

# model 2!

## Hobbies



**FAST FLYING MODELS**  
**163 M.P.H**

NOVEMBER, 1950  
DECEMBER,

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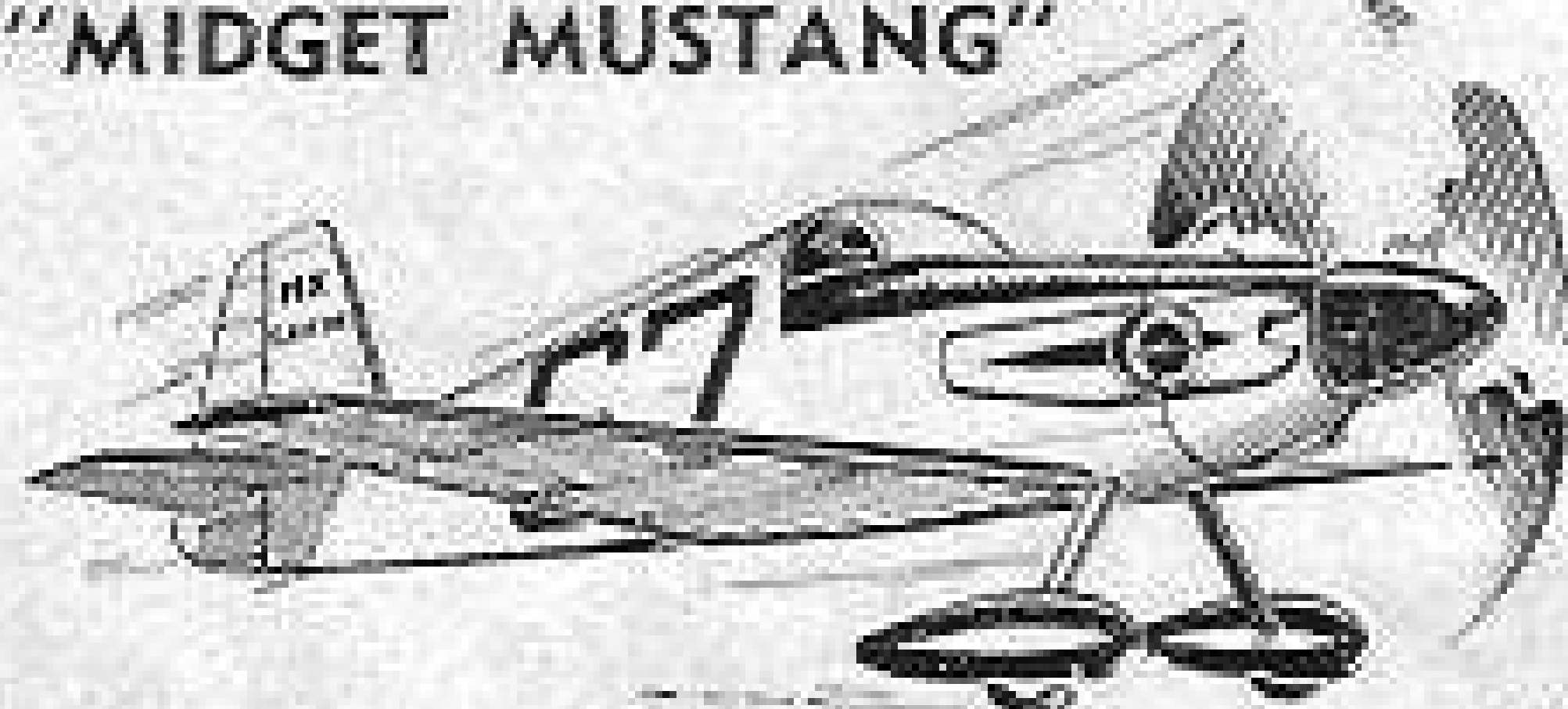


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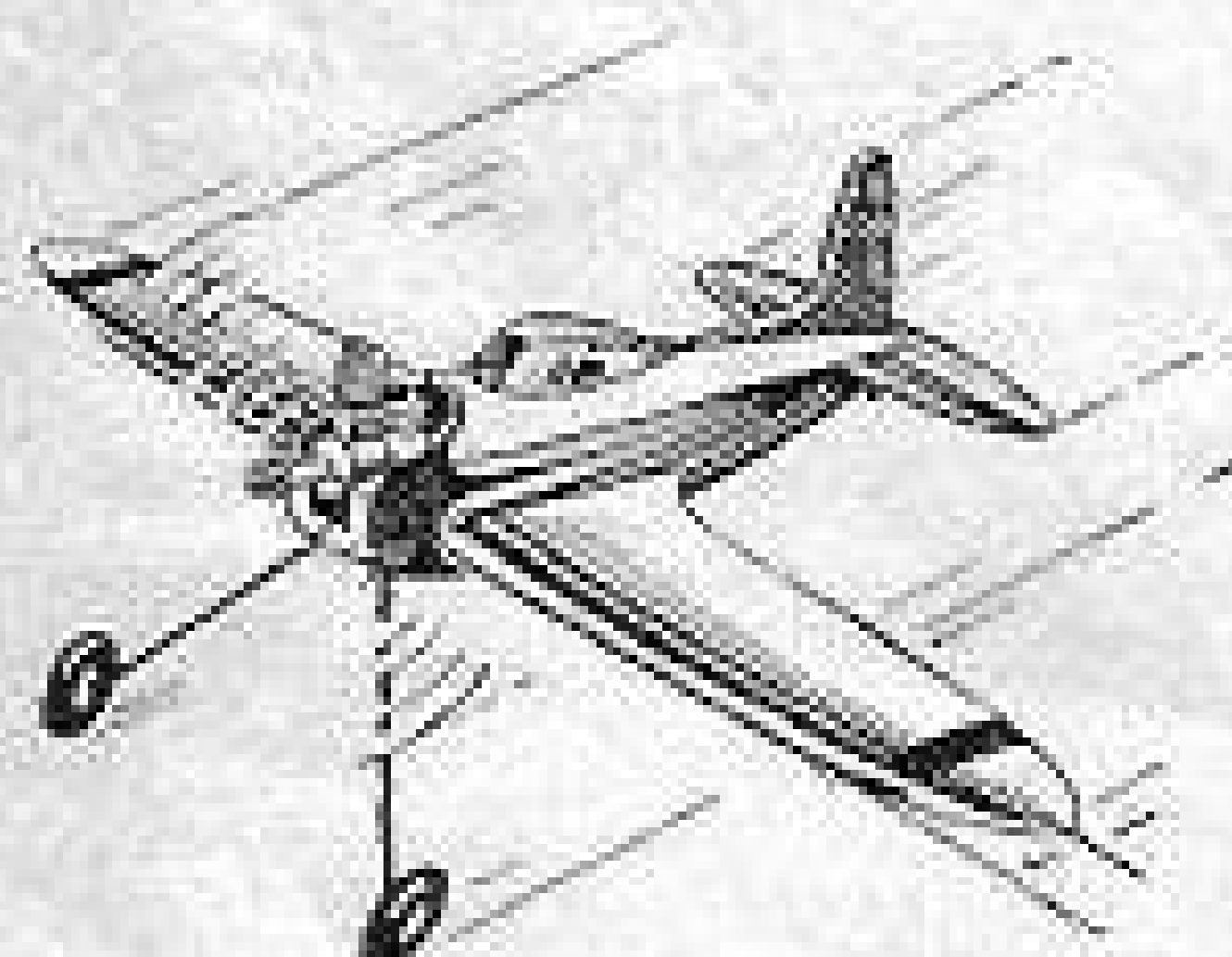
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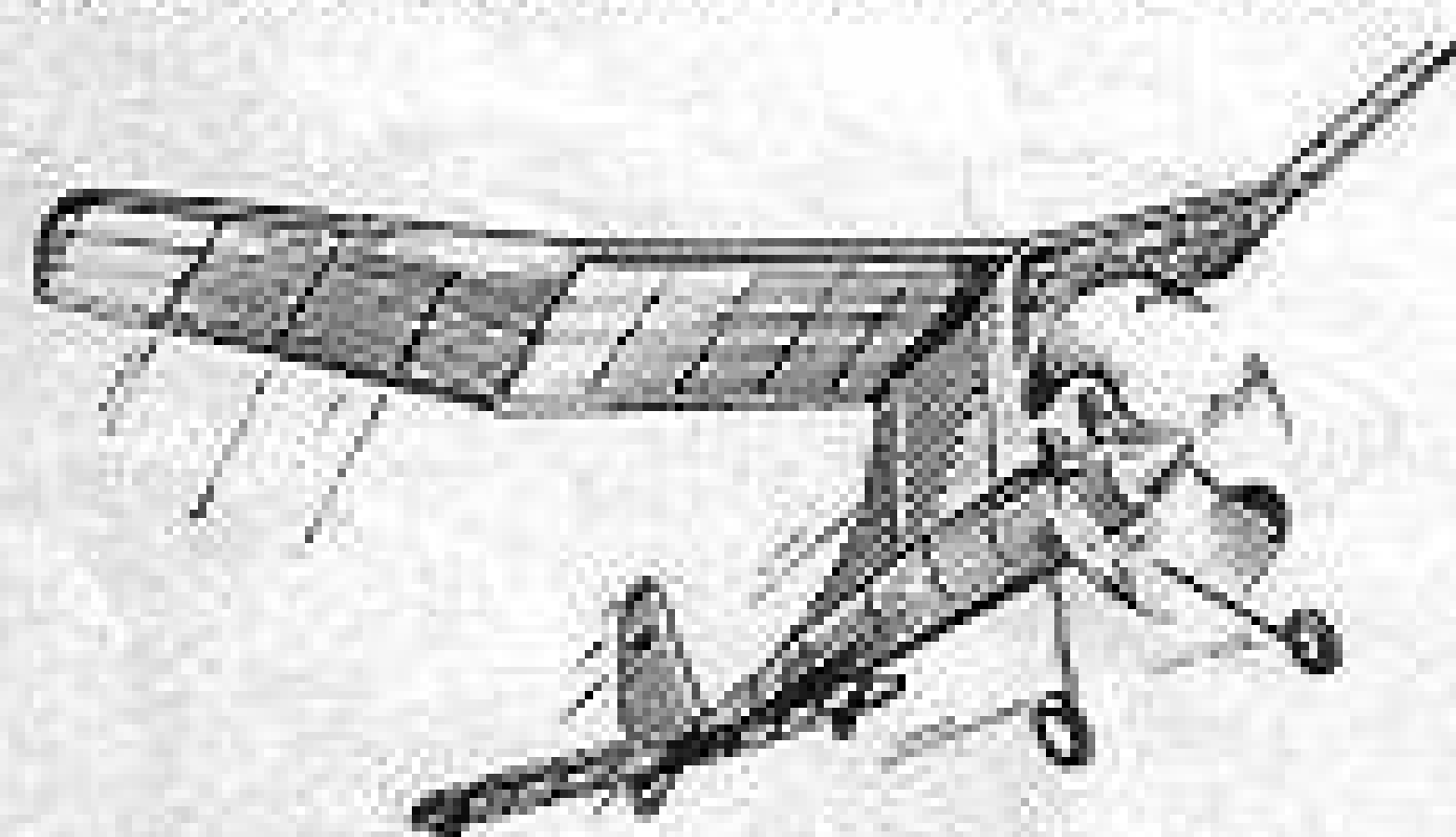
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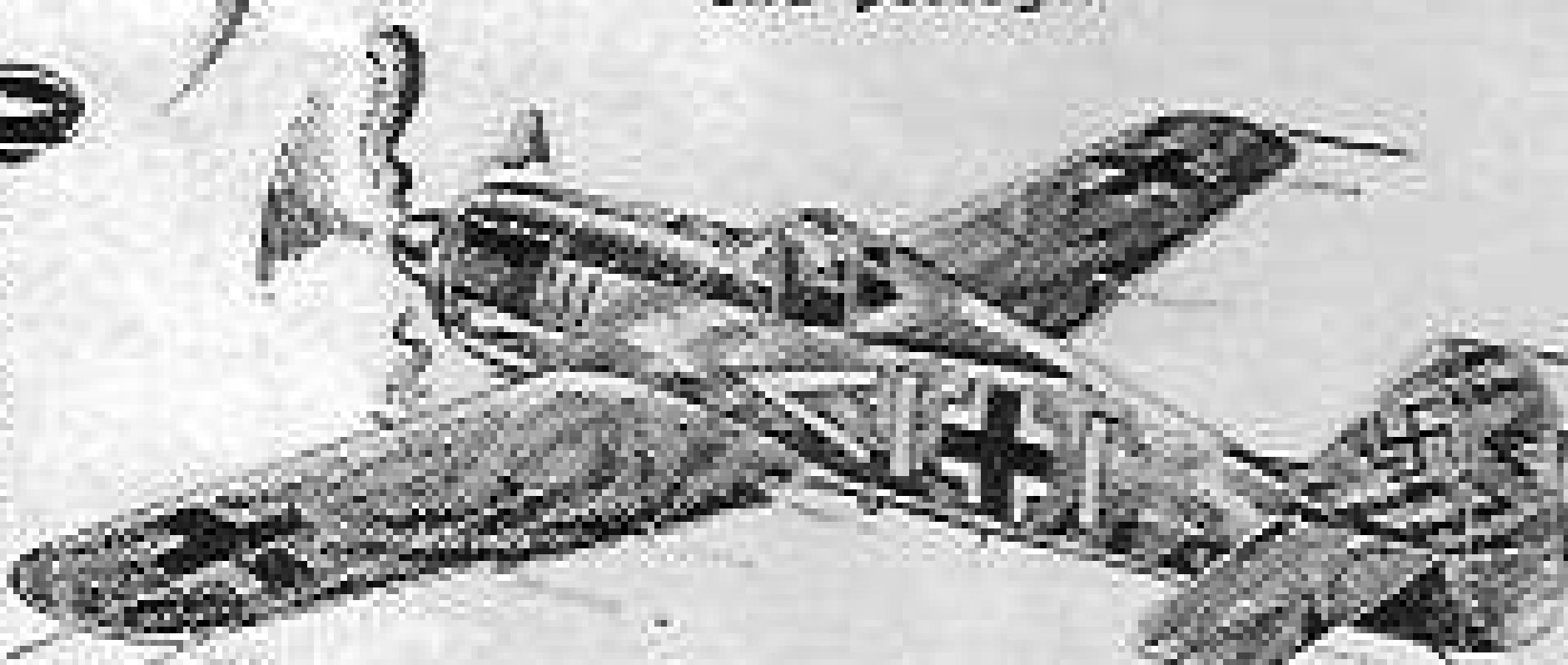
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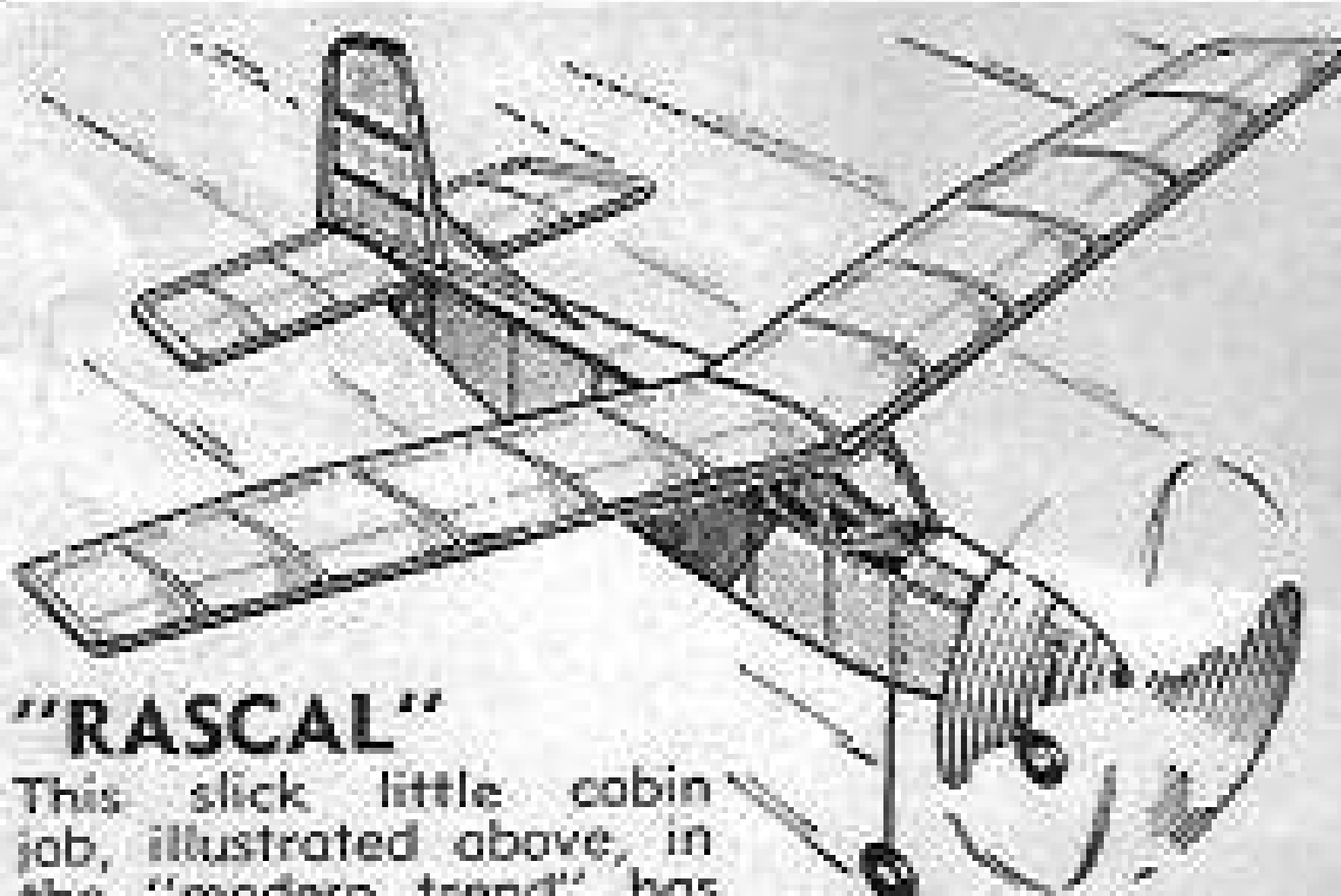
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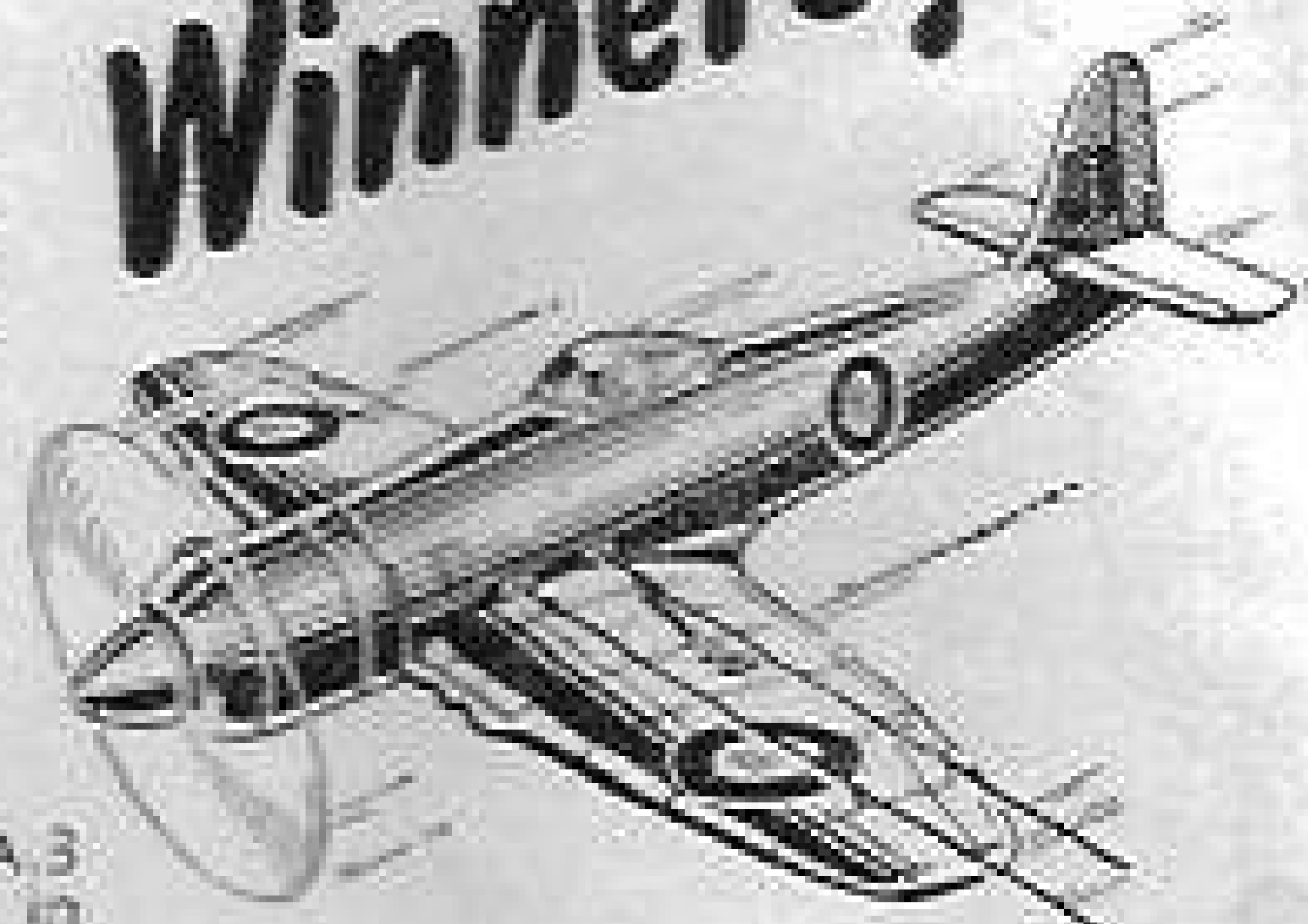
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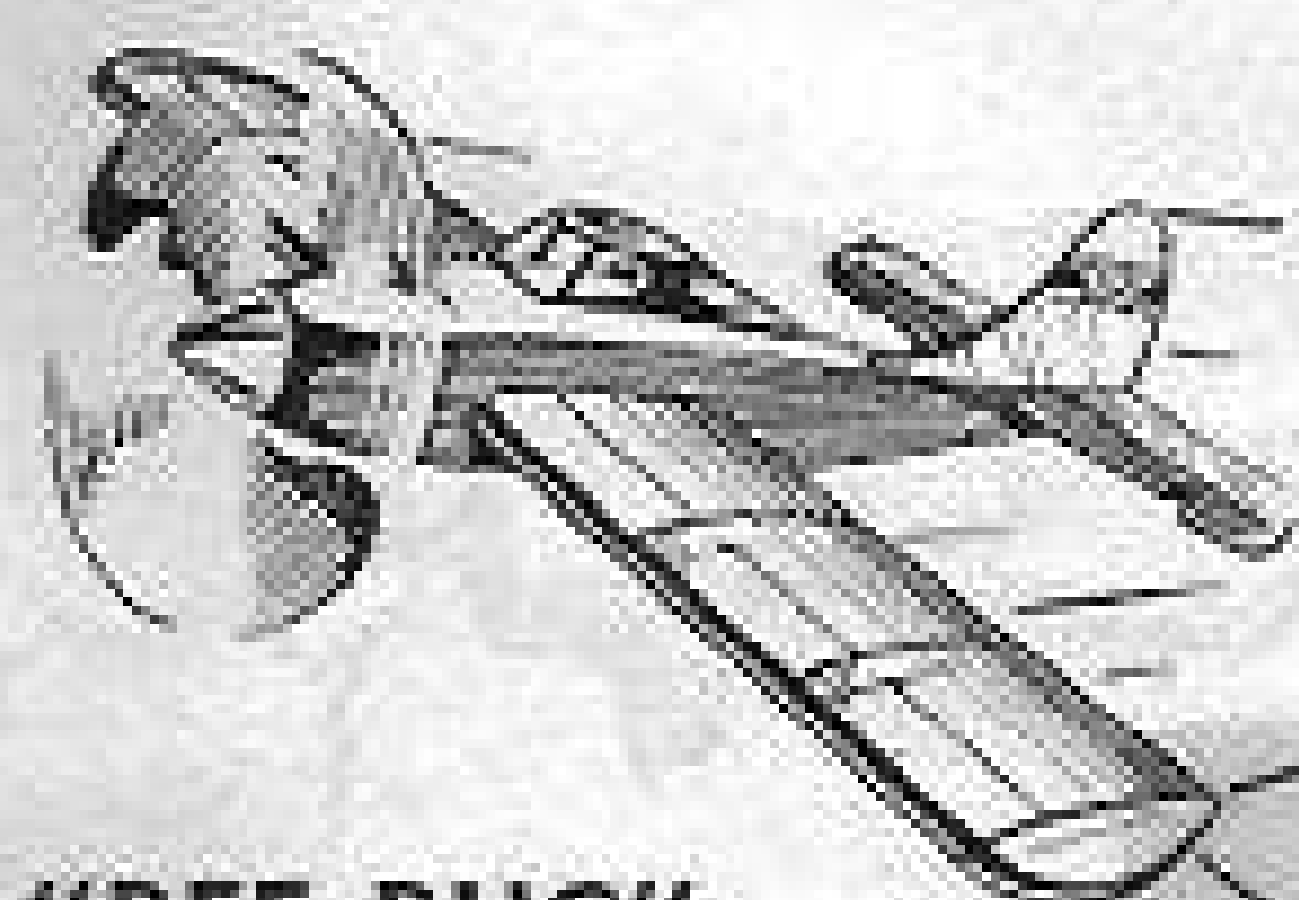
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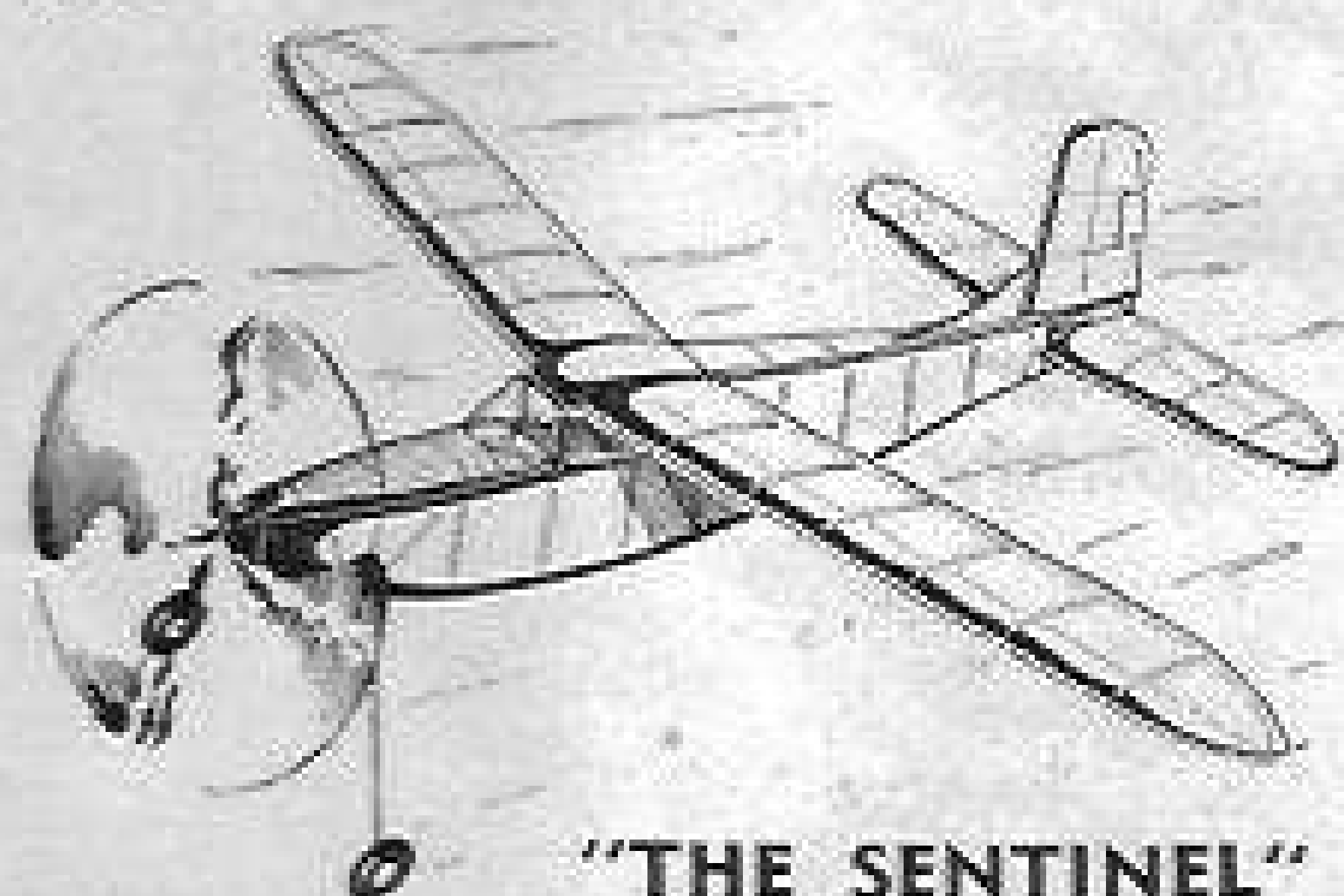


