kickstart does not have a retractable foot section. It sticks out to the side throughout the ride and threatens the rider with permanent injury. If Benelli does not put a retractable kickstarter on this machine then the owner must make this his first priority.

The shift pattern for the transmission follows the standard Benelli set-up, that is to say, one up and three down. As we said earlier, this was a velvet-like operation. Gear ratio spacing seemed just about right and with a little tweaking this engine should be highly competitive.

In the handling department the Benelli Mini Enduro was a sheer joy, better than any other mini-cycle from this manufacturer. No doubt this was due in part to the 50-inch wheel base and the 18-inch diameter tires. But, undoubtedly, much of its stability and agility derives from the excellent motorcycle geometry.

The larger the tire diameter (within reason), the less effect bad terrain will have on a two-wheeled vehicle and this is especially noticable in small-size machines such as the Mini Enduro. How-



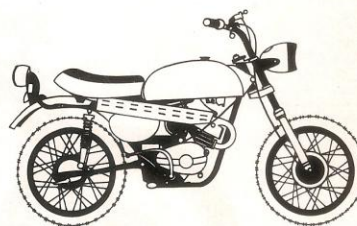
ever, it is possible to mount large diameter wheels and tires on a machine and still have an evil-handling monster. Of course, the other dimensions must all fit together. And on the Mini Enduro they do. The rake on the front fork and the angle of the steering head result in about 2½" of trail which is sufficient to provide the bike with self-righting abilities without making it into a straight-line-or-nothing machine. There was absolutely nothing squirrely about the steering characteristics of this machine but, at the same time, quick maneuvers could be undertaken without feeling the need for power steering.

Footpeg, seat and handlebar position were just about perfect for the average size mini-biker. The motocross handlebars have a moderate rise of about 6-inches, getting away from the "ape-hanger" type of thing we sometimes see. The folding footpegs which have the advantage of tipping toward the rear when struck by a trail object, are located at the rearward portion of the engine cradle. For this machine this location is just about perfect. Handlebar controls display high quality and the six-inch brake and clutch levers are knobbed for safety. These units are con-

structed from stamped steel, which can be bent back to their original shape after being dinged during a fall. This contrasts with the cast aluminum and plastic levers sometimes seen on mini-cycles. Cables look strong and healthy and are neatly routed so that they do not look like a nest of worms. On the left hand side, close to the clutch lever, is an ignition control switch that includes a kill button and lighting control. The handlebar mounts are extremely solid and the bars could not be moved no matter how we strained.

Below the upper crown plate is an anti-theft lock which fixes the forks into a tight turn and it is difficult to steal a mini-cycle that keeps going around in circles. Two brackets at the top of the Ceriani-like forks hold the aluminized headlamp, and just below the lower crown fork is a motocross type fender.

The anchors on the Benelli Mini Enduro are extremely good, bringing the machine down from high speeds to a smooth and easy stop without deviating from the line of direction. The front brake is operated by a hand lever on the



BENELLI MINI ENDURO

Importer: Cosmopolitan Motors, Inc., Jacksonville & Meadowbrook Rds., Hatboro, Pa. 19040.

ENGINE

Engine type	Benelli single, two-stroke
Bore	44mm
Stroke	39mm
Displacement	65cc
Horsepower @ rpm	Not available
Compression ratio	6:1
Carb	Del Orto 16mm
Ignition	Flywheel magneto
Lubrication	Oil mist
Fuel capacity	1 gallon
Fuel requirement	20:1, Reg. gas: oil

TRANSMISSION

Transmission type	4-speed gear box
Primary drive	Helical gears
Clutch type	Wet, multiple disc
Final drive	No. 42 chain
Gear ratios	Not available

CHASSIS

Frame type	Single backbone, double loop engine cradle
Wheelbase	42-inches
Overall length	61-inches
Suspension,	
Front	Hydraulic telescopic forks
Rear	Swinging arm
Wheels	14-inch wire spoked
Tires,	
Front	2½ x 18-inch diameter
Rear	2½ x 18-inch diameter
Brake(s)	Front & rear, internal expansion
Ground clearance	7-inches
Seat height	26-inches
Handlebar height	35½-inches
Dry weight	Not available

PRICE AS TESTED \$299 approx.

Continued on page 58

FORTYNINER?

SI!

By JIM GILBERT

The search for alternative engines leads us into Karting fields

Somewhere along the line, a guy can get tired of his bike. If he's had it for a long time, he may think that a new mini-bike is in order, but that can be economically limiting. Not everyone can afford to buy a new bike after the newness of the old wears off.

We've suggested several alternatives for this problem before. Perhaps the number one idea is to perform several engine modifications to increase the power. This will usually help blow the cobwebs out of the bike and the owner's mind. We often suggest that this is a perfect plan if the present powerplant is a little tired and needs an overhaul anyway. It combines two things at once, since the engine is being torn down for an overhaul, the speed additions can be part of the package.

Strangely enough, this is not always satisfactory for some owners.

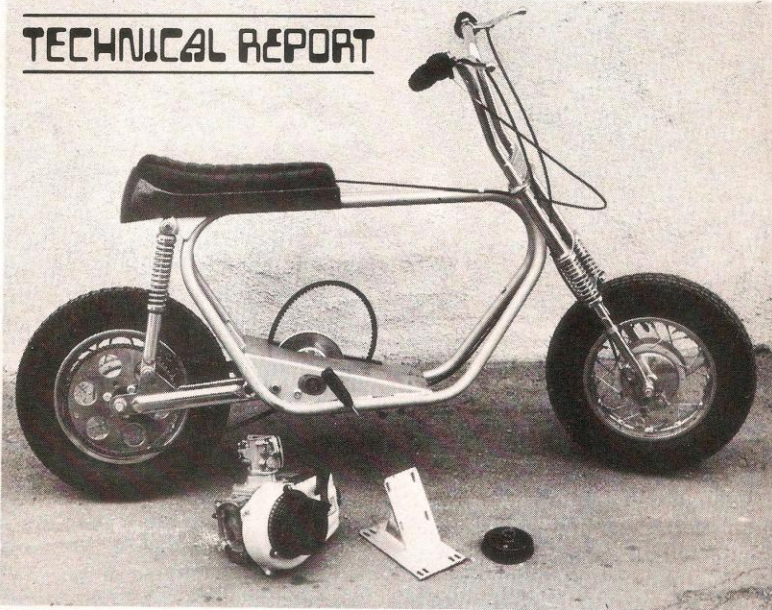
Maybe we have an answer for them. How about borrowing a page from the hot rodder's book and pulling an engine swap?

That's right, a brand new engine, something different. For about half or even one-third the cost of the mini-bike, a new out-of-the-box engine can be installed to give new life to a tired old bike. This could also satisfy a guy who happens to like his bike but, for a variety of reasons, the engine is not up to snuff.

Well, you get the picture. Most of that is to try to put in perspective this little story. It usually isn't enough to just whip an engine story on you. We try to point out how you can use it to your advantage. We think there may be some of you out there who may actually perform this little job on your bike.

By way of explanation, we should point out that we really didn't follow the script, in that we didn't use a clapped out bike for our test machine. We prevailed upon the good offices of HPE for a brand new, but engine-less,

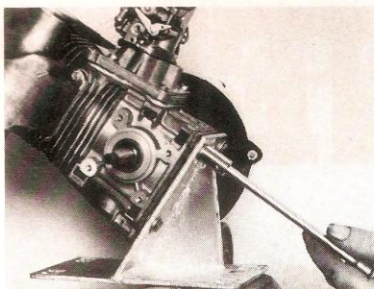
TECHNICAL REPORT



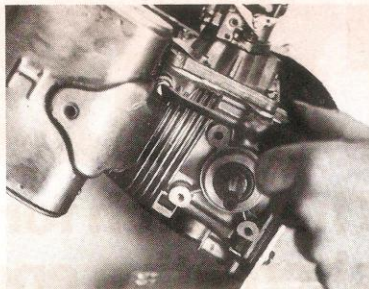
START - Endura, still with half a torque converter, engine, mount, and clutch, await assembly.



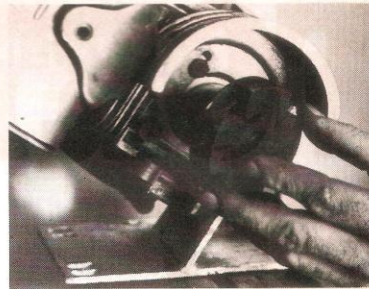
FINISH - Although mini-bike is not huge, engine is dwarfed and fits in with ease.



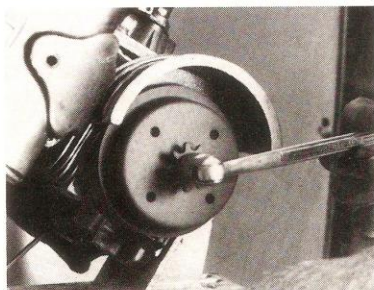
MOUNT - Engine is mounted to the plate before plate is mounted to the mini-bike.



MUFFLED - The McCulloch 49C needs some taming and the Horstman muffler does it.



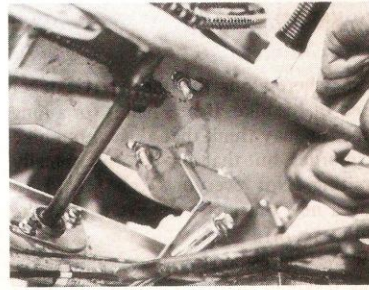
CLUTCHED - Following installation of the chain guard, clutch shoes are fitted.



HIGH SPEED - Engagement speed for Mac engine clutch is higher than for four-stroke.



CHAIN - Length of chain being measured. Alignment of sprockets is critical.



JACKSHAFT - Original jackshaft on HPE machine is utilized for drive line.

Cat frame. This became the basis for our engine swap, as we figured this mini-bike to be typical of a good class machine, one that you might want to save from the wrecker even though the original engine might not cut it anymore.

The engine was a box stock McCulloch 49C, called the "49er". It is not often found in mini-bikes since it was originally designed for use in karts. But mini-bikes with kart-intended engines are very old indeed. That's how the very first ones were done.

Most "Mac" kart engines are stormers but the 49er was chosen for the engine swap because it is relatively docile in its stock form. It is intended for the "Rookie" IKF class, which starts at age nine, whereas the hot karts and racing mini-bikes use larger, sometimes modified, engines, real fire-breathers. It is the only kart engine that has a convenient pull starter rope (all the others have to use special, battery-driven, starters), and is easy to maintain. We could have used a hotter McCulloch engine because they have plenty of them, but we feel that this is a good little engine for normal mini-bike use.

We asked our "kart man", Ron Black, to make a few educated guesses as to the horsepower and rpm range on the Mac 49C. It was funny to hear him waffle. If there was anything he wanted to do at that moment, it didn't include making guesses about McCulloch engines. But things are tough all 'round and we persisted. Finally he told us that

he'd guess that it would produce "... about five to seven horse and rev up to about 6,000 to 8,000 rpm". Not very precise but better than McCulloch does. They won't even recognize there is such a thing as horsepower, claiming that through misuse it has become a too imprecise measure of an engine's power. Which is understandable since very few people would believe the amount of horsepower karters are getting from their engines—about three for every cubic inch. If they could do the same for a Tecumseh five horse four-stroker, they'd be getting somewhere between 30 and 36 horses. Put that in your mini-bike and smoke it!

Anyway, failing a dyno test, we have to figure things out for ourselves. Somewhere we heard that the 49er produced 5.2 hp and racked up a very respectable (for an 80-cc, two-stroker) 4½ ft./lbs. of torque. It appears to have a very flat power curve (that is to say that useful power is spread over a wide rpm range), a result of its detuned state. Unlike most Mac engines, this one does not have a million ports—just three—making it easy to start and as reliable as a two-stroker can get. Its best performance characteristics lay around the 4,500-6,500 rpm band but it will pull nicely from about 3,000 rpm up to 7,500 rpm, and then keep going until 8,000 rpm.

One of the nicest things about this engine is its small size and weight. Without the clutch or muffler it weighs a

mere 12 pounds and is so small that it can easily be carried around sitting in the palm of an adult's hand. A glance at the accompanying engine specs will show that this engine is built to last and, from that point of view, it could prove economical.

Once again we descended upon Ron's Mini Cycle City in Huntington Beach, California and prevailed upon him to do the job (it was another of those: "Is yesterday too soon?" deals). Ron was very familiar with the McCulloch engine since his shop used to perform a lot of kart work, and Ron has been known to get behind (or under, if you prefer) the wheel of a kart on a time or two.

So we showed up one morning with a bare chassis, a brand new 49C engine, and a box of assorted goodies. About one hour later we had a complete, ready-to-run bike. It was one of the easiest installation jobs we've ever performed. This alone should make it worth considering for those of you who don't want an involved mechanical process.

The primary advantage is in the basic design of the engine itself. Since it is designed for kart use, and since there are so many variables in the engine placement on karts, the McCulloch people don't concern themselves with making tricky engine mounting plates, bolts, etc. to fit all the different varieties of karts. Instead, they take the sensible engineering approach of using a separate engine mounting plate. This is



FINISHED - Complete with lightweight transplanted engine, the HPE Endura looks neat and nasty. Although front wheel could be lifted on dig-out, performance was effected by gearing.

inexpensive and universal. It can fit just about every application. As a result, the McCulloch can be installed in almost anything: kart, bike, boat, you name it. Because of this, putting the Mac in the Cat was a snap.

The first step in the process is to mount the engine on the plate. This is simple enough, a few 7/16" head bolts (¼ x 20), and the engine is in place. But there are two or three very important considerations here. First, the mounting plate (our's was from Flexo, about \$6.00, but several are available) must be clean and free of foreign matter. Secondly, the plate must be flat. Check to insure no warpage. Most new ones won't be warped, but check to be sure.

Both items must be checked because this is an essential part of the engine installation. If the plate is warped, or has metal shavings on it or the like, the crankcase will crack when the 49er is tightened down. Also, each one of the mounting bolts must be evenly tightened, or the same result will occur. Do this because it would be ridiculous for the engine to be damaged in the very first step of the job.

The second step is to mount a Horstman muffler unit on the engine. This has two openings in it, and doesn't resemble the common concept of a muffler. It's designed for the Mac and costs \$14.95. It is advisable that a unit like this be installed because without an exhaust stack to provide back pressure at the exhaust ports, the engine will prob-

ably run uncontrollably lean. And, of course, this condition will cause eventual failure.

On the other hand, power is not decreased with a unit designed for the engine, so you're ahead by two from the very start if you utilize a muffler.

A Palmini Engineering chain guard was then installed over the power take-off shaft (PTO).

The next step was to install the clutch. We used a Horstman steel shoe unit which sells for \$24.95, but Comet and Max-Torque also have units to fit. The clutch slips right on the PTO. A T-wrench fits into a slot on the flywheel. The wheel is rotated until the wrench slips in and the flywheel is locked up. Then a 9/16" wrench tightens the clutch down firmly.

That's the extent of the work on the Mac. The next step is to take the assembly and place it in the bike for alignment with the power train. If the bike has a torque converter assembly, remove it. A jackshaft will be installed in its place. A standard shaft can be purchased at any shop to fit. Get one so that TabLoc sprockets with the integral key can be installed.

Then the engine is put in place. The universal engine plate mount will fit into most mounting slots on the average bike. New ones can be cut if necessary.

It is essential that the drive and driven sprockets are perfectly aligned. Slight misalignment may cause vibrations and

Continued on page 68

ENGINE SPECIFICATIONS

Manufacturer

McCulloch Corp., 6101 West Century Blvd., Los Angeles, California 90045

Model & Price

MC-49C \$99.98

Displacement

4.9 cu. in. (80.3 cc)

Bore

2.125" (54 mm)

Stroke

1.375" (35 mm)

Compression Ratio

6:1

Weight

12 lbs. (5.5 kg)

Inlet Valve

Flat, high-opening plastic reeds and 3rd port.

Carburetor

McCulloch special racing diaphragm type w/low airflow restriction. Operates efficiently in any position. ¾" venturi. Adjustable for idle and high speed mixture. Butterfly throttle & choke

Piston

Heat resistant Aluminum Alloy

Piston Rings

Two narrow steel racing type with chrome plated wear face. Unpinned

Bearings

Conn Rod M-50 Tool Steel needled rollers, hardened shaft and rod end

Wrist Pin Two needle roller bearings in the piston

Main 1 ball bearing, 1 needle roller.

Connecting Rod

Forged, hardened and ground alloy steel with removable cap and integral race. Wrist pin pressed in place.

Crankshaft

Counter-balanced, forged steel, carburized, hardened and ground

Engine

Single cylinder, two-cycle, air-cooled. Loop scavenged

Cylinder-Crankcase

Die cast aluminum alloy, cast iron liner. Deep finned integral head.

Direction of Rotation

Clockwise

Ignition

Waterproof high tension magneto. Advanced magnetic timing system, Moisture-proof coil

Spark Plug

Champion J8J

Fuel Oil Mixture

20:1

Flywheel

Die cast aluminum alloy w/integral magneto magnets, steel hub

Starter

Automatic rewind

Mounting

Four bolt holes provided on bottom of crankcase. Engine operates in any position.

SOLUTIONS TO THE WHERE-SHALL-I-PUT-IT DILEMMA

**reader
Lyle Foster
says, carry
it up front
in a
\$2 basket**

One of the big problems with mini-bikes is, where the heck do you carry things? Most manufacturers do a good job of ignoring this question. Some provide a tool compartment, tucked away somewhere, and there are even a few who offer carrying bags as accessories. But by far the majority leave the problem of carrying a couple of sandwiches, a few tools, a bedroll and a spare can of gas to the ingenuity of the owner. If questioned about this apparent oversight, most manufacturers would answer that not everybody wants to go camping or take long trail rides. Which is true. But, on the other hand, there are quite a few who do and even more who would if it wasn't such a big hassle tying stuff onto the machine with bits of string.

Reader Lyle Foster of Van Nuys, California, found his own solution to the dilemma with a front mounting basket made of expanded metal (used for plastering) and some 24 gauge sheet metal—for a total cost of less than \$2. This was for material alone as Lyle's dad was able to do the small amount of welding and bending at his place of work. Lyle, who is 15 years old, owns a Bandit TT mini-bike and designed the basket to fit on his machine, although the basic idea is universal and can be adapted for any mini-bike. MBG feels that it would be best for readers to make a pattern from cardboard, before buying the materials, to check sizes and fit. It is easy to cut cardboard but not so easy to add a chunk onto a too-small piece of metal.

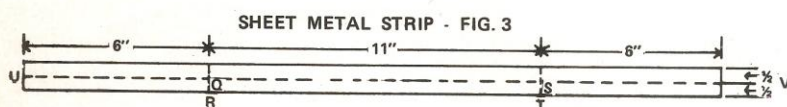
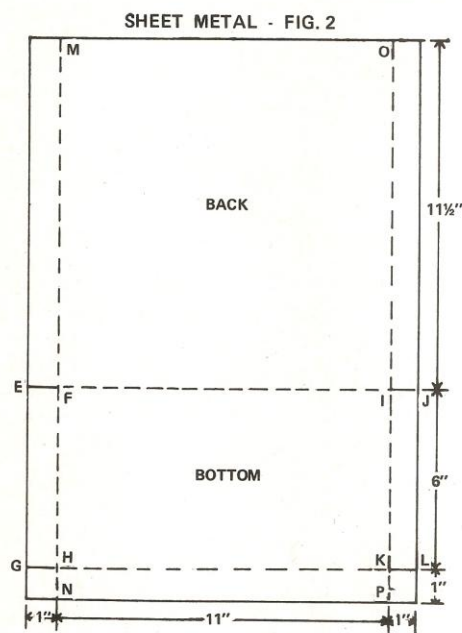
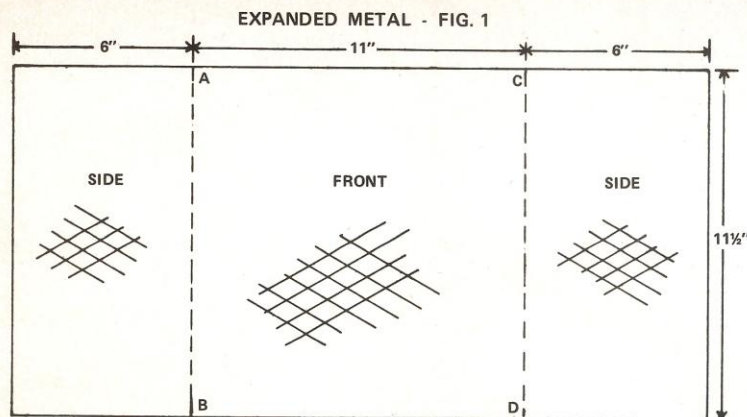
After purchasing the materials listed



elsewhere in this story (with sizes amended to suit your own machine, if necessary) mark the measurements shown in Fig. 1 onto the expanded metal with a scratch awl and straight edge. The expanded metal has to be bent at a 90 degree angle from "A" to "B" and from "C" to "D", to form the front and sides of the basket. The best way to get a nice neat bend is to take the job to a machine shop and have them do it on a hydraulic brake. Failing this, a fairly good job can be done by bending the metal around the corner of a solid length of timber or some such rigid ob-

ject with a right-angle corner.

Next, mark out the sheet metal with the scratch awl to the measurements given in Fig. 2 (unless your cardboard pattern indicates different sizes). With a pair of tin snips or a hacksaw, make a cut one inch from "E" to "F"; "G" to "H"; "J" to "I" and "L" to "K" as shown in Fig. 2. Put a 90 degree bend on a one inch strip running down the length of the sheet metal ("M" to "N" and "O" to "P"), using the same method and care as for the expanded metal bends. If you are hand-bending this basket, the next two bends are the most



difficult. A right angle bend (90 degrees) has to be worked into the sheet metal at "F" to "I" and at "H" to "K". Since the edges of this piece of metal are already bent, the block over which these final bends are done must measure about 11-inches to fit inside the two existing bends.

The narrow strip of sheet metal is marked out as in Fig. 3 and a half-inch cut placed at "R"—"Q" and "T"—"S". The strip is then bent in half along line "U"—"V" and 90 degree bends placed where the cross cuts are, with the cuts to the outside.

By now it is fairly obvious that the sheet metal section provides the back and bottom of the basket and the expanded metal makes the sides and front, while the narrow strip of sheet metal finishes off the top of the basket so that the expanded metal ends are covered. Place the expanded metal portion inside the sheet metal and have your local welding shop spot weld the expanded metal at every point where it touches the sheet metal (to spread the load). It may be necessary to pay for this work at your local welding shop but the smart mini-biker will find somebody from

among his friends' dads who has a welding machine. While you're at it, get the strip of sheet metal welded to the expanded metal at the top of the basket.

With the construction work done, take a file and sandpaper and remove all burrs and rough weld metal, making the basket as smooth as possible. Wash it with solvent to remove any oil and then paint it with two coats of primer and a finish coat of enamel. When the paint has dried thoroughly, glue to the back of the basket the three strips of rubber about 1/2-inch wide and as long as your steering crown plate (to prevent the basket from coming into contact with the mini-bike).

In Lyle Foster's installation, mounting the basket was achieved by placing two sturdy brackets behind the name plate of his Bandit. The bolt holes were then drilled through the brackets and the basket and the whole thing pulled down snugly.

(Ed. Note: We feel that the bolts could have been just as well placed through the name plate. There are so many variations in steering head design that a universal method of mounting does not seem feasible. Each mini-biker will have to use his imagination but the thing to remember is that if there is a weakness in the mounting, eventually it will result in spilled goods on the trail. Large washers should be used on the bolts passing through the sheet metal, to spread the load out. All nuts should be lock nuts. Finally, a word of caution. Lyle's basket is as strong as any carrying device for mini-bikes that we have seen, however, it would be a mistake to over-load it, especially if its contents are going to be juggled around very much on the trail. For this reason, when packing the basket, make sure that everything is jammed in tightly.) □

MATERIALS COST LIST

Expanded Metal	\$1.00
1 piece, 1/2" x 1" diamonds, 11 1/2" x 23"	
Sheet Metal	.40
1 piece, 24 gauge 13" x 18 1/2"	
Sheet Metal	.05
1 piece, 24 gauge 1" x 23"	
Steel Mounting Bars	.30
9/4" x 1/8"	
3/16" fasteners and washers	.12
Rubber inner tubing (scrap)	.00
TOTAL	\$1.87

SOLUTIONS TO THE WHERE-SHALL-I-PUT-IT DILEMMA

**contributor Jim Bonell
designed a fancy trailer
to tow behind a mini-bike**

One of the mini-bike's biggest roles is as camping transportation. Most public campgrounds have at least a couple of mini-bikes somewhere around. Mini-bikes are common in hunting, fishing, prospecting, rock hounding and nature trailing. This is not to say that the mini-bike is the perfect all-round machine for camping needs, because it does have one big fault. It rarely has room to carry more than the rider and a few tools.

Curious as to whether there was a solution to this problem, I began designing a trailer to be pulled by mini-bikes. Some

kind of rack would have been another idea but might have been awkward and would probably have size restrictions. Whereas a trailer could be any size.

Because of the wide variety of trail-bikes I soon found that it would be next to impossible to create a trailer that would be universally adaptable to all machines. The unit I designed satisfied my own needs and I hope there are others with the same needs. The two main things that I wanted in a trailer were indestructibility and high load capacity.

