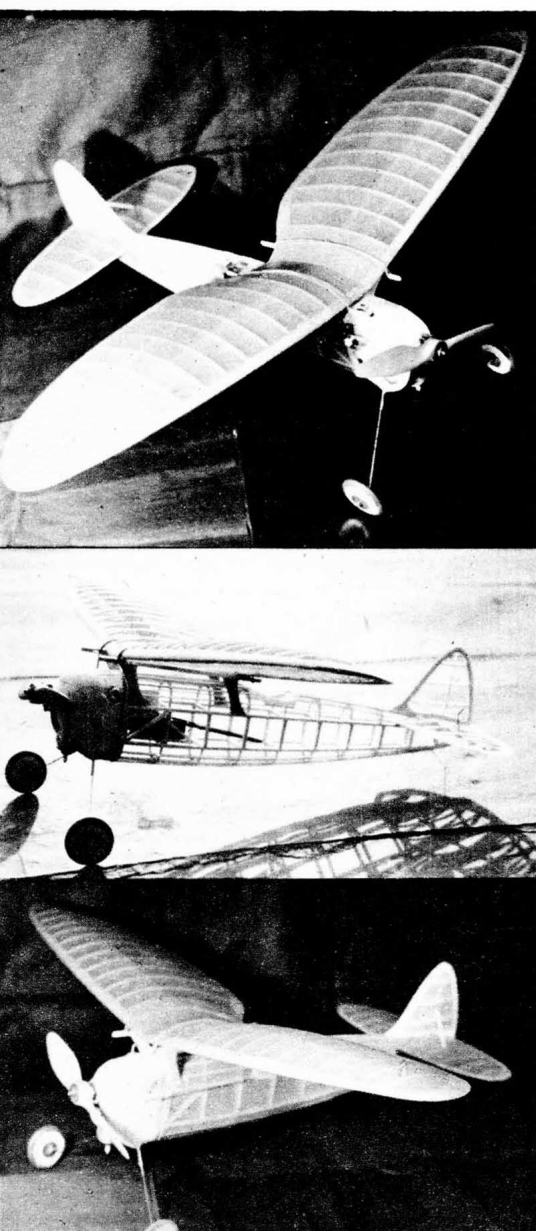
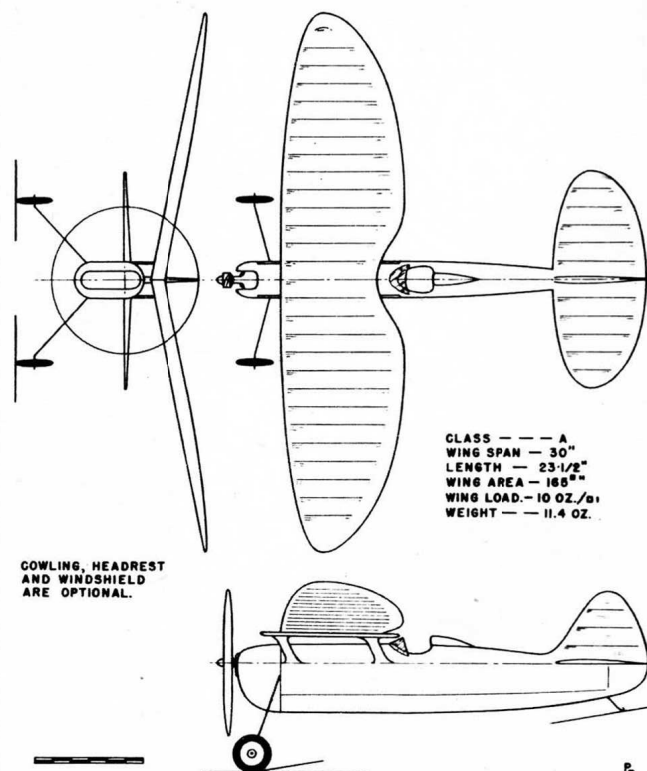


by PAUL PLECAN

tornado

This will provide Class A fans with fine performance and good looks



AMONG free flight gas models *Tornado* represents the minimum in size that can be built consistent with stability and performance. The first consideration in a really small model is wing tip vortices and maximum wing area per unit wing span. To cut down the tip vortices, an elliptical plan form is employed in the wing design. This also helps keep the major chord of the wing approximately one-third of the way out on each wing panel, the most efficient portion of the wing.