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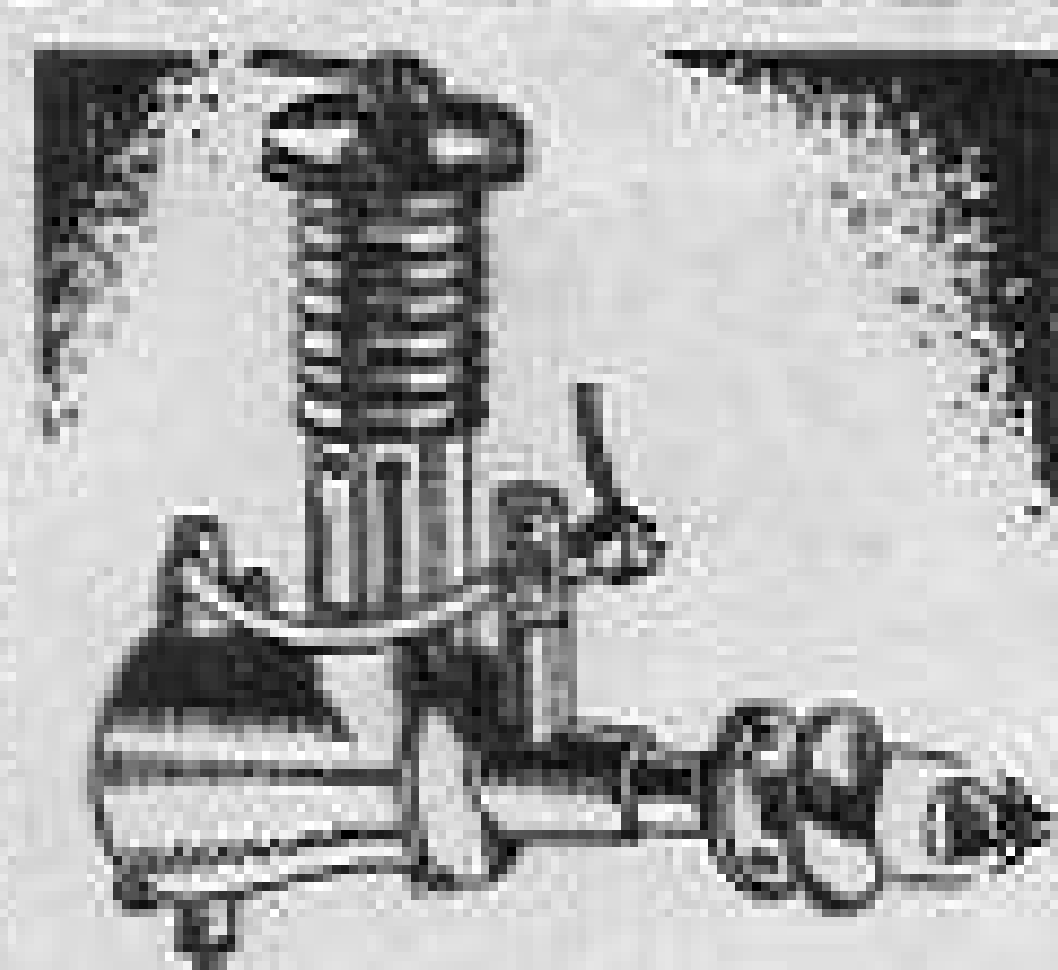
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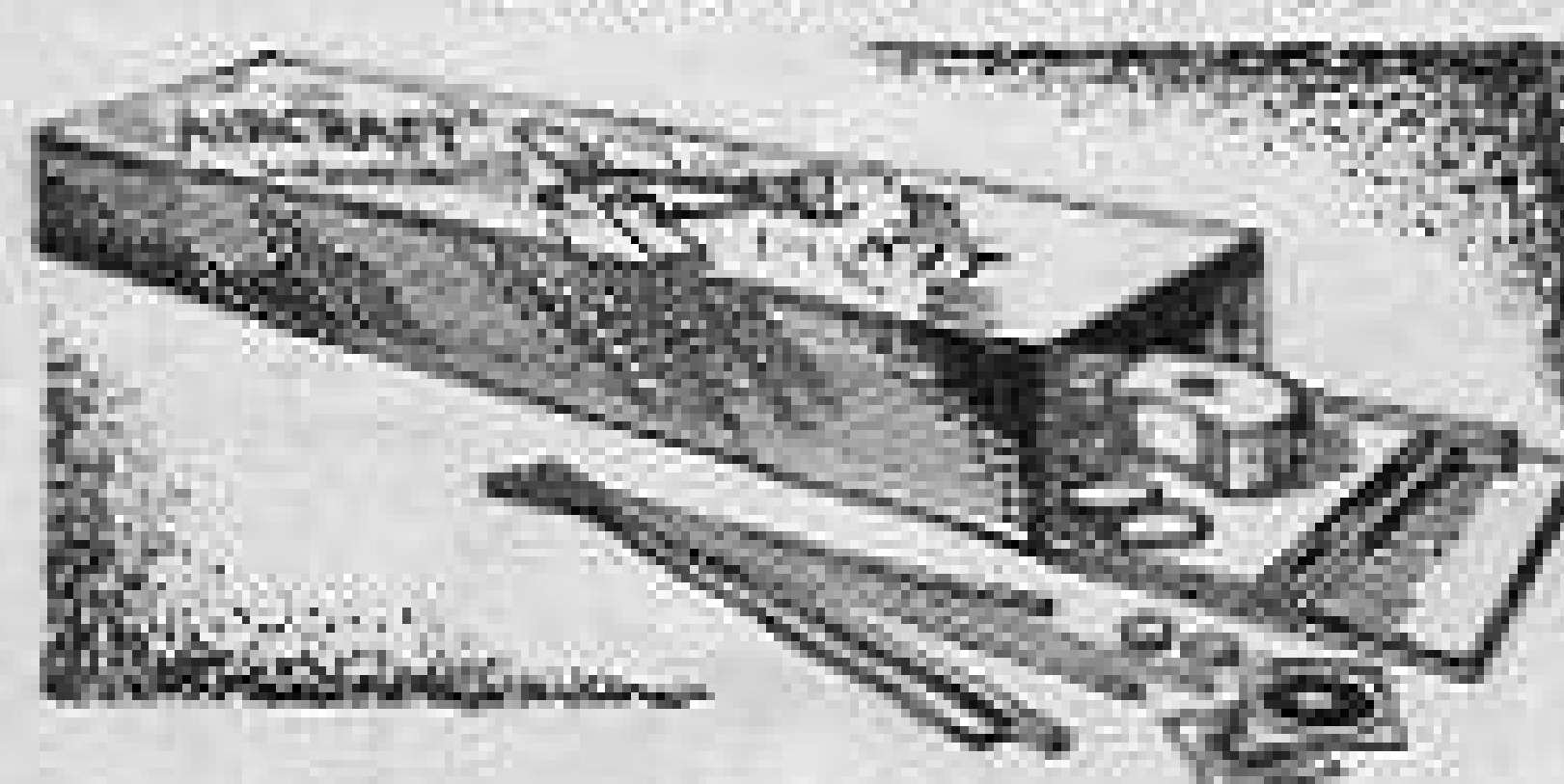
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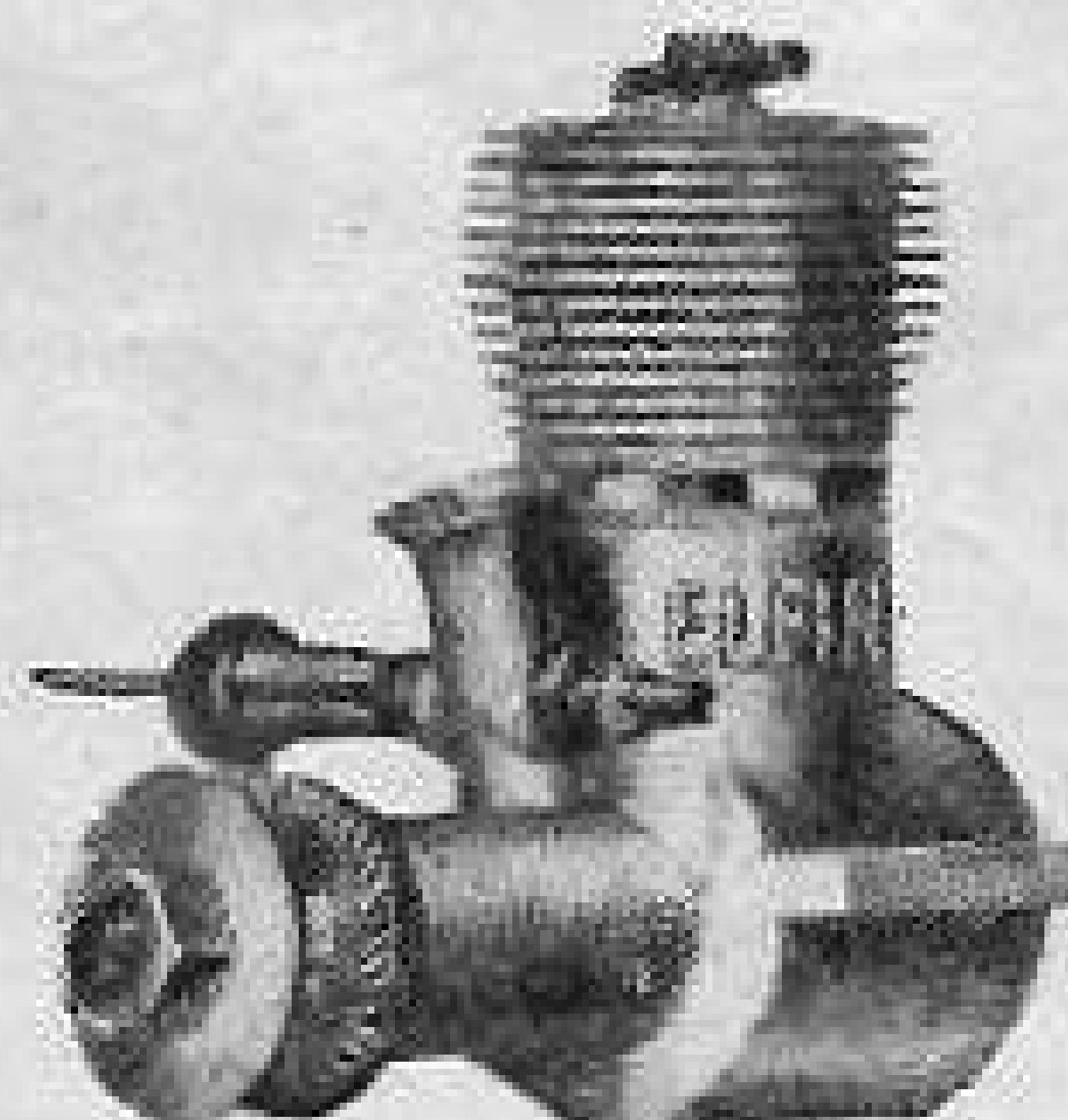
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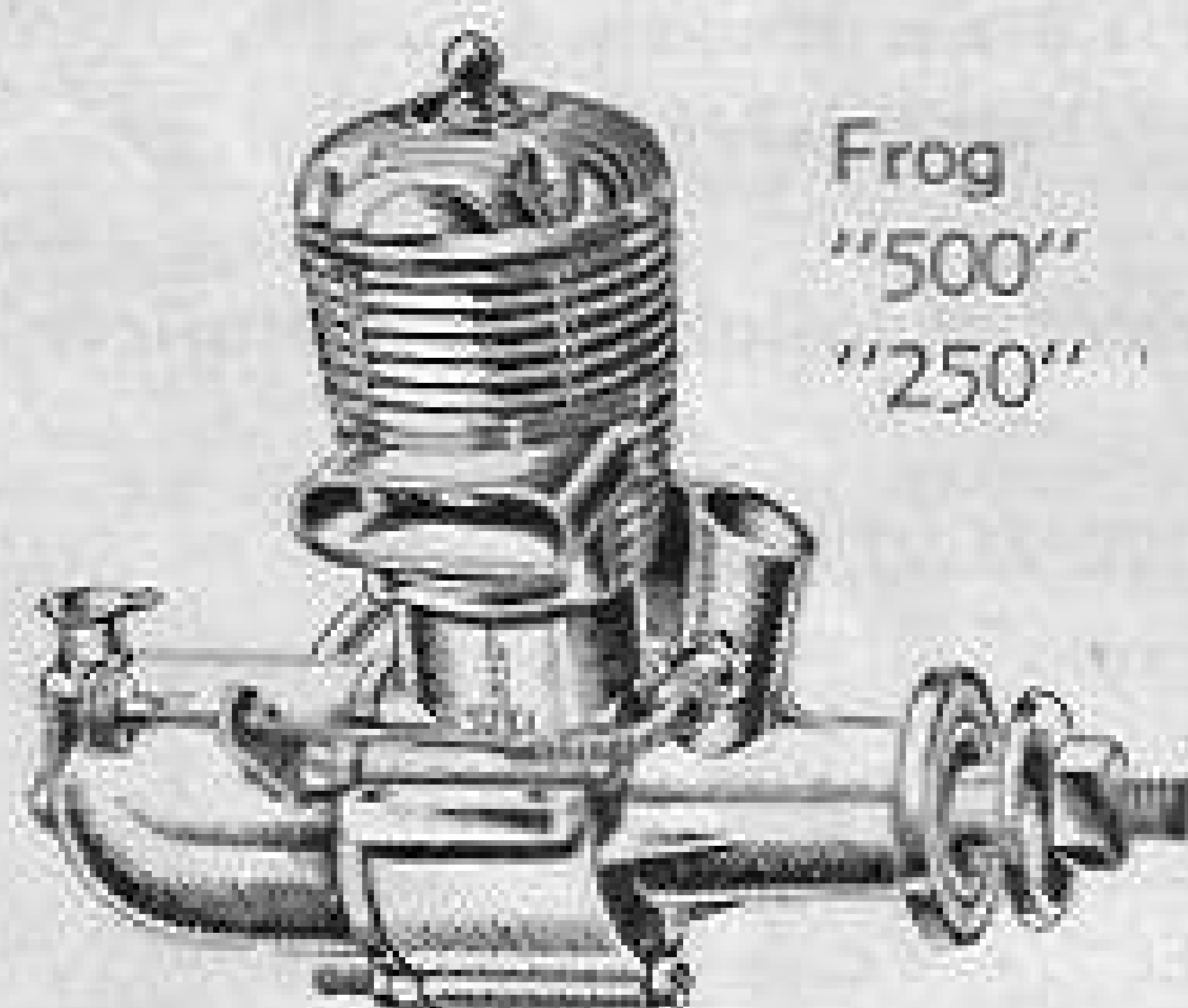
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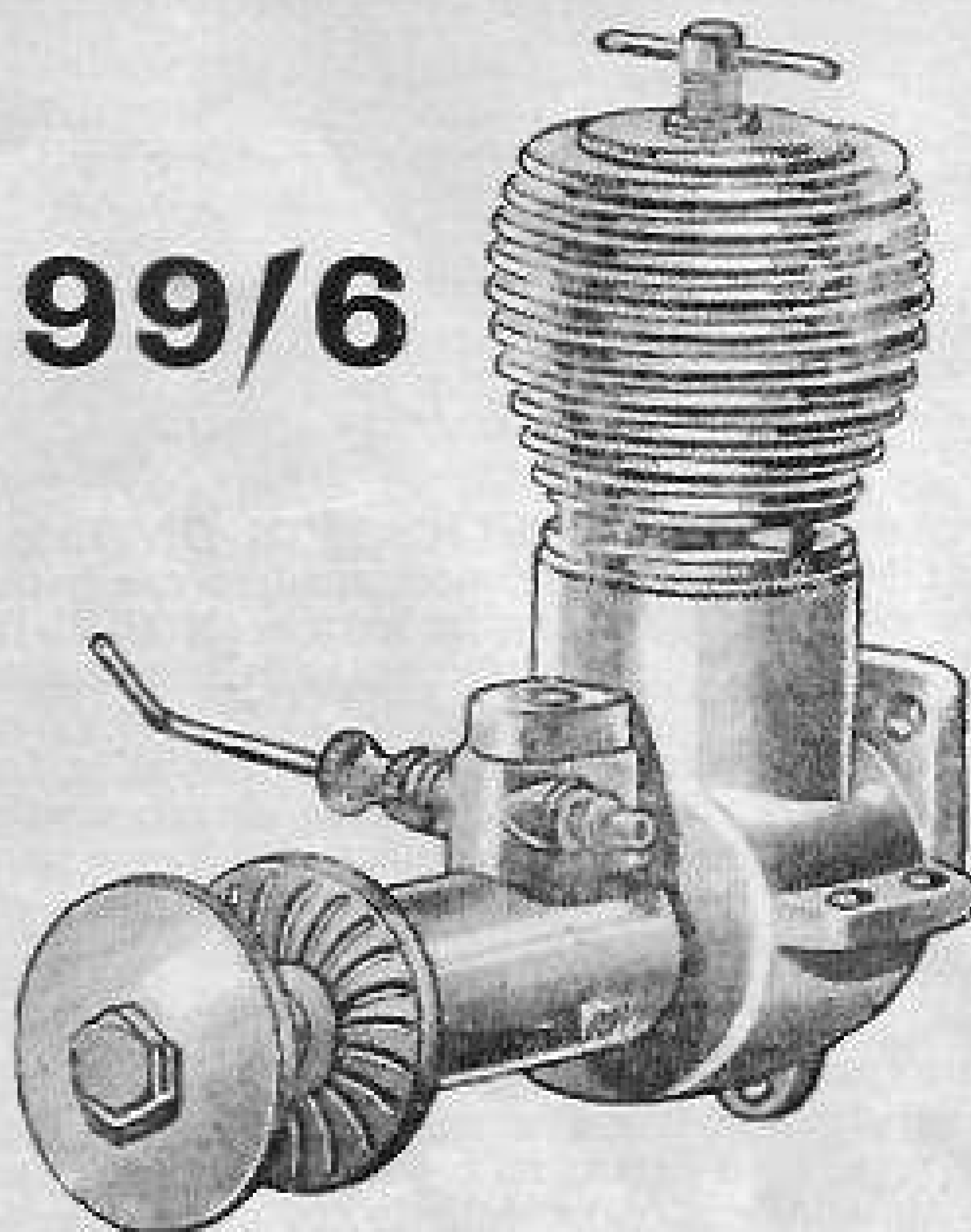


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## EDITORIAL

AGAIN OUR PUBLICATION DATE is late, but by now I assume most readers are becoming used to our tardiness in getting MODEL HOBBIES onto the newsstands and into the model shops.

This issue is the most elaborate yet, a further eight pages have been added incorporating a full size plan, but to continue to grow we must have contributions from our readers. So, should you have something of interest, MODEL HOBBIES will be pleased to publish it.

CORRESPONDENCE is my biggest headache, and although I am writing letters at the rate of dozens each week it is impossible at present, with a lack of capable help, to do justice to the many letters received, BUT THESE LETTERS ARE NEEDED to keep in touch with the modelers and their likes and dislikes, so please, if you have something to say, praise, comment, criticism or suggestion, let me know. If possible, your letter will be answered personally, but whether answered or not, notice will be taken of it.

ADVERTISERS in this magazine are largely responsible for its existence and modellers who appreciate MODEL HOBBIES should show thanks by patronising one of the local advertisers. If your local trader does not advertise suggest it to him as a means of keeping an AUSTRALIAN model magazine in circulation and also a means of extending the popularity of modelling in Australia.

REMEMBER! MODEL HOBBIES NEEDS contributions, constructive correspondence,

suggestions, and advertisers to maintain and surpass the standard set with this issue.

PLANS PUBLISHED in this magazine are sometimes those of commercial kits or designs produced by various traders, and I would like A.M.H. readers to realise that by providing these proven design drawings, the cost of producing this magazine is reduced considerably and so allows a publication of a higher standard of production than many overseas magazines which have a far greater circulation and a greater number of advertisers. This practice of reproducing plans of commercial kits or designs is a normal one, for instance:— Carl Goldberg's "Cumulus," Hewitt's "Stuntking," etc. Furthermore, almost all overseas magazines recoup a considerable part of their production costs by the sale of full size plans of the models appearing in the magazine. Owing to a ruling of the Sales Tax Commissioner, if A.M.H. were to advertise full-size plans for sale, the magazine would become subject to Sales Tax.

I trust our readers will appreciate the action of the trade houses who provide many of our plans.

*Bill Evans*

Editor.

All correspondence: The Editor,  
Model Hobbies, 3 Percival St., Glenelg,  
Sth. Australia.

## CONTENTS ★ ★ ★

THESE MODELS FLY FAST! . . . . .	6	A WAKEFIELD REPORT . . . . .	14
SUPER SKYLARK . . . . .	8	CLUB NEWS . . . . .	16
WORLD'S SPEEDCAR CHAMPIONSHIP . . . . .	10	LITTLE HERBIE: Class "1A" Team Speedster . . . . .	17
MODEL SPEED CARS . . . . .	10	TWO NEW MOTORS . . . . .	18
MILLS BOMB . . . . .	12	PLAN OF LITTLE HERBIE . . . . .	19
TAILLESS AIRCRAFT . . . . .	13		



# HOBBIES

NOV.-DEC., 1950

**COVER STORY.** — The model pictured on the cover is a deBolt "SPEED-WAGON" design built by Leonard Wagner and flown at a record speed of 163 m.p.h.

The model was powered with a McCoy 49 motor—approximately 8 c.c.—and the speed attained has only been passed by a model—excepting experimental Service models—once, and on that occasion an oxygen boosted motor was used (see These Models Fly Fast).

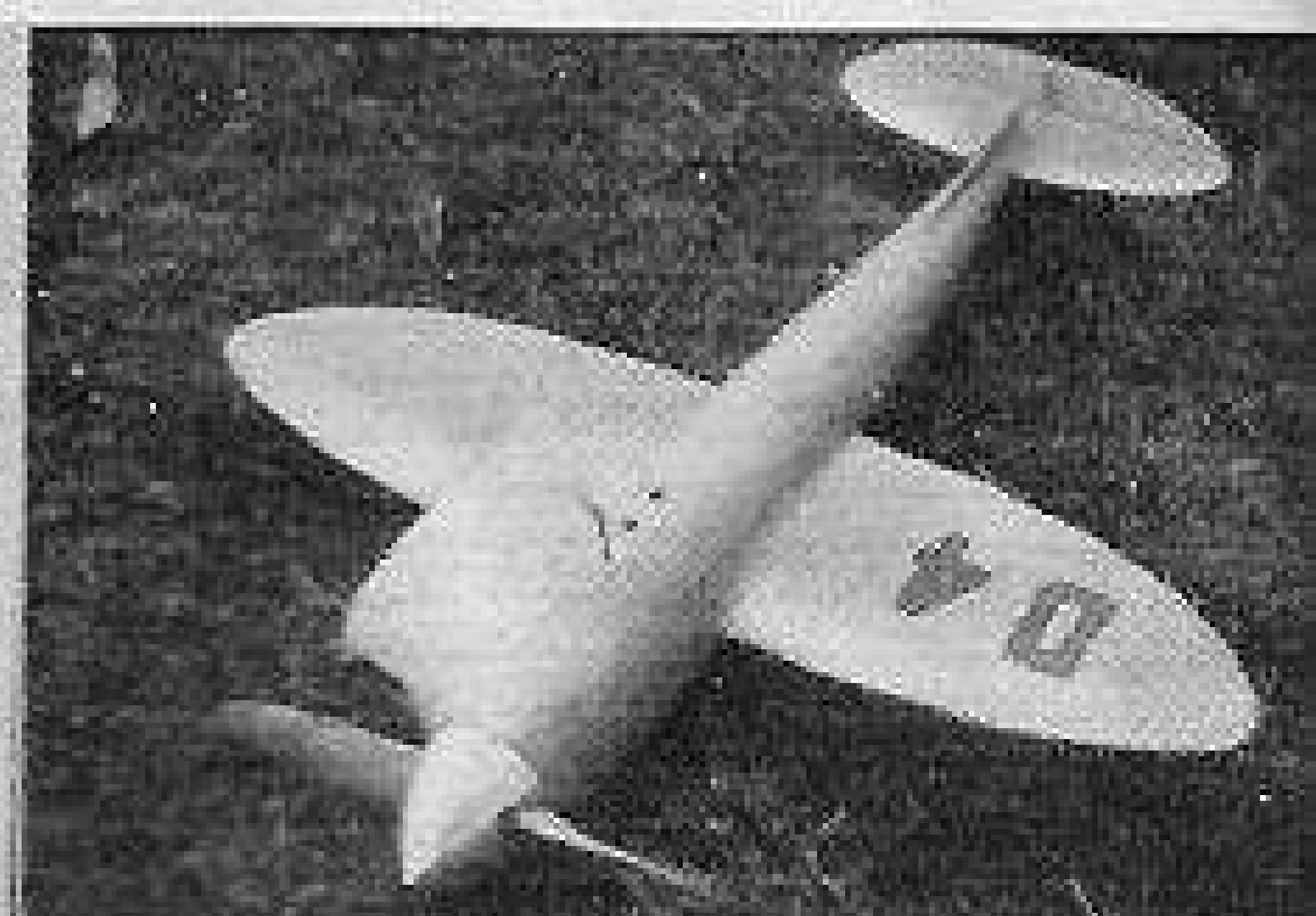
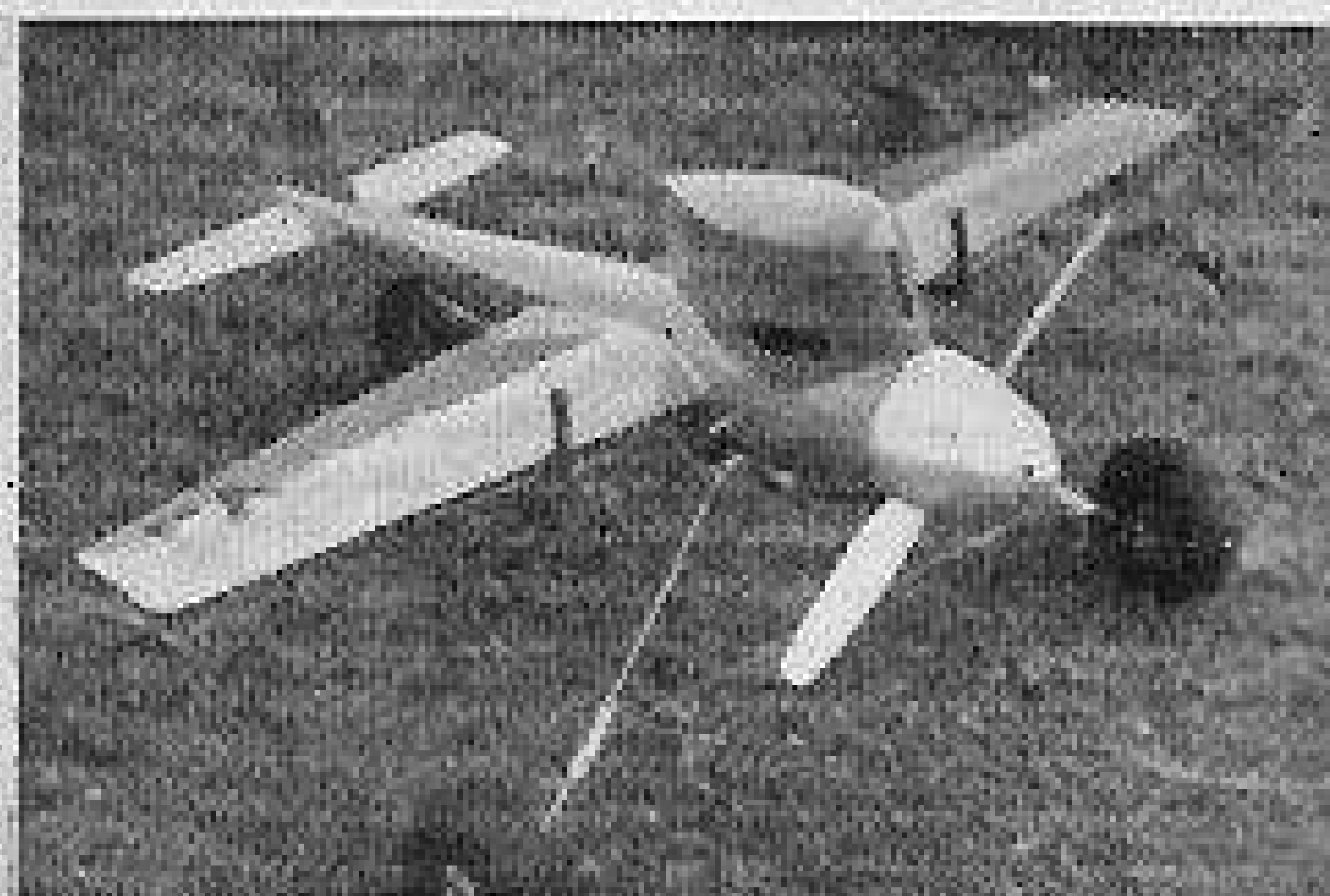
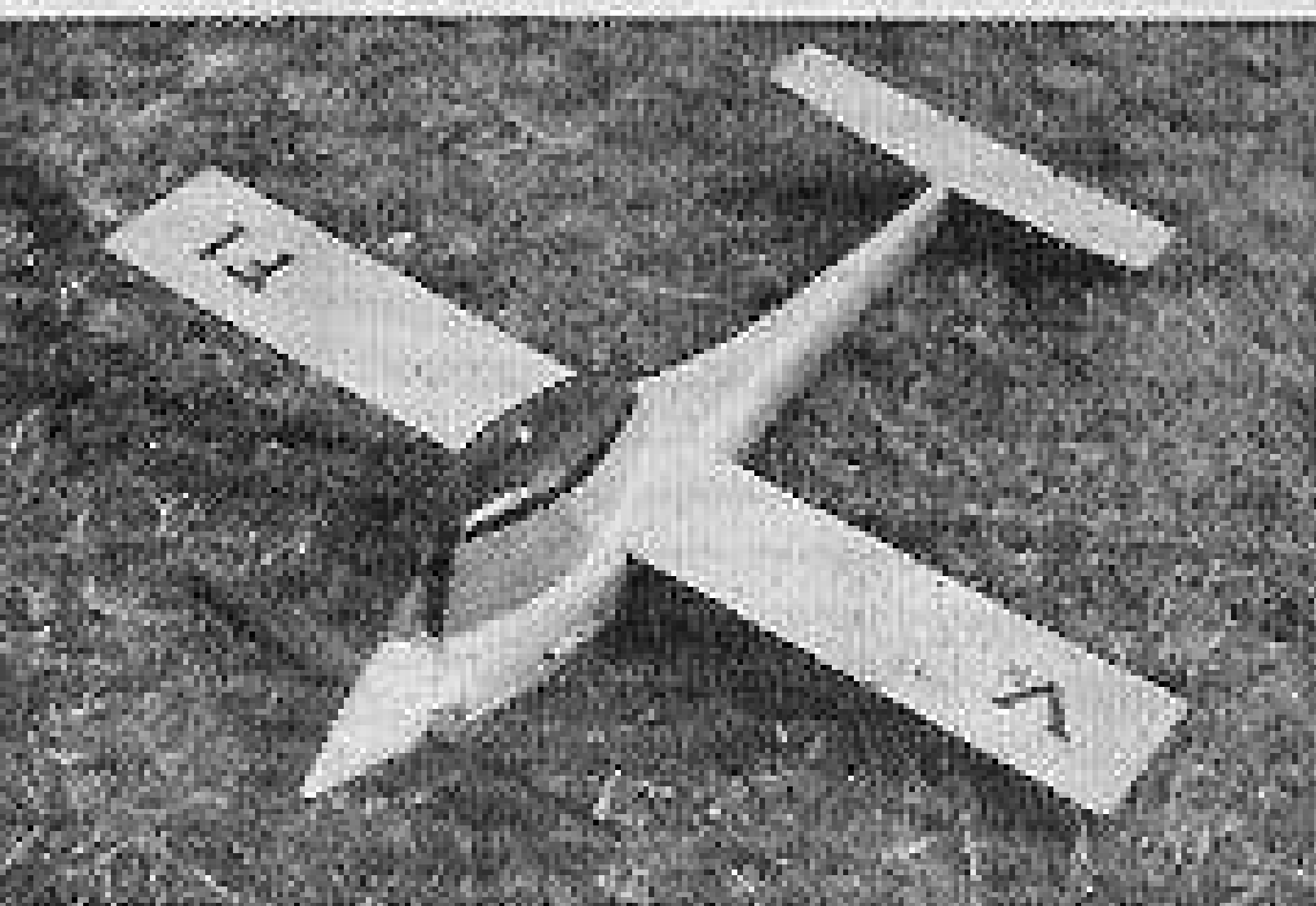
The speed of 163 m.p.h. does not now stand as an official record because of changes in rules, although the "SPEEDWAGON" design is still outstanding in controline speed circles particularly in the hands of its designer Harold deBolt, who is one of America's most successful speed flyers and model aircraft kit manufacturers.



SPEEDWAGONS shown in the photo on this page are the work of their designer, Harold de Bolt. They put up an amazing performance during 1949 and 1950 when the Speedwagon 50 averaged a speed of 150 m.p.h. throughout the season. In the 1949 American National Championships de Bolt won Class "A" speed at 117.88 m.p.h. using a McCoy 19 motor and Class "D" speed at 147.49 using a McCoy 60 motor. Harold also holds the American class "A" record at 128.52 m.p.h. and Class "D" at 152.48 m.p.h.

REPORT ON NEW MOTORS . . . . .	23	M/A NATIONALS PRIZE LIST . . . . .	33
SPEED CHART . . . . .	23	ROVING REPORTER . . . . .	34
HANDLING STEEL CONTROLINES . . . . .	24	"SPARROW" 24 in. Span Beginners Model . . . . .	35
CONTROLINE COMMENTS . . . . .	25	MAIL BOX . . . . .	37
CONTROVERSY PAGE . . . . .	27	TRADING POST . . . . .	39
M/A NATIONALS RULES . . . . .	32		

# THESE MODELS



## HAPPENINGS IN CONTROLINE SPEED FLYING

- ★ 192 M.P.H. WITH OXYGEN
- ★ BOOSTED 10 C.C. MOTOR

**C**ONTROLINE speed models, which long held the preference of the American controline flyer, have been neglected by his Australian counterpart excepting for a few small groups.

Bill Marden, who worked hard to help reorganise the Model Aeronautical Association of N.S.W. in the early post-war years, was certainly our leading speed flyer at that time, usually flying with motors he constructed himself.

Bill was, as far as we know, the first modeller in Australia to fly over the 100 m.p.h. mark.

Closely paralleling Bill Marden's progress was Allan Lim Joon of Victoria who at present is accepted as Australia's fastest with the recorded speed of 124 m.p.h.—although this does not now stand as an official record, because of changes in the rules governing speed controline flying.

*Harold Stevenson with his speed model in the starter. The model is an original design and is powered with a motor built by Harold from a set of Bill Marden castings. Col. Mudge is his assistant.*

The speed flying at the last Australian Championships was disappointing owing to the non participation of experts such as Tony and Bill Marden, Harold Stevenson and the failure of others to get their models going.

Overseas of course, the Americans are still the accepted leaders in speed flying, although great strides have been made on the Continent and England, particularly in the very small classes.

The most outstanding speed recorded to date must surely be the 192.12 m.p.h. attained by the team of Ed Novak and the well-known old timer Lou Garami, both topline American modellers.

This remarkable speed is not considered a record for the flight was not made under record rules.

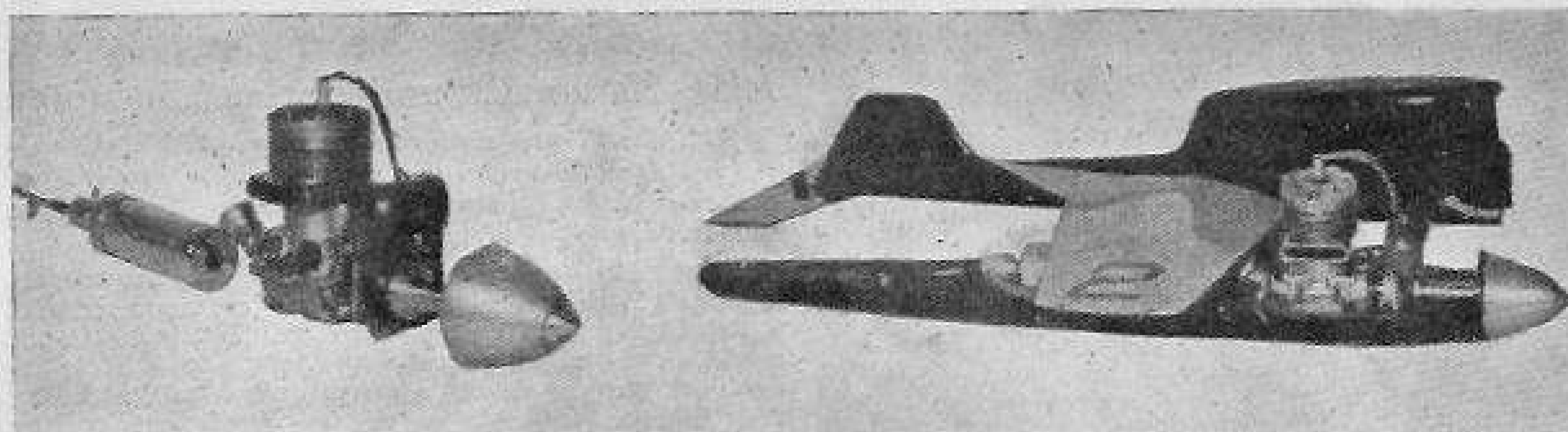
This speed is some 40 m.p.h. faster than the present U.S. official record speed—152 m.p.h. set by Harold De Bolt—and it is unlikely that it will be equalled in contest flying for a long while to come. The reason being that a pressure tank of oxygen was used to feed a stream of this all powerful element into the fuel intake of the motor, and so boosting the power output tremendously, and now its use has been banned owing to the extreme danger in its operation.

A few months after, "the fastest model" was flown, Louis Garami died, and so the model was polished and put on the shelf, having made its first and last flight 192 m.p.h. Think of it—a small model plane weighing two or so pounds—192 m.p.h.





# FLY FAST!!



*Left — 192 m.p.h. This is the power unit. A stock Dooling 61, magneto, oxygen tank and extension shaft.*

*Right — The model ready for final assembly, with the oxygen boosted Dooling and magneto in place.*

How was this terrific speed attained with what was an orthodox looking speed model?

The model, known as "Miss Frit C.," incorporated two entirely revolutionary features for speed model control line flying.

Firstly, the oxygen tank, already mentioned, and an especially designed magneto were fitted to the standard Dooling 61 motor. The only other added fitting to the Dooling was a rather long propeller shaft extension.

Many months were spent testing, checking and developing the motor/magneto set-up. On one occasion the spark from the magneto was so hot the points were melted from the spark plug. Testing the r.p.m. by a stroboscope, with a standard 10" diameter 10" pitch propeller, fitted with a 2" spinner, 14,850 r.p.m. was recorded. Using the same fuel and propeller but with standard battery ignition instead of the magneto, the best obtainable was 11,900 r.p.m. (the motor used on these tests was a McCoy). This wide difference was sufficient to satisfy Novak he had something in the magneto, which weighed but 4 ounces.

The oxygen was yet to come!

The oxygen was Lou Garami's idea, and several problems had to be overcome with the tank. Small size, refilling, and a means of feeding the oxygen to the motor.

Eventually Novak's father built up a suitable tank 4" long and an 1" in diameter, a modified tyre valve was fitted to the end and a needle valve assembly was used to meter the oxygen.

Feeding the gas to the engine presented a problem as the oxygen must not mix with the fuel in its raw state, and so a flexible feed line from the tank to a point just to the rear of the intake venturi was fitted. This allowed the oxygen to mix with air and then be drawn past the fuel jet and into the motor.

As the results show the combination of magneto and oxygen-boost proved to be outstanding, but the application of the oxygen boost idea need be thoroughly understood, or otherwise left entirely alone as oxygen and fuels can be a very dangerous pair. Added to this is the hazard of trying to make a pressure tank strong enough to hold the necessary 400 pounds pressure and be safe.

The orthodox type of speed model motor is quite fast enough for the average modeller, and offers many headaches to all, other than the rare expert.

Norm Bell of Victoria, who has been concentrating on speed for some time was the outstanding

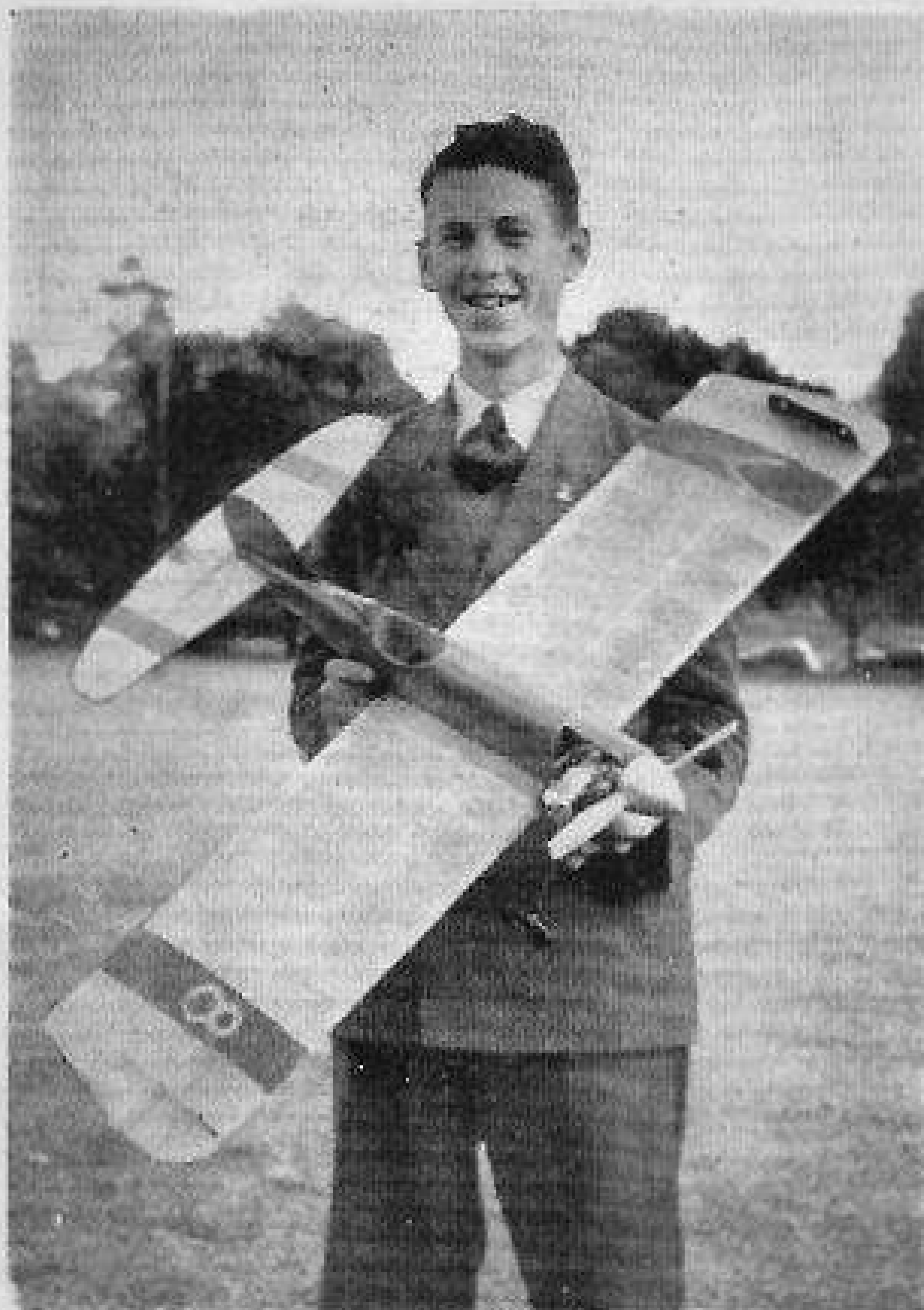
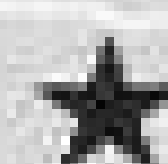
speed flyer at the 1950 Nationals. Norm's 106 m.p.h., with a Dooling 29 (5c.c. approx.) was the highest speed officially timed at the meeting.

Various opinions are seen and heard on speed flying, and construction of speed models, particularly on the materials used. Harold De Bolt, the top American speed man at present, uses an all balsa model whilst others demand metal fuselage bottoms, and others, models built entirely of metal, but there may be a reason behind De Bolt's use of the more easily handled balsa. He is a leading manufacturer of speed model kits in the U.S.A. and his kits have to be built by the average model builder, who is certainly not the metal worker necessary to construct some of the more advanced metal designs being flown at present.

Until a few months back the only motors available in Australia were not suitable for general speed work, although some of the small diesels did and do exceptionally well, but the appearance of reasonably priced gloplug motors such as the Frog 500 and the new Gee Bee 29 (McCoy type) may make the flying of speed models more popular, as both of these motors, and others like them, although not considered "Super-Hot" racing motors, should be capable of surpassing the 100 m.p.h.

*Jack Black with his Ela 29 powered speed model. This model was previously powered with a French Delmo 5 c.c. Diesel, and is Jack's first attempt at speed flying, although he has reached the top in most other forms of aeromodelling. A Beaufighter pilot during the war, he now is a Captain Pilot with A.N.A.*





Johnny Lamont, member of the E.S.M.A.C., holding the Super Skylark with which he won the Australian Junior Stunt Championship in the 1950 Nationals.

- ★ 1950 NATIONAL JUNIOR
- ★ CHAMPION STUNT
- ★ MODEL

# SUPER SKYLARK

Designed by  
JACK HEARN  
FOR 5 C.C. MOTORS

## SUPER SKYLARK

### 1950 Nationals Junior Stunt Champion

**T**HIS model was designed for the 1950 Nationals by Jack Hearn and built by John Lamont of the E.S.M.A.C. club eight weeks before the Nationals.

It was built around the new Frog 500 glo motor, although it has since proved itself just as successful with other 5 c.c. capacity motors. Johnny Lamont could do no more than a few loops and a little inverted flying up to this time, but after building the "Super Skylark" he became proficient at the proverbial book in just a few week-ends. The design is of the simplest type of construction and is quite strong enough to withstand the usual crashing routine one experiences when learning to stunt. The control system if used smoothly will respond in an even manner but if in trouble at any time full back or full forward on the controls usually brings you out of trouble.