This trailer is a real boonie smasher. While the wide track is a bit awkward at times, the heavy construction and scientific swinging arm suspension make it a heavy-duty piece of equipment. The frame, which holds the wooden box is made of 1" x 1" angle iron, as are both the upper spring mounting posts. The tongue is made of 1" tubing 1/8" thick and is bent so the trailer can be easily moved by hand without stooping over. The tongue is supported by two 3/4" x 1/4" straps welded to the frame. The arms which position the 3/4" axle are made of 1 1/4" x 3/4" rectangular tubing. The stress area of the axle (between the wheel and the swinging arm) has a 1" tubing slipped over it and welded for extra strength. All tabs and brackets are made of 3/16" material.

The length of the trailer is 62-inches, a little over 5 ft. This is probably a little too long for most people but it adds to the trailer's stability. The width, 45-inches, is just about right to give maximum stability and yet be able to fit into most station wagons, or on the top of a car, with the wheels resting on the edge of the roof where they can't make dents. The 14-inch diameter tires give the trailer a 6-inch ground clearance which is fine since my trail-bike has only 6-inches clearance. The pine luggage box measures 24-inches by 36-inches and is six-inches deep.

The suspension is of the swinging arm type. The dead axle is positioned by two arms which pivot at the front of the frame. The movement of the arms is



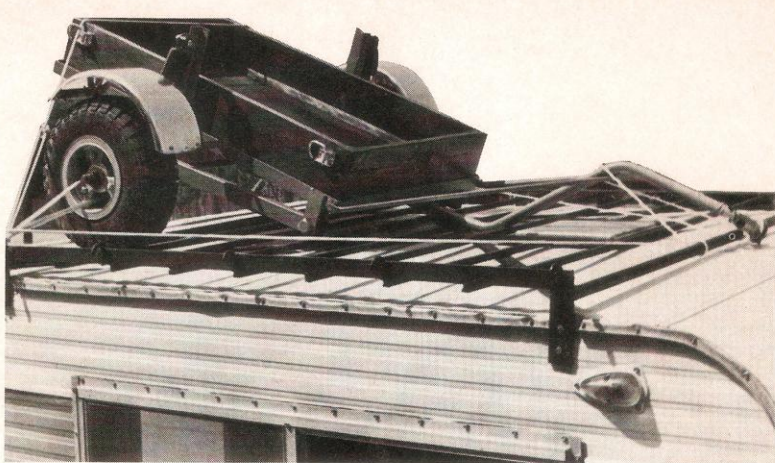
controlled by shock absorbers braced between the shock mounting posts and the axle to prevent too much lateral movement of the arms. The springs have about 2" of travel and don't seem to bottom-out even with a load of 210 lbs. Maximum capacity of the trailer was not tested but 210 lbs. is a lot of hot-dogs.

The hitch is of course in two sections, one on the bike and one on the trailer. The trailer portion has a universal joint and a swivel on it so that the bike can be pointed in any direction, up, down, left or right, without affecting the trailer's stability. The bike portion of the hitch is an upright bolt welded on to a plate which is welded to a piece of channel clamped to the frame. The trailer is hitched by slipping a piece of metal with a $\frac{3}{4}$ " hole in it over the $\frac{3}{4}$ " bolt and putting on a nut. The universal joint is a socket for a $\frac{1}{2}$ " drive socket wrench, which is welded to the tongue. The socket ran about \$2.50 at the local hardware store.

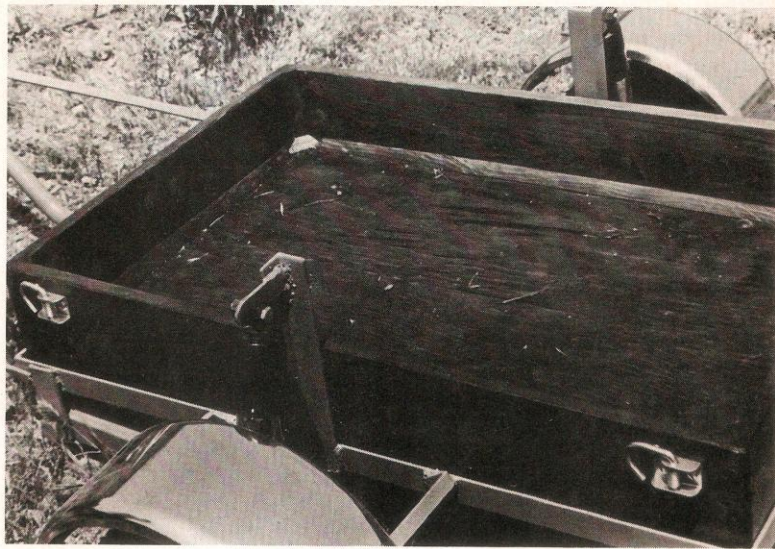
The tires are universal tread, Carlisles on 6", split, aluminum rims. Timken tapered roller bearings are used instead of the usual sealed ball bearings as they seem to be much more rugged and especially suited for this type of application. Chrome fenders add to the looks as well as being functional by keeping mud, dirt, rocks and weeds out of the trailer bed. Tires, wheels, fenders and bearings all came from Azusa Engineering. Materials, equipment and advice came from Huntington Iron Works, in La Canada. Blood, sweat and tears was furnished by myself.

On its maiden voyage the trailer performed well as a whole although there were two quirks that bear mentioning. One was the tendency of the bike to do wheelies on take-off. This was caused by a swarm of different factors. Low gearing of the mini-bike, stage I Yellow-jacket engine, skill of the rider, and position that the tongue was hooked up to the frame. If a yoke had been put around the rear tire of the bike and the hitch hooked to that, the wheelie problem would have been solved. However, anyone but an elf would have had to walk on his knees to move the trailer when not attached to the mini-bike. Not being an elf myself I decided to do the wheelies. The other problem was of a minor nature. The hitch on the bike slipped down after a few runs around the area. After the U-bolts, which fasten it to the frame, were properly tightened, no more trouble was encountered. Oh, yes, one other problem.

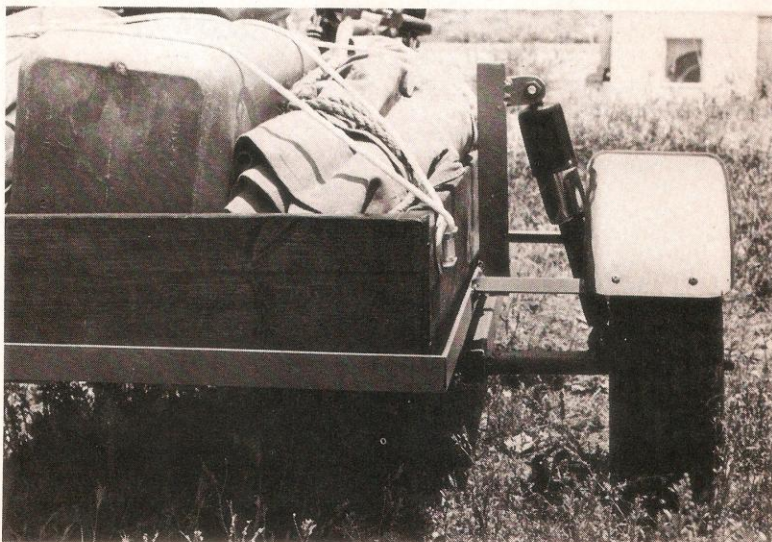
When riding, one tends to forget that



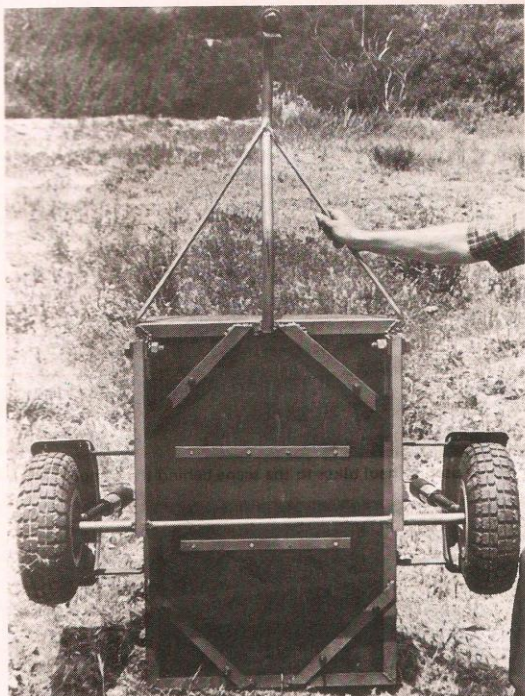
ONE WAY - Otherwise the trailer can be used to haul bikes to the scene behind the camper.



SPACIOUS - Box on the MBG/Bonell trailer is strong enough to haul a house.



SUSPENDED - Trailing arm with full width axle for stability, has shock absorber suspension.



SUPER STRONG - Trailer bed displays rugged construction.



SUITS MOST - This type of attachment suits most mini-bikes.



FREE - Use of universal joint and pivoting end bolt allows the mini-bike freedom.



HANDY - Gooseneck in tongue allows the trailer to be hand-hauled.

the trailer is there. I was riding along during one of these forgetful moments when a large rock appeared among the weeds. I quickly dodged past it with the mini-bike. Then remembered that I hadn't dodged enough to clear the trailer just as I fell sideways, almost crushing a fleeing gopher and landing in a patch of stickers. Picking myself up and inspecting the trailer, it was found to be undamaged which must mean that it's reasonably strong. I also noticed, as the bike lay on the ground, that the "U" joint trick was working. That is to say, the mini-bike was laying on its side and the trailer was just sitting there as if nothing had happened. Not that I was surprised by this, of course, but I was happy to see that my plan had worked.

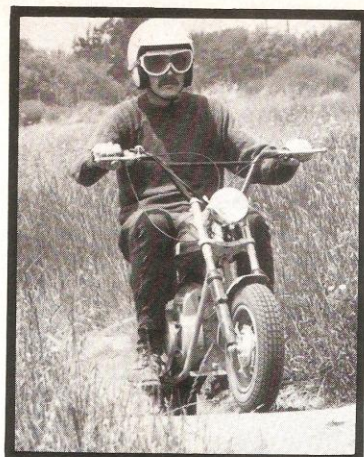
With the light load, the ride of the trailer seemed a bit bouncy. Nevertheless, I am pretty sure that the stiff

springs will be needed if any thing heavy is ever hauled. There are four spring loaded hooks at each corner of the luggage box which are used to tie things down snugly, so you don't lose your hot-dogs despite the bouncing. In spite of its size and weight (70-75 lbs.) the trailer is not too difficult to load up when it's time to leave, although it took two people to load it on top of my camper. I'm certain that if I loaded it inside I could have easily done it myself.

After testing the trailer it became apparent that many other applications are open for this type of unit. For hunters it would seem very useful in carrying out game, such as deer. The Calif. Highway Patrol said that, with the addition of a brake and tail light, I could haul the trailer behind by pickup truck, after getting a license of course. With its sturdy construction and tapered roller wheel

bearings, it is as strong, or stronger, than most road-legal trailers. By adding removable channel iron sections to the bed, it could be used to haul mini-bikes to the jumping-off spot and then hooked up to a mini-bike as a camping trailer.

Naturally this trailer is not the answer for everyone, since it is large, expensive and not too easy to build. But for some people it will be an inspiration to designing their own. If you are running on a smaller budget and a smaller mini-bike, without the access of a lot of equipment, be watching in the next issue for a do-it-yourself trailer of low cost. I will also be working to try and get a company to come out with a kit version; with a prewelded frame that only requires wheels and your luggage box. This frame should be in the area of \$20-\$30 hopefully. □



MINI
BIKE
TEST



THE BRONCCO HERD



There is an ever-growing trend in the mini-recreational field for enterprising young (and some not so young) American businessmen, with a little money, a lot of mini vehicle savvy. Displaying a tremendous amount of enthusiasm, they approach vehicle manufacturers in Europe and the Orient, eventually contracting with them to make mini-bikes/mini-cycles for the American market.

Such is the case with Carmen DeLeon, president of Engine Specialties Inc. in Cornwells Heights, Pa. Over the past three years, DeLeon and his associates have been busily barnstorming and brainstorming throughout Italy, until today they are founders, part owners of, and American distributors for, the Fantic Motor Company, headquartered in

Italy. Fantic manufactures more than 32,000 units annually, most of which find their way to the U.S. as Broncco recreational vehicles.

Engine Specialties now has 20 regional distributors and five full-time travelling salesmen peddling and servicing the 14 different Broncco models. Not that it was always that good, mind you. DeLeon and his brother, Frank, started in the basement of a house ten years ago, building go-karts on a part time basis. Eventually they got into the mini-bike distribution field, and finally, in 1968, they entered the design, manufacturing, and distribution side of the mini market. (Tomorrow the world?) Carmen DeLeon is first to admit that their distribution in California is somewhat lacking

at this time but, he says, they hope to open a branch in Southern California.

Be that as it may, MBG, in its never-ending quest for justice, decency, apple pie, the obscure and unusual, decided to undertake the gargantuan project of testing three Bronccos at one time: The 100cc Apache motorcycle; the 75cc Diablo mini-cycle; and the 4 hp Renegade mini-bike. All three, of course, are built at the company's Italian plant, with the aid of various sub-contractors (the engines, for instance, are made by other Italian manufacturers, but to the specifications of Fantic).

So join us, if you will, on a testing tour of the Broncco world. We hope you'll find the next few pages interesting and informative.

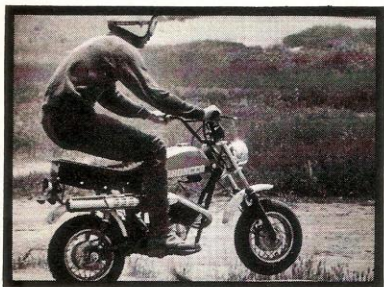
AllAboutMiniBikes.Com

MINI BIKE GUIDE / 31



AllAboutMiniBikes.Com

BRONCCO DIABLO



**Devilish-
not exactly an angel**

Diablo it's called and devilish it is—considering *both* the positive and negative sides of the adjective. It is quick, self-reliant, compact, smooth, almost mystically cunning, and, to say the least, impressively sanitary. It is also, however, skittish, unpredictable, stubborn and difficult to get used to. You can't, in other words, *help* but respect it, admire it, like it, even love it. But neither can you help but be a little leery; always on guard, always ready for erratic behavior. It is a good mini-cycle, possibly a superior one. But it is not quite perfect. Yet.

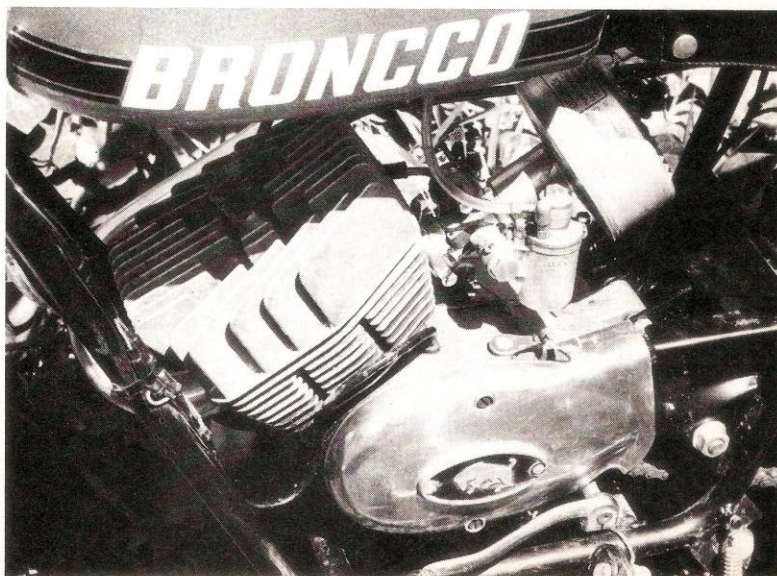
From a theoretical point of view, Diablo has an almost unmatched list of physical attributes. A list, incidentally, which will undoubtedly bear striking similarity to the components of THE ULTIMATE mini-cycle, that dream bike of the future that will do everything for everyone. An Italian made 75cc Minirelli engine, for instance, provides 5 horses of excellent power at 7500 rpm. Torque is more than ample when, like most two-stroke engines, you're within the relatively narrow power band (as a guess, between 6000 and 8000 rpm). A four-speed transmission seems properly ratioed, although missed shifts, hard-to-engage gears and a shift lever that is not too conveniently located, can present some problems. Generally, the power and gearing are more than adequate for fairly rugged terrain, as well as capable of providing top speeds well in excess of

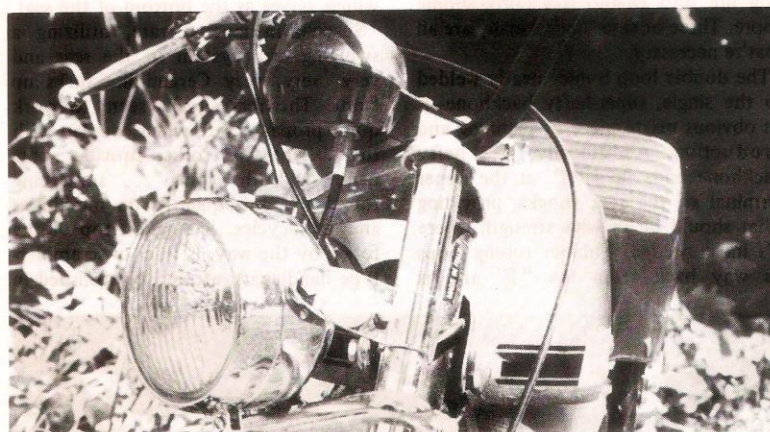
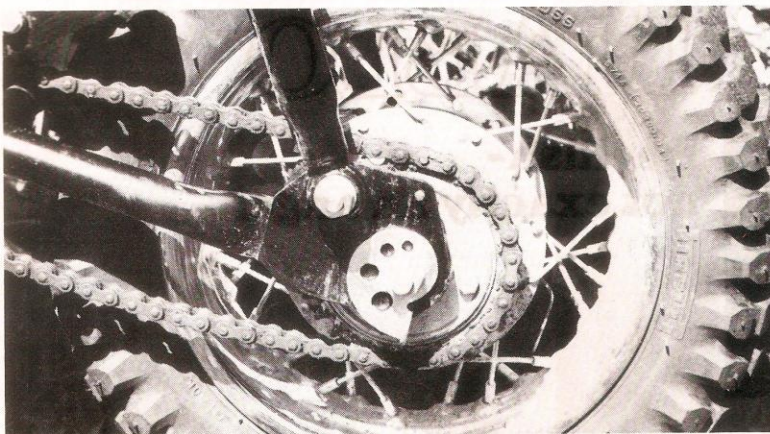
40 mph on smooth surfaces. And putting life into Diablo is a fairly simple chore. Three or four kicks usually are all that're necessary.

The double loop frame—neatly welded to the single, super-hefty backbone—is an obvious masterpiece of planning and production. Additionally, the hefty backbone ends in a "T" at the upper terminal of the rear shocks, providing what should be massive strength where it's most needed. Thinner tubing loops its way back from the "T" and is

welded to, and supports, the sheet metal which serves as the bottom of the seat.

Suspension is first rate, utilizing a swinging arm system in the rear and very, very, very Ceriani-like forks up front. The rear shocks seem to work quite properly and, when coupled with the exceptional forks, provide some damn smooth riding . . . something found too infrequently on mini-bikes and mini-cycles. Sitting on top of the forks, by the way, is a set of scrambler-type handlebars, attractively finished in





matte black, and among the best we've yet to find in the mini world.

The seat is a long, reasonably narrow affair, consisting of a three-inch hunk of foam rubber between the previously mentioned metal plate and a snap-on vinyl cover. In the comfort department, the seat is at least adequate, if not excellent. Footpegs are fold-up, spring loaded, and seemingly located quite correctly. The pegs are made of metal tubing, covered with rubber, and, for some reason, are about an inch longer than need be. Not that the length is much of a detriment. At any rate, standing in the rough stuff is easy and secure.

A small Aprilia switch, thoughtfully

placed close to the right hand side of the handlebars, houses headlight and horn controls, as well as a press-and-hold kill button. Grips are comfortable and easy to hold, while the clutch and front brake levers are knobbed and a cinch to use. An easy-to-read, yet questionably accurate, Hurst speedometer sits atop the triple crown. A hand-turn adjustment under the throttle cable allows increase and decrease of throttle twisting pressure.

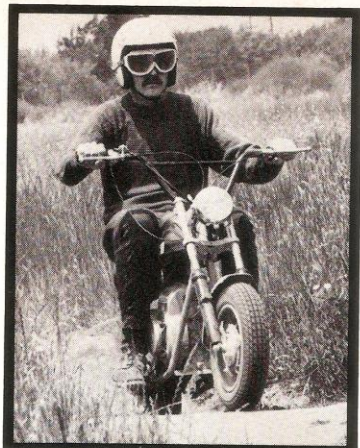
Diablo is shod with a pair of 3.00-10 Pirellis, with Universal tread in the front and knobs on the rear.

But it's how these components are put together that is really striking, and—let's

face it, fellows—we're all suckers for the beauty in the beast and spend our money accordingly. With that in mind, Broncco should sell about ten zillion Diablos. Because she's a rare beaut. The lines on the bike are clean and sanitary and leave the impression of a-place-for-everything-and-everything-in-its-place. Nothing looks superfluous and everything looks highly functional, starting with the attractive one and one-half gallon gas tank (at last, an adequate capacity) on down to the plenty-of-clearance, white Cyclocac fenders. These fenders are very similar to the super-durable ones made by Preston Petty for competition motorcycles. The muffler is up-swept, chromed and fits right in with the styling, although it may be just a wee bit bulky for a bike this size. The muffler, incidentally, does a fair-to-middlin' job of dissipating noise. Our test bike had a black frame with a gold tank neatly adorned with the company's insignia. However, other Diablos are available with the black frame and lime-sherbet tank, and a silver frame with a purple or red tank.

On the other hand, the way a bike looks seldom tells the whole story. And this was the case with Diablo. The problem, in a word, was *Handling*. At Indian Dunes cycle park, near Saugus, California, where we tested the bike, we immediately discovered that, (1) the steering was much too "quick", and (2) the bike had a tendency to wander. As it later turned out, this is something a rider gets used to with time, but it did present some initial problems and is not a particularly desirous trait for a mini-cycle. Our guess as to the cause(s) of this problem was the somewhat radical rake of the forks and/or the tires being on the small and narrow side. As mentioned above, though, a rider becomes accustomed to these characteristics and after a few hours of riding, tends to compensate accordingly without even thinking about it. In deep sand or loose dirt, however, it's almost impossible to completely "compensate accordingly." Nevertheless, once we got used to the handling, and taking into consideration the bike's excellent suspension and very good power, we found Diablo to be a pleasant off-road traveler. Hills were a breeze, bumps were smoothed, and small jumps were excitingly simple. To put it another way, riding Diablo was a great deal of fun. So . . .

. . . There are still things to iron out on this little devil, Diablo. And she's not yet THE ULTIMATE mini-cycle. But she'll damn sure do until the real thing comes along. □



BRONCCO RENEGADE

It is a better machine

The Renegade, Broncco's latest entry in the mini-bike field, is probably the best of the threesome tested by MBG. It is essentially the same as Diablo, with the notable exception of the power plant, where the 75cc Minerelli two-stroke was replaced with a four-stroking four horsepower Tecumseh "industrial" engine. This, according to MBG's definition, changes the bike from a mini-cycle to a mini-bike. There are a few other changes which will be mentioned later, but for all intents and purposes, Renegade is equipped with the same good suspension, the same good frame, the same good looks and the same handling problems as its bigger brother (handling, however, was not as critical on the Renegade and will be discussed later).

One reason we know it's such a good bike is because it was ripped off. Stolen, if you will. And who the hell would steal something that wasn't any good? Our photographer, it seems, who shall remain nameless, but who can be easily identified by the egg on his face, asked a playing-hooky kid at a local riding area if he'd like to ride the bike and get his picture taken. "You bet," said the kid with mucho gusto. And that was the last we saw of the kid or the bike.

Fortunately, we were able to ride the mini-bike and gather a few impressions before this future jail-bird made off with our test machine.

Technically, the engine is not a Tecumseh but an Asperia. It is made under license in Italy by Asperia Motors and is *exactly* the same as its Tecumseh

counterpart, except for a change to a Del Orto carburetor. As a point of interest, it might be noted that the engine's warranty is not handled in the U.S. of A or Canada by Tecumseh, but rather by Broncco Division Engine Specialties Inc., its distributors and dealers.

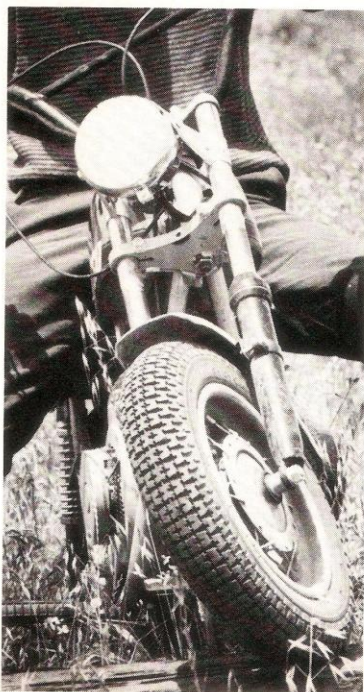
Of course, this particular engine has been discussed in the pages of MBG many times in the past and we shall not

bother to go through it all again, except to say that we found the engine to be its usual strong, reliable self, starting on the first couple of pulls and running smoothly, if not particularly powerfully, during many hours of trouble-free riding. Essentially, we felt the engine was well suited to the bike. The torque converter, we found, did its job well, with the exception of being a little slow to respond in tight situations where immediate power-to-the-ground is needed (possibly due to slightly-off installation). Additionally, we found that the engine had a tendency to die when rpm's got too low until the carb was adjusted. But all in all, we found the power unit to be very satisfactory.