Due to turbulence from the propeller and to the proximity of the fuselage, a cut-out is made in the centersection, cutting down the area of this relatively inefficient part. A good-looking model *Tornado* will nevertheless look best when fitted with a windshield, headrest, full cowling and prop spinner. These items are optional, dependent upon the modeler's whims. The type of engine used will determine to a large extent the possibility of a full cowling, as the gas and timer controls will have to be easy to get at irrespective of cowling design.

The original *Tornado* was worked out when the first *Bantam* engine appeared on the market, and it should be more successful when fitted with the ultra-light *Atom* engine since the wing loading will be smaller, a serious consideration in a small model—most "small" designs are a bit on the fast side. For an extremely easy starting engine, the *Elf* single can be recommended. Then, if desired, control lines can be fitted if you don't want to take chances on an out-of-sight free flight model.

Since the average model builder appreciates full size outlines and drawings, the more difficult outlines are given actual size in the magazine plans. Note that the fuselage plan is the only drawing you'll have to make up yourself. Once that is done we can go ahead with construction.

FUSELAGE—The main frame of 3/16 in. sq. balsa is first assembled over the full size fuselage plans, care being exercised to see that the top longeron is as straight as possible. A bend in this section will throw the stabilizer incidence "out of kilter." When two sides have been built pin down to the workbench in an inverted position and cement the cross-braces in place. Before removing the fuselage frame from the bench, cement in place all bottom formers (1B to 6B) and add the 3/32 in. sq. stringers. When the cement has dried, the framework can be removed from the bench and the upper portion of the fuselage added. Once the formers and stringers are in place, the area around the cockpit can be "filled in" with 3/32 in. scrap sheet of moderate softness. When the cement has dried the area can be sanded smooth and a cockpit opening cut out. Note that the 3/32 in. sq. stringers along the top of the fuselage are not trimmed at the aft end until the stabilizer is covered and mounted in place. Now cut F-1 from thin plywood or fibre and cement to the front end of the fuselage. The wing mount is assembled next, and if you want a little extra strength the nose section and the area around the wing mounts can be "filled in." Take care to get the shape of the wing mountstruts exact as the incidence of the wing mount should be just as shown on the plans unless you want to do some experimenting yourself.

TAIL SURFACES—Construction of the tail surfaces is of the simple built-up type. A full size outline for half the stabilizer is given—trace the outline on some thin paper and invert it to obtain an entire stabilizer plan. The outline of the stabilizer is pinned down first and strips of 3/32 in. sq. are trimmed to length and fitted in place to form the bottom part of each rib. The spar is now tapered to the necessary size and cemented in place.

ONE SOURCE!

Every order, large or small, from model hobbyists, gets prompt mail order service and shipment. Prices are standard. . . . One supply source, one order, saves grief, worry, and shopping time. Remember the name GMCO for your best single source of gas models, gas engines, rubber powered airplanes, solid models, gliders, race cars, railroads, ship models, supplies and tools. More and more these days you hear the words, GET IT AT GMCO.

19 YEARS MODEL EXPERIENCE

GAS ENGINES

BANTAM class A .199 cu. in. with C & C.....	\$16.50
MERLIN SUPER B .232 cu. in. with Coil & Condenser	21.50
SUPER HURRICANE class B .24 cu. in. with Coil & Condenser.....	19.75
DELONG 30 class B .299 cu. in. less C & C.....	24.50
PACEMAKER 59 class C less C & C.....	24.95
SUPER CHARGED MELCRAFT class B .287 cu. in. less C & C.....	18.50
CANNON 300 class B .299 cu. in. with C & C.....	19.75
BULLET MOTOR class B .275 cu. in. less C & C.....	12.75
THOR ENGINE class B .29 cu. in. with C & C.....	9.75
SUPER VIVELL class C .35 cu. in. less C & C.....	18.00
O.K. SUPER 60 class C .604 cu. in. with C & C.....	21.00
KEN MOTOR class C .604 cu. in. less C & C for planes, race cars and boats.....	32.50
ATWOOD CHAMPION C-60 class C .603 cu. in. less C & C.....	23.50
Cannon 358 class C .358 cu. in. with C & C.....	21.50
BARKER class C .600 cu. in. less C & C.....	24.50
OHLSSON 60 SPECIAL class C .600 cu. in. less C & C.....	18.50
DENNYMITE AIRSTREAM motor class C .57 cu. in. with C & C.....	17.85
ROCKET MOTOR class C .460 cu. in. with C & C.....	22.50