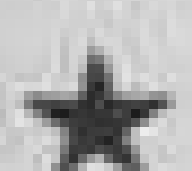
#### Construction details:

Full size plans are available. The fuselage sides are cut from  $\frac{1}{8}$ " sheet and assembled around the tank and ply bulkheads the control plate is mounted on the bottom engine bearer and is easily accessible from the bottom of the fuselage. The top of the fuselage is planked and the rear block balsa, the cowl blocks are cemented in place and carved on the model. Carve the nose to suit the spinner and motor used. The tank should be of the wedge type with the fuel line directly in line with the carburettor induction (see plan) cement in position with block balsa. The tank set-up is one of the secrets to good stunting. If the plan is not followed correctly you may as well give up now. The rudder is made from 1 m.m. plywood and is cemented to the fuselage top, the tail plane is made from  $\frac{3}{16}$ " sheet balsa. Now when fitting the hinges, push rod, elevator horn and control plate, all should be made as good a fit as possible. Slap happy methods are not good enough if you want to become a top-line stunt man. If the model hunts all over the manoeuvre check the linkage system and you will find all the slop which causes those crashes when the pilot remarks, "I gave her up, and she just went straight in."

The wing construction is of the simplest construction: Leading edge  $\frac{1}{8}$ " sq; main spars  $\frac{1}{8}$ " x  $\frac{1}{8}$ " hard balsa  $\frac{1}{8}$ " x  $\frac{1}{8}$ " trailing edge, centre section ribs are made of  $\frac{1}{8}$ " balsa. The remainder 1-16" sheet; the wing tips are  $\frac{1}{8}$ " sheet; cover centre section with 1-16" sheet balsa. Cement lead weight to outside wing tip and wing guide on inner tip. Cement all joints well and when dry cover with rag tissue. Give two coats of dope and one coat of fuel proofer. When the fuselage is completed make sure wing fits neatly in cradle and when viewed from the front of model the wing should sit squarely to fuselage and tailplane.

Two loops of  $\frac{1}{8}$ " x 1-24" rubber is sufficient to hold wing to fuselage. The advantage of the removable wing is in the advent of a crash. Little damage is done and quick examination of the control system can be made.

Well you future stunt champs its now up to you, happy flying.



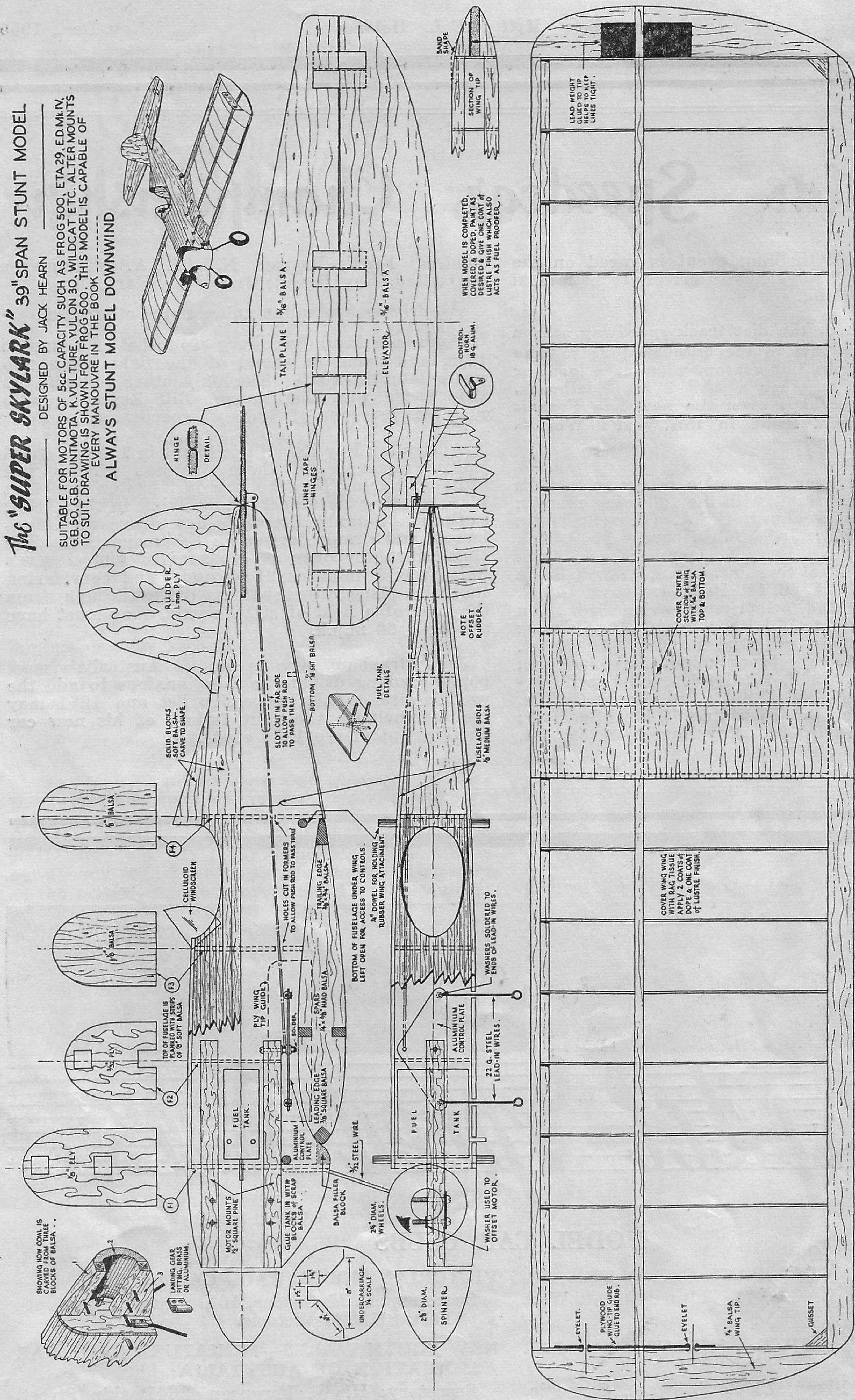


# The "SUPER SKYLARK" 39" SPAN STUNT MODEL

DESIGNED BY JACK HEARN

SUITABLE FOR MOTORS OF 5cc. CAPACITY SUCH AS FROG 500, ETA 29, EDM 4V, GB 50, GB STUNTMOTA, K. VULTURE, YULON 30, WILDCAT ETC. ALTER MOUNTS TO SUIT. DRAWING IS SHOWN FOR FROG 500. THIS MODEL IS CAPABLE OF EVERY MANOEUVRE IN THE BOOK

ALWAYS STUNT MODEL DOWNWIND



STEPS IN FUSELAGE CONSTRUCTION . . .

1 JOIN FUSELAGE SIDES WITH FORMERS 1, 2, 3 & 4. NOTE THAT TANK MUST BE FITTED AT THIS STAGE . . .

2 GLUE ENDS TOGETHER

3 ADD LANDING GEAR, MOTOR MOUNTS & CONTROLS

4 NOW ADD PLANKING, FAIRING BLOCKS, COWL, BLOCKS & DOWELS. FUSELAGE IS NOW COMPLETE.

**SPECIFICATIONS:**—Wingspan, 39 ins.; wing chord, 9 ins.; wing area, 340 sq. ins.; tailplane span, 17 ins.; T/P chord, 5 1/4 ins. max.; fuselage length, 21 1/4 ins., not including spinner; maximum fuselage depth, 4 1/2 ins.; power, 5 c.c. motor.

Note Scale in bottom right hand corner for enlarging plan, which is quarter full size.





# World's Speedcar Championship

Each year this thrilling event is raced on the Sydney Speedway Royale, with drivers from several countries competing.

**T**HE approach of the dirt track speedway season brings thoughts to the enthusiast as to who will rule the tracks this season, whether a local or overseas driver, whether a JAP 8/80, Edelbrock, Eddimeyer, or perhaps even the new Lea Francis will lead the field home in this year's World's Championship.

Australia has been the venue of seven world's speedcar championships, with the following results: 1938, 1st, Paul Swedburg, U.S.A. (Elto Special); 2nd, Cec Garland; 3rd, Bob Hoare. 1939, 1st, Bill Reynolds, G. Britain (four wheel drive "Skirro"); 2nd, Paul Swedburg, U.S.A.; 3rd, Beale Simmons, U.S.A. 1940, 1st, Paul Swedburg, U.S.A. (Offenhauser); 2nd, George Beavis; 3rd, Lou Murphy. 1941, 1st, Bill Reynolds, G.B. (Skirro); 2nd, Jim McMahon; 3rd, Stud Beasley. 1947, 1st, Cal Niday, U.S.A. (Edelbrock); 2nd, Chas Lindberg; 3rd, Sel Payne. 1948, 1st, Ray Revell (Ford Special); 2nd, Cal Niday, U.S.A.; 3rd, Perry Grimm, U.S.A. 1949, 1st, Bob Playfair (V8 Ford Special); 2nd, Andy McGavin; 3rd, Ray Revell. 1950, 1st,

"Satan" Frank Brewer, N.Z./U.S.A. (Eddimeyer V8); 2nd, Ray Revell; 3rd, Alan Marshall.

All drivers Australian unless noted otherwise.

American Paul Swedburg won the first world's title, and came in ahead of the field again two years later in 1940. The only other to gain the title twice was Englishman, Bill Reynolds, who now manages one of Sydney's speedways.

Australian Ray Revell tried hard in 1950 to equal the performance of these overseas drivers, but although racing hard he was just beaten into first place by New Zealander—now living in the U.S.A.—Frank "Satan" Brewer. Ray drove an Offenhauser and Frank Brewer an Eddimeyer V8. The time taken to cover 20 lap race of almost seven miles was 7 minutes 21 seconds, and considering that the placegetters had to drive through from the rear of a field of sixteen cars, they must have averaged 60 m.p.h.

Jack Brabham, who is one of Australia's most popular young drivers, is most anxious to add the world's title to his impressive list and 1951 may see him achieve this, but failure of his new car put him out of the 1950 event.



## Model Speed Cars

### MODEL CAR CLUBS

#### QUEENSLAND MODEL RACE CAR CLUB:

Secretary: Mr. H. Gill, 71 Vulture Street, West End, Brisbane.

#### VICTORIA—RIVERSIDE MINIATURE CAR CLUB:

Secretary: J. Flynn, 19 Lord Street, Carnegie, S.E. 9, Victoria.

#### VICTORIAN MODEL RACE CAR CLUB:

Secretary: R. M. Cosens, 16 Darling Street, South Yarra, S.E. 1, Victoria.

#### NEW SOUTH WALES—MINIATURE RACE CAR ASSOCIATION OF AUSTRALIA:

Secretary: H. W. Ferguson, 26 Deakin Street, Auburn, N.S.W.





## Victorian Record Attempts

Reported by Monty Tyrrell

The V.M.R.C.C. recently conducted a record trial meet at their Como Park track.

The day was marred by a stiff breeze and intermittent showers, which kept the track slippery, and cut down the potential speeds of the cars.

Poor weather was also responsible for a large part of the expected crowd of spectators staying away, but nevertheless there was quite a crowd of lookers-on.

Some spectacular racing took place.

Racing commenced at 1.45 p.m. and no outstanding speeds were recorded till Lee Margot's job hit 100.6 m.p.h. M. Hunter had previous best at 74 m.p.h., K. Woods (N.S.W.) 68 m.p.h.

Lee was using a Dooling 61 Challenger type car. Hunter used an own-make motor, Proto job. The N.S.W. car was also powered with a Dooling proto job.

The highlight of the show was when Eric Price's Dooling 61 Challenger opened out and did 113 m.p.h. A new Australian record. On test runs in the past weeks this car had clocked 112.5 m.p.h. and 110 m.p.h. It is a beautiful model with a balsa body, which has a mirror finish. The liner of the motor has been chromed. The fuel cut-out switches off both fuel and ignition, but at 113 m.p.h. the car appears as nothing can stop it.

Results: Eric Price, Vic., Dooling 61 Proto, 1st—113 m.p.h.; Lee Margot, Vic., Dooling 61 Proto, 2nd—100.6 m.p.h.

Highest Interstate contestant: Walley Sinclair, N.S.W., Dooling 61 Proto—94 m.p.h. (five N.S.W. cars competed).

Electronic timing was used on all runs.

Timers: Mrs. J. Rowles, Norm Bell (Model Aircraft National Champion 1950). Track Steward: Len Thompson.

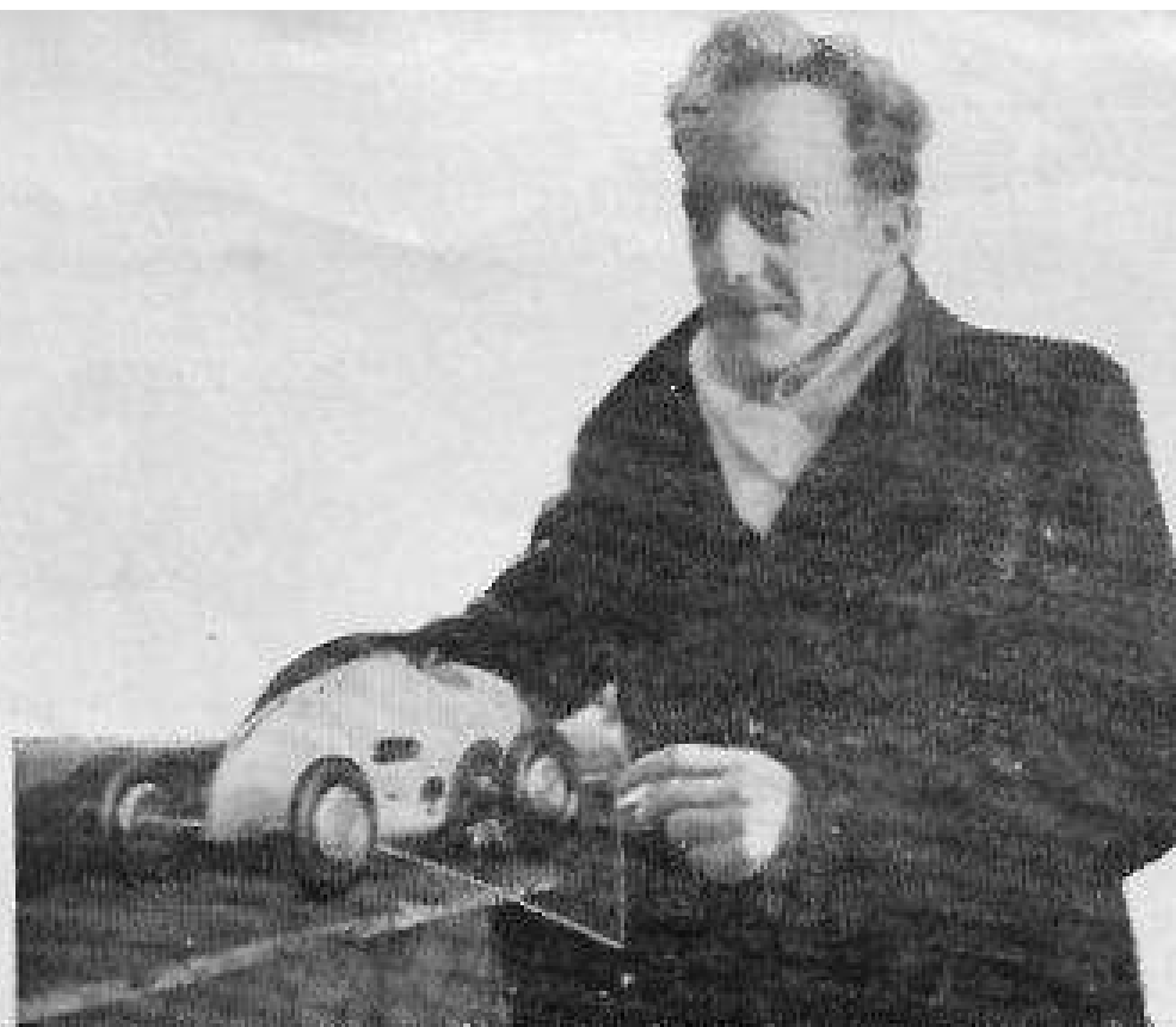
*From Top to Bottom—*

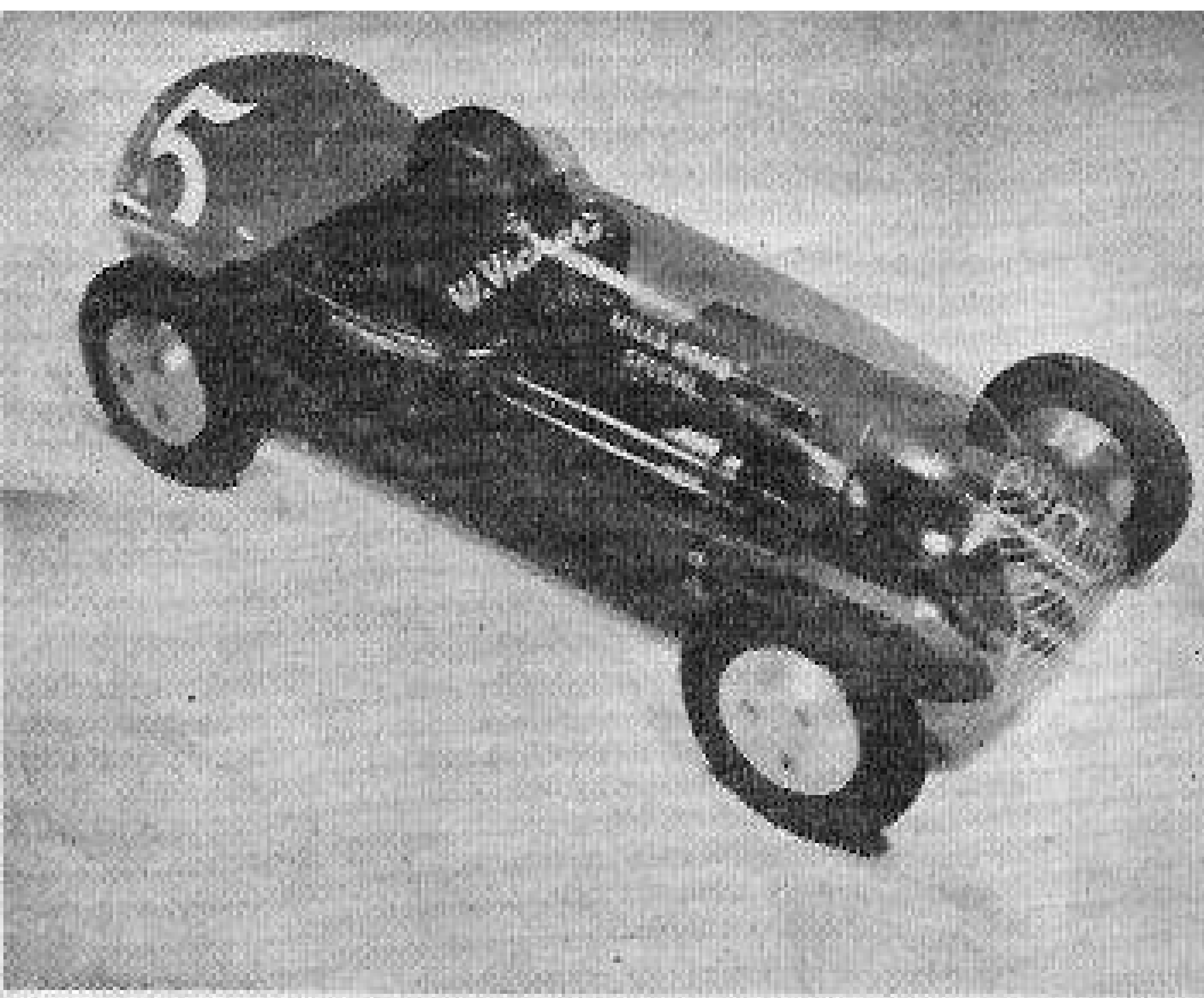
Lee Margot with his Dooling Powered Proto, which recorded the speed of 100.6 m.p.h. during the meet. Jack Rowles getting his Spur Gear Marbo Powered Car under way. Note the condition of the track.

Wally Sinclair (far right) recorded the highest time of the Interstate cars present. Photo shows the visiting N.S.W. team.

In spite of all precautions cables do break, but adequate fencing provides the protection necessary when these cars hurtle from the cable.

—Photos by Monty Tyrrell.





# Mills Bomb

On of the most interesting cars at present being raced in Victoria, the Mills Bomb is the work of Wes Vickers, of the Riverside Miniature Car Club.

The motor originally started out in life as a Mills Mk. I diesel. When most of the 10 c.c. boys began using rotary valve motors, Wes was quick to realize that this type of induction was much more suited to Miniature Car work and immediately set about converting the "three-porter." As a result there is very little of the original motor left, and, in its present form, the Mills is a very efficient piece of machinery indeed. The chromed twin exhaust pipes, besides adding to the appearance, keep the car free from the oil and half burnt fuel which is so common to diesel engines.

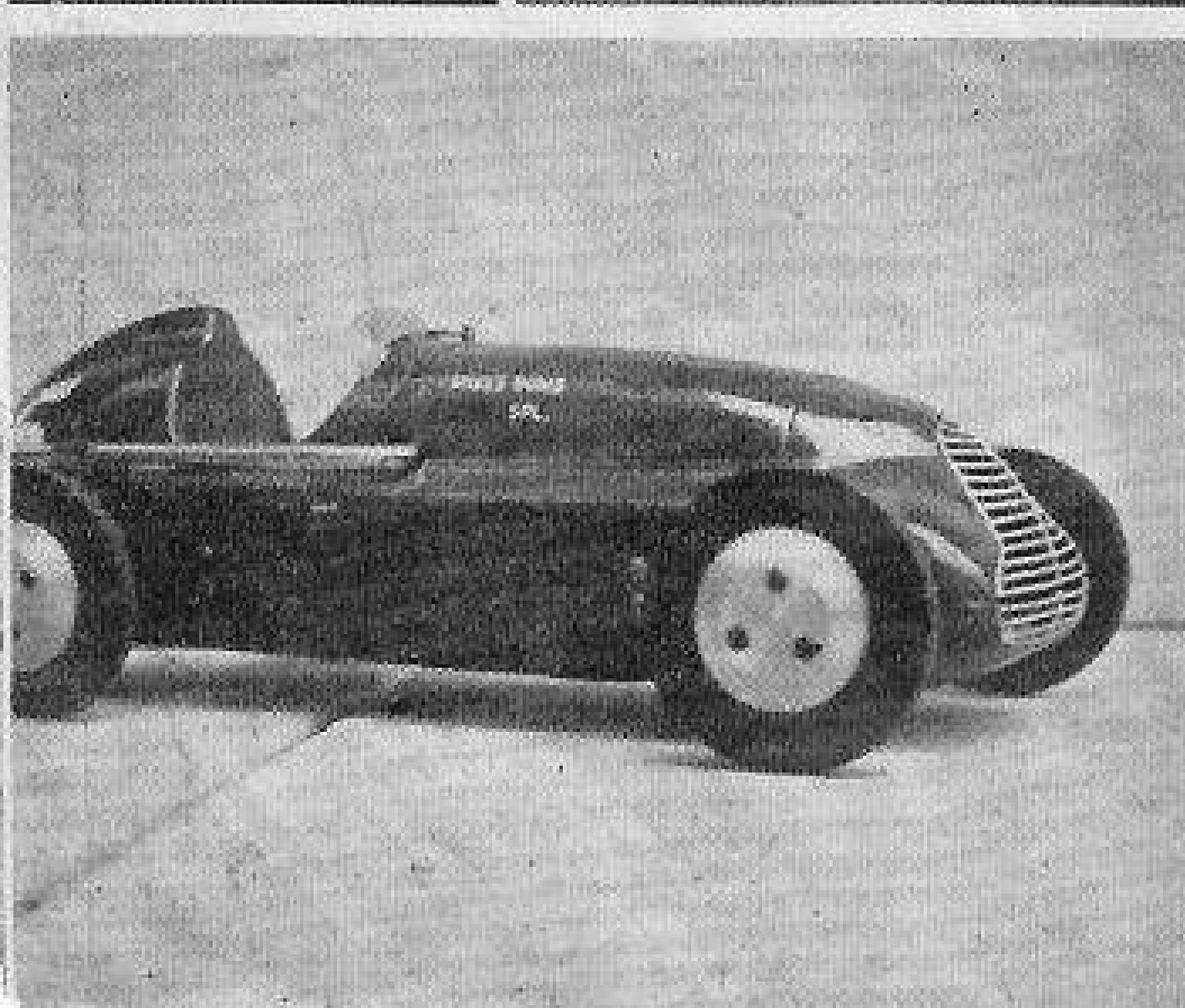
Maple is used for the chassis, in conjunction with an aluminium sub-frame which carries the power plant. Drive is transmitted to the front wheels via a friction drive and special clutch. The principle of the latter is that the spring-loaded driven member of the friction drive is held out of engagement by a trigger and released by centrifugally actuated bobbins when the car is pushed off. The operation is remarkably smooth and trouble free and in the event of the car leaving the track, disengagement takes place automatically. Rear suspension is by independantly sprung half axles which really "swing" and give a very smooth ride.

The fuel shut-off valve is of the positive stop type and is connected to a conventional "antenna." Starting is always a matter of seconds only, and is effected by holding a push-bike wheel against the flywheel, which has an aluminium ring pushed on for the purpose.

The body is built of balsa and is of freelance continental styling and beautifully executed. Numerous coats of dulux, each carefully rubbed down, give a remarkably good finish in Royal Blue with the Club colour patch, white racing numbers and perspex windshield adding to the effect.

The solid 2½" tyres are made from insertion rubber and carried between dural discs. All-up weight is 2½ lbs.

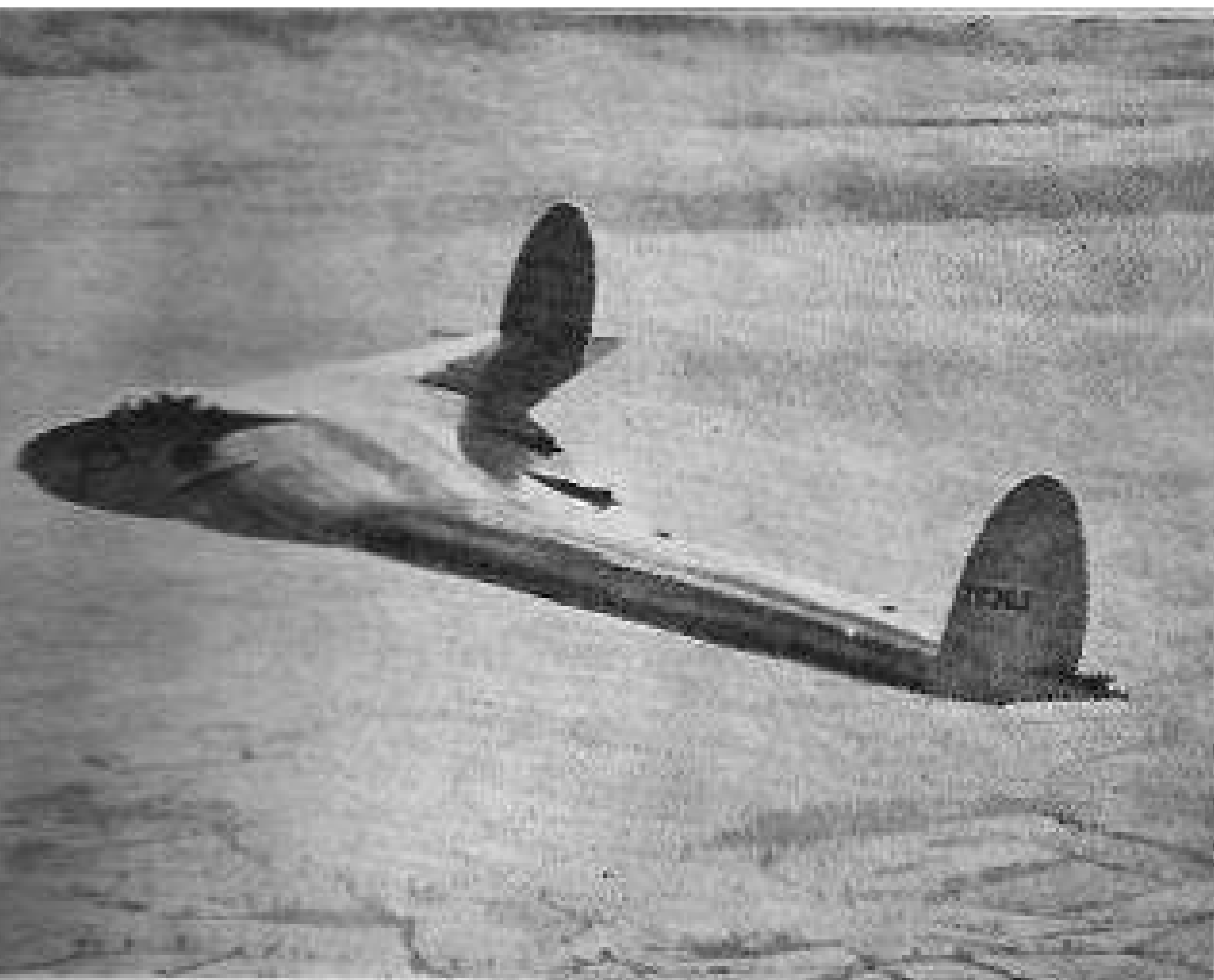
Using approximately 2:1 gear ratio, the car has been clocked consistently at 36 m.p.h. over all distances up to a mile.



*Top—Ghosted view showing the Mills Bomb's Works. Note the ram on fuel tank and friction drive arrangement.*

*Centre—Indoor racing for charity is all in a day's work with the "bomb." Fueling up and pushing off is Miss Elwyn Pretty — but definitely!*

*Bottom—The car, with all in place, ready for the track.*



design a full scale section of a wing suitable for laminar flow drag tests in the Wind Tunnel of the National Physical Laboratory. The specimen was approximately six feet chord by eight feet span, and the constructional problem was to design and make this wing structure in sheet metal so that the surface variations from a smooth curve were only a few thousandths of an inch, and the structure weight was no more than that of an orthodox wing. This first attempt was satisfactory and the report on it's tests showed that the profile drag had been reduced to one half the usual value, and the wing maintained laminar flow up to 60 per cent. of the cord.

Since with the conventional design of aircraft the bulk of parasite drag is in the fuselage, tail unit, engine nacelles, plus the interference drag,

## BRITISH DEVELOPMENT OF THE FLYING WING

**Is the Jet Engined Tailless Aircraft the answer to Airliner Design?**

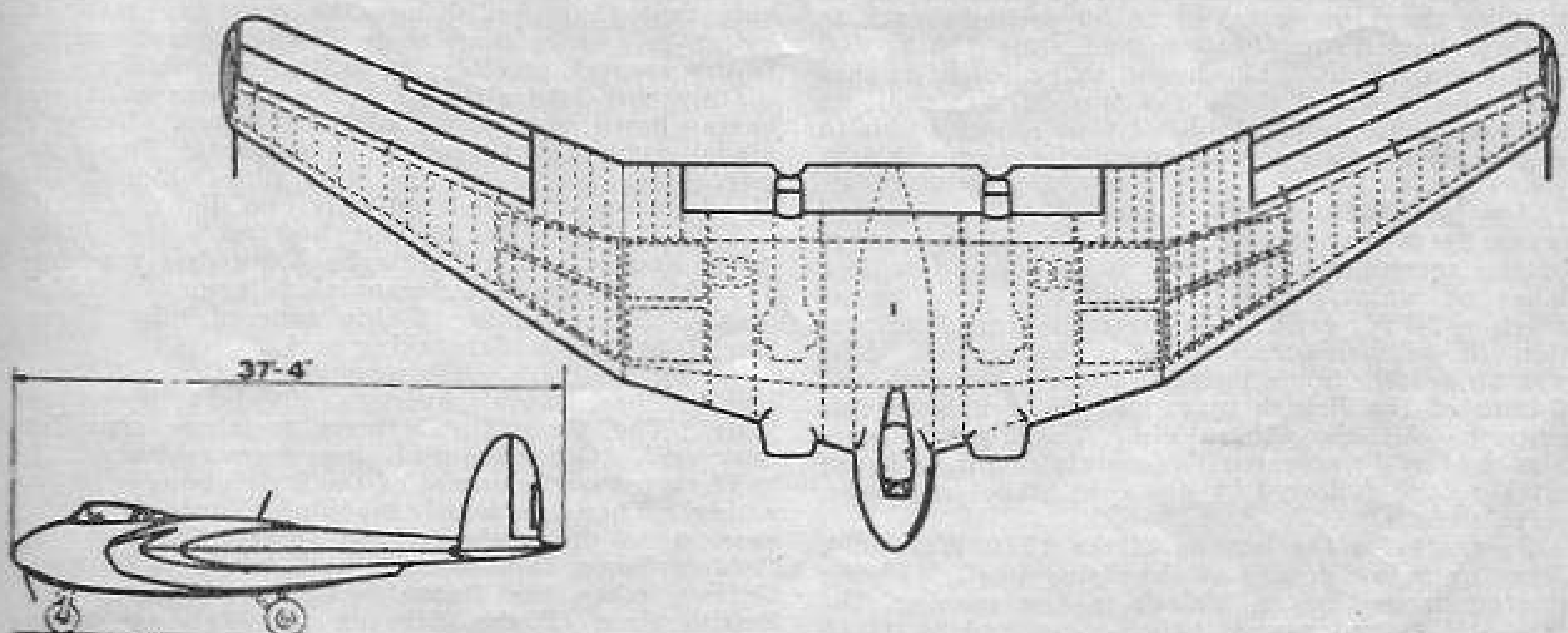
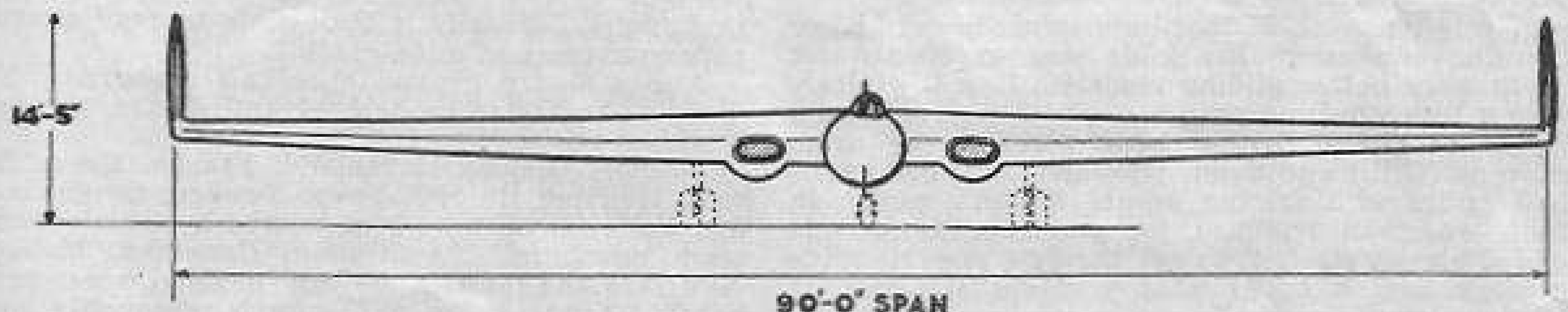
### *Advantages of Jet Engined Tailless Aircraft*

There is a great deal of work to be done in the research and development of tailless aircraft, and although good progress has been made on the design of laminar flow swept-back wings and tailless aircraft, there are many problems to be solved. During the past eight or nine years considerable interest has been shown in laminar flow airfoils, and in 1942 Armstrong Whitworth Aircraft Ltd., of England were invited by the Directorate of Scientific Research of the Ministry of Supply to

the conclusion was obvious that if these could be eliminated and the remaning profile drag of the wing halved by laminar flow construction, the ideal conditions would be achieved, since the total parasite drag would be reduced to about one-third of the usual value.

In the case of the flying wing, everything would have to be stowed inside and the height of the passengers then determines the wing thickness and subsequently the size of the aircraft, and it is estimated that the minimum economical size

(Continued on page 38)



AW52 (E.9/44) TWIN JET TAILLESS AIRCRAFT.



**T**HE 1950 Wakefield, held at Jämijärvi, Finland, in not only "still" but "dead" air, has set a new standard for design. By winning the coveted trophy for the second year in succession Aarne Ellila has established himself as the world's number one Wakefield flyer. His model was very much the same as last year—a lighter airframe, cleaned up aerodynamically, but with the same return gear system. Furthermore, he proved that he had a model capable of four minutes plus in absolutely dead air conditions. There was no doubt that the best model won—and the best flyer.

It is fairly safe to say that the majority of foreign entrants were not flying their models at their best trim for the prevailing conditions. This is a very important point. Models normally flown under windy conditions are usually trimmed for a fast climb to a good height. Under dead conditions the slower, prolonged climb usually pays off.

The difference between Ellila's model and the best of the remainder was basically that Ellila with his return gear system had a climbing duration of in excess of 100 seconds. No other model approached this power run. His model was also



*Aarne Ellila, of Finland, winner of the 1949 and 1950 Wakefield contest, shown here with his 1949 model. The 1950 version was of the same general design, but incorporated some refinements.*

## A WAKEFIELD REPORT

★ The Premier International Model Aeroplane Contest

★ Described by one of the Contestants

perfectly trimmed, so that he eventually got higher than anyone else. His glide was excellent, but there were better gliding models. Leardi of Italy with a free wheeling prop had a better glide; so did Evans of Great Britain with a feathering prop. Stevens (G.B.) and Seton (Holland) also had excellent glides with folding props. Seton's model, in fact, was well trimmed for the conditions. It glided almost straight to get the best possible glide performance, although that was not the sort of trim one would normally use in windy weather.

Where Ellila scored was in the fact that nobody, however good their model on the glide, could afford to give the Finn some 40 to 50 seconds start as regards power run duration, and some 100 to 200 feet extra height. The lesson to be learnt is that with the 1951 Wakefield again in Finland, no model which is not capable of four minutes plus in absolutely dead air is going to stand a chance in next year's finals.

Another feature which severely handicapped many flyers was the extreme damp. By the start of the second round models were covered with a layer of water. Weights went up, some by as much as 50 per cent., with corresponding deterioration in performance. A truly waterproof dope was an asset. Some modellers had it. Evans and Adams of the British team had no trouble in this respect. All the others did. The French team also had a "waterproof" formula. One coat of nitrate dope followed by one coat of acetate dope, or vice versa.

So much for the lessons of the 1950 Wakefield. Now for a few details of the flying itself. Flying started around seven o'clock in the evening, the first and second rounds being completed by 10.15 p.m. Light was poor by then (although it never gets completely dark through the summer nights

in Finland. Usually it is possible to read a newspaper outdoors at midnight!)

