



"Idle Chatter"

NICK'S SILENT PARTNER

Dear Mr. Parks:

Re August 1954 Hot Rod, Par for Penn, Pages 22 and 23: In reading the above article we were sure surprised to read that Nick Schlauch did all the welding and body work; when we watched that car being put together step by step. Howard Townsend did all the welding and body work. I'd call Nick a helper. I know Nick's dad did all the inside and top, but Howard did all the welding, grafting between body and grille, cutting off the top, fender work and painting . . .

Thank you for your early correction of this article.

Irma Wallace
Philadelphia, Pa.

TRY AGAIN, GUYS

Dear Editor:

After the feature article you ran on my 'A' V8 roadster in the May and June '54 issues of Hot Rod ("Building a Conservative Hot Rod"). I received quite a lot of mail. Each and every letter I answered in detail, and all were mailed at the same time. Now we discover that apparently something happened to that whole batch of mail as no one who wrote to me ever received my answer. To anyone who cares to write me again, I will answer again and see if we can't do better this time.

Bud Neumeister
1015 Highland Avenue
Pueblo, Colorado

BOURKE STRIKES BACK

Editor Hot Rod Magazine

Dear Sir:

When I first heard of the controversy the article in July HRM had started and some of the letters were to be published in the Idle Chatter column, I really planned to "sit it out," not enter into it, but proceed steadfastly toward my goal of producing engines and get them out to their new owners who are anxiously awaiting them in every section of the United States. But when I picked up my Sept. HRM today and read the unjustified attack unleashed at me by Mr. Barnes, I find myself reaching for paper and pencil.

I would suggest that Mr. Barnes read a little more carefully before attempting

to write derogatory letters for it seems he has patiently attempted to mislead, misrepresent and discredit; and makes one wonder what interests he serves. The following are some of the errors in his letter: (1) the bearing on the crank pin does *not* reverse; it is one-directional, it rolls in a circle in a square box. (2) he tries to imply the article states friction free pistons. See pph 2, page 21, "create only a minimum of friction and wear." (3) no intelligent person would assume the crank case was loaded with oil, the article states it bathes in oil (shower bath), it also refers to level which could not be construed as overflowing; the level is just below center, allowing all parts to rotate in a void. (4) nowhere in the article does it state what the fuel consumption is other than on page 52, at 6500 RPM, which does not state any specific HP at that RPM. Although 45 HP is not uncommon for a 30 cu. in. Evinrude or Johnson at 6500 RPM, and that is what our tests indicate it is exceeding when operated on an Evinrude type water brake.

(5) Mr. Barnes takes considerable liberty in establishing the clearances on the crank pin bearing, but one must be forgiving for his entire letter states things as he apparently wishes them to appear, not as they actually are. (6) He is apparently unaware that Detroit has for many years routed the exhaust around the intake to pre-heat, perhaps he had better tell them they are building lots of mistakes. I only hope to build a few and it would appear, if this thesis is correct, that Dr. Diesel and all his followers are doing the wrong thing to obtain HP from the cruder fuels. And for his further information, this engine will operate on any fuel without detonation and the addition of stove oils is not necessary but adds BTU's which equals more HP and lower fuel cost—which a few people are interested in! (7) Vice or virtue under working conditions, or a speed contest, the ability to accelerate under load is the most sought after characteristic. If you do not think so, read any issue of HRM and study all the ads (other than those about brakes). (8) Mr. Barnes says "someone should apologize and explain"; I have explained, now it is his turn.

Russ Bourke
Portland, Oregon

FINE FUZZY FAN

Sirs:

I have observed with much interest the many pictures in your column of babies and youngsters reading Hot Rod. Now I claim to have the only cat who not only reads Hot Rod but has a complete collection of every issue ever printed. He consented to have the enclosed picture taken with the first issue of January 1948 and one of the latest of June 1954.

Not to be outdone by any other cat, he also holds (in my name) Charter
(Continued on page 8)

SECRETS OF STOCK CAR RACING by Roger Huntington

JUNE, 1955

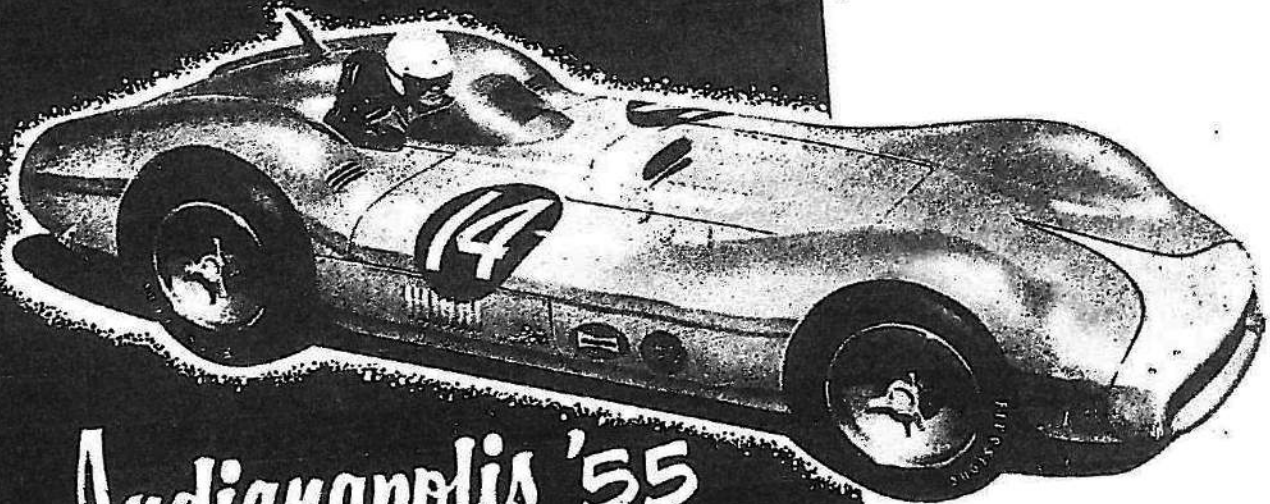
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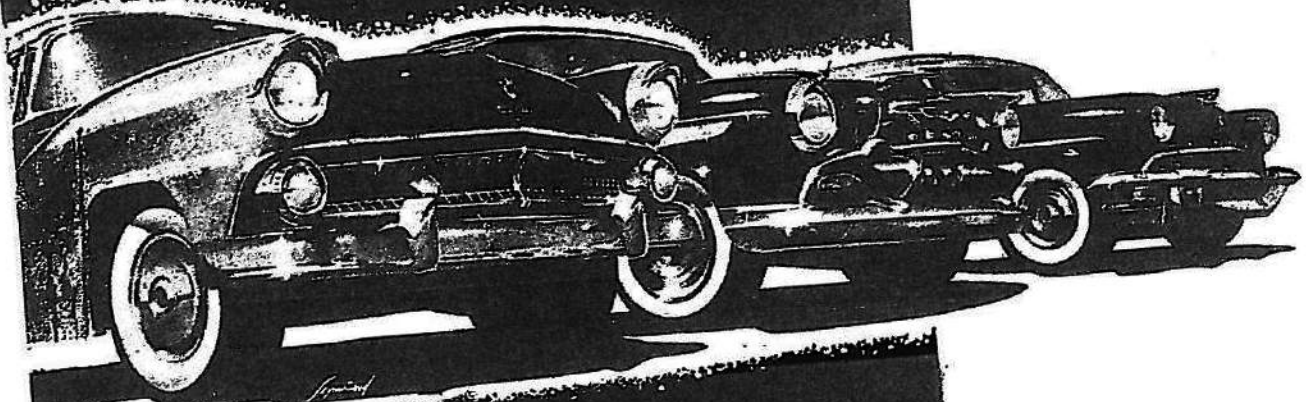
MOTOR

THE MAGAZINE OF AMERICAN MOTORING

**DRIVING
STUDEBAKER'S
*Speedster***



Indianapolis '55
ERA OF THE STREAMLINERS?



FORD • LINCOLN

CORRESPONDENCE

WHY NOT TEST ALL PRODUCTS?

The value of "Motor Life Goes Shopping" would be increased if you could run tests on each item the way you do on new cars. Surely, manufacturers of the products would be willing to cooperate.

N. S. McKechnie Hamilton, Ontario

** Good suggestion. But vast number of such products multiplied by time required for testing makes it impossible.*

GM MOTORAMA SUGGESTION

Why doesn't GM charge a modest admission fee for its great Motorama show? I'm serious about this. Too many people go simply because it's free, not because they are prospects for, or are interested in, the cars being shown. This would reduce enormous crowds.

Harold Butram Miami, Fla.

ROAD TEST REPORTS

I notice that *MOTOR Life* always seems to have the jump on everyone else in road testing the new cars. However, one important aspect has never been touched upon in your reports. Could your testers tell me just which car, in their personal opinion, is the best of the current crop?

Arnold Hastings Butte, Montana

It seems to me that it is of little value to make acceleration, top speed and fuel checks on new cars under varying weather conditions. Couldn't you test all cars in a certain price class on one day so that some kind of comparison could be made?

R. S. Porter Wisconsin Rapids, Wis.

** As for the first inquiry, what's one man's meat is another man's poison—even MOTOR Life testers, who drive practically all the cars, can't agree. However, an early issue will contain an interesting evaluation based upon their testing.*

As for the second letter, it takes many, many man hours to record the performance characteristics on just one car. To run such tests on a group would be an enormous undertaking.

BRITISH OR AMERICAN CARS?

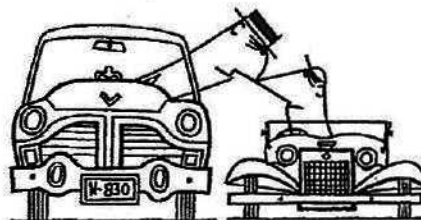
As an Americanized Briton and a car fan, I got a big kick out of the Pomery-Duffy (debate). Maybe Mr. Pomery has something. On many highways, powerful cars are more sensible than flivvers. But when the car is used mainly for commuting and short hauls, what sense is there in operating a large one—inefficient for the job, clumsy, bulky to park, expensive to tax and insure?

Roger L. Evans St. Paul, Minn.

Personally, I prefer a car with a smaller initial cost, lower operating expense, less dead weight, and more built-in fun.

Mr. Duffy can have his preference, and if we ever meet on the highway, I'll be pleased to show him the way through the corners, and stay with him up to the legal speed limit in my 42-hp (Hillman) Minx.

T/Sgt Jerry Bloomer, USAF
Washington, D. C.



It's about time that Mr. Duffy came to the defense of American cars. They've been taking an undeserved "panning."

D. Chapdelaine Easthampton, Mass.

CUSTOM CLUB

I am writing for information about the procedure for starting a custom car club. There are many fellows in Walla Walla interested in organizing such a club and we could promote activities in town. We have built over 30 cars, from '32 coupes to current model customs. If you can give us any information we'd appreciate it.

A. E. Newell Walla Walla, Wash.

** Our companion publication, Rod & Custom, has published several articles on this subject. Perhaps the best single article was published in their October, 1954 issue.*

OLDS TEST REPORT ERROR

After reading your April issue on the road test of the 1955 Oldsmobile Super 88, I believe you need a new stop watch. The Olds, as you clocked it, ran from 40-60 mph in 13.6 seconds. Are you sure? I'd say around seven seconds would be right.

Bob Lorentz Lancaster, N. Y.

** Just one of those embarrassing misprints. The time for the Olds Super 88, as taken from the data sheet, was 5.6 seconds. Many sharp-eyed readers caught this one.*

"TOMORROW'S ENGINE" TODAY?

Roger Huntington's article (*MOTOR Life*, April 1955) on engines of the future mentions gas turbines and a compound engine as a possibility and then stops at the word "wedding." Such a wedding—of a gas turbine with a piston engine—already has taken place and was followed by a very happy marriage. I am referring, of course, to the Bourke two-stroke engine and the Bourke cycle.