Handling, as mentioned earlier, was, like Diablo, not totally satisfactory, although we didn't notice it as much on the Renegade. The fork rake was the same, and the tire sizes were identical, although Universals were used both front and rear on this machine. But there still seemed to be a difference. We could only surmise that since the Renegade was less powerful, the handling factor became less of a problem.

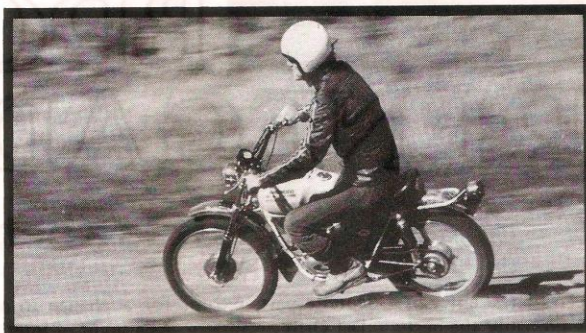
Other physical changes from Diablo include no speedometer, taking the springs off the fold-up foot pegs and the very wise addition of a bash plate.

Compared to some other mini-bikes—not mini-cycles—the Renegade is probably one of the best on the market and for \$324.95 will probably create a demand that Broncco will be unable to supply. □



BRONCCO APACHE

Back to the reservation



The Apache is a motorcycle. Not a mini-cycle, and certainly not a mini-bike. It has motorcycle size, motorcycle tires and a 100cc motorcycle engine. Therefore, it must be judged as a motorcycle along with such machines as Yamaha's Enduro models, Kawasaki's Trail Boss and Honda's SL 100. As such, it is the least impressive of the three Bronccos.

We feel Broncco fell down a bit when planning, designing and having the Apache built. Which is not to say that there are not some fine features on the bike. No siree. But it is certainly not a Sachs or even a Honda SL 100. It is, perhaps, an adequate bike for moderate off-road cow trailing.

The rear shocks, which for some reason are encased in rubber boots, are stiff. Very stiff. This, of course, does little to soothe the rider's rear end, and does much to produce erratic bouncing; i.e., handling problems. Furthermore, along these same suspension lines, we felt that front fork travel was too limited, as we frequently bottomed the forks when the going got somewhat rough. In the end, the forks on our test bike gave out all together, freezing themselves in the bottom position.

The seat, also, leaves something to be desired in the comfort department, which wouldn't be so critical if you could stand on the pegs in the rough stuff. But you can't. The kickstarter and expansion chamber-muffler are too

bulky and/or misplaced. The right leg is prohibited from extending straight down to the peg. You can get yourself off the seat, but you simply can't stand straight up.

Additionally, frame geometry and weight distribution seem to create some other handling problems, notably, very squirrely behavior in loose sand and dirt. The cause is only a guess. The effect, though, is absolute fact. And handling is not helped by a front wheel that veers off to the left when the front brake is engaged.

On the plus side of things is a quick, responsive, seemingly reliable 100cc Minerelli engine, a good, if occasionally hard to shift, four-speed transmission with efficiently spaced ratios, and a set of Pirelli knobby tires, 2.50 on the front and 3.00-17 on the rear. The engine usually starts quite readily after a few quick primes of the Del Orto carburetor and seems to operate smoothly and efficiently, picking up torque somewhere just above 5000 rpm. Like many small two-strokes, rpm's must be kept reasonably high for maximum performance,





BRONCCO DIABLO

Importer: Engine Specialties, Inc., P.O. Box 260, Cornwells Heights, Pa. 19020

ENGINE

Engine type Broncco single, two-stroke
Bore 45mm
Stroke 44mm
Displacement 75cc
Horsepower @ rpm 5hp @ 8,000
Compression ratio 9.5:1
Carb 20mm Del Orto
Ignition Flywheel magneto
Lubrication Oil mist
Fuel capacity 1½-gallons
Fuel requirement 16:1 reg. gas: oil

TRANSMISSION

Transmission type 4-speed
Primary drive Helical gears
Clutch type Wet, multiple disc
Final drive No. 42 chain
Gear ratios
1st 15.22:1
2nd 9.55:1
3rd 6.64:1
4th 5.30:1

CHASSIS

Frame type . . . Single backbone, double loop
engine cradle
Wheelbase 42-inches
Overall length 59-inches
Suspension,
Front Hydraulic telescopic forks
Rear Swinging arm
Wheels 10-inch wire spoked
Tires,
Front 300 x 17-inch diameter
Rear 300 x 17-inch diameter
Brake(s) . . . Front & rear, internal expansion
Ground clearance 8-inches
Seat height 26½-inches
Handlebar height 36-inches
Dry weight 120 lbs.

PRICE AS TESTED \$414.95



BRONCCO RENEGADE

Importer: Engine Specialties, Inc., P.O. Box 260, Cornwells Heights, Pa. 19020

ENGINE

Engine type Aspera single, four-stroke
Bore 2-5/8-inches
Stroke 1-15/16-inches
Displacement 10.5 cu. in.
Horsepower @ rpm 4 hp @ 3,600
Compression ratio Not available
Carb Del Orto float bowl
Ignition Flywheel magneto
Lubrication Splash
Fuel capacity 1-gallon
Fuel requirement Regular

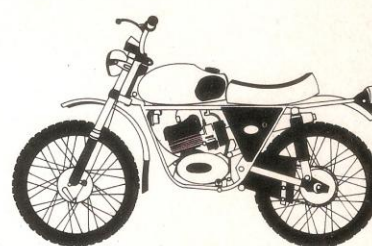
TRANSMISSION

Transmission type Torque converter
Primary drive V-belt
Clutch type Centrifugal
Final drive No. 42 chain
Gear ratios Constantly variable
from 6:1 high to
22:1 low

CHASSIS

Frame type . . . Single backbone, double loop
engine cradle
Wheelbase 42-inches
Overall length 59-inches
Suspension,
Front Hydraulic telescopic forks
Rear Swinging arm
Wheels 10-inch wire spoked
Tires,
Front 300 x 17-inch diameter
Rear 300 x 17-inch diameter
Brake(s) . . . Front & rear, internal expansion
Ground clearance 8-inches
Seat height 26½-inches
Handlebar height 36-inches
Dry weight 105 lbs

PRICE AS TESTED \$324.95



BRONCCO APACHE

Importer: Engine Specialties, Inc., P.O. Box 260, Cornwells Heights, Pa. 19020

ENGINE

Engine type Broncco single, two-stroke
Bore 50mm
Stroke 50mm
Displacement 100cc
Horsepower @ rpm 12hp @ 7,500
Compression ratio 9.5:1
Carb 22mm Del Orto concentric
Ignition Flywheel magneto
Lubrication Oil mist
Fuel capacity 1¾-gallons
Fuel requirement 16:1 Regular: oil

TRANSMISSION

Transmission type 4-speed
Primary drive Helical gears
Clutch type Wet, multiple disc
Final drive No. 42 chain
Gear ratios
1st 8.68:1
2nd 5.98:1
3rd 4.26:1
4th 3.64:1

CHASSIS

Frame type Single backbone
double engine cradle
Wheelbase 47-inches
Overall length 71½-inches
Suspension,
Front Hydraulic telescoping
Rear Swinging arm
Wheels Front 19-inches, rear 17-inches
Tires,
Front 250 x 25-inch diameter
Rear 300 x 24-inch diameter
Brake(s) . . . Front & rear, internal expansion
Ground clearance 12-inches
Seat height 31-inches
Handlebar height 40½-inches
Dry weight 140 lbs.

PRICE AS TESTED \$499.95 + 16.50

with the engine having a tendency to lug when the r's get too low. The transmission seemed quite proper, except for the above-mentioned difficulty in finding gears (one down, three up) and, at least on our test bike, some clutch slip-page.

Broncco has also devised a rather ingenious tool kit-spare parts carrier on—rather *in*—the gas tank. A cavity on the upper side of the tank has been created and covered by an easy-to-remove plas-

tic lid, which incidentally, has inscribed such useful information as tire pressures and gas-oil mixture ratios. Additionally, the Apache is one of the few stock bikes to encase the headlight with a metal screen, protecting it from flying stones kicked up by over-zealous riders.

In a way, the Apache is an attractive bike, although it probably wouldn't get our vote for Pretty-Bike-Of-The-Year. The frame and tank are painted canary yellow, with the black seat and chrome

fenders setting it off. Somehow, though, it looks a little bit too much like something devised by Italians to sell especially to Americans. It's just not as clean and functional-looking, in our opinion, as its smaller counterparts, Renegade and Diablo.

We'll have to give Broncco "E for Effort" on their Apache, and hope they'll go back to Italy and come home next year a little stronger in the lightweight motorcycle department. □

Living in America means owning power vehicles: cars, motorcycles, mini-bikes, airplanes, power boats, dune buggies, snowmobiles, off-road vehicles, all-terrain vehicles and trail bikes. But until a few years ago youngsters qualified only as passengers (except for one in ten thousand who had a go-kart).

So you grew up in the back seat until you were 16 and then they put you behind the wheel of a 4,000 pound car on 70-miles-per-hour freeways. No wonder parents, police and insurance companies are uptight about the high rate of accidents among young car drivers. They have good reason!

In 1966 this began to change. Mini-

bikes caught on. Youngsters from 7 to 16 got to own, drive, service, hop up and sometimes wreck their own powered vehicles.

And parents finally found out how safe these machines really were; that it is a good thing for their children to learn early to handle a powered vehicle, before climbing behind the wheel of an automobile. Although there are no statistics to substantiate the greater driving skill of somebody who has been riding for several years, the point seems so obvious as to be above argument.

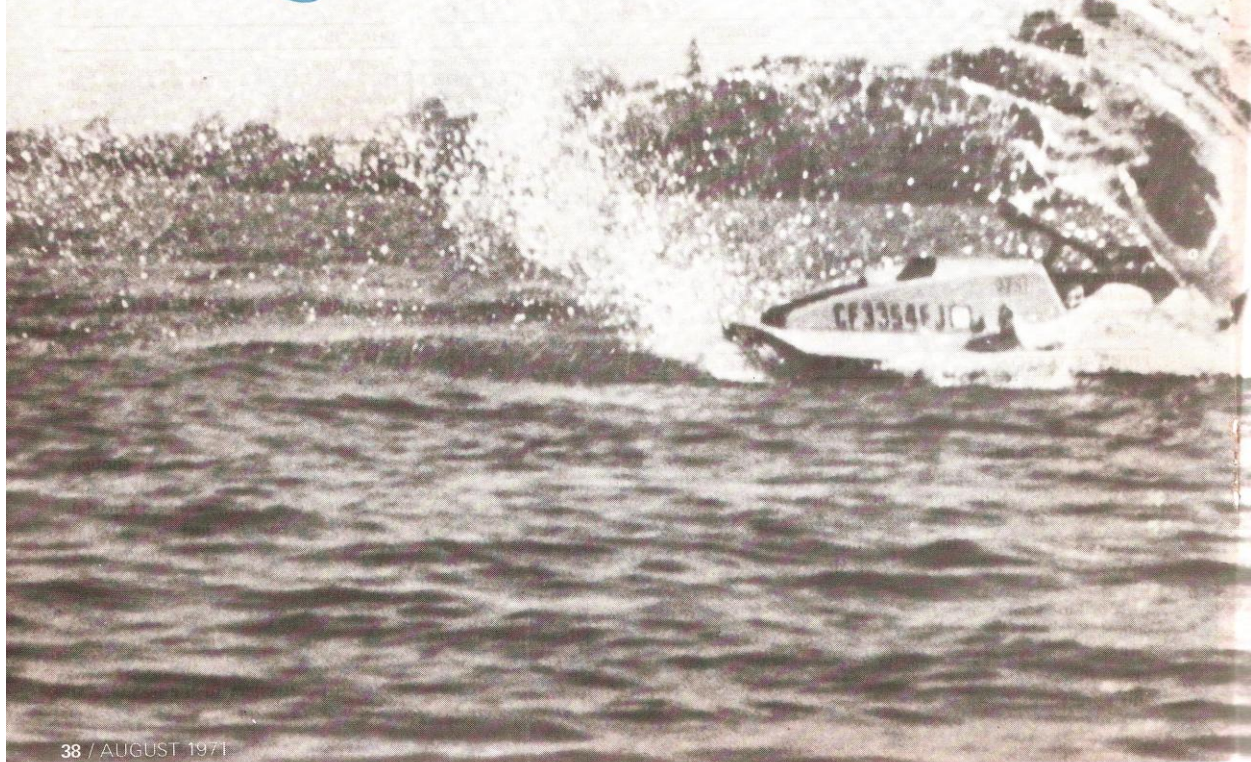
Today that's an old story. A couple of

million kids own mini-bikes . . . ride the boonies and empty lots . . . and race 'em. They work on mini-bikes in a million garages, staying off street corners in droves. Often the whole family gets in the act.

Now, when you are old enough for a license to drive a car, you'll already have some feeling for it. What's more, those hours that fly by while you get your hands greasy teach you what makes an engine run. And that's learning more than many people who have been driving for years.

Mini-bikes were the beginning of it all. But sooner or later kids were bound to want to drive other powered vehicles, too. Mini-bikes are dandy, and now

GETTING IN THE



there are three-wheelers; mini-four-wheel-dune-buggies; pint-sized snowmobiles; and, as seen in the June issue of MBG, micro Volkswagens. But how about boats? When you're at the lake you want to get on the water to fish, explore, race and feel the surge of an engine under you. And you can't do that with a mini-bike or any of the aforementioned machines.

The mini-boat is the next step for kids and it's here now. It just had to wait until someone built a boat like a mini-bike. A Mini-bike of Boats! It had to be really safe, simple, untipable, unsinkable, fairly quiet and yet be a performer. It had to cost as little as possible. It had to be lightweight so that it could go on, or in, *any* family car. And it had to be reasonably small so that it could be stored in a corner of the garage.

Not many parents could afford to buy their boy a regular power boat. That would set them back a thousand bucks

or two, with engine. And if they did then that was dad's toy anyway—the youngsters became passengers again. What's more parents didn't want their children out on the water along with 50 raging horses. Nor could you expect good old dad to come up with the bread for a trailer to haul the boat and a youngster's boat wouldn't be allowed to park in the driveway.

The latest power boat built for young sailors, the Sea-Lark, is on dealer floors now and Larkin Aircraft in Freedom, California is churning them off the production lines. Some of us may remember the old "hydro-kart" days. Hydro-karts were basically intended for competition, and used McCulloch two-stroke engines. Because of restricted air flow around these somewhat tempermental

engines, stalled boats were common and restarting them on a tippy hull designed for speed was a bear. The problem was not solved until the Sea-Lark.

This boat is so small it can be stored in the basement or in a corner of the garage. It's so light—about 100 pounds—two people can carry it out and tie it on top of the family car (we used an ordinary cheap car-top luggage rack). It will also go inside a station wagon and still allow the tail gate to be closed.

About five minutes after deciding to take the boat to the lake you can be on your way.

The fiberglass hull is beautifully engineered in the modern double-vee cathedral design. Only seven and a half feet long, it is four feet wide and almost impossible to tip over as we found out. Two of the three compartments are filled with styrofoam; it could probably float three Green Bay Packers without sinking. There's also a two and a half foot long storage compartment where you can stow fishing gear, lunch, extra gas or even snorkeling gear.

What really made us feel at home is





10-year old on the 4 HP---about 1/2 throttle.

that one of the Sea-Lark models is powered by the same simple (four horse) Tecumseh engine used in mini-bikes. The other, hotter, model is driven by a seven horse Tecumseh.

For days, on Pinto Lake, California, and on an ocean we found near there, both models of the Sea-Lark were thoroughly tested. They're exactly the same except for engine and prop. Both engines have the same mounting pattern so that the 4 hp job could be purchased to learn with and later, by loosening just four bolts, swapped for the 7 hp. The propellers have to be changed, as well, but that's simple enough.

With a 4 hp or 7 hp Tecumseh in your minibike you can save by buying the boat without engine. Cost of the boat, ready to go but without engine, is \$393.50. With the four horse engine the Sea-Lark costs \$445 and with the seven horse jobbie it goes for \$505. Incidentally, these same engines will also fit the Ski-Lark snowmobile, another Larkin Aircraft product.

Sometimes we rode two to a boat—an adult and a small child or two youngsters. It even carried two adults once, but then the little 4-hp boat couldn't lift its nose out of the water and plane (planing is when sufficient speed is built up for the boat to skim *over* the water, rather than plowing *through* it). Two boats playing together was a ball; we jumped each other's wakes and felt like flying fish.

Before the tests we had doubts as to whether the 4 hp could move us fast enough for fun. Boy, we were surprised. This is really a miniature hydroplane. It gets right up and planes (with most of the hull out of the water) at relatively low speeds and at 20 to 25 mph it feels like you're setting new water speed records.

The 7 hp (Larkin rates it at 8 hp in this application) actually leaped out of the water with a 250-pound driver (or

should that read rider; or sailor; or captain; or pilot; or whatever). At 30 to 35 mph this boat seems to be going 80 because you're just inches above the water.

Incidentally we learned it is possible to get soaked if care is not exercised. It's dry enough going fast and still dry if you slow down gradually. But if the throttle is cut suddenly, the planing bow drops and you can get doused with *sheets* of water. This is because the boat is so light that as soon as the power is switched off, it comes to a screeching (if water could screech) halt. The wake, which normally follows merrily behind, rears up over the stern and ruins any decent clothing the driver happens to be wearing. However, the sudden slowdown is a good safety feature, if you don't mind getting wet.

Like a mini-bike, the Sea-Lark steers with handlebars and has a mini-bike-type, spring-loaded throttle. Even sharp turns are phenomenally flat with almost no feeling of tipping.

"These are right-on!" we decided and wondered why no one had built them before. So we asked an "expert" who told us: "No one has ever been able to run an air-cooled engine in a boat successfully. They overheat." He looked so wise we were half-convinced.

Then we wrung out the boats for two hours at full throttle and found they just got hot, that's all. They kept right on running, day after day.

So we asked designer Larkin, "Hey, these should overheat and seize when pushed this hard. How come they're running as good as ever?"

"You forget," he answered, "that these engines were designed to stand still in a desert in July and keep going hour after hour. It never gets that hot a few inches above the water, and our air scoop washes the cylinder fins with air that's been cooled just over the water surface."

Another thing that bothered us was that churning propeller. But we found it has a clutch that disengages when the engine is idling. In any case, you'd have to make a real effort to poke your hand a foot deep in the water and a foot forward from the stern to get it into the prop.

After some hours of taking photos from a big rowboat, four of us found ourselves a half mile from the dock and a long, sweaty row with oars. We were saved by the young man on the 4-hp Sea-Lark who grabbed a rope and pulled us at a surprising clip, making a big wake all the way across the lake.

Freeboard (deck distance above the water) is about six inches. Even loaded, the hull draws only about two inches, with the prop about eight inches below that. The engine is about 60 per cent forward in the hull, and when loaded the center of gravity is about 60 per cent aft.

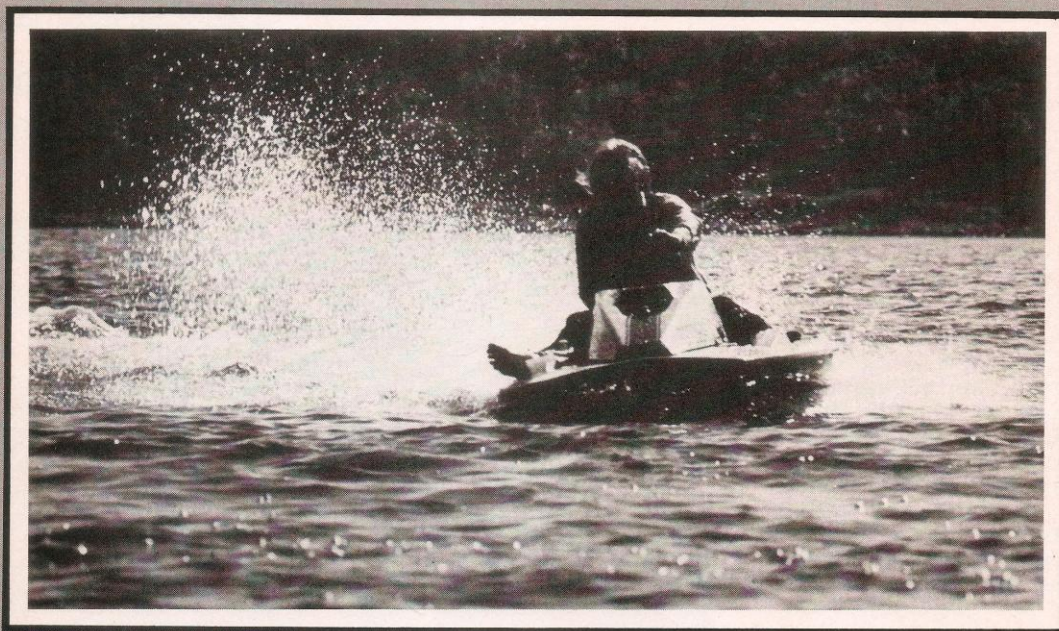
We were surprised at how quiet the 4-cycle engines are compared to other inboard-powered boats. People waiting for us at the end of the lake a half mile away had to look to see if the boats were running or not.

An all-metal plate centrifugal clutch couples the crankshaft to the steel propeller shaft. The larger engine has a remote gas tank and fuel pump. Each engine has a legal muffler. The steering hardware all anchors to the engine, rather than to the hull, for cleaner design. All hardware—rudder, etc.—is of cast aluminum.

A new type of fiberglass molding process produces the hull. The acrylic coating is about eight times thicker than by older methods. This protects against the action of sunlight, scuffing and discoloration. The tough fiberglass hull is further strengthened with molded plywood inside and two internal full-length keels.

For anyone planning to get dad thinking about a mini-boat, here's a tip that could clinch it. Without telling him so, let him get the idea that he could sneak it off on week-ends now and then (if he falls for it, and he tries to get out of the house with the boat, before anyone else is out of bed, play fair and pretend you don't notice!). A mini-boat is just too handy for him to resist.

Now that we have dried out, we can look back at the Sea-Lark test objectively. Both models proved to be one of the most fun things around and both had surprising performance. For a change of pace, the mini-boat could become as popular as mini-bikes and provide new worlds for America's youngsters to conquer. □



Not long ago, few youngsters had seen the boonies. Except, maybe, for short trips on the back of dad's motorcycle. Mini-bikes changed all that. Now comes the next step. Boats for young people. Water-going mini-bikes. It gets a little damp but it's a whole new world of fun. Like comparing mini-bikes to the big machines, mini-power boats are a great deal safer than the big hot boats, yet they are not tame, by any means.

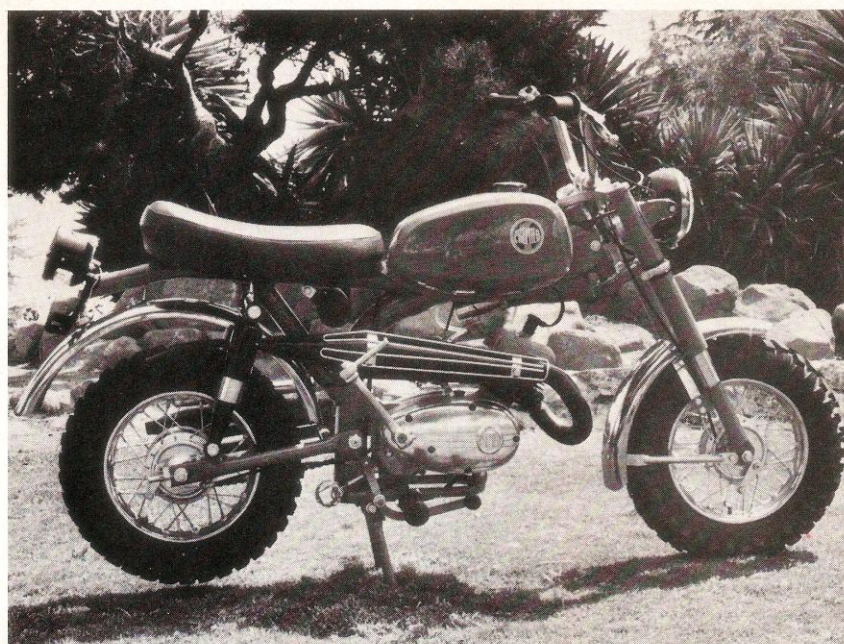
PREMIER BEBE

**A Moto Beta is just as good
by another name**

The other machine in the life of Premier Motors is, believe it or not, the huge 750cc Moto Guzzi which is becoming increasingly popular among police departments in the United States. We say "believe it or not" because the product line jumps all the way down the scale to our test machine, the 50cc BeBe mini-cycle. There is a certain relationship, no matter how tenuous, between these two machines. That relationship is the quality they share. The BeBe mini-cycle is not, of course, shaft-driven, nor does it weigh two tons, but both machines share a purposeful air.

The appearance of the BeBe is chunky and not over-large. Its relative closeness to the ground will make it suitable for mini-bikers moving up from the industrial engine stage into the mini-cycle field. It sports ten-inch wire-spoked wheels and this helps to emphasize its motorcycle lineage, although 15-inch wheels would be even more motorcyclish. Although the BeBe is well identified with the Premier name, both on the gas tank and the crankcase cover, closer examination reveals its real background. In point of fact, the engine is a 50cc two-stroke from Moto Beta. This is a well-respected name in the motorcycle field although, nowadays, one does not hear so much about them. Maybe the BeBe will be the re-birth of the Moto Beta efforts in the United States. Certainly it is interesting to note the number of well known motorcycle names





that have become active in the mini-cycle field.