Also a heavy ground mist had appeared. The final round had to be delayed until 5 a.m. the next morning.

Belgium, Denmark, Finland, France, Great Britain, Holland, Italy, Norway, Sweden, Switzerland, and Yugo Slavia were represented by their selected team members. Australian, Canadian, Monaco, New Zealand and American models were flown proxy. There being not enough reasonably competent Finnish proxy flyers a number of Swedish modellers assisted in this respect. It was noticeable that the Swedish proxies generally made a better job of it than their Finnish counterparts. In this respect, possibly, Australia was unlucky.

Only two Australian models were present, these having flown over with the British team. Butler's model completed three rather moderate flights to aggregate 324.1 seconds and place him 29th. Meader's model completed only one flight.

The New Zealand models had no better luck. After excellent first flights by Kennedy's machine (174.5) and Marsh's perennial "diamond" (163.5 secs.), the remaining flights tapered off. There were four N.Z. models taking part.

As far as team performances go, Great Britain had the best overall average, closely followed by Italy. The three Dutch team members also did very well. Other team placings were scattered.

The good performance of the Dutch boys is interesting. They flew mostly modified "Kordas." Subsequent to the Wakefield an International F.A.I. Rubber Team Contest was held in Paris in September, when the Dutch team won, beating the British team (Evans, Stevens and Warring) by a narrow margin.

(Continued on page 39)

# RADIO CONTROL

## NEWS OF SUCCESSFUL MODELS

Early in October what is thought to be the first successful radio controlled model aircraft flight in Victoria took place.

The model, an American designed "Rudderbug," completed nine successful flights under full radio control, at times at a range of up to half a mile.

Spiral dives and two way turns were accomplished, and with a little more experience the builders hope to perform advanced manoeuvres.

The model weighs six pounds and the Frog 500 motor provides ample power swinging a 10" diameter 6" pitch propeller. Radio equipment is a modified E.D. unit which was worked on by Reg Cooper.

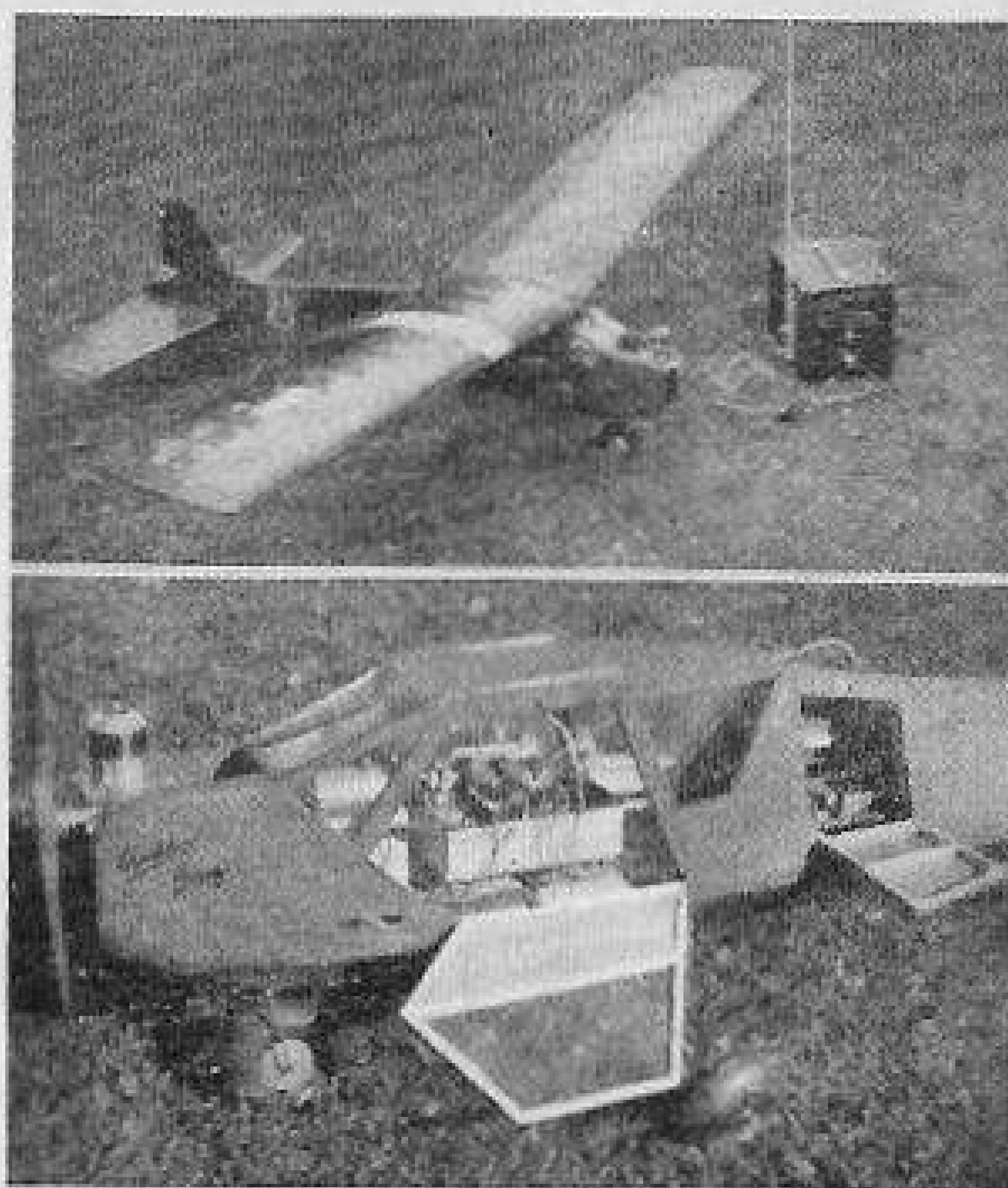
Jack and Arthur Smith built the model, but it is now the property, and was flown by, Jack Hearn.

A **Radio Control Event** is included in the next National Championships to be held in Adelaide at Christmas, and with successful models reported from three States and more under construction in the others, this event should prove most interesting.

Rod Ashton, secretary of the West Australian M.A.A., has the only radio controlled model flying in the West. The model is a 7½ foot "Super Buccaneer" designed by American, Bill Effinger. The radio is Good Brothers' equipment, and the model is powered by an Ohlson 60.

Rod says, since getting into radio controlled flight seriously—about two years ago—I have learnt plenty, the hard way! However, it is only recently that I have reached the stage where I can safely rely on the aircraft and the radio gear to do what is asked of it, and then only after strict adherence to checking drill before flying. I have found radio control to be an extremely exacting and at times frustrating game. The thing to be remembered is that no matter how perfect aircraft, radio, and weather may be, there is always the human element in the pilot to gum up the works! Notwithstanding, I have had one or two very interesting flights, during which, being at the controls, seemed to make up for the work put in on the job. Surely the most satisfying moment in my modelling career was the touching of the control key, on the transmitter, hearing the click of the escapement, see the rudder jump, and watching the model put a wing down sharply and turn up wind to come floating in over the antenna and land 20 yards away.

The control is rudder only, with rather a large surface moving a small distance (1" each way from neutral). A trim tab is also fitted so a straight glide can be obtained. One of the most difficult trimming jobs is to obtain a straight glide and power flight with the rudder at neutral.

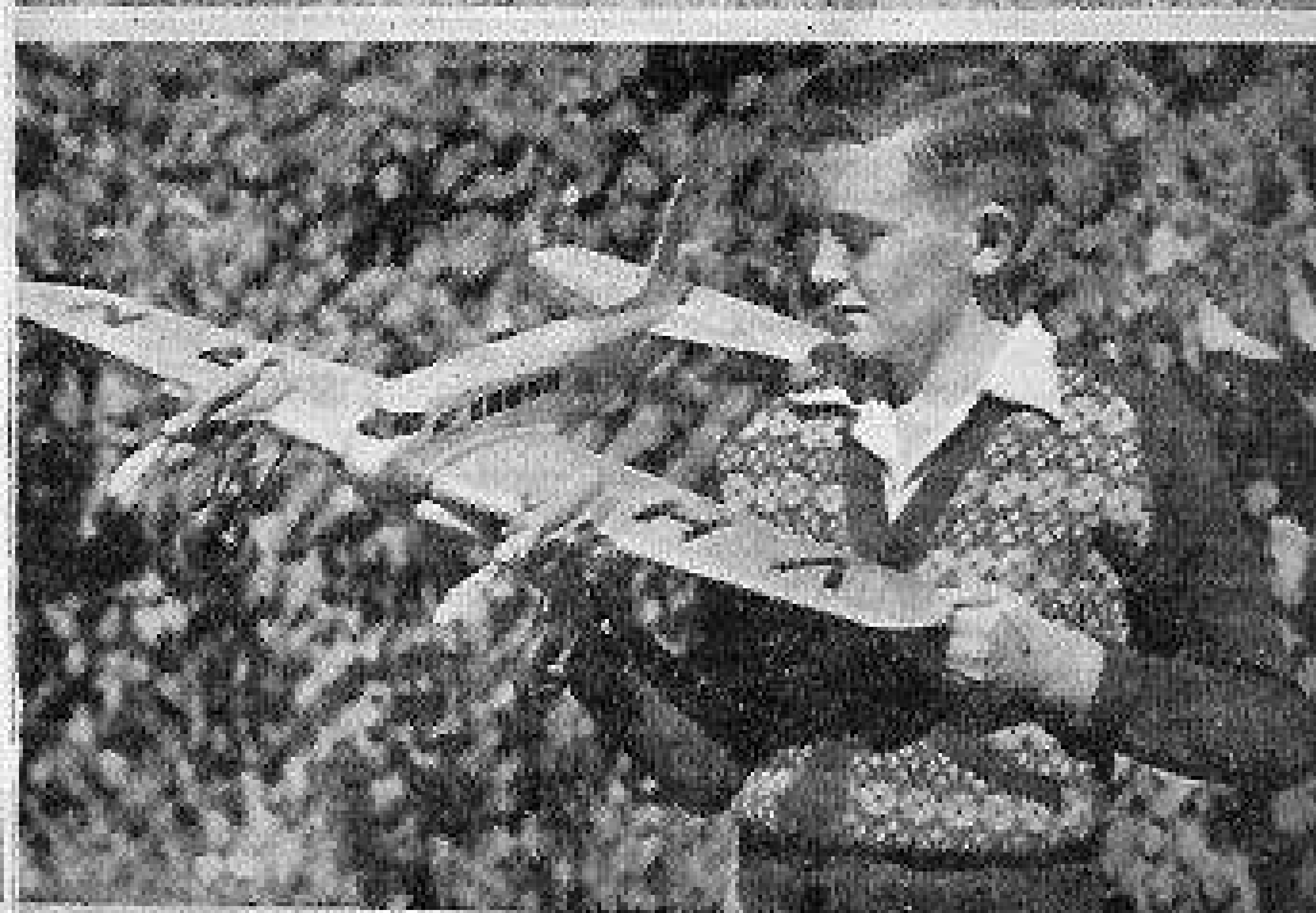
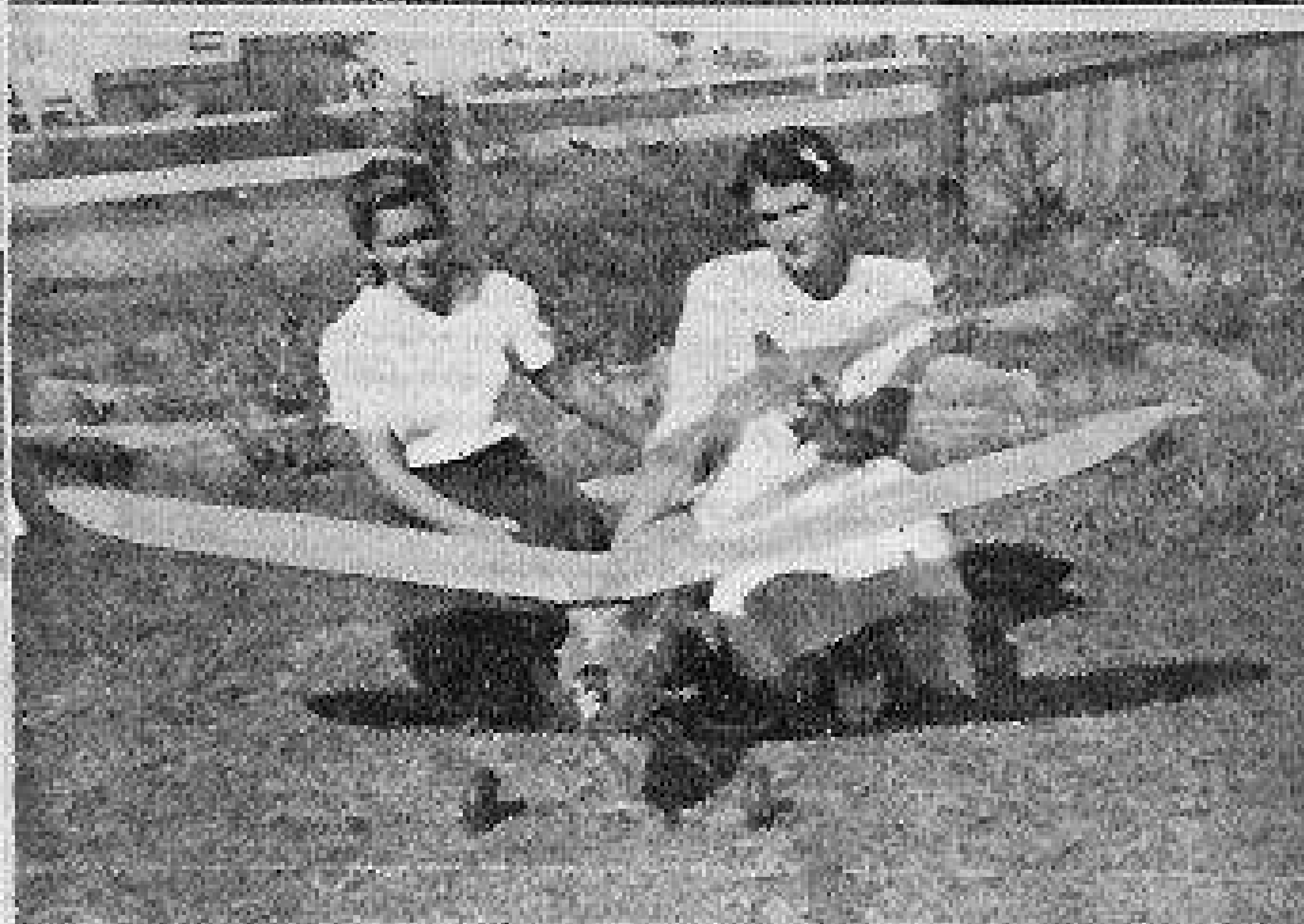


*Photo shows what is thought to be the first successful radio controlled model flown in Victoria. Jack and Arthur Smith built the model, a "Rudderbug." Reg. Cooper installed, modified and trimmed the radio gear, and Jack Hearn flew the model. All are members of the E.S.M.A.C.*

## A DOZEN WAYS TO KILL AN ORGANISATION

1. Don't go to any of the meetings.
2. But if you go, go late.
3. If the weather doesn't suit you, don't think of going.
4. If you do attend, find fault with the work of officers and members.
5. Never accept an office. It is much easier to criticise than to do things.
6. Get sore if you are not appointed on a committee. Should you be appointed, don't attend any of the committee meetings.
7. If asked to give your opinion on some matter, tell the Chairman you have nothing to say. After the meeting is over, tell everyone how it should be done.
8. Do nothing more than is absolutely necessary. When others roll up their sleeves and unselfishly use their ability to help matters along, howl that the organisation is run by a clique.
9. Hold back your dues as long as possible, or don't pay them at all.
10. Make no effort to get new members for the club.
11. Don't be sociable either within or outside of organisation headquarters.
12. If you should get a good idea, smother it at once.

—"The Model Railroader."



# .. CLUB NEWS ..

## *Western Australia.*

Air Force Week the model clubs around Perth participated in the aerial pageant at Pearce Aerodrome.

Team racers, stunt, and speed models were flown. Ken Salter dived his ETA powered Stuntwagon into the concrete airstrip, smashing the engine to pieces. It was a brand new engine and truly a hard piece of luck. Don Hall and Noel Mitchell were outstanding in the team racing. Five new AMCO 3.5's appeared, two in flying wings and another in a DeBolt Sportwing, flown by Ross Jenkins around the 60 m.p.h. mark. Rod Ashton had his new Mercury Monitor, doing the full pattern. (Rod, we understand, will be attending the NATS in Adelaide). Brian Holding's—our secretary—Focke Wulfe 190 suffered with motor trouble—McCoy 19. Don Hall's beautifully built "Screamer" powered with his home made "Hornet." This motor pulled a 48" wingspan stunter around at 89 m.p.h., and Don has high hopes in the speed circle when a little extra experience is gained. Ken Salter is building a "Speedwagon" for his McCoy 49. The boys here are very keen and are out after a few records!

Free flight has taken a back seat lately, the W.A. Club being the only consistent addicts. George Papas lost a chuck glider O.O.S. on an 11 min. flight at Pearce.

—W.A. notes from R. H. Gibbs and Rod Ashton.

## *South Australia.*

### **WESTERN DISTRICTS**

Team speed is catching on in our club. A Frog 500 powered "Man O War" is being built up by Mr. James. The Club feels that the 75 sq. inches set down for "1A" Team Speed is too great and consider 55 sq. inches would be sufficient, and allow much higher speeds.

Any person interested in joining our Club please communicate with the Vice-President, Mr. R. Murphy, 14 Verran Avenue, Hilton, or ring L5105 between 12 and 2 o'clock any week day.

—Notes from R. Murphy.

### **NORTHERN (PROSPECT)**

Club member Ivan Stacey placed second in the recent stunt contest held by the Glenelg Club. Ivan was only one point behind the winner, Harold Toope, of Southern Club.

(Continued on page 28)

*Top to bottom: Leading South Australian stunt flyer, Brian Horrocks, getting his Mercury Monitor Stunter under way, with the help of clubmate, Max Golding.*

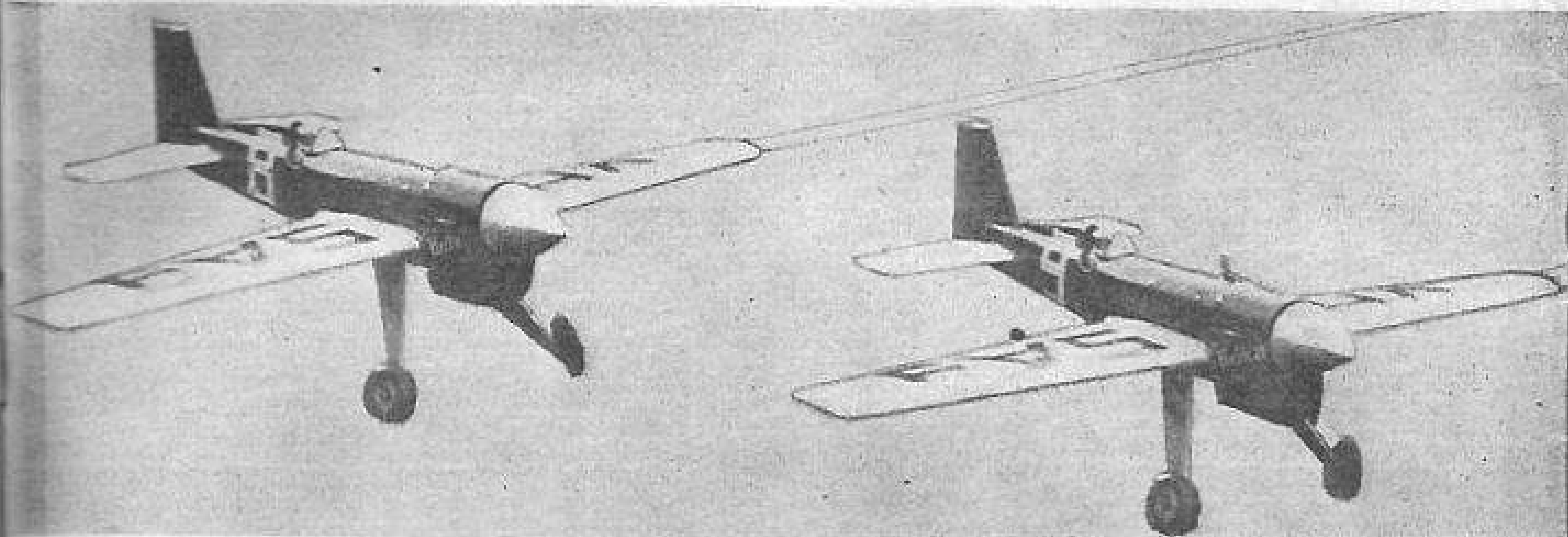
*One of the very few women enthusiasts — Charmaine, with her Free Flighter, and her younger sister. Charmaine is also a capable control line flyer and a member of the M.A.A. of N.S.W.*

*Perc. Webb junr., with his twin "Kestrel" powered controliner. Hailing from Kalgoorlie where Perc. senr. runs a model shop.*

*Don. Bennett, of Canberra, launching a sailplane built up from aeromodeller plans.*



# Little Herbie---Team Speedster



★ SIMPLE RUGGED CONSTRUCTION FOR HECTIC TEAM SPEED FLYING

★ A Speedy Model for 2-2.5 c.c. Diesels

Designed by Merv. Robinson

The popularity of the diesel motor in Australia made the development of the small team speedster a foregone conclusion, and many prefer these "1A" models because of their simplicity, low cost of construction, and operation.

Little Herbie is as tough as a practical model can be and will take most of the knocks encountered in team racing.

The rules at present call for a model with a wing area of 75 square inches minimum. The fuel tank

capacity 1 cubic inch maximum. Controline length 42½ feet. Plus other of the F.A.S.T. rules as outlined in the last issue of A.M.H.

For competition work one of the modern 2.5 high performance diesels is recommended, such as the Elfin 2.49 or the G.B. 2.5 c.c. "Sabre," but for general flying any of the small motors provide sufficient power. The original Herbie was powered by a 1.96 c.c. "K" Falcon, which flew the model consistently at 63 m.p.h.

**Construction:** Fuselage is formed from ¼" sheet and 1" block balsa. The motor mount is cut from ¼" or 5/16" plywood. First study the plan carefully and make sure of the shape of the sheet sides, then trace this shape on to a sheet of ¼" balsa. The top of the sheet side is straight, so use the edge of the sheet of wood for the top of the sheet sides. Carbon paper placed beneath the plan may help to trace outlines. Cut out the bottom of fuselage in the same manner. The actual assembly of the fuselage is straightforward if the plan is followed.

**Wing.**—The lower surface of the wing is cut from sheet balsa. Cement to this sheet bottom a piece of ¼" x 1" hard balsa to form the cambered leading edge and then the rear part-ribs. Cover the top of wing with 1/16" sheet balsa.

Cover the entire model with silk (rag) tissue or jap silk, dope well and finish in fuel proof colours.

Apply several coats of cement to the inside of cowl and motor mount environs before fuel-proofing.

Test fly the model on 35 foot steel lines.

A lengthy description of construction has not been given, as the full size plan carries all detail.



# TWO NEW MOTORS

## REPORT ON TWO NEW 2.5 C.C. DIESELS SUITABLE FOR THE "LITTLE HERBIE" TEAM SPEEDSTER

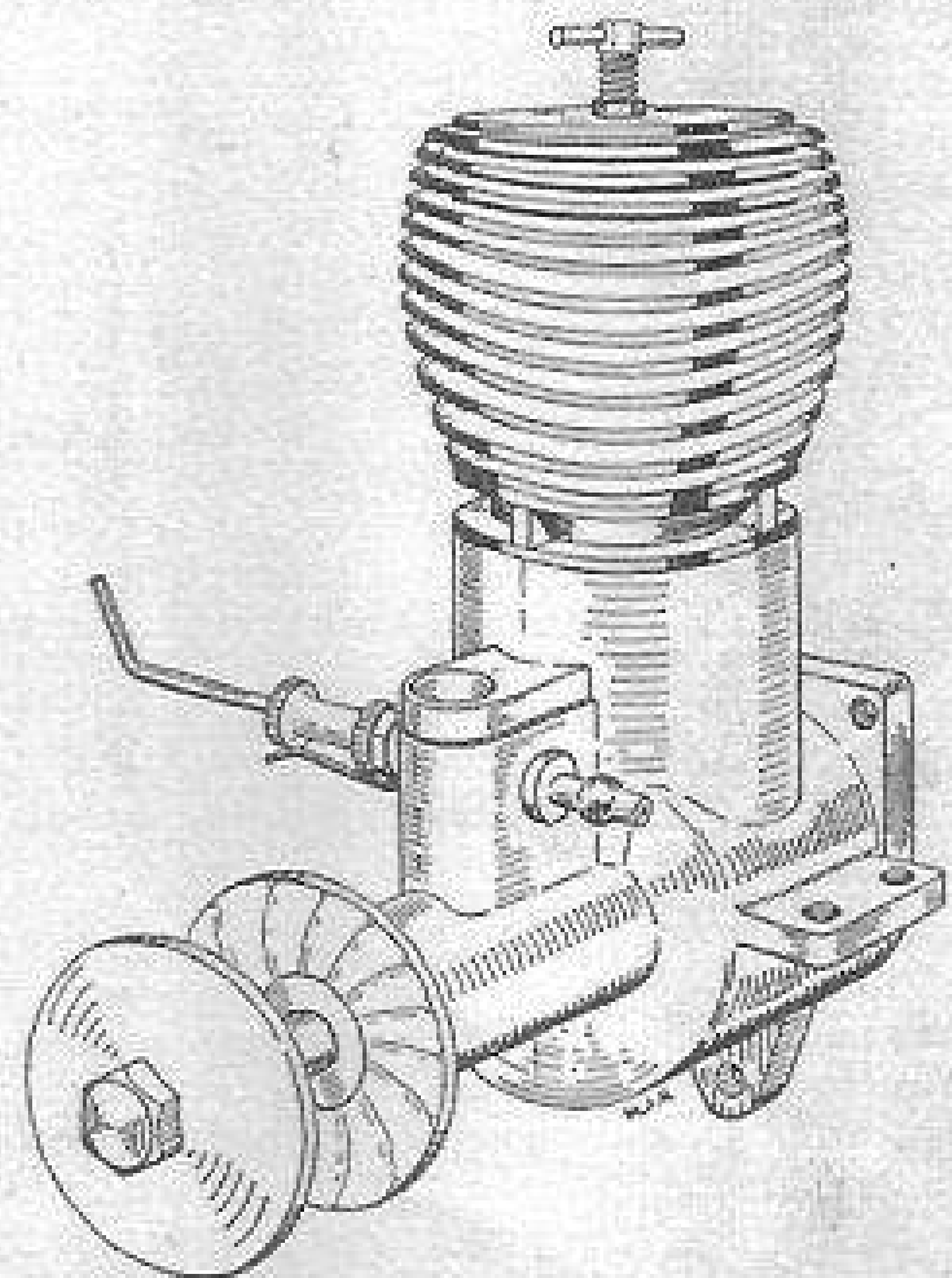
Rarely is it possible for A.M.H. to offer details of new motors to Australian modellers before they are fully covered in overseas magazines, as most of the motors used in this country are produced in England or America and the magazines of those

countries are able to study any new engine long before it is available to us.

However THE GEE BEE "SABRE" 2.5 c.c. diesel is produced in Australia and the details of the new Frog 250 were available to pass on to local enthusiasts.

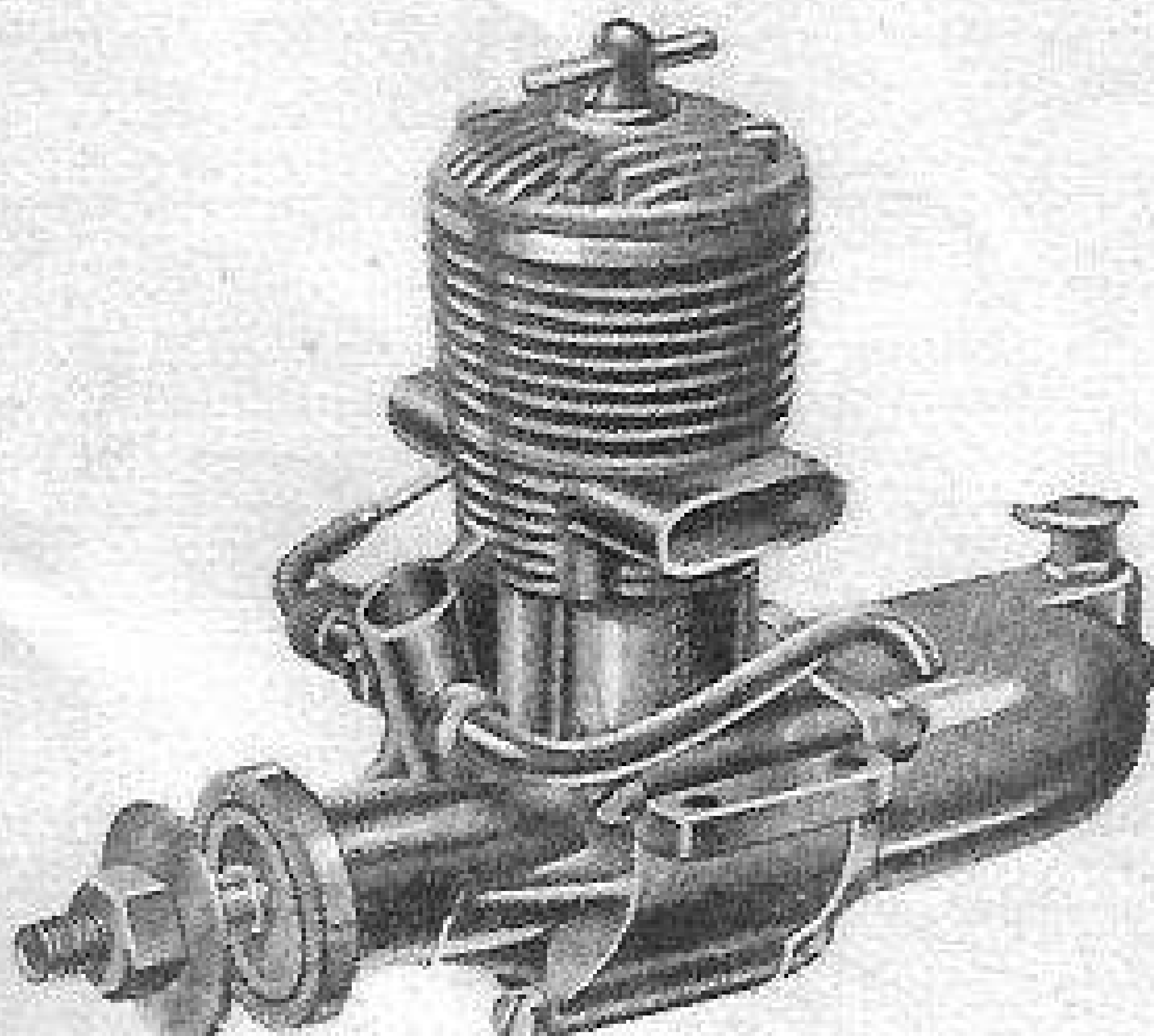
### GEE BEE "SABRE" 250 DIESEL

CAPACITY . . . . .	2.49 c.c.
BORE . . . . .	.555 in.
STROKE . . . . .	.620 in.
WEIGHT . . . . .	3.75 oz.
CYLINDER . . . . .	MEEHANITE
HEAD . . . . .	MAGNESIUM
CRANKCASE . . . . .	HYDUMINIUM
VALVE . . . . .	CRANKSHAFT ROTARY
BEARING (MAIN) . . . . .	GRAPHITE BRONZE BUST
CON ROD . . . . .	TURNED HYDUMINIUM
CARBURETTOR . . . . .	VENTURI CROSS SPRAYBAR
BY PASS PORTS . . . . .	THREE
EXHAUST PORTS . . . . .	FOUR 360 DEGREES
MOUNTING . . . . .	BEAM OR RADIAL
PROPELLOR . . . . .	9" x 5" F/F
PRICE . . . . .	£4/19/6.



### FROG 250 DIESEL

CAPACITY . . . . .	2.49 c.c.
BORE . . . . .	.580 in.
STROKE . . . . .	.575 in.
WEIGHT (complete with tank) . . . . .	5.5 oz.
CYLINDER . . . . .	MEEHANITE
HEAD . . . . .	PRESSURE DIECAST ALLOY
CRANKCASE . . . . .	PRESSURE DIECAST ALLOY
VALVE . . . . .	CRANKSHAFT ROTARY
BEARING (main) . . . . .	BRONZE BUST
CON ROD . . . . .	DURAL FORGING
CARBURETTOR . . . . .	VENTURI CROSS SPRAYBAR
BY PASS PORTS . . . . .	TWO
EXHAUST PORTS . . . . .	TWO
MOUNTING . . . . .	BEAM OR RADIAL
PROPELLOR . . . . .	9" x 5" F/F
PRICE . . . . .	£5/12/6.





Bend hinges  
from metal

Tailplane is  $\frac{1}{4}$  sheet

Wire

AUSTRALIAN *Model* HOBBIES

Hinged cowling

Tank

Top h  
carved

2.c.c. Falcon (K)  
used in  
original

Al. tubing wire  
guides

A

B

A-A

E-E

B-B

C-C

'HERBIE'

'Scale FULLSIZE Except where noted



Solder control  
horn on.

Typical  
fuselage section

$\frac{1}{4}$ " Sheet

$\frac{1}{16}$ " Ribs

$\frac{1}{16}$ " Sheet

Wing construction

Balsa  
fairing

$\frac{1}{8}$ " Sheet

5"

half of fuselage is  
ved from block balsa

Bottom half of fuselage is built up from  $\frac{1}{4}$ " she

For MAXIMUM STRENGTH cover  
entire model with silk  
well doped.

Bottom of wing is  $\frac{1}{8}$ " sheet

Wing area 75 sq. in.



Turn rudder to right approximately

42 ft. lines must be used for contest work

Undercart  
is bolted to  
plywood each  
side of  $\frac{1}{8}$ "  
Wing sheet  
Rear bolt  
forms pivot  
for control  
plate

Fin & rudder  
are  $\frac{1}{4}$ " sheet

Tank shown  
is 1 c.in.  
capacity

stration No

Bend from Al.  
Bolt to fuse.

Hole for starter's  
release device An 8

An 8" dia. 8" pitch propellor is best suited to this model. Speed 63 m.p.h.