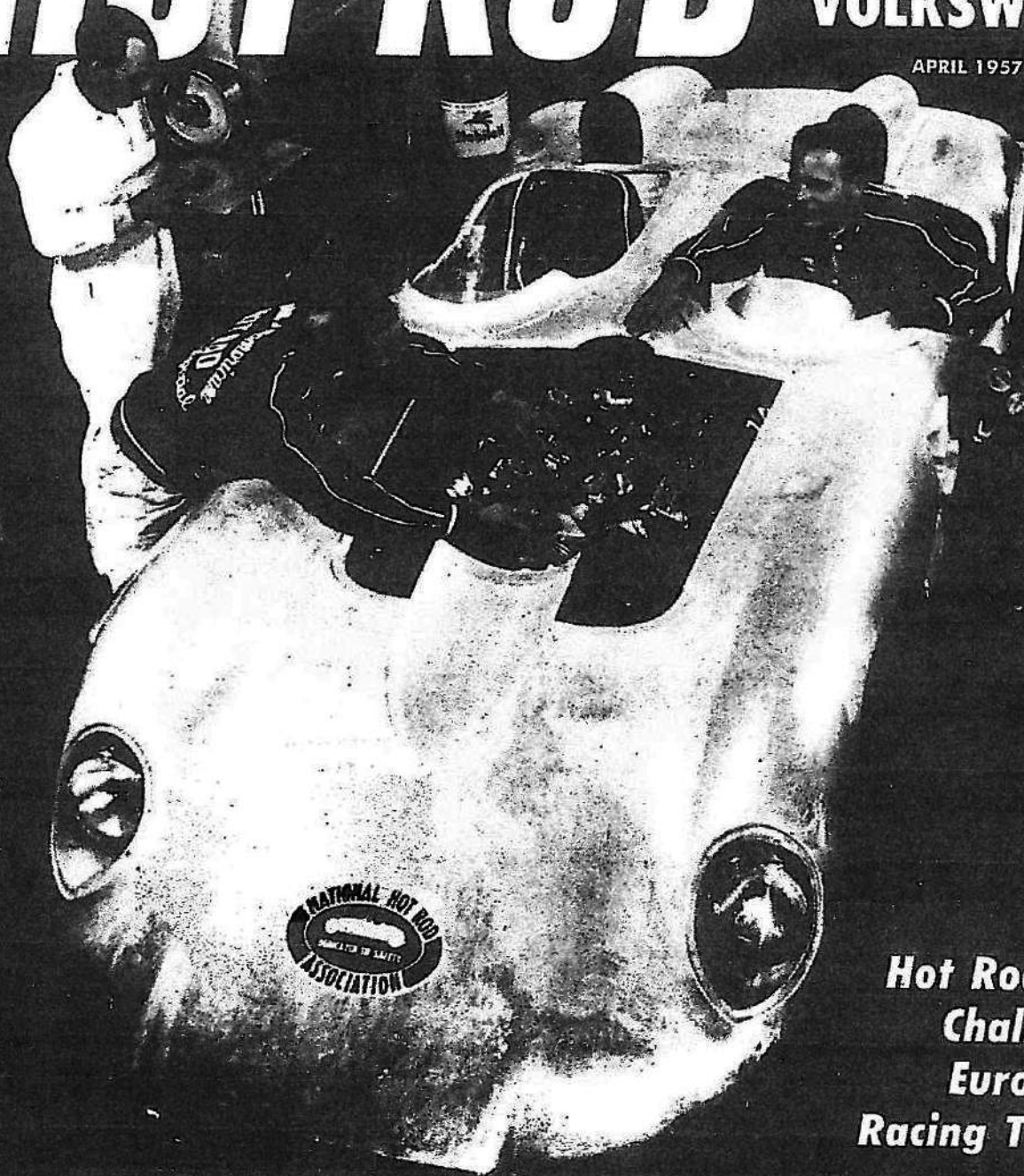
Nicholas M. Ottyk Hamilton, Ont.

TROUBLE SHOOTING-ABC's

HOT ROD

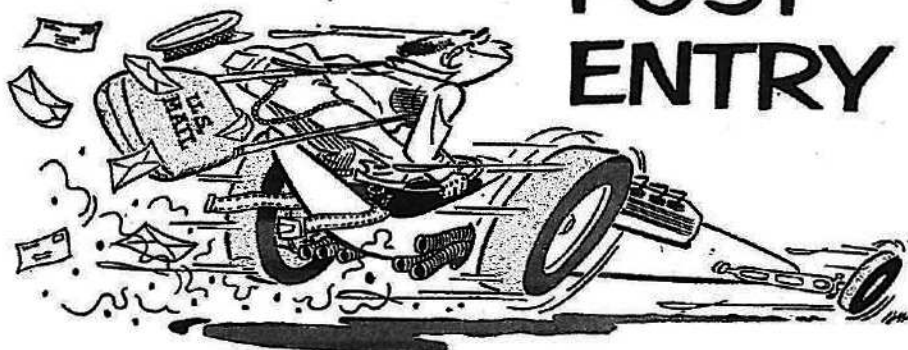
**More
Horsepower
for
VOLKSWAGEN**

APRIL 1957 25c



**Hot Rodders
Challenge
European
Racing Teams**

POST ENTRY



AN INTERESTING EVENING

Dear Sirs:

In reference to the letter of Peter Dodge of Canton, N.Y. in your February issue of HRM, I offer this info.

The story of the Bourke engine appeared over two years ago in the July '54 HRM. About a year and a half later I became somewhat interested and paid Mr. Bourke a visit. We talked (Russ did the talking, I was the avid listener) for three hours about engines, drag races, jet turbines, motorcycles and even cross-country moving vans.

A trek down to his basement was the climax of the evening. He showed me his first engine, a four cylinder radial which was built on the same principle as the one in HRM. After seeing his out-board motor, internal balanced parts of the two-stroke, etc., I asked him how much he was selling them for. The answer was, "I'm not." I was told that there are only 12 [Bourke] two-strokes in circulation, real collector's items. Production was stopped not because it was a so-called "fabulous invention which didn't prove out," but rather like you said, has been shelved for lack of finances. It seems that the engines were built by an outside company and sold by Bourke. The bill received later by Mr. Bourke for casting and machining of his engines exceeded the quoted price and also the selling price by a good 200%. You figure it from there.

Russell Bourke quit on his small 30-cubic-inch engines but it is rumored that he is working on one about thirteen times as large, cubic-inch-wise.

Bill Heniges
Portland, Ore.

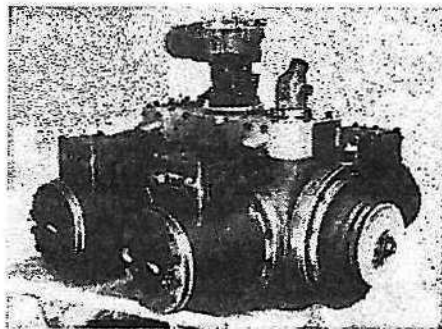
BOURKE BOUNCES BACK

Gentlemen:

My attention was called to the letter on page 10 of the February issue of HOT ROD (I had somehow missed it in my copy) from Peter Dodge, of Canton, N.Y.

A snap of our test engine for which we are tooling for production is enclosed herein.

When all the certified data is available and ready for release I will send you all



data for your information and you can use it as you see fit.

Russ Bourke
Portland, Ore.

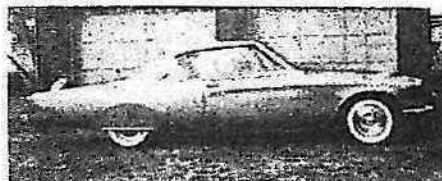
The Bourke-400 (400 cubic inches) engine for trucks and heavy duty use as described by Mr. Bourke—Ed.

LO-N-G ONE

Dear Sirs:

Enclosed you will find some snapshots of my '53 Studebaker. I would appreciate it much if I could see them in HRM.

My Stude has a continental kit and 18-inch fender extensions, '56 Golden Hawk parking lights and '55 Dodge Lancer hubcaps. The original grille bars



were replaced with steel mesh, both nosed and decked and lowered slightly. The color is Tiara Gold. Interior is in rolled red leatherette.

Larry Broun
Louisville, Ky.

THE TEXAN

Dear Sirs:

I am enclosing a snapshot of my '53 Dodge. I have seen very few of these cars customized and would like to show the readers something different.

The car has been nosed and decked and I have '56 Pontiac headlight rims frenched in. The hood is louvered and

TESTING 300 b

FORD

HOT ROD

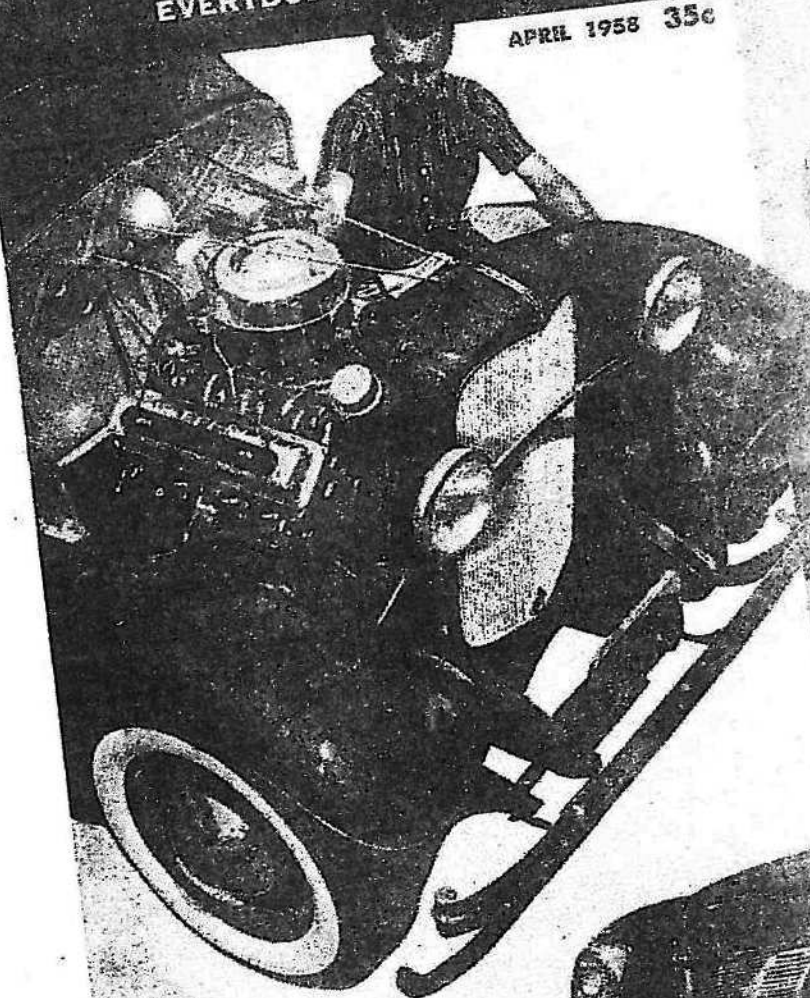
EVERYBODY'S AUTOMOTIVE MAGAZINE

APRIL 1958 35c

How To Do It—
BLOWER
Installation

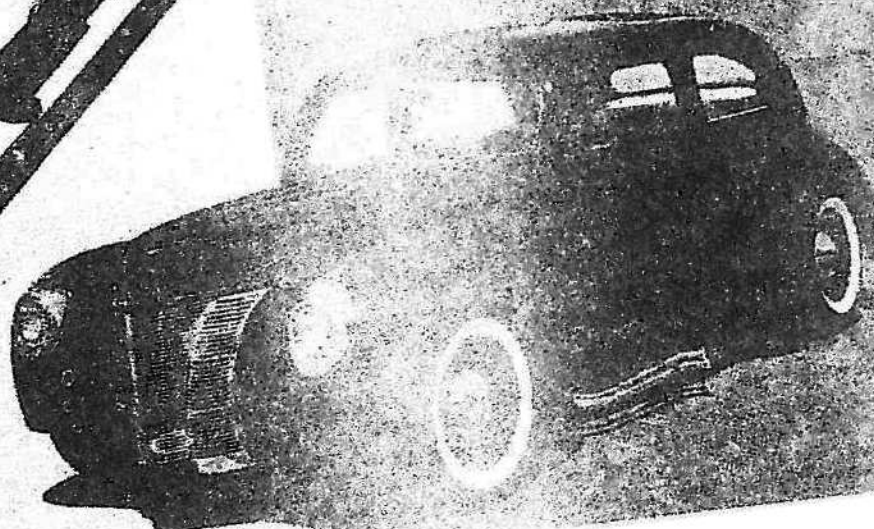
by Don Francisco

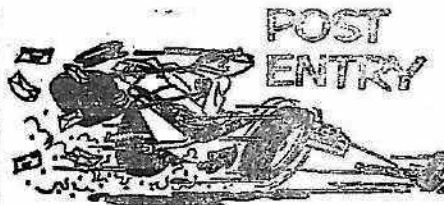
Page 30



16 PAGE ROTO
PICTORIAL

New Dress-Up Item
LAKES PIPES
and **PLUGS**





PAUL IS PERTURBED

Dear Sirs:

Until recently we have been very satisfied with your magazine. Lately, however, Hot Rod seems to have strayed.