Basic construction of the BeBe's frame is similar to the Indian mini-cycles designed some while ago. It is a departure from the current mini-cycle practice of following motorcycle construction, just scaling down the dimensions. The major component of the frame is a massive backbone member that runs from the steering head, under the gas tank and down the back of the engine. Welded to the bottom of this tube is a loop providing engine mounting positions. From the bend in the backbone member a smaller tube runs back to provide support for the seat and the rear suspension mounting points. This seat-bearing member is braced against the lower part of the main member by a triangulating tube. A gusset is provided at the junction of the backbone member and the steering head.

The front suspension is a mechanical telescopic fork design with the lower legs sliding into the upper legs. We found a maximum of about two inches of travel in these forks and did not, at any time, cause them to bottom-out. The fenders are polished steel and the front one is attached to the lower forks by a bracket. This allows the fender to be placed fairly close to the wheel (for better protection against mud and rocks) but still maintains the same distance between the wheel and the fender as the forks telescope. The whole arrangement on the front end appears to be extremely sturdy and although this

machine took an unusual amount of bashing during our test we detected no weaknesses. The handlebars are motocross type but without a brace and are attached to the upper crown plate via U-bolts.

Rear suspension is provided by swinging arms with the pivot point fairly high up from the bottom of the main frame member (more about this, later). The arms are joined together by a tube back of the pivot point. The length of the arms is somewhat short for really effective cushioning and in addition, the rear shocks are somewhat stiff. The ride at the rear is, to say the least, firm. However, some people like it that way, especially for dirt riding, and the BeBe has a well-cushioned seat to take the sting out of the worst bumps. Mounted to the frame below the seat is a minimum tool kit. The nicely-shaped gas tank, saddle-mounted over the main frame member, holds nearly a gallon of fuel.

The footpegs are mounted on the engine mounting loop and fold upwards and backwards at the correct angle. A three-point kick-stand, a feature small but important, holds the BeBe firmly upright when unattended. Another nice little touch is the tire pump that is mounted to the chain guard which in turn is affixed to the swinging arm.

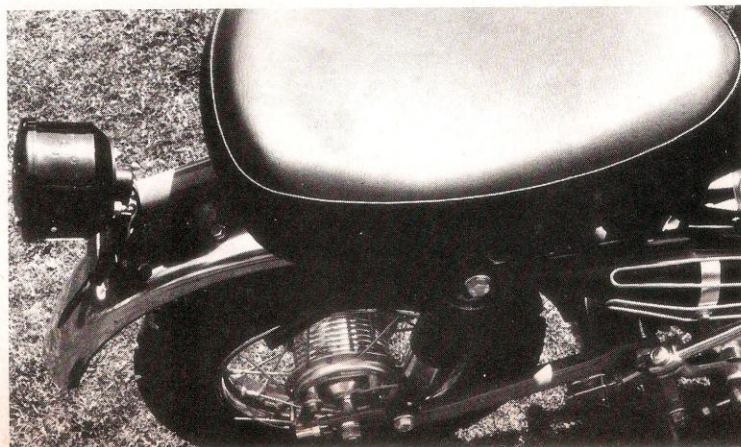
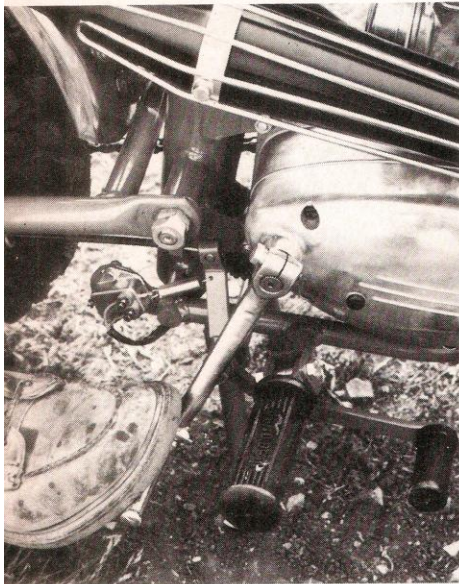
Nobody seems to be able to sell a mini-cycle these days unless it is fully equipped for the street although, to us, this does not seem to be its natural habitat. The BeBe does not deviate from this, having an ordinary-looking head-

light and a stop/rear light with a license bracket below it. Right behind the headlight is the usual embarrassingly squeaky horn. This bike does not carry a battery and therefore would not be legal, in its present form, on California streets.

Another feature that seems common to today's mini-cycles, and one that we much prefer, is the dual set of brakes. In this regard the BeBe again follows practice, although the two hub-mounted brakes are good enough to rise above the ordinary. The front brake is controlled by a pressed steel six-inch knobbed lever on the right hand side of the handlebars and the rear brake is controlled by a foot lever. Owners of the BeBe will quickly substitute the cable running from the foot lever to the rear brake with a rod. The line is direct and a rod is much more reliable than a cable.

On the left hand side of the handlebars is an electrical control cluster including a convenient ignition kill switch and switches for the lights and horn. Power for the six-volt electrical system comes from a flywheel magneto.

Of prime interest is the power plant on the BeBe and this Moto Beta engine is a beauty. It is strong and, although the torque figures are not available from the importer, it appears to be extremely flexible. We imagine that a power chart, if one was available, would show a very flat curve, indicating that the torque is spread out over a wide rpm band. The rated horsepower figure is 5 hp and this seems to be fairly conservative. Un-



doubtedly the power could be increased with a slightly larger carburetor than the 16 mm Dell Orto installed in stock form. The engine is piston ported, which is to say that the piston controls the intake and exhaust timing of the engine.

A very effective four-speed gear box comes on the Moto Beta engine installed on our test machine (an automatic, single-speed, transmission is provided on the other mini-cycle in the Premier line). The Moto Beta gear box is an excellent unit and gear shifts were missed only at the beginning of the test, when we were becoming accustomed to the unit. We occasionally found a false neutral and this could be annoying, but if the gear box was operated firmly this did not occur very often. The gear ratio range seemed about right with the spacing between the gears making the machine suitable for just about any terrain. However, serious hill climbing usually found the machine in first gear as second was just a shade too high. Top speed in fourth was a surprising 45 to 48 mph.

At our test site we found that the fuel system was adequately supplied with cut-off valves and that the engine was remarkably easy to start once the carburetor was properly primed. This was just as well as it was difficult to get a good, sweeping, kick on the starter since the footrest was in the way. For some reason or other the kickstarter did not turn the engine over until nearly half the swing was expended. Thus, only the last part of the kick turned the engine unless the footpeg was folded up out of the way and the kick carried on through. We don't know if this is standard for all the BeBe mini-cycles or whether it was simply that our machine had some peculiarity.

The seating position on the BeBe was about right for the average mini-biker but the adult rider will find that the distance between the seat and the pegs is a little scarce, resulting in a rather knees-up ride. Also, for extended rough terrain riding, we feel that the footpegs should be a little further toward the rear to allow proper weight distribution for the standing rider. However, handlebar height was good and in general the relationship between the seat, handlebars and footpegs was easy to become used to. The controls were excellent and well placed.

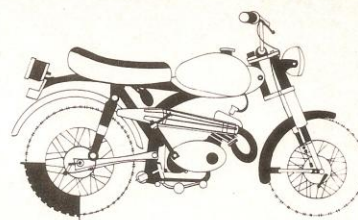
Handling was surprisingly good considering the relatively small diameter of the tires. It wasn't so long ago when the 16-inch diameter tires found on the BeBe were the largest to be found on

mini-bikes or mini-cycles. However, today, the trend seems to be toward 18-inch diameter tires or larger. Of course, this requires a larger diameter wheel than the 10-inch spoked unit on the BeBe. Yet the wheels, suspension and geometry of the test machine all worked well together.

Steering was a little on the quick side due to the relatively small amount of trail (another advantage of larger diameter tires is that the same geometry will produce a larger trail measurement). The lack of trail is partly due to the large steering crown plates and the position of the steering pin well to the rear. The length of the forks seems about right but the rearward position of the steering pin reduces the amount of trail. This is not to say that the BeBe was squirrely or that the steering was uncomfortably quick, but the rider unfamiliar with the machine had to be careful of over-reacting.

Possibly the quickness of the steering was part of the reason that the manufacturer placed the steering stops so that the amount of turn was restricted. The thinking may have been that if the steering got too out of hand, the radius of turn would not be very tight. However, a big turning radius is not too cool when the rider has to maneuver around large rocks and boulders. This kind of slow, trials-like, riding requires unrestricted steering and the BeBe just does not provide this. On examination, we found that the steering stop was welded to the gusset between the main frame member and the steering head. There seemed to be no danger of the handlebars or the steering crown hitting the tank if the stop was reduced in size so that the front end could be turned tighter. We imagine this will be one of the first tasks of BeBe owners.

Apart from this criticism of the steering radius, the over-all handling ability of the BeBe was extremely good. It has a compact, tight feeling that imparts confidence to the rider. Sideways trips along the face of hills and over slippery, gravel-covered, hillsides were undertaken with the very minimum of sideways slip. The rather stiff suspension, front and rear, helped in this regard by eliminating any mushy feeling. The major criticism of the BeBe for trail riding lies in the lack of ground clearance. This is a result of placing the swinging arm pivot point too high on the frame and reducing the amount of air between the bottom of the frame and the ground to slightly less than 5-inches. A bike with 16-inch diameter tires could well afford to have 7- or



PREMIER BEBE

Importer: Premier Motor Corp., Hasbrouck Heights, New Jersey 07604

ENGINE

Engine type . . . MotoBeta single, two-stroke
Bore 38.8mm
Stroke 42.0mm
Displacement 49.6cc
Horsepower @ rpm 5hp @ 7,000 rpm
Compression ratio 10:1
Carb Dell Orto 16mm
Ignition Flywheel magneto
Lubrication Oil mist
Fuel capacity approx. 1 gallon
Fuel requirement Reg. gas: oil

TRANSMISSION

Transmission type 4-speed gear box
Primary drive Helical gears
Clutch type Wet, multiple disc
Final drive No. 42 chain
Gear ratios Not available

CHASSIS

Frame type Single backbone
Wheelbase 39½-inches
Overall length 57-inches
Suspension,
Front Mechanical telescopic forks
Rear Swinging arm
Wheels 10-inch wire spoked
Tires,
Front 300 x 17-inch diameter
Rear 300 x 17-inch diameter
Brake(s) . . . Front & rear, internal expansion
Ground clearance 5-inches
Seat height 27-inches
Handlebar height 33-inches
Dry weight 107 lbs.

PRICE AS TESTED \$299.00

8-inches of ground clearance if the rear end is properly arranged.

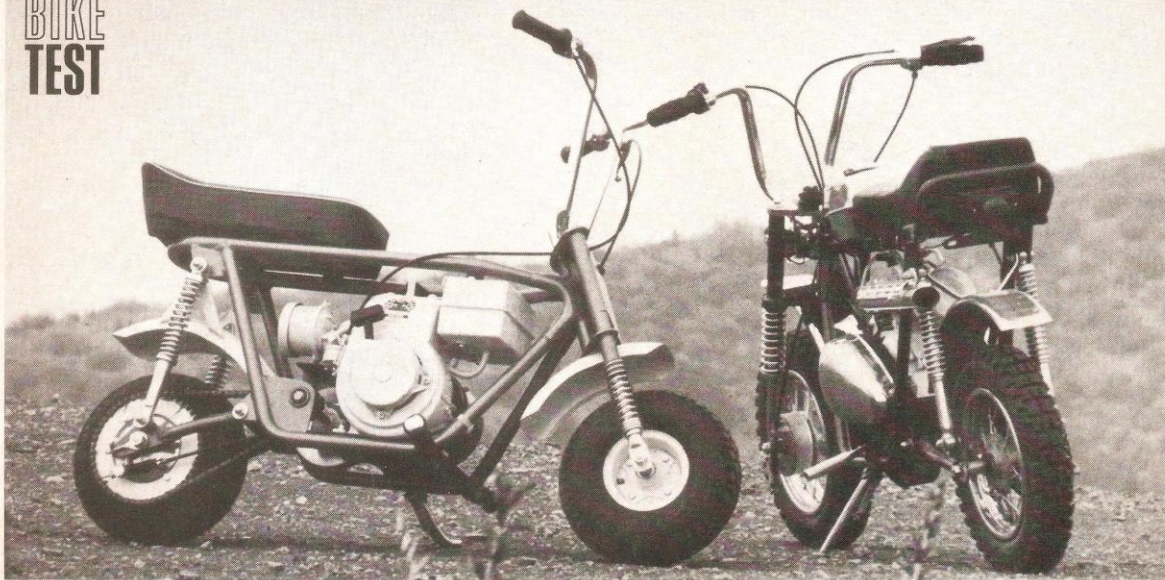
Together with one other machine tested in this issue, the BeBe underwent an unusually harsh test. The machine was ridden through a creek bottom that could quite possibly have damaged a full-blown motorcycle. Nevertheless, it came through the ordeal all in one piece and with nothing damaged. The low ground clearance was a nuisance, but the proof is in the pudding and the fact that no serious damage was done to the machine is evidence enough of its toughness. The BeBe four-speed sells for nearly \$300.00 and this makes it an excellent bargain for the mini-biker requiring a not over-large motorcycle-engined mini-bike. The quality of the machine is obvious and it should provide many years of useful service. □

HILL-TOPPER & TRAIL-TOPPER

Definitely not identical twins



MINI BIKE TEST



New to the mini-bike manufacturing business is the Terra Products Company. However, they must have been studying the market for some time as the first two models in a rapidly expanding line, the Hill-Topper and the Trail-Topper, seem to cater, very effectively, to the needs of a large group of mini-bikers. The Hill-Topper will appeal to those mini-bikers who like an elegantly chromed, gussied up, pride-of-the-block, type machine and the Trail-Topper is a more down-to-earth mini-bike, suited to those just getting started in the sport.

If you get the feeling that you have seen these machines somewhere before, you are not alone. The Hill-Topper looks like a cross between some of Fox mini-bikes and some models from Speedway, with a little bit of Rupp thrown in for good measure. The other machine has a frame similar to several others we have seen in recent months. However, there really is nothing terribly wrong in copying a successful design, especially if the resulting savings in research and development is sunk into using good materials and passing savings on to the customer.

Any mini-bike that can be purchased for around 190 bucks creates interest but when it is equipped with front and rear suspension plus a torque converter then the machine climbs out of the ordinary. This partial description fits the Terra Products Hill-Climber and indicates the kind of bargain this machine represents. Higher priced, at \$299.00, is

the Hill-Topper. But this machine, too, represents good value in that it is fully equipped with a lighting kit, 10-inch wire spoked wheels, front and rear brakes, front and rear suspension, folding handlebars, a 4 hp engine and, of course, a torque converter.

The usual practice for a manufacturer entering the mini-bike field is to produce several models that are variations on the same theme. That is to say, each model in the line will share certain components but, in descending order of cost, the machines will get progressively simpler. However, in the case of our two test machines it appears that we have two entirely separate designs.

To avoid confusion, we will describe each machine separately. First, the Trail-Topper. This is a relatively small machine with 6-inch pressed steel wheels. The basic configuration is that of the traditional mini-bike. That is not to say that the machine is outdated. Far from it. But the frame design is simple. A few years ago, swinging arm rear suspension and telescopic front forks would not have been considered simple for a mini-bike. Too, the torque converter transmission would have made it very sophisticated. Nowadays, however, we tend to take that sort of thing for granted.

The frame design follows the double loop pattern with the upper section bending around the back of the seat and the engine cradle welded at the steering head and at the rear shock absorber

mounting points.

At the steering head, the major stress point, the frame is heavily gusseted with the brackets faired into the shape of the frame tubes. This is among the best-finished head gusset arrangements we have seen. The back of the engine loop and the upper section are triangulated by the shock absorber mounting brackets. At the bottom of the engine loop, the engine mount plate is welded to both sides and behind the engine mount, triangulating the back portion of the loop, is a jackshaft-mounting bracket. The swinging arm pivot point is carried in a bracket welded to the back of the engine loop.

There are many people who sneer at "Taiwanese-made junk" (and, let's face it there have been some real bums imported from that country). But, just like all manufacturers, when they are "building to a price" the results are usually fit only for the doghouse. The design and construction of the Trail-Topper frame, on the other hand, displays a good deal of care and attention. The result appears to be an extremely strong unit and we are assured by Terra Products that the wall-thickness of the tubing used is greater than most domestically-produced machines.

Of course, there are many parts of a mini-bike that only reveal their quality over a long period of use, such as the wheel bearings and jackshaft bearings. The pressures of MBC's testing schedule does not allow us to spend the months



with each machine that are necessary to estimate the longevity of such parts. The care in design and quality of construction does, nevertheless, give us a clue as to how the rest of the machine will hold up. In the case of the Trail-Topper, the indications are that it is a very strong machine. Despite any doubts about its country of origin.

Front suspension is simple, consisting of the lower legs telescoping into the upper legs and cushioned by an externally mounted spring. The spring rate is moderate and gives a reasonable ride providing that the capabilities of this type of suspension are not over-extended. That is to say, the worst of the trail bumps can be ironed out but the rider should not expect a velvet-smooth ride over cobby conditions.

The crown plates are extra-thick pressed steel and are mounted on a steering pin of conventional design, with bushings top and bottom. Mounted in the upper crown plate are pillow blocks to hold the handlebars. This enables the handlebars to be folded down by loosening the nuts holding the pillow blocks and, at the same time, provides a very secure mounting for the bars. The front end is finished off with a name plate wrapped around the upper tubes of the front forks and a fender held in place, partly, by the cotter-keyed steering-pin nut. Mounted on the handlebars are a knobbed brake lever and the twist-grip accelerator, both of which seem to be of excellent quality. We would have preferred, however, thick-ribbed grips such as were installed on the other machine.

At the rear end the swinging arm appears to be sturdy but somewhat on the short side ($7\frac{1}{2}$ -inches). This tends to restrict the amount of travel. To compensate for this, the rear shocks have a soft spring rate and the rear suspension works surprisingly well. Helping things still further is a thick, high-density foam rubber, naugahyde seat that is fairly firm. An unusual bracket-arrangement is used to keep the rear fender in place. A nice feature on such an inexpensive machine is the chain-adjusting eye-bolts attached to the rear axle.

As mentioned previously, the wheels on the Hill-Climber are pressed 6-inch steel split-rims. They are mounted with universal-tread "donut" type tires, 14-inches in diameter. These tires, fortunately, have a rounded profile and not the squared off shoulders previously found on mini-bikes. It is fairly obvious that a rounded profile tire will maintain about the same amount of foot-print on the ground under most conditions in comparison to the square shoulder type

tires that tend to lose adhesion as the bike is laid over into a turn. An advantage with this type of tire is the extra cushioning given by its somewhat balloon-like characteristics.

Now to the power plant and transmission. The engine is a 3 hp Tecumseh (having a domestic power plant has some obvious advantages). Transmission is through a Comet torque converter (the same remarks apply to a domestic transmission). The rear pulley of the torque converter is mounted on the jackshaft and the final drive is by No. 420 heavy duty chain from the right hand side of the jackshaft. Gear ratios on this machine range from 4.6:1 up to 14.75:1, a wide enough spread to suit almost all circumstances.

Two final features of this machine are not earth-shaking in their originality but still nice to find on an inexpensive mini-bike. These are a spring-loaded kickstand, with a wide foot to prevent it from digging into the dirt, and rearward-folding footpegs. The footpeg location is too far to the front for good posture when standing over rough terrain but, on the other hand, they are well located for a comfortable sit-down ride.

From this description it is obvious that the Trail-Topper is a simple but well-conceived machine. The Hill-Topper, the more expensive of the two, is a much more flashy machine. It bears hardly any resemblance to its less expensive brother and we can only assume that it is not designed by the same people. It *does* bear a striking resemblance to the Fox mini-bike and there are overtones from the Speedway organization. The origin of its design and manufacture is somewhat of a mystery but from the point of view of this test that should be of little importance. After all, we are mainly concerned about how it performs and its chances of surviving rather than where it comes from.

The answer to our main questions (performance and longevity) is a qualified "pretty good".

The design of the Hill-Topper is not particularly astounding since variations of it have been around for some time. It has a single backbone double engine cradle type frame. The engine is inclined forward, following fairly standard practice. The engine mount plate triangulates the entire bottom section of the engine cradle and also provides a mounting point for the jackshaft which runs underneath the engine mount plate. Some similarity between the two machines can be found in the gusseting at the steering head, however, in the case of the Hill-Topper the gussets are



wrapped around the steering head and the engine cradle down tubes. The backbone member is not included in the gusseting. It is heavier than the other tubes, matching the steering column in diameter (1-5/16") and the thought probably was that it already had enough weld area.

Front suspension involves a telescoping fork with the lower legs sliding into the upper legs and an exposed spring threaded into cups. The upper cup is located just below the lower mount plate and the lower cup is welded to the bottom legs. The distance between the bottom cup and the upper legs is approximately 2 inches and this, of course, is the absolute maximum of travel that can be obtained. In point of fact, the spring rate is too stiff to allow more than about 1 to 1½ inches of travel. The upper crown plate is of cast aluminum and the folding handlebars are attached via the plastic knurled knobs first made popular by Honda. These knobs, once loosened, allow two ears to come free of indentations so that the handlebars swing down, out of the way. We have found that this system, while convenient for transportation, has a penalty in the stability department. In the first place the cast aluminum crowns are liable to crack under extreme use.

Then the ears welded to the handlebars tend to bend and break off. And, finally, there is a tremendous amount of leverage on these hi-rise 'bars and they are liable to bend, especially if they are drilled, as these are, at the maximum stress point, for electrical wiring. Replacements for this type of steering crown are now on the market and we heartily recommend them for safety considerations.

The steering head on the Hill-Topper is equipped with ball bearings, top and bottom, and there is a dampening nut to adjust steering friction. Ahead of the steering column, mounted on brackets welded to the forks, is a 4-inch headlight with an independent on/off switch. Mounted to the underside of the lower crown plate is a highly chromed steel fender. A good set of controls is mounted on the handlebars and consists of two 6-inch, knobbed, brake levers, a quarter-turn twist grip throttle and an electrical control cluster on the left hand side. The control cluster consists of a lighting lever and a button for a very squeaky horn. The ignition kill button is on the throttle side, comfortably close to the thumb. The hand grips on the Hill-Topper are the much-appreciated deep-ribbed type that prevent undue vibrations from reaching the rider's



hands.

Moving to the rear suspension of the Hill-Topper, we found the swinging arm pivoted on a tab welded to the back of the engine cradle loop, like the other machine. However, the length of the swinging arm on the Hill-Topper is considerably longer (9½-inches) and therefore suspension is more effective. The same shock absorbers are provided and, with their relatively soft spring rate, give the rear wheel considerable travel, estimated at about 1½-inches. The upper mounting of the shock absorbers is to a bracket triangulated between the back of the engine loop and the seat bearing loop. This seat bearing loop has interesting similarities to the Speedway design.

Behind the seat loop there is a bracket for the stop/brake light below which is a license bracket. This bracket poses an obvious invitation that we hope nobody will take up. Another similarity with the Speedway machines is the excellent kickstand and its method of mounting. The footpegs are located in line with the power take-off shaft on the engine and their rearward inclination is most suitable for trail riding. The footpeg location appears to be just about right for handling in the rough.

Power for the Hill-Topper comes from a Tecumseh 4 hp engine driving through

a Comet torque converter. The driven pulley (jackshaft mounted) is located below the engine mount plate and its nervous proximity to the ground is somewhat relieved by the sheet metal guard mounted around the pulley. The final drive is from the right hand side of the jackshaft and is No. 420 heavy-duty roller bearing chain. The rear axle mount is slotted and there is a concentric cam for chain adjustment.

The alternator-equipped engine has a long muffler extending out of the left hand side of the machine. Although the muffler is not inside the frame, as we would have preferred it, it does have full heat-shielding to prevent the possibility of burns. The engine is equipped with a diaphragm carburetor and the carburetor is mounted on a goose-neck manifold that permits easy adjustment of the fast and idle screws. This is a welcome feature as some mini-bikes we have tested have carburetors that are impossible to adjust since the muffler completely covers the adjustment screws.

Covering the torque converter is a chromed guard that is a deadringer for the unit used on the Speedway bikes. Likewise heavily chromed is the gas tank which sits across the backbone frame member (a deadringer for the Fox tank). This gas tank is properly equipped with shut-off valves and there is a fuel filter in the line. Fuel capacity is about $\frac{3}{4}$ gallon.

As mentioned earlier, the wheels are 10-inches in diameter and have solid rims with wire spokes. The tires are rounded-profile knobbies with 16-inch diameters. The front and rear brakes are bolted on to the hubs and the rear brake is mounted inside the sprocket. The stop light switch is located below the swinging arm near the axle and this looks like a position for potential trouble.

Finishing off the machine is a nicely tailored naugahyde and foam rubber seat that is pressing-stud fitted to the frame. By scooping out a little of this foam rubber where the seat meets the mounting plate, the mini-biker can find himself a place to carry a few tools.

The welding and finish on this machine are excellent and in general it looks as strong as anything around. We tried to find its limitations during our test and came away well satisfied that this will be a machine that can take a considerable amount of misuse and come back smiling. The geometry on the front end gave good handling characteristics although the suspension was a little too jouncy for our taste. The front end could be made to bottom

quite readily although the spring rate seemed a little on the stiff side. Without any dampening action the return rate was quite rapid and an unhandy amount of jiggling could be felt when going over the rough stuff.