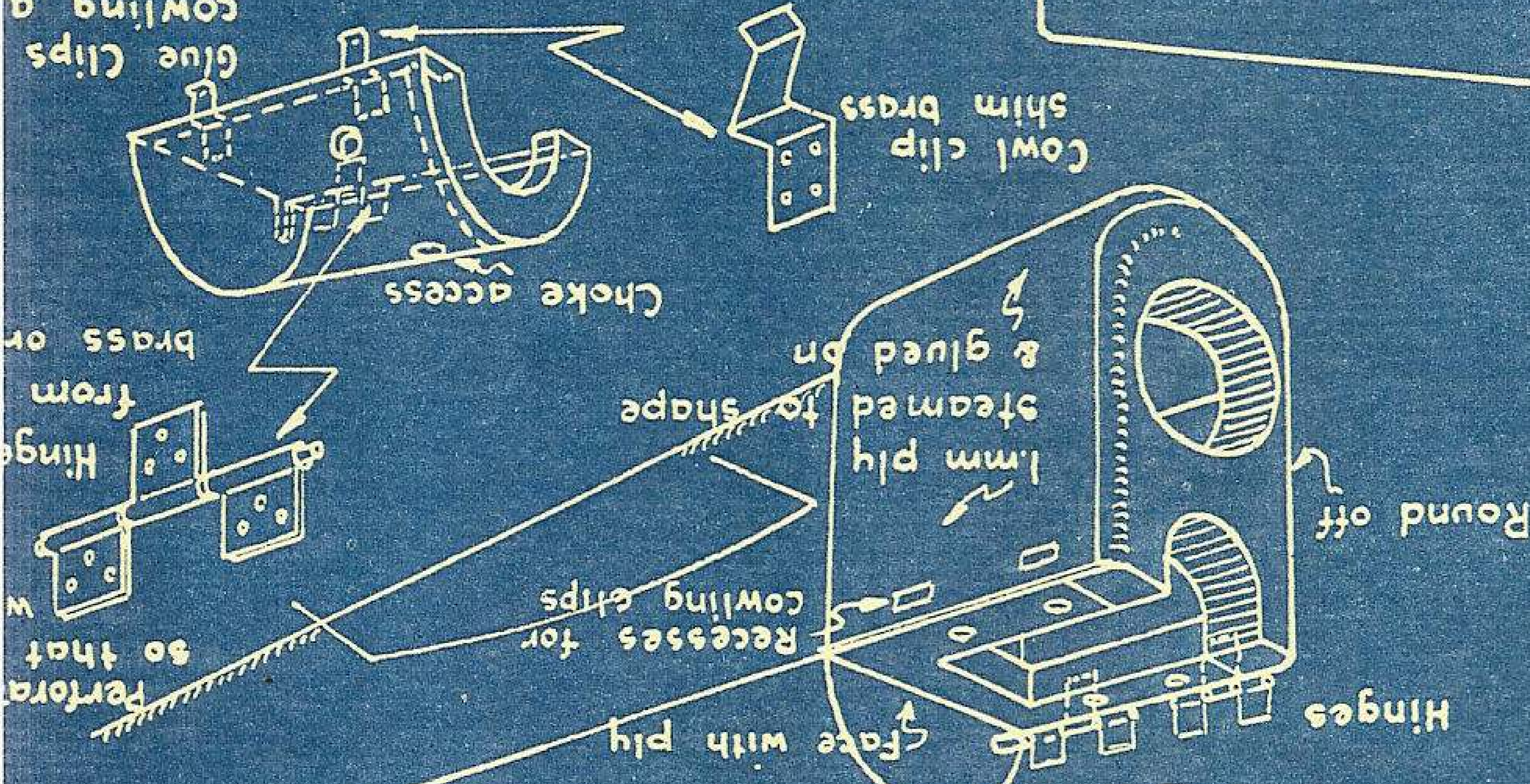
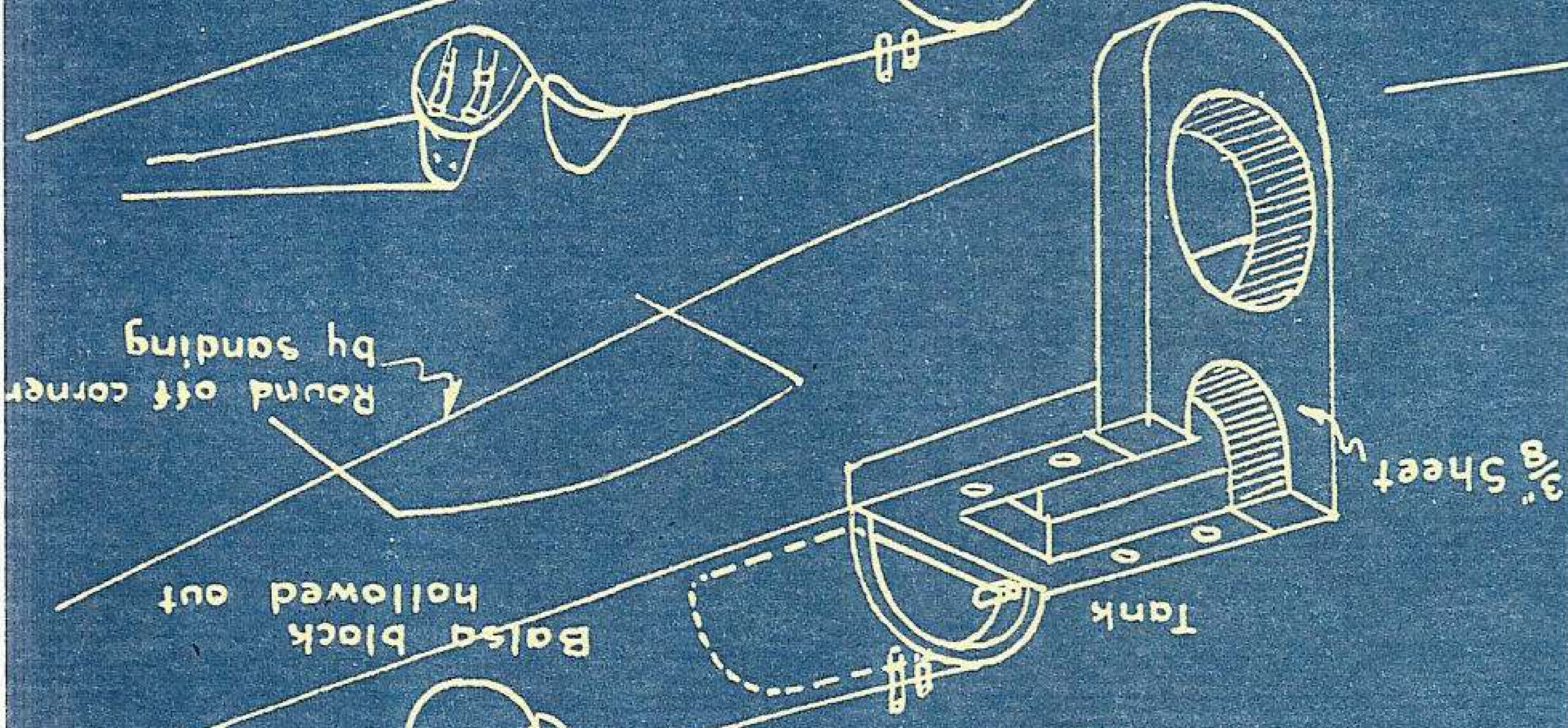
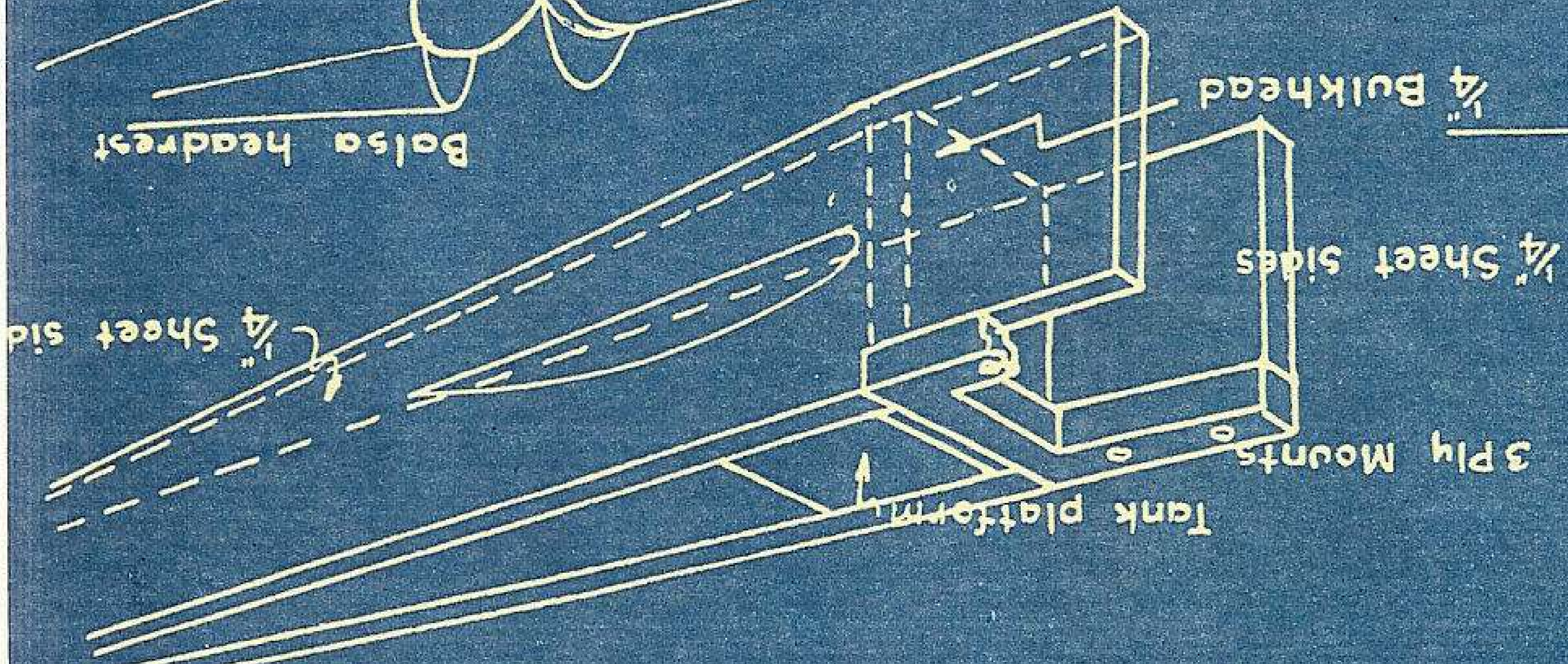
Ribs are  $\frac{1}{16}$ " sheet

Cover top of wing with  $\frac{1}{16}$ " sheet

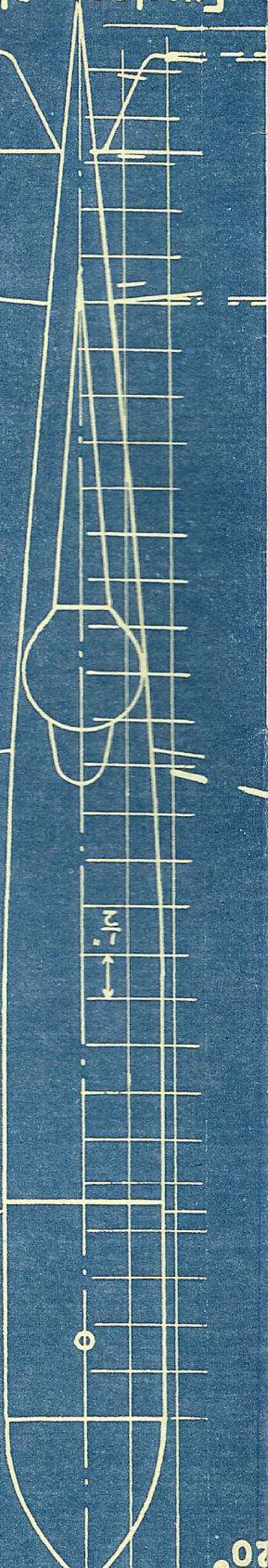
$\frac{1}{4}$ " sheet top of leading edge



# Stages in fuselage & cowling construction



## Fuselage plan - half scale -



Dummy pilot carved from scrap balsa



# Reports On New Motors

## FROG 250

### GENERAL REMARKS:

This the latest of the British motors to appear in Australian model shops is very similar to its big brother—the Frog 500—in general appearance. The utmost use has been made of pressure die-casting to produce a very attractive finish, and the performance is quite in keeping with the appearance. The design is actually the same in set-up as the earlier Frog 100 and 180 diesels, that is front crankshaft rotary induction valve, twin bypass front and rear of the cylinder, and twin exhaust ports fitted with small stacks each side of the cylinder. A flat top piston is used.

Apart from the same general arrangement there is no further similarity between the earlier and the new motor. All of the considered weak features have been eliminated and the Frog 250 should prove to be a very popular Class "A" motor.

## GEE BEE "SABRE"

### GENERAL REMARKS:

Designed by an experienced Australian aeromodeller Gordon Burford, the "SABRE" follows the popular "Arden" style porting set-up, which is proving so popular in small motors overseas. The Elfin, Javelin, Amco etc., in Britain and all of the American "1/2A" motors use this type of porting and so in this respect the "Sabre" is in good company.

The first Gee Bee diesel appeared in 1946 and continuously since then Gee Bee motors have been in production with varying degrees of success. Early this year a series of motors were marketed, which, although they had performed well during the development period, they were rather a disappointment when marketed. To accentuate the disappointment with the Gee Bee 5 c.c. diesel, the appearance on the market of the Frog 500 at much lower price brought about the circumstances when it appeared as though production of the Gee Bee motors would have to cease, but reluctant to admit defeat after four years of continuous development in model diesel production, Gordon Burford with the help of the other people concerned, designed and put into production the "Sabre," which has more than made up for earlier disappointments, for this little motor leaves little to be desired for this type of unit. The diecasting is exceptionally good for a gravity die, which allows the use of such alloys as Hyduminium.

### TEST.—

ENGINE.—GEE BEE "SABRE" 2.49 c.c. diesel.

FUEL.—20 per cent. Aeroshell oil, 10 per cent. castor oil, 30 per cent. lighting kerosene, 40 per cent. ether, plus 2½ per cent. oil of mirbane.

STARTING.—Hand starting used at all times. Starting very good. Compression must be lowered as motor warms up. Increase compression slightly when warm for starting.

RUNNING.—Performance was at all times comparable with an English engine of very similar design which was used for comparative tests. Best power output was found to be around the 7,500-9,000 r.p.m. The motor behaved well with a varied range of props

from 11" diameter 4" pitch to 6" diameter 12" pitch.

REMARKS.—As the motor is capable of driving a wide range of propellers and delivering a good power output with these various propellers the "Sabre" should prove suitable for all types of models free flight, stunt control-line and 1/2A team speed.

## A.M.H. SPEED CHART

### A SIMPLE MEANS OF QUICKLY CALCULATING CONTROL LINE SPEEDS

CONTROL LINE SPEED TABLE

Time	0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
6	299.33	294.96	290.21	285.60	281.14	276.81	272.62	268.55	264.60	260.76
7	257.04	253.42	249.90	246.48	243.15	239.90	236.75	233.67	230.68	227.76
8	224.91	222.23	219.42	216.78	214.20	211.68	209.22	206.81	204.46	202.19
9	199.92	197.72	195.57	193.47	191.41	189.40	187.42	185.49	183.60	181.74
10	179.93	178.15	176.40	174.69	173.01	171.36	169.74	168.16	166.60	165.07
11	163.57	162.10	160.65	159.23	157.83	156.46	155.11	153.78	152.48	151.20
12	149.94	148.70	147.48	146.28	145.10	143.94	142.80	141.68	140.57	139.48
13	138.41	137.35	136.31	135.28	134.27	133.28	132.30	131.33	130.38	129.44
14	128.52	127.61	126.71	125.82	124.95	124.09	123.24	122.40	121.57	120.76
15	119.95	119.16	118.37	117.60	116.84	116.08	115.34	114.60	113.88	113.16
16	112.45	111.76	111.07	110.38	109.71	109.05	108.39	107.74	107.10	106.47
17	105.84	105.22	104.61	104.00	103.41	102.82	102.23	101.65	101.08	100.52
18	99.96	99.41	98.86	98.32	97.80	97.26	96.74	96.22	95.71	95.20
19	94.70	94.20	93.71	93.23	92.75	92.27	91.80	91.33	90.87	90.42
20	89.96	89.52	89.07	88.63	88.20	87.77	87.34	86.92	86.50	86.09
21	85.68	85.27	84.87	84.47	84.08	83.69	83.30	82.92	82.54	82.16
22	81.79	81.42	81.05	80.68	80.32	79.97	79.61	79.26	78.92	78.57
23	78.23	77.89	77.55	77.22	76.89	76.56	76.24	75.92	75.60	75.28
24	74.97	74.66	74.35	74.04	73.74	73.44	73.14	72.85	72.55	72.26
25	71.97	71.68	71.40	71.11	70.84	70.56	70.28	70.01	69.74	69.47
26	69.20	68.94	68.67	68.41	68.15	67.90	67.64	67.39	67.14	66.89
27	66.64	66.39	66.15	65.91	65.67	65.43	65.19	64.96	64.72	64.49
28	64.26	64.03	63.80	63.58	63.35	63.13	62.91	62.69	62.47	62.26
29	62.93	62.73	62.53	62.33	62.13	61.93	61.73	61.53	61.33	61.13
30	59.98	59.78	59.58	59.38	59.19	58.99	58.80	58.61	58.42	58.23
31	58.04	57.85	57.67	57.48	57.30	57.12	56.94	56.76	56.58	56.40
32	56.23	56.05	55.88	55.71	55.53	55.36	55.19	55.02	54.86	54.69
33	54.52	54.36	54.20	54.03	53.87	53.71	53.55	53.39	53.23	53.08
34	52.92	52.76	52.61	52.46	52.30	52.15	52.00	51.85	51.70	51.56
35	51.41	51.26	51.12	50.97	50.83	50.68	50.54	50.40	50.26	50.12
36	49.98	49.84	49.70	49.57	49.43	49.30	49.16	49.03	48.89	48.76
37	48.63	48.50	48.37	48.24	48.11	47.98	47.85	47.73	47.60	47.47
38	47.35	47.23	47.10	46.98	46.86	46.73	46.61	46.49	46.37	46.25
39	46.14	46.02	45.90	45.78	45.67	45.55	45.44	45.32	45.21	45.09
40	44.98	44.87	44.75	44.65	44.54	44.43	44.32	44.21	44.10	43.99
41	43.88	43.78	43.67	43.57	43.46	43.36	43.25	43.15	43.04	42.94
42	42.84	42.74	42.64	42.54	42.44	42.34	42.24	42.14	42.04	41.94
43	41.84	41.74	41.65	41.55	41.46	41.36	41.27	41.17	41.08	40.99
44	40.89	40.80	40.71	40.62	40.52	40.43	40.34	40.25	40.16	40.08
45	39.98	39.90	39.81	39.73	39.63	39.54	39.46	39.37	39.29	39.20
46	39.11	39.03	38.95	38.86	38.78	38.69	38.61	38.53	38.45	38.36
47	38.28	38.20	38.12	38.04	37.96	37.88	37.80	37.72	37.64	37.56
48	37.48	37.41	37.33	37.25	37.18	37.10	37.02	36.95	36.87	36.79
49	36.72	36.65	36.57	36.50	36.42	36.35	36.28	36.20	36.13	36.06
50	35.99	35.91	35.84	35.77	35.70	35.63	35.56	35.49	35.42	35.35
51	35.28	35.21	35.14	35.07	35.01	34.94	34.87	34.80	34.74	34.67
52	34.60	34.54	34.47	34.40	34.34	34.27	34.21	34.14	34.08	34.01
53	33.95	33.88	33.82	33.76	33.69	33.63	33.57	33.51	33.44	33.38
54	33.32	33.26	33.20	33.14	33.07	33.01	32.95	32.89	32.83	32.77
55	32.71	32.65	32.60	32.54	32.48	32.42	32.36	32.30	32.25	32.19
56	32.13	32.07	32.02	31.96	31.90	31.85	31.79	31.73	31.68	31.62
57	31.57	31.51	31.46	31.40	31.35	31.29	31.24	31.18	31.13	31.08
58	31.02	30.97	30.92	30.86	30.81	30.76	30.70	30.65	30.60	30.55
59	30.50	30.44	30.39	30.34	30.29	30.24	30.19	30.14	30.09	30.04
60	30.00	29.94	29.89	29.84	29.79	29.74	29.69	29.64	29.59	29.54

(Based on time elapsed to cover 1/4-mile.)

MODEL MUST BE TIMED ON A HALF-MILE RUN. THE TIME IN SECONDS IS LISTED IN THE LEFT-HAND COLUMN OF THE CHART AND THE 1-10ths OF SECONDS ACROSS THE TOP.

LAPS TO HALF MILE:—

52½ FT. LINES	8 LAPS
60 FT. LINES	7 LAPS
70 FT. LINES	6 LAPS



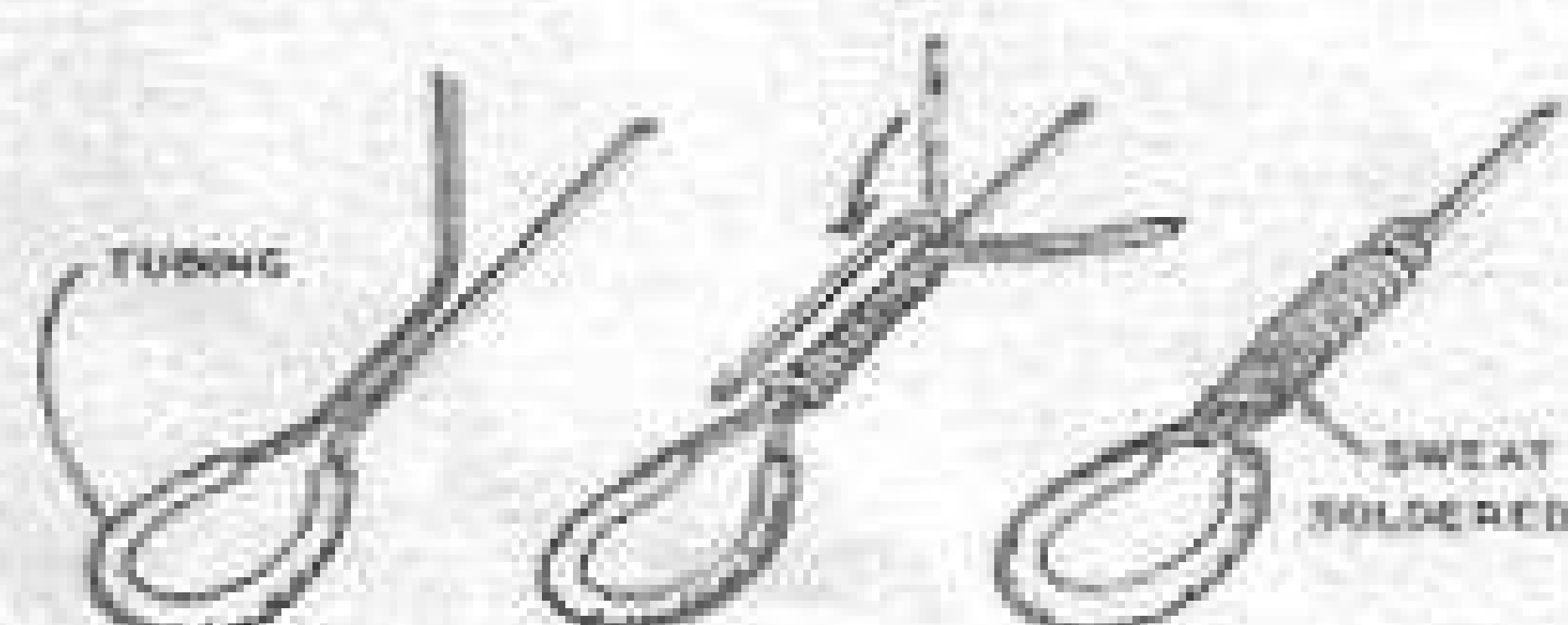
# HANDLING STEEL CONTROLINES

## HANDY TIPS FOR THE NEWCOMER USING SINGLE STRAND WIRE

Time and time again we see the novice getting into trouble with steel controlines, and although their successful handling can only come with experience, outlined here are a few tips which may help through the difficult period.

The first hazard encountered after purchasing the lines is unwinding the coil without kinking, and rewinding the made up lines on to your carrying spool or handle.

First seek out the outside end of the coil—make sure it IS the outside end—and attach this to something solid. Then unroll the wire from the coil as one would cable from a reel—that is, roll the coil over and over so that the wire is unwound. DO NOT allow the wire to spiral off the side. Roll off sufficient length, leaving plenty of extra for attachments at the ends. Allow the wire to lay out straight for some time, and check for kinks.



Steel lines seldom break. Usually failure occurs at the connections either to the model or the control handle. Correct wrapping can overcome this to a large extent. Twisted connections have the disastrous habit of slipping or untwisting, so make sure your lines are finished off correctly.

One of the most satisfactory methods of forming the ends is as follows.—First study sketch.—The small thimbles as shown are not readily available in Australia, but some fine brass or aluminium tubing approximately 1-16th inch outside diameter should be available. Slip a short length of the 1-16th inch tubing over the wire and bend a small loop with round-nose pliers. Then double wrap the joint as shown in the sketch. Use soft tinned wire for wrapping and make sure the join is well soldered (although in some quarters in the U.S.A. soldering is considered unnecessary and weakens the wire by heating. Actually if the thimble and double wrap method is correctly carried out soldering is unnecessary).

Do not use kinked lines, or lines which were kinked and have been straightened out.

A reel of some sort is necessary to store the lines when not in use. A combined handle and reel is available in Australia and does quite a good job, but a lot of the stunt flyers prefer a more comfortable grip and use a separate handle which fits the hand more closely, meaning that a separate reel is needed. The carrying reel should be practical so that the lines can be easily wound and unwound. A 6 inch vee groove pulley fitted with two handles—one in the centre and one near the outside—makes quite a good reel.

When using the steel lines for flying care must be taken to see that they do not become kinked or badly bent, otherwise they will cling together, resulting in stiff control. Should the lines cling together whilst the model is on the ground, or if it has been looped and the lines are twisted NEVER run a hand between—as with fishing cord—to part them. Allow the lines to slacken off slightly and shake them apart, then carefully unwind any twists caused by the looping of the model. If the hand is run between the lines whilst held taught a lazy spiral will be forced into them and they will be ruined. REPEAT—always shake the lines apart.

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## Stunt Model Design

*As suggested by Peter Weaver*

**I**N almost every model magazine of recent months, someone has aired his views on stunt models. Trends nowadays are towards lighter wing loadings more power and shorter moment arms.

The acme of this type is, of course, the Stunt-wagon series, and apart from constructional refinements, little further development in this field seems possible. Attempts at structure refinements are being made. Doubtless many modellers noticed with interest the "D" tube stressed skin type of construction of the "Guided Whistle" in a recent "Air Trails" magazine.

However one significant move has been to add trailing edge flaps, which work opposite the elevators. This gives smoothness and manoeuvrability hard to believe for anyone who has not tried them. The pioneers of flaps is Bob Palmer of Henry Engineering Co. (U.S.A.) whose designs are well-known to readers of American model magazines. Bob Palmer is actually responsible for most of the ideas put forward here.

The first model to appear in Queensland fitted with flaps was Nial Harts scale Hellcat, which pos-

sessed manoeuvrability far beyond any similar model without flaps.

Some months later, the author, in the course of some correspondence with Bob Palmer, was fortunate enough to receive a plan of his "GO DEVIL." This is a large class C-D stunt model of 51 inch span, and the original version had stub flaps about 6 inches long on each wing. The designer, however was kind enough to suggest modifying the model to incorporate full span tapered flaps. These flaps were fitted to my model, their area being approximately 75 square inches, as against 60 square inches for the elevator. Elevator travel was 30 degrees and the flap travel half of this.

As a preliminary the flaps were kept unhooked in neutral. With no flaps the model still went through the "works." With the flaps "in" however, a vast difference was apparent. It was possible to put on up elevator and hold it and watch the model loop. No movement of the elevators was necessary and no loss of speed or mushing occurred, no matter how tight the loops were made.

With a "Supercyke" and an 11" x 10" prop the model flew at 50 m.p.h. and held this speed through all manoeuvres. On one occasion the controls jammed on down, and the model looped a good few outside loops with no assistance from me before the motor blurred and the inevitable happened.

This model started the flap fashion in and around Brisbane, and soon a great many types appeared with varying degrees of success.

Traps to watch out for are:—

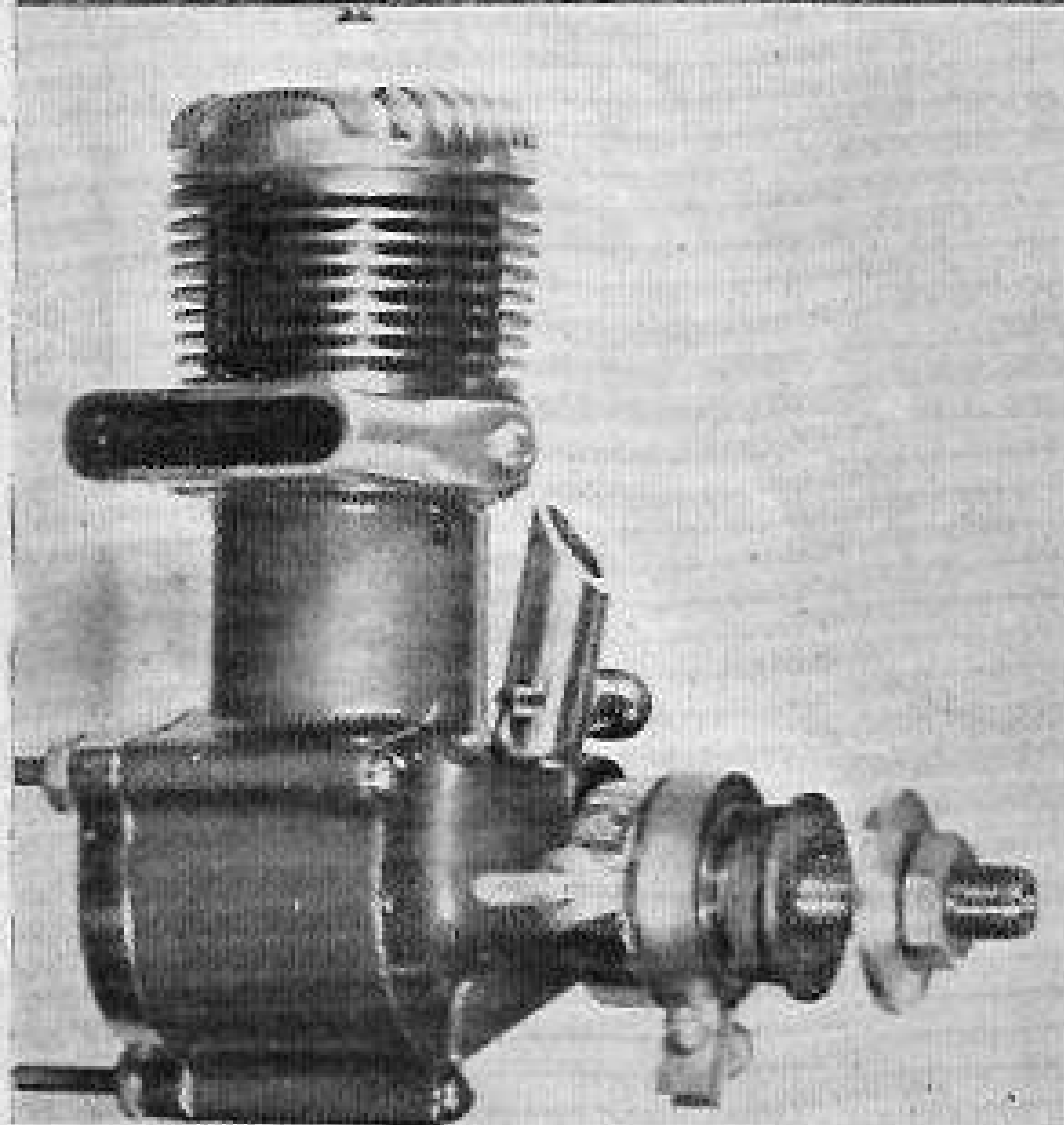
- (a) Excessive play in elevator flap hook-up. This gremlin is magnified by the airflow over the flaps;
- (b) Placing elevator in such a position that down elevator is blanketed by up flap. Many of the original designs that appeared here could not be manoeuvred readily from the inverted position, and this was found to be the cause;
- (c) Using a too short a moment arm. Such models are uncontrollable at times. Six to eight inches from the trailing edge of the flap to the leading edge of the elevator seems about right;
- (d) Binding or tight control systems (refer to a) as there is more strain on this hook-up than on ordinary systems, buckling of the push rod, and hard to move controls may occur. Three-thirty second thick wire is recommended for all parts.

The linkage found most successful is to use a three inch bell crank, with the pushrod hole  $\frac{1}{2}$ " from the pivot point. A single push rod fits in here and goes to the lower of two holes on the control horn on the TOP OF THE FLAP connecting link. The elevator pushrod is taken from the top hole of the flap control horn to the elevator horn which is, as usual, below the elevator. (Thirty degrees on the elevator and 15 degrees on the flaps are ample for all manoeuvres).

Turns are as sharp as on any contemporary short moment arm job, and the flight pattern is smooth.

(Continued on next page)





Top—Monty Tyrrell's Bob Palmer designed "Go Devil" mentioned in this article on Flaps. Monty has found, as Palmer suggested, that the small stub flaps are not sufficient and that full trailing edge flaps improve the performance of the model considerably.

Lower photo shows the Orwick 64, an American engine, which is held in high regard by some of the leading U.S. stunt flyers. Capacity: 64 cubic inches. Compression ratio: 10:1. Not recommended for Glopug operation. Stunt Prop.: 12 ins. x 7 ins., 11,000 r.p.m.

The Orwick is a custom built, hand finished engine which, if studied, shows very little difference to the motors of years ago in general design, but of course its performance exceeds the old type considerably, as it is rated at  $\frac{1}{2}$  h.p., whereas many of the pre-war 10 c.c. (5 cub. in.) motors were rated at only one-fifth and  $\frac{1}{4}$  h.p. by their makers.

All the credit for the pioneering of flaps and the working out of approximate areas must go to Bob Palmer. His designs—certainly some of the most successful in the U.S.A.—all feature full

span flaps and he was the first to use flaps with greater area than the elevators.

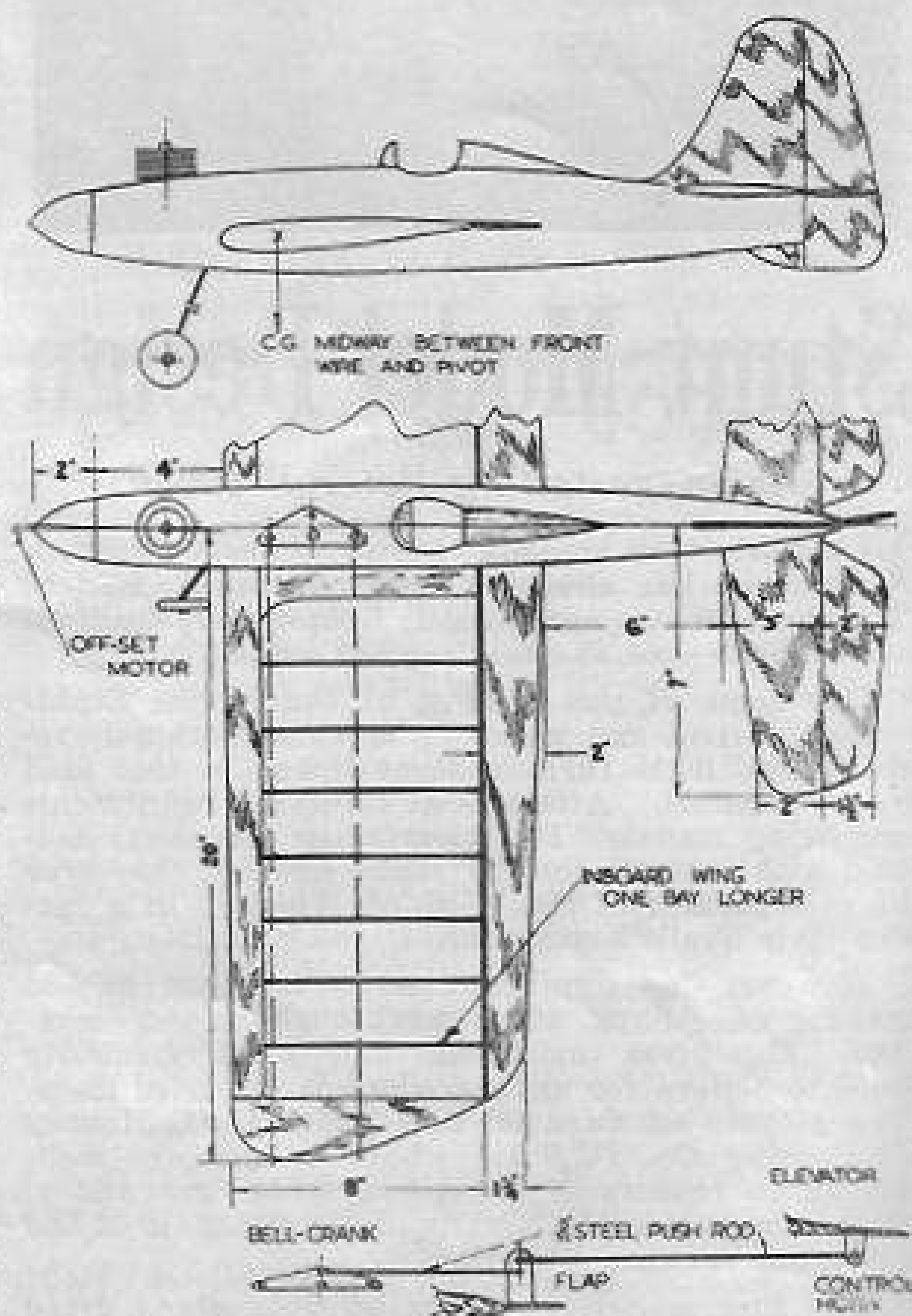
Bob's latest design is the "Squaw" several of which are flying here in Brisbane. The "Squaw" has 295 square inches wing area and the flaps are almost twice the elevator area. For 5 c.c. (.29 c. in.) motors the model is the nicest I have ever flown. It will take off into any manoeuvre and do it consecutively until the pilot tires. It is extremely easy to stunt and flies itself if left alone.

With such models Palmer uses all of the safety devices. The inboard wing is longer, the rudder is offset, as is the motor, the lines are raked back, and there is weight in the outside wingtip.

To my mind these designs are the first real step forward in stunt for some time. He has flown a "Go Devil" of 595 sq. in. wing area through a full stunt pattern with an Ohlson 23, and repeats the performance on demand. The "Chief" of the same dimensions as the "Go Devil," is claimed to be a class "B" model, and Palmer himself uses a McCoy 19 in it.

Such versatility is hard to believe and Palmer attributes it to the flaps. Down flaps gives nose up trim, and vice versa, and this coupled with elevator movement lets the model really fly through its manoeuvres.

The author feels that if anyone builds himself a model on the lines of the accompanying plan, he will never build another stunt model without flaps.





## ..... CONTROVERSY PAGE .....

### Downthrust is Efficient

#### DOWNTHRUST IS ESSENTIAL FOR OPTIMUM TRIM

The sub-heading to this article will no doubt come in for some weighty criticism and we would appreciate any views you may have on the downthrust question for publication in future issues of this magazine.

Many modellers criticise the use of downthrust on power models, claiming that downthrust should not be necessary on a properly designed model.

This is apparently quite wrong, for downthrust is essential for the most efficient trim of a model, although several other means are used to obviate its use, such as tight spiral turn to prevent stalling, because of insufficient downthrust.

Downthrust equal to the difference between the datum line from which incidence angles are measured and the flight path of the model should be the most efficient. Any different angle will mean that some other adjustment will be necessary to overcome it, and will affect the glide.

A model does not fly in the direction it is pointing. The actual flight path is always some degrees less than the angle at which the model sits in the air. This difference is the angle of attack and should be around 7 degrees. The hair raising vertical (?) climbs are not the most efficient, for to ignore the help of wing lift in the climb one must have an extreme surplus of power, and even then considerable energy is being wasted.

If the motor is mounted on the datum line at zero—no downthrust or upthrust—then there is actually upthrust equal to the angle of attack. This can be easily understood if the following is considered again. The model does not fly along its datum line, but always the actual flight path is at a considerably lower angle, and for the motor to be at zero to the flight path it must have downthrust from the datum line, otherwise as long as the model is climbing it will have a nose up looping tendency caused by the "upthrust" on the motor, which will have to be overcome by a far less efficient spiral turn.

\* \* \*

WE RECENTLY NOTICED IN MODEL AVIATION—THE A.M.A. OF AMERICA NEWS SHEET—DID YOU KNOW?

A model aeroplane designer is a person who passes as an exacting expert on the basis of his ability to turn out with prolific fortitude, infinite strings of incomprehensible formulae and hypothetical analyses calculated with micro-matic precision from instruments of problematical accuracy by persons of doubtful reliability and questionable mentality for the avowed purposes of annoying and confounding a hopeless group of esoteric fanatics referred to altogether too frequently as practical aero-modellers.—F.G.

### Free Flight Undercarriages

#### R.O.G. DIFFICULTIES WITH POWER MODELS

At almost any Free Flight Power contest many models are seen in difficulty when R.O.G. (Rise Off Ground) is attempted, particularly if the take-off area is grassy. Although a great deal of thought is given to the aerodynamic design of the aircraft, in many cases the theory behind the operation of the undercarriage is neglected, and even though many modellers use a mono-wheel undercarriage, few realise the advantages other than the reduced drag and weight, whereas, actually the mono-wheel gear properly used has many more good features.