Having graduated from the "go kart" stage and not being wild about motorcycles or Detroit road tests, we have continued to buy your magazine. Recently your title has been very misleading and makes us wonder if we have bought "Mechanics Illustrated" or "Cycle" Magazine in disguise. Articles of this type have their place but this seems hardly the place. The question arises, are you afraid to be different?

How about some of the good old fashioned coverage we used to get? Being interested in hot rods and drag racing, would appreciate more of those swell articles by Roger Huntington. Also more information and specs on feature cars. Also helpful would be articles on new kinks such as automatic transmissions and/or torque converters for competition use.

You have proved to us you can print a wonderful magazine. Why not do it again and renew our faith. Yours for a better Hot Rod Mag.

Paul Flynn
Lowell Griffis
Abilene, Kansas

Lest we forget, that old 'T' bucket once qualified as "Detroit Iron," but you just can't hardly find them no more. In the early days little or no speed equipment was offered by the auto manufacturers as contrasted to many power options available today. Performance model new cars seem to be of definite interest among hot rodders today and thus our acceptance of them in HRM. It also follows that the dyed-in-the-wool hot rodder is interested in outstanding engines, be they slung between two wheels or four, or in the hull of a boat—witness HRM's all-time reader mail inquiry on the Bourke two-stroke engine feature of July '54. But just to play safe, Paul, we're adding eight more pages to the May issue of Hot Rod—and not a Go Kart in the lot!—Ed.

A HOT RODDER TO THE CORE

Dear Sirs:

I have bought your magazine for the last four years, and I now feel compelled to write you.

Today I received my February copy of Hot Rod. I am very, very disappointed. The cover shouts, "Cars for Kids." "Everybody's Automotive Magazine."

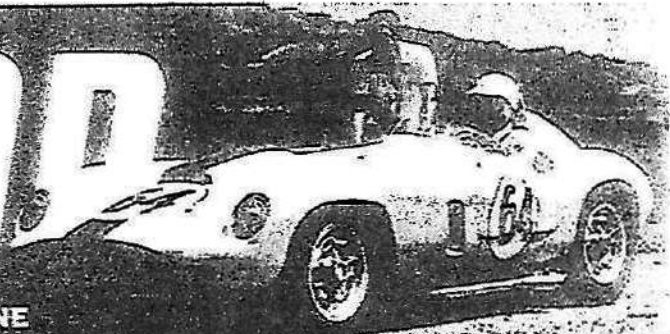
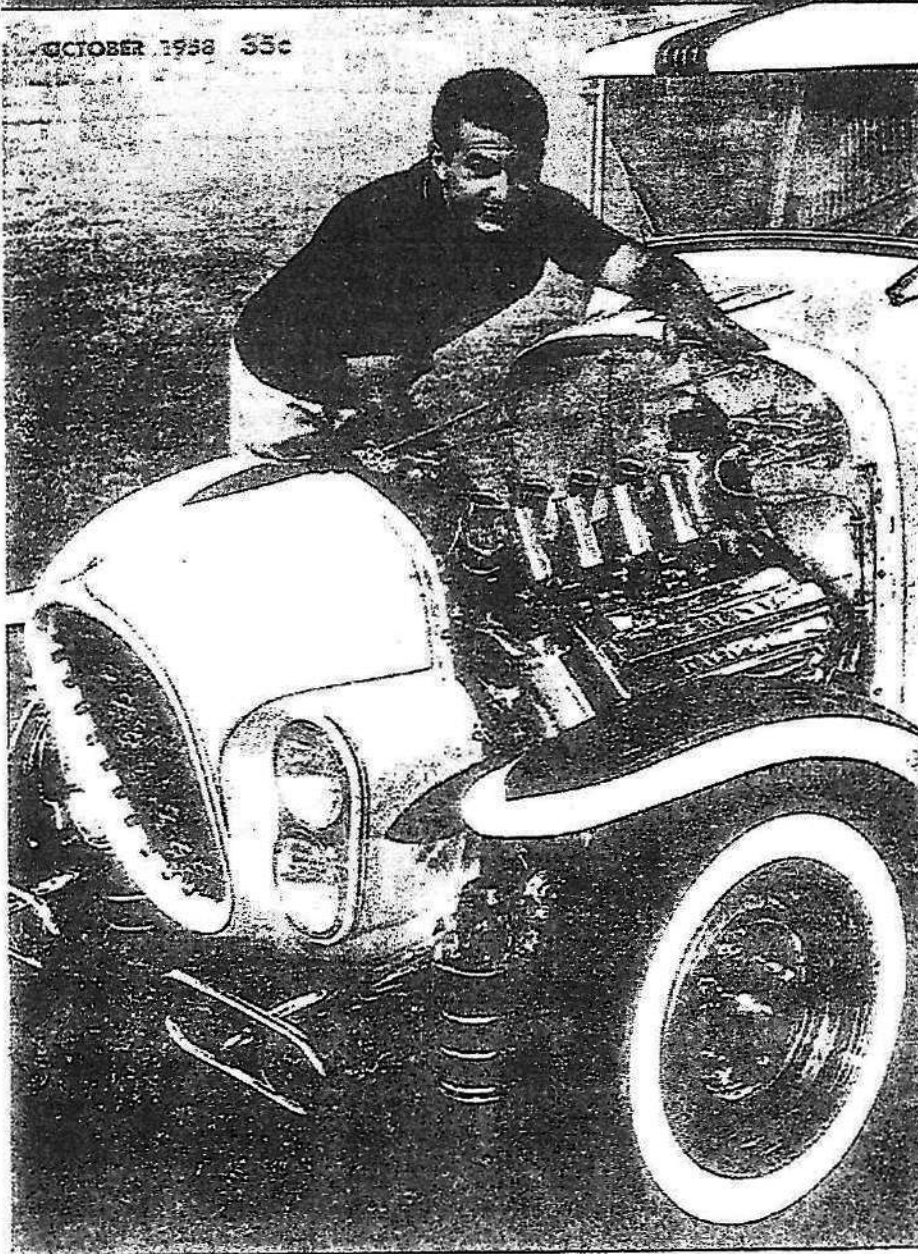
(Continued on page 12)

MERCURY'S NEW PURSUIT CARS

HOT ROD

EVERYBODY'S AUTOMOTIVE MAGAZINE

OCTOBER 1988 53c

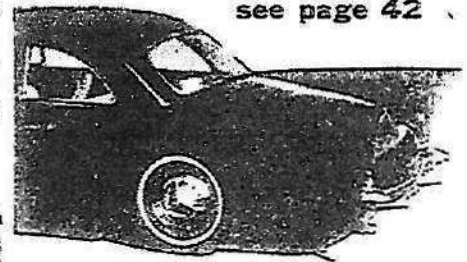


**How To Do It—
SUPERCHARGERS**
Servicing and
Tune-up Tips

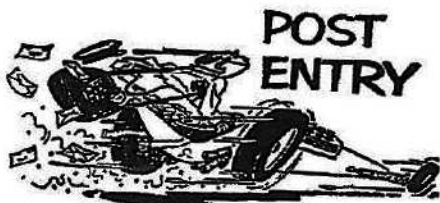
BODY SECTIONING
Do-It-Yourself

CUSTOM OR '59?

see page 42



"\$17,000 HOT ROD"

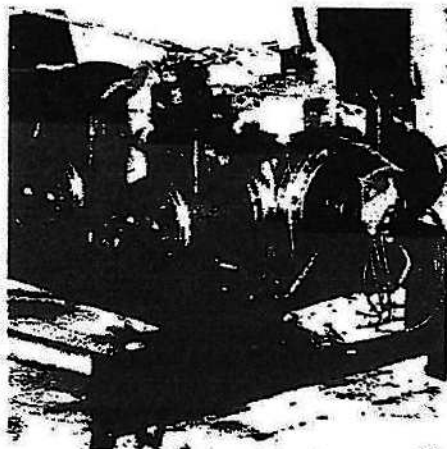


MYSTERY SURROUNDS BOURKE

Sirs:

Again it seems that Russ Bourke's two-stroke engines have died out since his last promising letter in Post Entry of April, 1957. But such is not the case.

I visited Russ and his wife one night last month only to find them in the process of packing and about ready to leave Portland. He was reluctant to discuss the events of the past few months, but I did learn that control of the Bourke-400 (400 cubic inches) has been wrested from him by legal maneuvering, its future uncertain, and no information can be obtained from the corporation for whom Bourke designed and built it.



The enclosed picture shows the engine with such marvelous performance capabilities, as I saw it with Russ in his shop, and which was featured on television July 21, 1957, a few months before its disappearance.

Bourke has shown me correspondence from foreign countries and has told me of discussions with representatives of groups desiring to have him design and supervise the building of special engines. Will a foreign country have to take an American invention and develop it? Will history repeat itself? Or will it become another victim of shelving along with the Pogue carburetor, the Tucker Car, etc.?

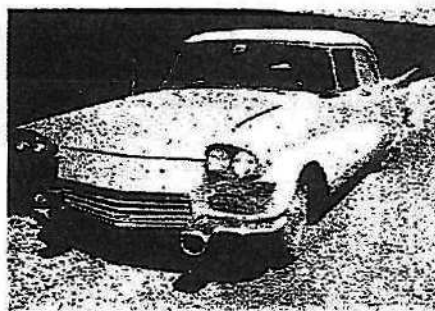
Bill Heniges
Portland, Oregon

FRESH APPROACH TO A FORD

Sirs:

This year my latest custom job is the '56 Ford Customline of which a picture is enclosed. The car was a total wreck with

very few miles on it. I fitted 1957 Ford front fenders and hood, used the 1956 Ford air vents and wheel cowls fitted into the 1957 fenders. I installed dual 1958



Ford headlamps in the '57 Ford fenders with '58 Ford headlight doors. I built my own front end from sheet metal.

The grille is from a '58 Chevy. The bumperettes are from a '56 Buick. I plan to install parking lights in them.

Here in Northern Canada we do not have easy access to parts but we still have the spirit of custom jobs instilled by your magazine. I wish to thank you and the staff for publishing such a swell magazine.

Ralph Shymko
Dauphin, Manitoba
Canada

VOLVO AND RAMBLER TOO COOL?

Sirs:

Since hot rodding has always been and still is my favorite sport and hobby, I rarely miss an issue of Hot Rod. Now, some people have different definitions for hot rodding, some good, some bad, but I'll lay odds that nobody considers a 60 hp Rambler or an 85 hp Volvo as being in the realm of hot rodding. There are mags on top of mags pertaining to stock cars, large or small, domestic or European, all of them interested in the economy of the cars. Looks to me like we could have just one decent mag on the market strictly for hot rodding.

T. C. Mack
Dallas, Texas

The little Volvo is considered fairly hot by many import enthusiasts but, as you point out, certainly not by the hot rodder. It's all a matter of comparison. How hot is hot?—Ed.

PUTS INDIAN SIGN ON FORD

Sirs:

I have been a reader of your magazine for about 6 years and wonder if my pride and joy might rate a place in HRM.