other motors as they become available
ORDER YOUR GAS ENGINE TODAY

GAS MODELS

Piper Cub Coupe.....	\$ 1.95	*Dreamer.....	\$ 7.50
Piper Cub Super.....	10.95	*Hellcat F-6P-4.....	4.95
Cruiser.....	3.95	*Mustang P-51H.....	4.95
Comet Interceptor.....	4.50	*Thunderbolt P-47N.....	4.95
Playboy Senior.....	3.50	*Falcon Sportster.....	5.45
Musketeer 54.....	4.50	*G-13 Biplane.....	7.95
Buccaneer 48.....	5.95	*Ercoupe.....	12.50
Cavaller 60.....	5.50	*Super V-Shark.....	4.95
Vagabond.....	2.50	*Tiger Shark.....	4.95
Strato-Streak.....	2.50	*Strato-Kitten.....	2.95
Wog.....	2.50	*Custom Cruiser.....	10.00
Coronet.....	3.95	*Thunderbolt P-47.....	5.95
American Ace 54.....	10.00	*Fokker D-7.....	7.50
*Topping 100.....	7.50	*Skyvahl.....	23.75
*Knight Twister.....	5.45	*Speedster.....	5.45
*Cadet.....			

*U-CONTROL KITS

FLYING MODELS—Hellcat, P-47, Sky King, Steinson 125, Rocket, Taylorcraft, Sapphire, Flying Mantis, Spitball, Spitfire, Mustang, Curtiss, P40F, Vought Sikorsky, Vultee Venegance.....	each 500
Taylorcraft, Vought Corsair, P-40 Warhawk, P-38 Lightning, Devastator, P-51, Mustang, Wildcat, Piper Cub Coupe.....	each 650
Hawker Hurricane, Airacobra, American Ace, Buccaneer, P-40, Banner Executive, Mustang, Thunderbolt, Hellcat, Ryan, Oriole, Piper Cub, All American, Monocoupe, Ercoupe, Skyfarer.....	each \$1.00

SOLID MODELS—Hellcat, Mustang, Thunderbolt, Vought Corsair, Focke Wulf, Airacobra, P-40 Mosquito, P-38 Tempest, Jap Zero, Typhoon, Constellation, Strato-Cruiser, Cessna Bobcat, Kellett Autogiro, Sikorsky Helicopter.....	each 1.25
---	-----------

P-38, Thunderbolt, Hellcat, Mustang, Vought Corsair, Mosquito, B-26, Marauder, Douglas Havoc (sculpt turned fuselage), P-80 Shooting Star, PBM-Mariner.....	each 3.00
---	-----------

GLIDERS—Thermic 70, Thermic 72, Albatross 120.....	each 3.50
Condor 84, Thermic 50, Imperial 72, Sinbad 50.....	each 1.00

SUPPLIES—Balsa Wood Grade A 36" sheets, strips, planks 2" and 3" widths, 35 sizes of strips and 27 sizes of sheets and planks.
Complete line of X-Acto Tools, Flo-Torque, Hi-Ball, Hi-Thrust, Air Flo gas model propellers in all sizes. Ignition equipment, plywood, sheet aluminum, spun aluminum cowl, steel music wire, brass and aluminum tubing and rods, decal insignias.

Send 25c (includes refund coupon) for 68 page 8 1/2 x 11 ILLUSTRATED MASTER MODEL AIRPLANE and GAS MODEL CATALOGUE.

How to order—Remit by P.O. or express money order, add 15c for postage and packing on orders up to \$1.50, orders over \$1.50 add 10%. Orders over \$4.00 sent postpaid in U.S. No C.O.D.'s. Minimum order 50c.

Special Service for Model Airplane Clubs and Organizations.