When a model fitted with the normal two-wheel undercarriage banks during take-off the drag of the wheel remaining on the ground tends to accentuate the turn and ground-loop the model, whereas if the model was fitted with only one wheel it would cause drag on the opposite side to that which the model was turning and therefore tend to reduce the turn. This action alone makes the mono-wheel desirable.

Other points to consider are that the wireleg should be flexible enough to spring when slight obstructions are encountered during take-off. The leg should be as far forward as practicable so as to give the maximum "weather vane effect" so that the model will itself tend to turn into wind during take-off, and upon the wheel touching down on landing. This effect is very marked if the undercarriage can be mounted just behind the propeller. The length of the undercarriage leg should be sufficient to give the wing a reasonably high angle of attack whilst sitting on the ground for take-off.

The model, of course, must be supported by three points so as to sit on the ground in its normal position, and therefore a fairly wide span tail plane is needed with tip fins or sub rudders.

#### POINTS IN FAVOUR OF MONO-WHEEL UNDERCARRIAGE

- (a) Light Weight;
- (b) Less Drag;
- (c) Stabilizing effect during take-off;
- (d) Tends to turn model into wind on landing;
- (e) Ease of construction.

\* \* \*

Heard at a modeller's deathbed:

"Why, oh why, did I ever fly,

What I happened to see in that magazine?"

—Apologies to Arthur Murray





(Left to right)—

Ian McDonald (S.A.) with his consistent Pylon Model built from "Aeromodeller" plans. Power is an E.D. Comp. Special.

Kiwi" Lance Hopkins, an enthusiastic Wakefield flyer, one of a group of N.S.W. Wakefield types, putting in some solid work on this interesting class of model.

Ted Pascoe (S.A.), one of the best local all-rounders. Ted has tried, or will try, anything, and is one of South Australia's main Wakefield hopes.

Another of the active Wakefield group in New South Wales — Bob Rowe. He flew Arthur Meader's model to top place in this year's Australian Wakefield Eliminations, and is shown here holding the Trophy.

## Club News (cont.)

In the free flight club championship, Mr. McDonald came out on top flying a "Hyphen" powered with an AMCO 3.5. Max Starrick raised the club sailplane record to 7 min. 19 secs. O.O.S. to win the sailplane event. This club is fast outgrowing other local clubs. We are steadily enrolling new members, many of whom are pre-war "bods" again bitten with the "bug."

Wally Reeve has recently transferred to this club as he is now living in the district, and as a result we expect to see some indoor activity in the near future.

—Notes by Max Starrick.

## CONSTELLATION

Brian Horrocks is still the mainstay of this active group and he appears to be the most likely of the S.A. stunt flyers to offer serious opposition to the interstate toplineers in the NATS senior stunt event, as most of the old hands have turned to other branches of the game. At present Brian is flying a model powered with one of Jack Black's home-made motors, which is one of the most consistent glo-motors we have seen in a stunt model.

Another club member, Brian Little, is also flying the full stunt pattern very well, as is Max Golding.

—Notes by Editor.

## SOUTHERN

Mal Sharpe, Keven Green, Harold Toope, with the help of Ted Pascoe, hope to get this club back to the dominant place it held in '46, '47, and early '48. One of the main reasons for the decline was the loss of the convenient flying ground in their district, but recent activities and renewed interest by ex-members indicate the Southern Club is on the way up.

## GLENELG

A stunt contest organised on Colley Reserve was won by Harold Toope flying a Frog powered Stunt King. The free flight day was washed out completely by the worst weekend weather of the year. Vic Tullet built up a Westerner powered by an ETA, which he lost after a couple of days' flying.

## Australian Capital Territory.

### CANBERRA MODEL AIRCRAFT CLUB

A small group of enthusiasts have been operating here for some time headed by Mr. Kenneth Laycock (club treasurer) and G. R. Bennet. See photos of A.C.T. activities.

## New South Wales.

### WESTERN SUBURBS

Arthur Meader's Wakefield competed in the Wakefield in Finland but unfortunately crashed on the first flight. Well known "Mo" Rowe (see photo) has been flying indoor. A 24" span job, but he has been having trouble with rubber. The maximum safe turns 450, but in spite of this he is managing 4 min., which is reasonable when one considers that 2,000 would be closer to the number of turns expected. On the control line side Graham Brown is going well in stunt. Graham flies an ETA 29 powered job. Keven Gray also has an ETA in his model, which does 80 with stunt prop. Noel Magnus and Ron Cross are regulars at Wilson Park, team racing their stunters. Don Simpson, Fred Partridge and Col Pittard have built a Rudder Bug for their recently acquired radio control gear. A Brown Junior—14 years old—will power the job.

—Notes from Col Pittard and Fred Partridge.

### NORTH SHORE

First a few corrections of previous comments in A.M.H. The Fokker Triplane used for the heading "Scale Models" in a past issue was built by Peter Sandford, a Club member. Harold Stevenson uses a motor of his own construction, not a Marden 65. Harold made the motor up from castings he obtained from Bill Marden. Harold's speed job has had a few mods. A rudder to cut out yawing and reduce pull on the lines, also a large venturi to reduce fuel troubles previously experienced. Hand starting is no worry with Harold's motor, which is fitted with a glo-plug of his own manufacture.



In my opinion the trouble with controline flying in Sydney is lack of reliability in the engines used. This is not due to the engine design but to a lack of understanding of how to operate a hot gloplug motor. (I am one of these types.) Another trouble is that a lot of the engines in use in Sydney were designed to operate on "Nitrated" fuels, which are not available here and these motors dislike the standard methonal castor oil mixture on which they are fed.

—Notes from Clive Wheatley.

## MODEL FLYING CLUB N.S.W. AND EAST COAST SPEED CLUB

Mr. Scott and Mr. Fouracre have recently formed a Club, namely, the Model Flying Club, incorporated with which is the East Coast Speed Club.

The Club is governed by its members, for its members, and each one takes an active part in its organisation and co-operation among them makes light work of business, leaving plenty of time for pleasure.

We fly officially at Centennial Park the first Sunday of each month. The August Flying Day inaugurated our quarterly Club's competition. I would like very much to give you a glowing account of the flying, but high winds, and the ground still under water in parts after our phenomenal rain prevented a complete programme being run. Bad as the weather was, the stunt boys went to town. Don Yeary came home to take first place and the trophy, followed closely by George Freeman. Irwin Frost was present, but conditions were too bad for competitive speed flying. Bill Marden got one unofficial speed run in, and the Jet was restricted to static runs. Towards dusk, as the wind dropped, streamer cutting and balloon bursting got under way, and the reaction of the public shows that these events are very popular with them.

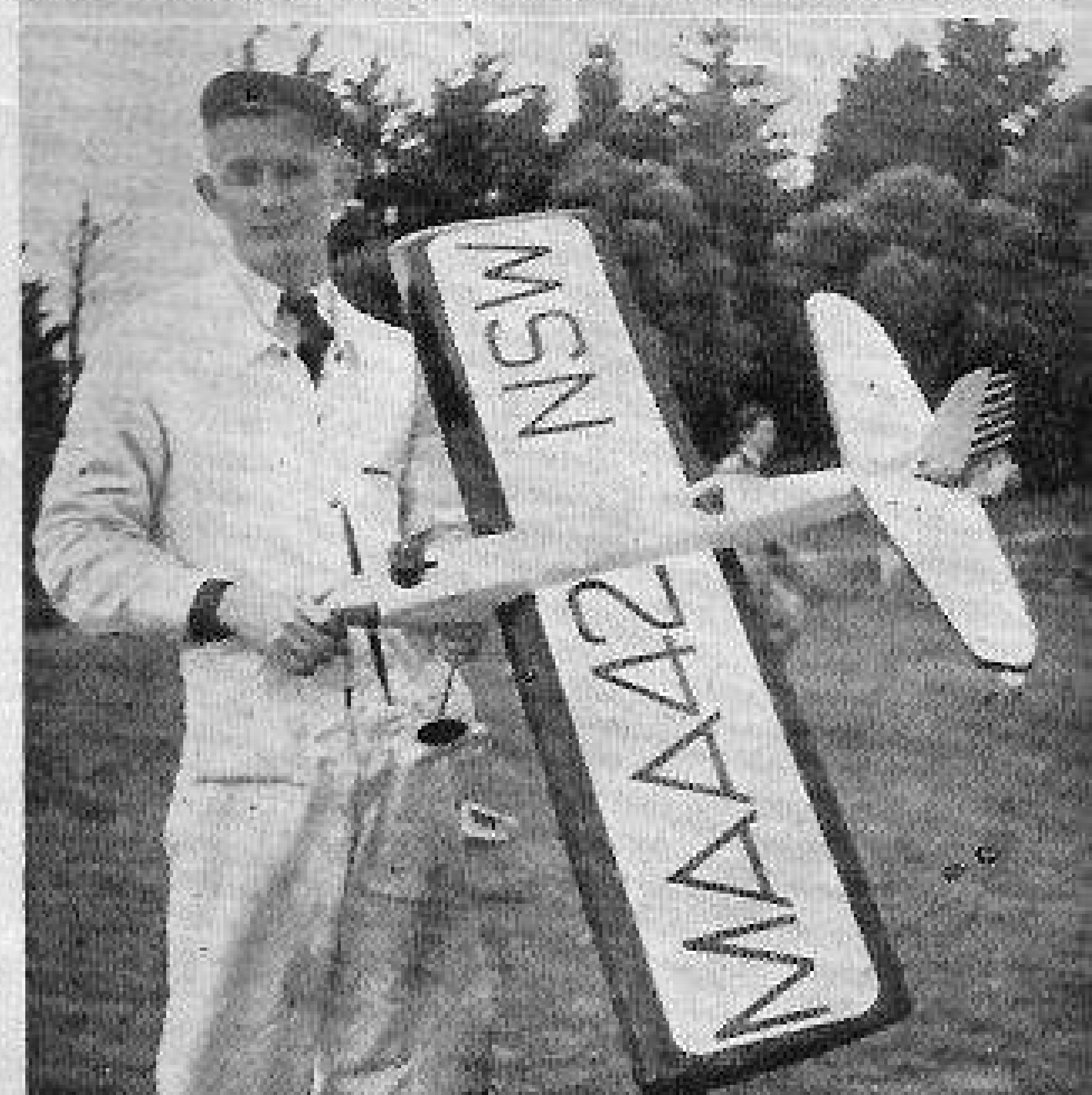
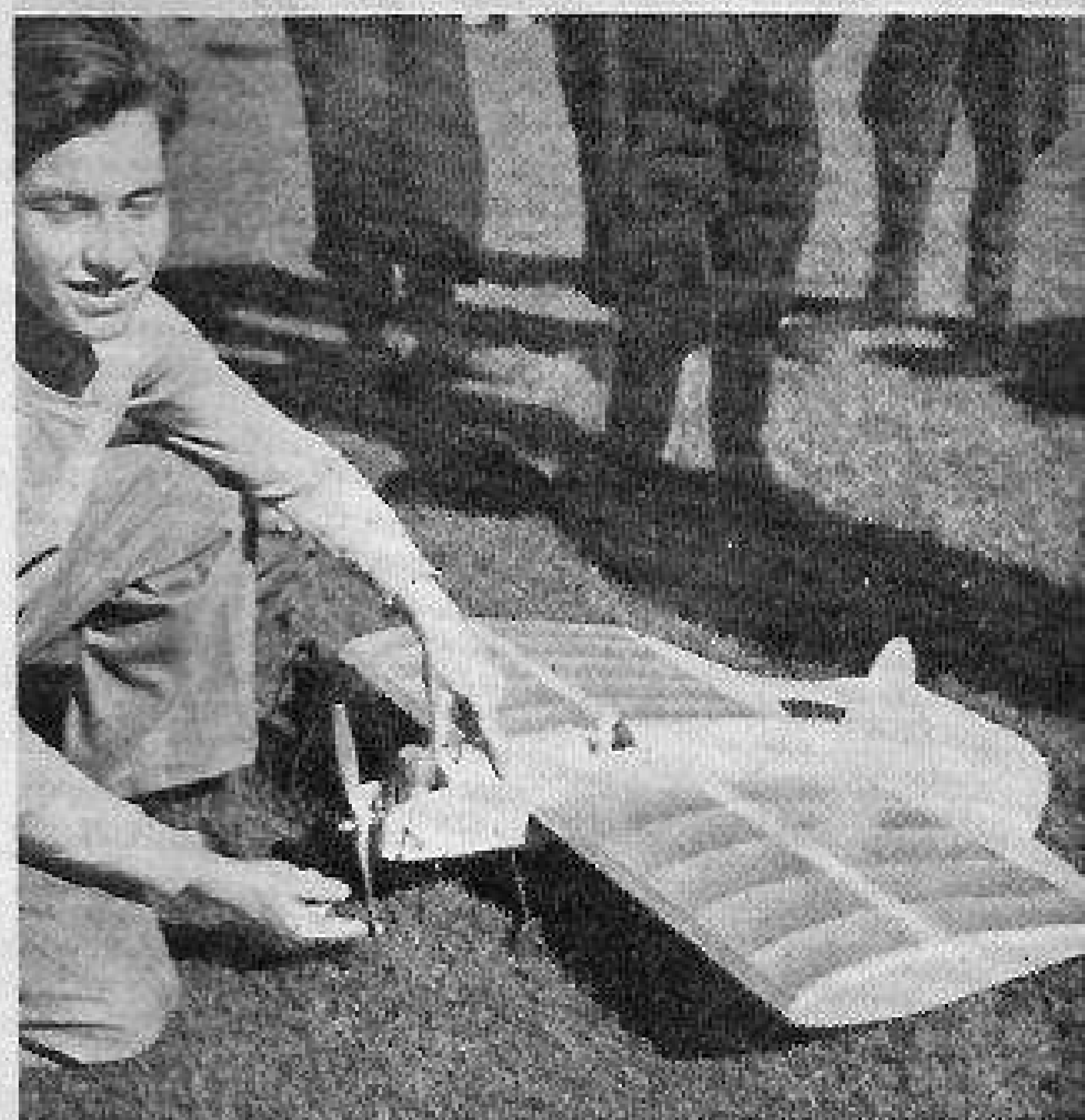
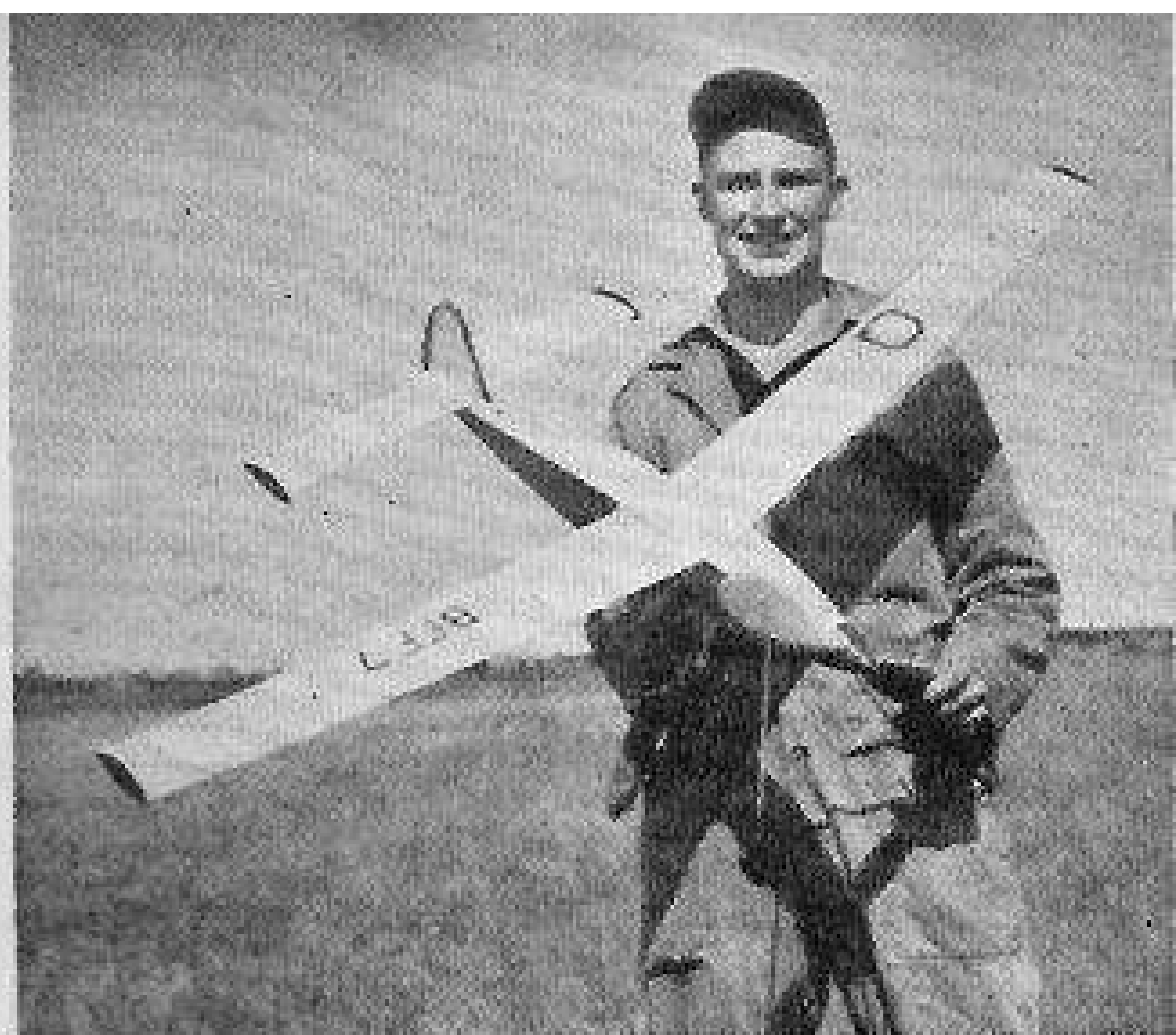
From 24th August to 2nd September an Exhibition of Model Aircraft was held at Anthony Horderns. This was solely a Model Flying Club and East Coast Speed Club show, and the nett proceeds went to the Far West Children's Health Scheme, Manly. Considering that the Exhibition was on for only one week it proved a financial success. The sum of £15/16/9 was handed to the Far West. Trophies and money orders were given for every section.

Eric Nicolle provided a welcome change with his 1/72" scale model of the Newcastle Aero Club's pageant of 45 models plus hanger, and representing most of the Aero Club's aircraft. Other special exhibits included a section of radio control and a section of jets, working and in experimental stages.

As our exhibition was such a success some members are preparing hush hush models for the next one.

The activities of the Club are gradually increasing and consequently we are enrolling new members every month. Quite a number of these members are old flyers.

(Continued on next page)



(Top)—The only Queensland Competitor at the last Nationals — Allan Thomas. He too is a Wakefield enthusiast.

(Centre)—With one of the more gruesome but effective types of controliners — Dick Hampton, of Melbourne.

(Bottom)—Typical of the large stunters which have been flown in Centennial Park, Sydney, for the past couple of years, is Peter Sandford's McCoy Powered Stunter. Pete is a member of the North Shore Club.





—Photo courtesy "Mercury," Hobart.

**BEAUTY AND THE BEAST.** Two of the prettier sides of aeromodelling — a scale Thunderbolt, built by Arthur "Seaweed" Wylde, of Sydney, and an Intruder Mosquito, built by Neil Stewart, of S.A. "Seaweed's" model provided the most spectacular scale crash possible to see during the Scale Event at the last Nationals. Pat Hiscox and Jackie Walter are holding the models. The Beast in our trio is the Jet. A vicious, unpredictable thing, it is the least attractive of all models, but is the most spectacular when in the air. Preparing David Reynolds Jet are D. Smith, R. Wheeler and L. Baxter, members of the Hobart M.A.C. The model flew at 95 m.p.h.

## Club News (cont.)

Next month we are holding our Club's competition and with good weather we will be able to give you a detailed report.

All correspondence to Box 2278, G.P.O., Sydney.

ARTHUR LARRITT,

Publications Officer.

## Tasmania.

### HOBART MODEL AERO CLUB

We here are 100 per cent. control fliers due to lack of suitable free flight grounds.

On the Monday holiday of 12th June the H.M.A.C. in conjunction with the Launceston Club staged a public demonstration at Clare Street Oval, Hobart. Over 40 models were flown and the meeting was attended by over 1,000 spectators. The greater majority of models flown were stunt jobs. Our leading stunt fliers, Geoff and Bert Leverton, flew Yulon 30 powered models. Reg Wilson, Garth Wilmot, and Bruce Synott, flying Frog 500 powered stunt jobs, helped to give the spectators plenty of thrills.

Only two Class B speed models made an appearance, Bruce Synott's McCoy 29 Little Rocket which did not get airborne and the Leverton Twin's Eta 29 speed model which made two excellent flights at 98 m.p.h. The highlight of the demonstration was the first flight of David Reynold's Squirt powered by a Juggernaut Redhead, which reached a speed of 95 m.p.h.

Dave Jacobs, from Launceston, pleased the crowd when his big sidewinder Tempest stunt model shed the outboard wing after a loop.

On 30th July we flew off the Bridges' Stunt Trophy, which resulted in an outright win by Geoff Leverton, who flew a 350 sq. in. Yulon model through every manoeuvre in the schedule (Plymouth Rules) in a most polished manner. He was followed by Bert Leverton flying a similar model. Bruce Synott was third. Manoeuvres were called by public address system to each contestant in a manner similar to the Nationals and was judged by Dave Christian and D. Reynolds. Mr. Bridges, the donor, presented a fine trophy.

Coming events here include a demonstration at the Royal Show in October and a trip to Launceston in early November. Stunt flying is dominating everything else at present. Success seems to come mostly from Class B motors such as Yulons and Frog 500s. Best spoken of stunt motors are the Yulon, Frog 500 and Atwood Champion/Glo-devil. A number making good progress have Atwood engines on the way from the States. D. Reynolds is our lone jet flier and expects to push the speed up soon with the arrival of a Dynajet and Super Squirt Kit. Royce Wheeler is perhaps our unluckiest modeller, writing off three Atwood models in quick succession, including a Super Zilch without getting anywhere. Those flying 5 c.c. stunters have been building "crash proof" models lately, and it is not uncommon to see these jobs time and time again bounce in full bore crashes. This seems to have come from plenty of block round the nose and spruce spars and edges in the wings. With the emphasis on stunt, racing motors are "out," and Tempests and Eta 29s are hard to dispose of and some modellers have trouble in selling highly regarded McCoy's, etc.

### LAUNCESTON MODEL AERO CLUB

This is our first news item, so perhaps a little history would not go amiss. The Club was formed in 1946 by five or six members, including the president of the Aeromodellers' Association of Tasmania. It has since expanded and though still small most phases of model flying have been covered.

Control line and free flight power are most popular at the moment. Team racing is commencing, most models being powered with Frog 500s.

L. Cordwell is building a 5 ft. span Pursuitier powered with a Gee-Bee 50. Charlie Jones and David Nobes are our most active free flight members at present, and have had a number of cross county flights. One Hi Ball with an E.D. Bee made a flight of 5 minutes 17 seconds.

Paul Roper has a Dynajet but so far has been unsuccessful in getting his model airborne.

The Club is holding an all control line meeting in Launceston in conjunction with the Hobart M.A.C. on 6th November.



**Victoria.****V.M.A.A.**

The 1950 Victorian Stunt Controline Championships were conducted at Como Park a few weeks ago in perfect weather.

Experience gained from previous meets was put to full use and the ground organisation was excellent. The pits suffered a little from the usual spate of "technical advisors," but even these were kept in check, giving the contestants a fairly free time.

This year the contest was not "open," but restricted to teams of three junior and three senior members from each of the 15 V.M.A.A. clubs, which each held their own eliminations to select their club team. The result of this pre-selection was a very high standard of flying in the Championship.

Flying commenced at 10.30 a.m. and continued till 5.45 p.m.

National Rules as outlined in the 1951 entry form were used.

**Results:**

Senior—1st, J. Wilson (Northern Suburbs), 340 pts. (Frog 500); 2nd, M. Tyrrell (E.S.M.A.C.), 338 pts. (Anderson Spitfire); 3rd, T. Farnam (E.S.M.A.C.), 295 pts. (K & B Torpedo).

Jack Black of South Australia, who is at present living in Melbourne, created a stir by flying a NEW model. This may not sound unusual, but Jack has been flying the same old model—the first stunt controliner he built—continuously since 1946 or 47. The new model went well but performance was spoilt by the motor running too rich, a crash, and the motor falling out, although Jack managed to gain fourth place with 266 pts. in spite of this.

Tony Farnam would also have done much better but for motor trouble.

**Results:**

Junior—1st, D. Brown (Corio), 306 pts. (Elfin 249); 2nd, D. McLaren (Parkdale), 289 pts. (McCoy 19); 3rd, G. Rhodes (West Preston), 245 pts. (?).

The most outstanding show of the day was Peter Scully's special manoeuvre in the Junior event. He flew two models at once, looped them in formation and wing-overed for 12 or so laps. Peter was most unlucky not to gain a placing. The crowd loudly applauded his fine effort.

Norm Bell had a magnesium hull "Hell Razor" doing 90 m.p.h. in the speed circle powered by a McCoy 19.

"Super Skylark" and "Veco Squaw" designs were in the majority, and many variations of the "Squaw" were in action. It is certainly an outstanding design. Models fitted with flaps took four of the first six places. Flaps are the current rage in Melbourne. (See Flap article Controline Comments).

**E.S.M.A.C.—**

Club Championships were held on 8th October with the results as follows:

1st, Tony Farnam, 241 points; 2nd, Monty Tyrrell, 225 points; 3rd, Jim Fullarton, 199 points.

Nationals winner, Reg Cooper, was unplaced, but Johnny Lamont (Junior Nats. winner) had a walkover in the Junior Event.

**Wakefield Type:**

Jim Fullarton is making rapid progress with his stunting. He uses an American kit design the "Veco Squaw" which is terrific, and is capable of two vertical eights above one another without mushing at any time. Jim, with more practice, will be pushing hard at the topline stunt men, and his special manoeuvre is a corrugated wingover and square horizontal eights.

**General Notes.**

Some of the lads are considering trying spark ignition on their team racers' motors after seeing the clash between Graham McDonald and Monty Tyrrell, using a Frog 500 and Ohlson 29 on spark ignition respectively. The Ohlson did almost twice the mileage at a speed only a fraction slower than the gloplug motor.

The spark job was also much easier to start when hot than the glomotor. Impressed by the potential of ignition Graham has converted his Frog 500, but at the time of writing he has not tried it out.

Diesels are just about taboo here as none have been seen in major team races, except Frank Culens E.D. MK.IV. The boys do not seem to be building team racers like we expected. Open-go-on-the-spot races are popular with standard stunters. At Surrey Park it is getting to be a novelty to see a stunter flying on its own.

(Notes from Monty Tyrrell).

**Queensland.**

N.M.A.A. A stunt contest was held at Stafford on the 22nd October with the result as follows—

1st, Peter Weaver—Gorrie Rosebowl; 2nd, Don Goldspink; 3rd, Frank Powell.

**Newtown Model Aeronautical Association:**

This association is anxious to contact new members, and will be pleased to receive enquiries from persons interested. Write to Hon. Secretary, Arthur Gorrie, 604 Stanley Street, South Brisbane.

**General Notes:**

Three of the keenest controline boys are the Thomas brothers who have been flying Stunt-wagons (their own versions) Wombats, and deBolt Bipes. Some time ago they obtained some Ohlson and no doubt they are getting a good work out.

Alan Weston, one of the scale conscious lads, built up a Typhoon with retracting U/C gear and then went on to build a beautiful "Topsy" which was flown by Don West at an aero pageant some time ago. Ian Butler has a "Dreambogy" really cracking, the perfect flight, 5 minutes with the D/T bringing her down every time. Harry Butler finally lost his "Fugitive."

Frank Powell is deserving of praise. After persevering with the Wombat plus 3 sinkers Frank built himself one of the neatest jobs seen. With this model he won the Hi Fliers Stunt Trophy on 27th August.

Peter Weaver is flying a beautiful Squaw. Pete is the pioneer of many a good idea. It was Pete who made Go-Devils and Squaws locally famous, and balloon tanks. Pete proved their worth as many others have discovered since.

Terry Jack was unlucky at the recent Stunt Contest as he "pranged" before the contest started. That Go-Devil really works for Terry too.

Continued on page 36)





*Courtesy of "Air Log"*

# Australian 1951 Model Plane Championships

★ 1951 NATIONALS, A COMMONWEALTH JUBILEE EVENT

★ JUBILEE CHAMPION OF CHAMPIONS TROPHY

(Provided by Commonwealth Government)

★ Full accommodation available for all male contestants at low cost

The Sporting Sub-Committee of the Commonwealth Government Jubilee Committee have accepted the 1951 National Model Aeroplane Championships as an event in the Commonwealth Jubilee Celebrations, and are providing Trophies for the Champion of Champions. The winners of these Jubilee trophies will hold them permanently, and the honour of winning them should result in added keenness to gain the title of Australia's best all round model flyer, the Champion of Champions.

After months of activity attempting to arrange accommodation for all interstate competitors and team mates the "South Australian Associated Aero-modellers" have at last been fortunate to obtain the use of an ideal camp.

Camp stretchers and blankets will be provided and a hot morning meal. Cost will be only £2 including breakfast for a full week. The camp is situated at Fort Largs and all conveniences are installed, hot showers, mess room, etc., and is right on the sea front.

Transport from the camp will be provided each day for modellers without their own means.

Meals will also be provided at each day's flying site.

## Rules.

The S.A.A.A. Committee intend to make every effort to see that competitors understand the rules under which the contests will be run, and a full briefing of all competitors will be carried out before each event.

THE STUNT CONTROL LINE RULES are probably the most complicated, and the following may help clear any uncertainty.

- (a) Although the rules at present say that the minimum line length is 52½ feet the S.A.A.A. rules committee prefer not to insist on a minimum line length, as already several complaints have been received from modellers who fly small motors, and the S.A.A.A. feel that the small motors should not be penalised, by forcing them onto too long a line;
- (b) The model must have a permanently affixed undercarriage;
- (c) Once a model becomes airborne it is considered an official flight. No, repeat, NO, delayed flights can be claimed once the model has become airborne;
- (d) Only two attempts can be made to make an official flight;
- (e) Once a contestant is called to the flying area it is considered an attempt, whether the motor is started, the model becomes airborne or not.
- (f) Two attempts constitute one official flight.
- (g) A maximum of eight minutes is allowed from the time the contestant is called to the flying area until judging ceases. No points can be earned after eight minutes has elapsed and the contestant must vacate the flying area.
- (h) Scoring. Points will be given separately for each of the two official flights, and only the points gained on the better of the two flights will count. COMPLETE FLIGHT PATTERN must be attempted on each flight.



## 1951 NATIONAL CHAMPIONSHIPS STOP PRESS TROPHY LIST

	1st	2nd	3rd
1. Indoor Stick .....	£5	£2	£1
2. Indoor Fuselage .....	£5	£2	£1
3. Junior Stunt Controline .....	£5	£3	£1
4. Intermediate Stunt C/L. ....	£10	£5	£2
5. Senior Stunt C/L. ....	£10	£5	£2
6. Team Speed Class "C" .....	£5	£3	£1
7. AUSTRALIAN TEAM SPEED CHAMPIONSHIP .....	£10	£5	£2
8. Speed Class "½A" C/L. ....	£5	£1	
9. Speed Class "A" C/L. ....	£5	£1	
10. Speed Class "B" C/L. ....	£5	£1	
11. Speed Class "C" C/L. ....	£5	£1	
12. Speed "Jet" C/L. ....	£5		
13. Free Flight Power Class "½A" ....	£10	£5	£2
14. Free Flight P/W Class "A-B" ....	£10	£5	£2
15. Free Flight P/W Class "C" ....	£10	£5	£2
16. Radio Controlled Flight .....	£5	£3	£1
17. Flying Scale C/L. ....	£10	£3	£1
18. Team Speed Class "½A" .....	£5	£3	£1
19. Towline Sailplane (F.A.I.) .....	£5	£2	£1
20. Towline Sailplane Class A/2 ....	£5	£2	£1
21. Hand Launched Glider .....	£3	£2	£1
22. Wakefield .....	Anthony Horden Miniature	£5	£2
23. Junior Rubber .....	£5	£3	£1
24. Unorthodox .....	£3	£2	£1
25. Jetex Powered Duration— (Ayers & James £10)		£2	1

### PERPETUAL TROPHIES FOR FIRST PLACE ONLY IN THE FOLLOWING CLASSES:—

Event 1 and 2—George Mason Shield (highest of any indoor time).

Event 7—Advertiser Newspapers Ltd.

Event 9—Pan American Airways.

Event 10—Australian National Airway.

Event 11—Tooheys Ltd. (motor must be Australian-made).

Event 13—Electronic Developments (highest time with on E.D. motor).

Event 21—Columbia Ltd.

Event 22—Anthony Horden.

National Champion of Champions—Chrysler Plymouth.

Highest State Points—Aeromodeller Shield.

Highest Junior Free Flight—President's Cup.

### OTHER AWARDS.

National Free Flight Champion—£10.

National Stunt Champion—£10.

National Speed Champion—£10.

National Champion of Champions—Commonwealth Government Jubilee and Chrysler Plymouth Miniature.

### TROPHIES NOT ALLOCATED.

Qantas Empire Airways, International Model Aircraft. Further trophies and merchandise will be allocated as they come to hand.

The S.A.A.A. has decided to increase the value of all Trophies by 33½%.

No **CASH**, but Trophies to value indicated in above list will be awarded.

## THIS DID HAPPEN TO WHO?

**THIS DID HAPPEN TO WHO?** An embarrassing incident occurred after the last Nationals. A contestant was to travel to his home by air, he loaded his power model—complete with engine and fuel tank into the aircraft and seated himself awaiting its departure. In came the captain of the aircraft sniffing the air, and what could he smell—fuel?—and what did he do? He ordered the aircraft unloaded until the source of the fuel-smell was located! Then one aeromodeller had a very red face and burning ears.

**MORAL.** If you are transporting power models by air make certain the fuel tank is quite empty and the model well wiped down, as even the small amount of fuel in a model tank could quite easily cause a tragic accident.

## NEW WORLD RECORDS

Ref.: F.A.I. Information Circular No. 45. Paris, 6th July, 1950. The following World and International Model Aircraft Records have been promulgated:—

### WORLD RECORD. Speed in circular flight:

G. Laniet (France), 22nd April, 1950. 201.117 km./h. (125.698 m.p.h.)

### INTERNATIONAL RECORDS. Speed in circular flight:

#### AEROPLANES

Class i M. Vassiltchenko (U.S.S.R.). GAML-K-1 motor of 1.963 c.c. Moscow, 14th May, 1950. 89.938 km./h. (56.21 m.p.h.).

Class ii M. O. Goevsky (U.S.S.R.). MB-050 No. 01 motor of 9.996 c.c. Touchino, Moscow, 18th April, 1950. 141.382 km./h. (90.865 m.p.h.).

Class iii G. Laniet (France). "Micron 60" of 9.87 c.c. Cachan, 22nd April, 1950. 201.117 km./h. (125.698 m.p.h.).

#### ROTORPLANES

Class M. N. Tvorogov (U.S.S.R.). TSAML-50 motor of 1.806 c.c. Maoumane, Moscow, 17th April, 1950. 51.876 km./h. (32.42 m.p.h.).

Class ii M. N. Tvorogov (U.S.S.R.). K-16 motor of 4.421 c.c. Moscow, 28th April, 1950. 43.7 km./h. (27.31 m.p.h.).

#### FLYING WING

Class i M. I. Knoukhro (U.S.S.R.). TSAML-50 motor of 1.809 c.c. Moscow, 28th April, 1950. 66.888 km./h. (41.805 m.p.h.).

Class ii M. O. Goevsky (U.S.S.R.). MB-03-F motor of 4.637 c.c. Touchino, Moscow, 25th April, 1950. 86.868 km./h. (52.290 m.p.h.).

Class iii M. O. Goevsky (U.S.S.R.). MB-05-OIF motor of 9.955 c.c. Touchino, Moscow, 23rd May, 1950. 163.447 km./h. (102.155 m.p.h.).

#### JET

M. M. Charov (U.S.S.R.). Leningrad, 21st December, 1949. 129.96 km./h. (81.2 m.p.h.).

#### JET

M. Vassiltchenko (U.S.S.R.). Moscow, 14th May, 1950. 144.075 km./h. (90.015 m.p.h.).





## OVERSEAS ROUNDUP

The 1950 American National Contest (the 19th) is now a thing of the past. Held at Dallas, Texas, the atmosphere was somewhat grimmer than usual, as while the model events were conducted at Hensley Field Air Station, Marine and Naval Air squadrons were preparing for action in Korea. Similarly many contestants at the Nationals between 18 and 21 were expecting to receive draft notices to enter one of the fighting services. Despite the international situation the Navy proved it still could play host to a National Model meet.

From early registration of intending contestants, it was shown that free flight was easily the most popular, gaining 40 per cent of the overall number of entries. Speed control had 15 per cent, outdoor rubber 11 per cent, PAA-Load, indoor, towline glider 6 per cent, and surprisingly, stunt control only 3 per cent.

No less than five countries were represented in the leading half dozen placegetters in the 1950 Wakefield held this year in Finland. In all, sixteen countries were represented, and as Ellilia repeated his 1949 success it means the event will again be held in Finland next year. The flying conditions this year were certainly the most unusual on record, commencing at 7.15 p.m. and finishing in the early hours of the next morning, this being possible on account of the long hours of sunlight in Finland. There was no wind and no lift in the air, but extreme dampness affected many models.

A notable exception was E. W. Evans, 2nd placegetter, who came prepared with a special damp resisting dope.

This year's Plymouth International Contest was limited to Contestants no older than 20, and with a total entry list not exceeding 500. This limit on entry list is also shown in the Annual Mirror Meet (U.S.A.) when 1,000 was the maximum in the one day contest. So far the National Contests in the various countries are open to all and sundry, and it is unlikely that any restrictions will be placed on the maximum number of contestants eligible to compete as far as these Contests are concerned. Some 900 attended the American Nationals, midst sun, rain and wind, and as a large number of officials from the Naval Air Station were alerted for Active Service, it meant that improvisation was needed in many cases. However, despite these difficulties the Contest proved a great success, though it is said that contest director Johnny Clemens lost ten years off his allotted span in the process.