I am a member of the Rod Benders of Lynchburg, Virginia.

It's a '32 five-window coupe which is channeled 13 inches over the frame. It is painted Castile Maroon with white nylon top. The interior is black and white leather. It has '49 Pontiac taillights.

(Continued on page 8)



'62 CORVETTE

327 CUBIC INCHES
360 HORSEPOWER

HOT ROD

EVERYBODY'S AUTOMOTIVE MAGAZINE

JANUARY 1962 50c

NATIONAL CHAMPIONSHIP
BOAT DRAGS

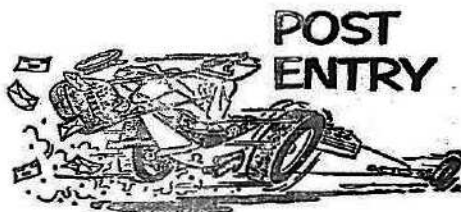
TURBO-CHARGE
PUT THAT EXHAUST TO WORK

THOSE WILD FORMULA JUNIORS!



134 MPH

360 HP
327 CUBIC INCHES
360 HORSEPOWER



ticed that AM/SP was held by Sam Parriot, City of Industry, California. His speed was 130.01 with an 11.71 e.t. and the date of that run was 2-61.

Now my question is how the slower and older record appears in a newer issue of *HOT ROD*. At the top of the chart you say: Records shown here are those current at the time of editorial deadline, and verified as official by the National Hot Rod Association.

For my own information and that of all your other readers please tell us which record is correct.

Thank you for a fine magazine, keep up the good work.

Bill Radcliffe
Miami, Florida

Please note that in drag coverage we state that certain cars break records. This does not mean that they set them. It often takes several weeks before a car's record application is approved or disapproved since NHRA officials go to great pains to ensure a vehicle's true legality to hold such a record. Of course, other conditions such as course, weather, etc., might enter the picture. As to this specific case, Mr. Kirby's record was disqualified due to lack of proper registration. He fixed it and again set a new record.—Ed.

WE'RE EVERYBODY'S MAGAZINE

Dear Sir:

We realize that this fine magazine deals primarily with dragstrips. We would like to submit a photograph of a flying stock car which we watch each racing season. Owned by several area men and driven by Don Wilber, it has a '53 Ford truck engine. It is a stock



engine but has acquired a substantial amount of trophies. Even though it has done exceptionally well this season we have even higher goals for next.

Michael Leo
Tom Deucer
Dave Knopp
Dayton, Ohio

AN C'MON, WHAT'S THE SCOOP?

Dear Sir:

Having attended this years National Drags at Indianapolis, I think that your coverage in your November issue was excellent except for a few points. I would like to know why it has not been printed in any of the automotive magazines or newspapers just why Don Nicholson or Arnold Beswick were disqualified. With all of the equipment you can get for these factory Pontiacs and Chevys I don't see any reason to cheat intentionally or otherwise. I myself was rooting for the Chrysler products and Fords, especially Al Eckstrands big Dodge. This boy shut down some of the hottest stockers in the country such as Mickey Thompson, Don Nicholson, Dave Strickler and others. This NHRA rule that states if any one participant in your class is found illegal, the whole class is disqualified should be changed. It just isn't fair to the legal boys. For example if Mr. Bruce Morgan would have had to win his class to win the Pontiac, he would have lost it according to the rules and a certain Mr. Hilt. Even though the Chevys were predominant in wins it seems all the cars disqualified were a General Motors product of one sort or another. One car I think that deserves a lot of credit is the Pontiac of Floyd and Carol Cox. This car with the Snap-Hydro really hauled. In closing I would like to say that the announcers were the best I have ever heard and kept the crowd on their feet.

Philip Witlman
Buffalo, New York

Beswick was bored slightly large, Nicholson had several things deemed improper. As to the protest procedure how can you have a 2nd place finisher in a single elimination match. This has been one of the biggest problems to drag officials for years and they're still looking for the answer.—Ed.

WHO'S GOT THE BOURKE?

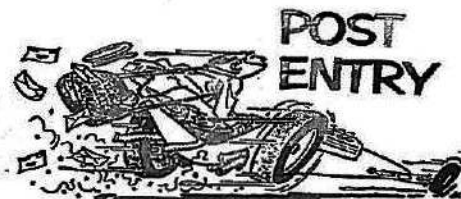
Dear Sir:

Way back in 1954 *HOT ROD* carried a most interesting feature on the Bourke two cycle engine.

I was and still am fascinated by the potentials of this engine which clearly has so much more to offer than anything else I have read about, including the gas turbine. For seven long years—and there have been quite a few issues edited since—I was unable to come across more data or follow-ups made by you to further this good cause. With the exception of a few letters published on this subject there was a complete silence on the part of *HOT ROD* Magazine.

Are we to believe that no one is interested in Mr. Bourke's engine? Is it so good that the competition is trying
(Continued on page 10)

130 JANUARY, 1962



to destroy him? Has he further developed this engine and made some runs with it after they have been installed into a car? Whatever the case might be, you can rest assured that an awful lot of people that I know of would be more than interested to read further reports on this remarkable achievement.

After seven years, even a re-run of the same article with some additional pictures is likely to create interest. Do you think it would be possible to give one of your able writers this interesting assignment?

Nicholas M. Ottlyk
Toronto 7, Ontario

We too have been waiting for something to happen with the Bourke engine. About two years ago, Mr. Bourke stopped by our office and we spent the whole day talking to this interesting man and becoming very enthused. At that time, there had been no further progress than that originally reported in 1954 and since we were promised immediate contact on any new happenings and haven't heard a word, we must assume the same condition exists. Plenty of money would be needed to develop the project the way Mr. Bourke wished and evidently he has been unsuccessful in obtaining financial backing. As an added note, we ask that anybody reading this letter who has knowledge of the present whereabouts of Mr. Bourke, please ask him to drop us a line on his latest progress.—Ed.

DRAKKIN' DEALER

Dear Sir:

Enclosed you will find a photo of my '61 Ford Galaxie. We run at the Des Moines, Iowa Drag strip. I won 15 straight times in A.S.A. class. I started the season running in the low 16's, with the tricks I have learned from your magazine I ended up with the track record at 15.30—91.08 mph at this strip. This car is a 390 cu. in. 300 hp Cruisio-Matic Equa-Lock.



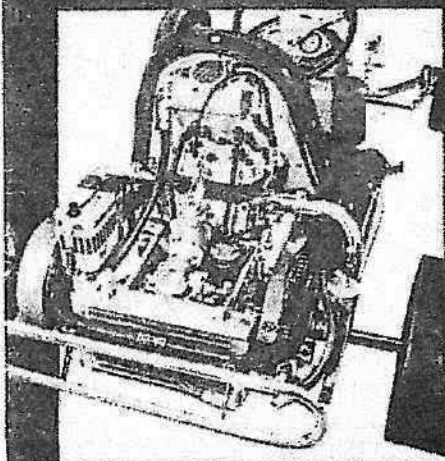
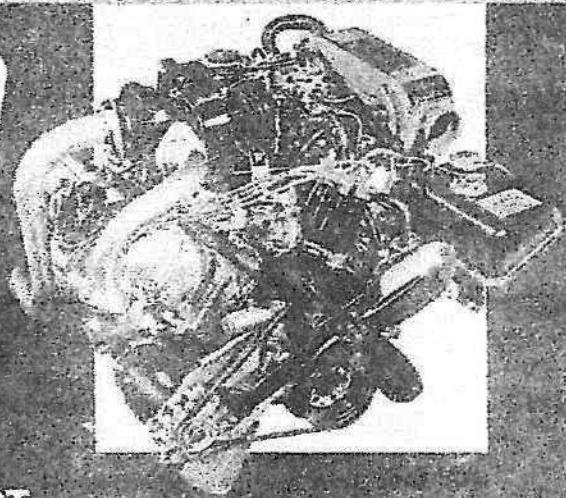
As a service manager and half owner of a Ford dealership, I must say you have one of the very finest magazines for the enthusiast. Your article on Ford's new 221 cubic inch V8 in the Nov. issue is indeed commendable.

Hershal Weidner
Toledo, Ohio

OLDS' TURBO-SUPERCHARGED F-85

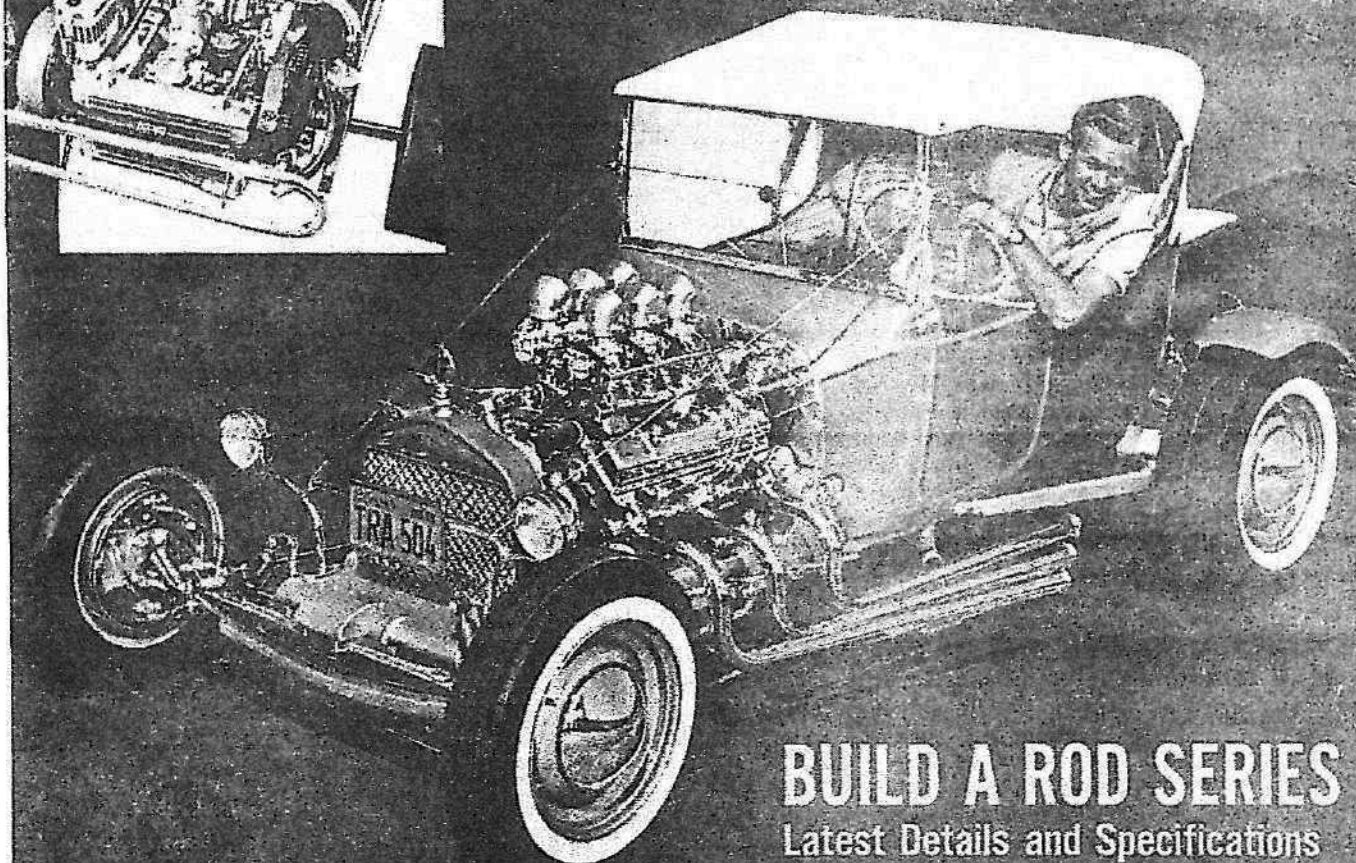
HOT ROD

EVERYBODY'S AUTOMOTIVE MAGAZINE

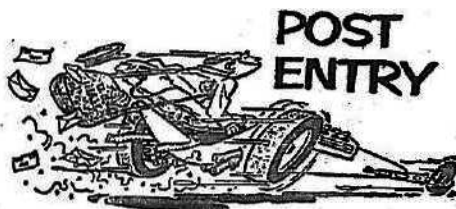


SPECIAL REPORT—

BUICK V8 FOR INDY



BUILD A ROD SERIES
Latest Details and Specifications



BOURKE MYSTERY SOLVED

Gentlemen:

This letter is written in answer to the query of Mr. Ottlyk whose letter appeared in the January issue of this magazine concerning the whereabouts of Mr. Bourke and his two-strokes.