MAIL ORDERS ACCEPTED

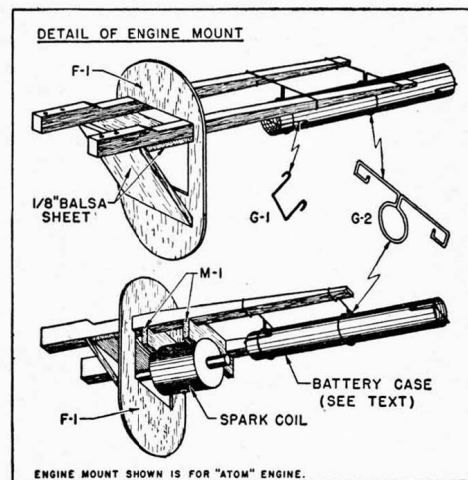


GMCO
MODEL CRAFT HOBBIES
Div. of General Modelcraft Co.
(MA-4)
Pacemaker of Models & Supplies
91-17 173rd Street
JAMAICA 3, NEW YORK

Tornado

over the ribs. Now, using a template, cut 11 stabilizer ribs to the curve shown on the full size stabilizer rib outline. These are cemented in place to form the top of each rib. In working out from the center towards the tips, the ribs must be shortened. The trailing edge end of the strip should be trimmed to obtain the desired length. The rudder is fairly similar to the stabilizer in construction, with the exception that the 1/8 in. sheet parts are built flat on the workbench, and when the cement has dried the 3/32 in. sq. ribs are cemented in place to obtain a rudder of symmetrical cross-section.

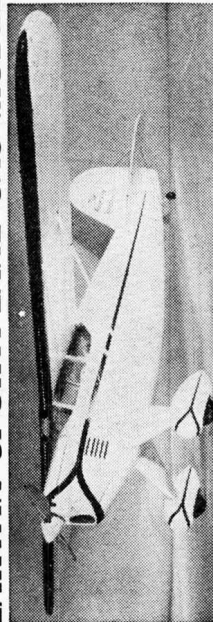
ENGINE MOUNT — Following the shape given on the 1/4 in. squared-off drawing, cut two engine bearers from 1/4 in. hardwood. Providing an Atom engine is used, cut F-1 out as shown. Slip in place and cement 1/8 in. sheet balsa braces in place so that F-1 is perpendicular to bottom edge of the engine bearers.



The landing gear should be cemented in place now before much of the cowling is made. In any event, make sure the struts are slanted well forward to provide maximum propeller protection. If the wheels are not located far enough forward it will be found that the small wheels will snag when landing in grass causing the model to flip over on its back. In this respect a pair of airwheels will be effective as they will keep the model right side up when a landing occurs in soft sandy areas or in grass. Thin wheels are better for streamlining, it is true, but they have a bad tendency to "dig in" on some landings, causing the inevitable "nose-over." Two braces (M-1) are used to cement the spark coil in place. Silk thread is wound around the coil and mount—cement being added for extra strength. The battery case can be of any type but a simple and strong affair can be assembled in jig time by wrapping heavy paper around two pencils until three or four layers have been cemented together to obtain a rigid tube. A tube of this sort is light and strong and a slot in each end will keep the connections (G-1) from slipping off. A rubberband on each side of the tube will provide the necessary tension to make good electrical contact between G-1 and the battery terminals. Two wire supports (G-2) keep the battery case in place and if this tubular type case is employed it will be possible to shift it in making flight adjustments before it is cemented in place.

The landing gear can be bent to shape and cemented in place now. A cowl will help appearance considerably and will

REARWIN SPORTPLANE GAS MODEL

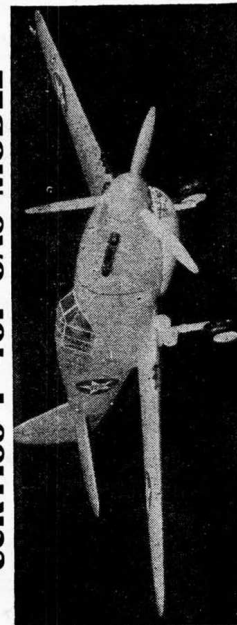


56" Span. Length 37 1/2". Free Flight

Set has all parts printed on balsa, ready cut wheel pants, set of colored paints, glue, full size drawing, and all parts, silk span covering, axle, body planked 1/4 back, large quantity of materials. Uses "B" gas motor. Const. set, without motor.....