The hottest free flight job at the Nationals were Lew Mahieu's "Zeeks." Terrific fast high climb.

Indoor events were held in the Will Rogers Coliseum at Fort Worth. High time was in the senior class, won by Ronald Platzke with 20 minutes, 13 seconds. Best fuselage time was recorded by Joe Bilgri with a flight of sixteen minutes, ten seconds. Outdoor 1/4A models were numerous, even in R.O.W. events. Radio control had about 40 entries, though the wind made flying difficult. A new feature this year was a bomb dropping event by radio, but not many tried it. However, those who did fared well, and a better entry in this event is expected next year. Also held was a Trade Show, but the contestants were too busy flying to spend much time there. As is usual with National events, nobody took out much time for eating and sleeping.

The R.O.W. flying was conducted in rough water which dunked some entries, but those with wide floats got off alright.

Grand Champion was Leslie Bartlett of San Diego, a youth of only 15. This is the fourth year in succession that the title has gone to California, so it seems the West Coast boys have an edge on the rest of the country.

It is expected the major motor manufacturers in the U.S.A. have secret plans for .049's, .19's and .029's, but no details are yet available.

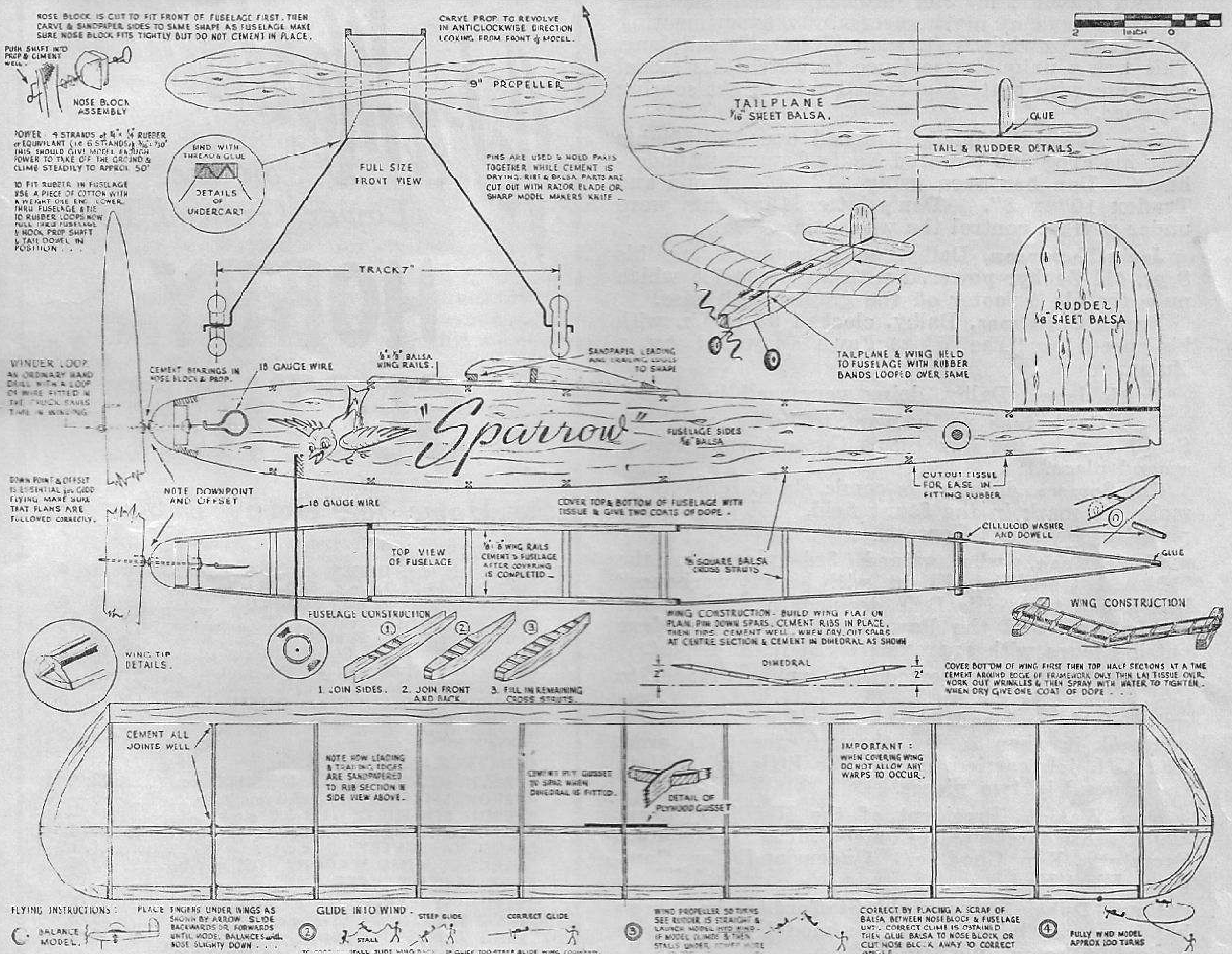
While plans for the 1951 Nationals are indefinite, owing to the overseas situation, it may be that Dallas Texas will again play host though it is rumoured that Olathe Naval Air Station would like to have the Nationals there. We shall wait and see.

---

**KINDLY MENTION AUSTRALIAN  
MODEL HOBBIES WHEN REPLY-  
ING TO ADVERTISERS.**



# "Sparrow" 24 INCH WING SPAN FLYING MODEL



## AN IDEAL MODEL FOR THE YOUNGER AND LESS EXPERIENCED MODELLER.

Looking for a simple model to build, which will give a good account of itself in the air? Then try the "Sparrow," designed by one of Victoria's leading model traders, Keith Hearn.

Aeromodelling is a most fascinating hobby, but unfortunately many youngsters are driven from its potential ranks by an unwise choice of models in the early stages of their aeromodelling career, for because of the type of model they choose they meet with little success.

The so-called flying scale model is one of the worst offenders. Most young lads want to build a "Spitfire" or a "Hurricane," but do not realise that this type of scale model is the most difficult of all to build and even more difficult to get to fly.

The "Sparrow" is an experienced modeller's version of the ideal type of model for the beginner who wants a sturdy model, fairly easy to build, and capable of good flights.

### Construction:

**Wing.**—The plan must first be drawn up to full size, and to enable you to do this a scale is marked on the plan. To simplify the task the fol-

lowing measurements are given, which will allow the wing and tailplane to be drawn out without scaling from the plan. The total wingspan, including the tips, is 24 inches, and the width (cord) is 4 inches. The wing ribs are 2 inches apart.

Actual construction is simple if time and care is taken. First the spars and ribs must be cut to size. Study the rib shape on the plan, and draw out one full size as close as possible to that shape. The rib should be a full  $\frac{1}{2}$  inch deep one-third the way back from the front edge (leading edge). Trace out this shape on to a sheet of medium hard quarter grained  $\frac{1}{16}$  inch balsa and carefully cut out the required number (11). Pin them together and trim with sandpaper to the final shape. Cut out the slots for the leading edge and mainspar and trim off the rear of the ribs evenly so as they will all meet the trailing edge. The wing spars, leading edge, main spar, and trailing edge, are all cut from a sheet of hard  $\frac{1}{8}$  inch balsa (a balsa stripper can be purchased or use a sharp carpenter's marking gauge, or a straight

(continued on page 38)



## Club News (cont.)

Ivan Unwin and Jim Mulcahy seen sneaking about at dead of night successfully experimenting with Ivan Unwin's 6 ft. span "Kestrel" sailplane. This was a unique experience to watch this model complete with battery operated cabin light soaring skyward.

Don Adams, Childers, has had over 30 flights with his Frog 500 powered Radio Control "Rudder-bug." Don has been using 11" Mi-T props and Truflex 10" x 8". Don's latter 15 flights were under perfect control the whole time.

Jack Thompson, Dalby, quite happy flying his 8 yr. old Zephyr powered with an Amco 3.5 which pulls the old 6 footer off the ground with ease.

Byron Christmas, Dalby, clocked 93 m.p.h. with his speed job "The White Fawn" powered by a Yulon.

Keith Jones, Dalby, doing very well in stunt.

Don Goldspinks really went to town with his Small Fry in the last Stunt Contest and gained second place.

Col Somers, despite his comic style, is likely to make his mark in the Stunt field. Col gained 3rd place in the Stunt Contest.

Neale Keag, who gained 3rd place in the N.M.A.A. Open Free Flight, with his "Powerhouse" had a bad trot. His D/T decided to work at the wrong time and the Powerhouse did about four outside loops with approximately 5 ft. of height.

Tony Stewart converted his rubber model to power by adding a Mills .75. This little job was quite stable and had a really good glide. Disaster overtook it when it flew through the C/L area. The C/L job carried on but the little job fell to the ground in two pieces.

Don Watson, President of the Hi-Fliers Stunt Club asks interested Control-liners to contact Secretary, Ken Good, c/- Queensland Can Company, West End.

Peter Duhs, 12 year old Staffordite, has been building and flying controline models of his own design for some time.

## STATE CHAMPIONSHIPS

The State Championships this year will be conducted by the Brisbane Free Flighters. Since Mr. Harry Butler was Contest Secretary last year and with his son, Ian, will be Joint Secretary, this time events are expected to run off smoothly. Contestants, I think, will appreciate Harry's and Ian's efforts and co-operate to the best of their ability.

The Contests will be open to all and will take place as follows:—

Free Flight—Nov. 25 and 26—Bald Hills.

Control Line—Dec. 2—Location not yet decided.

DALBY "THERMAL HUNTERS."—Quite an active group is operating in this area. Our last big controline show was quite a success. Joe Sims flew a Yulon 30 powered "Red Demon" hard into the ground and provided one of the two crashes, the other was put on by Harry Gengos when his model hit a post. The model was a modified Junior Champeen." Byron Christmas also flew a Yulon powered model, a "Stuntking." He is capable of flying through full flight pattern. The Yulon 30 is the most popular motor for stunt up here.

Notes from Bob Harvey-Hall. (Editor regrets part of Dalby notes were lost).

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on the  
Lower Ground Floor

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"ARISTOCRAT CHAMPEEN" (2-3 c.c.)	27/6
"FROG VANDIVER" (1 c.c.)	21/11
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# Mail Box . . .

The Editor, Mail Box.

Sandringham, S.8, Victoria.

Upon reading your March issue of A.M.H. I find that there is nothing in same about Model Railroading. This looks bad I thought. Is it that none of Australia's Model Railroaders have enough go in them to awaken the public to such an interesting and beneficial hobby as ours, and also that they are too aloof to encourage a closer contact with Model Railroaders in this country?

Surely there are layouts in Australia worthy of description, so why not start a "Layout of the Month" section in A.M.H.? Providing, of course, that our railroad owners can write.

I don't want to start a feud among the M.R. fraternity, but it is about time something was done, so how about some action blokes? And fill our just space in this otherwise fine magazine.

Yours sincerely,

J. D. GROSS.

A.M.H. will be pleased to re-introduce a model railway section in future issues, if support is forthcoming from model railroaders, but as the present Editorial staff have very little knowledge on the subject and no support was forthcoming from the hobbyists or M.R. trade we felt that we were unable to do justice to the subject.—Editor.

Prospect, S.A.

In reply to the letter by A. G. Hull in the November issue of A.M.H. I would like to say that I disagree with his statements concerning the weight rule for free flight power models.

His idea of 16 ounces per square foot wing area, and no power loading seems too tough.

For example, a 7 ft. model with an 8 in. cord gives 840 sq. inches, which is approximately 5½ sq. feet, therefore the model would have to weight 5½ pounds! Mr. Hull says that a 6 pound model is too heavy for a 10 c.c. motor under present power loading, but his suggestions when applied to a reasonably sized model for a 10 c.c. motor is almost as heavy.

He suggests building a smaller model with high power. Would this not lead to small, very fast flying models which could be flown only by the rare expert?

I would like to see a 10 ounce per c.c. power loading, as the lighter models built in our club get carried away by very light thermals. Anyway my Kestrel would have to weigh only 19 ounces, and with a larger wing to give the same wing loading the model can stay with those "little floaters."

Yours sincerely,

IVAN STACEY.

Beckenham,

Kent, England.

The Wakefield in Finland was an experience!

I did not have a particularly good model there for the "still air flying." My best job was lost in one of our trials.

The same job justified itself in Paris later. A British team was sent over for an International Team Event. We came second to Holland. I lost the model on the first flight, D/T and all.

Controline seems on the way out in this country. Team racing may give it a new lease of life, but free flight is definitely becoming more popular again. More interest in rubber and glider.

The trade position is very bad. Shortage of spending money is largely to blame.

Our various competition rules may have a bit of a shake around shortly, including the Wakefield. I will let you know as soon as anything is settled.

Best regards,

RON WARRING.

RON needs no introduction to Australian aeromodellers and we thank him for his offer to airmail us any changes in the Wakefield Rules. These will be published as soon as possible after they come to hand.

Glen Iris,

Vic.

In the article in the August issue of A.M.H. entitled "We ask why" (see below) the "Third Man" appears to put the blame for the late despatch of our Wakefield team upon the Victorian officials. This is entirely erroneous, the true cause of the delay, and the poor representation being solely due to difficulties in arranging transport. Official results were sent, and the Victorian entry forms were posted on 23rd June, a clear month before the contest. However, in the letter to us accompanying our entry forms, the Federal Secretary stated that nothing definite was then arranged about transport, and unless word was received in a few days it would be too late.

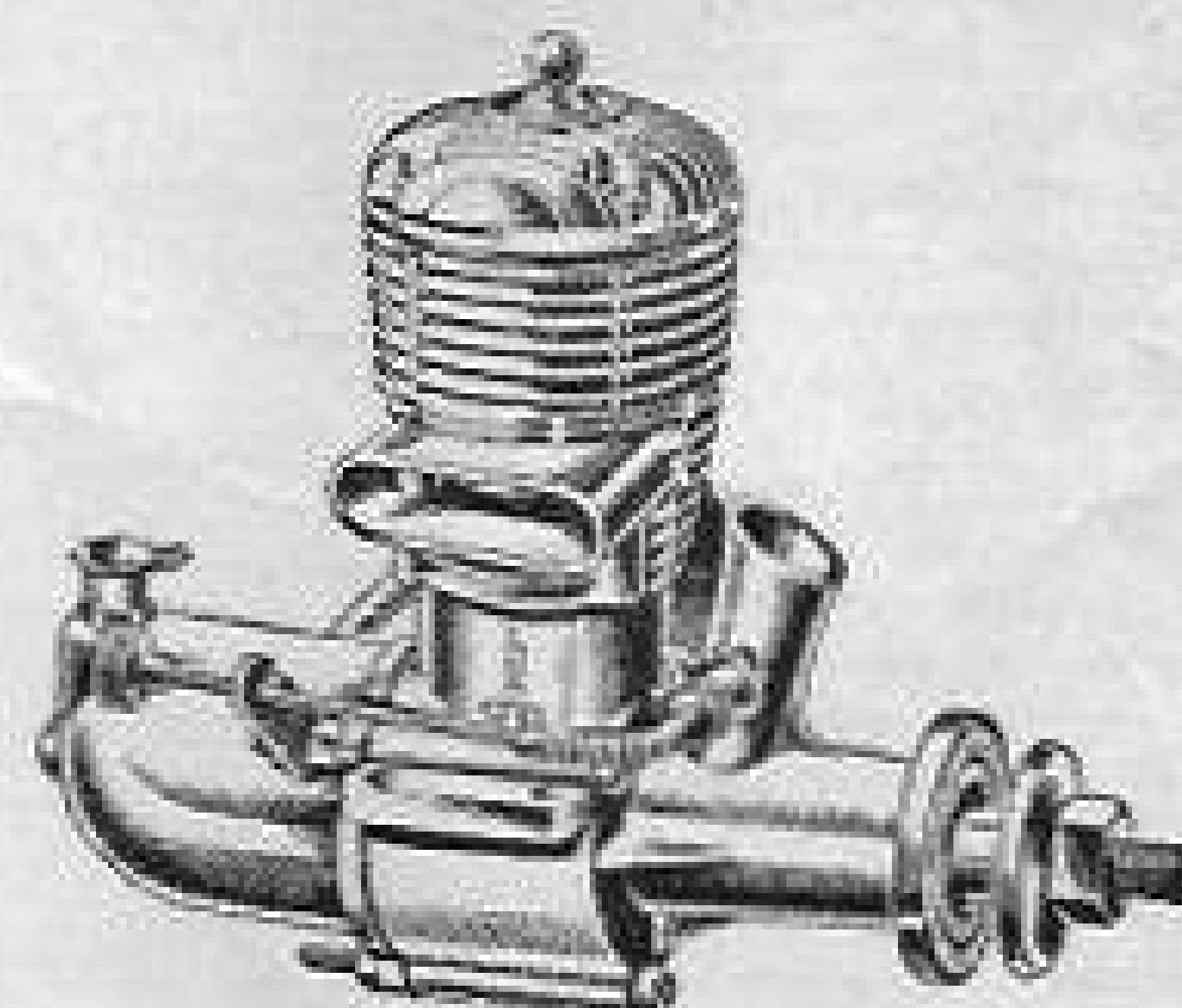
Accordingly when no further word was received towards the end of June the Victorian members decided to withdraw from the team, considering  
(continued on page 38)

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**Mail Box (cont.)**

that the time left was too short for their models to have a fair chance. Actually transport was not arranged till 8th July, and it was a remarkable achievement to get even two models to Finland in less than a fortnight.

The V.M.A.A. will always accept criticism that is fair and constructive, but in future we request our critics to work under their own names rather than sheltering under the cloak of anonymity.

Yours faithfully,

JIM FULLARTON,  
Press Officer of V.M.A.A.

(Below is reprinted the article objected to by the V.M.A.A.)  
We would like to add that A.M.H. accepts all responsibility for any anonymous articles in this magazine.

**WE ASK WHY ? ? ?**

"The Third Man" tells us that he has heard that the results of the Wakefield eliminations held in Melbourne last Easter have only just reached (about the 20th of June) the Federal Secretary from the V.M.A.A. and although entry forms have been rapidly sent out to those entitled to compete in the Wakefield, it is considered unlikely the models will be able to be despatched in time to reach Finland before the closing date for the Wakefield. Let us hope the "Zither" is out of tune and that despite the tardiness of the results being sent, Australia is represented at the Wakefield.

Canterbury, Vic.

Following are a number of suggestions for team speed, which I feel if adopted would result in an event that would rival any other in spectator and contestant appeal.

I would like to see views from the various States published in A.M.H.

My ideas are as follows. Leave the team speed rules exactly as they are with the exception of the 1 ounce tank capacity, allow  $\frac{1}{2}$  of the motor to be uncowed, race the model singly against the watch over seven laps similar to ordinary speed models. In other words let's have a proto speed event as they have in the U.S.A.

Straight out speed is not, and as far as I can see cannot become really popular in this country.

To me proto speed combines all the good features of team speed and eliminates the poor.

Here's hoping something is done for this type of event in the near future.

Yours sincerely,

NORM BELL.

The opinions expressed by Norm Bell should be of interest to all control line flyers as Norm speaks with considerable experience behind him. He was Champion of Champions at the 1950 Nationals and recorded the highest speed of the contest, 106 m.p.h. with a Doering 29.—Editor.

**SPEED CONTROL LINE RULES**

Line diameter, minimum .001 for each 2 oz. of model weight.

No lines may be used below .008 diameter.

**Line Lengths—**

Class 1A—35' or 42½' (optional).

Class A—52½'.

Class B—60'.

Class C—70'.

Complete Nationals Rules and Entry Form available from B. N. FELSTEAD, 71 Watson Avenue, Toorak Gardens, South Australia.

**The Flying Wing (cont.)**

would weigh from 180,000 to 200,000 pounds. The engines would be completely buried in the wings, thus eliminating the engine nacelles, and the use of jet engines would dispose of the airscrew slip drag over the wing. The total structure of such an aircraft is lower than that of a conventional design owing to the absence of the body tail unit, and the fact that the greater proportion of the load carried is distributed along the wings. This has the additional advantage of confining the fore and aft Centre of Gravity position to much narrower limits than usual, which is essential to ensure longitudinal stability, otherwise this would be difficult to obtain owing to the absence of the tailplane.

Having produced a satisfactory form of laminar flow wing construction, and being convinced that the tailless aeroplane was the next step, Armstrong Whitworth produced the AW 52G. Tailless Glider, having an all-up weight of 6,000 pounds, and a span of 53 feet. This aircraft enabled the testing of stability and control problems in flight, and confirmed all the previous calculations and wind tunnel experiments. These results agreed so well, that with the exception of lowering the gearing on the elevator-cum-aileron, none of the controls had to be modified.

Armstrong Whitworth were then requested by the Directorate of Scientific Research of the Ministry of Supply to design and make a larger all metal Tailless Aircraft powered with twin Rolls Royce Nene Jet engines. It was decided to build a medium sized aircraft, weighing about 30,000 pounds with a span of 90 feet and a moderate wing loading of 25 pounds per square foot.

The AW 52 shown in the accompanying photos was the result.

Successes of the many types of tailless model aircraft, particularly in Great Britain and on the Continent, have on many occasions caused the orthodox diehard to wonder if he really is building the better type of model.

**SPARROW—continued.**

edge and a razor blade for the job). Leading edge  $\frac{1}{4}$  inch x  $\frac{1}{4}$  inch, mainspar  $\frac{1}{8}$  inch x  $\frac{1}{4}$  inch, trailing edge  $\frac{1}{4}$  inch x  $\frac{1}{4}$  inch. The trailing edge is sandpapered to a taper — see plan. Wingtips are cut from  $\frac{1}{4}$  inch balsa sheet.

**Wing Assembly.**—Lay a piece of greaseproof paper over the plan you have drawn up, and pin down the three spars in position, and then slide the ribs into their places. Cement each one in place. Cut out the tips as shown on the plan and cement in place. Allow the cement on the partly constructed wing to dry overnight, and then lift up from the plan and cut the three spars in their exact centre so that the wing tips may be tilted up 2 inches — see plan (this tilting upwards of the wings toward the tips is known as dihedral). Cut a plywood gusset — see plan at centre of wing — which is used to strengthen the centre wing joint. This gusset is in the form of a very shallow "V" and is cemented to the rear of the main spar. Allow cement to dry thoroughly and then sandpaper the framework carefully and set aside for covering.

(continued on page 40)



## A Wakefield Report (cont.)

Very few streamliners were seen at the 1950 Wakefield. The favourite design trend was the diamond fuselage slab-sided with cabin type pylon-wing mount. Folding and freewheeling props were about equal in numbers. The Yugo Slav models featured adjustable pitch propellers—adjustable on the ground, not variable in flight. Evans used a feathering propeller which gave excellent results.

The merit of Ellila as a flyer can best be assessed from the fact that the remainder of the Finnish team were flying similar models, several with return gears, but no other Finnish entry achieved a flight of more than 132.7 seconds.

### Results of the Australian and New Zealand Models

#### AUSTRALIA:

A. Butler—114.5, 116.3, 93.3; total, 324.1. Placed 29th.

A. Meader—56.4, model damaged; total, 56.4. Placed 59th.

Only two Australian models were sent to Finland.

#### NEW ZEALAND:

D. R. Kennedy—174.5, 165.2; total, 312.7. Placed 35th.

F. D. Bethwaite—96.1, 85.9, 82.5; total, 264.5. Placed 39th.

B. B. Marsh—163.5, 6.8, 73.9; total, 242.2. Placed 42nd.

R. Hansen—3; total, 3.0. Placed 61st.



Minimum, 20 words 3/6, and 2d. per word for each subsequent word.

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**FOR SALE.**—Used diesel and gloplug motors and plans. Send stamped addressed envelope for list. C. CLIFF, Warragul, Victoria.

**WANTED TO SELL.**—Frog 100 motor, complete with propeller and spare crankshaft. Price £3. M. HUNTER, 9 O'Grady Street, Clifton Hill, Melbourne.

**BROWN JUNIOR** model "D" petrol motor, plastic tank, rarely used since bought. No electrics, plug. Offers? B. POTTER, Glen Morrison, Walcha, N.S.W.

**SELL.**—Arden .099 spare parts. Rebuilt crankcase with new carburettor and needle valve assembly with brand new crankshaft. Also used crankshaft cylinder, piston and con-rod. All in good order. The lot for £2. J. BLACK, 14 Maple Grove, Toorak, Melbourne.

**SELL.**—Super Delmo Diesel. A beautiful lightweight unit of very high power. Ideal for competition free flight work. Variable compression and very easy to operate. Flown only four times and guaranteed in perfect order. With spare oversize piston and free flight prop. Best offer around £5. J. BLACK, 14 Maple Grove, Toorak, Melbourne.

New Super Cyclone with coil, £9.—1950 McCoy 19 "Sports" bench tested only, complete with prop, spinner, tank, £7/15/-.—Used Ohlson 23, rotary valve, gloplug model, £4/10/-.—Jetex 200 outfit, complete, little used, £1/10/-.—B. Holding, 35 Mends Street, South Perth, W.A.

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**SPARROW—continued.**

**Fuselage.**—This is the most simple type of construction for a box fuselage. Select a sheet of medium semi-quarter grained balsa and draw onto this a fuselage side the dimensions of which are: Length, excluding noseblock,  $24\frac{1}{2}$  inches; depth at rear,  $8/10$ ths in., depth at front, 1 inch; maximum depth (4 inches from front),  $2\frac{1}{2}$  inches. Cut out the two fuselage sides and trim with sandpaper. These two sides are joined together with  $\frac{1}{2}$  inch x  $\frac{1}{2}$  inch balsa cross struts — See plan 1, 2, 3.

**Fuselage Assembly.**—First cut out two rectangles  $2\frac{1}{2}$  inch x  $1\frac{1}{2}$  inch. These are to act as temporary bulkheads whilst the fuselage is being assembled. Pin one of these bulkheads between the sheet sides 4 inches back from the front, and the other 10 inches back. Make sure that the two sides line up correctly and then cement the four top and four bottom cross struts as shown in Fig. 1 on the plan, and allow the cement to dry thoroughly, then pull the rear of the fuselage sides together, cement and hold with pins and rubber band. Draw the front together also with a rubber band, and then cement the remaining cross struts in place. Set aside to dry.

**Tailplane and Rudder.**—The tailplane is formed from a piece of  $\frac{1}{8}$  inch balsa 12 inches long and 3 inches wide with the ends rounded off. Rudder off. is  $\frac{1}{8}$  in. x 3 in. x 4 in., and shaped off as shown on plan. Cement the rudder to the centre of the tailplane with several coats of cement.

**Undercarriage.**—This is bent up to the shape shown on the plan from 18 swg. wire. Bind and cement the formed undercarriage to a piece of hard  $\frac{1}{8}$  in. x  $\frac{1}{2}$  in. x  $1\frac{3}{10}$ ths in. and cement this assembly to the fuselage sides as shown on the plan. Fit  $1\frac{1}{2}$  in. aluminium wheels.

**Propeller and Nose Block.**—The carving of a propeller is quite a skilled job and one on which the beginner usually breaks down, and so we suggest that either you buy a ready made prop — which unfortunately are not cheap — or try and get an experienced modeller, or your local model shop to help you carve the propeller. The propeller shaft is bent from 18 swg. piano wire. The nose-block is carved from a small block of balsa, and care must be taken to see that it fits snugly into the front of the fuselage, and that the hole for the propeller shaft is drilled as shown on the plan. Note that small metal cup washers are used as bearings.

**Covering.**—Several types of tissue paper are available, but silk or rag tissue are the best — excepting for Jap tissue, which is almost unobtainable. If coloured tissue is preferred a Swedish tissue can be used. This tissue can be tightened by spraying with water whereas rag tissue needs a rather heavy coat of cellulose dope. Either photo or office paste or dope can be used to attach the tissue, and then dope the entire model with cellulose dope. If coloured tissue is used, spray with water first, and allow to dry before applying cellulose dope.

**Check Plan for final details.**

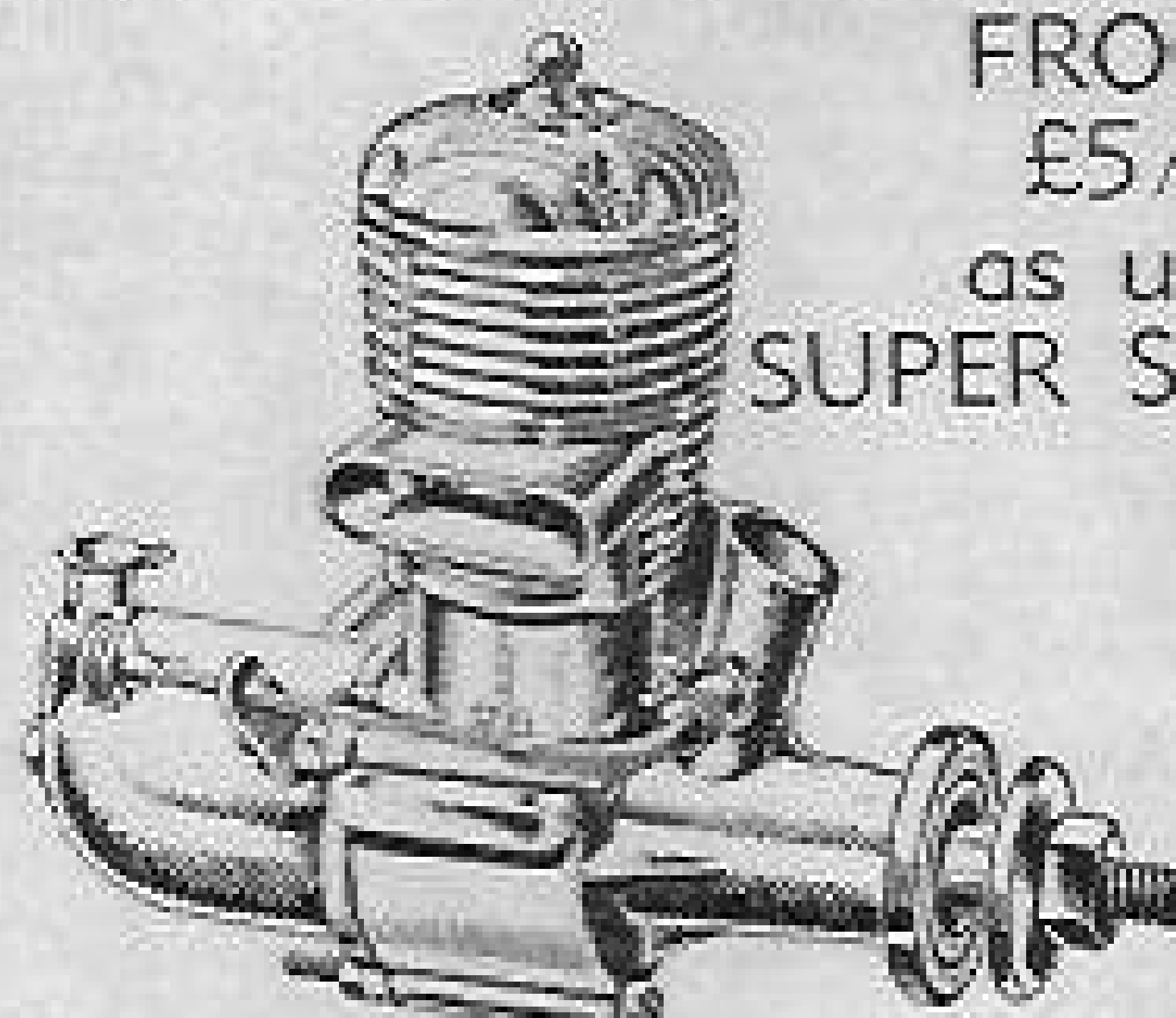
**Rubber Motor.**—4 strands (two loops) of  $\frac{1}{4}$  in. flat rubber should be sufficient to power the model. Make up a loop 30 inches long and fold in halves to give four strands. Lubricate the rubber with glycerine (or rubber lubricant from your model shop) and then fix between the propeller shaft and dowel in the rear of fuselage.