Some of these suspension problems were offset by the relative stability of the steering. There was about one inch to one and a half inches of trail (partly due to the 16-inch diameter tires) and this helped to steady the machine. However, it could not be said that the steering was heavy and maneuvering in tight places was easily accomplished. The major doubts in our mind concerned the handlebars which had an unnerving tendency to bend if an adult rider's weight

was thrown against them with any degree of force.

The ride from the rear end was soft enough for most purposes and, because more of the weight was towards the rear, we did not detect the bouncing tendency of the front end. The seat/footpeg/handlebar relationship was good and standing on the pegs going up or down the hills was no problem.

Hill-climbing ability was very good and the torquey 4 hp engine combined with the torque converter, provided us with power to humble even the steepest hills. Possibly due to the newness of the machine, the torque converter seemed to have trouble dropping in to the lower

Continued on page 66



TRAIL-TOPPER

Manufacturer: Terra Products Inc., Lebanon Rd., Crawfordsville, Indiana 47933.

ENGINE

Engine type	Tecumseh single, 4-stroke
Bore	2-3/10-inches
Stroke	1-27/32-inches
Displacement	7.75 cu. in.
Horsepower @ rpm	3 hp @ 3,600
Compression ratio	Not available
Carb	Float bowl
Ignition	Flywheel magneto
Lubrication	Splash
Fuel capacity	2-quarts
Fuel requirement	Regular

TRANSMISSION

Transmission type	Torque convertor
Primary drive	V-belt
Clutch drive	Centrifugal
Gear ratios	Constantly variable from 4.6:1 to 14.75:1

CHASSIS

Frame type	Double loop
Wheelbase	36-inches
Overall length	48 1/2-inches
Suspension,	
Front	Mech. telescopic
Rear	Swinging arm
Wheels	5-inch
Tires,	
Front	400 x 12 1/2-inch diameter
Rear	400 x 12 1/2-inch diameter
Brake(s)	Front & rear, internal expansion
Ground clearance	5-inches
Seat height	25 1/2-inches
Handlebar height	34 1/2-inches
Dry weight	89 lbs.

PRICE AS TESTED \$189.00



HILL-TOPPER

Manufacturer: Terra Products Inc., Lebanon Rd., Crawfordsville, Indiana 47933.

ENGINE

Engine type	Tecumseh single, 4-stroke
Bore	2-5/8-inches
Stroke	1-15/16-inches
Displacement	10.5 cu. in.
Horsepower @ rpm	4 hp @ 3,600
Compression ratio	Not available
Carb	Diaphragm
Ignition	Flywheel magneto
Lubrication	Splash
Fuel capacity	3/4-gallon
Fuel requirement	Regular

TRANSMISSION

Transmission type	Torque convertor
Primary drive	V-belt
Clutch type	Centrifugal
Final drive	No. 420 chain
Gear ratios	Variable from 5:1 to 16:1

CHASSIS

Frame type	Backbone, double loop engine cradle
Wheelbase	37-inches
Overall length	53-inches
Suspension,	
Front	Telescopic forks
Rear	Swinging arm
Wheels	10-inch wire spoked
Tires,	
Front	3.25 x 16-inch diameter
Rear	3.25 x 16-inch diameter
Brakes	Front & rear, internal expansion
Ground clearance	6 1/2-inches
Seat height	27 1/2-inches
Handlebar height	35-inches
Dry weight	115 lbs.

PRICE AS TESTED \$299.00

AT LOW, LOW COST MOVE UP IN CLASS...

If you have a used mini bike, in the garage that still has a good sound engine (*and you are interested in saving money*) we have a sensational way for you to get yourself a complete new mini cycle...take your engine and the Gemini Scrambler package which includes ... frame ... 10" spoke wheels ...

internal expanding rear ... front and rear shocks ... seat ... torque converter, clutch and No. 42 chain plus an ingenious engine mount that will take practically any engine you might have available and a gas tank with a choice of colors. Everything you need to move yourself up in class.



...AND YOUR ENGINE



SPECIFICATIONS

Overall Length	53"
Overall Width	18"
w/Pegs up	11 1/4"
Overall Height	35"
Wheel Base	37"
Minimum Road Clearance	5 1/2"
Handle Bar Spread	28 1/2"
Seat Height	25 1/2"
Seat, Foam Rubber	15" x 8"
Tires	16" dia. 3.50 x 10
Chain	No. 420
Brake	Cable Operated Rear Internal Expanding
Fuel Cap.	3/4 gal.
Trim	Deluxe Candy Apple Paint
Fenders	Chrome
Shocks	Front and Rear

The engine mount on this new frame makes it easy for anyone to assemble...45 minutes at the most and you have a new shining ready to roll 1971 mini cycle ... write for the name of the dealer nearest you.

ANOTHER CYCLE PRODUCT FROM
THE SAN TONG CO. INC.

15514 SO. FIGUEROA ST. • GARDENA, CALIF. 90247 • 213 / 532-1780



AllAboutMiniBikes.Com

RACE PREPARATION OF THE BONANZA MX

USERREPORT

BY DOC TAIT

"Doc" (David Hunter) Tait lives in Grand Forks, North Dakota, and is the head of a two-wheeling family. He is also a well-known authority on educational administration, currently spending his time writing about the subject and advising school boards. Doc has taught and administered from Alaska to Peru. His wife, Pearl, holds a Ph.D from Ohio State University and makes a specialty of teaching exceptional children, particularly the blind and mentally retarded. In between all this educational activity, Doc and Pearl are self-confessed motorcycle "nuts". They feel that the sport is one of the greatest safety valves existing for the pressures of today's living. It is small wonder, therefore, that their oldest son, Ivar, is hooked on mini-biking and has been guided into racing with a firm and intelligent hand. Racing with the number "1/2", which is intended to help him keep things in their proper perspective, Ivar has done well in racing around his part of the U.S. His dad is not an impractical scholar (in fact, very few scholars are impractical, despite the popular misconception) and serves as the head tweaker for Ivar's machine. Doc Tait is very thorough about the family's sports activities and our readers may benefit from his experiences in preparing Ivar's machine.

The '70-'71 Bonanza Mini-Motocross was one of the best mini-bikes of its type at the time it was first put on the market. This MX1510 replaced our earlier model 1500SH Bonanza which did not perform satisfactorily under racing conditions. Once it was broken in, the new orange MX was used in competitive activities ranging from indoor short-track, through outdoor moto-x; hare scrambles; trail riding; to informal, but serious, hill climbing.

It proved a lively mount willing to tackle anything. However, not all its components could equally meet the demands made on them. Certain parts required no more than routine maintenance; others either broke, showed rapid deterioration, or performed in an unsatisfactory manner.

In order to keep the machine ready to take on the opposition, repairs and alterations were made as the need arose. Some of these changes relate only to the Mini-Motocross but others can be ap-

plied to all machines being set up for racing or just plain hard use. In any case, the reasoning is general and the experiences of one hard-riding family may help others to recognize potential problems and their solutions.

Many of the parts on the new, more-reliable mini-bike models are holdovers from the past. Typically, these parts will let go at the worst possible times. However, if you take steps to identify and eliminate them, the reliability of the machine will be considerably improved. It is no fun to drive great distances with the mini-bike, rider, and all the paraphernalia it takes to race, and then have the machine quit before the events are over.

For the past twelve months our MX has had a continuous series of modifications to improve its reliability and handling. As mini-bike riders learn to expect more from their machines, the minis definitely are getting better, but a lot of debugging is still left to the buyer.

Here is our Mini-Motocross metamorphosis.

As soon as they could be obtained, the original handlebars were replaced by a set of motorcycle 32-inch moto-x bars. These provide the necessary leverage as well as encouraging a good riding posture. Good posture is essential for maximum handling and, if not developed early, may result in a style that is unsatisfactory when the rider later transfers to a full-size machine.

In the interest of economy, ease of procurement, proven reliability, and compatibility with the engine, Hodaka throttle twist grip, control cables, and lever assemblies were added at the same time. The lever set up that comes with the machine is practically indestructible but the metal tang it pivots on is easily damaged and all but impossible to fix. No doubt there are other levers and cables that will do, but it appears logical to fit the cables and accessories that were made for this engine.



CONTROLS - Mounted on the motocross handlebars are standard Hodaka controls, replacing the Bonanza units.

When the MX was new there was considerable fiberglass debris in the gas tank which constantly plugged up the filter. In our particular machine, the gas cap gauge mechanism rubbed against the bottom of the tank when the cap was snugged down. This produced more grit, so the gauge was removed, permanently. Only after the tank was removed from the machine and thoroughly washed out

with gasoline, was this crud problem solved. Maybe this should be a routine precaution with fiberglass tanks.

The gas tank petcock, which was screw operated by a round, relatively smooth, knob, proved difficult to turn with muddy, cold, fingers. Also, it was not easy to see whether it was open or not. Failure to open the gas tank petcock is an ever-present possibility and has even happened at Daytona. We lost a good moto-x heat because of this. The machine was in first place half way around the rough course when it ran lean for a spell and quit. So the rider finished last, instead.

A regular motorcycle lever type petcock with typical metric thread, or British Whitworth, would prevent the confusion and be the best solution. However, we installed one with a "T" handle because it had threads to fit the U.S. pipe threads of the tank fitting. This screws down far enough in the open position to be readily identified as being

open or shut, and it can be operated with gloves or cold, muddy fingers. Not ideal, but it has worked satisfactorily.

Stainless steel hose clamps were used on the gas lines as, in time, these plastic tubes tend to get loose, with the resulting danger of fire.

In replacing threaded fittings, and in carrying tools to turn them, remember the Hodaka engine components are metric, but the Bonanza fabrications are U.S. standard.

It is fun to ride flat out over a jump if the machine is up to it. Suspension takes a real pounding in this type of competition. Practice is necessary for a rider to ride fast over jumps like these and this adds to the wear and tear, especially during those early front wheel landings.

Fortunately, the forks on the Bonanza MX are adequate. A thick rubber ring glued to the bottom of the triple plate reduced the loud smack when the forks do bottom under excess strain. Re-

moving the dirt that accumulates where the dust caps get the fork tubes greasy, a little graphite was squirted around the top to keep them sliding and to prevent wear. Frequent checks make sure the action is not locked up. Nothing else has needed to be done to the forks.

Continuous jumping at high speed, plus practicing for the inevitable wheelie contest, resulted in a bilateral compound fracture of the frame down tubes directly below the steering head. "Look, Dad, I've made a chopper!" After re-welding the tubes, large half moon gussetts were added. Since the gusseting, no further trouble has occurred in this area, due to spreading out the stress over a much greater area. In addition, the tire pressures are reduced a bit more.

The kickstand, held in place by one of the motormount angle iron through-bolts, continually grounded hard on sharp left corners. When grit got in the kickstand bearing the stand would swivel around on its mounting bolt. A kickstand is handy, but it has to work well and not get in the way. This problem of poorly designed kickstand setups is not limited to mini-bikes, to which riders of many big cycles will attest.

The stock footpegs were cut off as they were located too far forward, grounded hard on turns, and did not sweep back properly when they did touch. They were rewelded to a flange mounted farther to the rear and placed higher to give more clearance. The pegs were attached so they swept back at about a forty-five degree angle.

On our machine, the swinging arm pivot rod was wearing an egg-shaped hole in the angle iron bearing. In addition, the rod itself was deeply grooved. This took place in a relatively short time despite efforts to keep the pivot clean and well lubricated. As a result, the back wheel was increasingly able to deflect from the vertical. A wiggly swinging arm makes steering difficult and even with continual adjusting and lubricating, it was obvious that chain wear was excessive.

A hard piece of axle stock was used to replace the pivot rod. This came out through the swinging arm uprights and passed through a short, thick, piece of tubing, welded to the outside of the swinging arm, which increased the bearing surface six fold. A nut with cotter pin secured the end, replacing the insecure snap ring. When lubed and bolted up, all the swinging arm problems related to the bearings disappeared.

The Hodaka mill puts out about ten horsepower and considerable torque is



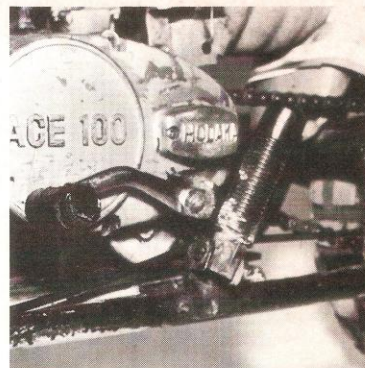
GUSSETTING - Half-moon gussetts behind the steering head and additional welding at the steering head, prevented fractures.



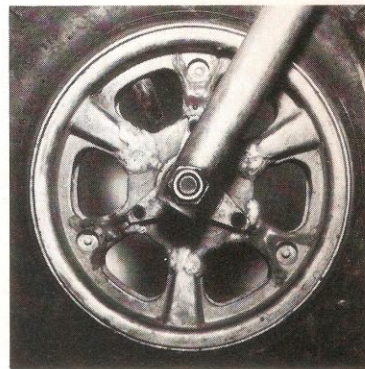
PIVOT - Short, thick, piece of tube was used on pivot point, in conjunction with hard axle stock, to prevent wear.

applied when the clutch is suddenly dropped, required procedure for racing starts. This sudden surge of torque eventually tore the cast wheel hub loose. Aircraft type welding techniques patched it up temporarily and the wheel was transferred to the front until a new wheel was procured. Bolts with a higher SAE rating now replace all the wheel fasteners, particularly the three that bolt the sprocket/brake drum to the wheel.

More than likely the reason this model has inherited the jackshaft setup is to facilitate the installation of different engines. *Ed. Note: MBG asked Bonanza about this, many moons ago. We were informed that the shorter lengths of chain used with a jackshaft produced less failures. In addition, the centerline of the jackshaft is closer to the pivot point of the swinging arm, making derailment of the final drive chain less likely.* It seems difficult to see the need of a jackshaft when the Hodaka has a choice of drive sprockets from 12 teeth to 17, and has a five-speed, foot-shift, transmission. Our jackshaft had a nine-



FOOT PEG - Remounting of foot peg provided rearward angle of fold and tapping of shift lever prevented loss of grip.



HUB - Showing temporary weld of wheel when hub came adrift due to torque from the engine when this wheel was on rear.

tooth driven sprocket and a nine-tooth driving sprocket, which did not change the gear ratio from the engine to the rear sprocket, anyway. In addition to all the other disadvantages, it adds extra weight and requires two separate operations to maintain correct chain tensions. You might finish with this setup, and we have, but luck is a major factor.

When the Yamaha Mini Enduros showed up at our races, and there is no such thing as a stock mini-bike after its first race, the jackshaft got a more critical look. Not having seen a Mini-Motocross where removal of the jackshaft was attempted, the jackshaft was removed and stored away in an inaccessible place, making sure there was no possibility of chickening out.

The rear wheel had to be turned over so the sprocket would be on the left side. The drive was now direct from the engine sprocket. The brake lever was bent upward to operate over the axle and to avoid contact with the ground, the brake cable was rerouted to the left side and a metal tab welded to fit the adjustment screw.

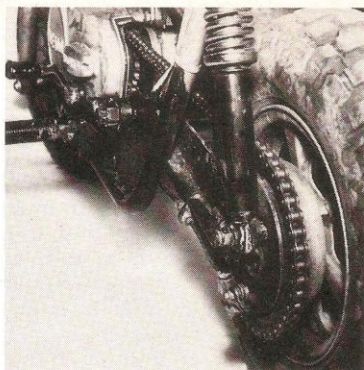
The stock MX rear sprocket which has a No. 41 chain running around it, is the same thickness as it was on our previous model 1500SH Bonanza; that is, it is designed for #35 chain. Therefore, the rear sprocket was too thin with the chain that came with the bike, and not at all good with the #420 preferred on all the Hodaka engines. It does not fill more than half the width of the chain. The rear sprocket incorporates the brake drum and it is not possible to bolt on a different rear sprocket or use a typical cycle sprocket overlay. The problem of fattening up the teeth to fill the chain was handled by procuring a second brake drum/sprocket, cutting off the drum, and welding the gear portion inside the original one. Each tooth became a pair, side by side. Dirt tended to spread the teeth causing the chain to lock up when its side plates got between the teeth. Welding the tip of the teeth together stopped this.

Changing over to direct drive put the pivot of the swing arm too low. It works that way, but the chain tends to loosen when the swinging arm swings. Occasionally, it would throw a chain. Eliminating this situation necessitates cutting off both tabs and raising the pivot point until the top chain, when tight, just clears the swing arm cross member. The swinging arm assembly was moved one inch to the rear, thus increasing the wheelbase. The tabs were reinforced by adding large triangular gussets at the rear frame angles and the swing arm pivots were located on these. Thus, the rear frame area is beefed up to ensure reduced maintenance and to improve handling.

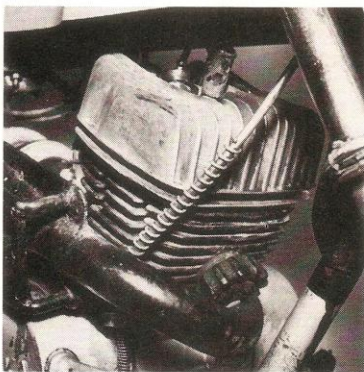
Since this model came out, the tires for it have changed from 350 x 8 to 400 x 8. This appears to be a relatively simple way to get a better ride in the rough in addition to increasing the top speed a little.

The use of high tire pressures gets more speed under certain conditions but greatly increases the possibility of a frame fracture. The rear shocks work, but not very well. These should be replaced with shocks using a much softer spring.

With the larger tire, the front end should handle even better in the rough and it may be possible to reduce the inflation pressure more when this seems advisable. The next thing to consider for improving the handling still further would be to go to something on the order of the wheels and swinging arm of the Yamaha Mini Enduro. Rear sprocket changes would be more easily accomplished and you would get a good pair



DIRECT DRIVE - Doing away with the jackshaft and switching the wheel around, permitted preferred direct drive.



HEAT SHIELD - Rods, welded to expansion chamber, act as heat shield and spring, wrapped around cable, prevents wear.

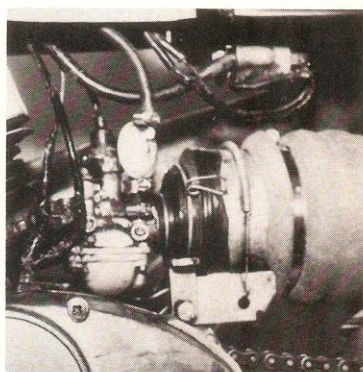
of brakes in the bargain. However, this enticing transplant involves a lot of work and expense. Yet I would not be surprised to see it on a starting line this summer and it might just prove to be a real handler.

It's the little things that bug us as mini-bike and cycle buffs. There is no hole in the engine mounting plate over which the Hodaka engine is positioned. To drain the oil, the engine has to be removed, slid over, or a pump used. After messing around with this for sometime (oil changes are more frequent when competing) a large hole was cut in the plate so that the plug could be reached from the bottom and the oil could be drained more readily. The logical time to bore the hole would be during manufacture.

Incidentally, Hodakas (we also race a Super Rat and an Ace), when first started in cold weather, ooze oil out the small vent on the top of the crankcase where it dribbles down onto the floor, or ground, making a mess. To eliminate this environmental pollution, the dip-



POLLUTION CONTROL - Plastic tube over dip-stick location prevents cold oil from seeping. Note mudguard over rear fender.



FILTER - Stock filter is removed from chamber and Filtron unit attached. Coil is moved from side of filter to underside of seat.

stick was replaced with a 3/8" x 1 1/2" pipe nipple to which a plastic tube was attached by a hose clamp. The free end of the tube was run up under the seat where it was made secure. This is fairly common practice on racing machines as the reduction in backpressure, due to the improved gearbox breathing, is credited with aiding performance. Keep the dip stick handy in a tool box as it is still needed to check the oil level.

Our MX (Hodaka Ace engine) came with a #95 carburetor main jet and the needle clip in the center notch. Hodaka motorcycles come with a larger (#100), and one smaller (#95), main jet as it takes a little trial and error running to tell which main jet will work best in your particular setup. Neither our 1500SH nor the MX came with extra main jets. As a result, we had to buy them and finally ended up using a #85 jet with the clip in the central needle position.

To install a compression release, a must for racing and a joy to have on a

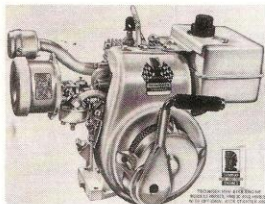
Continued on page 62

MBGMISCELLANY

"TEKE" KICK STARTER

From the makers of the mini bike engine, Tecumseh Products Company, comes the Tecumseh Kick Starter. The same starter that will be sold on many of the leading mini bikes this year is now available to any Tecumseh powered mini-bike owner for easy do-it-yourself installation. Fully warranted for 90 days, just like every Tecumseh mini-bike engine, and sold by your neighborhood Tecumseh Authorized Service Dealer.

With hands on the handle bar controls, you kick off to quick starting the easy way. Attractive cast aluminum construction, fold in foot lever, designed and manufactured by the engine people. Starter mounts in four basic positions, arm has 16 additional mounting angles, one or more just right for any size rider. Arm adjusts to any position without removing starter from engine. Ask for Tecumseh Part Number 590489, suggested list of \$18.95, at your Authorized Tecumseh Service Dealer. He's listed in the Yellow Pages under "Engines, Gasoline".



NEW SAFETY SOLVENT

A new extra-safe solvent in a handy 12 ounce spray can quickly flush away oil, grease, dirt and other contamination without leaving a film or endangering the parts or the mechanic. Called "Partsaver Safety Solvent", it has been introduced by the Loctite Automotive Division.

The new safety solvent is non-flammable and harmless to human flesh. Yet it quickly handles tough cleaning tasks such as burned-on carbon on spark plugs or baked-on mud and oil.

New Partsaver Safety Solvent is available from equip-



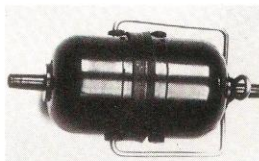
ment dealers everywhere. Further information from Loctite Corporation, Wholesale Trades Department, Dept. MBG-8, Hartford, Conn 06111.

MINICYCLE EXHAUST SILENCER

"The Quite One" is for street and off road riders who want a quiet machine with no loss of power or performance. Fits all 2 cycle expansion chambers and 4 cycle straight pipes. Super light weight and compact, Bassani's exhaust silencer measures only 7½ inches end to end. The seamless one piece steel housing is guaranteed unbreakable. Stainless steel exhaust clamp included. "The Quiet One" fits all cycles 1", 1-1/16", 1-1/8", 1-3/16", 1-1/4", 1-5/16", 1-3/8", 1-5/8", 1-3/4" and 1-9/16". Write Bassani Manufacturing, 1164 C. Fountain Way, Dept. MBG-8, Anaheim, Calif.

BECHIK FUEL FILTER

Recently a new concept (patent pending) in fuel filtration has been developed by Bechik Products employing many designs and features desired in a modern day engine. The unique filter element is made of a permanent, cleanable corrosion resistant material which eliminates water, dirt, rust particles and other contaminants from reaching the carburetor. Performance, power and engine life is increased due to proper fuel filtration which allows oil and gasoline to pass but stops contaminants. Another very important feature is the stainless steel lock spring for quick, easy "snap open, clean, snap shut" operation and requiring no tools. The specially engineered sealed sediment-chamber is of space-age Celcon® material for uniform strength and corrosion resistance. Size and shape are scientifically designed to store impurities for long periods and omnidirectional mounting. The remarkable rubber seal is impervious to gasoline and allows sufficient vibration to dislodge impurities from the element and allow them to settle in the basin for easy removal. Write for literature to Bechik Products, Inc., Dept MGB-8, 1140 Homer St., St. Paul, Minn 55116.



CRAGAR SAFETY HELMET

The Cragar Safety Helmet is now available in colors. Brilliant red metallflake and blue metallflake join the popular white Cragar full coverage helmet for a safe appearance. Cragar's safety helmets meet Z90.1 specifications and are accepted by most major racing associations.

The Cragar safety helmet features a modern design and incorporates both a nonresilient and a resilient liner to absorb the greatest possible variety of blows. The shell is of strong, lightweight fiberglass while the liners are padded with rich black Nylon covered Polyurethane. The chin strap, with D-rings, is double-riveted to the helmet.

Sizes are small through extra large. The full coverage model lists for \$31.50. A partial coverage model is also available at a suggested list price of \$19.50. See your motorcycle or speed shop, tire dealer or auto parts store.



K&P REED MANIFOLD

Now available from the original mini-bike manufacturers, K&P Mfg., Reed Manifold conversion kits for Hodaka and Yamaha mini cycles. These adapters and reeds come complete with instructions enclosed to increase horsepower on mini cycle engines. Carburetors also available. List price is \$19.95 (spec engine). For complete catalog on "manifolds, carburetors, and reeds", send \$1.00 to K&P, Dept. MBG-8, 330 S. Irwindale Ave., Azusa, Calif. 91702.

ENDURO GUIDE

The Enduro Guide route sheet holder is designed to take the guesswork out of long distance competition. Metal Trends' brushed aluminum unit features a large magnifying plexiglass window for easy read-out, snap-apart design for easy loading and easy, secure mounting. \$10.98. For more information on this unit and other transporting and enduro equipment write Metal Trends, Inc., Dept MBG-8, RR3, Box 99, Wisconsin Dells, Wis. 53965 and request their 1971 catalog.