ADD 20c TO EACH SET FOR PACKING AND POSTAGE
SEND 10c COIN FOR NEW CATALOG

CURTISS P-40F GAS MODEL

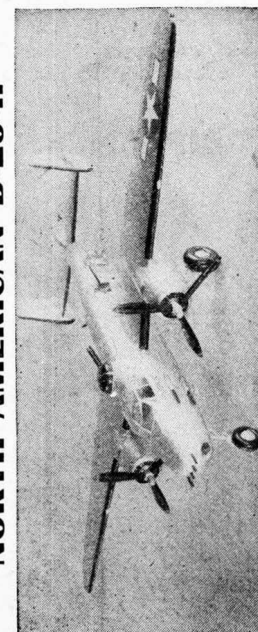


48" SPAN. 1-1/3" SCALE. GAS MODEL DE LUXE

SPECIAL FEATURES: ALL BALSA CONSTRUCTION, PLANKED BALSA BODY, USES "B" OR "C" IN RADIATOR

This is one of the strongest models ever built. Suitable for U control, free flight, or even as a De Luxe exhibition model, for class work, etc. Construction set has all parts printed on balsa wood. Uses 1/8" x 3/8" balsa body planking. Large insignia celluloid, axle wire, clear dope, glue, full size drawing, and all parts. Const. set, without motor.....

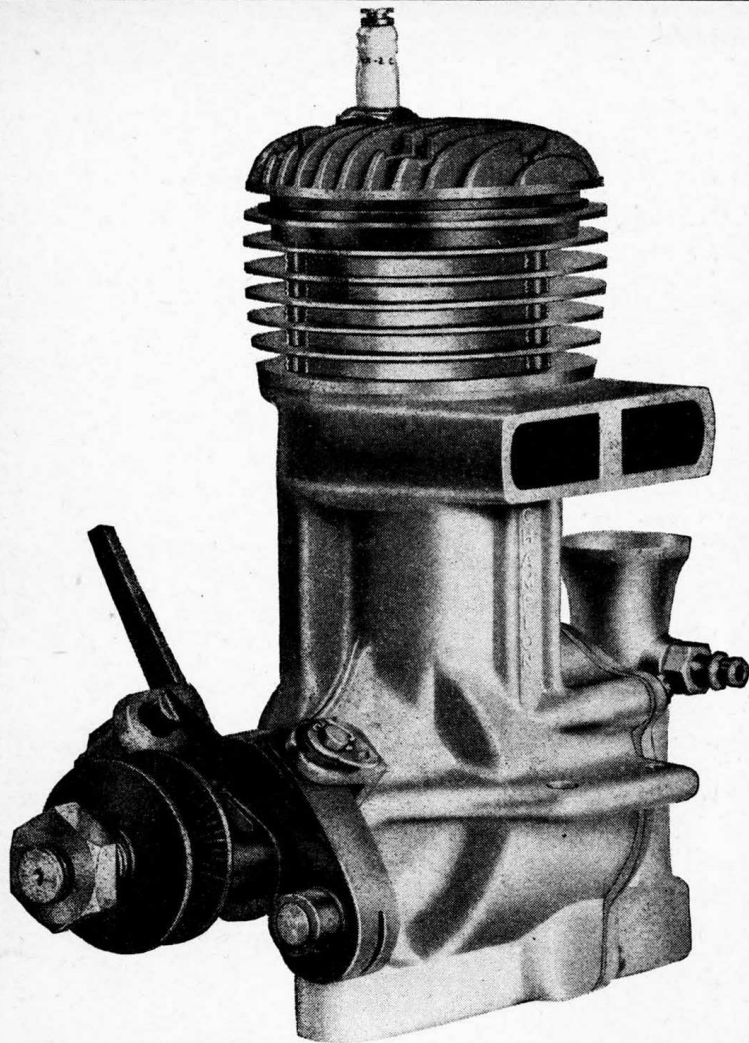
NORTH AMERICAN B-25-H



33 1/2" Span. Length 24 1/4". 1/2" Scale. Color, Silver

A real beauty. Exact detailed model of the most heavily armed medium bomber in the world. Set has turned motor fronts, set of paints, glue, all parts printed on balsa, wheels, and scale drawing. Const. set.....