**Flying.**—See instructions on bottom of Plan.

# Hearn's Hobbies

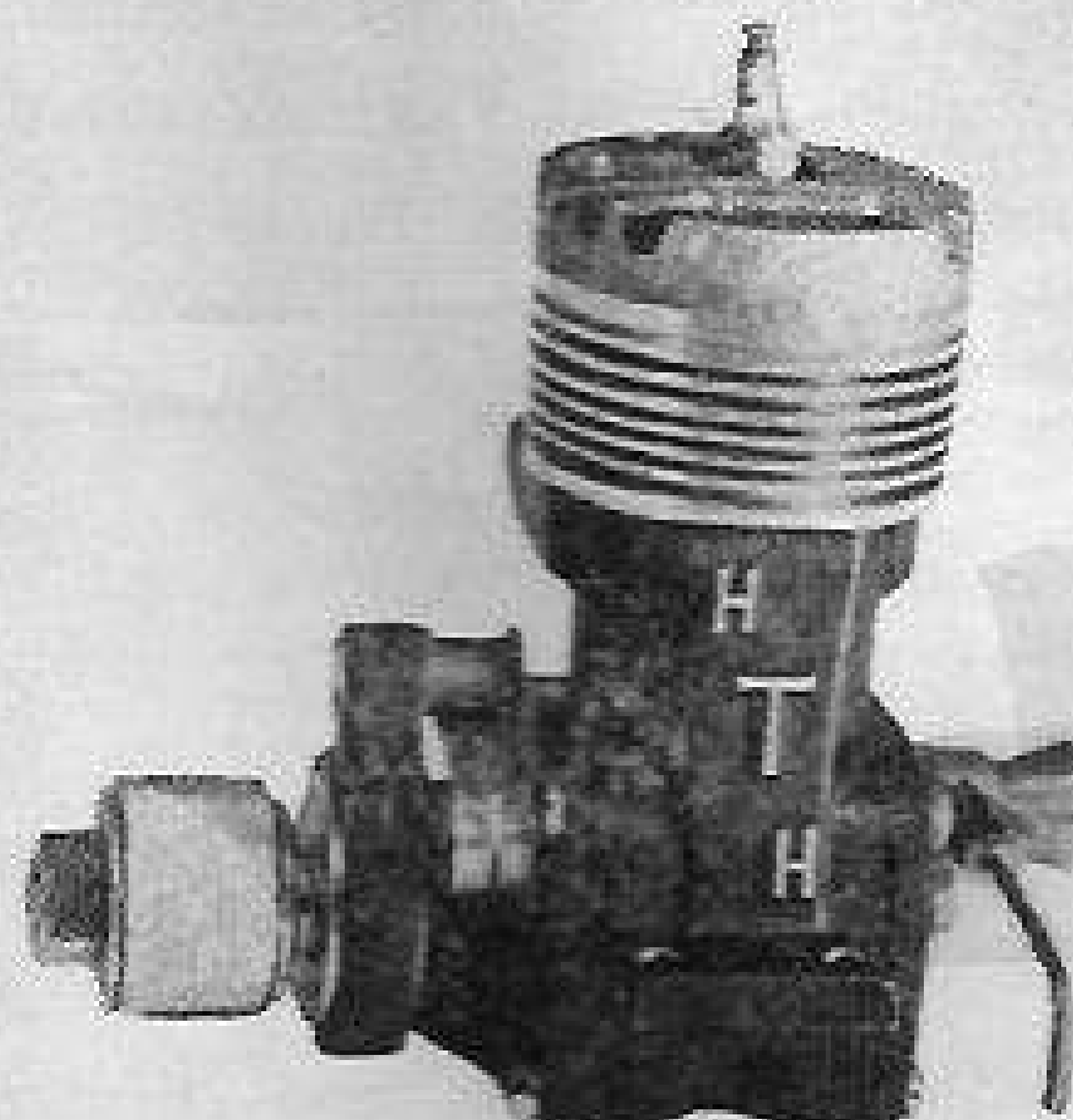
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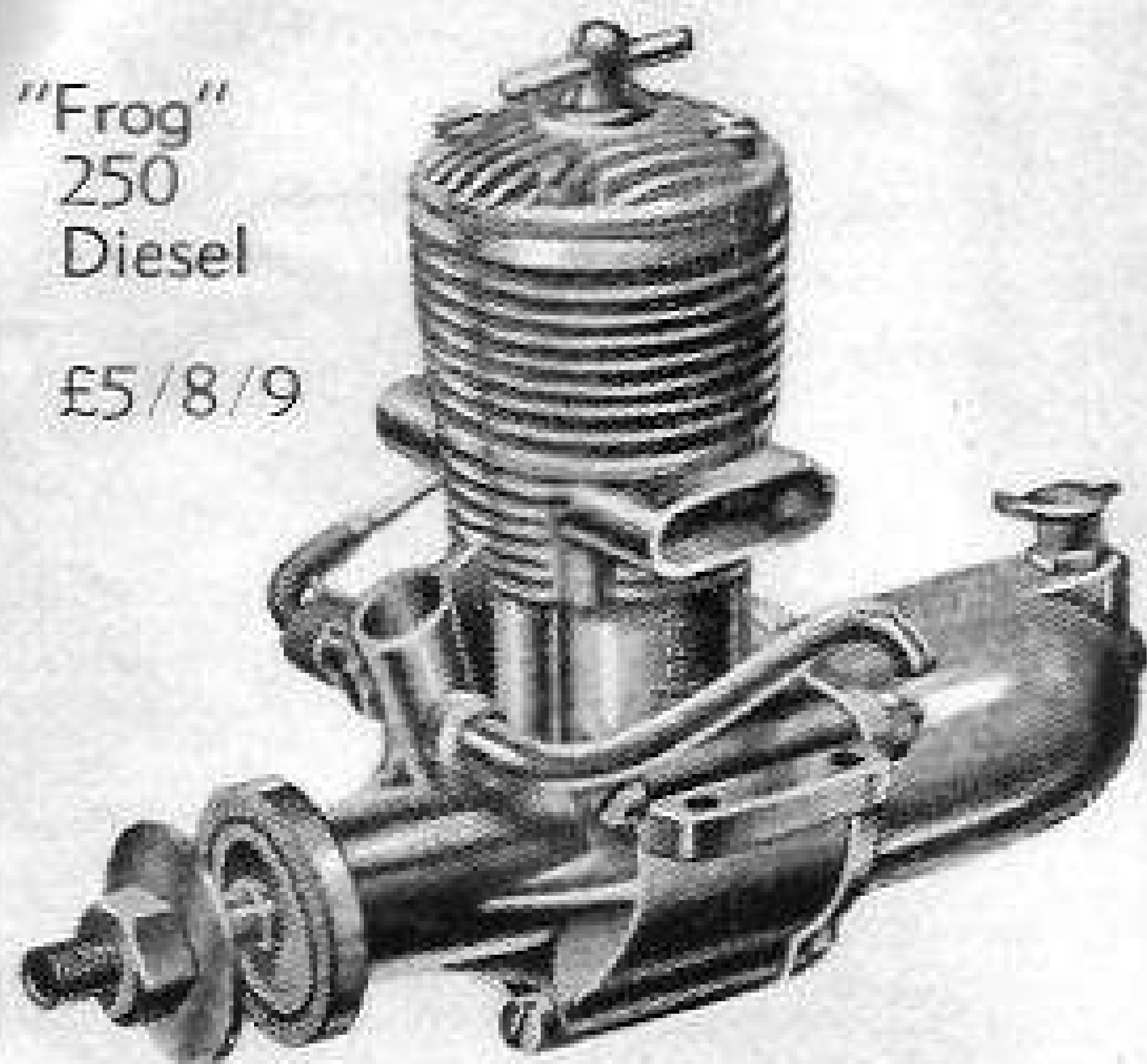
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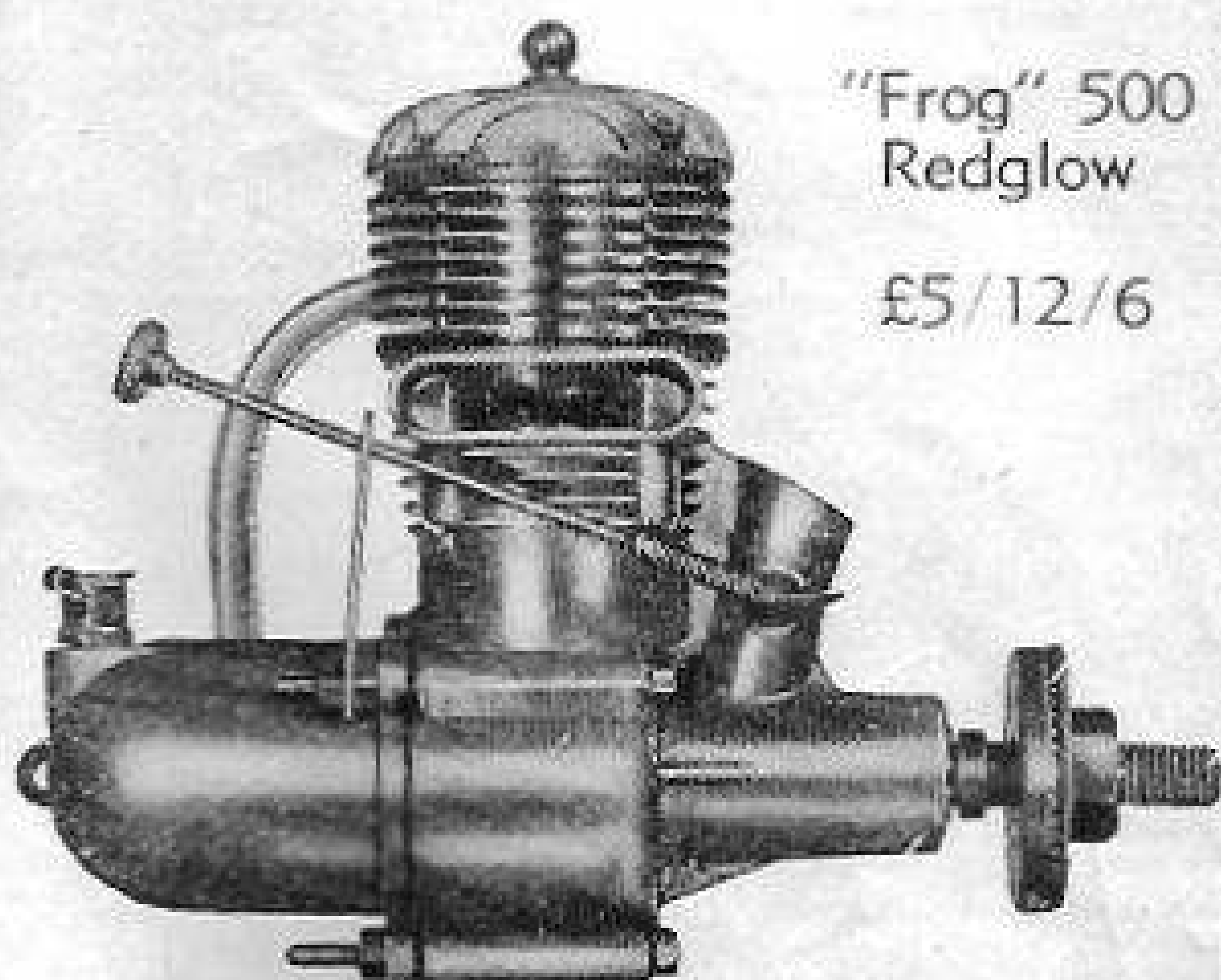
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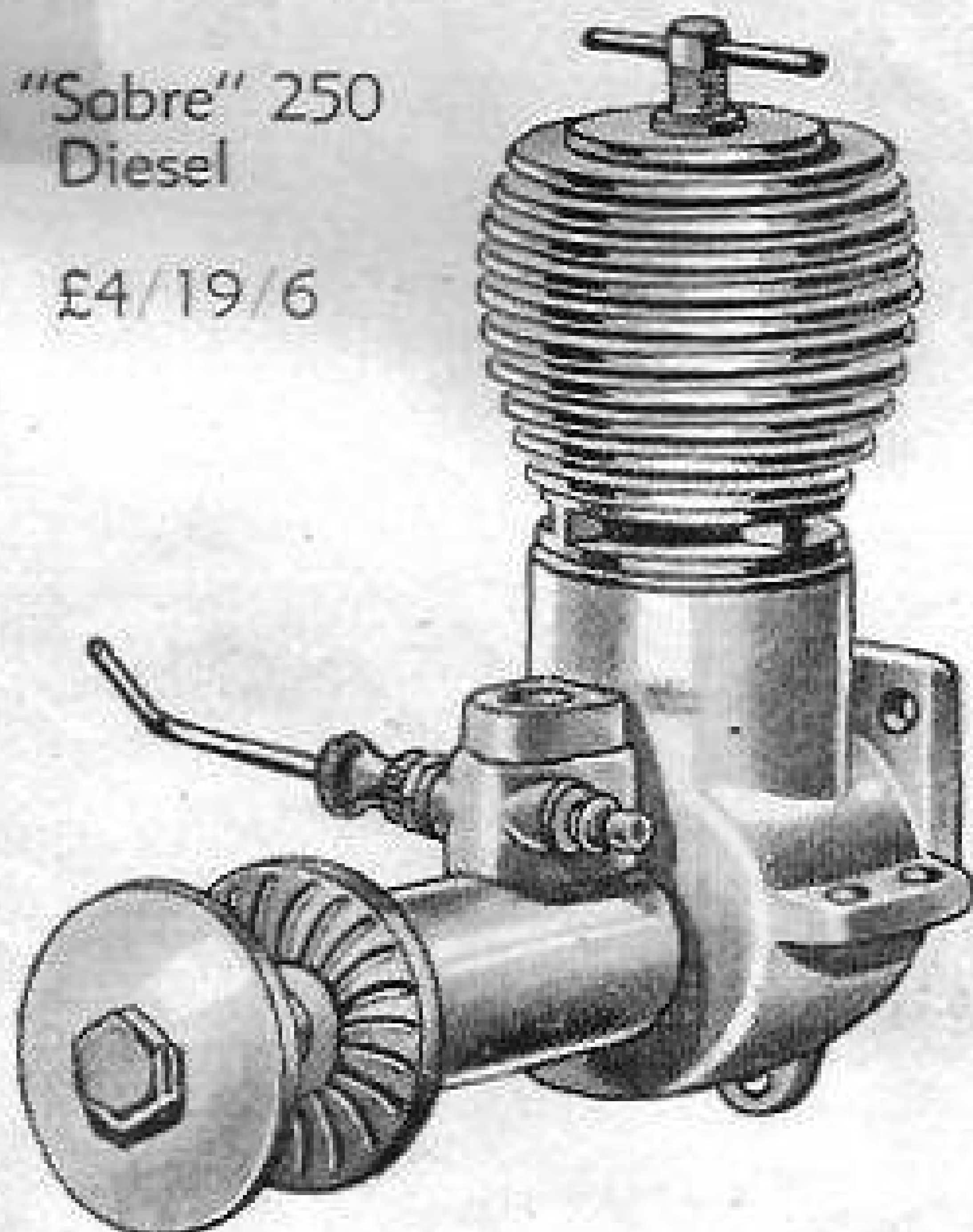
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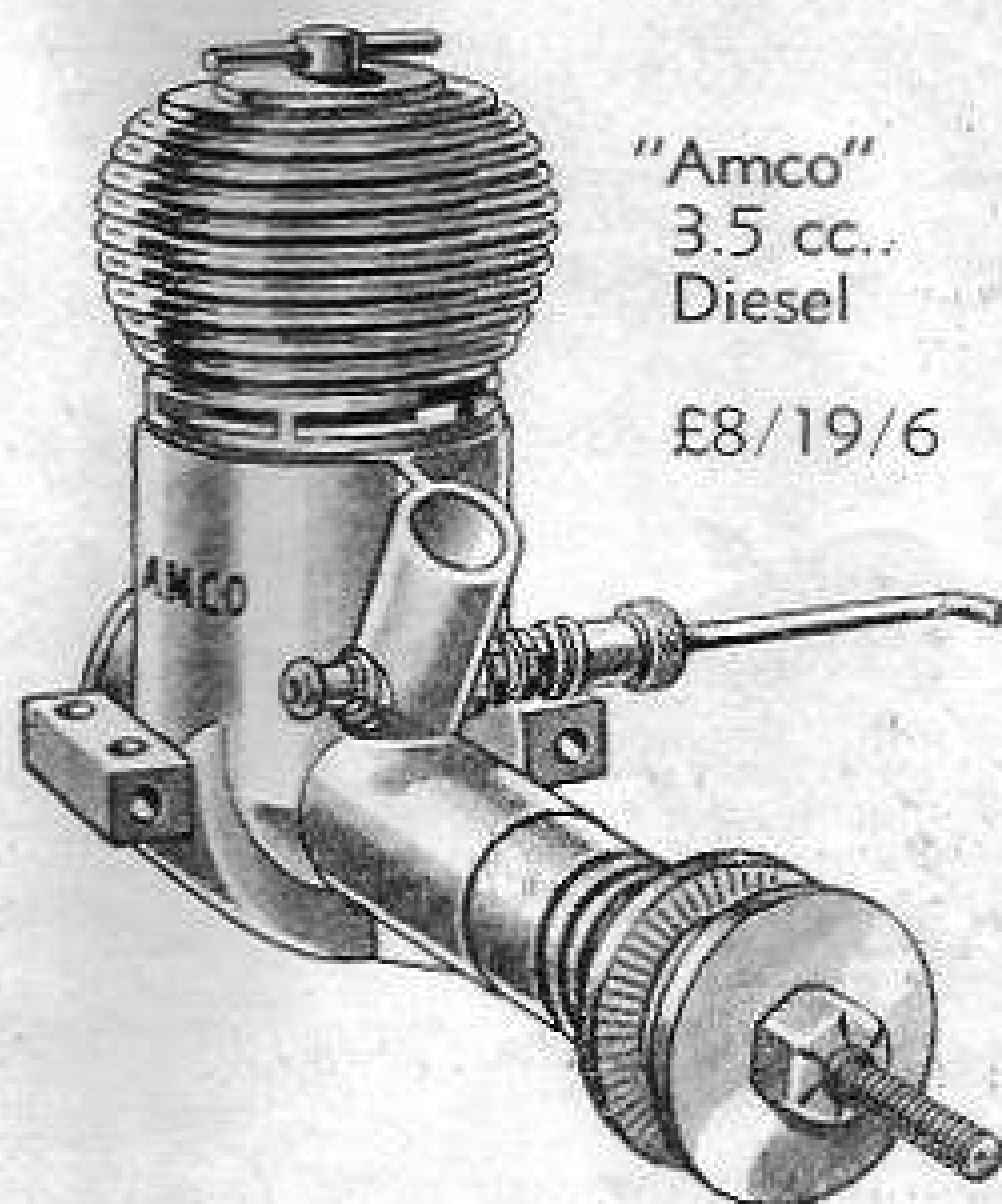
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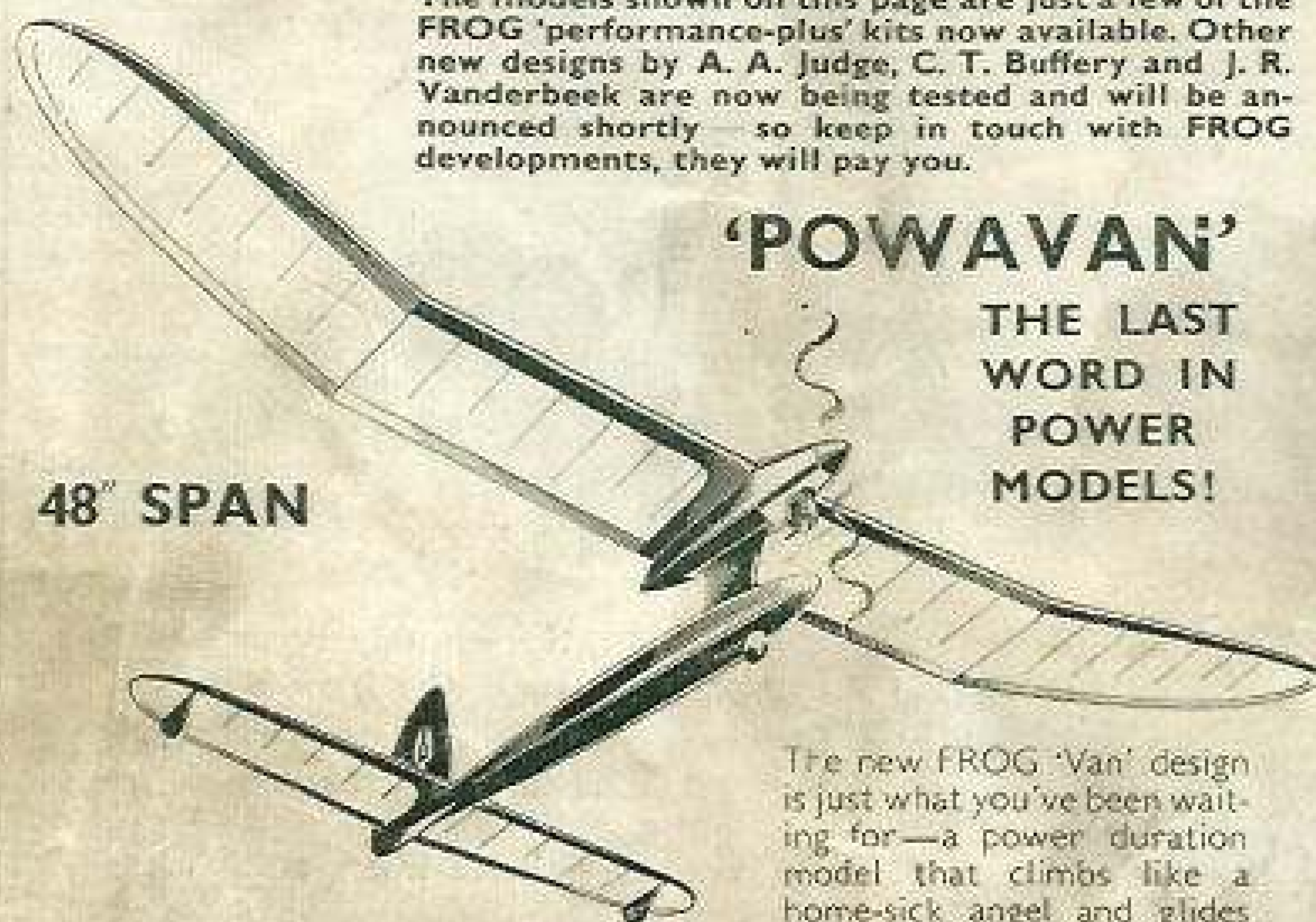
# FROG



TRADE MARK

## SUPER CONTEST MODELS!

The models shown on this page are just a few of the FROG 'performance-plus' kits now available. Other new designs by A. A. Judge, C. T. Buffery and J. R. Vanderbeek are now being tested and will be announced shortly — so keep in touch with FROG developments, they will pay you.



48" SPAN

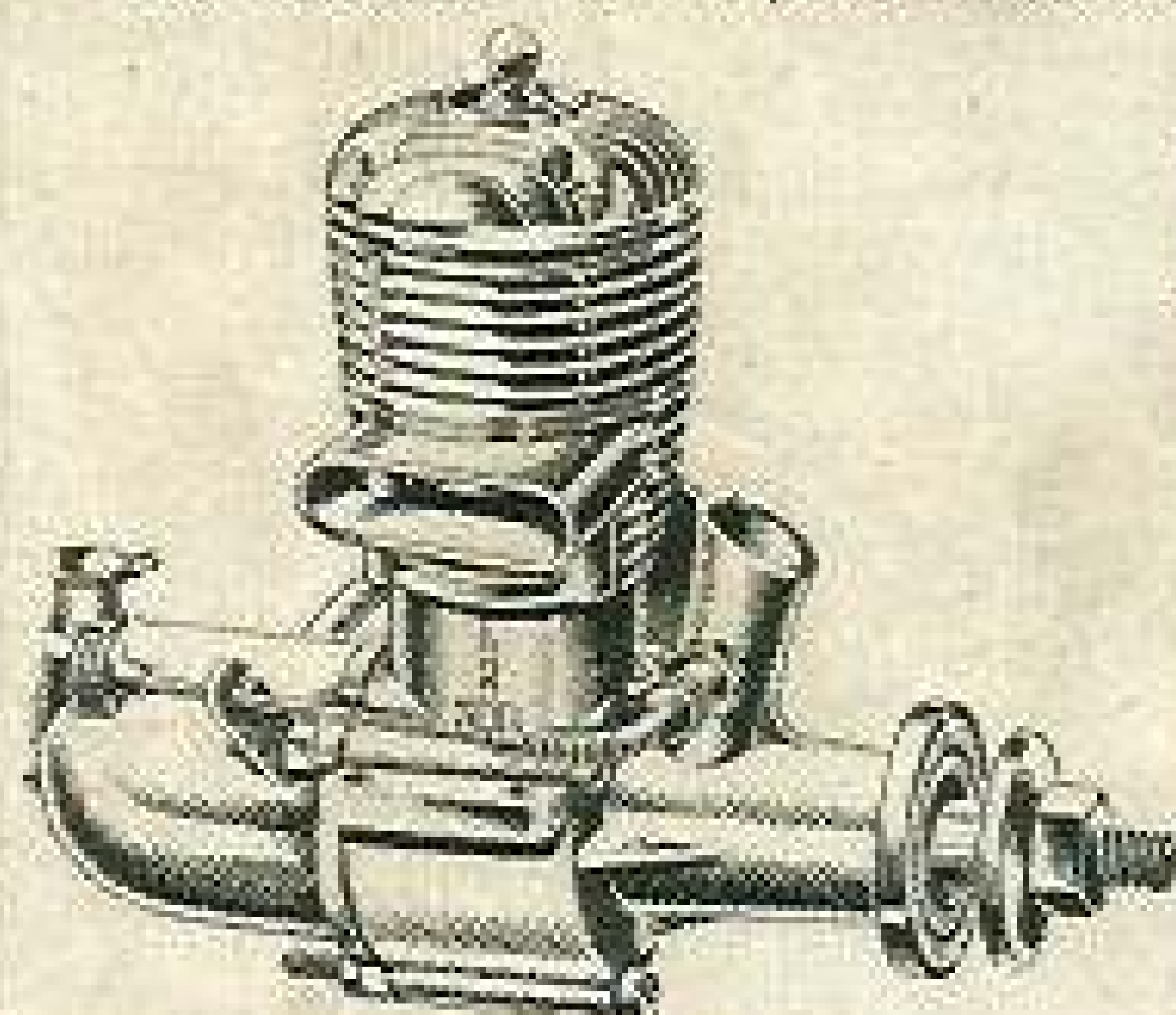
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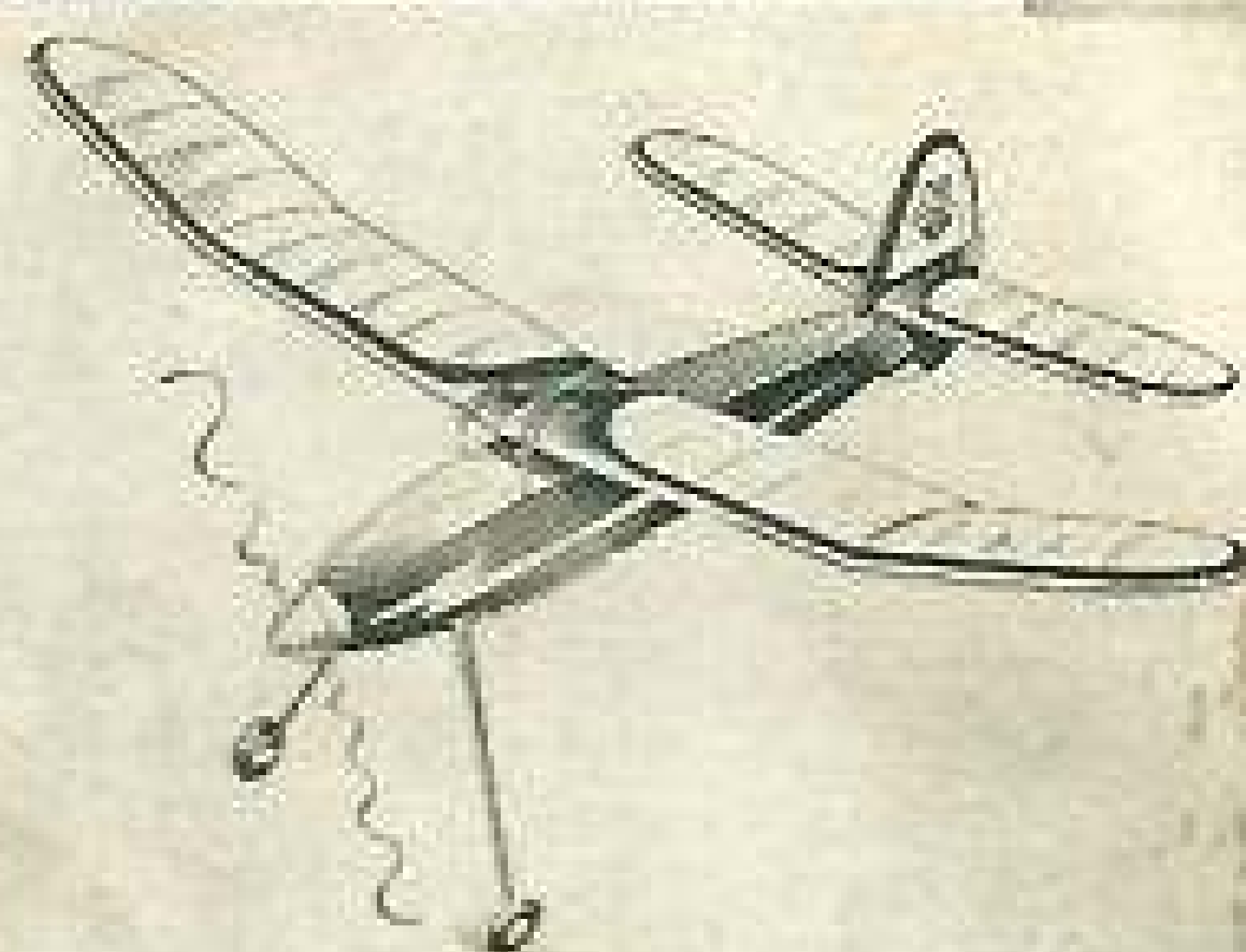
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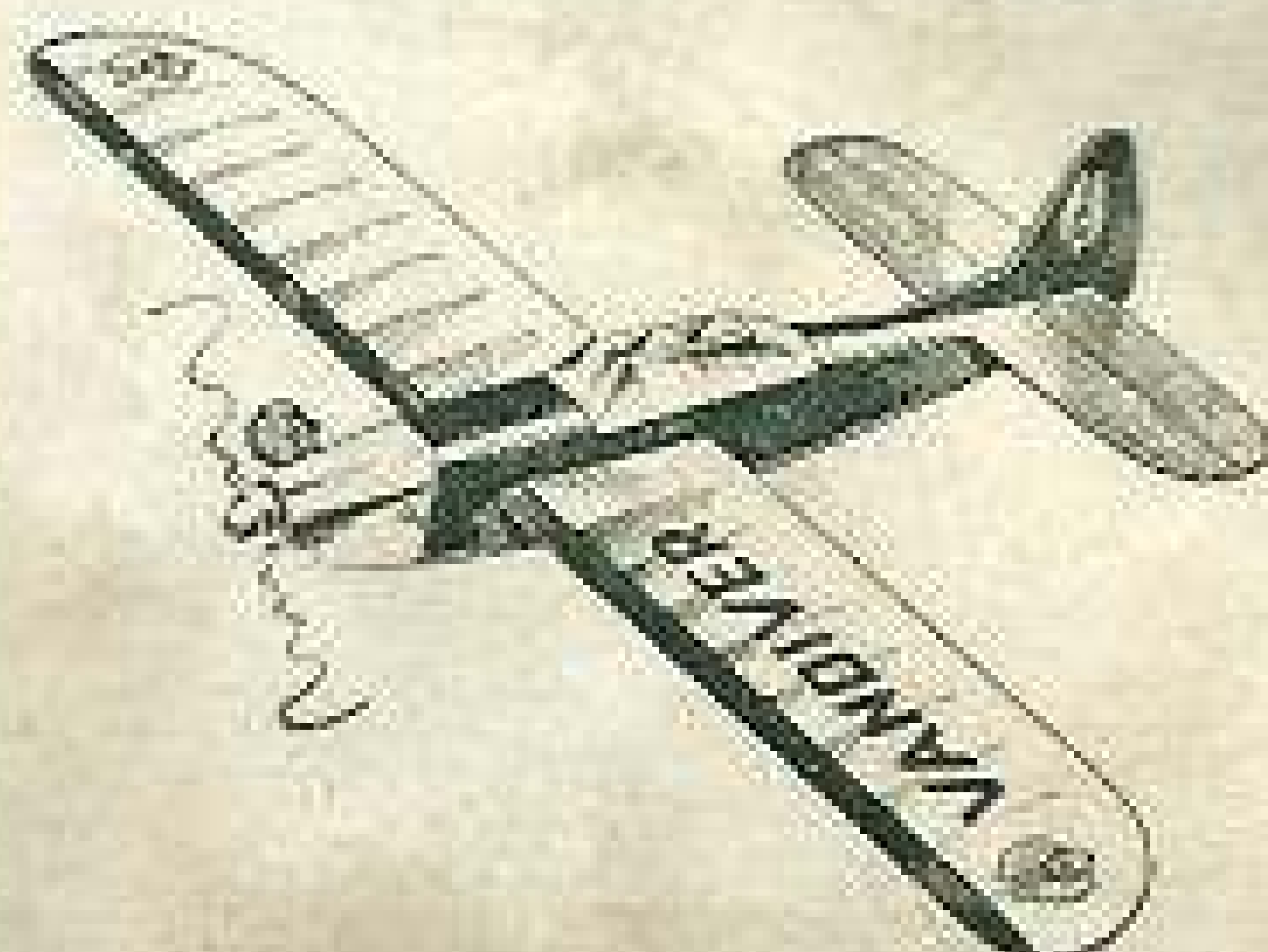
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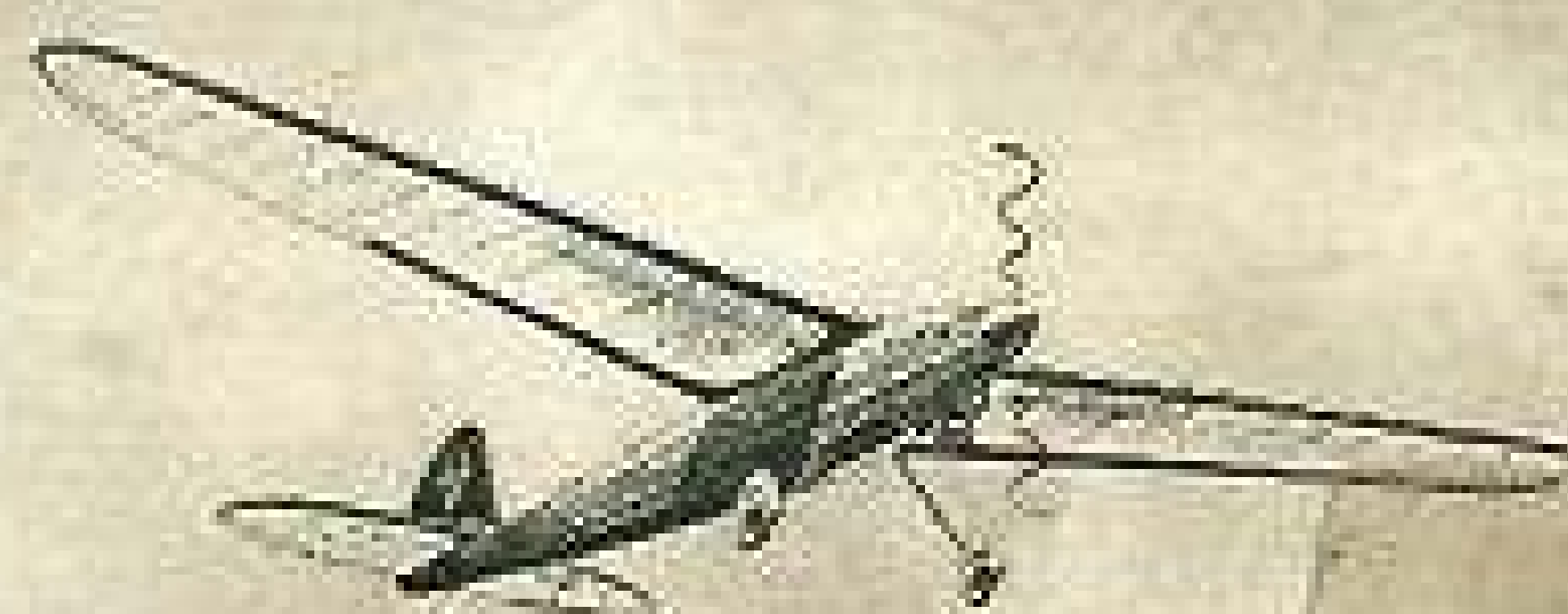
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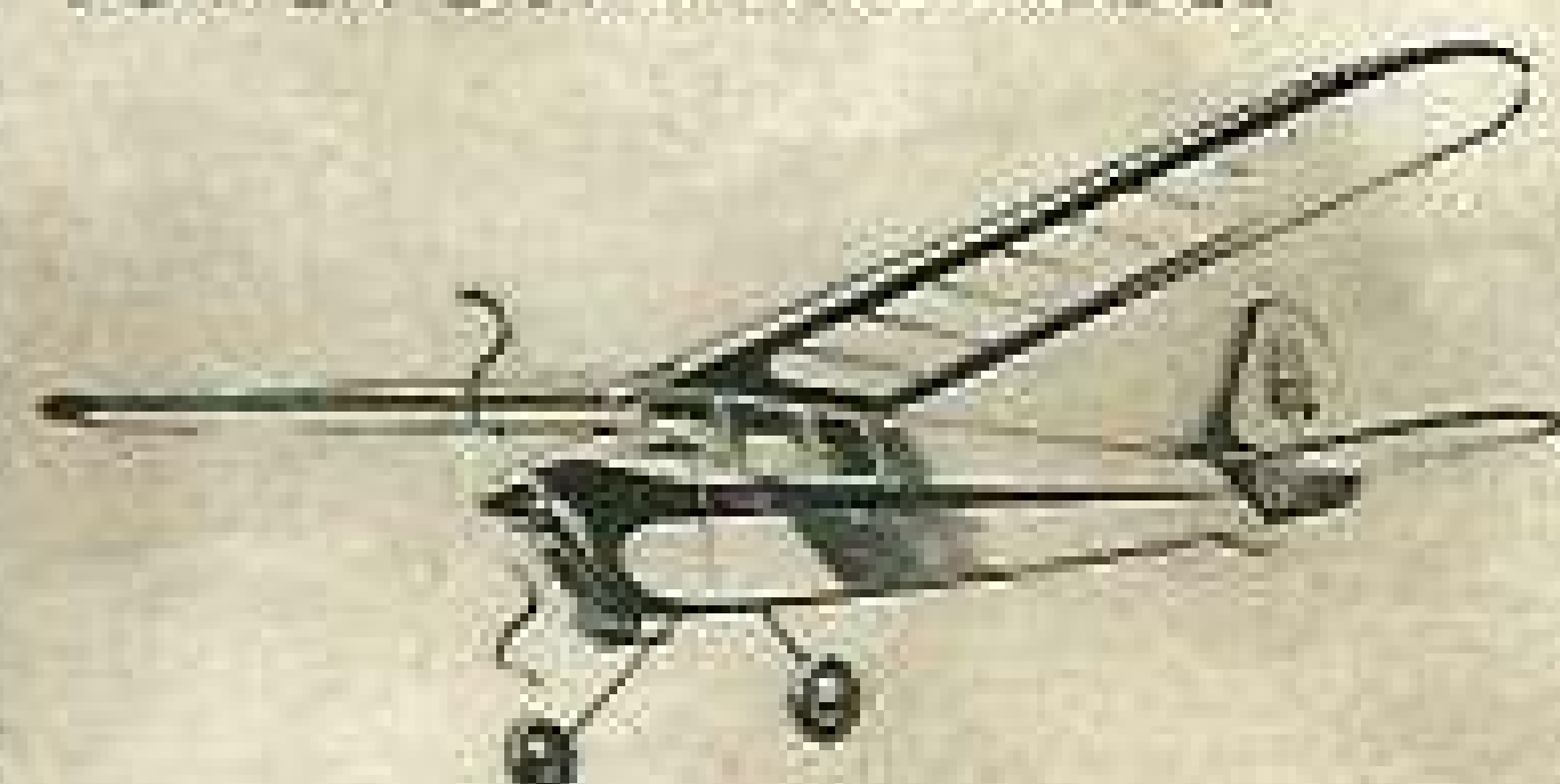
STARDUST — 37" RUBBER POWERED  
DURATION CONTEST MODEL



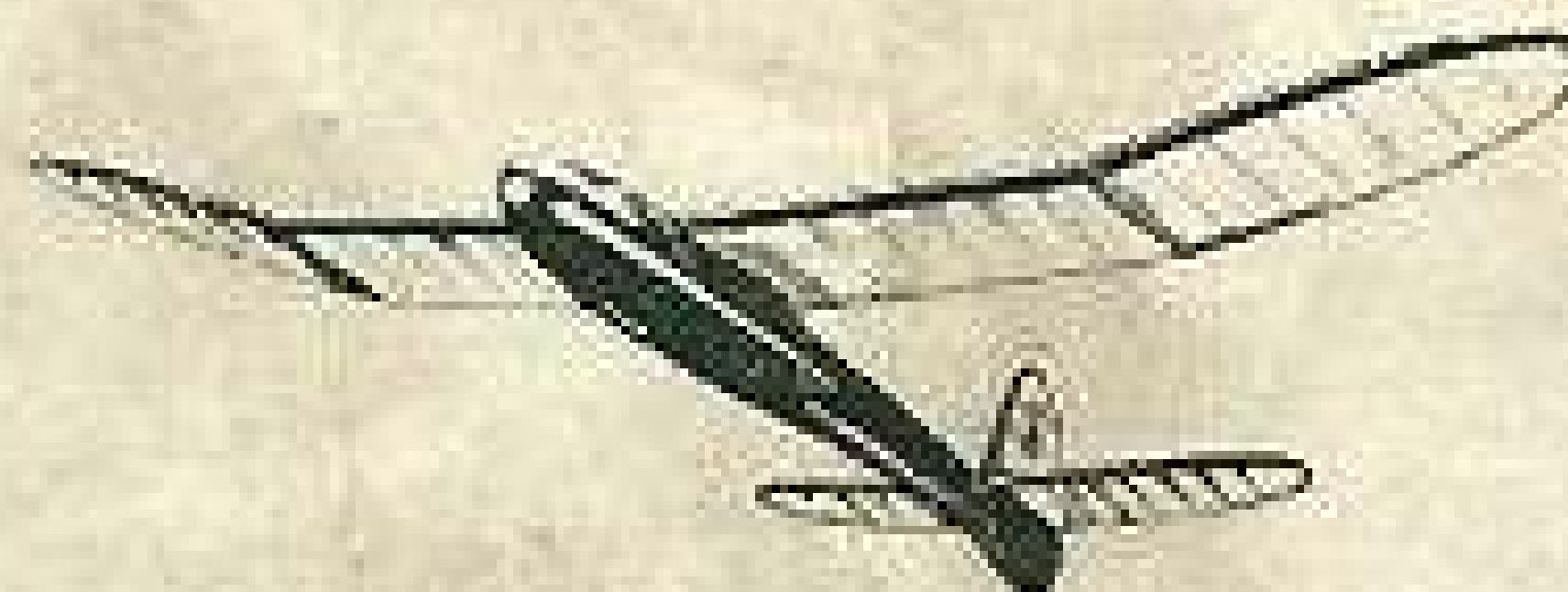
VANDIVER — 26" FULLY AEROBATIC  
CONTROL LINE MODEL



JANUS — 44" SHOULDER WING  
POWER DURATION MODEL



VIXEN — 36" SEMI-SCALE POWER  
MODEL



PRINCE — 60" SHOULDER WING  
NEAR-SCALE SAIL PLANE