SUPER BRUTE A.T.B.

Super Brute is tough, versatile and well built. The manufacturer states the frame is so tough—of welded square steel tubing—it's guaranteed for five years to the original owner. It's big, wide, and soft riding low pressure B.F. Goodrich tires permit the Brute to float over snow, ice, mud, sand and swamps. All



wear components are heat treated and assure a trouble-free all season vehicle. Super Brute is priced from \$398.00. Write to Lake Sports, Inc., Dept. MBG-8, 203 S. Park St., Fairmont, Minn 56031.

POCKETFUL OF MIRACLE

That hopeless feeling of being stranded miles from nowhere with a broken chain and no way to fix it can be avoided. This tiny tool can be carried in the pocket or bolted to your bike, ready for instant repairs. Naturally a selection of chain master links are required for patching, but this miniature miracle and the ubiquitous adjustable wrench are the real keys to survival.

What makes this chain breaker so special? Its size. So compact it adds negligible weight (it can be hung on a control cable!), it requires no handle—just wrap the chain around it to hold in place.

Emergencies need not be disasters with the Beaver Tooth from Pacer Consolidated Industries, 17841 E. Valley Blvd., City of Industry, Ca. 91745. For a color brochure of motorcycle tools and high performance items, write for Q-28, enclosing 25¢ for handling.

HERTER'S HUDSON BAY MINI BIKE TRAIL 1

New features for '71 models include, SAE approved lighting, attractive metallic painted frame. Chrome fenders, chain and belt guard, gas tank and front wheel forks. New for '71 is a number 41 chain with new bolt type adjustment for the chain. This chain offers more strength and will not jump the sprocket. This rough going bike is made for honest off-the-road travel as well as street travel. The Trail Model features a large terra tire 8x850.8 that grips loose sand, mud and grass for making hill climbing and racing easy. A 5 HP Tecumseh engine combined with Salsbury mini-verter gives speeds of 35 miles per hour and all the power you need when you need it.

Trail 1 is the bike with all the features of bikes costing over \$300.00. Herter's sell direct and pass these savings on to you. Complete with lights the Trail 1 sells for only \$241.95. F.O.B. Waseca. For more information write Herter's Inc., Dept. Y., Waseca, Minn. 56093.



NEW GO-ANYWHERE VEHICLE

A new high-performance 3-wheel off road vehicle has been introduced by Alsport, Inc., Norwalk, Ohio. Only 34 inches high, the Tri-Sport is built to hug the ground at speeds of up to 25 mph. It is available with 5 HP and 12 HP engines. The low pressure tires and light weight make it maneuverable over any type of ground and on grades of up to 45° and, according to the manufacturer a roll cage can be installed for high speed racing.

The Tri-Sport features a torque converter for automatic response, individual wheel



control differential for tight turns, band/drum brakes and low pressure tires.

Write Alsport, Inc., Dept. MBG-8, 84 Whittlesey, Norwalk, Ohio 44857.

recreational vehicle owners join! and save!

If you own, or have considered buying a boat, snowmobile, trail-bike, camper or any other leisure-time vehicle, look at the savings in store for you . . . just for joining NARVO!

Discounts on Accessories—Through the National Association of Recreational Vehicle Owners, members are entitled to savings of up to 50% on sports equipment such as stopwatches, binoculars, outboard motors, portable radios and TVs.

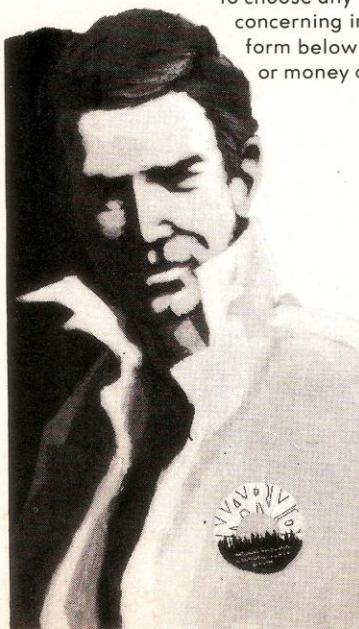
Group Interest Representation—As a group, NARVO can inform public officials of the interests of recreational vehicle owners' concerning environmental matters.

Insurance—As you know, satisfactory insurance coverage for leisure-time vehicles can be difficult to obtain. NARVO is in a position to approach large insurance companies with a view toward assisting members in obtaining satisfactory coverage at the best price obtainable. Your vehicle insurance may not be such a problem after all!

FREE Sports Jacket—Just for joining NARVO, you'll receive this durable nylon jacket with the NARVO insignia. Ideal for outdoorsmen. For your family, additional jackets available at a discount rate of only \$6.

NARVO is dedicated to promoting the use of pleasure vehicles as a leisure-time activity . . . making it as economical as possible . . . And passing the savings on to you!

Membership in NARVO is only \$10. As a member you'll receive your free NARVO jacket, decal and membership card; a sports equipment catalogue to choose any item at a discount; plus a questionnaire concerning insurance assistance. Just complete the form below and mail it to us along with your check or money order. Do it today!



I'd like to save with NARVO, enclosed is my () check () money order. Please send my FREE NARVO jacket size () S () M () L and decal, catalogue and questionnaire concerning insurance assistance. Also send me _____ additional jackets at \$6 per jacket in the following sizes: _____

Name _____

Address _____ Number _____ Street _____

City _____ State _____ Zip _____

Send to: National Association of
Recreational Vehicle Owners
1000 Peachtree Street, N.E.
Atlanta, Georgia 30309

Division of Torch and Candle Corporation

BENELLI MINI ENDURO

Continued from page 22

right hand side of the handlebars and the rear brake is foot operated on the right hand side also.

However, because of the increased pressure that a foot brake is liable to take we feel that the connection between the brake lever and the rear brake should be a rod rather than the cable used. Not that we had any trouble with it but over a period of time the cable could stretch or, even worse, break. Anyway, the ability to feather the brakes for slow and easy stops or to lock up the wheels for screeching halts was impressive. Over a number of panic stops we detected no fade whatsoever.

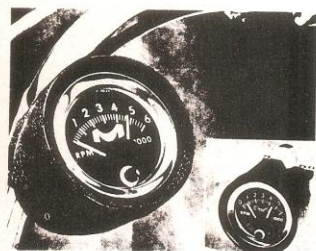
An excellent job was done of tucking the expansion chamber/muffler well into the frame below the right hand side of the gas tank. Some mini-cycle manufacturers position their mufflers so that the rider feels he is on a pregnant cow, but the Benelli displays the careful design given to the factor. The heat shield should prevent any unnecessary blisters.

In the power department the Benelli Mini Enduro was a little disappointing. We feel that considerable sacrifices have been made in the muffling and carburetion departments. More attention to deep breathing will help this engine considerably. In its stock form, the engine's potential is no where near fully explored. It was fine on normal hills where the trail would wind up and down and some fast laps around the motocross course were exhilarating. However, when pointed at a particularly steep hill, it ran out of poop about half-way up. With its excellent handling characteristics, it is unlikely that the Mini Enduro owners will allow this lack of power to exist for very long.

By tweaking the engine a little, removing the lighting kit, installing a folding kickstart lever, and perhaps substituting a tubular bar across the handlebars for the sheet metal bar currently in place, the Benelli Mini Enduro could become a highly competitive machine. In its current form it seems to meet most requirements for a street legal machine and, for the rider of licensing age, this may be one of its prime attractions. Of all the mini-cycles we have tested, this one most closely meets our requirements for a mini-cycle to be used on the streets (with the exception of its power potential). We understand that the Benelli Mini Enduro will be offered at a price close to \$300.00. If this is the case, it will be one of the best bargains around. □

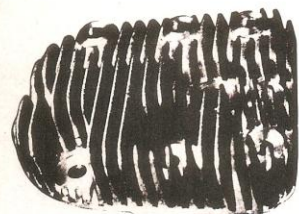
Wiseco

**Has Everything
for Mini-Bikes**

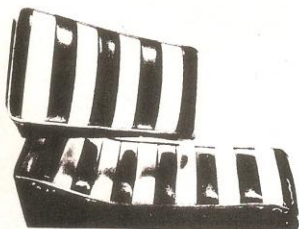


TACHOMETER

Mod. MT-625 — 0-6,000 rpm \$34.95
Mod. MT-628 — 0-9,000 rpm \$34.95



G5200 — 4 HP Tecumseh High
Compression Head. \$17.95



MINI-BIKE SADDLE

No. 1640 12" Ducktail Shape \$7.95
No. 1641 19" Ducktail Shape \$9.95

NEW!

HI-PERFORMANCE CATALOG

Wiseco

**CYCLE — MINI-BIKE
CATALOG No. 1**



WISeco PISTON CO., INC.
30200 Lakeland Blvd., Wickliffe, Ohio 44092 (216) 944-7600

Send \$1.00 today for Wiseco's
Cycle-Mini Bike Catalog.

Wiseco

DEPT. MBG-8
30203 LAKELAND BOULEVARD
WICKLIFFE, OHIO 44092
PHONE: 216/944-7600



2000PS — 3 HP Tecumseh . . \$14.95
2001PS — 4 HP Tecumseh . . \$15.95
Oversizes Available



TEC-4S — Tecumseh 4 HP
Carburetor Manifold. \$29.95



KH-3 — Hegar Kick-Start. . . \$19.95

AllAboutMiniBikes.Com

MINI BIKE GUIDE / 59

MAX-TORQUE CLUTCHES



SNOW THROWERS—CHAIN SAWS
SNOW MOBILES—DUNE CYCLES
TRACTORS—MINI-BIKES—KARTS
TILLERS—MOWERS—BLOWERS
ALL TERRAIN VEHICLES



FOR RELIABLE
CONSISTENT
POWER TRANSMISSION
OF MAXIMUM TORQUE
SPECIFY
MAX-TORQUE CLUTCHES

2 CYCLE
or
4 CYCLE

Tuned to your engine and application requirements

MAX-TORQUE, INC., 7300 Monticello Ave., Skokie, Illinois 60076

The first bike built to last.



trail ram

The name only hints at the power and performance available at the twist of a wrist. Trail Ram is no mini-bike. This machine is a full-size back-woods bike. In spite of its ruggedness, a Trail Ram is very comfortable to ride.

This is the ideal bike for farmers, hunters, campers and anyone who loves the outdoors.

**PACESETTER ENTERPRISES INC.
P.O. BOX 309
CASCADE, IOWA 52033**

FIRE UP!

Hit the trail - get out where you can really get it on. Just you, your machine, the wind in your face and the feeling that you are really "on" with the world. Hegar's KIK-START gets everything going - your way, and without the usual hassle and bother of rope starting. A smooth kick gets you out there just like the big bikes. Set up for the boonies - for only \$19.95 - see your local dealer!

hegar 4 products

5101 S.E. 17th Ave., Portland, Oregon 97202 Telephone (503) 233-4407

ALL NEW ALLEY KAT for '71

This totally new ALLEY KAT with its 40 inch wheel base is the pride of our KAT family. From the top of its handlebar to the ground is a comfortable 36 inches loaded with goodies between. 10" WIRE SPOKE WHEELS set the pace in styling for this KAT. A frame mounted gas tank accented by our rolled and pleated weather resistant seat keeps its appearance fresh. Comfort is maintained by front and rear suspension. KAT POWER comes from a big 172cc (4 HP) Tecumseh engine with Alternator. Performance when you want it and when you need it is supplied by our new POWER PACKED Torque Converter backed up with #420 heavy duty chain. Braking power is supplied by Front and Rear Internal Expanding Brakes. When this BLACK KAT crosses a trail, look out behind!!



Send \$1 for our new complete KATALOG featuring mini-bikes, mini-bike accessories, motorcycle accessories and karting accessories.

DEALERS: Write for details on our new expanded Dealer Profit Program (DPP) featuring Prepaid Freight Allowance and extra fast service.

SPORTSTYL, INC. 103 S. MAIN ST. LEWISTOWN, PA. 17044

PARTS - - - Save \$\$\$

CABLES, 48" \$1.25
CLUTCHES..... 14.95
No. 35 or 41 Chain 5', 5.95
Connecting Links

TWIST GRIPS\$2.75
BRAKE LEVER 3.00
WHEEL BEARING 1.65

Retail
Catalog-
20 Pages
50¢

More Parts in Catalog

Dealers, write on letterhead
for Special Price Catalog

T&B Enterprises

Tel. 603
669-5186

905 HANOVER ST., MANCHESTER, N. H. 03104

MXH: PERFORMANCE

The all new MXH has been designed and track tested to assure you of top performance. This light weight mini-cycle has a hydraulically damped fork with 4.5 inch travel to smooth out the rough spots. Other features include Hodaka power, expansion exhaust and a tank/seat fairing. Send 25 cents for information on our complete line.



KG

ENGINEERING, INC., Box 71, HOLLISTON, MASSACHUSETTS 01746



PARTS - EQUIPMENT ACCESSORIES

Wheels • Tires • Twist Grips • Cables
Helmets • Face Shields • Frame Kits
Engines & Engine Parts • Clutches
Torque Converters • G.E.M. Hop-up Accessories • Dayco Belts • Engine Tools & Aids • Engine Oils (2 & 4 cycle) • Spark Plugs (Champion & NGK) • and more...

Dealers write on your letterhead for catalog.
Please specify ☐ Snowmobile ☐ Mini-Bike.

SPORTS DIVISION
STANLEY W. TULL CO., INC.
1620 Harmon Place, Mpls., Minn. 55403
Retail catalog, \$1.50 (refundable)

RACE PREPARATION

Continued from page 55

two-stroke, anyway, a thicker head is needed. We went to a Super Rat head and inserted a 3/4" reach one-way compression release. It was a bit too close to the piston at top-dead-center so we installed two spark plug gaskets. This long-finned high-compression head permits lugging in a sand wash on a hot day without burning things up and this is worth the inconvenience of its cooling off too rapidly at other times. And it does permit compression release installation. Two fins on the head have to be trimmed to avoid contact with the Mini-Motocross frame. Things are tight with the big head installed and although it is possible to get the plug out without removing the tank, the forward tank bolt is still in the way. With this high compression head the plug must be longer, so a NGK BH8, 1/2" reach, is used most of the time.

The standard air filter on the Hodaka-powered Bonanza is fine for wet running, mud, enduros, or similar situations, but we removed the inside foam unit (the case becomes a plenum chamber) and slipped a Filtron filter over the rear hole. There appears to be a little better performance when flattracking with the Filtron and it is a cinch to switch back to the stock filter when the exposed Filtron element could get wet.

A plastic splash apron, put on over the rear fender and attached to the frame, cuts down on the mud flung up around the rear of the engine. These mud shields can be made out of an old inner tube that is laced on. One bought for a big bike cost about eighteen dollars, so the cost of doing things can vary a lot.

The design and fabrication of the Mini-Motocross flat "expansion chamber" could be improved and the exhaust pipe nut, which tends to get loose, is a good place to begin. A modern fitting that works better is a slip fit with springs such as are found on the Super Rat. The parts are available and will fit together quickly except that the flare on the manifold side of the pipe has to be removed. Changing over to a Hodaka tuned expansion chamber would not be a simple matter as it would have to be cut to fit the small frame.

The Mini-Motocross expansion chamber should really be "tuned" to maximize the engine's torque characteristics. Also needed are an effective heat guard and a muffling device. Even with Bonanza's Forestry Service-approved spark aristor, this MX is as noisy as any racing 100cc bike. The rider is required to use

ear plugs to protect his ears but we have got to find some way to get the decibels down for everybody's sake.

Several heat guard systems have been tried but the malleable tubes now welded along the pipe seem to work out best. All the other guards tried have been torn when the bike is dropped with the result that leg coverings can be torn to tatters.

One night, in the semi-dark prior to a race, we were surprised to see how many sparks danced up and down the kill button wire, where the insulation had apparently been cracked or worn through. The old wire was replaced by a more heavily-insulated one, with a surprising increase in performance in the next heat. The deteriorating insulation on the old one must have leaked out a spark now and then. A small thing, but that wire can be very important when you need it. More attention to engineering specifications, quality control, and inspections could eliminate a great many needless problems for mini-bikers.

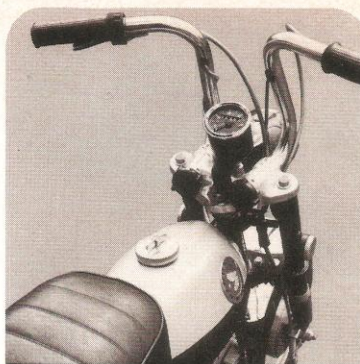
The coil, which was moved up under the seat, was originally mounted on the left side of the engine, next to the air filter and carburetor. In its old position, despite a heavy application of a plastic spray designed to keep out moisture, the engine quit at times due to water shorting it out. In one race a toothpick was carried to poke the wet mud out from between the electrical connections when they were shorted-out. Moving the coil up under the tank when the unit is assembled would take longer but, from a weather and damage standpoint, its stock position is very exposed.

Better quality wheel bearings are next

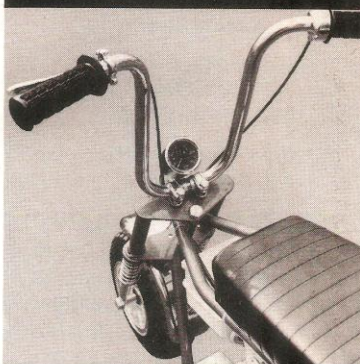
on the list of improvements. The stock ones were never intended for prolonged high speed use. Running with the oil level about halfway between the two marks on the oil stick reduces the effort needed to turn things over as well as cuts weight a bit. Racing with only the gas that will be needed lowers the center of gravity and also reduces dead weight. On the other hand, if there is no other way to make some items stronger, they should be heavier. If you don't finish you don't win. However, many minibikes are needlessly burdened.

There are some other things which seem worth trying. For instance, a quick change gas tank mounting, a Kendrick pumper carburetor with reed valve, ported piston, complete steering head transplant from a typical small motorcycle, a friction steering damper, a leading link front fork for rough going, a switch from 100cc to 125cc in displacement, a clutch operating on the primary drive to eliminate the need to find neutral in order to kick it into life again where bump starting techniques cannot be used, and a new design for the swing arm, probably a transplant including good rear shocks and chain adjusting mechanism would prove the simplest solution in the long run.

The Mini-Motocross is one of the best minibikes currently available, that is why we bought one. However, for the use my family puts it to, it needed a little additional thought and work. Now it is more of a joy to live with. This relates directly to reliability, handling, and ease of maintaining the machine. If we didn't love it, would we have put so much effort into it? □



VDO PROFESSIONAL MINI- SPEEDOMETER



FOR THE SERIOUS MINI-RIDER!

VDO puts mini-riders in the know — how fast and how far — with a truly professional speedometer. Its rugged design is already proven on thousands of RV vehicles. Cable driven front wheel hub drive is positive and trouble free. Includes choice of installation hardware to fit just about any mini-bike or motorcycle. Best of all, it sells for just under twenty dollars. Whatever your wheels, look to VDO Instruments for quality and reliability.

DEALER & OEM INQUIRIES INVITED

VDO INSTRUMENTS

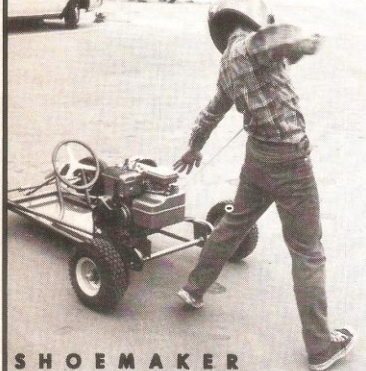
Dept. G-8

116 Victor Detroit, Michigan 48203

FIRE UP SOME FUN!

WITH THE SENSATIONAL

Lil' SPORT Yard Kart



3, 4 or 5 HP models featuring dependable, durable, Briggs & Stratton engine with governor, 5" Bendix internal expanding brake, True Ackerman Steering, Automatic centrifugal clutch, Grease fittings on wheel bearings, Full circle Aluminum steering wheel, Comfortable foam/Naugahyde upholstery, Carlisle tires, Link-belt chain, Double rail all-steel space frame, Azusa petals and chain guard.

SHOEMAKER

MOTOR SPORTS

R.D. 2, FORD CITY, PA 16226 (412) 762-1571

DEALERS—we distribute a complete line of Mini Bike parts.

AllAboutMiniBikes.Com



DUNECYCLE^{*}

TALK ABOUT PERFORMANCE!

At the Grand National ATV Championship Races—Pine Knob, Michigan—DUNECYCLE^{*} took top honors in all three classes entered...

First Stock Class (0-199cc)
1st and 2nd

Second Stock Class
(200cc-250cc)
1st, 2nd and 3rd

Modified Class (0-299cc)
1st, 2nd and 3rd

DUNECYCLE^{*} is the original three wheel fun machine. It has a variable speed transmission as well as right and left independent rear brakes. All year fun for the entire family. Send today for more information including accessories now available for all six models.

A.P.E. PRODUCTS

13727 Excelsior Drive, (Dept. 117)
Santa Fe Springs, California 90670
(213) 921-2585

*Trademark of A.P.E. Products / Patent Pending
© 1970 A.P.E. Products / A.P.E. Products is a division of Allied Pacific Mfg., and a member of Tower Industries, Inc.



DUNECYCLE^{*}

There's no better way to go!

Club Scene

NATIONALS MOVED UP

Southern California Mini-Bike and Kart Association has announced that their Nationals Championships have been moved up in time to July 10, 1971. Location will remain at Saddleback Park, Irvine, California. In the previous two years, the Nationals have been held in December.

Unfortunately, SCMBKA officials did not inform MBG of the change in plans early enough to do much good, from a pre-publicity point of view. Which emphasizes the fact that clubs must let us have their race dates at least three months ahead of time for us to publish them in time to let our readers know about them. For more information call Area Code 714, 548-0269 or Area Code 213, 370-8451.

TEN DAYS OF RACING

During California's Santa Clara County Fair, August 13-26, 1971, the Mini-Bike World-Wide Racing Association will stage ten days of racing. It is estimated that 40,000 spectators *per day* will watch the mini-bike races as they will be held in conjunction with the Fair's other attractions.

There will be nine days of elimination events, from which the winners will receive a guaranteed place in the finals on Sunday, August 22. The main event will determine the "West Coast National Champion" in each class. There will be eleven different classes and competitors will have as many as nine chances (one each day) of winning a first place and, thus, qualifying for the championship races.

The champions will receive trophies



HEY KIDS

Look at these great buys on Broncco Mini-Bike kits. Broncco TX1 std. with 3.8 H.P. engine, heavy duty front and rear shocks, 8" Pirelli tires, metalflake seat cover, chrome fold down handlebars, tool kit.

Just \$149.95
in kit form.



Broncco TX2 with 2.8 H.P. engine, heavy-duty front shocks, 8" Pirelli tires, metalflake seat cover, chrome fold down handlebars, tool kit.

Just \$129.95
in kit form.

East Liverpool Central Service
703 Dresden Ave.
East Liverpool, Ohio 43920

Name _____
Address _____
City _____

Gentlemen: Please send information on how I can receive a Broncco Mini Bike Kit.

four-feet tall and there will be many other gifts and prizes to be awarded for each day's racing. The MBWWRA, Northern California's major mini-bike club, claims that this will be the biggest West Coast event of the year, not only in awards and competitors, but in spectators, as well. Bob Scheid, president of the club, says, "Riders will get enormous recognition by a wide segment of the public and manufacturers ought to consider the exposure as well."

Riders entering the event will have to provide a photostat copy of their birth certificates and must be, at least, 7-years-old by August 22, 1971. They must wear jackets with full-length sleeves; safety helmets (preferably meeting Z290 standards); boots that cover the ankles; and their machines must be equipped with fully-operative mufflers or silencers (an expansion chamber is not a muffler). The machines must undergo a safety inspection covering such items as folding and covered footpegs; blunt or ball-ended brake levers; and no sharp edges (several layers of friction tape can be used to cover any potential cutting edges). Brakes must be fully operative and machines that are unsafe in the organizers' opinion will not be allowed to race.

A class will consist of at least five machines. Yamaha Mini-Enduros, Honda 70's and similar machines will race together. Classes may vary according to the entries and modified machines will move up a class.

The World-Wide Racing Association holds races every Sunday at the Santa Clara County Fairgrounds track, except when there are AMA-sanctioned races at the 1/2-mile dirt track. Bob Scheid tells MBG that during the mini-bike races there are wall-to-wall hay bales, a covered pit area, bleachers with a roof for spectators, rest rooms, food and soft drinks. For further details write Mini-Bike World-Wide Racing Association, P.O. Box AE, Campbell, Calif. 95130. Membership in the Association (required for racing) is \$5. Pre-entry fee for the August 13-26 racing is \$20.00 and entries at the track will be \$25.00.



NOW "CHROME"

DEALERS
Invited

Plated Engine Parts

Send 25¢ for Complete
Pictured Price List or
\$2.00 for Complete
Catalog

Kustom

KART SHOP

2026 Morris Ave.
Union, N. J.
688-9858

BRONCCO

FERRARI OF KARTS WITH VW PRICE

DUNE KART

BRONCCO Fun Kart has it all: 148.5 cc, 3 hp, 4-cycle engine, precision Dell'Orto carb, polished mag style wheels with 3.50 x 5 Pirelli traction tread rear tires, 7.0-1 gear ratio, live rear axle, double braced front axle, cable controls with cast aluminum pedals, ball bearing front wheels and Formula 1 type steering wheel. Surprisingly modest price. Also without engine. Optional Dune Kart Body with choice of these Metalflake colors: Blue, Gold, Green, Purple and Red. Easily installed.