Many articles have been written about many engines utilizing radical innovations in construction and function and yet no invention has stirred as much interest as Russ Bourke's two-strokes. The hundreds of letters he has received from various parts of the world attest to this statement.

Prior to the feature article of July 1954, twenty-five 30 cubic inch engines were built by Bourke and a dozen sold throughout the United States. Owners reported using them in boats, midget cars and the like. Mr. Bourke owned a Crosley pickup powered with one. A speed of 60 mph in second gear was easily reached. Ten 10 cubic inch units were built up by another party and those have disappeared over the years. One of these units was assembled on a chain saw and it could really throw the chips. Another person built a small 3 cubic inch version.

Sometime later, after I had made my acquaintance with Russ in 1956, a corporation was formed with the intention of building a four cylinder 400 cubic inch unit intended for industrial use. Construction was completed about mid-year of 1958 and before any official government tests were conducted, the corporation suffered a setback and the engine was moved out of the state. Some smaller 30-inch units disappeared at that same time and a reward was offered by the corporation and an ad run in HRM. To my knowledge they are still missing.

An article was being prepared about the big "400" during and after construction by one of HRM's field writers but it was never printed.

During the time construction of the big engine was nearing completion an engineer from Porsche visited Mr. Bourke to get a first-hand report of this remarkable engine. He returned to Germany and very little was heard about any achievements that might have been made.

Due to his health, the Bourkes moved to California four years ago where they live today enjoying the more agreeable climate.

That in brief is what happened to Mr. Bourke and the products of his invention. I hope this letter has been of interest to other readers and that a follow-up feature or re-run of the old story will be forthcoming in some future issue.

Bill Heniges
Portland, Oregon

HRM has heard from Mr. Bourke recently so we do at least know his whereabouts. You are right—no article ever published in HRM stirred up as much interest as the one on Russ Bourke's two-stroker. And if those blasted letters don't subside we may still be forced to do a re-run—Ed.

ON ANOTHER BIG GAME SAFARI

Gentlemen:

A number of your readers have written some very friendly letters to me since I sent the item about my '59 Pontiac wagon to you last year. They have all wondered about its successor and how the second "Draggin' Wagon" has done. Instead of sending individual replies, I hope you will publish this so a complete report can be given.

The '61 wagon purchased (and pictured) is, like its 1959 predecessor, a 9-passenger Safari. Optional equipment includes four-speed box, 348 h.p. Tri-Power engine, 3.90 Safe-T-Track rear end, aluminum hubs, power steering and air conditioning.



In six starts, the wagon has garnered five trophies. An ignition failure prevented completing the one start where no trophy was achieved. Best e.t. to date has been a 14.94 and best terminal velocity a 94.725. The "Hearse," as it is jokingly referred to by competitors, has run on strips in Florida, Minnesota and Illinois.

The class of CS (NHRA) is tough enough but the extra 200 pounds of air conditioning is not allowed under rules to be added to the weight and poses an additional handicap.

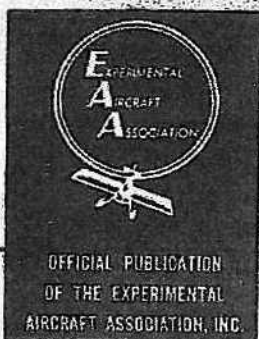
John F. Frost, M.D.
Highland, Illinois

ROGER DIDN'T HELP

Dear Sir:

The formula of Charles Wainman concerning ram manifolds has me baffled also, but in the July, 1960, HRM Roger Huntington's article on ram tuning states a formula $L = K/R.P.M.$ that he says will work. L being the passage length in inches and K being a constant. 90,000 is given as the constant.

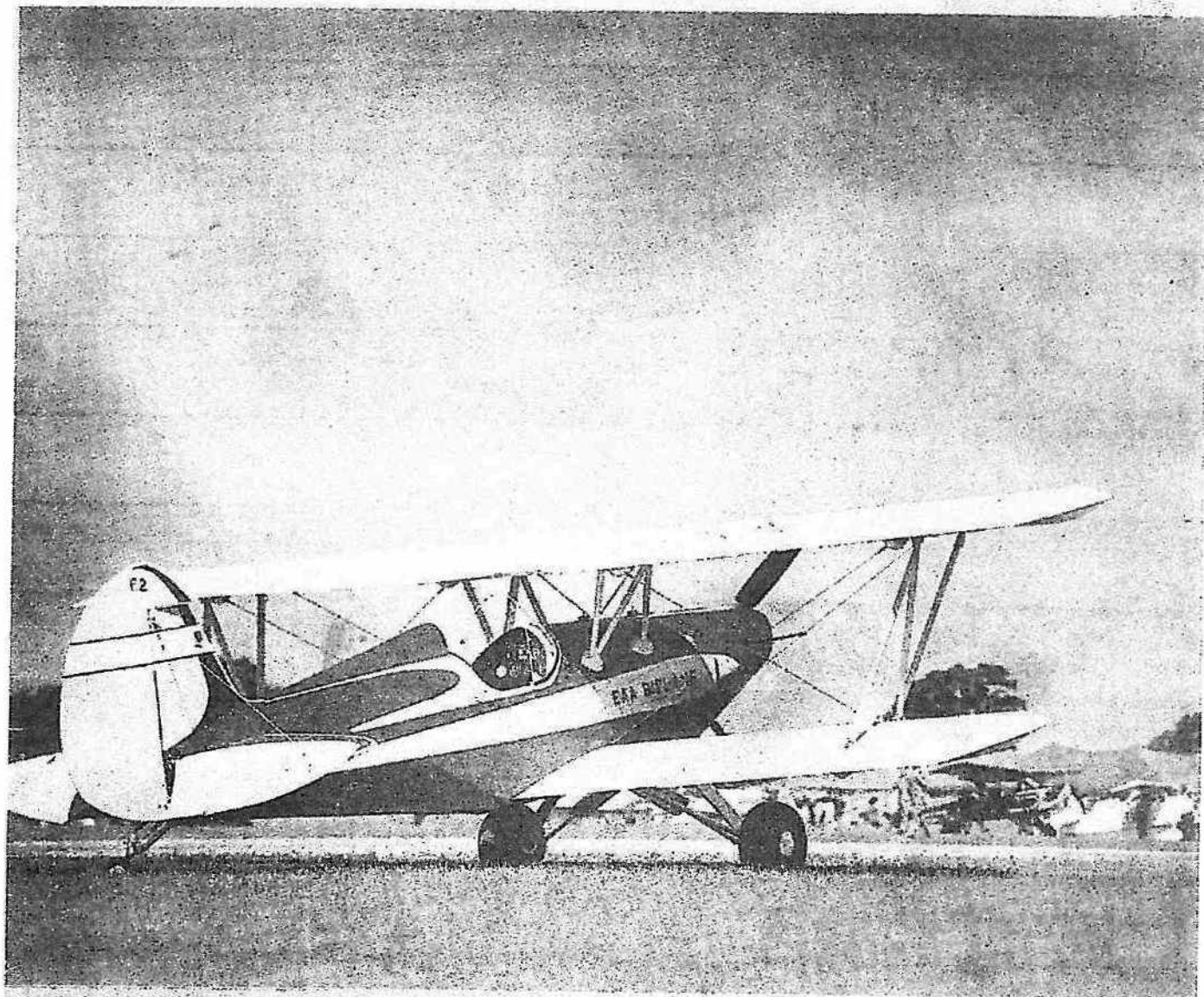
(Continued on page 16)



SPORT AVIATION

50c JULY 1962

featuring: **HOMEBUILT**
REPLICA • ANTIQUE • RACING • ROTARY WING



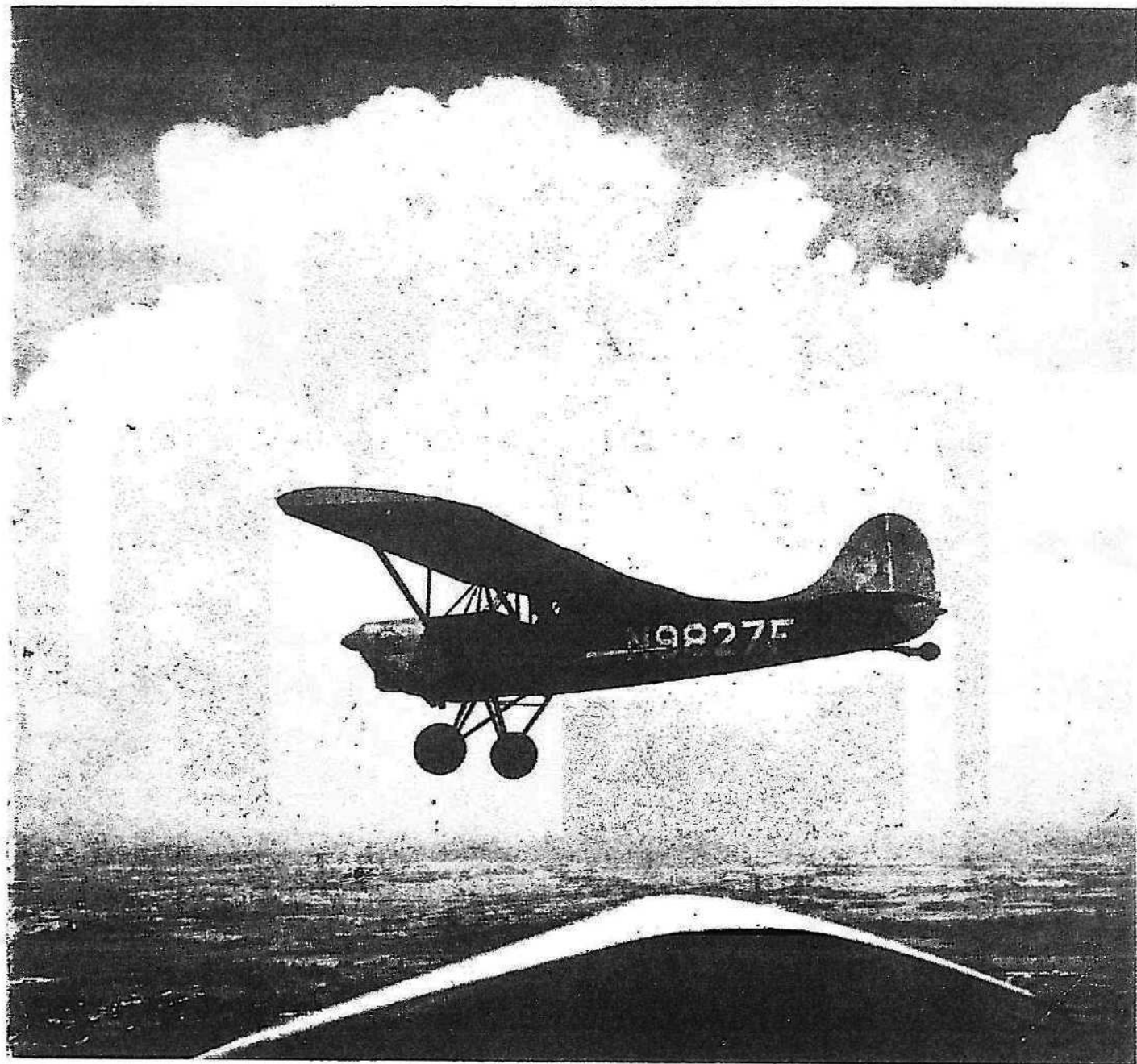
Tenth Annual EAA Fly-In and Convention, Rockford, Illinois, August 1-5