MINIATURE AIRCRAFT CORP.
83 LOW TERRACE,
STATEN ISLAND 1, NEW YORK



"SUPER" CHAMPION

1946 Model "C"-60 Engine

The new Champion engine incorporates all the features that made the pre-war model a leader in the model airplane, boat, and race car field, PLUS the following postwar improvements:

1. Lo-ex aluminum piston—with rings.
2. Hi-compression head. Better cooling—more power.
3. Spray-bar type needle valve. Ratchet lock insures correct positive adjustment.
4. Improved timer—smoother action.
5. Crankshaft, rotary valve, wrist pin, cam, prop nut, and washer hardened and ground—for long life.
6. Forged dural rods—standard on all "SUPER" CHAMPIONS.

These improvements, plus the fact that sufficient coils are not available at present, force us to discontinue the shipment of coils, tanks, and condensers with all Super Champions.

SEE YOUR LOCAL HOBBY DEALER

Price

\$23.50

Less tank, coil,
and condenser

ATWOOD & ADAMS MFG. CO.

732 North Lake St.
BURBANK, CALIF.

Backed by 17 years experience in the design and manufacture of contest-winning miniature motors.

strengthen the landing gear-to-cowl joint. A simple "open type" cowl can be used in any case providing additional cementing area for the landing gear. Engine mount and cowl can be held to the fuselage with rubberbands or any other practical means. Some will desire a permanent nose installation—in that event a battery box will have to be built into the fuselage side between the main longerons. A fixed nose will not allow examination of the ignition system, so that portion will have to be made very carefully and checked for a consistent and "hot" spark. The single strut landing gear will absorb plenty of shocks but airwheels will be found helpful in a "hot" landing and will help to obtain that realistic touch.

WING—The wing employs a built-up rib for lightness but it will be noted that the spacing is 1 in.—this close spacing helps in obtaining a good airfoil. The outline of each wing panel is laid down now. Once the leading edge, trailing edge and tips have been pinned down to the workbench according to dimensions on the plans, the bottom of each rib can be cemented in place. The spar is tapered to shape next and cemented in place. After cutting out 31 ribs (or rib capstrips as they should be called) from 3/32 in. sheet they are cemented in place at the point of widest chord. Smaller ribs toward the tips are obtained by trimming the rear end of the cup strip until it fits in place.

FLIGHT ADJUSTMENTS — Adjustments on the original model were made to obtain a large circle to the right. Both under power and in the glide. Hand launched test glides were made until it could be determined that the glide was as smooth and as flat as possible with a tendency to edge over to the right without excessive banking. Once satisfied

ANOTHER NEW MEGOW PRODUCT!

MEGOW GAS MODEL BATTERY CASE (CARTRIDGE-TYPE)

An entirely new, light-weight, transparent, unbreakable cartridge-type battery case that provides complete accessibility. Entirely waterproof, oilproof cartridge is instantly removable without disconnecting leads. The non-conductor cartridge reduces possibility of short-circuits, and a heavy coil spring insures a perfect contact, eliminating sputter. Spring clips designed to keep cartridge from being thrown forward in case of a crash, and provide convenient means of connecting leads. Slender design, best for modern, streamlined models.

See your dealer, or order direct by mail.



40c
BY MAIL,
10c EXTRA



HOWARD & OXFORD STS., PHILA. 22, PA.

P-80

ON DISPLAY ALL METAL
CONTROL LINE MODEL
FOR MINIJET ENGINE.

DREAMER SPECIAL

\$6.00 PLUS 25c
POSTAGE

WRITE FOR OUR
OTHER SPECIAL OFFERS

ANGELUS MODEL ENG.

1436 S. ROBERTSON, LOS ANGELES, CAL.

"CANADA'S"

Largest & Most Complete
Hobby Store

Featuring

MODEL AIRPLANES
MODEL BOATS
RAILROADS
NEW GAS ENGINES
BALSA WOOD & SUPPLIES

We Are Manufacturers, Wholesalers,
Retailers

ILLUSTRATED CATALOGUE 25c
DEALERS ENQUIRIES INVITED

LLOYDS HOBBYCRAFT

625 St. Clair Ave. W. Toronto 10, Ont.

READY For DELIVERY!