Send 50¢ for BRONCCO decal & literature. Dealer & distributor inquiries invited.

BRONCCO DIVISION / ENGINE SPECIALTIES, INC.

Dept. MBG-871, P. O. Box 260, Cornwells Heights, Pa. 19020

AllAboutMiniBikes.Com

BRONCCO

BANTAM-SIZED BIKE FOR BAMBINOS



The Fantichino (fan-tee-KEE-no) miniature mini-bike is safety-engineered especially for 4 to 8 year olds. Only 19" high at the seat, the Fantichino has a 1 hp, 60 cc, 2-cycle engine whose speed can be adjusted way down to 5 mph, a completely enclosed drive system, tucked-away exhaust, 2.50 x 8 Pirelli tires and chromed wire spoked wheels, even fold-up foot pegs and optional training wheels.

Fantichino: just one of 14 BRONCCO models.

Send 50¢ for BRONCCO decal & literature. Dealer & distributor inquiries invited.

BRONCCO DIVISION / ENGINE SPECIALTIES, INC.
Dept MBG-871 P. O. Box 260, Cornwells Heights, Pa. 19020

MOTO CROSS ENTERPRISES

MINI BIKE PARTS

You have heard all kinds of promises about Discount Mini-Bike parts, well send for our Catalog and you will see real savings. DOLLARS off on top name brand: clutches, tires, chain, etc. Fully illustrated catalog, ideal for builders and locating the right replacement parts.

Send \$1.00 to

SAVE DOLLARS

MOTO CROSS ENTERPRISES

P. O. BOX 57
PHILADELPHIA, PA. 19105

A

For better control

B

When every ounce counts...

C

Non clogging
Non restricting

D

Competition proven

K&N mini ENDURO ACCESSORIES

- A** Motocross scramble bars designed for dirt trackers. Miniature swept back bars clear the knees of big riders. 28½ inches across in black oxide \$9.95
- B** Shatter proof plastic fenders super light weight in simulated black vinyl textured surface \$12.95 a set.
- C** Hi-performance replacement air filter complete with bracket and clamp \$8.95
- D** Competition expansion chambers upswept and downswept styles \$35.95

SEND FOR FREE BROCHURE

K&N

GUARANTEED PERFORMANCE PRODUCTS

P.O. BOX 1329 RIVERSIDE, CALIF. 92501
(714) 682-8813 Dept. MB

HILL-TOPPER & TRAIL-TOPPER

Continued from page 50

gear ratios when hill climbing so that we would reach the top of the hill with the engine gasping, instead of whirling crazily in the 18:1 gear ratio. Nevertheless, it did get to the top every time we tried it. At slow speeds the torque converter was very predictable in its behavior and trials-like riding was a snap. The machine felt extremely well balanced and at slower speeds the front and rear suspension were entirely adequate. Maneuvers up and down the grassy slope of a steep hill were undertaken with ease and the machine would go exactly where it was pointed during the traversing test.

We wish we could be as enthusiastic about the Trail-Topper's ability. The smaller machine comes so close to being an all-out trail machine that we might have been expecting too much from it. However, the 3 hp engine seemed to be a little short of power to get the full potential out of the mini-bike. This may have been a tuning situation, but we did not seem to be able to cure the problem by twisting the adjustment screws on the carburetor, or the gear ratios were too high. Although, if the nearly 15:1 low gear was really operative, this would seem low enough. It should also be pointed out that the engine was brand new and may have needed a little running in. If more power could have been coaxed from the engine, this machine would have undoubtedly been a top performer, even though it was not designed this way.

Judging from the way the Trail-Topper handled the moderate terrain (that which could be tackled with the engine as it was), this machine has a lot of possibilities. The ride on the rear end was nice and easy and could have been taken for long periods. The suspension on the front end, of course, in no way provided a Ceriani-like ride but considering the cost of the machine it did an adequate job.

We were somewhat perturbed by the position of the footpegs as the guard over the torque converter, and the recoil starter on the other side, kept our feet on the outward portion of the pegs. It would have been much better had the kickstand been moved to the back of the engine loop and the footpegs placed about 6-inches to the rear. As it was, it was all but impossible to stand on the pegs unless the rider heaved himself up on the handlebars. Which brings us to a positive feature of the bike. The handlebar mounting and the handlebars themselves seemed superior to those on the more expensive Terra Products machine.



Although the Trail-Topper is a small machine by today's standards, the adult rider was not uncomfortably cramped and the size would be ideal for the average mini-biker.

Overall, we were agreeably surprised at the proficiency of these two machines. It is not often that a new manufacturer comes upon the scene with two machines doing such an adequate job of supplying the needs of two separate groups of mini-bikers. From a cost point of view these are good buys and that applies in particular to the Hill-Climber. Although this is the simpler and less expensive of the two it is, to our mind, a machine that makes a lot of sense. With this start Terra Products is in a position to build themselves a good future in the mini-bike field. □

Rupp Cycle Parts

We Ship COD

HALE'S SPORT CENTER

2245 Pavonia East Rd, Mansfield Ohio 44903
Phone: 419-589-3758

RIGHT ON!!!



POWER

UP TO 25% OVER STOCK

Hi Performance Carb & Manifold Kit

For **TECUMSEH HS40 4HP ENGINE**

only **\$29⁹⁵**

Model TEC-45. Includes Hardware. Enclose check or money order. Send 50% with order, balance COD. Ohio residents add 4% sales tax.

Manufactured by

MAPLE SPEED & SPORT

2790 MAPLE AVE, ZANESVILLE, OHIO 614/453-5644 Dealer/Distributor Inquiries Invited

MISSING SOMETHING?

Like maybe some of the road tests in past issues of MBG? Well, you can still order some of the great tests you missed by sending 75 cents for each issue you want (to cover costs and postage) and we'll do the rest. Just look at what you might have missed: (Only the issues listed below are available)

Dec 69 - Benelli Scrambler, Mini-Gote, Papoose
Feb 70 - Maverick III, El Burro, Scrambler
Apr 70 - Bambino, Cyclops L-400, HPE Slingshot
May 70 - Herter's Mark I, Powell Challenger
July 70 - Indian Boy Racer, Rogue 400, Scorpion
Aug 70 - Gemini SST, Bonanza Motocross, XE/525
Sept 70 - Yankee Boss, Dunecycle, SS CAT
Nov 70 - Rupp Roadster, Chibi, Mini Drag Rail

Jan 71 - Speedway Shrike, Trail Hawk
Feb 71 - Hornet, CCS Super Charger, Maverick Zero
Mar 71 - Honda QA50, HPE Cat Endura, Snow machines
Apr 71 - Speedway Silver Shadow, Benelli Volcano, Trapper
May 71 - Rupp Roadster 2 & Black Widow, Kawasaki Dyna-Mite

DECEMBER 1970 - SPECIAL HOLIDAY EDITION (31 Tests) --- \$1.00

PLEASE ALLOW 2 to 4 WEEKS FOR DELIVERY

MINI BIKE GUIDE, P.O. Box 978, North Hollywood, Calif 91603

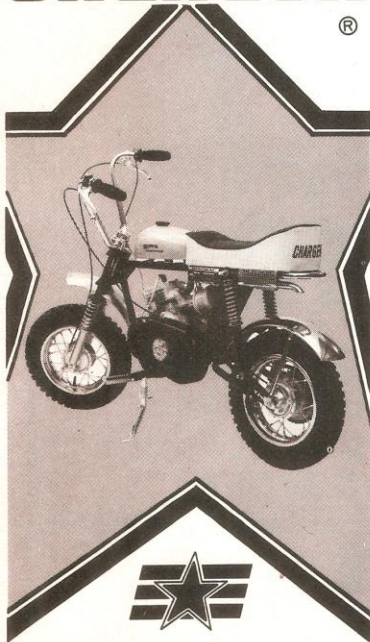
AllAboutMiniBikes.Com

MINI BIKE GUIDE / 67

INTRODUCING THE
NEW TERRIFIC

"SUPER" CHARGER

®



MADE IN THE U.S.A.

... and made to last. This new star performer of the Charger line is rarin' to go and take you with it. Loaded with such features as comet torque converter, #40 drive chain, you can't GO wrong with the "Super" Charger. Send 50¢ now for brochure and details.

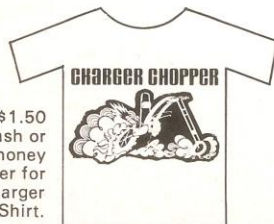
Dealer-Distributor Inquiries Invited

Phone 219/272-0252



CENTRAL CYCLE
SUPPLY, INC.

51025 U.S. 31 North
South Bend, Indiana 46637



Send \$1.50
cash or
money
order for
Charger
Tee Shirt.

FORTYNINER? SI!

Continued from page 25

flexing of the crankshaft which could result in eventual c.s. failure. A lot of trial and error slipping and sliding is necessary for this job, but it is vital. Use a straight-edge, held firmly against the rear sprocket, to check the alignment of the jackshaft sprocket.

The next steps are installing a gas tank. Use a spring or O-rings to strap it down firmly, then attach fuel line to the carb.

A small chain guard bracket is bolted to the Mac manifold and a throttle clevis is used to install the throttle cable from grip to carb.

A tape measure is used to determine exact measurement of chain length and No. 35 chain was used for convenience sake.

Everything was double-checked and tightened down to insure a neat installation. Then two-stroke oil/gas mixture was put in the tank. The engine was thoroughly lubricated before it was started because it takes some time before the gas/oil mix starts to lubricate the engine. The spark plug was removed and some of the mixture was poured directly into the engine. Also the carb was primed with it.

The engine was fired up and a few test runs were made. The way the bike was geared may have had something to do with it, but our mini-bike was not exactly a screamer. This was a disappointment because we had expected good things to happen. Because the engine comes into its own around 6,000 rpm, a low gear of about 8:1 is recommended and we were running 6:1. The power was sufficient for a junior-sized rider but

a full-size adult had to wait around for a while before things started to happen.

With the horsepower and torque characteristics of the 49er, this seemed odd. So we asked around to see what other people had experienced with this engine. There were some who said they never had been able to get it to pull worth a darn, although they kept trying because of the other attractive features of this engine. Then there were others who said, properly geared and broken in, the Mac 49C would easily dump an unwary rider if the throttle was cracked too suddenly. These people swear that the best way to instant mini-bike happiness is through a Mac 49er.

Don't get us wrong, there was plenty enough power for fun, even for adult-sized riders. And the engine is super easy to install. As a matter of fact, just for kicks we fitted the engine into a Steen's Taco frame and a Wildcat from American Products—as mock-ups—to see if the 49er would fit. The only hang-up was on the muffler when we tried it on the Wildcat—but an Azusa Engineering muffler would solve the problem. The Taco's brake arm had to be bent out to allow clearance for the jackshaft sprocket.

We couldn't find anything wrong with the installation even though we looked long and hard. There were no bugs to be worked out as on so many other jobs of this type.

We were very pleased and we think you will be, too. The McCulloch 49C engine sells for \$99.95, complete, not exactly cheap. However, for that price, you can pretty much figure you've got a whole new bike. That's tough to beat. □

SURE-FOOTED TRAIL BIKE



APACHE 100

The BRONCCO Apache 100 goes as good as it looks. 2-cycle engine, 12 hp at 7,500 rpm, gets on the cam at 2,500 rpm, redlines at 8,000 rpm, 22mm Dell'Orto concentric carb and 4-speed manual trans. Ceriani-type suspension with 19" Pirelli front knobby and 17" Pirelli rear knobby, 12" ground clearance. Heavy-duty front and rear drum brakes, skid plate, chain. Top speed 65 mph. 145 lbs., Chrome Yellow with hi-rise polished stainless steel fenders and black accents. Send 50¢ for BRONCCO decal & literature. Dealer & distributor inquiries invited.

BRONCCO DIVISION / ENGINE SPECIALTIES, INC.

Dept. MBG-871 P.O. Box 260, Cornwells Heights, Pa. 19020

SAVE 45%

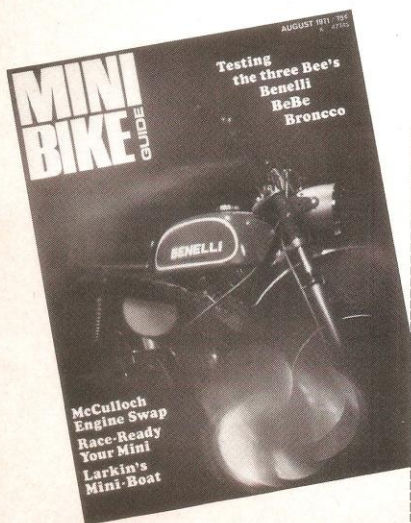
SUBSCRIBE NOW TO MBG!

That's right...subscribe now to MBG for a full year for only \$5.00 and save \$4.00 over the regular newsstand price. A whopping 45% savings is yours if you Act Now! This unprecedented money saving offer can't continue because of recent postal increases, so beat inflation and rising costs now...and receive the world's best mini bike magazine home delivered. It's the best way to keep up with MBG's expert "tell it how it is" road tests, timely technical and how-to-do-it features, fast-paced mini bike race coverage and plenty more.

Don't miss out on this tremendous offer...it's for a limited time only...fill in the coupon below, enclose cash, check or money order for five dollars...we'll do the rest.

\$5

**THIS SPECIAL OFFER
IS LIMITED**



Hey, guys...here's my order for a one-year subscription to MBG at the unheard of super low, low price of only Five Bucks.

Name _____

Street _____

City _____ State _____ Zip _____

Mail to MINI BIKE GUIDE, P. O. Box 978, North Hollywood, Calif 91603

AllAboutMiniBikes.Com

BRONCCO

LEAN, CLEAN, MEAN MINI-CYCLE



DIABLO

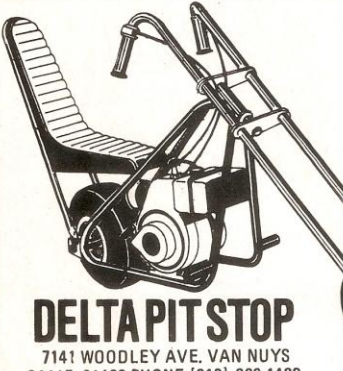
The Diablo. BRONCCO's newest model with lights pak for where mini-cycles are street legal. Motocross styling. 75 cc, 2-cycle engine puts out 5 hp at 6,500 rpm, gets on the cam at 2,500 rpm and redlines at 8,000 rpm. Top speed of 55-60 mph. 4-speed trans, chromed wire spoked wheels, big Pirellis (16" O.D.) with knobby on rear, drum brakes, Ceriani-type fork, precision Dell'Orto carb, rear swing arm with telescopic shocks. BRONCCO puts it all into only 110 lbs. The Diablo: just one of 14 BRONCCO models. Also available with semi-auto trans, or with torque converter-equipped 172 cc, 4-cycle engine.

Send 50¢ for BRONCCO decal & literature. Dealer & distributor inquiries invited.

BRONCCO DIVISION / ENGINE SPECIALTIES, INC.
Dept. MBG-871 P. O. Box 260, Cornwells Heights, Pa. 19020

Looking for a great vacation? You don't have to look far.





BUILD YOUR OWN MINI-CHOPPER

TUBING ONLY - PRE-BENT & UNWELDED

FRAME

FORK

SISSY BAR

}

ALL 3 FOR ONLY

\$22⁹⁵

SEND 50 CENTS FOR COMPLETE LITERATURE & PRICE SHEET
COMPLETE PLANS - \$2.00

U.S. ORDERS ONLY.
POSTAGE NOT INCLUDED.
NO C.O.D. ORDERS

DELTA PIT STOP

7141 WOODLEY AVE. VAN NUYS
CALIF. 91406 PHONE (213) 989-1480



All parts in stock for Mini-Bikes, Karts
LARGEST STOCK IN EAST!

Everything Shipped Promptly!
55 years of friendly service

BUILD 'EM \$1 for kart and mini-bike plans. Complete drawings, specs, parts lists.

or BUY 'EM! \$1 for complete kart and mini-bike info with bargain prices on all parts, engines, etc.

Send \$1 for each of the above, or \$2 for both.

BROWN'S MOTORSPORTS

19M Central St., Worcester, Mass., Tel. 617-756-0718

MORE TECH TIPS

TWEAKING MBG

Q: After reading Part I of "Tweaking The Teke" I was really looking forward to Part II. However, after reading Part II, I was very disappointed. You failed to tell us what makes the Lake Injector tick. Therefore, I would be very grateful if you could tell me the specifications, dimensions, principles, type of throttle body, and how the whole thing works. I would appreciate as much information as you could give me.

Pete Torracco
Jersey City, New Jersey

A: Sorry 'bout that! The Lake Injector, so we are told, makes use of a new "modular" concept in fuel/air metering. It is too involved to cover in detail here but we hope to have a full review on the system soon, as many readers are now inquiring about it. Briefly, the injector has a fiber slide, a fuel injection pipe and an adjustable tapered needle. Opening the throttle raises the slide, admitting more air, and, at the same time, raises the induction pipe, exposing the taper on the needle and increasing fuel flow. Setting up the injector involves a "tuning knob" which "dials in" the mixture required, very simply. Field reports indicate that some considerable experimentation is required to find the right needle (three come with the unit) and the right setting of the knob for the rider's particular location and style of riding. Additionally, the amount of vibration encountered on the average mini-bike causes the knob to turn and it must be taped into place to prevent this from happening. However, once the correct setting is found, it is easy to find again and the unit, we are told, is great for racing. An adaptor (cost \$3.50) is required to fit the Lake Injector (which costs \$56.50) to Tecumseh or Briggs and Stratton engines. This is obtainable from Ron's Mini-Cycle City.

**BUY OR BUILD YOUR OWN
KART OR MINI BIKE
FRAME \$10!**

for less than

SAVE UP TO \$50 IN COSTS...

New PLANS with complete parts list show how to easily build Kart or Mini Bike at home, only \$1.00 each (incl. 1¢). • Sturdy, ready to bolt together. Kart or Mini Bike FRAME, only \$9.95 (plus shipping). Factory discount parts/kits list included FREE! NO WELDING REQUIRED.

PLANS — \$1.00 ea. ☐ KART ☐ MINI (Calif. res. add 5% sales tax)
FRAMES — \$9.95 ea. ☐ KART ☐ MINI

Send check, cash or money order to: **KIT KAR** Dept. IMB8
820 N. Hollywood Way / Burbank, California 91505

FRAME ONLY \$9.95

PLANS \$1

Print Name _____

Street _____

City _____ State _____ Zip _____

MONEY BACK GUARANTEE



BY RON BLACK

Fearless fourwheeler here, once again racing the MBG deadline. However, I did my thinking early this month, and I've got a story to tell. Serious mini-bike competition is here to stay and that brings something to mind. It seems like every generation grows up with its own fad or form of motorsport competition. In my opinion this is a good thing! It is my fervent belief that motorsport competition is one of the best teachers a youngster can have. I haven't time to sit down and figure out just why it is (with my weak brainpower, I mightn't live long enough). But the evidence is in front of me, and the results are what I'm most concerned with, anyway.

One thing seems to stand out. Youngsters who are involved with motorsports don't seem to have as many hang-ups and troubles as those who seem to get the headlines these days.

Let's take a frinstance. A couple of boys who are big names in karting typify what I'm talking about. Their names are Tony and Kyle Adkins, and they live in Rowland Heights, California. Tony and Kyle are a fearsome twosome when they hit the track, and have been for several years now. They are always in contention for the big gold, no matter where they run.

They both have, literally, grown up in the seat of a kart. Would you believe that they were aged five and three when they got into their first kart? Tony is the eldest and, since he will turn 16 just before this year's Nationals, will race in senior class competition for the big one. Kyle is still in the Junior classes and will be 14 in June. Count it up! They have been driving eleven years already! Experience tells, and last year at the Sprint Nationals, Tony and Kyle qualified side-by-side, forming the front row of the grid of Stock Junior. Their qualifying times were one-hundredth of a second apart!

The racing history of the Adkins family started in Columbus, Ohio, when Bill Adkins built fun karts for his boys.

They were powered by 4-stroke engines and they laid out a dirt track in the back lot behind their house. It wasn't long before Tony and Kyle were really wailin' around that track. Bobby Adkins (Bill's nephew) settled into a third kart that Bill had built, and the fat was in the fire! There was some hairy competition and, before long, Bill's sister-in-law had a similar track going for her son in their back lot. One weekend, everybody'd show up at Bill's place and race, and the next weekend it was over at Auntie's place . . . they had a regular racing circuit amongst the family!

The lure of California and the prospect of being able to continue karting year 'round influenced a move from Columbus to the L.A. area in 1963. By this time, Bill's wrenching on the 4-strokes had gotten pretty wild, and even though they had one Clinton that would haul right up with the Mc 8's of the time, Tony and Kyle wanted a Mac because it sounded a lot faster. This was the point where their path led to serious organized competition.

Both boys drove in the then popular "PeeWee" class. With their well-developed driving skill, Tony and Kyle did well in their classes. When I.K.F. brought in the Rookie class, the old "PeeWee" class broke up, but because their ages meant they would have had to go into this considerably slower class, the Adkins raced at non-I.K.F. events until they were old enough to race Stock Junior. In the meantime, Tony and Kyle sharpened up their techniques on some really hairy Mac's.

When the boys entered I.K.F. competition, they immediately became the leading standard bearers for Bug karts, but they are not sponsored drivers. Bill does all of the wrenching in their three-car garage. They have been collecting karting parts so long that this garage would put some kart shops to shame! It would be hard to find a more dedicated karting family. They drove to Barnesville, Georgia, in March to compete in the

Continued on next page

NEW! for 1971



TM-1100

Both models equipped with high performance torque convertor and trailing arm suspension.



TM-951

TERRA-PRODUCTS, INC.

Lebanon Rd. • Crawfordsville, Indiana 47933
Phone 317-362-7367

"CALCULATING MAC 91A-101 COMPRESSION RATIO"

28-page text plus 17-page appendix. Written by T. POWELL, author of many articles on Tillotson Alky Carbs.

For experienced mechanics—not for beginning karters. Includes race data on Eastern Can-Am and Trans-Am enduro Macs.

\$1.50 pp

JMF RACING EQUIPMENT
P.O. Box 82—M.S., Baldwin,
L.I., N.Y. 11510

SPECIAL SALE!

Special purchase of manufacturers overstock allows us to offer the following bargains on Mini-Bikes and accessories

MINI-BIKES - Double loop frame, 2 1/2 HP Tecumseh engine, Foot operated scrub brake, Fork bushings, 4" Ball bearing wheels with Carlisle tires, Motorcycle twist grip. Partially assembled - Requires installation of front wheel and fork.

\$99.95 plus \$10.00 packaging and freight charges

CLUTCHES 3/4" bore 12 tooth #35 Chain \$6.95

TORQUE CONVERTERS 3/4" bore Engine Pulley
5/8" bore Jackshaft Pulley
Includes Drive Belt \$24.95

ENGINES 2 1/2 HP 3/4" shaft \$44.95
3 1/2 HP 3/4" shaft 49.95
5 HP 3/4" shaft 59.95

Add \$2.00 for packaging and transportation on engines

50% Deposit required on all COD orders

Send \$.25 for current listing of all Mini-Bike specials on frames, forks, seats, wheels, tires, brakes, sprockets and much more.

BIG VALLEY DISTRIBUTORS
P.O. BOX 5832
BELLEVILLE, PA. 17004

AllAboutMiniBikes.Com

MINI BIKE GUIDE / 71

GEM announces high-performance parts for Tecumseh!

GEM's new high-performance head for the 4 HP Tecumseh gives increased compression, better cooling and more efficient combustion—and only GEM has it!
Order Part No. G5200—only \$17.95



Replace restrictive stock manifolds with GEM's new "Straight Shot" high-performance manifold kits—for unrestricted fuel flow, better acceleration and improved top-end performance. Kits contain all needed parts and instructions.

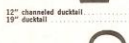
4 HP angled engines	Order Kit No. 5225	} \$9.95 each
4 HP upright engines	Order Kit No. 5227	
2 1/2, 3 & 3 1/2 uprights	Order Kit No. 5229	
2 1/2, 3 & 3 1/2 angled	Order Kit No. 5231	

GEM PRODUCTS INC.

Box 845 • 496 E. St. Charles Rd. • Carol Stream, Ill. 60187



KICK STARTER
For all Tecumseh engines
\$19.95



12" chevron ductal... \$5.95
12" ductal... \$5.95



60" throttle cable... \$2.00



covered spring shock—pair... \$5.00



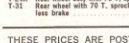
Deflector Barling Gask
Kit for 5 HP Tecumseh
\$23.95



STEEL DEEP DRAWN FENDERS
Universal size to adjust to 10", 11" and 12" OD tires. These are available in either the unbranded or chrome finish.
21857 Fenders—Chrome... ea. \$3.75
21858 Fenders—Chrome... ea. \$3.95
Short (14" x 12")... ea. \$3.75
Long (14" x 18")... ea. \$3.95



FRONT 3" ALLOY WHEELS AND TIRE WITH 15" BEARINGS
W108K Wheel with 15" O.D. rim tire—Standard ball bearings... \$13.75
W115P Wheel with 11 1/2" stud tire—Standard ball bearings... \$14.75
T-20P Wheel with 11 1/2" O.D. stud tire—precision bearings... \$16.50



REAR 5" ALLOY WHEELS with 1/2" precision bearings
R-11 5" O.D. rim, tube and precision bearings... \$13.50
R-12 5" O.D. rim, tube and precision bearings... \$15.00
R-13 Rear wheel with 70 T. sprocket... \$15.00
R-14 Rear wheel with 70 T. sprocket... \$15.00



LOW TONE MUFFLER
Your neighbors will like you again, with this super quiet muffler. For Briggs or Tecumseh, etc.
Price \$2.95
(1/2" or 3/4" pipe thread, specify what engine)



Levers \$3.50 ea.