SPORT AVIATION

50¢ AUGUST 1962

featuring: **HOME BUILT**
REPLICA • ANTIQUE • RACING • ROTARY WING AIRCRAFT

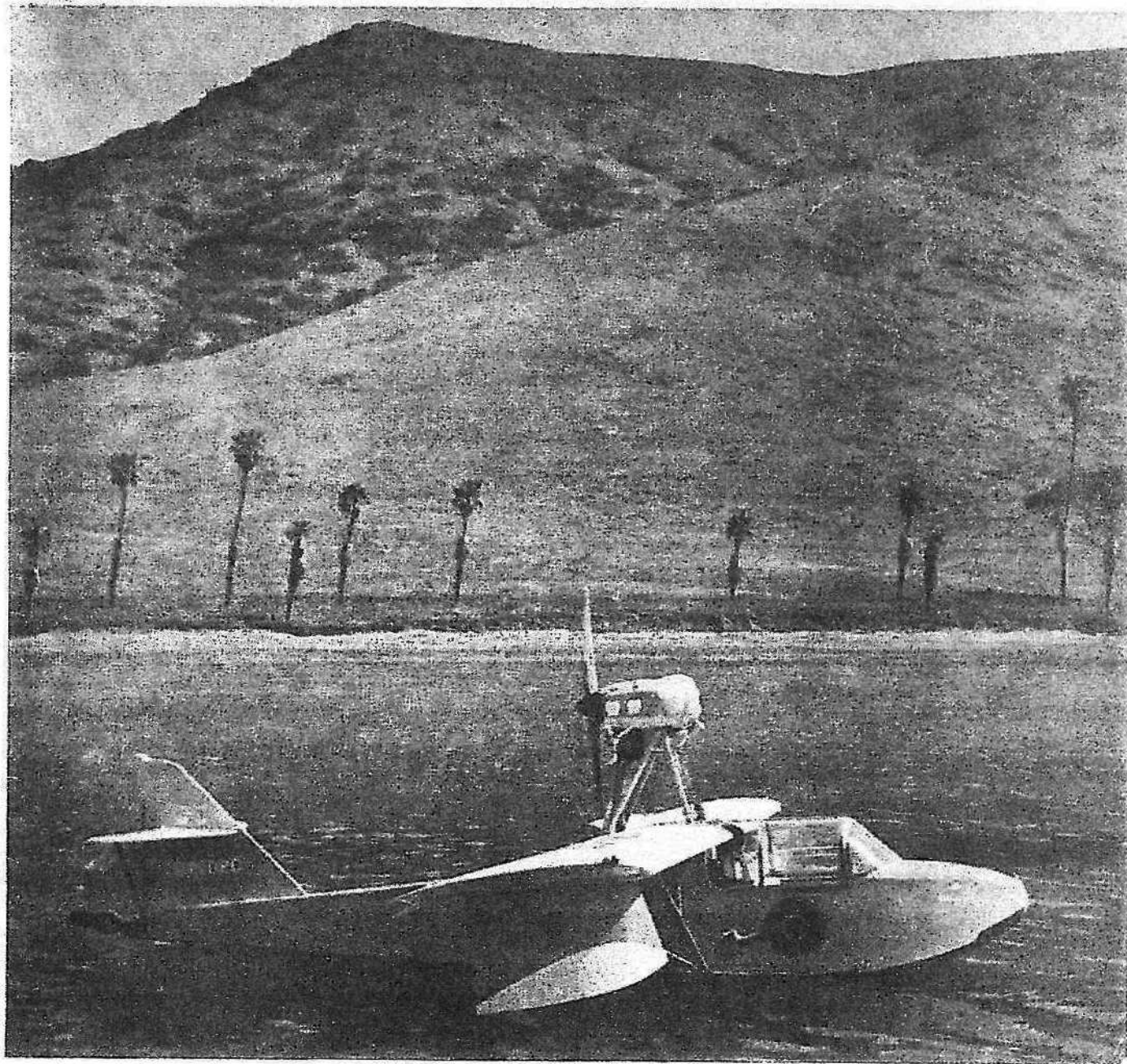




SPORT AVIATION

MARCH 1987

featuring: **HOME BUILT**
REPLICA • ANTIQUE • RACING • ROTARY WING AIRCRAFT





SPORT AVIATION

MARCH 1994



WAR DEPARTMENT
OFFICE OF THE CHIEF OF THE AIR CORPS (4-FD) (A)
WASHINGTON

400.111

August 24, 1937.

SUBJECT: Engine Invention - Russell Bourke

To: Commanding General, GHQ Air Force, Langley Field,
Virginia.

1. The following is an extract from a letter submitted to this office by the Secretary of War, reference a four-cylinder engine invented by Mr. Russell Bourke, Petaluma, California, forwarded to this office for investigation of its merit:

" * * * A petaluma inventor apparently has discovered what others have failed to find.

His name is Russell Bourke and he lives on a ranch about five miles from here. During the World War he was an aviation instructor in Texas. For five or six years he has been working on his invention and has spent a small fortune to prove a theory. Now he has a working model that looks like a factory job, producing 120 horsepower at 3200 rpm. This model already has stood the test for more than 200 hours.

This type of engine has only three moving parts. It can be built for a third of the cost of conventional style engines. It operates on half the gasoline ordinarily used in engines of equal horsepower and weighs about half as much as the conventional type engine".

2. If practicable, it is desired that Major James G. Taylor, now at Hamilton Field, visit Mr. Bourke's laboratory in the near future to investigate and report on the practicability and possibilities of this engine, and that a copy of this report be furnished this office. In this connection, Mr. Bourke may be contacted by getting in touch with Mr. A. G. McKinney, Editor of the Record (newspaper), Petaluma, California, 35 miles north of Hamilton Field,

H. H. ARNOLD,
Brig. General, Air Corps,
Asst. Chief of the Air Corps.

HQ: 7TH BOMBARDMENT GROUP, Hamilton Field, Calif., September 4, 1937.
To: Major James G. Taylor, Air Corps.

For compliance.

By order of Lieutenant Colonel STRATEMEYER:

THAD V. FOSTER,
Major, Air Corps,
Adjutant.

400.111

5th Ind.

Major JAMES G. TAYLOR, Air Corps, Hamilton Field, California, September 29, 1937-
To: Commanding Officer, 7th Bombardment Group, Hamilton Field, California.

1. Pursuant to the instructions contained in paragraph 2, basic letter, the undersigned proceeded to investigate the airplane engine of Mr. Russell L. Bourke, of Petaluma, California, and finds that the inventor had brought this same engine to his attention at Hamilton Field during the latter part of November, 1936. At that time Mr. Bourke was informed of the best way to secure authentic data on his engine, which could be submitted to the Materiel Division of the Air Corps, but due to many reasons, chiefly financial, none of this data has been secured.

2. The engine itself is of the four-cylinder double-opposed single-plane tw-stroke-cycle radial type. It appears to be an excellent experimental model, soundly fabricated. It has been designed and partly fabricated by the inventor, Mr. Russell Bourke, an ex-se vice man who gained some aviation engine experience as an instructor in the old Air Service Technical School at Kelly Field No. 1, during the war. The castings were made by the West Coast branch of the Aluminum Company of America. The other parts were manufactured by various concerns.

3. The engine was thoroughly examined and found to contain several novel arrangements and special features, some of whose origin are doubtless controversial. A report is appended herewith, discussing the engineering details.

4. However, Mr. Bourke is willing to send or bring the engine to the Materiel Division at Wright Field, Dayton Ohio, for inspection and such tests as can be made to determine its value as a military engine. If possible, he would like to be present during the tests, but does not insist upon it.

5. Due to this lack of quantitative performance data offered by the

designed, and his lack of facilities for securing any, no conclusions have been drawn as to the true value of this engine.

6. Mr. Bourke has exhausted his financial resources and has stated that he is unable to have the power and consumption tests run, which are so essential to determine the true value of any engine.

7. It is believed to have sufficient merit and enough novel arrangements to warrant its inspection and test by competent engineers. Since the designer is willing to permit the Air Corps to share the benefits of his labor prior to attempting to sell it to civilian interests, it is recommended that arrangements be made to test the engine at Wright Field, Dayton, Ohio, as a training engine.

J. G. TAYLOR,
Major, Air Corps.

1 Incl: added.

Report on Bourke Aviation Engine.

WAR DEPARTMENT
THE ADJUTANT GENERAL'S OFFICE
WASHINGTON

ETC

IN REPLY
REFER TO

AG 452.9 (8-24-37).
(Misc.)-D

December 9, 1937.

Mr. Russell L. Bourke,
Petaluma,
California.

Dear Sir:

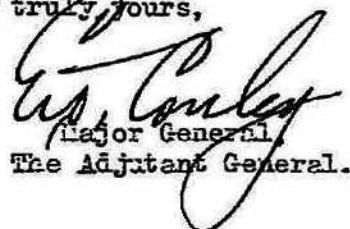
The War Department is in receipt of a report, submitted as the result of a recent investigation, in regard to the aviation engine which you have developed.

Careful consideration has been given to the description and characteristics of your engine as outlined in the report. Inasmuch, however, as data are not included as to the actual performance and operating practicability of this engine the conclusion that must be drawn from the information available is that the engine does not possess sufficient value for military purposes to warrant its development by the War Department at this time.

In view of the fact that necessary data are not available, it is suggested that you have the engine tested by one of the many engineering schools equipped with required testing equipment. On the basis of such a test, it could be more accurately determined whether the characteristics of the engine are sufficiently desirable for military use to warrant the conducting of laboratory tests by the Government. Preliminary tests of this nature are now required on all new types of engines.

Your interest in the National Defense and cooperation in affording the War Department opportunity to inspect your engine and in furnishing the data concerning it are appreciated.

Very truly yours,


Major General,
The Adjutant General.

CONFIDENTIAL



SENSENICH BROTHERS

AIRCRAFT PROPELLERS

CABLES: SENSNIK

LITITZ, PENNSYLVANIA, U.S.A.

AIRMAIL

December 30, 1937.

Mr. Russell L. Bourke,
Rt. 3, Box 341,
Petaluma, California.

Dear Mr. Bourke:

In reply to your letter of December 18, please be advised that we do not have a calibration curve of our design 755-D propeller as we have never had an occasion to need one.

It may be of some aid to you to know that the propeller will absorb about 64 HP at 1750 RPM when set up on a block test.)

If you desire we could set up a design 755-D propeller on our torque stand and take readings from 1000 to 2000 RPM and plot a HP vs RPM curve from this data. We do not recommend turning this propeller over 2000 on a static test as it is not designed for that high a horse-power. The charge for this service would be \$15.00.

With kindest regards, we are

Very truly yours,

SENSENICH BROTHERS,

Harold R. Uhrich

Harold R. Uhrich.

REPORT
BOURKE AVIATION ENGINE

Designer - RUSSELL L. BOURKE, Petaluma, California

Patents Applied For - Serial Number 647194 - December 14, 1932
Serial Number 79286 - May 12, 1936
Serial Number 79287 - May 12, 1936
Serial Number 79288 - May 12, 1936
Serial Number 726321 - May 18, 1934.

4 Cylinder - 2 Cycle opposed Radial Design

R.P.M. - 2800

Bore - 3 7/8"

Stroke - 3"

Displacement - 140 Cu inches (Approximately)

M.E.P. - 50# - 90# Square Inch (Above 75# will run as a Diesel)

Horse Power - Unknown. Loaded with a wooden 75 H.P. Propeller.

A.T.C. #494, Mfg - SENSENICH BROS., Lititz, Pa., Design No. 755 D

Serial Number 1241 - Fabric Tip - Power Absorption standing - Unknown

FUEL - Specific Consumption - Unknown

CARBURETOR - Tillotson JR-2 (Auto)

MANIFOLDING-EXHAUST - None

INTAKE - Internal

IGNITION - Double magnetos - Wico #AP-521

SPARK PLUGS - BG 4 B-2 (Auto)

OIL CAPACITY - Lower half crank case about two (2) quarts - Union
Oil Company - "Triton" 20.