The World's Smallest

REAL

Airplane Engine

5 Cylinders-4 Cycle

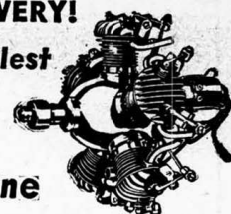
Radial Type — Weighs Only 22 oz.

The Morton M-5 Engine is a real airplane engine built in miniature. Hundreds already in use. Some have been running over 60 hours without repairs. Tough, fast, powerful. Surprisingly low in price. Unusual GUARANTEE. With this M-5 Engine you can build models that LOOK, SOUND and FLY like the real thing. Write for fully descriptive literature on M-5 and ACCESSORIES — including 2 and 3-bladed ADJUSTABLE-PITCH ALL-METAL propellers.

DEALERS: WRITE FOR INFORMATION

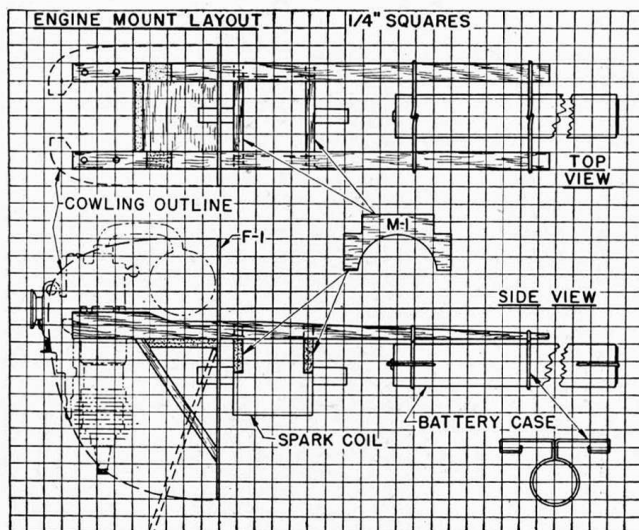
MORTON AIRCRAFT CORP. Dept. B 107

3225 Harney St., Omaha 2, Nebraska



with the glide, short powered flights should be attempted. And *don't* rev up that engine at this stage of the game unless you're looking for a spectacular end

circle is the best thing for the powered flight of a small gas model because a tight circle in *either* direction is the next thing to a spiral dive, which "ain't good."



to all your labors. The powered portion of each flight should be watched now and the engine should be offset to obtain a gradual, even climb to the right. A large

Spend time on flying adjustments, always a little at a time, and you'll be able to bring home a model all in one piece—or a reasonable facsimile thereof."

NOW!

CONTROL
LINE

RYAN "ST"

37½ SPAN

- ALL BALSA CONSTRUCTION
- READY-CUT BODY BLOCKS
- PLANKED WING
- PRE-CUT WING RIBS
- READY CUT PLYWOOD PARTS
- SPONGE RUBBER WHEELS
- READY CUT TAIL SURFACES
- MANY OTHER EXCLUSIVE FEATURES, INCLUDING DETAILED FULL SIZE PLANS —ALL HARDWARE

AT YOUR DEALER **\$8.50**
OR DIRECT PLUS 30c POST.

ZANDL MODEL PRODUCTS

6832 47th Ave., NE., SEATTLE 5, WASH.

Dealers and Jobbers, Write

MODELETTES

offers

M1—7½" Submarine...30c

M2—6" P.T. Boat.....40c

M3—6" Navy Blimp....50c

M4— Midget racer...25c

Beautifully designed and easy to make from simple clear plans. Balsa parts sawn to shape. Blimp body turned and sanded. Add 10c for postage and packing one kit, and 5c for each additional kit.

No stamps or C.O.D. orders. Dealers write

MODELETTES

1001 No. Pacific Ave. Glendale 2, Calif.

MOTORS GAS KITS SUPPLIES

RUBBER POWERED AND GLIDER KITS

EXPRESS MAIL ORDER SERVICE

Dealers—Write Today!!

ASSOCIATED MODEL ENG.

Box 2192

Akron 11, Ohio