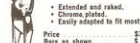
Cable \$2.00 extra



MINI-BIKE CLUTCHES
QUALITY... \$15.95
ECONOMY... \$12.95
Specify 1/2" or 3/4"



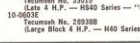
TWIST GRIP
No. T02-75 — the throttle assembly with dummy grip, 1/2" bore or 1"
List Price: \$4.95



CHOPPER SEAT
\$19.95



NEW! CUSTOM MINI CHOPPER FORKS
• Extended and rebed.
• Chrome plated.
Price as shown... \$32.95
Extra \$ 2.95 Extra
(or mount your own 1 1/2" bars)



RACING HEAD GASKETS \$3.00 ea.
10-0501A Briggs & Stratton No. 27670 (2 H.P. thru 3 H.P.)
10-05020 Briggs & Stratton No. 276383 (4 H.P. & 5 H.P.)
10-0501C Tecumseh No. 299338 & 32643 (2 H.P. thru early 4 H.P.)
10-05020 Tecumseh No. 33015 (late 4 H.P. — HG40 Series — "B" Block)
10-0503C Tecumseh No. 295388 (Large Block 4 H.P. — HG40 Series & 5 H.P.)

THESE PRICES ARE POST PAID! ORDER THESE ITEMS NOW! WE ALSO STOCK STEENS CATALOGUE PARTS.

SEND \$1.00 FOR MINIBIKE PARTS CATALOGUE

MINI-BIKE WORLD

3434 N. HARLEM • CHICAGO, ILL. 60634 • PHONE 312—777-8808

Send certified check or money order for parts. Illinois residents include 5% tax.

NAME _____ IN FULL

ADDRESS _____

CITY _____ STATE _____ ZIP CODE _____

KARTING KORNER Continued from page 71

Eastern Sprint Winternationals and, as I write this, Bill and the boys are traipsing all the way to Portland, Oregon, to test the competition up there.

The skill with which Tony and Kyle go about their driving chores is really something to watch. Kyle is a really trick sprint driver, and can always be counted upon to get the last "nth" of performance out of his engine and kart by sheer driving proficiency. Tony seems to be developing into the enduro competitor and, although he hasn't been racing enduro very long, he already is beginning to get the ol' pro's worked up. In either case, they can drive either enduro or sprints better than probably 90% of their competition.

Racing has been good for these brothers because you don't find them worrying much about things that seem to be bugging the devil out of other kids their age. They have made their mark, or maybe it's better to say that they have goals and purpose about them. There is no time to get dissatisfied with their lot in life. In fact, they are rather enjoying themselves. The serious problems that bother other kids simply don't relate to Tony and Kyle's sphere of reference.

It is this well-balanced mental attitude that I find quite common among kids who have grown up participating in serious motor sports. Again, I can't quite put my finger on the reason for this but Bill mentioned something to me when I was talking to him about this column that might be a clue.

It was about the real, good, man-to-man talks that he and his boys get into while enroute to the races. How often do parents get their kids, or do kids get their parents, to sit down and have some really heavy rap sessions—for say, four and five hours at a time? The opportunity for kids to get to "know" their Dad, and have Dad seriously *listen* to the things that are of interest to them, is likely to be a very important factor in the way racing "Improves the Breed" . . . of both man *and* machine!

As far as Tony and Kyle are concerned, they are the kind of kids that I hope to be able to bring up some day, and I think my kids will go racing—for the good of both of us.

**FOREST FIRES
HURT OUR
FOREST
FRIENDS**



AllAboutMiniBikes.Com

MINI-BIKERS Join Now!

THE INTERNATIONAL
MINI-BIKE ASSOCIATION

GET FREE
SHOULDER PATCH
STIK-ON DECAL
MEMBERSHIP CARD
NEWSLETTERS



IMBA is your Organization
Working for you to improve the sport

ANNUAL MEMBERSHIP FEE
\$3.00

Jackets, Tee Shirts, Insurance, Books
AVAILABLE TO MEMBERS ONLY

IMBA,
Box 272, Port Huron, Mich 48060

Name _____
Address _____
City _____ State _____ Zip _____

OUTTA SIGHT! BUMPER STICKERS



16" x 6" \$15.95 pair



15" x 4 3/4" \$14.95 pair



12" x 4 3/4" \$13.95 pair

Send cash or money order for same day shipping (inc \$2 for postage).
Send 50c for complete bike & parts catalog.

K & P mfg., 330 S. IRWINDALE,
G8 AZUSA, CALIFORNIA 91702

AMERICANS!
LEE WILL GIVE YOU 20% OFF
 On any of his Great New Bikes - which feature 420 chain. Send 25c for Brochure, 50c for Catalog-refundable on purchase of bike.
CHOPPER Plans, \$1.50; KART Plans, \$1.00

LEE SPECIAL
7/8" TWIST GRIP
DUMMY & CABLE
50% OFF - Only
\$2.95 + 50c postage
 Limited Time Offer
 SEND TODAY to



LEE'S MINI-BIKE INDUSTRIES, LTD.
 746 SW Marine Dr, Vancouver 13 BC, Canada

MINI-BIKES/MINI-BIKES/MINI-BIKES
FROM \$89.00 (less motor)
WE HAVE THOSE HARD TO GET PARTS,
SEND 50¢ FOR NEW ILLUSTRATED
CATALOG - AVAIL IN CANADA ONLY

IDEAL KARTS & PARTS
 1017 PRINCESS AVE.
 LONDON ONTARIO
CANADA
 (DEALER INQUIRES INVITED)

DIXIE
 Mini-Bike Parts & Accessories
 Wholesale to Dealers Only
For The Big New Catalog Write To
DIXIE INTERNATIONAL COMPANY
 1921 Woodland Ave., Columbus, Ohio 43219
 Phone Area Code 614 - 258-9535

VINNY'S MINIS
 Max Torque Clutches \$9.95, Torque Converters \$35
 No. 35 chain \$1.00/ft.
 Much more!
 Send 50 cents for price lists to
 Vinny's Minis
 207 Emerson St., Rochester, N.Y. 14613

MINI-BIKE FRAME

SAVE UP TO 60%
 Mini-bike kit complete with everything except engine. 3 models available. Send for FREE brochures now.

EASTERN ENTERPRISES, INC.
 1250 Wilshire Blvd., Dept. MB-81
 Los Angeles, Calif. 90017

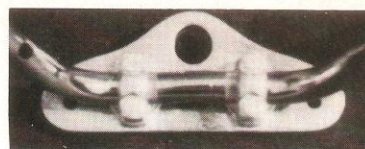
GO KART & MINI-BIKE CATALOG
 A COMPLETE GUIDE OF STOCK AND HI-PERFORMANCE PARTS
SEND \$1.00 FOR CATALOG AND FREE DECAL

CALIFORNIA SPEED & SPORT SHOP Dept. A
 298 Jersey Ave. New Brunswick, N. J. 08902



ADVERTISER'S INDEX

APE Products, Inc.	64
Azusa Engineering, Inc.	Cover 2
Brown's Motorsports	70
Big Valley Dist.	71
California Speed & Sport	73
Carlisle Tire & Rubber Division	12
Central Cycle Supply, Inc.	68
Comet Industries	16
Cosmopolitan Motors	Cover 4
Crown's	73
Carney Marine	73
Delta Pit Stop	70
Dixie International	73
East Liverpool Central Service	64
Eastern Enterprises	73
Engine Specialties	65, 66, 68, 70
Flexo of California	10
GEM Products, Inc.	72
HPE/Muskin, Inc.	8
Heald, Inc.	4
Heath Company	17
Herter's, Inc.	14
Hales Sport Center	73
Ideal Karts & Parts	73
Inglewood Kart	73
International Mini-Bike Assoc.	72
K&N Performance Products	66
K&P Mfg.	72
Kit Kar	71
Kustom Kart Shop	65
KG Engineering	62
Lee's Mini Bikes	73
Max-Torque, Inc.	60
Mini Bike World	72
Maple Speed & Sport	67
M.R.S. Products	73
Motocross Enterprises	66
Nat'l Ass. RV Owners	58
Pettyman, George	73
Pacesetter Enterprises	60
Premier Motor Corp.	7
Rockford Motors	61
Ron's Mini Cycle City	15
Rupp Industries, Inc.	Cover 3
Sachs Motors	13
San Tong Co.	51
Shoemaker Motorsports	63
Speedway Products, Inc.	11
Sportstyl, Inc.	62
Steen's Sport Center	3
T&B Enterprises	62
Tecumseh Products Co.	14
Terra Products	71
Stanley W. Tull, Inc.	62
Vinny's Minis	73
VDO Instruments	63
A Wheel World Dist. Co.	73
Wiseco Piston Company	59



HANDLE BAR CROWNS

Handle bar Crowns for Honda Mini & Trail 70. Also fits Maverick, San Tong and Minico Mini's upon request. Install any 7/8" bar for better handling and front end strength. Brightly polished and easy to install. Send \$8.00 plus \$1.00 postage to

Crown's
 11118 Lindblade Street
 Culver City, California 90230

SWING SEAT
SHOCK KIT
FOR HONDA
50 M-TRAIL
COMPLETE
POSTPAID

\$9

RIDES GREAT
CARNEY
MARINE
 1320 MALBAY DR
 LUTHERVILLE
 MARYLAND 21083



TRACKSTAR HELMETS

DEALERS/DIST's
 write for details
 of complete safety
 equipment line

TEL. (516) 437-7877

Box 314, FLORAL PARK, N.Y. 11002

Manufacturers Representative

COMET INDUSTRIES

GEO. PRETTYMAN
 P.O. Box 532, Lynwood, Calif. 90262
 Phone - Area 213-632-5308

MAGNETIC OIL DRAIN PLUG
FITS B & S CLINTON TECUMSEH
\$1.50 Each 2 For \$2.50

Remove Front-End play from fork steering with Thrust Roller Bearings - Fits all Bikes with 5/8 Bolt - \$2.50 Per Set

M.R.S. PRODUCTS
 PO BOX 1121
 MELROSE PARK, ILL. 60161

WANTED SALES REPS.
SPORT KING TRAIL BIKES

WRITE TO
MARKETING DIRECTOR
SPORT KING INC.
ROGERS CITY, MICHIGAN 49779

MINI-BIKE & GO KART PARTS & ACCESSORIES HEADQUARTERS
 Send 50c for Mail Order Listings of parts and accessories for all popular brands or for building one yourself.
A WHEEL WORLD Distributing Co Inc
 Box 24266, Cleveland, Ohio 44124

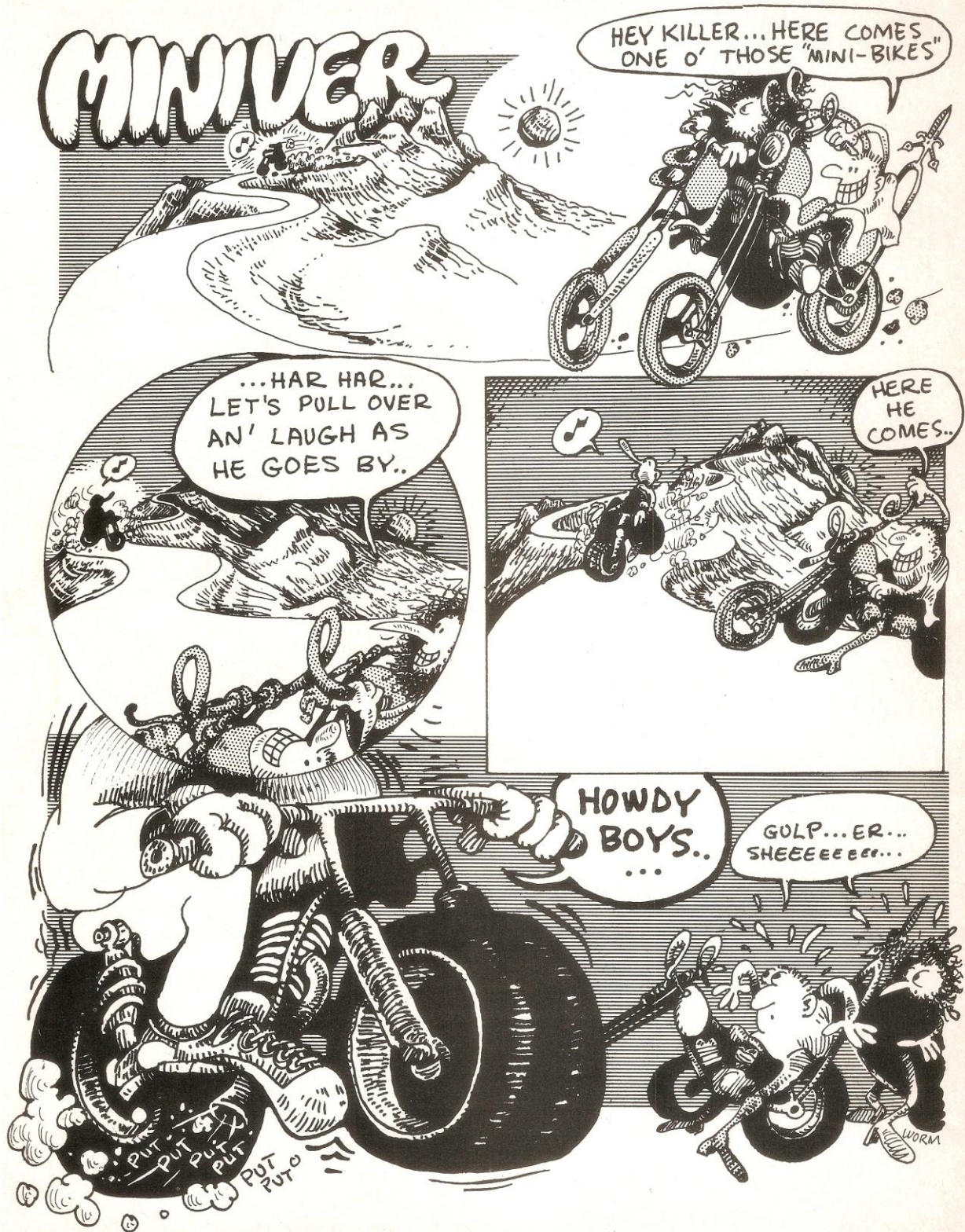
INGLEWOOD KART SUPPLY
 Send \$1.00 For the 1971 Mini-Bike Catalog



1307 N. La Brea Ave.
 Inglewood, Calif. 90302 (213) 678-5079

AllAboutMiniBikes.Com

MINIVER



...HAR HAR...
LET'S PULL OVER
AN' LAUGH AS
HE GOES BY..

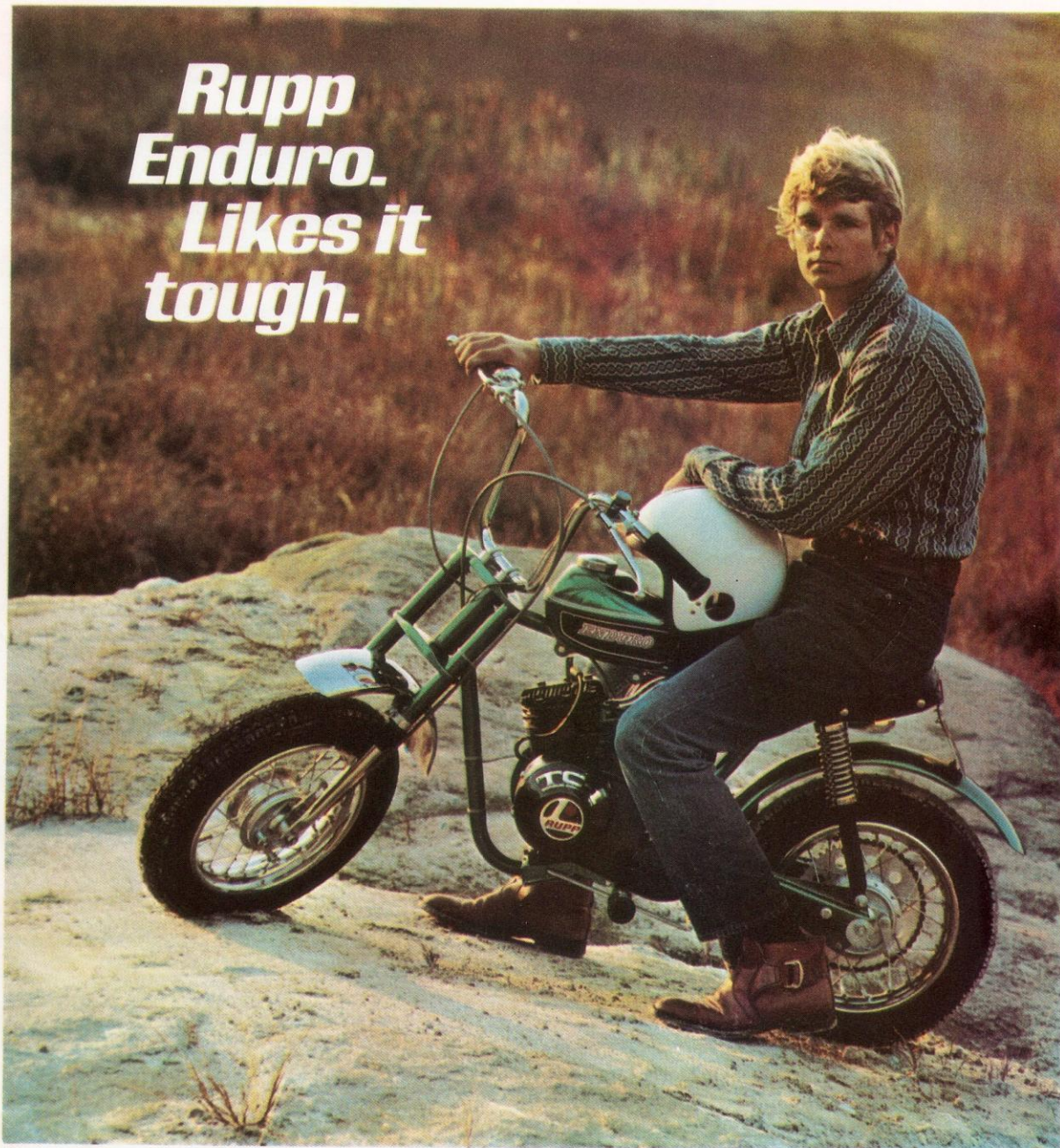
HERE HE COMES..

HOWDY
BOYS.

GULP... ER...
SHEEEEEEEET...

VORM

**Rupp
Enduro.
Likes it
tough.**



The tougher the better. Hills. Woods. Fields. Wherever you point it, that's where it'll go. Through. Or over. Or around.

The Enduro is the Compact Cycle that's flat *designed* to be a woodsbike. You couldn't license it if you wanted to. Once you see how well it performs off the road, you wouldn't want to.

The tough goes all the way through. The Rupp TC-1 Torque Converter deals out power automatically, makes 4 horses feel like 40. Raked front fork, canted

handlebars for easier handling. Big 12" wire wheels with Rupp's exclusive Motocross tires. Rugged inverted A-frame construction.

Take a look at this tough one at your Rupp dealer... Now! Or send 25¢ for full color catalog on the Enduro and all the other Rupp Compacts.

Rupp Industries, Inc., P. O. Box 1095, Mansfield, Ohio 44903. Dept. MBG871

Once you're an Enduro owner, straddle it and point it at something tough. It's got the guts for it. If you have.

**Live
it
Rupp**



Compact Cycles • Snowmobiles • Ruppster Sportsbuggies • Fun Karts

fun machines FOR FUN PEOPLE

AllAboutMiniBikes.Com



MINI-ENDURO. This new miniaturized motorcycle looks and acts like the real thing! 65CC 2-stroke with 4-speed, foot shift transmission. Fully spoked 14" wheels with knobby tires. Dual rear sprocket. Motocross handlebars, exhaust and fenders and front and rear Ceriani type forks make this little beauty just like its big brother . . . a real machine for the real rider. And this one comes with complete lighting, speedometer and horn to make it street legal in most states.



DYNAMO TRAIL. Made for the "trail blazer". A powerful on-or-off the road mini-cycle that's street legal in most states. 65CC 4-speed, foot shift engine. 10" knobby tires and skid plate.
DYNAMO COMPACT. Same as Dynamo Trail but street tire and no skid plate.
WOODS BIKE. Same as above without lights, speedometer or horn.

Benelli...



VOLCANO. World's most powerful mini-cycle. This brute has amazing climbing power! 180CC 4-speed, foot shift. Hydraulic Ceriani type forks. High ground clearance. Folding handlebars and retractable luggage rack. Carries 2 adults & gear over anything.

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

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



HORNET. The hot little mini that goes anywhere. 65CC engine. Automatic clutch & transmission. Street legal in most states. Kick starter. 9" wheels for better ground clearance. Retractable luggage rack.



SOLE U.S. IMPORTERS: **COSMOPOLITAN MOTORS INC. / HATBORO, PA. 19040**

ALL MINI-CYCLES ALSO AVAILABLE IN CANADA

Sign Up For Our “FREE”
MINIBIKE ACTION NEWSLETTER
AND KEEP UP ON WHAT'S HAPPENING IN THE WORLD
OF MINI BIKES!



<http://www.allaboutminibikes.com/mini-bike-action-newsletter-sign-up-page.html>



Show everyone that you love Mini Bikes!

[Order your Mini Bike Rider T-Shirt TODAY!!](#)

Check Out Our YouTube Channel for some great mini bike videos!

https://www.youtube.com/channel/UCSfQbGyWgUKm9OTIUyzYvKQ?view_as=subscriber

Sarah's first ride on a mini bike (Honda QA50) with a transmission

<https://www.youtube.com/watch?v=RiHh-Obvtg>

Build Your Own Mini Bike Video...

<https://www.youtube.com/watch?v=lr9M3GCQF-U&t=225s>



COMPLETE VINTAGE PLANS HOW TO BUILD A MINI BIKE PLUS.. "RUTTMAN MINI BIKE STYLE PLANS"

<http://www.allaboutminibikes.com/vintage-mini-bike-plans.html>

Original Plans from "Boy's Life Magazine" 40 years ago.

You might have to explain to a young person what this is. But if you grew up in the 1950s, '60s, or 70s – you saw this exact Mini Bike all over America. It was frequently constructed by kids working with their Dad. It usually had a lawnmower motor on the Mini Bike and made a lot of noise as it screamed down the block. But it was COOL!

I did some research back in the 1990s and actually found the guy who created these plans. These exact plans were the ones sold in Boy's Life Magazine for 40 years. Yes, THIS is the Mini Bike you remember seeing and loving as a kid.

Please take a moment to look at the image up close. You can get a good idea of how this is built. It wouldn't be much work to make one of your own, especially when you have the FULL ORIGINAL PLANS.

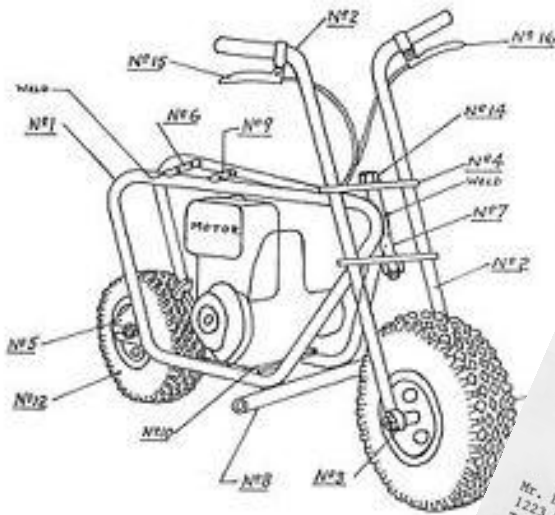
You can modify the plans to the size you want just like we did on the pictured MiniBike!

Take a trip back in time. Or simply share an important part of Americana with your kids or grand kids. Back when having a Mini Bike was the most fun a kid could have.

ORDER YOURS NOW!

PDF Download **PLANS ONLY - NO PARTS INCLUDED!**

MINI VEHICLE PLANS
P.O. BOX 687, CHAZY, N.Y. 12021
MINI-BIKE
Plan No. 1



VINTAGE JB RACING AD FROM 1974

Popular 1970's Ad From MiniCycle Magazine

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>

INTRODUCING THE

RACE READY, TRACK & DYNO PROVEN
J&B Racers are based on three of Honda's best...the CR-125; the XR-75; and the MR-50. But, aside from their excellent handling characteristics, the J&B Racers have little in common with the stock machines.
In the J&B Racer line-up there are two versions of the CR...a 125cc and a 100cc. The XR comes in four versions...a 60cc, a 75cc, an 80cc and a 100cc. Our Junior Mini-cycle, the MR, is a 50cc screamer.
The J&B Racers are not toys. They are full-house racing machines, track-developed by the J&B racing team (Brad Dutoit, Jeff Ward, Dave Carlson and Brian Myerscough) and dyno-refined by the J&B tech crew. With the right rider, J&B Racers are winning machines. The record proves it.

JB racers

FROM J&B RACING EQUIP, 5041 West Vermont Ave., Glendale, Arizona 85301. (602) 931-9235
Dealer inquiries invited

All About Mini Bikes

J&B EL SINORE 100cc & 125cc

J&B XR 60cc, 75cc, 80cc & 100cc

J&B MR 50cc JUNIOR MINI-CYCLE