STARTER - None

RADIATORS - None

MAIN BEARINGS - Four (4) Deep Groove Ball SKF #6212

CRANK SHAFT - Single throw conventional balanced.

PISTONS - Cast Iron "Mehanite".

CYLINDERS - Finned on Combustion Chamber and Detachable Head.

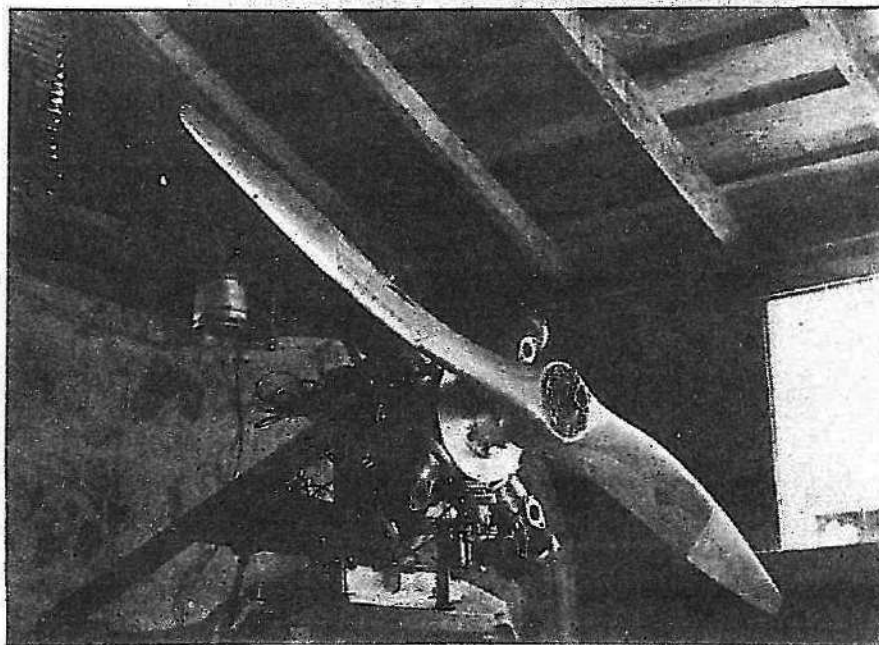
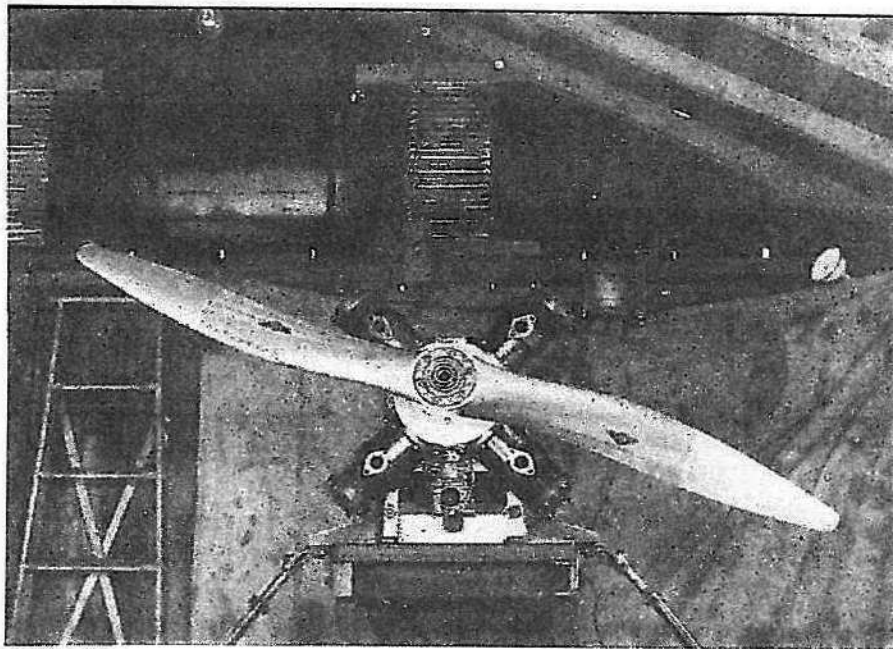
PISTON RODS - Two (2) with a fixed piston on each end.

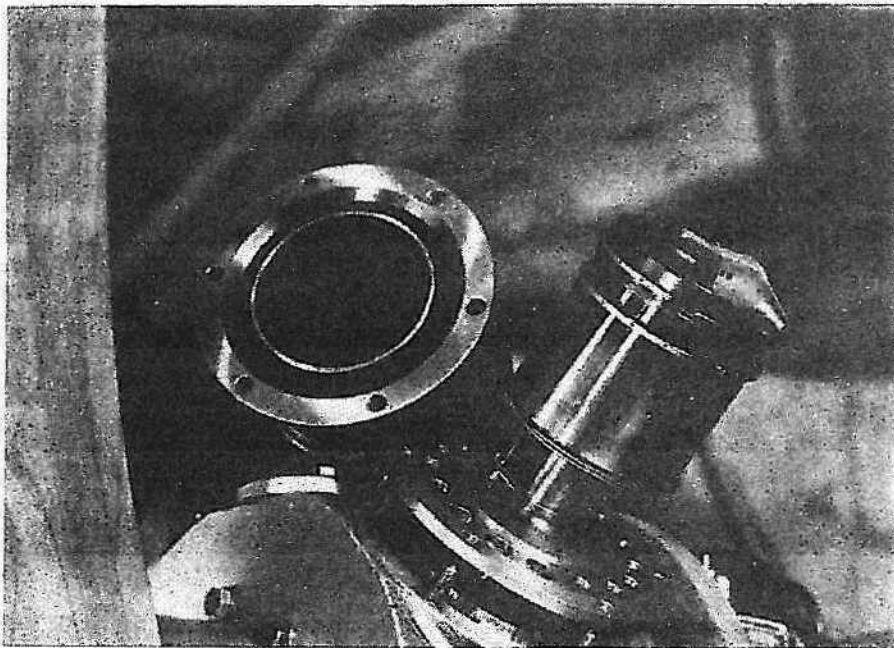
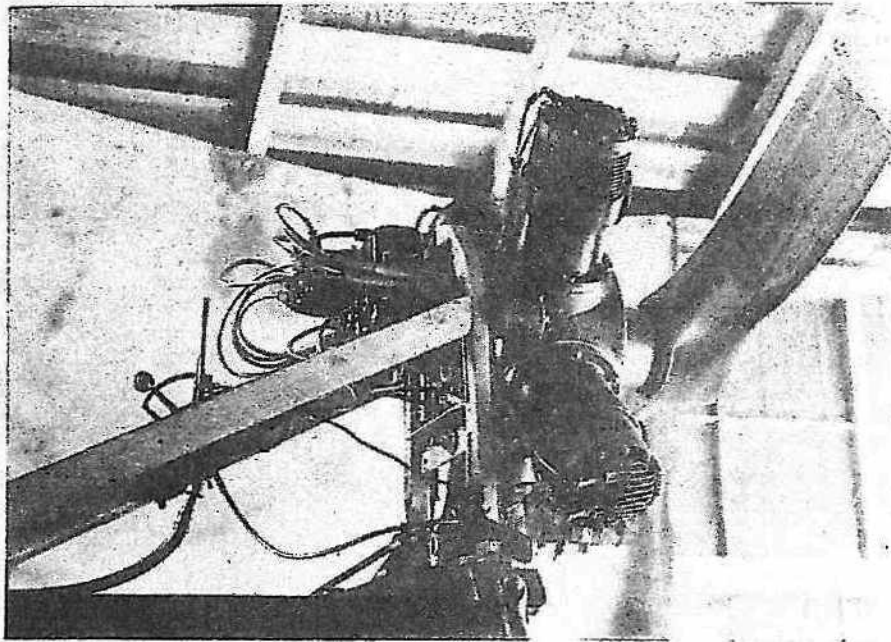
DRIVE - Direct through a special Double Cross Head

VALVES - Fixed Ports.

OILING - Splash and Metered Jet to Cylinders.

WEIGHT - Estimated 125 pounds. With old aluminum cylinders actually weighed 95 pounds.





The details are as follows:

The engine, a two-stroke cycle radial, as shown on photographs 1, 2, 3, and 4, consists of two pairs of fully opposed cylinders in one plane arranged as a 90° cross.

- (1). The pistons are firmly attached to the opposite ends of a solid rod. The two (2) piston rods drive the crank-shaft through a clever cross-head arrangement which is mounted on one large deep-groove-ball-bearing (#6212 SKF), which takes only a radial rocking load. The steel crank-shaft is conventional (alloy unknown), with a single throw mounted on three (3) (#6212 SKF) deep-groove-ball-bearing with two (2) in the nose taking the thrust loads. The engine is assembled from the rear and everything is locked together by a split front bearing retainer in the nose plate, which is bolted on the front of the crank case. This engine is quickly and easily assembled and quite accessible. (See Photo No. 2).
- (2). The cylinders are (1020) steel with detachable heads of cast-iron called "MEHANITE", as shown in Photo No. 3, and bolted by six (6) equally spaced steel bolts directly to the crank-case. The cylinders are finned only over the combustion areas and are quite cool in operation with propellor as shown.
- (3). The double wall of the cylinder as shown at the upper left of Photo No. 4 contains the intake manifold which is routed around the exhaust ports to the intake ports, from the crank-case body. Two (2) automobile (BG-4P2) spark-plugs are installed in cylinder caps (see photo No. 3). The combustion in chamber is very small and only slightly dome-shaped.
- (4). The crank-case, of cast aluminum (Alloy No. 122) by ALCOA, contains the manifold from the carburetor, but is sealed off from the cylinders with the plate which is shown in Photo No. 4 (raised up off of the cylinder studs). The opening of the intakes manifold can be seen between the first and second studs from the left side. The oil supply is in the crank case, which can be kept one-half full and not run out, no matter how the engine is tilted, since it is vented through the hollow crank-shaft at the rear face of the rear crank-throw. The four (4) engine mounting lugs are case directly onto the crank-case and are symmetrical about the thrust line (see Photo No. 3). The rear half of the crank-case is closed by a circular plate, bolted on, which supports the rear crank-shaft bearing and mounts the accessories.
- (5). This plate keeps the crank-case at atmospheric pressure as far as the cylinders are concerned and oils them through the small suction jets shown fixed to the plate in center (see Photo No. 4). It is metered by guess to suck a drop or two into the cylinder at each up-stroke. The oil is not recovered., but consumption is very low.

- (6). Distribution of oil over the cylinder walls is by guess and is aided by special piston rings. These rings are made from ordinary hammered rings and are "pitted" on the face and the top and bottom sides as experience dictates, depending upon whether the cylinder is up or down. All rings are similar and are free floating without retainers, and have a large, peculiarly shaped gap filled in them, ostensibly to keep them rotating. Wear has been very small in quite a few hours (amount unknown), on either cylinders or piston rings, which still show original tool marks. This is attributed to good balance and absence of side loading on the pistons, which still leaves the problem of oiling to be determined for continuous running by test alone.
- (7). The pistons are of cast-iron (MEHANITE) as shown in Photo No. 4 and have a shelved scarfing on the head, on the four sides which are designed to facilitate intake distribution and exhaust area opening. The large one (top and bottom) as shown, are to direct the fresh mixture upward, in a "vapor" cylinder for proper mixture as it is sucked in through the intake ports, which are fixed rectangular slots in the cylinder walls. The smaller scarfs at right angles, are to allow a larger opening to form quickly at the exhaust ports which are also fixed rectangular slots in the cylinder walls and open directly forward, as shown in Photo No. 1. When running, the exhaust is not visible and does not burn the hand a few inches away (it has not even marked the wooden propellor some 26" away). This is said to be due to the very complete combustion which takes place.
- (8). This fine combustion and, in fact, the extreme economy of this engine is due to this "Diesel" feature of a high compression (50 pounds x M.E.P. on pressure gauge - hand cranking), combined with the longer time at top dead-center, permitted by the cross-head-action with its lack of angularity on the piston rod. The improper carburetor now mounted, limits flexibility, and since no runs with known power have been made, prevents the true fuel consumption being known. Mr. Bourke claims operation, using a very cheap distillate (Union Oil Co. "White Magic") to be at about a fuel-air ration of 30:1. It will not run on good (High-test) gasoline; but will run as a Diesel Engine on compression alone, with the ignition turned off. It will not accelerate, however (with this carburetor), until the M.E.P. is raised to about 75 pounds. It will, of course, run in either direction. It does not appear to be running very hot as a Diesel, but of course the power is not known.
- (9). The fuel consumption is unknown. It was observed to run at approximately 1200 R.P.M. for about 20 minutes on about three pints of fuel and similarly, it ran about twenty minutes at 1800 R.P.M. on about three quarts. The power was not known.

The engine did not heat up noticeably during this period. Acceleration was poor and motor was rough at each speed, until the carburetor was adjusted. No doubt a carburetor designed for this engine would improve its running throughout its range, which is said to be up to 4,000 R.P.M.

- (10). Dynamic smoothness is claimed as inherent in the design since everything is in opposite phase and statically balanced. The power variation must be large since it has only four cylinders and the power stroke is short on a two cycle-engine - still it does not shake as much as might be expected (last year it was observed running mounted in the rear of a small Ford car truck).
- (11). Before the aluminum alloy cylinders (ruined in attempting to plate their exterior) were replaced with steel ones, the weight was 95 pounds. Now it is said to be approximately 125 pounds (net weight).
- (12). The strength calculations probably leave much to be desired. The various parts were undoubtedly just built by the most expedient methods, by various manufacturers, but some were made by Mr. Bourke in his own small workshop. The workmanship is good and the entire engine is easily assembled and adjusted, and all parts appear plenty strong enough for the power delivered.
- (13). Photographs of the internal parts dis-assembled were not taken for patent reasons. Applications on the various features have been made, but none granted to date.

J. G. TAYLOR,
Major, Air Corps

PIKES PEAK RACE PICTORIAL

HOT ROD

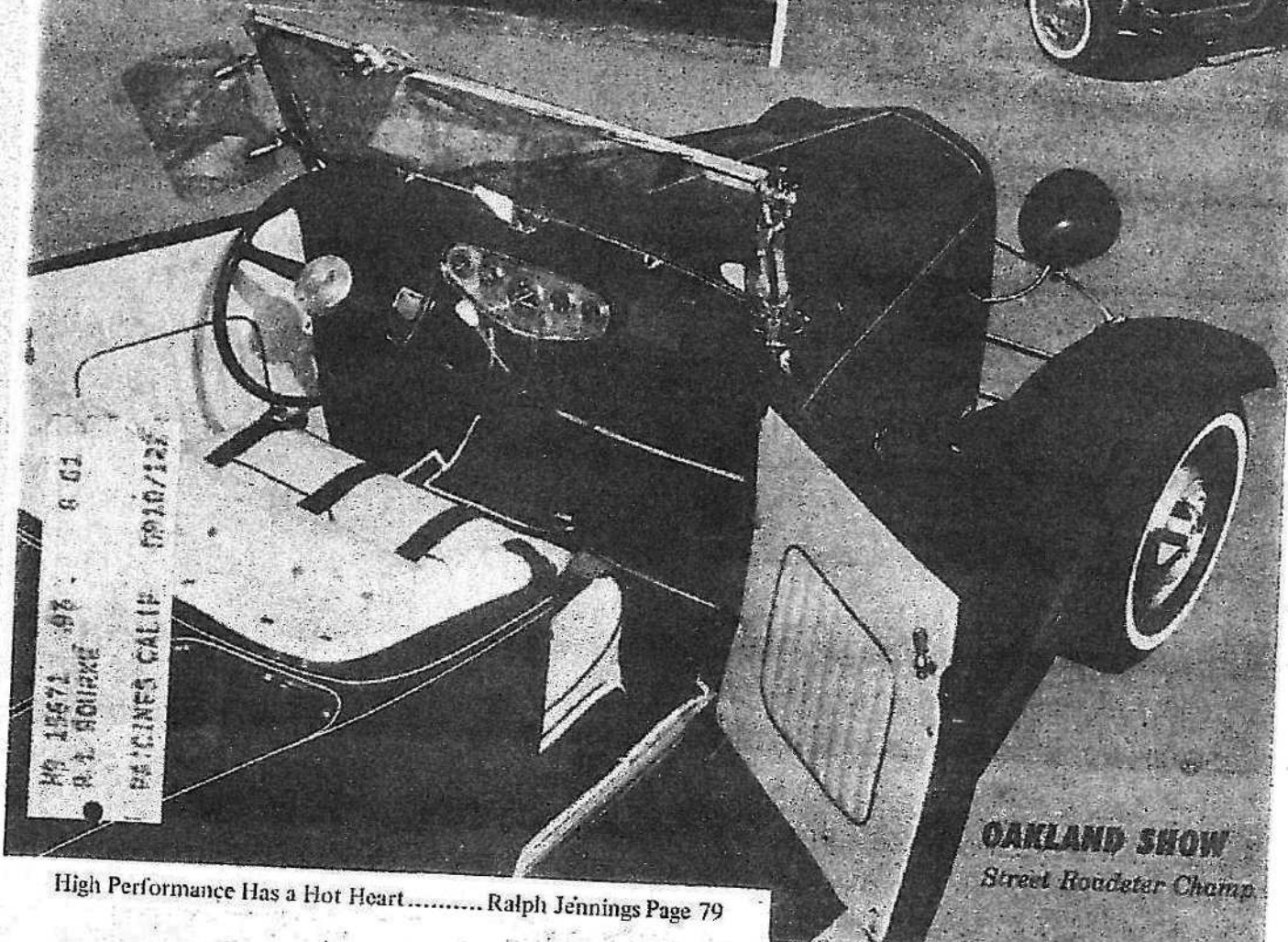
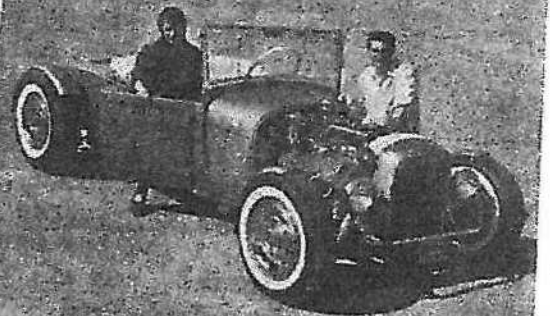
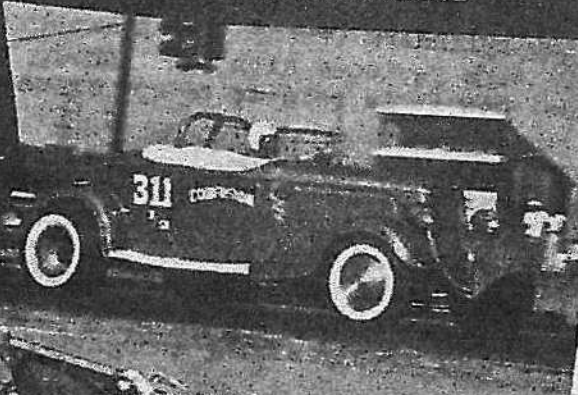
EVERYBODY'S AUTOMOTIVE MAGAZINE

HOW-TO-DO-IT KART
ENGINE HOP-UP

TOP CONTENDERS
for '60 NATIONALS

SEPTEMBER 1960 35c

and
**SHOW
RODS**



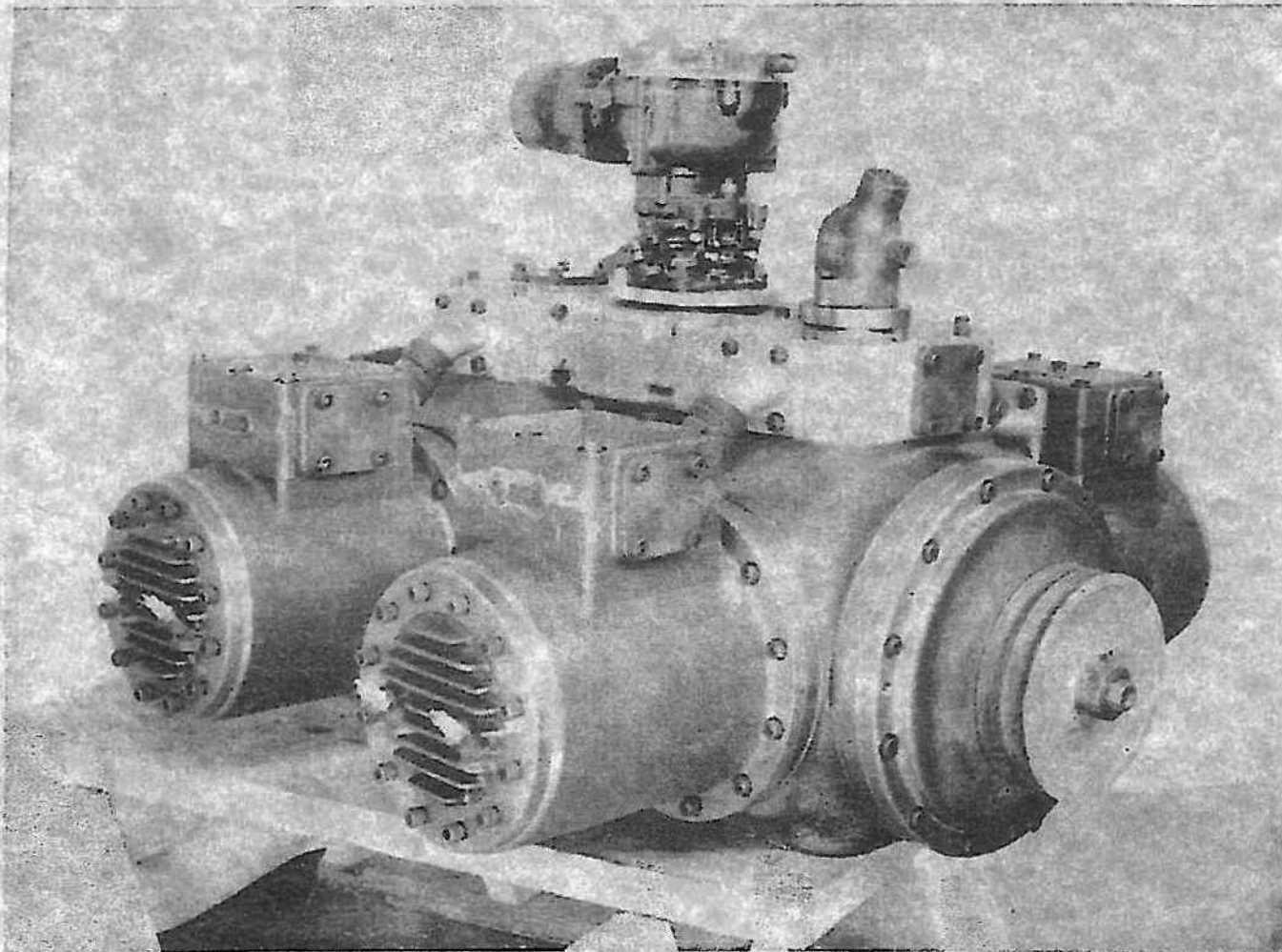
OAKLAND SHOW
Street Roudeter Champ

High Performance Has a Hot Heart..... Ralph Jennings Page 79



THIS IS WHAT HAPPENS WHEN YOU BUILD IT YOUR WAY!

Dennis
67



March 27, 1958

Engine used 2 gallons of fuel in 15 minutes of running with a 500 foot pound load at 2 thousand RPM or 8 gal. per hour, about 200 H.P. Also pulling 75 to 100 ft. lbs at 1000 RPM it used 1/4 gal. of fuel in 15 minutes, or at the rate of 1 gal. per hour, about 20 to 30 HP. The two above runs total about 1/4 lb of fuel per HP hour.

The preliminary run of March 27, 1958 of the Bourke-400 cubic inch engine.

